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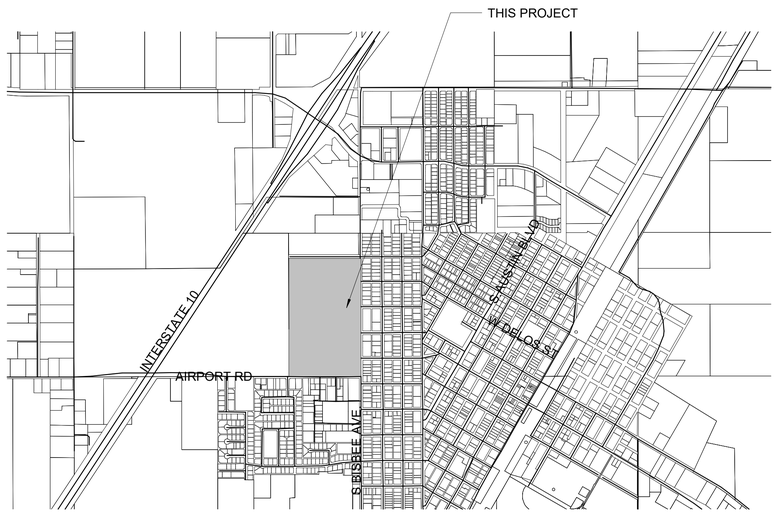
CONSTRUCTION DOCUMENTS

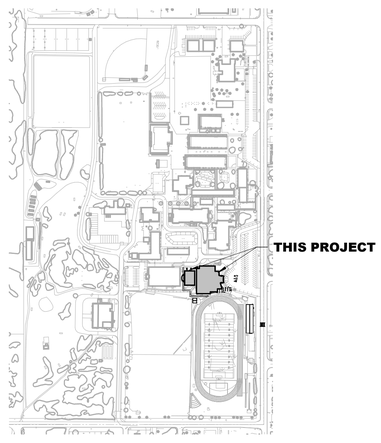
Re-Issue Date November 20, 2025

WILLCOX UNIFIED SCHOOL DISTRICT
WILLCOX HIGH SCHOOL WRESTLING ROOM
REMODEL AND ADDITION



1 g1.0 **location map**
1" = 1/4" MILE

north



2 g1.0 **site plan**
1" = 400'-0"

north

sheet index

applicable codes

2018 INTERNATIONAL BUILDING CODES W/ LOCAL AMENDMENTS

2018 INTERNATIONAL BUILDING CODE
2017 NATIONAL ELECTRICAL CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL FIRE CODE
CITY OF TUCSON/PIMA COUNTY OUTDOOR LIGHTING CODE

deferred submittals

A. PRE-ENGINEERED METAL BUILDING FABRICATION AND ERECTION DRAWINGS

bid alternates

A. FIELD RESTROOM BUILDING
B. WRESTLING ROOM INPROVEMENTS AND ADDITION

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REGISTERED ARCHITECT
CERTIFICATE NO.
23459
MARK E. BOLLARD
DATE SIGNED 11.20.25
ARIZONA U.S.A.

job
2404.03

date
11.20.2025

revisions

WILLCOX MIDDLE & HIGH SCHOOL
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

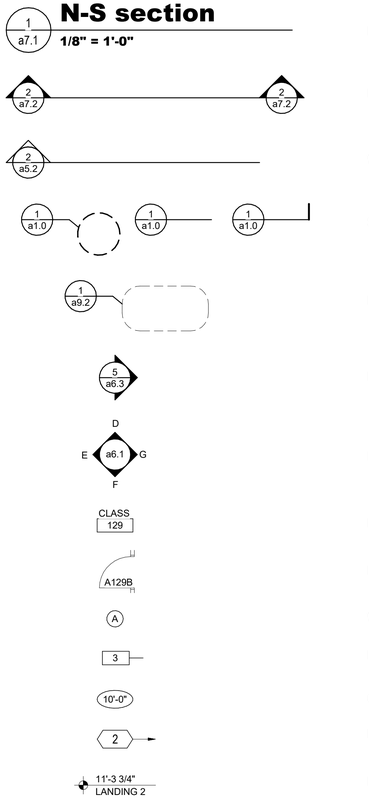
cover sheet

g1.0

abbreviations

&	AND
@	AT
AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ABI	ADDITIVE BID ITEM
AC	AIR CONDITIONING
ACC	ACCESSIBLE
ACOUST	ACOUSTICAL
ACT	ACOUSTIC CEILING TILE
AD	AREA DRAIN
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGGR	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZED
AP	ACCESS PANEL
APC	ACOUSTICAL PANEL CEILING
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT
ATTN	ATTENTION
AUTO	AUTOMATIC
AV	AUDIOVISUAL
BD	BOARD
BET	BUILDING ENTRANCE TERMINAL
BFF	BELOW FINISHED FLOOR
BIT	BITUMINOUS
BL	BASELINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM, BENCHMARK
BO	BOTTOM OF
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BRG	BEARING
BRK	BRICK
BRKT	BRACKET
BSMNT	BASEMENT
BUR	BUILT-UP ROOFING
C	CONDUIT
CA	COMPRESSED AIR
CAB	CABINET
CAT	CATEGORY
CB	CATCH BASIN
CB	CEMENT BOARD
CBU	CEMENTITIOUS BACKER UNIT
CC	CENTER TO CENTER
CCTV	CLOSED CIRCUIT TELEVISION
CEM	CEMENT
CER	CERAMIC
CG	CORNER GUARD
CH	CHILLER
CI	CAST IRON
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLKG	CAULKING
CLR	CLEAR
CNTR	COUNTER
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
COND	CONDITION
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
CTSK	COUNTERSUNK
CW	COLD WATER
D	DEEP, DEPTH
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DEMO	DEMOLITION
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DIMS	DIMENSIONS
DISP	DISPENSER
DIV	DIVISION
DMPF	DAMP PROOFING
DN	DOWN
DO	DOOR OPENING
DR	DOOR
DRN	DRAIN
DS	DOWNSPOUT
DS	DOWN SPOUT
DTL	DETAIL
DW	DISHWASHER
DWG	DRAWING
DWR	DRAWER
CMU	CONCRETE MASONRY UNIT
E	EAST
EA	EACH
EB	EXPANSION BOLT
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENG	ENGINEER
EP	ELECTRICAL PANEL
EPDM	ETHYLENE PROPYLENE DIENE M-CLASS
EQ	EQUAL
EQUIP	EQUIPMENT
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FB	FACE BRICK
FD	FLOOR DRAIN
FD	FLOOR DRAIN OR FIRE DEPARTMENT
FDC	FIRE DEPARTMENT CONNECTION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF&E	FURNITURE, FIXTURES AND EQUIPMENT
FFB	FLUSH FLOOR BOX
FFEL	FINISH FLOOR ELEVATION
FH	FLAT HEAD
FHC	FIRE HOSE CABINET
FIN	FINISH
FIXT	FIXTURE
FLASH	FLASHING
FLR	FLOOR
FLUOR	FLUORESCENT
FND	FOUNDATION
FO	FACE OF
FP	FIRE PROTECTION
FPG	FIREPROOFING
FR	FIRE RESISTANT
FRC	FIBER REINFORCED CONCRETE
FRT	FIRE RETARDANT TREATED
FT	FEET/FOOT
FTG	FOOTING
FURN	FURNITURE
FURR	FURRING
FWC	FABRIC WALL COVERING
FWP	FABRIC WRAPPED PANEL
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACT(OR)
GEN	GENERAL
GFRC	GLASS FIBER REINFORCED CONCRETE
GL	GLASS
GLAZ	GLAZING
GRAN	GRANULAR
GRD	GROUND
GRFG	GLASS FIBER REINFORCED GYPSUM
GSM	GALVANIZED SHEET METAL
GV	GAS VALVE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HIGH/HEIGHT
HB	HOSE BIB
HB	HOSE BIBB
HC	HANDICAPPED
HDWD	HARDWOOD
HDWR	HARDWARE
HGT	HEIGHT
HM	HOLLOW METAL
HNDRL	HANDRAIL
HO	HOLD OPEN
HORIZ	HORIZONTAL
HR	HOUR
HRC	HOSE REEL CABINET
HTG	HEATING
HVAC	HEATING VENTILATION AND AIR CONDITIONING
HW	HOT WATER
ID	INSIDE DIAMETER
IN	INCH/INCHES
INCAND	INCANDESCENT
INCL	INCLUDED/INCLUDING
INFO	INFORMATION
INSUL	INSULATION
INSUL	INSULATED OR INSULATION
INT	INTERIOR
INTERM	INTERMEDIATE
INV	INVERT
JAN	JANITOR
JC	JANITOR'S CLOSET
JST	JOIST
JT	JOINT
KIT	KITCHEN
KO	KNOCK OUT
LAM	LAMINATE
LAV	LAVATORY
LB	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LT	LIGHT
MAS	MASONRY
MAX	MAXIMUM
MECH	MECHANICAL
MED	MEDIUM
MEMBR	MEMBRANE
MFR	MANUFACTURER
MH	MAN HOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MR	MOISTURE RESISTANT
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MULL	MULLION
N	NORTH
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NON COMB	NON COMBUSTIBLE
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED, OWNER INSTALLED
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
P	PAINT
PAV	PAVING
PBD	PARTICLE BOARD
PC	PRECAST
PDF	POWER DRIVEN FASTENER
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PI.	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT OR PAINTED
POL	POLISHED
PR	PAIR
PREFAB	PREFABRICATED
PROJ	PROJECT
PSF	POUNDS PER SQUARE FOOT
PT	POINT
PT	PRESSURE TREATED
PTD	PAINTED
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
QTY	QUANTITY
R	RADIUS/RISER
RA	RETURN AIR
RAD	RADIUS
RB	RESILIENT BASE
RBR	RUBBER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCED REINFORCING
REINF	REINFORCED
REL	RELOCATE
REM	REMOVABLE
REOOM	RECOMMENDED
REQ	REQUIRE/REQUIRED
REQD	REQUIRED
RESIL	RESILIENT
REV	REVISION/REVISED
RM	ROOM
RO	ROUGH OPENING
RTD	RATED
RTG	RATING
RWL	RAIN WATER LEADER
S	SOUTH
SA	SUPPLY AIR
SAF	SELF ADHERED FLASHING
SC	SOLID CORE
SCHED	SCHEDULE
SD	STORM DRAIN
SECT	SECTION
SF	SQUARE FEET/FOOT
SH	SPRINKLER HEAD
SHR	SHOWER
SHT	SHEET
SIM	SIMILAR
SM	SHEET METAL
SM	SURFACE MOUNTED
SP	STANDPIPE
SPEC	SPECIFICATION
SPEC	SPECIFIED OR SPECIFICATION
SPK	SPRINKLER OR SPEAKER
SPKR	SPEAKER
SQ	SQUARE
SS	STAINLESS STEEL
SSK	SERVICE SINK
STA	STATION
STC	SOUND TRANSMISSION COEFFICIENT
STL	STEEL
STOR	STORAGE
STRG	STRINGER
STRUCT	STRUCTURAL
STRUCT	STRUCTURE OR STRUCTURAL
SUBCAT	SUBCATEGORY
SUSP	SUSPENDED
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TB	TOWEL BAR
TEL	TELEPHONE/TELECOM
TELE	TELEPHONE
TEMP	TEMPERATURE
TEMP	TEMPORARY
THK	THICKNESS
THRU	THROUGH
TKBD	TACK BOARD
TLT	TOILET
TMPD	TEMPERED
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TS	TUBE STEEL
TV	TELEVISION
TYP	TYPICAL
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
URNL	URINAL
VAC	VENTILATION AND AIR CONDITIONING
VAR	VARIES
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VP	VISION PANEL
VR	VAPOR RETARDER
VT	VINYL TILE
VWC	VINYL WALL COVERING
W	WIDE/WEST
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WIN	WINDOW
WM	WIRE MESH
WP	WATERPROOF/WATERPROOFING
WPM	WATERPROOF MEMBRANE
WS	WEATHER-STRIPPING
WSCT	WAINSCOT
WT	WEIGHT
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH

symbols legend



DRAWING TITLE

BUILDING SECTION TAG

WALL SECTION TAG

SECTION / DETAIL TAG

ENLARGED AREA

EXTERIOR ELEVATIONS

INTERIOR ELEVATIONS

ROOM NAME / NUMBER

DOOR NUMBER

WINDOW MARK

PARTITION TYPE

CEILING HEIGHT

KEYNOTE

ELEVATION INDICATOR

general project notes

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND LOCATION OF ALL UNDERGROUND OR CONCEALED UTILITIES IN ADVANCE OF ANY CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO HIRE A PRIVATE UTILITY LOCATING SERVICE TO LOCATE ALL UNDERGROUND UTILITIES ON OR NEAR THE PROJECT SITE.

B. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ANY OR ALL EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION. ANY UTILITIES FOUND TO BE IN THE WAY OF THE NEW CONSTRUCTION SHALL BE REMOVED, RELOCATED OR REPLACED AS DIRECTED. REFER TO PLUMBING, ELECTRICAL, MECHANICAL AND/OR CIVIL PLANS FOR SPECIFIC REQUIREMENTS.

C. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REMOVE ALL ABANDONED (RETIRED) UTILITIES THAT INTERFERE WITH THE CONSTRUCTION PROJECT. THE CONTRACTORS AND LOCAL UTILITY AND TRAFFIC CREWS SHALL COORDINATE WORK SCHEDULES SO AS TO PREVENT ANY CONFLICTING WORK CONDITIONS.

D. CONTRACTOR SHALL REPAIR ANY AND ALL UTILITIES DAMAGED DURING THE COURSE OF CONSTRUCTION IN ACCORDANCE WITH LOCAL SPECIFICATIONS, AT NO ADDITIONAL COST.

E. CONTRACTOR TO NOTIFY "BLUE STAKE" @ 1-800-782-5348, AT LEAST 48-HOURS IN ADVANCE OF ANY EXCAVATION. UTILITY LOCATIONS SHALL BE COORDINATED WITH THE ARCHITECT.

F. ALL ITEMS REMOVED SHALL BE TEMPORARILY STORED IN A LOCATION APPROVED BY THE OWNER, AND THE OWNER SHALL REVIEW ALL ITEMS PRIOR TO ANY DISPOSAL. ANY ITEM WHICH IS DEEMED SALVAGEABLE SHALL REMAIN THE OWNER'S PROPERTY, AND WILL BE REMOVED TO STORAGE FACILITIES DESIGNATED BY THE OWNER FOR FUTURE USE. IF THE OWNER DEEMS AN ITEM AS NON-SALVAGEABLE, THE CONTRACTOR SHALL DISPOSE OF IT.

G. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ANY DEBRIS RESULTING FROM THE DEMOLITION AND CONSTRUCTION. AT NO TIME SHALL ANY OF THIS MATERIAL OBSTRUCT THE NORMAL OPERATION.

H. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ANY OR ALL EXCESS EXCAVATION AND CONSTRUCTION RELATED DEBRIS, AT THE END OF EACH WORK DAY.

I. THE CONTRACTOR IS ADVISED THAT DAMAGE TO ANY PORTION OF THIS PROJECT'S BUILDING(S) & SURROUNDING AREA AS A RESULT OF THIS PROJECT IS TO BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

J. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE JOB SITE TO FAMILIARIZE HER/HIM SELF WITH ALL THE EXISTING CONDITIONS THAT COULD AFFECT THE INSTALLATION OF ANY WORK SET FORTH IN THESE PLANS.

K. THE JOB SITE, AT THE COMPLETION OF CONSTRUCTION, SHALL BE CLEANED OF ANY DEBRIS OR SPOILS RESULTING FROM THE CONSTRUCTION.

L. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL EXISTING RECORDED DIMENSIONS INDICATED AND ALL EXISTING CONDITIONS THAT IMPACT NEW CONSTRUCTION.

M. THE CONTRACTOR SHALL ESTABLISH ALL QUANTITIES BASED ON ACTUAL CONDITIONS. THESE DRAWINGS ARE NOT TO BE SCALED.

N. BLOCK WALLS ARE DIMENSIONED TO FACE OF BLOCK. DIMENSIONS ARE NOMINAL THICKNESS. BLOCK WALL OPENINGS ARE DIMENSIONED TO ROUGH OPENING.

O. METAL STUD PARTITIONS ARE DIMENSIONED TO FACE OF STUD. ALL ROUGH OPENINGS ARE LOCATED 4" TO NEAREST ADJACENT WALL UNLESS DIMENSIONED OTHERWISE.

P. COMPLY WITH ALL APPLICABLE CODES, RULES AND REGULATIONS. OBTAIN AND PAY FOR ALL PERMITS AND LICENSES REQUIRED.

Q. REFER TO BUILDING CODE ANALYSIS SHEETS FOR ADDITIONAL CODE REQUIREMENTS.

R. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AT LEAST 72 HOURS IN ADVANCE OF ANY CONSTRUCTION THAT REQUIRES SPECIAL/REQUIRED INSPECTION(s).

S. REFERENCE ALL ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL SHEETS FOR SCOPE OF WORK & COORDINATION.

T. ALL MATERIALS REQUIRED SHALL BE OF A GRADE AND QUALITY CONSISTENT WITH THE INTENDED USE AS SPECIFIED & APPROVED BY THE ARCHITECT.

U. ALL EQUIPMENT OR MATERIALS NOT SHOWN OR SPECIFIED ON THE PLANS OR IN THE SPECIFICATIONS, BUT ARE REQUIRED TO COMPLETE THE INSTALLATION, SHALL BE SUPPLIED BY THE CONTRACTOR AS PART OF THE CONTRACT WORK.

V. FIRE AND SMOKE SEAL ALL PENETRATIONS AROUND PIPE/CONDUIT AT ALL FLOOR, WALL, DECK & ROOF PENETRATIONS.

W. ALL PENETRATIONS THROUGH FIRE RESISTIVE FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO THE UNDERWRITER LABORATORIES LISTING FOR THROUGH PENETRATION FIRE STOP SYSTEMS. THE CONTRACTOR SHALL SUBMIT MANUFACTURERS SHOP DRAWINGS AND DATA SHEETS FOR ALL PENETRATIONS

X. UNLESS OTHERWISE NOTED ALL BLOCKING OR BACKING MATERIAL SHALL BE SOLID WOOD FOR ALL WALL MOUNTED ITEMS.

Y. INSTALL A CONTINUOUS BEAD OF SEALANT AT ALL GAPS/SEAMS BETWEEN IMMOVABLE EQUIPMENT AND WALLS.

Z. ALL SURFACES SHALL BE PAINTED OR FINISHED PER SPECIFICATION. REFER TO PLANS, ROOM FINISH SCHEDULE, BUILDING/WALL SECTIONS, DETAILS AND SPECIFICATIONS FOR ADDITIONAL PAINTING & FINISH REQUIREMENTS.

AA. ALL TERMINATIONS OF CARPET, TILE, OR VCT TO ANOTHER FLOOR MATERIAL SHALL HAVE TRANSITION OR REDUCER STRIPS.

BB. ALL INTERIOR FINISHES SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 8 OF THE 2018 INTERNATIONAL BUILDING CODE.

CC. PROVIDE AN ESCUTCHEON AT EACH PIPE PENETRATION @ FLOOR AND/OR WALL SURFACES, TYPICAL.

DD. ALL CORES INTO WALLS AND SLABS SHALL BE PRIOR APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.

EE. INSTALL GYPSUM BOARD CONTROL JOINTS AT ALL LOCATIONS INDICATED OR IF NOT INDICATED AS ACCORDING TO THE REQUIREMENTS THAT ARE ESTABLISHED IN THE SPECIFICATIONS.

FF. FIRE LANES SHALL BE MAINTAINED IN A CONDITION TO ENSURE ACCESS TO ALL BUILDINGS DURING CONSTRUCTION.

GG. ALL NEW ROOFING SYSTEMS TO HAVE A CLASS "A" FIRE RATING.

HH. SMOKING IS PROHIBITED ON CAMPUS.

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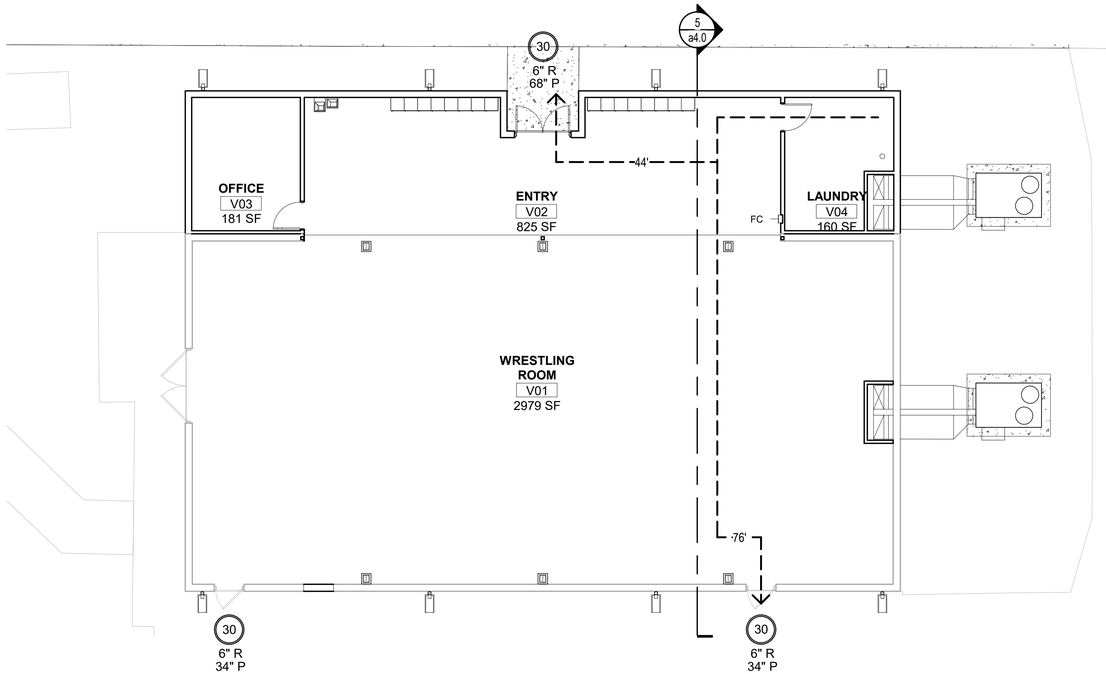
HIGH SCHOOL REMODEL

abbreviations and symbols

g1.1



1 g2.2 **bldg V - code analysis plan** north

1/8" = 1'-0"

2018 IBC code analysis

GENERAL

OCCUPANCY: E

AREA SEPARATION: NONE EXISTING.

OCCUPANCY SEPARATION (TABLE 508.4): NONE REQUIRED.

TYPE OF CONSTRUCTION(TABLE 503): TYPE IIB, NON-SPRINKLERED.

ALLOWABLE FLOOR AREA (TABLE 506.2): 9,500 S.F. @ E.

ALLOWABLE HEIGHT (TABLE 504.3): 55', TWO STOREY.

ALLOWABLE STORIES (TABLE 504.4): TWO STOREY. EXISTING BUILDING - ONE STOREY, 15'-0" HIGH

BUILDING ELEMENTS (TABLE 601): 0 HRS.

FIRE RATING AT EXTERIOR WALLS (TABLE 602): > 10<30 FOR GROUP E; NO RATING REQUIRED.

ALLOWABLE FLOOR AREA INCREASE (SECTION 506)

NOT USED

ACTUAL GROSS BUILDING AREA

EXISTING BUILDING:	3,200 SF (9,500 SF. ALLOWABLE)
ADDITION:	1,280 SF
	4,480

OCCUPANT LOAD (TABLE 1004.5)

TOTAL OCCUPANCY

BUILDING: 4480 / 50 = 89.6 ~ 90

EXIT WIDTH REQUIREMENT (PER SECTION 1005)

EGRESS: # OF OCCUPANTS x .2" PER OCCUPANT = REQUIRED WIDTH REFER TO LEGEND AND NOTATIONS AT FLOOR PLANS ON THIS SHEET FOR NUMBER OF OCCUPANTS EXITING, AND REQUIRED/PROVIDED WIDTHS

occupancy legend

(X)	OCCUPANT LOAD
→	EXITING DIRECTION
→ (30)	EXITING LOAD AND DIRECTION
5" R	EXIT WIDTH REQUIRED
72" P	EXIT WIDTH PROVIDED
PH	PANIC HARDWARE PROVIDE AT BOTH PAIRS OF DOORS
FC	F.E.C. OR WALL MOUNTED FIRE EXTINGUISHER

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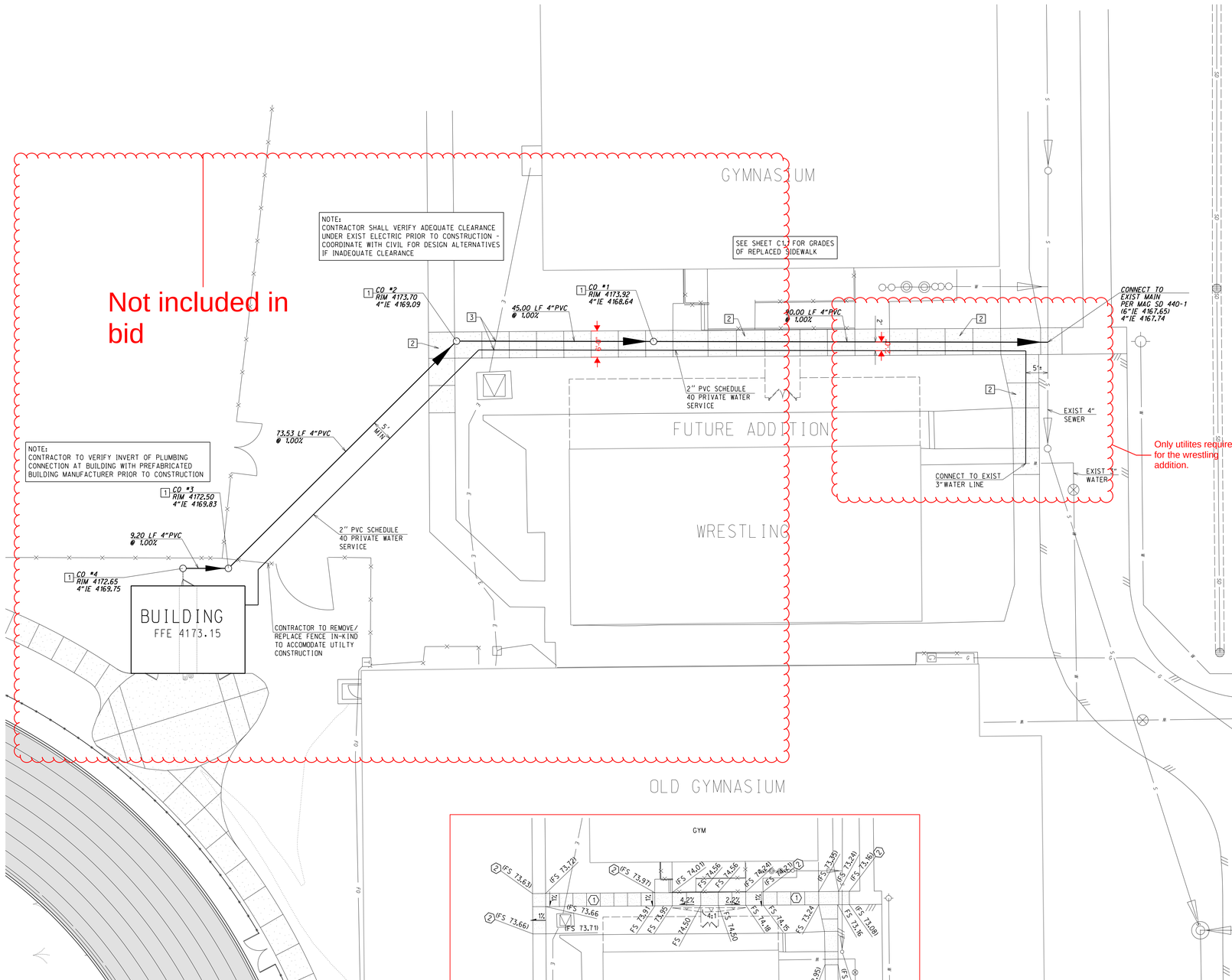
bldg V - code analysis

g2.2



NEW SIDEWALK AT GYM/WRESTLING

KEYNOTES

1. CONCRETE SIDEWALK PER MAG SD 230
2. SAWCUT AT NEAREST CONTROL JOINT AND CONNECT TO EXISTING SIDEWALK WITH EXPANSION JOINT PER MAG SD 230. MATCH EXISTING GRADE
3. TYPE 2 VERTICAL CURB PER MAG SD 222 REVEAL PER PLAN

SCALE: 1" = 10'

0' 5' 10'

north

0 4' 8' 16'

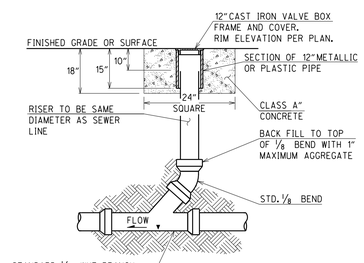
1/8" = 1'-0"

KEYNOTES

1. SEWER CLEANOUT PER DETAIL A/C1.5
2. SAWCUT REMOVE AND REPLACE EXIST SIDEWALK PER SD 230
3. MAINTAIN 1' MIN VERTICAL SEPARATION BETWEEN EXIST AND PROPOSED UTILITIES

NOTE:
CONTRACTOR SHALL VERIFY DEPTH OF EXISTING SEWER FOR ADEQUATE FALL PRIOR TO CONSTRUCTION- COORDINATE WITH CIVIL FOR DESIGN ALTERNATIVES IF INADEQUATE DEPTH

NOTE:
1' MINIMUM VERTICAL CLEARANCE REQUIRED BETWEEN BOTTOM OF WATER SERVICE TO TOP OF SEWER SERVICE WHEN IN JOINT TRENCH. 5' MIN HORIZONTAL SEPARATION REQUIRED WHEN CLEARANCE CANNOT BE ATTAINED



NOTE:
IN PAVED AREAS, USE TRAFFIC RATED BOX AND INTERLOCKING RING AND COVER PER DEETER FOUNDRY INC #1810 OR EQUIVALENT.

A SEWER CLEANOUT
DTL: SWRC001 NO SCALE

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ARCHITECTS AIA

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TUCSON, ARIZONA 85710
OFFICE (520) 326-3700
(520) 326-1148
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job
2404.02

date
11.20.2025

revisions

WILLCOX MIDDLE AND HIGH SCHOOL
TRACK AND FIELD REPLACEMENT
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643

private utility plan - for reference

C1.5

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TUCSON, AZ 85712
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SANTA CLARITA PHOENIX TUCSON LAS VEGAS DENVER

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GENERAL STRUCTURAL NOTES

GENERAL:

1. ALL CONSTRUCTION REQUIREMENTS, AND DEFINITIONS SHALL CONFORM TO THE FOLLOWING CODES:
   INTERNATIONAL BUILDING CODE (IBC) 2015
   MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES ASCE 7–10.
   RISK CATEGORY OF BUILDING – II.
2. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR MUST USE ALL CONTRACT DOCUMENTS IN CONSTRUCTING THE PROJECT, INCLUDING CRITICAL ITEMS REQUIRED BY OTHER DISCIPLINES THAT MAY NOT BE CALLED OUT ON THE STRUCTURAL DOCUMENTS. THEY DO NOT INDICATE THE MEANS OR METHOD OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. THESE MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO: BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL SCAFFOLDING, BRACING AND SHORING. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS. THE STRUCTURAL ENGINEER WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION, NOR WILL THE STRUCTURAL ENGINEER BE RESPONSIBLE FOR CONSTRUCTION SITE SAFETY, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ENSURE THAT ALL STRUCTURAL WORK IS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY STRUCTURAL INSPECTION/OBSERVATION PROVIDED BY OTHERS (INCLUDING THE STRUCTURAL ENGINEER OF RECORD) DOES NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY. ANY STRUCTURAL DEVIATIONS FROM THE CONTRACT DOCUMENTS THAT ARE FOUND AT A LATER DATE AND ARE DECLARED TO BE SIGNIFICANT BY THE STRUCTURAL ENGINEER OF RECORD SHALL BE CORRECTED BY THE CONTRACTOR (AT THE CONTRACTOR'S EXPENSE). ANY INDIVIDUAL PERFORMING STRUCTURAL INSPECTIONS/OBSERVATIONS IS NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS OR STOP AND/OR DELAY THE WORK.
4. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH THE ARCHITECT AND COORDINATE SITE CONDITIONS WITH THE CIVIL DRAWINGS PRIOR TO BIDDING OR START OF CONSTRUCTION. ANY CONFLICTS, DISCREPANCIES, OR OMISSIONS SHALL BE RESOLVED WITH THE ARCHITECT PRIOR TO CONSTRUCTION AND PRIOR TO PROCEEDING. DO NOT USE SCALED DIMENSIONS. USE WRITTEN DIMENSIONS OR WHERE NO DIMENSION IS PROVIDED, CONSULT WITH THE ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING WITH THE BID OR THE WORK. ANY DIMENSIONS OR ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE TO ASSIST THE CONTRACTOR ONLY, AND MUST BE VERIFIED WITH THE ARCHITECT PRIOR TO CONSTRUCTION.
5. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON THE STRUCTURE SO AS NOT TO EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
6. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN. WHERE NO SPECIFIC DETAIL IS SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, OR IF THERE IS NO SIMILAR WORK, THEN CONSTRUCTION SHALL BE AS IS STANDARD IN THE INDUSTRY. ANY ITEMS CALLED OUT BY OTHER DISCIPLINES THAT REFERENCE STRUCTURAL DRAWINGS (SUCH AS "SEE STRUCTURAL"; " REFER TO STRUCTURAL", ETC.) BUT ARE NOT INCLUDED ON THESE DRAWINGS OR SPECIFICATIONS SHALL BE CONSIDERED A DESIGN BUILD ITEM AND THE GENERAL CONTRACTOR SHALL SUBMIT THE APPLICABLE ITEM AS DESIGNED BY OTHERS FOR REVIEW AND APPROVAL AS A DEFERRED SUBMITTAL.
7. NOT ALL OPENINGS OR EQUIPMENT ARE SHOWN ON THE STRUCTURAL DRAWINGS, AND IT IS THE GENERAL CONTRACTORS RESPONSIBILITY TO COORDINATE WITH THE SUBCONTRACTORS AND EQUIPMENT SUPPLIERS/MANUFACTURERS. EQUIPMENT BEING SUPPORTED BY OR SUSPENDED FROM THE STRUCTURE SHALL BE COORDINATED WITH THE MANUFACTURER OF ANY PRE–ENGINEERED FRAMING OR COMPONENTS. ALL OPENINGS SHALL BE PROPERLY REINFORCED AS APPROVED BY THE ENGINEER.
8. REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND CIVIL DRAWINGS FOR LOCATION AND DETAILS OF BLOCKOUTS, INSERTS, OPENINGS, CURBS, EQUIPMENT LOADS, EQUIPMENT BASES AND PADS, PIPING, DUCTS, SITE WORK ITEMS, ETC. AND DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
9. APPROVED EQUAL OPTIONS ARE FOR THE CONTRACTOR'S CONVENIENCE AND ARE SUBJECT TO APPROVAL BY THE ARCHITECT. IF AN OPTION IS CHOSEN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CHANGES AND COSTS NECESSARY AND FOR COORDINATION OF ALL DETAILS AS REQUIRED TO INCORPORATE THE OPTION INTO THE WORK.
10. ALL PRE–ENGINEERED/PREFABRICATED ITEMS AND MATERIALS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS AND ALTERATIONS ARE ALLOWED ONLY IN WRITING.
11. ALL DETAILS SHOWN SHALL BE INCORPORATED INTO THE PROJECT AT ALL APPROPRIATE LOCATIONS, WHETHER SPECIFICALLY INDICATED OR NOT. TYPICAL DETAILS MAY OR MAY NOT BE CUT ON THE DRAWINGS, AND DETAILS MAY OR MAY NOT BE CUT AT ALL SPECIFIC LOCATIONS, BUT SHALL APPLY UNLESS NOTED OTHERWISE.
12. WHERE REFERENCE IS MADE TO VARIOUS BUILDING CODES, TEST STANDARDS, REFERENCE STANDARDS, ETC. FOR MATERIALS OR PERFORMANCE, SUCH REFERENCE MATERIALS SHALL BE THE CURRENT ADOPTED EDITION AND/OR ADDENDUM.
13. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF THE LOCAL JURISDICTION.
14. FOR CLARITY, ALL ROOF, WALL AND/OR FLOOR OPENINGS MAY NOT BE SHOWN ON STRUCTURAL DRAWINGS. FOR EXACT SIZE, NUMBER AND LOCATION OF OPENINGS, SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. FOR FRAMING AT OPENINGS, SEE TYPICAL STRUCTURAL DETAILS. VERIFY ALL SIZES, WEIGHTS AND LOCATION OF MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTS, ETC. WITH MECHANICAL AND ELECTRICAL ENGINEERS THROUGH ARCHITECT.
15. ALL GLASS CURTAIN WALLS, WINDOWS, STOREFRONT WINDOW SYSTEMS, ETC. AND THEIR SUPPORT MULLIONS OR MUNTINS SHALL BE AS DESIGNED AND DETAILED BY OTHERS. COORDINATE WITH ARCHITECT AND PROVIDE DESIGN CALCULATIONS, AND DRAWINGS SEALED BY A REGISTERED ENGINEER.
16. WHEREVER THE TERM "CONTRACTOR" IS USED ANYWHERE IN THE CONSTRUCTION DOCUMENTS, THIS SHALL BE DEFINED AS TO MEAN THE GENERAL CONTRACTOR AND ANY SUB–CONTRACTORS COLLECTIVELY AS APPLICABLE AND AS REQUIRED.
17. COORDINATE ALL SHOP DRAWING SUBMITTAL REQUIREMENTS WITH THE STRUCTURAL NOTES AND THE ARCHITECT.

GENERAL:

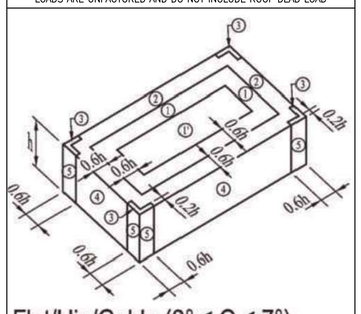
18. DESIGN LOADS:

DEAD LOAD:	
FLAT ROOF	= 18 PSF
LIVE LOAD:	
ROOF	= 20 PSF
SNOW LOAD:	
GROUND SNOW LOAD	Pg = 0 PSF
ROOF RAIN LOAD:	
RAIN INTENSITY (15 MIN/HR)	(i) = 2.44 (IN/HR)
WIND LOAD:	
WIND SPEED	120
EXPOSURE	C
BUILDING CATEGORY / RISK CATEGORY	II
Kd	0.85 FOR MWFRS
Kd	0.85 FOR C&C
INTERNAL PRESSURE COEFFICIENTS (FULLY ENCLOSED)	+0.18/–0.18
BUILDING V (WRESTLING):	
WIND BASE SHEAR N/S	= 3,500 LBS
WIND BASE SHEAR E/W	= 15,800 LBS
RESTROOM (PEMB):	
BASE SHEAR: PER PEMB DRAWINGS	

COMPONENTS AND CLADDING WIND PRESSURES

ZONE	EFFECTIVE WIND AREA			
	10 SF	20 SF	50 SF	100 SF
1	–50.0	–46.6	–42.2	–39.0
1'	–28.7	–28.7	–28.7	–28.7
2	–65.9	–61.6	–56.0	–51.8
3	–89.8	–81.3	–70.1	–61.6
4	–34.0	–32.5	–30.7	–29.3
5	–42.0	–39.2	–35.5	–32.5
Parapet	–92.2	–89.4	–80.7	–75.0

LOADS ARE UNFACTORED AND DO NOT INCLUDE ROOF DEAD LOAD



MEAN ROOF HEIGHT h = 12'-0"

SEISMIC LOAD:

RISK CATEGORY	II
Ie	1.0
SITE CLASS	D
Ss	0.248
S1	0.074
SDs	0.265
SD1	0.118
SEISMIC DESIGN CATEGORY	B
RESPONSE MODIFICATION FACTORS:	
LIGHT FRAME (COLD–FORM STEEL) WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE OR STEEL SHEETS	R = 6.5
SEISMIC RESPONSE COEFFICIENT	Cs = 0.0437
BUILDING V (WRESTLING):	
SEISMIC BASE SHEAR N/S	= 2,500 LBS
SEISMIC BASE SHEAR E/W	= 1,500 LBS
RESTROOM (PEMB):	
BASE SHEAR: PER PEMB DRAWINGS	
ANALYSIS PROCEDURE USED:	EQUIVALENT LATERAL FORCE PROCEDURE

FOUNDATIONS:

1. FOUNDATION DESIGN BASED ON SOILS REPORT #29–224101–2 BY WESTERN TECHNOLOGIES DATED SEPTEMBER 9TH, 2024. DESIGN SOIL BEARING PRESSURE = 2,000 PSF AT 1'–6" BELOW LOWEST ADJACENT FINISHED GRADE. SPREAD FOOTINGS SHALL BEAR ON FIRM UNDISTURBED SOIL ENGINEERED FILL PER THE SOILS REPORT AND TYPICAL EARTHWORK DETAIL. FOR BOTTOM OR TOP OF FOOTING ELEVATIONS, COORDINATE WITH FOUNDATION DETAILS, PLANS, ACTUAL FIELD CONDITIONS AND GRADE.
2. ALL CONSTRUCTION SHALL COMPLY WITH THE RECOMMENDATIONS OF THE SOILS REPORT. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR ANY GEOTECHNICAL ASPECTS OF THIS PROJECT.
3. THE OWNER SHALL EMPLOY A REGISTERED SOILS ENGINEER TO PERFORM NECESSARY TESTING AND INSPECTIONS FOR QUALITY CONTROL AND TO ENSURE THAT THE REQUIREMENTS OF THE SOILS REPORT ARE COMPLIED WITH. TEST REPORTS SHALL BE SUBMITTED DIRECTLY TO THE ARCHITECT AND ENGINEER FROM THE SOILS ENGINEER, WITH COPY TO CONTRACTOR. INCLUDE THE FOLLOWING INFORMATION IN THE REPORTS:
   - TEST REPORT ON BORROW MATERIALS
   - VERIFICATION OF EACH FOOTING SUB GRADE
   - FIELD DENSITY TEST REPORTS
   - ONE OPTIMUM MOISTURE
   - MAXIMUM DENSITY CURVE FOR EACH TYPE OF SOIL ENCOUNTERED.
4. FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS CESSPOOLS, CISTERNS, EXISTING FOUNDATIONS, ETC., OR ANY UNUSUAL SOILS CONDITIONS ENCOUNTERED DURING SITE CLEARING OR EXCAVATION SHALL BE BROUGHT TO THE ATTENTION OF THE SOILS ENGINEER IMMEDIATELY.
5. ABANDONED FOOTINGS, NEW OR EXISTING UTILITIES, ETC., THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REROUTED OR REMOVED AS COORDINATED WITH THE ARCHITECT AND AS DIRECTED BY THE SOILS ENGINEER.
6. SLOPE ALL EXTERIOR FINISHED GRADES AWAY FROM THE BUILDING TO ENSURE NO PONDING OF WATER OCCURS AROUND BUILDINGS. CONTRACTOR SHALL PROVIDE FOR PROPER DE–WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER, GROUND WATER, SEEPAGE, ETC.
7. DO NOT PLACE ANY BACKFILL BEHIND WALLS BEFORE CONCRETE OR MASONRY HAS ATTAINED FULL DESIGN STRENGTH. CONTRACTOR SHALL BRACE OR PROTECT ALL WALLS, INCLUDING PIT WALLS BELOW GRADE FROM EARTH PRESSURE LOADS AND OVERTURNING, UNTIL THE STRUCTURE IS COMPLETELY IN PLACE AND HAS ATTAINED FULL STRENGTH. CONTRACTOR SHALL PROVIDE FOR DESIGN, PERMITS AND INSTALLATION OF ALL BRACING. USE HAND TAMPING ONLY ON SOIL WHEN COMPACTING WITHIN 8'–0" OR HALF THE WALL HEIGHT.
8. CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ALL SHORING, CRIBBING, SHEATHING, SHEET PILING, ETC. AS REQUIRED TO SAFELY RETAIN EXCAVATIONS, EARTH BERMS AND TRENCHES DURING CONSTRUCTION.

CAST–IN–PLACE CONCRETE:

1. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND IBC CHAPTER 19.
2. CONCRETE SHALL BE READY MIXED CONCRETE IN ACCORDANCE WITH ASTM C94. MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE AS NOTED IN THE CONCRETE REQUIREMENTS SCHEDULE BELOW.

CONCRETE REQUIREMENTS SCHEDULE

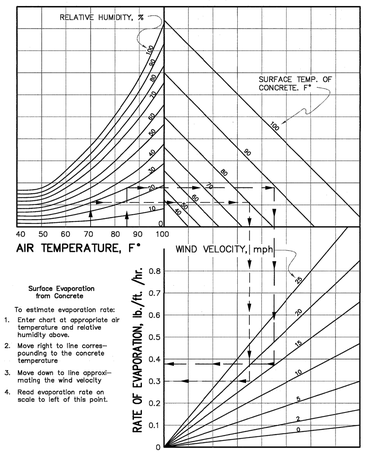
USAGE	COMPRESSIVE STRENGTH AT 28 DAYS U.N.O.	AIR ENTRAINMENT	WATER/CEMENT RATIO (MAX.)	MAX. AGGREGATE SIZE	MAX. SLUMP (3)
INTERIOR SLAB–ON–GRADE (1)	3,000 PSI (2)	NO	0.50	1"	4"
CONCRETE FOOTING	3,000 PSI (2)	NO	0.61	1"	5"
NOTES:	(1) SEE SHEET S1.0 FOR SPECIAL REQUIREMENTS REGARDING SLABS ON GRADE. (2) DESIGNED FOR 2500 PSI U.N.O. BUT SPECIFIED AS 3000 PSI FOR DURABILITY PURPOSES. (3) SLUMP INDICATED IS PRIOR TO ADDING SUPER–PLASTICIZING ADMIXTURE (8" MAX SLUMP AFTER ADMIXTURE IS ADDED).				

3. CEMENT SHALL CONFORM TO ASTM C150, TYPE I/II/V. AGGREGATE PER ASTM C33. LIGHTWEIGHT AGGREGATE (WHEN SPECIFIED) PER ASTM C330. DO NOT TAMP SLABS (USE ROLLER BUG, VIBRATING SCREED OR BULL FLOAT ONLY). PROVIDE AIR–ENTRAINING ADMIXTURE AT ALL EXPOSED CONCRETE EXPOSED TO FREEZE–THAW CYCLES AT A RATE ADEQUATE TO PROVIDE 5.0% AIR AT POINT OF PLACEMENT, TESTED IN ACCORDANCE WITH ASTM C233.
4. CONCRETE CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE FIELD–VERIFIED 3" MAXIMUM SLUMP PRIOR TO ADDING ADMIXTURE AND 8" MAXIMUM SLUMP AT PLACEMENT. MIX DESIGNS SHALL BE DESIGNED BY THE CONCRETE PRODUCTION FACILITY IN ACCORDANCE WITH ACI 301 AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONSIDER THE USE OF SUPERPLASTICIZER WHERE CONGESTION OF REBAR IS LIKELY TO CAUSE ROCK POCKETS OR VOIDS. THE CEMENT FOR THE MIX SHALL BE TYPE I/II/V. THE RATE OF PLACING SUCH CONCRETE SHALL BE REDUCED OR THE FORM STRENGTH SHALL BE INCREASED TO SAFELY RESIST INCREASED PRESSURE AGAINST THE FORMS. DO NOT USE WITH COLORED CONCRETE.
5. FIBER MESH REINFORCEMENT IN SLABS ON GRADE (WHEN USED) SHALL CONFORM TO ASTM C 1116, TYPE III, SYNTHETIC FIBERS OF 100 PERCENT VIRGIN POLYPROPYLENE FIBRILLATED FIBERS CONTAINING NO REPROCESSED OLEFIN MATERIALS; 70 KSI. PROVIDE MINIMUM OF 1.5 POUNDS OF FIBERS PER CUBIC YARD OF CONCRETE USED.
6. CONCRETE SHALL BE FREE OF CHLORIDE.
7. FLY ASH ADDITIVES (WHEN USED) SHALL CONFORM TO ASTM C618, CLASS F. FLY ASH SHALL NOT REPLACE MORE THAN 22% OF CEMENT BY WEIGHT.

CAST–IN–PLACE CONCRETE:

8. PROVIDE SLEEVES FOR UTILITY OPENINGS IN CONCRETE BEFORE PLACING CONCRETE. DO NOT CUT ANY CONFLICTING REINFORCING. CORING OR CUTTING CONCRETE IS NOT PERMITTED EXCEPT AS SHOWN. NOTIFY THE ARCHITECT IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS. NO PIPES, CONDUITS, DUCT, ETC. SHALL BE PLACED IN CONCRETE COLUMNS, OR FOOTINGS UNLESS SPECIFICALLY DETAILED.
9. CONDUIT IN STRUCTURAL CONCRETE SLABS SHALL BE RIGID STEEL CONDUIT OR FLEXIBLE PLASTIC CONDUIT ONLY (ALUMINUM CONDUIT IS NOT ALLOWED). CONDUIT WITH A MAXIMUM OUTSIDE DIAMETER OF 1/6 TIMES THE SLAB THICKNESS MAY BE EMBEDDED IN ONE LAYER AT THE MID–DEPTH OF SLABS. MINIMUM CLEAR DISTANCE BETWEEN PARALLEL CONDUITS SHALL BE 3 TIMES CONDUIT DIAMETER. COMBINED DIAMETERS OF CONDUIT THAT CROSS EACH OTHER SHALL BE 1/6 TIMES THE SLAB THICKNESS, CONDUIT SHALL BE FIRMLY CHAIRED AND TIED TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT. PLACE #3 BARS AT 12" O.C. AS ADDITIONAL REINFORCING ABOVE AND BELOW, PERPENDICULAR TO CONDUIT. THE ADDITIONAL REINFORCING SHALL EXTEND 1'–0" PAST THE CONDUIT ON ALL SIDES. CONDUIT PLACED IN CONCRETE TOPPING OVER METAL DECKING SHALL RUN INSIDE THE METAL DECK FLUTES ONLY.
10. NO CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE INSTALLED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
11. PROVIDE 3/4" CHAMFER AT ALL EXPOSED CORNERS, U.N.O.
12. CONCRETE SHALL NOT BE ALLOWED TO FREE FALL MORE THAN 10'–0" AND SHALL BE CHANNELED TO AVOID STRIKING THE REINFORCING STEEL OR THE SIDES OF THE SHAFT.
13. CONCRETE FOOTINGS AND PADS MAY BE POURED AGAINST NEAT EXCAVATIONS PROVIDED THE REQUIRED CONCRETE COVERAGE FOR REINFORCING IS MAINTAINED. CONCRETE WALLS AND COLUMNS SHALL BE DOWELED FROM SUPPORTS WITH BARS OF THE SAME SIZE AND SPACING. SEE 'REINFORCING STEEL" FOR LAP REQUIREMENTS.
14. OPENINGS, POCKETS, BLOCKOUTS, ETC. SHALL NOT BE PLACED IN CONCRETE SLABS, DECKS, BEAMS, JOISTS, COLUMNS, WALLS ETC. UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. NOTIFY THE STRUCTURAL ENGINEER OF RECORD WHEN DRAWINGS PREPARED BY OTHERS SHOW OPENINGS, POCKETS, BLOCKOUTS, ETC. THAT ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS. DO NOT PROCEED UNTIL DIRECTED BY THE ENGINEER OF RECORD IN WRITING.
15. PROVIDE 1/2" PREFORMED JOINT FILLER WHERE EXTERIOR SLABS ABUT VERTICAL SURFACES, TYPICAL U.N.O. COORDINATE WITH ARCHITECT.
16. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND EMBEDDED ITEMS, THICKENED AREAS, ADJACENT TO PENETRATIONS, AND UNDERFLOOR DUCTS, ETC. CAST CLOSURE POUR AROUND COLUMNS AFTER COLUMN DEAD LOAD IS APPLIED.
17. CONCRETE WHICH HAS CONTAINED WATER FOR MORE THAN 90 MINUTES (60 MINUTES IF AIR TEMPERATURE EXCEEDS 85°) SHALL NOT BE USED. RETEMPERING OF CONCRETE AFTER INITIAL SET HAS OCCURRED IS NOT PERMITTED.
18. CURE EXPOSED CONCRETE FOR A MINIMUM OF 7 DAYS AFTER PLACEMENT IN ACCORDANCE WITH ACI 301, ACI 318, ACI 360 AND ACI 302.1 PROCEDURES IN ORDER TO MINIMIZE SHRINKAGE CRACKING. CURE WITH CURING COMPOUND (CONFORMING TO ASTM C309 OR C315) AND SEALING COMPOUND, MOIST CURING, MOISTURE–RETAINING COVER CURING, OR COMBINATIONS THEREOF. IF CURING COMPOUND IS USED, APPLY AT A RATE SPECIFIED BY THE MANUFACTURER, BUT NOT LESS THAN I GALLON PER 200 SQUARE FEET OF SURFACE AREA.
19. QUALITY ASSURANCE: CONCRETE COMPRESSIVE STRENGTH AND SLUMP SHALL BE TESTED PER ASTM C31, C39 AND C172 AND IN ACCORDANCE WITH IBC SECTION 1905. FOR EACH CLASS OF CONCRETE USED PROVIDE 4 CYLINDERS PER TEST FOR EACH DAY'S CONCRETE PLACEMENT NOR LESS THAN ONE TEST FOR EACH 150 CUBIC YARDS OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5,000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS (NOTE: ALL CONCRETE EXCEPT CURBS AND SIDEWALKS SHALL BE TESTED). TEST ONE CYLINDER AT 7 DAYS AND TWO AT 28 DAYS, WITH ONE HELD. TESTING SHALL BE DONE BY A QUALIFIED TESTING LABORATORY. (FOR SLABS–ON–GRADE, THE TESTING AGENCY SHALL OBSERVE ALL PLACEMENT PROCEDURES AND DOCUMENT IF ANY ADDITIONAL WATER IS ADDED TO THE MIX ON SITE.)
20. HOT AND COLD WEATHER CONCRETING:
    • HOT WEATHER CONCRETING: WHEN THE TEMPERATURE RISES ABOVE 80° F AND ESPECIALLY WHEN THE RELATIVE HUMIDITY FALLS BELOW 25, THE CONTRACTOR SHALL FOLLOW HOT WEATHER CONCRETING IN ACCORDANCE WITH ACI 305. CONTRACTOR SHALL BE PREPARED TO USE FOG SPRAY OR OTHER PRECAUTIONS ACCEPTABLE TO ARCHITECT WHEN RATE OF EVAPORATION EQUALS OR EXCEEDS 0.2 POUNDS PER SQUARE FOOT PER HOUR. REFER TO SURFACE WATER EVAPORATION CHART TO ESTIMATE RATE OF SURFACE UNDER EVAPORATION.
    • COLD WEATHER CONCRETING: ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING FREEZING OR NEAR FREEZING WEATHER. ALL CONCRETE MATERIALS AND ALL REINFORCEMENT FORMS, FILLERS AND GROUND WITH WHICH THE CONCRETE IS TO COME IN CONTACT, SHALL BE FREE FROM FROST. FROZEN MATERIAL OR MATERIALS CONTAINING ICE SHALL NOT BE USED. COLD WEATHER CONDITIONS WILL BE DONE IN ACCORDANCE WITH ACI 306.
21. PLAIN THREADED BARS SHALL BE ASTM A36 OR A307, GRADE A. ANCHOR RODS (ANCHOR BOLTS) SHALL BE ASTM F1554 GRADE 36 (Fy = 36 KSI). BOLTS, ANCHOR RODS, EXPANSION BOLTS, ETC., SHALL BE INSTALLED WITH STEEL WASHERS AND TIGHTENED NUTS.
22. PROVIDE PNA 1/4" DIAMOND DOWELS OR EQUIVALENT AT 18" O.C. AT ALL ENTRY SLABS.
23. CRACKING IS INHERENT TO THE MATERIAL PROPERTIES OF CONCRETE CONSTRUCTION (INCLUDING POST–TENSIONED CONCRETE STRUCTURES). WHILE EVERY EFFORT HAS BEEN MADE TO MINIMIZE THE EFFECTS OF UNSIGHTLY CRACKING, THE PRESENCE OF CRACKS ARE NORMAL AND UNAVOIDABLE. THE DESIGN OF THE CONCRETE STRUCTURAL ITEMS HAVE BEEN ANALYZED USING A "CRACKED SECTION" . THE PRESENCE OF TYPICAL CRACKING SHOULD NOT BE CONSIDERED DETRIMENTAL TO THE STRUCTURE. CRACKS LARGER THAN 5 MM SHALL FILLED AND SEALED WITH AN APPROVED CRACK FILLER. THE GENERAL CONTRACTOR SHALL CARRY AN ALLOWANCE IN THE CONSTRUCTION BUDGET FOR SEALING SUCH CRACKS. IN SOME CASES, CRACKS DO NOT APPEAR UNTIL WELL AFTER CONSTRUCTION HAS BEEN COMPLETED. IN WHICH CASE IT IS THE RESPONSIBILITY OF THE OWNER TO MAINTAIN THE STRUCTURE PROPERLY OVER THE LIFE OF THE STRUCTURE. CONCRETE CRACKS, SHOULD THEY OCCUR AFTER THE BUILDING HAS BEEN OCCUPIED SHALL BE ELEVATED AND THEN FILLED AND SEALED TO PREVENT PREMATURE DETERIORATION OF THE STRUCTURE.

SURFACE WATER EVAPORATION



SLABS–ON–GRADE:

1. CONCRETE SLABS–ON–GRADE SHALL CONFORM TO THE CRITERIA SET FORTH IN THE "CAST–IN–PLACE CONCRETE" SECTION OF THESE CONSTRUCTION DOCUMENTS AND THE RECOMMENDATIONS BELOW. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE DESIGN OF A CONCRETE MIX TO MEET THE PERFORMANCE REQUIREMENTS SET FORTH BY THIS SECTION, AND TO COORDINATE WITH THE ARCHITECT AND THE OWNER REGARDING THE FOLLOWING RECOMMENDATIONS. THESE RECOMMENDATIONS ARE INTENDED TO HELP MINIMIZE THE PRESENCE OF UNSIGHTLY SHRINKAGE CRACKS THAT CAN OCCUR IN CONCRETE SLABS–ON–GRADE.
2. RECOMMENDATIONS FOR SLABS–ON–GRADE:
   A. SLABS–ON–GRADE FOR THIS PROJECT HAVE BEEN DESIGNED IN ACCORDANCE WITH THE DESIGN OF SLABS ON GRADE" ACI 360. FLOOR SLABS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION", ACI 302.1, "CONCRETE FLOORS ON GROUND"; PORTLAND CEMENT ASSOCIATION; AND ACI 318.
   B. SLABS–ON–GRADE SHALL MEET THE FOLLOWING RECOMMENDATIONS FOR MIX DESIGN, PLACEMENT, AND CURING.
      1) CONCRETE MIX DESIGN:
         a) CEMENT SHALL CONFORM TO ASTM C150, TYPE I/II,V (USE TYPE V IN LOCATIONS WHERE IT IS KNOWN OR WHERE THE GEOTECHNICAL ENGINEER HAS IDENTIFIED AREAS REQUIRING HIGH SULFATE RESISTANCE).
         b) CONCRETE MIX SHALL HAVE A MAXIMUM WATER TO CEMENT RATIO (W/C) OF 0.5, AND A MAXIMUM OF 34.5 GALLONS OF WATER PER CUBIC YARD. THIS WILL REQUIRE THE USE OF A MID RANGE OR HIGH RANGE WATER REDUCER (SUPER PLASTICIZER). USE OF A LOW–RANGE WATER REDUCER IS NOT RECOMMENDED. DO NOT ADD ANY ADDITIONAL WATER TO THE MIX AFTER IT HAS LEFT THE PLANT. ADDITION OF ANY WATER TO THE MIX WILL INCREASE THE AMOUNT OF SHRINKAGE CRACKING.
         c) AGGREGATES PER ASTM C33. 60% OF THE AGGREGATE MIX BY WEIGHT SHALL BE COARSE AGGREGATE (WITH FRACTURED FACE); A MINIMUM OF 60% OF THE COURSE AGGREGATE USED SHALL BE DOUBLE FRACTURED FACE.
         d) THE MIX DESIGN SHALL BE SUBMITTED AND APPROVED BY THE STRUCTURAL ENGINEER, ARCHITECT, AND GENERAL CONTRACTOR PRIOR TO PLACEMENT. CONTRACTOR WILL ALLOW ADEQUATE TIME FOR THE ENGINEER TO REVIEW THE SUBMITTAL AS OUTLINED IN THE "SHOP DRAWINGS" SECTION OF THESE CONSTRUCTION DOCUMENTS.

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job
2404.03

date
11.20.2025

revisions

WILLCOX MIDDLE & HIGH SCHOOL
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

general structural notes

s1.0

GENERAL STRUCTURAL NOTES

SLABS–ON–GRADE:

2) PLACEMENT:

a) IT IS HIGHLY RECOMMENDED THAT SLABS–ON–GRADE BE PLACED WITH A VIBRATORY SCREED USING A LASER LEVEL TO ACCOMPLISH A FLAT/LEVEL FINISH AS REQUIRED BY THE ARCHITECT AND THE RECOMMENDATIONS OF THIS SECTION. AFTER A MINIMUM OF 28 DAYS AFTER THE SLAB–ON–GRADE IS PLACED ALL JOINTS SHALL BE INSPECTED/MEASURED FOR SLAB CURL, AND ANY JOINTS NOT MEETING REQUIREMENTS SHALL BE GROUND FLAT, PRIOR TO ACCEPTANCE OF SLAB BY THE ARCHITECT. (NOTE: THE COST FOR GRINDING SHALL BE CARRIED AS AN ALLOWANCE BY THE GENERAL CONTRACTOR WITH THE GRINDING BEING PERFORMED UNDER THE DIRECTION OF THE SUBCONTRACTOR).

b) WHERE APPLICABLE, COORDINATE WITH THE ARCHITECT FOR SPECIFICATIONS AND LOCATIONS WHERE A FLOOR HARDER IS TO BE USED .

c) DO <u>NOT</u> TAMP SLABS (USE ROLLER BUG, VIBRATING SCREED OR BULL FLOAT ONLY).

d) PROVIDE AIR–ENTRAINING ADMIXTURE WHERE INDICATED IN CONCRETE REQUIREMENTS SCHEDULE, TESTED IN ACCORDANCE WITH ASTM C233.

3) CURING:

a) CURE SLABS–ON–GRADE FOR A MINIMUM OF 7 DAYS AFTER PLACEMENT IN ACCORDANCE WITH ACI 301, ACI 318, ACI 360 AND ACI 302.1 PROCEDURES IN ORDER TO MINIMIZE SHRINKAGE CRACKING. IT IS HIGHLY RECOMMENDED TO USE MOIST CURING (BURLAP), MOISTURE–RETAINING COVER CURING, OR COMBINATIONS THEREOF IN ORDER TO REDUCE/CONTROL RAPID SHRINKAGE OF THE SLAB CONCRETE.

3. RECOMMENDATIONS FOR SLAB–ON–GRADE TOLERANCES:

SLABS–ON–GRADE SHALL CONFORM TO ALL SPECIFICATIONS AND TOLERANCES IN SECTION 4.8 OF ACI 117. THE SLAB–ON–GRADE SHALL MEET THE MINIMUM VALUES OF SPECIFIED FOR OVERALL FLATNESS (SOFF) AND FOR SPECIFIED OVERALL LEVELNESS (SOFL) STATED IN THE TABLE BELOW. (COORDINATE WITH ARCHITECT IF MORE STRINGENT REQUIREMENTS APPLY.) THE VALUES OF (SOFF) AND (SOFL) SHALL BE MEASURED IN ACCORDANCE WITH ASTM E1155.

FLOOR SURFACE CLASSIFICATION	SOFF	SOFL
MODERATELY FLAT: CARPETED AREAS IN COMMERCIAL OFFICE BUILDINGS OR LIGHTLY TRAFFICKED OFFICE/INDUSTRIAL BUILDINGS, MUNICIPAL BUILDINGS, CHURCHES, AND SCHOOLS	25	20

4. RECOMMENDATIONS FOR MOISTURE RESISTANCE AT SLABS–ON–GRADE:

A. AT MOISTURE SENSITIVE FLOORING, TO HELP RESIST BELOW–SLAB MOISTURE MIGRATING THRU THE SLAB, THE CONCRETE MIX SHALL INCLUDE A WATER–REPELLENT ADMIXTURE SUCH AS RHEOMIX 235 BY MASTER BUILDERS, DARAPEL BY GRACE PRODUCTS, OR EQUIVALENT WITH DOSAGE PER MANUFACTURERS RECOMMENDATIONS.

B. IN ADDITION TO WATER–REPELLENT ADMIXTURES, THE USE OF A VAPOR RETARDERS IS DESIRABLE FOR ANY SLAB–ON–GRADE WHERE THE FLOOR WILL BE COVERED WITH MOISTURE SENSITIVE FLOORING OR WHEN THE SLAB WILL BE IN CONTACT WITH MOISTURE SENSITIVE EQUIPMENT OR PRODUCTS. IF REQUIRED BY THE ARCHITECT, OWNER, OR FLOORING SUPPLIER/MANUFACTURER A VAPOR RETARDER SHALL BE USED, THE VAPOR RETARDER SHALL COMPLY WITH THE CRITERIA OUTLINED IN THE VAPOR RETARDER SECTION OF THE GENERAL NOTES.

POST INSTALLED ANCHORS:

1. EPOXY USED IN CONCRETE AND MASONRY (ANCHOR BOLTS, REBAR DOWELS, ETC) SHALL BE HILTI HIT–RE 500 V3 EPOXY ADHESIVE INSTALLED PER ICC REPORT # ESR–3814 OR SIMPSON SET 3G EPOXY ADHESIVE PER ICC ESR–4057.
2. SCREW ANCHORS USED IN CONCRETE AND CONCRETE MASONRY (CMU) SHALL BE TITEN HD BY SIMPSON INSTALLED IN ACCORDANCE WITH ICC REPORT # ESR–1056 OR TAPCON BY REDHEAD INSTALLED IN ACCORDANCE WITH ICC REPORT # ESR–1671. SCREW IN ANCHORS SHALL BE INSTALLED IN COMPLIANCE WITH THE TABLE BELOW.

CHARACTERISTIC	SYMBOL	UNITS	SCREW ANCHOR NOMINAL ANCHOR DIAMETER (INCH)				
			1/4	3/8	1/2	5/8	3/4
INSTALLATION INFORMATION							
NORMAL DIAMETER	d	in.	1/4	3/8	1/2	5/8	3/4
DRILL BIT DIAMETER	dci	in.	1/4	3/8	1/2	5/8	3/4
MINIMUM BASEPLATE CLEARANCE HOLE DIAMETER	dc	in.	3/8	1/2	5/8	3/4	7/8
MAXIMUM INSTALLATION TORQUE	$Tinst.max$	ft–lbf	24	50	65	100	150
MAXIMUM IMPACT WRENCH TORQUE RATING	$Timpact, max$	ft–lbf	125	150	340	340	385

3. CONTRACTOR MAY SUBSTITUTE SCREW ANCHORS OR EPOXY OF EQUAL VALUE IN THE SPECIFIED MATERIAL WITH A CURRENT ICC REPORT WHEN APPROVED IN WRITING BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. USE OF SCREW ANCHORS OR EPOXY SHALL BE ONLY WHERE SPECIFICALLY DETAILED OR NOTED, OR WHEN DIRECTED IN WRITING BY THE ENGINEER.
5. SPECIAL INSPECTION IS REQUIRED FOR BOTH SCREW ANCHORS AND EPOXY ANCHORAGE PER SPECIAL INSPECTION TABLE.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60 (Fy = 60 KSI) DEFORMED BARS FOR ALL BARS #4 AND LARGER. ASTM A615, GRADE 40 (Fy = 40 KSI) DEFORMED BARS FOR ALL BARS #3 AND SMALLER U.N.O., EXCEPT #2 BARS SHALL BE SMOOTH. REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 60 (Fy = 60 KSI) LOW ALLOY DEFORMED BARS. WELDING OF REINFORCING SHALL BE ACCORDING TO AWS D1.4. NO TACK WELDING OF REINFORCING BARS ALLOWED.
2. ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN CONFORMANCE WITH THE CURRENT EDITIONS OF ACI 318 AND THE CRSI "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION", AND AS MODIFIED BY THE DRAWINGS. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
3. WELDED WIRE FABRIC SHALL BE PER ASTM A185, WIRE PER ASTM A82.
4. ALL REINFORCING STEEL SHALL BE ACCURATELY PLACED AND SUPPORTED BY GALVANIZED METAL OR PLASTIC CHAIRS, SPACERS OR HANGERS. PROVIDE THE FOLLOWING MINIMUM CLEAR CONCRETE COVERAGE:

CONDITION/LOCATION		SIZE	MINIMUM CLEAR CONCRETE COVERAGE
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH		ALL	3"
EXPOSED TO EARTH OR WEATHER WITH FORMED SURFACES		#6 AND LARGER	2"
		#5 AND SMALLER	1 1/2"
NOT EXPOSED TO EARTH OR WEATHER, OR IN CONSTANT CONTACT WITH THE GROUND	SLABS & WALLS	ALL	3/4"
	BEAMS & COLUMNS *	ALL	1 1/2"
* DISTANCE IS TO TIES, STIRRUPS, AND SPIRALS. ALL OTHERS PER CURRENT EDITION OF ACI 318			

5. UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE SHALL BE PER THE TYPICAL DETAILS AND/OR PER THE CURRENT EDITION OF ACI 318. STAGGER ALTERNATE SPLICES A MINIMUM OF ONE LAP LENGTH. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL AND SHALL BE MADE ONLY WHERE INDICATED ON THE DRAWINGS. EXTEND ALL HORIZONTAL REINFORCING CONTINUOUS AROUND CORNERS AND INTERSECTIONS OR PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS.
6. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION. SKEW HOOKS AS REQUIRED FOR CONCRETE COVER. SECURELY TIE ALL BARS IN POSITION BEFORE PLACING CONCRETE. CONCRETE COLUMN DOWEL EMBEDMENT SHALL BE A STANDARD COMPRESSION DOWEL EMBEDMENT LENGTH PER THE TYPICAL DETAILS AND/OR THE CURRENT EDITION OF ACI 318. DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE, SPACING AND NUMBER AS THE VERTICAL REINFORCING ABOVE.
7. SPLICED (LAPPED) BARS SHALL BE PLACED AT THE SAME EFFECTIVE DEPTH UNLESS NOTED OTHERWISE. REINFORCING BARS NOTED "CONTINUOUS" OR WITH LENGTH NOT SHOWN SHALL BE FULLY CONTINUOUS AND SPLICED ONLY AS SHOWN, OR WHERE APPROVED BY THE ENGINEER.
8. REINFORCING BAR HOOKS SHALL BE STANDARD ACI HOOKS UNLESS NOTED OTHERWISE.
9. WHERE REINFORCING IS SHOWN CONTINUOUS THROUGH CONSTRUCTION JOINTS, BD–SAE DOWEL BAR SPLICE DEVICES AS MANUFACTURED BY RICHMOND SCREW ANCHOR CO. (OR APPROVED EQUAL) MAY BE USED. SIZES AND TYPES SHALL BE SELECTED TO DEVELOP THE FULL TENSION STRENGTH OF THE BAR PER ICC RESEARCH RECOMMENDATION.

STRUCTURAL STEEL:

1. THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND STRUCTURES SHALL BE IN ACCORDANCE WITH AISC 360. WHERE REQUIRED, THE SEISMEC DESIGN OF STEEL STRUCTURES SHALL BE IN ACCORDANCE WITH THE ADDITIONAL PROVISIONS OF SECTION 2205.2, AND APPLICABLE PROVISIONS OF AWS "STRUCTURAL WELDING CODE".
2. STRUCTURAL MISCELLANEOUS SHAPES AND PLATES SHALL BE ASTM A36 (FY = 36 KSI). STRUCTURAL WIDE FLANGE SHAPES ("W SECTIONS) SHALL BE ASTM A992 GRADE 50 (FY = 50 KSI) HOLLOW STRUCTURAL SECTIONS (STRUCTURAL TUBE SHAPES; TS OR HSS) SHALL BE ASTM A500, GRADE B (FY = 46 KSI). STEEL PIPE SHALL BE ASTM A501 (FY = 36 KSI) OR ASTM A53, TYPES E OR S, GRADE B (FY = 35 KSI). ALL PLATES IN MOMENT CONNECTIONS, BRACED FRAMES, AND/OR WHERE NOTED OTHERWISE SHALL BE FY = 50 KSI MINIMUM.
3. BOLTS SHALL BE ASTM A307 UNLESS NOTED OTHERWISE AS A325N – COORDINATE WITH PLANS AND DETAILS. ALL HIGH–STRENGTH BOLTS (A325N) SHALL BE TIGHTENED TO THE SNUG–TIGHT CONDITION AS DEFINED BY AISC UNLESS NOTED OTHERWISE. FOR ALL MOMENT CONNECTIONS AND BRACED FRAMES, USE SLIP CRITICAL (SC) CONNECTIONS WITH HIGH STRENGTH BOLTS AND PROVIDE SPECIAL INSPECTION FOR PROPER BOLT TENSION.
4. PLAIN THREADED BARS SHALL BE ASTM A36 OR A307, GRADE A.
5. ANCHOR RODS (ANCHOR BOLTS) SHALL BE ASTM F1554 GRADE 36 (Fy = 36 KSI). ALL ANCHOR BOLTS IN CONCRETE OR CMU SHALL BE TIED IN PLACE PRIOR TO ANY REQURIED INSPECTION.
6. BOLTS, ANCHOR RODS, EXPANSION BOLTS, ETC., SHALL BE INSTALLED WITH STEEL WASHERS AND TIGHTENED NUTS. STEEL WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F436. HEAVY–HEX NUTS MEETING THE REQUIREMENTS OF ASTM A563.
7. BOLT HOLES CAN BE OVERSIZED BY A MAXIMUM OF 1/16"ø FOR ALL APPLICATIONS NOT INCLUDING BASE PLATES. BOLT HOLES IN BASE PLATES MAY BE OVERSIZED PER TABLE 14–2 OF AISC 360.
8. STEEL WASHERS FOR BASE PLATE APPLICATIONS SHALL MEET THE MINIMUM SIZE AND THICKNESS SHOWN IN TABLE 14–2 OF AISC 360.
9. BEAMS, COLUMNS AND BRACES SHALL NOT BE SPLICED UNLESS SPECIFICALLY DETAILED ON THE DRAWINGS, OR WITH PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL:

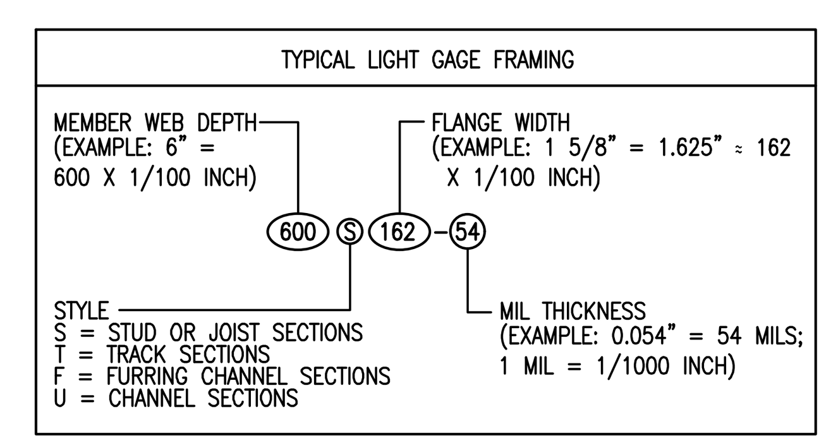
10. WELDING ELECTRODES SHALL CONFORM TO AWS D1.1, GRADE E70XX. E90 SERIES ELECTRODES SHALL BE USED FOR ASTM A706 REINFORCING BARS. ALL WELDING SHALL BE DONE BY WELDERS HOLDING VALID CERTIFICATES ISSUED BY AN ACCEPTED TESTING AGENCY AND HAVING CURRENT EXPERIENCE IN TYPE OF WELDS SHOWN ON THE DRAWINGS OR NOTES. ALL WELDING PER AMERICAN WELDING SOCIETY STANDARDS. ALL WELDS ON DRAWINGS ARE SHOWN AS SHOP WELDS. CONTRACTOR MAY SHOP WELD OR FIELD WELD AT THEIR DISCRETION. SHOP WELDS OR FIELD WELDS SHALL BE SHOWN ON SHOP DRAWINGS. ALL WELDS REQUIRE SPECIAL INSPECTIONS AND SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.
11. COMPLETE JOINT PENETRATION GROOVE WELDING PROCEDURES.
    - A. REMOVE BACKING BARS OF TOP AND BOTTOM FLANGE OF BEAM AFTER FULL PENETRATION WELD HAS BEEN COMPLETED. THE WELD END TO BE GROUND TO A SMOOTH CONTOUR AND INSPECT FOR ANY DEFECTS. ALL WELDS TO START AND FINISH ON RUN–OFF TABS, PER AWS D1.1
    - B. BACK–GOUGE THE FULL PENETRATION WELD AND TOP OFF WITH 3/8" FILLET WELD.
    - C. USE WELD METAL WITH CHARPY V–NOTCH TOUGHNESS OF 20 FT–LBS AT 0 DEGREES F. SUBMIT THE PROJECT WELDING PROCEDURE SPEC'S (WPS) TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL.
    - D. WELDING SHALL COMPLY WITH AWS D1.1 (CURRENT EDITION).
    - E. ALL WELDS SHALL BE PRE QUALIFIED AND ALL WELDERS AND INSPECTORS SHALL BE INSTRUCTED IN THE WPS AND SHALL RETAIN A COPY.
    - F. WPS, AS A MINIMUM, SHALL STATE THE WELD POSITION, ELECTRODE TYPE AND SIZE, TRAVEL SPEED, ELECTRODE STICK–OUT, VOLTAGE AND AMPERAGE WITH ACCEPTABLE LIMITS, BEAD SIZE, WELD SEQUENCE, STRESS RELIEVING, AND OTHER RELEVANT DATA.
    - G. WELDERS SHALL BE QUALIFIED FOR THE WORK THEY ARE DOING WITH A CURRENT CERTIFICATION ACCORDING TO CHAPTER 5, PART C.
    - H. ALL FIELD WELDING TO BE CONTINUOUSLY INSPECTED BY AWS, QC–1 CERTIFIED WELDING INSPECTOR EMPLOYED BY THE OWNER. TECHNICIAN PERFORMING THE UT OR MT TESTS SHALL BE A CERTIFIED TECHNICIAN.
    - I. TO REDUCE THE LONGITUDINAL STRESSES DUE TO WELDING, IT IS RECOMMENDED TO START THE WELDING PROCESS IN THE MOST CENTRAL BEAM IN THE FRAME AND PROGRESS TOWARDS THE EXTERIOR COLUMNS.
    - J. NOTE THE MOMENT FRAME WELDING SEQUENCE SHALL BE AS FOLLOWS: ONE END OF EACH BEAM SHALL BE ALLOWED TO COOL BEFORE WELDING THE OTHER END. BOLTS SHALL BE TIGHTENED 24 HOURS AFTER WELDING OF FLANGES. SHEAR TABS ARE TO BE WELDED IN ADDITION TO BEING BOLTED AFTER BOLTS ARE TENSIONED AND FLANGES ARE WELDED.
    - K. WELD "DAMS" OR END DAMS" SHALL NOT BE USED.
    - L. ALL COMPLETE AND PARTIAL JOINT PENETRATION WELDS SHALL HAVE ULTRASONIC TESTING (UT) AS PERFORMED BY A CERTIFIED TESTING INSPECTION LABORATORY. WELD BACKING REMOVAL AREAS AND FILLER WELDS ON CONTINUITY PLATES SHALL BE SUBJECT TO MAGNETIC PARTICAL EXAMINATION (MT).
12. DRYPACK FOR COLUMN BASE PLATES AND BEARING PLATES SHALL BE FIVE STAR GROUT OR AN EQUAL NONMETALLIC SHRINKAGE–RESISTANT GROUT WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI. DRYPACK MUST BE PLACED BEFORE ANY FLOOR OR ROOF DECK IS INSTALLED.
13. PROVIDE FABRICATOR'S STANDARD RUST–INHIBITING PRIMER SHOP PAINT FOR ALL STEEL SURFACES THAT WOULD BE EXPOSED TO WEATHER AT ITS FINAL INSTALLATION (TOUCH UP WELDS, DAMAGED AREAS, ETC. AS REQUIRED). SURFACES PERMANENTLY PROTECTED FROM THE WEATHER, ENCASED IN CONCRETE, OR TO RECEIVE SPRAY–APPLIED FIREPROOFING SHALL NOT BE SHOP PAINTED.
14. IF NOT NOTED OR REFERENCED OTHERWISE ON THE DRAWINGS/DETAILS, PROVIDE 1/8" WELDED CAP PLATES AT ALL EXTERIOR EXPOSED ENDS FOR TUBES AND PIPES.

COLD–FORMED STEEL FRAMING:

1. ALL COLD–FORMED STEEL FRAMING SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE CURRENT EDITION OF THE "SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS" BY THE AMERICAN IRON AND STEEL INSTITUTE (AISI).
2. PROVIDE ALL ACCESSORIES INCLUDING BUT NOT LIMITED TO, TRACKS, CLIPS, WEB STIFFENERS, ANCHORS, FASTENING DEVICES, RESILIENT CLIPS, AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, AND AS RECOMMENDED BY THE MANUFACTURER FOR THE STEEL MEMBERS USED.
3. PAINTED 12, 14 AND 16 GAGE STUDS AND JOISTS, AND DIAGONAL TENSION STRAPS SHALL CONFORM TO ASTM A1008, GRADE 50, WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
4. PAINTED 18 AND 20 GAGE STUDS, TRACK AND JOISTS, AND ALL PAINTED TRACK, BRIDGING AND ACCESSORIES SHALL CONFORM TO ASTM A1003, GRADE C, WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI.
5. GALVANIZED 12, 14 AND 16 GAGE STUDS AND JOISTS SHALL CONFORM TO ASTM A653, GRADE D, WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
6. GALVANIZED 18 AND 20 GAGE STUDS AND JOISTS AND ALL GALVANIZED TRACK, BRIDGING AND ACCESSORIES SHALL CONFORM TO ASTM A653, WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI.
7. STUDS, JOISTS AND ACCESSORIES SHALL BE PRIMED WITH RUST–INHIBITIVE PAINT MEETING THE PERFORMANCE REQUIREMENTS OF TT–P–636C. STEEL SHALL BE GALVANIZED PER ASTM A525, G60 AT LOCATIONS EXPOSED TO WEATHER AND WHEREVER NOTED ON THE DRAWINGS.
8. STUDS OR JOISTS SHALL NOT BE SPLICED WITHOUT PRIOR APPROVAL OF STRUCTURAL ENGINEER.
9. STEEL STUD CONSTRUCTION FOR NON–BEARING CURTAIN WALL SYSTEMS SHALL HAVE VERTICAL SLIP CONNECTIONS AS DETAILED AND SHOWN ON THE SHOP DRAWINGS. DO <u>NOT</u> ATTACH THE STUDS TO THE STRUCTURE IN ANY WAY THAT WOULD PREVENT THE FRAMING FROM DEFLECTING UNDER SUPERIMPOSED LOADS. THE VERTICAL SIDE CLIPS SHALL HAVE A RATED CAPACITY (BY THE MANUFACTURER) OF 200 LBS LATERAL LOAD RESISTANCE.

COLD–FORMED STEEL FRAMING:

10. UNLESS NOTED OTHERWISE, AT STEEL STUD BEARING SYSTEMS PROVIDE DOUBLE STUDS AT ALL JAMBS, CORNERS, INTERSECTIONS, BEAM BEARINGS AND JOIST BEARINGS. DOUBLE UP JOISTS BELOW PARTITIONS AND AROUND ALL FLOOR AND ROOF OPENINGS WHICH INTERRUPT ONE OR MORE MEMBERS UNLESS NOTED OTHERWISE. BEARING STEEL STUD WALLS SHALL BE BRACED WITH TEMPORARY OR PERMANENT SHEATHING PRIOR TO APPLICATION OF FLOOR OR ROOF DEAD LOADS.
11. BRACING/BRIDGING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS WITH THE FOLLOWING MINIMUM REQUIREMENTS:
    - A. NON–LOAD BEARING WALLS
        1. LATERAL BRACING SHALL BE PROVIDED BY USE OF FULL GYPSUM BOARD ON SHEATHING ON EACH FACE OF STUDS, FULL HEIGHT. IF WALLS ARE NOT FULLY SHEATHED, COORDINATE WITH ENGINEER PRIOR TO CONSTRUCTION FOR ALL BRACING.
        2. PROVISIONS FOR STRUCTURE VERTICAL MOVEMENT SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS.
    - B. AXIAL LOAD BEARING
        1. TRACKS SHALL BE ANCHORED TO THE SUPPORTING STRUCTURE AS SHOWN ON DRAWINGS
        2. COMPLETE, UNIFORM AND LEVEL BEARING SUPPORT SHALL BE PROVIDED FOR THE BOTTOM TRACK.
        3. LATERAL BRACING SHALL BE PROVIDED BY USE OF FULL GYPSUM BOARD ON SHEATHING ON EACH FACE OF STUDS, FULL HEIGHT. IF WALLS ARE NOT FULLY SHEATHED, COORDINATE WITH ENGINEER PRIOR TO CONSTRUCTION FOR ALL BRACING.
        4. DIAGONALLY BRACED STUD SHEAR WALLS, AS INDICATED ON THE DRAWINGS, SHALL BE PROVIDED AT LOCATIONS DESIGNATED AS "SHEAR WALLS" FOR FRAME STABILITY AND LATERAL LOAD RESISTANCE.
        5. PROVIDE CONTINUOUS BRIDGING AS DETAILED AT 4'–0" MAX. AT ROOF LINES, CEILING LINES AND AT FLOOR LINES AS REQUIRED.
    - C. C. JOISTS
        1. UNIFORM AND LEVEL JOIST BEARING SHALL BE PROVIDED AT FOUNDATION WALLS BY MEANS OF SHIMS AND/OR NON–SETTING GROUT.
        2. JOISTS SHALL BE LOCATED DIRECTLY OVER BEARING STUDS OR A LOAD DISTRIBUTION MEMBER SHALL BE PROVIDED AT THE TOP OF THE BEARING WALL.
        3. WEB STIFFENERS SHALL BE PROVIDED AT REACTION POINTS AND/OR POINTS OF CONCENTRATED LOADS WHERE INDICATED ON THE DRAWINGS.
        4. JOIST BRIDGING SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS, (BUT NOT LESS THAN 8'–0" MAXIMUM O.C.)
        5. ADDITIONAL JOIST SHALL BE PROVIDED UNDER PARALLEL PARTITIONS WHEN THE PARTITION LENGTH EXCEEDS ONE–HALF THE JOIST SPAN, ALSO AROUND ALL FLOOR AND ROOF OPENINGS, WHICH INTERRUPT ONE OR MORE SPANNING MEMBERS UNLESS NOTED OTHERWISE.
12. GAGE AND SPACING OF STEEL STUD WALLS SHALL BE PER PLANS AND/OR DETAILS. BOTTOM TRACK ANCHORS SHALL BE PER DETAILS BUT PLACED NOT TO EXCEED 4'–0" O.C. UNLESS NOTED OTHERWISE. ANCHORS SHALL BE PLACED WITHIN 8" OF ALL JAMBS, CORNERS, INTERSECTIONS AND WALL ENDS. ALL BOTTOM TRACKS SHALL HAVE A MINIMUM OF 2 ANCHORS.
13. FASTENING OF COMPONENTS SHALL BE WITH SELF–DRILLING SCREWS OR WELDING. SCREWS OR WELDS SHALL BE OF SUFFICIENT SIZE TO INSURE THE STRENGTH OF THE CONNECTION. ALL WELDS OF GALVANIZED STEEL SHALL BE TOUCHED UP WITH A ZINC–RICH PAINT. ALL WELDS OF CARBON SHEET METAL SHALL BE TOUCHED UP WITH PAINT. WIRE TYING OF COMPONENTS SHALL NOT BE PERMITTED.
14. ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAGE STEEL FRAMING WORK. WELDING MAY ONLY BE USED ON 20 GAGE AND THICKER MEMBERS.
15. COLD–FORMED MEMBERS SHALL COMPLY WITH THE PROPERTIES OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA):



ROUGH CARPENTRY AND WOOD STRUCTURAL PANELS:

1. WOOD FRAMING SHALL CONFORM TO CURRENT IBC, ANSI/AWC, AND NDS REQUIREMENTS.
2. FRAMING LUMBER SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE NATIONAL DESIGN SPECIFICATION (NDS). ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF A LUMBER GRADING AGENCY CERTIFIED BY THE AMERICAN LUMBER STANDARDS COMMITTEE. WOOD FRAMING SHALL CONFORM TO THE FOLLOWING "LUMBER TABLE" U.N.O.

LUMBER TABLE

MEMBER	SPECIES	GRADE
2X PLATES, STRIPPING, MISC CONCEALED FRAMING, BLKG, & FIRE STOPPING	DOUGLAS FIR–LARCH	NO.2
SILLS ON CONCRETE OR MASONRY	PRESSURE TREATED AT DOUGLAS FIR–LARCH	NO.2
2X AND 3X LUMBER	DOUGLAS FIR–LARCH	NO.2
TIMBER 4X4 AND LARGER	DOUGLAS FIR–LARCH	NO.1

ROUGH CARPENTRY AND WOOD STRUCTURAL PANELS:

3. ALL PLYWOOD SHALL CONFORM TO CURRENT PRODUCT STANDARD PS1, OR APA PRP–108 AND HAVE AN EXTERIOR OR EXPOSURE 1 DURABILITY CLASSIFICATION, AND SHALL BEAR THE STAMP OF AN ICC APPROVED TESTING AGENCY. LAY UP SHEETS WITH LONG DIMENSION PERPENDICULAR TO SUPPORTS AND STAGGER JOINTS. ON ROOFS WHERE PLYWOOD IS LAID UP WITH THE LONG DIMENSION PARALLEL TO SUPPORTS, USE A MINIMUM OF 5–PLY PLYWOOD. AT ROOFS, USE PLYCLIPS OR BLOCKING PER IBC SECTION 2304 AT MIDSPAN OF UNSUPPORTED EDGES. ALL PLYWOOD SHALL BE OF THE FOLLOWING MINIMUM THICKNESS, SPAN/INDEX RATIO, AND SHALL BE NAILED PER DIAPHRAGM NAILING SCHEDULE ON SHEET S3.0.
4. APA RATED SHEATHING (ORIENTED STRAND BOARD) CONFORMING TO NER–108 AND CURRENT PRODUCT STANDARD (PS2), AND WITH THE SAME EXPOSURE DURABILITY CLASSIFICATION, NOMINAL THICKNESS, AND SPAN/INDEX RATIO MAY BE SUBSTITUTED FOR PLYWOOD UNLESS NOT ALLOWED DUE TO ROOFING REQUIREMENTS; FIRE RATING; ARCHITECTURAL SPECIFICATIONS, ETC.
5. ALL NAILS SHALL BE GALVANIZED COMMON WIRE NAILS PER ASTM F1667 UNLESS OTHERWISE NOTED (NOTE: BOX NAILS, SINKERS, OR OTHER NAILS ARE NOT ACCEPTABLE, SINCE THEY DO NOT PROVIDE THE REQUIRED CAPACITY BY CODE AND SHALL NOT BE USED). SEE "WOOD FASTENER TYPES SCHEDULE" FOR MINIMUM FASTENER DIMENSIONS. NAILS IN CONTACT WITH FIRE RETARDANT TREATED OR PRESSURE TREATED WOOD SHALL BE HOT–DIP GALVANIZED (ASTM A153) OR STAINLESS STEEL (TYPE 304 OR 316). WHEN REQUIRED TO PREVENT SPLITTING, PRE–DRILL FOR NAILS.

WOOD FASTENER TYPES SCHEDULE

TYPE	DIAMETER	LENGTH
16d COMMON	0.162"	3 1/2"
12d COMMON	0.148"	3 1/4"
10d COMMON	0.148"	3"
8d COMMON	0.131"	2 1/2"
#10 SCREW	0.161"	SEE DETAILS
#12 SCREW	0.216"	SEE DETAILS
SDS SCREW	0.25"	VARIES 1 1/2"–8"
NOTE: "SD" AND "SDS" SCREWS ARE MANUFACTURED BY SIMPSON STRONG–TIE.		

6. BOLTS SHALL BE INSTALLED IN HOLES A MINIMUM OF 1/32" AND A MAXIMUM OF 1/16" LARGER THAN THE BOLT SHANK DIAMETER. A STANDARD CUT WASHER, METAL PLATE OR STRAP SHALL BE USED BETWEEN THE HEAD AND WOOD, AND NUT AND WOOD FOR ALL BOLTS. BOLTS AND LAG SCREWS SHALL CONFORM TO ASTM A307 AND ANSI/ASME STANDARD B18.2.1–1981, AND SHALL BE GALVANIZED. BOLTS AND LAG SCREWS IN CONTACT WITH FIRE RETARDANT TREATED OR PRESSURE TREATED WOOD SHALL BE HOT–DIP GALVANIZED (ASTM A153) OR STAINLESS STEEL (TYPE 304 OR 316).
7. ALL BOLTS SHALL BE RETIGHTENED IMMEDIATELY PRIOR TO CLOSING IN FRAMING.
8. USE WOOD SCREWS COMPLYING WITH ANSI STANDARD B18.6.1, INSTALLED PER NDS.
9. LAG BOLTS SHALL COMPLY WITH ANSI STANDARD B18.2.1, INSTALL USING PILOT HOLES (LEAD HOLES) AND REQUIREMENTS PER NDS.
10. DO NOT NOTCH, DRILL OR SPLICE JOISTS, BEAMS, POSTS, OR LOAD BEARING STRUCTURAL STUDS WITHOUT PRIOR APPROVAL OF STRUCTURAL ENGINEER.
11. JOIST HANGERS AND OTHER MISCELLANEOUS FRAMING ANCHORS SHALL BE AS MANUFACTURED BY THE SIMPSON STRONG–TIE COMPANY OR EQUAL BY OTHER MANUFACTURER WITH CURRENT ICC OR CABO APPROVAL. MULTIPLE, SKEWED AND/OR SLOPED HANGERS SHALL BE SUPPLIED BY THE CONTRACTOR WHERE NECESSARY. ALL NAIL HOLES IN JOIST HANGERS AND MISCELLANEOUS FRAMING ANCHORS SHALL BE FILLED WITH NAILS OF THE LARGEST SIZE SHOWN IN THE MANUFACTURER'S LATEST CATALOG. ALL BOLTS USED IN CONNECTIONS SHALL BE INSTALLED WITH STEEL WASHERS AND TIGHTENED NUTS.
12. SIZE AND SPACING OF WOOD STUD WALLS SHALL BE PER PLANS AND/OR DETAILS. PROVIDE 2X BLOCKING AT 5'–0" O.C. MAXIMUM AT ALL BEARING WALLS. SILL PLATE ANCHOR BOLTS SHALL BE HOT–DIPPED ZINC COATED GALVANIZED STEEL, MINIMUM 1/2" DIAMETER WITH PLACEMENT NOT TO EXCEED 4'–0" O.C. UNLESS NOTED OTHERWISE. ANCHOR BOLTS SHALL BE PLACED 4" TO 8" OF ALL JAMBS, CORNERS, INTERSECTIONS AND WALL ENDS. ALL BOTTOM PLATES SHALL HAVE A MINIMUM OF 2 ANCHOR BOLTS. ALL BOTTOM PLATES OR SILLS ON CONCRETE SLABS ON GRADE AND ON CONCRETE OR MASONRY FOUNDATIONS, SHALL BE PRESSURE TREATED WOOD STAMPED BY AN APPROVED AGENCY.
13. PRESERVATIVE TREATMENT. WOOD MATERIALS REQUIRED TO BE "TREATED WOOD" IN ACCORDANCE WITH IBC SECTION 2304.11. PROTECTION AGAINST DECAY AND TERMITES SHALL CONFORM TO THE APPROPRIATE STANDARDS OF THE AMERICAN WOOD–PRESERVERS ASSOCIATION (AWPA) FOR SAWN LUMBER, GLUED LAMINATED TIMBER, ROUND POLES, WOOD PILES AND MARINE PILES. FOLLOW AMERICAN LUMBER STANDARDS COMMITTEE (ALSC) QUALITY ASSURANCE PROCEDURES. PRODUCTS SHALL BEAR THE APPROPRIATE MARK. FIRE RETARDANT TREATED LUMBER SHALL AFFORD THE FIRE–RESISTANCE RATING REQUIRED IN CHAPTER 6 OF THE IBC. ANCHOR BOLTS, ANCHOR RODS, AND OTHER FASTENERS, FOR THE PRESERVATIVE–TREATED AND FIRE–RETARDANT TREATED WOOD SHALL BE HOT–DIPPED ZINC COATED STEEL OR STAINLESS STEEL.
14. WOOD–BASED PANEL PRODUCTS EXPAND AND CONTRACT SLIGHTLY AS A NATURAL RESPONSE TO CHANGE IN PANEL MOISTURE CONTENT. TO PROVIDE FOR IN–PLANE DIMENSIONAL CHANGES, PANELS SHOULD BE INSTALLED WITH A 1/8" SPACING AT ALL PANEL END AND EDGE JOINTS. A STANDARD 10D BOX NAILS MAY BE USED TO CHECK PANEL EDGE AND PANEL END SPACING.

ROUGH CARPENTRY AND WOOD STRUCTURAL PANELS:

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT WOOD USED FOR STRUCTURAL PURPOSES IS KEPT AS DRY AS POSSIBLE BEFORE AND DURING CONSTRUCTION. A MAXIMUM MOISTURE CONTENT SHALL BE MAINTAINED UNTIL THE BUILDING ENVELOPE IS CLOSED IN AND WATER PROOFED AS FOLLOWS:
    - A. KILN–DRIED LUMBER: 19%
    - B. TIMBERS: 19%
    - C. LVL & PSL: 12%
    - D. PLYWOOD: 8%
    - E. OSB: 4%

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11.20.2025

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general structural notes

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GENERAL STRUCTURAL NOTES

PRE-ENGINEERED METAL BUILDINGS:

1. PREFABRICATED METAL BUILDING DESIGN AND CONSTRUCTION SHALL CONFORM TO THE CURRENT APPLICABLE STANDARDS AND SPECIFICATIONS OF THE METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA) AND THE IBC, AISC, AND AISI AS APPLICABLE. THE DIMENSIONAL TOLERANCES OUTLINED IN THE AWS CODE UNDER WORKMANSHIP AND THE TOLERANCES APPLICABLE TO ROLL FORM STEEL UNDER THE AISC "STANDARD MILL PRACTICE" SECTION SHALL BE REQUIRED IN THE FABRICATION OF THE STEEL BUILDING FRAMES.
2. THE PRE-ENGINEERED METAL BUILDING MANUFACTURER (PEMBM) SHALL HAVE AT LEAST 3 YEARS EXPERIENCE IN FABRICATION OF PREFABRICATED METAL BUILDINGS. THE ERECTOR SHALL BE LICENSED BY THE MANUFACTURER AND HAVE AT LEAST 3 YEARS EXPERIENCE IN THE ERECTION OF PREFABRICATED METAL BUILDINGS.
3. THE BUILDING "RIGID" FRAMES SHALL BE DESIGNED TO LIMIT THE LATERAL DEFLECTION TO THE LIMITS INDICATED IN NOTE 14. THE PURLINS AND BUILDING FRAMES SHALL BE DESIGNED TO LIMIT VERTICAL DEFLECTIONS TO THE LIMITS STATED IN NOTE 14.
4. WHERE CMU OR CONCRETE WALLS OR OTHER STRUCTURES CONTACT OR LIMIT THE MOVEMENT OF THE PRE-ENGINEERED METAL BUILDING, THE PEMBM SHALL ENSURE THAT DEFORMATIONAL COMPATIBILITY, PER THE REFERENCED BUILDING CODE, IS MAINTAINED.
5. A COMPLETE DESIGN ANALYSIS, SHOWING ALL CALCULATIONS FOR THE RIGID FRAMES, GIRTS, PURLINS, AND X-BRACING FOR LATERAL LOADS AND LAYOUT OF ANCHOR BOLTS AND OTHER EMBEDDED ITEMS, SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AND ARCHITECT FOR APPROVAL WITH THE SHOP DRAWINGS. SHOP DRAWINGS SHALL INCLUDE DETAILS OF ALL MAIN MEMBERS, TYPICAL CONNECTIONS (SHOWING BOLT HOLES AND WELDS), AND ERECTION DRAWINGS. THE CALCULATIONS AND SHOP DRAWINGS MUST BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE IN WHICH THE PROJECT IS LOCATED. APPLY A SUPERIMPOSED DEAD LOAD PER DESIGN LOADS.
6. THE LATERAL LOAD RESISTING SYSTEM IS THE COMPLETE RESPONSIBILITY OF THE PEMBM AND SHALL INCLUDE X-BRACING AND PORTAL FRAMES AS REQUIRED TO ACCOMMODATE THE BUILDING PLANS. BUILDING FRAMES TO BE RIGID FRAMES WITH PINNED BASED COLUMNS. INTERIOR AND SIDEWALL COLUMNS TO HAVE STRAIGHT PROFILE WITH MAXIMUM DEPTH AS SHOWN ON THE ARCHITECTURAL DRAWINGS.
7. THE BUILDING SHALL BE DESIGNED TO SUPPORT ALL MECHANICAL EQUIPMENT INCLUDING HEATERS, SPRINKLERS, EXHAUST SYSTEMS, SERVICE EQUIPMENT, AIR HANDLERS, DUCTWORK, PIPING AND ALL OTHER SUCH DEVICES. ADDITIONAL GIRTS OR PURLINS SHALL BE SUPPLIED AS REQUIRED IN CONVENIENT LOCATIONS FOR ATTACHMENT OF ALL MECHANICAL EQUIPMENT. COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS FOR OPENINGS IN WALLS, ROOF AND SUPPORT OF ROOF TOP EQUIPMENT.
8. COMBINATION DESIGN LOADS CONDITIONS SHALL COMPLY WITH IBC REQUIREMENTS. PROVIDE Z-PURLINS WITH LIGHT GAUGE STRAP BRIDGING FOR PURLIN STRESS REVERSAL DURING WIND UPLIFT LOADING. (SUPERIMPOSED DEAD LOAD SHALL NOT BE APPLIED FOR THIS LOAD CASE).
9. ALL COLUMN REACTIONS AND ANCHOR BOLT LAYOUT SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FOUNDATION EXCAVATION AND SUBMITTAL OF REINFORCING STEEL SHOP DRAWINGS.
10. ROOF AND WALL SHEETING SHALL BE MINIMUM 26 GAGE AS DESIGNED AND SPECIFIED BY THE PEMB MANUFACTURER.
11. FRAMING MEMBERS SHOWN ON THE STRUCTURAL DRAWINGS ARE SCHEMATIC AND ARE TO INDICATE THE DESIGN INTENT ONLY. SEE METAL BUILDING MANUFACTURER'S APPROVED DRAWINGS FOR FRAMING AND CONNECTION DETAILS.
12. THE FOUNDATION DRAWINGS AND DETAILS ARE FOR THE ASSUMED PREFABRICATED METAL BUILDING COLUMN REACTIONS AS SHOWN ON THE DRAWINGS. THE GENERAL CONTRACTOR SHALL VERIFY THE ACTUAL LOADS AND FOUNDATION DETAILS FOR THE BUILDING SYSTEM SELECTED WITH THE METAL BUILDING MANUFACTURER. IF VARIATIONS OCCUR, THE CONTRACTOR SHALL PROVIDE FOR THE REQUIRED REDESIGN AND SUBMIT FINAL FOUNDATION PLANS, DETAILS AND DESIGN CALCULATIONS SEALED BY A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.
13. ANCHOR BOLT DIAMETERS AND LOCATIONS SHALL BE AS DESIGNED AND SPECIFIED BY THE PEMBM. ANCHOR BOLT EMBEDMENT SHALL BE AS SPECIFIED ON THE STRUCTURAL DRAWINGS.

SHOP DRAWINGS AND PRODUCT DATA SUBMITTALS:

1. SHOP DRAWINGS AND DATA SUBMITTALS SHALL BE SUBMITTED FOR THE FOLLOWING STRUCTURAL ITEMS IN ADDITION TO ANY ITEMS REQUIRED BY THE DEFERRED SUBMITTALS.

	ITEM	SUBMITTAL
CONCRETE	GENERAL	● MIX DESIGN ● PRODUCT DATA
	REINFORCING	● SHOP DRAWINGS
	FINISHING	● SUBMIT SURFACE FINISHING PLAN TO ARCHITECT
	CURING	● STATEMENT OF CURING PROCEDURES

	ITEM	SUBMITTAL
STEEL	STRUCTURAL STEEL	● SHOP DRAWINGS ● MILL TEST REPORTS
	STEEL DECK	● PRODUCT DATA ● SHOP DRAWINGS
	WELDING	● WELDERS CERTIFICATES FOR ALL WELD TYPES ON JOB
	BOLTING	● N/A
	COLD FORMED STEEL FRAMING	● PRODUCT DATA ● CERTIFICATIONS

2. THE GENERAL CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS AND PRODUCT DATA FOR CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMITTAL. ANY SHOP DRAWINGS OR PRODUCT DATA NOT REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR WILL BE RETURNED WITHOUT REVIEW. THE CONTRACTOR SHALL CLOUD OR FLAG ALL ITEMS NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. VERIFY ALL DIMENSIONS WITH ARCHITECT.
3. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM THE ORIGINAL CONTRACT DRAWINGS SHALL BE CLOUDED BY THE MANUFACTURER OR FABRICATOR. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES, SHALL NOT BE CONSIDERED ALLOWED AFTER THE ENGINEER'S REVIEW, UNLESS NOTED ACCORDINGLY BY THE STRUCTURAL ENGINEER.
4. THE STRUCTURAL ENGINEER RESERVES THE RIGHT TO MAKE CHANGES, OR ALLOW OR NOT ALLOW ANY CHANGES TO THE ORIGINAL CONTRACT DRAWINGS AT ANY TIME BEFORE OR AFTER SHOP DRAWING REVIEW.
5. THE SHOP DRAWINGS DO NOT REPLACE THE ORIGINAL CONTRACT DRAWINGS. ITEMS OMITTED OR SHOWN INCORRECTLY AND WHICH ARE NOT NOTED AS ALLOWED BY THE STRUCTURAL ENGINEER OR ARCHITECT ARE NOT TO BE CONSIDERED CHANGES TO THE ORIGINAL CONTRACT DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ITEMS OMITTED OR SHOWN INCORRECTLY ARE CONSTRUCTED IN ACCORDANCE WITH THE ORIGINAL CONTRACT DRAWINGS.
6. ALL ENGINEERING DESIGNS AND LAYOUTS PERFORMED BY OTHERS SHALL BE SEALED BY A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF THE LOCAL JURISDICTION. THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS IS THE RESPONSIBILITY OF THE SPECIALTY ENGINEER AND SUBMITTING PARTY.
7. THE ENGINEERS REVIEW IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. RESPONSIBILITY FOR CORRECTNESS AND COMPLETENESS RESTS SOLELY WITH THE CONTRACTOR.
8. SHOP DRAWINGS WILL BE RETURNED FOR RESUBMITTAL IF MAJOR ERRORS ARE FOUND DURING REVIEW.
9. ALLOW A MINIMUM OF FIVE WORKING DAYS FOR REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL ENGINEER OF RECORD.

DEFERRED SUBMITTALS:

1. DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE PERMIT APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD. DEFERRED SUBMITTALS SHALL BE PER 2018 IBC SECTION 107.3.4.1.
2. SUBMITTED DOCUMENTS FOR ALL DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD A MINIMUM OF 30 DAYS PRIOR TO FABRICATION. THE DOCUMENTS SHALL BE REVIEWED FOR GENERAL CONFORMANCE WITH THE DRAWINGS. A COPY OF THE DEFERRED SUBMITTAL DOCUMENTS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED BY THE ENGINEER OF RECORD. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.
3. DEFERRED SUBMITTAL ITEMS REQUIRED FOR THIS PROJECT INCLUDE THE FOLLOWING:
   - PRE-ENGINEERED METAL BUILDING FABRICATION AND ERECTION DRAWINGS

STRUCTURAL LEGEND

(THIS LEGEND IS FOR REFERENCE, ALL SYMBOLS, MATERIALS AND ABBREVIATIONS SHOWN ON THIS LEGEND MAY OR MAY NOT APPLY TO THIS SPECIFIC JOB)

SYMBOL	DESCRIPTION	LOCATION
10	TYPICAL DETAIL - MAY OR MAY NOT BE CUT ON PLANS, BUT SHALL APPLY UNLESS NOTED OTHERWISE.	SEE S1 SERIES SHEETS FOR TYPICAL DETAILS
246	DETAIL CUT SHOWN ON PLAN	SEE S4 SERIES SHEETS FOR FOUNDATION DETAILS SEE S5 SERIES SHEETS FOR FRAMING DETAILS
A / 1	REFERENCE GRIDLINES	FOUNDATION AND FRAMING PLANS
6	PLAN NOTE	SEE PLAN NOTES ON EACH PLAN SHEET
	OPENING IN FLOOR OR ROOF	WHERE SHOWN ON PLANS
2	SHEAR WALL HOLDOWN (IF APPLICABLE)	SEE FOUNDATION PLANS AND SHEAR WALL SCHEDULE
	MOMENT CONNECTION (IF APPLICABLE)	SEE FRAMING PLANS
	SLAB STEP/DEPRESSION	WHERE SHOWN ON PLANS
	STEP IN FOOTING	WHERE SHOWN ON PLANS
	ELEVATION MARK	WHERE SHOWN ON DETAILS
	REVISION	WHERE SHOWN ON PLANS

NOTE:

100 SERIES DETAILS ARE GENERALLY FOUNDATION RELATED DETAILS; 200 AND ABOVE SERIES DETAILS ARE GENERALLY FRAMING RELATED DETAILS. DETAIL NUMBERS MAY OR MAY NOT BE CONTINUOUS (COORDINATE WITH PLANS, TYPICAL).

MATERIALS

SYMBOL	DESCRIPTION
	STEEL
	PLYWOOD/O.S.B.
	EXISTING WALL, FOOTING, ETC.
	PEMB WALL SYSTEM
	STEEL STUD WALL U.N.O.
	STEEL STUD SHEAR WALL U.N.O.

PLAN ABBREVIATIONS

C1	COLUMN DESIGNATION	C1
F1	FOOTING DESIGNATION	F1
SW1	SHEAR WALL DESIGNATION	
L1	LEDGER DESIGNATION	

STRUCTURAL ABBREVIATIONS

A.B.	ANCHOR BOLT	HK	HOOK
ABC	AGGREGATE BASE COURSE	H.S.A.	HEADED STUD ANCHOR
ACI	AMERICAN CONCRETE INSTITUTE		
A.F.F.	ABOVE FINISHED FLOOR	IBC	INTERNATIONAL BUILDING CODE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	ICBO	INTERNATIONAL COUNCIL OF BUILDING OFFICIALS
AITC	AMERICAN INSTITUTE OF TIMBER CONSTRUCTION	I.D.	INSIDE DIAMETER
ALT	ALTERNATE / ALTERNATING	IN	INCH
APA	AMERICAN PLYWOOD ASSOCIATION	INT	INTERIOR
APPROX	APPROXIMATE		
ARCH	ARCHITECTURAL	K	KIP(S) (1000 POUNDS)
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	KSF	KIP(S) PER SQUARE FOOT
AWS	AMERICAN WELDING SOCIETY	KSI	KIP(S) PER SQUARE INCH
@	AT (MEASUREMENT)		
		L	LENGTH (DIMENSION) OR ANGLE SECTION
B.F.F.	BELOW FINISH FLOOR	LL	LIVE LOAD
B.L.	BUILDING LINE	LBS or #	POUNDS
BLDG	BUILDING	LLH	LONG LEG HORIZONTAL
BLKG	BLOCKING	LLV	LONG LEG VERTICAL
BM	BEAM	LSH	LONG SIDE HORIZONTAL
B.N.	BOUNDARY NAILING	LSV	LONG SIDE VERTICAL
B.O.	BOTTOM OF		
BOTT	BOTTOM	MCJ	MASONRY CONTROL JOINT
BRG	BEARING	MAT'L	MATERIAL
BTWN	BETWEEN	MAX	MAXIMUM
		MECH	MECHANICAL
C	CHANNEL SECTION	MFR(S)	MANUFACTURER(S)
C/C	CENTER TO CENTER	MIN	MINIMUM
CABO	COUNCIL OF AMERICAN BUILDING OFFICIALS	MISC	MISCELLANEOUS
C.I.P.	CAST IN PLACE		
CF	CUBIC FOOT	N/A	NOT APPLICABLE
CFS	COLD FORMED STEEL	N.I.C.	NOT IN CONTRACT
CJ	CONSTRUCTION JOINT	N.T.S.	NOT TO SCALE
C.L. or ℄	CENTER LINE		
CLR	CLEAR	O.C.	ON CENTER
CLSM	CONTROLLED LOW STRENGTH MATERIAL	O.D.	OUTSIDE DIAMETER
CMU	CONCRETE MASONRY UNIT	O.F.	OUTSIDE FACE
COL	COLUMN	OPP	OPPOSITE
CONT	CONTINUOUS		
CRSI	CONCRETE REINFORCING STEEL INSTITUTE	PCF	POUNDS PER CUBIC FOOT
CTJ	CONTROL JOINT	PCI	PRESTRESSED CONCRETE INSTITUTE
CTR	CENTER	PL or ℙ	PLATE
CY	CUBIC YARD	PLF	POUNDS PER LINEAR FOOT
		PCF	POUNDS PER CUBIC FOOT
d	PENNY (nails)	PLF	POUNDS PER LINEAR FOOT
D	DEPTH (DIMENSION)	PREFAB	PREFABRICATED
DBL	DOUBLE	PRE-ENG	PRE-ENGINEERED
D.F.	DOUGLAS FIR-LARCH	PSF	POUNDS PER SQUARE FOOT
DIA or ø	DIAMETER	PSI	POUNDS PER SQUARE INCH
DL	DEAD LOAD	P.T.	POST-TENSION
DN	DOWN	PT	POINT
DTL	DETAIL	PTI	POST-TENSIONING INSTITUTE
DWG(S)	DRAWING(S)	P.V.C.	POLYVINYL CHLORIDE (PIPE)
EA	EACH	REF	REFERENCE
E.F.	EACH FACE	REINF	REINFORCING STEEL
E.J.	EXPANSION JOINT	REQD	REQUIRED
EL	ELEVATION	RS	ROUGH SAWN
ELEC	ELECTRICAL		
E.N.	EDGE NAILING	SIM	SIMILAR
ENG	ENGINEER	SLH	SHORT LEG HORIZONTAL
E.O.S.	EDGE OF SLAB	SLV	SHORT LEG VERTICAL
EQ	EQUAL	STD	STANDARD
EQUIP	EQUIPMENT	STL	STEEL
E.W.	EACH WAY	SYM	SYMMETRICAL
EXP	EXPANSION	SQ	SQUARE
EXST	EXISTING		
		T&B	TOP AND BOTTOM
FDN	FOUNDATION	T&G	TONGUE AND GROOVE
F.F.E.	FINISHED FLOOR ELEVATION	THK	THICKNESS
F.G.	FINISH GRADE	TL	TOTAL LOAD
F.O.	FACE OF	T.O._.	TOP OF (OBJECT USE)
F.P.	FULL PENETRATION (WELD)	TYP	TYPICAL
FRMG	FRAMING		
FT	FOOT / FEET	U.N.O.	UNLESS NOTED OTHERWISE
FTG	FOOTING		
		V.I.F.	VERIFY IN FIELD
GA	GAGE		
GALV	GALVANIZED	W	WIDTH (DIMENSION) OR WIDE FLANGE SECTION
GLB	GLUED-LAMINATED BEAM	W.P.	WORKING POINT
G.S.N.	GENERAL STRUCTURAL NOTES	W.W.F.	WELDED WIRE FABRIC
GYP	GYPSUM	W/	WITH
		W/O	WITHOUT
HTor HGT	HEIGHT	WT	WEIGHT

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general structural notes

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SPECIAL INSPECTION REQUIREMENTS

STATEMENT OF SPECIAL INSPECTIONS:

1. AS REQUIRED BY IBC SECTION 1704.2.3, THIS STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS ADDRESSES THE MINIMUM REQUIREMENTS FOR SPECIAL INSPECTIONS. REFER TO ARCHITECTURAL, MECHANICAL AND OTHER DISCIPLINE DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL NON–STRUCTURAL TRADES THAT MAY ALSO HAVE SPECIAL INSPECTION REQUIREMENTS.
2. REQUIRED VERIFICATION AND SPECIAL INSPECTIONS FOR THIS PROJECT ARE AS FOLLOWS :

SPECIAL INSPECTION REQUIREMENTS		
INSPECTION TYPE:	INSPECTIONS (Y/N):	TESTING (Y/N):
SOILS (IBC 1705.6)		
– ENGINEERED FILL PLACEMENT	Y	Y
– FOUNDATION EXCAVATIONS	Y	Y
STRUCTURAL STEEL (IBC 1705.2.1)		
– WELDING	Y	N
POST–INSTALLED ANCHORS (IBC 1705.1.1)		
– EPOXY ANCHORS	Y	N
– EXPANSION ANCHORS	Y	N
– SCREW ANCHORS	Y	N

3. THE ATTACHED TABLES OF REQUIRED SPECIAL INSPECTIONS AND TESTS SUMMARIZE THE SPECIAL INSPECTION AND TESTS REQUIRED FOR THE CATEGORIES LISTED ABOVE. SPECIAL INSPECTORS SHALL REFER TO THE APPROVED PLANS, SPECIFICATIONS, AND IBC CHAPTER 17 FOR DETAILED INSPECTION AND TESTING REQUIREMENTS. ANY ADDITIONAL TESTS AND INSPECTIONS REQUIRED BY THE APPROVED PLANS AND SPECIFICATIONS BEYOND THE IBC TABLES SHALL ALSO BE PERFORMED.
4. THE SPECIAL INSPECTOR SHALL BE EMPLOYED OR RETAINED BY AN APPROVED AGENCY, QUALIFIED PER SECTION 1704.2.1, AND BE APPROVED BY THE LOCAL BUILDING OFFICIAL PER SECTION 1703, FOR THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
5. IN ACCORDANCE WITH SECTION 1704.2.4 THE APPROVED AGENCY SHALL SUBMIT THE SPECIAL INSPECTION REPORTS TO THE BUILDING OFFICIAL WITH COPIES SENT TO ARCHITECT OF RECORD AND THE ENGINEER OF RECORD. THE REPORTS SHALL BE SIGNED AND SEALED BY THE APPROVED AGENCY'S REGISTERED CIVIL OR STRUCTURAL ENGINEER IN THE STATE OF THE LOCAL JURISDICTION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A MINIMUM OF 24 HOURS NOTICE TO THE SPECIAL INSPECTOR AND THE TESTING LABORATORY PRIOR TO BEGINNING ANY WORK FOR WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED.
7. THE SPECIAL INSPECTOR IS NOT AUTHORIZED TO STOP OR DELAY ANY WORK. IF THE CONTRACTOR ELECTS TO CONTINUE WITH A CERTAIN ASPECT OF WORK AFTER BEING NOTIFIED BY THE SPECIAL INSPECTOR THAT SUCH WORK IS UNACCEPTABLE, THE CONTRACTOR DOES SO AT THEIR OWN RESPONSIBILITY, AND RISKS CORRECTING THE WORK AT A LATER TIME.
8. THE SPECIAL INSPECTOR IS NOT INSPECTING FOR OSHA COMPLIANCE AND TEMPORARY CONSTRUCTION, SUCH AS BRACING, OR ANY SAFETY RELATED ITEMS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE FACILITIES FOR THE STRUCTURAL INSPECTOR, TO ALLOW THE INSPECTOR TO PERFORM THEIR WORK SAFELY, AND EFFICIENTLY.
9. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
   - A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK REQUIRED TO BE SPECIAL INSPECTED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.
   - B. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE ENGINEER OR ARCHITECT OF RECORD AND THE BUILDING OFFICIAL.
   - C. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE ENGINEER AND ARCHITECT OF RECORD WITHIN 30 DAYS OF INSPECTION.
   - D. UPON COMPLETION OF THE ASSIGNED WORK, THE APPROVED AGENCY'S SPECIAL INSPECTOR SHALL COMPLETE AND SIGN A FINAL REPORT CERTIFYING THAT TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.
10. SPECIAL INSPECTION IS NOT A SUBSTITUTE FOR INSPECTION BY THE BUILDING OFFICIAL'S INSPECTOR. ALL WORK REQUIRING SPECIAL INSPECTION WHICH IS INSTALLED OR COVERED WITHOUT APPROVAL OF THE BUILDING OFFICIAL'S INSPECTOR IS SUBJECT TO REMOVAL.

REQUIRED SPECIAL INSPECTION AND TESTS OF STEEL CONSTRUCTION (IN ACCORDANCE WITH AISC 360)

TYPE	QC	QA	REFERENCED STANDARD
INSPECTION TASKS PRIOR TO WELDING			
1. WELDING PROCEDURE SPECIFICATIONS (WPSS) AVAILABLE	P	P	AWS D1.1
2. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P	AWS D1.1
3. MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O	AWS D1.1
4. FIT–UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)			
A. JOINT PREPARATION, DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION), BACKING TYPE AND FIT (IF APPLICABLE)	O	O	AWS D1.1
5. CONFIGURATION AND FINISH OF ACCESS HOLES	O	O	AWS D1.1
6. FIT–UP OF FILLET WELDS			
A. DIMENSIONS (ALIGNMENT, GAPS AT ROOT), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND	O	O	AWS D1.1
7. CHECK WELDING EQUIPMENT	O	–	AWS D1.1
INSPECTION TASKS DURING WELDING			
1. USE OF QUALIFIED WELDERS	O	O	AWS D1.1
2. CONTROL AND HANDLING OF WELDING CONSUMABLES			
A. PACKING EXPOSURE CONTROL	O	O	AWS D1.1
3. NO WELDING OVER CRACKED TACK WELDS	O	O	AWS D1.1
4. ENVIRONMENTAL CONDITIONS			
A. WIND SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE	O	O	AWS D1.1
5. WPS FOLLOWED			
A. SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED (MIN/MAX), PROPER POSITION (F, V, H, OH)	O	O	AWS D1.1
6. WELDING TECHNIQUES			
A. INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITATIONS, EACH PASS MEETS QUALITY	O	O	AWS D1.1
INSPECTION TASKS AFTER WELDING			
1. WELD CLEANING	O	O	AWS D1.1
2. SIZE, LENGTH, AND LOCATIONS OF WELDS	P	P	AWS D1.1
3. WELDS MEET VISUAL ACCEPTANCE CRITERIA			
A. CRACK PROHIBITION, WELD/BASE–METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT,	P	P	AWS D1.1
4. ARC STRIKES	P	P	AWS D1.1
5. K–AREA	P	P	AWS D1.1
6. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P	AWS D1.1
7. REPAIR ACTIVITIES	P	P	AWS D1.1
8. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P	AWS D1.1
INSPECTION TASKS PRIOR TO BOLTING			
1. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P	
2. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O	
3. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O	
4. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O	
5. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O	
6. PRE–INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O	
7. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O	
INSPECTION TASKS DURING BOLTING			
1. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	O	
2. JOINT BROUGHT TO THE SNUG–TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O	
3. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O	
4. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O	
INSPECTION TASKS AFTER BOLTING			
1. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P	
O – OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.			
P – PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER, EACH BOLTED CONNECTION, OR EACH STEEL ELEMENT.			

IBC TABLE 1705.1.1 : REQUIRED SPECIAL INSPECTION OF POST-INSTALLED ANCHORS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. EPOXY INSTALLATIONS:		
A. ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	–
B. ANCHORS NOT DEFINED IN NOTE A.	–	X
2. CONCRETE SCREW ANCHORS	–	X
CONTINUOUS SPECIAL INSPECTION: THE INSPECTOR MUST BE ON THE JOB SITE CONTINUOUSLY DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ADHESIVE IDENTIFICATION AND EXPIRATION DATE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DRILLING METHOD, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCE, CONCRETE THICKNESS, ANCHOR EMBEDMENT, TIGHTENING TORQUE AND ADHERENCE TO MANUFACTURER ESR REPORT.		
PERIODIC SPECIAL INSPECTION: THE INSPECTOR MUST MAKE PERIODIC INSPECTIONS DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ADHESIVE IDENTIFICATION AND EXPIRATION DATE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DRILLING METHOD, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCE, CONCRETE THICKNESS, ANCHOR EMBEDMENT, TIGHTENING TORQUE AND ADHERENCE TO MANUFACTURER ESR REPORT. INSPECTOR SHALL INSPECT A MINIMUM OF 25% OF ALL INSTALLATIONS.		

IBC TABLE 1705.6: REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	–	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	–	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	–	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COM– PACTION OF COMPACTED FILL.	X	–
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	–	X

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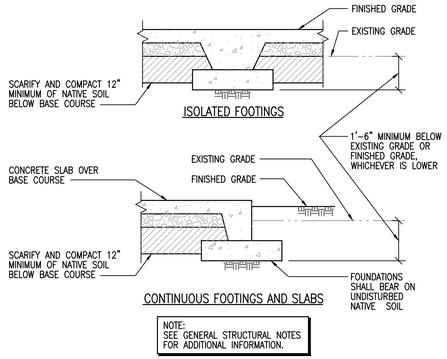
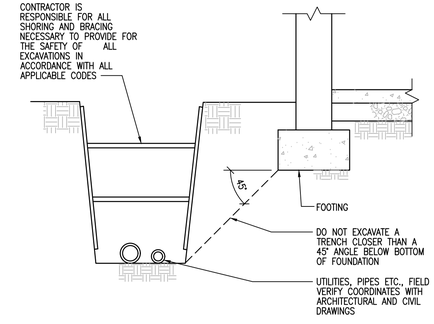
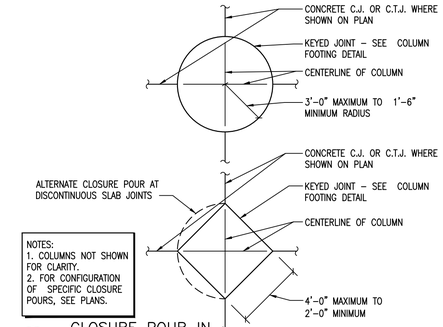


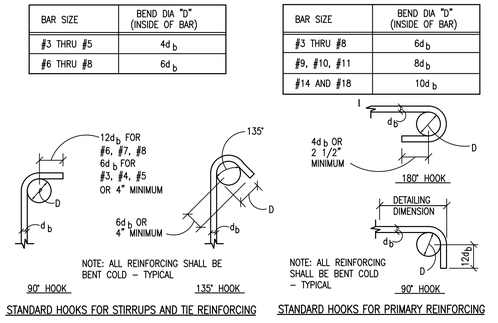
1 TYPICAL EARTHWORK DETAIL
TYPICAL DETAIL 2.01.001



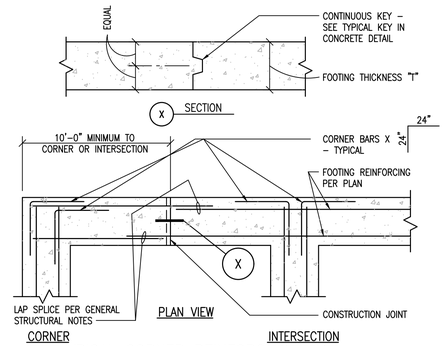
2 TYPICAL TRENCH DETAIL
TYPICAL DETAIL 2.01.017



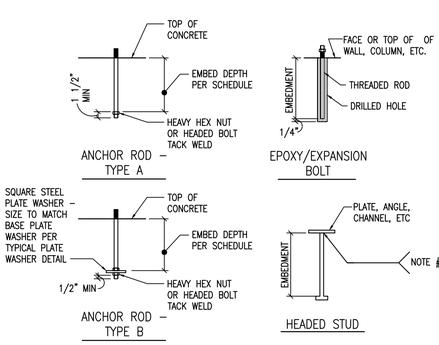
3 CLOSURE POUR IN IN CONCRETE SLAB ON GRADE AT STEEL COLUMN
TYPICAL DETAIL 2.01.026



4 TYPICAL REINFORCING BAR DETAILS
TYPICAL DETAIL 3.01.003



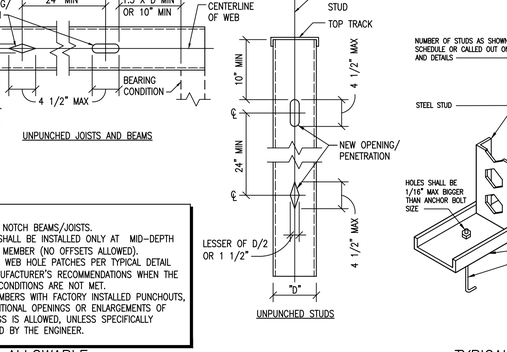
5 TYPICAL CORNER REINFORCING AND CONSTRUCTION JOINTS IN CONCRETE FOOTINGS
TYPICAL DETAIL 2.01.023



ANCHOR AND EXPANSION BOLT IN CONCRETE AND MASONRY SCHEDULE		
BOLT DIAMETER	VERT BOLT EMBEDMENT LENGTH	HORIZ BOLT EMBEDMENT LENGTH
1/2"	7"	5"
5/8"	7"	5"
3/4"	8"	5 1/2"
7/8"	8"	6"
1"	9"	7"

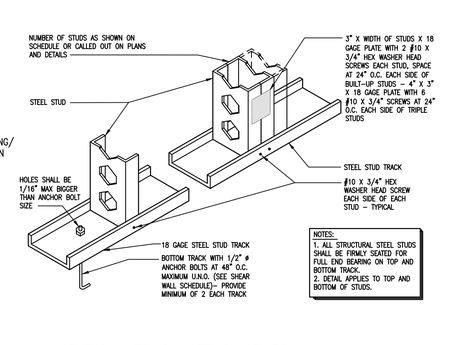
NOTES:
1. PROVIDE ANCHORS, ANCHOR RODS AND EXPANSION BOLTS PER THIS SCHEDULE IN CONCRETE OR MASONRY UNLESS NOTED OTHERWISE ON PLANS OR DETAILS. EXPANSION BOLTS SHALL NOT BE USED IN BRICK MASONRY.
2. EXPANSION/EPOXY BOLTS SHALL BE CENTERED IN GROUTED CELLS. EXPANSION BOLTS SHALL BE USED ONLY WHERE SPECIFICALLY SHOWN ON THE DRAWINGS OR WHEN APPLICATION IS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
3. ANCHOR RODS SHALL BE TYPE A U.N.O.
4. AUTOMATIC WELDED TO DEVELOP FULL CAPACITY OF HIGH STRENGTH HEADED STUDS
5. THICKNESS OF DRYPACK DOES NOT APPLY TOWARDS EMBEDMENT
6. BOLT/PLATE EDGE CLEARANCES PER THE FOLLOWING. TYP. U.N.O. :
3/4" DIA OR LESS ------- 1 1/4"
7/8" DIA OR LESS ------- 1 1/2"
1" DIA ------------- 1 3/4"

6 TYPICAL ANCHOR, ANCHOR BOLT, EXPANSION BOLT AND EPOXY BOLT SCHEDULE
TYPICAL DETAIL



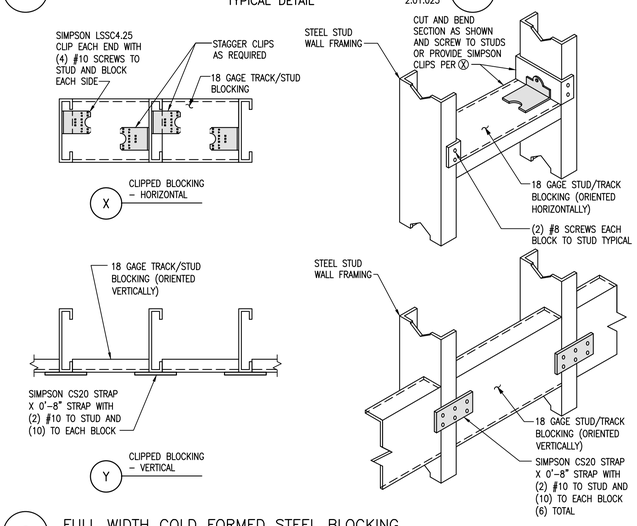
NOTES:
1. DO NOT NOTCH BEAMS/JOISTS.
2. HOLES SHALL BE INSTALLED ONLY AT MID-DEPTH OF THE MEMBER (NO OFFSETS ALLOWED).
3. PROVIDE WEB HOLE PATCHES PER TYPICAL DETAIL OR MANUFACTURER'S RECOMMENDATIONS WHEN THE ABOVE CONDITIONS ARE NOT MET.
4. FOR MEMBERS WITH FACTORY INSTALLED PUNCHOUTS, NO ADDITIONAL OPENINGS OR ENLARGEMENTS OF OPENINGS IS ALLOWED, UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER.

7 ALLOWABLE OPENINGS IN COLD FORMED STEEL FRAMING
TYPICAL DETAIL 5.51.035

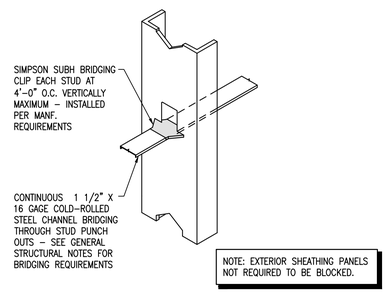


NOTES:
1. ALL STRUCTURAL STEEL STUDS SHALL BE FIRMLY SEATED FOR FULL END BEARING ON TOP AND BOTTOM TRACK.
2. DETAIL APPLIES TO TOP AND BOTTOM OF STUDS.

8 TYPICAL TRACK ATTACHMENTS TO STRUCTURAL STEEL STUDS
TYPICAL DETAIL 5.51.008

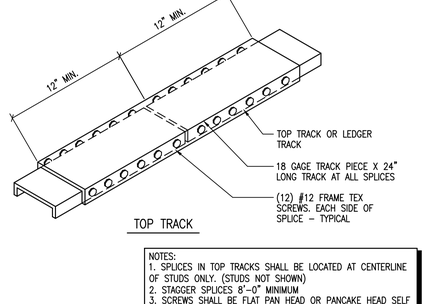


9 FULL WIDTH COLD FORMED STEEL BLOCKING
TYPICAL DETAIL



NOTE: EXTERIOR SHEATHING PANELS NOT REQUIRED TO BE BLOCKED.

10 TYPICAL BRIDGING ATTACHMENT TO STEEL STUDS
TYPICAL DETAIL



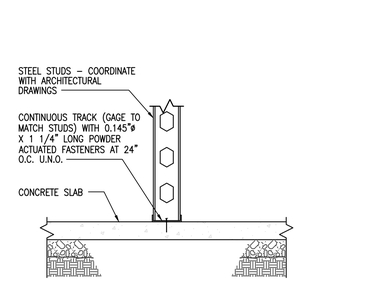
NOTES:
1. SPLICES IN TOP TRACKS SHALL BE LOCATED AT CENTERLINE OF STUDS ONLY. (STUDS NOT SHOWN)
2. STAGGER SPLICES 8'-0" MINIMUM
3. SCREWS SHALL BE FLAT PAN HEAD OR PANCAKE HEAD SELF DRILLING SCREWS AT ALL LOCATIONS RECEIVING DRYWALL. HEX HEAD SCREWS ARE ALLOWED AT OTHER LOCATIONS.

11 TYPICAL SPLICE IN TOP TRACKS AND LEDGER TRACKS
TYPICAL DETAIL 5.51.011R

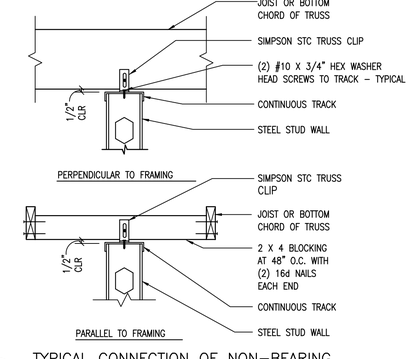
LAP SPLICE - 3000psi CONCRETE UNCOATED BARS - LAP CLASS "B" - SPLICES LISTED IN INCHES ALL SPLICES SHALL BE LAP CLASS "B"									
BAR SIZE	BAR SIZE SOFT METRIC	CONCRETE COVER = 0.75 in.		CONCRETE COVER = 1.00 in.		CONCRETE COVER = 1.50 in.		CONCRETE COVER = 2.00 in.	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	#10	17	16	17	16	17	16	17	16
#4	#13	28	22	23	17	23	17	23	17
#5	#16	41	32	33	26	28	22	28	22
#6	#19	56	43	46	35	34	26	34	26
#7	#22	90	69	74	57	55	43	49	38
#8	#25	111	86	93	72	70	54	56	43
#9	#29	135	104	113	87	86	66	69	53
#10	#32	162	125	137	106	105	81	85	66
#11	#36	190	146	162	125	125	97	102	79

NOTE:
1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE. LENGTHS ARE IN INCHES.
2. TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-05, SECTIONS 12.2.3 AND 12.15, RESPECTIVELY.
3. CENTER-TO-CENTER SPACING OF BARS IS ASSUMED TO BE GREATER THAN TWICE THE CONCRETE COVER PLUS ONE BAR DIAMETER, SO THAT THE VALUE OF "C" IS GOVERNED BY CONCRETE COVER RATHER THAN BY BAR SPACING.
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS.
5. FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3
6. FOR F'c OTHER THAN AS LISTED, CONSULT STRUCTURAL ENGINEER OF RECORD.

12 LAP SPLICE SCHEDULE



13 NON-BEARING INTERIOR PARTITION WALL ANCHORAGE TO CONCRETE SLAB
TYPICAL DETAIL



14 TYPICAL CONNECTION OF NON-BEARING PARTITIONS TO FLOOR OR ROOF FRAMING
TYPICAL DETAIL 5.51.020

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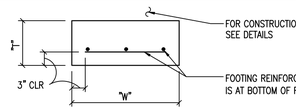
FOOTING SCHEDULE



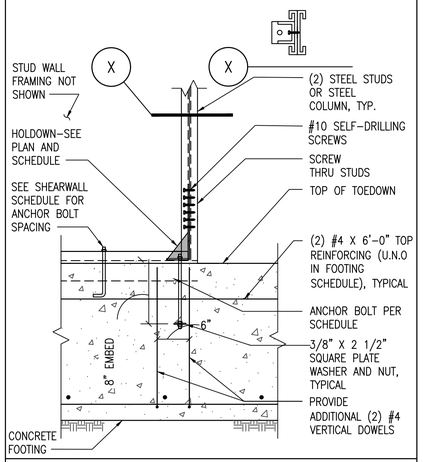
MARK	DIMENSIONS "W"	DIMENSIONS "T"	FOOTING REINFORCING	REMARKS
F1	1'-4" X CONT.	12"	(2) #4 CONTINUOUS TOP AND BOTTOM	SEE DETAIL 110
F2	1'-6" X CONT.	12"	(2) #5 CONTINUOUS	SEE DETAIL 104
F3	3'-0" SQUARE	12"	(3) #5 EACH WAY	SEE DETAIL 106
F4	4'-0" SQUARE	16"	(4) #5 EACH WAY TOP AND BOTTOM	SEE DETAIL 102
F5	4'-0" SQUARE	12"	(4) #5 EACH WAY	SEE DETAIL 105

COLUMN SCHEDULE

MARK	SIZE	BASE CONNECTION	REMARKS
C1	HSS 5 X 5 X 3/16	BASE PLATE 1/2 X 12 X 1'-0" WITH (4) 3/4"ø ANCHOR RODS	EMBED ANCHOR RODS 8" MIN
C2	HSS 8 X 3 X 3/16	BASE PLATE 1/2 X 7 X 0'-8" WITH (2) 1/2"ø X 4" TITEN HD SCREW ANCHORS	SEE DETAIL 112

HOLDOWN SCHEDULE

MARK	HOLDOWN	REMARKS
1	SIMPSON S/HDU4 HOLDOWN WITH (6) #14 SCREWS INTO DOUBLE END STUDS (MIN.) AND (1) 5/8"ø ANCHOR BOLT	--



NOTE:
WHERE POST-INSTALLED ANCHORS ARE REQUIRED AT HOLDOWNS - DRILL AND EMBED BOLTS 8" WITH EPOXY.

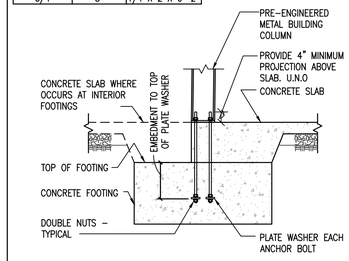
SHEAR WALL SCHEDULE

MARK	SHEATHING MATERIAL	EDGE SCREWS	FIELD SCREWS	SILL ANCHORAGE	REMARKS
SW1	15/32" OSB SHEATHING	#8 AT 6" O.C.	#8 AT 12" O.C.	1/2" ø ANCHOR RODS AT 32" O.C.	--

NOTES:
1. ALL PLYWOOD PANEL EDGES SHALL BE BLOCKED PER DETAIL 112.
2. PROVIDE DOUBLE STUDS AT END OF ALL SHEAR WALLS.
3. SEE TYPICAL STEEL STUD SHEAR WALL DETAIL 112.

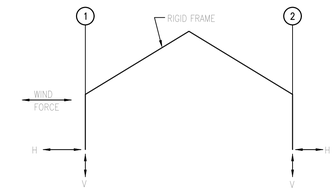
ANCHOR BOLT EMBEDMENT SCHEDULE

ANCHOR BOLT DIAMETER	EMBEDMENT INTO FOOTING	PLATE WASHER
3/4"	8"	1/4 X 2 X 0'-2"



NOTE:
SIZE, NUMBER AND EXACT LOCATIONS OF ANCHOR BOLTS ARE SHOWN ON THE PEMB ANCHOR BOLT PLANS.

RIGID FRAME COLUMN REACTIONS

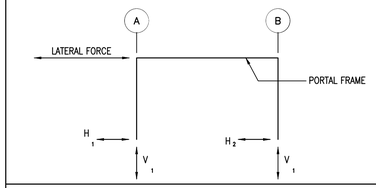


RIGID FRAME COLUMN REACTIONS (RESTROOM)

FRAME LINE	MAX DOWN FORCE, V (KIPS)	H (KIPS)	LOAD COMBINATION	MAX UPLIFT FORCE, V (0.6D + 0.6W)	H (KIPS)	LOAD COMBINATION
A & B	9.6	0.0	DL + LL	1.6	-2.2	0.6 DL + 0.6 WL

NOTES:
1. SEE GENERAL STRUCTURAL NOTES FOR DESIGN CRITERIA.
2. NEGATIVE SIGN INDICATES REACTION DIRECTION OPPOSITE TO DIRECTION SHOWN ON DIAGRAM.
3. REACTIONS SHOWN ARE TO BE VERIFIED WITH PEMB DRAWINGS.

PORTAL FRAME REACTIONS



GRID LOCATION	REACTIONS (KIPS) H	REACTIONS (KIPS) V	FRAME TYPE
1 & 2	2.5	3.9	PORTAL FRAME

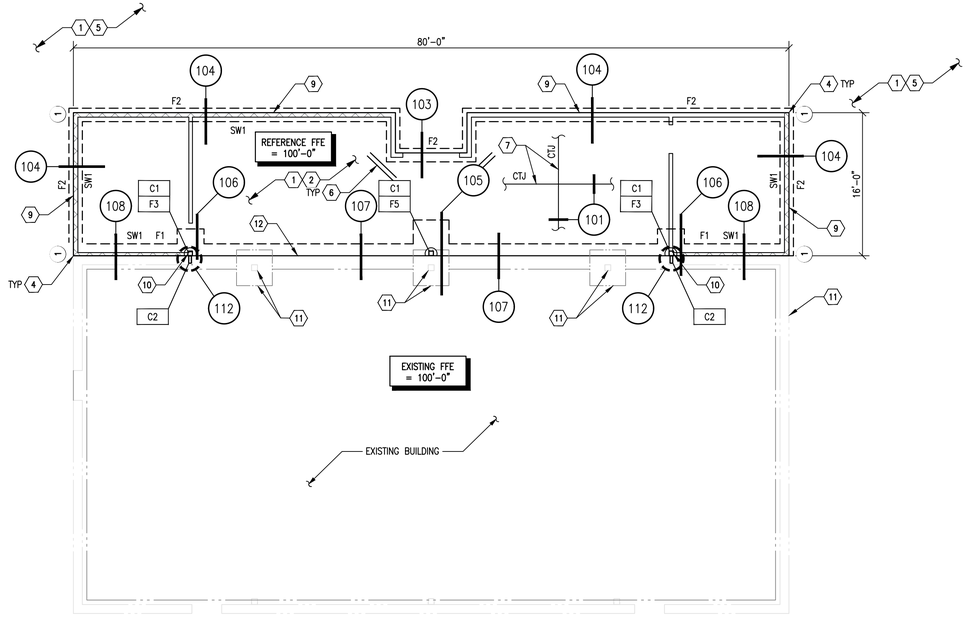
NOTES:
1. ENVELOPE REACTIONS SHOWN ARE TO BE VERIFIED WITH PEMB DRAWINGS.

GENERAL FOUNDATION NOTES

1. SEE SHEET S1.0 FOR STRUCTURAL NOTES (MATERIALS, REQUIREMENTS, ETC.).
2. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
3. UNLESS SPECIFICALLY NOTED OTHERWISE BOTTOMS OF ALL FOUNDATIONS SHALL BE COORDINATED WITH TYPICAL EARTHWORK DETAILS.
4. COORDINATE AND VERIFY ALL FINISH FLOOR ELEVATIONS, FINISH GRADES, TOP OF FOOTINGS, ETC. WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
5. SEE ARCHITECTURAL DRAWINGS FOR EXTENTS AND LOCATION OF EXTERIOR SLABS, SLAB JOINTS ETC., - TYPICAL.
6. PROVIDE CONSTRUCTION JOINTS IN FOOTINGS IN ACCORDANCE WITH TYPICAL DETAILS.
7. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
   - SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS.
   - SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON-BEARING PARTITIONS.
   - SIZE AND LOCATION OF ALL CONCRETE CURBS; FLOOR AND ROOF DRAINS, SLOPES AND DEPRESSED AREAS; CHANGES IN LEVEL; CHAMFERS, CORNER FORMERS, GROOVES, BLOCKOUTS AND INSERTS; PAVING SITE WORK CURBS AND WALLS.
   - DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
   - SIZE AND LOCATION OF OPENINGS THRU ROOF.
8. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:
   - WALL AND SLAB OPENINGS FOR MECHANICAL PIPE RUNS, TRENCHES, FLOOR DRAINS, ROOF DRAINS, SUMPS, ETC.
   - WALL AND SLAB OPENINGS FOR ELECTRICAL CONDUIT RUNS, BOXES, JUNCTION BOXES IN WALLS, COLUMNS, SLABS, ETC.
   - SLEEVES, SLEEVE CLUSTERS AND BLOCKOUTS; AND CONCRETE INSERTS FOR EQUIPMENT AND FIXTURES.
   - SIZE AND LOCATION OF MACHINE TRANSFORMER, SWITCH GEAR AND EQUIPMENT CURBS, BASES AND PADS, AND ANCHOR BOLTS FOR ANCHORED ITEMS.
9. COORDINATE WITH MECHANICAL AND ARCHITECTURAL DRAWINGS, AS WELL AS SUB - CONTRACTORS/SUPPLIERS FOR ALL MECHANICAL UNITS AND FLOOR/ROOF OPENINGS (VERIFY EXACT LOCATIONS AND WEIGHT OF UNITS SHOWN ON PLANS AND FOR ADDITIONAL UNITS THAT MAY NOT BE SHOWN).
10. PROVIDE 1/2" CLEAR FROM BOTTOM OF ROOF FRAMING TO TOP OF NON-BEARING WALLS. COORDINATE WITH ARCHITECTURAL DRAWINGS. FOR VERTICAL SLIP CONNECTIONS, SEE TYPICAL STRUCTURAL DETAILS - TYPICAL.

FOUNDATION PLAN NOTES

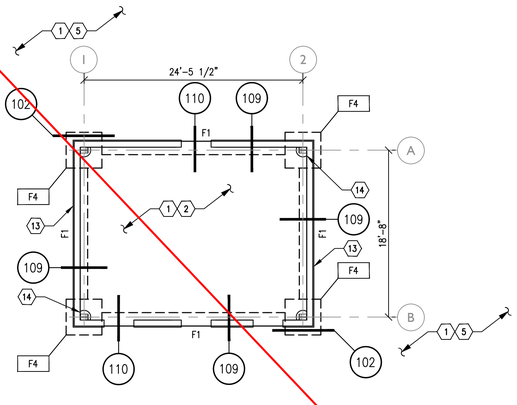
1. SEE TYPICAL DETAIL AND STRUCTURAL NOTES FOR EARTHWORK REQUIREMENTS.
2. 4" CONCRETE SLAB OVER BASE COURSE PER SOILS REPORT.
3. PROVIDE 1/2" PREFORMED JOINT FILLER AT ALL LOCATIONS WHERE EXTERIOR SLABS ABUT THE BUILDING. AT ALL DOORS/OPENINGS PROVIDE PNA 1/4" DIAMOND DOWELS (OR EQUIVALENT) AT 18" O.C. TO PREVENT TRIPPING HAZARD (EXTEND 3'-0" EACH SIDE OF OPENINGS).
4. ALL HORIZONTAL REINFORCING IN FOOTINGS, STEM WALLS AND WALLS SHALL BE CONTINUOUS AROUND ALL CORNERS AND INTERSECTIONS PER TYPICAL DETAILS.
5. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND LIMITS OF SITE WORK, SIDEWALKS, FINISH, SLOPES, CURBS, SITE WALLS, ETC.
6. (2) #4 X 4'-0" CENTERED IN SLAB AT 6" O.C. - TYPICAL AT RE-ENTRANT CORNERS AND DISCONTINUOUS SLAB JOINTS.
7. CTJ - INDICATES SLAB CONTROL JOINT. CONTRACTOR SHALL PROVIDE CONTROL JOINTS AT 10'-0" O.C. MAXIMUM.
8. XXXX - INDICATES SHEARWALL PER SCHEDULE.
9. ALL EXTERIOR AND BEARING WALLS SHALL BE 6" X 20 GAGE (600S162-33) STEEL STUDS AT 16" O.C.
10. ATTACH END STUDS TO STEEL COLUMN WITH HILTI X-U SHOTPINS AT 12" O.C. FULL HEIGHT.
11. EXISTING P.E.M.B. COLUMN AND FOOTING TO REMAIN - SEE DETAIL 111 FOR STRENGTHENING.
12. DOWEL NEW FOOTING INTO (E) FOOTING WITH (2) #5 X 1'-8" DOWELS SET INTO 3/4" ø X 8" HOLES WITH NON-SHRINK GROUT. SET AT MID-DEPTH OF FOOTING.
13. PEMB PORTAL FRAME IN BAYS INDICATED - COORDINATE WITH PEMB DRAWINGS.
14. SEE DETAIL 102 FOR REINFORCING AT ANCHOR BOLTS.



BLDG V - (WRESTLING)
FOUNDATION PLAN

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

NORTH



Not included in bid

SEE PEMB DRAWINGS FOR ANCHOR BOLT SIZES, LAYOUT AND ALL DIMENSIONS

RESTROOM - FOUNDATION PLAN

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

NORTH

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Registered Professional Engineer (Structural) CERTIFICATE NO. 19300 JOHN E. GRENIER Date Signed 4/7/25 ARIZONA U.S.A.

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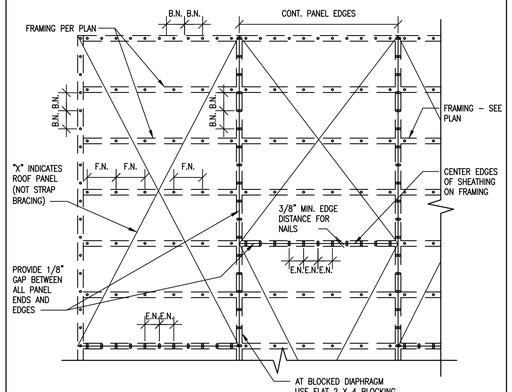
ROOF NAILING SCHEDULE

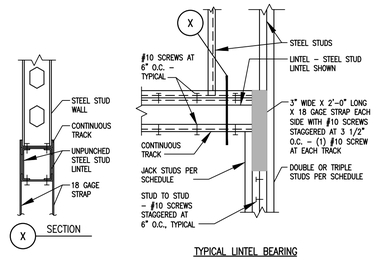
LOCATION	SCREW TYPE	SHEATHING	SPAN/INDEX RATIO	BOUNDARY NAILING (B.N.)	EDGE NAILING (E.N.)	FIELD NAILING (F.N.)	BLOCKING
ROOF	#8 SCREWS	5/8" (19/32") PLYWOOD	32/16	6"	6"	12"	NONE



NOTES:

1. PENETRATION INTO FRAMING MEMBERS SHALL BE 1 1/2" MINIMUM.
2. LAY LONG DIMENSION OF SHEETS PERPENDICULAR TO FRAMING.
3. DIAPHRAGM SHEATHING NAILS SHALL BE DRIVEN SO THAT THEIR HEADS ARE FLUSH WITH THE SURFACE OF SHEATHING.

TYPICAL STRUCTURAL STEEL STUD WALL LINTELS



TYPICAL LINTEL BEARING

THIS SCHEDULE APPLIES UNLESS NOTED OTHERWISE

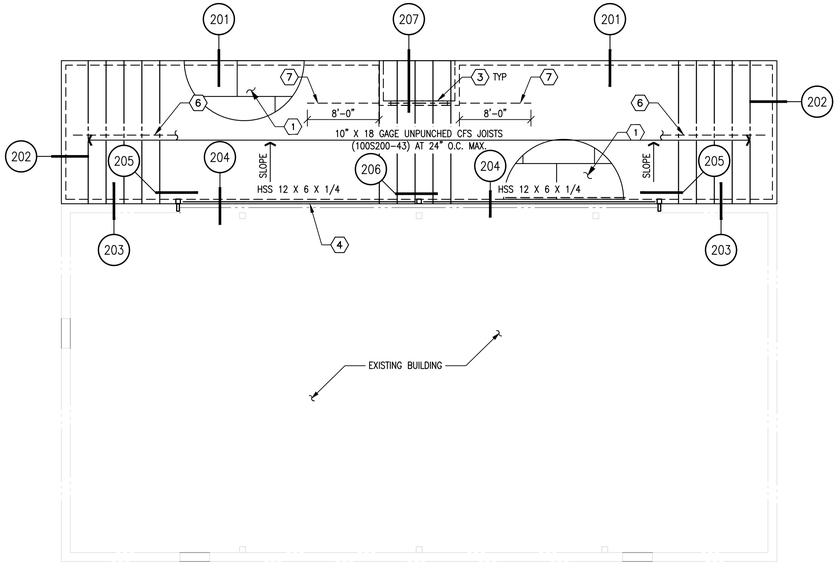
OPENING WIDTH	LINTEL	# OF JACK STUDS	# OF JAMB STUDS	TRACK MEMBER
UP TO 6'-6"	(2) 6" X 18 GAGE UNPUNCHED STEEL STUDS WITH 2" FLANGE (600S200-43)	1	2	600T150-43

GENERAL ROOF FRAMING NOTES

1. SEE SHEET S1.0 FOR STRUCTURAL NOTES (MATERIALS, REQUIREMENTS, ETC.).
2. COORDINATE AND VERIFY ALL VERTICAL DIMENSIONS (TOL,TOP,TOM, ETC.) WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
3. COORDINATE WITH MECHANICAL AND ARCHITECTURAL DRAWINGS, AS WELL AS SUB – CONTRACTORS/SUPPLIERS FOR ALL MECHANICAL UNITS AND FLOOR/ROOF OPENINGS (VERIFY EXACT LOCATIONS AND WEIGHT OF UNITS SHOWN ON PLANS AND FOR ADDITIONAL UNITS THAT MAY NOT BE SHOWN).
4. PROVIDE 1/2" CLEAR FROM BOTTOM OF ROOF FRAMING TO TOP OF NON–BEARING WALLS. COORDINATE WITH ARCHITECTURAL DRAWINGS. FOR VERTICAL SLIP CONNECTIONS, SEE TYPICAL STRUCTURAL DETAILS – TYPICAL.
5. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
   - SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS.
   - SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON–BEARING PARTITIONS.
   - SIZE AND LOCATION OF ALL CONCRETE CURBS; FLOOR AND ROOF DRAINS, SLOPES AND DEPRESSED AREAS; CHANGES IN LEVEL; CHAMFERS, CORNER FORMERS, GROOVES, BLOCKOUTS AND INSERTS; PAVING SITE WORK CURBS AND WALLS.
   - DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
   - SIZE AND LOCATION OF OPENINGS THRU ROOF AND FLOOR.
6. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:
   - WALL AND SLAB OPENINGS FOR MECHANICAL PIPE RUNS, TRENCHES, FLOOR DRAINS, ROOF DRAINS, SUMPS, ETC.
   - WALL AND SLAB OPENINGS FOR ELECTRICAL CONDUIT RUNS, BOXES, JUNCTION BOXES IN WALLS, COLUMNS, SLABS, ETC.
   - SLEEVES, SLEEVE CLUSTERS AND BLOCKOUTS; AND CONCRETE INSERTS FOR EQUIPMENT AND FIXTURES.
   - SIZE AND LOCATION OF MACHINE TRANSFORMER, SWITCH GEAR AND EQUIPMENT CURBS, BASES AND PADS, AND ANCHOR BOLTS FOR ANCHORED ITEMS.

ROOF FRAMING PLAN NOTES

1. 5/8" PLYWOOD SHEATHING – TYPICAL AT ROOFS. FOR LAYUP AND ATTACHMENT, SEE STRUCTURAL NOTES AND TYPICAL DETAILS.
2. PEMB METAL ROOF PANEL PER PEMB MANUFACTURER. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR PROFILE AND DETAILS.
3. – INDICATES TYPICAL STEEL STUD HEADER PER SCHEDULE.
4. EDGE OF EXISTING ROOF.
5. PEMB PORTAL FRAME – SEE PEMB DRAWINGS.
6. CONTINUOUS ROWS OF SIMPSON LTB TENSION BRIDGING AT MIDSPAN.
7. PROVIDE FULL DEPTH 20 GAGE JOIST BLOCKING BETWEEN EACH JOIST AND CONTINUOUS SIMPSON CS14 STRAP FULL LENGTH FOR DISTANCE INDICATED. INSTALL STRAP ON TOP OF ROOF SHEATHING.

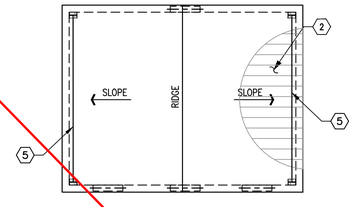


BLDG V - (WRESTLING)
ROOF FRAMING PLAN

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

NORTH

Not included in bid



RESTROOM - ROOF FRAMING PLAN

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

NORTH

PEMB DESIGN CRITERIA:

- ROOF LIVE LOAD = 20 PSF (REDUCIBLE).
- SUPERIMPOSED (COLLATERAL) DEAD LOAD = 5 PSF
- WIND LOAD = RISK CATEGORY III; BASIC WIND SPEED 120 MPH (3 SEC GUST); EXPOSURE C
- SEISMIC – RISK CATEGORY II Ie = 1.0; SITE CLASSIFICATION D; SEISMIC DESIGN CATEGORY B; R = PER THE PEMB MANUFACTURER'S DESIGN.
- DEFLECTION CRITERIA H/240.

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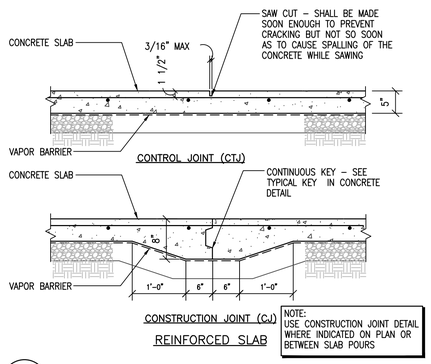
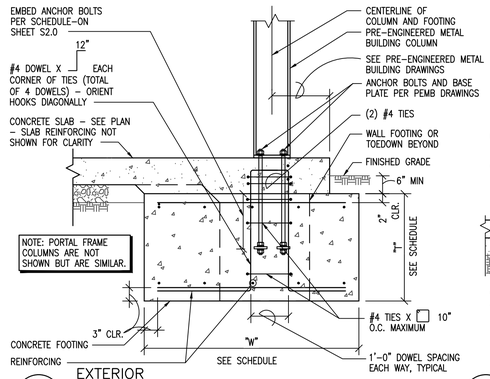


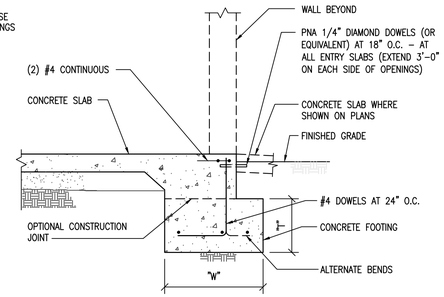
101 TYPICAL CONCRETE SLAB JOINTS

2.02.001

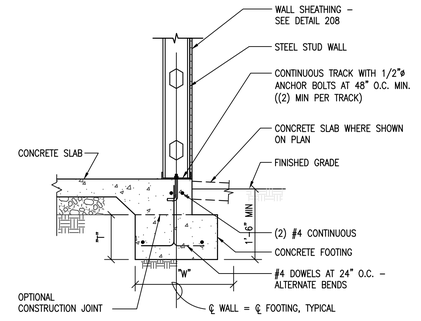


102 EXTERIOR PRE–ENGINEERED BUILDING COLUMN FOOTING

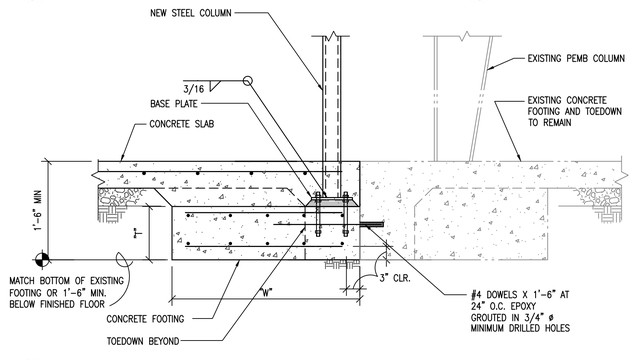
5.14.005



103 EXTERIOR STUD WALL FOOTING AT OPENING

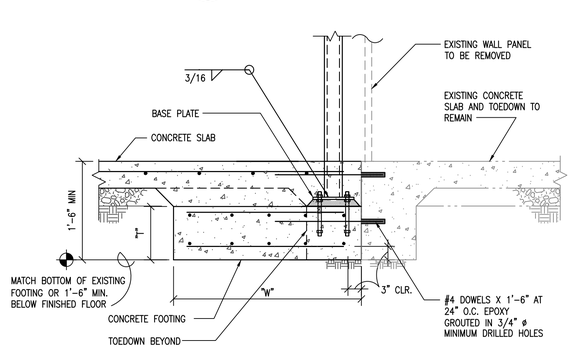


104 EXTERIOR STEEL STUD WALL FOOTING

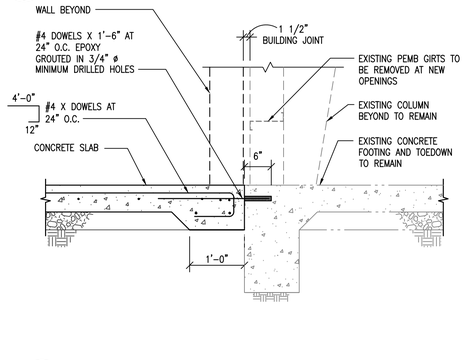


105 NEW COLUMN AT EXISTING P.E.M.B. COLUMN

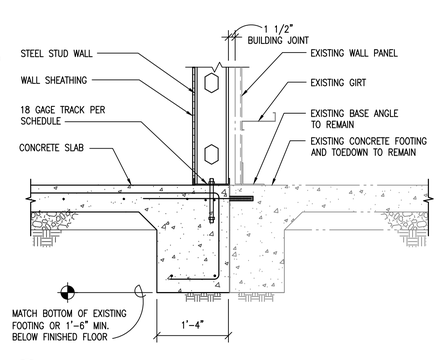
2.02.107R



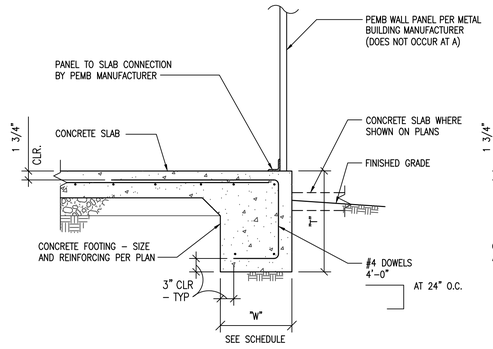
106 INTERIOR STEEL COLUMN FOOTING



107 NEW OPENING AT EXISTING P.E.M.B.

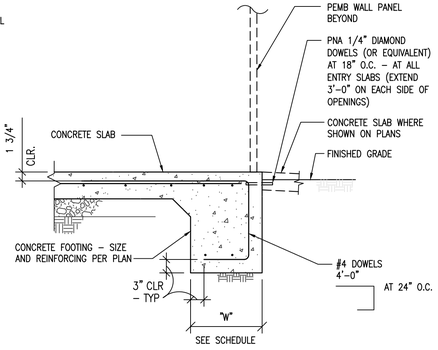


108 NEW WALL AT EXISTING PEMB

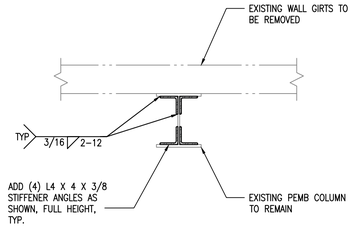


109 P.E.M.B. CONCRETE SLAB TOEDOWN

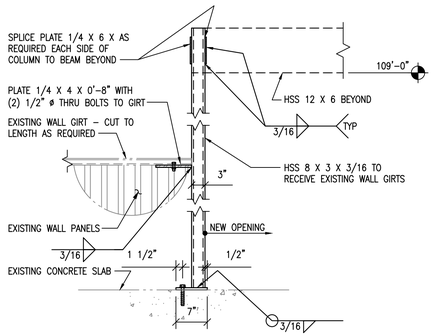
5.14.036



110 EXTERIOR STUD WALL FOOTING AT OPENING



111 PLAN VIEW – STIFFENER ANGLES AT EXISTING PEMB COLUMN



112 NEW GIRT SUPPORT COLUMN

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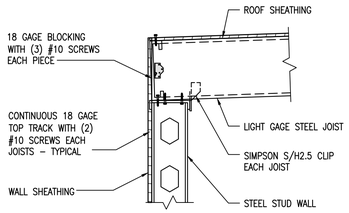
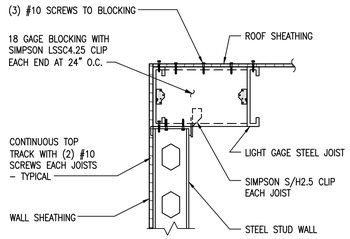
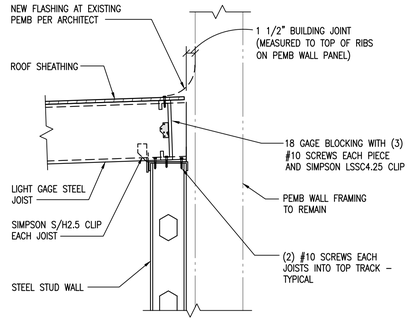


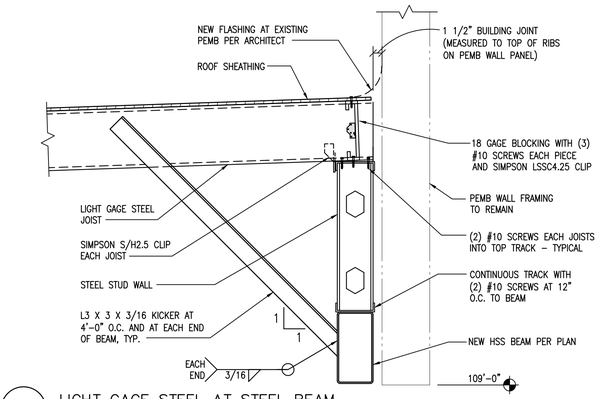
201 LIGHT GAGE STEEL JOIST AT STEEL STUD WALL
5.58.012R



202 LIGHT GAGE STEEL JOIST AT STEEL STUD WALL
5.58.012R



203 LIGHT GAGE STEEL AT STEEL STUD WALL

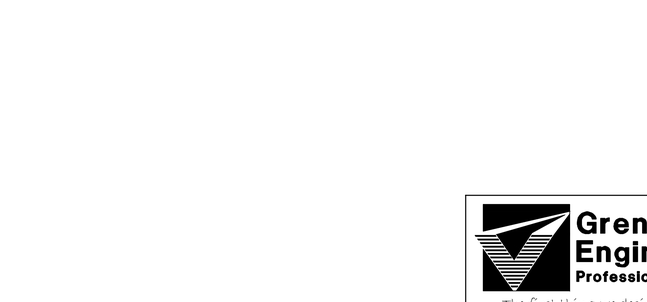


204 LIGHT GAGE STEEL AT STEEL BEAM

205 STEEL BEAM TO STEEL COLUMN
5.10.132

206 STEEL BEAM CONNECTION AT STEEL COLUMN
5.10.089

207 LIGHT GAGE STEEL JOIST AT STEEL STUD WALL



208 STEEL STUD SHEAR WALL ELEVATION – ONE STORY
5.51.005

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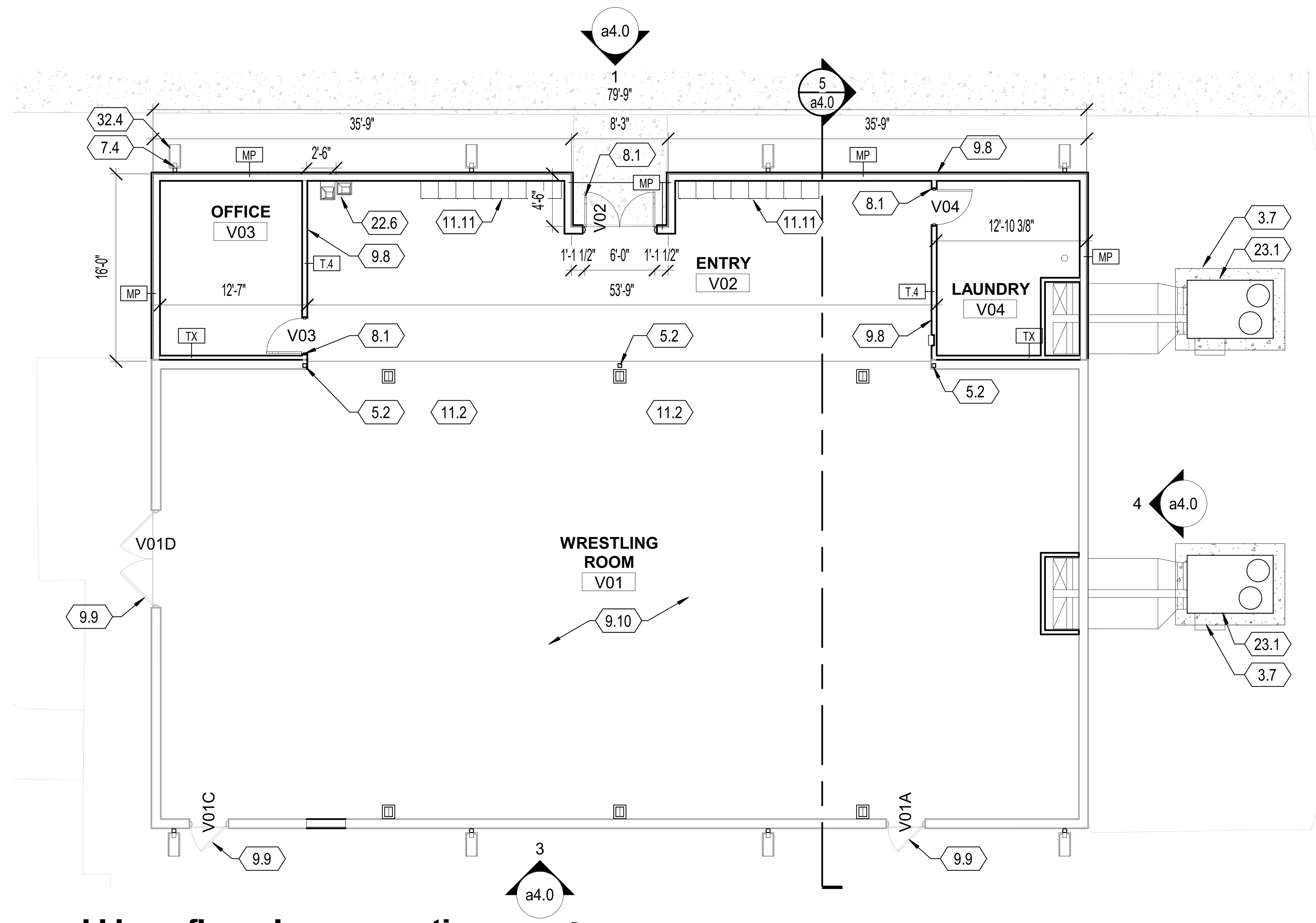
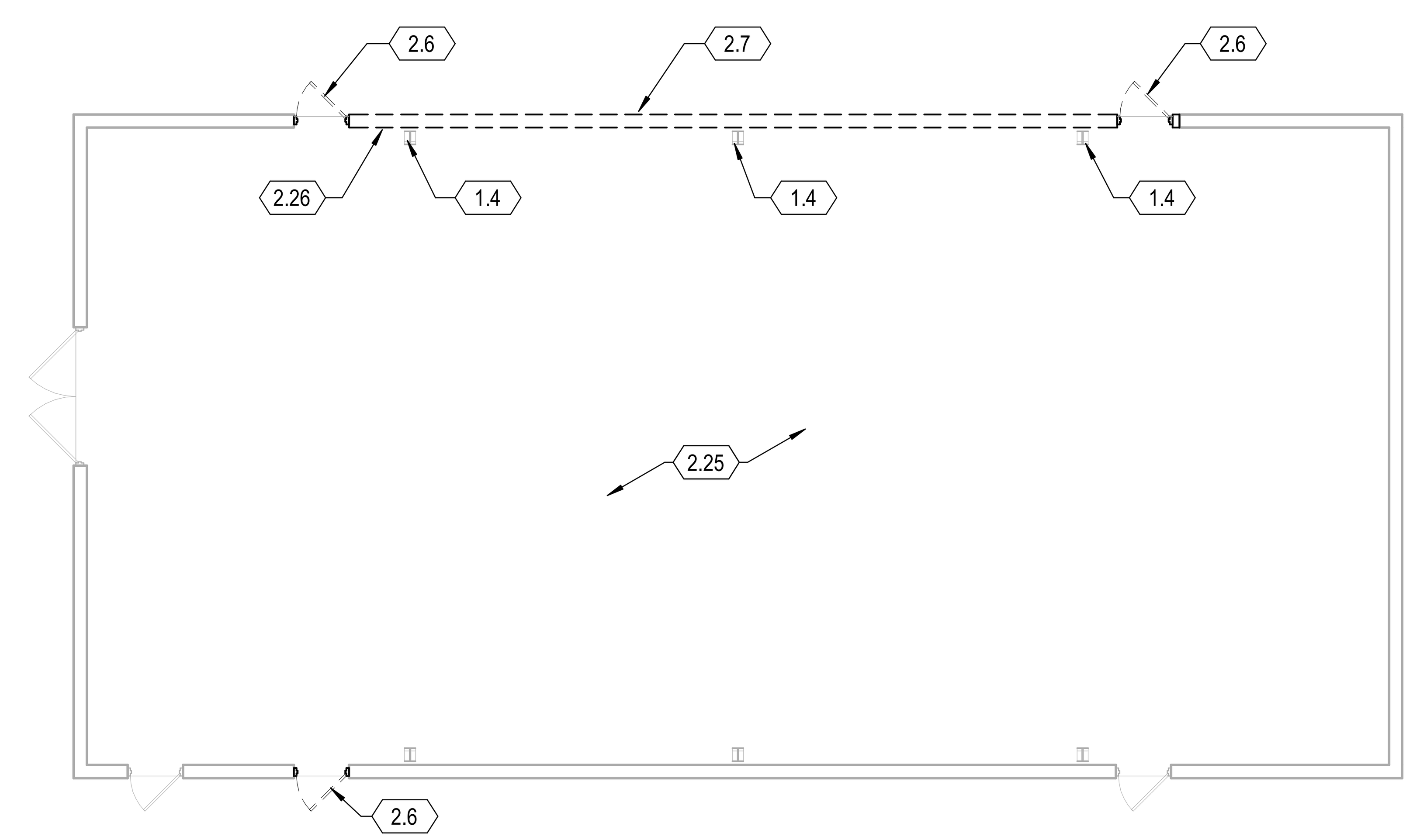


2
a1.2
bldg v - floor plan - renovation
1/8" = 1'-0"
north



1
a1.2
bldg v - floor plan - demolition
1/8" = 1'-0"
north

general notes

1. DO NOT SCALE DRAWINGS. COORDINATE ALL WORK BETWEEN ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, COMMUNICATIONS AND ELECTRICAL DRAWINGS, CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE IMPLEMENTATION OF WORK.
2. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL APPLICABLE CODES FOR REQUIRED CLEARANCES OF EQUIPMENT.
3. SEE SHEET a8.0 FOR WINDOW AND DOOR TYPES.
4. SEE SHEET a9.0 FOR WALL TYPES.

keynotes

1.4	EXISTING COLUMNS TO REMAIN.
2.6	REMOVE DOOR AND FRAME.
2.7	REMOVE METAL BUILDING METAL PANEL, INSULATION AND PURLINS AS REQUIRED TO OPEN UP THE WALL. COLUMNS TO REMAIN.
2.25	ROLL AND REMOVE MATTS TO PERFORM WORK.
2.26	REMOVE AND REINSTALL DISPLAY CABINETS AS DIRECTED.
3.7	16" THICK CONCRETE PAD FOR HVAC UNIT. REINFORCE WITH #4'S AT 16" O.C.
5.2	STEEL COLUMN, REFER TO STRUCTURAL. PRIME AND PAINT (WHERE EXPOSED).
7.4	NEW PREFINISHED GUTTER & DOWNSPOUTS.
8.1	DOOR AND FRAME, REFER TO DOOR SCHEDULE.
9.8	NEW PARTITION, SEE WALL TYPES.
9.9	PAINT HM DOOR AND FRAME, BOTH SIDES.
11.11	INSTALL EXISTING LOCKERS.
22.6	DRINKING FOUNTAIN, REFER TO PLUMBING.
23.1	MECHANICAL EQUIPMENT, REFER TO MECHANICAL.
32.4	CONCRETE SPLASHBLOCK.

floor plan sheet legend

CLASS 129	ROOM NAME / NUMBER	SEE SHEET SERIES "X"
A129B	DOOR NUMBER	SEE SHEET SERIES "X"
A	WINDOW MARK	SEE SHEET SERIES "X"
3	PARTITION TYPE	SEE SHEET SERIES "X"

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23459
MARK E. BOLLARD
DATE SIGNED 06/27/25
ARIZONA U.S.A.

job
2404.03

date
11.20.2025

revisions

WILLCOX MIDDLE & HIGH SCHOOL
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

bldg V floor plan - demoliition & renovation

a1.2

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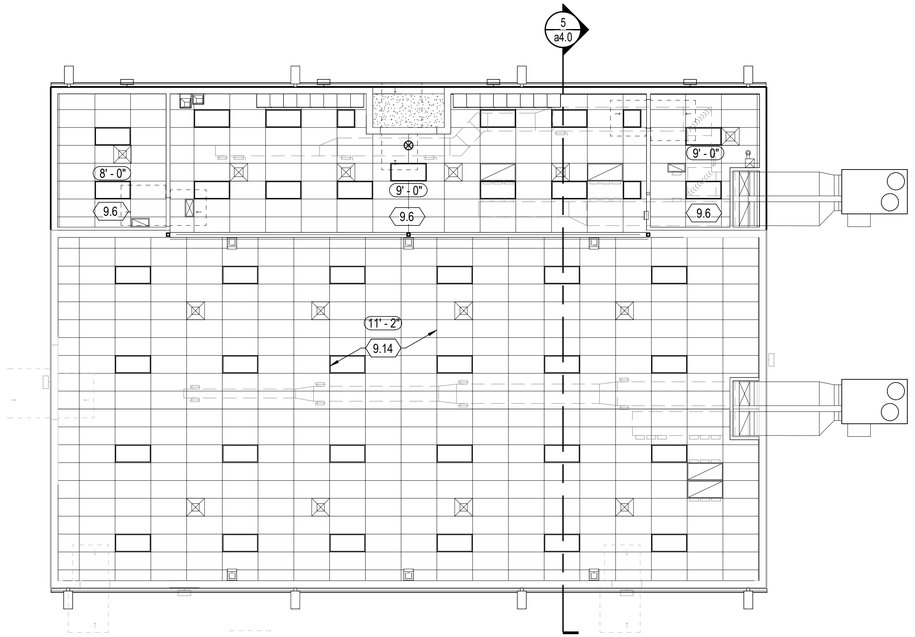
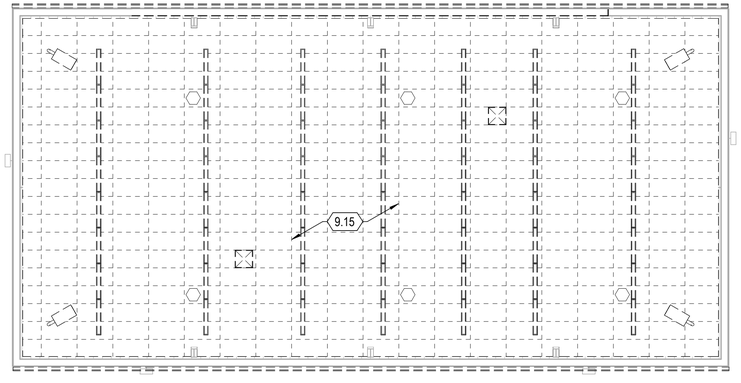


2 a2.2 **bldg v - rcp - renovation**
1/8" = 1'-0"
north



1 a2.2 **bldg v - rcp - demolition**
1/8" = 1'-0"
north

general notes

1. DO NOT SCALE DRAWINGS. COORDINATE ALL WORK BETWEEN ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, COMMUNICATIONS AND ELECTRICAL DRAWINGS, CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE IMPLEMENTATION OF WORK.
2. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL APPLICABLE CODES FOR REQUIRED CLEARANCES OF EQUIPMENT.

keynotes

9.6	SUSPENDED ACOUSTICAL TILE CEILING.
9.14	PAINT EXISTING GRID AND INSTALL NEW ACOUSTICAL TILES.
9.15	REMOVE LIGHTS AND CEILING TILES. SAVE SPECIAL SYSTEMS.

general notes

- 2' x 4' SUSPENDED CEILING GRID ASSEMBLY
- 2' x 2' SUSPENDED CEILING GRID ASSEMBLY
- 2' x 4' LIGHT FIXTURE
- WALL SCONCE
- RECESSED CAN LAMP
- EXIT SIGN
- HIGH BAY LIGHT FIXTURE
- EMERGENCY LIGHTING
- MECHANICAL SUPPLY REGISTER
- MECHANICAL RETURN REGISTER
- MECHANICAL EXHAUST REGISTER
- GYPSUM WALLBOARD SOFFIT / CEILING
- ROOF HATCH

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bldg V reflected ceiling plan - demolition & renovation

a2.2

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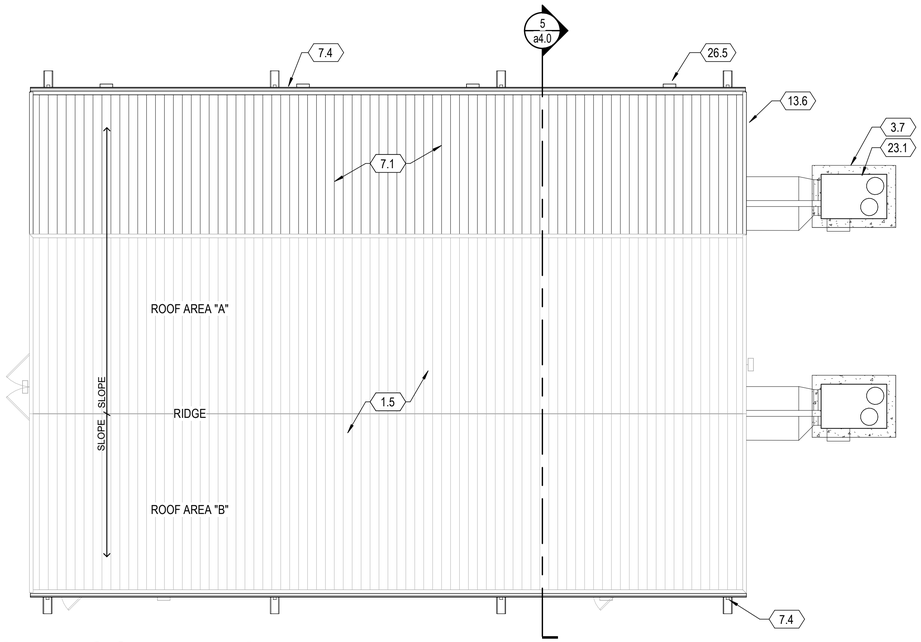

2 a3.1 **bldg v - roof plan - renovation** north

1/8" = 1'-0"

general notes

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2. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL APPLICABLE CODES FOR REQUIRED CLEARANCES OF EQUIPMENT.
3. SEE MECHANICAL, PLUMBING AND ELECTRICAL FOR ALL PENETRATIONS THROUGH ROOFS. REFER TO TYPICAL DETAILS.
4. ROOF HEIGHTS SHOWN ARE TOP ROOF UNO.

keynotes

1.5	EXISTING ROOF.
3.7	16" THICK CONCRETE PAD FOR HVAC UNIT. REINFORCE WITH #4'S AT 16" O.C.
7.1	METAL ROOFING ON MODIFIED BIT UNDERLAYMENT ON PLYWOOD SHEATHING ON METAL C JOISTS. INSTALL R-38 BATT INSULATION.
7.4	NEW PREFINISHED GUTTER & DOWNSPOUTS.
13.6	PREFINISHED METAL TRIM AT EAVES AND RAKES.
23.1	MECHANICAL EQUIPMENT, REFER TO MECHANICAL.
26.5	LIGHT FIXTURE, REFER TO ELECTRICAL.

2018 IPC (TABLE 1106.3 & 1108.3) BASED UPON 3" RAINFALL RATE PER HOUR

	ROOF AREA				PRIMARY ROOF DRAIN				SECONDARY (EMERGENCY) OVERFLOW	
					SIZE OF ROOF GUTTER @ 1/8" FT		SIZE OF VERTICAL LEADER		SIZE OF SCUPPER (2" WATER HEAD MAX)	
ROOF	ROOF AREA	VERTICAL WALL AREA	TOTAL AREA	GPM (TOTAL AREA X .03)	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
A	2897 SF	120 SF	2957 SF	89	6"	6"	3"x4"	4" sq. (x4)	N/A	N/A
B	1613 SF	0 SF	1613 SF	48	5"	6"	2"x3"	4" sq. (x4)	N/A	N/A

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240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

bldg V roof plan

a3.1

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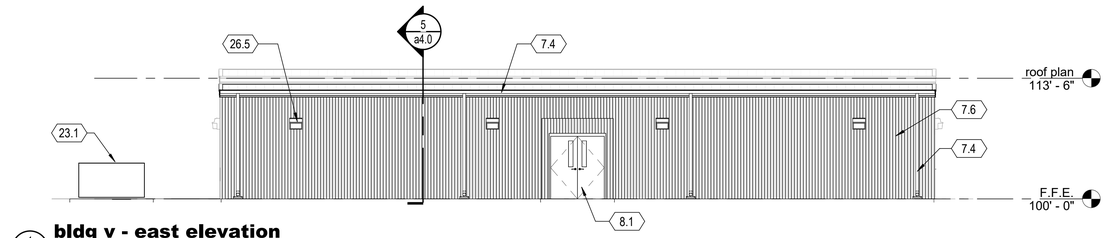
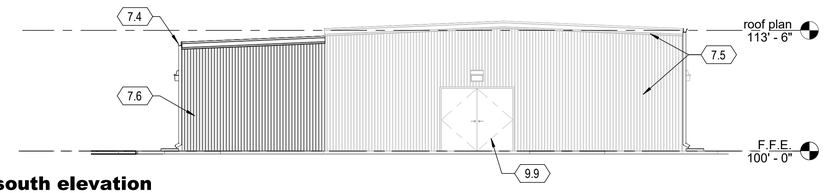


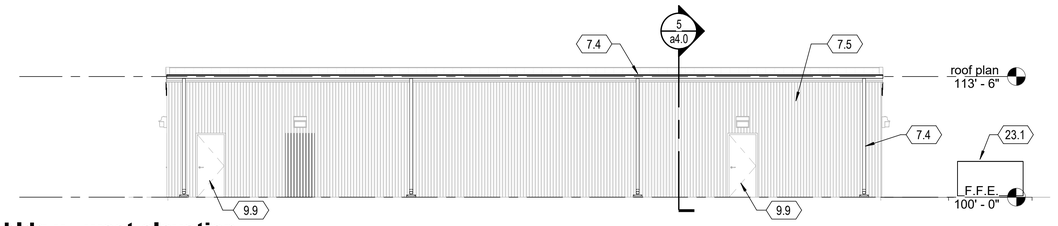
1 a4.0 **bldg v - east elevation**

1/8" = 1'-0"



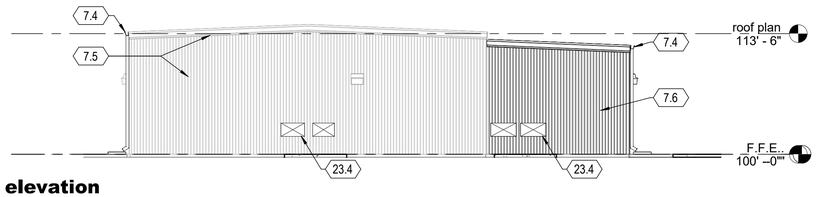
2 a4.0 **bldg v - south elevation**

1/8" = 1'-0"



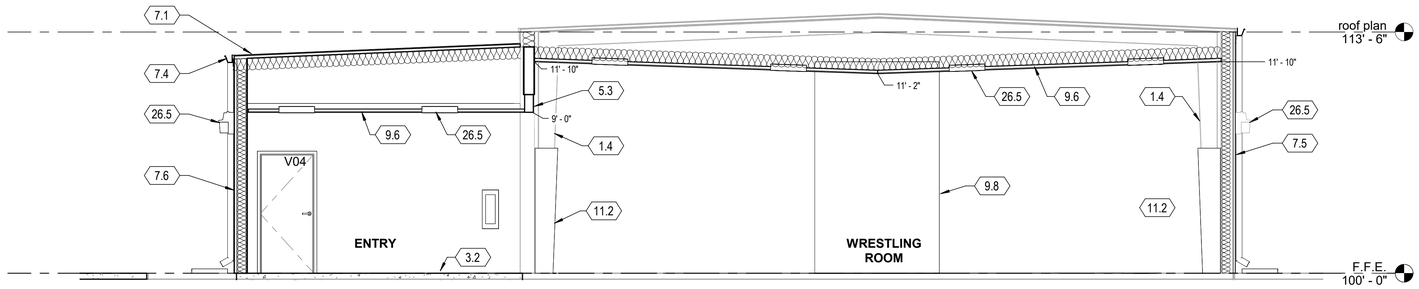
3 a4.0 **bldg v - west elevation**

1/8" = 1'-0"



4 a4.0 **bldg v - north elevation**

1/8" = 1'-0"



5 a4.0 **building section (looking north)**

1/4" = 1'-0"

general notes

1. DO NOT SCALE DRAWINGS. COORDINATE ALL WORK BETWEEN ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, COMMUNICATIONS AND ELECTRICAL DRAWINGS. CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO IMPLEMENTATION OF WORK.
2. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS AND ALL APPLICABLE CODES FOR REQUIRED CLEARANCES OF EQUIPMENT.
3. LOCATE CONTROL JOINTS AND EXPANSION JOINTS PER STRUCTURAL AND MANUFACTURERS REQUIREMENTS . VERIFY ALL JOINTS NOT SHOWN WITH ARCHITECT PRIOR TO INSTALLATION.
4. SMOOTH CMU SHALL BE USED AT ALL LIGHT FIXTURES, ELECTRICAL OUTLETS, BUTTONS, SWITCHES AND GATE ATTACHMENT POINTS.
5. PREP, PRIME AND PAINT ALL EXPOSED STEEL STRUCTURE, DECK AND SIDING.
6. SEE SHEET a8.0 FOR WINDOW TYPES.

keynotes

1.4	EXISTING COLUMNS TO REMAIN.
3.2	CONCRETE SLAB ON VAPOR BARRIER ON COMPACTED AGGREGATE BASE. SEE STRUCTURAL.
5.3	STEEL BEAM, PRIME & PAINT.
7.1	METAL ROOFING ON MODIFIED BIT UNDERLAYMENT ON PLYWOOD SHEATHING ON METAL C JOISTS. INSTALL R-38 BATT INSULATION.
7.4	NEW PREFINISHED GUTTER & DOWNSPOUTS.
7.5	REMOVE EXISTING SIDING AND INSTALL ALL NEW TRIM AT CORNERS AND AT EAVES / GUTTERS.
7.6	METAL PANELS OVER FLUID APPLIED BARRIER ON 5/8" GLASS MATT GWB ON 6" METAL STUDS. 6" BATTS AND 5/8" GWB ON INTERIOR.
8.1	DOOR AND FRAME, REFER TO DOOR SCHEDULE.
9.6	SUSPENDED ACOUSTICAL TILE CEILING.
9.8	NEW PARTITION, SEE WALL TYPES.
9.9	PAINT HM DOOR AND FRAME, BOTH SIDES.
11.2	NEW COLUMN PADS. 7'-0" HIGH.
23.1	MECHANICAL EQUIPMENT, REFER TO MECHANICAL.
23.4	OPENING FOR NEW HVAC DUCTWORK, COORDINATE LOCATION.
26.5	LIGHT FIXTURE, REFER TO ELECTRICAL.

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WILLCOX MIDDLE & HIGH SCHOOL
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

bldg v - elevations & building section

a4.0

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DOOR SCHEDULE - BLDG V

	DOOR						FRAME		DETAIL					
NUMBER	WIDTH	HEIGHT	PAIR	THICKNESS	MATERIAL	TYPE	MATERIAL	TYPE	HEAD	JAMB	HARDWARE	RATING	SIGNAGE	COMMENTS
V01A	3' - 0"	7' - 0"		1 3/4"	HM	F	ETR	ETR	-	-	04	-		4, 5
V01C	3' - 0"	7' - 0"		1 3/4"	HM	F	ETR	ETR	-	-	03	-		4, 5
V01D	8' - 0"	7' - 0"	X	1 3/4"	HM	F	ETR	ETR	-	-	03	-		4, 5
V02	6' - 0"	7' - 0"	X	1 3/4"	HM	N	HM	01	4/a8.0	5/a8.0	04	-	WRESTLING ROOM	2, 5
V03	3' - 0"	7' - 0"		1 3/4"	HM	N	HM	01	2/a8.0	3/a8.0	01	-	OFFICE	2, 5
V04	3' - 0"	6' - 8"		1 3/4"	HM	F	HM	01	2/a8.0	3/a8.0	02	-	STORAGE	2, 5

door schedule abbreviations

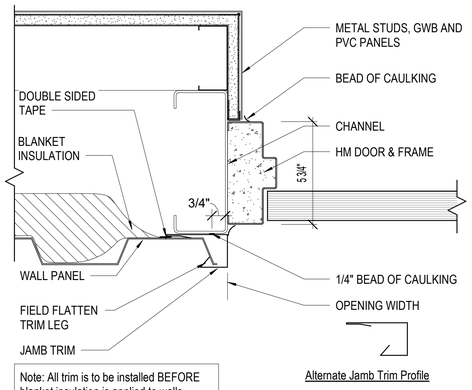
AL	ALUMINUM
G1	1" INSULATED GLAZING
G2	1/4" GLAZING
HM	HOLLOW METAL
P	PAINT
SCWD	SOLID CORE WOOD
T	TEMPERED

door schedule comments

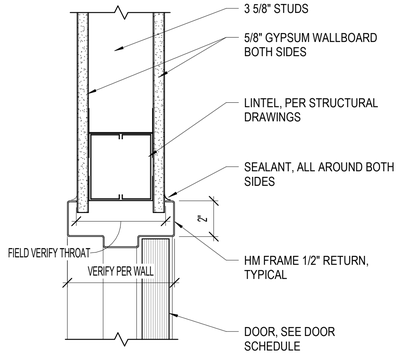
1 ALL FRAMES IN MASONRY WALLS TO BE GROUTED SOLID.
2 ROOM SIGNAGE - SEE DETAILS. PROVIDE AT ALL DOORS U.N.O.
3 PROVIDE TEMPERED GLASS WITHIN 24" OF EACH SIDE OF DOORS AND WITHIN 18" OF FINISHED FLOOR IN COMPLIANCE WITH IBC 2406.4
4 NEW DOOR IN EXISTING HM FRAM. MATCH HINGE AND STRIKE PREP.
5 PRIME AND PAINT DOOR AND FRAME.

door types abbreviations

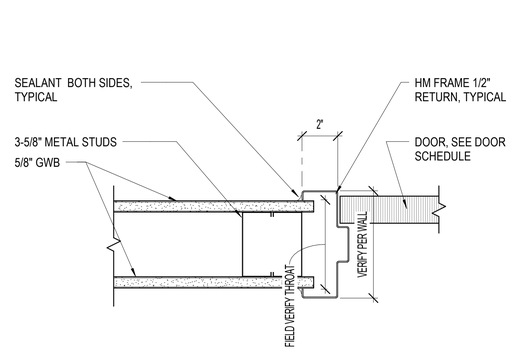
F	FLUSH
FG	FULL GLASS
G	HALF GLASS
K	STEEL ROLL-UP ELECTRIC
L	LOUVERED (TOP OR BOTTOM)
LL	LOUVERED (TOP AND BOTTOM)
N	NARROW LITE



1 a8.0 EMP2 wall type - HM door jamb
3" = 1'-0"

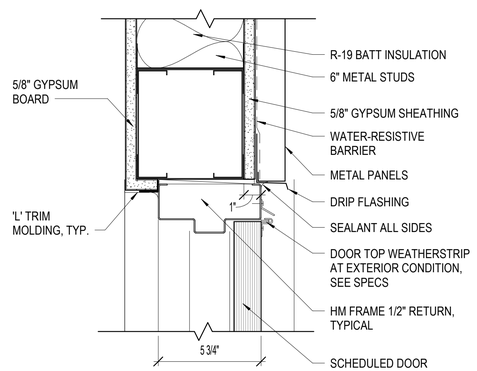


2 a8.0 T wall type - HM door head
3" = 1'-0"

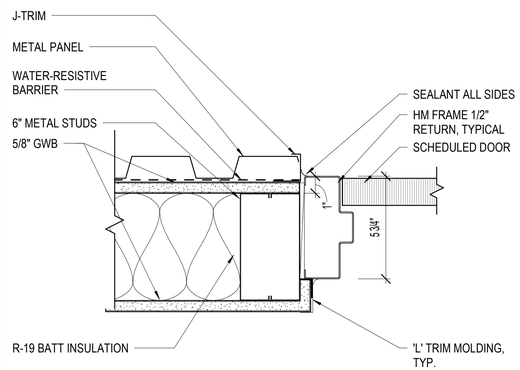


3 a8.0 T wall type - HM door jamb
3" = 1'-0"

NOTE:
REFER TO DETAILS ON THIS SHEET FOR TYPICAL FLASHING OF OPENINGS IN WALL.

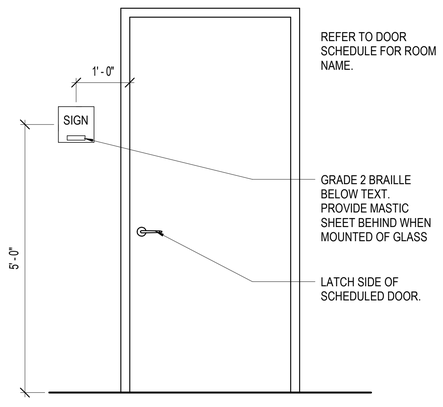


4 a8.0 EMP wall type - HM door head
3" = 1'-0"



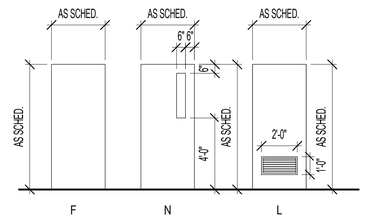
NOTE:
REFER TO DETAILS ON THIS SHEET FOR TYPICAL FLASHING OF OPENINGS IN WALL.

5 a8.0 EMP wall type - HM door jamb
3" = 1'-0"

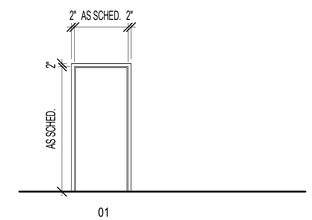


6 a8.0 signage at door
3/4" = 1'-0"

door types



frame types



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door schedule and frame types

a8.0

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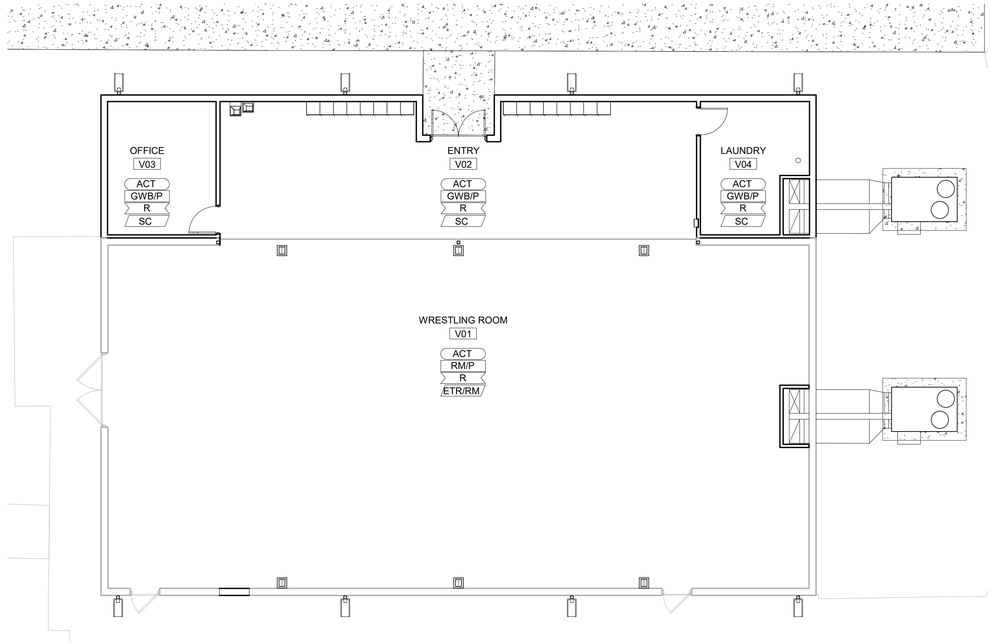

1 / a8.2 **bldg V finish floor plan**

1/8" = 1'-0"

north

room schedule abbreviations

ACT	ACOUSTICAL CEILING TILE
AL	ALUMINUM - ANODIZED
C	CONCRETE
CMU	EXPOSED CMU - INTEGRAL COLOR
CPT	CARPET
CT	CERAMIC TILE
EP	EPOXY PAINT
EPXY	EPOXY FLOORING W/ 6" BASE
ES	EXPOSED STRUCTURE - PAINTED
ETR	EXISTING TO REMAIN
G1	1" INSULATED GLAZING
G2	1/4" GLAZING
GWB	GYPSUM WALL BOARD
HM	HOLLOW METAL - PAINTED
MP	MAGNETIC PAINT
MR	MOISTURE RESISTANT
MTL	METAL CEILING PANEL - PREFINISHED
P	PAINT
R	RUBBER BASE
RM	RUBBER MATT
SC	SEALED CONCRETE
SCWD	SOLID CORE WOOD
T	TEMPERED
VCT	VINYL COMPOSITION TILE
WD	WOOD FLOORING

room schedule comments

1 SEE INTERIOR ELEVATIONS FOR LIMITS OF CERAMIC WALL TILE IN TOILET ROOMS.

2 SEE FLOOR PLANS FOR LIMITS OF MULTIPLE FLOOR FINISHES.

3 PROVIDE TRANSITION STRIP AT INTERIOR CHANGE OF FLOOR FINISH PER DETAIL X/A9.X.

finish legend

Name / 101 = ROOM NAME / ROOM NUMBER

ACT-1/P-1 = CEILING FINISH

EP/FRP = WALL FINISH

RB-1 = BASE FINISH

CPT-1/LVT-1 = FLOOR FINISH

P = ACCENT PAINT

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bldg V - finish plan

a8.2

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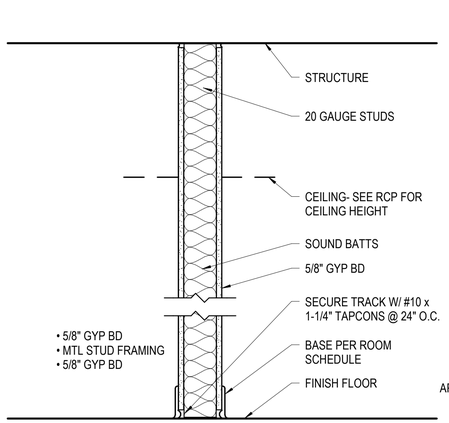


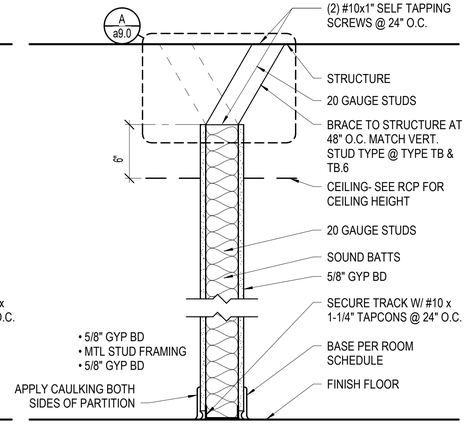
T **TYPICAL 3 5/8"**
THICKNESS: 4 7/8"

TX **TYPICAL 3 5/8"**
THICKNESS: 4 1/4"

T.4 **TYPICAL 4"**
THICKNESS: 5 1/4"

T.6 **TYPICAL 6"**
THICKNESS: 7 1/4"

TX.6 **TYPICAL 6"**
THICKNESS: 6 5/8"

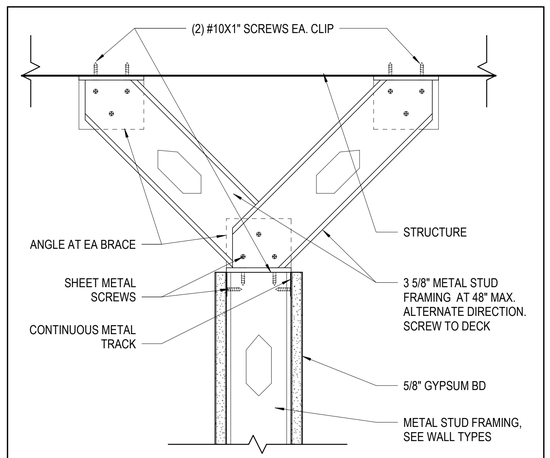


TB **TYPICAL 3 5/8"**
THICKNESS: 4 7/8"
BRACED: 48" O.C.

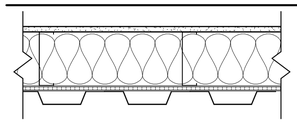
TBX **TYPICAL 3 5/8"**
THICKNESS: 4 1/4"
BRACED: 48" O.C.

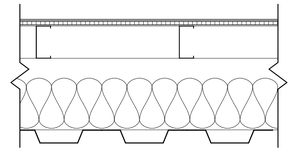
TB.6 **TYPICAL 6"**
THICKNESS: 7 1/4"
BRACED: 48" O.C.

TBX.6 **TYPICAL 6"**
THICKNESS: 6 5/8"
BRACED: 48" O.C.



A a9.0 partition bracing - steel stud
3" = 1'-0" (4 / a9.0)





MP **EXTERIOR METAL PANEL**
THICKNESS: 1'-3"

MP2 **EXTERIOR METAL PANEL**
THICKNESS: 10 1/2"

general notes

1. STAGGER GYPSUM BOARD JOINTS FROM ONE SIDE OF THE WALL TO THE OTHER.
   ALLOW A 1/4" GAP ALONG ALL WALL PERIMETER EDGES, (@ FLOOR, CEILING & SIDES) AND COMPLETELY SEAL 1/4" GAP WITH ACOUSTIC SEALANT OR NON-HARDENING FLEXIBLE CAULK.
2. DO NOT 'SHORT-CIRCUIT' RESILIENT CHANNEL SUBSURFACE SUSPENSION MATERIALS WITH FASTENERS THRU DRYWALL AND INTO STUD. DO NOT 'SHORT-CIRCUIT' DRYWALL SHEET ISOLATION FROM STUDS AT SILL, HEAD OR SIDE JOINTS. MAINTAIN REQUIRED DRYWALL SHEET ISOLATION FROM STUD AT ALL POSSIBLE POINTS OF DRYWALL SHEET TO STUD CONTACT.
3. LIMIT NECESSARY WALL PENETRATIONS TO NO MORE THAN ONE PER STUD CAVITY. SEPARATE WALL PENETRATIONS AS FAR AS POSSIBLE FROM EACH OTHER. MAINTAIN A MINIMUM OF 24" SEPARATION FROM PENETRATIONS ON ONE SIDE OF A WALL TO PENETRATIONS ON THE OPPOSITE SIDE OF THE WALL.
4. SEAL ALL PENETRATIONS & OPENINGS IN JUNCTION BOXES & OUTLETS WITH ACOUSTICAL SEALANT AND/OR PUTTY PADS.
5. PROVIDE EXTERIOR TYPE WEATHER-SEAL PADS UNDER ELECTRICAL OUTLET COVERS ON ALL ELECTRICAL OUTLETS ON BOTH SIDES OF SOUND RATED WALL.
6. FIBERGLASS BATTING TO BE EVENLY DISTRIBUTED THROUGHOUT WALL CAVITY, AVOID CLUMPING OR EMPTY AREAS IN WALL CAVITY.
7. SEAL ALL PENETRATIONS - DUCTWORK, CONDUIT, PIPING ETC. BOTH SIDES OF WALL, WITH FLEXIBLE CAULK.
8. METAL FRAMING LISTED IS BASED ON PRODUCTS BY CLARK DIETRICH.
9. FULL HEIGHT PARTITIONS EXTEND TO BOTTOM OF TJI'S. SEE DETAIL ON SHEET A9.1.
10. TYPICAL EXTERIOR WALLS ARE 6" METAL FRAMING. REFER TO WALL SECTIONS AND STRUCTURAL DRAWINGS FOR GAUGE AND SPACING.
11. CONTRACTOR SHALL CONSULT MANUFACTURER'S LIMITING HEIGHT TABLES AND SHALL ADJUST GAUGE AS NECESSARY TO BE IN CONFORMANCE.
12. ALL PLUMBING PENETRATIONS SHALL BE SEALED AT THE GWB, BOTH SIDES OF PARTITION.

WALL STUD DESIGNATION

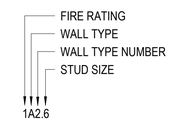
13'-0"	16'-0"	20'-0"
326S125-27 @ 16" O.C.	326S125-33 @ 16" O.C.	326S125-54 @ 12" O.C.
600S125-27 @ 16" O.C.	600S125-27 @ 16" O.C.	600S125-27 @ 16" O.C.
800S125-43 @ 16" O.C.	800S125-43 @ 16" O.C.	800S125-43 @ 16" O.C.
1000S162-43 @ 16" O.C.	1000S162-43 @ 16" O.C.	1000S162-43 @ 16" O.C.

• INTERIOR PARTITON STUD FRAMING STUD DESIGNATION AND SPACING: GYP BD. BOTH SIDES FULL HEIGHT
• ALL BRACING TO BE 362S162 @ 4'-0" O.C.

WALL SCHEDULE ABBREVIATIONS

1	1 HOUR RATED ASSEMBLY
2	2 HOUR RATED ASSEMBLY
.6	STUD SIZE
A	ACOUSTIC
B	BARRIER/ BRACED
CH	CHASE
E	EXTERIOR
F	FURRING
H	HIGH IMPACT
P	PARTITION
PC	PLUMBING CHASE
S	SHAFT
SR	SMOKE RESISTANT
T	TYPICAL
V	VAPOR BARRIER
X	ONE-SIDED FINISH

partition type legend



swaim
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7350 EAST SPEEDWAY 210
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(520) 326-3700
www.swaimaia.com

REGISTERED ARCHITECT
CERTIFICATE NO.
23459
MARK E. BOLLARD
DATE SIGNED 06/27/25
ARIZONA U.S.A.

job
2404.03

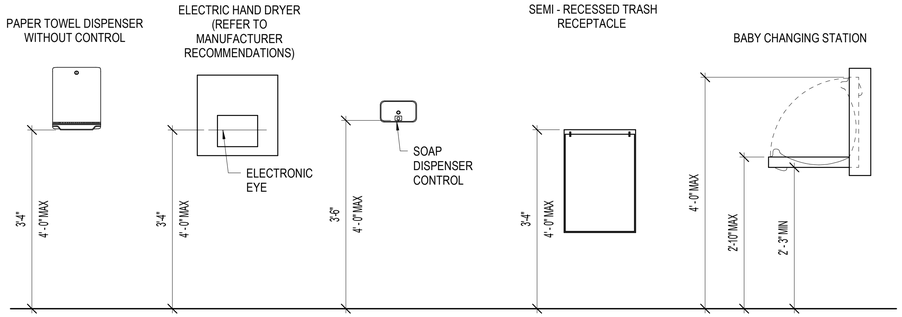
date
11.20.2025

revisions

WILLCOX MIDDLE & HIGH SCHOOL
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

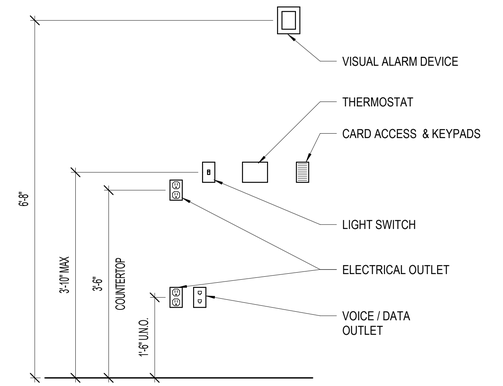
wall types

a9.0



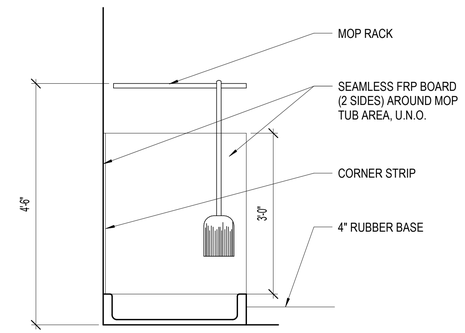
NOTE:
1. OPERABLE PARTS SHALL BE PLACED BETWEEN 48 INCHES MAXIMUM AND 15 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND. PREFERRED MOUNTING HEIGHTS ARE LISTED ABOVE.
2. ALL ACCESSORIES ARE TO HAVE A 4" MAX. PROJECTION UNLESS OVER FIXED ACCESSORY WITH BOTTOM < 27" A.F.F.

1 a9.10 accessible restroom accessories
3/4" = 1'-0"



NOTE:
1. OPERABLE PARTS SHALL BE PLACED BETWEEN 48 INCHES MAXIMUM AND 15 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND. PREFERRED MOUNTING HEIGHTS ARE LISTED ABOVE.

3 a9.10 electrical devices
3/4" = 1'-0"



4 a9.10 typical mop rack
3/4" = 1'-0"

swaim
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accessibility details

a9.10

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MECHANICAL SPECIFICATIONS

MECHANICAL GENERAL REQUIREMENTS

CODES: CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE FOLLOWING CODES:
- INTERNATIONAL BUILDING CODE (2018 EDITION)
- INTERNATIONAL MECHANICAL CODE (2018 EDITION)
- INTERNATIONAL PLUMBING CODE (2018 EDITION)
- INTERNATIONAL FUEL GAS CODE (2018 EDITION)
- THE INTERNATIONAL FIRE CODE (2018 EDITION)
- ALL AS AMENDED BY THE LOCAL GOVERNING AGENCY.

GENERAL: THE WORK COVERED BY THIS SPECIFICATION SHALL INCLUDE THE FURNISHING OF ALL MATERIALS, LABOR, TRANSPORTATION, TOOLS, PERMITS, FEES, INSPECTIONS, UTILITIES AND INCIDENTALS NECESSARY FOR THE COMPLETE INSTALLATION OF ALL WORK REQUIRED BY THE CONTRACT DRAWINGS.

DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND CANNOT SHOW EVERY CONNECTION IN DETAIL OR EVERY PIPE OR DUCT IN ITS EXACT LOCATION. THESE DETAILS ARE SUBJECT TO THE REQUIREMENTS OF ORDINANCES AND ALSO STRUCTURAL AND ARCHITECTURAL CONDITIONS. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE STRUCTURAL AND FINISH CONDITIONS AND SHALL COORDINATE WITH THE SEPARATE TRADES IN ORDER TO AVOID INTERFERENCE BETWEEN THE VARIOUS PHASES OF WORK. WORK SHALL BE LAID OUT SO THAT IT WILL BE CONCEALED IN FURRED CHASES OR ABOVE CEILINGS, ETC., IN FINISHED PORTIONS OF THE BUILDING, UNLESS SPECIFICALLY NOTED OR INDICATED TO BE EXPOSED. WORK SHALL BE INSTALLED TO AVOID CRIPPLING OF STRUCTURAL MEMBERS. ALL WORK SHALL BE RUN PARALLEL OR PERPENDICULAR TO THE LINES OF THE BUILDING UNLESS OTHERWISE NOTED. THE APPROXIMATE LOCATION OF EACH ITEM IS INDICATED ON THE DRAWINGS. THESE DRAWINGS ARE NOT INTENDED TO GIVE COMPLETE AND EXACT DETAILS IN REGARD TO LOCATION. EXACT LOCATIONS ARE TO BE DETERMINED BY ACTUAL MEASUREMENTS OF THE BUILDING.

EQUIPMENT INSTALLATION: PROVIDE AND INSTALL UNIONS AT PROPER POINTS TO PERMIT REMOVAL OF PIPE AND EQUIPMENT WITHOUT DAMAGE TO OTHER PARTS OF THE SYSTEM. ALL EQUIPMENT SHALL BE INSTALLED IN A MANNER TO PERMIT ACCESS TO PARTS REQUIRING SERVICE WITHOUT DISASSEMBLY OF OTHER EQUIPMENT.

EXCAVATION AND BACKFILL: THE CONTRACTOR SHALL PROVIDE ALL EXCAVATION REQUIRED FOR THE INSTALLATION OF THE WORK. CONTRACTOR SHALL BACKFILL, COMPACT AND REPAIR CONCRETE OR PAVING TO MATCH EXISTING FINISH AS CLOSELY AS POSSIBLE.

EXISTING FACILITIES: LOSS OR DAMAGE TO EXISTING FACILITY CAUSED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE OWNER'S SATISFACTION AT NO COST TO THE OWNER. THE CONTRACTOR SHALL COORDINATE ALL WORK REQUIRED IN EXISTING AREAS WITH THE OWNER AND SHALL ARRANGE FOR ALL TEMPORARY UTILITY SERVICES, PROTECTION OF THE FACILITY AND ITS CONTENTS, BARRICADES, SAFETY DEVICES, ETC., REQUIRED TO ACCOMPLISH THE WORK. THE CONTRACTOR SHALL REMOVE AND REINSTALL EXISTING CONSTRUCTION IF REQUIRED TO ACCOMPLISH THE WORK. NOTIFY THE OWNER AT LEAST TWO DAYS IN ADVANCE OF ALL REQUIRED SERVICE OUTAGES.

SUBSTITUTIONS: EQUIPMENT OF EQUAL QUALITY TO THAT SPECIFIED MAY BE SUBSTITUTED PROVIDED IT MEETS OR EXCEEDS THE CAPACITY SCHEDULED, IS OF SIMILAR CONSTRUCTION, AND WILL FIT IN THE SPACE ALLOTTED WITH AMPLE SERVICE CLEARANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION WITH ALL OTHER TRADES (SUCH AS ELECTRICAL AND STRUCTURAL) OF ANY PRODUCT REQUIRING A CHANGE IN THE WORK OF THAT TRADE. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY ADDITIONAL COSTS ASSOCIATED WITH SUCH A CHANGE. MATERIALS OF CONSTRUCTION SHALL BE AS SPECIFIED.

SUPPORTS, ANCHORS AND SLEEVES: SUPPORT HORIZONTAL PIPING WITH STEEL CLEVIS HANGERS AND VERTICAL PIPING WITH RISER CLAMPS. PROVIDE COPPER PLATED HANGERS AND CLAMPS FOR COPPER PIPING OR WRAP THE COPPER PIPE AT HANGERS WITH TWO LAYERS OF PVC TAPE OR EQUIVALENT. HANGER SPACING AND ROD SIZE SHALL BE IN ACCORDANCE WITH THE LOCAL CODE AND/OR ASHRAE STANDARDS. SUPPORT DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS. DUCTWORK SHALL BE SUPPORTED INDEPENDENT FROM OTHER DUCTWORK AND EQUIPMENT. PROVIDE MINIMUM 18 GAUGE GALVANIZED STEEL SLEEVES FOR DUCTWORK, FLASHINGS, AND ESCUTCHEONS. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS. THROUGH PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE PER MANUFACTURER'S UL LISTED DETAILS AND INSTRUCTIONS, EQUAL OF HILTI. PIPING SHALL BE PROVIDED WITH STANDARD WEIGHT STEEL PIPE OF SIZE TO PASS PIPE AND INSULATION. PIPE SLEEVES ARE NOT REQUIRED IF PENETRATIONS ARE CORE DRILLED. PIPING SHALL NOT BE SUPPORTED FROM PENETRATION.

SHOP DRAWINGS: PROVIDE SHOP DRAWINGS AND MANUFACTURER'S DATA ON ALL PLUMBING FIXTURES AND TRIM, EQUIPMENT, MECHANICAL DEVICES AND FIRE PROTECTION SYSTEM FOR APPROVAL.

WARRANTY: PROVIDE TWO YEAR WARRANTY FROM DATE OF FINAL ACCEPTANCE ON ALL LABOR AND MATERIALS PROVIDED UNDER THIS CONTRACT. PROVIDE AN ADDITIONAL FIVE YEAR WARRANTY ON THE MOTOR_COMPRESSOR UNITS FOR ALL AIR CONDITIONING OR HEAT PUMP EQUIPMENT AND WATER HEATERS.

OPERATION AND MAINTENANCE MANUAL: PROVIDE A COMPLETE INDEXED, BOUND MANUAL OF ALL EQUIPMENT REQUIRING MAINTENANCE.

TRAINING: CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO HOURS TRAINING TO THE OWNER ON THE OPERATION OF ALL EQUIPMENT.

CLEAN-UP: CONTRACTOR SHALL MAINTAIN PREMISES IN CLEAN CONDITION AT END OF EACH DAY AND THOROUGHLY CLEAN-UP AT END OF CONSTRUCTION.

PLUMBING:

PIPING:
SANITARY SOIL AND VENT PIPING-
- SERVICE WEIGHT HUBLESS CAST IRON PIPE (ASTM A74/CISPI RATED) AND CAST IRON FITTINGS (ASTM A888/CISPI RATED) WITH STAINLESS STEEL COUPLINGS EQUAL TO HUSKY 2000 (ASTM C1277/CISPI 310 RATED) ABOVE GRADE AND HUSKY 4000 (ASTM C1540/CISPI RATED) BELOW GRADE
- SCHEDULE 40 SOLID CORE PVC PIPING WITH DWV FITTINGS (ASTM D1784, D1785 OR D2665) AND LOW VOC SOLVENT JOINTS WHERE APPROVED BY CODE AGENCIES AND NOT EXPOSED TO PHYSICAL DAMAGE. CELLULAR OR FOAM CORE PVC PIPING WILL NOT BE ACCEPTED.

DOMESTIC WATER PIPING-
ABOVE GRADE-
- TYPE "L" HARD TEMPER COPPER PIPE WITH WROUGHT FITTINGS AND 95-5 LEAD FREE SOLDER JOINTS OR COPPER ALLOY PRESS FITTINGS WITH FACTORY INSTALLED EDPM SEALING ELEMENT AND SMART CONNECT PRESS ENDS EQUAL OF VIEGA.

BELOW GRADE FROM WATER METER TO 5'-0" FROM BUILDING-
- TYPE "L" HARD TEMPER COPPER WITH WROUGHT COPPER FITTINGS AND SILVER SOLDERED JOINTS, OR
- SCHEDULE 40 PVC PIPING AND FITTINGS WITH SOLVENT JOINTS.

NATURAL GAS PIPING-
ABOVE GRADE-
- SCHEDULE 40 BLACK STEEL WITH MALLEABLE IRON FITTINGS. SUPPORT PIPING ON ROOF WITH PIPE SUPPORTS EQUAL OF MIRO SPACED AS DIRECTED BY CODE. PROVIDE LISTED BALL VALVES, UNIONS AND DIRT LEGS AT ALL APPLIANCES. PIPING EXPOSED TO WEATHER SHALL HAVE MINIMUM TWO COATS OF YELLOW PAINT.

CONDENSATE DRAIN PIPING-
- TYPE M, HARD DRAWN COPPER WITH WROUGHT COPPER FITTINGS.
- EXTERIOR CONDENSATE PIPING CAN BE SCHEDULE 40 PVC PIPING AND FITTINGS WITH SOLVENT JOINTS AND UV COATING.
- AT CONNECTION TO EACH UNIT PROVIDE DIELECTRIC UNION, TRAP AND OPEN BREATHER TEE ON DISCHARGE SIDE OF TRAP. INSULATE ALL CONDENSATE DRAIN LINES ABOVE CEILINGS AND IN STUD SPACES WITH 1/2" THICK ARMSTRONG "ARMAFLEX" INSULATION OR EQUAL.

FLASHING: FLASH ALL VENTS THROUGH ROOF WITH 4 LB. LEAD SHEET EXTENDING NOT LESS THAN 8" AWAY AND TURNED DOWN INTO THE VENT, 1" MINIMUM.

INSULATION:
- INSULATE ALL DOMESTIC HOT WATER SUPPLY AND HOT WATER RETURN PIPING UP TO 140F OPERATING TEMPERATURE, 1-1/4" DIAMETER & SMALLER, WITH 1" THICK GLASS FIBER SECTIONAL PIPE INSULATION WITH ALL SERVICE JACKET OR EQUIVALENT ARMAFLEX FOAM. NON-RECIRCULATED HOT WATER SUPPLY BRANCHES MAY BE INSULATED WITH 1/2" THICK INSULATION. INSTALL INSULATION IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS. PROVIDE SHEET METAL SADDLES AT HANGER LOCATIONS. INSULATION SHALL BE INSTALLED CONTINUOUS THROUGH ALL HANGERS. ALL VALVES, PUMPS, STRAINERS, UNIONS, ETC., ON 1" AND LARGER PIPING SHALL BE FULLY INSULATED. ALL PIPING SYSTEMS SHALL BE TESTED PRIOR TO THE APPLICATION OF INSULATION.
- PIPES EXPOSED TO WEATHER SHALL BE PROVIDED WITH A 0.16" THICK CORRUGATED ALUMINUM JACKET. ALL JOINTS AND SEAMS IN ALUMINUM JACKETING SHALL BE SEALED.

PIPING SPECIALTIES: CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS OR FLANGES AT ALL LOCATIONS WHERE COPPER OR BRASS PIPING CONNECTS TO FERROUS PIPING OR EQUIPMENT. INSTALL WATER HAMMER ARRESTORS (EQUAL TO J.R. SMITH SERIES #5000) WITH ACCESS DOORS (EQUAL TO J.R. SMITH SERIES #4760) WHERE SHOWN ON PLAN.

VALVES: VALVES FOR DOMESTIC HOT AND COLD WATER SHALL BE LEAD-FREE AND AS MANUFACTURED BY KITZ, STOCKHAM, NIBCO, APOLLO, MILWAUKEE OR JENKINS.

BALL VALVES SHALL BE BRONZE, TWO PIECE BODY, FULL PORT FORGED BRASS BALL, SILICON BRONZE STEM, PTFE OR HDPE SEAT, PACKING AND GASKET; THREADED OR SOLDERED ENDS. VALVES SHALL CONFORM TO MSS SP-110

CHECK VALVES SHALL BE CLASS 125, BRONZE BODY, BRONZE DISC, Y-PATTERN, SWING CHECK DESIGN, THREADED OR SOLDERED ENDS. VALVES SHALL CONFORM TO MSS SP-80.

WHERE VALVE INSTALLATION IS CONCEALED; PROVIDE J.R. SMITH SERIES 4760 OR APPROVED EQUAL ACCESS DOORS WITH CONCEALED HINGE AND KEY OPERATED LOCKS. DOORS SHALL BE LARGE ENOUGH TO SERVICE VALVES AND SHALL BE INSTALLED FLUSH WITH FINISHED WALLS OR CEILINGS.

PLUMBING FIXTURES: FURNISH ALL STANDARD PRODUCTS OF AMERICAN STANDARD, KOHLER, CRANE, TOTO, DELTA, MOEN, CHICAGO, T&S BRASS, MIFAB, SLOAN, DELANY, ELKAY, HAWS OR APPROVED EQUAL. ALL FIXTURES SHALL BE WHITE UNLESS OTHERWISE NOTED. REFER TO SCHEDULE FOR SPECIFIC REQUIREMENTS. PROVIDE STOPS AT HOT AND COLD WATER CONNECTIONS TO EACH FIXTURE.

WATER HEATERS: CAPACITIES AND ACCESSORIES TO BE AS SCHEDULED ON THE DRAWINGS AND BE MANUFACTURED BY STATE, A.O. SMITH, RHEEM, BRADFORD WHITE, CHRONOMITE, EEMAX OR APPROVED EQUAL.

EXECUTION: SLOPE DRAINAGE PIPING INSIDE AND OUTSIDE OF BUILDING IN ACCORDANCE WITH REQUIREMENTS OF THE GOVERNING PLUMBING CODES.

ESTABLISH GRADE LINES WITH SURVEYOR'S LEVEL. VERIFY LOCATION OF SEWER TAPS BEFORE START OF WORK AND MAKE NECESSARY GRADE ADJUSTMENTS. DRAIN VENT LINES BACK TO SOIL LINES.

LOCATE CLEANOUTS AT EACH CHANGE OF LINE DIRECTION OF MORE THAN 45 DEG. WHERE MORE THAN ONE CHANGE OCCURS IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED FOR EACH 40 FT. INTERVAL.

BRING EXTERIOR CLEANOUTS UP TO GRADE AND INSTALL IN 18" X 18" CUBE OF CONCRETE. PROVIDE A CAST IRON COVER OVER EACH EXTERIOR CLEANOUT.

INSTALL WATER PIPING TO AVOID CONTACT WITH STRUCTURE WHEN POSSIBLE TO PREVENT EXCESSIVE WATER HAMMER NOISE TRANSMISSION.

ALL PIPING SHALL BE INSTALLED AT RIGHT ANGLES TO THE BUILDING LINES AND PLUMB.

WRAP METALLIC PIPE IN CONTACT WITH CONCRETE BLOCK, SLABS OR STUCCO WITH 10 MIL THICK PVC TAPE TO PREVENT CORROSION.

FLUSH PIPING CLEAN WITH WATER AFTER INSTALLATION. DISINFECT POTABLE WATER SYSTEM PER CODE, AWWA C651, OR AWWA C652 AND SUBMIT TEST RESULTS.

TESTING:
TEST ALL PIPING PRIOR TO COVERING OR BACKFILLING.

WATER PIPING- TEST AT 100 PSIG FOR A CONTINUOUS PERIOD OF NOT LESS THAN FOUR (4) HOURS. DURING THIS TIME, CAREFULLY INSPECT THE SYSTEM FOR LEAKS. CONTRACTOR SHALL REPAIR ALL LEAKS IF NECESSARY AND TEST AGAIN UNTIL NO LEAKAGE IS DETECTED.

SOIL, WASTE AND VENT PIPING- TEST BY PLUGGING LINES AND FILLING SYSTEMS WITH WATER TO A STATIC HEAD OF 10 FEET OF WATER. OBSERVE WATER LEVEL FOR A TWO (2) HOUR PERIOD. IF LEVEL IS LOWERED, INDICATING LEAKAGE, REPAIR LEAKS AND TEST AGAIN UNTIL NO FURTHER LEAKAGE IS DETECTED.

NATURAL GAS PIPING- TEST AT 30 PSIG FOR A CONTINUOUS PERIOD OF NOT LESS THAN FOUR (4) HOURS. DURING THIS TIME, CAREFULLY INSPECT THE SYSTEM FOR LEAKS. CONTRACTOR SHALL REPAIR ALL LEAKS IF NECESSARY AND TEST AGAIN UNTIL NO LEAKAGE IS DETECTED.

HEATING, VENTILATING AND AIR CONDITIONING:

EQUIPMENT: EQUIPMENT CAPACITIES AND CHARACTERISTICS SHALL BE AS SCHEDULED ON THE DRAWINGS. INSTALL AS INDICATED ON DRAWINGS AND AS PER MANUFACTURER'S PRINTED INSTRUCTIONS. AIR CONDITIONING EQUIPMENT MANUFACTURED BY CARRIER, TRANE, LENNOX, DAIKIN, JCI (YORK), RHEEM, RUUD, AMERICAN STANDARD, BRYANT OR DAY & NIGHT IS ACCEPTABLE. EXHAUST FANS MANUFACTURED BY GREENHECK, LOREN COOK, TWIN CITY, PENN BARRY, BROAN, DELTA, JENCO OR S & P ARE ACCEPTABLE.

EQUIPMENT IDENTIFICATION: CONTRACTOR SHALL PROVIDE EQUIPMENT TAGS ON ALL MAJOR EQUIPMENT, I.E., AIR CONDITIONERS, EXHAUST FANS, ETC. TAGS SHALL BE BLACK WITH A MINIMUM OF 1" HIGH WHITE LETTERS PERMANENTLY AFFIXED TO THE UNITS. HAND WRITTEN TAGS ARE NOT ACCEPTABLE.

DUCTWORK:

DUCT SIZES: DIMENSIONS ON DRAWINGS ARE SHEET METAL DUCT SIZES. DO NOT INCREASE DUCT SIZE FOR ACOUSTICALLY LINED OR INTERNALLY INSULATED DUCTS.

ALL LOW PRESSURE DUCTWORK SHALL BE CONSTRUCTED WITH A MIN. 2" W.G. PRESSURE CLASSIFICATION AND SEAL CLASS C. SEAL ALL TRANSVERSE JOINTS WITH HARDCAST.

DUCT GAUGES: FABRICATION AND SUPPORT SHALL BE IN ACCORDANCE WITH SMACNA STANDARDS.

ROUND DUCTWORK: GALVANIZED STEEL LOCK FORMING QUALITY, MINIMUM 0.028 INCH THICK CONTINUOUS SPIRAL SEAM. FABRICATE ROUND DUCT ELBOWS OF MINIMUM FIVE (5) PIECE CONSTRUCTION.

GALVANIZED DUCTWORK: GALVANIZED STEEL LOCK FORMING QUALITY HAVING ZINC COATING OF 1.25 OUNCES PER SQUARE FOOT FOR EACH SIDE PER ASTM A653. ALL DUCTWORK SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. ALL DUCTWORK EXPOSED TO WEATHER SHALL BE SEALED (JOINTS AND SEAMS) WITH SILICONE SEALANT. ALL DUCTWORK JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK MUST BE SECURELY SEALED USING WELDMENTS; MECHANICAL FASTENERS WITH SEALS, GASKETS, OR MASTICS; MESH AND MASTIC SEALING SYSTEMS; OR TAPES. TAPES AND MASTICS MUST BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B.

FLEXIBLE DUCTS: FLEXIBLE DUCTS SHALL BE INSULATED (MINIMUM 1" THICK, WITH MINIMUM THERMAL RESISTANCE OF R4.2) AND HAVE A FOIL SCRIM VAPOR BARRIER. FLEXIBLE DUCTWORK SHALL BE LISTED AS UL 181 CLASS 1 FLEXIBLE AIR DUCT AND SHALL COMPLY WITH NFPA STANDARDS. PROVIDE FLEXIBLE DUCTWORK AS MANUFACTURED BY MANVILLE, OWEN CORNING, THERMOFLEX, OR EQUIVALENT.

DUCT LINER: ALL RECTANGULAR SUPPLY AND RETURN DUCTWORK TO BE INTERNALLY LINED FOR THERMAL AND/OR ACOUSTICAL PURPOSES SHALL BE 1" THICK WITH A MINIMUM THERMAL RESISTANCE OF R4.2, SUITABLE FOR TEMPERATURE RANGE OF 40 F TO 250 F AND MAXIMUM AIR VELOCITY OF 4000 FPM. INSTALL LINER IN ACCORDANCE WITH SMACNA DUCT LINER APPLICATION STANDARD. LINE ALL AIR CONDITIONING DUCTWORK EXTERIOR TO THE BUILDING ENVELOPE WITH 2" THICK DUCT LINER WITH A MINIMUM THERMAL RESISTANCE OF 8.0.

INSULATION: WRAP ALL CONCEALED ROUND SUPPLY AND RETURN DUCTWORK NOT INTERNALLY LINED WITH A MAXIMUM 1-1/2" THICK, FLEXIBLE FIBERGLASS INSULATION HAVING A FACTORY APPLIED FOIL SCRIM KRAFT VAPOR BARRIER. INSULATION SHALL HAVE A MINIMUM THERMAL RESISTANCE OF R4.2 AT 75 F MEAN TEMPERATURE. INSULATION SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. DUCT WRAP SHALL BE INSTALLED SO AS TO PROVIDE A UNIFORM THICKNESS. INSULATION SHALL NOT BE COMPRESSED.

DAMPERS: FABRICATE BALANCING DAMPERS OF GALVANIZED STEEL, MINIMUM 16 GAUGE AND PROVIDE WITH LOCKING QUADRANTS. UNLESS INDICATED OTHERWISE, DAMPERS SHALL BE OPPOSED BLADE TYPE.

FLEXIBLE CONNECTION: PROVIDE FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET OF ALL AIR MOVING DEVICES. FABRICATE OF NEOPRENE COATED FLAMEPROOF FABRIC APPROXIMATELY 4_INCH WIDE TIGHTLY CRIMPED INTO METAL EDGING STRIP AND ATTACH TO DUCTING AND EQUIPMENT BY SCREWS OR BOLTS AT 6_INCH INTERVALS. FLEXIBLE CONNECTIONS SHALL BE ASSEMBLED PER MANUFACTURER'S INSTRUCTIONS FOR OPTIMUM SHAPE. FLEXIBLE CONNECTIONS EXPOSED TO THE WEATHER SHALL BE PROVIDED WITH A SHEET METAL WEATHER SHIELD.

TURNING VANES: FABRICATE TURNING VANES AND RAILS OF 24 GAUGE GALVANIZED STEEL AND ASSEMBLE RATTLE FREE. TURNING VANES SHALL BE SINGLE THICKNESS PREFABRICATED OR ASSEMBLED PER MANUFACTURER'S INSTRUCTIONS FOR OPTIMUM SHAPE.

FILTERS: FILTERS SHALL BE 2" THICK PLEATED TYPE, DISPOSABLE, MEDIUM EFFICIENCY, MERV 8, CAMFIL FARR 30/30 OR EQUIVALENT. FILTERS SHALL BE IN PLACE WHENEVER SYSTEMS ARE IN OPERATION. CONTRACTOR SHALL PROVIDE AND INSTALL AN ADDITIONAL SET OF FILTERS FOR EACH UNIT AT THE COMPLETION OF PROJECT.

REFRIGERANT PIPING: REFRIGERANT PIPING SHALL BE CLEANED AND CAPPED TYPE ACR OR TYPE "L" HARD TEMPER COPPER TUBING WITH WROUGHT COPPER FITTINGS. JOINTS SHALL BE SILVER BRAZED WITH INTERNAL CONTINUOUS NITROGEN PURGE. INSULATE ALL REFRIGERANT SUCTION PIPING 1-1/2" AND SMALLER WITH 1/2" THICK ARMSTRONG "ARMAFLEX" INSULATION OR EQUAL. FOR DUCTLESS SPLIT AND VRF SYSTEMS, INSULATE BOTH SUCTION AND LIQUID LINES WITH 1/2" THICK ARMAFLEX OR PER MANUFACTURER MINIMUM REQUIREMENTS. FOR KITCHEN EQUIPMENT SUCTION LINES 1" AND LARGER, PROVIDE 1" THICK INSULATION. ARMAFLEX EXPOSED TO WEATHER SHALL BE COATED WITH TWO COATS OF ARMAFLEX UV PROTECTIVE COATING OR SHALL BE PROVIDED WITH A 0.16" THICK CORRUGATED ALUMINUM JACKET. ALL JOINTS AND SEAMS IN ALUMINUM JACKETING SHALL BE SEALED.

REFRIGERANT PIPING TESTING: THE FOLLOWING SHALL BE PROVIDED UNLESS MANUFACTURER REQUIREMENTS EXCEEDS THESE REQUIREMENTS. DOCUMENT ALL TESTING PROCEDURES ALONG WITH SYSTEM, DATE, TIME, AMBIENT CONDITIONS, ETC.
1. REFRIGERANT PIPING SHALL BE TRIPLE EVACUATED TO 500 MICRONS AND CHARGED WITH DRY NITROGEN. PROVIDE A HOLDING PRESSURE TEST FOR A MINIMUM OF 12 HOURS.
2. IF THE FINAL SYSTEM PRESSURE IS NOT EXACTLY EQUAL TO THE INITIAL SYSTEM TEST PRESSURE, MINUS ANY TEMPERATURE CORRECTION FACTORS, THEN THE SYSTEM SHALL BE INVESTIGATED FOR LEAKING JOINTS. TO REPAIR LEAKS, THE JOINT SHALL BE TAKEN APART, THOROUGHLY CLEANED, AND RECONSTRUCTED AS A NEW JOINT. JOINTS REPAIRED BY CAULKING, REMELTING, OR BACK-WELDING/BRAZING SHALL NOT BE ACCEPTABLE. FOLLOWING REPAIR, THE ENTIRE SYSTEM SHALL BE RETESTED USING THE TEST PROCEDURE.
3. AFTER TESTING, FULLY CHARGE SYSTEM WITH REFRIGERANT AND CONDUCT TEST WITH HALIDE LEAK DETECTOR. CONSULT MANUFACTURER PRESSURE TEMPERATURE CHARTS FOR VARIOUS INDOOR/OUTDOOR TEMPERATURES. AD ANY ADDITIONAL OIL AS REQUIREDBY MANUFACTURER.
4. RECOVER ALL REFRIGERANT IN ACCORDANCE WITH APPLICABLE CODES. DO NOT ALLOW ANY REFRIGERANT TO ESCAPE TO ATMOSPHERE.

AIR DEVICES: AIR DISTRIBUTION DEVICES SHALL BE AS SCHEDULED ON THE DRAWINGS AND EQUAL TO KRUEGER, TITUS, PRICE, TUTTLE & BAILEY, NAILOR, OR AIR CONCEPTS.

TESTING AND BALANCING: AIR SYSTEMS SHALL BE BALANCED BY CERTIFIED TESTING & BALANCING CONTRACTOR IN ACCORDANCE WITH AABC STANDARDS AND METHODS. SUBMIT AIR BALANCE REPORT ON AABC STANDARD FORMS FOR APPROVAL.

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WILLCOX MIDDLE & HIGH SCHOOL
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WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

specifications

mp1.0

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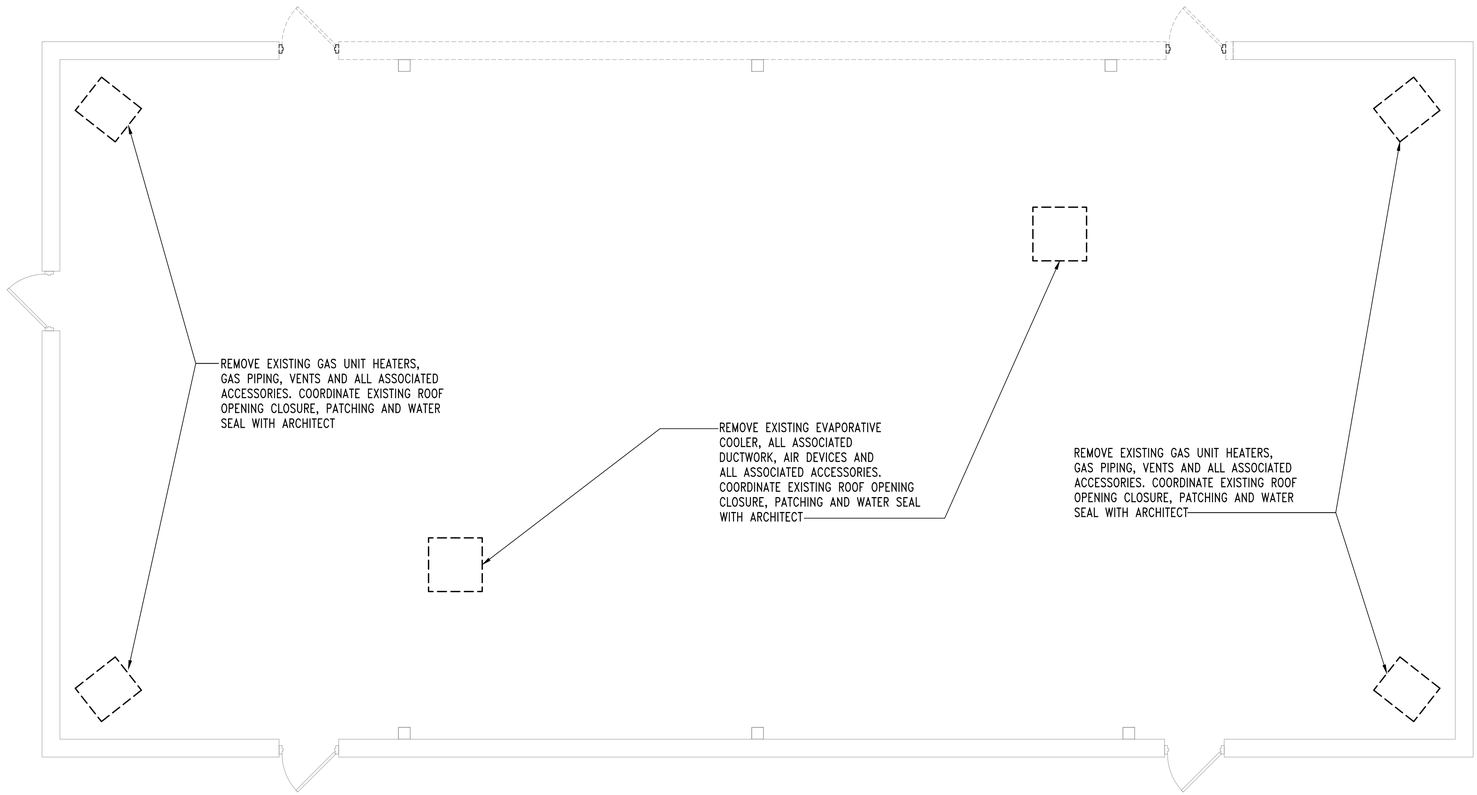
Designers Mech: MG Plumb: NJH Project #: 25118



mechanical demolition plan - wrestling bldg

1/4" = 1'-0"

north

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mechanical demolition
wrestling building

m1.2

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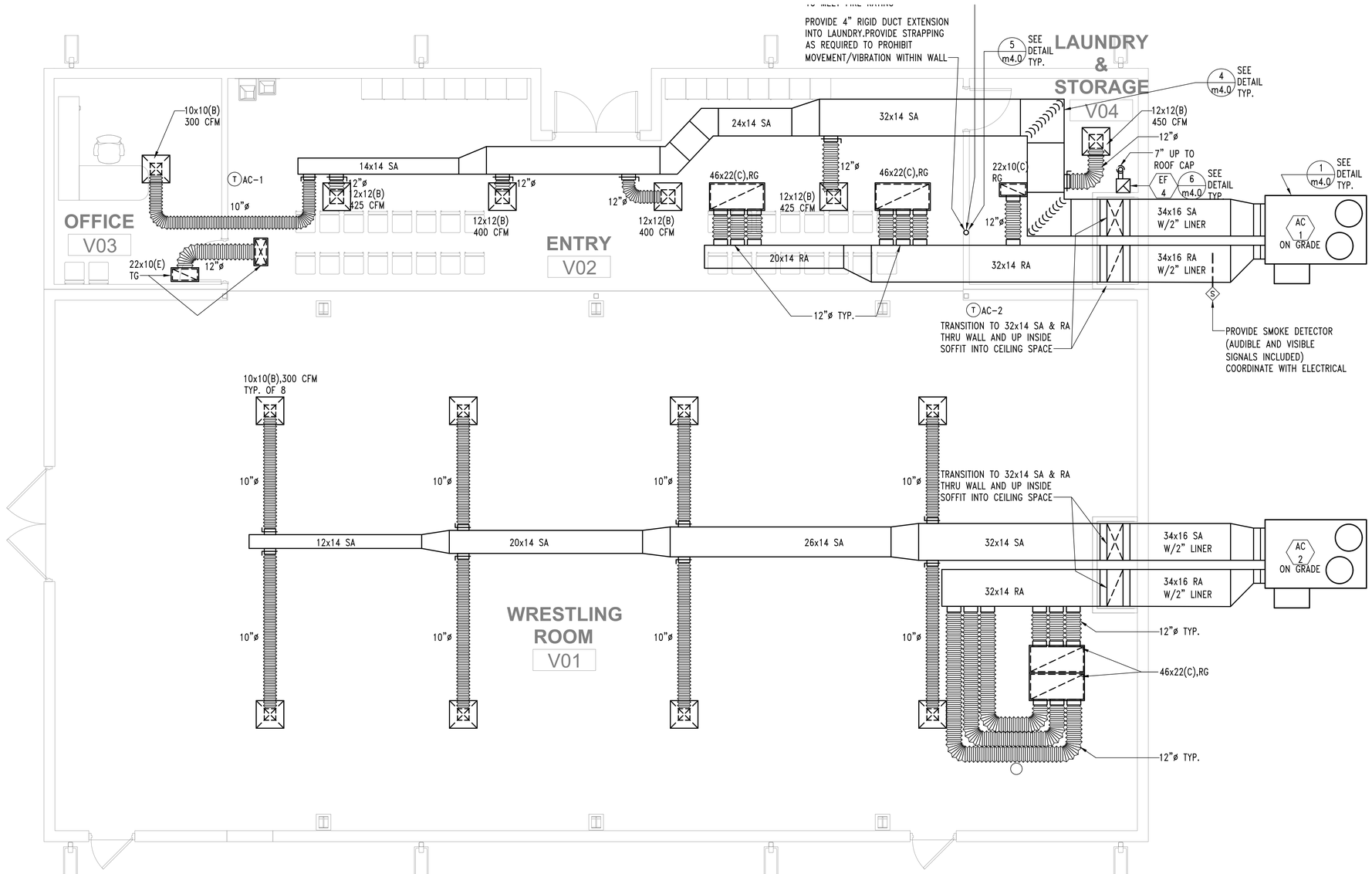

mechanical new work plan

1/4" = 1'-0"

north

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mechanical new work
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OUTDOOR AIR CALCULATION

BUILDING UNIT	ROOM NUM.	ROOM NAME	ZONE FLOOR AREA, Az (SQ.FT.)	CODE	OCCUPANCY CATEGORY, Ra, Rp	ZONE POPULATION Pz	ZONE AIR DISTRIBUTION EFFECTIVENESS, Ez	ZONE SUPPLY AIR FLOW Vpz (CFM)	SYSTEM POPULATION Ps	OUTDOOR AIR INTAKE Vot (CFM)	UNIT (WC OR URINAL) UNIT	REQUIRED EXHAUST VENTILATION (CFM)	NOTES
	W02	MENS RESTROOM	170	87	TOILETS - CONTINUOUS	0.0		250			6	300	
	W03	WOMENS RESTROOM	165	87	TOILETS - CONTINUOUS	0.0		250			4	200	
			335			0.0	CSCR	500	0	0		500	
	W04	WEIGHT ROOM	2,285	72	HEALTH CLUB/ WEIGHT ROOMS	22.9		8,000				0	
	W05	MEN LOCKERS	835	83	LOCKER/DRESSING ROOMS	0.0		3,170				209	
	W06	OFFICE	190	37	OFFICE SPACE	1.0		580				0	
	W07	MEN TOILET	55	87	TOILETS - CONTINUOUS	0.0		50			1	50	
	W08	MEN RESTROOM	155	87	TOILETS - CONTINUOUS	0.0		200			5	250	
			3,520			23.8	CSCR	12,000	24	637		509	
	V01	WRESTLING RM	2,900	72	HEALTH CLUB/ WEIGHT ROOMS	29.0		2,400				0	
	V02	ENTRY	875	35	ENTRY LOBBIES	8.8		1,650				0	
	V03	OFFICE	175	37	OFFICE SPACE	0.9		300				0	
	V04	LAUNDRY STORAGE	175	36	STORAGE ROOMS	0.4		450				0	
			4,125			39.0	CSCR	4,800	39	1,109		0	

MINI-SPLIT CONDENSING UNIT SCHEDULE

MARK	MHPCU-1,2,3,4
MATCHING FAN COIL	MFC-1,2,3,4
SEASONAL ENERGY EFFICIENCY RATIO 2	21
REFRIGERANT TYPE	R410A
MINIMUM TOTAL COOLING CAPACITY (MBH)	18.0
COOLING AMBIENT TEMPERATURE (DEG. F)	110
HEATING AMBIENT TEMPERATURE (DEG. F)	28
VOLTS/PHASE/HZ	208/1/60
UNIT MCA	16.0
UNIT MOCP	25.0
WEIGHT (LBS)	125
REFERENCE	CARRIER 38MARBQ18
NOTES	1 THRU 6

1. SCHEDULED CAPACITY SHALL BE FOR 4160 FT ELEVATION.
2. CAPACITY OF UNIT SHALL BE AS SCHEDULED TO PROVIDE REQUIRED CAPACITY FOR ALL CONNECTED INDOOR UNITS.
3. UNIT SHALL HAVE SINGLE POINT POWER CONNECTION. UNIT DISCONNECT MEANS TO BE PROVIDED BY ELECTRICAL.
4. PROVIDE ALL NECESSARY CONTROLS TO PREVENT COMPRESSOR RAPID RECYCLING AND ALL FEATURES STANDARD TO THE UNIT SCHEDULED.
5. PROVIDE ADDITIONAL REFRIGERANT AS REQUIRED BY MANUFACTURER'S LITERATURE FOR SUM TOTAL OF ALL LINE SETS ON SYSTEM.
6. CAPACITIES SCHEDULED AT SPECIFIED CONDITIONS.

MINI-SPLIT FAN COIL UNIT SCHEDULE

MARK	MFC-1,2,3,4
MATCHING CONDENSING UNIT MARK	MHPCU-1,2,3,4
TYPE	CEILING
MINIMUM TOTAL COOLING CAPACITY (MBH)	18.0
MINIMUM SENSIBLE COOLING CAPACITY (MBH)	15.3
ENTERING AIR CONDITIONS (DB/WB)	75/63
TOTAL SUPPLY AIR (CFM)	400
VOLTS/PHASE/HZ	208/1/60
UNIT MCA	-
UNIT FLA	0.36
OPERATING WEIGHT (LBS.)	50
REFERENCE	CARRIER 40MCCAQ18
NOTES	1 THRU 7

1. SCHEDULE CAPACITY SHALL BE AT 4160 CONDITIONS.
2. PROVIDE ALL NECESSARY INTERCONNECTING PIPING (& REFRIGERANT ACCESSORIES) & CONTROL WIRING BETWEEN FAN COIL UNIT, BC CONTROLLER & MATCHING CONDENSING UNIT.
3. INDOOR UNIT IS POWERED BY THE OUTDOOR UNIT.
4. PROVIDE INTEGRAL FILTER & WALL MOUNTED PROGRAMMABLE THERMOSTAT.
5. REFRIGERANT PIPING SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATIONS FOR LONG LENGTH APPLICATIONS.
6. MANUFACTURER SHALL PROVIDE ALL NECESSARY DEVICES,VALVES, ETC. AS REQUIRED FOR THIS APPLICATION.
7. PROVIDE INTEGRAL CONDENSATE PUMP

AIR CONDITIONING UNIT SCHEDULE (PACKAGED ROOFTOP) - WRESTLING BLDG.

MARK	AC-1,2
NOMINAL TONNAGE	6
MINIMUM TOTAL COOLING CAPACITY (MBH)	59.7
MINIMUM SENSIBLE COOLING CAPACITY (MBH)	51.7
MINIMUM NUMBER COOLING STAGES	2
COOLING AMBIENT TEMPERATURE (DEG. F)	110
ENTERING AIR TEMPERATURE (DEG/DB/WB)	82/64
MINIMUM ENERGY EFFICIENCY RATIO SEER	16
TYPE OF HEATING	NATURAL GAS
MINIMUM HEATING CAPACITY (MBH)	52.8
HEATING AMBIENT TEMPERATURE (DEG F)	70
MAXIMUM NATURAL GAS INPUT (CFH)	125
MINIMUM NUMBER HEATING STAGES	1
ENTERING AIR TEMPERATURE (DEG DB)	26
SUPPLY AIR (CFM)	2400
OUTSIDE AIR (CFM)	500
EXT. STATIC PRESSURE ("w.g.)	0.5
DRIVE TYPE	BELT
MAXIMUM OPERATING WEIGHT (LBS)	1000
VOLTS/PHASE/HZ	208/3/60
UNIT FLA	32.2
UNIT MCA	36
UNIT MOCP	45
REFERENCE	CARRIER 48GCEM07
NOTES	1 THRU 15

1. CAPACITY SCHEDULED SHALL BE FOR 4170 FT. ELEVATION.
2. SCHEDULED CAPACITY IS ACTUAL CAPACITY.
3. PROVIDE LOW VOLTAGE CONTROL POWER TRANSFORMER.
4. PROVIDE SINGLE POINT POWER CONNECTION.
5. PROVIDE NECESSARY CONTROLS TO PREVENT COMPRESSOR RAPID RECYCLING.
6. PROVIDE LOW AMBIENT CONTROL TO 30 DEG. F.
7. PROVIDE 14" FACTORY ROOF CURB INSTALLED ON CONCRETE PAD. LEVEL UNIT AS REQUIRED.
8. PROVIDE 2" PLEATED DISPOSABLE FILTERS. SEE SPECIFICATIONS.
9. PROVIDE 5 YEAR COMPRESSOR WARRANTY.
10. PROVIDE CONDENSER COIL HAIL GUARD.
11. PROVIDE UNPOWERED CONVENIENCE OUTLET. COORDINATE WITH ELECTRICAL.
12. PROVIDE 25 PERCENT MANUAL OUTDOOR AIR DAMPER, BAROMETRIC DAMPER AND HOOD W/BIRDSCREEN .
13. PROVIDE THERMOSTAT CLEAR LOCK BOX.
14. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT SIMILAR TO HONEYWELL MODEL VISION PRO TH8320R WITH OPTIMIZE START-UP, AUTO-CHANGEOVER, NIGHT SET-BACK, OVER-RIDE CONTROL AND CAPABILITY TO UTILIZE REMOTE WIRELESS TEMP SENSORS MODEL C7189R. INDOOR FAN TO BE SET FOR CONTINUOUS RUNNING DURING OCCUPIED HOURS.
15. PROVIDE NON-FUSED DISCONNECT

AIR DEVICE SCHEDULE

MARK	A	B	C	D	E	F	G
SERVICE	SUPPLY	SUPPLY	RETURN	RETURN	TRANSFER	EXHAUST	INTAKE
MATERIAL	ALUM	STEEL	STEEL	STEEL	ALUM	ALUM	STEEL
FINISH	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
PATTERN	DOUBLE DEFLECT	4-WAY	SINGLE DEFLECTION	SINGLE DEFLECTION	EGGCRATE	SINGLE DEFLECTION	SINGLE DEFLECTION
REFENCE	KRUEGER 5880V	KRUEGER 6204	KRUEGER S80H	KRUEGER S80H	KRUEGER EGC5	KRUEGER 580H	KRUEGER S80H
NOTES	1,2	1,2,3,4	1,2	2	2	1,2	2

1. PROVIDE OPPOSED BLADE DAMPER.
2. PROVIDE FRAME STYLE SUITABLE FOR CEILING OR WALL SPECIFIED ON ARCH. DRAWINGS.
3. CEILING DIFFUSER SHALL BE PERFORATED TYPE.
4. PROVIDE SQUARE TO ROUND ADAPTORS WHEN REQUIRED.

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mechanical schedules

m3.0

FAN COIL UNIT SCHEDULE – WEIGHT BUILDING	
MARK	FC–1 thru 6
MATCHING CONDENSING UNIT MARK	HPCU–1 thru 6
TYPE	HORIZONTAL
MINIMUM TOTAL COOLING CAPACITY (MBH)	50.0
MINIMUM SENSIBLE COOLING CAPACITY (MBH)	46.3
ENTERING AIR TEMPERATURE (DEG. DB/WB)	79/63
MINIMUM HEATING CAPACITY (MBH)	38.1
ENTERING AIR TEMPERATURE (DEG. DB)	70
TOTAL SUPPLY AIR (CFM)	2000
OUTSIDE AIR (CFM)	200
EXTERNAL STATIC PRESSURE ("w.g.)	0.5
DRIVE TYPE	BELT
VOLTS/PHASE/HZ	208/1/60
HEATER TYPE	ELECTRIC HEAT
HEATER KW (@208/1)	15 (11.3)
HEATER VOLTS/PHASE/HZ	208/1/60
FAN MOTOR HP.	'3/4
TOTAL FLA	17.8
TOTAL MCA	22.3
TOTAL MOCP	25.0
MINIMUM FILTER AREA(SQ.FT.)	3.3
MAXIMUM OPERATING WIEGHT (LBS.)	225
REFERENCE	CARRIER FJ5ANXD60
NOTES	1 THRU 6

1. SCHEDULE CAPACITY SHALL BE FOR 4160 FT. ELEVATION.
2. PROVIDE ALL NECESSARY INTERCONNECTING PIPING (& REFRIGERANT ACCESSORIES) ,CONTROL WIRING BETWEEN FAN COIL UNIT. MATCHING CONDENSING UNIT, EXPANSION VALVE KIT AND HEAT PUMP KIT,FIELD INSTALLED. (IF APPLICABLE)
3. UNIT SHALL BE SUITABLE FOR REVERSE CYCLE HEAT PUMP OPERATION.
4. FAN COIL UNIT SHALL HAVE SINGLE POINT POWER CONNECTION.
5. PROVIDE EZ TRAP MODEL EZT OVERFLOW SWITCH MOUNT PER MANUFACTURERS INSTRUCTIONS IN THE OVERFLOW CONNECTION. WIRE TO THERMOSTAT RED(POWER) WIRE TO SHUT DOWN INDOOR OUTDOOR UNIT IF WATER IS DETECTED.
6. PROVIDE 7–DAY PROGRAMMABLE THERMOSTAT SIMILAR TO HONEYWELL MODEL VISION PRO TH8320R WITH OPTIMIZE START–UP, AUTO–CHANGEOVER, NIGHT SET–BACK, OVER–RIDE CONTROL AND CAPABILITY TO UTILIZE REMOTE WIRELESS TEMP SENSORS MODEL C7189R. INDOOR FAN TO BE SET FOR CONTINUOUS RUNNING DURING OCCUPIED HOURS.

HP CONDENSING UNIT SCHEDULE – WEIGHT BUILDING	
MARK	HPCU–1 thru 6
MATCHING FAN COIL UNIT MARK	FC–1 thru 6
TONNAGE	5.0
COOLING AMBIENT TEMPERATURE (DEG. DB)	110
HEATING AMBIENT TEMPERATURE (DEG. DB)	28
MINIMUM ENERGY EFFICIENCY RATIO	16(SEER2)
UNIT FULL LOAD AMPS	25.2
MCA	31.1
MOCP	50.0
VOLTS/PHASE/HZ	208/1/60
MAXIMUM OPERATING WEIGHT (LBS.)	300
REFERENCE	CARRIER 27SPA660
NOTES	1 thru 4

1. CAPACITY OF UNIT SHALL BE AS SCHEDULED FOR MATCHING FAN COIL UNIT.
2. PROVIDE SINGLE CIRCUIT TWO–STAGE W/LOW AMBIENT CONTROLS
3. PROVIDE ALL FEATURES STANDARD TO THE UNIT SCHEDULED. IN ADDITION, PROVIDE LOW VOLTAGE POWER TRANSFORMER, PROGRAMMABLE T'STAT, FAN RELAY, LIQUID LINE FILTER DRIER, EXPANSION VALVE (IF REQUIRED TO MEET SCHEDULED CAPACITY), ANTI–RECYCLING CONTROL (TO PREVENT RAPID COMPRESSOR RECYCLING), START RELAY/CAPACITOR KIT (FOR EASY STARTING) & LOW AMBIENT CONTROL KIT.
4. REFER TO MANUFACTURER'S MAXIMUM ALLOWABLE REFRIGERANT LINE SET EQUIVALENT LENGTH.

INTAKE AIR HOOD SCHEDULE	
MARK	IH–1,2
SERVICE	INTAKE
AIRFLOW (CFM)	370
MAX PRESSURE DROP (IN W.G.)	0.05
THROAT SIZE (IN)	10
HOOD SIZE (IN)	21
REFERNCE	GREENHECK GRSR–10
NOTES	1,2

1. PROVIDE FACTORY BIRDSCREEN AT HOOD OPENING.
2. PROVIDE FACTORY ROOFCURB.

EXHAUST FAN SCHEDULE				
MARK	EF–1,2	EF–3	EF–4	EF–5
TYPE	CEILING	ROOF	CEILING	ROOF
WHEEL TYPE	F.C	B.I.	F.C	B.I.
AIR FLOW (CFM)	200	600	50	650
E.S.P. ("w.g.)	0.25	0.25	0.25	0.5
DRIVE TYPE	DIRECT	DIRECT	DIRECT	DIRECT
MAXIMUM FAN SPEED (RPM)	884	975	675	1017
MAXIMUM SONES	2.2	4.1	1.5	4.5
MOTOR HP	1.42(AMPS)	1/6	0.29(AMPS)	1/6
VOLTS/PHASE/HZ	115/1/60	115/1/60	115/1/60	115/1/60
MAXIMUM OPERATING WEIGHT (LBS.)	15	65	15	65
REFERENCE	GREENHECK SP–A390	GREENHECK G–100–B	GREENHECK SP–B70	GREENHECK G–100–B
NOTES	1,2,3,4,6,7	1 THRU 6	1,2,3,4,8,9	1 THRU 6

1. SCHEDULE CAPACITY SHALL BE FOR 4160 FT. ELEVATION.
2. FAN PERFORMANCE SHALL BE AMCA CERTIFIED.
3. FAN MOTOR SHALL BE ELECTRONICALLY COMMUTATED (EC) TYPE WITH SPEED CONTROLLER.
4. PROVIDE DISCONNECT SWITCH.
5. PROVIDE FACTORY SUPPLIED ROOFCURB, BIRDSCREEN & BACKDRAFT DAMPER.
6. PROVIDE 7–DAY PROGRAMMABLE TIMECLOCK, COORDINATE WITH ELECTRICAL. SCHEDULE TO OPERATE DURING OCCUPIED HOURS.
7. PROVIDE BACKDRAFT DAMPER, ROOF CAP(EQUAL TO GRSF–10) AND BIRDSCREEN
8. PROVIDE ON/OFF SWITCH
9. PROVIDE BACKDRAFT DAMPER, ROOF CAP(EQUAL TO RFC–7) AND BIRDSCREEN

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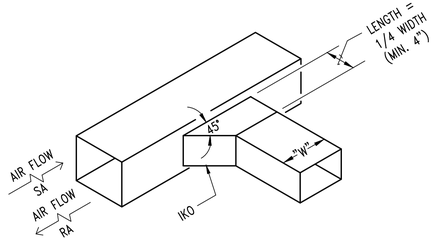
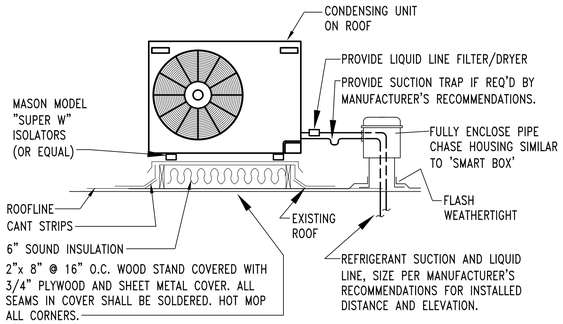


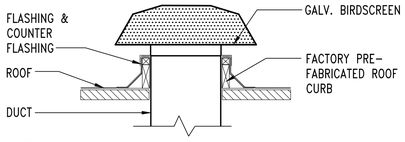
DUCT TAKE-OFF DETAIL

NO SCALE — 9 / m4.0



CONDENSING UNIT PLATFORM DETAIL

NO SCALE — 10 / m4.0

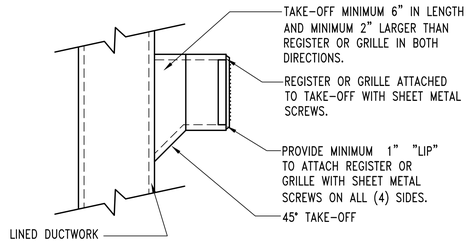


NOTES:

1. SECURE TO ROOF CURB USING LAG BOLTS, MINIMUM TWO PER SIDE, MAXIMUM 8" ON CENTER.
2. WHERE THERE IS INSULATION ABOVE ROOF, USE ROOF CURB DESIGNED TO ACCEPT INSULATION. MOUNT CURB ON ROOF SURFACE NOT ON TOP OF INSULATION.
3. FOR PITCHED ROOFS, THE PRE-FABRICATED ROOF CURB SHALL BE DESIGNED SO THAT THE HOOD IS MOUNTED LEVEL.

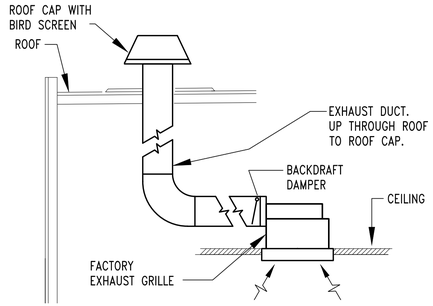
ROOF MOUNTED INTAKE HOOD DETAIL

NO SCALE — 11 / m4.0



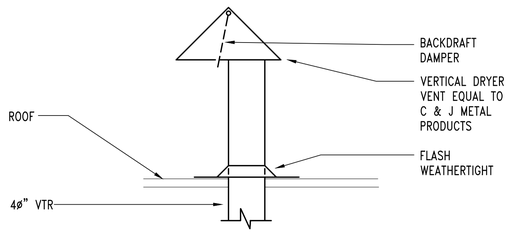
REGISTER OR GRILLE TAKE-OFF DETAIL

NO SCALE — 12 / m4.0



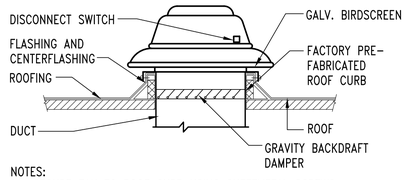
CEILING MOUNTED EXHAUST FAN(ROOF CAP)

NO SCALE — 5 / m4.0



DRYER VENT THRU ROOF DETAIL

NO SCALE — 6 / m4.0

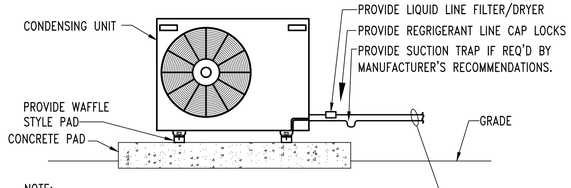


NOTES:

1. SECURE FAN TO ROOF CURB USING SHEETMETAL SCREWS, TWO PER SIDE, MAXIMUM 24 IN. ON CENTER
2. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS OF ROOF CONSTRUCTION AFFECTING THE FAN AND ROOF CURB INSTALLATION. CONSTRUCTION AFFECTING THE FAN AND ROOF CURB INSTALLATION.
3. FOR PITCHED ROOFS, THE PRE-FABRICATED ROOF CURB SHALL BE DESIGNED SO THAT THE FAN IS MOUNTED LEVEL.

ROOF MOUNTED EXHAUST FAN DETAIL

NO SCALE — 7 / m4.0

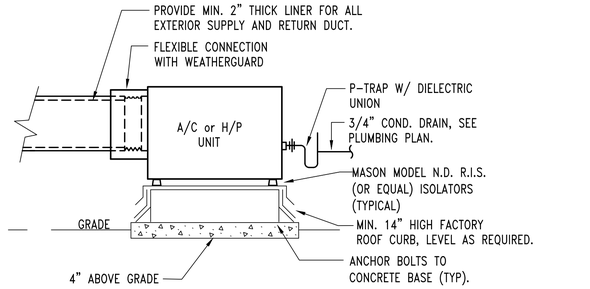


NOTE:

1. INSULATE SUCTION AND LIQUID LINES PER SPECS.
2. PROVIDE 2-COATS OF MANUFACTURER'S INSULATION COATING FOR ALL EXTERIOR PIPING.

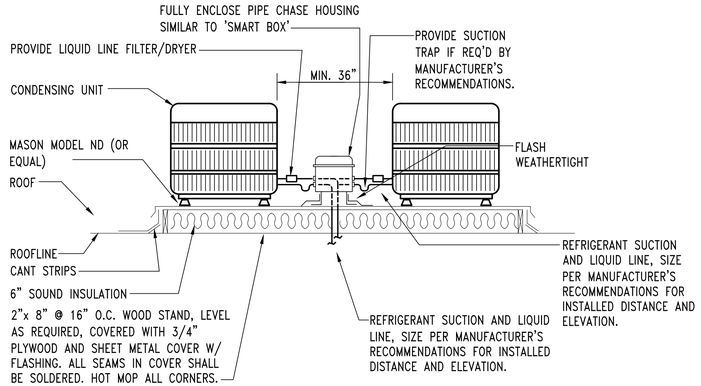
CONDENSING UNIT PAD DETAIL

NO SCALE — 8 / m4.0



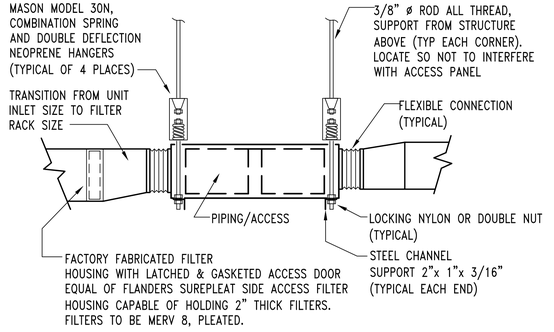
A/C OR H/P UNIT SCHEMATIC

NO SCALE — 1 / m4.0



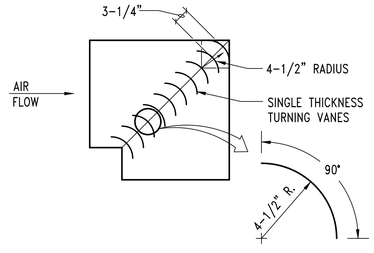
CONDENSING UNIT SUPPORT DETAIL

NO SCALE — 2 / m4.0



FAN COIL SUPPORT DETAIL

NO SCALE — 3 / m4.0



MITER ELBOW W/TURNING VANES DETAIL

NO SCALE — 4 / m4.0

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HIGH SCHOOL REMODEL

mechanical schedules

m4.0

25035
KENNETH M. CAWTHORNE
REGISTERED PROFESSIONAL ENGINEER
ARIZONA U.S.A.
Expires 6/30/2026

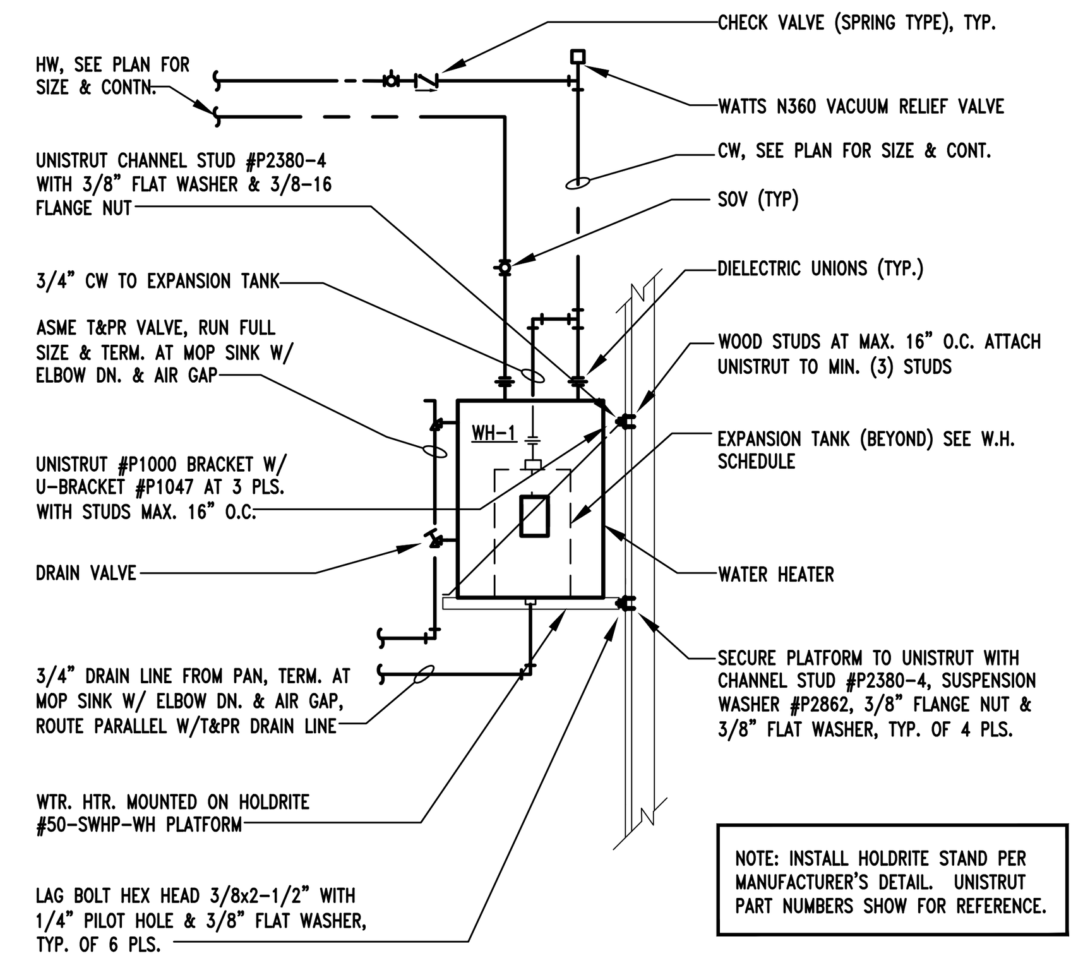
KC MECHANICAL ENGINEERING, L.L.C.
5447 East Fifth Street # 112 520/327-7611
Tucson, Arizona 85711 520/327-0432
Designers Mech: MG Plumb: NJH Project #: 25118

PLUMBING GENERAL NOTES

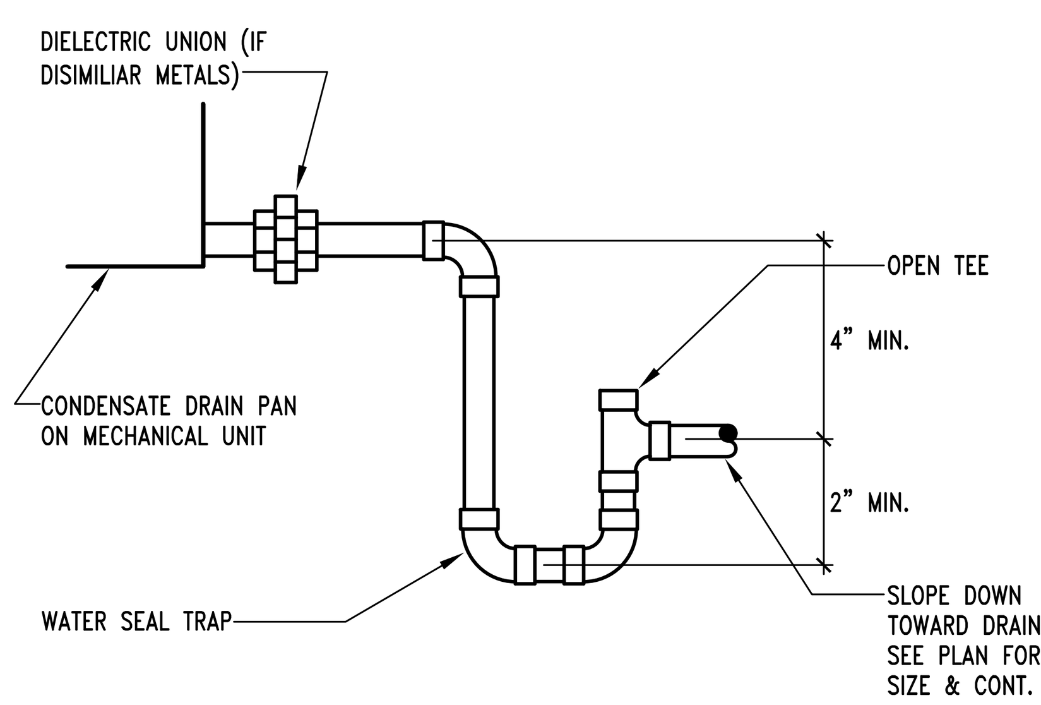
1. COORDINATE ALL WORK WITH ALL OTHER TRADES. EXACT ROUTING OF ALL PIPING SHALL BE CAREFULLY COORDINATED WITH ALL STRUCTURAL CONDITIONS.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS INCLUDING PIPING LOCATIONS, SIZES, INVERTS AND DIRECTION OF FLOW BEFORE THE START OF WORK.
3. PROVIDE REQUIRED DEMOLITION OF EXISTING PLUMBING EQUIPMENT, FIXTURES, MATERIALS AND OTHER ITEMS WHICH ARE NOT TO BE REUSED IN NEW DESIGN. ALL ITEMS WHICH THE OWNER DOES NOT WISH TO SALVAGE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
4. ALL PLUMBING FIXTURES AND EQUIPMENT IDENTIFIED BY A "P" NUMBER SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR, UNLESS NOTED OTHERWISE. SEE PLUMBING SCHEDULES.
5. OFFSET ALL PLUMBING VENTS AS REQUIRED INSURING MINIMUM 10'-0" CLEARANCE FROM ALL OUTSIDE AIR INTAKES.
6. CONTRACTOR SHALL PROVIDE ALL TRENCHING AND BACKFILL FOR HIGH PRESSURE GAS LINES TO THE BUILDING. COORDINATE MINIMUM BURY DEPTH, TRENCHING, PVC SLEEVING SIZE AND LOCATION, NON-CONDUCTIVE UNDERGROUND WARNING TAPE AND BACKFILL AS REQUIRED. SLEEVES SHALL BE STAMPED AS NATURAL GAS SLEEVING AND SHALL BE INSTALLED W/ SEALED ENDS AND SOLVENT JOINTS. COORDINATE ALL REQUIREMENTS WITH SOUTHWEST GAS.
7. PROVIDE ACCESS DOORS WHERE SHUT-OFF VALVE OR OTHER DEVICES ARE CONCEALED IN A HARD CEILING. SEE SPECIFICATIONS. COORDINATE WITH ARCHITECT.
8. ALL SEWER AND RAINWATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/4" PER FOOT UNLESS NOTED OTHERWISE.
9. ALL HOT WATER SUPPLY PIPING TO BE INSTALLED IN ACCORDANCE WITH IECC C404.5.

PLUMBING SYMBOLS AND LEGEND

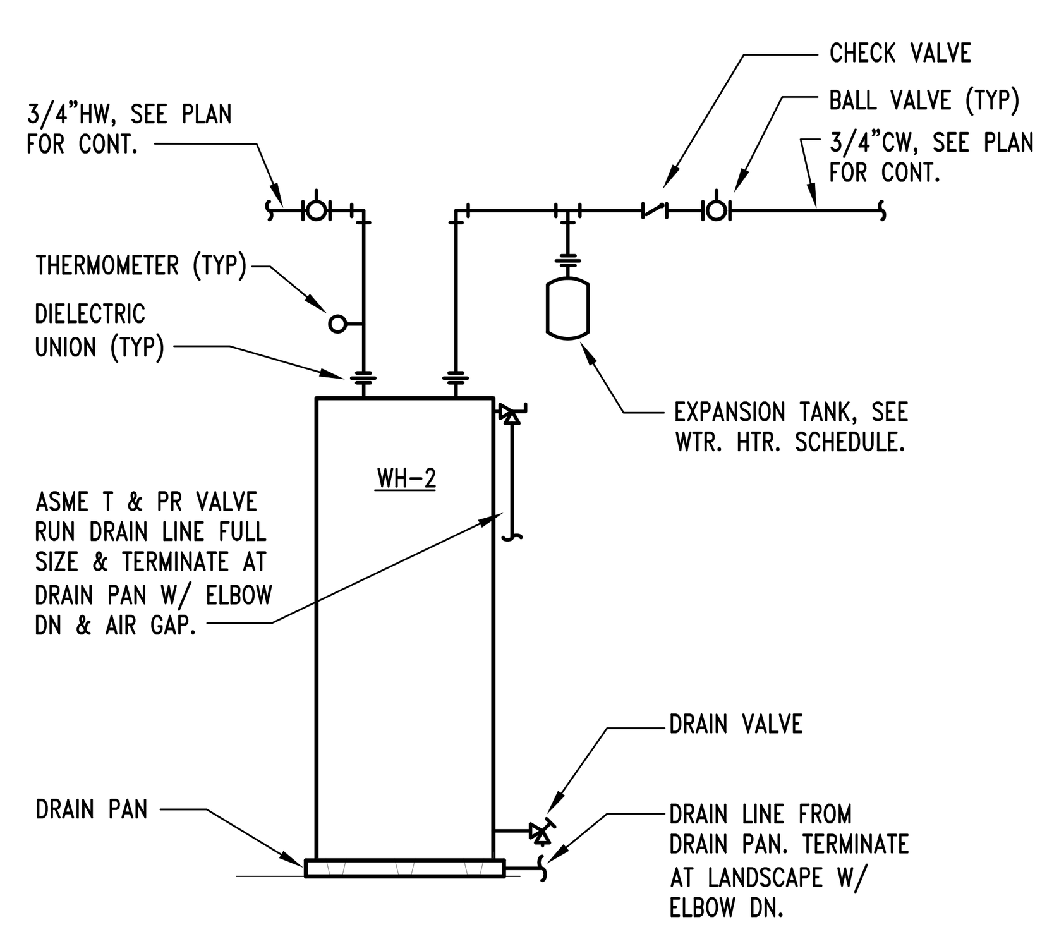
E	EXISTING CONSTRUCTION TO REMAIN, SHOWN IN LIGHTWEIGHT PEN		
S	SOIL OR WASTE LINE	ABV	ABOVE
V	VENT LINE	AFF	ABOVE FINISH FLOOR
CW	COLD WATER LINE	A.D.	ACCESS DOOR
HW	HOT WATER LINE	CLG	CEILING
HWR	HOT WATER RETURN LINE	CONT	CONTINUATION
CD	CONDENSATE LINE	DN	DOWN
GAS	NATURAL GAS LINE	E	EXISTING
GW	GREASE WASTE	OH	OVERHEAD
	ELBOW UP	TDL	TOTAL DEVELOPED LENGTH
	ELBOW DOWN	TYP	TYPICAL
	TEE DN	U.N.O.	UNLESS NOTED OTHERWISE
	TEE UP	UG	UNDERGROUND
WCO	WALL CLEAN OUT	VTR	VENT THRU ROOF
GCO	GRADE CLEAN OUT	W/	WITH
FCO	FLOOR CLEAN OUT		
SOV	SHUT OFF VALVE (BALL VALVE)		
SOV	SHUT OFF VALVE (GATE VALVE)		
PRV	PRESSURE REDUCING VALVE		
	CHECK VALVE		
	UNION		
T&PR	TEMPERATURE & PRESSURE RELIEF		
H.B.	HOSE BIBB		



WATER HEATER DETAIL
NO SCALE
1 p1.0



CONDENSATE TRAP DETAIL
NO SCALE
2 p1.0



WATER HEATER DETAIL
NO SCALE
3 p1.0

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	DESCRIPTION	QTY	WASTE FIXTURE UNITS FU	WASTE FIXTURE UNITS TOTAL	WATER FIXTURE UNITS FU	WATER FIXTURE UNITS TOTAL	CONNECTION SIZES (INCHES) ** WASTE	VENT	HOT	COLD
P1	WATER CLOSET	KOHLER "WELLCOMME ULTRA" #K-96053, 1.6 GAL./FLUSH MAXIMUM, VITREOUS CHINA, FLOOR MOUNTED, FLUSH VALVE WATER CLOSET. PROVIDE SLOAN #111 FLUSH VALVE, CHURCH #9500SSC SELF-SUSTAINING CHECK HINGES, OPEN FRONT SEAT.	9	4	36	10	90	4	2	–	1 1/4
P1A	WATER CLOSET (ADA)	KOHLER "HIGHCLIFF ULTRA" #K-96057, 1.6 GAL./FLUSH MAXIMUM, VITREOUS CHINA, FLOOR MOUNTED, FLUSH VALVE WATER CLOSET W/ADA COMPLIANT HIGH BOWL. PROVIDE SLOAN #111 FLUSH VALVE, CHURCH #9500SSC SELF-SUSTAINING CHECK HINGES, OPEN FRONT SEAT	5	4	20	10	50	4	2	–	1 1/4
P2	URINAL (ADA)	KOHLER "BARDON" #K-4991-ET, WATERSAVER VITREOUS CHINA WALL HUNG WASHOUT URINAL. PROVIDE 1.0 GAL./FLUSH, "SLOAN ROYAL" #186-1 FLUSH VALVE AND J.R. SMITH #636 FLOOR MOUNTED URINAL CARRIER W/17" RIM HEIGHT WHERE REQUIRED FOR ADA COMPLIANCE	8	2	16	5	40	2	1 1/2	–	1
P3	LAVATORY (ADA)	KOHLER "KINGSTON" #K-2005, VIT. CHINA WALL HUNG LAVATORY. PROVIDE "CHICAGO" #802-VE2805-665CP FAUCET & #155WC OFFSET DRAIN, CAST BRASS "P" TRAP McGUIRE CHROME PLATED LOOSE KEY ANGLE STOPS & SUPPLIES, FLOOR MOUNTED FIXTURE CARRIER & WASTE & STOP INSULATION EQUAL TO MCGUIRE PROWRAP. PROVIDE ASSE 1070 CERTIFIED THERMOSTATIC MIXING VALVE EQUAL OF WATTS MODEL # LFUSG-B W/ 3/8" FITTINGS.	9	1	9	1	9	2	1 1/2	1/2	1/2
P3B	LAVATORY (ADA)	SLOAN "SLOANSTONE" #EW-42000 SOLID SURFACE 2-STATION LAVATORY W/ INTEGRAL SLOAN OPTIMA SENSOR FAUCETS (0.5 GPM, 0.25 GALS. MAX PER CYCLE) & #155WC OFFSET DRAIN, CAST BRASS "P" TRAP McGUIRE CHROME PLATED LOOSE KEY ANGLE STOPS & SUPPLIES, FLOOR MOUNTED FIXTURE CARRIER & WASTE & STOP INSULATION EQUAL TO MCGUIRE PROWRAP. PROVIDE ASSE 1070 CERTIFIED THERMOSTATIC MIXING VALVE EQUAL OF WATTS MODEL # LFUSG-B W/ 3/8" FITTINGS.	2	2	4	2	4	2	1 1/2	1/2	1/2
P4	1-STATION WATER COOLER	ELKAY #LZS8WSAP SINGLE STATION ADA WATER COOLER W/ BOTTLE FILLER 8 GPH CAPACITY OF 50 DEG. WATER AT 90 DEG. AMBIENT TEMPERATURE 5.0 FLA, 120/1/60. PROVIDE "P" TRAP, McGUIRE CHROME PLATED LOOSE KEY ANGLE STOP & SUPPLY, & FLOOR MOUNTED FIXTURE CARRIER.	1	0.5	0.5	0.5	0.5	2	1 1/2	–	1/2
P4B	2-STATION WATER COOLER	ELKAY #LZSTL8WSAP DUAL STATION ADA WATER COOLER W/ BOTTLE FILLER 8 GPH CAPACITY OF 50 DEG. WATER AT 90 DEG. AMBIENT TEMPERATURE 5.0 FLA, 120/1/60. PROVIDE "P" TRAP, McGUIRE CHROME PLATED LOOSE KEY ANGLE STOP & SUPPLY, & FLOOR MOUNTED FIXTURE CARRIER.	1	0.5	0.5	0.5	0.5	2	1 1/2	–	1/2
P5	MOP SINK	FIAT #MSB-2424 MOP SERVICE BASIN (24 X 24), #231 WHITEDRIFT. PROVIDE "FIAT" CHROME PLATED SERVICE FAUCET #830-AA WITH VACUUM BREAKER, HOSE AND HOSE BRACKET #832-AA, MOP HANGER #889-CC AND VINYL BUMPER GUARD #E-77-AA.	1	3	3	3	3	3	2	3/4	3/4
P6	WASHER WALL BOX	WATER TITE #W2700 HA WASHING MACHINE OUTLET BOX WITH WASTE CONNECTION, (2) BRASS QUARTER TURN VALVES WITH HOSE END AND INTEGRAL WATER HAMMER ARRESTERS.	1	3	3	4	4	2	2	3/4	3/4
FD	FLOOR DRAIN	J.R. SMITH #2005-BP, COATED CAST IRON BODY AND ADJUSTABLE 5" SQUARE NIKALOY STRAINER W/ TRAP PRIMER CONNECTION.	1	2	2	–	–	2	1 1/2	–	–
HB	HOSE BIBB	WOODFORD #B24P-3/4 BRASS HOSE BIBB W/VACUUM BREAKER & REMOVABLE LOOSE KEY HANDLE IN CLOSABLE WALL BOX	3	–	–	2.5, 1	4.5	–	–	–	3/4
		TOTAL FIXTURE UNITS			94		205.5				

** FIXTURE SERVICE PIPE SIZE SHALL BE THE SIZE INDICATED WITH REDUCER (IF REQ'D) AS CLOSE TO FIXTURE CONNECTION AS POSSIBLE

WATER HEATER SCHEDULE

MARK	WH-1	WH-2
ENTERING WATER TEMPERATURE (°F)	50	30
LEAVING WATER TEMPERATURE (°F)	120	120
RECOVERY RATE (GPH)	23	23
STORAGE VOLUME (GAL)	20	20
ENERGY SOURCE	ELECTRIC	ELECTRIC
ELEMENTS (KW)	4.5	4.5
TOTAL ELECTRICAL INPUT (KW)	4.5	4.5
VOLTS/PHASE/HZ	240/1/60	208/1/60
REFERENCE	BRADFORD WHITE LE120L3-3	BRADFORD WHITE LE330S3-3
EXPANSION TANK REFERENCE	AMTROL ST-5C	AMTROL ST-5C
RELIEF VALVE SETTING (PSIG)	150	150
NOTES	1 THRU 6	1 THRU 5

1. WATER HEATER SHALL BE UL LISTED.
2. RECOVERY RATE SCHEDULED IS FOR SEA LEVEL.
3. HEATING ELEMENTS ARE NON-SIMULTANEOUS.
4. PROVIDE HEAT TRAP FITTINGS AT COLD & HOT WATER CONNECTIONS EQUAL TO "WATTS".
6. WATER HEATER SHALL BE "LOW BOY" TYPE FOR MOUNTING ABOVE MOP SINK.

PRESSURE LOSS CALCULATIONS

SYSTEM TYPE	FLUSH VALVE	
TOTAL FIXTURE DEMAND	206.0	F.U.
TOTAL GPM DEMAND	92.0	GPM
ASSUMED PRESSURE AVAILABLE AT PROPERTY LINE	55.0	PSI
SITE PRESSURE LOSS		
A. EXISTING WATER METER	3.0	PSI
B. EXISTING R.P.B.P.	12.0	PSI
C. EXISTING PIPE TO BUILDING	3.0	PSI
TOTAL SITE PRESSURE LOSSES	18.0	PSI
BUILDING PRESSURE LOSS		
A. PRESSURE REQUIRED AT LAST FIXTURE	25.0	PSI
B. LIFT AT 6 FT	2.6	PSI
TOTAL BUILDING PRESSURE LOSSES	27.6	PSI
TOTAL PRESSURE LOSSES (SITE AND BUILDING)	45.6	PSI
TOTAL ALLOWABLE PRESSURE DROP FOR PIPE LOSSES: (AVAILABLE PRESSURE AT PROPERTY LINE-TOTAL PRESSURE LOSS)	9.4	PSI
EQUIVALENT FEET CALCULATION (BUILIDNG)		
A. TOTAL MEASURED LENGTH OF PIPE TO FURTHEST FIXTURE	200	FT
B. ADD 50% FOR FITTINGS AND VALVES	100	FT
TOTAL EQUIVALENT FEET	300	FT
ALLOWABLE AVERAGE PRESSURE DROP PER 100 FT.		
9.4 PSI X 100 = / 300 EQUIV. FT.	3.1	PSI/100FT.

Registered Professional Engineer (Mechanical) CERTIFICATE NO. 25035 KENNETH M. CAWTHORNE DATE SIGNED 4-8-25 ARIZONA U.S.A. Expires 6/30/2026

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Project #: 25118

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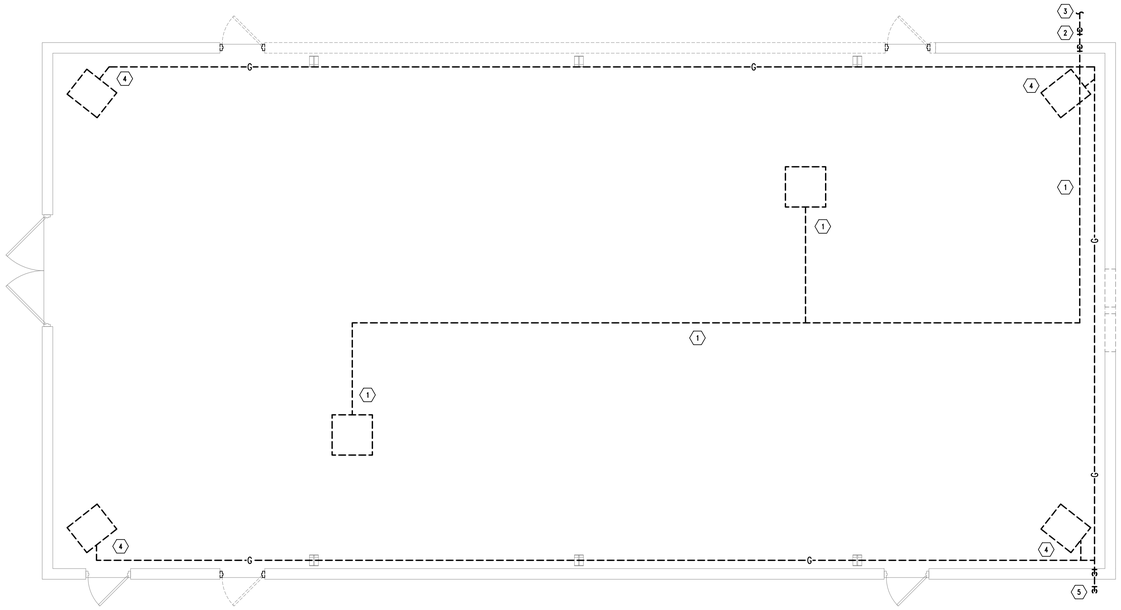
HIGH SCHOOL REMODEL

plumbing schedules, notes, & details

p1.0



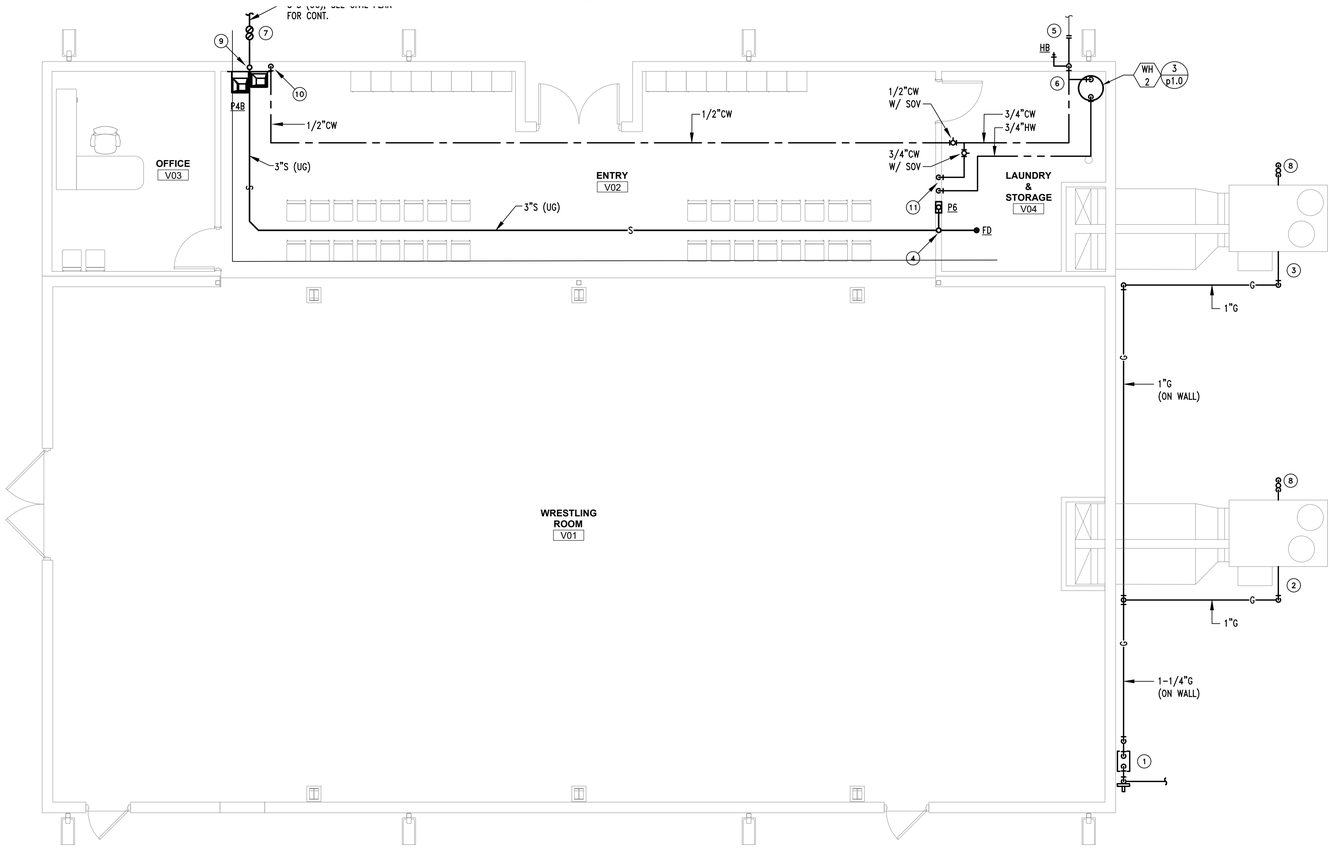
wrestling - plumbing demolition plan

3/16" = 1'-0"

north

PLUMBING DEMOLITION KEYNOTES

1. REMOVE ALL EXISTING CW PIPING FROM EVAP COOLERS BACK TO UG MAIN AS SHOWN. SEE NEW WORK PLAN FOR NEW CONNECTION.
2. REMOVE EXISTING HOSE BIBB.
3. REMOVE EXISTING UG CW MAIN AS REQUIRED TO CLEAR THE FOOTPRINT OF THE NEW BUILDING ADDITION. SEE NEW WORK PLAN FOR NEW CONNECTION.
4. REMOVE ALL EXISTING GAS PIPING FROM DEMOLISHED UNIT HEATERS BACK TO MAIN.
5. REMOVE EXISTING UNDERGROUND GAS PIPING FROM BUILDING TO METER. CAP AT REGULATOR. SEE NEW WORK PLAN FOR NEW GAS METER.



wrestling - plumbing new work plan

3/16" = 1'-0"

north

PLUMBING KEYNOTES

1. NEW GAS METER W/ REGULATOR SET FOR 7"WC. HPG TO METER BY SW GAS, PROVIDE REQUIRED TRENCHING, SLEEVE, TRACE WIRE, AND BACKFILL. COORDINATE WITH SOUTHWEST GAS. 250 CFH @ 88 LF.
2. 1"G TO AC UNIT W/ SOV, DIRT LEG, & UNION OR MAX. 18"FLEX CONNECTION. 125 CFH @ 68 LF.
3. 1"G TO AC UNIT W/ SOV, DIRT LEG, & UNION OR MAX. 18"FLEX CONNECTION. 125 CFH @ 88 LF.
4. 3"S W/ 2" TRAP ARM TO FLOOR DRAIN, THEN UP IN WALL W/ 2" TRAP ARM TO WALL BOX. 3"WCO @ 60"AFF, & 2"V UP TO 2"VTR.
5. CONNECT NEW 3/4"CW TO EXISTING CW PIPING UG. FIELD VERIFY EXACT LOCATION OF EXISTING UG CW PIPING. NEW CONNECTION TO BE MADE OUTSIDE THE FOOTPRINT OF THE NEW BUILDING.
6. 3/4"CW UP FROM UG TO OH W/SOV @ 48"AFF. PROVIDE 3/4"CW BRANCH TO HB W/ SOV.
7. 2-WAY 3"GCO. WIN. 48"BFF
8. 3/4"CD FROM AC UNIT W/ UNION, OPEN TEE & TRAP. TERMINATE AT LANSCAPE W/ ELBOW DN.
9. 2"S UP FROM UG TO WATER COOLER W/ 2"WCO & 2"V UP TO 2"VTR.
10. 1/2"CW DN IN WALL TO WATER COOLER.
11. 3/4"CW & 3/4"HW DN IN WALL TO WASHER BOX.

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plumbing plans
wrestling room

p2.0

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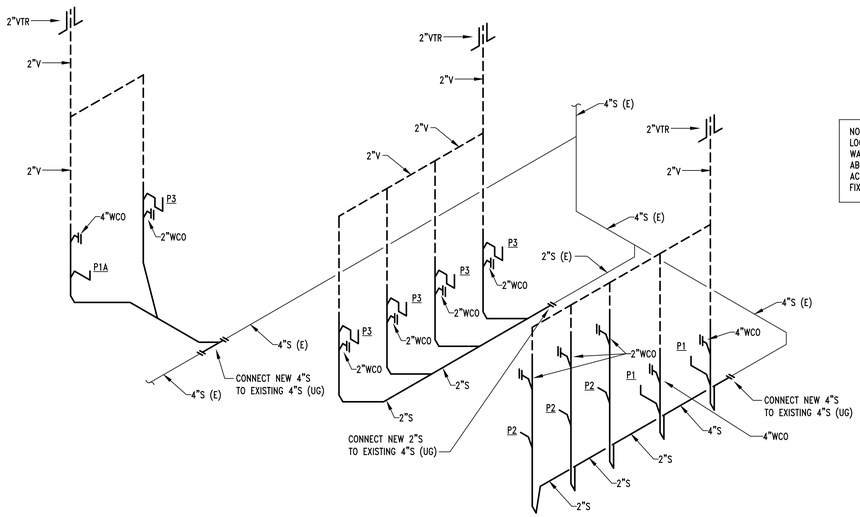
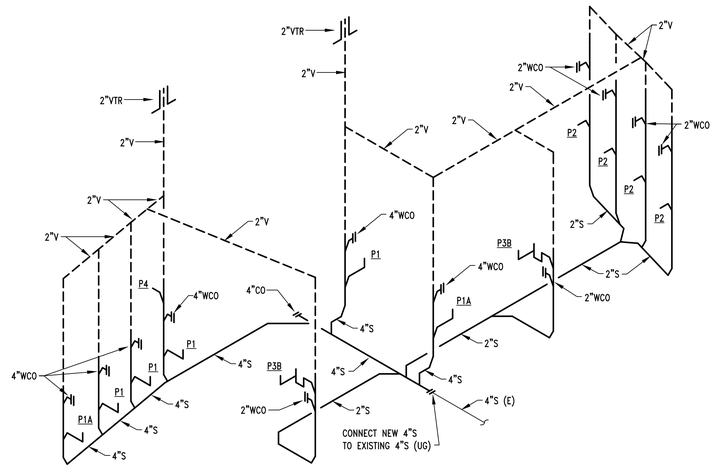
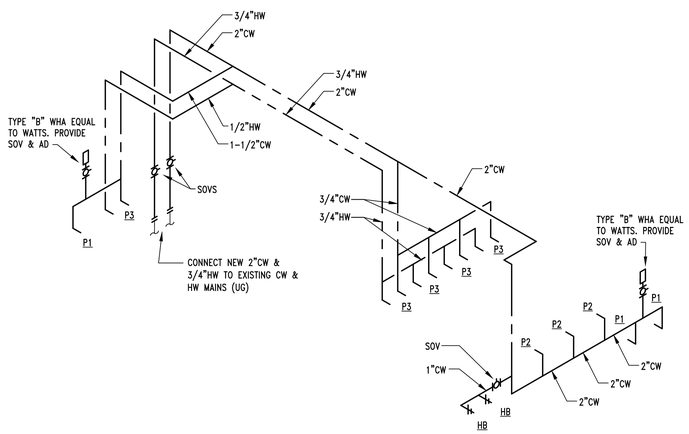


NOTE:
LOCATE ALL WALL CLEANOUTS FOR WATER CLOSETS AND URINALS ABOVE FLUSH VALVES TO BE ACCESSIBLE WITHOUT REMOVING FIXTURES.

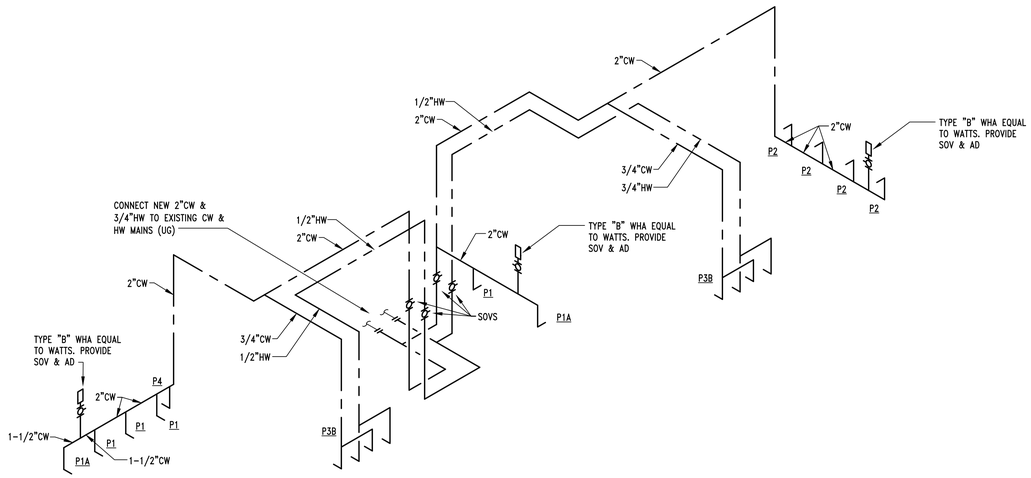
W BUILDING LOCKER ROOM
SOIL & VENT RISER
NO SCALE
2 p6.0



W BUILDING RESTROOMS
SOIL & VENT RISER
NO SCALE
4 p6.0



W BUILDING LOCKER ROOM
CW & HW RISER
NO SCALE
1 p6.0



W BUILDING RESTROOMS
CW & HW RISER
NO SCALE
3 p6.0

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11.20.2025

revisions

WILLCOX MIDDLE & HIGH SCHOOL
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

plumbing riser diagrams

p6.0

KENNETH M. CAWTHORNE
25035
REGISTERED PROFESSIONAL ENGINEER
DATE SIGNED 4-8-25
ARIZONA U.S.A.
Expires 6/30/2026

KC MECHANICAL ENGINEERING, L.L.C.
5447 East Fifth Street # 112
Tucson, Arizona 85711
520/327-7611
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Designers Mech: MG Plumb: NJH Project #: 25118

ELECTRICAL WORK NOTES

1. THE WORK COVERED ON THESE DRAWINGS SHALL INCLUDE THE FURNISHING OF ALL LABOR, MATERIALS, TRANSPORTATION, TOOLS, APPLIANCES, FEES, AND PERMITS REQUIRED FOR THE INSTALLATION OF A COMPLETE AND OPERATING ELECTRICAL SYSTEM. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO SHOW EVERY DETAIL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THIS PHASE OF THE WORK WITH ALL EXISTING CONDITIONS AND WITH ALL OTHER TRADES AND DESIGN DRAWINGS. SCHEDULE ALL OUTAGES AND CUTOVERS AS DIRECTED BY THE OWNER. COORDINATE ALL WORK SCHEDULES WITH THE OWNER.
3. ALL WORK SHALL COMPLY WITH THE APPLICABLE RULES OF THE 2017 NATIONAL ELECTRICAL CODE (N.E.C.), OSHA, LOCAL ORDINANCES, AND UTILITY COMPANY REQUIREMENTS.
4. ALL MATERIALS SHALL BE NEW AND BEAR THE U.L. SEAL. ALL CABLE SHALL BE STRANDED CU., TYPE THHN OR XHHW WITH INTEGRAL COLOR INSULATION, U.N.O.
5. INCLUDE ALL COSTS AND RESPONSIBILITY FOR SURVEYING, LAYOUT AND LEGAL DESCRIPTIONS; EXCAVATION, COMPACTION AND BACKFILL; CONCRETE AND ASPHALT CUTTING, BREAKOUT AND PATCHING; LOCATION AND PROTECTION OF ALL EXISTING PUBLIC AND PRIVATE UTILITIES; REMOVAL AND PROPER DISPOSAL OF ALL DEBRIS AND SURPLUS MATERIAL; BARRICADES AND OTHER REQUIRED SAFETY EQUIPMENT; TEMPORARY POWER AND LIGHTING THAT MAY BE REQUIRED TO EFFECT CONSTRUCTION ACTIVITIES; LANDSCAPING REPAIRS AND ALL APPURTENANCES AND INCIDENTALS THAT MAY BE REQUIRED. THE CONTRACTOR SHALL BE LIABLE FOR REPAIRS TO ALL EXISTING UNDERGROUND UTILITIES THAT ARE DAMAGED IN THE COURSE OF THE WORK.
6. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS PRIOR TO SUBMITTAL OF BID.
7. UNDERGROUND CONDUIT SYSTEMS SHALL BE PROVIDED WITH A MINIMUM 24 INCHES OF COVER FROM FINAL GRADES. VERIFY FINAL GRADE WITH CIVIL ENGINEER. ALL CONDUIT SHALL BE EMT, IMC, OR PVC SCH. 40. NO PVC SHALL PROTRUDE ABOVE GRADE. EMT FITTINGS SHALL BE STEEL, COMPRESSION, INSULATED THROAT.
8. LABEL ALL PHASE AND NEUTRAL CONDUCTORS WITH PANEL AND CIRCUIT NUMBERS IN EVERY PULLBOX, HANDHOLE, AND LIGHT FIXTURE.
9. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL OUTLETS AND LIGHT FIXTURES PRIOR TO ROUGH IN. CAREFULLY REVIEW ARCHITECTURAL, FURNITURE AND MILLWORK DRAWINGS, BUILDING ELEVATIONS, AND REFLECTED CEILING PLANS TO AVOID CONFLICTS. WHERE MILLWORK OCCURS, LOCATE ASSOCIATED OUTLETS WITHIN KNEE SPACES UNLESS NOTED OTHERWISE.
10. VERIFY ELECTRICAL RATINGS AND LOCATIONS OF HVAC EQUIPMENT AND CONFIRM ALL REQUIRED CLEARANCES WITH DIVISION 23 CONTRACTOR PRIOR TO START OF WORK. COMPLETELY CONNECT ALL EQUIPMENT FOR A COMPLETE FUNCTIONAL INSTALLATION.
11. LOCATE ALL ELECTRICAL DEVICES/FIXTURES IN CEILINGS ACCORDING TO THE ARCHITECTURAL REFLECTED CEILING PLANS INCLUDING LOCATION/PLACEMENT DETAILS.
12. DEVICES MOUNTED IN THE WALLS SHALL ALIGN VERTICALLY WITH ANY OTHER ELECTRICAL DEVICE WITHIN 2' HORIZONTALLY ON SAME WALL AND SHALL ALIGN HORIZONTALLY WHENEVER POSSIBLE.
13. ALL RACEWAYS SHALL BE CONCEALED WHEREVER POSSIBLE. ALL EXPOSED RACEWAYS, FITTINGS, EQUIPMENT AND SUPPORTS SHALL BE PAINTED AS DIRECTED IN ACCORDANCE WITH THE SPECIFICATIONS. VERIFY THE PROJECT SPECIFIC REQUIREMENTS (ACCESSIBLE VERSUS INACCESSIBLE CEILINGS AND WALLS, ETC.) FOR SURFACE OR CONCEALED WIRING METHODS AT EACH SITE PRIOR TO BID AND MAKE SUCH ACCOMMODATIONS IN THE BID.
14. ALL 120V RECEPTACLES ON ROOFS, IN FLOOR BOXES, JANITOR CLOSETS, RESTROOMS, AT EWC'S OR WHEREVER WITHIN 6 FEET OF SINKS SHALL BE GFCI TYPE.
15. ALL RECEPTACLES SHALL HAVE NEC COMPLIANT TAMPER PROOF FEATURE.
16. ALL EXTERIOR RECEPTACLES SHALL HAVE NEC COMPLIANT HEAVY DUTY TAMPER PROOF AND WEATHER RESISTANT GFCI FEATURE.
17. PROVIDE NEUTRAL CONDUCTOR TO ALL WALL MOUNTED SWITCH BOXES. CONNECT TO SENSOR, WHERE OCCURRING.
18. ALL WALLBOX SENSORS SHALL BE SET SUCH THAT THE PUSH BUTTON NEED NOT BE TOUCHED TO TURN LIGHTS ON WHEN A ROOM IS ENTERED AFTER THE SENSOR HAS TURNED THE LIGHTS OFF. LIGHTS SHALL AUTOMATICALLY TURN ON UPON OCCUPANCY IF THE LIGHTS WERE AUTOMATICALLY TURNED OFF DUE TO VACANCY.
19. TRACE ALL EXISTING CIRCUITS TO REMAIN IN AREAS OF WORK AND LABEL WIRING WITH CIRCUIT NUMBER TAGS AT WIRING DEVICES, J-BOXES, AND SERVING CIRCUIT BREAKER.
20. TAG ALL NEW WIRING WITH CIRCUIT NUMBERS AT WIRING DEVICES AND SERVING CIRCUIT BREAKERS.
21. UPDATE ALL NEW AND EXISTING PANEL DIRECTORIES TO REFLECT AS-BUILT CONDITIONS.
22. FLASH SLEEVE AND SEAL ALL WALL AND ROOF PENETRATIONS SOUND AND WEATHER PROOF. PROVIDE ESCUTCHEON TRIM RINGS AND PLATES.
23. ALL EXPOSED CONDUIT AND BOXES SHALL BE PAINTED TO MATCH SURFACE TO WHICH THEY ARE ATTACHED.
24. ALL WIRING SHALL BE THWN/THHN COPPER IN EMT CONDUIT.
25. ALL EMT CONDUIT FITTINGS SHALL BE STEEL, COMPRESSION, INSULATED THROAT.

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
AL.	ALUMINUM
CASS	CARD ACCESS SECURITY SYSTEM
C.I.P.	COMPLETE IN PLACE
CTRL	CONTROLS, CONTROLLER
CU.	COPPER
DPST	DOUBLE POLE SINGLE THROW
DPS	DOOR POSITION SWITCH
EF, EX	EXHAUST FAN
EL	EVENING LIGHT
EM	EMERGENCY
EWC	ELECTRIC WATER COOLER
EXIST.	EXISTING
EXT.	EXTERIOR
F.A.	FIRE ALARM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER PROTECTED
GRD	GROUND
IDF	INTERMEDIATE DISTRIBUTION FRAME
LTFSC	LIQUID TIGHT FLEXIBLE STEEL CONDUIT
LT., LTG.	LIGHT, LIGHTING
MDF	MAIN DISTRIBUTION FRAME
MOCP	MAXIMUM OVERCURRENT PROTECTION
NEC	NATIONAL ELECTRICAL CODE
N.I.C.	NOT IN CONTRACT
NL	NIGHT LIGHT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
REC.	RECEPTACLE
SPD	SURGE PROTECTION DEVICE
SPST	SINGLE POLE SINGLE THROW
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF
XFMR	TRANSFORMER

ELECTRICAL SHEET INDEX

ELECTRICAL SYMBOL LEGEND

- RACEWAY CONCEALED IN WALL OR CEILING, (2) #12, (1) #12 GRD. IN 1/2" C. U.N.O.
- RACEWAY CONCEALED IN FLOOR, UNDER FLOOR, OR UNDERGROUND. 2# 12, 1 #12 GRD. IN 3/4" C. U.N.O.
- HA-1,3 — 3/4"C. MINIMUM HOMERUN TO PANEL "HA", CIRCUITS 1 AND 3. NUMBER OF HASH MARKS INDICATE NUMBER OF CONDUCTORS, NOT INCLUDING GROUND CONDUCTOR, IN RACEWAY. REFER TO PANEL SCHEDULES FOR RACEWAY AND CONDUCTOR SIZES
- GROUND, SIZED ACCORDING TO CODE, U.N.O.
- FLEXIBLE STEEL CONDUIT. REFER TO SPECIFICATIONS FOR TYPES.
- LIGHT FIXTURE DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE.
- CEILING SURFACE OR RECESSED MOUNTED LIGHT FIXTURE AND OUTLET.
- WALL SURFACE OR RECESSED MOUNTED LIGHT FIXTURE AND OUTLET.
- LED OR FLUORESCENT FIXTURE AND OUTLET.
- STRIP LED OR FLUORESCENT FIXTURE AND OUTLET.
- NIGHT LIGHT LIGHTING FIXTURE
- COMBO EXIT LIGHT AND EMERGENCY LIGHT FIXTURE AND OUTLET. PROVIDE FACES AND DIRECTIONAL ARROWS AS REQUIRED. BACK MOUNT TO WALL WHEREVER POSSIBLE.
- EMERGENCY LIGHT FIXTURE AND OUTLET.
- TRANSFORMER, AS NOTED
- PANELBOARD, REFER TO PANEL SCHEDULE.
- ELECTRICAL SERVICE ENTRANCE EQUIPMENT, REFER TO ONE LINE DIAGRAM
- JUNCTION BOX
- ELECTRICAL CONNECTION
- MOTOR OUTLET AND MOTOR CONNECTION
- DISCONNECT SWITCH, FUSED, SIZE TO SUIT LOAD, ENCLOSURE TO SUIT LOCATION.
- WP GFCI — WALL MOUNTED NEC TAMPER RESISTANT DUPLEX CONVENIENCE RECEPTACLE AT +18" A.F.F., U.N.O. WHERE NOTED "WP", PROVIDE NEC TAMPER RESISTANT, WEATHER RESISTANT GFCI TYPE AT +18" WITH DEEP LOCKABLE WEATHERPROOF COVER, WET LOCATION LISTED WHILE IN USE. WP RECEPTACLES ON ROOF NEED NOT HAVE LOCKABLE COVER. LOCKABLE COVERS SHALL HAVE HASP FOR OWNER FURNISHED PADLOCK. WHERE NOTED "EWC", PROVIDE RECEPTACLE, LOCATED PER EWC INSTALLATION DRAWINGS.
- WALL MOUNTED TAMPER RESISTANT GFCI DUPLEX CONVENIENCE RECEPTACLE AT +6" ABOVE BACKSPLASH AT COUNTERTOP U.N.O. REFER TO ARCH. ELEVATIONS FOR EXACT LOCATIONS.
- SPECIAL WALL MOUNTED RECEPTACLE, AS NOTED, AT +18" A.F.F., U.N.O. VERIFY NEMA CONFIGURATION. ALL DRYER RECEPTACLES SHALL BE FOUR-PRONG WITH BRANCH CIRCUITRY CONSISTING OF TWO #10 PHASE CONDUCTORS, ONE #10 NEUTRAL AND ONE #10 GROUNDING CONDUCTOR.
- ANALOG DUAL TECHNOLOGY PIR AND MICROPHONIC PRESENCE SENSOR FOR CONTROL OF LIGHTING, MINIMUM 1,000 SQ. FT. COVERAGE PATTERN PER SENSOR. PROVIDE COMPLETE IN PLACE. EXACT LOCATION AND COVERAGE PATTERN PER MANUFACTURER. SUBMIT PROJECT SPECIFIC LAYOUT DRAWINGS FOR APPROVAL PRIOR TO START OF WORK. PROVIDE HIGHBAY SENSORS WHERE SHOWN, MINIMUM 2,000 SQ. FT. COVERAGE AREA.
- $2 — ANALOG PUSHBUTTON ON/OFF DUAL TECHNOLOGY WALL BOX OCCUPANCY SENSOR +48" A.F.F. WITH NEUTRAL WIRE CONNECTION.
- $T — SPST, DIGITAL PUSHBUTTON WALL BOX TIMER SWITCH. VOLTAGE AND RATING TO SUIT ASSOCIATED LOADS.
- $M — MOTOR RATED SWITCH, AS NOTED.
- F — FIRE ALARM PULL STATION AT + 48" A.F.F., U.N.O. PROVIDE INTEGRALLY ALARMED POLYCARBONATE VANDAL SHIELD.
- FIRE ALARM HORN/STROBE VOICE EVACUATION DEVICE AT + 80" A.F.F., U.N.O.
- FIRE ALARM ADJUSTABLE VOLUME HORN/STROBE VOICE EVACUATION DEVICE AT 80" A.F.F., U.N.O.
- SD — FIRE ALARM AREA SMOKE DETECTOR, CEILING MOUNTED.
- D — FIRE ALARM AREA SMOKE DETECTOR, HVAC DUCT MOUNTED.
- S — CEILING OR WALL MOUNTED PAGING/BELL.
- DUPLEX TELECOMMUNICATIONS OUTLET IN 4-11/16" BOX AT +18" A.F.F., U.N.O. (2) DATA CABLES TO NEAREST IDF. (1) BUSHED 1"C. FROM OUTLET TO CEILING SPACE. ALL TELECOM CABLING AND JACKS ARE BY OWNERS VENDOR.
- WAP — CEILING MOUNTED WIRELESS ACCESS POINT WITH (2) DATA CABLES TO NEAREST IDF. ALL TELECOM CABLING AND JACKS ARE BY OWNERS VENDOR.
- FIRE ALARM SPEAKER STROBE DEVICE.
- N — NEW
- E — EXISTING
- R — REINSTALLED

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job
2404.03

date
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HIGH SCHOOL REMODEL

symbol legend
notes, abbreviations

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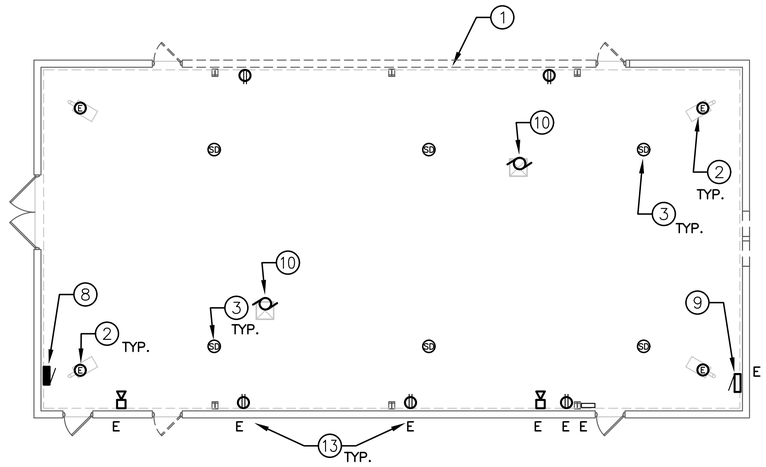
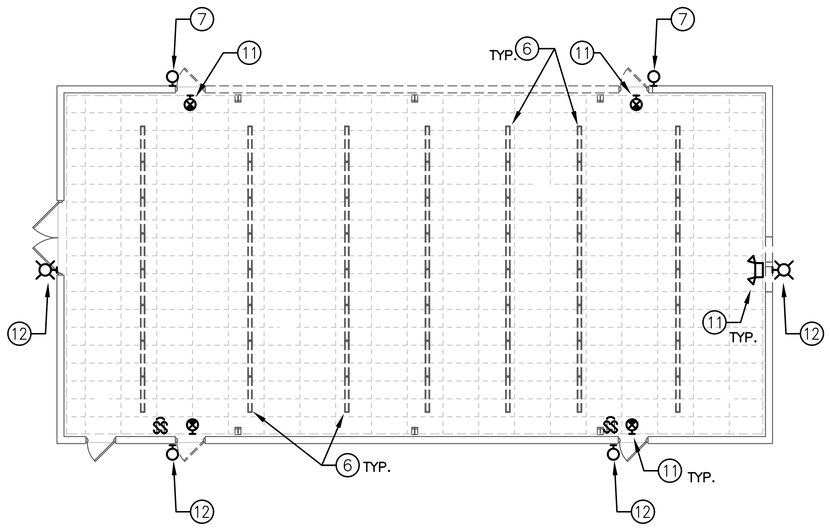
E0.1



1 electrical demolition plan north

0 4 8 16

SCALE 1/8" = 1'-0"



2 lighting demolition plan north

0 4 8 16

SCALE 1/8" = 1'-0"

ELECTRICAL KEYNOTES

THIS SHEET ONLY

1. REMOVE EXISTING RECEPTACLES AND RECESSED CONDUITS FROM DEMOLISHED WALL, REMOVE ALL ASSOCIATED WIRE/CONDUIT TO LAST JUNCTION BOX. MAINTAIN EXISTING CIRCUITRY PASSING THRU DEMOLITION AREA FEEDING AREAS AND DEVICES TO REMAIN.
2. REMOVE HEATER CONNECTIONS AND WIRE/CONDUIT BACK TO SOURCE.
3. REMOVE EXISTING FIRE ALARM (FA) DEVICES, REMOVE ALL ASSOCIATED WIRE/CONDUIT BACK TO SOURCE. MAINTAIN EXISTING FA LOOP PASSING THRU DEMOLITION AREA FEEDING OTHER AREAS AND DEVICES TO REMAIN. FIRE ALARM SYSTEM SHALL REMAIN IN FUNCTION DURING CONSTRUCTION. SALVAGE EXISTING FA DEVICES FTO OWNER.
4. REMOVE EXISTING LOW VOLTAGE SECURITY DEVICES, REMOVE ALL ASSOCIATED WIRE/CONDUIT BACK TO SOURCE. SALVAGE EXISTING DEVICES FOR NEW CONSTRUCTION PHASE USE.
5. REMOVE EXISTING TELECOM OUTLETS, REMOVE ALL ASSOCIATED WIRE/CONDUIT BACK TO SOURCE. MAINTAIN EXISTING WIRING PASSING THRU DEMOLITION AREA FEEDING OTHER AREAS TO REMAIN.
6. REMOVE EXISTING SURFACE FLUORESCENT LIGHT FIXTURE, REMOVE ALL ASSOCIATED LIGHT SWITCHES, CONTROLS, AND WIRE/CONDUIT BACK TO SOURCE.
7. REMOVE EXISTING WALL MOUNTED LIGHT FIXTURE. REMOVE EXISTING WIRE/CONDUIT FROM WEST WALL.
8. REPLACE EXISTING PANEL PER PANEL SCHEDULE AND ONE LINE DIAGRAM. TRACE AND ID ALL EXISTING LOADS, COORDINATE WITH OWNER EXISTING LOADS TO REMAIN AND TO BE RECONNECTED VIA NEW BREAKER IN NEW PANEL.
9. EXISTING TELECOM CABINET TO REMAIN.
10. REMOVE CONNECTION TO EXISTING EVAPORATIVE COOLERS, REMOVE ASSOCIATED WIRE/CONDUITS AND CONTROLS.
11. REMOVE EXISTING EXIT AND EMERGENCY LIGHTS.
12. REMOVE EXISTING EXTERIOR LIGHT FIXTURES, MAINTAIN CONCEALED CONDUIT, MAINTAIN EXISTING EXTERIOR LGT. CONTROL. REMOVE SURFACE CONDUIT.
13. MAINTAIN FUNCTION AND CONTINUITY OF EXISTING WALL MOUNTED DEVICES.

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building V floor plan - electrical demolition

ED3

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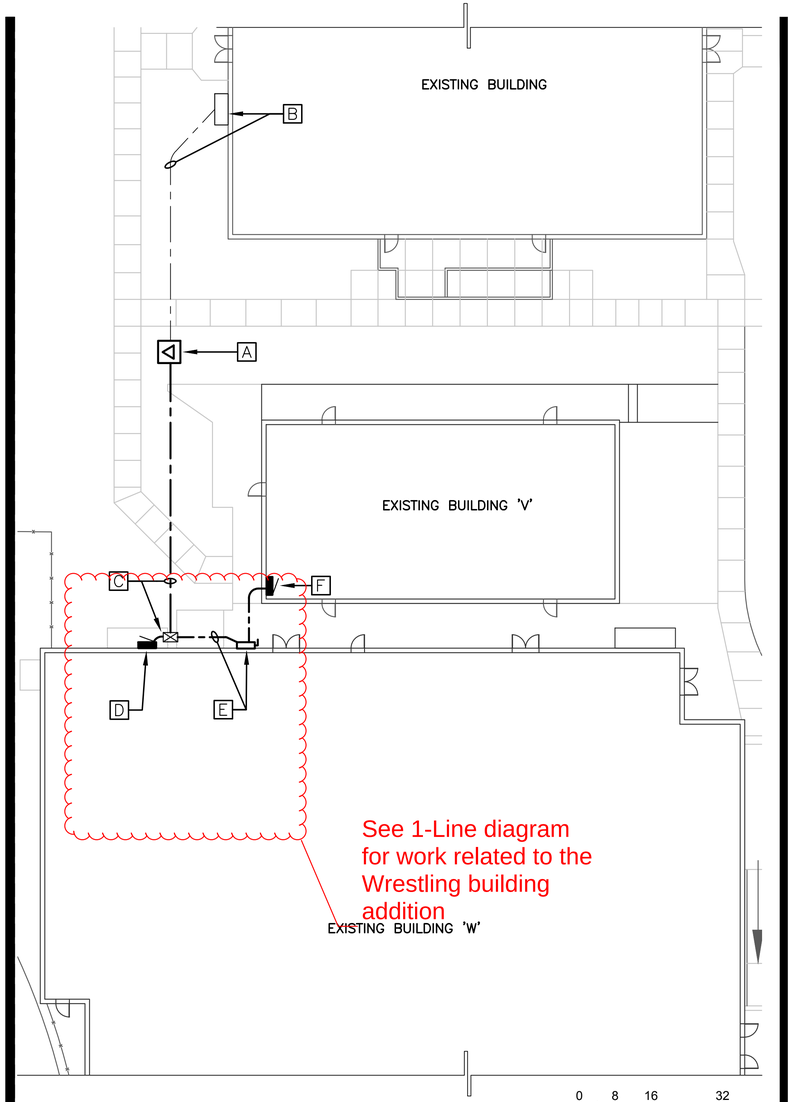


2 electrical demoliton - partial site plan

north

0 8 16 32

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

☐ ELECTRICAL DEMOLITION KEYNOTES

THIS SHEET ONLY

A. EXISTING POWER COMPANY TRANSFORMER TO REMAIN. POWER CO. TO REVIEW AND/OR REVISE EXISTING KVA CAPACITY WITH NEW LOAD PER THIS PROJECT.

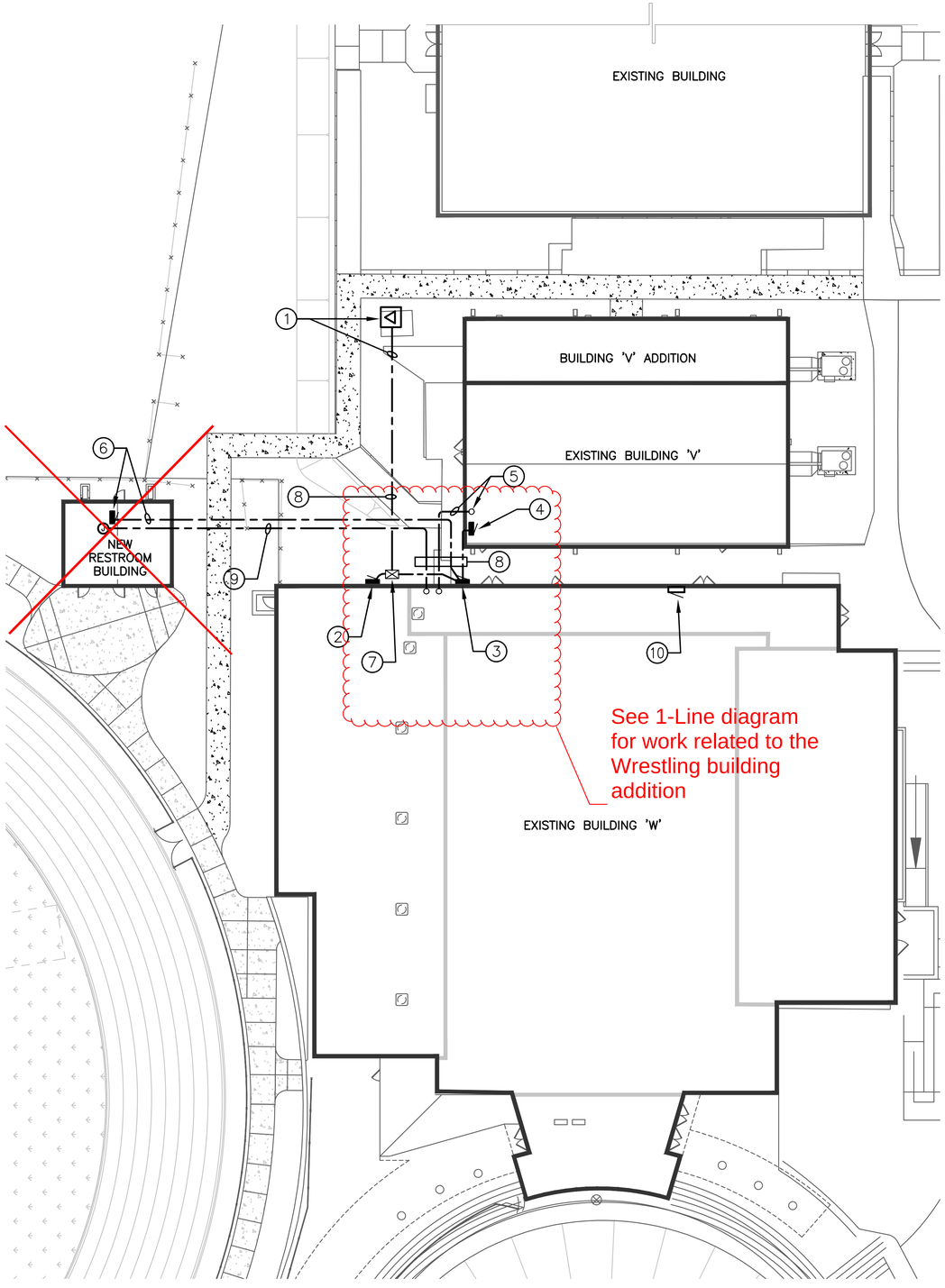
B. EXISTING 'NEW GYM' 800A–120/208V–3ø–4W DISTRIBUTION PANEL AND SERVICE CONDUTORS TO REMAIN.

C. EXISTING U.G. SERVICE CONDUCTORS AND UTILITY SPLICE BOX WITH WP MULTI–TAP CONNECTOR.

D. 400A–120/208V–3ø–4W SPORTS LIGHTING PANEL NOT IN THIS CONTRACT.

E. REMOVE EXISTING 400A DISCONNECT, GUTTER, AND SERVICE CONDUCTORS PER ONE LINE DIAGRAM.

F. REMOVE EXISTING 60A PANEL, AND FEEDER PER ONE LINE DIAGRAM.



1 electrical - partial site plan

north

0 8 16 32

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

○ ELECTRICAL KEYNOTES

THIS SHEET ONLY

1. EXISTING POWER COMPANY TRANSFORMER TO REMAIN. POWER CO. TO REVISE EXISTING KVA CAPACITY WITH NEW LOAD PER THIS PROJECT. ADD NEW SET OF SERVICE CONDUCTORS PER ONE LINE DIAGRAM.
2. EXISTING SPORTS LIGHTING PANEL TO REMAIN, COORDINATE SERVICE CONDUCTORS TO REMAIN.
3. NEW 600A–120/208V–3ø–4W PANEL PER ONE LINE DIAGRAM AND PANEL SCHEDULE.
4. NEW 200A–120/208V–3ø–4W BLDG. 'V' PANEL AND NEW FEEDER PER PER ONE LINE DIAGRAM AND PANEL SCHEDULE.
5. PROVIDE (2) 2"C. FOR FUTURE SPECIAL SYSTEMS FROM BLDG. 'W' TO BLDG. 'V'.
6. NEW 100A–120/208V–3ø–4W RESTROOM BLDG. PANEL AND NEW FEEDER PER PER ONE LINE DIAGRAM AND PANEL SCHEDULE.
7. EXISTING UTITITY CO. SERVICE CONDUCTORS SPLICE BOX PER ONE LINE DIAGRAM.
8. SAW CUT, PATCH, AND RESTORE CONCRETE WALKWAYS FOR NEW UNDERGROUND CONDUIT WORK.
9. FIRE ALARM U.G. 2"C.
10. EXISTING FIRE ALARM PANEL.

EXTERIOR WORK NOTES:

- ALL CONDUIT SHALL BE CONCEALED IN BUILDING WHEREVER POSSIBLE.
- ALL PENETRATIONS THROUGH EXTERIOR WALL AND ROOFS SHALL BE SLEEVED, FLASHED AND SEALED WATERPROOF. PROVIDE ESCUTCHEON PLATES WHERE WALL PENETRATIONS ARE EXPOSED.
- INSTALL WP/UV PROOF ID LABEL AT ALL PANELS AND DISCONNECT SWITCHES TO INDICATE PANEL NUMBER AND AS–BUILT CIRCUITRY/SOURCES.
- ALL CONDUCTORS INSTALLED AT EXTERIOR AND/OR ABOVE ROOF SHALL BE XHHW–2 TYPE.

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electrical site plans

ES1

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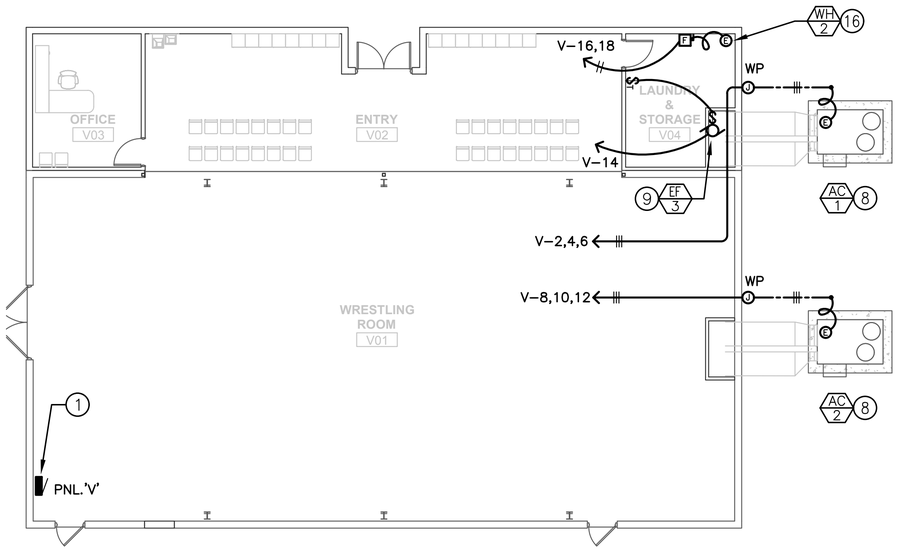
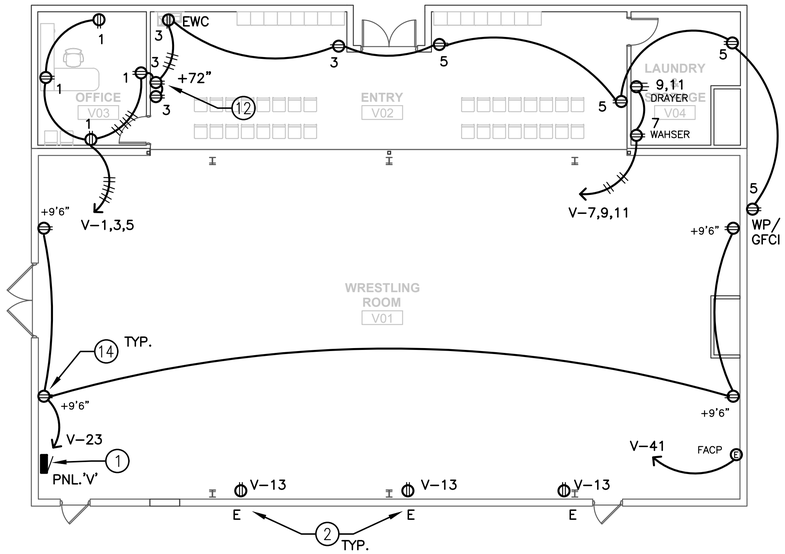


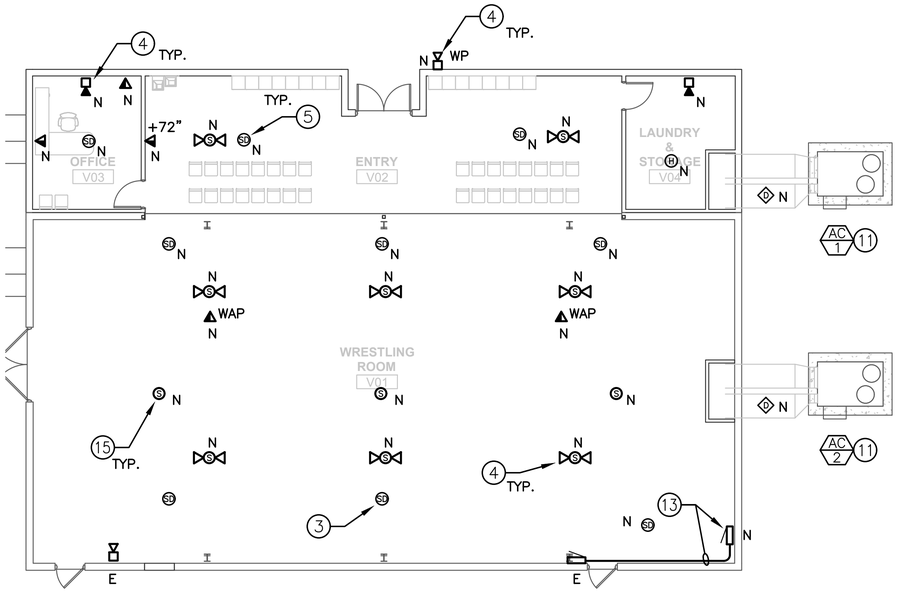
2 new hvac power plan — north

SCALE 1/8" = 1'-0"



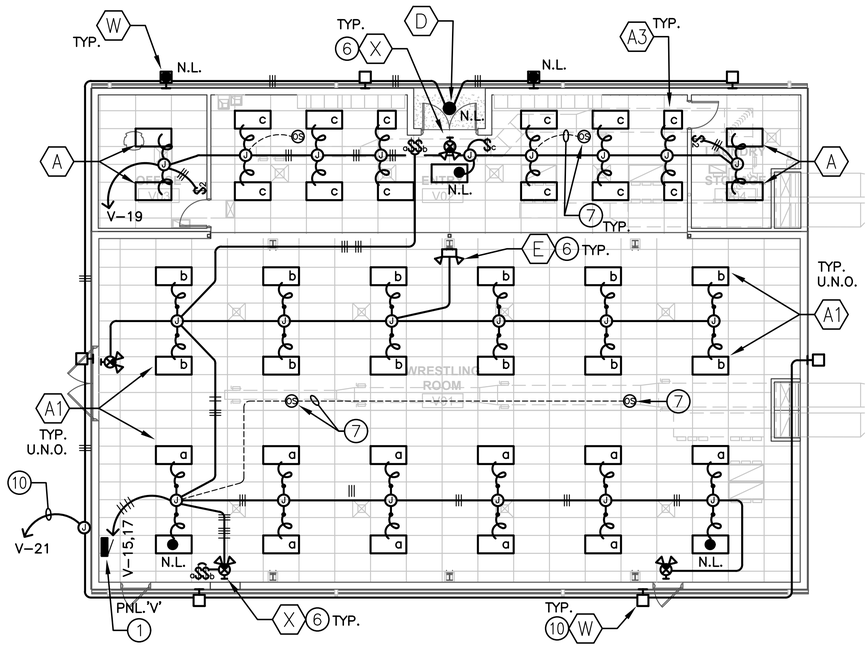
1 new power plan — north

SCALE 1/8" = 1'-0"



4 new special system plan — north

SCALE 1/8" = 1'-0"



3 new lighting plan — north

SCALE 1/8" = 1'-0"

ELECTRICAL KEYNOTES

THIS SHEET ONLY

1. NEW PANEL PER ONE LINE DIAGRAM AND PANEL SCHEDULE.
2. EXISTING RECEPTACLES TO REMAIN, RECONNECT TO NEW CIRCUIT AS INDICATED.
3. INSTALL FA SMOKE DETECTION DEVICES MADE AVAILABLE THROUGH DEMOLITION. EXTEND EXISTING FA LOOP.
4. NEW FA SPEAKER/STROBE DEVICES, CONNECT TO NEW FA LOOP.
5. CONNECT EXISTING FIRE ALARM LOOP TO NEW FIRE ALARM DEVICES.
6. PROVIDE UNSWITCHED CIRCUITY TO NEW EXIT/EMERGENCY LIGHT.
7. CEILING PRESENCE SENSOR AND PROPOSED LV WIRING TO CONTROL INTERIOR LIGHTING.
8. AC UNIT WITN INTEGRAL SAFETY DISCONNECT SWITCH. COORDINATE FINAL LOCATIONS AND WALL PENETRATIONS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH–IN. PROVIDE 1/2"C. ADJACENT TO FEEDERS CONDUIT FOR THERMOSTAT/HVAC CONTROL WIRING. VERIFY ACTUAL THERMOSTAT PLACEMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH–IN. REFER TO TYPICAL DETAIL 8/E7.1.
9. PROVIDE CONNECTION TO CEILING FRACTIONAL MOTOR EXHAUST FAN PER DETAIL/DIAGRAM 4/E7.1. PROVIDE INTERMATIC ET2125C TIMER CONTROL FOR ALL EXHAUST FANS TIME–OF–DAY SWITCHING PER MECHANICAL SCHEDULES.
10. CONNECT NEW EXTERIOR LIGHT FIXTURES AND CONNECT/EXTEND EXISTING EXTERIOR LGT. CIRCUIT. PROVIDE NEW ASTRONOMIC TIMER SWITCH, INTERMATIC ST01C ADJACENT TO PANEL.
11. PROVIDE FA LOOP CONNECTION TO NEW DUCT SMOKE DETECTORS.
12. (3) GANG RECESSED TV POWER AND DATA WALL BOX, LOCATE PER ARCH. DETAILS.
13. PROVIDE NEW FIRE ALARM PANEL. PROVIDE CONNECTION TO VOICE EVACUATION EXISTING GYM FA NETWORK LOOP.
14. RECEPTACLES FOR OWNER PROVIDED BLUE TOOTH SPEAKERS.
15. PROVIDE NEW PAGING/BELL SPEAKER AND WIRING TO MATCH EXISTING SYSTEM, CONNECT TO EXISTING CABLING IN VECINITY.
16. PROVIDE NEMA 1, 30A/208V–1ø FUSE DISCNNECT FOR WATER HEATER.

FIRE ALARM NOTES:
ALL HVAC UNITS SUPPLYING 2000 CFM OR MORE SHALL HAVE A FIRE ALARM DUCT SMOKE DETECTOR THAT ANNUNCITES ACTIVATION. VERIFY EXISTING UNITS AND RE–CONNECT TO EXISTING F.A. LOOP AND/OR PROVIDE PROVIDE NEW F.A. DUCT SMOKE DETECTOR AND CONNECT TO EXISTING F.A. LOOP. UPDATE ALL SYSTEM PROGRAMMING TO ACCOMMODATE NEW DEVICES AND CONTROLS. EXISTING FIRE ALARM SYSTEM SHALL BE IN OPERATION DURING CONSTRUCTION. COORDINATE ALL REQUIREMENTS. PROVIDE AS–BUILT DRAWINGS FOR RECORD.

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Registered Professional Engineer — CERTIFICATE NO. 37386 — CHRISTIAN K. MONRAD — ARIZONA U.S.A.

job
2404.03

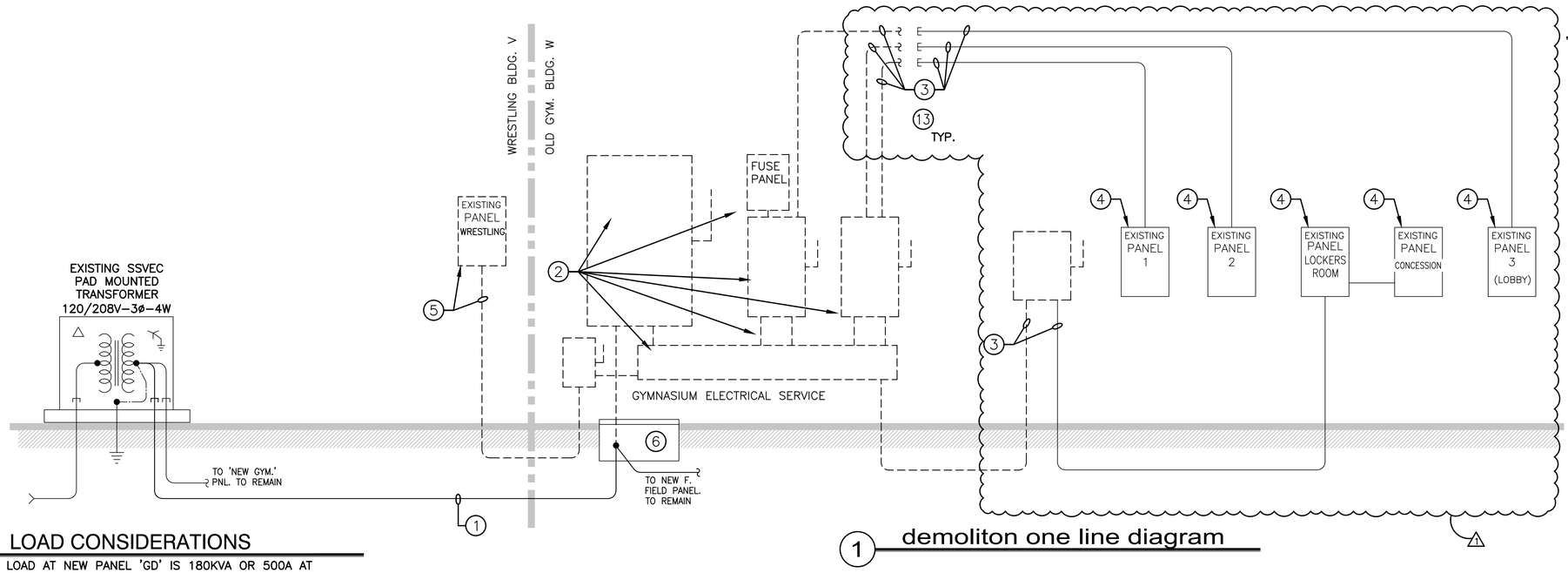
date
11.20.2025

revisions

WILLCOX MIDDLE & HIGH SCHOOL
240 N. BISBEE AVE.
WILLCOX, ARIZONA 85643
HIGH SCHOOL REMODEL

building V floor plan - new electrical plans

E1.2



1 demoliton one line diagram

LOAD CONSIDERATIONS

TOTAL LOAD AT NEW PANEL 'GD' IS 180KVA OR 500A AT 120/208V–3ø–4W PER PANEL SCHEDULE.
NEW 600A–120/208V–3ø–4W PANEL AND SERVICE CONDUCTORS ARE ADEQUATE FOR THIS PROJECT.

SHORT CIRCUIT CONSIDERATIONS

$I_{s.c.}$ = 55,600A (POWER CO. AVAILABLE FAULT CURRENT FOR 600A TO 2000A SERVICE)

f = (1.732)(100)(55,600)/(18,756)(2)(208) = = 1.2342

M = 1/1+1.2342 = 0.4475

$I_{s.c.\ sym\ RMS}$ = (55,600)(0.4475) = 24,481A AT PANEL 'GYM'.

f = (1.732)(80)(24,481)/(12,844)(1)(208) = 1.269

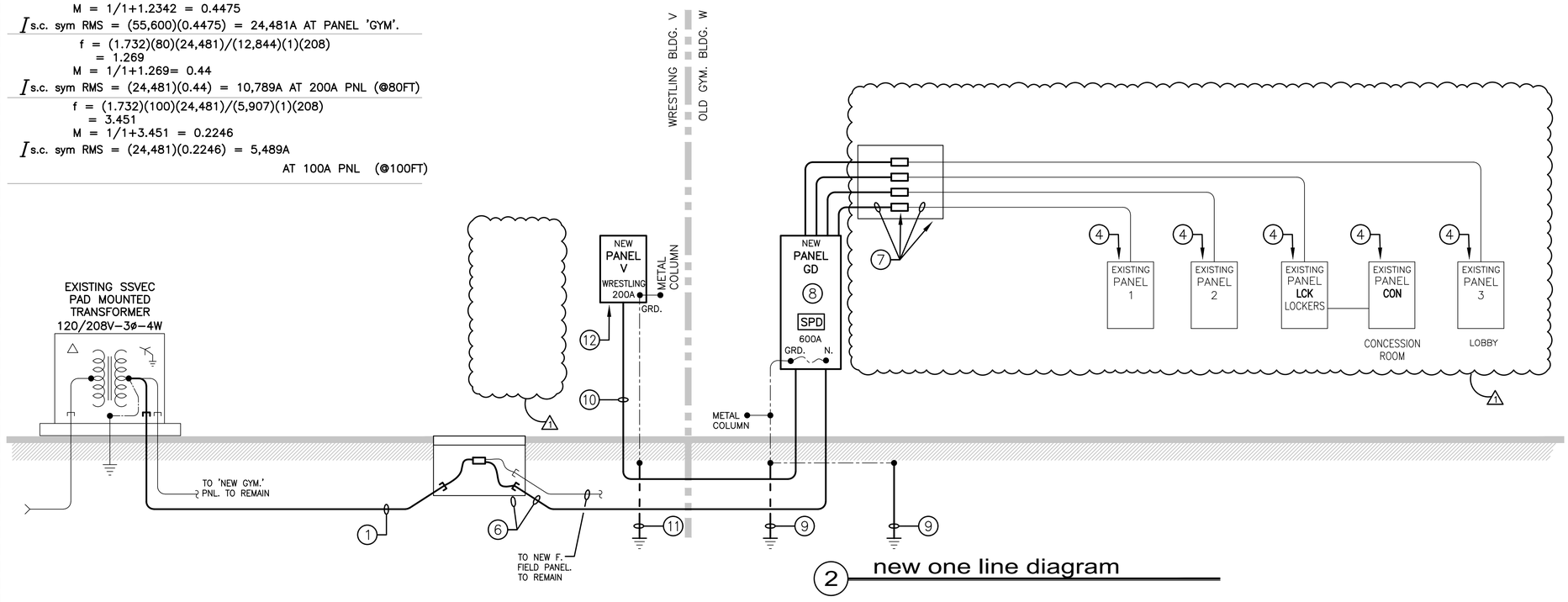
M = 1/1+1.269= 0.44

$I_{s.c.\ sym\ RMS}$ = (24,481)(0.44) = 10,789A AT 200A PNL (@80FT)

f = (1.732)(100)(24,481)/(5,907)(1)(208) = 3.451

M = 1/1+3.451 = 0.2246

$I_{s.c.\ sym\ RMS}$ = (24,481)(0.2246) = 5,489A AT 100A PNL (@100FT)



2 new one line diagram

ELECTRICAL KEYNOTES

THIS SHEET ONLY

1. EXISTING 400A–120/208V–3ø–4W SERVICE CONDUCTORS TO REMAIN.
2. REMOVE 400A DISCONNECT SWITCH, GUTTER, FUSED DISCONNECTS, AND ASSOCIATED WIRE/CONDUIT.
3. REMOVE FEEDER FROM 400A DISCONNECT, AND PROVIDE CONNECTION TO NEW PANEL PER KEY NOTE NO.7.
4. EXISTING PANEL AND ASSOCIATED WIRE CONDUIT TO REMAIN. RECONNECT TO NEW SOURCE PER PANELS SCHEDULE.
5. REMOVE EXISTING PANEL, REMOVE EXISTING FEEDER BACK TO SOURCE.
6. EXISTING UTILITY PULLBOX TO REMAIN. PROVIDE NEW FEEDER FROM UTILITY PULL BOX TO NEW PANEL, COORDINATE WITH POWER CO.
7. PROVIDE NEW NEMA 3R, J–BOX WITH 600A POWER DISTRIBUTION BLOCKS WITH ISOLATED LIVE PARTS AND RECONNECT EXISTING FEEDERS MADE AVAILABLE THROUGH DEMOLITION TO NEW PANEL. NOTE THAT NOT ALL FEEDERS ARE OVERHEAD, VERIFY EXISTING CONDITIONS ON SITE.
8. PROVIDE NEW 600A–120/208V–3ø–4W PANEL PER PANEL SCHEDULE. SET MAIN BREAKER TO 400A.
9. PROVIDE NEW (2) 3/4"X10ft COPPERCLAD STEEL GROUND RODS 10ft APART. PROVIDE #1/0 CU BOND FROM GROUND RODS TO PNL. GRD. LUG, METALLIC PIPING SYSTEM, AND BUILDING METALLIC STRUCTURE.
10. PROVIDE NEW FEEDER: (4) #3/0 CU, (1) #6 CU GRD. IN 2"C.
11. PROVIDE NEW (1) 3/4"X10ft COPPERCLAD STEEL GROUND ROD. PROVIDE #2 CU BOND FROM GROUND ROD TO PNL. GRD. LUG AND BUILDING METALLIC STRUCTURE.
12. PROVIDE NEW PANEL PER PANEL SCHEDULE
13. TRACE AND ID EXISTING GUTTER, DISCONNECTS AND OTHERS LOADS TO REMAIN. COORDINATE ACCESS AND OUTAGES WITH OWNER. EXISTING LOADS TO REMAIN SHALL BE RECONNECTED TO NEW PANEL VIA NEW BREAKER.

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one line diagrams

E4.0

LOCKOUT - TAGOUT - TESTOUT

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NEW PANEL

PANEL NAME: V — 120/208 VOLTS, 3 PHASE, 4 WIRE

TYPE: DOOR-IN-DOOR — 22,000 MINIMUM A.I.C. RATING

200 A BUS, 200A. MAIN BREAKER — MOUNTING: [ ] FLUSH [X] SURFACE

LOCATION: BLDG. V

ENCLOSURE: NEMA 1

			BREAKER				LOAD (IN kVA)								BREAKER			
		SERVES	AMP	P	WIRE	COND	A		B		C		COND	WIRE	P	AMP	SERVES	
	1	RECEPTACLES	20	1	10	3/4"	0.8	3.9						6				2
	3	RECEPTACLES	20	1	10	-			1.0	3.9			1/1/4"	6	3	45	AC-1	4
	5	RECEPTACLES	20	1	10	-					0.8	3.9		6				6
	7	WASHER	20	1	10	3/4"	1.0	3.9						6				8
	9	DRYER	30	2	10	-			2.0	3.9			1/1/4"	6	3	45	AC-2	10
	11	-	-	-	10	-					2.0	3.9		6				12
	13	EXISTING REC.	20	1	12	1/2"	0.6	0.5					1/2"	12	1	20	EF-3	14
*	15	LIGHTING	20	1	12	1/2"			0.6	2.3			3/4"	10	2	30	WH-2	16
*	17	LIGHTING	20	1	12	1/2"					0.6	2.3		10				18
*	19	LIGHTING	20	1	12	1/2"	0.6								1	20	SPACE	20
*	21	EXTERIOR LIGHTING	20	1	12	1/2"			0.5						1	20	SPACE	22
	23	REC. SPEAKERS	20	1	12	1/2"					0.4				1	20	SPACE	24
	25	SPARE	20	1											1	20	SPACE	26
	27	SPARE	20	1											1	20	SPACE	28
	29	SPARE	20	1											1	20	SPACE	30
	31	SPARE	20	1											1	20	SPACE	32
	33	SPARE	20	1											1	20	SPACE	34
	35	SPARE	20	1											1	20	SPACE	36
	37	SPARE	20	1												-		38
	39	SPARE	20	1											3	-	100KA SPD	40
LD	41	FACP	20	1	12	1/2"					0.2					-		42
		"*" CONTINUOUS LOAD X 1.25					0.8		1.4		0.8		REMARKS:					
		NON-CONTINUOUS LOAD X 1.0					10.7		13.1		13.5		PROVIDE INTEGRAL 100KA SPD; PROVIDE DOOR-IN-DOOR TYPE					
		DEMAND KVA/PHASE					11.5		14.4		14.2		CONNECTED LOAD:				39.5 kVA	
		DEMAND AMPS/PHASE					96		120		118		DEMAND LOAD:				40.1 kVA	

LD DENOTES: PROVIDE LOCK DEVICE AT BREAKER.

NEW PANEL

PANEL NAME: GD — 120/208 VOLTS, 3 PHASE, 4 WIRE

TYPE: BOLT-ON — 35,000 MINIMUM A.I.C. RATING

600 A BUS, 600A. MAIN BREAKER — MOUNTING: [ ] FLUSH [X] SURFACE

LOCATION: GYM BLDG.

ENCLOSURE: NEMA 3R

			BREAKER				LOAD (IN kVA)								BREAKER				
		SERVES	AMP	P	WIRE	COND	A		B		C		COND	WIRE	P	AMP	SERVES		
	1	NEW PANEL V			***		11.5								1	20		2	
	3	WRESTLING	200	3	***	***			14.4						1	20	SPACE	4	
	5				***						14.2				1	20		6	
	7	SPACE	20	1											1	20		8	
	9	FUTURE RS PNL.	20	1											1	20	SPACE	10	
	11		20	1											1	20		12	
E	13	EXISTING PANEL 3			***		4.6	8.8						***			EXISTING LOAD,	14	E
E	15	LOBBY	100	3	***	***			4.4	8.8			***	***	3	100	PANEL 1	16	E
E	17				***						3.4	8.8		***				18	E
E	19	EXISTING			***		9.8	8.2						***			EXISTING LOAD,	20	E
E	21	PANEL LOCKERS	100	3	***	***			8.2	7.6			***	***	3	100	PANEL 2	22	E
E	23				***						7.5	7.8		***				24	E
	25	SPARE	20	1											1	20	SPACE	26	
	27	SPARE	20	1											1	20	SPACE	28	
	29	SPARE	20	1											1	20	SPACE	30	
	31	SPARE	20	1											1	20	SPACE	32	
	33	SPARE	20	1											1	20	SPACE	34	
	35	SPARE	20	1											1	20	SPACE	36	
	37	SPARE	20	1												-		38	
	39	SPARE	20	1											3	-	200KA SPD	40	
	41	SPARE	20	1												-		42	
		"*" CONTINUOUS LOAD X 1.25					0.0		0.0		0.0		REMARKS:						
		NON-CONTINUOUS LOAD X 1.0					42.9		43.3		41.6		PROVIDE INTEGRAL 200KA SPD						
		DEMAND KVA/PHASE					42.9		43.3		41.6		CONNECTED LOAD:				127.8 kVA		
		DEMAND AMPS/PHASE					357		361		347		DEMAND LOAD:				127.8 kVA		

*** INDICATE: REFER TO ONE LINE DIAGRAM FOR WIRE/CONDUIT.

E INDICATE: ESTIMATED LOAD

1

PANEL SCHEDULE KEY:

-	-	-
-	V	GD

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panel schedules

E5.0

EXTERIOR TAP FEEDER LOAD SUMMARY

SERVES	LOAD (IN kVA) A	B	C	AC UNIT COND	WIRE	AC DISCONNECT
HPCU-1	1.5			3/4"	8	60A/2P/240V-NEMA 3R
		1.5			8	
HPCU-2			1.5	3/4"	8	60A/2P/240V-NEMA 3R
	1.5				8	
HPCU-3		1.5		3/4"	8	60A/2P/240V-NEMA 3R
			1.5		8	
HPCU-4	1.5			3/4"	8	60A/2P/240V-NEMA 3R
		1.5			8	
HPCU-5			1.5	3/4"	8	60A/2P/240V-NEMA 3R
	1.5				8	
HPCU-6		1.5		3/4"	8	60A/2P/240V-NEMA 3R
			1.5		8	
"*" CONT. LOAD X 1.25	0.0	0.0	0.0	REMARKS:		COMPLY WITH NEC
NON-CONT. LOAD X 1.0	6.0	6.0	6.0			TAP RULE
DEMAND KVA/PHASE	6.0	6.0	6.0			18.1 kVA
DEMAND AMPS/PHASE	50	50	50			18.1 kVA

PROVIDE FUSES PER MANUFACTURER REQUIREMENTS.

INTERIOR TAP FEEDER LOAD SUMMARY

SERVES	LOAD (IN kVA) A	B	C	AC UNIT COND	WIRE	AC DISCONNECT
FC-1	1.1			3/4"	10	30A/2P/240V-NEMA1
		1.1			10	
FC-2			1.1	3/4"	10	30A/2P/240V-NEMA1
	1.1				10	
FC-3		1.1		3/4"	10	30A/2P/240V-NEMA1
			1.1		10	
FC-4	1.1			3/4"	10	30A/2P/240V-NEMA1
		1.1			10	
FC-5			1.1	3/4"	10	30A/2P/240V-NEMA1
	1.1				10	
FC-6		1.1		3/4"	10	30A/2P/240V-NEMA1
			1.1		10	
"*" CONT. LOAD X 1.25	0.0	0.0	0.0	REMARKS:		COMPLY WITH NEC
NON-CONT. LOAD X 1.0	4.3	4.3	4.3			TAP RULE
DEMAND KVA/PHASE	4.3	4.3	4.3			13.0 kVA
DEMAND AMPS/PHASE	36	36	36			13.0 kVA

PROVIDE FUSES PER MANUFACTURER REQUIREMENTS.

NEW PANEL TO REPLACE EXISTING

PANEL NAME: 2 — 120/208 VOLTS, 3 PHASE, 4 WIRE
TYPE: LOAD CENTER — 22,000 MINIMUM A.I.C. RATING
100 A BUS, 100A. MAIN BREAKER — MOUNTING: [X] FLUSH [ ] SURFACE
LOCATION: BLDG. V
ENCLOSURE: NEMA 1

		SERVES	BREAKER AMP	BREAKER P	WIRE	COND	LOAD (IN kVA) A	A	B	B	C	C	COND	WIRE	BREAKER P	BREAKER AMP	SERVES		
*	1	LGT+FAN GIRLS RM	20	1	**	**	1.2	1.0					**	**	1	20	LGT.CUSTODIAN	2	*
*	3	LGT.STAIR AREA	20	1	**	**			1.2	1.0			**	**	1	20	CUSTODIAN	4	
*	5	LGT.GIRLS PE	20	1	**	**					1.2	1.0	**	**	1	20	LGT.REC.BOYS PE	6	*
	7	GIRLS PE	20	1	**	**	1.0	1.0					**	**	1	20	EM LGT. BOYS PE	8	*
	9	REC.GIRLS PE	20	1	**	**			1.0	1.0			**	**	1	20	LGT. BOYS PE	10	*
	11	SPLIT UNIT BOYS	30	2	**	**					1.0	1.0	**	**	1	20	TIME CLOCK NL	12	
	13	COACH	-	-	**	-	1.0	0.8					**	**	1	20	-	14	
	15	SPLIT UNIT GIRLS	30	2	**	**			1.0	0.4			**	**	1	20	-	16	
	17	COACH	-	-	**	-					1.0	0.4	**	**	1	20	BOILER CTL.	18	
	19	SWAMP COOLERS	20	1	**	**	0.8	0.6					**	**	1	20	BOILER PUMPS	20	
	21	-	20	1	**	**			0.8	0.6			**	**	1	20	BOILER PUMPS	22	
*	23	LGT.BOYS PE	20	1	**	**					0.8	0.6	**	**	1	20	RESTRM. BOYS PE	24	
	25	SPARE	20	1											1	20	SPACE	26	
	27	SPARE	20	1											1	20	SPACE	28	
	29	SPARE	20	1											1	20	SPACE	30	
	31	SPARE	20	1											1	20	SPACE	32	
	33	SPARE	20	1											1	20	SPACE	34	
	35	SPARE	20	1											1	20	SPACE	36	
	37	SPARE	20	1												-		38	
	39	SPARE	20	1											3	-	100KA SPD	40	
	41	SPARE	20	1												-		42	
		"*" CONTINUOUS LOAD X 1.25					4.0		2.8		3.8		REMARKS:						
		NON-CONTINUOUS LOAD X 1.0					4.2		4.8		4.0		PROVIDE INTEGRAL 100KA SPD						
													PROVIDE DOOR-IN-DOOR TYPE						
		DEMAND KVA/PHASE					8.2		7.6		7.8		CONNECTED LOAD:				21.4 kVA		
		DEMAND AMPS/PHASE					68		63		65		DEMAND LOAD:				23.5 kVA		

** INDICATE: RECONNECT EXISTING CIRCUIT WIRING/CONDUIT TO NEW BREAKER PANEL. ASSUMED LOAD.

PANEL SCHEDULE KEY:

-	-	TAP FEEDERS
-	-	2

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panel schedules

E5.1

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	WATTS	BASIS OF DESIGN MANUFACTURER
A	2'x4' RECESSED LED LUMINAIRE. 5,000 LUMEN PACKAGE, 80 CRI, 3500K, FLAT SATIN WHITE LENS, 0–10V DIMMABLE POWER SUPPLY, 120–277 M–VOLT, L70/60,000 HOURS. ANALOG CONTROLS.	40	LITHONIA CPX SERIES OR APPROVED EQUAL
A1	2'x4' RECESSED HIGH ABUSE TROFFER, GRID MOUNTING, 80 CRI, 10,000 LUMENS, 3500K, 0–10V ANALOG DIMMING, ACRYLIC FROSTED LENS WITH .125" CLEAR LEXAN LENS.	40	LITHONIA VRLT SERIES OR APPROVED EQUAL
A2	NOT USED.		
A3	SIMILAR TO A1, EXCEPT 2'x2' WITH 5,000 LUMENS.	36	LITHONIA VRTL SERIES OR APPROVED EQUAL
B	8"x4' SURFACE MOUNTED CONTINUOUS ROW WHERE SHOWN LED LUMINAIRE. 10,000 LUMEN PACKAGE, 80 CRI, .156" PEARLESCENT LEXAN LENS, 3500K, 0–10V DIMMABLE POWER SUPPLY, 120–277 M–VOLT, L70/60,000 HOURS. ANALOG CONTROLS.	90	KENAL MLHA8 SERIES
B2	8"x4' SURFACE MOUNTED CONTINUOUS ROW WHERE SHOWN LED LUMINAIRE. 7,000 LUMEN PACKAGE, 80 CRI, .156" PEARLESCENT LEXAN LENS, 3500K, 0–10V DIMMABLE POWER SUPPLY, 120–277 M–VOLT, L70/60,000 HOURS. ANALOG CONTROLS.	67	KENAL MLHA8 SERIES
C	12"x4FT LONG RECESSED HIGH ABUSE LINEAR LED, STATIC WHITE, 3500K, 80 CRI, FLANGED FOR HARD CEILING MOUNTING, FLUSH ACRYLIC WITH .125" CLEAR LEXAN LENS. COORDINATE FLANGED CEILING TRIM OPTION WITH DRYWALLER PRIOR TO ORDER.	40/4'	LITHONIA VRTL SERIES OR APPROVED EQUAL
D	7" DIAMETER SURFACE MOUNTED ROUND FLAT PANEL, DAMP LOCATION LISTING, 3500K, 1000 LUMENS, WHITE FINISH, OUTLET BOX MOUNTING		JUNO JSF SERIES OR APPROVED EQUAL
E	TWIN HEAD EMERGENCY EGRESS LIGHT, SELF DIAGNOSTICS, 1100 LUMENS, LTP BATTERY, WHITE FINISH, LOW PROFILE OPTICS.	4	LITHONIA ELMGL SERIES
W	3000K WET LOCATION EXTERIOR WALL MOUNT, FULLY SHIELD, 6"x6"x2" DEEP HOUSING, 1600 LUMENS, DARK BRONZE FINISH	13	LITHONIA WPXO SERIES
X	COMBINATION EMERGENCY LIGHT/EXIT LIGHT, TWIN HEADS, RED LETTERS, TOP OR BACK MOUNTING, NUMBER OF FACES AND LETTERS AS SHOWN, SELF DIAGNOSTICS.	4	LITHONIA LHQM SERIES.

LIGHT FIXTURE NOTES

1. REFER TO ARCHITECTURAL ELEVATIONS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF LIGHT FIXTURES. PROVIDE METAL FRAMING CHANNEL AS NECESSARY TO SPAN BUILDING MEMBERS FOR LUMINAIRE/PENDANT/CHAIN SUPPORT. ALL PENDANTS SHALL HAVE SWIVEL BALL HANGERS.
2. THE CONTRACTOR SHALL AIM AND ADJUST ALL LIGHTING FIXTURES TO THE SATISFACTION OF THE ARCHITECT PRIOR TO PROJECT CLOSE OUT.
3. VERIFY CEILING TYPES PRIOR TO ORDERING OF LIGHT FIXTURES. PROVIDE LIGHT FIXTURES AND MOUNTING MEANS COMPATIBLE WITH CEILING SYSTEMS AND/OR STRUCTURAL ELEMENTS.
4. ALL 0–10V DIMMING SHALL BE ANALOG WITH ANALOG DIMMERS AND SENSORS, WHERE OCCURRING. ALL DIMMERS AND SENSORS SHALL BE RATED FOR 0–10V SINKING AND LINE VOLTAGE CURRENT LOADS FOR RESPECTIVE SWITCHING ZONES. IF REQUIRED TO ACCOMMODATE 0–10V SINKING OR CURRENT LOADS FOR CERTAIN SWITCHING GROUPS, PROVIDE ANALOG POWER PACKS TO ACHIEVE INDICATED SWITCHING REQUIREMENTS.
5. PROVIDE CONDUCTORS IN FLEX TAILS AND SWITCH LEGS AS NECESSARY FOR FUNCTIONAL SWITCHING/LIGHTING SYSTEMS INDICATED.
6. ALL EXTERIOR LIGHT FIXTURES SHALL BE UL WET LOCATION LISTED.
7. LIGHTING AND LIGHTING CONTROL SYSTEMS INCLUDED IN THE CONTRACT DOCUMENTS COMPLY WITH THE MODEL ENERGY CODE/ASHRAE 90.1 REQUIREMENTS AND THE COCHISE COUNTY OUTDOOR LIGHTING CODE.
8. ALL LIGHT FIXTURES, AND PENDANT, PAINT FINISHES SHALL BE AS SELECTED BY THE ARCHITECT DURING POST–BID SUBMITTAL REVIEW.
9. THE DRIVERS FOR ALL LED DOWNLIGHTS SHALL FACE INTO THE APERTURE AS A FACTORY INSTALLED FEATURE TO AID IN MAINTENANCE.
10. WHERE PRODUCTS OF LITHONIA ARE SPECIFIED, EQUIVALENT PRODUCTS OF HL1, COOPER, OR SIGNIFY LIGHTING SHALL BE ACCEPTABLE SUBJECT TO COMPLIANCE WITH ALL PROJECT SPECIFIC REQUIREMENTS.
11. PROVIDE TWO TOOLS TO THE OWNER FOR EACH TYPE OF SPECIALTY FASTENER UTILIZED ON THIS PROJECT.
12. ALL LUMINAIRES OF ALL TYPES SHALL HAVE MODULAR PARALLEL LINE AND NEUTRAL POWER SUPPLY/BALLAST DISCONNECT PLUGS, FACTORY INSTALLED.
13. ALL TROFFERS TO HAVE MINIMUM L70 @ 60,000 HOURS.

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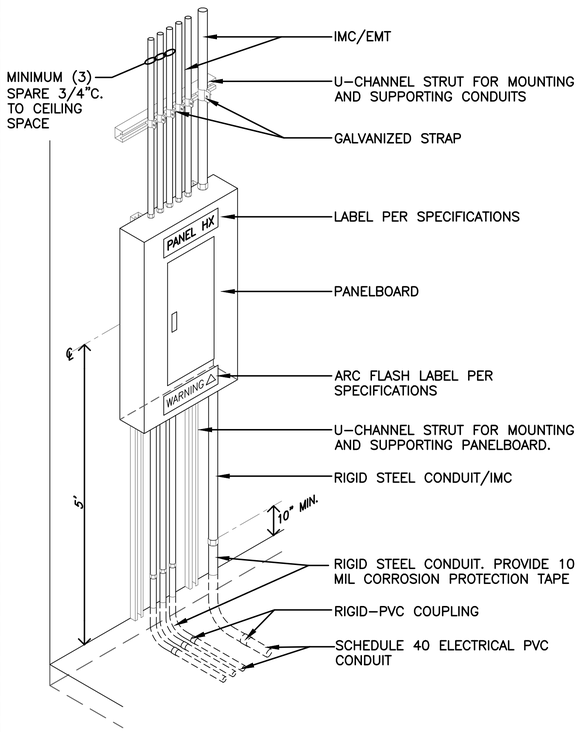
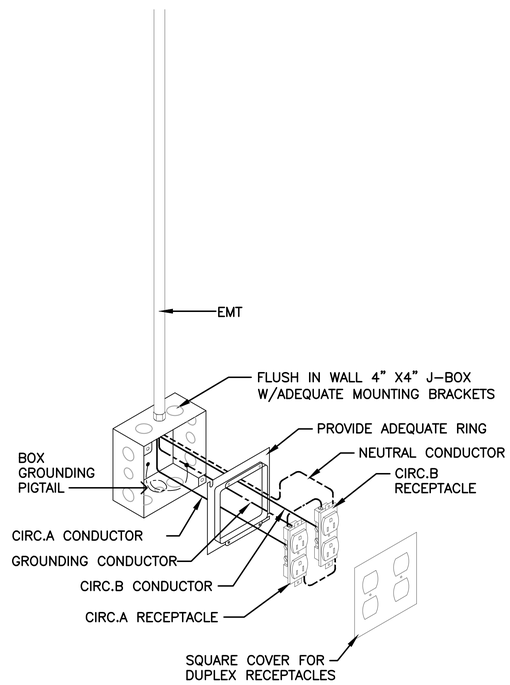
light fixture schedule and notes

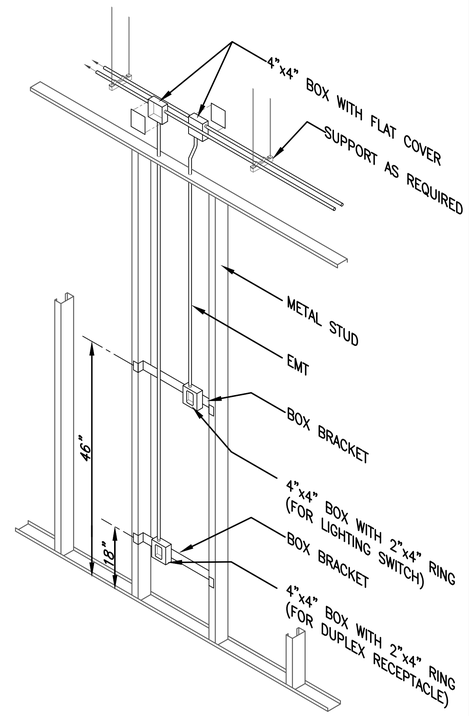
E6.0



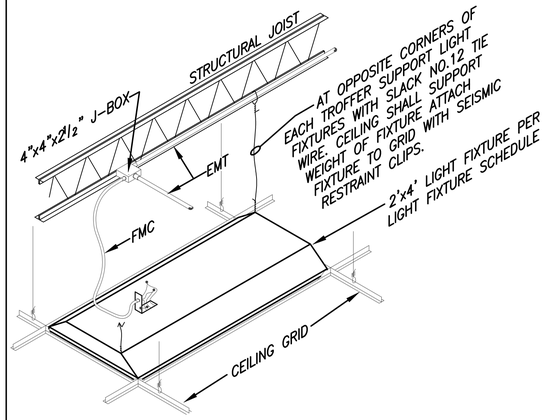
E7.0	DETAIL 1 - PANELBOARD INSTALLATION DETAIL
N.T.S.	



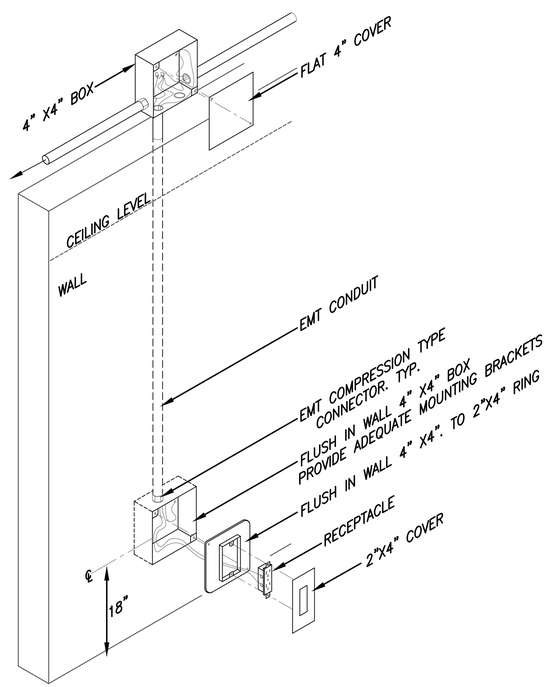
E7.0	DETAIL 2 - QUAD RECEPTACLE INSTALLATION DETAIL
N.T.S.	



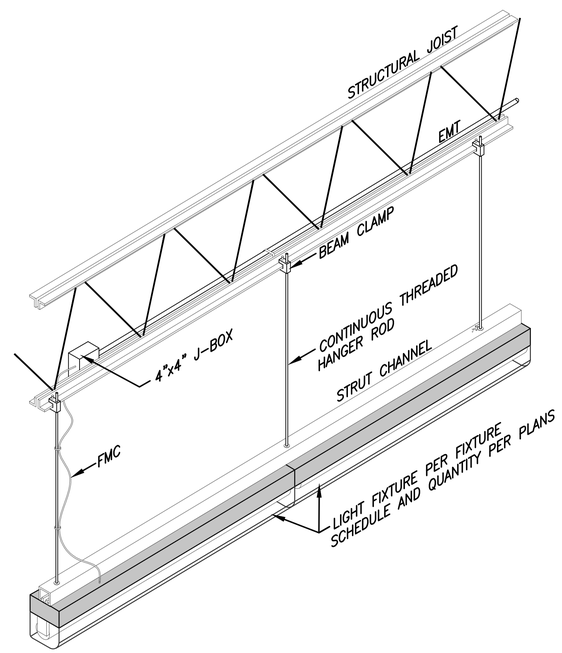
E7.0	DETAIL 3 - FLUSH IN WALL BOX INSTALLATION
N.T.S.	



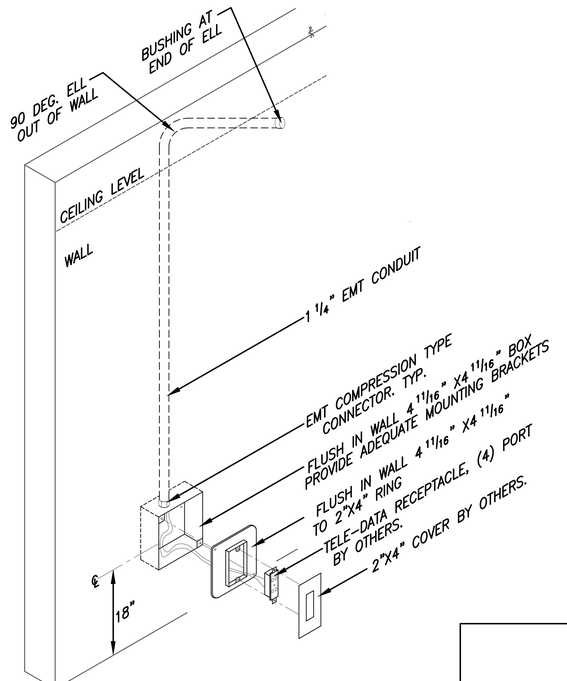
E7.0	DETAIL 4 - RECESSED 2'X4' LIGHT FIXTURE INST. DETAIL
N.T.S.	



E7.0	DETAIL 5 - RECEPTACLE INST. DETAIL
N.T.S.	



E7.0	DETAIL 6 - LINEAR SUSPENDED LIGHT FIXTURE INSTALLATION DETAIL
N.T.S.	



E7.0	DETAIL 7 - DATA JACK INSTALLATION DETAIL
N.T.S.	

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CERTIFICATE NO.
37386
CHRISTIAN K. MONRAD
Date Signed 04/30/25
ARIZONA U.S.A.

job
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date
11.20.2025

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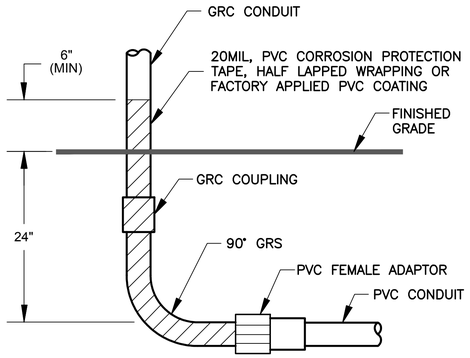
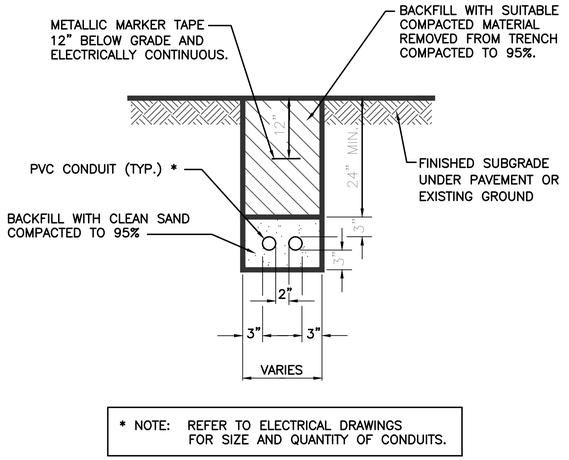
E7.0

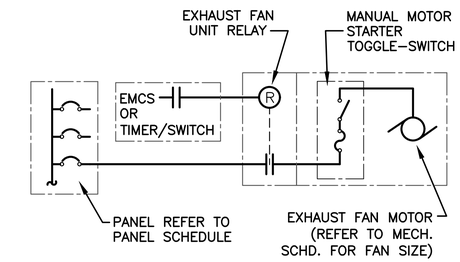


E7.1	DETAIL 1 - GRC STUB UO DETAIL
N.T.S.	

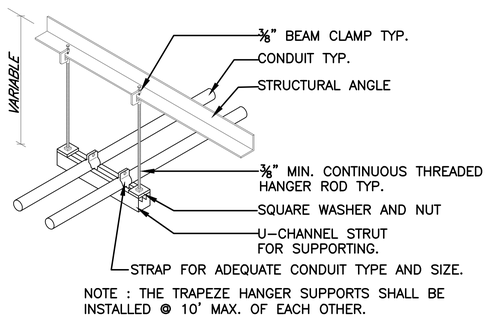


* NOTE: REFER TO ELECTRICAL DRAWINGS FOR SIZE AND QUANTITY OF CONDUITS.

E7.1	DETAIL 2 - TYPICAL TRENCH DETAIL
N.T.S.	

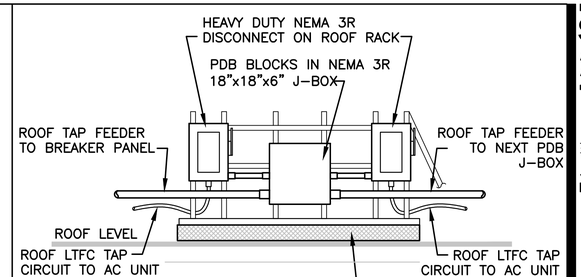


E7.1	DETAIL 4 - EXHAUST FAN CONTROL ONE LINE DIAGRAM
N.T.S.	

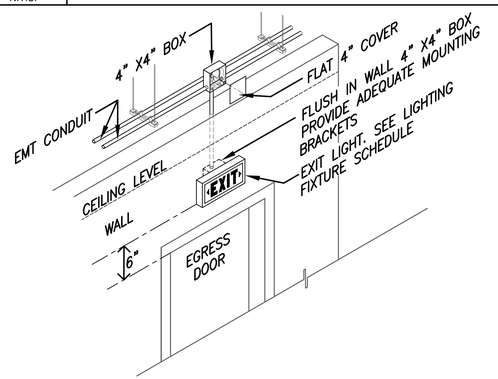


NOTE : THE TRAPEZE HANGER SUPPORTS SHALL BE INSTALLED @ 10' MAX. OF EACH OTHER.

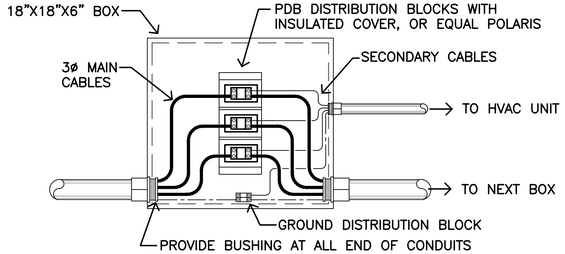
E7.1	DETAIL 3 - TRAPEZE HANGER DETAIL
N.T.S.	



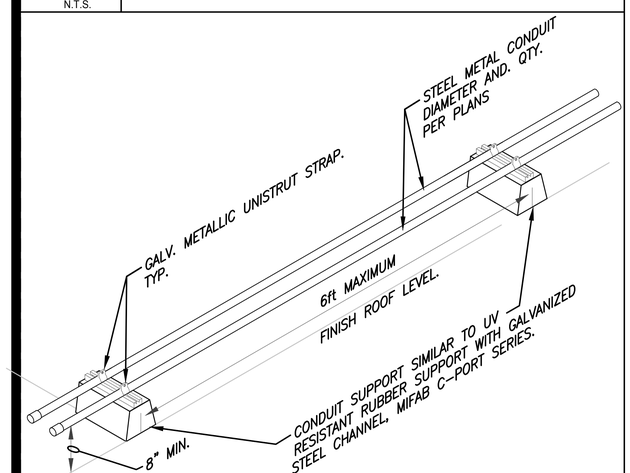
E7.1	DETAIL 9 - EON ROOF PDB BLOCK J-BOX
N.T.S.	



E7.1	DETAIL 5 - EXIT LIGHT FIXTURE INSTALLATION DETAIL
N.T.S.	



E7.1	DETAIL 6b - AC UNIT FEEDER TAP 'PDB' DISTRIBUTION BLOCKS
N.T.S.	

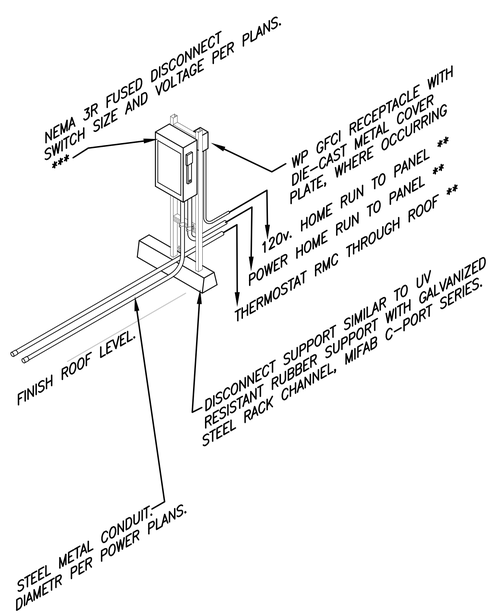


E7.1	DETAIL 6 - ON ROOF CONDUIT INSTALLATION DETAIL
N.T.S.	

* USE RMC OR EMT WHEN DISCONNECT IS FURTHER THAN THE ALLOWED 6' OF LIQUID–TIGHT METAL CONDUIT.

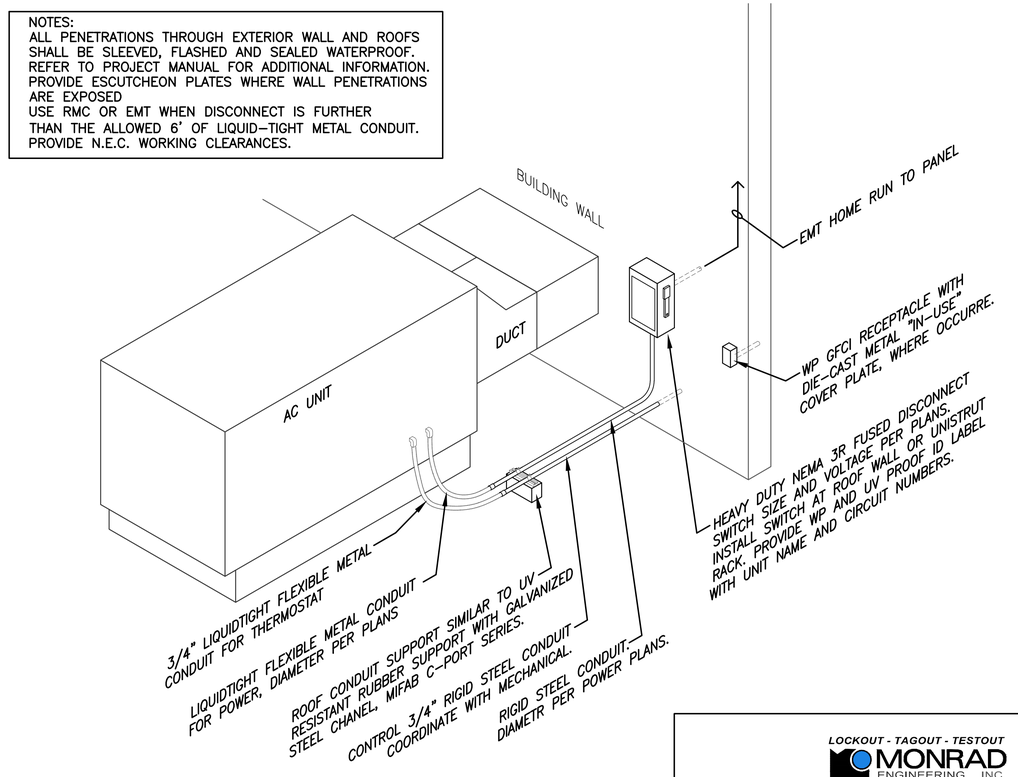
** RMC THROUGH ROOF SLEEVED, FLASHED AND SEALED WATERPROOF PER PROJECT MANUAL.

*** PROVIDE N.E.C. WORKING CLEARANCES.



E7.1	DETAIL 7 - DISCONNECT ROOF INSTALLATION DETAIL
N.T.S.	

NOTES:
ALL PENETRATIONS THROUGH EXTERIOR WALL AND ROOFS SHALL BE SLEEVED, FLASHED AND SEALED WATERPROOF. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION. PROVIDE ESCUTCHEON PLATES WHERE WALL PENETRATIONS ARE EXPOSED
USE RMC OR EMT WHEN DISCONNECT IS FURTHER THAN THE ALLOWED 6' OF LIQUID–TIGHT METAL CONDUIT. PROVIDE N.E.C. WORKING CLEARANCES.



E7.1	DETAIL 8 - AC UNIT INSTALLATION DETAIL
N.T.S.	

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Registered Professional Engineer CERTIFICATE NO. 37386 CHRISTIAN K. MONRAD Date Signed/Sealed 11/20/25 ARIZONA U.S.A.

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