TOWN OF CASTLE ROCK
CONSTRUCTION CONTRACT
(Police Department Improvements)

THIS CONSTRUCTION CONTRACT ("Contract") is made between the **TOWN OF CASTLE ROCK**, a Colorado municipal corporation ("Town"), 100 N. Wilcox Street, Castle Rock, Colorado 80104 and **MW GOLDEN CONSTRUCTORS**, a Colorado corporation, 1700 Park Street, Castle Rock, Colorado 80109 ("Contractor").

In consideration of these mutual covenants and conditions, the Town and Contractor agree as follows:

SCOPE OF WORK The Contractor shall execute the entire Work described in the Contract.

CONTRACT The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, written or oral representations and agreements. The Contract incorporates the following Contract Documents. In resolving inconsistencies among two or more of the Contract Documents, precedence will be given in the same order as enumerated.

LIST OF CONTRACT DOCUMENTS

The Contract Documents, except for Modifications issued after execution of this Contract, are:

1. Change Orders
2. Notice to Proceed
3. Construction Contract
4. General Conditions
5. Where applicable, Davis-Bacon Act Wage Determinations

6. The following Drawings/Reports:

   (a) Town of Castle Rock Police Department Basement Renovation

7. Notice of Award;
8. Invitation to Bid;
9. Information and Instructions to Bidders;
10. Notice of Substantial Completion;
11. Notice of Construction Completion;
12. Proposal Forms, including Bid Schedules;
13. Performance, and Labor and Material Payment Bonds;
14. Performance Guarantee; and
15. Insurance Certificates.

CONTRACT PRICE. The Town shall pay the Contractor for performing the Work and the completion of the Project according to the Contract, subject to Change Orders as approved in writing by the Town, under the guidelines in the General Conditions. The Town will pay $

1,778,493.00 ("Contract Price"), to the Contractor, subject to full and satisfactory performance of the terms and conditions of the Contract. The Contract Price is provisional based on the quantities contained in the Bid attached as ***Exhibit 1***. The final Contract Price shall be adjusted to reflect actual quantities incorporated into the Work at the specified unit prices. The Town has appropriated money equal or in excess of the Contract Price for this work.

COMPLETION OF WORK. The Contractor must begin work covered by the Contract within three (3) calendar days from the date of the Notice to Proceed, and must complete work within two hundred and three (203) calendar days from and including the date of Notice to Proceed, according to the General Conditions.

LIQUIDATED DAMAGES. If the Contractor fails to complete the Work by the date set for completion in the Contract, or if the completion date is extended by a Change Order, by the date set in the Change Order, the Town may permit the Contractor to proceed, and in such case, may deduct the sum of $350.00 for each day that the Work shall remain uncompleted from monies due or that may become due the Contractor. This sum is not a penalty but is a reasonable estimate of liquidated damages.

The parties agree that, under all of the circumstances, the daily basis and the amount set for liquidated damages is a reasonable and equitable estimate of all the Town's actual damages for delay. The Town expends additional personnel effort in administering the Contract or portions of the Work that are not completed on time, and has the cost of field and office engineering, inspecting, and interest on financing and such efforts and the costs thereof are impossible to accurately compute. In addition, some, if not all, citizens of Castle Rock incur personal inconvenience and lose confidence in their government as a result of public projects or parts of them not being completed on time, and the impact and damages, certainly serious in monetary as well as other terms are impossible to measure.

SERVICE OF NOTICES. Notices to the Town are given if sent by registered or certified mail, postage prepaid, to the following address:

TOWN OF CASTLE ROCK
Town Attorney
100 N. Wilcox Street
Castle Rock, CO 80104

With a copy to: Legal@crgov.com

INSURANCE PROVISIONS. The Contractor must not begin any work until the Contractor obtains, at the Contractor's own expense, all required insurance as specified in the General Conditions. Such insurance must have the approval of the Town of Castle Rock as to limits, form and amount. *Certificate of Insurance ("COI") must be submitted along with the executed contract as* ***Exhibit 2***.

RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor shall indemnify, save harmless, and defend the Town, its officers and employees, from and in all suits, actions or claims of any

character brought because of: any injuries or damage received or sustained by any person, persons or property because of operations for the Town under the Contract; including but not limited to claims or amounts recovered from any infringements of patent, trademark, or copyright; or pollution or environmental liability. The Town may retain so much of the money due the Contractor under the Contract, as the Town considers necessary for such purpose. If no money is due, the Contractor's Surety may be held until such suits, actions, claims for injuries or damages have been settled. Money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that the Contractor and the Town are adequately protected by public liability and property damage insurance.

The Contractor also agrees to pay the Town all expenses, including attorney's fees, incurred to enforce this Responsibility for Damage Claim clause.

Nothing in the **INSURANCE PROVISIONS of the General Conditions** shall limit the Contractor's responsibility for payment of claims, liabilities, damages, fines, penalties, and costs resulting from its performance or nonperformance under the Contract.

STATUS OF CONTRACTOR. Contractor has completed the Affidavit of Independent Contractor Status, attached as ***Exhibit 3***, and submitted same at the time of execution of this Agreement. The Contractor is performing all work under the Contract as an independent Contractor and not as an agent or employee of the Town. No employee or official of the Town will supervise the Contractor. The Contractor will not supervise any employee or official of the Town. The Contractor shall not represent that it is an employee or agent of the Town in any capacity. **The Contractor and its employees are not entitled to Town Workers' Compensation benefits and are solely responsible for federal and state income tax on money earned.** This is not an exclusive contract.

THIRD PARTY BENEFICIARIES. None of the terms or conditions in the Contract shall give or allow any claim, benefit, or right of action by any third person not a party to the Contract. Any person, except the Town or the Contractor, receiving services or benefits under the Contract is an incidental beneficiary only.

INTEGRATION. This contract integrates the entire understanding of the parties with respect to the matters set forth. No representations, agreements, covenants, warranties, or certifications, express or implied, shall exist as between the parties, except as specifically set forth in this Contract.

DEFINITIONS. The Definitions in the General Conditions apply to the entire Contract unless modified within a Contract Document.

Executed this _____ day of _____, 20__.

ATTEST:

Lisa Anderson, Town Clerk

TOWN OF CASTLE ROCK

Jason Gray, Mayor

APPROVED AS TO FORM:

Michael J. Hyman, Town Attorney

CONTRACTOR:

MW Golden Constructors

By:  Digitally signed by Jason Golden
DN: C=US, E=jgolden@mwgolden.com, O=MW GOLDEN CONSTRUCTORS, CN=Jason Golden
Date: 2022.09.08 18:11:08-06'00'

Title: President

EXHIBIT 1

CONTRACTOR'S BID

Division	Description	Total	Cost Per SF	% of Total
010000	General Conditions, Insurances, Bonds, Fee	$300,746	$44.89	16.91%
024000	Demolition	$32,760	$4.89	1.84%
033000	CIP Concrete / Plumbing Trenches	$9,100	$1.36	0.51%
042000	Masonry, Glass Block, Precast	$43,631	$6.51	2.45%
055000	Metal Fabrications	$12,938	$1.93	0.73%
061000	Rough Carpentry (Platforms, Blocking)	$5,800	$0.87	0.33%
064000	Architectural Woodwork	$47,800	$7.13	2.69%
072400	EIFS / Stucco	Included 042000	$-	0.00%
075000	Roofing	$13,700	$2.04	0.77%
081100	Doors, Frames, Hardware	$43,327	$6.47	2.44%
084000	Storefront	$38,000	$5.67	2.14%
085000	Windows	Included 084000	$-	0.00%
092000	Framing, Gyp	$145,961	$21.79	8.21%
093000	Tile	$96,400	$14.39	5.42%
095000	Ceilings	Included 092000	$-	0.00%
096000	Flooring	Included 093000	$-	0.00%
099000	Paint	$15,848	$2.37	0.89%
102000	Specialties	$54,577	$8.15	3.07%
122000	Window Treatments	$500	$0.07	0.03%
123000	Manufactured Casework (Lockers)	$445,000	$66.42	25.02%
144000	ADA Lift	$28,955	$4.32	1.63%
210000	Fire Suppression	$17,180	$2.56	0.97%
220000	Plumbing	$150,000	$22.39	8.43%
230000	HVAC	$168,320	$25.12	9.46%
260000	Electrical	$87,240	$13.02	4.91%

1700 Park Street, Grand Canyon Suite - Castle Rock, CO 80109-3009 | Ph.: (303) 688-9848 Fax: (303) 688-8269
www.mwgolden.com

280000	Fire Alarm	$20,710	$3.09	1.16%
000000	Total	$1,778,494	$265.45	100.00%



TOWN OF CASTLE ROCK
POLICE DEPARTMENT BASEMENT RENOVATION

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AD101	DEMOLITION PLAN - FIRST FLOOR
AD102	BASEMENT REFLECTED CEILING DEMO PLAN
AD103	FIRST FLOOR REFLECTED CEILING DEMO PLAN
A-100	BASEMENT PLAN
A-101	FIRST FLOOR PLAN
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A-111	FIRST FLOOR REFLECTED CEILING PLAN
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A-900	WALL PARTITIONS
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E-401	ONE-LINE DIAGRAM
E-501	SCHEDULES
E-502	SCHEDULES
E-503	SCHEDULES
E-601	DETAILS

PROJECT TEAM

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Farnsworth GROUP

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VICINITY MAP



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architect

associated with

project
CASTLE ROCK POLICE DEPARTMENT
100 PERRY ST
CASTLE ROCK CO 80104

seal

issue / revision — date:
2 Developmt Svcs Rvw 7/20/22
1 Code Updates 6/14/22
Construction Doc. 6/10/22
Design Development 3/11/22
Schematic Design 1/21/22

issue / revision

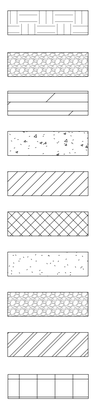
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chkd LA

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COVER SHEET

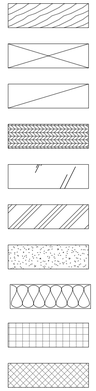
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number
G-001

MATERIALS

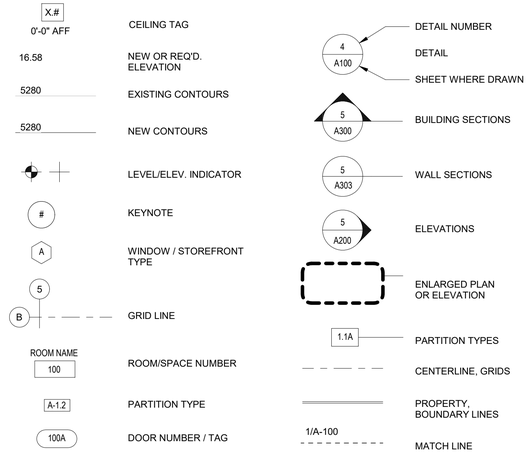


EARTH
POROUS FILL
ROCK
CONCRETE
BRICK
CONCRETE BLOCK
CEMENT, SAND, GROUT, PLASTER
STONE
STEEL
CERAMIC TILE



FINISHED WOOD
ROUGH WOOD
SHIMS
PLYWOOD
GLASS
ALUMINUM
GYPSUM BOARD (GYP. BD.)
BATT INSULATION
RIGID INSULATION
FIRESAFING

SYMBOLS



ABBREVIATIONS

AB	ANCHOR BOLTS
ABV	ABOVE
ACOUST	ACOUSTICAL
AD	AREA DRAIN
ADD	ADDENDUM
ADJ	ADJUSTABLE/ADJACENT
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATIVE, ALTERNATE
ALUM/AL	ALUMINUM
AP	ACCESS PANEL
APPROX	ANGLE APPROXIMATE
ARCH	ARCHITECTURAL/ARCHITECT
AUTO	AUTOMATIC
A.V.	AUDIO VIDEO
BD	BOARD
BLK	BLOCK
BLKG	BLOCKING
BLDG	BUILDING
BM	BEAM
B.M.	BENCH MARK
BOT	BOTTOM
BR	BACKER ROD
BRG	BEARING
CAB'T	CABINET
CB	CHALKBOARD
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
C	CENTER LINE
CL	CLOSET
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPOSITE
CONC	CONCRETE
CONF	CONFERENCE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CORR	CORRIDOR
CPT	CARPET
CP	CENTER POINT
CR	CLASSROOM
CT	CERAMIC TILE
CTSK	COUNTERSINK
DBL	DOUBLE
DEMO	DEMOLITION
DEG	DEGREE
DET/DTL	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DR	DOOR
DO	DOOR OPENING
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING
E	EAST
EA	EACH
EC	ELECTRICAL CONTRACTOR
ED	EDUCATION
EF	EXHAUST FAN
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATION/ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENG	ENGINEER/ENGINEERING
EP	ELECTRIC PANEL
EQ	EQUAL
ETC	ETCETERA
EWC	ELECTRIC WATER COOLER
EW	EACH WAY
EX, EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FD	FLOOR DRAIN
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FIN	FINISH
FLASH	FLASHING
FLR	FLOOR
FLUOR	FLUORESECENT
F.M.	FLOOR MAT
F.O.M.	FACE OF MASONRY
FR	FRAME
F.R.	FIRE RESISTANT
FS	FLOOR SINK
FT	FEET/FOOT
FTG	FOOTING
FURR	FURRING
F.V.	FIELD VERIFY
GALV	GALVANIZED
GI	GALVANIZED IRON/STEEL
GA	GUAGE/GAGE
GB/GYP BD	GYPSUM BOARD
GYP PLAS	GYSPUM PLASTER
HC	HANDICAPPED
HDWE	HARDWARE
HR	HOUR
HT	HEIGHT
HDR	HEADER
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HB	HOSE BIB
INCL	INCLUSIVE
ID	INSIDE DIAMETER
INST	INSTRUMENT
INSUL	INSULATION
INT	INTERIOR
JAN	JANITOR
JT	JOINT
JST	JOIST
KO	KNOCK OUT
LAV	LAVATORY
LD BRG	LOAD BEARING
LMC	LIBRARY MEDIA CENTER
LOUV	LOUVER
LT	LIGHT
MANUF/MANF	MANUFACTURER
MAS	MASONRY
MAT'L	MATERIAL
MAX	MAXIMUM
MB	MARKER BOARD
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MIL / MM	MILLIMETER
MIN	MINIMUM
-	MINUS
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MT/MNT	MOUNT, MOUNTED
MTG	MOUNTING / MEETING
MTL/MET	METAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIA/OVERFLOW DRAIN
OF, OFD	OVER FLOW DRAIN
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
PL	PLATE
PLAS LAM	PLASTIC LAMINATE
PLN	PLAN
+	PLUS
PLBG	PLUMBING
PNT	PAINTED
PR	PAIR
PLYWD	PLYWOOD
PL	PROPERTY LINE
POLYISO	POLYISOCYANURATE
PRIN	PRINCIPAL
PT	POINT
PRPT	PARAPET
PTN	PARTITION
PVC	POLYVINYLCLORIDE
QT	QUARRY TILE
R	REINFORCEMENT
RAD/R	RADIUS
RE:	REFER TO
RECPT	RECEPTACLE
REFIN	REFINISH
REFL	REFLECTED
REINF	REINFORCEMENT/ REINFORCING
RELOC	RELOCATED
REQ'D	REQUIRED
REV	REVISED/REVISION
RTU	ROOF TOP UNIT
RF	ROOF, ROOFING
R&R	REMOVE AND REPLACE
RD	ROOF DRAIN
RDL	ROOF DRAIN LEADER
RM	ROOM
RO	ROUGH OPENING
RE:	REFER, REFERENCE
R's	RISERS
SAG	SUSPENDED ACOUSTICAL GRID
SAT	SUSPENDED ACOUSTICAL TILE
SALV	SALVAGE
SCHED	SCHEDULES
SEP	SEPERATE
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATIONS/SPECIFIED/
SQ	SQUARE
SQ FT/SF	SQUARE FOOT/SQUARE FEET
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUC	STRUCTURAL
ST	STRAIGHT
TELE	TELEPHONE
TB	TACK BOARD
THK	THICK
T&B	TOP AND BOTTOM
T&G	TONGUE & GROOVE
TLT / TOIL	TOILET
T.O.	TOP OF
T.O.M.	TOP OF MASONRY
TS	TUBE STEEL
T's	TREADS
TOW	TOP OF WALL
TRANSF	TRANSFORMER
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UNF	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VS	VENT STACK
VWC	VINYL WALL COVERING
WC	WATER CLOSET
W	WASHER
WDW/WIND	WINDOW
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WK	WORK
@	AT

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. PROSPECTIVE BIDDERS MUST EXAMINE THE CONTRACT DOCUMENTS CAREFULLY AND, BEFORE BIDDING, MUST REQUEST CLARIFICATION FROM THE ARCHITECT IN WRITING AT LEAST 14 DAYS PRIOR TO THE TIME SET FOR OPENING THE BIDS, AN INTERPRETATION OR CORRECTION OF EVERY PATENT AMBIGUITY, INCONSISTENCY, OR ERROR THEREIN. SUCH INTERPRETATION OR CORRECTION, AS WELL AS ANY ADDITIONAL CONTRACT PROVISIONS THE ARCHITECT MAY DECIDE TO INCLUDE, WILL BE ISSUED IN WRITING BY THE ARCHITECT AS AN ADDENDUM TO THE CONTRACT, WHICH WILL BE MAILED OR DELIVERED TO EACH PERSON RECORDED AS HAVING RECEIVED A COPY OF THE CONTRACT DOCUMENTS FROM THE ARCHITECT, AND WHICH WILL ALSO BE POSTED AT THE PLACE WHERE THE CONTRACT DOCUMENTS ARE AVAILABLE FOR INSPECTION OF PROSPECTIVE BIDDERS. UPON SUCH MAILING OR DELIVERY AND POSTING, SUCH ADDENDUM SHALL BECOME A PART OF THE CONTRACT DOCUMENTS, AND BINDING ON ALL BIDDERS. WHERE CLARIFICATIONS ARE NOT MADE PRIOR TO BIDDING THE CONTRACTOR SHALL PROVIDE THE BETTER QUALITY OR GREATER QUANTITY OF WORK WITH NO ADDITIONAL COST TO THE OWNER.
3. DIMENSIONS SHOWN ARE TO FACE OF FOUNDATION WALL, FACE OF MASONRY, FACE OF STUD UNLESS OTHERWISE INDICATED. ALL DIMENSIONS MUST BE VERIFIED TO CONFORM TO EXISTING CONDITIONS.
4. ALL BLOCK IS 8" NOMINAL WIDE UNLESS OTHERWISE NOTED BY DIMENSION OR PARTITION TYPES. MASONRY AND STUD WALL DIMENSIONS ARE NOMINAL.
5. ALL ANGLES ARE 90 DEGREES OR 45 DEGREES UNLESS OTHERWISE NOTED.
6. SITE PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
7. NOTIFY ARCHITECT IMMEDIATELY SHOULD CONDITIONS BE FOUND CONTRADICTORY TO THESE DRAWINGS.
8. ALL WORK TO BE BASED ON 2015 IBC AND LOCAL CODE REQUIREMENTS.
9. CONTRACTOR SHALL HAVE ONE STAMPED PERMIT SET OF DRAWINGS ON SITE AT ALL TIMES.
10. ALL REFERENCES TO SPECIFIC MANUFACTURERS ARE FOR REFERENCE ONLY AND CAN BE SUBSTITUTED BY AN APPROVED EQUAL. SUBMIT REQUESTS FOR SUBSTITUTIONS TO ARCHITECT.
11. G.C. TO PROVIDE A FULLY INSULATED BLDG. ENVELOPE.
12. THE CONTRACT DOCUMENTS INCLUDE THE DRAWINGS AND SPECIFICATIONS AS ONE COMPLETE PACKAGE. IF THE CONTRACTOR CHOOSES TO SPLIT APART THE DRAWINGS OR SPECIFICATIONS DURING BIDDING TO PROCURE BIDS FROM SUBS HE SHALL BE RESPONSIBLE FOR COORDINATION WITH OTHER WORK SHOWN ON OTHER DRAWING SHEETS OR SPECIFICATION SECTIONS. IN NO WAY SHALL THIS RELIEVE THE SUB OR GENERAL CONTRACTOR FROM HIS RESPONSIBILITY TO PROVIDE ITEMS DESIGNATED ELSEWHERE."
13. WHERE DOORS IN METAL STUD PARTITIONS ARE NOT SPECIFICALLY DIMENSIONED ON THE PLAN PROVIDE A HINGE SIDE DIMENSION OF 6" FROM DOOR OPENING TO THE ADJACENT PERPENDICULAR WALL.
14. REFER TO A-900 FOR WALL TYPES
15. PROTECT ALL EXISTING MATERIALS TO REMAIN FROM DAMAGE THROUGHOUT PROJECT. CONTRACTOR WILL BE RESPONSIBLE FOR DAMAGE TO EXISTING MATERIALS
16. REFER TO FINISH PLANS AND ROOM FINISH SCHEDULES FOR LOCATIONS OF WALL FINISHES AND POTENTIAL FURNITURE LAYOUTS
17. REFER TO ENLARGED PLANS FOR DIMENSIONS, DETAIL REFERENCES AND INTERIOR ELEVATION REFERENCES WITHIN THE LABELED AREA.
18. FIRE RATED COORIDORS, STAIR ENCLOSURES, DOORS & PARTITIONS INDICATED IN THIS SET OF DOCUMENTS ARE COMPONENTS OF A CONTINUOUS SYSTEM CONSISTING OF WALLS, FLOORS, AND CEILINGS. PROVIDE RATED ASSEMBLIES FOR INDICATED LOCATIONS TO MAINTAIN THE CONTINUING OF THE FIRE RATING - PROVIDE FIRE SAFETY AND FIRE RELATED SEALANTS TO MAINTAIN CONTINUITY.
19. PROVIDE ROLLING SHADES IN ALL WINDOW OPENINGS AND IN ALL DOOR SIDE LIGHTS UNLESS NOTED OTHERWISE
20. CONCEAL ALL CONDUIT (ELECTRICAL, FIRE ALARM, LOW VOLTAGE ETC) IN WALLS AND IN CEILINGS INCLUDING CMU. CONTRACTOR TO COORDINATE.

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Architecture AND Planning
102 E. Moreno Avenue
Colorado Springs, CO 80903
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architect

associated with

project

CASTLE ROCK POLICE DEPARTMENT
100 PERRY ST
CASTLE ROCK CO 80104

seal

issue / revision — date:

2 Developmt Svcs Rvw 7/20/22
1 Code Updates 6/14/22
Construction Doc. 6/10/22
Design Development 3/11/22
Schematic Design 1/21/22

issue / revision

job # 163-19
drawn SS
chkd LA

GENERAL NOTES

description

FOR BIDDING

G-002

number

APPLICABLE BUILDING CODE DATA:

APPLICABLE CODES & REGULATIONS

2018 INTERNATIONAL BUILDING CODE (IBC)
2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL PLUMBING CODE (IPC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2020 NATIONAL ELECTRIC CODE (NEC)

		Reference Section
Building Square Footage:	13,500 sf gross Basement 13,500 sf gross 1st Floor 27,000 sf gross Total	
Classification:	B Business (22,401 sf) S-1 Storage (3,656 sf) Mechanical (348 sf)	Sect. 304.1 Sect. 311.2
Allowable Height:	Type IIB, B - 4 Stories Type IIB, S-1 - 3 Stories	Table 504.4
Allowable Building Area:	Type IIB, B - 69,000 sf Type IIB, S-1 - 52,500 sf	Table 506.2
SPRINKLERED BUILDING		
Building Construction Type:	Type IIB	
Building Occupancy Types:	Mixed Occupancy (Non Separated) B Business S-1 Storage	508.3
Occupancy Separations:	No separation requirement between B and S-1	Table 508.4
Occupancy Loads:	Business Areas, 150 Gross Accessory Storage, 300 Gross Mechanical Rooms, 300 Gross	Table 1004.5

Business	22,401 sf/150 = 150
Storage	3656 sf/300 = 13
Mechanical	348 sf/300 = 2
Total	**165**

Minimum Egress Width:	.2"/occupant Stairways 72" (6'-0") .2"/occupant Other 48" (4'-0")	Sect. 1005.3.1 Sect. 1005.3.2
Exit Travel Distance:	S-1 = 250' B = 300'	Table 1017.2
Corridor Construction:	A fire-resistant rating is not required for corridors in an occupancy group B which is a space requiring only a single means of egress. A,B,S: When occupant load served by corridor is greater than 30, with a sprinkler system, is 0 hours.	Table 1020.1
Corridor Width:	44" Minimum	Table 1020.2
Dead Ends:	If more than one exit is required, 20' B,S occupancies with a sprinkler system, 50'	Sect. 1020.4
Number of Exits:	1-500 = 2 exits 502-1000 = 3 exits Occupant Load more than 1000 = 4 exits	Table 1006.3.2
Vertical Exit Enclosure:	1 hour if less than 4 stories.	Sect. 1023.2

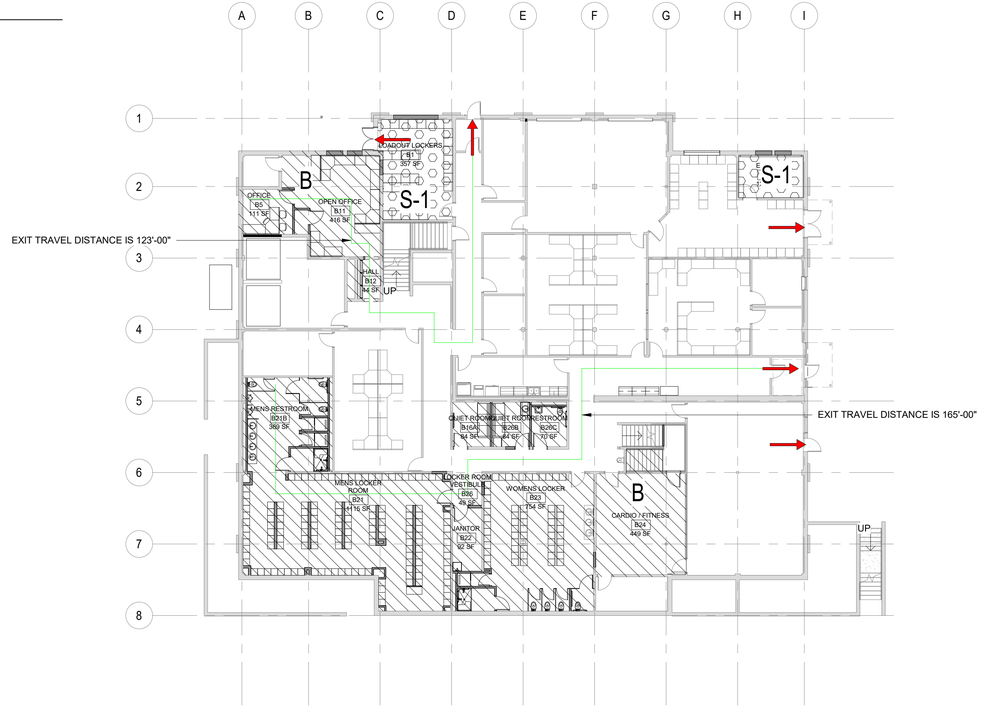
PLUMBING FIXTURES CACULATION
Total Occupant Load = 165

Male 50% = 82.5, Female 50% = 82.5

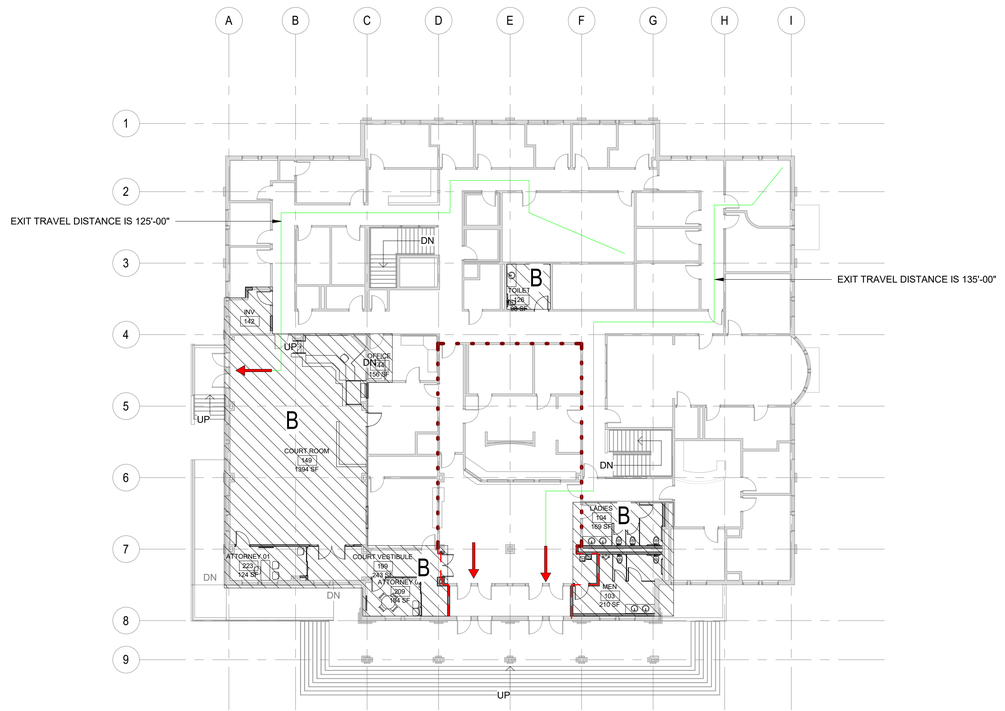
Business Load = 150 Total, 75M & 75F
Business: M&F = 1/25 for 50 then 1/50 thereafter.
Lav = 1/40 for 80 then 1/80 thereafter. DF = 1/100
M = 3, F = 3, MLav = 2, FLav = 2, DF = 2.25

Storage & Mech Load = 15 total, 7.5M & 7.5F
Storage: M&F = 1/100, M&F Lav = 1/100, DF = 1/1,000
M = 1, F = 1, MLav = 1, FLav = 1, Df = 0.015

Total Male Fixtures = 4	(8 Provided)
Total Female Fixtures = 4	(7 Provided)
Total Male Lavs = 3	(6 Provided)
Total Female Lavs = 3	(5 Provided)
Total Unisex Fixtures = N/A	(2 Provided)
Total Unisex Lavs = N/A	(2 Provided)
Total Drinking Fountains = 2.265	(3 Provided)



3 CODE & LIFE SAFETY - BASEMENT PLAN
1/16" = 1'-0" NON-SEPARATED OCCUPANCY
0 8' 16' 32'



4 CODE & LIFE SAFETY - FIRST FLOOR PLAN
1/16" = 1'-0" NON-SEPARATED OCCUPANCY
0 8' 16' 32'

LEGEND
- TRAVEL DISTANCE PATH EGRESS
- EGRESS EXIT
- 1-HOUR FIRE RATED - EXISTING
- 1-HOUR FIRE RATED - NEW
- WORK AREA PER IEBC 501.2
- BUSINESS
- S-1 OCCUPANCY

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drawn SS
chkd LA

description
BUILDING CODE & LIFE SAFETY

FOR BIDDING

number
G-003



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

0 4' 8' 16'

DEMOLITION LEGEND

TO BE DEMOLISHED

EXISTING - TO REMAIN

GENERAL NOTES:

1. RE: MECHANICAL, ELECTRICAL & PLUMBING PLANS FOR EQUIPMENT DEMO LOCATIONS.
2. PROTECT EXISTING WALLS AND DOORS THAT REMAIN DURING CONSTRUCTION.
3. COORDINATE ALL DEMOLITION AND MATERIAL REMOVAL. MAINTAIN A CLEAN AND ORDERLY SITE.
4. COORDINATE LOCATION OF NEW CONSTRUCTION WITHIN EXISTING CONDITIONS PRIOR TO DEMOLITION.
5. COORDINATE LOCATION OF UTILITIES, ELECTRICAL, MECHANICAL AND COMMUNICATION SERVICES PRIOR TO DEMOLITION.
6. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY PROJECT MANAGER IF THERE ARE DISCREPANCIES AS SOON AS THEY ARE DISCOVERED.

KEYNOTES:

1. REMOVE EXISTING DOOR, HARDWARE, AND FRAME.
2. REMOVE WALL IN ITS ENTIRETY AND WALL BASE.
3. REMOVE EXISTING WINDOW IN ITS ENTIRETY. PREP FOR NEW WINDOW INSTALLATION AND/OR INFILL.
4. SEE PLUMBING SHEETS FOR FIXTURE DEMOLITION NOTES.
5. REMOVE EXISTING SHOWER, DOORS, METAL FRAME, PAN AND CURB
6. REMOVE ALL BATHROOM ACCESSORIES: MIRRORS, MEDICINE CABINETS TOILET PAPER HOLDERS, TOWEL BARS AND TOWEL HOOKS AND SALVAGE TO OWNER.
7. REMOVE EXISTING COUNTERTOP AND SUPPORTS IN IT ENTIRETY.
8. REMOVE EXISTING METAL LOCKERS AND SALVAGE TO OWNER.
9. REMOVE EXISTING METAL OVERHEAD DOOR. PREP WALL FOR INFILL WITH STUDS, AND STUCCO.
10. REMOVE EXISTING LOUVERS IN THEIR ENTIRETY. PREP FOR INFILL WITH STUDS, AND STUCCO.
11. DEMO CONCRETE SLAB AS NEEDED FOR NEW PLUMBING PENETRATIONS.
12. REMOVE EXISTING WALL TILE AND TILE BACKER BOARD IN ITS ENTIRETY. PREP FOR NEW TILE INSTALLATION.
13. REMOVE EXISTING FLOOR TILE, GROUT, AND WALL BASE. PREP FLOOR FOR INSTALLATION OF NEW TILE.
14. REMOVE EXISTING CARPET, ADHESIVE AND ANY UNDERLYING MATERIALS DOWN TO CONCRETE SUBSTRATE. PREP FLOOR FOR INSTALLATION OF NEW FLOORING.
15. DEMOLISH EXISTING STORAGE CAGE
16. REMOVE WALL IN ITS ENTIRETY AND WALL BASE FOR DOOR OPENING ONLY.
17. REMOVE DOOR SLAB AND HARDWARE. FRAME TO REMAIN.

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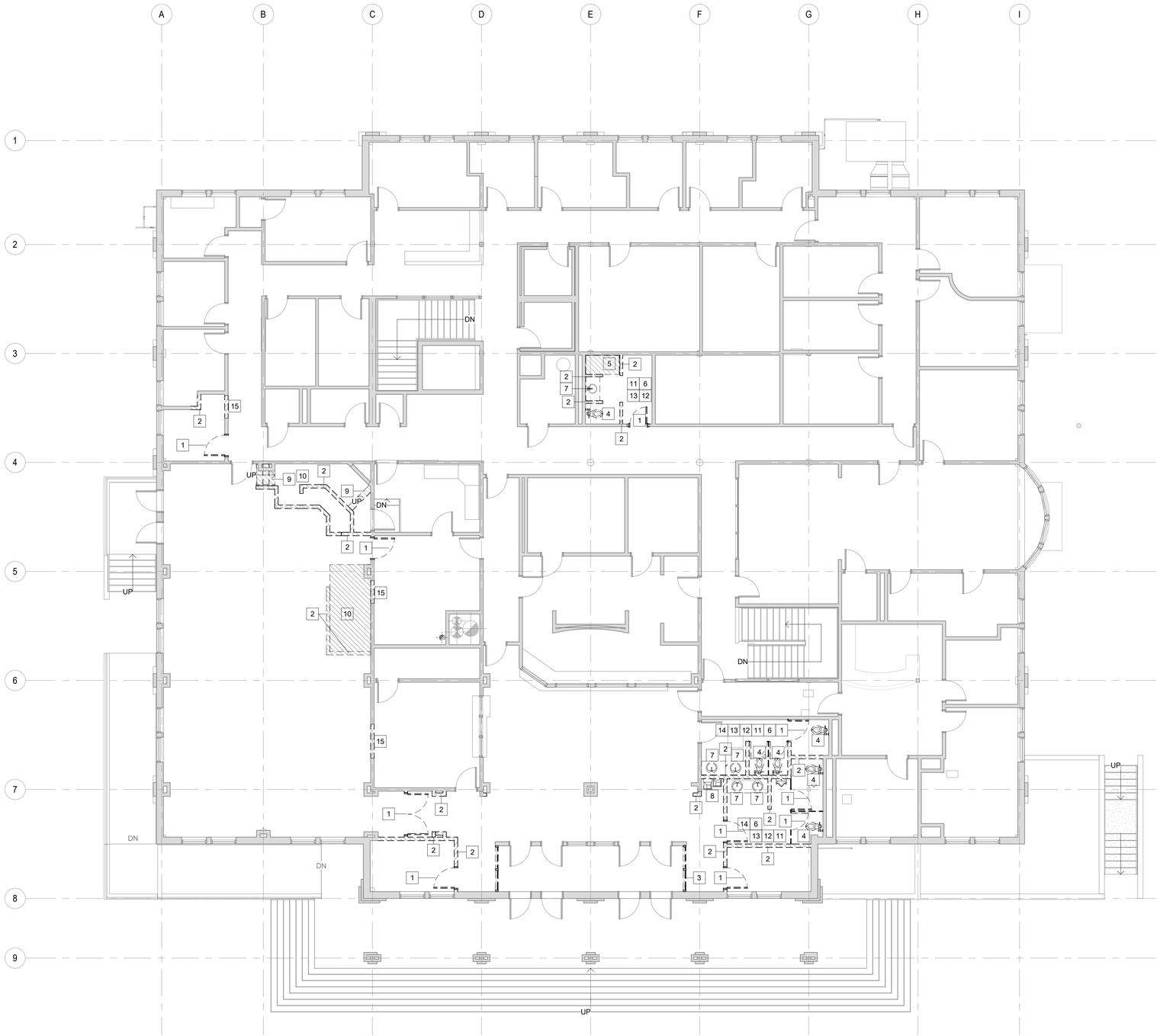
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description
DEMOLITION PLAN - BASEMENT

FOR BIDDING

number
AD100



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

0 4' 8' 16' N

DEMOLITION LEGEND

TO BE DEMOLISHED

EXISTING - TO REMAIN

GENERAL NOTES:

1. RE: MECHANICAL, ELECTRICAL & PLUMBING PLANS FOR EQUIPMENT DEMO LOCATIONS.
2. PROTECT EXISTING WALLS AND DOORS THAT REMAIN DURING CONSTRUCTION.
3. COORDINATE ALL DEMOLITION AND MATERIAL REMOVAL. MAINTAIN A CLEAN AND ORDERLY SITE.
4. COORDINATE LOCATION OF NEW CONSTRUCTION WITHIN EXISTING CONDITIONS PRIOR TO DEMOLITION.
5. COORDINATE LOCATION OF UTILITIES, ELECTRICAL, MECHANICAL AND COMMUNICATION SERVICES PRIOR TO DEMOLITION.
6. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY PROJECT MANAGER IF THERE ARE DISCREPANCIES AS SOON AS THEY ARE DISCOVERED.

KEYNOTES:

1. REMOVE EXISTING DOOR, HARDWARE,AND HOLLOW METAL FRAME.
2. REMOVE WALL IN ITS ENTIRETY AND WALL BASE
3. REMOVE EXISTING STOREFRONT SYSTEM.
4. SEE PLUMBING SHEETS FOR FIXTURE DEMOLITION NOTES.
5. REMOVE EXISTING SHOWER, DOORS, METAL FRAME, PAN AND CURB
6. REMOVE ALL BATHROOM ACCESSORIES: MIRRORS, MEDICINE CABINETS TOILET PAPER HOLDERS, TOWEL BARS AND TOWEL HOOKS AND SALVAGE TO OWNER.
7. REMOVE EXISTING BASE CABINET, COUNTERTOP AND SINK. SEE PLUMBING PLANS FOR MORE DEMO INFORMATION.
8. REMOVE EXISTING ELECTRIC WATER COOLER. SEE PLUMBING DRAWINGS.
9. DEMO AND REMOVE EXISTING STEEL TUBE RAILING, STEEL STAIRS AND LANDING. PREP FOR NEW FLOORING.
10. REMOVE EXISTING CARPET, ADHESIVE AND ANY UNDERLYING MATERIALS DOWN TO CONCRETE SUBSTRATE. PREP FLOOR FOR INSTALLATION OF NEW FLOORING.
11. DEMO CONCRETE SLAB AS NEEDED FOR NEW PLUMBING PENETRATIONS.
12. REMOVE EXISTING WALL TILE AND TILE BACKER BOARD IN ITS ENTIRETY. PREP FOR NEW TILE INSTALLATION.
13. REMOVE EXISTING FLOOR TILE, GROUT, AND WALL BASE. PREP FLOOR FOR INSTALLATION OF NEW TILE.
14. REMOVE EXISTING TOILET PARTITIONS
15. REMOVE WALL IN ITS ENTIRETY AND WALL BASE FOR DOOR OPENING ONLY.

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job # 163-19

drawn SS

chkd LA

description

DEMOLITION PLAN - FIRST FLOOR

FOR BIDDING

number

AD101



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

DEMOLITION LEGEND

TO BE DEMOLISHED

EXISTING - TO REMAIN

GENERAL NOTES:

1. RE: MECHANICAL, ELECTRICAL & PLUMBING PLANS FOR EQUIPMENT DEMO LOCATIONS.
2. PROTECT EXISTING WALLS AND DOORS THAT REMAIN DURING CONSTRUCTION.
3. COORDINATE ALL DEMOLITION AND MATERIAL REMOVAL. MAINTAIN A CLEAN AND ORDERLY SITE.
4. COORDINATE LOCATION OF NEW CONSTRUCTION WITHIN EXISTING CONDITIONS PRIOR TO DEMOLITION.
5. COORDINATE LOCATION OF UTILITIES, ELECTRICAL, MECHANICAL AND COMMUNICATION SERVICES PRIOR TO DEMOLITION.
6. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY PROJECT MANAGER IF THERE ARE DISCREPANCIES AS SOON AS THEY ARE DISCOVERED.

KEYNOTES:

1 REMOVE EXISTING SUSPENDED CEILING SYSTEM, SUPPORTS, GRID AND TILE IN ITS ENTIRETY.

2 REMOVE EXISTING FRAMED GWB CEILING SYSTEM, SUPPORTS, FRAMING AND GWB IN ITS ENTIRETY.

3 REMOVE EXISTING GWB AND INSULATION. SEE DEMO SHEETS

4 PATCH AND PAINT EXISTING GWB CEILING AS REQUIRED. RE: NEW CONSTRUCTION PLANS

LEGEND:

SUSPENDED CEILING SYSTEM

FRAMED GWB CEILING SYSTEM

SUPPLY AIR RE: MECH

RETURN AIR RE: MECH

EXHAUST AIR RE: MECH

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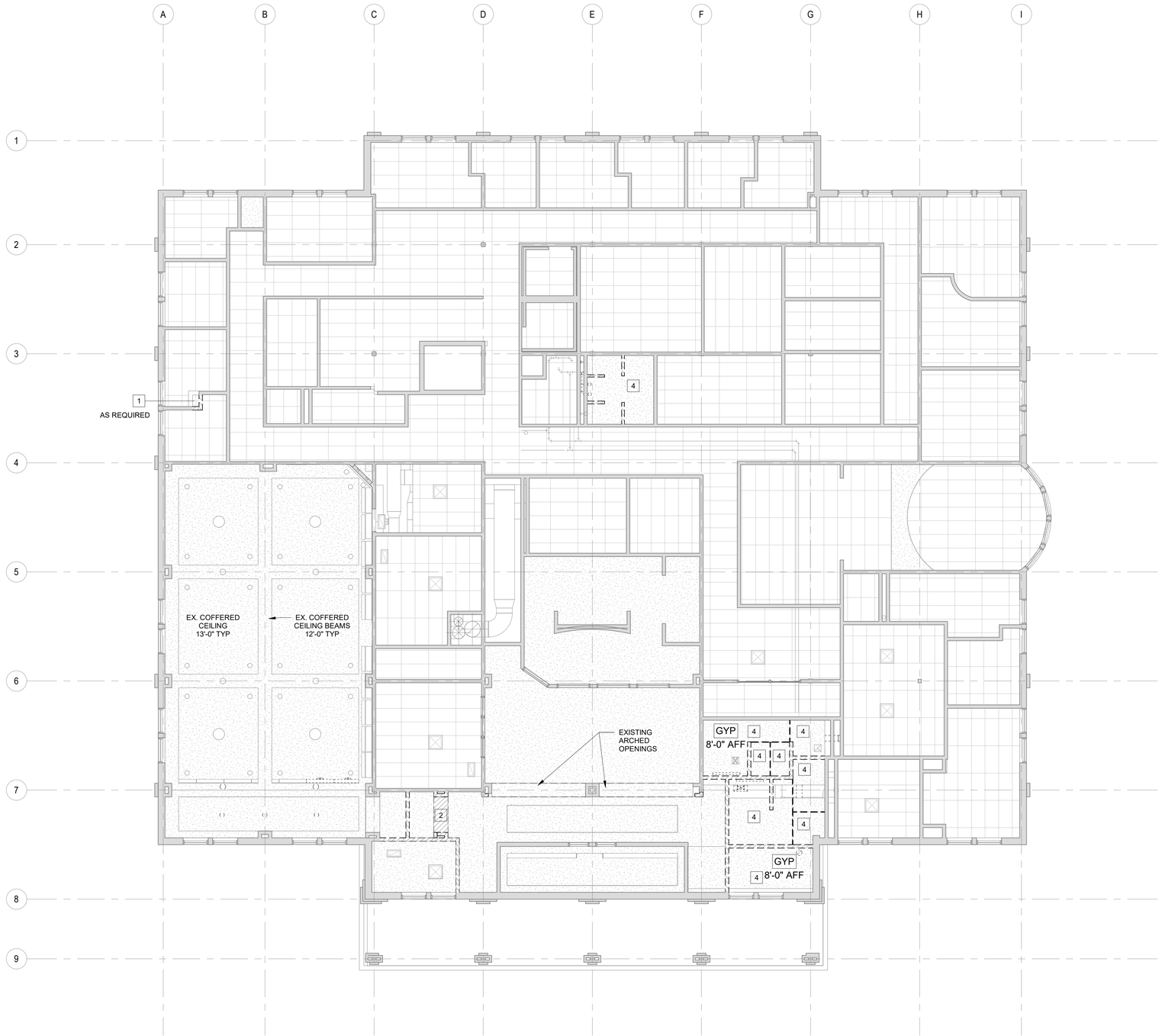
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BASEMENT REFLECTED CEILING DEMO PLAN

FOR BIDDING

number

AD102



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

DEMOLITION LEGEND

TO BE DEMOLISHED

EXISTING - TO REMAIN

GENERAL NOTES:

1. RE: MECHANICAL, ELECTRICAL & PLUMBING PLANS FOR EQUIPMENT DEMO LOCATIONS.
2. PROTECT EXISTING WALLS AND DOORS THAT REMAIN DURING CONSTRUCTION.
3. COORDINATE ALL DEMOLITION AND MATERIAL REMOVAL. MAINTAIN A CLEAN AND ORDERLY SITE.
4. COORDINATE LOCATION OF NEW CONSTRUCTION WITHIN EXISTING CONDITIONS PRIOR TO DEMOLITION.
5. COORDINATE LOCATION OF UTILITIES, ELECTRICAL, MECHANICAL AND COMMUNICATION SERVICES PRIOR TO DEMOLITION.
6. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY PROJECT MANAGER IF THERE ARE DISCREPANCIES AS SOON AS THEY ARE DISCOVERED.

KEYNOTES:

1 REMOVE EXISTING SUSPENDED CEILING SYSTEM, SUPPORTS, GRID AND TILE IN ITS ENTIRETY.

2 REMOVE EXISTING FRAMED GWB CEILING SYSTEM, SUPPORTS, FRAMING AND GWB IN ITS ENTIRETY.

3 REMOVE EXISTING GWB AND INSULATION. SEE DEMO SHEETS

4 PATCH AND PAINT EXISTING GWB CEILING AS REQUIRED. RE: NEW CONSTRUCTION PLANS

LEGEND:

SUSPENDED CEILING SYSTEM

FRAMED GWB CEILING SYSTEM

SUPPLY AIR RE: MECH

RETURN AIR RE: MECH

EXHAUST AIR RE: MECH

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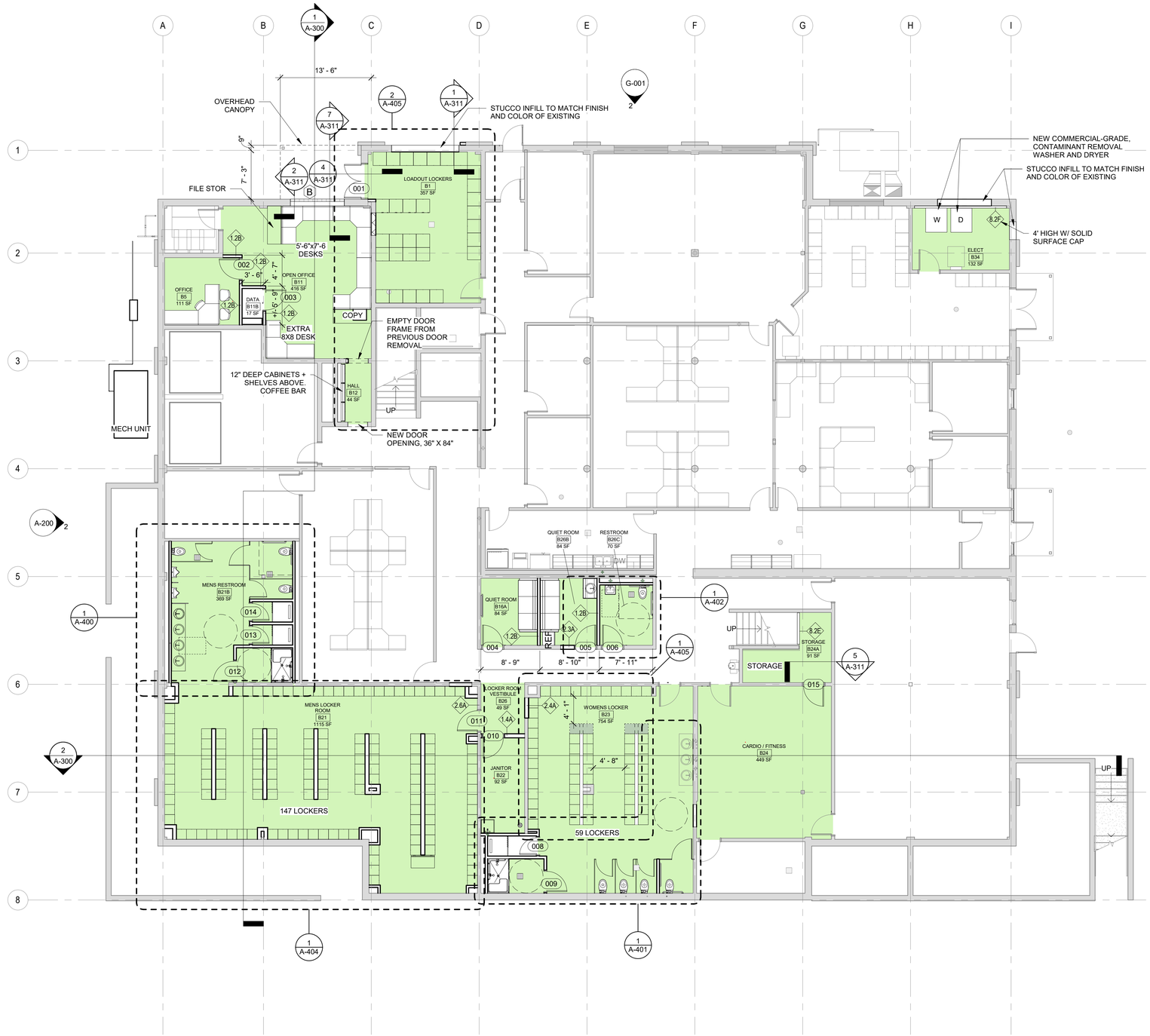
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FIRST FLOOR REFLECTED CEILING DEMO PLAN

FOR BIDDING

number

AD103



1 NEW CONSTRUCTION - BASEMENT PLAN
1/8" = 1'-0"

0 4' 8' 16' N

GENERAL NOTES:

1. SEE A-900 FOR WALL TYPES

2. IN LOCATIONS OF PATCHING OR REPAIRS TO WALLS OR CEILINGS, PAINT THE ENTIRE SURFACE OF THE WALL OR CEILINGS, DO NOT JUST PAINT THE AREA OF PATCH

3. PROTECT ALL MATERIALS TO REMAIN FROM DAMAGE FOR THE DURATION OF THE PROJECT. THE CONTRACTOR WILL REPLACE OR REPAIR ALL MATERIALS TO REMAIN IF DAMAGE OCCURS DURING THE PROJECT.

COLOR LEGEND

RENOVATED AREA

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drawn SS

chkd LA

BASEMENT PLAN

description

FOR BIDDING

number A-100

COLOR LEGEND

RENOVATED AREA

LEGEND

1-HOUR FIRE RATED - EXISTING

1-HOUR FIRE RATED - NEW

GENERAL NOTES:

1. SEE A-900 FOR WALL TYPES

2. IN LOCATIONS OF PATCHING OR REPAIRS TO WALLS OR CEILINGS, PAINT THE ENTIRE SURFACE OF THE WALL OR CEILINGS, DO NOT JUST PAINT THE AREA OF PATCH

3. PROTECT ALL MATERIALS TO REMAIN FROM DAMAGE FOR THE DURATION OF THE PROJECT. THE CONTRACTOR WILL REPLACE OR REPAIR ALL MATERIALS TO REMAIN IF DAMAGE OCCURS DURING THE PROJECT.



1 NEW CONSTRUCTION - FIRST FLOOR
1/8" = 1'-0"

0 4' 8' 16' N

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description

FIRST FLOOR PLAN

FOR BIDDING

number A-101



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

0 4' 8' 16'

GENERAL NOTES:

1. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS / SPECIFICATIONS FOR ADDITIONAL INFORMATION ON THEIR RESPECTIVE DISCIPLINES
2. ---

CEILING TYPES:

GYP - GYPSUM BOARD CEILING
- 5/8" GYPSUM CEILING W/ LEVEL 5 CEILING FINISH
- 3 5/8" METAL STUD SUSPENSION SYSTEM.

ACT - 24" X 24" ACOUSTIC CEILING
- GEORGIAN BEVELED TEGULAR, WHITE
- PRELUDE XL 9/16" SUSPENSION GRID.

KEYNOTES:

(1) ---

LEGEND:

- SUSPENDED CEILING SYSTEM
- FRAMED GWB CEILING SYSTEM
- (OS) OCCUPANCY SENSOR
- (DL) DAYLIGHT SENSOR
- HANGING LIGHT FIXTURE
- 2X4 RECESSED LIGHT FIXTURE
- CAN LIGHT FIXTURE
- SUPPLY AIR RE: MECH
- RETURN AIR RE: MECH
- EXHAUST AIR RE: MECH
- EXISTING SUPPLY AIR RE: MECH
- EXISTING RETURN AIR RE: MECH
- EXISTING EXHAUST AIR RE: MECH

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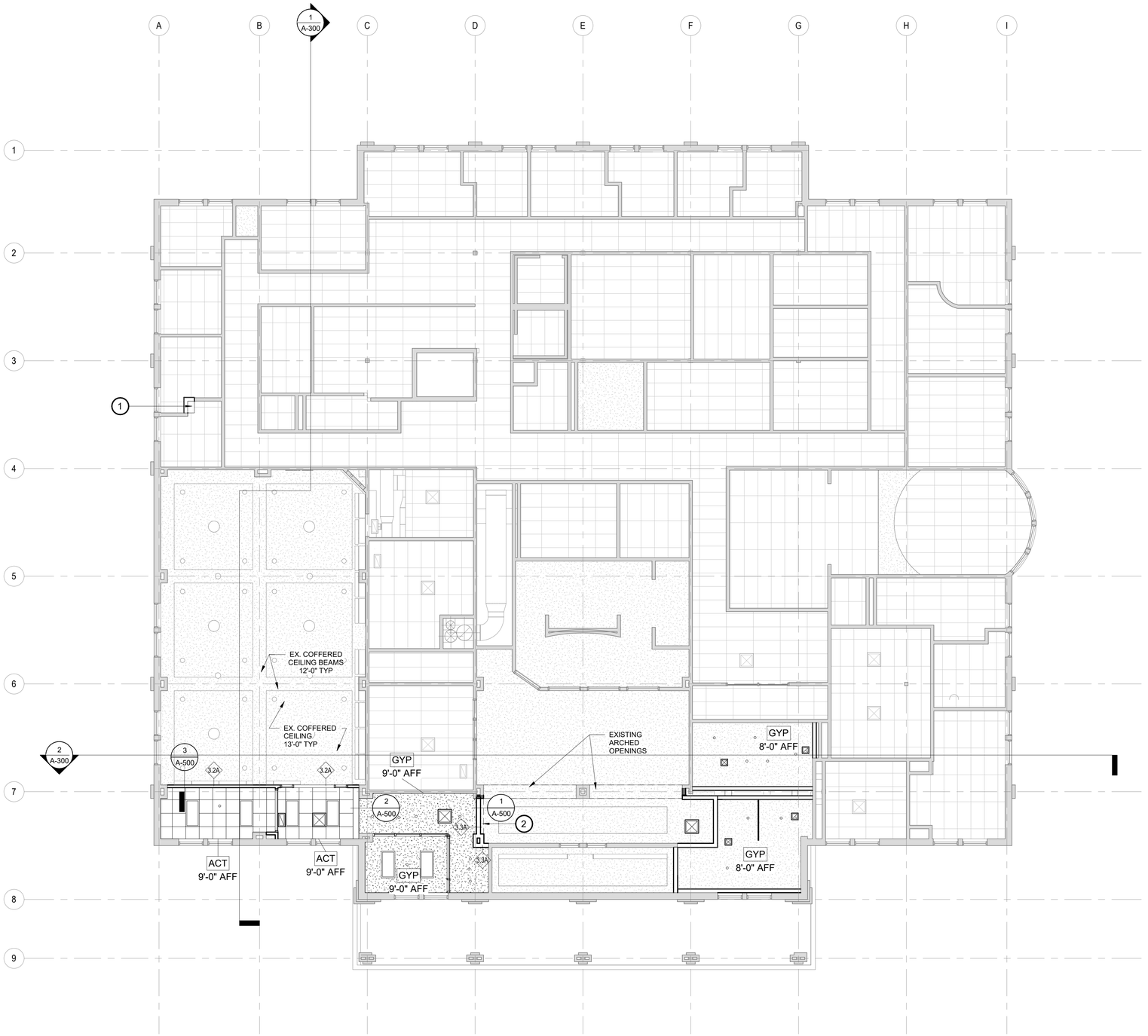
BASEMENT REFLECTED CEILING PLAN

description

FOR BIDDING

A-110

number



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

GENERAL NOTES:

1. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS / SPECIFICATIONS FOR ADDITIONAL INFORMATION ON THEIR RESPECTIVE DISCIPLINES
2. ---

CEILING TYPES:

GYP - GYPSUM BOARD CEILING
- 5/8" GYPSUM CEILING W/ LEVEL 5 CEILING FINISH
- 3 5/8" METAL STUD SUSPENSION SYSTEM.

ACT - 24" X 24" ACOUSTIC CEILING
- GEORGIAN BEVELED TEGULAR, WHITE
- PRELUDE XL 9/16" SUSPENSION GRID.

KEYNOTES:

1 PATCH EXISTING CEILING WHERE WALL MOVED

2 NEW ARCHED OPENING

LEGEND:

SUSPENDED CEILING SYSTEM

FRAMED GWB CEILING SYSTEM

OS OCCUPANCY SENSOR

DL DAYLIGHT SENSOR

HANGING LIGHT FIXTURE

2X4 RECESSED LIGHT FIXTURE

CAN LIGHT FIXTURE

SUPPLY AIR RE: MECH

RETURN AIR RE: MECH

EXHAUST AIR RE: MECH

EXISTING SUPPLY AIR RE: MECH

EXISTING RETURN AIR RE: MECH

EXISTING EXHAUST AIR RE: MECH

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issue / revision

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description

FIRST FLOOR REFLECTED CEILING PLAN

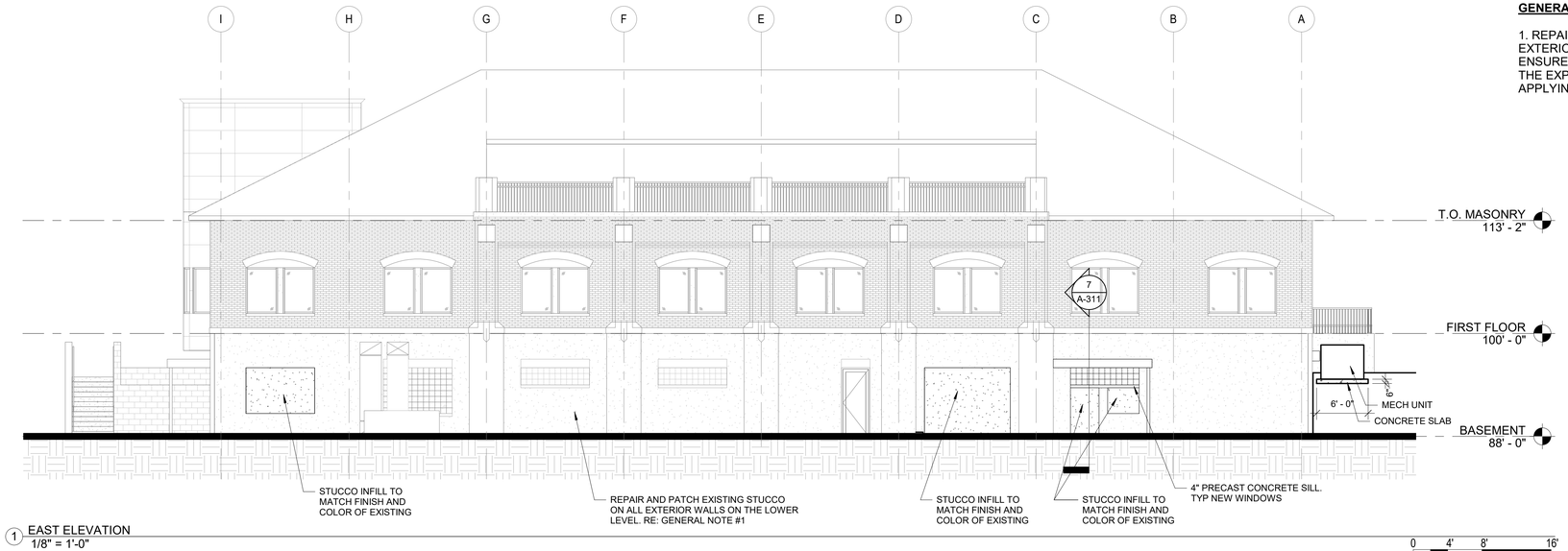
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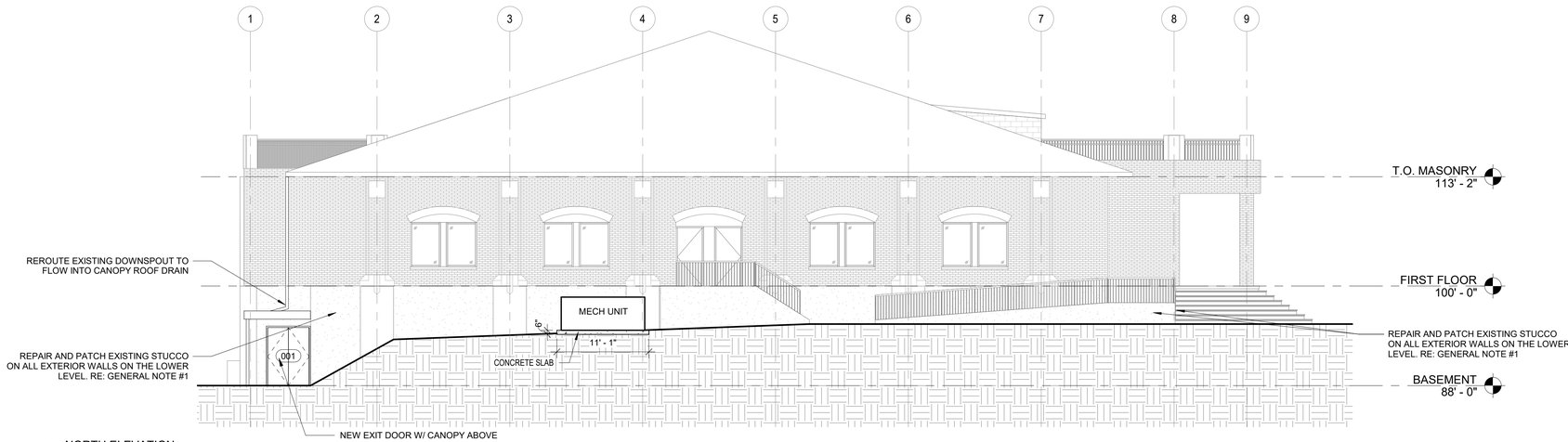
A-111

GENERAL NOTES:

1. REPAIR AND PATCH EXISTING STUCCO ON ALL EXTERIOR WALLS ON THE LOWER LEVEL, AND ENSURE TO BREAK OFF LOOSE STUCCO, COVER THE EXPOSED LATH, AND ADD MESH BEFORE APPLYING STUCCO.



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



2 NORTH ELEVATION
1/8" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"

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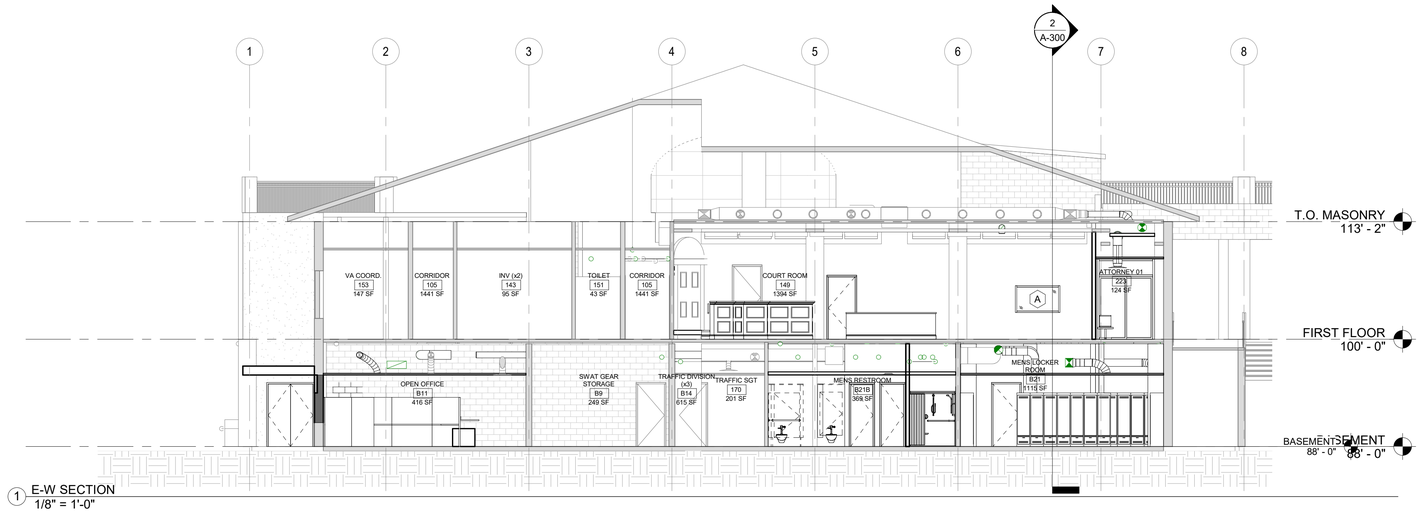
BUILDING ELEVATIONS

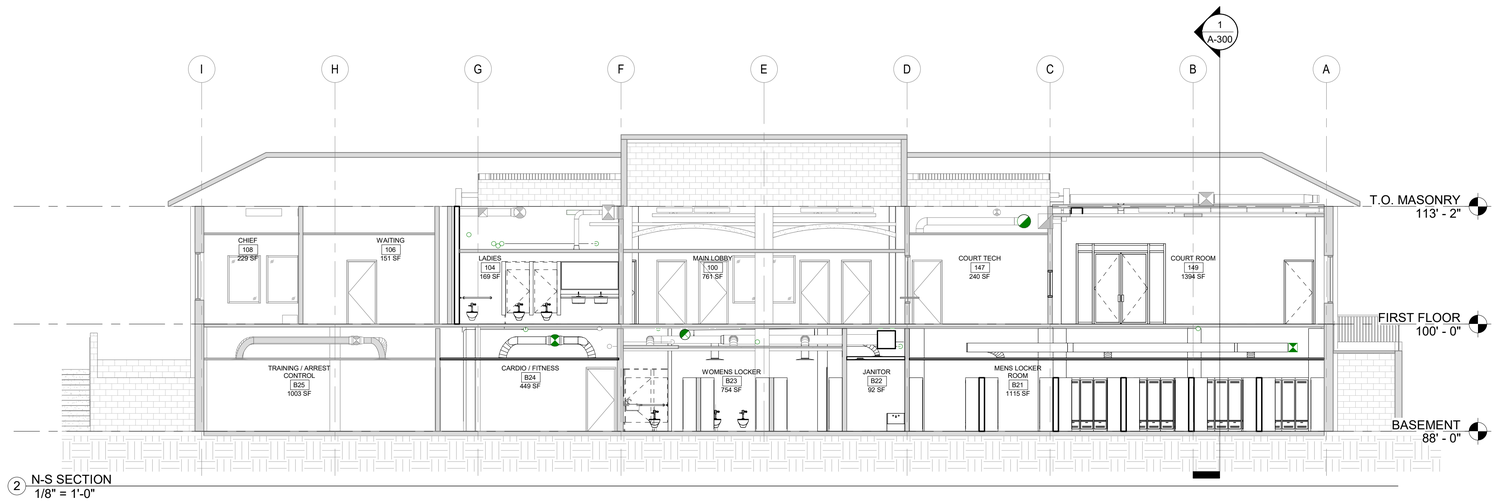
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FOR BIDDING

A-200

number





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102 E. Moreno Avenue
Colorado Springs, CO 80903
719.473.7063
www.hbaa.com

architect

associated with

project

CASTLE ROCK POLICE DEPARTMENT
100 PERRY ST
CASTLE ROCK CO 80104

seal

issue / revision	date:
2 Developmt Svcs Rvw	7/20/22
1 Code Updates	6/14/22
Construction Doc.	6/10/22
Design Development	3/11/22
Schematic Design	1/21/22

issue / revision

job # 163-19

drawn SS

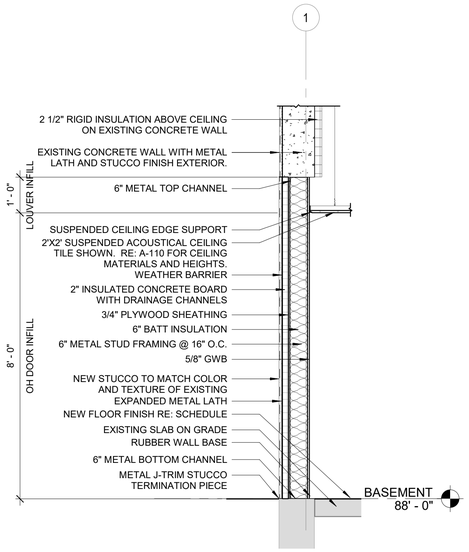
chkd LA

BUILDING SECTIONS

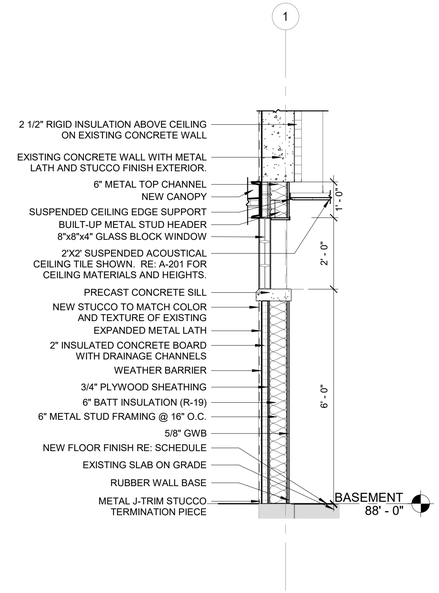
description

FOR BIDDING

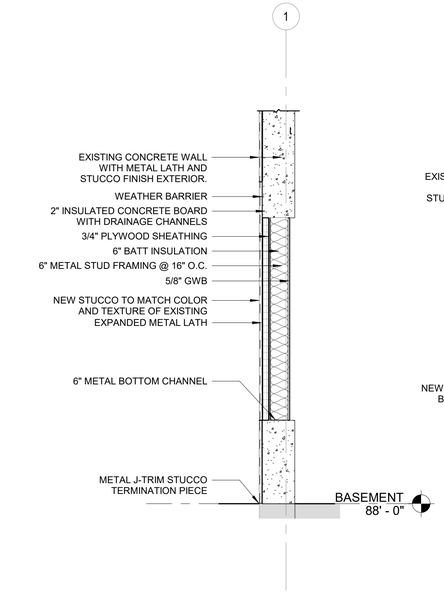
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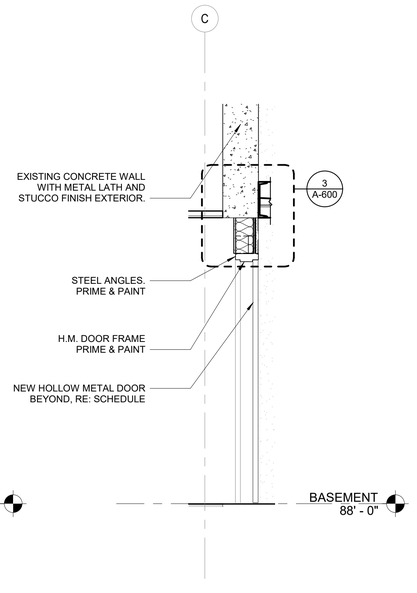
1 OH DOOR INFILL WITH STUCCO
1/2" = 1'-0"



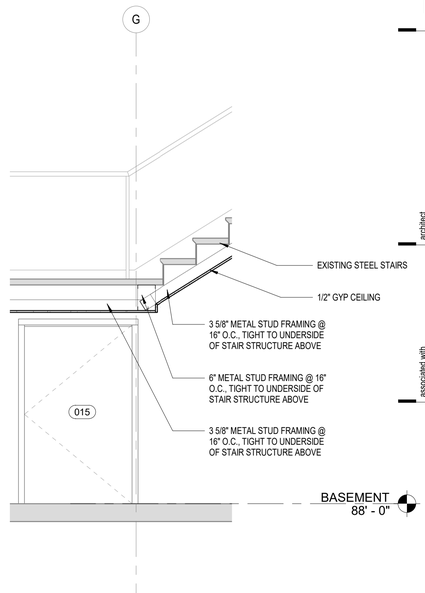
2 WALL INFILL WITH GLASS BLOCK AT OPEN OFFICE
1/2" = 1'-0"



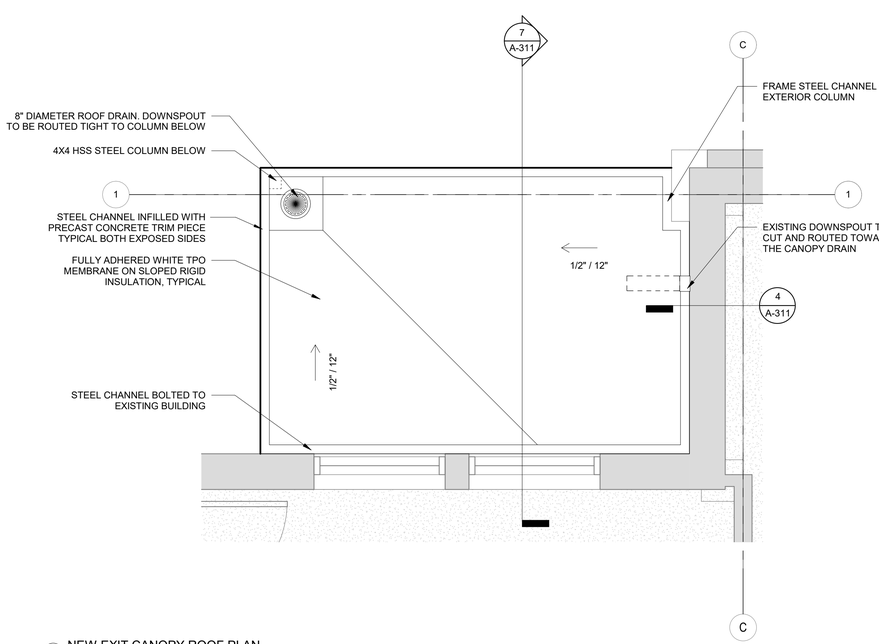
3 LOUVER INFILL WITH STUCCO
1/2" = 1'-0"



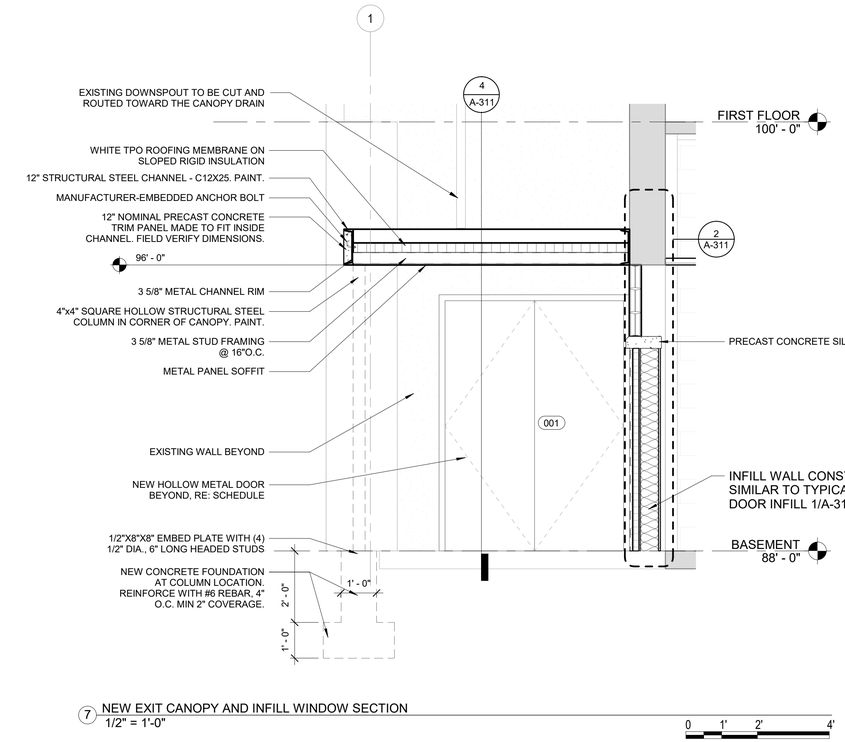
4 NEW EXTERIOR DOOR SECTION AT LOADOUT LOCKERS
1/2" = 1'-0"



5 UNDER STAIR STORAGE SECTION
1/2" = 1'-0"



6 NEW EXIT CANOPY ROOF PLAN
1/2" = 1'-0"



7 NEW EXIT CANOPY AND INFILL WINDOW SECTION
1/2" = 1'-0"

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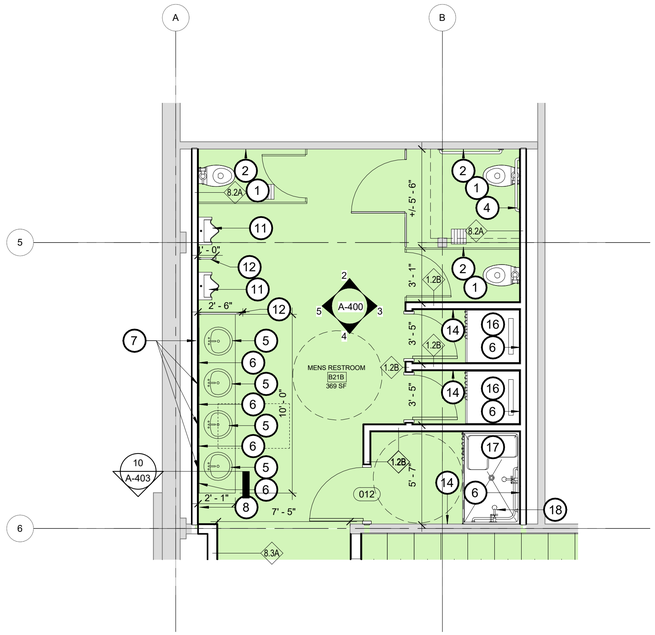
WALL SECTIONS

description

FOR BIDDING

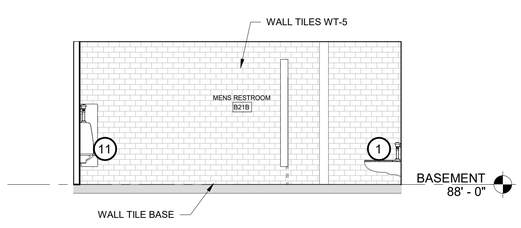
A-311

number



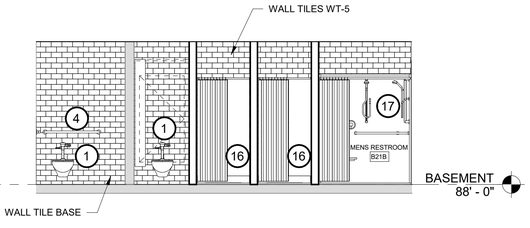
1 MENS RESTROOM - BASEMENT PLAN
1/4" = 1'-0"

0 2' 4' 8' N



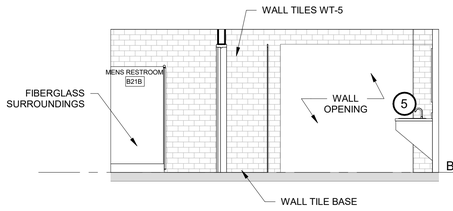
2 MEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



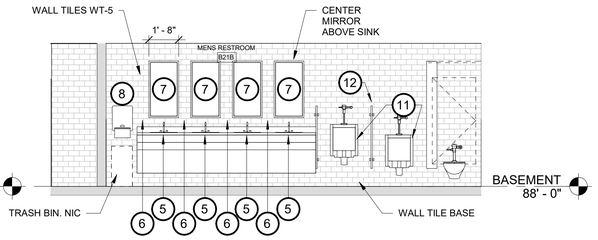
3 MEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



4 MEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'

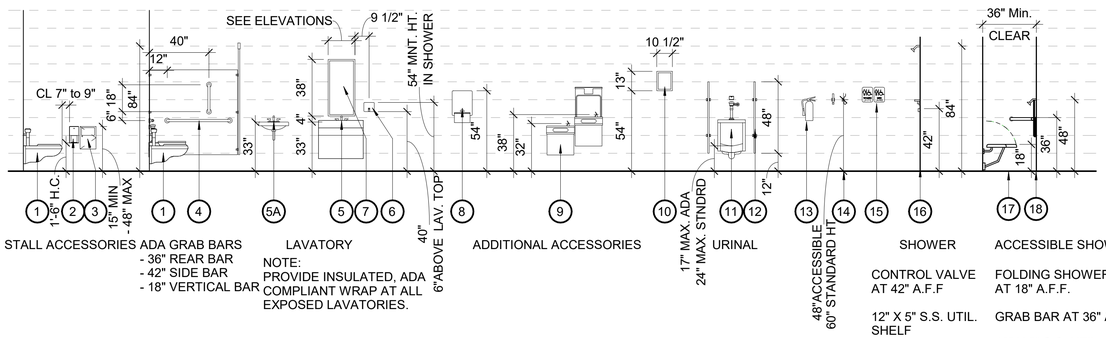


5 MEN'S RESTROOM ELEVATION
1/4" = 1'-0"

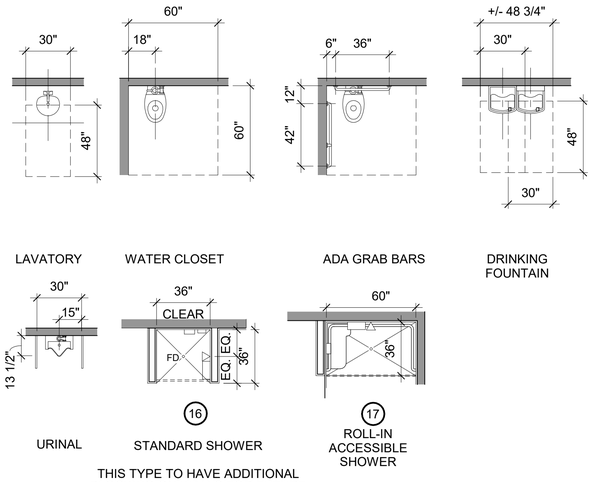
0 2' 4' 8'

ACCESSORIES NOTES:

1. WALL MOUNTED WATER CLOSET. RE: PLUMBING
2. STAINLESS STEEL TOILET PAPER HOLDER
3. STAINLESS STEEL SANITARY NAPKIN DISPOSAL
4. 1 1/2" STAINLESS STEEL ADA GRAB BARS
5. COUNTER MOUNTED LAVATORY SINK
5A. LAVATORY SINK
6. SOAP DISPENSER
7. MIRROR
8. TOUCHLESS PAPER TOWEL DISPENSER
9. HIGH/LOW ADA DRINKING FOUNTAIN W/ WATER BOTTLE FILLER, RE: PLUMBING
10. SIGNAGE HOLDER, TOP INSERT
11. URINAL - WALL MOUNT
12. URINAL PARTITION
13. FIRE EXTINGUISHER - WALL MOUNT
14. COAT HOOKS (AT BACKS OF T.P. DOORS ONLY); PROVIDE EXTRA AT OWNERS REQUEST
15. ADA SIGNAGE; TYPICAL AT POINT OF ENTRY OF EACH ROOM
16. SHOWER
17. ACCESSIBLE SHOWER
18. WAND AND SLIDE BAR



NOTE:
- ALL FIXTURES TO MEET ADA REQUIREMENTS.
- VERIFY ADA MOUNTING HEIGHTS AND CLEARANCES W/ FIXTURE MANUFACTURER RECOMMENDATIONS.
- ITEMS 2, 3, 6, AND 8 TO BE PROVIDED BY OWNER. COORDINATE DURING CONSTRUCTION



THIS TYPE TO HAVE ADDITIONAL BLOCKING ON WALLS FOR FUTURE BENCHES AND GRAB BARS.

MINIMUM FIXTURE CLEARANCES

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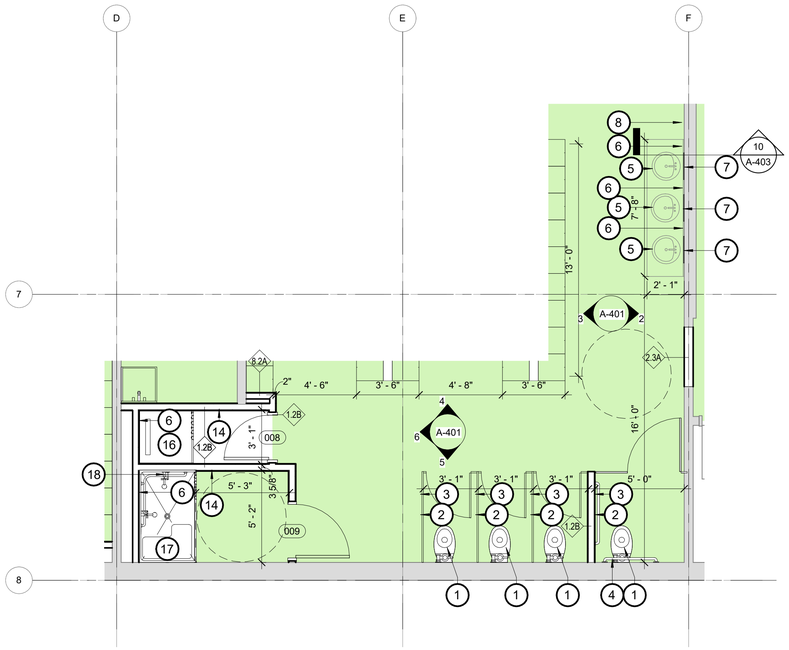
issue / revision

job # 163-19
drawn SS
chkd LA

description: ENLARGED MENS RESTROOM PLANS

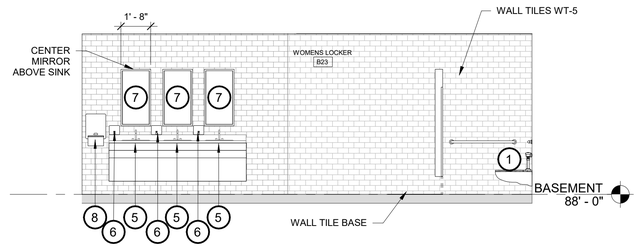
FOR BIDDING

number: A-400



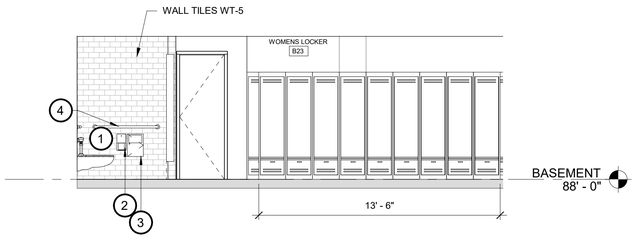
1 WOMENS RESTROOM - BASEMENT PLAN
1/4" = 1'-0"

0 2' 4' 8'



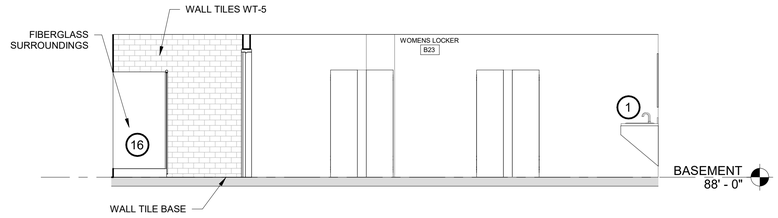
2 WOMEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



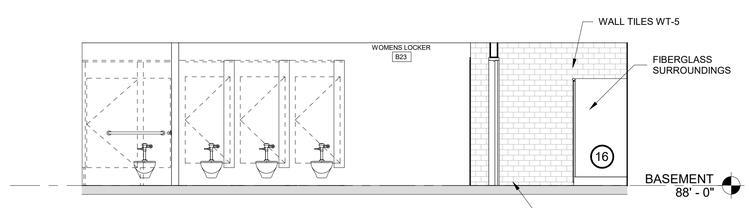
3 WOMEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



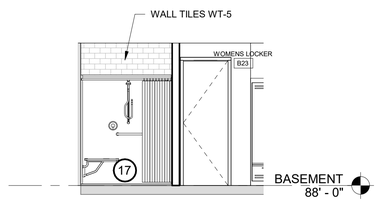
4 WOMEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



5 WOMEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'

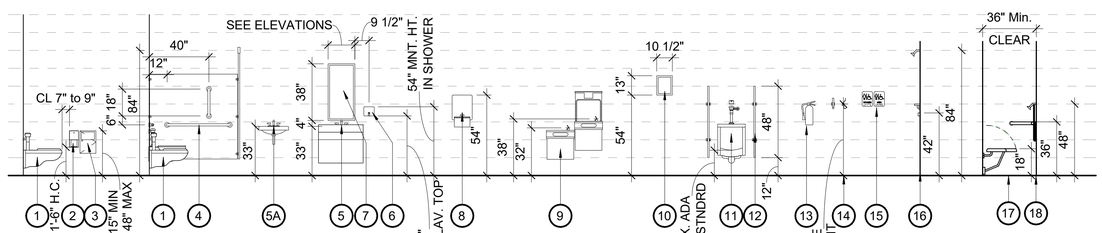


6 WOMEN'S RESTROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'

ACCESSORIES NOTES:

1. WALL MOUNTED WATER CLOSET. RE: PLUMBING
2. STAINLESS STEEL TOILET PAPER HOLDER
3. STAINLESS STEEL SANITARY NAPKIN DISPOSAL
4. 1 1/2" STAINLESS STEEL ADA GRAB BARS
5. COUNTER MOUNTED LAVATORY SINK
5A. LAVATORY SINK
6. SOAP DISPENSER
7. MIRROR
8. TOUCHLESS PAPER TOWEL DISPENSER
9. HIGH/LOW ADA DRINKING FOUNTAIN W/ WATER BOTTLE FILLER, RE: PLUMBING
10. SIGNAGE HOLDER, TOP INSERT
11. URINAL - WALL MOUNT
12. URINAL PARTITION
13. FIRE EXTINGUISHER - WALL MOUNT
14. COAT HOOKS (AT BACKS OF T.P. DOORS ONLY); PROVIDE EXTRA AT OWNERS REQUEST
15. ADA SIGNAGE; TYPICAL AT POINT OF ENTRY OF EACH ROOM
16. SHOWER
17. ACCESSIBLE SHOWER
18. WAND AND SLIDE BAR



STALL ACCESSORIES

ADA GRAB BARS
- 36" REAR BAR
- 42" SIDE BAR
- 18" VERTICAL BAR

LAVATORY
NOTE:
PROVIDE INSULATED, ADA COMPLIANT WRAP AT ALL EXPOSED LAVATORIES.

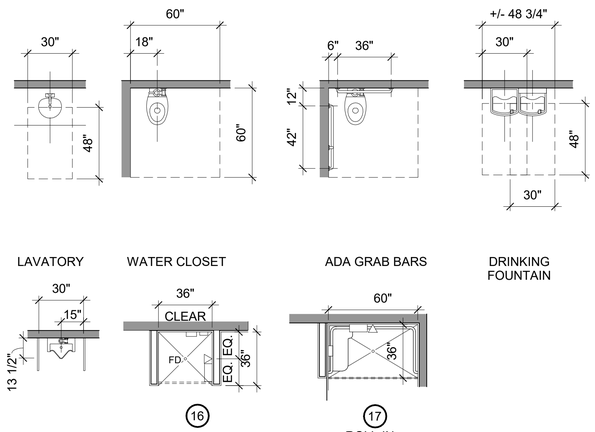
ADDITIONAL ACCESSORIES

URINAL

SHOWER
CONTROL VALVE AT 42" A.F.F
12" X 5" S.S. UTIL. SHELF
SHOWER HEAD AT 84" A.F.F
SHOWER CURTAIN & CURTAIN ROD

ACCESSIBLE SHOWER
FOLDING SHOWER SEAT AT 18" A.F.F.
GRAB BAR AT 36" A.F.F.
12" X 5" S.S. UTIL. SHELF
CONTROL VALVE AND SHOWER HEAD MOUNTED AT 48" A.F.F
SHOWER CURTAIN & CURTAIN ROD

NOTE:
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- VERIFY ADA MOUNTING HEIGHTS AND CLEARANCES W/ FIXTURE MANUFACTURER RECOMMENDATIONS.
- ITEMS 2, 3, 6, AND 8 TO BE PROVIDED BY OWNER. COORDINATE DURING CONSTRUCTION



URINAL

16 STANDARD SHOWER

17 ROLL-IN ACCESSIBLE SHOWER

THIS TYPE TO HAVE ADDITIONAL BLOCKING ON WALLS FOR FUTURE BENCHES AND GRAB BARS.

MINIMUM FIXTURE CLEARANCES

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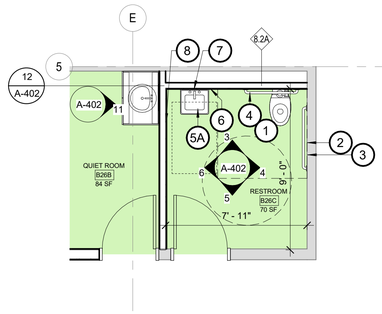
ENLARGED WOMENS RESTROOM PLANS

description

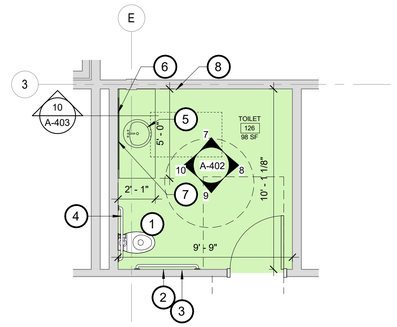
FOR BIDDING

A-401

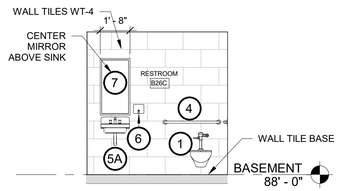
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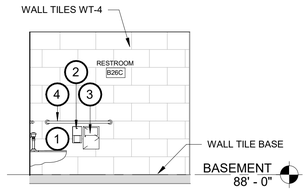
1 BASEMENT RESTROOM
1/4" = 1'-0"



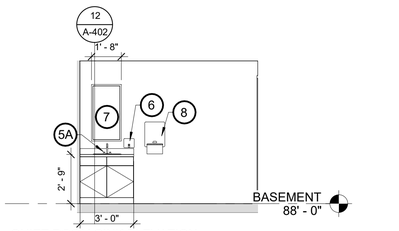
2 FIRST FLOOR TOILET
1/4" = 1'-0"



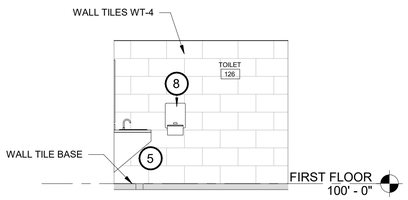
3 RESTROOM ELEVATION
1/4" = 1'-0"



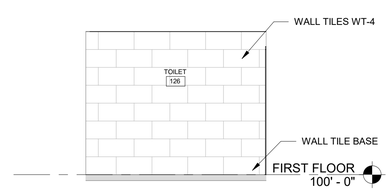
4 RESTROOM ELEVATION
1/4" = 1'-0"



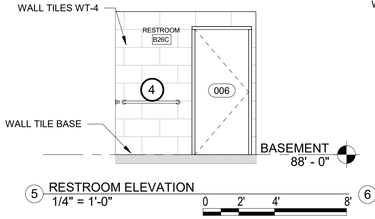
11 QUIET ROOM SINK ELEVATION
1/4" = 1'-0"



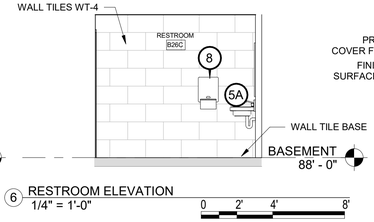
7 TOILET ELEVATION
1/4" = 1'-0"



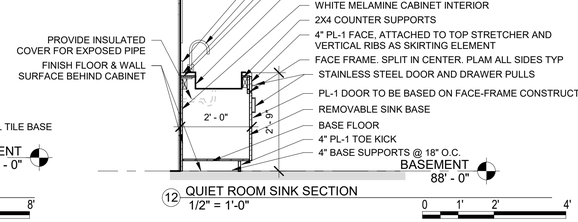
8 TOILET ELEVATION
1/4" = 1'-0"



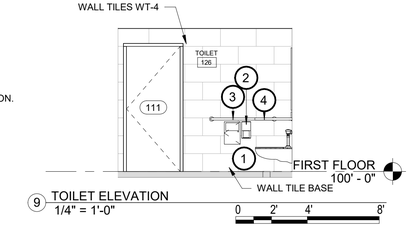
5 RESTROOM ELEVATION
1/4" = 1'-0"



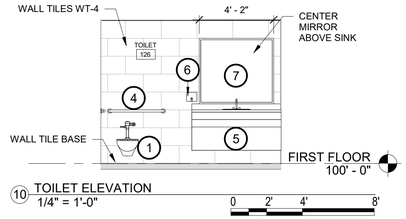
6 RESTROOM ELEVATION
1/4" = 1'-0"



12 QUIET ROOM SINK SECTION
1/2" = 1'-0"



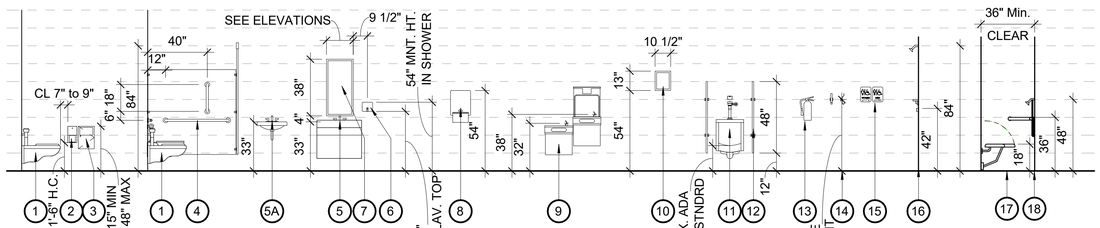
9 TOILET ELEVATION
1/4" = 1'-0"



10 TOILET ELEVATION
1/4" = 1'-0"

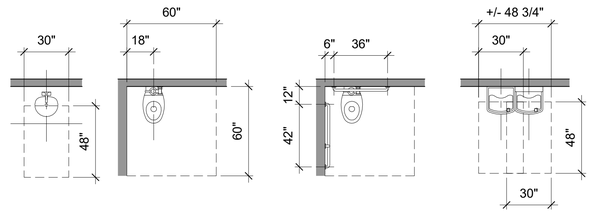
ACCESSORIES NOTES:

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2. STAINLESS STEEL TOILET PAPER HOLDER
3. STAINLESS STEEL SANITARY NAPKIN DISPOSAL
4. 1 1/2" STAINLESS STEEL ADA GRAB BARS
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- 42" SIDE BAR
- 18" VERTICAL BAR
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NOTE:
PROVIDE INSULATED, ADA COMPLIANT WRAP AT ALL EXPOSED LAVATORIES.
ADDITIONAL ACCESSORIES
URINAL
SHOWER
CONTROL VALVE AT 42" A.F.F
12" X 5" S.S. UTIL. SHELF
SHOWER HEAD AT 84" A.F.F
SHOWER CURTAIN & CURTAIN ROD
ACCESSIBLE SHOWER
FOLDING SHOWER SEAT AT 18" A.F.F.
GRAB BAR AT 36" A.F.F.
12" X 5" S.S. UTIL. SHELF
CONTROL VALVE AND SHOWER HEAD MOUNTED AT 48" A.F.F
SHOWER CURTAIN & CURTAIN ROD
.

NOTE:
- ALL FIXTURES TO MEET ADA REQUIREMENTS.
- VERIFY ADA MOUNTING HEIGHTS AND CLEARANCES W/ FIXTURE MANUFACTURER RECOMMENDATIONS.
- ITEMS 2, 3, 6, AND 8 TO BE PROVIDED BY OWNER. COORDINATE DURING CONSTRUCTION



THIS TYPE TO HAVE ADDITIONAL BLOCKING ON WALLS FOR FUTURE BENCHES AND GRAB BARS.

MINIMUM FIXTURE CLEARANCES

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associated with

project

CASTLE ROCK POLICE DEPARTMENT
100 PERRY ST
CASTLE ROCK CO 80104

seal

issue / revision	date:
2 Developmt Svcs Rvw 7/20/22	
1 Code Updates	6/14/22
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Schematic Design	1/21/22

issue / revision

job # 163-19
drawn SS
chkd LA

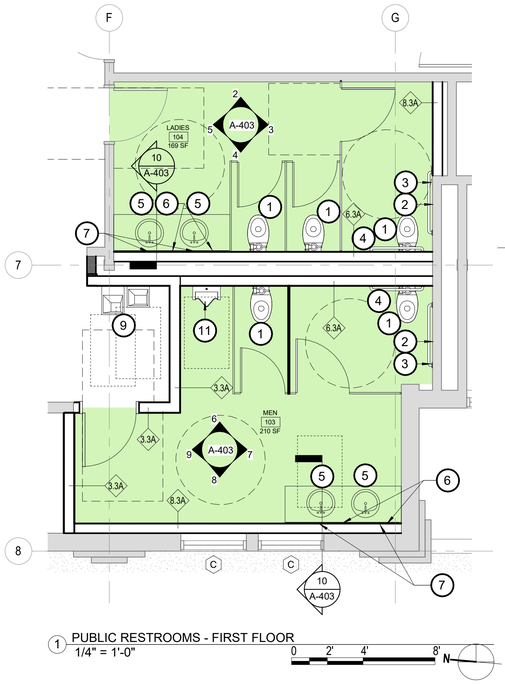
ENLARGED RESTROOM PLANS

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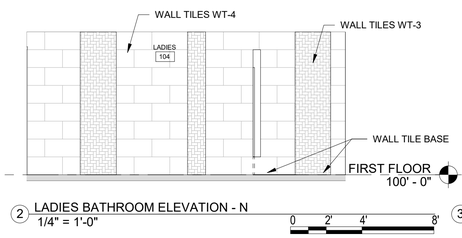
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A-402

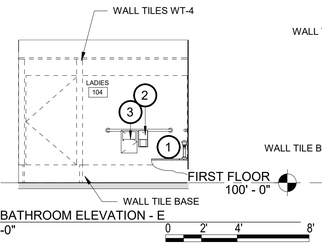
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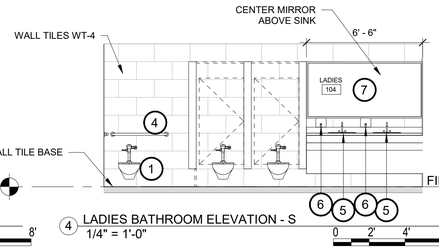
1 PUBLIC RESTROOMS - FIRST FLOOR
1/4" = 1'-0"



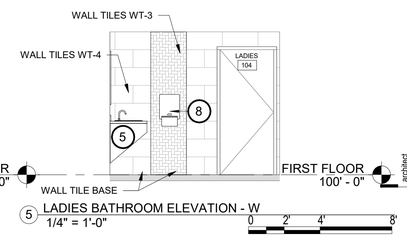
2 LADIES BATHROOM ELEVATION - N
1/4" = 1'-0"



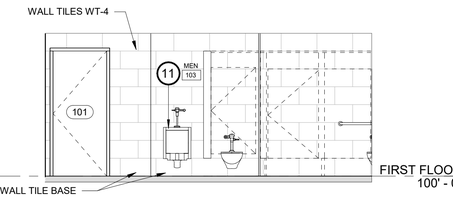
3 LADIES BATHROOM ELEVATION - E
1/4" = 1'-0"



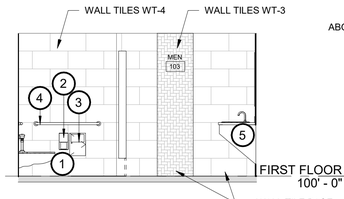
4 LADIES BATHROOM ELEVATION - S
1/4" = 1'-0"



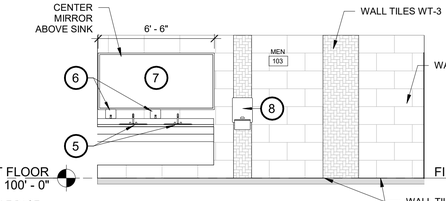
5 LADIES BATHROOM ELEVATION - W
1/4" = 1'-0"



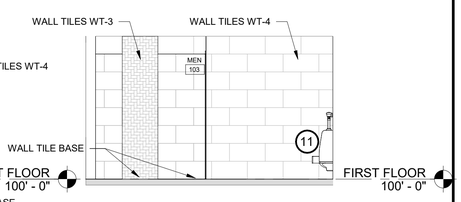
6 MEN BATHROOM ELEVATION - N
1/4" = 1'-0"



7 MEN BATHROOM ELEVATION - E
1/4" = 1'-0"



8 MEN BATHROOM ELEVATION - S
1/4" = 1'-0"

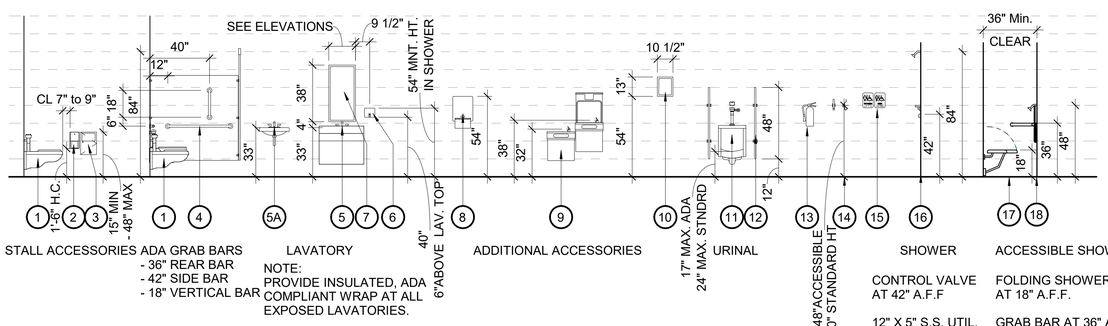


9 MEN BATHROOM ELEVATION - W
1/4" = 1'-0"

10 TYP. LAV. COUNTER SECTION
3/4" = 1'-0"

ACCESSORIES NOTES:

1. WALL MOUNTED WATER CLOSET. RE: PLUMBING
2. STAINLESS STEEL TOILET PAPER HOLDER
3. STAINLESS STEEL SANITARY NAPKIN DISPOSAL
4. 1 1/2" STAINLESS STEEL ADA GRAB BARS
5. COUNTER MOUNTED LAVATORY SINK
5A. LAVATORY SINK
6. SOAP DISPENSER
7. MIRROR
8. TOUCHLESS PAPER TOWEL DISPENSER
9. HIGH/LOW ADA DRINKING FOUNTAIN W/ WATER BOTTLE FILLER, RE: PLUMBING
10. SIGNAGE HOLDER, TOP INSERT
11. URINAL - WALL MOUNT
12. URINAL PARTITION
13. FIRE EXTINGUISHER - WALL MOUNT
14. COAT HOOKS (AT BACKS OF T.P. DOORS ONLY); PROVIDE EXTRA AT OWNERS REQUEST
15. ADA SIGNAGE; TYPICAL AT POINT OF ENTRY OF EACH ROOM
16. SHOWER
17. ACCESSIBLE SHOWER
18. WAND AND SLIDE BAR



STALL ACCESSORIES

ADA GRAB BARS
- 36" REAR BAR
- 42" SIDE BAR
- 18" VERTICAL BAR

LAVATORY
NOTE:
PROVIDE INSULATED, ADA COMPLIANT WRAP AT ALL EXPOSED LAVATORIES.

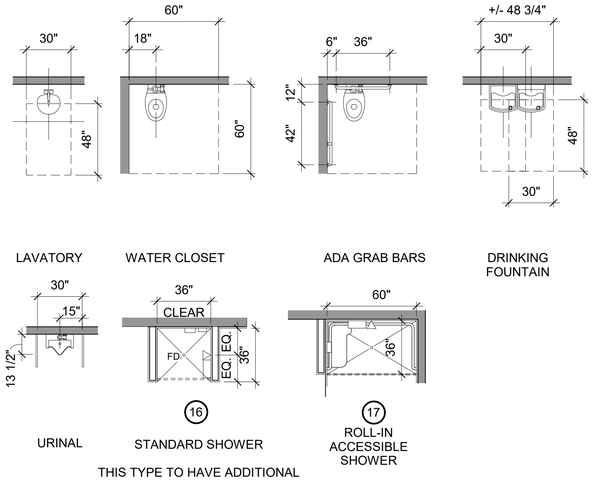
ADDITIONAL ACCESSORIES

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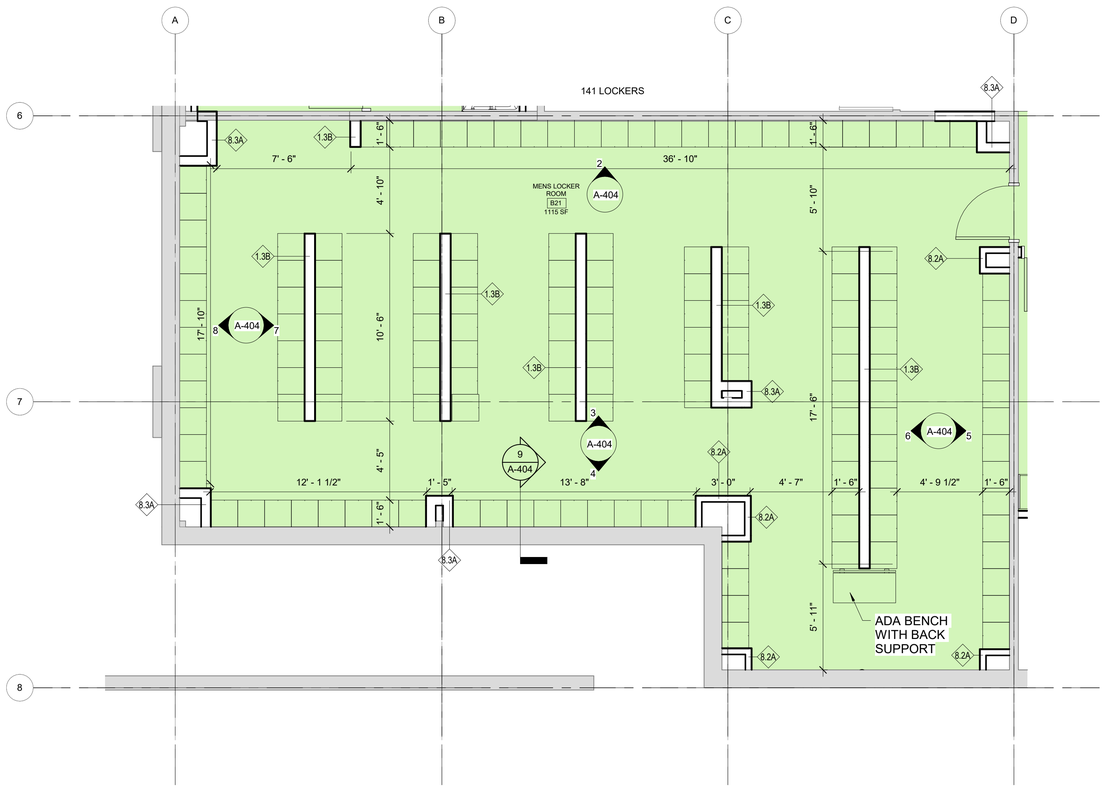
issue / revision

job #	163-19
drawn	SS
chkd	LA

description: ENLARGED RESTROOM PLANS

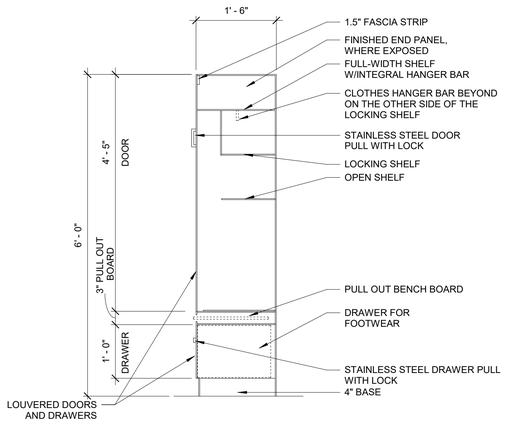
FOR BIDDING

number: A-403



1 MENS LOCKER ROOM - BASEMENT PLAN
1/4" = 1'-0"

0 2' 4' 8' N

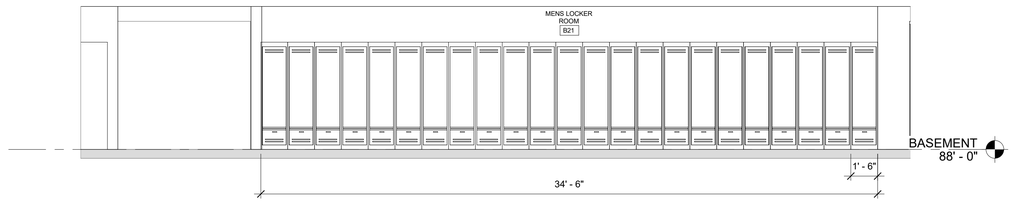


9 POLICE OFFICERS LOCKERS
3/4" = 1'-0"

0 1' 2' 3'

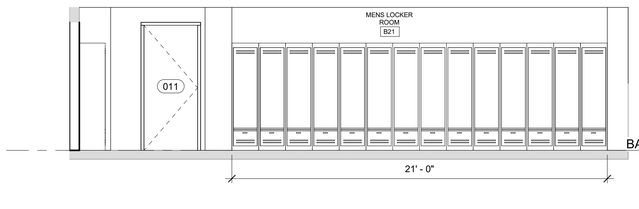
GENERAL NOTES:

1. CPT-1 IS TO BE INSTALL IN THE MEN'S LOCKER ROOM AND TO MATCH THE WOMEN'S LOCKER ROOM FLOOR FINISH



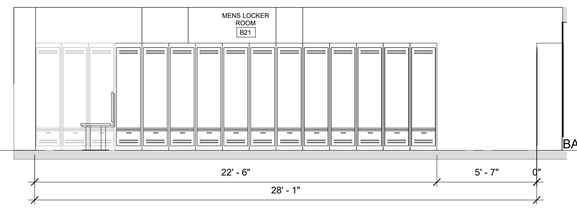
2 MENS LOCKER ROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



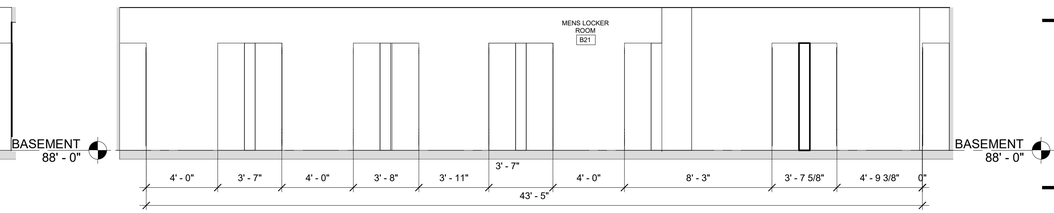
5 MENS LOCKER ROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



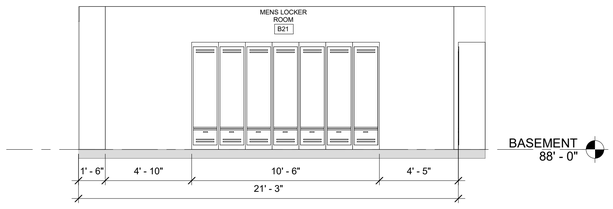
6 MENS LOCKER ROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



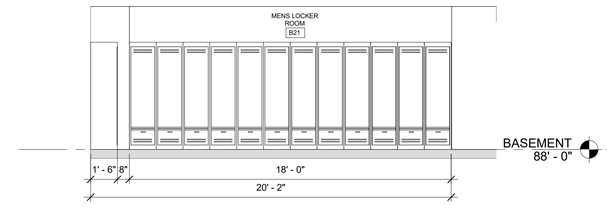
3 MENS LOCKER ROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



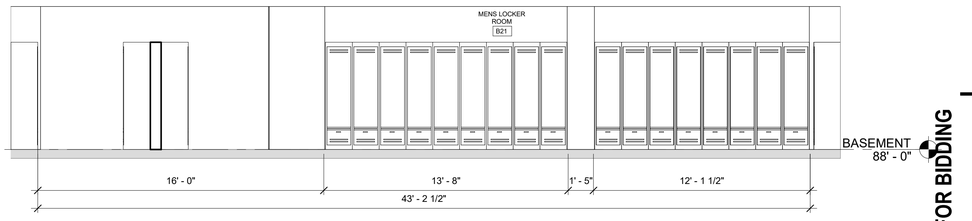
7 MENS LOCKER ROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



8 MENS LOCKER ROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'



4 MENS LOCKER ROOM ELEVATION
1/4" = 1'-0"

0 2' 4' 8'

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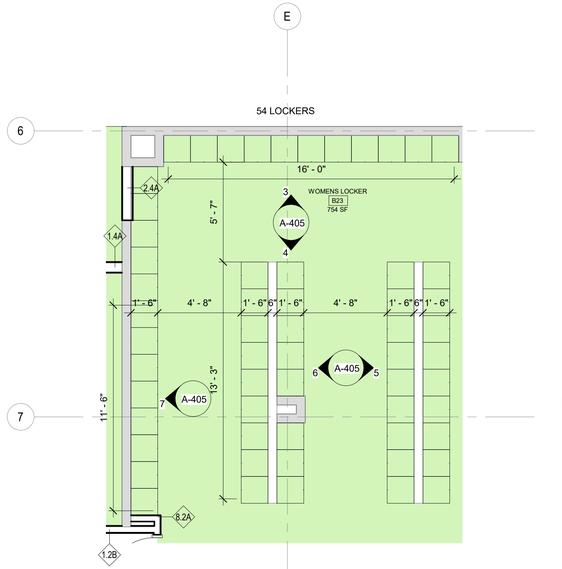
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ENLARGED LOCKER PLANS

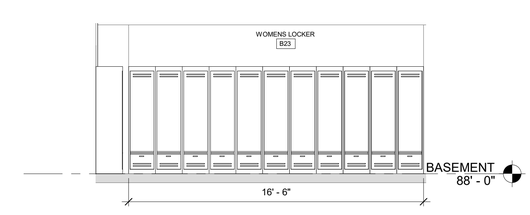
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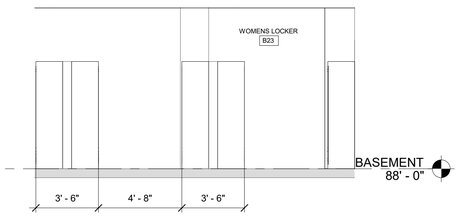
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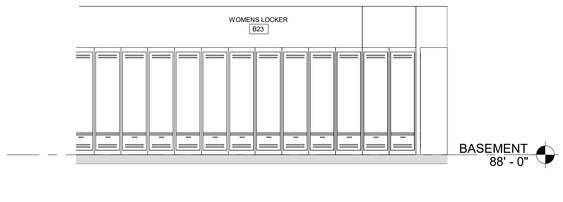
1 WOMEN'S LOCKER ROOM - BASEMENT PLAN
1/4" = 1'-0"



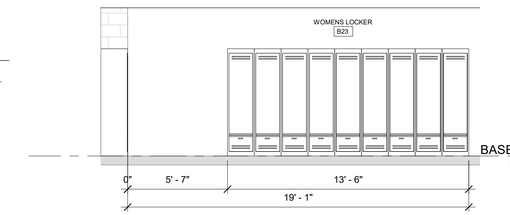
3 WOMEN'S LOCKER ROOM ELEVATION
1/4" = 1'-0"



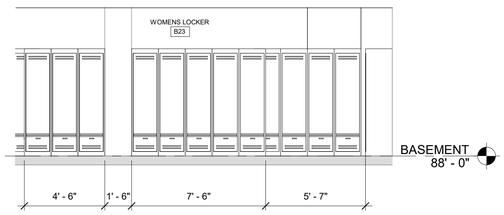
4 WOMEN'S LOCKER ROOM ELEVATION
1/4" = 1'-0"



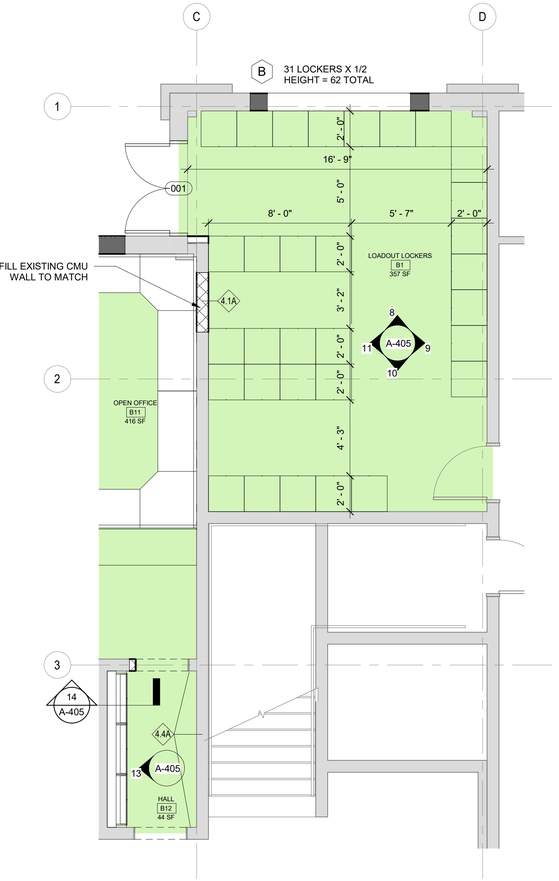
7 WOMEN'S LOCKER ROOM ELEVATION
1/4" = 1'-0"



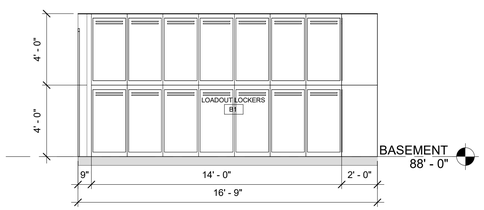
5 WOMEN'S LOCKER ROOM ELEVATION
1/4" = 1'-0"



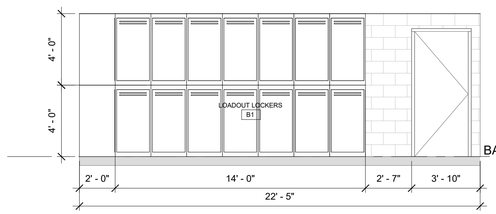
6 WOMEN'S LOCKER ROOM ELEVATION
1/4" = 1'-0"



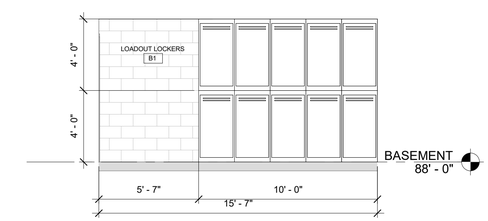
2 LOADOUT LOCKER ROOM - BASEMENT PLAN
1/4" = 1'-0"



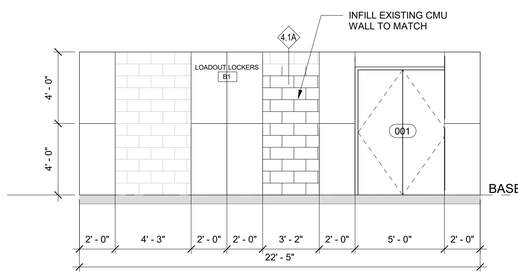
8 LOADOUT LOCKER ROOM ELEVATION
1/4" = 1'-0"



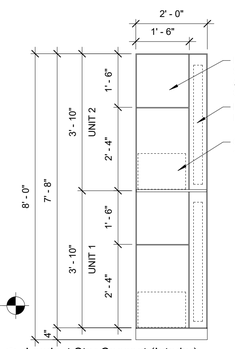
9 LOADOUT LOCKER ROOM ELEVATION
1/4" = 1'-0"



10 LOADOUT LOCKER ROOM ELEVATION
1/4" = 1'-0"



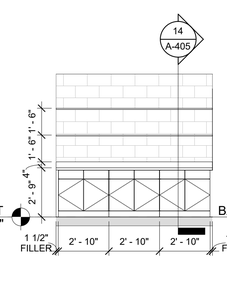
11 LOADOUT LOCKER ROOM ELEVATION
1/4" = 1'-0"



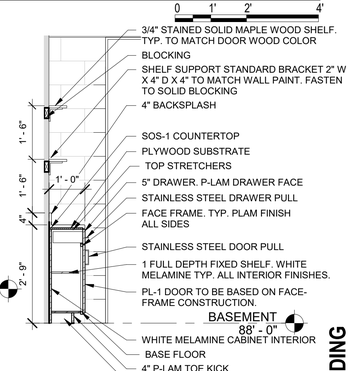
12 Loadout Stor Concept (Interior)
1/2" = 1'-0"

NOTE:
LOADOUT LOCKER DESIGN IS CONCEPTUAL. BIDDING CONTRACTOR INSTRUCTED TO OFFER SUGGESTIONS THAT WILL IMPART BEST VALUE TO OWNER. LOCKERS MUST ACCOMMODATE GEAR SHOWN THIS DRAWING AT A MINIMUM. PROPOSED OVERALL DIMENSIONS 24"x24"x96"

STORAGE UNITS MAY BE STACKABLE METAL LOCKERS SUCH AS CAN BE FOUND http://www.buydoorsdirect.com/lockerunits.html PROVIDED INTERNAL COMPARTMENTALIZATION AND CONDUIT CAN BE ACHIEVED WITHOUT VOIDING WARRANTY ON PRODUCT.
OTHERWISE STORAGE UNITS MAY BE SUBMITTED AS PART OF WOOD CASEWORK PACKAGE WITH HIGH DURABILITY FINISH INSIDE AND OUT, AS WELL AS INDIVIDUALLY LOCKING UPPER AND LOWER SECTIONS.



13 COFFE BAR ELEVATION
1/4" = 1'-0"



14 COFFE BAR SECTION
1/2" = 1'-0"

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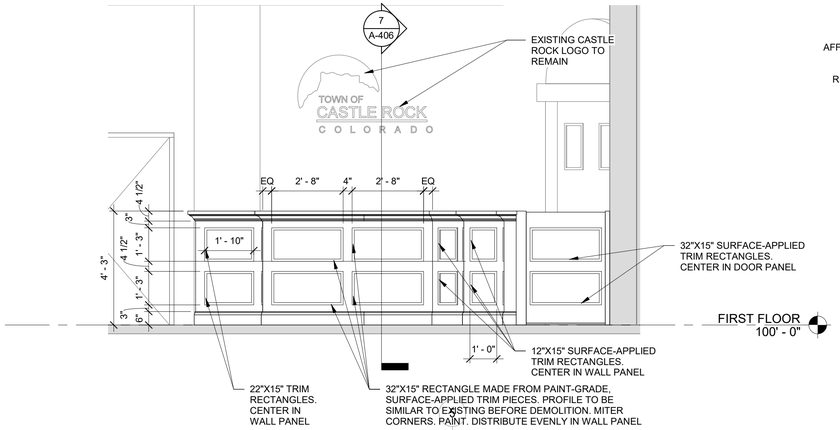
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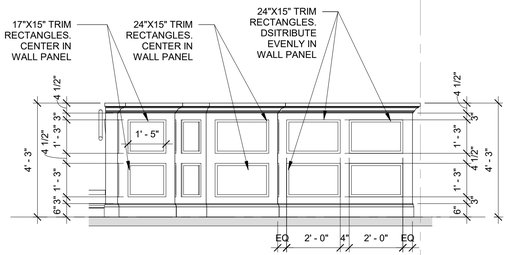
ENLARGED LOCKER PLANS

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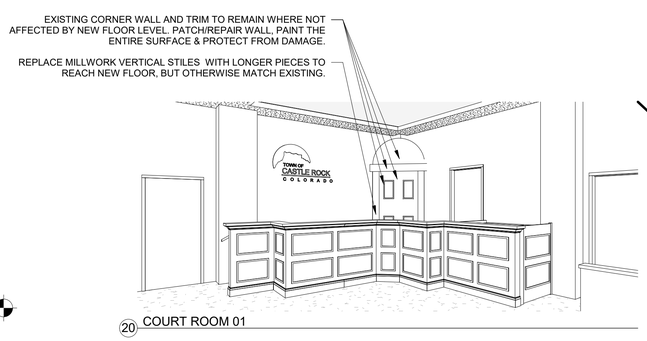
A-405



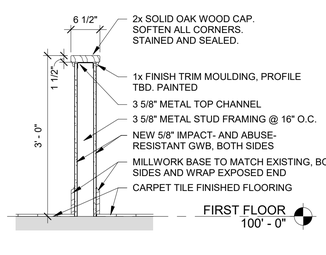
2 COURT ROOM CASEWORK ELEVATION
3/8" = 1'-0"
0 2' 4' 6'



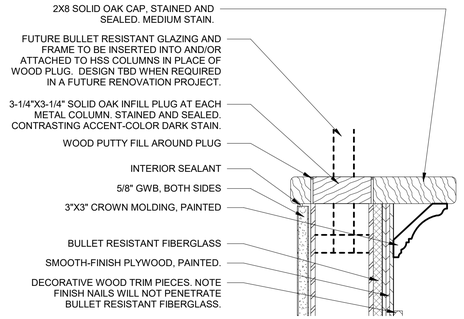
3 COURTROOM CASEWORK ELEVATION
3/8" = 1'-0"
0 2' 4' 6'



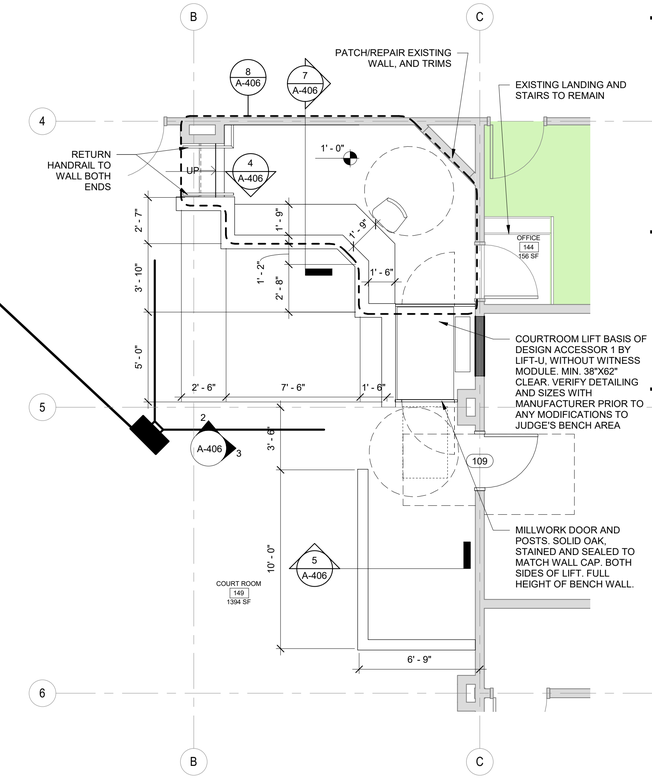
20 COURT ROOM 01



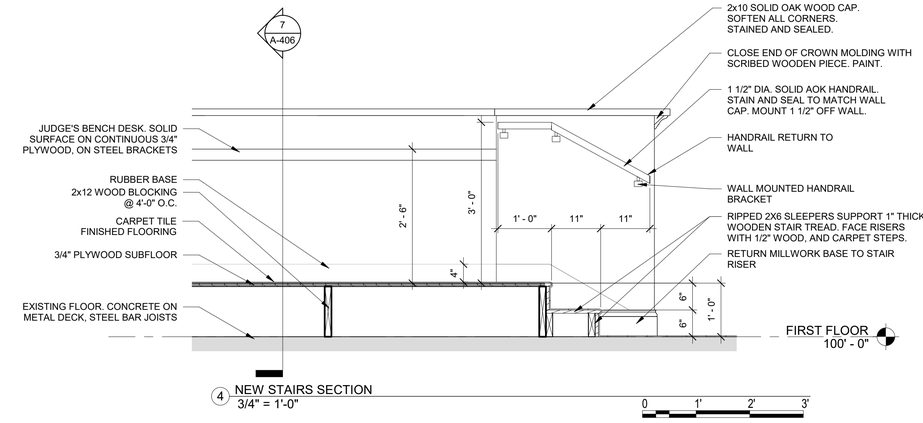
5 JURY BOX SECTION
3/4" = 1'-0"
0 1' 2' 3'



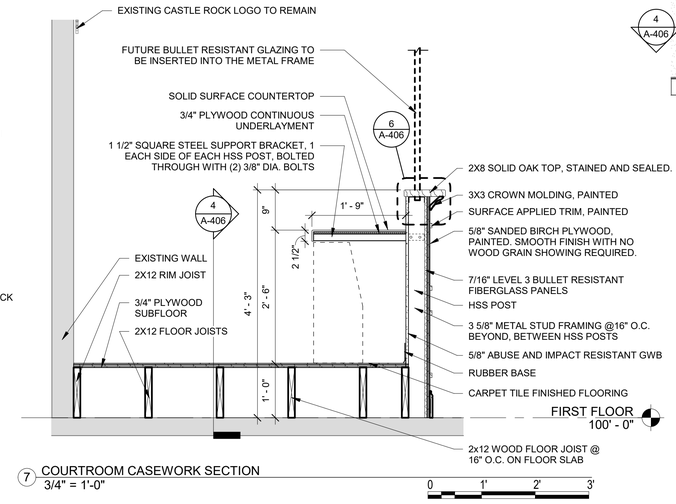
6 FUTURE BULLET RESISTANT GLAZING DETAIL
3" = 1'-0"
0 3" 6" 1'



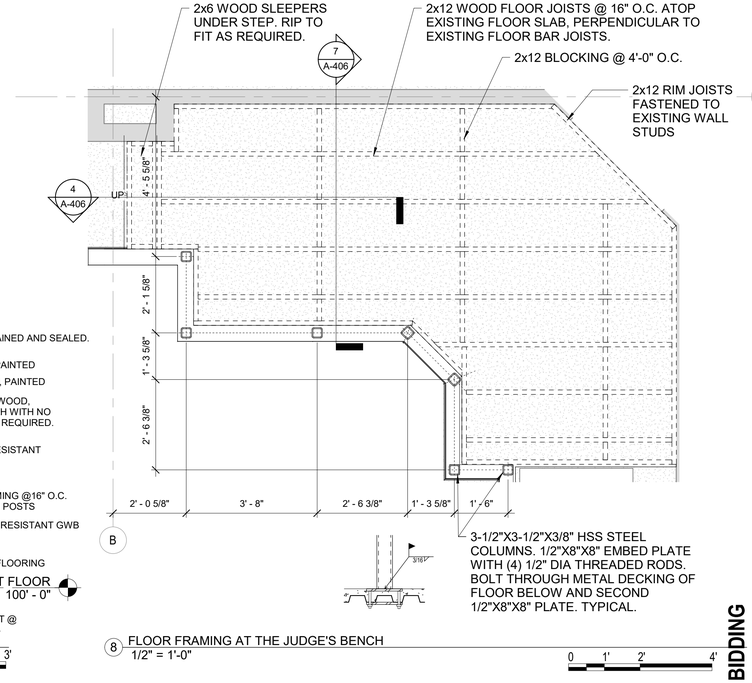
1 ENLARGED COURT ROOM
1/4" = 1'-0"
0 2' 4' 8'



4 NEW STAIRS SECTION
3/4" = 1'-0"
0 1' 2' 3'



7 COURTROOM CASEWORK SECTION
3/4" = 1'-0"
0 1' 2' 3'



8 FLOOR FRAMING AT THE JUDGE'S BENCH
1/2" = 1'-0"
0 1' 2' 4'

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issue / revision	date:
2 Developmt Svcs Rvw 7/20/22	
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Design Development	3/11/22
Schematic Design	1/21/22

issue / revision

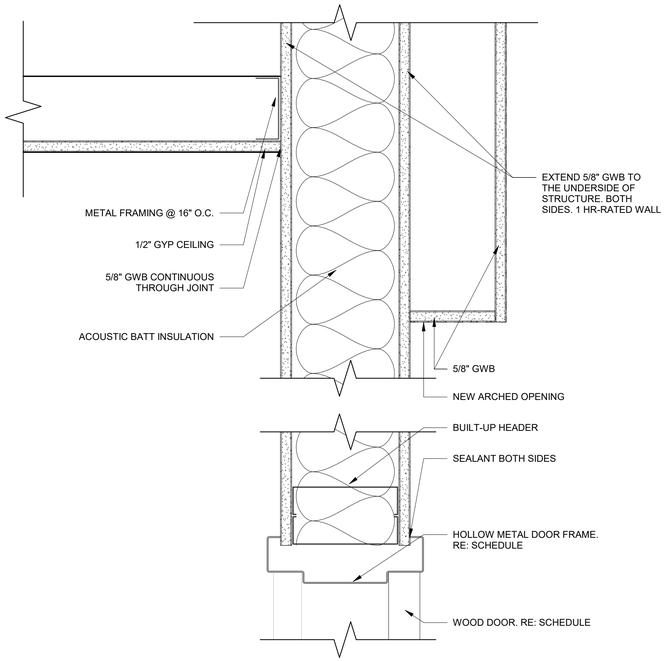
job #	163-19
drawn	SS
chkd	LA

ENLARGED COURT ROOM

description

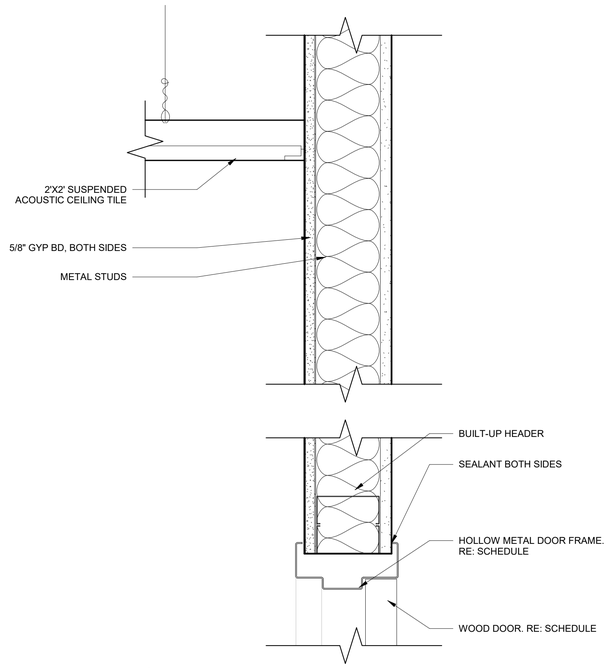
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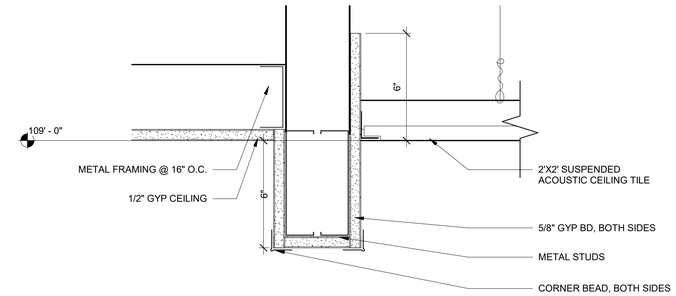
1 ARCHED OPENING & CEILING DETAIL
3" = 1'-0"

0 1' 2'



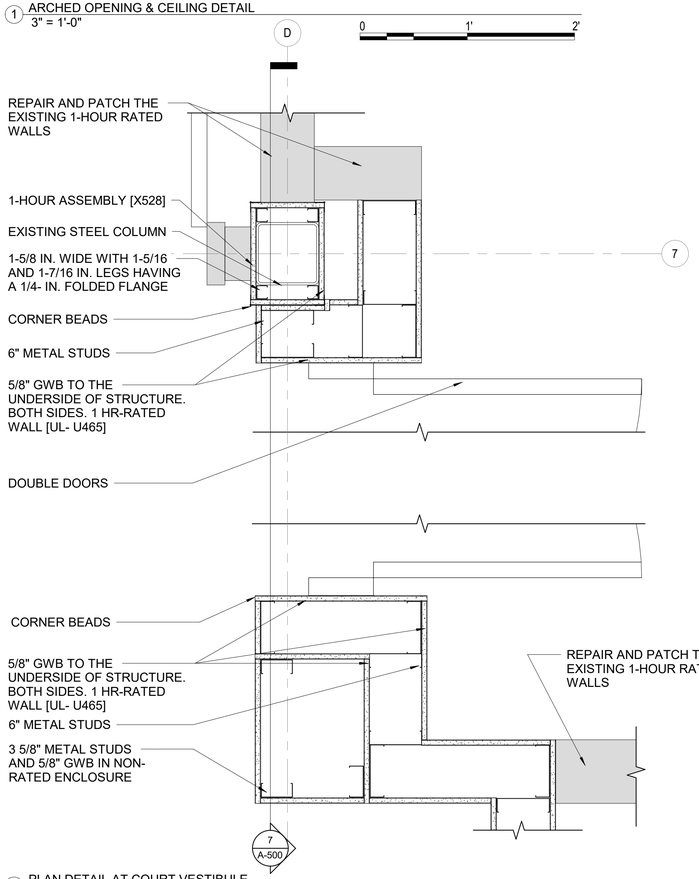
3 DETAIL AT ATTORNEY 01
3" = 1'-0"

0 1' 2'

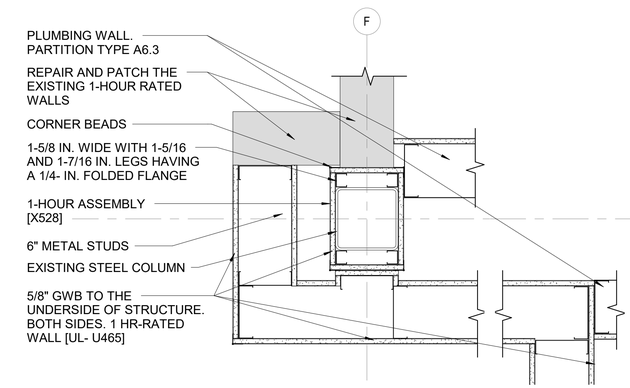


2 BULKHEAD DETAIL AT COURT VESTIBULE
3" = 1'-0"

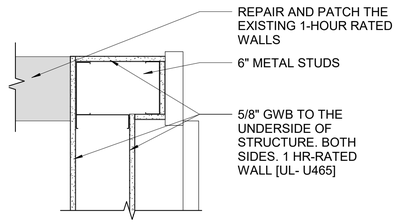
0 1' 2'



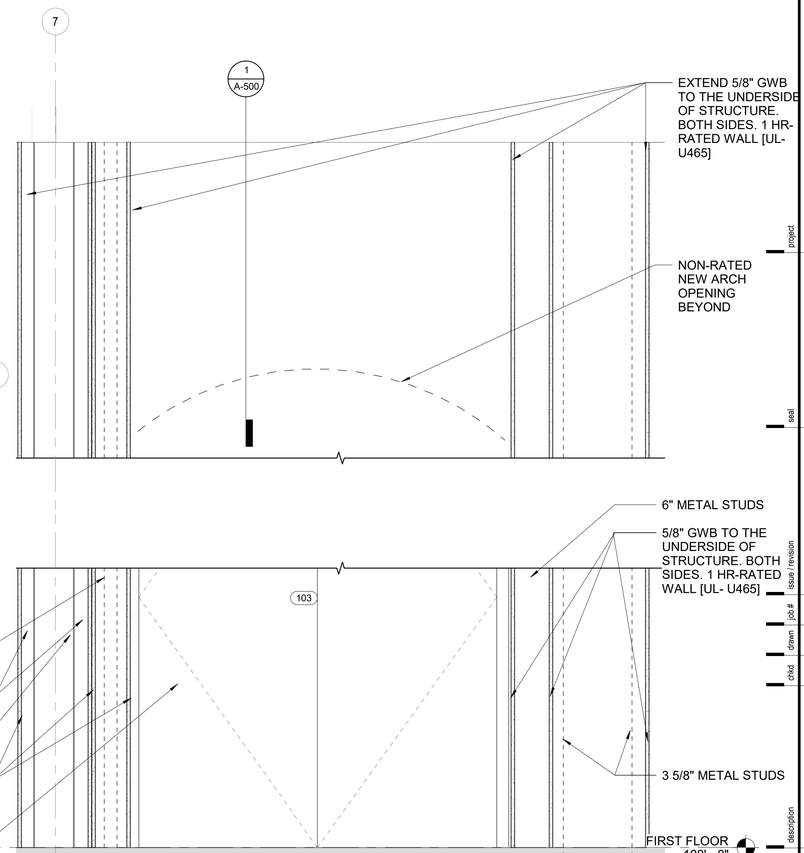
4 PLAN DETAIL AT COURT VESTIBULE
1 1/2" = 1'-0"



5 STEEL COLUMN AT PLUMBING WALL
1 1/2" = 1'-0"



6 NEW AND EXISTING RATED WALLS
1 1/2" = 1'-0"



7 SECTION AT COURT VESTIBULE
1" = 1'-0"

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job # 163-19
drawn SS
chkd LA

description

DETAILS

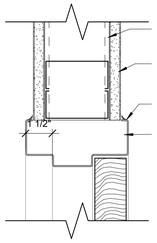
FOR BIDDING

number

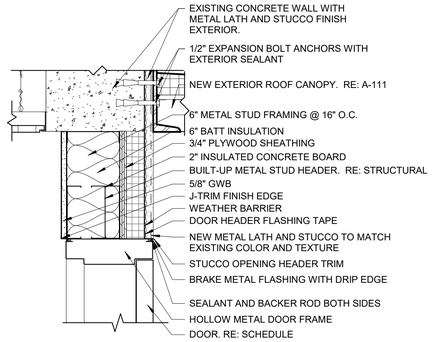
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GENERAL NOTES:
1. SEE A-901 FOR DOOR HARDWARE SETS

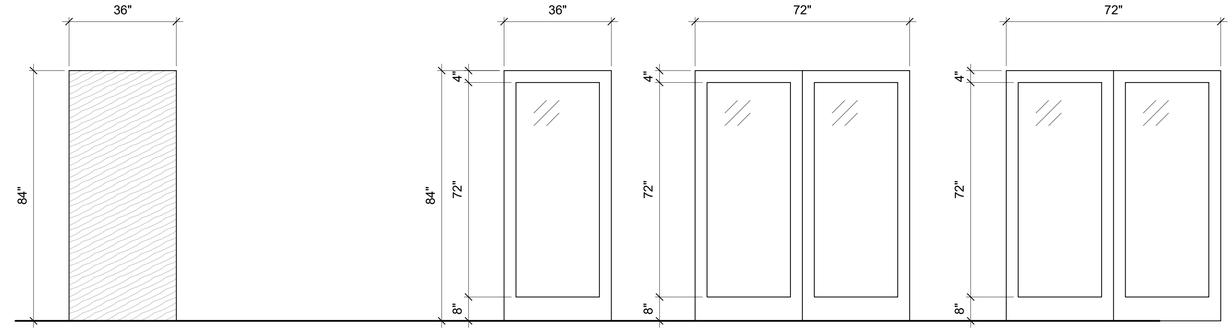
SCHEDULE - DOORS														
		DOOR					FRAME							
		SIZE												
MARK	DOOR TYPE	HEIGHT	WIDTH	THICKNESS	MATERIAL	FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	HEAD DETAIL	JAMB DETAIL	FIRE RATING	HARDWARE SET	COMMENTS
001	1	7' - 0"	5' - 0"	1 3/4"	WOOD	STAIN	2	HM	PAINT	3/A-600	4/A-600		7	CARD READER
002	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		3	
003	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		4	
004	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
005	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
006	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
008	1	7' - 0"	2' - 6"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
009	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
010	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		4	
011	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		2	
012	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
013	1	7' - 0"	2' - 6"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
014	1	7' - 0"	2' - 6"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		5	
015	1-SIM	5' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1-SIM	HM	PAINT	1/A-600	2/A-600		4	SIM DOOR AND FRAME TYPES = DIFFERENT HEIGHT DIMENSION
101	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		2	
103	1A	7' - 0"	5' - 0"	1 3/4"	WOOD	STAIN	2A	HM	PAINT	1/A-600	2/A-600	45 MIN.	1	EXISTING CARD READER AT DEMOLISHED DOOR, RELOCATE TO NEW LOCATION.
104	4	7' - 0"	6' - 0"	1 3/4"	ALUM/GL	CLR	G	ALUM	CLR	1/A-603	2/A-603		BY MANUF	SEE WINDOW SCHEDULE
105	3	7' - 0"	3' - 0"	1 3/4"	ALUM/GL	CLR	F	ALUM	CLR	1/A-603	4/A-603 & 5/A-603		3	SEE WINDOW SCHEDULE
106	4	7' - 0"	6' - 0"	1 3/4"	ALUM/GL	CLR	D	ALUM	CLR	1/A-603	2/A-603		BY MANUF	SEE WINDOW SCHEDULE
107	5	8' - 0"	6' - 0"	1 3/4"	ALUM/GL	CLR	E	ALUM	CLR	1/A-603	2/A-603		6	SEE WINDOW SCHEDULE
108	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		3	
109	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		3	
110	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		3	
111	1	7' - 0"	3' - 0"	1 3/4"	WOOD	STAIN	1	HM	PAINT	1/A-600	2/A-600		2	



1 Typical Interior Door Head
3" = 1'-0"



3 Exterior Door Head Detail
1 1/2" = 1'-0"



DOOR TYPE: 1
SOLID CORE WOOD W/ STAIN-GRADE VENEER

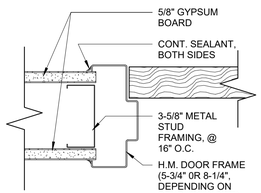
DOOR TYPE: 2
NOT USED

DOOR TYPE: 3
MEDIUM STILE ALUMINUM

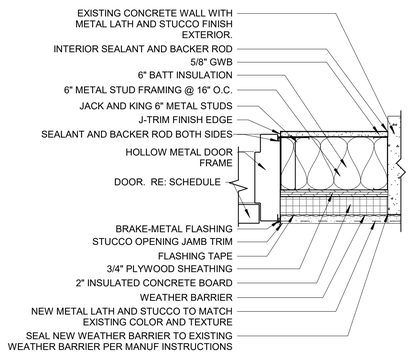
DOOR TYPE: 4
MEDIUM STILE SLIDING ALUMINUM BY STOREFRONT MANUF

DOOR TYPE: 5
MEDIUM STILE ALUMINUM

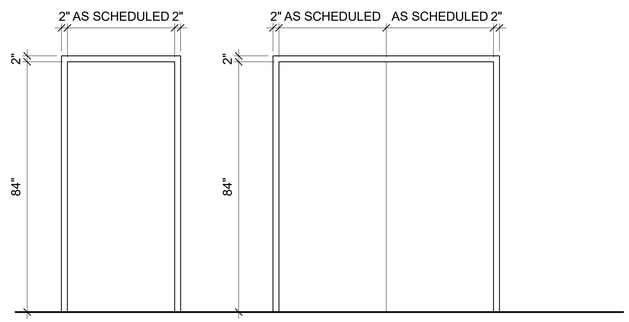
DOOR TYPE: 1A
45 MIN. DOOR IN 1-HR WALL



2 Typical Interior Door Jamb
3" = 1'-0"

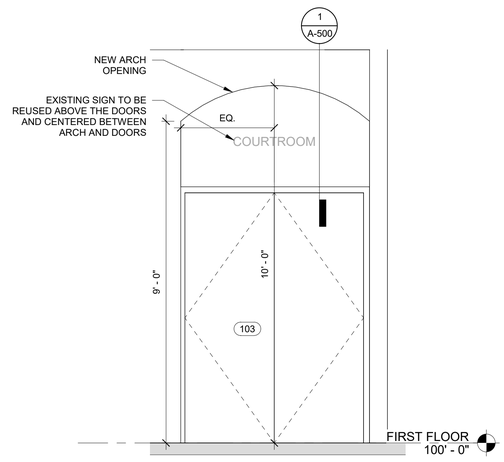


4 Exterior Door Jamb Detail
1 1/2" = 1'-0"



FRAME TYPE: 1
HOLLOW METAL DOUBLE RABBET FRAME
FRAME TYPE: 1A
1 HR RATED

FRAME TYPE: 2
HOLLOW METAL DOUBLE RABBET FRAME
FRAME TYPE: 2A
1 HR RATED



5 ARCH OPENING ELEVATION
1/2" = 1'-0"

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chkd LA

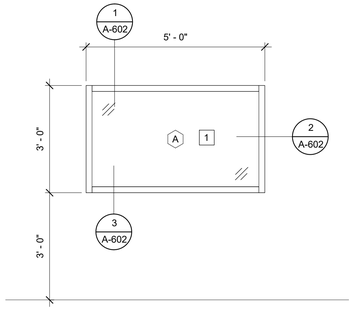
description

SCHEDULE - DOORS

FOR BIDDING

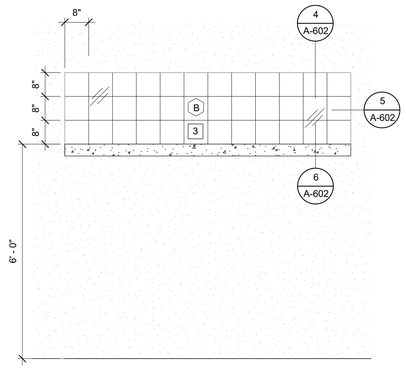
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A-600



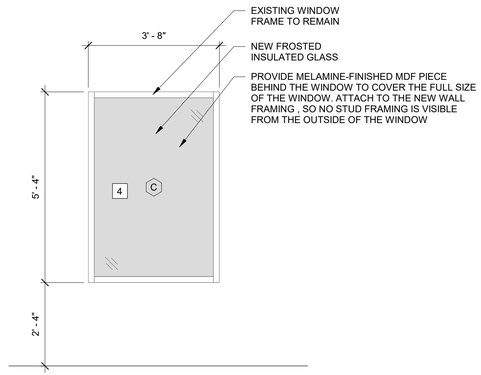
NOTE: PROVIDE ROLLING SHADES IN TYPE A WINDOW

1 WINDOW ELEVATION A - INTERIOR
1/2" = 1'-0"



NOMINAL 8"x8" GLASS BLOCK WINDOW

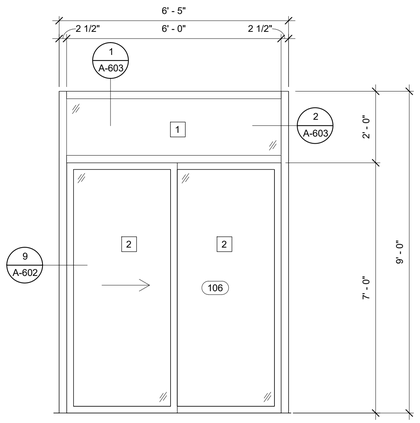
2 WINDOW ELEVATION B - EXTERIOR
1/2" = 1'-0"



3 EXISTING WINDOW ELEVATION C - EXTERIOR
1/2" = 1'-0"

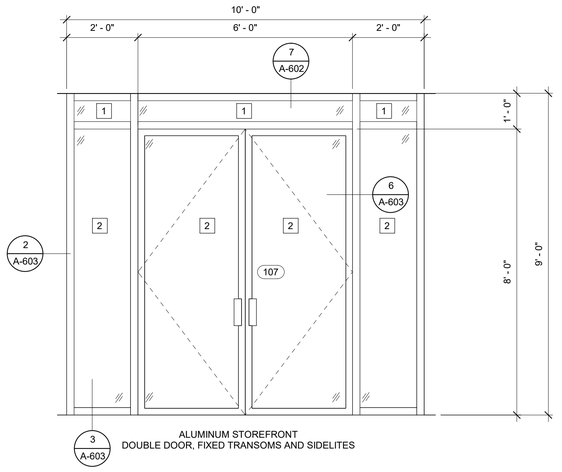
GLASS TYPES:

1. 1/4" CLEAR FLOAT GLASS
2. 1/4" CLEAR SAFETY GLASS
3. 4" THICK GLASS BLOCK
4. 1/4" DOUBLE GLAZED, LOW-E COATING WITH THERMALLY BROKEN FRAMES - FROSTED COAT AT SURFACE 3



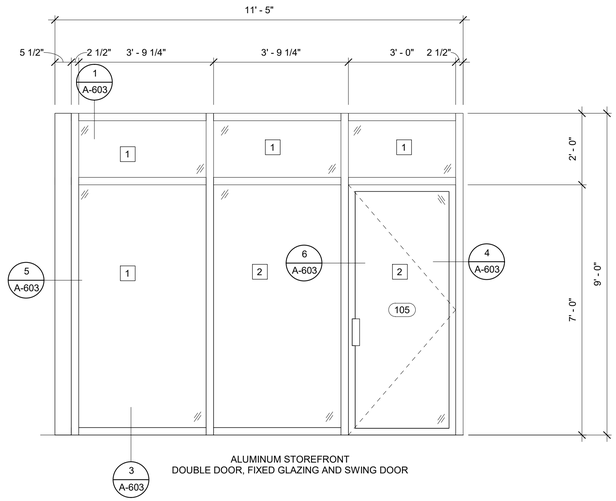
ALUMINUM STOREFRONT
SLIDING GLASS DOOR AND TRANSOM

4 WINDOW ELEVATION D - INTERIOR
1/2" = 1'-0"



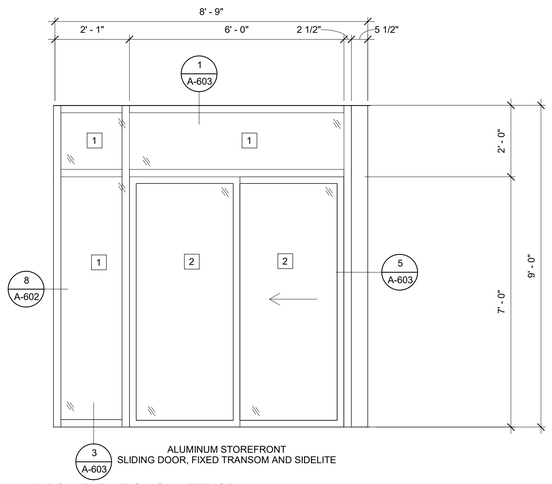
ALUMINUM STOREFRONT
DOUBLE DOOR, FIXED TRANSOMS AND SIDELITES

5 WINDOW ELEVATION E - INTERIOR
1/2" = 1'-0"



ALUMINUM STOREFRONT
DOUBLE DOOR, FIXED GLAZING AND SWING DOOR

6 WINDOW ELEVATION F - INTERIOR
1/2" = 1'-0"



ALUMINUM STOREFRONT
SLIDING DOOR, FIXED TRANSOM AND SIDELITE

7 WINDOW ELEVATION G - INTERIOR
1/2" = 1'-0"

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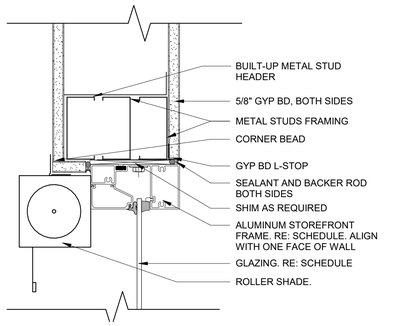
issue / revision

job # 163-19
drawn SS & LA
chkd LA

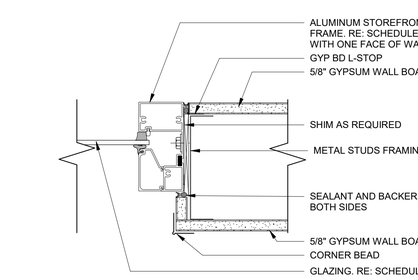
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SCHEDULE - WINDOWS

FOR BIDDING

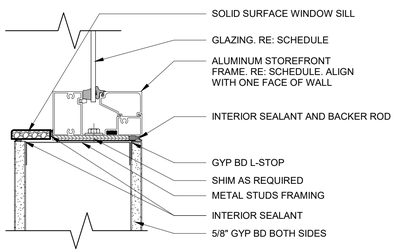
number
A-601



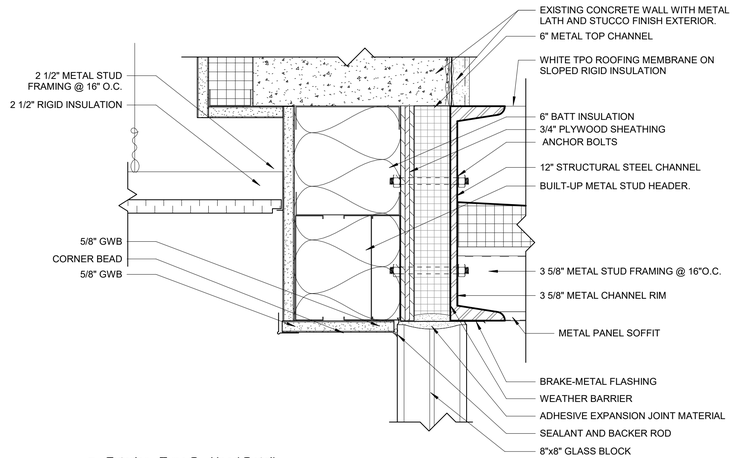
1 Interior - Type A -Head Detail
3" = 1'-0"



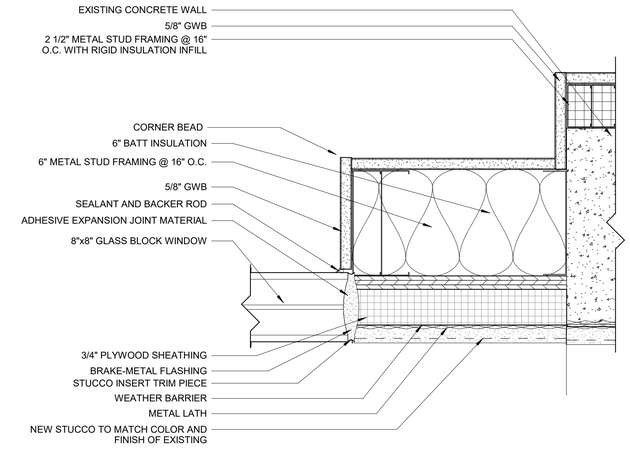
2 Interior - Type A - Jamb Detail
3" = 1'-0"



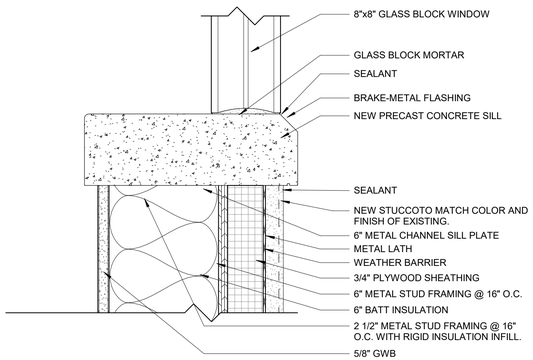
3 Interior - Type A - Sill Detail
3" = 1'-0"



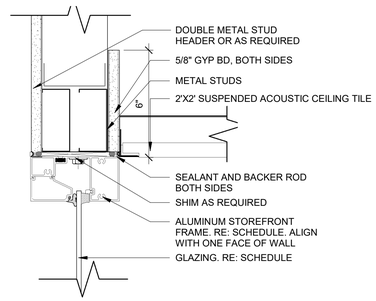
4 Exterior - Type B - Head Detail
3" = 1'-0"



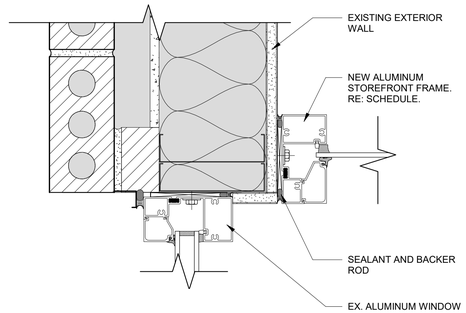
5 Exterior - Type B - Jamb Detail
3" = 1'-0"



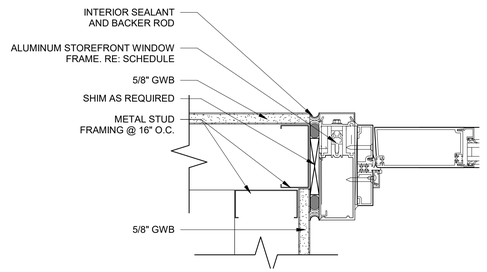
6 Exterior - Type B - Sill Detail
3" = 1'-0"



7 INTERIOR - TYPE E - HEAD DETAIL
3" = 1'-0"



8 WINDOW JAMB DETAIL AT FIRST FLOOR EXTERIOR
3" = 1'-0"



9 WINDOW D JAMB DETAIL
3" = 1'-0"

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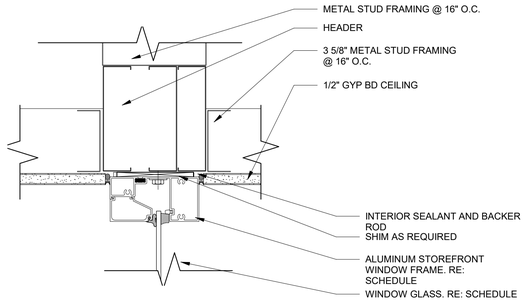
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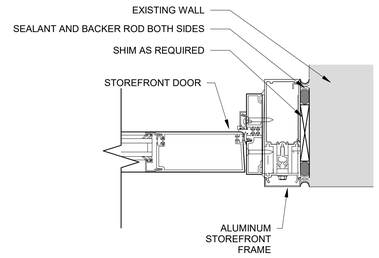
WINDOWS DETAILS

FOR BIDDING

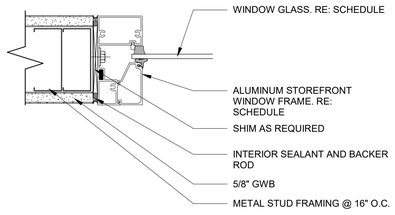
A-602



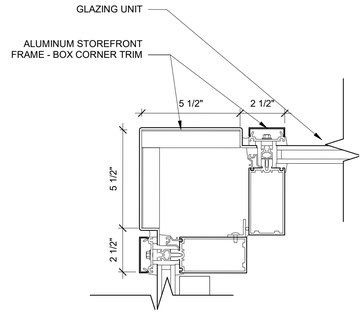
1 STOREFRONT - HEAD DETAIL
3" = 1'-0"



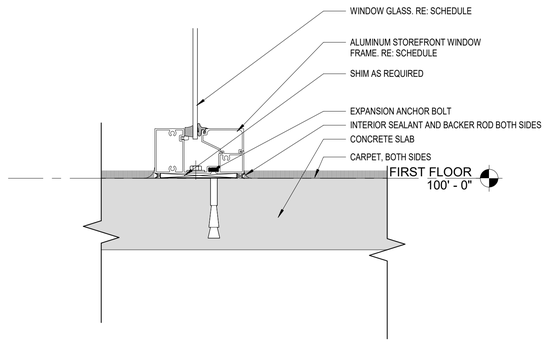
4 STOREFRONT - DOOR JAMB DETAIL
3" = 1'-0"



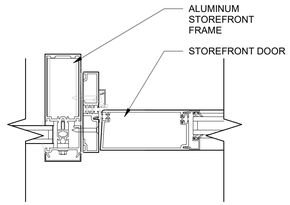
2 STOREFRONT - JAMB DETAIL
3" = 1'-0"



5 STOREFRONT - CORNER DETAIL
3" = 1'-0"



3 STOREFRONT - SILL DETAIL
3" = 1'-0"



6 STOREFRONT WITH DOOR
3" = 1'-0"

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description

WINDOWS DETAILS

FOR BIDDING

number

A-603

ROOM FINISH SCHEDULE

NUMBER	NAME	FLOOR FINISH	BASE FINISH	WALL FINISH	CEILING FINISH	COMMENTS
103	MEN	FT-2	WT	WT-3 / WT-4	PT	
104	LADIES	FT-2	WT	WT-3 / WT-4	PT	
126	TOILET	FT-2	WT	WT-4	PT	
142	INV	CPT - PATCH	RB	PT	PT	New finishes to match existing
148	FINGER PRINT	NEW CPT	RB	PT / AL	PT	
149	COURT ROOM	EX. CPT	RB	PT / AL	PT	
199	COURT VESTIBULE	NEW CPT	RB	PT / AL	PT	
209	ATTORNEY 02	NEW CPT	RB	PT / AL	2'x2' SAT	
223	ATTORNEY 01	NEW CPT	RB	PT / AL	2'x2' SAT	
B1	LOADOUT LOCKERS	CONC	RB	PT	2'x2' SAT	
B5	OFFICE	NEW CPT	RB	PT	2'x2' SAT	
B11	OPEN OFFICE	NEW CPT	RB	PT	2'x2' SAT	New finishes to match existing
B11B	DATA	CONC	RB	PT		
B12	HALL	NEW CPT	RB	PT	PT	
B16A	QUIET ROOM	NEW CPT	RB	PT	2'x2' SAT	
B21	MENS LOCKER ROOM	NEW CPT	RB	PT	2'x2' SAT	New finishes to match existing
B21B	MENS RESTROOM	FT-2	WT	WT-5	PT	
B22	JANITOR	CONC	RB	PT	PT	
B23	WOMENS LOCKER	NEW CPT / NEW FT-2	RB/WT	WT5 / PT	VARIES	New finishes to match existing
B24	CARDIO / FITNESS	NEW CPT	RB	PT	2'x2' SAT	
B24A	STORAGE					
B26	LOCKER ROOM VESTIBULE	NEW CPT		PT	2'x2' SAT	
B26B	QUIET ROOM	NEW CPT	RB	PT	2'x2' SAT	
B26C	RESTROOM	FT-2		WT-4	PT	
B34	ELECT	EX. CONC		PT	PT	Existing room, no finish changes

FINISHES NOTES

FINISH SYMBOL TAG DESCRIPTION:

ROOM NAME
ROOM NUMBER
FLOOR FINISH
BASE FINISH
WALL FINISH
CEILING FINISH

REFER TO A-700 MATERIAL FINISHES

FINISH MATERIALS:

CEILINGS

ACOUSTICAL CEILING TILE

ACT
MANUF: USG
STYLE: ASTRO ILLUSIONS
PRODUCT #: CLIMAPLUS
COLOR: -
SIZE: 2'X4'
ADDITIONAL: ILLUSIONS (TO LOOK LIKE 2'X2')

FLOORING

CARPETS

CPT
MANUF: SHAW
STYLE: COLOR PLAY 59358
PRODUCT #: 58595
COLOR: METAL GURU
SIZE: 24"X24"
ADDITIONAL: -

CONCRETE

CONC
MANUF: -
STYLE: -
PRODUCT #: -
COLOR: CLEAR
SIZE: -
ADDITIONAL: EPOXY CONCRETE SEALER

TILE FLOOR

TF-1
MANUF: AMERICAN OLEAN
STYLE: UNGLAZED MOSAIC
PRODUCT #: A41 (2)
COLOR: MUSHROOM SPECKLED
SIZE: 2"X2"
ADDITIONAL: SHOWERS, 1/6" GROUT COLOR TBD IN FIELD

TF-2
MANUF: DALTILE
STYLE: FABRIQUE
PRODUCT #: -
COLOR: CREME LINEN P686
SIZE: 4"X24"
ADDITIONAL: RESTROOMS, 1/6" GROUT COLOR TBD IN FIELD

RUBBER FLOOR

RF-1
MANUF: ECO SURFACES
STYLE: ECO NIGHTS FOR SPORTS
PRODUCT #: 704
COLOR: BRICKHOUSE
SIZE: ROLL, 3/8"
ADDITIONAL: FITNESS ROOM

PAINTS

P-1
MANUF: KWAL
STYLE: COLOR LIFE
PRODUCT #: CL 2832 W
COLOR: CHOPSTICK
SIZE: -
ADDITIONAL: USE EPOXY WATERPROOF PAINT IN RESTROOMS/ WET LOCATIONS

P-2
MANUF: KWAL
STYLE: -
PRODUCT #: -
COLOR: BLACK
SIZE: -
ADDITIONAL: FITNESS ROOM CEILING

P-3
MANUF: KWAL
STYLE: COLOR LIFE
PRODUCT #: CL 3176 W
COLOR: RACOON
SIZE: -
ADDITIONAL: MISC METALS PAINT

P-4
MANUF: -
STYLE: -
PRODUCT #: -
COLOR: WHITE
SIZE: -
ADDITIONAL: INDUSTRIAL EPOXY PAINT

PARTITION WALLS

WALL TILE

WT-1
MANUF: DALTILE
STYLE: COLOR WHEEL - LINEAR
PRODUCT #: K775 (1)
COLOR: MATTE BISCUIT
SIZE: 8"X24"
ADDITIONAL: 1/16" GROUT, COLOR TBD IN FIELD

WT-2
MANUF: DALTILE
STYLE: COLOR WHEEL - LINEAR
PRODUCT #: 0761 (2)
COLOR: MATTE URBAN PUTTY
SIZE: 8"X24"
ADDITIONAL: 1/16" GROUT, COLOR TBD IN FIELD

WT-3
MANUF: DALTILE
STYLE: PIETRA DIVINA
COLOR: NAMASTE M072
SIZE: CHEVRON
ADDITIONAL: 1/16" GROUT, COLOR TBD IN FIELD

WT-4
MANUF: DALTILE
STYLE: C.F. CHOICE
COLOR: FAIR CS22
SIZE: 12X24
ADDITIONAL: 1/16" GROUT, COLOR TBD IN FIELD

WT-5
MANUF: DALTILE
STYLE: C.F. PRIME
COLOR: BEIGE BA31 / EL31
SIZE: 4X12
ADDITIONAL: 1/16" GROUT, COLOR TBD IN FIELD

WALL BASE

RB-1
MANUF: JOHNSONITE
STYLE: STRAIGHT
PRODUCT #: 63
COLOR: BURNT UMBER
SIZE: 4"
ADDITIONAL: -

CB-1
MANUF: DALTILE
STYLE: COLOR WHEEL - LINEAR
PRODUCT #: -
COLOR: MATTE URBAN PUTTY
SIZE: 8"X24"
ADDITIONAL: COVE BASE TILE

WAINSCOT

DP
MANUF: MIRROFLEX
STYLE: DIAMOND PLATE
PRODUCT #: N439
COLOR: ARGENT SILVER 2
SIZE: -
ADDITIONAL: -

WALL SHEATHING

PLY
MANUF:
STYLE: FIRE RATED
PRODUCT #:
COLOR: PAINT (P-1)
SIZE: 3/4"
ADDITIONAL:

CORNER GUARD

CG
MANUF: -
STYLE: 48" X 3"
PRODUCT #: -
COLOR: STAINLESS STEEL
SIZE: -
ADDITIONAL: -

PLASTIC LAMINATE

PL -1
MANUF: FORMICA
STYLE: SARUM TWILL
PRODUCT #: -
COLOR: STAINLESS STEEL
REMARKS: RUN GRAIN VERTICALLY
ADDITIONAL: -

SOLID SURFACE

SOS-1
MANUF: CORIAN
STYLE: RAIN CLOUD
THICKNESS: 1/2"
COLOR: STAINLESS STEEL
EDGE DETAIL: FULL BULLNOSE

DOORS

INTERIOR DOOR TRIM
FACTORY FINISH GRAY TO MATCH EXTERIOR WALL PANELS

EXTERIOR DOOR TRIM
FACTORY FINISH GRAY TO MATCH EXTERIOR WALL PANELS

METAL DOORS
FACTORY FINISH GRAY TO MATCH EXTERIOR WALL PANELS

WINDOWS

WINDOW SILLS
MANUF: WILSONART
STYLE: GIBRALTAR
PRODUCT #: 1530 TM
COLOR: BIEGE TEMPEST
SIZE: -
ADDITIONAL: SOLID SURFACE SILL

WINDOW MULLIONS & TRIM
FACTORY FINISH ALUMINUM

WINDOW GLAZING
RE: SPECIFICATIONS FOR REQUIREMENTS.

WINDOW BLINDS
INCLUDE WINDOW BLINDS ON ALL EXTERIOR CLEAR GLAZED WINDOWS.

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Schematic Design 1/21/22

issue / revision

job # 163-19
drawn SS
chkd LA

description
SCHEDULES - ROOM FINISHES

FOR BIDDING

number
A-800



1 ROOM FINISH PLAN - BASEMENT
1/8" = 1'-0"

GENERAL NOTES:

1. SEE ROOM FINISHES SCHEDULES FOR MORE DETAILS

2. PATCH AND REPAIR EXISTING FLOORING AND MATCH EXISTING MATERIALS

FINISHES LEGEND

- CPT-1; CARPET
- CONC; CONCERET FLORING
- TF-1; TILE FLOOR
- TF-2; TILE FLOOR

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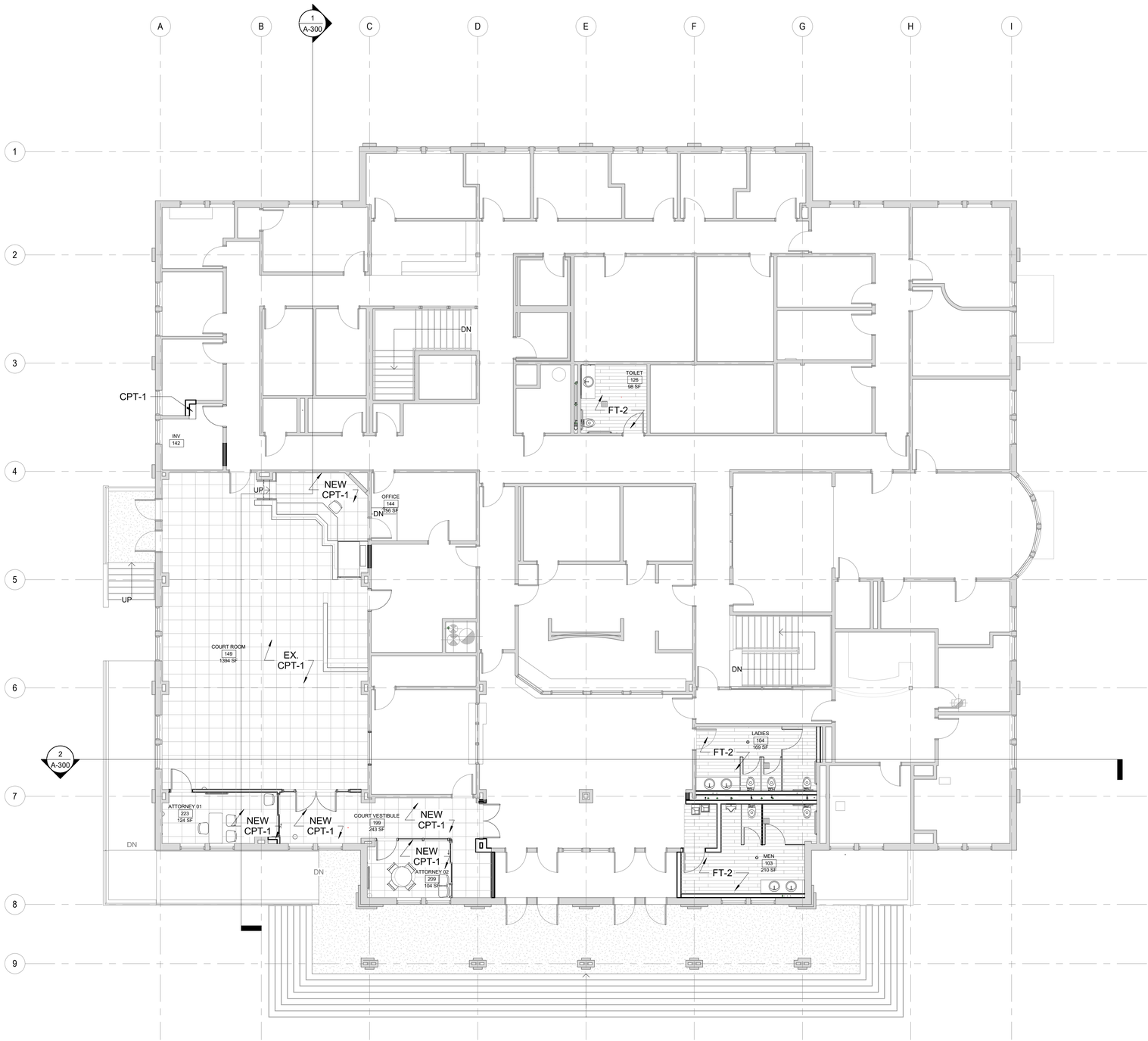
chkd LA

SCHEDULES - ROOM FINISHES

description

FOR BIDDING

number A-801



1 ROOM FINISH PLAN - FIRST FLOOR
1/8" = 1'-0"

GENERAL NOTES:

1. SEE ROOM FINISHES SCHEDULES FOR MORE DETAILS

2. PATCH AND REPAIR EXISTING FLOORING AND MATCH EXISTING MATERIALS

FINISHES LEGEND

- CPT-1; CARPET
- CONC; CONCERET FLORING
- TF-1; TILE FLOOR
- TF-2; TILE FLOOR

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chkd LA

SCHEDULES - ROOM FINISHES

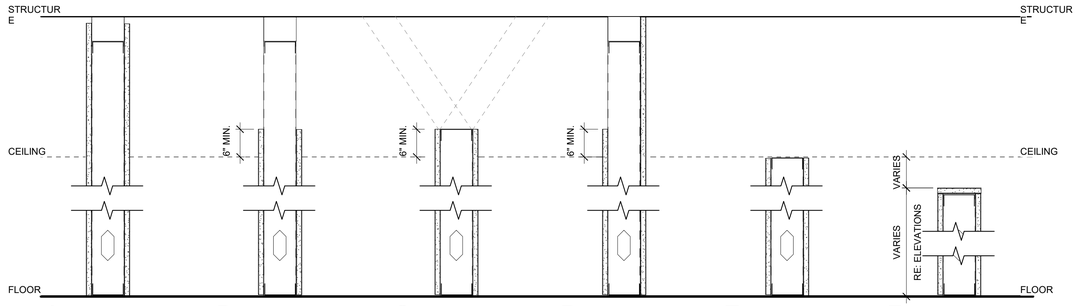
description

FOR BIDDING

number

A-802

CONFIGURATION



A MTL. STUDS AND BOTH SIDES GYP BD. CONT. TO UNDERSIDE OF STRUCTURE ABOVE

B ONLY MTL. STUDS CONT. TO UNDERSIDE OF STRUCTURE ABOVE, STOP GYP BD. 6" ABOVE CEILING

C ONLY MTL. STUDS CONT. TO UNDERSIDE OF STRUCTURE ABOVE, STOP GYP BD. 6" ABOVE CEILING

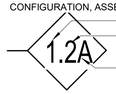
D MTL. STUDS AND ONE GWB. CONT. TO UNDERSIDE OF STRUCTURE ABOVE, STOP GYP BD. 6" ABOVE CEILING

E MTL. STUDS AND BOTH SIDES GYP BD. TO UNDERSIDE OF FINISHED CEILING. CEILING GRID TO BE CONT. (WALL HEIGHT TO BE 9'-0" MAX.)

F MTL. STUDS AND BOTH SIDES GYP BD. TO PARTIAL HEIGHT AS NOTED ON ELEVATOINS

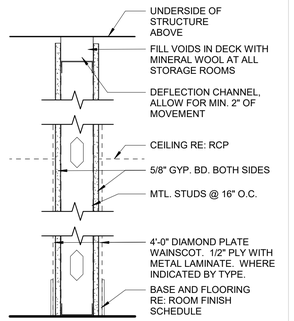
PARTITION SCHEDULE NOTES

THE PARTITION TYPE SYMBOL CONTAINS (3) ELEMENTS KEYED TO THE SCHEDULE DESCRIBING CONFIGURATION, ASSEMBLY AND MODIFICATOIN



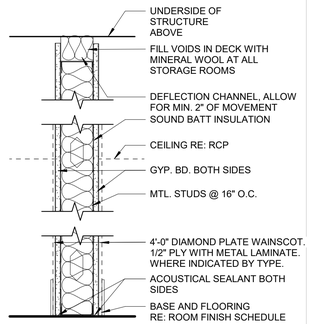
1. PARTITION TYPE SYMBOLS ARE NOTED ON THE FLOOR PLANS.
2. MTL. STUDS ARE 16" O.C. UNLESS NOTED OTHERWISE.
3. ALL GYP BD. IS TO BE 5/8" TYPE "X' UNO.
4. REFERENCE CODE PLANS FOR LOCATION AND EXTENTS OR LIMITS OF RATED PARTITIONS.
5. ALL FIRE-RATED ASSEMBLIES ARE BASED UPON IBC, U.L. AND U.S. GYPSUM ASSOCIATION (ga) TEST DATA, FIRE RATED PARTITIONS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE TESTING AGENCIES. REFER TO SPECIFIC TEST REPORTS INDICATED FOR REQUIRED COMPONENTS AND ASSEMBLY.
6. ACOUSTIC PARTITIONS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF TESTING AGENCIES, REFER TO SPECIFIC TEST REPORTS FOR REQUIRED COMPONENTS AND ASSEMBLY. PROVIDE ACOUSTIC SEALANT AROUND WALL PERIMETER AND OPENINGS AT BASE GYP. BD. LAYER. SEAL ALL PENETRATIONS AND OFFSET BY (1) STUD MIN.
7. SUBSTITUTE WATER RESISTANT TYPE GYPSUM WALLBOARD PANELS - TYPE "X" WHERE REQUIRED - ON ONE SIDE IN PARTITION TYPES BELOW, WHERE A PARTITION IS INSTALLED IN THE FOLLOWING SITUATIONS:
   A. BEHIND PRE-FAB SHOWER UNITS INCLUDING THOSE WITH PRE-FAB WALL LINERS
   B. BEHIND AND CONTIGUOUS WITH TOILETS, MOP SINKS, HAND SINKS, LAVATORIES, VANITIES, KITCHEN DISHWASHING SINKS, DISHWASHING APPLIANCES AND WATER HEATERS
   C. WHEREVER PLUMBING PENETRATIONS - WATER SUPPLY, SEWER, OR DRAINAGE - OCCUR
   D. PERPENDICULAR TO TOILETS INSTALLED AT INSIDE CORNERS
8. SUBSTITUTE CEMENTEOUS BACKERBOARD PANELS ON ONE SIDE IN PARTITION TYPES BELOW, WHERE A PARTITION IS INSTALLED IN THE FOLLOWING SITUATIONS:
   A. TILED SHOWER WALLS
9. ALL OTHER PARTITIONS ARE TO BE CONSTRUCTED WITH THE REQUIREMENTS OF THE SPECIFIC MATERIALS MANUFACTURER AND INDUSTRY STANDARDS.
10. BLOCKING IS REQUIRED AT THE FOLLOWING LOCATIONS: WALL MTD. CABINETS, ACCESSORIES, EQUIPMENT, DOORSTOPS, HOLD-OPENS, TOILET ROOM PARTITIONS AND ACCESSORIES AND OTHER LOCATIONS AS REQUIRED BY MANUFACTURERS SPECIFICATIONS OR INDUSTRY STANDARDS.
11. PROVIDE BRACING AT ALL LOCATIONS PER US GYPSUM GUIDELINES FOR METAL PARTITION FRAMING.
12. PROVIDE ACOUSTIC SEALANT AT ALL THROUGH WALL PENETRATIONS.
13. 1-HOUR AND 2-HOUR WALL RATING CONTINUES THROUGH INTERSECTIONS WITH NON-RATED WALLS, TYPICAL.
14. PARTITION CONTINUITY - PARTITIONS NOT DEFINED SHALL BE THE SAME TYPE(S) AS NEAREST ADJACENT PARTITION FUNCTIONING OR ENCLOSING SIMILARLY INCLUDING ACROSS ALL DOOR/WINDOW OPENINGS.
15. REFERENCE PROJECT SPECIFICATIONS:
    09 21 16 GYPSUM BOARD ASSEMBLIES
    09 22 16 NON-STRUCTURAL METAL FRAMING
    09 30 00 CEMENTITIOUS BACKER BOARD
    05 40 00 COLD FORMED METAL FRAMING
    06 10 00 ROUGH CARPENTRY
    07 21 00 BATT INSULATION
    07 84 00 FIRE STOPPING
    07 90 05 JOINT AND ACOUSTIC SEALANTS
    SEE NOTED ASSEMBLY DETAIL FOR OTHER SECTIONS

PARTITION TYPE



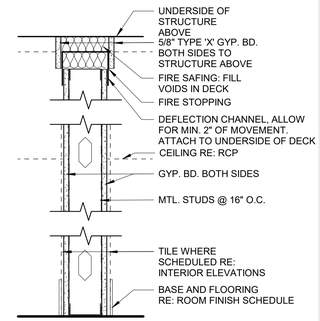
1 .1 = 2-1/2" MTL. STUDS
.2 = 3-5/8" MTL. STUDS
.3 = 6" MTL. STUDS
.4 = 6" MTL. STUDS W/ DIAMOND PLATE WAINSCOT 1 SIDE
.5 = 3-5/8" MTL. STUDS W/ DIAMOND PLATE WAINSCOT 2 SIDE
.6 = NO NEW STRUCTURE. PROVIDE DIAMOND PLATE WAINSCOT ONLY 1 SIDE

STUD WALL



2 .1 = 2-1/2" MTL. STUDS
.2 = 3-5/8" MTL. STUDS
.3 = 6" MTL. STUDS
.4 = 6" MTL. STUDS W/ DIAMOND PLATE WAINSCOT 1 SIDE
.5 = 3-5/8" MTL. STUDS W/ DIAMOND PLATE WAINSCOT 2 SIDE
.6 = NO NEW STRUCTURE. PROVIDE ACOUSTIC BATT, NEW DRYWALL & DP WAINSCOT 1 SIDE

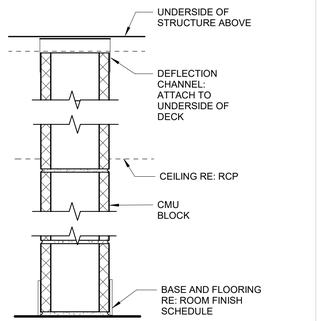
STUD WALL ACOUSTIC [STC RATING 40]



3 .1 = 2-1/2" MTL. STUDS
.2 = 3-5/8" MTL. STUDS
.3 = 6" MTL. STUDS

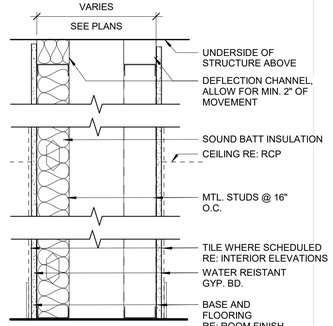
1-HOUR ASSEMBLY [UL- U465]

STUD WALL



4 .1 = 8" CMU BLOCK
.2 = 12" CMU BLOCK
.3 = 16" CMU BLOCK
.4 = NO NEW STRUCTURE. PROVIDE ACOUSTIC BATT, NEW DRYWALL & DP WAINSCOT 1 SIDE

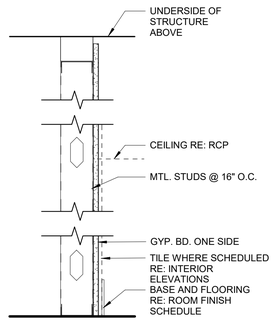
CMU WALL



6 .1 = 2-1/2" MTL. STUDS
.2 = 3-5/8" MTL. STUDS
.3 = 6" MTL. STUDS

ACOUSTIC [STC RATING -]

PLUMBING CHASE



8 .1 = 2-1/2" MTL. STUDS
.2 = 3-5/8" MTL. STUDS
.3 = 6" MTL. STUDS

STUD WALL

1 Partition Types
1 1/2" = 1'-0"

HB&A
Architecture AND Planning
102 E. Moreno Avenue
Colorado Springs, CO 80903
719.473.7063
www.hbaa.com

architect associated with

project
CASTLE ROCK POLICE DEPARTMENT
100 PERRY ST
CASTLE ROCK CO 80104

seal

issue / revision date:
2 Developmt Svcs Rvw 7/20/22
1 Code Updates 6/14/22
Construction Doc. 6/10/22
Design Development 3/11/22
Schematic Design 1/21/22

issue / revision
job # 163-19
drawn SS
chkd LA

description
WALL PARTITIONS

FOR BIDDING

number
A-900

UL Product iQ™

BXUV.U465

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

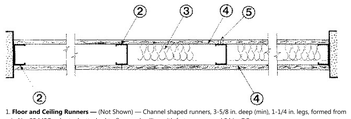
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U465

December 01, 2020

Nonbearing Wall Rating — 1 HR.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped runners, 3-5/8 in. deep (min), 1-1/4 in. legs, formed from min No. 25 MSG galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1A. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1 — Channel shaped, min 3-5/8 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

1B. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

FUSION BUILDING PRODUCTS — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1C. **Floor and Ceiling Runners —** (Not Shown) — For use with Item 2C — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1D. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1C — For use with Item 2D and 4G only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1E. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1D — For use with Item 2E and 4I only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv

steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
TELLING INDUSTRIES L L C — TRUE-TRACK™

1F. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1E — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 25 MSG steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
KIRE (HONG KONG) LTD — Type KIRE

1G. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1F — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide, attached to floor and ceiling with fasteners spaced 24 in. OC max.
STUDCO BUILDING SYSTEMS — CROCSTUD Track

1H. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with steel stud below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

FUSION BUILDING PRODUCTS — Viper20™ Track VT100

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track VT100

1I. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Item 1 — For use with Item 2H, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
TELLING INDUSTRIES L L C — Viper20™ Track

1J. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 — For use with Item 2 L, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RESCUE METAL FRAMING, L L C — AlphaTRAK

1K. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Item 1 — For use with Item 2M, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep, fabricated from min 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X Track

1L. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Item 1 — For use with Item 2N, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CRACO MFG INC — SmartTrack20™

2. **Steel Studs —** Channel shaped, 3-5/8 in. deep (min), formed from min No. 25 MSG galv steel spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

2A. **Framing Members* — Steel Studs —** As an alternate to Item 2 — Channel shaped studs, min 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

2B. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1B, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

CRACO MFG INC — SmartStud20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

FUSION BUILDING PRODUCTS — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2C. **Steel Studs —** (As an alternate to Item 2, For use with Item 1C) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 1-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height. See materials in Item(s) 4 that require Item 2C studs.

2D. **Framing Members* — Steel Studs —** As an alternate to Items 2 through 2C — For use with Item 1D and 4G only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2E. **Framing Members* — Steel Studs —** As an alternate to Items 2 through 2D — For use with Item 1E and 4I only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.
TELLING INDUSTRIES L L C — TRUE-STUD™

2F. **Framing Members* — Steel Studs —** As an alternate to Items 2 through 2E — For use with Item 1F, channel shaped studs, min 3-5/8 in. wide fabricated from min 25 MSG steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.
KIRE (HONG KONG) LTD — Type KIRE

2G. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 through 2F — For use with Item 1G. Proprietary channel shaped studs, minimum 3-5/8 in. wide, Studs to be cut 1/2 in. less than the assembly height.
STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1I, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.
TELLING INDUSTRIES L L C — Viper20™

2I. **Framing Members* — Steel Studs —** In lieu of Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 3-5/8 in. deep (min), spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.
EB METAL INC — NITROSTUD

2J. **Framing Members* — Steel Studs —** In lieu of Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 3-5/8 in. deep (min), spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.
OLMAR SUPPLY INC — PRIMESTUD

2K. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1B (3-5/8 in. wide track), channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 1-1/4 in. wide by 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2L. **Framing Members* — Steel Studs —** As an alternate to Items 2 — For use with Item 1J, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
RESCUE METAL FRAMING, L L C — AlphaSTUD

2M. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1K, proprietary channel shaped steel studs, min 1-1/4 in. wide by min 3-5/8 in. deep, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/4 in. less in length than assembly height.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X

2N. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1L, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.
CRACO MFG INC — SmartStud20™

3. **Batts and Blankets* —** (Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity.
See **Batts and Blankets** (BZZI) category for names of Classified companies.

ROCKWOOL — Type AFB, min. density 1.69 pcf / 27.0 kg/m^3

ROCKWOOL MALAYSIA SDN BHD — Type Acoustical Fire Batts

3A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lbs/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lbs/ft^3, in accordance with the application instructions supplied with the product.
U S GREENFIBER L L C — INS735, INS745, INS750LD for use with wet or dry application. INS765LD and INS773LD are to be used for dry application only

3B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

3C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Cellwar-RL

3D. **Batts and Blankets* —** For use with Item 8. Nom 3 in. thick, minimum 3.4 pcf mineral wool batts, friction fit between the studs and floor and ceiling runners.
See **Batts and Blankets** (BZJZ) category for names of manufacturers.

3E. **Batts and Blankets* —** For use with Item 4P, 4R, and 4S. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

3F. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) — Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the

outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft^3.
APPLEGATE HOLDINGS L L C — Applegate Advanced Stabilized Cellulose Insulation

4. **Gypsum Board* —** 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly. When Steel Framing Members* (Item 6 or any alternate clips) are used, gypsum board is screw attached to furring channels with 1 in. long, Type S steel screws spaced 12 in. OC.
AMERICAN GYPSUM CO — Types AG-C, AGX-1, M-Glass, LightRoc

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Type Bluegiass Exterior Sheathing

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

CERTAINTEED GYPSUM INC — Types EGRG, GlasRoc, Type X, Type X-1, Type C, 5/8" Easi-Lite Type X, Easi-Lite Type X-2

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD, LGLLX

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPF56, LS, Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type DGLWX, Veneer Plaster Base - Type LWZX, Water Rated - Type LWZX, Sheathing - Type LWZX, Soffit - Type LWZX, Type DGLZW, Water Rated - Type DGLZW, Sheathing - Type DGLZW

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSMR-C, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSL, RSX.

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR, or WR

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-C, PG-9, PG-11, PGS-WRS, PGI

PANEL REY S A — Types GREX, GRIX, PRC, PRC2, PRX, RHX, MDX, ETX, PRX2

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc Duraline, Gyproc Duraline MR, Gyproc Duraline M2TECH, Gyproc Duraline ACTIV'Air, Gyproc Duraline MR ACTIV'Air, Gyproc Duraline M2TECH ACTIV'Air

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type X, Type C

UNITED STATES GYPSUM CO — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG MEXICO S A DE C V — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

4A. **Gypsum Board* —** (As alternate to Item 4) — Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 8 in. OC when applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. When used in widths other than 48 in., gypsum panels to be installed horizontally.
CERTAINTEED GYPSUM INC — Type X, Type X-1, Type C, Type EGRG/ GlasRoc, GlasRoc-2, Type SilentFX, Easi-Lite Type X-2

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD

GEORGIA-PACIFIC GYPSUM L L C — Types DAP, DAPC, DGG, DS

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc Duraline, Gyproc Duraline MR, Gyproc Duraline M2TECH, Gyproc Duraline ACTIV'Air, Gyproc Duraline MR ACTIV'Air, Gyproc Duraline M2TECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type X, Type C

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG MEXICO S A DE C V — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

4B. **Gypsum Board* —** (As an alternate to Items 4 or 4A) — Nom 3/4 in. thick, 4 ft wide, installed as described in Item 4A with screw length increased to 1-1/4 in.
CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

4C. **Gypsum Board* —** As an alternate to Items 4, 4A, and 4B — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered or backed by steel framing.
GEORGIA-PACIFIC GYPSUM L L C — Type DGG, GreenGlass Type X

4D. **Gypsum Board* —** As an alternate to Items 4, 4A, 4B, and 4C — Nom. 5/8 in. thick gypsum panels applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Gypsum panels fastened to framing with 1 in. long Type S steel screws 12 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications. When used in widths other than 48 in., gypsum panels to be installed horizontally.
NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSL, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSMR-C

4E. **Gypsum Board* —** (As an alternate to Items 4 through 4D) — Installed as described in Item 4. 5/8 in. thick, 4 ft wide, applied vertically only and fastened to the studs and plates with 1 in. long, Type S steel screws spaced, 12 in. OC.
NATIONAL GYPSUM CO — Type SBWB

4F. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
RAY-BAR ENGINEERING CORP — Type RB-LBG

4G. **Gypsum Board* —** (As an alternate to Item 4 through 4F) — For use with Items 1D and 2D only. 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.
CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A, LGFC-C/A

NATIONAL GYPSUM CO — Types FSW

UNITED STATES GYPSUM CO — Type SCX

USG BORAL DRYWALL SFZ LLC — Type SCX

4H. **Gypsum Board* —** (As an alternate to Items 4 through 4G) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES

4I. **Gypsum Board* —** (As an alternate to Items 4 through 4F) — For use with Items 1E and 2E only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.
UNITED STATES GYPSUM CO — Type SCX

USG BORAL DRYWALL SFZ LLC — Type SCX

4J. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) — Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of

studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A).
MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4K. **Gypsum Board* —** (As an alternate to Item 4 and 4A, not for use with Items 1D, 1E, 2D and 2E) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 4 and 4A.
CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

4L. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

4M. **Gypsum Board* —** (For use with Item 8) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 8) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 8). Secured to outermost studs and floor and ceiling runners with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound.
AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type C

CGC INC — Types C, IP-X2, IPC-AR

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

GEORGIA- PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Types PRC, PRC2

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc Duraline, Gyproc Duraline MR, Gyproc Duraline M2TECH, Gyproc Duraline ACTIV'Air, Gyproc Duraline MR ACTIV'Air, Gyproc Duraline M2TECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

4N. **Wall and Partition Facings and Accessories* —** (As an alternate to Item 4) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527

4O. **Gypsum Board* —** As an alternate to Items 4, 4A, 4B, and 4C — Two layers Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Horizontal joints on the same side need not be staggered. When applied horizontally, both layers of gypsum board fastened to each side of framing with 1 in. long Type S steel screws spaced 8 in. OC and staggered 4 in. OC between layers. When applied vertically, both layers of gypsum board fastened to each side of framing with 1 in. long Type S steel screws spaced 8 in. OC along vertical edges and 12 in. OC in the field, staggered 4 in. OC between layers. Screws spaced a max 12 in. along the top and bottom edges of the wall.
NATIONAL GYPSUM CO — Type FSW

4P. **Gypsum Board* —** As an alternate to Item 4. For use with Item 3E. **Batts and Blankets* —** 5/8 in. thick, 4 ft wide, installed as described in Item 4.
UNITED STATES GYPSUM CO — Types ULIX

4Q. **Gypsum Board* —** 3/4 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track as described in Item 4 with screw length increased to min. 1- 1/8 in.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-13

4R. **Gypsum Board* —** As an alternate to Item 4D. For use with Item 3E, **Batts and Blankets* —** 5/8 in. thick, 4 ft wide, installed as described in Item 4.
NATIONAL GYPSUM CO — Type FSLX.

4S. **Gypsum Board* —** As an alternate to Item 4. For use with Item 3E, **Batts and Blankets* —** 5/8 in. thick, 4 ft wide, installed as described in Item 4A.
CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type CLLX.

4T. **Wall and Partition Facings and Accessories* —** (As an alternate to 5/8 in. thick board as outlined in Item 4) — Nominal 1-3/8 in. thick, 4 ft wide panels, applied vertically or horizontally. Fastened with #6 x 2 in. long drywall screws spaced 8 in. OC along the perimeter and 12 in. OC in the field.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 545

5. **Joint Tape and Compound —** Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

6. **Resilient Channel —** (Optional — Not Shown) — 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F, 4J or 4L.

6A. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Not for use with Items 4F, 4J, or 4L.

b. **Framing Members* —** Used to attach furring channels (Item a) to studs (Item 2). Clips spaced 48 in. OC., and secured to studs with 1-5/8 in. wafer or hex head Type S steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75)

6B. **Framing Members* —** — (Optional on one or both sides, Not Shown, As an alternate to Item 6) — Furring channel and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv ste

UL Design No. X528

UL Product iQ®

BXUV.X528 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

Fire-resistance Ratings - ANSI/UL 263

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

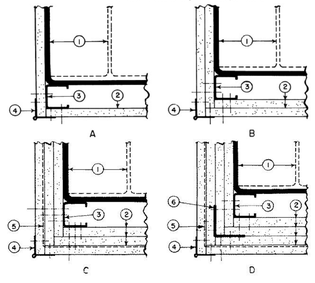
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **X528**

February 23, 2022

Ratings — 1, 2 and 3 Hr.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



CORNER DETAILS OF WALLBOARD SUPPORT SYSTEMS WITHOUT STEEL COVERS

1. **Steel Column —** Min sizes of W-shaped and tubular steel columns which appear in the AISC Steel Construction Manual as shown under Item 2.

2. **Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom 1/2 in. or 5/8 in. thick gypsum board. Applied in layers as noted in the above illustrations. Boards are to be applied vertically without horizontal joints. Min total thickness of layers in inches for the various ratings and min column sizes are as follows:

W Shaped Column Min Column Size	Rating (Hr) 1	2	3	Corner Details For Various Rating 1 Hr	2 Hr	3 Hr
Total thickness (In.)						
W4x13	1	1-1/2	2-1/4	B	C	D
W6x15.5	1	1-1/2	2-1/4	B	C	D
W10x49	1/2	1-1/8	1-7/8	A	B	C
Tube Shaped columns						
TS 4 by 4						
by0.188	1	1-3/4	2-5/8	B	C	D
TS 8 by 8						
by 0.250	5/8	1-1/2	2-1/4	A	C	D

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196
BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374
CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370
CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660
CGC INC (View Classification) — CKNX.R19751
GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717
LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809
NATIONAL GYPSUM CO (View Classification) — eXP-C. CKNX.R3501
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094
PANEL REY S A (View Classification) — CKNX.R21796
SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262
THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517
THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO (View Classification) — CKNX.R40305
UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438
USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board* —** As an alternate to Item 2- 3/4 in. thick gypsum wallboard. For 2 Hr rating, 1-1/2 in. total thickness, installed in accordance with corner detail B. For 3 Hr rating, 2- 1/4 in. total thickness installed in accordance with corner detail C. Boards are to be applied vertically without horizontal joints.
CGC INC — Type IP-X3 or ULTRACODE
UNITED STATES GYPSUM CO — Type IP-X3 or ULTRACODE
USG BORAL DRYWALL SFZ LLC — Type ULTRACODE
USG MEXICO S A DE C V — Type IP-X3 or ULTRACODE

2B. **Gypsum Board* —** (As an alternate to Items 2 and 2A) — Nominal 5/8 in. thick panels. One of the layers of **Gypsum Board** (Item 2) used to obtain the minimum required thickness in Item 2 may be substituted with one layer and secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES

2C. **Wall and Partition Facings and Accessories* —** (As an alternate to Item 2 through 2B) — Composite Gypsum Panel — Nominal 5/8 in. thick panels. One of the layers of **Gypsum Board** (Item 2) used to obtain the minimum required thickness in Item 2 may be substituted with one layer of composite gypsum panel and secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR

2D. **Gypsum Board* —** (As an alternate to Item 2, For use with Item 4A) — 1/2 in. thick, installed as described in Item 2.
CERTAINTEED GYPSUM INC — Type C

3. **Steel Stud —** 1-5/8 in. wide with 1-5/16 and 1-7/16 in. legs having a 1/4- in. folded flange, fabricated from No. 25 MSG galv steel. Length to be 1/2 in. less than the assembly height.

3A. **As an alternate to Item 3 Steel Framing Members* —** galv. steel clips spaced 4 ft OC and 1-1/4 in. from top and bottom of column. A No. 28 MSG galv steel support angle with 1-1/4 in. length shall be placed over clips and secured with screws attaching the wallboard. The angle cut 1 in. less than assembly height splices in angle to occur over clips. The clips for use with wide flange columns only.
JOHN WAGNER ASSOCIATES INC, DBA GRABBER — Types CB, CB1Clips.

4. **Corner Beads —** No. 28 MSG galv steel, 1-1/4 in. legs to be attached to the wallboard with No. 6 by 1 in. screws spaced 12 in. OC max.

UL Design No. X528 (Continued)

4A. **Corner Bead* —** (As an alternate to Item 4, For use with Item 2D) — 0.058 in. thick at shoulder thickness, 1-7/8 in. legs, attached to gypsum board using all-purpose ready mix joint compound.

CERTAINTEED GYPSUM INC — Types NC, NCPRO, NC450

5. **Tie Wire —** No. 18 SWG steel wire spaced 24 in. OC used with second layer of wallboard.

6. **Screws —** For attaching first layer of wallboard to steel studs, and third layer of wallboard to 2 in. by 2 in. steel angle (25 Ga) to be No. 6 by 1 in. (or 1-1/4 in. for 3/4 in. thick wallboard) Phillips head self-drilling, self-tapping double lead screws spaced 24 in. OC For attaching second layer of wallboard to steel studs and fourth layer of wallboard to 2 in. by 2 in. steel angle (25 Ga) to be No. 6 by 1-3/4 in. (or 2-1/4 in. for 3/4 in. thick wallboard) steel screws of the same type spaced 12 in. OC For attaching third layer of wallboard to steel studs to be No. 8 by 2-1/4 in. screws of the same type spaced 12 in. OC

7. **Finishing System —** (Not Shown) — Joint compound applied over corner beads to a thickness of 1/16 in.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**
Last Updated on 2022-02-23

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project

seal

issue / revision date:

2 Developmt Svcs Rvw 7/20/22
1 Code Updates 6/14/22
Construction Doc. 6/10/22
Design Development 3/11/22
Schematic Design 1/21/22

issue / revision

job # 163-19
drawn SS
chkd LA

description

UL DESIGN LISTINGS

FOR BIDDING

number

A-902

PLAN SPECIFICATIONS

JOB CONDITIONS
Areas of the building immediately adjacent to areas under construction will be occupied by the owner during the work of this project. Conduct the work of this project in a manner that will minimize disruption of the Owner's occupancy of adjacent areas.

Do not interrupt building access and use, except as permitted by the Owner.

Provide temporary barriers and/or partitions as required to protect the occupants of the building and the general public from injury due to the work of this project; and/or to protect adjacent areas of the building from the spread of dust and dirt caused by the work or this project.

Do not interrupt power, lighting, plumbing, telephone and HVAC services to occupied areas without Owner's approval. Such interruptions must be scheduled at least eight (8) work days in advance and have Owner's approval.

PROTECTION OF WORK AND ADJACENT AREAS
Areas adjacent to work included in this project may be subject to damage due to construction operations; protect as necessary.

Notify, in writing, the Owner of property which interferes with the work and arrange with them for disposition of such property.

The Contractor will maintain free of obstructions and debris, all designated corridors and emergency exits, handicap access ramps and sidewalks to building. Provide temporary directional handicapped signage for routing to the nearest accessible facilities.

EXISTING FURNITURE AND EQUIPMENT
The Owner will remove or relocate existing movable furniture and equipment from the areas in which the Contractor is working. Notify the Owner not less than three days prior to starting work in areas where furniture and equipment require moving.

CONTRACTOR'S ACCESS PARKING AND STAGING AREAS
Work included in this project will need to be performed within the limitations of available access at the site. Town of Castle Rock shall limit the area available for staging and parking due to the sensitive nature of the site. Contractor shall adjust the means and methods of construction to allow for the restrictions surrounding the site.

General Staging Areas are approved areas adjacent to the site when available or in designated group staging yards.

Restricted Staging Areas are approved areas near the site for the construction dumpster, off-loading of equipment, and materials that are soon to be incorporated into the work. No vehicles shall park in a restricted staging area.

Contractor Employee Parking are areas for workers needing parking near Castle Rock Police Department. Coordinate through Police Department Project Manager.

Prohibited Parking are areas designated as No Parking areas. The contractor shall not allow any parking in areas so designated under any circumstance.

Contractor shall use the designated site access for material storage in such a manner that access to the existing building remain accessible at all times for use. Confine operations to as limited a use of the existing building as possible.A route of access to and from the work for employees shall be agreed upon and it shall be the Contractor's responsibility to see that the agreed route is maintained in order to prevent unwarranted or unnecessary traffic through the existing buildings or site.

CONSTRUCTION AND SEQUENCE SCHEDULE
In order to accommodate the uninterrupted operation of the existing building during the various phases of construction, the sequence of construction operations shall be as follows:

A. The sequence concept is to: (1) prepare the existing facility to function during renovation through completion; (2) thence occupy the newly remodeled portion; and (3) upon completion, finally reoccupy the remodeled portions.

B. Utilizing this concept break down the Schedule into broad scope categories augmented by "Owner Action" and "Contractor action" columns that indicate coordination tasks which define the various phases of the work.

C. The intent of the categorization is to generally summarize the nature and extent of work to be performed without in any way limiting specific requirements of the Contract Documents.

D. Some overlapping between the several construction operation will occur, and where possible, permission may be granted to start certain portions of the work before the previous operations were completed in their entirety. Such detail scheduling shall be done as the work in progresses, provided that the Owner's operations remain uninterrupted, but in all cases must receive Owner approval.

E. Where it may not be possible to complete certain mechanical and electrical services in connection with making the work complete and ready for occupancy, temporary services as directed and as approved shall be installed to permit occupancy by the Owner at the earliest possible date.

F. The construction sequence schedule and related drawings are intended to aid the Contractor in bidding and in the preparation of a specific construction schedule. Deviations of sequence may be made upon approval of the Owner and the Architect. The preparation of a specific construction schedule remains the responsibility of the Contractor.

CLEANING
A. Cleaning and Protection Work: At the time each unit of work or element of the construction is completed (substantially) in each area of the Project, clean the unit or element to a condition suitable for occupancy and use (as intended), and restore minor or superficial damage. Replace units and elements which are damaged beyond successful restoration. Clean and restore adjoining surfaces and other work which was soiled or damaged (superficially) during the installation; replace other work damaged beyond successful restoration. Where the performance of subsequent work could possibly result in damage to the complete unit or element, provide protective covering or other provisions to minimize possible damage. Repeat cleaning and protection operations during remainder of construction period, wherever work might otherwise be damaged by sustained soiling or exposure.

B. During Construction: Oversee cleaning and ensure that building, grounds, and public properties are maintained free from accumulation of waste materials and rubbish. At reasonable intervals during daily progress of work, clean up site and access and dispose of waste materials, rubbish, and debris. Vacuum clean interior building areas when ready and continue vacuum cleaning on an as-needed basis until building is ready for Acceptance or occupancy.

PROJECT SIGN
Erect no project sign or job-site sign of any kind, except warning signs, without written authorization of the Owner.

PERMITS
The contractor must post permit(s) in a prominent location at the jobsite including all inspection reports. The contractor shall have an updated set of contract documents available at the jobsite for all inspections.

FIRE ALARM INTERRUPTION
Contractor shall contact Town of Castle Rock prior to all interruptions or shutdowns of fire alarm systems. Interruptions or shutdowns shall be scheduled three (3) working days in advance with the Project Manager. Contractor shall provide a fire watch during interruption or shutdown.

ALUMINUM EXTERIOR STOREFRONT
A. Delegated Design: Design aluminum-framed systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane shall not exceed L/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to L/360 of clear span or 1/8 inch (3.2 mm), whichever is smaller.
B. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:
1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Durations: As required by design wind velocity, but not fewer than 10 seconds.
C. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).
D. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).
E. Water Penetration under Dynamic Pressure: Provide aluminum-framed systems that do not evidence water leakage through fixed glazing and framing areas when tested according to AAMA 501.1 under dynamic pressure equal to 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).
F. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty Period: 5 years from date of Substantial Completion.
G. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering. Warranty Period: 10 years from date of Substantial Completion.

H. Basis-of-Design Product: Subject to compliance with requirements, provide Vistawall FG5100 or comparable product by one of the following:
1. EFCO Corporation.
2. Kawneer North America; an Alcoa company.
3. TRACO.
4. Tubelite.

I. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.
5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.
J. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPCSPCOM and prepare surfaces according to applicable SSPC standard.
1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

HOLLOW METAL DOORS AND FRAMES
INTERIOR FRAMES: Fabricated from cold-rolled steel sheet.Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

A. Fabricate frames with mitered or coped corners.

B. Fabricate frames as full profile welded unless otherwise indicated.

C. Frames for Wood Doors: 0.053-inch thick steel sheet.

D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

E. Jamb Anchors: Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

STOPS AND MOLDINGS:
A. Solid blocking is required in wall where wall mounted stops are indicated.

B. Moldings for Glazed Lites in Doors: Minimum 0.032 inch thick, fabricated from same material as door face sheet in which they are installed.

C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch high unless otherwise indicated.

D. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.

E. Terminated Stops: Where indicated on interior door frames, terminate stops 6 inches above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

FABRICATION:
A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Jamb Anchors: Provide number and spacing of anchors as follows: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and three anchors per jamb up to 60 inches high.

C. Door Silencers:Drill stop in strike jamb to receive three door silencers.

D. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

ADJUSTING AND CLEANING:
A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

FLUSH WOOD DOORS
Solid-core doors with wood-veneer faces.Factory fitting flush wood doors to frames and factory machining for hardware.

QUALITY ASSURANCE:
A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

B. Source Limitations: All doors shall be the product of the same manufacturer to insure uniformity of quality and appearance throughout the project.

C. Quality Standards: Provide doors meeting or exceeding the minimum standards as set forth by the following organizations unless standards are modified or exceeded by this specification: 1) American Woodwork Institute (AWI), Section 1300 and 1500 (for grade of door, core, construction, finish, and other requirements). 2) WDMA I.S. 1A – Window and Door Manufacturers Association (face veneer requirements).

D. The top of each door shall bear a label from the manufacturer indicating the door construction, face veneer species, cut and grade. If the doors are factory finished the label shall also have the finishing information.

WARRANTY:
A. All work in this section shall be warranted by a FULL DOOR WARRANTY, from the date of installation, against defects in material and workmanship, including the following: 1) Delamination in any degree; 2) Warp or twist of ¼" or more in any 3'-6" x 7'-0" section of a door. 3) Telegraphing of any part of core assembly through face to cause surface variation of 1/100" or morein a 3" span. 4) Any defect which may, in any way, impair or affect performance of the door for the purpose which it is intended.

B. Periods of warranty: Life of original installation.

C. Doors must be stored, finished, hung and maintained per manufacturers recommendations set forth in their full door warranty.

MANUFACTURERS:
A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Marshfield Door Systems, Inc.
2. Algoma.
3. Eggers Industries.

FACTORY FINISHING:
A. General: Comply with referenced quality standard for factory finishing. Complete fabrication,including fitting doors for openings and machining for hardware that is not surface applied, before finishing. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

B. Finish doors at factory that are indicated to receive transparent finish. Field finish doors indicated to receive opaque finish.

C. Transparent Finish:1) Grade: Premium; 2) Finish: AWI conversion varnish or catalyzed polyurethane system; 3) Staining to match existing door finish: As selected by Architect from manufacturer's full range; 4) Effect: Open-grain finish; 5) Sheen: Semi-gloss.

DOOR HARDWARE
Hardware specified herein is to cover all necessary material required to fully complete the hardware requirements of specified openings. It is the intention that the hardware specified shall be of sufficient quantities necessary to complete the Work. Notify the Architect of omissions or discrepancies prior to bid date for clarifications or instructions. Adjustments to the Contract Sum will not be allowed for omissions not clarified prior to bid opening.

GENERAL WARRANTY:
Warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents. Provide the following special hardware warranty for the following items: 1) Locksets 7 years; 2) Door Closers 10 years; 3) Exit devices 5 years.

MANUFACTURERS:
A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the following:
1. Butts and Hinges:
   a) Ives Hinge: 3CB1 3CB1HW.
   b) Stanley Hinge: CB1900 CB1901.
   c) McKinney Hinge: TA714 TA786.
2. Key Control System:
   a) Incorporate with existing Schlage Lock keying system.
3. Locksets, Latchsets and Deadbolts:
   a) Best Lock: 93K 15D MX8.
4. Exit/Panic Devices:
   a) Von Duprin: 98 Series.
5. Door Closers and Magnetic Holders:
   a) LCN: 4111 EDA Series.
6. Door Trim Units:
   a) Ives: WS407CVX FS436/FS438 FS441/442.

DOOR STOPS:
A. Furnish heavy duty brass, bronze or stainless steel base material, concave or convex wall stops, coincide with lock function, wherever door strikes wall; fasteners to be with machine screws and lead anchors.Do not mount floor stops where they will impede traffic or present tripping hazard. Install at maximum door swing and out of traffic flow.
B. Provide gray resilient rubber bumpers.
C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include: Ives: WS406 FS436/FS438 FS9.

HARDWARE FINISHES:
Manufacturer's standard color and texture finish for the latch and locksets to match existing Owner items (Satin Chrome, Clear Coated: US26D/ANSI 626, ANSI 652).

HARDWARE SCHEDULE:
The door hardware sets represent the design intent and direction of the owner and architect to match the existing hardware used throughout the building. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

Manufacturer's Legend:

AB	ABH Manufacturing Inc
BE	Best Access System
BY	By Others
HA	Hager
HS	HES
NA	Not Applicable
PR	Precision
SD	Stanley Door Closers
ST	Stanley
TR	Trimco

In all instances, design intent is to match keying system of remainder of facility. If this can be accomplished with hardware indicated below, do so. If not, this hardware schedule is intended to demonstrate function of each hardware set and should be used as a basis for bidding hardware that does match keying set for remainder of facility.

Hardware Set 1 - Int - Pair - Exit - Access

Doors: 103			
6 Hinges	FBB191 4 1/2 x 4 1/2 NRP	USD32D	ST
1 Exit Device	3RO ELR 2803 X 4903A S460 S519	630	PR
1 Exit Device	3RO 2802 X 4902A S460 S519	630	PR
1 Rim Cylinder	12E-72 PATD	626	BE
2 Door Closer	CLD-4550 CS	689	SD
2 Armor Plate	KA050-2 34" X 2" LDW CSK UL	630	TR
1 Card Reader	CARD READER BY OWNER'S SECURITY		BY
1 Power Transfer	EPT-5		PR
1 Power Supply	ELR151		PR
1 Meeting Edge Gasket	5050 B-83"		NA
1 Saddle Threshold	425 72"	AL	NA

Hardware Set 2 - Int - Sgl - Push/Pull

Doors: 007, 011, 101, 111			
3 Hinges	FBB179 4 1/2 X 4 1/2	USD26D	ST
1 Push/Pull Plate Combo	1895-4B	630	TR
1 Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1 Kick Plate	KO050 10" X 2" LDW CSK	630	TR
1 Wall Bumper	1270WV	630	TR

Hardware Set 3 - Int - Sgl - Office

Doors: 002, 105, 108, 109, 110			
3 Hinges	FBB179 4 1/2 X 4 1/2	USD26D	ST
1 Office Lockset	9K3-7B15D PATD	626	BE
1 Wall Bumper	1270WV	630	TR

Hardware Set 4 - Int - Sgl - Storeroom

Doors: 003, 010,			
3 Hinges	FBB179 4 1/2 X 4 1/2	USD26D	ST
1 Lockset	9K3-7D15D PATD	626	BE
1 Door Closer	CLD-4550 STD W/ PA BRKT SN	689	SD
1 Wall Bumper	1270WV	630	TR

Hardware Set 5 - Int - Sgl - Privacy

Doors: 004, 005, 006, 008, 009, 012, 013, 014,			
3 Hinges	FBB179 4 1/2 X 4 1/2	USD26D	ST
1 Office Lockset	9K3-0L15D PATD	626	BE
1 Wall Bumper	1270WV	630	TR

Hardware Set 6 - Int - Dbl - Push/Pull

Doors: 107			
2 Continuous Hinge	780-112HD x LAR	USD26D	ST
2 Push/Pull Set	159D x LAR	626	HA

Hardware Set 7 - Ext - Pair - Exit - Access

Doors: 001			
6 Hinges	FBB191 4 1/2 x 4 1/2 NRP	USD32D	ST
1 Exit Device	3RO ELR 2803 X 4903A S460 S519	630	PR
1 Exit Device	3RO 2802 X 4902A S460 S519	630	PR
1 Rim Cylinder	12E-72 PATD	626	BE
2 Door Closer	CLD-4550 CS	689	SD
2 Armor Plate	KA050-2 34" X 2" LDW CSK UL	630	TR
1 Card Reader	CARD READER BY OWNER'S SECURITY		BY
1 Power Transfer	EPT-5		PR
1 Power Supply	ELR151		PR
1 Meeting Edge Gasket	5050 B-83"		NA
1 Gasketing	5050 B-20 20'		NA
1 Drip Cap	16 A 4"ODW		NA
2 Door Sweep	200 NA 36"		NA
1 Saddle Threshold	425 72"	AL	NA

TEMPERED SAFETY GLAZING
Safety glazing shall be installed in all openings within doors, at all glazed openings within 12 inches of door openings where the bottom edge is less than 5 feet from the floor, and at all fixed glazed openings of more than 9 square feet where the lower edge of the glazed panel is less than 18 inches above the adjacent floor level (except where the panel is protected by a horizontal member located between 24 inches and 36 inches above the adjacent floor).

GYPSUM BOARD ASSEMBLIES
A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/360 at 5 psf.
1. Studs: "C" shaped with flat or formed webs with knurled faces.
2. Runners: U shaped, sized to match studs.
3. Ceiling Channels: C shaped.
4. 3-5/8 inch depth unless otherwise indicated.
5. 22 gage studs (20 gage studs both sides of door frames)

B. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.

C. Gypsum Wallboard: 5/8" Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.

D. Acoustic Insulation: Unfaced, Glass-Fiber Blanket Insulation (acoustic applications): ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics. Place tightly within stud spaces, around cut openings, behind and around electrical and mechanical items within partitions, tight to items passing through partitions, and in 3' band on top of acoustical ceiling tiles at locations noted on the floor plan.

ACOUSTICAL CEILINGS
Install suspension systems in accordance with ASTM C636 and manufacturers recommendations. Match existing suspension and acoustical systems at adjacent areas. Coordinate with architect and owner.
1. Type: Armstrong Ultima.
2. Size: 15/16" x 24" x 24" (1894) tegular edge, fine texture
3. NRC: 0.70
4. CAC: 35
5. Color: White.
6. Grid: Prelude XL (15/16") Exposed Tee (white). 7300 main beam; XL7328 & XL7348 cross tees; 7800 wall moulding.
7. Install metal edge molding wherever the suspended grid abuts walls, columns and other vertical surfaces.
8. Frame around openings as required.
9. Suspend grid with hanger wires from structure above. Install hanger wires at all four corners of lay-in light fixtures and as required to provide maximum deflection of 1/360 of span and level within 1/8" in 12'.

TILE CARPETING
Where existing carpet tile cannot be reused provide new carpet as applicable.

Carpet tile, loose laid with edges and control grid adhered according to manufacturers recommendation. Brand and color to match existing carpet tile on first floor.

1. Manufacturer: Shaw
2. Style name: Intermix
3. Color Name: Blend
4. Size: 24"x24"

Verify color with owner and architect prior to material purchase.

PAINTING
Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available. Apply two finish coats over primer.

WALL BASE
Johnsonite Traditional Rubber Wall Base, 1/8", 45 - Sandalwood

WIRE MESH
Mesh: 0.192-inch-diameter (6 ga.), intermediate-crimp steel wire woven into 2-inch diamond mesh. As defined in ASTM E 2016:

1. Intermediate Crimp: Wires pass over one and under the next adjacent wire in both directions, with wires crimped before weaving and with extra crimps between the intersections.
2. Lock Crimp: Deep crimps at points of the intersection that lock wires securely in place.

Installer's responsibilities include fabricating and installing wire mesh items and providing professional engineering services needed to assume engineering responsibility. Engineering Responsibility: Preparation of data for wire mesh items, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

GLASS BLOCK
1.Glass block panels shall not be designed to support structural loads.
2.Sills of all panels must be painted with a heavy coat of asphalt emulsion and must cure for two hours before first mortar bed is placed.
3.Provision for expansion, movement and isolation of the glass units from the surrounding frame must be made at jambs and heads of all panels. Mortar must not bridge expansion spaces.

The drawings and specifications are based on catalog data, specifications and products of Pittsburgh Corning Corporation and designate the type and quality of work intended under this section. Glass block units, nominally 8 inch x 8 inch x 4 inch thick shall be partially evacuated hollow units made of frosted, colorless glass with a polyvinyl butyral edge coating.

A.Panel Reinforcing: two parallel 9 gauge wires either 15/8 inch or 2 inch on center with electrically butt-welded crosswires spaced at regular intervals, hot dipped galvanized after welding or Type 304 stainless steel, by Pittsburgh Corning Corporation.
B.Panel Anchors: 20 gauge perforated steel strips 24 inches long by 1¾ inches wide, hot dipped galvanized after perforation or 22 gauge by 16 inches long by 1¾ inches wide of Type 304 stainless steel, by Pittsburgh Corning Corporation.
C.Expansion Strips: made of polyethylene foam with a thickness of 3/8 inch, by Pittsburgh Corning Corporation.
D.Asphalt Emulsion: a water-based asphalt emulsion, by Karnak Chemical Corp. (Karnak 100, 1-800-526-4236), or equal.

Mortar: Limit cementitious materials in mortar to Portland Cement and lime. Type S in accordance with ASTM C270. Mortar shall be 1 part Portland Cement, ½ part lime, and sand equal to 2¼ to 3 times the amount of cementitious material (cement plus lime), all measured by volume. (For exterior glass block panels, an integral type waterproofer should be added to the mortar mix.) **No antifreeze compounds or accelerators allowed.**

NOTE: All model building codes also accept the use of Type N mortar.

B.Portland Cement: Type I in accordance with ASTM C150. If a waterproof Portland Cement is used, the integral type waterproofer shall be omitted. (Masonry Cement is not recommended.)
C.Lime: Shall be a dolomitic pressure-hydrated lime, special hydrate, Type S, in accordance with ASTM C207.
D.Sand: A clean, white quartzite or silica type, essentially free of iron compounds, in accordance with ASTM C144, not less than 100% passing a No. 8 sieve.
E.Integral Type Water-repellent: Stearate type by The Euclid Chemical Company (Integral Waterpeller® Powder, **Not Liquid**, 1-800-321-7628), or approved equal. Note: Add Integral Waterpeller® powder to dry mortar mix. Do not add powder to wet mortar mix.
External Type Water Proofer: Water based silane sealer type by BASF Corporation (HYDROZO ENVIROSEALTM 40, 1-800-243-6739). Note: Remove excess sealer from glass surfaces soon after application.

STUCCO
A. Acceptable Manufacturers – Stucco Base Coat and Acrylic-Based Finish Materials: Provide stucco, primer and finish from single source manufacturer.
1. BASF Wall Systems; www.basfwallsystems.com
2. Comex Group; www.thecomexgroup.com, Texturi brand.
3. Flexi-Rock, Inc., Dolores, Colorado.
4. Omega Products International, Inc.; www.omega-products.com.
5. Sto Corporation; www.stocorp.com.
B. Acceptable Manufacturers – Metal Lath and Stucco Accessories:
1. Alabama Metal Industries Corporation (AMICO).
2. California Expanded Metal Products Company (CEMCO);

C. Regulatory Requirements:
1. Install stucco and acrylic plaster finish to comply with all applicable codes and standards and with requirements of local agencies having jurisdiction.

D. Portland Cement Stucco Patches and Infill: Match adjacent existing total stucco thicknesses.
1. Where existing total stucco thickness is less than 3/4-inch, provide two-coat system consisting of factory formulated thincoat stucco basecoat and Portland cement finish coat.
2. Where existing total stucco thickness is 3/4-inch or greater, provide 3-coat Portland cement stucco, with brown coat, scratch coat and finish coat.
3. Finish Coat: Cement based stucco finish coat consisting of Portland cement, lime, properly graded aggregate, and proprietary ingredients.
a. Texture: Match existing.
E. Fiber Reinforced Portland Cement Stucco Base: Factory formulated stucco base consisting of Portland cement, lime, alkali resistant fiberglass and acrylic fibers, and meeting requirements of the IBC, Chapter 25, and ASTM C926.

F. Fiber Reinforced Portland Cement Stucco Base, Pre-Blended: Factory proportioned, pre-sanded fiber reinforced portland cement based stucco for trowel or pump application, for field mixing with water only, and meeting requirements of the IBC, Chapter 25, and ASTM C926.

G. Portland Cement: ASTM C150, Type I.

H. Hydrated Lime: ASTM C206.

I. Sand: ASTM C897. Clean natural or manufactured sand, free from deleterious amounts of loam,clay, salt, soluble salts and organic matter.

J. Water: Clean, potable and free from injurious amounts of oils, acids, alkalis, salts, organic materials or substances that may be deleterious to stucco or metals in contact with stucco.

K. Acrylic Plaster Finish: Elastomeric exterior wall finish coating to be applied over both cleaned existing stucco and Portland cement finish coat of new stucco patches to provide uniform finish.

L. Expanded-Metal Lath: ASTM C847.
1. Weight: 3.4 lb./sq. yd.
2. Galvanized Coating: ASTM A653, G40 minimum.
3. Type: Self-furring, with dimples to hold the metal lath 1/4 inch away from the surface to beplastered.
4 Strip Lath: Provide diamond lath in 4-inch and 6-inch wide striplath with smooth edges at all soffits, overhangs, windows, doorways and openings, as shown on Drawings.
5. At Corners: Provide diamond lath formed to an angle with smooth edges.

M. Color and texture of new stucco and acrylic plaster finish to match existing in place. Minimum 3 12"x12" finished material samplesto be provided and approved by owner and architect prior to installation.

TPO ROOFING AT CANOPIES
TPO: Thermoplastic polyolefin.
A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.
D.Identify materials with FM Approvals markings.
1. Fire/Windstorm Classification: Class 1A-90.
2. Hail Resistance: SH.
E. Fabric-Reinforced Thermoplastic Polyolefin Sheet: ASTM D 6878, internally fabric or scrim reinforced, uniform, flexible fabric backed TPO sheet.
1.Manufacturers: Subject to compliance with requirements, provide products by one of the following :
a. Carlisle SynTec Incorporated.
b. Firestone Building Products Company.
c. Johns Manville.
d. Stevens Roofing Systems; Division of JPS Elastomerics.
2. Thickness: 60 mils , nominal.
3. Exposed Face Colors:
a. White; predominant color over main body of roof.
F. ROOF INSULATION. Preformed roof insulation boards manufactured or approved by TPO membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class I, Grade 3, felt or glass-fiber mat facer on both major surfaces. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where
indicated for sloping to drain. Fabricate to slopes indicated.

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seal

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2 Developmt Svcs Rvw 7/20/22
1 Code Updates 6/14/22
Construction Doc. 6/10/22
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Schematic Design 1/21/22

issue / revision

job # 163-19
drawn T MADERICK
chkd ---

description
PLAN SPECIFICATION

FOR BIDDING

number
A-903

SYMBOLS LEGEND

NOTE: NOT ALL SYMBOLS ARE USED IN CONSTRUCTION DOCUMENTS

HYDRONIC

- 3-WAY CONTROL VALVE
- ANGLE GATE VALVE
- ANGLE GLOBE VALVE
- BALANCING/SHUTOFF VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CALIBRATED BALANCING VALVE
- CHECK VALVE
- CONTROL VALVE
- EXPANSION VALVE
- GAS COCK
- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE (WATER)
- PRESSURE REGULATOR (GAS)
- QUICK OPEN VALVE
- SAFETY RELIEF VALVE
- SOLENOID VALVE
- VACUUM RELIEF VALVE
- AUTOMATIC AIR VENT
- MANUAL AIR VENT
- (F) FLOW SENSOR/SWITCH
- (P) PRESSURE SENSOR/SWITCH
- (T) TEMPERATURE SENSOR/SWITCH
- PRESSURE GAUGE
- THERMOMETER
- PIPE SLOPE ARROW
- PIPE ANCHOR
- PIPE GUIDES
- PIPE EXPANSION JOINT
- FLEXIBLE PIPE CONNECTOR
- PIPE UNION
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- WYE STRAINER
- WYE STRAINER W/DRAIN VALVE
- DIRECTION OF FLOW
- STEAM BUCKET TRAP
- STEAM F&T TRAP
- BACKFLOW PREVENTER
- PRESSURE/TEMPERATURE PLUG
- PUMP
- (M) METER
- PIPE TURNING UP
- PIPE TURNING DOWN
- TEE OFF TOP
- TEE OFF BOTTOM
- PIPE TEE
- PIPE CAP
- PLAN 90 DEGREE ELBOW
- PLAN 45 DEGREE ELBOW

VENTILATION

- THERMOSTAT
- T — AHU-1 / GUARD — EQUIPMENT TO BE CONTROLLED / LOCKABLE GUARD WHERE INDICATED
- S — TEMP, HUMID, CO, CO2 — SENSOR / ELEMENT TO BE MONITORED
- GUARD — LOCKABLE GUARD WHERE INDICATED
- (H) HUMIDISTAT
- $ WALL SWITCH
- CFM TRANSFER AIR
- 12x8 RECTANGULAR DUCT
- 12"ø ROUND DUCT
- 12x8ø FLAT OVAL DUCT
- SUPPLY DIFFUSER/REGISTER
- RETURN REGISTER/GRILLE
- EXHAUST REGISTER/GRILLE
- DIFFUSER AIRFLOW PATTERN IF OTHER THAN 4-WAY BLOW
- FLEXIBLE BRANCH RUNOUT TO SUPPLY DIFFUSER, 36" MAX LENGTH
- CEILING RETURN REGISTER WITH LINED DUCT FOR SOUND ATTENUATION OPEN TO CEILING PLENUM
- FLEXIBLE DUCT CONNECTION TO EQUIPMENT OR BETWEEN DUCTS
- VOLUME DAMPER
- MOTORIZED DAMPER
- FIRE DAMPER
- SMOKE DAMPER
- COMBINATION FIRE/SMOKE DAMPER
- SUPPLY AIR DUCT TOWARDS
- SUPPLY AIR DUCT AWAY
- RETURN/OUTDOOR AIR DUCT TOWARDS
- RETURN/OUTDOOR AIR DUCT AWAY
- EXHAUST AIR DUCT TOWARDS
- EXHAUST AIR DUCT AWAY

GENERAL

- AHU / 1 — MECHANICAL EQUIPMENT TAG / EQUIPMENT TYPE / EQUIPMENT MARK
- S1 — 12x12 / 250 — AIR TERMINAL DESIGNATION / THROAT SIZE / AIRFLOW IN CFM
- ## / # — DETAIL OR SECTION MARK / DETAIL # / SHEET #
- (#) KEYNOTE
- POINT OF NEW CONNECTION
- CAP EXISTING PIPE OR DUCT
- NEW — BOLD TEXT INDICATES PROPOSED ITEM
- *EXISTING* — ITALIC TEXT INDICATES EXISTING ITEM
- LINE STYLE INDICATES DEMOLISHED ITEM

PIPING SYSTEM (SOLID LINE)

BD	BOILER BLOW DOWN
CD	CONDENSATE DRAIN
CHS	CHILLED WATER SUPPLY
CWS	CONDENSER WATER SUPPLY
HCWS	DUAL TEMPERATURE SUPPLY
HPS	HIGH PRESSURE STEAM
HRS	HEAT RECOVERY SUPPLY
HTWS	HIGH TEMP WATER SUPPLY
HWS	HOT WATER SUPPLY
LPS	LOW PRESSURE STEAM
LS	LOOP SUPPLY
MPS	MEDIUM PRESSURE STEAM
PD	PUMP DISCHARGE
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION

PIPING SYSTEM (DASHED LINE)

CHR	CHILLED WATER RETURN
CWR	CONDENSER WATER RETURN
HCWR	DUAL TEMPERATURE RETURN
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
HRR	HEAT RECOVERY RETURN
HTWR	HIGH TEMP WATER RETURN
HWR	HOT WATER RETURN
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
LR	LOOP RETURN
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN

ABBREVIATIONS

AC	ABOVE CEILING/AIR CONDITIONER
ACC	AIR COOLED CONDENSER
AF	AIR FILTER
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMS	AIR MEASURING STATION
AS	AIR SEPARATOR
AV	AUTOMATIC AIR VENT
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISHED CEILING
BFP	BACKFLOW PREVENTION DEVICE
BJ	BETWEEN JOISTS
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNITS PER HOUR
CA	COMPRESSED AIR
CBS	COUNTER BALANCED SHUTTER
CC	COOLING COIL
CF	CEILING / CIRCULATING FAN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CNV	CONVECTOR
COND	CONDENSATE
CP	CONDENSATE PUMP
CRAC	COMPUTER ROOM AIR CONDITIONER
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONTROL VALVE
CW	DOMESTIC COLD WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DAC	DOOR AIR CURTAIN
DC	DRY COOLER
DH	DEHUMIDIFIER
DN	DOWN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
DP	DIFFERENTIAL PRESSURE
DS	DUCT SILENCER
DSU	DUCTLESS SPLIT UNIT
DX	DX COOLING COIL
EA	EXHAUST AIR
EBB	ELECTRIC BASEBOARD HEATER
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EG	EXHAUST GRILLE (LESS DAMPER)
EHC	ELECTRIC HEATING COIL
EL	ELEVATION
ER	EXHAUST REGISTER
ERP	ELECTRIC RADIANT PANEL
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
FA	FRESH AIR
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FDC	FLEXIBLE DUCT CONNECTION
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FPC	FLEXIBLE PIPE CONNECTION
FPT	FAN POWERED AIR TERMINAL
FT	FINNED TUBE RADIATION
GC	GENERAL CONTRACTOR
GF	GAS FURNACE
GIH	GRAVITY INTAKE HOOD
GPM	GALLONS PER MINUTE
GR	GLYCOL RETURN
GRH	GAS RADIANT HEATER
GS	GLYCOL SUPPLY
GUH	GAS UNIT HEATER
HU	HUMIDIFIER
HC	HEATING COIL
HCWR	DUAL TEMPERATURE RETURN
HCWS	DUAL TEMPERATURE SUPPLY
HP	HEAT PUMP
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HRC	HEAT RECOVERY COIL
HRV	HEAT RECOVERY VENTILATOR (SENSIBLE)
HS	HUMIDITY SENSOR
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
ISP	INTERNAL STATIC PRESSURE
KH	KITCHEN HOOD - COMMERCIAL
L	LOUVER
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
MA	MIXED AIR
MAU	MAKEUP AIR UNIT
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MD	MOTORIZED DAMPER
MS	MOTORIZED SHUTTER
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OBD	OPPOSED BLADE DAMPER
P	PUMP
PC	PLUMBING CONTRACTOR
PBD	PARALLEL BLADE DAMPER
PDH	POOL ROOM DEHUMIDIFIER
PRV	PRESSURE RELIEF VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RF	RETURN AIR FAN
RG	RETURN GRILLE (LESS DAMPER)
RH	ROOF HOOD
RHC	REHEAT COIL
RLFA	RELIEF AIR
RP	RADIANT PANEL
RPZ	REDUCED PRESSURE BFP
RR	RETURN REGISTER (WITH DAMPER)
RTU	ROOFTOP AIR HANDLING UNIT
SA	SUPPLY AIR
SAS	SELF-ACTING SHUTTER
SD	SUPPLY DIFFUSER/SMOKE DAMPER
SF	SUPPLY FAN / SQUARE FOOT
SFD	SMOKE/FIRE DAMPER
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
TCAC	TEMP. CONTROL AIR COMPRESSOR
TCAD	TEMP. CONTROL AIR DRYER
TDV	TRIPLE DUTY VALVE
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TJ	THROUGH JOISTS
TOD	TOP OF DUCT
TOP	TOP OF PIPE
TSP	TOTAL STATIC PRESSURE
UC	UNIT COOLER
UFD	UNDERFLOOR DUCT
UFT	UNDERFLOOR FAN TERMINAL
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME TERMINAL
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VRP	VERTICAL RADIANT PANEL
WAC	WINDOW / WALL AIR CONDITIONER

GENERAL NOTES

COMMON REQUIREMENTS

A. THIS FACILITY HAS BEEN DESIGNATED A "SMOKE-FREE" ENVIRONMENT. NO MECHANICAL VENTILATION PROVISIONS HAVE BEEN MADE TO ACCOMMODATE TOBACCO USAGE BY THE BUILDING OCCUPANTS

B. ALL MECHANICAL SYSTEMS SHALL BE INSTALLED TO THE SATISFACTION OF THE LOCAL CODE AUTHORITIES HAVING JURISDICTION

C. EVERY ATTEMPT HAS BEEN MADE TO COORDINATE THE ROUTING OF DUCTWORK WITHIN THE CLEAR STRUCTURAL SPACE. ACTUAL LOCATION OF ALL STRUCTURAL MEMBERS HOWEVER CAN NOT BE DETERMINED AT THIS STAGE OF THE PROJECT. WHERE POSSIBLE, REFRAIN FROM PREFABRICATING DUCTWORK DESIGNATED FOR INSTALLATION UNTIL ACTUAL STRUCTURAL CONDITIONS CAN BE FIELD VERIFIED.

MECHANICAL EQUIPMENT INSTALLATION

A. INSTALL EQUIPMENT TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS ARE INDICATED

B. INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS IN EXPOSED INTERIOR SPACES, UNLESS OTHERWISE INDICATED

C. INSTALL HVAC EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT EQUIPMENT FOR EASE OF REMOVAL, WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS

D. ALL MECHANICAL EQUIPMENT WITH THE EXCEPTION OF AIR HANDLING UNITS, SUPPORTED FROM FLOOR STRUCTURE SHALL BE MOUNTED ON 4" THICK CONCRETE HOUSEKEEPING PADS UNLESS NOTED OTHERWISE. AIR-HANDLING UNITS SHALL BE MOUNTED ON 6" THICK CONCRETE HOUSEKEEPING PADS TO ACCOMMODATE PROPER TRAPPING OF THE CONDENSATE DRAIN

E. AIR FILTERS SHALL BE REPLACED IN ALL AIR HANDLING EQUIPMENT EMPLOYING SUCH PRIOR TO FINAL COMPLETION AND OWNER OCCUPANCY

F. THE INSTALLING CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ALL MECHANICAL EQUIPMENT PUT INTO OPERATION PRIOR TO THE INSTALLATION OF A WORKING CONTROL SYSTEM, TESTING, AND BALANCING, AND SUBSTANTIAL COMPLETION. ALL RETURN AND EXHAUST DUCT OPENINGS SHALL BE COVERED WITH ROLL TYPE FILTER MEDIA DURING SUCH TEMPORARY OPERATION. OPERATION OF THE MECHANICAL EQUIPMENT PRIOR TO FINAL COMPLETION SHALL NOT IMPACT THE EQUIPMENT WARRANTY. MINIMUM 1-YEAR FROM SUBSTANTIAL COMPLETION UNLESS SPECIFIED OTHERWISE

G. PROVIDE FLEXIBLE DUCT CONNECTION BETWEEN MOTOR DRIVEN MECHANICAL UNITS AND SHEET METAL SUPPLY, OUTDOOR AIR, EXHAUST, AND/OR RETURN AIR DUCTWORK CONNECTIONS

H. PROVIDE FLEXIBLE PIPE CONNECTION BETWEEN MOTOR DRIVEN MECHANICAL UNITS AND CONNECTING PIPING

I. BASIS OF DESIGN MECHANICAL EQUIPMENT IS AS SCHEDULED ON THE DRAWINGS. INSTALLING CONTRACTOR ASSUMES RESPONSIBILITY FOR COORDINATING PHYSICAL SPACE REQUIREMENTS OF EQUIVALENT CAPACITY MECHANICAL EQUIPMENT DEEMED ACCEPTABLE BY THE ENGINEER

J. MECHANICAL EQUIPMENT FACTORY FINISH DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION PRIOR TO FINAL ACCEPTANCE

DUCTWORK REQUIREMENTS

A. DUCTWORK IS SHOWN IN SCHEMATIC FORM. ALL REQUIRED DUCT RISERS AND DROPS TO ALLOW GENERAL ROUTING DEPICTED MAY NOT BE SHOWN. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCE WITH OTHER TRADES AND FIELD CONDITIONS. EXACT LOCATION OF THE DUCTWORK MAY VARY ACCORDING TO THE COORDINATED SPACE REQUIREMENTS. EACH TRADE SHALL BE TOTALLY RESPONSIBLE FOR COORDINATION WITH OTHER TRADES. NOTIFY ENGINEER OF CONDITIONS REPRESENTING SIGNIFICANT CHANGES TO THE DESIGNED ROUTING

B. COMPLY WITH NFPA 90A, "INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS," UNLESS OTHERWISE INDICATED

C. COMPLY WITH NFPA 90B, "INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS," UNLESS OTHERWISE INDICATED

D. FABRICATE RECTANGULAR DUCTS, ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER CONSTRUCTION WITH GALVANIZED, SHEET STEEL, ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE." COMPLY WITH REQUIREMENTS FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE-ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS

E. COORDINATE SIZE, QUANTITY, AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCT AND PIPE PENETRATIONS THROUGH WALLS, FLOORS, AND ROOFS, WITH CONTRACTOR RESPONSIBLE FOR ROUGH FRAMING. COORDINATE LOCATION OF AIR INTAKES WITH EXHAUST AND PLUMBING VENTS SO THAT INTAKES ARE A MINIMUM OF 10 FEET FROM EXHAUST OPENINGS OR PLUMBING VENTS

F. INSTALL DUCTS IN LONGEST LENGTH POSSIBLE AND FEWEST POSSIBLE JOINTS. INSTALL FABRICATED FITTINGS FOR CHANGES IN DIRECTIONS, CHANGES IN SIZE AND SHAPE, AND CONNECTIONS

G. INSTALL DUCTS, UNLESS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY, PARALLEL AND PERPENDICULAR TO BUILDING LINES; AVOID DIAGONAL RUNS UNLESS SPECIFICALLY INDICATED ON DRAWINGS

H. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF CEILING MOUNTED DEVICES. COORDINATE MECHANICAL CEILING DEVICES SUCH AS DIFFUSERS AND REGISTERS WITH LIGHT FIXTURES, SPEAKERS, SPRINKLER HEADS, ETC.

I. ELECTRICAL EQUIPMENT SPACES: ROUTE DUCTWORK TO AVOID PASSING THROUGH TRANSFORMER VAULTS AND ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES. AVOID ROUTING DUCTWORK DIRECTLY ABOVE ELECTRICAL EQUIPMENT UNLESS SPECIFICALLY INDICATED ON THE MECHANICAL DRAWINGS

J. NON-FIRE-RATED PARTITION PENETRATIONS: WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS AND ARE EXPOSED TO VIEW IN MECHANICAL ROOMS, CONCEAL SPACE BETWEEN CONSTRUCTION OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME METAL THICKNESS AS DUCT. OVERLAP OPENING ON FOUR SIDES BY AT LEAST 1-1/2 INCHES UNLESS INDICATED OTHERWISE

K. FIRE-RATED PARTITION PENETRATIONS: WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS, INSTALL APPROPRIATELY RATED FIRE DAMPER. FIRE DAMPER INSTALLATION MUST STRICTLY ADHERE TO MANUFACTURER'S WRITTEN INSTRUCTIONS

L. PROVIDE MANUAL VOLUME-CONTROL BALANCING DAMPER AT ALL BRANCH DUCTS AND AT ALL OTHER LOCATIONS REQUIRED FOR A COMPLETE AND BALANCEABLE AIR DISTRIBUTION SYSTEM

M. BALANCE ENTIRE AIR DISTRIBUTION SYSTEM TO AIRFLOW QUANTITIES INDICATED ON MECHANICAL DRAWINGS

N. FLEXIBLE DUCTWORK SHALL BE ALLOWED ONLY IN POSITIVE PRESSURE APPLICATIONS AT SUPPLY BRANCH RUNOUTS TO DIFFUSERS ABOVE ACCESSIBLE CEILINGS. FLEXIBLE DUCTWORK SHALL NOT EXCEED 36" IN LENGTH. 90 DEGREE TURNS SHALL ONLY BE ALLOWED IF RETAINING BANDS EQUAL TO THERMAFLEX "FLEX-FLOW" ARE EMPLOYED. UNDER NO CIRCUMSTANCES SHALL FLEXIBLE DUCTWORK BE ALLOWED IN NEGATIVE PRESSURE APPLICATIONS

PIPING SYSTEM REQUIREMENTS

A. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS WERE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED BY ENGINEER

B. DELIVER PIPES AND TUBES WITH FACTORY-APPLIED END CAPS. MAINTAIN END CAPS THROUGH SHIPPING, STORAGE, AND HANDLING TO PREVENT PIPE END DAMAGE AND TO PREVENT ENTRANCE OF DIRT, DEBRIS, AND MOISTURE

C. COORDINATE PIPE ROUTINGS, CHASES, AND OPENINGS IN BUILDING STRUCTURE WITH ALL TRADES DURING PROGRESS OF CONSTRUCTION. COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED

D. INSTALL PIPING IN CONCEALED LOCATIONS, UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS. INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN EQUIPMENT ROOMS AND SERVICE AREAS AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED UNLESS SPECIFICALLY INDICATED OTHERWISE

E. INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL

F. INSTALL PIPING TO PERMIT VALVE SERVICING

G. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS

H. INSTALL PIPING TO ALLOW APPLICATION OF INSULATION

I. INSTALL ESCUTCHEONS FOR PENETRATIONS OF FINISHED WALLS, CEILINGS, AND FLOORS

J. SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED HOLES.

K. PERMANENT SLEEVES ARE NOT REQUIRED FOR HOLES FORMED BY REMOVABLE PE SLEEVES

L. INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS AND CONCRETE FLOOR AND ROOF SLABS

M. UNDERGROUND, EXTERIOR-WALL PIPE PENETRATIONS: INSTALL CAST-IRON "WALL PIPES" FOR SLEEVES. SEAL PIPE PENETRATIONS USING MECHANICAL SLEEVE SEALS. SELECT SLEEVE SIZE TO ALLOW FOR 1-INCH ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS

N. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS.

O. VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN.

DEMOLITION

A. VERIFY EXACT SIZE AND LOCATION OF EXISTING UTILITIES PRIOR TO START OF DEMOLITION WORK

B. RELOCATE, REMOVE, AND ADJUST ALL MECHANICAL AND ELECTRICAL ITEMS AS REQUIRED TO ACCOMPLISH SCOPE OF NEW WORK

C. EXISTING MECHANICAL ITEMS ARE SHOWN IN SCHEMATIC FORM BASED UPON EXISTING CONSTRUCTION DOCUMENTS AND/OR FIELD INVESTIGATION

D. REMOVE EXISTING PIPING AND DUCTWORK BACK TO LAST ACTIVE SERVICE AND CAP

E. FIXTURES AND EQUIPMENT INDICATED TO BE REUSED OR SALVAGED SHALL REMAIN THE PROPERTY OF THE OWNER AND BE STORED IN A LOCATION AS DIRECTED BY OWNER'S REPRESENTATIVE

F. IN LOCATIONS WHERE EXISTING CONSTRUCTION IS REMOVED AND NO ADDITIONAL CONSTRUCTION IS INDICATED, PATCH EXISTING CONSTRUCTION TO MATCH ADJACENT SURFACES AND FINISHES

G. CONNECTIONS TO, AND SHUTDOWNS OF, EXISTING SYSTEMS SHALL BE COORDINATED WITH OWNER'S REPRESENTATIVE TO ALLOW MINIMUM INTERFERENCE WITH OWNER'S OPERATION AND DOWNTIME OF EXISTING UTILITIES. CONTRACTOR SHALL SUBMIT TO OWNER FOR REVIEW AND APPROVAL THE PROPOSED PHASING PLAN FOR CONNECTING NEW SERVICES TO EXISTING

H. THIS BUILDING IS TO BE OCCUPIED AND STAY IN OPERATION DURING CONSTRUCTION. ALL WORK SHALL BE PHASED AND OCCUR IN SUCH A WAY AS TO ALLOW FOR OUT-OF-SCOPE AREAS TO REMAIN IN SERVICE.

DESIGN CONDITIONS

HVAC DESIGN LOAD CALCULATIONS ARE BASED ON THE FOLLOWING CLIMATE DATA:

CITY AND STATE: CASTLE ROCK, CO

WINTER OUTDOOR AMBIENT DB: -3.0° F

SUMMER OUTDOOR AMBIENT DB/WB: 93°F / 60°F

MECHANICAL SYSTEMS HAVE BEEN DESIGNED BASED UPON THE 2018 INTERNATIONAL MECHANICAL CODE, 2018 INTERNATIONAL ENERGY CONSERVATION CODE, NATIONAL FIRE PROTECTION (NFPA) STANDARDS, AND AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS (ASHRAE) ACCEPTED STANDARDS AND PRACTICES

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issue / revision	date:
1 Developmt Svcs Rvw	7/20/22
Construction Doc.	5/13/22
Design Development	3/11/22
Schematic Design	1/21/22

issue / revision

job # 163-19
drawn RA
chkd CF

GENERAL INFORMATION
description

FOR BIDDING
number

M-001

BASIC MECHANICAL MATERIALS AND METHODS

DELIVER PIPES AND TUBES WITH FACTORY-APPLIED END CAPS. MAINTAIN END CAPS THROUGH SHIPPING, STORAGE, AND HANDLING TO PREVENT PIPE END DAMAGE AND PREVENT ENTRANCE OF DIRT, DEBRIS, AND MOISTURE.

PROTECT STORED PIPES AND TUBES FROM MOISTURE AND DIRT. ELEVATE ABOVE GRADE. DO NOT EXCEED STRUCTURAL CAPACITY OF FLOOR, IF STORED INSIDE.

PROTECT FLANGES, FITTINGS, AND PIPING SPECIALTIES FROM MOISTURE AND DIRT.

STORE PLASTIC PIPES PROTECTED FROM DIRECT SUNLIGHT. SUPPORT TO PREVENT SAGGING AND BENDING.

COORDINATE MECHANICAL EQUIPMENT INSTALLATION WITH OTHER BUILDING COMPONENTS.

ARRANGE FOR PIPE SPACES, CHASES, SLOTS, AND OPENINGS IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION TO ALLOW FOR MECHANICAL INSTALLATIONS.

COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.

SEQUENCE, COORDINATE, AND INTEGRATE INSTALLATIONS OF MECHANICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. COORDINATE INSTALLATION OF LARGE EQUIPMENT REQUIRING POSITIONING BEFORE CLOSING IN BUILDING.

COORDINATE CONNECTION OF MECHANICAL SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. COMPLY WITH REQUIREMENTS OF GOVERNING REGULATIONS, FRANCHISED SERVICE COMPANIES, AND CONTROLLING AGENCIES.

COORDINATE REQUIREMENTS AND PROVIDE IF NOT SHOWN ON ARCHITECTURAL DRAWINGS FOR ACCESS PANELS AND DOORS IF MECHANICAL ITEMS REQUIRING ACCESS ARE CONCEALED BEHIND FINISHED SURFACES.

COORDINATE INSTALLATION OF IDENTIFYING DEVICES AFTER COMPLETING COVERING AND PAINTING. IF DEVICES ARE APPLIED TO SURFACES. INSTALL IDENTIFYING DEVICES BEFORE INSTALLING ACOUSTICAL CEILINGS AND SIMILAR CONCEALMENT.

GENERAL LOCATIONS AND ARRANGEMENTS: DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS WERE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS INSTALL PIPING AS INDICATED, UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS.

INSTALL PIPING AT INDICATED SLOPE.

INSTALL COMPONENTS WITH PRESSURE RATING EQUAL TO OR GREATER THAN SYSTEM OPERATING PRESSURE.

INSTALL PIPING IN CONCEALED INTERIOR AND EXTERIOR LOCATIONS, EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS.

INSTALL PIPING FREE OF SAGS AND BENDS.

INSTALL PIPING AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED, UNLESS OTHERWISE INDICATED.

INSTALL PIPING TIGHT TO SLABS, BEAMS, JOISTS, COLUMNS, WALLS, AND OTHER BUILDING ELEMENTS. ALLOW SUFFICIENT SPACE ABOVE REMOVABLE CEILING PANELS TO ALLOW FOR CEILING PANEL REMOVAL.

INSTALL PIPING TO ALLOW APPLICATION OF INSULATION PLUS 1-INCH CLEARANCE AROUND INSULATION.

LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER, SPACED TO PERMIT VALVE SERVICING.

INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.

INSTALL COUPLINGS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

INSTALL PIPE ESCUTCHEONS FOR PIPE PENETRATIONS OF CONCRETE AND MASONRY WALLS, WALL BOARD PARTITIONS, AND SUSPENDED CEILINGS.

PERMANENT SLEEVES ARE NOT REQUIRED FOR CORE DRILLED HOLES.

INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR AND ROOF SLABS.

ABOVEGROUND, EXTERIOR-WALL, PIPE PENETRATIONS: SEAL PENETRATIONS USING SLEEVES AND MECHANICA SLEEVE SEALS. SIZE SLEEVE FOR 1-INCH ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS.

UNDERGROUND, EXTERIOR-WALL AND FOUNDATION, PIPE PENETRATIONS: INSTALL CAST-IRON "WALL PIPES" FOR SLEEVES. SEAL PIPE PENETRATIONS USING MECHANICAL SLEEVE SEALS. SIZE SLEEVE FOR 1-INCH ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS.

FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOPPING MATERIALS.

VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN.

INSTALL EQUIPMENT TO PROVIDE MAXIMUM POSSIBLE HEADROOM, IF MOUNTING HEIGHTS ARE NOT INDICATED.

INSTALL EQUIPMENT ACCORDING TO APPROVED SUBMITTAL DATA. PORTIONS OF THE WORK ARE SHOWN ONLY IN DIAGRAMMATIC FORM. REFER CONFLICTS TO ARCHITECT/ENGINEER.

INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS UNLESS OTHERWISE INDICATED.

INSTALL MECHANICAL EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS. EXTEND GREASE FITTINGS TO ACCESSIBLE LOCATIONS.

INSTALL FLEXIBLE CONNECTORS ON EQUIPMENT SIDE OF SHUTOFF VALVES.

CONSTRUCT CONCRETE BASES OF DIMENSIONS INDICATED, BUT NOT LESS THAN 4-INCHES HIGH AND 6-INCHES LARGER IN BOTH DIRECTIONS THAN SUPPORTED UNIT. FOLLOW SUPPORTED EQUIPMENT MANUFACTURER'S SETTING TEMPLATES FOR ANCHOR BOLT AND TIE LOCATIONS. USE 3000-PSIG, 28-DAY COMPRESSIVE-STRENGTH CONCRETE AND REINFORCEMENT.

CUT, FIT, AND PLACE MISCELLANEOUS METAL SUPPORTS ACCURATELY IN LOCATION, ALIGNMENT, AND ELEVATION TO SUPPORT AND ANCHOR MECHANICAL MATERIALS AND EQUIPMENT.

CUT, CHANNEL, CHASE, AND DRILL FLOORS, WALLS, PARTITIONS, CEILINGS, AND OTHER SURFACES NECESSARY FOR MECHANICAL INSTALLATIONS. PERFORM CUTTING BY SKILLED MECHANICS OF TRADES INVOLVED.

REPAIR CUT SURFACES TO MATCH ADJACENT SURFACES.

METAL DUCTS

COMPLY WITH NFPA 90A, "INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS", UNLESS OTHERWISE INDICATED.

COMPLY WITH NFPA 90B, "INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS", UNLESS OTHERWISE INDICATED.

DELIVER SEALANT AND FIRESTOPPING MATERIALS TO SITE IN ORIGINAL UNOPENED CONTAINERS OR BUNDLES WITH LABELS INDICATING MANUFACTURER, PRODUCT NAME AND DESIGNATION, COLOR, EXPIRATION PERIOD FOR USE, POT LIFE, CURING TIME, AND MIXING INSTRUCTIONS FOR MULTI-COMPONENT MATERIALS.

STORE AND HANDLE SEALANT AND FIRESTOPPING MATERIALS ACCORDING TO MANUFACTURER'S WRITTEN RECOMMENDATIONS.
GALVANIZED, SHEET STEEL MATERIAL: LOCK-FORMING QUALITY; ASTM A 653/A 653M, G90 COATING DESIGNATION.

REINFORCEMENT SHAPES AND PLATES MATERIAL: GALVANIZED STEEL REINFORCEMENT WHERE INSTALLED ON GALVANIZED, SHEET METAL DUCTS.

TIE ROD MATERIAL: GALVANIZED STEEL, 1/4-INCH MINIMUM DIAMETER FOR 36-INCH LENGTH OR LESS; 3/8-INCH MINIMUM DIAMETER FOR LENGTHS LONGER THAN 36-INCHES.

FABRICATE RECTANGULAR DUCTS, ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER CONSTRUCTION WITH GALVANIZED, SHEET STEEL, ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE". COMPLY WITH REQUIREMENTS FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE-ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS.

STATIC-PRESSURE CLASSIFICATIONS:

- SUPPLY DUCTS: 3-INCH WG, POSITIVE PRESSURE.
- RETURN DUCTS: 2-INCH WG, NEGATIVE PRESSURE.
- EXHAUST DUCTS: 2-INCH WG, NEGATIVE PRESSURE.

CROSS BREAKING OR CROSS BEADING: CROSS BREAK OR CROSS BEAD DUCT SIDES 19-INCHES AND LARGER AND 0.0359-INCH THICK OR LESS, WITH MORE THAN 10 SQ. FT. OF UNBRACED PANEL AREA, UNLESS DUCTS ARE LINED.

ROUND DUCTS: FABRICATE SUPPLY DUCTS OF GALVANIZED STEEL ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE".

ROUND 90 DEGREE TEES AND LATERALS AND CONICAL TEES: FABRICATE TO COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE", WITH METAL THICKNESSES SPECIFIED FOR LONGITUDINAL SEAM STRAIGHT DUCT.
ROUND DIVERGING-FLOW FITTINGS: FABRICATE WITH A REDUCED ENTRANCE TO BRANCH TAPS WITH NO EXCESS MATERIAL PROJECTING FROM BODY ONTO BRANCH TAP ENTRANCE.

ROUND ELBOWS: FABRICATE IN DIE-FORMED OR MITERED CONSTRUCTION. FABRICATE BEND RADIUS OF DIE-FORMED AND MITERED ELBOWS 1-1/2 TIMES ELBOW DIAMETER.

CONSTRUCT AND INSTALL EACH DUCT SYSTEM FOR THE SPECIFIC DUCT PRESSURE CLASSIFICATION INDICATED.

INSTALL ROUND DUCTS IN LENGTHS NOT LESS THAN 8-FEET, UNLESS INTERRUPTED BY FITTINGS.

INSTALL DUCTS WITH FEWEST POSSIBLE JOINTS.

INSTALL FABRICATED FITTINGS FOR CHANGES IN DIRECTIONS, CHANGES IN SIZE AND SHAPE, AND CONNECTIONS.

INSTALL COUPLINGS TIGHT TO DUCT WALL SURFACE WITH A MINIMUM OF PROJECTIONS INTO DUCT.

INSTALL DUCTS, UNLESS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY, PARALLEL AND PERPENDICULAR TO BUILDING LINES; AVOID DIAGONAL RUNS.

INSTALL DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING.

INSTALL DUCTS WITH A CLEARANCE OF 1-INCH, PLUS ALLOWANCE FOR INSULATION THICKNESS.

CONCEAL DUCTS FROM VIEW IN FINISHED SPACES. DO NOT ENCASE HORIZONTAL RUNS IN SOLID PARTITIONS, UNLESS SPECIFICALLY INDICATED.

COORDINATE LAYOUT WITH SUSPENDED CEILING, FIRE DAMPERS, LIGHTING LAYOUTS, AND SIMILAR FINISHED WORK.

ELECTRICAL EQUIPMENT SPACES: ROUTE DUCTWORK TO AVOID PASSING THROUGH TRANSFORMER VAULTS AND ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES. AVOID ROUTING DUCTWORK DIRECTLY ABOVE ELECTRICAL EQUIPMENT.

NON-FIRE-RATED PARTITION PENETRATIONS: WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS AND ARE EXPOSED TO VIEW IN MECHANICAL ROOMS, CONCEAL SPACE BETWEEN CONSTRUCTION OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME METAL THICKNESS AS DUCT. OVERLAP OPENING ON FOUR SIDES BY AT LEAST 1-1/2-INCHES.

FIRE-RATED PARTITION PENETRATIONS: WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS, INSTALL APPROPRIATELY RATED FIRE DAMPER, SLEEVE, AND FIRESTOPPING SEALANT.

GENERAL: SEAL DUCT SEAMS AND JOINTS ACCORDING TO THE DUCT PRESSURE CLASS INDICATED AND AS DESCRIBED IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE".

PRESSURE CLASSIFICATION LESS THAN 2-INCH WG: TRANSVERSE JOINTS.

SEAL EXTERNALLY INSULATED DUCTS BEFORE INSULATION INSTALLATION.

INSTALL RIGID ROUND, RECTANGULAR, METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE."

SUPPORT HORIZONTAL DUCTS WITHIN 24-INCHES OF EACH ELBOW AND WITHIN 48-INCHES OF EACH BRANCH INTERSECTION.

SUPPORT VERTICAL DUCTS AT A MAXIMUM INTERVAL OF 16-FEET AND AT EACH FLOOR.

INSTALL UPPER ATTACHMENTS TO STRUCTURES WITH AN ALLOWABLE LOAD NOT EXCEEDING ONE-FOURTH OF FAILURE (PROOF-TEST) LOAD.

CONNECT EQUIPMENT WITH FLEXIBLE CONNECTORS.

FOR BRANCH, OUTLET AND INLET, AND TERMINAL UNIT CONNECTIONS, COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE".

ADJUST VOLUME-CONTROL DAMPERS IN DUCTS, OUTLETS, AND INLETS TO ACHIEVE DESIGN AIRFLOW.

AFTER COMPLETING SYSTEM INSTALLATION, INCLUDING OUTLET FITTINGS AND DEVICES, INSPECT THE SYSTEM. VACUUM DUCTS BEFORE FINAL ACCEPTANCE TO REMOVE DUST AND DEBRIS.

DUCT ACCESSORIES

MANUAL VOLUME DAMPERS: FACTORY FABRICATED WITH REQUIRED HARDWARE AND ACCESSORIES. STIFFEN DAMPER BLADES FOR STABILITY. INCLUDE LOCKING DEVICE TO HOLD SINGLE-BLADE DAMPERS IN A FIXED POSITION WITHOUT VIBRATION. CLOSE DUCT PENETRATIONS FOR DAMPER COMPONENTS TO SEAL DUCT CONSISTENT WITH PRESSURE CLASS.

LOW-LEAKAGE VOLUME DAMPERS: MULTIPLE OR SINGLE-BLADE, PARALLEL OR OPPOSED-BLADE DESIGN AS INDICATED, LOW-LEAKAGE RATING, WITH LINKAGE OUTSIDE AIRSTREAM, AND SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS.

FIRE DAMPERS: LABELED TO UL 555, 1-1/2-HOURS FIRE RATING UNLESS NOTED. PROVIDE 3-HOUR RATED DAMPERS WHERE INDICATED. SMACNA TYPE B FRAME WITH BLADES OUT OF AIRSTREAM; FABRICATED WITH ROLL-FORMED, GALVANIZED STEEL; WITH MITERED AND INTERLOCKING CORNERS. VERTICAL OR HORIZONTAL MOUNTING ORIENTATION AS INDICATED. REPLACEABLE, 165 DEGREES F. FUSIBLE LINK.

FABRICATE TURNING VANES TO COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE".

MANUFACTURED TURNING VANES: FABRICATE OF 1-1/2-INCH WIDE, CURVED BLADES SET 3/4-INCH O.C.; SUPPORT WITH BARS PERPENDICULAR TO BLADES SET 2-INCHES O.C.; AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTS.

DUCT-MOUNTED ACCESS DOORS: FABRICATE DOORS AND PANELS AIRTIGHT AND SUITABLE FOR DUCT PRESSURE CLASS. GALVANIZED FRAME, SHEET STEEL, WITH BEND-OVER TABS AND FOAM GASKETS. DOUBLE-WALL DOOR, GALVANIZED, SHEET METAL CONSTRUCTION WITH INSULATION FILL AND THICKNESS, AND NUMBER OF HINGES AND LOCKS AS INDICATED FOR DUCT PRESSURE CLASS. INCLUDE PIANO HINGE AND CAM LATCHES. SEAL AROUND FRAME ATTACHMENT TO DUCT AND DOOR TO FRAME WITH NEOPRENE. 1-INCH THICK, FIBROUS-GLASS OR POLYSTYRENE-FOAM BOARD INSULATION.

FLEXIBLE CONNECTORS: FLAME-RETARDED OR NONCOMBUSTIBLE FABRICS, COATINGS, AND ADHESIVES COMPLYING WITH UL 181, CLASS 1. FACTORY FABRICATED STANDARD METAL-EDGED CONNECTORS WITH A STRIP OF FABRIC 3-1/2-INCHES WIDE ATTACHED TO TWO STRIPS OF 2-3/4-INCH WIDE, 0.028-INCH THICK, GALVANIZED SHEET STEEL OR 0.032-INCH ALUMINUM SHEETS. SELECT METAL COMPATIBLE WITH CONNECTED DUCTS. CONVENTIONAL, INDOOR SYSTEM FLEXIBLE CONNECTOR FABRIC.

FLEXIBLE DUCTS: FACTORY-FABRICATED, INSULATED, ROUND DUCT, WITH AN OUTER JACKET ENCLOSING 1-1/2-INCH THICK, GLASS-FIBER INSULATION AROUND A CONTINUOUS INNER LINER. STEEL-WIRE HELIX REINFORCEMENT ENCAPSULATED IN INNER LINER. POLYETHYLENE FILM INNER LINER AND OUTER JACKET. 6-INCH WG POSITIVE, 1/2-INCH WG NEGATIVE PRESSURE RATING.

INSTALL DUCT ACCESSORIES ACCORDING TO APPLICABLE DETAILS SHOWN IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" FOR METAL DUCTS.

INSTALL FLEXIBLE DUCT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, SMACNA STANDARDS AND THE FOLLOWING CRITERIA. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 3-FEET. MAXIMUM BEND IN FLEXIBLE DUCT SHALL BE 45 DEGREES. 90 DEGREE BENDS WITH FLEXIBLE DUCT ARE NOT ALLOWED.

PROVIDE TEST HOLES AT FAN INLET AND OUTLET AND ELSEWHERE AS INDICATED.

INSTALL FIRE AND SMOKE DAMPERS ACCORDING TO MANUFACTURER'S UL-APPROVED WRITTEN INSTRUCTIONS.

INSTALL DUCT ACCESS PANELS DOWNSTREAM FROM VOLUME DAMPERS, FIRE DAMPERS, TURNING VANES, AND DUCT MOUNTED EQUIPMENT.

ADJUST DUCT ACCESSORIES FOR PROPER SETTINGS.

ADJUST FIRE DAMPERS FOR PROPER ACTION.

HVAC PIPING INSULATION

SURFACE BURNING CHARACTERISTICS: FLAME SPREAD INDEX/SMOKE DEVELOPED INDEX OF 25/50, MAXIMUM, WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723.

GLASS FIBER
INSULATION: ASTM C547 AND ASTM C795; RIGID MOLDED, NONCOMBUSTIBLE.
K' VALUE: ASTM C177, 0.24 AT 75 DEGREES F.
MAXIMUM SERVICE TEMPERATURE: 850 DEGREES F.
MAXIMUM MOISTURE ABSORPTION: 0.2 PERCENT BY VOLUME.
VAPOR BARRIER JACKET: WHITE KRAFT PAPER WITH GLASS FIBER YARN, BONDED TO ALUMINIZED FILM; MOISTURE VAPOR TRANSMISSION WHEN TESTED IN ACCORDANCE WITH ASTM E96/E96M OF 0.02 PERM-INCHES.

CONDENSATE PIPING: 1" THICK INSULATION

INSTALL IN ACCORDANCE WITH NAIMA NATIONAL INSULATION STANDARDS.

INSULATED PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE; INSULATE ENTIRE SYSTEM INCLUDING FITTINGS, VALVES, UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS, PUMP BODIES, AND EXPANSION JOINTS.

GLASS FIBER INSULATED PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE:
PROVIDE VAPOR BARRIER JACKETS, FACTORY-APPLIED OR FIELD-APPLIED; SECURE WITH SELF-SEALING LONGITUDINAL LAPS AND BUTT STRIPS WITH PRESSURE SENSITIVE ADHESIVE. SECURE WITH OUTWARD CLINCH EXPANDING STAPLES AND VAPOR BARRIER MASTIC.
INSULATE FITTINGS, JOINTS, AND VALVES WITH MOLDED INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJACENT PIPE. FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE OR PVC FITTING COVERS.

FOR HOT PIPING CONVEYING FLUIDS OVER 140 DEGREES F, INSULATE FLANGES AND UNIONS AT EQUIPMENT.

GLASS FIBER INSULATED PIPES CONVEYING FLUIDS ABOVE AMBIENT TEMPERATURE.
PROVIDE STANDARD JACKETS, WITH OR WITHOUT VAPOR BARRIER, FACTORY-APPLIED OR FIELD-APPLIED.
SECURE WITH SELF-SEALING LONGITUDINAL LAPS AND BUTT STRIPS WITH PRESSURE SENSITIVE ADHESIVE.
SECURE WITH OUTWARD CLINCH EXPANDING STAPLES.
INSULATE FITTINGS, JOINTS, AND VALVES WITH INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJOINING PIPE. FINISH WITH GLASS CLOTH AND ADHESIVE OR PVC FITTING COVERS.

INSERTS AND SHIELDS
APPLICATION: PIPING 1-1/2 INCHES DIAMETER OR LARGER.
SHIELDS: GALVANIZED STEEL BETWEEN PIPE HANGERS OR PIPE HANGER ROLLS AND INSERTS.
INSERT LOCATION: BETWEEN SUPPORT SHIELD AND PIPING AND UNDER THE FINISH JACKET.
INSERT CONFIGURATION: MINIMUM 6 INCHES LONG, OF SAME THICKNESS AND CONTOUR AS ADJOINING INSULATION; MAY BE FACTORY FABRICATED.
INSERT MATERIAL: HYDROUS CALCIUM SILICATE INSULATION OR OTHER HEAVY DENSITY INSULATING MATERIAL SUITABLE FOR THE PLANNED TEMPERATURE RANGE.
CONTINUE INSULATION THROUGH WALLS, SLEEVES, PIPE HANGERS, AND OTHER PIPE PENETRATIONS. FINISH AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS. AT FIRE SEPARATIONS, REFER TO SECTION 07 8400.

PIPE EXPOSED IN MECHANICAL EQUIPMENT ROOMS : FINISH WITH CANVAS JACKET SIZED FOR FINISH PAINTING.

PIPING GENERAL

INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

COMPLY WITH ASME B31.9 AND APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

WHEN MORE THAN ONE PIPING SYSTEM MATERIAL IS SELECTED, ENSURE SYSTEMS COMPONENTS ARE COMPATIBLE AND JOINED TO ENSURE THE INTEGRITY OF THE SYSTEM IS NOT JEOPARDIZED. PROVIDE NECESSARY JOINING FITTINGS. ENSURE FLANGES, UNIONS, AND COUPLINGS FOR SERVICING ARE CONSISTENTLY PROVIDED.

USE NON-CONDUCTING DIELECTRIC CONNECTIONS WHENEVER JOINTING DISSIMILAR METALS.

PROVIDE PIPE HANGERS AND SUPPORTS IN ACCORDANCE WITH ASME B31.9, ASTM F708, OR MSS SP-58 UNLESS INDICATED OTHERWISE.

PROVIDE HANGERS AND SUPPORTS THAT COMPLY WITH MSS SP-58. IF TYPE OF HANGER OR SUPPORT FOR A PARTICULAR SITUATION IS NOT INDICATED, SELECT APPROPRIATE TYPE USING MSS SP-58 RECOMMENDATIONS.

PIPE-TO-VALVE AND PIPE-TO-EQUIPMENT CONNECTIONS: USE FLANGES, UNIONS, OR GROOVED COUPLINGS TO ALLOW DISCONNECTION OF COMPONENTS FOR SERVICING; DO NOT USE DIRECT WELDED, SOLDERED, OR THREADED CONNECTIONS.

INSTALL FIRESTOPPING TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS

SLEEVE PIPE PASSING THROUGH PARTITIONS, WALLS AND FLOORS.

INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.

PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.

PLACE HANGERS WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW.

CONDENSATE PIPING

ABS PIPE: ASTM F628.
FITTINGS: ABS.
JOINTS: SOLVENT WELDED WITH ASTM D2235 CEMENT.

PVC PIPE: ASTM D2729.
FITTINGS: PVC.
JOINTS: SOLVENT WELDED, WITH ASTM D2564 SOLVENT CEMENT.

REFRIGERANT PIPING

INSTALL REFRIGERANT PIPING PER MANUFACTURER'S INSTRUCTIONS. PROVIDE ALL MANUFACTURER RECOMMENDED ACCESSORIES.

COPPER TUBE: ASTM B280, H58 HARD DRAWN OR O60 SOFT ANNEALED.
FITTINGS: ASME B16.22 WROUGHT COPPER.
JOINTS: BRAZE, AWS A5.8M/A5.8 BCUP SILVER/PHOSPHORUS/COPPER ALLOY.

COPPER TUBE TO 7/8 INCH OD: ASTM B88 (ASTM B88M), TYPE K (A), ANNEALED.
FITTINGS: ASME B16.26 CAST COPPER.
JOINTS: FLARED.

TEST REFRIGERATION SYSTEM IN ACCORDANCE WITH ASME B31.5.

PRESSURE TEST SYSTEM WITH DRY NITROGEN TO 200 PSI. PERFORM FINAL TESTS AT 27 INCHES VACUUM AND 200 PSI USING HALIDE TORCH. TEST TO NO LEAKAGE.

FULLY CHARGE COMPLETED SYSTEM WITH REFRIGERANT AFTER TESTING.

ELECTRIC HEATERS

OPEN COIL: NICKEL CHROMIUM HEATING ELEMENT, STAINLESS STEEL, OR NICKEL PLATED TERMINALS SUPPORTED IN CERAMIC BRACKET BUSHINGS.

FRAME: GALVANIZED PAINTED STEEL.

TESTING, ADJUSTING AND BALANCING

COORDINATE THE EFFORTS OF FACTORY-AUTHORIZED SERVICE REPRESENTATIVES FOR SYSTEMS AND EQUIPMENT, HVAC CONTROLS INSTALLERS, AND OTHER MECHANICS TO OPERATE HVAC SYSTEMS AND EQUIPMENT TO SUPPORT AND ASSIST TESTING, ADJUSTING, AND BALANCING ACTIVITIES.

PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM ACCORDING TO THE PROCEDURES CONTAINED IN AABC NATIONAL STANDARDS, NEBB'S "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" OR SMACNA AND THIS SECTION.

CUT INSULATION, DUCTS, PIPES, AND EQUIPMENT CABINETS FOR INSTALLATION OF TEST PROBES TO THE MINIMUM EXTENT NECESSARY TO ALLOW ADEQUATE PERFORMANCE OF PROCEDURES. AFTER TESTING AND BALANCING, CLOSE PROBE HOLES AND PATCH INSULATION WITH NEW MATERIALS IDENTICAL TO THOSE REMOVED. RESTORE VAPOR BARRIER AND FINISH ACCORDING TO THE INSULATION SPECIFICATIONS FOR THIS PROJECT.

MARK EQUIPMENT SETTINGS WITH PAINT OR OTHER SUITABLE, PERMANENT IDENTIFICATION MATERIAL, INCLUDING DAMPER-CONTROL POSITIONS, VALVE INDICATORS, LEVERS, AND SIMILAR CONTROLS AND DEVICES, TO SHOW FINAL SETTINGS.

PREPARE TEST REPORTS FOR BOTH FANS AND OUTLETS. OBTAIN MANUFACTURER'S OUTLET FACTORS AND RECOMMENDED TESTING PROCEDURES. CROSSCHECK THE SUMMATION OF REQUIRED OUTLET VOLUMES WITH REQUIRED FAN VOLUMES.

DETERMINE THE BEST LOCATIONS IN MAIN AND BRANCH DUCTS FOR ACCURATE DUCT AIRFLOW MEASUREMENTS.

VERIFY THAT MOTOR STARTERS ARE EQUIPPED WITH PROPERLY SIZED THERMAL PROTECTION.

CHECK DAMPERS FOR PROPER POSITION TO ACHIEVE DESIRED AIRFLOW PATH.

CHECK FOR AIRFLOW BLOCKAGES.

CHECK CONDENSATE DRAINS FOR PROPER CONNECTIONS AND FUNCTIONING.

CHECK FOR PROPER SEALING OF AIR-HANDLING UNIT COMPONENTS.

ADJUST FANS TO DELIVER TOTAL DESIGN AIRFLOWS WITHIN THE MAXIMUM ALLOWABLE RPM LISTED BY THE FAN MANUFACTURER.

ADJUST VOLUME DAMPERS FOR MAIN DUCT, SUBMAIN DUCTS, AND MAJOR BRANCH DUCTS TO DESIGN AIRFLOWS WITHIN SPECIFIED TOLERANCES.

ADJUST TERMINAL OUTLETS AND INLETS FOR EACH SPACE TO DESIGN AIRFLOWS WITHIN SPECIFIED TOLERANCES OF DESIGN VALUES. MAKE ADJUSTMENTS USING VOLUME DAMPERS RATHER THAN EXTRACTORS AND THE DAMPERS AT THE AIR TERMINALS.

SET HVAC SYSTEM AIRFLOW AND WATER FLOW RATES WITHIN THE FOLLOWING TOLERANCES:

- SUPPLY, RETURN, AND EXHAUST FANS: MINUS 5 TO PLUS 10 PERCENT.
- AIR OUTLETS AND INLETS: MINUS 5 TO PLUS 10 PERCENT.

INITIAL CONSTRUCTION-PHASE REPORT: BASED ON EXAMINATION OF THE CONTRACT DOCUMENTS AS SPECIFIED IN "EXAMINATION" ARTICLE ABOVE, PREPARE A REPORT ON THE ADEQUACY OF DESIGN FOR SYSTEMS' BALANCING DEVICES. RECOMMEND CHANGES AND ADDITIONS TO SYSTEMS' BALANCING DEVICES TO FACILITATE PROPER PERFORMANCE MEASURING AND BALANCING. RECOMMEND CHANGES AND ADDITIONS TO HVAC SYSTEMS AND GENERAL CONSTRUCTION TO ALLOW ACCESS FOR PERFORMANCE MEASURING AND BALANCING DEVICES.

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seal

issue / revision date:
- Developmt Svcs Rvw 7/20/22
- Construction Doc. 5/13/22
- Design Development 3/11/22
- Schematic Design 1/21/22

issue / revision

job # 163-19
drawn RA
chkd CF

description
SPECIFICATIONS

FOR BIDDING

number
M-002

KEYNOTES

6 OA INTAKE MINIMUM 10 FT FROM EXHAUST OR PLUMBING VENTS PER 2018 IMC501.3.1.3.

7 RELOCATED VAV BOX IN SUPPORT OF CHANGES TO WALL. PROVIDE ACCESS PANEL. COORDINATE PANEL COLOR WITH ARCHITECT.

8 PROVIDE 26"x10" DUCTED RETURN OUT OF ENCLOSED SPACE TO ADJACENT OPEN PLENUM SPACE.

9 RELOCATE EXISTING VAV-B THERMOSTAT TO LOCATION AS SHOWN.

10 INSTALL MAU ON EQUIPMENT PAD. MAINTAIN MANUFACTURERS RECOMMENDED CLEARANCE FROM THE BUILDING. SUPPLY DUCT BE ROUTED FROM UNIT TO ABOVE THE CEILING IN THE BASEMENT. EXTERIOR SUPPLY DUCT TO BE ROUTED FROM UNIT TO ABOVE BASEMENT CEILING, INSULATED AND JACKETED, WITH A WATER-TIGHT PENETRATION THROUGH BASEMENT WALL. PAINT DUCTWORK ACCORDANCE WITH ARCHITECT. DRAIN CONDENSATE TO GROUND.

11 RELOCATED DIFFUSER. SEE SHEET MD-101 FOR PREVIOUS LOCATION.

12 INSTALL CU ON EQUIPMENT PAD A MINIMUM OF 6" ABOVE GRADE. ROUTE SUCTION AND LIQUID LINES IN AS DIRECT PATH AS POSSIBLE AND IN ACCORDANCE WITH MANUFACTURER. MAKE WATER-TIGHT WALL PENETRATION. DRAIN CONDENSATE TO GROUND.

KEYNOTES (#)

1 INSTALL RELOCATED VAV BOX AS SHOWN AND REBALANCE SYSTEM. REFER TO DEMO SHEET MD-101.

2 INSTALL NEW VAV BOX WITH ELECTRIC DUCT HEATER AS SHOWN ON SCHEDULE SHOWN ON SHEET M-601.

3 INSTALL LOUVER AS SHOWN ON EQUIPMENT SCHEDULE AND CONFIRM COLOR AND EXACT LOCATION WITH ARCHITECT. PROVIDE 3' CLEARANCE TO BUILDING OPENINGS 2018 IMC501.3.1. PROTECT EXHAUST OPENINGS PER 2018 IMC501.3.2.

4 INSTALL RELOCATED VAV BOX AS SHOWN. REFER TO DEMO SHEET MD-101.

5 PROVIDE OCCUPANCY SENSOR TO OPERATE IN OCCUPIED MODE WHEN THE ROOM IS IN USE.

GENERAL NOTES

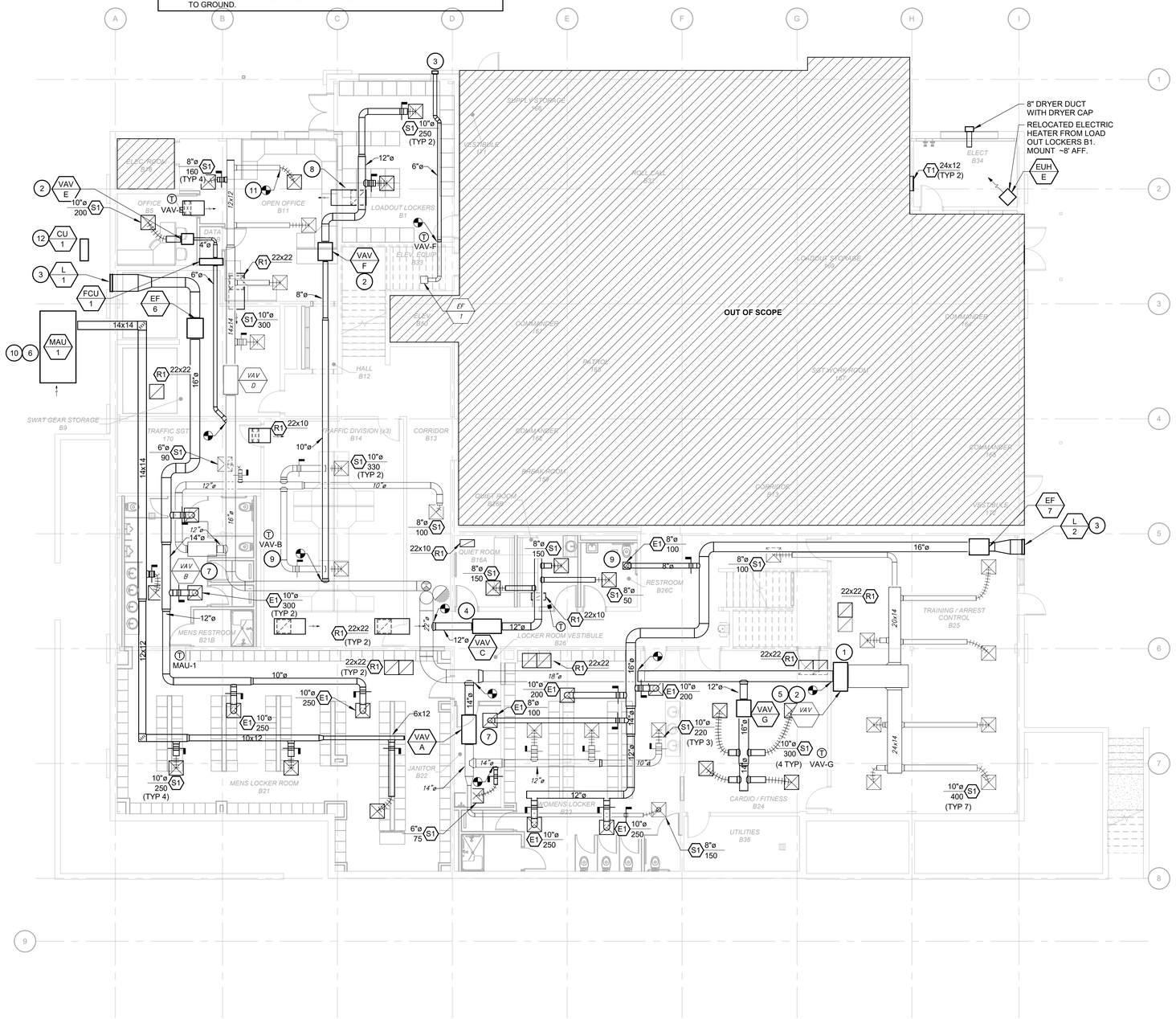
A. REFER TO SHEET M-001 FOR ADDITIONAL MECHANICAL GENERAL NOTES.

B. ALL SYSTEMS HAVE BAS CONTROLS. TIE NEW EQUIPMENT INTO EXISTING BAS SYSTEM.

C. PROVIDE DUCT LINER (MIN. R-6) IN ALL RECTANGULAR SUPPLY AND RETURN DUCTS. ALL ROUND SUPPLY AND RETURN DUCTS SHALL HAVE FOIL-FACED WRAP INSULATION WITH A MINIMUM R-6 VALUE.

D. ENTIRE CEILING SPACE SHALL BE TREATED AS A RETURN AIR PLENUM. ALL COMPONENTS LOCATED IN PLENUM SHALL BE PLENUM-RATED AND/OR MEET 25/50 FIRE/SMOKE SPREAD REQUIREMENTS.

E. INSTALL REMOTE CABLE ASSEMBLIES FOR ALL BALANCING DAMPERS LOCATED IN INACCESSIBLE SPACES.



1 BASEMENT HVAC PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16

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Schematic Design	1/21/22

issue / revision

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chkd CF

description

BASEMENT HVAC PLAN

NOT FOR BIDDING

number

M-101

GENERAL NOTES

A. REFER TO SHEET M-001 FOR ADDITIONAL MECHANICAL GENERAL NOTES.

B. ALL SYSTEMS HAVE BAS CONTROLS. TIE NEW EQUIPMENT INTO EXISTING BAS SYSTEM.

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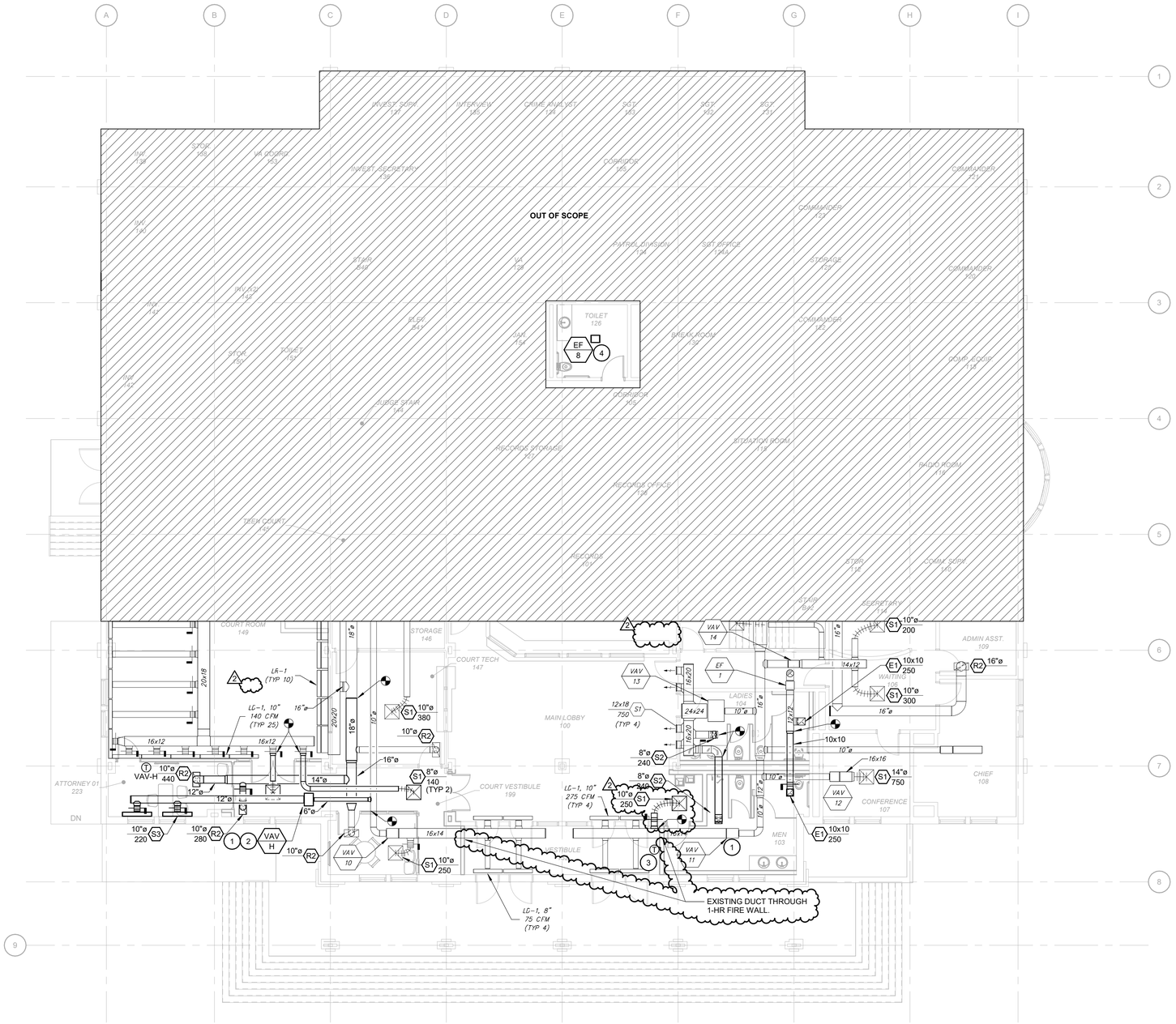
KEYNOTES (#)

1 PROVIDE ACCESS PANEL. COORDINATE PANEL COLOR WITH ARCHITECT.

2 INSTALL NEW VAV AS SHOWN ON SCHEDULE SHEET M-601.

3 RELOCATE EXISTING THERMOSTAT AS SHOWN.

4 INSTALL NEW EXHAUST FAN AT EXISTING CEILING PENETRATION AND CONNECT TO EXISTING DUCTWORK, POWER AND CONTROLS.



1 FIRST FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16

TRUE NORTH

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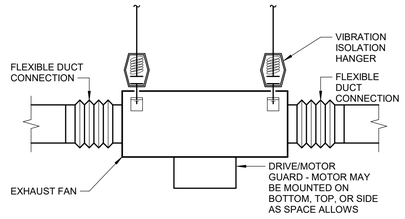
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FIRST FLOOR HVAC PLAN

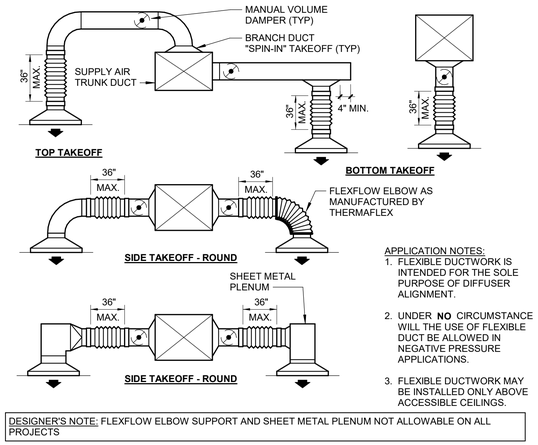
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M-102

FOR BIDDING



6 IN-LINE EXHAUST FAN

SCALE: No Scale



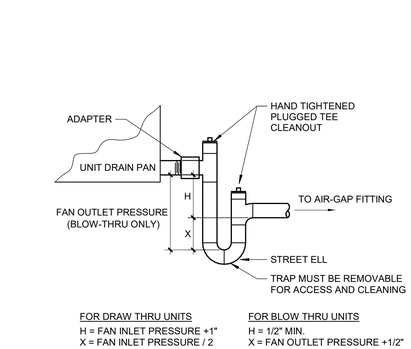
APPLICATION NOTES:

1. FLEXIBLE DUCTWORK IS INTENDED FOR THE SOLE PURPOSE OF DIFFUSER ALIGNMENT.
2. UNDER **NO** CIRCUMSTANCE WILL THE USE OF FLEXIBLE DUCT BE ALLOWED IN NEGATIVE PRESSURE APPLICATIONS.
3. FLEXIBLE DUCTWORK MAY BE INSTALLED ONLY ABOVE ACCESSIBLE CEILINGS.

DESIGNER'S NOTE: FLEXFLOW ELBOW SUPPORT AND SHEET METAL PLENUM NOT ALLOWABLE ON ALL PROJECTS

3 FLEXIBLE DUCT CONNECTIONS

SCALE: No Scale

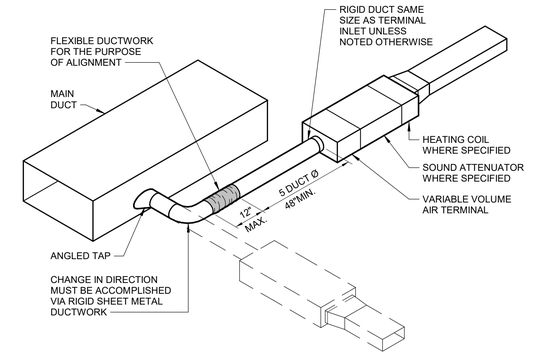


FOR DRAW THRU UNITS
H = FAN INLET PRESSURE +1"
X = FAN INLET PRESSURE / 2

FOR BLOW THRU UNITS
H = 1/2" MIN.
X = FAN OUTLET PRESSURE +1/2"

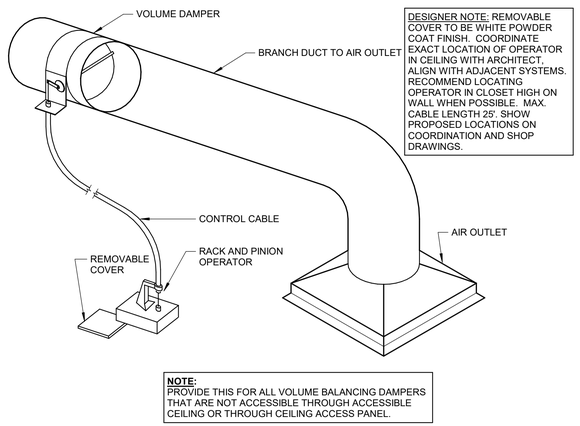
5 CONDENSATE DRAIN

SCALE: No Scale



2 VAV AIR TERMINAL INSTALLATION

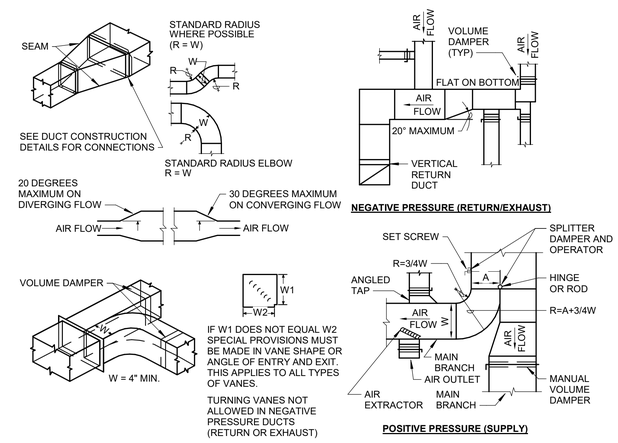
SCALE: No Scale



NOTE:
PROVIDE THIS FOR ALL VOLUME BALANCING DAMPERS THAT ARE NOT ACCESSIBLE THROUGH ACCESSIBLE CEILING OR THROUGH CEILING ACCESS PANEL.

4 REMOTE DAMPER CONTROL SYSTEM

SCALE: No Scale



1 RECTANGULAR DUCT CONSTRUCTION

SCALE: No Scale

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seal

issue / revision	date:
Developmt Svcs Rvw	7/20/22
Construction Doc.	5/13/22
Design Development	3/11/22
Schematic Design	1/21/22

issue / revision

job # 163-19
drawn RA
chkd CF

description
DIAGRAMS

FOR BIDDING

number
M-501

MAKEUP AIR UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	LOCATION	SERVICE	FAN			COOLING SECTION							HEATING SECTION					FILTER				ELECTRICAL DATA				PHYSICAL DATA				REMARKS
					CFM	ESP (IN. W.C.)	BHP	REF.	MAX. FACE VEL. (FPM)	TOTAL NET CAP. (MBH)	SENS. NET CAP. (MBH)	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	TYPE	INPUT (MBH)	OUTPUT (MBH)	EAT (°F)	LAT (°F)	TYPE	MERV	THICK. (IN.)	MAX. FACE VEL. (FPM)	V/PH	FLA	MCA	MOP	L (IN.)	W (IN.)	H (IN.)	WT. (LB.)	
MAU-1	TRANE	OABD048F3	NORTH SIDE	MENS LOCKER RM. (B21), MENS RR (B21B)	1000	1.2	0.34	R410A	500	36.7	36.7	96	60	54	45	NAT. GAS	125	84	-3	92	PLEATED	8	2	500	208/3	30.8	34.8	50	119	55	55	1339	ALL

NOTES:
1. PROVIDE WITH STAINLESS STEEL HEAT EXCHANGER WITH MINIMUM 5:1 TURNDOWN, NON-FUSED DISCONNECT, HAIL GUARD, SUPPLY DISCHARGE AIR SENSOR, OUTDOORS AIR SENSOR, AND EQUIPMENT CURB.
2. SCCR = 5kA
3. PROVIDE WITH NON-POWERED CONVENIENCE OUTLET.
4. PROVIDE WITH THERMOSTAT FOR OWNER OCCUPANCY HOURS; REFER TO S.O.O. FOR SETPOINTS.
5. PROVIDE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE AROUND THE ENTIRE UNIT. UNIT TO BE LOCATED SUCH THAT NO PIPING, CONDUIT, DUCTWORK, ETC. ARE ROUTED WITHIN THE SERVICE AREA OF THE UNIT.
6. INSTALL CONDENSATE DRAIN TO DRIP AWAY FROM THE BUILDING AND EQUIPMENT PAD.
7. UPLOAD EQUIPMENT AND APPLIANCES INSTALLATION MANUAL TO TCR eTRAKIT.
8. UPLOAD TAB REPORT TO TCR eTRAKIT. PROVIDE A PAPER COPY TO INSPECTOR AT THE JOB SITE FOR INSPECTIONS.

TABLE 403.3.1.1 MINUMIM VENTILATION RATES, 2018 IMC

IN ACCORDANCE WITH THE 2018 INTERNATIONAL MECHANICAL CODE

EQUIPMENT/ROOM	OCCUPANCY CLASSIFICATION	FLOOR AREA	PEOPLE AIRFLOW RATE IN BREATHING ZONE	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE	EXHAUST AIRFLOW RATE	OCCUPANT DENSITY	OCCUPANTS	VENTILATION EFFECTIVENESS	EXHAUST AIRFLOW RATE REQUIRED	EXHAUST AIRFLOW RATE PROVIDED	MINIMUM OUTDOOR AIRFLOW REQUIRED	TOTAL OUTDOOR AIR SUPPLIED
		FT2	CFM/PERSON	CFM/FT2	CFM/FT2	PEOPLE/1000FT2	PEOPLE		CFM	CFM	CFM	
AHU-1 (BASEMENT)												
OFFICE (B5)	OFFICE SPACES	80	5	0.06	-	5	1	0.8	-	-	12	15
LOADOUT LOCKERS (B1)	LOCKER/DRESSING ROOMS	350	0	0	0.25	0	0	0.8	88	90	-	-
QUIET ROOM (B16A)	OFFICE SPACES	85	5	0.06	-	5	1	0.8	-	-	13	15
QUIET ROOM (B26B)	OFFICE SPACES	85	5	0.06	-	5	1	0.8	-	-	13	15
RESTROOM (B26C)	TOILET ROOMS - PUBLIC	78	0	0	70/TOILET	0	0	-	70	80	-	-
TRAINING/ARREST CONTROL (B25)	LECTURE CLASSROOM	995	7.5	0.06	-	65	33	0.8	-	-	379	380
CARDO/FITNESS (B24)	HEALTH CLUB/AEROBICS ROOM	450	20	0.06	-	40	3	0.8	-	-	109	120
WOMENS LOCKER RM (B23)	LOCKER/DRESSING ROOMS	840	0	0	0.25	0	0	-	210	400	-	-
WOMENS LOCKER RM (B23)	TOILET ROOMS - PUBLIC	-	0	0	50/SHOWER + 50/TOILET	0	0	-	300	500	-	30
LOCKER ROOM VEST. (B26)	CORRIDORS	50	-	0.06	-	-	0	0.8	-	-	4	5
VESTIBULE (B4) NOW OFFICE	OFFICE SPACES	83	5	0.06	-	5	1	0.8	-	-	12	15
AHU-1 (FIRST FLOOR)												
MEN (103)	TOILET ROOMS - PUBLIC	212	0	0	50/SHOWER + 50/TOILET	0	0	-	150	250	-	-
LADIES (104)	TOILET ROOMS - PUBLIC	169	0	0	50/SHOWER + 50/TOILET	0	1	-	150	250	-	-
ATTORNEY 01 (223)	OFFICE SPACES	53	5	0.06	-	5	1	0.8	-	-	10	15
ATTORNEY 02 (224)	OFFICE SPACES	58	5	0.06	-	5	1	0.8	-	-	11	15
COURT VEST. (199)	CORRIDORS	66	-	0.06	-	-	0	0.8	-	-	5	5
MAU-1 (BASEMENT)												
MENS RESTROOM (B21B)	TOILET ROOMS - PUBLIC	377	0	0	50/SHOWER + 50/TOILET	0	0	-	400	600	-	30
MENS LOCKER RM (B21)	LOCKER/DRESSING ROOMS	1165	0	0	0.25	0	0	-	291	500	-	95

VARIABLE AIR VOLUME TERMINAL SCHEDULE (WITH REHEAT COIL)

MARK	MANUFACTURER	MODEL	LOCATION	SERVICE	MAX. COOLING CFM	MIN. COOLING CFM	VOLTS/PH	ELECTRIC HEAT KW	LAT	FLA	MCA	INLET SIZE (IN.)	OUTLET SIZE (IN.)	PHYSICAL DATA				REMARKS
														L (IN.)	W (IN.)	H (IN.)	WT. (LBS.)	
(E)VAV-A	TRANE	VCCE-10	JANITOR (B22)	WOMENS LOCKER (B23)	1150	500	-	-	-	-	-	-	-	-	-	-	-	1, 3, 4
(E)VAV-B	TRANE	VCCE-10	MENS RESTROOM (B21B)	TRAFFICE SGT (170), TRAFFIC DIVISION (B14)	1200	500	-	-	-	-	-	-	-	-	-	-	-	1, 3, 4
(E)VAV-C	TRANE	VCCE-06	CORRIDOR (B13)	QUIET RM (B16A), QUIET RM (B16A), RESTROOM (B26C)	400	50	208/3	1.0	-	-	-	-	-	-	-	-	-	1, 3, 4
(E)VAV-D	TRANE	VCCE-16	SWAT GEAR STORAGE (B9)	SWAT GEAR STORAGE (B9), OPEN OFFICE (B11)	940	400	208/3	4.0	-	-	-	-	-	-	-	-	-	1, 3, 4
VAV-E	TRANE	VCEF-04	OFFICE (B5)	OFFICE (B5)	200	100	208/3	1.0	93.4	2.8	3.5	4	11x10	42.5	18.5	11.5	43	2, 3, 5
VAV-F	TRANE	VCEF-06	OPEN OFFICE (B11)	LOUDOUT LOCKERS (B1)	500	100	208/3	2.5	100.3	6.9	8.7	6	11x10	42.5	18.5	11.5	43	2, 3, 5
VAV-G	TRANE	VCEF-10	CARDIO/FITNESS (B24)	CARDIO/FITNESS (B24)	1200	200	208/3	2.0	93.4	5.6	6.9	10	14x12	42.5	21.5	13.5	51	2, 3, 5
VAV-H	TRANE	VCEF-06	COURT VESTIBULE (199)	ATTORNEY 01 (223), ATTORNEY 02 (224)	475	100	208/3	3.0	108.6	8.3	10.4	6	11x10	42.5	18.5	11.5	43	2, 3, 5

NOTES:
1. EXISTING UNIT.
2. NEW UNIT.
3. BASED ON ELEVATION 6,000 FT.
4. REBALANCE EXISTING ASSOCIATED SUPPLY AIR DEVICES.
5. PROVIDE DISCONNECT SWITCH
6. COOLING CFM IS ALSO HEATING CFM.

FAN COIL SCHEDULE

MARK	MANUFACTURER	MODEL	SUPPLY FAN		COOLING		SERVICE	ELECTRICAL DATA			PHYSICAL DATA				REMARKS
			CFM	MIN. OA CFM	TOTAL CAP (MBH)	SENS. CAP (MBH)		V/PH	MCA	MOCP	L (IN.)	W (IN.)	H (IN.)	WT. (LB.)	
FCU-1	DAIKIN	RK18AXVJU	467	0	18	14.48	IT CLOSET	208/1	0.5	-	39.5	11	12	31	ALL

NOTES:
1. PROVIDE WITH WALL MOUNTED WIRED THREMOSTAT.
2. PROVIDE WITH CONDENSATE OVERFLOW SWITCH.
3. ROUTE CONDENSATE TO THE TAILPIECE OF NEARBY SINK.
4. PROVIDE CONDENSATE PUMP.
5. POWERED FROM CU-1 CONDENSER.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	DRIVE	SERVICE	CFM	ESP (IN. W.C.)	SONES	ELECTRICAL DATA			PHYSICAL DATA				REMARKS
									MOTOR HP	V/PH	FLA	L (IN.)	W (IN.)	H (IN.)	WT. (LBS.)	
EF-6	GREENHECK	SQ-120-VG	INLINE	DIRECT	MENS RESTROOM (B21B), MENS LOCKER RM (B21)	1100	0.8	9.5	0.75	115/1	10	19	21	19	55	1-5
EF-7	GREENHECK	SQ-120-VG	INLINE	DIRECT	WOMENS LOCKER RM (B23), JANITOR (B22), RESTROOM (B26C)	1100	0.8	9.5	0.75	115/1	10	19	21	19	55	1-5
EF-8	GREENHECK	CSP-A250	CABINET	DIRECT	TOILET (126)	80	0.5	2	0.06	115/1	0.56	14	12	11	23	2-6

NOTES:
1. PROVIDE WITH PROGRAMMABLE TIMECLOCK TO HAVE FAN RUN DURING OCCUPIED HOURS.
2. PROVIDE WITH ELECTRICAL DISCONNECT.
3. PROVIDE FAN SPEED CONTROLLER TO BALANCE FAN SPEED.
4. PROVIDE WITH GRAVITY OPERATED DAMPER.
5. CONTROL WITH LIGHT SWITCH.

CONDENSING UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	SERVICE	AMBIENT TEMP. (°F)	REFRIG. TYPE	NOM. CAP. (MBH)	SEER	COMPRESSOR		ELECTRICAL DATA			PHYSICAL DATA				REMARKS
								QTY.	RLA EACH	V/PH	MCA	MOCP	L (IN.)	W (IN.)	H (IN.)	WT. (LB.)	
CU-1	DAIKIN	FTK18AXVJU	FCU-1	93	R410A	18	14.48	1	13	208/1	13.4	20	36.5	14	28	99	ALL

NOTES:
1. INSTALL UNIT ON GROUND WITH CONCRETE PAD.
2. PROVIDE UV RESITANT REFRIGERANT LINE INSULATION. SEAL WALL PENETRATIONS WATER TIGHT.
3. COOLING ONLY UNIT.
4. PROVIDE DISCONNECT ON UNISTRUT SUPPORT OR WALL, NOT ON UNIT.
5. PROVIDE HAIL GUARDS, FIELD FABRICATE WITH EXPANDED METAL OR PLASTIC ROLL HAIL GUARD.
6. SCCR = 5KA
7. PROVIDE WITH NECESSARY WIND BAFFLE AND FIELD SETTINGS FOR EXTENDED OPERATION RANGE OF -4° TO 115°F.

AIR DEVICE SCHEDULE

MARK	MANUFACTURER	MODEL	SERVICE	STYLE	FACE SIZE	FRAME	FINISH	MATERIAL	REMARKS
S1	TITUS	OMNI	SUPPLY	PLAQUE	24x24	LAY-IN	WHITE	ALUMINUM	1
S2	TITUS	OMNI	SUPPLY	PLAQUE	12x12	SURFACE	WHITE	ALUMINUM	1,2
S3	TITUS	FTI-10	SUPPLY	LINEAR SLOT	4'	SURFACE	WHITE	ALUMINUM	4
R1	TITUS	50F	RETURN	EGGCRATE	24x24	LAY-IN	WHITE	ALUMINUM	1,3
R2	TITUS	50F	RETURN	EGGCRATE	12x24	LAY-IN	WHITE	ALUMINUM	1
E1	TITUS	350RL	EXHAUST	GRILLE	NECK +2"	SURFACE	WHITE	ALUMINUM	1,2
T1	TITUS	355RL	TRANSFER	GRILLE	NECK +2"	SURFACE	WHITE	ALUMINUM	

NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH REFLECTED CEILING PLAN.
2. PROVIDE TITUS "RAPID MOUNT" FRAMES AT GYPSUM CEILINGS.
3. PROVIDE WITH 1/2"x1/2"x1/2" CORE.
4. 2.5" SLOT WIDTH, 1-SLOT, NC BELOW NC 15, AND INSULATED.

LOUVER SCHEDULE

MARK	MANUFACTURER	MODEL	SERVICE	CFM	FREE AREA (SF)	MAX. AIR P.D. (IN. W.C.)	MATERIAL	PHYSICAL DATA			REMARKS
								D (IN.)	W (IN.)	H (IN.)	
L1	GREENHECK	ESD-403	MENTS RR (B21B), MENS LOCKER RM (B21)	1100	2.1	0.05	ALUMINUM	4	28	24	1
L2	GREENHECK	ESD-403	WOMENS LOCKER RM (B23), JANITOR (B22), RESTROOM (B26C)	1100	2.1	0.05	ALUMINUM	4	28	24	1

NOTES: 1. COLOR PER ARCHITECT.

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seal

issue / revision date:
Developmt Svcs Rvw 7/20/22
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Design Development 3/11/22
Schematic Design 1/21/22

issue / revision

job # 163-19
drawn RA
chkd CF

SCHEDULES

description

FOR BIDDING

number M-601

GENERAL NOTES

A. REFER TO SHEET M-001 FOR ADDITIONAL MECHANICAL GENERAL NOTES.

B. LOCATION OF EXISTING DUCTWORK IS BASED ON REFERENCE CONSTRUCTION DRAWINGS. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATION DURING DEMOLITION OPERATIONS.

KEYNOTES (#)

1 REMOVE AND RETAIN ELECTRIC HEATER FOR LAUNDRY ROOM.

2 VAV BOX TO BE REMOVED AND RELOCATED TO THE TRAINING/ARREST CONTROL (B25) ROOM AS SHOWN ON DRAWING M-101. INSTALL DUCTWORK WHERE UNIT IS REMOVED.

3 DEMO DUCTS AS SHOWN. REFER TO NEW WORK ON DRAWING M-101.

4 VAV BOX TO BE REMOVED AND RELOCATED TO CORRIDOR (B13) AS SHOWN ON DRAWING M-101. INSTALL DUCTWORK WHERE UNIT IS REMOVED. DEMO SUPPLY DUCTWORK AS SHOWN. REFER TO NEW WORK.

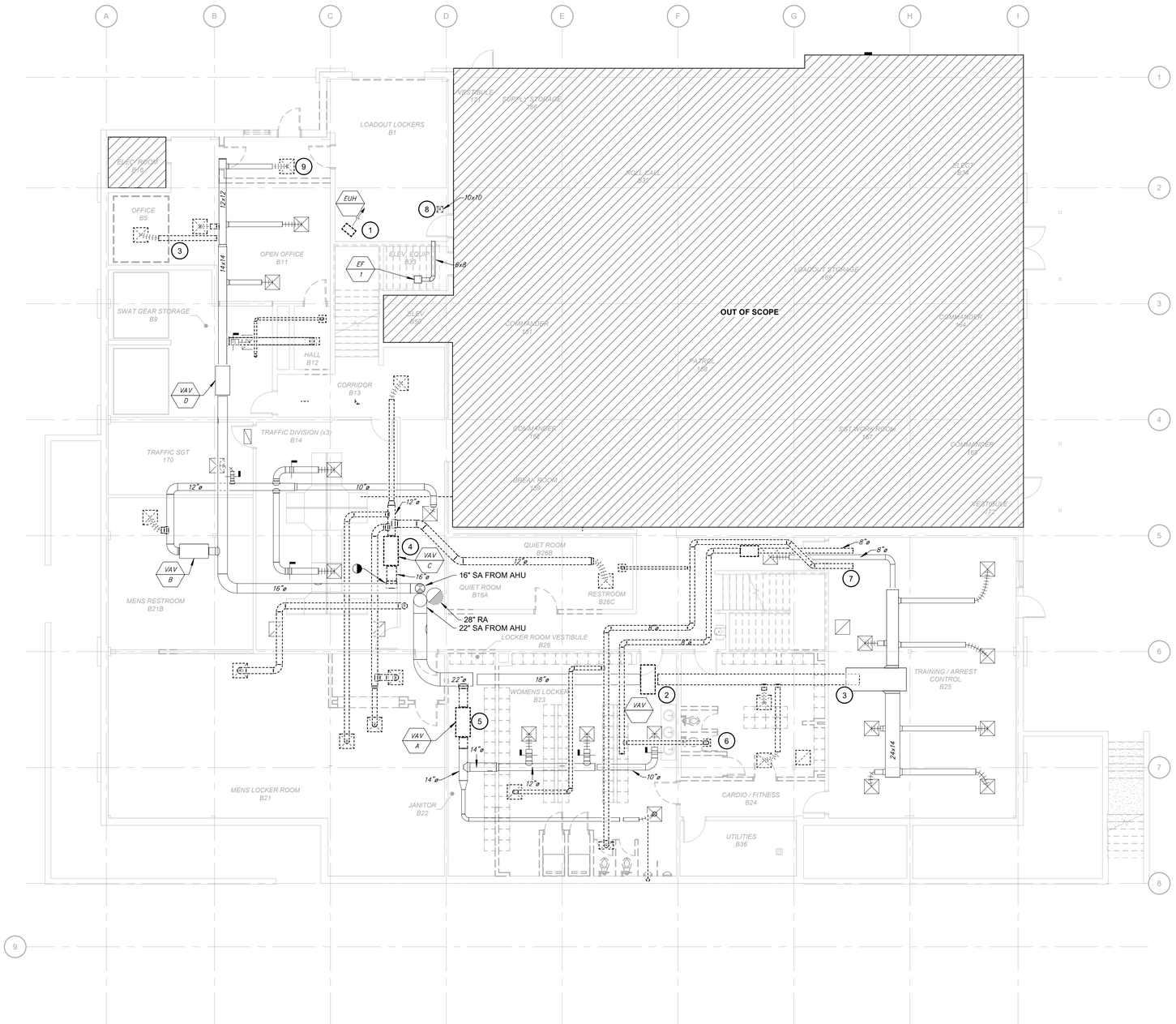
5 RELOCATE EXISTING VAV-A BOX AS SHOWN ON DRAWING M-101 TO MAKE ROOM FOR NEW WALL. FIELD-VERIFY CURRENT LOCATION. REFER TO NEW WORK.

6 DEMO EXHAUST SYSTEM FROM DIFFUSER TO BUILDING PENETRATION AND CAP.

7 DEMO EXISTING EXHAUST DUCTWORK AND FAN BACK TO WALL AND CAP.

8 DEMO AND CAP DUCT ABOVE CEILING.

9 DEMO AND RELOCATE. SEE SHEET M-101 FOR NEW LOCATION.



1 **BASEMENT HVAC DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

0 4 8 16 TRUE NORTH

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BASEMENT HVAC DEMOLITION PLAN

description

FOR BIDDING

number MD-101

GENERAL NOTES

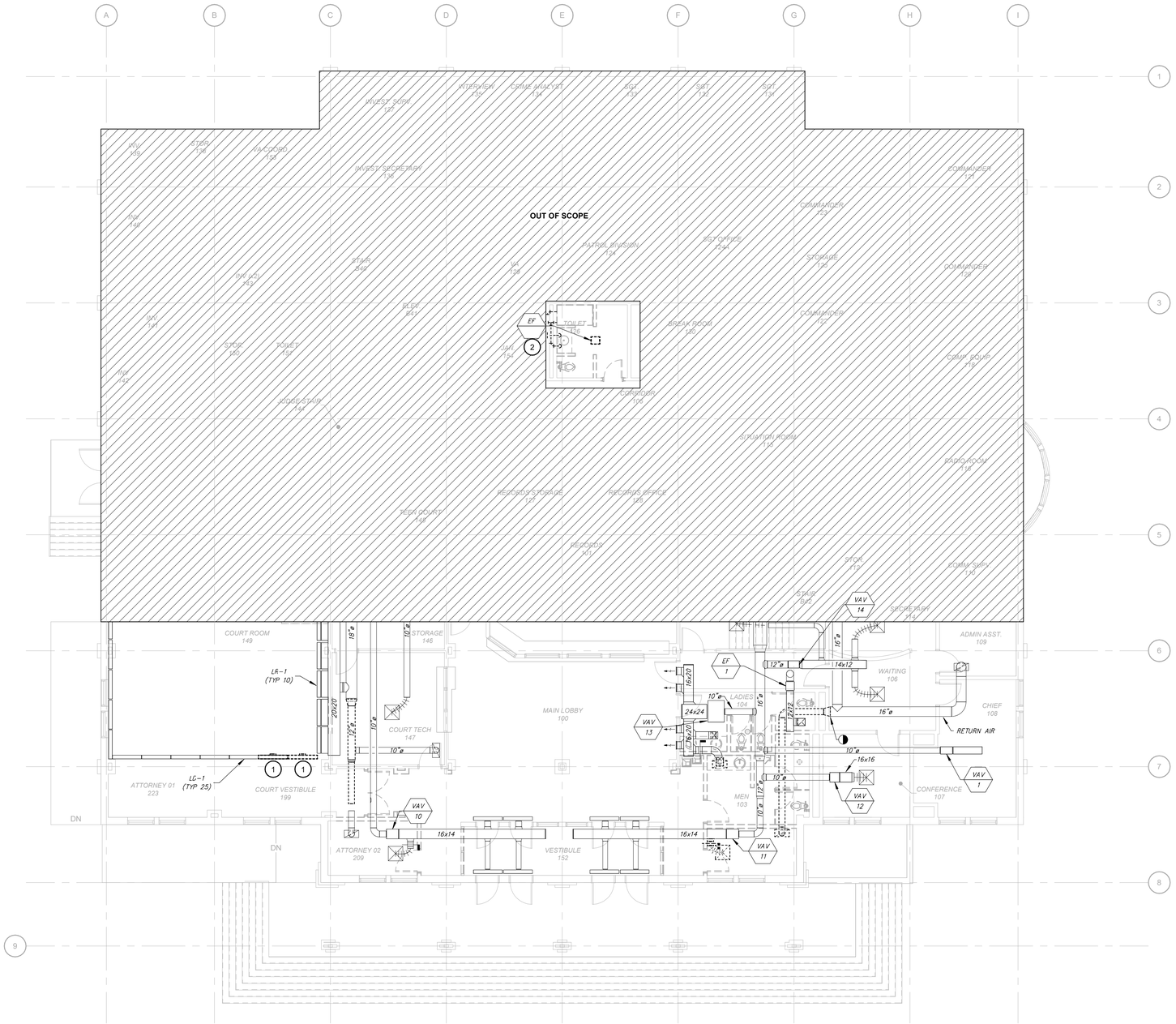
A. REFER TO SHEET M-001 FOR ADDITIONAL MECHANICAL GENERAL NOTES.

B. LOCATION OF EXISTING DUCTWORK IS BASED ON REFERENCE CONSTRUCTION DRAWINGS. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATION DURING DEMOLITION OPERATIONS.

KEYNOTES (#)

1 DEMO LINEAR DIFFUSER.

2 DEMO EXISTING EXHAUST FAN AT CEILING. KEEP ALL EXISTING DUCTWORK AND PREPARE FOR REUSE. REFER TO NEW WORK.



1 FIRST FLOOR HVAC DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16

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chkd CF

FIRST FLOOR HVAC DEMOLITION PLAN

description

FOR BIDDING

number MD-102

SYMBOLS LEGEND

NOTE: NOT ALL SYMBOLS ARE USED IN CONSTRUCTION DOCUMENTS

PIPING

- PIPE SLOPE ARROW
- FLOW ARROW
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- 3-WAY CONTROL VALVE
- ANGLE GATE VALVE
- ANGLE GLOBE VALVE
- BALANCING/SHUTOFF VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CALIBRATED BALANCING VALVE
- CHECK VALVE
- CONTROL VALVE
- EXPANSION VALVE
- GAS COCK
- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE (WATER)
- PRESSURE REGULATOR (GAS)
- QUICK OPEN VALVE
- SAFETY RELIEF VALVE
- SOLENOID VALVE
- VACUUM RELIEF VALVE
- BACKFLOW PREVENTER
- HOSE BIBB / SILLCOCK
- AUTOMATIC AIR VENT
- PRESSURE GAUGE
- THERMOMETER
- (F) FLOW SWITCH
- (P) PRESSURE SWITCH
- (T) TEMPERATURE SWITCH
- PIPE UNION
- WYE STRAINER
- WYE STRAINER W/DRAIN VALVE
- PUMP
- OR FLOOR DRAIN - ROUND OR SQUARE
- OR FLOOR CLEANOUT - ROUND OR SQUARE
- CO SUSPENDED CLEANOUT
- WCO WALL CLEANOUT
- PIPE CAP
- PIPE TURNING DOWN
- PIPE TURNING UP
- TEE UP
- TEE DOWN
- DROP AND RUN
- DROP AND TURN
- TEE OFF TOP
- TEE OFF BOTTOM
- CROSS AND RISER
- PLAN 90° ELBOW
- PIPE TEE
- FLEXIBLE PIPE CONNECTOR
- PIPE ANCHOR
- PIPE GUIDES
- (M) WATER METER

GENERAL

- ## / # DETAIL OR SECTION MARK — ## DETAIL #, # SHEET #
- POINT OF NEW CONNECTION
- POINT OF TERMINATION/CAP
- L1 PLUMBING EQUIPMENT DESIGNATION
- # PLUMBING KEYNOTE
- K22 KITCHEN EQUIPMENT DESIGNATION
- NEW BOLD TEXT INDICATES NEW ITEM
- *EXISTING* ITALIC TEXT INDICATES EXISTING ITEM
- LINE STYLE INDICATES DEMOLISHED ITEM

PIPING SYSTEM

———	AW	ACID WASTE
	CA	COMPRESSED AIR
	CD	CONDENSATE DRAIN
	CO2	CARBON DIOXIDE
	G	NATURAL GAS
	GW	GREASE WASTE
	MA	MEDICAL AIR
	N2	NITROGEN
	N2O	NITROUS OXIDE
	OST	OVERFLOW STORM
	OW	OIL WASTE
	O2	OXYGEN
	PD	PUMP DISCHARGE
	ST	STORM
	VAC	VACUUM
	WAGD	WASTE ANESTHETIC GAS DISPOSAL
	W	SANITARY WASTE
— — —	AV	ACID VENT
	OV	OIL VENT
	V	SANITARY VENT
——-——	CW	DOMESTIC COLD WATER
	DI	DE-IONIZED WATER
	FCW	FILTERED COLD WATER
	LCW	LAB COLD WATER
	NPCW	NONPOTABLE COLD WATER
	RO	REVERSE OSMOSIS WATER
	SCW	SOFTENED COLD WATER
——-·-·——	HW	DOMESTIC HOT WATER
	HW (---)	DOMESTIC HOT WATER (OTHER TEMP)
	LHW	LAB HOT WATER
	TW	TEPID WATER
——-·--·——	HWC	DOMESTIC HW RECIRCULATION
	LHWC	LAB HW RECIRCULATION

ABBREVIATIONS

AC	ABOVE CEILING
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
BAS	BUILDING AUTOMATION SYSTEM
BF	BELOW FLOOR
BG	BELOW GRADE
BH	BOOSTER HEATER
BFP	BACKFLOW PREVENTION DEVICE
BJ	BETWEEN JOISTS
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNITS PER HOUR
CF	COMBINATION FIXTURE
COND	CONDENSATE
CP	CONDENSATE PUMP
CSS	CLINICAL SERVICE SINK
CV	CONTROL VALVE
DF	DRINKING FOUNTAIN
DN	DOWN
DS	DOWNSPOUT NOZZLE
DW	DISHWASHER
EC	ELECTRICAL CONTRACTOR
EEW	EMERGENCY EYE WASH
ESH	COMB. EMERGENCY EYE WASH/SHOWER
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FA	FROM ABOVE
FB	FROM BELOW
FBO	FURNISHED BY OTHERS
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FPC	FIRE PROTECTION SUBCONTRACTOR
FS	FLOOR SINK
FT	FILL TANK
GD	GARBAGE DISPOSAL
GPM	GALLONS PER MINUTE
GWH	GAS WATER HEATER
GC	GENERAL CONTRACTOR
HAP	HIGH AS POSSIBLE
HB	HOSE BIBB (INTERIOR)
HS	HOSE STATION
HWCP	HOT WATER RECIRCULATION PUMP
IM	ICE MAKER
L	LAVATORY
LT	LAUNDRY TUB
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MSB	MOP SINK BASIN
NTS	NOT TO SCALE
ORD	OVERFLOW ROOF DRAIN
P	PUMP
PC	PLUMBING CONTRACTOR
PRV	PRESSURE RELIEF VALVE
RD	ROOF DRAIN
SC	SILLCOCK (EXTERIOR)
SE	SEWAGE EJECTOR
SF	SQUARE FOOT
SH	SHOWER
SK	SINK
SP	SUMP PUMP
SS	SERVICE SINK
TFA	TO FLOOR ABOVE
TB	TO BELOW
TFB	TO FLOOR BELOW
TMV	THERMOSTATIC MIXING VALVE
TOP	TOP OF PIPE
UR	URINAL
VB	VACUUM BREAKER
VTR	VENT THRU ROOF
WB	WASHER BOX
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WASH FOUNTAIN
WFL	WATER FILTER
WS	WATER SOFTENER
YCO	YARD CLEANOUT

GENERAL NOTES

COMMON REQUIREMENTS

A. WORK SHALL BE PERFORMED BY A LICENSED PLUMBER OF THE STATE OF COLORADO.

B. MATERIALS, INSTALLATION AND TESTING SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF STATE AND LOCAL CODE PROCEDURES, METHODS AND REQUIREMENTS, INCLUDING THE MOST STRINGENT OF HEALTH AND SAFETY STANDARDS AS REQUIRED AND AS INTERPRETED BY THE AUTHORITY HAVING JURISDICTION. APPLICABLE CODES AND STANDARDS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
"COLORADO STATE PLUMBING CODE 2021"
"INTERNATIONAL PLUMBING CODE 2018"
"INTERNATIONAL FUEL GAS CODE 2018"
"INTERNATIONAL FIRE CODE 2018"
"INTERNATIONAL ENGERY CONSERVATION CODE 2015"
APPLICABLE LOCAL AND MUNICIPAL CODES AND ORDINANCES.

C. MEANING AND INTENT OF DRAWINGS: DRAWINGS ARE DIAGRAMMATIC AND PLUMBING SYSTEMS ARE SHOWN IN SCHEMATIC FORM. DRAWINGS DO NOT SHOW EVERY PLUMBING SYSTEM COMPONENT AND SHOULD BE FOLLOWED AS CLOSELY AS CIRCUMSTANCES WILL PERMIT. PLUMBING SYSTEM INSTALLATIONS RELATED TO THIS PROJECT SHALL BE PROVIDED TO MEET THE INTENT AND MEANING OF THE DRAWINGS IN COMPLIANCE WITH APPLICABLE CODES, AND STANDARDS. WHERE APPLICABLE THE PLUMBING CONTRACTOR SHALL FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION. REPORT ANY QUESTIONS, OR CONCERNS TO THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH WORK. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. MINOR CHANGES IN LOCATIONS OF PLUMBING EQUIPMENT, &/OR SYSTEMS FROM THOSE INDICATED ON DRAWINGS SHALL BE MADE WITHOUT EXTRA COST. A COMPLETE AND OPERATIONAL PLUMBING SYSTEM SHALL BE PROVIDED.

D. THE PLUMBING CONTRACTOR SHALL REFER TO BOTH DRAWINGS AND SPECIFICATIONS FOR ALL PLUMBING CRITERIA REQUIRED FOR THIS PROJECT.

E. PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL PLUMBING UTILITY SERVICES FROM 5'-0" OUTSIDE BUILDING FOUNDATION WALL TO WITHIN THE BUILDING UNLESS NOTED OTHERWISE ON PLANS. SEE SITE UTILITY PLANS FOR RELATED SITE UTILITY WORK BY OTHERS.

F. COORDINATE ROUTING OF PIPING WITH ALL OTHER TRADES AND STRUCTURAL CONDITIONS TO AVOID ANY ROUTING CONFLICTS OR SERVICE INTERFERENCES.

G. MAINTAIN A MINIMUM CLEARANCE IN FRONT OF AND FROM EITHER SIDE OF ELECTRICAL PANELS, EQUIPMENT, ETC., AS OUTLINED IN NEC STANDARDS. PIPE SYSTEMS SHALL NOT BE ROUTED DIRECTLY OVER PANELS, EQUIPMENT, ETC.

H. INCLUDE IN BID, ALL LICENSE, PERMIT, INSPECTION AND OTHER FEES REQUIRED BY UTILITY COMPANIES OR AUTHORITIES HAVING JURISDICTION REQUIRED FOR COMPLETION OF WORK SO THAT NO UNEXPECTED ADDITIONAL EXPENSES ARE INTRODUCED TO OWNER.

I. ALL CLEANOUTS, VALVES, WATER HAMMER ARRESTORS, ETC. ARE TO BE ACCESSIBLE. EXTEND PIPING AND COORDINATE ACCESS PANEL SIZE AND LOCATION AS NECESSARY.

J. PLUMBING CONTRACTOR SHALL CLEAN WORK AREA OF ALL DUST AND DEBRIS GENERATED BY THEIR WORK AT THE END OF EACH WORK DAY.

K. ALL PLUMBING SYSTEM VALVES SHALL BE INSTALLED IN A LOCATION AND ORIENTATION THAT WILL PERMIT INTENDED USE.

L. PROVIDE STOPS AND/OR ISOLATION VALVES TO EACH INDIVIDUAL FIXTURE, FIXTURE GROUP OR PIECE OF EQUIPMENT PER APPLICABLE CODES TO ALLOW FOR INDIVIDUAL SERVICING UNLESS NOTED OTHERWISE ON PLANS.

M. SANITARY WASTE PIPING SHALL BE SLOPED AT 1/8-INCH PER FOOT MINIMUM FOR ALL PIPING 4-INCH AND LARGER AND AT 1/4-INCH PER FOOT MINIMUM FOR ALL PIPING 3-INCH AND SMALLER.

N. INDIRECT DRAIN PIPING FROM FIXTURES, SPECIALTIES, AND EQUIPMENT SHALL BE ROUTED TO FLOOR DRAIN OR OTHER APPROVED RECEPTACLE AND TERMINATED WITH AN AIR GAP 2 TIMES THE DIAMETER OF THE DRAIN PIPING, BUT NOT LESS THAN 1 INCH GAP. SUPPORT PIPING SO DRAIN PIPING CANNOT BE DEFLECTED FROM DRAIN SOURCE.

O. ALL VENTS FROM HORIZONTAL SOIL OR WASTE PIPE SHALL COME OFF TOP OR AT 45 DEGREE VERTICALLY FROM CENTER OF PIPE BEFORE OFFSETTING HORIZONTALLY TO RISER.

P. ALL VENT TERMINATIONS SHALL BE COORDINATED WITH BUILDING OPENINGS, AIR INTAKES AND AIR EXHAUST OPENINGS. ADJUST VENT THROUGH ROOF LOCATIONS TO COMPLY WITH APPLICABLE CODE.

Q. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING ALL HANGERS AND SUPPORTS ARE SECURELY ANCHORED OR ATTACHED TO BUILDING ELEMENTS ADEQUATE FOR INTENDED PLUMBING SYSTEM OR EQUIPMENT.

R. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL NAIL PLATES WHERE PIPING PASSES THROUGH STUD(S) WITHIN 2" OF NAILING SURFACE TO PROTECT PIPE FROM NAILS OR DRYWALL SCREWS.

S. PLUMBING CONTRACTOR SHALL PROVIDE APPROVED WATER HAMMER ARRESTORS IN WATER LINES SERVING QUICK-CLOSING VALVES, BATTERIED, OR BACK TO BACK FIXTURES WITH INDIVIDUAL ISOLATION VALVES.

T. ALL NEWLY INSTALLED CIRCULATED HOT WATER SHALL BE WITHIN THE MAXIMUM ALLOWABLE PIPE LENGTH TO TERMINATE AT EACH FIXTURE, OR APPLIANCE AS OUTLINED IN THE INTERNATIONAL ENERGY CONSERVATION CODE. SPECIAL ATTENTION SHOULD BE PAID TO PUBLIC LAVATORIES WHERE MAXIMUM PIPE LENGTHS ARE LIMITED. REFER TO PLUMBING PLANS AND DETAILS FOR CLARIFICATION.

U. ALL P-TRAPS FOR FLOOR DRAINS AND FLOOR SINKS SHALL BE DEEP SEAL TYPE. TRAPS SHALL MAINTAIN THE SEWER GAS SEALS BY MEANS OF A PRIMING DEVICE DESIGNED FOR SUCH PURPOSES OR BY OTHER METHODS AS ACCEPTABLE BY CODE AND AHJ.

V. PLUMBING CONTRACTOR TO INSTALL, TEST, AND FIELD BALANCE APPROVED EQUIPMENT PER MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS.

W. PROVIDE INSULATION FOR THE PLUMBING PIPING SYSTEMS DESCRIBED IN THESE DRAWINGS AS PER THE IPC AND THE IECC.

X. PLASTIC PIPING SHALL NOT BE ALLOWED IN ANY CAVITY THAT CAN BE USED AS AN AIR TRANSFER PLENUM.

DEMOLITION

A. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF ALL PLUMBING FIXTURES, PIPING, EQUIPMENT, AND ASSOCIATED APPURTENANCES. NO PERSON OTHER THAN A LICENSED PLUMBER SHALL REMOVE PLUMBING ITEMS FROM THEIR ORIGINAL LOCATION.

B. SHUTDOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH OWNER TO LIMIT INTERFERENCE WITH OWNER'S OPERATION AND DOWNTIME. CONTRACTOR SHALL SUBMIT TO OWNER FOR REVIEW AND APPROVAL, THE PROPOSED PHASING PLAN FOR SHUTDOWN OF EXISTING SERVICES.

C. CONTRACTOR SHALL COMPLY WITH GENERAL CONDITIONS AND PROTECTION PROVISIONS SPECIFIED FOR JOINT OWNER/CONTRACTOR OCCUPANCY WORK AREAS.

D. CONTRACTOR SHALL PROTECT EXISTING UTILITIES TO REMAIN FROM DAMAGE DURING DEMOLITION. ANY UTILITIES AND SERVICES DAMAGED SHALL BE REPAIRED AT NO EXPENSE TO OWNER.

E. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES PRIOR TO TEMPORARILY MOVING OR TAKING EQUIPMENT OUT OF SERVICE AS NECESSARY TO COMPLETE WORK.

F. WHERE APPLICABLE, THE PLUMBING CONTRACTOR SHALL COORDINATE WITH THE OWNER AND GENERAL TRADE FOR ANY WALL AND CEILING OPENINGS IN WHICH PLUMBING WORK IS TO BE PERFORMED. GENERAL TRADE SHALL BE RESPONSIBLE FOR PATCHING SUCH WALL AND CEILING OPENINGS TO MATCH EXISTING ONCE PLUMBING INSTALLATION HAS BEEN COMPLETED. WHERE PLUMBING CONTRACTOR IS PRIME, THEY WILL BE RESPONSIBLE FOR ARRANGING ALL WORK DESCRIBED ABOVE AND INCLUDE RELATED COST IN BID.

G. WHERE APPLICABLE THE PLUMBING CONTRACTOR SHALL DEMARCATE EXISTING CONCRETE FLOOR AREAS FOR SAW CUT AND REMOVAL BY GENERAL TRADE. PLUMBING CONTRACTOR SHALL PROVIDE ALL EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF SYSTEM PIPING AND SPECIALTIES. GENERAL TRADE WILL BE RESPONSIBLE FOR PATCHING FLOOR AREAS FLUSH TO MATCH WITH EXISTING FLOOR ONCE PLUMBING INSTALLATION HAS BEEN COMPLETED. WHERE PLUMBING CONTRACTOR IS PRIME, THEY WILL BE RESPONSIBLE FOR ARRANGING ALL WORK DESCRIBED ABOVE AND INCLUDE RELATED COST IN BID.

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description
GENERAL INFORMATION

FOR BIDDING

number
P-001

SPECIFICATIONS

GENERAL PLUMBING REQUIREMENTS

A. PLUMBING CONTRACTOR SHALL THOROUGHLY REVIEW PLUMBING PLANS AND CONTRACT DOCUMENTS TO DETERMINE SCOPE OF WORK. WHERE QUESTIONS ARISE, A WRITTEN REQUEST FOR INFORMATION SHALL BE SUBMITTED DURING THE BIDDING PROCESS.

B. FURNISH ALL MATERIALS, LABOR, INSURANCE, TRANSPORTATION, AND FACILITIES NECESSARY FOR COMPLETE INSTALLATION OF PLUMBING SYSTEMS INDICATED FOR THIS PROJECT.

REGULATORY REQUIREMENTS

A. PLUMBING INSTALLATION SHALL CONFORM TO APPLICABLE STATE AND INTERNATIONAL CODES AND STANDARDS AS ADOPTED BY THE AUTHORITIES HAVING JURISDICTION.

B. PLUMBING CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND SCHEDULING INSPECTIONS PRIOR TO AND THROUGHOUT CONSTRUCTION.

C. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING EACH UTILITY AND INCORPORATING COSTS ASSOCIATED WITH SERVICES, METERS, VAULTS AND SPECIALTIES REQUIRED FOR COMPLETE INSTALLATIONS UNLESS OTHERWISE INDICATED ON PLANS.

SUBMITTALS

A. SUBMIT PRODUCT DATA FOR THE FOLLOWING ITEMS WHERE INDICATED OR SCHEDULED ON PLANS:

1. PLUMBING FIXTURES INCLUDING: WATER CLOSETS, URINALS, SHOWERS, BATHS AND BATH/SHOWER ENCLOSURES, SINKS, MOP BASINS, WASH FOUNTAINS, EMERGENCY EYE/FACE FIXTURES, EMERGENCY SHOWERS, DRINKING FOUNTAINS, ELECTRIC WATER COOLERS, AND SECURITY FIXTURES.
2. PLUMBING DOMESTIC WATER SPECIALTIES INCLUDING: BACKFLOW PREVENTERS, TRAPS, PRESSURE REDUCING VALVES, BALANCE VALVES, MIXING VALVES, OUTLET BOXES, HOSE BIBBS, SILL COCKS, AND TRAP PRIMERS.
3. PLUMBING SANITARY WASTE AND STORM DRAINAGE SPECIALTIES INCLUDING: BACKWATER VALVES, CLEANOUTS, FLOOR DRAINS/SINKS, TRENCH DRAINS, CATCH BASINS, GREASE TRAPS, OIL SEPARATORS, SOLIDS INTERCEPTORS, BOTTLE TRAPS, ROOF DRAINS AND SECONDARY DRAIN OUTLETS.
4. PLUMBING EQUIPMENT INCLUDING: WATER HEATERS, DOMESTIC WATER HEAT EXCHANGERS, STORAGE TANKS, SOFTENERS (AND OTHER WATER CONIDITIONING EQUIPMENT), WATER FILTERS, AIR COMPRESSORS, AIR DRYERS, AIR FILTERS, VACUUM PUMPS, HOSE REELS, AIR REGULATORS/LUBRICATORS, QUICK-CONNECTS, MEDICAL GAS ALARMS AND OUTLETS, LABORATORY GAS TURRETS, AND STORM/SEWER/WATER PUMPS.
5. PLUMBING SYSTEMS INCLUDING DOMESTIC WATER, SANITARY WASTE AND VENT, STORM WATER, LABORATORY GAS, PROCESS, ACID WASTE AND VENT, GAS, AND MEDICAL GAS PIPING.
6. PLUMBING PIPE INSULATION: PRODUCT DESCRIPTION, THERMAL CHARACTERISTICS, LIST OF MATERIALS AND THICKNESSES FOR EACH SERVICE, AND LOCATIONS.
7. MISCELLANEOUS PRODUCT DATA INCLUDING: PIPE SYSTEM INSULATION; EQUIPMENT INSULATION; DOMESTIC WATER VALVES, THERMOMETERS, PRESSURE GAUGES, AND PIPE SYSTEM IDENTIFICATION (PIPE MARKERS, TAGS, ETC.).

B. SUBMIT EQUIPMENT DATA TO INCLUDE THE FOLLOWING WHERE APPLICABLE TO ITEM:

1. LABELING INCLUDING CODE, TESTING, AND AGENCY CERTIFICATIONS.
2. DIMENSIONAL DRAWINGS INCLUDING OVERALL SIZE, ANCHORAGE POINTS, REQUIRED CLEARANCES, UTILITY TYPE, SIZE AND LOCATION OF ALL UTILITY CONNECTIONS.
3. ELECTRICAL CHARACTERISTICS INCLUDING WIRING DIAGRAMS FOR POWER, SIGNAL AND CONTROL WIRING.
4. CONTROL PANEL DATA.
5. ACCESSORIES HIGHLIGHTED TO MATCH SPECIFICATION.
6. PUMP FLOW CURVE DATA AND/OR RATED CAPACITIES.
7. WARRANTY INFORMATION.

PROJECT CLOSEOUT

A. PLUMBING CONTRACTOR SHALL TRAIN OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF EACH PIECE OF EQUIPMENT AND FIXTURES.

B. TURN OVER MANUFACTURER INSTALLATION, PARTS, AND MAINTENANCE MANUALS TO OWNER'S REPRESENTATIVE.

EXECUTION

A. INSTALL PLUMBING SYSTEMS AND APPURTANANCES AS FOLLOWS WHERE APPLICABLE:

1. ALL PIPING SHALL BE INSTALLED PARALLEL WITH OR AT RIGHT ANGLES TO THE BUILDING WALLS WHENEVER POSSIBLE. ALL VERTICAL RISERS SHALL BE INSTALLED PLUMB AND STRAIGHT.
2. DOMESTIC WATER PIPING SHALL BE INSTALLED LEVEL AND WITHOUT PITCH UNLESS OTHERWISE NOTED ON PLANS.
3. INSTALL DIELECTRIC UNIONS, FITTINGS, FLANGES, ETC., WHERE CONNECTING DISSIMILAR METAL PIPE MATERIALS.
4. APPLY FIRE STOP FOR ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS, OR FLOORS. REFERENCE ARCHITECTURAL LIFE SAFETY PLANS FOR LOCATIONS.
5. INSTALL PIPE MARKERS ON PIPING 2-INCH AND LARGER WITH ONE MARKER ON HORIZONTAL RUNS EVERY 50 FEET, OR AT LEAST ONE IN EACH AREA SEPARATED BY FULL HEIGHT WALLS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS WITH LABELING LEGIBLE FROM MOST CONVENIENT VANTAGE POINT AT COMPLETION OF PROJECT.
6. LOCATE MANUAL ISOLATION VALVES AT LOCATION AND IN ORIENTATION ACCESSIBLE FOR INTENDED USE. COORDINATE ACCESS PANEL SIZE AND LOCATION AS NECESSARY.
7. SET DOMESTIC HOT WATER RETURN BALANCE VALVES AND TEST SYSTEM TO ENSURE CIRCULATION FROM EACH LOOP.
8. PERFORM HYDROSTATIC TEST ON WATER PIPING SYSTEMS IN KEEPING WITH LOCAL AHJ REQUIREMENTS.
9. COORDINATE ROUGH-IN INSPECTION, TESTING AND APPROVAL OF SYSTEMS IN PRESENCE OF AUTHORITY HAVING JURISDICTION PRIOR TO BACKFILLING, OR ENCLOSING.
10. FLUSH AND DISINFECT DOMESTIC WATER PIPING AS OUTLINED BY STATE, OR INTERNATIONAL PLUMBING CODES AS APPLICABLE TO PROJECT LOCATION.
11. TEST WASTE AND VENT SYSTEMS TO WITHSTAND 10 FOOT OF HEAD PRESSURE.
12. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS AND FLOORS.
13. INSTALL THERMOMETERS AT EACH DOMESTIC WATER HEATER OUTLET AND OTHER LOCATIONS WHERE INDICATED ON DRAWINGS. LOCATE AND ORIENTATE THERMOMETERS IN OPTIMUM LOCATION FOR READING.
14. LOCATE PIPE-MOUNTED AQUA-STATS UPSTREAM DOMESTIC HOT WATER CIRCULATION PUMPS AND HEAT TRAPS. ADJUST ACTIVATION SETTINGS AND TEST FOR PROPER OPERATION USING REMOTE FIXTURE, OR OUTLET.
15. INSTALL PRESSURE GAUGES UPSTREAM AND DOWNSTREAM OF EACH DOMESTIC WATER REGULATOR, AND AT THE OUTLET OF EACH AIR COMPRESSOR AND/OR RECEIVER AND OTHER LOCATIONS WHERE INDICATED ON DRAWINGS.
16. INSTALL MECHANICAL SLEEVE SEALS WHERE PLUMBING PIPING PASSES THROUGH ELEVATOR PIT WALLS, OR FOUNDATION WALLS BELOW GRADE WHERE SUB-GRADE LEVEL EXISTS.
17. TEST ALL EQUIPMENT CONTROL PANELS AND RELATED FLOATS, OR OTHER COMPONENTS FOR PROPER OPERATION. ENGAGE FACTORY REPRESENTATIVE WHEREVER NEEDED TO OBTAIN INTENDED OPERATION, AND TO TRAIN OWNER'S PERSONNEL WHERE INDICATED ON PLANS, OR SCHEDULES.
18. FILL GREASE AND OIL TRAPS AND INTERCEPTORS WITH COLD WATER UP TO INVERT AFTER INITIAL INSTALLATION AND PRIOR TO OWNER USE.
19. INSTALL SEISMIC RESTRAINTS ON ABOVE GROUND NATURAL GAS PIPING AND OTHER SYSTEMS WHERE APPLICABLE TO PROJECT LOCATION.
20. LEAK TEST COMPRESSED AIR PIPING AT SERVICE PRESSURE AND LET STAND FOR FOUR HOURS WITHOUT DROP IN PRESSURE. REPAIR LEAKS AND RETEST IF NEEDED.
21. ASSURE REDUCED PRESSURE AND DOUBLE CHECK BACKFLOW PREVENTERS HAVE BEEN TESTED BY AN ILLINOIS LICENSED PLUMBER HAVING "CROSS-CONNECTION CONTROL DEVICE INSPECTOR" CERTIFICATION. AFFIX COPY OF CERTIFICATION TO EACH DEVICE IN CLEAR PLASTIC SLEEVE AND ZIP TIE. DELIVER AN ADDITIONAL COPY OF EACH CERTIFICATION TO OWNER'S REPRESENTATIVE FOR THEIR RECORDS.

HOUSEKEEPING

A. PROVIDE AND MAINTAIN PROTECTIVE COVERS ON FIXTURES AND WATER COOLERS THROUGHOUT CONSTRUCTION. DO NOT PERMIT USE BY CONSTRUCTION PERSONNEL UNLESS APPROVED BY OWNER'S REPRESENTATIVE.

B. CLEAN WORK AREA AT THE END OF EACH WORK DAY. FIXTURES, EQUIPMENT, AND EXPOSED PIPE SYSTEMS SHALL BE CLEANED AT THE COMPLETION OF INSTALLATION. REMOVE PROTECTIVE PACKING FILM, LABELS, ETC. PRIOR TO TURNING OVER TO OWNER FOR USE.

C. MAINTAIN FLOOR DRAIN AND CLEANOUT PROTECTIVE COVERS, OR TAPE THROUGHOUT CONSTRUCTION. REMOVE PROTECTIVE MATERIAL AND CLEAN COVERS/STRAINERS AT SUBTANTIAL COMPLETION STAGE. REMOVE STRAINERS AND SHOP-VAC OUT P-TRAPS WHEREVER CONSTRUCTION DEBRIS, DIRT, GRAVEL, ETC. HAS MIGRATED INTO UNPROTECTED FLOOR DRAINS, CLEAN AND RE-INSTALL STRAINER.

PLUMBING PIPING

A. SANITARY WASTE AND VENT - UNDERGROUND AND ABOVE:

1. OPTION-1; NO HUB CISPI 301 CAST IRON PIPE AND FITTINGS WITH CISPI 310 NEOPRENE GASKETED JOINTS HAVING STAINLESS STEEL CLAMP AND SHIELD ASSEMBLY.
2. OPTION-2; ASTM D2665 OR ASTM D3034 SCHEDULE 40 PVC PIPE AND DWV FITTINGS WITH SOLVENT WELDED JOINTS WITH CLEAR CLEANER AND ASTM D2564 SOLVENT CEMENT.

B. DOMESTIC WATER SERVICE PIPING, 4-INCH NPS AND LARGER: DUCTILE IRON PIPE AWWA C151/A21.11 AND DUCTILE OR GRAY IRON FITTINGS, STANDARD THICKNESS; AND AWWA C111/A21.11, STYRENE BUTADIENE RUBBER (SBR) OR VULCANIZED SBR GASKET WITH 3/4" DIAMETER RODS AND THRUST BLOCK AT BASE OF RISER.

C. DOMESTIC WATER SERVICE PIPING, 3-INCH NPS AND SMALLER:

1. OPTION-1: TYPE K ASTM B42, HARD DRAWN COPPER PIPE WITH ASME B16.22 WROUGHT COPPER AND BRONZE FITTINGS AND SN95 SOLDERED JOINTS.
2. OPTION-2: ASTM F1281, OR ASTM F877 POLYETHYLENE (PE) COMPOSITE PIPE TESTED FOR POTABLE WATER AND RESIDUAL CHLORINE USE WITH BRASS COMPRESSION-TYPE FITTING.

D. DOMESTIC WATER PIPING - ABOVE GRADE/SLAB, 4-INCH AND LARGER: DUCTILE IRON PIPE AWWA C151/A21.11 AND ASME 16.1, CLASS 125 CAST IRON FLANGED FITTINGS.

E. DOMESTIC WATER PIPING - ABOVE GRADE/SLAB:

1. COPPER TUBE ASTM B88, TYPE L, DRAWN WITH ASME B13.18 CAST COPPER ALLOY, OR ASME B 13.22 WROUGHT COPPER AND BRONZE FITTINGS, AND ASTM B32 ALLOY SN95 SOLDER. COPPER PRESSURE SEAL JOINT FITTINGS AS MANUFACTURED BY VIEGA MAY BE UTILIZED AS AN ALTERNATIVE TO SOLDERED FITTINGS.
   a. OPTION-1: CPVC PIPE ASTM F 441/F 441M, SCHEDULE [40] [80] WITH CPVC SOCKET FITTINGS AND SOLVENT CEMENTED JOINTS.
   b. OPTION-2: PEX DISTRIBUTION ASTM F 877, SDR 9 TUBING COLOR RED - HOT, AND BLUE - COLD, WITH CRIMPED BRASS, OR PUSH-FIT C46500 LEAD FREE BRASS FITTINGS. PRE-MANUFACTURED BRASS, OR FIELD FABRICATED COPPER/BRASS MANIFOLDS ARE ACCEPTABLE. PLASTIC BODY PUSH-ON POLY FITTINGS WITH SINGLE CRIMP RING WILL NOT BE PERMITTED.

F. NATURAL GAS PIPING - UNDER GRADE/SLAB (DOWNSTREAM SERVICE METER):

1. SCHEDULE 40 BLACK ASTM A53/A53M PIPE WITH ASME B16.3 MALLEABLE IRON, OR ASTM A234/A234M WROUGHT STEEL WELDING TYPE FITTINGS, AND THREADED FITTINGS. ENCASE IN PVC SECONDARY CONTAINMENT PIPING UNDER FLOOR AS NOTED ON PLANS.
2. EXTERIOR (1-INCH AND UNDER - EXTERIOR ONLY): PE PIPE, ASTM D 2513 SDR11 WITH PE FITTINGS OF SOCKET-FUSION TYPE, OR ASTM D 3261 BUTT-FUSION TYPE DIMENSIONS MATCHING DIMENSIONS OF PE PIPE. INCLUDE FACTORY FABRICATED AND LEAK-TESTED ANODE-LESS RISER AT TRANSITION TO ABOVE GRADE PIPING HAVING: SCH. 40 STEEL CASING, THREADED, OR FLANGED OUTLET SUITABLE FOR WELDED CONNECTION, TRACER WIRE CONNECTION, ULTRAVIOLET SHIELD AND STAKE SUPPORTS WITH FACTOR FINISH TO MATCH STEEL PIPE CASING OR CARRIER PIPE. INSTALL NATURAL GAS PIPING WITH 24" MINIMUM BURY UNLESS NOTED OTHERWISE ON PLANS AND TRACER WIRE FROM RISER TO RISER.

G. NATURAL GAS PIPING (OR COMPRESSED AIR) - ABOVE GRADE/SLAB:

1. SCHEDULE 40 BLACK ASTM A53/A53M PIPE WITH ASME B16.3 MALLEABLE IRON, OR ASTM A234/A234M WROUGHT STEEL WELDING TYPE FITTINGS, AND THREADED (2.5-INCH NPS AND UNDER) OR WELDED (3-INCH AND ABOVE) JOINTS.
2. OPTION (1-INCH AND UNDER - ABOVE FLOOR ONLY): CORRUGATED STAINLESS STEEL TUBING, ASTM A 240/A 240M, SERIES 300 STAINLESS STEEL WITH FLAME RETARDANT PE COATING AND COPPER ALLOY MECHANICAL FITTINGS WITH ENDS MADE TO FIT AND LISTED FOR USE WITH CORRUGATED STAINLESS STEEL TUBING AND CAPABLE OF METAL-TO-METAL SEAL WITHOUT GASKETS.

H. BUILDING STORM (RAINWATER LEADERS, INTERIOR DOWNSPOUTS), AND UNDERGROUND STORM WATER PIPING TO 5 FEET OUTSIDE BUILDING FOUNDATION WALL:

1. OPTION-1: NO HUB CISPI 301 CAST IRON PIPE AND FITTINGS WITH CISPI 310 NEOPRENE GASKETED COUPLINGS HAVING STAINLESS STEEL CLAMP AND SHIELD ASSEMBLY.
2. OPTION-2: ASTM D2665 OR ASTM D3034 SCHEDULE 40 PVC PIPE AND DWV FITTINGS WITH SOLVENT WELDED JOINTS WITH CLEAR CLEANER AND ASTM D2564 SOLVENT CEMENT.

PLUMBING PIPE INSULATION

A. REGULATORY REQUIREMENTS - SURFACE BURNING CHARACTERISTICS: FLAME SPREAD INDEX/SMOKE DEVELOPED INDEX OF 25/50, MAXIMUM WHEN TESTED IN ACCORDANCE WITH ASTM E84, OR UL 723.

B. INSULATION MATERIALS:

1. GLASS FIBER: ASTM C547 AND ASTM C795 RIGID MOLDED, NONCOMBUSTIBLE; K VALUE OF 0.24 AT 75°F; MAXIMUM SERVICE TEMPERATURE 850°F; MAXIMUM MOISTURE ABSORPTION 0.2% BY VOLUME. INCLUDE VAPOR BARRIER CONSISTING OF WHITE KRAFT PAPER WITH GLASS FIBER YAM, BONDED TO ALUMINIZED FILM; MOISTURE VAPOR TRANSMISSION WHEN TESTED IN ACCORDANCE WITH ASTM E96/E96M. SECURE WITH VAPOR BARRIER LAP ADHESIVE COMPATIBLE WITH INSULATION, OR ASTM C195 INSULATING CEMENT/MASTIC HYDRAULIC SETTING ON MINERAL WOOL OR INSULATING CEMENT.
2. FLEXIBLE ELASTOMERIC CELLULAR INSULATION: PREFORMED FLEXIBLE ELASTOMERIC CELLULAR RUBBER INSULATION COMPLYING WITH ASTM C534/C534M GRADE 1; USE MOLDED TUBULAR MATERIAL WHEREVER POSSIBLE. MATERIAL SHALL HAVE SERVICE TEMPERATURE RANGE OF -40° TO 220°F AND BE SEALED WITH AIR DRIED, CONTACT ADHESIVE COMPATIBLE WITH INSULATION.

C. FITTINGS COVERS AND JACKETS:

1. INDOOR, FIELD APPLIED PIPE INSULATION JACKETS: WHITE, HIGH IMPACT UV RESISTANT PVC COMPLYING WITH ASTM D 1784, CLASS 1634-C; 0.10-INCH-THICK; ROLL STOCK READY FOR SHOP OR FIELD CUT AND FORMING.
2. FITTING COVERS: LIKE MATERIAL TO PIPE INSULATION JACKETS, FACTORY, OR FIELD FABRICATED TO 45 AND 90 DEGREE SHAPES, SHORT AND LONG RADIUS ELBOWS, TEES, VALVES, FLANGES, UNIONS, REDUCERS, AND END CAPS.
3. REFER TO PLUMBING SCHEDULES FOR P-TRAP AND SUPPLY COVER REQUIREMENTS FOR FIXTURES.

D. INSULATION SCHEDULE:

1. DOMESTIC HOT, TEMPERED, AND HOT WATER CIRCULATION PIPING:
   a. PIPE SIZES 3/4-INCH NPS AND UNDER: 1/2" THICK GLASS FIBER
   b. PIPE SIZES 1 1/4-INCH NPS AND ABOVE: 1" THICK GLASS FIBER
2. DOMESTIC COLD WATER:
   a. PIPE SIZES 1 1/4-INCH NPS AND UNDER: 1/2" THICK GLASS FIBER WITH VAPOR BARRIER, OR ELASTOMERIC.
   b. 1 1/2-INCH NPS AND ABOVE: 1" THICK GLASS FIBER WITH VAPOR BARRIER, OR ELASTOMERIC.
3. HORIZONTAL RAIN WATER LEADERS AND ROOF DRAIN SUMPS (WHERE APPLICABLE):
   a. PIPE SIZES 2 TO 3-INCH NPS: 1/2" THICK GLASS FIBER WITH VAPOR BARRIER, OR ELASTOMERIC.
   b. PIPE SIZES 4 TO 10 INCH NPS: 1" THICK GLASS FIBER WITH VAPOR BARRIER, OR ELASTOMERIC.
4. ABOVE FLOOR DRAIN TRAPS (INCLUDING MOP BASINS WHERE APPLICABLE): RECEIVING CONDENSATE, OR CHILLED CLEAR WATER: ALL PIPE SIZES: 1/2" THICK ELASTOMERIC.

PLUMBING PIPE, FITTINGS AND VALVES

A. BALL VALVES 3-INCH AND SMALLER - GENERAL USE: NO-LEAD TWO PIECE, FULL PORT BRONZE BODY AND TRIM; PRESSURE RATING NO LESS THAN 600 PSIG WOG NON-SHOCK, 125 PSIG WSP; 0 - 350°F TEMPERATURE RANGE; PTFE SEATS; BLOW-OUT PROOF BRONZE STEM; ADJUSTABLE PACKING NUT; CHROME-PLATED BRASS BALL; STANDARD LEVER HANDLE; AND THREADED OR SOLDERED ENDS. INSULATE BODY AND INCLUDE VALVE HANDLE EXTENSIONS FOR VALVES 2.5-INCH AND LARGER.

B. CHECK VALVES - DOMESTIC WATER APPLICATIONS: NO-LEAD BRONZE BODY Y-PATTERN HORIZONTAL SWING; 200 PSIG NON-SHOCK COLD WORKING PRESSURE; MAXIMUM PRESSURE/TEMPERATURE OF 100 PSIG AT 300°F. RENEWABLE SEAT AND BRONZE DISC; AND THREADED OR SOLDERED ENDS. VALVES MUST COMPLY WITH MSS SP-139 & NSF/ANSI-61-8 COMMERCIAL HOT 180°F.

C. BALANCING VALVES - DOMESTIC HOT WATER CIRCULATION PIPING (ALL SIZES): BRONZE BODY (NO-LEAD) CALIBRATED BALANCING VALVES, BALL VALVE TYPE WITH TWO READOUT PORTS AND MEMORY-SETTING INDICATOR CAPABLE OF READING IN INCHES OF HEAD.

D. STRAINERS: THREADED BRASS BODY FOR 175 PSI CWP, Y-PATTERN WITH 1/32 INCH STAINLESS STEEL PERFORATED SCREEN.

E. DIELECTRIC CONNECTIONS: UNION WITH GALVANIZED OR PLATED STEEL THREADED END, COPPER SOLDER END, WATER IMPERVIOUS ISOLATION BARRIER.

F. FLANGES: DOMESTIC WATER ALL SIZES: CLASS 125 SLIP-ON OR TAPPED/THREADED BRONZE WITH PREFORMED NEOPRENE GASKETS.

PIPING IDENTIFICATION

A. PIPE MARKERS: COMPLY WITH ASME A13.1 (UNLESS OTHERWISE DEFINED BY OWNER STANDARDS); FACTORY FABRICATION, FLEXIBLE SEMI-RIGID PLASTIC; PREFORMED TO FIT AROUND PIPE OR PIPE COVERING; MINIMUM INFORMATION INDICATING FLUID BEING CONVEYED.

HANGERS AND SUPPORTS

A. CARBON STEEL PIPE HANGERS AND SUPPORTS:

1. MSS SP-58, TYPES 1 THROUGH 58, FACTORY FABRICATED COMPONENTS.
2. GALVANIZED METALLIC COATINGS: PREGALVANIZED OR HOT DIPPED.
3. PADDED HANGERS: HANGER WITH FIBERGLASS OR OTHER PIPE INSULATION PAD OR CUSHION TO SUPPORT BEARING SURFACE OF PIPE.
4. HANGER RODS: CONTINUOUS THREADS, NUTS, AND WASHERS MADE OF CARBON, OR STAINLESS STEEL.

B. TRAPEZE PIPE HANGERS: MSS SP-69, TYPE 59, SHOP, OR FIELD FABRICATED PIPE SUPPORT ASSEMBLY MADE FROM STRUCTURAL CARBON STEEL SHAPES WITH MSS SP-58 CARBON STEEL HANGER RODS, NUTS, SADDLES, AND U-BOLTS.

1. MSS SP-69, TYPE 59; SHOP OR FIELD FABRICATED PIPE SUPPORT ASSEMBLY MADE FROM STRUCTURAL CARBON STEEL SHAPES.
2. MSS SP-58 CARBON STEEL HANGER RODS, NUTS, SADDLES, AND U-BOLTS.

C. METAL FRAMING SYSTEMS:

1. SHOP OR FIELD FABRICATED PIPE SUPPORT ASSEMBLY FOR SUPPORTING MULTIPLE PARALLEL PIPES.
2. STANDARD: MFMA-4.
3. CHANNELS: CONTINUOUS SLOTTED STEEL CHANNEL WITH INTURNED LIPS.
4. CHANNEL NUTS: FORMED OR STAMPED STEEL NUTS OR OTHER DEVICES TO FIT INTO CHANNEL SLOT AND, WHEN TIGHTENED, PREVENT SLIPPING ALONG CHANNEL.
5. HANGER RODS: CONTINUOUS THREAD ROD, NUTS, AND WASHER MAD OF CARBON, OR STAINLESS STEEL.
6. METALLIC COATING: GALVANIZED.

D. PIPE POSITIONING SYSTEMS: IAPMO PS 42, POSITIONING SYSTEM OF METAL BRACKETS, CLIPS, AND STRAPS FOR POSITIONING PIPING IN PIPE SPACES; FOR PLUMBING FIXTURES IN COMMERCIAL APPLICATIONS.

E. EQUIPMENT SUPPORTS: WELDED, OR SHOP/FIELD FABRICATED EQUIPMENT SUPPORTS MADE FROM STRUCTURAL CARBON STEEL SHAPES.

F. INSTALLATION:

1. METAL PIPE HANGERS: COMPLY WITH MSS SP-69 AND MSS SP 89. INSTALL HANGERS, SUPPORTS, CLAMPS, AND ATTACHMENTS AS REQUIRED TO PROPERLY SUPPORT PIPING FROM THE BUILDING STRUCTURE.
2. METAL TRAPEZE HANGERS: COMPLY WITH MSS SP69 AND MSS SP-89. ARRANGE FOR GROUPING OF PARALLEL RUNS OF HORIZONTAL PIPING, AND SUPPORT TOGETHER ON FIELD FABRICATED TRAPEZE PIPE HANGERS. WHERE SIZES VARY SUPPORT TOGETHER AND SPACE TRAPEZES FOR SMALLEST PIPE SIZE, OR INTERMEDIATE SUPPORTS FOR SMALLER DIAMETER PIPES AS SPECIFIED FOR INDIVIDUAL PIPE HANGERS.
3. INSTALL HANGERS AND SUPPORTS SO THAT PIPING LIVE AND DEAD LOADS AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT.
4. PIPE SLOPES: INSTALL HANGERS AND SUPPORTS TO PROVIDE INDICATED PIPE SLOPES AND TO NOT EXCEED MAXIMUM PIPE DEFLECTIONS ALLOWED BY ASME B32.9 FOR BUILDING SERVICES PIPING.
5. ADJUST HANGERS TO DISTRIBUTE LOADS EQUALLY ON ATTACHMENTS AND TO ACHIEVE INDICATED SLOPE OF PIPE.
6. TRIM EXCESS LENGTH OF CONTINUOUS THREAD HANGER AND SUPPORT RODS TO 1 1/2".
7. FASTENER SYSTEMS: INSTALL FASTENER IN COMPLETELY CURED CONCRETE SLABS PER MANUFACTURER'S WRITTEN INSTRUCTIONS, AND USING RECOMMENDED TOOL WHERE APPLICABLE.

G. FASTENER SYSTEMS:

1. SIDE-BEAM OR CHANNEL CLAMPS (MSS TYPE 20): FOR ATTACHING TO BOTTOM FLANGE OF BEAMS, CHANNELS, OR ANGLES.
2. CENTER-BEAM CLAMPS (MSS TYPE 21): FOR ATTACHING TO CENTER OF BOTTOM FLANGE OF BEAMS.
3. WELDED BEAM ATTACHMENTS (MSS TYPE 22): FOR ATTACHING TO BOTTOM OF BEAMS IF LOADS ARE CONSIDERABLE AND ROD SIZES ARE LARGE.
4. C-CLAMPS (MSS TYPE 23): FOR STRUCTURAL SHAPES.
5. TOP-BEAM CLAMPS (MSS TYPE 25): FOR TOP OF BEAMS IF HANGER ROD IS REQUIRED TANGENT TO FLANGE EDGE.
6. SIDE-BEAM CLAMPS (MSS TYPE 27): FOR BOTTOM OF STEEL I-BEAMS.
7. STEEL-BEAM CLAMPS WITH EYE NUTS (MSS TYPE 28): FOR ATTACHING TO BOTTOM OF STEEL I-BEAMS FOR HEAVY LOADS.
8. LINKED-STEEL CLAMPS WITH EYE NUTS (MSS TYPE 29): FOR ATTACHING TO BOTTOM OF STEEL I-BEAMS FOR HEAVY LOADS, WITH LINK EXTENSIONS.
9. MALLEABLE-BEAM CLAMPS WITH EXTENSION PIECES (MSS TYPE 30): FOR ATTACHING TO STRUCTURAL STEEL.
10. WELDED-STEEL BRACKETS: FOR SUPPORT OF PIPES FROM BELOW OR FOR SUSPENDING FROM ABOVE BY USING CLIP AND ROD. USE ONE OF THE FOLLOWING FOR INDICATED LOADS:
    a. LIGHT (MSS TYPE 31): 750 LB (340 KG).
    b. MEDIUM (MSS TYPE 32): 1500 LB (680 KG).
    c. HEAVY (MSS TYPE 33): 3000 LB (1360 KG).
11. SIDE-BEAM BRACKETS (MSS TYPE 34): FOR SIDES OF STEEL OR WOODEN BEAMS.

H. ROOF PIPE SUPPORTS:

1. ONE-PIECE UNIT WITH INTEGRAL ROD ROLLER, CLAMPS, OR V-SHAPED CRADLE TO SUPPORT PIPE, FOR ROOF INSTALLATION WITHOUT MEMBRANE PENETRATION.
2. LOW-TYPE, SINGLE-PIPE STAND: ONE-PIECE PLASTIC BASE UNIT WITH PLASTIC ROLLER, FOR ROOF INSTALLATION WITHOUT MEMBRANE PENETRATION.

I. HANGER AND SUPPORT SCHEDULE:

1. FURNISH AND INSTALL PIPE HANGERS AND SUPPORT AS PER THE LOCALLY ADOPTED CODE, MANUFACTURERS STANDARDIZATION SOCIETY (MSS) STANDARDS, THE LOCAL AHJ REQUIREMENTS AND/OR AS INDICATED IN THE FOLLOWING; WHICHEVER REQUIREMENTS ARE MORE STRINGENT IN TYPES OF SUPPORT REQUIRED, DISTANCES BETWEEN SPANS INDICATED, APPROVED ATTACHMENTS TO BUILDING CONSTRUCTION, ETC. ALL PIPING SHALL BE SUPPORTED TO BOTH MAINTAIN ALIGNMENT AND TO PREVENT SAGGING.
2. FURNISH AND INSTALL SUPPORTS FOR ALL PIPING WITHIN 18 INCHES OF EACH JOINT OR CHANGES IN DIRECTION EQUAL TO 90 DEGREES.
3. PROVIDE RIGID SUPPORT SWAY BRACING FOR CHANGES IN DIRECTION GREATER THAN 45 DEGREES FOR PIPING 4 INCHES IN DIAMETER AND LARGER.
4. WHERE EARTHQUAKE LOADS ARE STIPULATED IN THE LOCALLY ADOPTED BUILDING CODE, FURNISH AND INSTALL PIPING SUPPORTS FOR SEISMIC BRACING IN KEEPING WITH THE LOCAL REQUIREMENTS.
5. DRAIN PIPING SHALL BE ANCHORED TO RESTRAIN AXIAL MOVEMENT. FOR DRAIN PIPING 4 INCHES IN SIZE AND LARGER, RESTRAINTS SHALL BE PROVIDED AT ALL CHANGES IN DIRECTION AND CHANGES IN DIAMETER GRATER THAN 2 NOMINAL PIPE SIZES. PROVIDE BRACES, BLOCKS, AND/OR OTHER METHODS AS APPROVED BY COUPLING MANUFACTURER.
6. SUBMIT PRODUCT LITERATURE FOR HANGERS/SUPPORTS TO ENGINEER FOR REVIEW PRIOR TO PURCHASE.
7. WHERE ALTERNATIVE TYPES OR MANUFACTURER SPECIFIC HANGERS/SUPPORT SYSTEMS ARE DESIRED, SUBMIT PRODUCT LITERATURE TO ENGINEER FOR REVIEW PRIOR TO PURCHASE.
8. COPPER:
   a. HARD DRAWN PIPE, 1-1/2" DIAMETER OR SMALLER: PROVIDE HANGERS OR SUPPORTS AT A MAXIMUM HORIZONTAL SPACING OF 6 FEET.
   b. HARD DRAWN PIPE, 2" DIAMETER OR LARGER: PROVIDE HANGERS OR SUPPORTS AT A MAXIMUM HORIZONTAL SPACING OF 10 FEET.
   c. PROVIDE SUPPORT AT THE BASE OF VERTICAL PIPING AND AT A MAXIMUM VERTICAL SPACING OF EACH FLOOR BUT NOT TO EXCEED 10 FEET.
9. PVC:
   a. SCHEDULE 40/SCHEDULE 80 PIPE: PROVIDE HANGERS OR SUPPORTS AT A MAXIMUM HORIZONTAL SPACING OF 4 FEET AND AT EVERY HORIZONTAL BRANCH CONNECTION.
   b. PROVIDE SUPPORT AT THE BASE OF VERTICAL PIPING AND AT A MAXIMUM VERTICAL SPACING OF EACH FLOOR BUT NOT TO EXCEED 10 FEET. PROVIDE VERTICAL PIPING WITH MID-STORY GUIDES. PROVIDE FOR EXPANSION AT 30 FOOT INTERVALS IN BOTH HORIZONTAL AND VERTICAL PIPING.
10. STEEL PIPE:
    a. THREADED OR WELDED PIPE 1/2" DIAMETER OR SMALLER: PROVIDE HANGERS OR SUPPORTS AT A MAXIMUM HORIZONTAL SPACING OF 6 FEET. PROVIDE SUPPORT AT THE BASE OF THE VERTICAL PIPING AND AT A MAXIMUM VERTICAL SPACING OF 6 FEET.
    b. THREADED OR WELDED PIPE BETWEEN 3/4" AND 1-1/4" DIAMETER: PROVIDE HANGERS OR SUPPORTS AT A MAXIMUM HORIZONTAL SPACING OF 8 FEET. PROVIDE SUPPORT AT THE BASE OF THE VERTICAL PIPING AND AT A MAXIMUM VERTICAL SPACING OF 8 FEET.
    c. THREADED OR WELDED PIPE 1-1/2" DIAMETER OR LARGER: PROVIDE HANGERS OR SUPPORTS AT A MAXIMUM HORIZONTAL SPACING OF 10 FEET. PROVIDE SUPPORT AT THE BASE OF THE VERTICAL PIPING AND AT A MAXIMUM VERTICAL SPACING OF EACH FLOOR NOT TO EXCEED 15 FEET.
11. CAST IRON:
    a. HUB AND SPIGOT PIPE: PROVIDE HANGERS OR SUPPORTS WITHIN 18 INCHES OF EACH HUB OR JOINT, NOT TO EXCEED 5 FOOT INTERVALS. FOR PIPING EXCEEDING 5 FEET IN MANUFACTURED LENGTH, PIPING MAY BE SUPPORTED AT NOT MORE THAN 10 FOOT INTERVALS.
    b. HUBLESS/COMPRESSION PIPE: AT LEAST AT EVERY OTHER JOINT EXCEPT WHERE PIPING EXCEEDS 4 FEET OF MANUFACTURED LENGTH, THEN SUPPORT AT EVERY JOINT. WHERE PROVIDED, PLACE SUPPORT WITHIN 18 INCHES OF JOINT. WHERE THE TOTAL DEVELOPED LENGTH BETWEEN MULTIPLE JOINTS IN AN ASSEMBLY SPANS LESS THAN OR EQUAL TO 4

GENERAL NOTES

A. REFER TO P-001 PLUMBING GENERAL NOTES FOR ADDITIONAL NOTES.

B. ALL NEW HOT, COLD, AND RECIRCULATED WATER SHALL BE INSULATED PER SPECIFICATIONS UNLESS NOTED OTHERWISE.

C. ALL DOMESTIC PIPING SHOWN DIAGRAMMATICALLY TO INDICATE INTENT . FIELD COORDINATE WITH ALL OTHER TRADES THE EXACT ROUTINGS OF ALL PIPING PRIOR TO INSTALLATION.

D. ALL SHALL BE SUSPENDED FROM STRUCTURAL FRAMING SYSTEM. REFERENCE STRUCTURAL DRAWINGS.

E. SUPPORT ALL PIPING AND EQUIPMENT FROM STRUCTURE ABOVE AS REQUIRED. PLUMBING CONTRACTOR SHALL PROVIDE ALL SUPPLEMENTAL STEEL TO SPAN BETWEEN PRIMARY BUILDING STRUCTURAL MEMBERS. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE DESIGN OF SUPPLEMENTAL STEEL AND PIPE SUPPORTS. INCLUDINGS REACTION LOADS TO PRIMARY BUILDING STRUCTURAL MEMBERS.

F. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZING TO INDIVIDUAL PLUMBING FIXTURES.

G. LAVS USE TMV-1 (WATTS LFUSG-B) TO SET WATER TEMPERATURE TO 105F.

KEYNOTES (#)

1 CONNECT EXISTING BREAK ROOM SINK INTO NEW 3/4 HW LINE.

2 SET BALANCE VALVE TO 0.5GPM

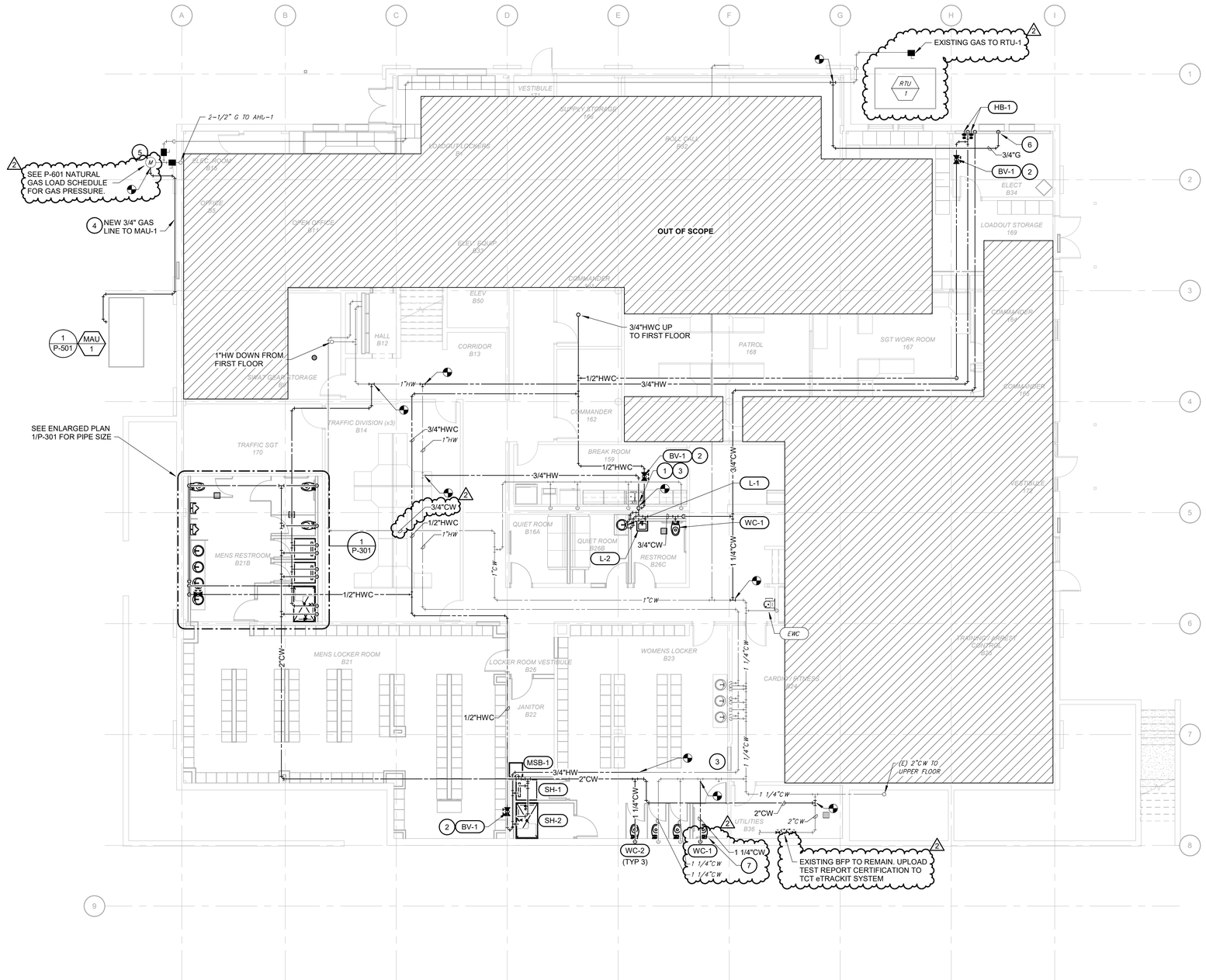
3 REUSE AS MUCH PIPING AS POSSIBLE.

4 SECURE GAS PIPING TO WALL EVERY 6FT OC. PAINT PIPING PER ARCHITECTS COLOR CHOICE.

5 CONTRACTOR TO VERIFY GAS METER SIZING FOR ADDITIONAL EQUIPMENT. NEW LOAD IS ~2000 CFH.

6 3/4" GAS LINE DOWN TO DRYER. PROVIDE APPLIANCE GAS SHUT OFF VALVE.

7 PROVIDE WATER HAMMER ARRESTOR NEAR WC WITH ACCESS PANEL.



1 **BASEMENT DOMESTIC PLUMBING PLAN**
SCALE: 1/8" = 1'-0"

0 4 8 16

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Construction Doc.	5/13/22
Design Development	3/11/22
Schematic Design	1/21/22

issue / revision

job # 163-19
drawn BJ/BB
chkd CF

BASEMENT DOMESTIC PLUMBING PLAN

description

FOR BIDDING

number P-101

GENERAL NOTES

A. REFER TO P-001 PLUMBING GENERAL NOTES FOR ADDITIONAL NOTES.

B. ALL VENT AND WASTE PIPING SHOWN DIAGRAMMATICALLY TO INDICATE INTENT . FIELD COORDINATE WITH ALL OTHER TRADES THE EXACT ROUTINGS OF ALL PIPING PRIOR TO INSTALLATION.

C. ALL SHALL BE SUSPENDED FROM STRUCTURAL FRAMING SYSTEM.

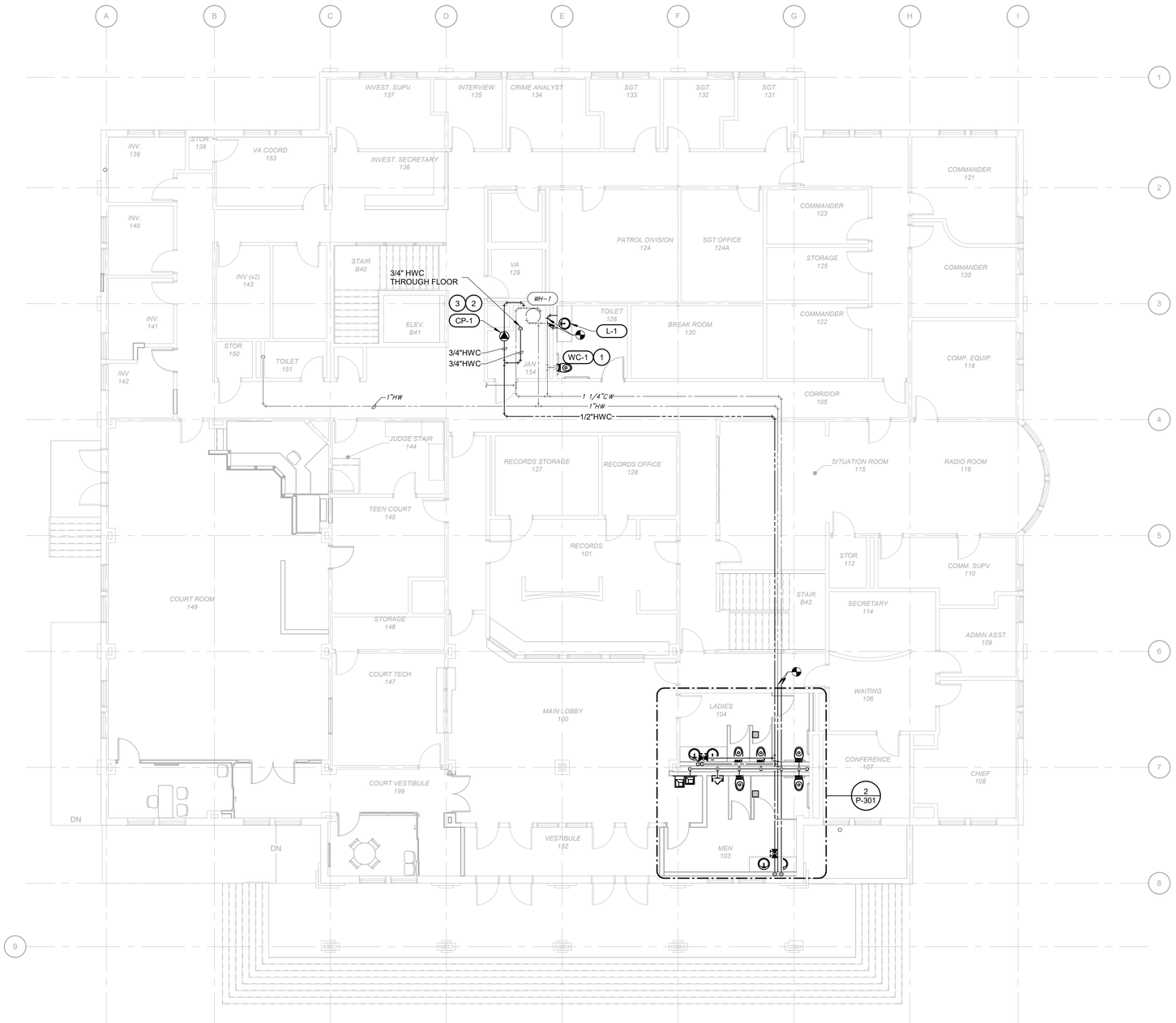
D. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZING TO INDIVIDUAL PLUMBING FIXTURES.

KEYNOTES (#)

1 PROVIDE WATER HAMMER ARRESTOR NEAR WC WITH ACCESS PANEL.

2 CONTRACTOR VERIFY IF HOT WATER RECIRC SYSTEM CAN BE INSTALLED AS SHOWN OR IF THERE IS AN EXISITING PUMP THAT CAN BE REUSED.

3 SUPPORT CIRCULATION PUMP TO WALL BELOW HARD LID CEILING IN THE JANITOR CLOSET USING UNI-STRUT AND CLAMPS. REFER TO INLINE CIRCULATION PUMP DIAGRAM ON SHEET P-501 FOR DETAILS.



1 FIRST FLOOR DOMESTIC PLUMBING PLAN
SCALE: 1/8" = 1'-0"

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chkd CF

description
FIRST FLOOR DOMESTIC PLUMBING PLAN

number
P-102

FOR BIDDING

GENERAL NOTES

A. REFER TO P-001 PLUMBING GENERAL NOTES FOR ADDITIONAL NOTES.

B. ALL VENT AND WASTE PIPING SHOWN DIAGRAMMATICALLY TO INDICATE INTENT. FIELD COORDINATE WITH ALL OTHER TRADES THE EXACT ROUTINGS OF ALL PIPING PRIOR TO INSTALLATION.

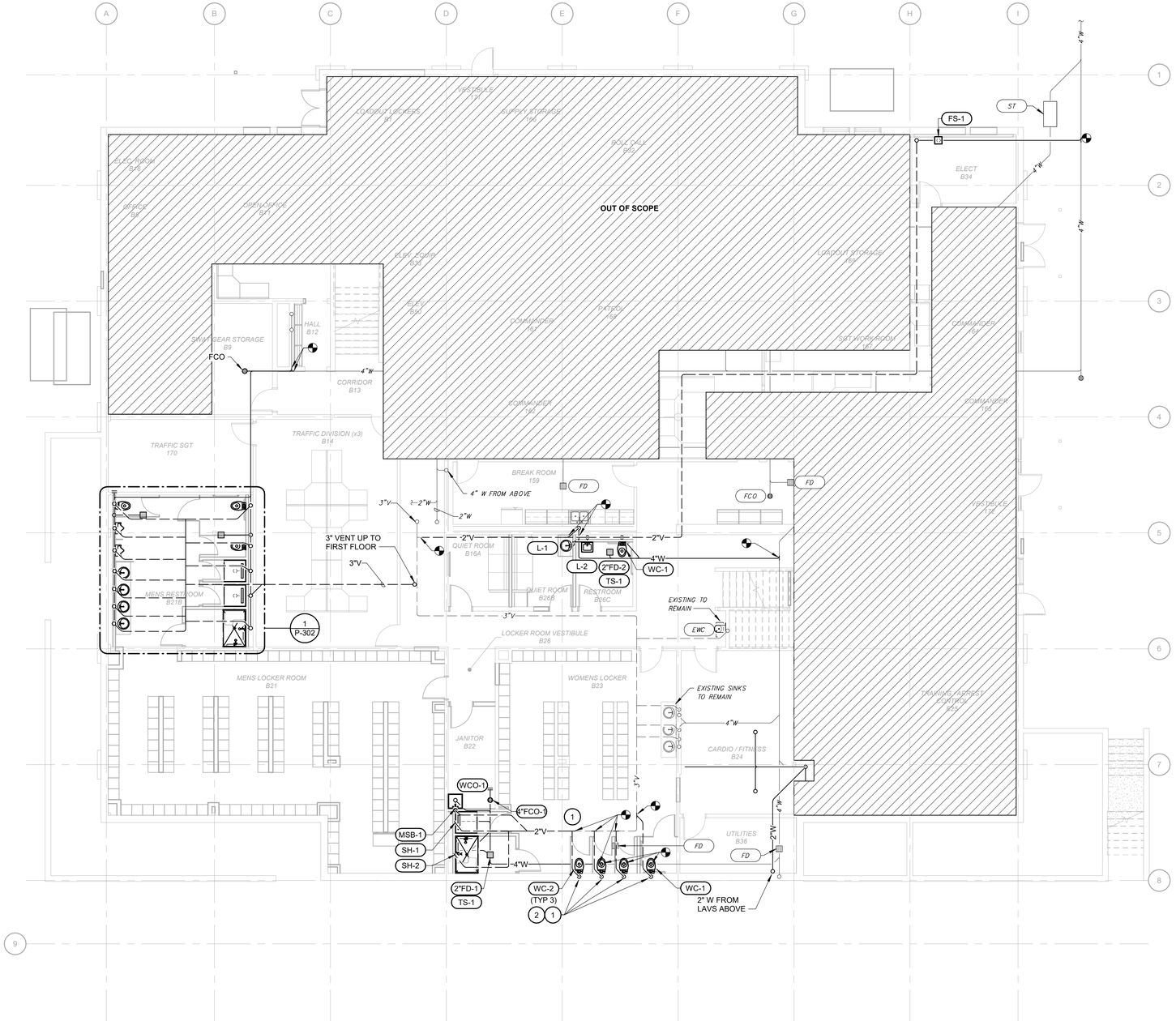
C. ALL SHALL BE SUSPENDED FROM STRUCTURAL FRAMING SYSTEM.

D. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZING TO INDIVIDUAL PLUMBING FIXTURES.

KEYNOTES (#)

1 REUSE AS MUCH PIPING AS POSSIBLE.

2 CONNECT NEW PLUMBING FIXTURE INTO EXISTING 4" SANITARY.



1 BASEMENT DRAIN WASTE AND VENT PLAN
SCALE: 1/8" = 1'-0"

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chkd CF

description
BASEMENT DWV PLUMBING PLAN

number
P-201

GENERAL NOTES

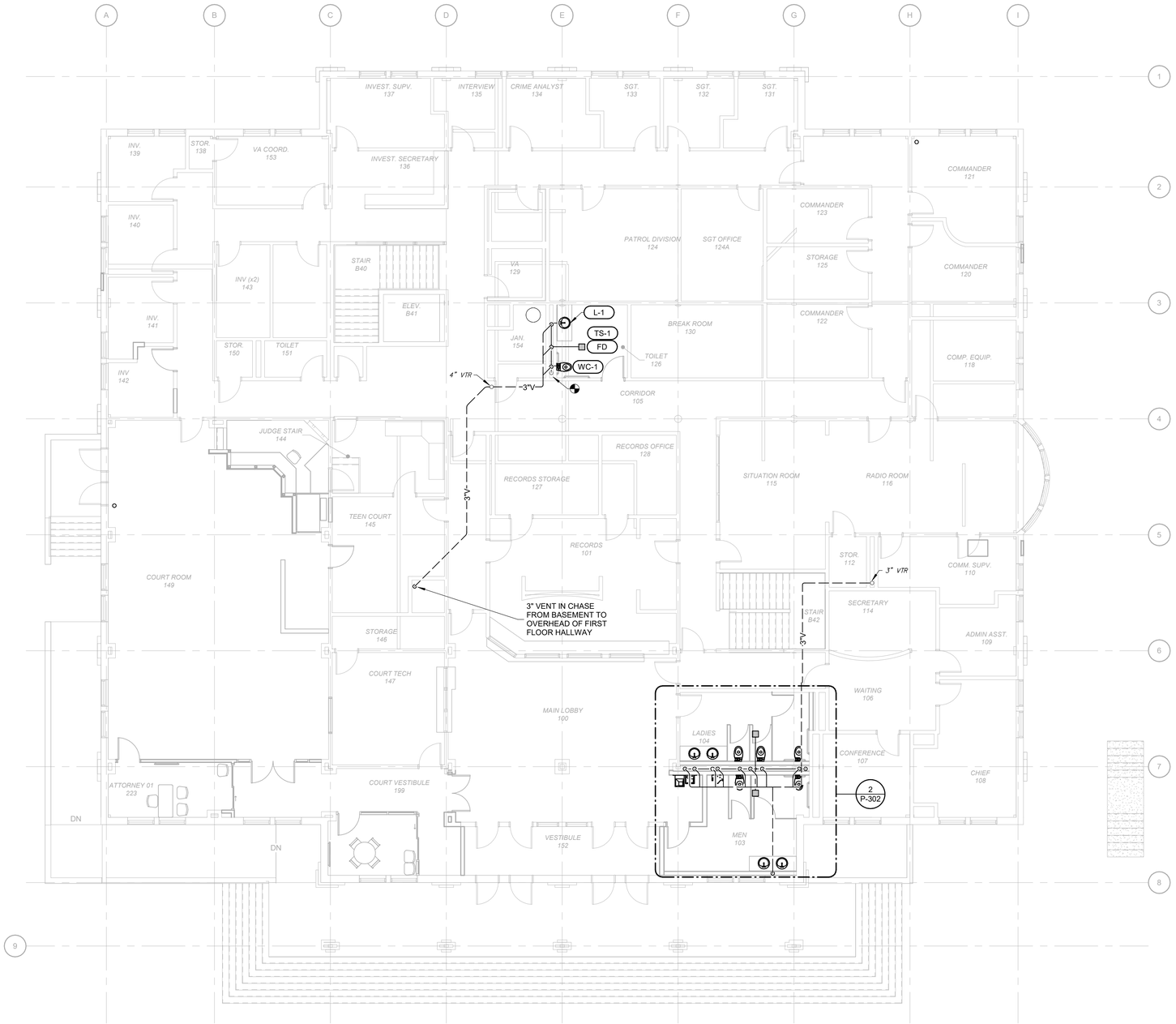
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B. ALL VENT AND WASTE PIPING SHOWN DIAGRAMMATICALLY TO INDICATE INTENT. FIELD COORDINATE WITH ALL OTHER TRADES THE EXACT ROUTINGS OF ALL PIPING PRIOR TO INSTALLATION.

C. ALL SHALL BE SUSPENDED FROM STRUCTURAL FRAMING SYSTEM.

D. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZING TO INDIVIDUAL PLUMBING FIXTURES.

KEYNOTES (#)



1 FIRST FLOOR DRAIN WASTE AND VENT PLAN
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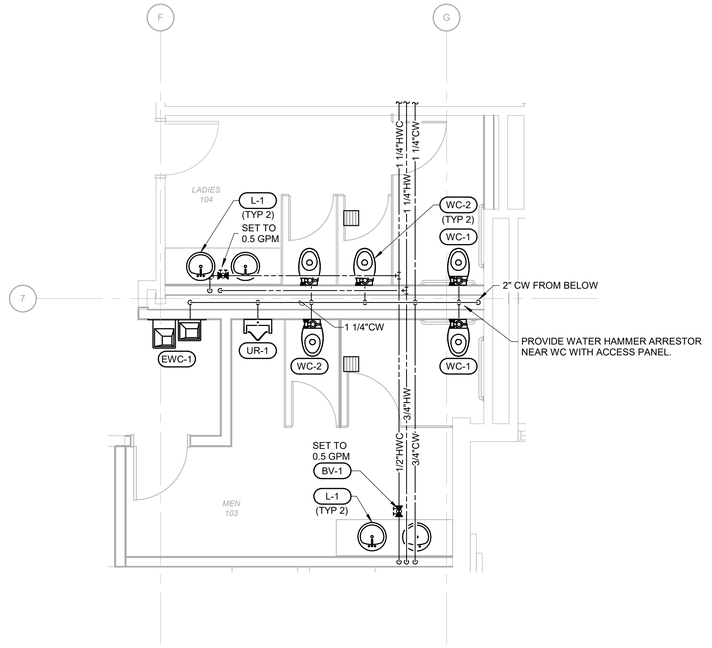
chkd CF

description

FIRST FLOOR DWV PLUMBING PLAN

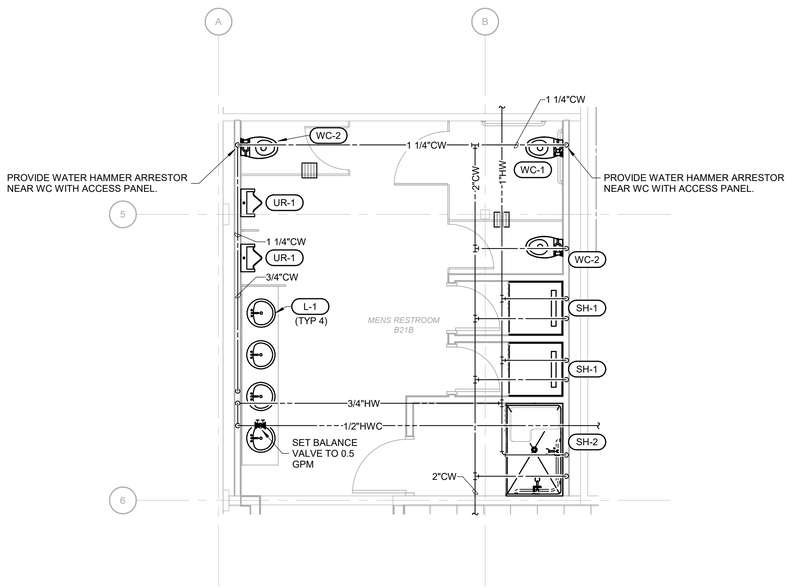
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P-202



2 EAST RESTROOMS - DOMESTIC PLAN

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



1 MENS LOCKER ROOM - DOMESTIC PLAN

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

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Schematic Design	1/21/22

issue / revision

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chkd CF

ENLARGED DOMESTIC PLANS

description

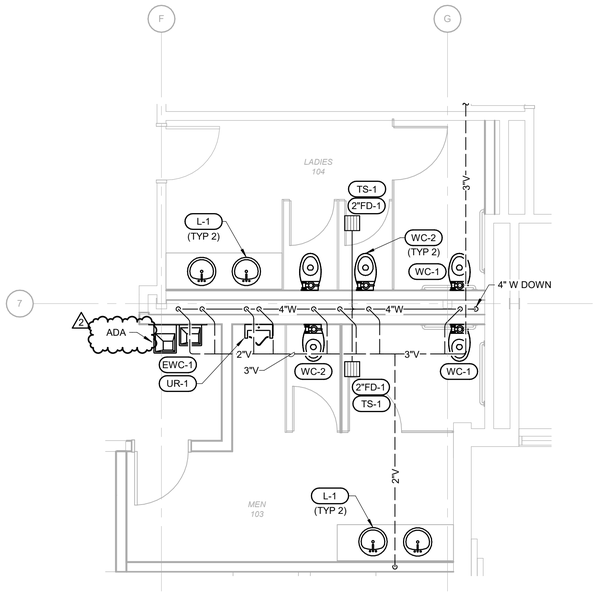
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P-301

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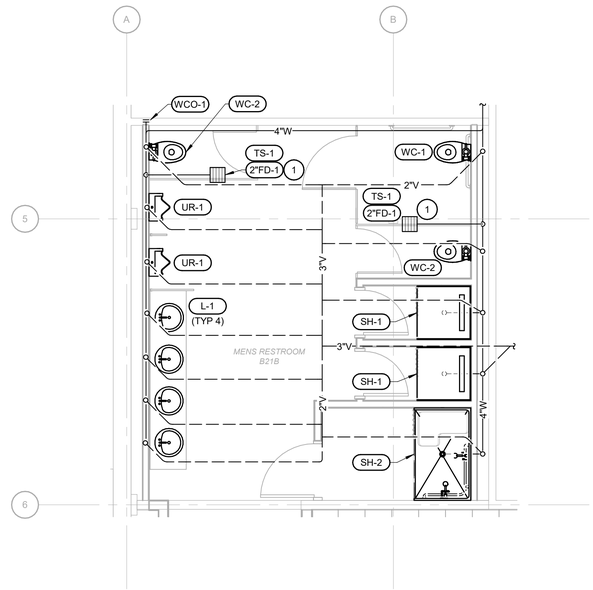
KEYNOTES

1 PIPING FOR FD-1 SHOULD BE IN ACCORDANCE WITH SECTION 915 COMBINATION WASTE AND VENT SYSTEMS OF THE IPC. A COMBINATION WASTE AND VENT SYSTEM SHALL NOT SERVE FIXTURES OTHER THAN FLOOR DRAINS, SINKS, LAVATORIES AND DRINKING FOUNTAINS 2018 IPS 915.1



2 EAST RESTROOMS - DWV PLAN

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



1 MENS LOCKER ROOM - DWV PLAN

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

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- Developmt Svcs Rvw 7/20/22
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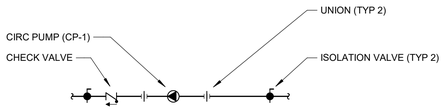
ENLARGED DWV PLANS

description

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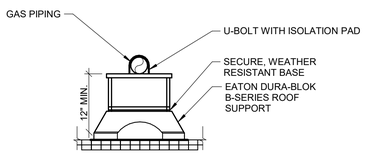
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P-302



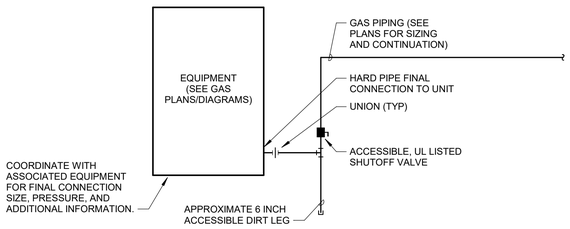
3 CIRCULATING PUMP DIAGRAM

SCALE: Not To Scale



2 ROOF PIPE SUPPORT DETAIL

SCALE: NOT TO SCALE



1 GAS CONNECTION TO EQUIPMENT

SCALE: NOT TO SCALE

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job # 163-19

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chkd CF

description
DIAGRAMS

FOR BIDDING

number
P-501

NATURAL GAS LOAD SCHEDULE

	INPUT	INPUT
EXISTING	**(BTU/HR)**	**(CFH)**
AHU-1 (ROOF)	850,000	1,104
RTU-1 (BASEMENT)	250,000	325
WATER HEATER	199,000	259
	1,299,000	**1,687**
NEW EQUIPMENT		
MAU-1	125,000	162
GAS DRYER	125,000	162
NEW TOTAL	**1,549,000**	**2,012**
BTU/CF AT ALTITUDE (ESTIMATE)	**770**	**BTU/CF**
NOTES:		
SITE ALTITUDE ABOVE SEA LEVEL	6224	FT
TOTAL DEVELOPED LENGTH WITH 20% FITTING FACTOR	112.5	FT
GAS PRESSURE SUPPLIED BY UTILITY	14	IN W.C.
MAX ALLOWABLE PRESSURE DROP	0.5	IN W.C.
IFGC TABLE USED: TABLE 402.4(2)		

PLUMBING PIPING MATERIAL SCHEDULE

SYSTEM TYPE	MATERIAL SELECTION
DOM. CW ABOVE GRADE	TYPE L COPPER OR PEX PIPING. PEX PIPING ONLY ALLOWED FOR PIPING AT ONE INCH IN SIZE OR SMALLER.
DOM. HW ABOVE GRADE	TYPE L COPPER OR PEX PIPING. PEX PIPING ONLY ALLOWED FOR PIPING AT ONE INCH IN SIZE OR SMALLER.
DOM. HWC ABOVE GRADE	TYPE L COPPER OR PEX PIPING. PEX PIPING ONLY ALLOWED FOR PIPING AT ONE INCH IN SIZE OR SMALLER.
GAS PIPING	ASTM A53/A53M SCHEDULE 40, BLACK STEEL. THREADED PIPING IS ALLOWED FOR LESS THAN 1 PSI PRESSURE; PIPING INTERNAL TO BUILDINGS AND AT PRESSURES EQUAL TO OR GREATER THAN 1 PSI SHALL BE WELDED.
SANITARY ABOVE GRADE PIPING TO FIXTURES (NO PLASTIC PIPING IN RETURN AIR PLENUM SPACES.)	CAST IRON, CISPI 301 HUBLESS OR HUB AND SPIGOT PIPING; OR ASTM D2665 SCHEDULE 40 PVC.
SANITARY VENT PIPING (NO PLASTIC PIPING IN RETURN AIR PLENUM SPACES)	CAST IRON, CISPI 301 HUBLESS OR HUB AND SPIGOT PIPING; OR ASTM D2665 SCHEDULE 40 PVC.

NOTES:
PROVIDE ALL SOLDER COPPER PIPING WITH ASTM B88 (ASTM B88M) PIPING, ASME B16.18 OR ASME B16.22 PIPE FITTINGS, SOLDER AND FLUX (IF USED) THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT FOR COPPER PIPING INSTALLATIONS.

PROVIDE ALL MECHANICAL PRESSED SEALED COPPER PIPING WITH DOUBLE PRESSED TYPE, NSF 61/NSF 372 APPROVED FITTINGS UTILIZING EDPM, NON-TOXIC RUBBER SEALING ELEMENTS.

PROVIDE ASTM F876 OR ASTM F877 PIPING (160 PSIG AT 73 DEGREES F.) WITH BRASS AND COPPER FITTINGS OR BRASS AND ENGINEERED POLYMER (EP) FITTINGS THAT COMPLY WITH ASTM F1960 AND ASTM F1960, OR COLD EXPANSION FITTINGS THAT CONFORM WITH ASTM F1960 FOR PEX PIPING INSTALLATIONS.

FOR ALL GAS THREADED PIPING APPLICATIONS, PROVIDE SEALANTS RATED FOR GAS PIPING SYSTEM USE.

PROVIDE ASTM D2564 SOLVENT FOR ANY PVC DRAIN PIPING.

FOR ALL PIPING, PROVIDE BRACING IN ACCORDANCE WITH MSS SP 58 ATTACHED TO STRUCTURE OR TRAPEZE HANGERS.

FOR ALL BELOW GRADE METALLIC PIPING, LAP AND DOUBLE WRAP BELOW GRADE PIPING AND PIPING THROUGH GRADE PENETRATIONS CONTINUOUSLY TO APPROXIMATELY THREE INCHES ABOVE GRADE WITH PROTECTIVE TAPE AND/OR PLASTIC WRAPPING TO PREVENT DAMAGE AND CORROSION. COORDINATE EXACT REQUIREMENTS WITH LOCAL AHJ PRIOR TO INSTALLATION.

GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS. PROVIDE DIELECTRIC INSULATORS FOR ANY DISSIMILAR METAL CONTACT BETWEEN PIPING, AND PIPING-AND-HANGERS IN ALL INSTANCES. PROVIDE CLEARANCE FROM HANGERS, FROM STRUCTURE, AND OTHER EQUIPMENT FOR INSTALLATION OF THE INSULATION AND TO PROVIDE ACCESS TO VALVES AND FITTINGS.

IN ALL CASES REFER TO PLUMBING SPECIFICATIONS.

FIXTURE UNIT SCHEDULE

				WATER PIPE SIZING PER 2018 IPC APPENDIX E				SANITARY DRAIN SIZING PER CHAPTER 7 OF THE 2018 IPC	
FIXTURE	OCCUPANCY	TYPE OF CONTROL	QTY	SUPPLY LOAD VALUES (WSFU)			DRAIN LOAD VALUES (DFU)		
				TOTAL EA	TOTAL UNITS		DFU EA	TOTAL DFU	
KITCHEN SINK	PRIVATE	FAUCET	1	1.4	**1.40**		2	**2.00**	
LAVATORY	PUBLIC	FAUCET	13	2	**26.00**		1	**13.00**	
SERVICE SINK	OFFICES ETC	FAUCET	1	3	**3.00**		3	**3.00**	
WASHING MACHINE 15LB	PRIVATE	FAUCET	1	4	**4.00**		3	**3.00**	
DRINKING FOUNTAIN	OFFICES ETC	3/8 IN VALVE	2	0.25	**0.50**		0.5	**1.00**	
WATER CLOSET	PUBLIC OR PRIVATE	FLUSH VALVE	14	10	**140.00**		6	**84.00**	
URINAL	PUBLIC OR PRIVATE	FLUSH VALVE	3	5	**15.00**		4	**12.00**	
SHOWER HEAD		FAUCET	5	1.4	**7.00**		2	**10.00**	
WALL HYDRANT			2	2.5	**5.00**		0	**0.00**	
WALL HYDRANT (ADDITIONAL)				1	**0.00**		0	**0.00**	
EMERGENCY DRAIN			13	N/A	N/A		0	**0.00**	
FLOOR SINK				N/A	N/A		5	**0.00**	
TOTAL FIXTURE UNITS				WSFU	**201.9**	WSFU	DFU		**128.0**
DEMAND LOAD BASED ON SYSTEM TYPE		FLUSH VALVES		GPM	90.0	GPM			
ADDITIONAL DOMESTIC WATER LOADS		IRRIGATION		GPM	20.0	GPM			
TOTAL DOMESTIC DEMAND LOAD				GPM	**110.0**	GPM			
DOMESTIC TAP AND METER SIZE REQUIRED					1.50	INCHES			
DOMESTIC TAP AND METER SIZE PROVIDED					2.00	INCHES			
INTERNAL DOMESTIC BUILDING DISTRIBUTION PIPE SIZE REQUIRED					2.00	INCHES			
INTERNAL DOMESTIC BUILDING DISTRIBUTION PIPE SIZE PROVIDED					2.00	INCHES			
BUILDING DRAIN SERVICE SIZE AND SLOPE REQUIRED							4 INCHES AT 1/8" PER FOOT		
BUILDING DRAIN SERVICE SIZE AND SLOPE PROVIDED							4 INCHES AT 1/8" PER FOOT		

PUMP SCHEDULE

TAG	SERVICE	LOCATION	TYPE	ARRANGEMENT	FLUID	GPM	FT HD	RPM	HP	VOLT/PH	MANUFACTURER	MODEL	NOTES
CP-1	DOMESTIC HOT WATER CIRCULATION	JANITOR CLOSET	INLINE	HORIZONTAL	WATER	1.5	8	3250	1/40	115/1	TACO	006B	1-5

NOTES:
1. ALL STAINLESS STEEL CONSTRUCTION SUCH THAT THE PUMP WILL BE NSF 61/372 COMPLIANT.
2. HORIZONTAL INLINE MOUNTED PUMP.
3. SYSTEM LUBRICATED INLINE CIRC PUMP.
4. PROVIDE PUMP WITHOUT SWEAT CONNECTIONS FOR EASE OF MAINTENANCE.
5. PROVIDE AND LOCATE LINE VOLTAGE TIME CLOCK ON WALL ADJACENT TO PUMP AND LABEL "HOT WATER RECIRC PUMP TIMER". COORDINATE OPERATING TIMES WITH OWNER.

PLUMBING FIXTURE SCHEDULE

PLAN MARK	FIXTURE DESCRIPTION AND REMARKS	MINIMUM INDIVIDUAL LINE SIZES				
		COLD WATER	HOT WATER	WASTE	VENT	ELEC
BV-1	**BALANCE VALVE (CIRCUIT SETTER) - LEAD FREE BALL TYPE WITH INDICATOR AND MEASUREMENT PORTS. ACCEPTABLE MANUFACTURERS: WATTS (LFCSM-61-S), B&G, CALEFFI, TACO, OR MACON.**	SEE PLANS	N/A	N/A	N/A	N/A
EWC-1	**ELECTRIC WATER COOLER, ADA- SURFACE MOUNTED DOUBLE BASIN, BARRIER FREE, 20 GAUGE STAINLESS STEEL TOP; CHILLING CAPACITY EQUAL TO 8.0 GPH OF 50 DEGREE F WATER WITH AUTOMATIC BOTTLE FILL STATION MOUNTED ON UNIT TOP AGAINST THE ASSOCIATED WALL. ACCEPTABLE MANUFACTURERS: ELKAY (EZSTL8WSSK) ELECTRIC WATER COOLER TRIM: PROVIDE STAINLESS STEEL PERFORATED STRAINER WITH CONCEALED WASTE. QUARTER TURN ANGLE STOPS; 17 GAUGE 1-1/4" O.D. TAILPIECE; 17 GAUGE 1-1/4" P-TRAP. INSTALL PER THE UNIT PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE SUPPORTS AS REQUIRED TO SUPPORT EWC. MOUNT UNIT SECURELY TO WALL FOR HANDICAPPED USE.**	1/2"	N/A	1-1/4"	1-1/4"	115V/ 60HZ/ 6.0 F.L.A.
FCO-1	**FLOOR CLEANOUTS - STANDARD ROUND DUCO CAST IRON BODY, BRONZE ATTACHMENT SCREWS, SLEEVED FULL THICKNESS OF FLOOR SLAB. TOP SHAPE: SQUARE WHERE FLOOR COVERING HAS RECTANGULAR PATTERN, ROUND IN OTHER AREAS. TOP COVER; FOR VINYL TILE AND SIMILAR FLOOR COVERINGS, RECESSED TO RECEIVE INSET OF FLOOR MATERIAL, OTHER AREAS: NICKEL BRONZE SCORIATED FINISH. ACCEPTABLE MANUFACTURERS: ZURN, JAY R. SMITH, JOSAM.**	N/A	N/A	SEE DWGS	N/A	N/A
FD-1	**FLOOR DRAIN - POLISHED NICKEL-BRONZE FINISH, HEEL-PROOF, SQUARE GRATE FINISH AREA, PROVIDE WITH TS-1 TRAP SEAL. ACCEPTABLE MANUFACTURERS: ZURN (ZN-415S)**	N/A	N/A	SEE DWGS	SEE DWGS	N/A
FS-1	**FLOOR SINK - 8 INCH DEEP, CAST IRON BODY AND 12X12 INCH SQUARE AREA. PROVIDE WITH TRAP SEAL. ACCEPTABLE MANUFACTURERS: ZURN MODEL (Z1910), WADE, ZURN, OR JAY R SMITH.**	N/A	N/A	SEE DWGS	SEE DWGS	N/A
TS-1	**TRAP SEAL - ELASTOMERIC MATERIAL. SURE SEAL, MODEL SS2009V.**	N/A	N/A	SEE DWGS	N/A	N/A
L-1	**LAVATORY- ADA COMPLIANT WHITE VITREOUS CHINA, 20-3/8" X 17-3/8" INCH , DROP-IN LAVATORY WITH FRONT OVERFLOW. ACCEPTABLE MANUFACTURERS: AMERICAN STANDARD MODEL (AQUALYN), ELJER, CRANE, GERBER. LAVATORY TRIM: SINGLE HANDLE,SOLID BRASS BODY, CHROME PLATED FINISH, CONVENTIONAL SPOUT WITH 0.5 GPM VANDAL RESISTANT AERATOR. PROVIDE WITH THERMOSTATIC MIXING VALVE (WATTS MODEL LFUSG-B). SET OUTLET TEMPERATURE AT 105°F. ACCEPTABLE MANUFACTURERS: DELTA (520-DST) , MOEN, KOHLER SUPPLIES STOPS: QUATER TURN, SOLID BRASS, ANGLE STOPS, CHROME PLATED, COPPER RISER TUBES AND WALL ESCUTCHEONS.**	1/2"	1/2"	1-1/2"	1-1/2"	N/A
L-2	**LAVATORY- WHITE VITREOUS CHINA, 19 INCH x 17 INCH, WALL MOUNTED, 4" CENTERS AND OVERFLOW. ACCEPTABLE MANUFACTURERS: ZURN (Z5354), KOHLER, AMERICAN STANDARD, ELJER, CRANE, GERBER. LAVATORY TRIM: SINGLE HANDLE,SOLID BRASS BODY, CHROME PLATED FINISH, CONVENTIONAL SPOUT WITH 0.5 GPM VANDAL RESISTANT AERATOR.PROVIDE WITH THERMOSTATIC MIXING VALVE (WATTS MODEL LFUSG-B). SET OUTLET TEMPERATURE AT 105°F. ACCEPTABLE MANUFACTURERS: DELTA (520-DST) , MOEN, KOHLER SUPPLIES STOPS: QUATER TURN, SOLID BRASS, ANGLE STOPS, CHROME PLATED, COPPER RISER TUBES AND WALL ESCUTCHEONS.**	1/2"	1/2"	1-1/2"	1-1/2"	N/A
MSB-1	**MOP SERVICE BASIN- FLOOR MOUNTED, MOLDED STONE 24 INCH x 24 INCH x 10 INCH DEEP. SPLASH PANEL - 20GA TYPE 304 STAINLESS STEEL, PROVIDE REINFORCING IN WALL FOR MOUNTING FAUCET SUPPORT BRACKET. MOUNT FAUCET 36 INCHES ABOVE FLOOR. ACCEPTABLE MANUFACTURERS: FLORESTONE (MSR-2424). MOP SERVICE BASIN TRIM: CHROME PLATED CAST BRASS VACUUM BREAKER SPOUT, 3/4 INCH HOSE THREADED OUTLET, PAIL HOOK WITH WALL SUPPORT, INTEGRAL SCREWDRIVER STOPS WITH COVERING CAPS, STRAIGHT SHANK WITH FLANGE AND CROSS TYPE HANDLES. ACCEPTABLE MANUFACTURERS: DELTA (28T9) ACCESSORIES: DOME STRAINER, 3 INCH CL TRAP. PROVIDE WITH 5 FEET OF 1/2 INCH PLAIN END REINFORCED RUBBER HOSE, HOSE CLAMP AND MOP HANGER.**	1/2"	1/2"	3"	1-1/2"	N/A
SH-1	**SHOWER - 36x36 ACRYLIC SHOWER FURNISHED BY CONTRACTOR AND INSTALLED BY PLUMBING CONTRACTOR. SHOWER TRIM: PRESSURE BALANCED MIXING VALVE SHALL BE FLUSH MOUNTED WITH CONCEALED PIPING, SINGLE LEVER HANDLE AND INTEGRAL SCREWDRIVER STOPS, ASSE 1016 PER 2018 IPC412. SET LIMIT STOPS AT 105 DEGREES F., 2.5 GPM FLOW CONTROL, DELUXE MULTI-STREAM SHOWER HEAD WITH UNIVERSAL BALL JOINT, BENT ARM AND WALL FLANGE AND BACK PLATE. ACCEPTABLE MANUFACTURERS: LEONARD (6700-S-H10-BP), SYMMONS. MOUNT SHOWER HEAD AT 7 FOOT ABOVE FLOOR.**	1/2"	1/2"	2"	2"	N/A
SH-2	**SHOWER - 60x36 ACRYLIC SHOWER FURNISHED BY CONTRACTOR AND INSTALLED BY PLUMBING CONTRACTOR. SHOWER TRIM: PRESSURE BALANCED MIXING VALVE SHALL BE FLUSH MOUNTED WITH CONCEALED PIPING, SINGLE LEVER HANDLE AND INTEGRAL SCREWDRIVER STOPS, ASSE 1016 PER 2018 IPC412. SET LIMIT STOPS AT 105 DEGREES F., 2.5 GPM FLOW CONTROL, DELUXE MULTI-STREAM SHOWER HEAD WITH UNIVERSAL BALL JOINT, BENT ARM AND WALL FLANGE AND BACK PLATE. ACCEPTABLE MANUFACTURERS: LEONARD (6700-S-H10-BP), SYMMONS. MOUNT SHOWER HEAD AT 7 FOOT ABOVE FLOOR.**	1/2"	1/2"	2"	2"	N/A
UR-1	**URINAL- ADA, WALL MOUNTED, WHITE VITREOUS CHINA, 3/4 INCH TOP SPUD INLET, MOUNT WITH LIP AT ADA REQUIRED HEIGHT. UNIT SHALL FLUSH ON 0.125 GPF OR LESS AND MUST BE WATER SENSE CERTIFIED. FLUSH VALVE - MANUALLY OPERATED, 0.125 GPM FLUSH VALVE SHALL BE EXPOSED, CHROME PLATED, ESCUTCHEON, SOLID SUPPORT RING, INTEGRAL SCREWDRIVER STOP AND VACUUM BREAKER. WALL SUPPORT/CARRIER: PROVIDE CARRIER FOR URINAL TO BE AT ABA REQUIRED HEIGHT.**	3/4"	NA	2"	2"	NA
WC-1	**WATER CLOSET- FLOOR MOUNTED, ADA, WHITE VITREOUS CHINA, SIPHON JET, PRESSURE ASSISTED CLOSET WITH ELONGATED BOWL. WATER CLOSET SHALL FLUSH ON 1.28 GPF OF WATER OR LESS. ACCEPTABLE MANUFACTURERS: ZURN (Z5561), KOHLER, AMERICAN STANDARD, ELJER, CRANE, GERBER. ACCESSORIES: PROVIDE WITH WHITE, OPEN FRONT SEAT LESS COVER, WITH STAINLESS**	1"	N/A	4"	2"	N/A
WC-2	**WATER CLOSET- FLOOR MOUNTED, STANDARD HEIGHT, WHITE VITREOUS CHINA, SIPHON JET, PRESSURE ASSISTED CLOSET WITH ELONGATED BOWL. WATER CLOSET SHALL FLUSH ON 1.28 GPF OF WATER OR LESS. ACCEPTABLE MANUFACTURERS: ZURN (Z5561), KOHLER, AMERICAN STANDARD, ELJER, CRANE, GERBER. ACCESSORIES: PROVIDE WITH WHITE, OPEN FRONT SEAT LESS COVER, WITH STAINLESS**	1"	N/A	4"	2"	N/A
WCO-1	**WALL CLEAN OUT - DUCO CAST IRON CLEANOUT TEE WITH GAS AND WATER TIGHT BRONZE PLUG, SMOOTH STAINLESS STEEL ACCESS COVER AND VANDAL PROOF SCREW. APPROVED MANUFACTURERS: JAY R. SMITH (9776), WADE, ZURN OR JOSAM.**	N/A	N/A	SEE DWGS	SEE DWGS	N/A
WHA-1	**WATER HAMMER ARRESTOR - PISTON TYPE, SIZED PER MANUFACTURERS RECOMMENDATIONS AND SHALL BE APPROVED FOR INSTALLATION AT ANY ANGLE. ACCEPTABLE MANUFACTURERS: SIOUX CHIEF (650 SERIES), ZURN, WADE, OR JOSAM.**	SEE MFG RECS	N/A	N/A	N/A	N/A

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job # 163-19
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chkd CF

description

SCHEDULES

FOR BIDDING

number

P-601

GENERAL NOTES

A. DEMO AND REMOVE ALL EXISTING FIXTURES IN TENANT SPACE.

B. REFER TO COVER SHEET GENERAL DOMOLITION NOTES ON P-001.

C. REFER TO NEW WORK PLANS FOR NEW PIPE ROUTINGS AND EQUIPMENT.

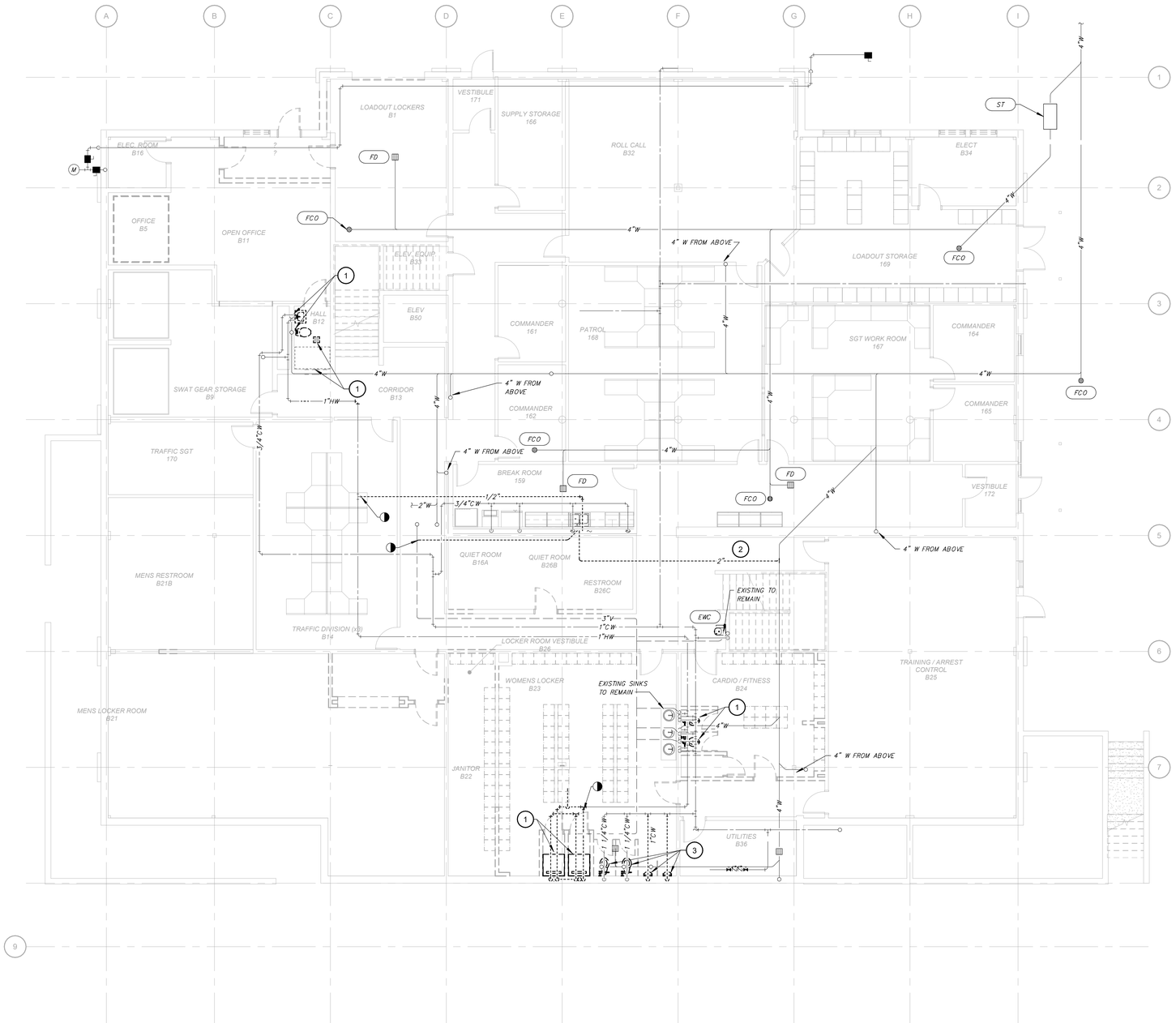
D. DEMOLISH WASTE PIPING ONLY WHERE DEEMED NECESSARY. CONTRACTOR SHALL REPORT TO ENGINEER ANY DISCREPENCIES WITH THE WASTE PIPING DEMOLITION.

KEYNOTES (#)

1 DEMOLISH AND REMOVE EXISTING PLUMBING FIXTURES. DEMOLISH ALL DOMESTIC WATER AND VENT PIPING BACK TO MAIN AND CAP. DEMOLISH WASTE PIPING BELOW GRADE AND CAP. SEE NEW WORK PLANS FOR DOMESTIC WATER, WASTE,VENT PIPING ROUTING IN AREA.

2 SAW CUT CONCRETE, DEMO 2" WASTE LINE AND PREPARE FOR LARGER WASTE LINE TIE IN.

3 DEMOLISH AND REMOVE EXISTING PLUMBING FIXTURE. PREPARE FOR NEW FIXTURE. REUSE AS MUCH EXISTING PIPING AS POSSIBLE.



1 BASEMENT PLUMBING DEMOLITION PLAN

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

0 4 8 16

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BASEMENT PLUMBING DEMOLITION PLAN

description

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number

PD-101

GENERAL NOTES

A. DEMO AND REMOVE ALL EXISTING FIXTURES IN TENANT SPACE.

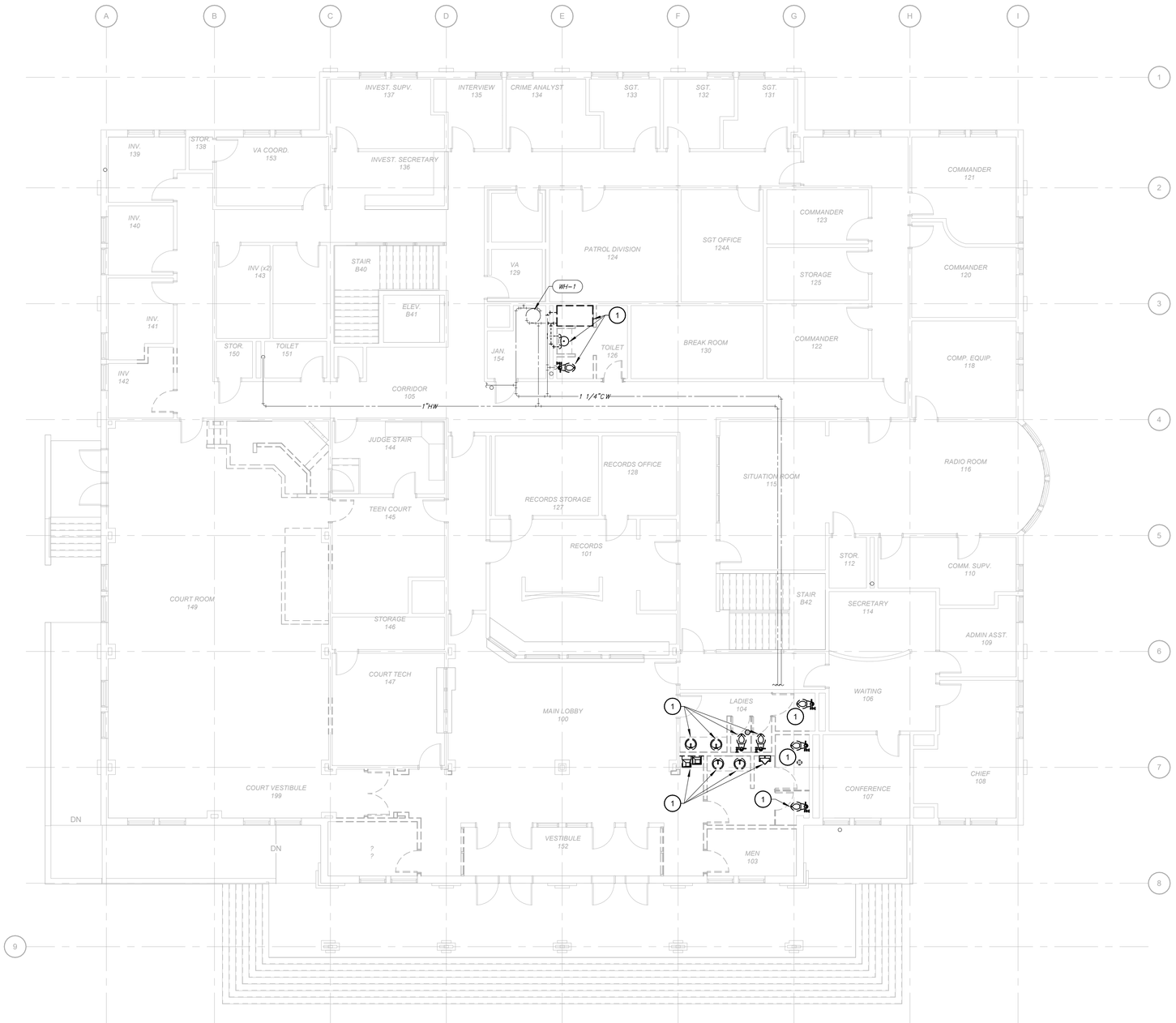
B. REFER TO COVER SHEET GENERAL DEMOLITION NOTES ON P-001.

C. REFER TO NEW WORK PLANS FOR NEW PIPE ROUTINGS AND EQUIPMENT.

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KEYNOTES (#)

1 DEMOLISH AND REMOVE EXISTING PLUBMING FIXTURES. DEMOLISH ALL DOMESTIC WATER AND VENT PIPING BACK TO MAIN AND CAP. DEMOLISH WASTE PIPINGBELOW GRADE AND CAP. SEE NEW WORK PLANS FOR DOMESTIC WATER, WASTE,VENT PIPING ROUTING IN AREA.



1 FIRST FLOOR PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16

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FIRST FLOOR PLUMBING DEMOLITION PLAN

description

FOR BIDDING

number PD-102

SYMBOLS LEGEND

NOTE: NOT ALL SYMBOLS ARE USED IN CONSTRUCTION DOCUMENTS

GENERAL

- AHU 1 — MECHANICAL EQUIPMENT CALL-OUT: REFER TO THE EQUIPMENT DATA SCHEDULE FOR DETAILS
- GWH1 — PLUMBING EQUIPMENT CALL-OUT: REFER TO THE EQUIPMENT DATA SCHEDULE FOR DETAILS
- # — KEYNOTE
- 100A4G — FEEDER CALL-OUT
- 1 — FOOD SERVICE EQUIPMENT DESIGNATION
- Room name 101A — ROOM NUMBER
- 1 — REVISION CALL-OUT
- NEW EQUIPMENT (TYPICAL)
- EXISTING EQUIPMENT (TYPICAL)
- DEMOLITION EQUIPMENT (TYPICAL)
- WALL MOUNT BRACKET (TYPICAL)

WIRING AND CONDUITS

- CONDUIT - CONCEALED IN SUSPENDED CEILING OR WALL
- CONDUIT - EXPOSED
- CONDUIT - CONCEALED BELOW SLAB OR GRADE
- CONDUIT - TURNING UP
- CONDUIT - TURNING DOWN
- CONDUIT - UP AND DOWN (CHANGE IN ELEVATION)
- CONDUIT - CONTINUED
- CONDUIT - FLEXIBLE
- CONDUIT - CAPPED
- J — JUNCTION BOX
- J — JUNCTION BOX - EMERGENCY POWER
- CONDUIT FITTING (CONDULET)
- EXPANSION FITTING
- SEALING FITTING
- CABLE TRAY

COMMUNICATIONS (FOR ROUGH-IN ONLY WITH 1" CONDUIT TO ACCESSIBLE CEILING

- TTB — TELEPHONE TERMINAL BACKBOARD (PROVIDE WITH 3/4" FIRE RATED PLYWOOD)
- TELEPHONE OUTLET - WALL MOUNTED
  - \- WALL MOUNTED
  - T TOUCH TONE DEVICE FOR THE DEAF
  - W WALL PHONE
  - D DEDICATED TELEPHONE OUTLET
- TELEPHONE OUTLET - ABOVE COUNTER
- TELEPHONE OUTLET - FLUSH FLOOR MOUNTED
- TELEPHONE OUTLET - CEILING MOUNTED
- DATA OUTLET - WALL MOUNTED
- DATA OUTLET - ABOVE COUNTER
- DATA OUTLET - FLUSH FLOOR MOUNTED
- DATA OUTLET - CEILING MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET - WALL MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET - ABOVE COUNTER
- COMBINATION TELEPHONE/DATA OUTLET - FLUSH FLOOR MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET - CEILING MOUNTED
- WAP — WIRELESS ACCESS POINT

POWER

- BRANCH CIRCUIT PANELBOARD - SURFACE MOUNTED
- BRANCH CIRCUIT PANELBOARD - FLUSH MOUNTED
- DISTRIBUTION PANELBOARD OR SWITCHBOARD
- T — TRANSFORMER
- T — POLE MOUNTED TRANSFORMER
- MOTOR CONTROL CENTER
- CONTROL PANEL
- GROUND BAR
- M — UTILITY KILOWATT-HOUR METER
- SAFETY SWITCH - NON-FUSIBLE
- F — SAFETY SWITCH - FUSIBLE
- C — ENCLOSED CIRCUIT BREAKER
- MAGNETIC STARTER
- VFD — COMBINATION STARTER
  - VFD VARIABLE FREQUENCY DRIVE
- EQUIPMENT - MOTOR
- DUPLEX RECEPTACLE (NEMA 5-20R)
  - GFI GROUND FAULT CIRCUIT INTERRUPTER
  - SS SURGE SUPPRESSOR (ISOLATED GROUND TYPE)
  - WP WEATHERPROOF
  - HG HOSPITAL GRADE
  - TR TAMPER RESISTANT
  - C CONTROLLED
  - D DEDICATED
  - USB STANDARD DUPLEX WITH 2 USB PORTS
- DUPLEX RECEPTACLE - ABOVE COUNTER
- DUPLEX RECEPTACLE - SPLIT WIRED
- DUPLEX RECEPTACLE - EMERGENCY POWER
- DUPLEX RECEPTACLE - CEILING MOUNTED
- DUPLEX RECEPTACLE - FLUSH FLOOR MOUNTED
- QUADRUPLEX RECEPTACLE
- QUADRUPLEX RECEPTACLE - ABOVE COUNTER
- QUADRUPLEX RECEPTACLE - FLUSH FLOOR MOUNTED
- SINGLE RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE - CEILING MOUNTED
- SPECIAL PURPOSE RECEPTACLE - FLUSH FLOOR MOUNTED
- J — FLOOR BOX - SEE SPECS OR KEYED NOTES ON PLAN FOR DETAILS
- PP — POWER POLE
- CEILING FAN
- HAND DRYER
- GAP — GENERATOR ANNUNCIATOR PANEL
- GFI — DEAD FRONT GFI WIRING DEVICE

NURSE CALL

- PANEL NAME-CIRCUIT NUMBER (LPA-1)
- NCCP — NURSE CALL CONTROL PANEL
- N # — NURSE CALL DEVICE
  - P PULL CORD
  - B BED STATION
  - CB CODE BLUE
  - D DUTY STATION
  - M MASTER STATION
- NURSE CALL DOME LIGHT

LIGHTING

- A — LUMINAIRE TYPE
- LUMINAIRE - RECESSED (REFER TO LUMINAIRE SCHEDULE)
- 1LP-1a NL — CONNECTED FOR NIGHT LIGHT USE; CIRCUIT NUMBER AND SWITCH LEG (LUMINAIRES ARE CONTROLLED BY LOCAL SWITCH UNLESS DESIGNATION GIVEN); PANEL NAME
- LUMINAIRE - SURFACE MOUNTED
- RECESSED LUMINAIRE CONNECTED TO THE EMERGENCY POWER SYSTEM OR BALLAST/DRIVER
- OPEN INDUSTRIAL LUMINAIRE
- OPEN INDUSTRIAL LUMINAIRE EMERGENCY POWER SYSTEM OR BALLAST/DRIVER
- WALL MOUNTED LUMINAIRE
- RECESSED DOWNLIGHT - CEILING MOUNTED
- RECESSED DOWNLIGHT w/ EMERGENCY BALLAST/DRIVER - CEILING MTD.
- SURFACE MOUNTED DOWNLIGHT
- RECESSED ADJUSTABLE/WALLWASH - CEILING MOUNTED
- POLE MOUNTED SITE LIGHTING - SINGLE HEAD
- POLE MOUNTED SITE LIGHTING - DUAL HEAD
- POLE MOUNTED SITE LIGHTING - TRIPLE HEAD
- POLE MOUNTED SITE LIGHTING - QUAD HEAD
- LINEAR PENDANT
- PENDANT
- TRACK LIGHTING
- EXIT SIGN - SINGLE FACE, CEILING MOUNTED ARROW INDICATES DIRECTION OF EXIT
- EXIT SIGN - SINGLE FACE, WALL MOUNTED
- EXIT SIGN - DUAL FACE, CEILING MOUNTED
- EXIT SIGN - DUAL FACE, WALL MOUNTED
- EXIT SIGN WITH EMERGENCY LIGHT ARROW INDICATES DIRECTION OF EXIT
- EMERGENCY LIGHT
- $a — TOGGLE SWITCH
  - 2 DOUBLE-POLE SINGLE-THROW (DPST)
  - 3 3-WAY
  - 4 4-WAY
  - b LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
  - D DIMMER (WALL BOX TYPE)
  - F FAN SPEED CONTROLLER
  - K KEY OPERATED
  - LV LOW VOLTAGE SWITCH
  - MC MOMENTARY CONTACT SWITCH
  - OS WALL BOX OCCUPANCY SENSOR
  - OS2 WALL BOX OCCUPANCY SENSOR FOR TWO LEVEL SWITCHING
  - P PILOT LIGHT
  - T TIMER
  - TC TEACHER CONTROLS STATION
  - TE TEACHER ENTRY STATION
  - VS WALL BOX VACANCY SENSOR
  - WP WEATHERPROOF
- OS a — CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
  - a LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
- DL a — CEILING MOUNTED DAYLIGHT SENSOR
  - a LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
- VS a — CEILING MOUNTED DUAL TECHNOLOGY VACANCY SENSOR
  - a LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
- PC — PHOTOCELL
- RC — ROOM CONTROLLER
- LC1 — LIGHTING CONTACTOR
- PANEL NAME-CIRCUIT NUMBER (LPA-1)
- LRP — LIGHTING RELAY PANEL
- INV — INVERTER

FIRE ALARM

- PANEL NAME-CIRCUIT NUMBER (LPA-1)
- FCP — MAIN CONTROL PANEL (FCP)
  - FCP F/A MAIN CONTROL PANEL
  - FSA FIRE SYSTEM ANNUNCIATOR
  - FTR F/A TRANSPONDER OR TRANSMITTER
  - ESR ELEVATOR STATUS RECALL
  - FRP F/A RELAY PANEL
  - FAC F/A COMMUNICATOR
  - FPS FIRE ALARM ANNUNCIATION CIRCUIT POWER SUPPLY
- F — MANUAL PULL STATION
- S P — SMOKE DETECTOR
  - P PHOTOELECTRIC
  - PL PLENUM SMOKE DETECTOR
  - S SOUNDER BASE
- D — DUCT DETECTOR HOUSING AND SAMPLING TUBE
- H R — THERMAL (HEAT) DETECTOR
  - R RATE OF RISE ONLY
  - F FIXED TEMPERATURE
  - L LINE TYPE FIXED TEMPERATURE CABLE

  ALL HEAT DETECTORS SHALL BE 135°, COMBINATION TYPE UNLESS INDICATED OTHWERWISE.
- DP — SUPERVISORY SWITCH - DRY-PIPE PRESSURE SWITCH
- TS — SUPERVISORY SWITCH - TAMPER SWITCH
- WF — SUPERVISORY SWITCH - WATER FLOW SWITCH
- CONTROL DEVICE - DOOR HOLD OPEN
- F C — ADDRESSABLE INTERFACE MODULE
  - C CONTROL
  - M MONITORING
  - S SIGNALLING
  - V SOLENOID VALVE
- C — NOTIFICATION APPLIANCE
  - C CHIME
  - H HORN
  - LF LOW FREQUENCY
- 75 — NOTIFICATION APPLIANCE - STROBE ONLY
  - CANDELA VALUE AS SHOWN MINIMUM
- C 75 — NOTIFICATION APPLIANCE WITH STROBE
  - CANDELA VALUE AS SHOWN MINIMUM
  - C CHIME
  - H HORN
  - LF LOW FREQUENCY
- F — SHUNT TRIP PUSH BUTTON
- C 75 — NOTIFICATION APPLIANCE (CEILING)
  - C CHIME STROBE
  - H HORN STROBE
  - LF LOW FREQUENCY
  - CANDELA VALUE AS SHOWN MINIMUM
- CO — CARBON MONOXIDE DETECTOR
- S 75 — CEILING MOUNTED COMBINATION VOICE EVACUATION SPEAKER AND STROBE
  - CANDELA VALUE AS SHOWN MINIMUM
- 75 S — COMBINATION VOICE EVACUATION SPEAKER AND STROBE NOTIFICATION APPLIANCE
  - CANDELA VALUE AS SHOWN MINIMUM
- S — CEILING MOUNTED VOICE EVACUATION SPEAKER
- S — VOICE EVACUATION SPEAKER NOTIFICATION APPLIANCE
- $ RTS — REMOTE TEST SWITCH

SPECIAL SYSTEMS

- PANEL NAME-CIRCUIT NUMBER (LPA-1)
- ACCP — ACCESS CONTROL CONTROL PANEL
- DVR — DVR AND RACK
- CR — CARD READER - WITH 3/4" CONDUIT
  - K WITH KEY PAD
- ES — ELECTRIC STRIKE WITH 3/4" CONDUIT
- ML — ELECTRO-MAGNETIC LOCK WITH 3/4" CONDUIT
- VM — VIDEO MONITOR, FLAT SCREEN LCD WITH 3/4" CONDUIT
- DC — DOOR STATUS SWITCH WITH 3/4" CONDUIT
- MS — MOTION DETECTOR WITH 3/4" CONDUIT
- PS — POWER SUPPLY FOR PTZ CAMERA WITH 3/4" CONDUIT
- PS4 — 4-CHANNEL CAMERA POWER SUPPLY WITH 3/4" CONDUIT
- INDOOR FIXED CAMERA WITH 3/4" CONDUIT
  - PTZ PAN TILT ZOOM
  - WP WEATHERPROOF
- TV — TV OUTLET WITH 3/4" CONDUIT
- HANDICAP DOOR OPERATORS - SEE ARCHITECURALS WITH 3/4" CONDUIT
- GB — GLASS BREAK SENSOR WITH 3/4" CONDUIT
- V — VOLUME CONTROLLER - WITH 3/4" CONDUIT
- S — CEILING MOUNTED SPEAKER
- S — WALL MOUNTED SPEAKER
- IMS — INTERCOM MASTER STATION
- I — INTERCOM REMOTE STATION
  - P PEDESTAL MOUNT
  - S HIGH SECURITY
  - G GENERAL USE
- PUSH BUTTON
- DB — DOOR BELL SPEAKER/ CHIME
- C — CLOCK
- C C — DOUBLE SIDED CLOCK
- RX — REQUEST TO EXIT

ONE-LINE DIAGRAM

- SERVICE DROP
- PANEL ### — PANELBOARD
- T-1, 45 KVA 3Ø, 208Y/120VAC — DELTA-WYE TRANSFORMER
- G — # KVA/KW, 480Y/277V, 3Ø, 4W — GENERATOR
- # A, # POLES — AUTOMATIC TRANSFER SWITCH
- GROUND
- # AF, # AT — CIRCUIT BREAKER
- # AF, # AT — DRAWOUT CIRCUIT BREAKER
- M — # A — METER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- G — GROUND FAULT PROTECTED BREAKER
- ST — SHUNT TRIP BREAKER
- # A — SWITCH
- FUSE
- CONTACTOR
- THERMAL OVERLOAD
- 49 — ELECTRONIC OVERLOAD
- SPD — SURGE PROTECTION DEVICE
- VFD — VARIABLE FREQUENCY DRIVE
- K — KIRK KEY INTERLOCK
- DPM — DIGITAL POWER METER

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drawn JAS

chkd APC

GENERAL INFORMATION

description

FOR BIDDING

E-001

number

GENERAL NOTES

COMMON REQUIREMENTS:

A. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS, ELEVATIONS, AND BUILDING DETAILS. VERIFY LOCATION OF ALL WALL OUTLETS, SWITCHES, ETC., WITH ARCHITECTURAL DRAWINGS AND ACTUAL CONDITIONS.

B. PRIOR TO ROUGH-IN AND FINAL CONNECTION OF EQUIPMENT, VERIFY ELECTRICAL REQUIREMENTS OF EQUIPMENT WITH OTHER TRADES CONSTRUCTION DOCUMENTS AND FINALIZED SHOP DRAWINGS. VERIFICATION SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: VOLTAGE, AMPERAGE, TOTAL LOAD, OVER-CURRENT PROTECTION REQUIREMENTS, MOUNTING HEIGHT OF ELECTRICAL CONNECTION, CABLE TYPE AND SIZE, WIRING DIAGRAMS.

C. COORDINATE SCHEDULE OF CONSTRUCTION WITH THE OWNER, OTHER TRADES AND UTILITIES INVOLVED BEFORE TRENCHING AND INSTALLATION OF UNDERGROUND CONDUIT. USE EXTREME CAUTION DURING EXCAVATION TO LOCATE EXISTING UNDERGROUND PIPING, CONDUITS, ETC. LOCATE AND PROTECT ANY BURIED UTILITIES IN AREAS OF EXCAVATION.

D. GROUT AND SEAL ALL CONDUIT PENETRATIONS OF WALLS AND FLOOR SLABS TO PRESERVE FIRE RATING AND WATERTIGHT INTEGRITY.

E. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR ACTUAL LAYOUT OF LUMINAIRES AND CEILING TYPES. VERIFY CEILING TYPES PRIOR TO ORDERING LUMINAIRES.

F. REFER TO ARCHITECTURAL PLANS TO CONFIRM ALL FIRE-RATED CEILINGS AND WALLS.

1. ALL PENETRATIONS OF FIRE-RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS' LABORATORIES LISTINGS FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS." THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS, FURNISHED BY THE MANUFACTURER OF THE FIRE STOP MATERIAL, WHICH SHOW COMPLETE CONFORMANCE TO THE UL LISTING AND SHALL BE SPECIFIC FOR EACH PENETRATION WITH ALL VARIABLES DEFINED. THESE FINAL AND APPROVED DRAWINGS SHALL BE READILY AVAILABLE TO THE LOCAL INSPECTORS AT ALL TIMES AT THE PROJECT SITE.

G. PRIOR TO ANY ROUGH-IN FOR ELECTRIC WATER COOLER RECEPTACLES, COORDINATE WITH THE ELECTRIC WATER COOLER INSTALLER THE EXACT LOCATION SO THAT THE ENTIRE ELECTRIC CORD WILL BE CONCEALED FROM ELECTRIC WATER COOLER TO RECEPTACLE.

H. ALL LIGHT FIXTURES SHALL BE EQUIPPED WITH A GREEN GROUND WIRE BONDED TO THE HOUSING.

I. FINISH OF ALL LIGHTING FIXTURES IS SUBJECT TO ARCHITECT'S APPROVAL. SUBMIT SAMPLES IF REQUESTED.

J. ALL LUMINAIRES WITH EMERGENCY BATTERIES SHALL HAVE THE BATTERY CHARGER CIRCUITED TO THE AMBIENT LIGHTING CIRCUIT IN THE SPACE BUT SHALL BE UNSWITCHED. IF THE LUMINAIRE IS INDICATED AS SWITCHED, ONLY THE LUMINAIRE SHALL BE CONTROLLED BY THE SWITCHED CONDUCTORS (BATTERY CHARGER SHALL REMAIN UNSWITCHED).

K. THE ELECTRICAL CONTRACTOR SHALL BE HELD FINANCIALLY RESPONSIBLE FOR ANY AND ALL COSTS OF THE ENGINEERS TIME REQUIRED TO REVIEW AND RESEARCH NON-SPECIFIED EQUIPMENT SUBMITTED FOR SUBSTITUTION BY THE ELECTRICAL CONTRACTOR. THESE COSTS SHALL BE AUTOMATICALLY INVOICED TO THE CONTRACTOR UNLESS SUCH SUBSTITUTIONS FOLLOW THE GUIDELINES FOR SUBSTITUTION AND ARE WITHIN THE PROPER TIME FRAME AS OUTLINED IN OTHER SECTIONS OF THIS SPECIFICATION.

L. FIELD ADJUST ALL LUMINAIRES REQUIRING AIMING WITH THE OWNER PRESENT AND TO THEIR SATISFACTION.

M. ON LINEAR WALL SLOT LUMINAIRES, LAMPS SHALL BE CONTINUOUS INCLUDING CORNERS.

N. PROVIDE AND INSTALL IN EACH PANEL, TYPEWRITTEN NEAT TWO-COLUMN CIRCUIT INDEX CARD SET UNDER PLASTIC COVERS ON INSIDE OF DOORS. EACH ODD-NUMBERED CIRCUIT SHALL BE IN SEQUENCE ON ONE COLUMN AND THE EVEN-NUMBERED CIRCUITS ON THE OTHER COLUMN (E.G. 1,3,5...;2,4,6...). EACH CIRCUIT SHALL BE IDENTIFIED AS TO THE USE AND ROOM NAME(S) OR AREA(S). THE CONTRACTOR SHALL CONFIRM ROOM NAMES AND/OR ROOM NUMBERS WITH THE ARCHITECT PRIOR TO PROJECT COMPLETION.

O. PRIOR TO SUBMITTING BID PROPOSAL, BIDDER SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT CONSTRUCTION SITE TO BE FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH THEY WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART.

P. CONTRACTOR SHALL NOT SCALE DRAWING FOR QUANTITIES. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL MEASUREMENTS.

Q. IF POSSIBLE, ALL NEWLY INSTALLED RECEPTACLES SHALL BE INSTALLED IN SEPARATE OR ADJACENT STUD SPACES, TO AVOID SOUND TRANSMISSION AND WALL INTEGRITY ISSUES. ALL NEWLY INSTALLED RECEPTACLES LOCATED IN COMMON STUD SPACES OF FIRE-RESISTANT WALLS SHALL BE EQUIPPED WITH FIRE-RESISTANT PUTTY PADS AT THE BACK OF EACH BOX IN ACCORDANCE WITH NEC.

R. SECURE ALL LOW VOLTAGE DATA, SIGNALING AND CONTROL WIRING TO THE STRUCTURE AT INTERVALS NO MORE THAN 4 FEET.

S. ALL FLOOR MOUNTED SWITCH GEAR, UNIT SUBSTATIONS, BOXES AND TRANSFORMERS LARGER THAN 75 KVA SHALL BE INSTALLED ON A NOMINAL 4" HOUSEKEEPING PAD. PAD SHALL EXTEND FROM ELECTRICAL EQUIPMENT 6" IN ANY DIRECTION.

T. WHERE CONDUIT AND WIRING RUNS ARE NOT SHOWN ON FLOOR PLANS, THE CONTRACTOR SHALL DETERMINE AND PROVIDE THE REQUIRED CONDUIT AND WIRING FOR SPECIFIED CIRCUITING IN ACCORDANCE WITH NEC AND THE FOLLOWING MINIMUM REQUIREMENTS:

1. MINIMUM CONDUIT SIZE SHALL BE 3/4".
2. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. #10 AWG SHALL BE USED FOR HOME RUNS OF 20 AMP BRANCH CIRCUITS OVER 100 FEET IN LENGTH.
3. EACH RACEWAY SHALL CONTAIN AN INSULATED EQUIPMENT GROUNDING CONDUCTOR PER NEC.
4. DERATING OF CONDUCTOR AMPACITY SHALL BE APPLIED PER NEC.
5. NO SHARING OF NEUTRALS ALLOWED. CIRCUIT SHALL HAVE DEDICATED NEUTRAL CONDUCTORS. ONE CIRCUIT, ONE NEUTRAL.
6. MAXIMUM SIX FOOT FLEXIBLE LUMINAIRE WHIP SHALL BE USED FOR FINAL CONNECTIONS TO LIGHT FIXTURES INSTALLED IN LAY-IN CEILINGS. MAXIMUM FOUR LUMINAIRE WHIPS SHALL BE CONNECTED FROM ONE JUNCTION BOX. FEED THRU BETWEEN LUMINAIRES SHALL NOT BE ALLOWED.
   a. EXCEPTION: ALL RECESSED LUMINAIRES IN HARD CEILINGS SHALL HAVE FEED-THRU JUNCTION BOXES.

RENOVATION NOTES:

A. RENOVATION OF ELECTRICAL FACILITIES WILL BE REQUIRED IN THE EXISTING BUILDING. EXISTING CONDUIT RUNS ARE GENERALLY NOT SHOWN, ALTHOUGH A FULL ATTEMPT HAS BEEN MADE TO SHOW SOME EXISTING CONDITIONS, OF WHICH INFORMATION HAS BEEN TAKEN FROM EXISTING RECORD DRAWINGS OF THIS PROJECT. THE DRAWINGS SHOWING LOCATION OF EXISTING EQUIPMENT, OUTLETS, LUMINAIRES, ETC., IN EXISTING AREAS ARE APPROXIMATE ONLY.

1. DRAWINGS SHOW EXISTING CONDITIONS OF THE SITE. AN ATTEMPT HAS BEEN MADE TO SHOW EXISTING BUILDING, SITE DETAILS, ETC., BUT ACCURACY CANNOT BE GUARANTEED. VERIFY EXACT LOCATIONS OF ALL CIRCUITS, CONDUITS, PIPING, EQUIPMENT, ETC. VERIFY ALL SITE AND BUILDING DETAILS.

B. BRANCH CIRCUITS SHALL BE REUSED WHERE PRACTICAL AND SHALL, IN ADDITION, BE REMODELED AS REQUIRED. THE CONTRACTOR SHALL CONCEAL ALL WORK WHERE POSSIBLE. WHERE EXPOSED WORK IS REQUIRED IN FINISHED AREAS, THE CONTRACTOR SHALL USE WIREMOLD RACEWAY WITH #500 BEING THE MINIMUM SIZE ACCEPTABLE.

C. EXISTING ELECTRICAL WIRING WHICH WILL NOT BE MADE OBSOLETE AND WHICH WILL BE DISTURBED DUE TO CONSTRUCTION CHANGES REQUIRED BY THIS CONTRACT SHALL BE RESTORED TO OPERATING CONDITION, AS REQUIRED AND/OR DIRECTED. WHERE REQUIRED, SHOWN AND/OR DIRECTED, OUTLETS AND CONDUIT RUNS SHALL BE RELOCATED. IN SOME CASES IT MAY BE NECESSARY TO EXTEND CONDUITS AND PULL IN NEW WIRING OR INSTALL JUNCTION BOXES AND SPLICE IN NEW WIRING OR REPLACE OLD WIRING WITH NEW.

D. OUTLETS FROM WHICH LUMINAIRES, SWITCHES, RECEPTACLES, AND/OR OTHER ELECTRICAL DEVICES ARE MOVED AND WHICH ARE NOT REPLACED OR REUSED SHALL BE REMOVED OR, IF IT IS NOT POSSIBLE TO REMOVE, PLACE A BLANK COVER ON THE OUTLET BOX. WHERE OUTLETS, BOXES, ETC., ARE COMPLETELY REMOVED, THE CONTRACTOR SHALL CUT OFF CONDUITS AND REMOVE WIRING.

E. WHERE EXISTING LUMINAIRES ARE TO BE REUSED, THE ELECTRICAL CONTRACTOR SHALL CLEAN AND REPLACE LAMPS, REPAIR OR REPLACE DEFECTIVE PARTS, LENS, BALLAST, ETC. AS REQUIRED.

F. WHERE EXISTING CONDUIT IS TO BE ABANDONED, THE CONDUIT SHALL BE REMOVED IF IT IS EXPOSED, IN A CRAWL SPACE OR IN AN ACCESSIBLE CEILING. WHERE IT IS IMPOSSIBLE TO REMOVE THE CONDUIT, IT SHALL BE CUT OFF AND CAPPED OR PLUGGED, THAT IT WILL NOT PROTRUDE BEYOND THE FINISHED SURFACE. WHERE CONDUITS EXTENDING THROUGH FLOORS ARE TO BE ABANDONED, THE CONTRACTOR SHALL CUT AND CAP OR PLUG CONDUIT, THAT IT WILL NOT PROTRUDE ABOVE THE FLOOR.

G. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF ELECTRICAL WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED. THE CONTRACTOR SHALL EMPLOY QUALIFIED AND EXPERIENCED WORKMEN FOR THIS WORK. ALL RESTORATION WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND/OR THE OWNER.

H. ALL TEMPORARY AND REMODELING WORK SHALL BE CONSIDERED A PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.

I. EXAMINE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT, INCLUDING EXISTING, TEMPORARY, REMODELED AND NEW AREAS.

J. ALL ELECTRICAL CONNECTIONS REQUIRING AN OUTAGE SHALL BE MADE DURING AN APPROVED TIME LIMIT. CHANGEOVERS SHALL BE AS SHORT A DURATION AS POSSIBLE AND SHALL NOT INTERFERE WITH NORMAL OPERATION OF THE OWNER'S FACILITIES. NOTICE SHALL BE REQUIRED IN ADVANCE OF A SHUTDOWN OF ANY ELECTRICAL CIRCUIT FOR CHANGEOVER, AND SUCH A CHANGEOVER SHALL BE DONE DURING HOURS AS DIRECTED BY OWNER. WORK SHALL BE SCHEDULED SO THAT AT NO TIME WILL ANY EMERGENCY FEEDER, CIRCUIT, OR FIRE ALARM ZONE BE OUT OF SERVICE. PROVIDE NECESSARY TEMPORARY FEEDERS TO ACCOMPLISH THIS REQUIREMENT.

K. EXISTING LOW VOLTAGE WIRING WHICH WILL NOT BE MADE OBSOLETE AND WHICH WILL BE DISTURBED DUE TO CONSTRUCTION CHANGES REQUIRED BY THIS CONTRACT SHALL BE RESTORED TO CONDITION, OR POSITION, AS REQUIRED. PROPERLY RE-SECURE CABLE IN CHASES, CRAWL SPACES, TUNNELS, AND CEILING SPACES AS REQUIRED BY NEC. IN SOME CASES IT MAY BE NECESSARY TO ADD SUPPORTING HARDWARE TO ACCOMPLISH THIS REQUIREMENT.

DEMOLITION:

A. RETURN REMOVED MATERIAL DEEMED SALVAGEABLE BY OWNER'S REPRESENTATIVE. MATERIALS DEEMED NOT SALVAGEABLE SHALL BE REMOVED FROM THE PREMISES.

B. REMOVE ALL EXISTING WIRING DEVICES, LUMINAIRES, WIRE, CONDUIT, ETC., AS NOTED OR INDICATED WITHIN DEMOLITION AREA. (ALL ITEMS MAY NOT BE SHOWN). REWORK AS NECESSARY CIRCUITING WHICH REQUIRES CONTINUATION THROUGH THE AREA.

C. ELECTRICAL CONTRACTOR TO PROVIDE ALL NECESSARY LABOR, CONDUIT, WIRE, CONNECTIONS, ETC., FOR DEVICES, LUMINAIRES, ETC., NOTED AS "EXISTING TO REMAIN" SUCH THAT EXISTING CIRCUIT CONTINUITY IS MAINTAINED.

D. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK REQUIRED TO REMOVE/RELOCATE ANY EXISTING ELECTRICAL EQUIPMENT SUCH THAT ELECTRIC SHOCK HAZARDS TO WORKMEN ARE ELIMINATED DURING DEMOLITION AND NEW CONSTRUCTION.

E. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK IN REMOVING AND REPLACING "EXISTING TO REMAIN" LUMINAIRES, DEVICES, ETC., AS REQUIRED SO THAT THESE DEVICES ARE NOT DAMAGED DURING DEMOLITION. RELOCATED TO NEAREST APPROPRIATE LOCATION TO AVOID CONFLICTS WITH OTHER TRADES' WORK. REPLACE WITH NEW ANY "EXISTING TO REMAIN" LUMINAIRE, DEVICE, ETC., NOT DEEMED SALVAGEABLE BY OWNER'S REPRESENTATIVE.

F. REMOVED OR DAMAGED CONDUIT, WIRE, AND FITTINGS SHALL NOT BE REUSED FOR RELOCATED OR NEW DEVICES.

G. MAKE AS-BUILTS WITH NEW TYPED DIRECTORIES FOR ALL PANELBOARDS, INDICATING CIRCUIT DESCRIPTION (USED OR SPARE), CIRCUIT BREAKERS AND CIRCUIT LOAD.

H. WORK REQUIRED FOR EXISTING EQUIPMENT NOTED AS "EXISTING TO BE REMOVED" SHALL INCLUDE:

1. REMOVAL OF FEEDER FROM EQUIPMENT TO POINT OF FEED.
2. REMOVAL OR RE-CIRCUITING OF ALL BRANCH CIRCUITING.
3. REMOVAL OF ALL FITTINGS, SUPPORTS, BRACKETS, ETC.
4. PATCHING OF WALLS, FLOORS AND CEILINGS PER ARCHITECT'S INSTRUCTIONS.
5. CAPPING OF FEEDER CONDUIT AT 6" ABOVE OR BELOW FLOOR/CEILING AS REQUIRED AND MARKING LOCATION OF POINT OF FEED WITH AN ENGRAVED BRASS TAG.
6. REMOVAL OF FEEDER CONDUIT IF FOUND TO BE UNSALVAGEABLE BY ARCHITECT, ENGINEER OR OWNER'S REPRESENTATIVE.

I. EXISTING EQUIPMENT NOT IMPLICITLY SHOWN ON THE DRAWINGS IS INTENDED TO BE "EXISTING TO REMAIN UNCHANGED", UNLESS NOTED OTHERWISE.

ABBREVIATIONS

%Z	IMPEDANCE
(E)	EXISTING (ALSO COVERED BY TEXT WEIGHT)
(F)	FUTURE
(PART)	PARTIAL CIRCUIT
(R)	RELOCATE
A	AMPERES
AC	6" ABOVE COUNTER
ADA	AMERICANS WITH DISABILITIES ACT
AF	AMPERES FRAME
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERES INTERRUPTION CAPACITY
AL	ALUMINUM
AT	AMPERES TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAM	CAMERA
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CCW	COUNTER CLOCKWISE
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CO	CONDUIT ONLY
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CU	COPPER
CW	CLOCKWISE
D	DEDICATED
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DR	DUPLEX RECEPTACLE
DWG	DRAWING(S)
EC	ELECTRICAL CONTRACTOR
ELC	ELEVATOR CONTRACTOR
ELEC	ELECTRIC/ELECTRICAL
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
F	FUSED
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FO	FIBER OPTIC
FPC	FIRE PROTECTION CONTRACTOR
FS	FUSED SWITCH
FSC	FOOD SERVICE CONTRACTOR
FSD	FIRE/SMOKE DAMPER
FT	FOOT/FEET
FVNR	FULL VOLTAGE, NON-REVERSING
FVR	FULL VOLTAGE, REVERSING
G/GND	GROUND/GROUNDING
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GF	GROUND FAULT
GFI/GFCI	GROUND FAULT INTERRUPTER
H	HORIZONTALLY MOUNTED
HG	HOSPITAL GRADE
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	FREQUENCY
I/O	INPUT/OUTPUT
ID	INSIDE DIAMETER
IDF	INTERMEDIATE DISTRIBUTION FRAME
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
ISC	SHORT CIRCUIT CURRENT
JB	JUNCTION BOX
K	KELVIN (COLOR TEMPERATURE)
KCMIL	1000 CIRCULAR MILS
KV	KILOVOLTS
KVA	KILVOLT-AMPERES
KW	KILOWATTS
KWH	KILOWATT-HOUR
LAN	LOCAL AREA NETWORK
LC	LIGHTING CONTACTOR
LCP	LIGHTING CONTROL PANEL
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
LM	LUMEN
LTG	LIGHTING
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPERES
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MDP	MAIN DISTRIBUTION PANEL
MEPFP	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION
MGB	MASTER GROUND BAR
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MSB	MAIN SWITCHBOARD
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MVA	MEGAVOLT-AMPERES
MW	MEGAWATT
MWH	MEGAWATT-HOURS
N	NEUTRAL
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NP	NAMEPLATE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OWN	OWNER
P	POLE
PA	PUBLIC ADDRESS
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PF	POWER FACTOR
PH	PHASE
PIR	PASSIVE INFRARED
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
PWC	PRE-WIRED CONTROLS
PWR	POWER
RCPT	RECEPTACLE
REQD	REQUIRED
RF	RADIO FREQUENCY
RM	ROOM
RMC	RIGID METAL CONDUIT
RNC	RIGID NON-METALLIC CONDUIT (SCH 40)
RVAT	REDUCED VOLTAGE - AUTOTRANSFORMER
SC	SHORT CIRCUIT
SCC	SHORT CIRCUIT CURRENT RATING
SDP	SUBDISTRIBUTION PANEL
SEC	SECONDARY
SHLD	SHIELD(ED) (AS IN CABLE)
SHT	SHEET
SPD	SURGE-PROTECTIVE DEVICE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SR	SINGLE RECEPTACLE
SS	SURGE SUPPRESSOR (ISOLATED GROUND TYPE)
ST	SHUNT TRIP
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TBD	TO BE DETERMINED
TC	TIMECLOCK
TCC	TEMPERATURE CONTROLS CONTRACTOR
TEMP	TEMPERATURE
TR	TAMPER RESISTANT
TT	THERMAL TRIP SWITCH
TTB	TELEPHONE TERMINAL BOARD
TYP	TYPICAL
U	UTILITY
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERUPTABLE POWER SUPPLY
USB	STANDARD DUPLEX WITH 2 USB PORTS
V	VOLTS
VA	VOLT-AMPERES
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VND	VENDOR
W	WATTS
W	WIRE
WHM	WATTHOUR METER
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

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- Developmt Svcs Rvw 7/20/22
- Construction Doc. 6/10/22
- Design Development 3/11/22
- Schematic Design 1/21/22

issue / revision

job # 163-19

drawn JAS

chkd APC

GENERAL INFORMATION

description

FOR BIDDING

E-002

number

WORK INCLUDED

A. THE WORK TO BE PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION, CONSTRUCTION, FACILITIES, AND INCIDENTALS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF ALL ELECTRICAL WORK AS SHOWN AND INDICATED ON THE CONTRACT DRAWINGS, AND/OR HEREIN SPECIFIED WITH THE INTENT THAT THE INSTALLATION SHALL BE COMPLETE IN EVERY RESPECT, READY FOR USE. COMPLY WITH THE LATEST EDITION IN FORCE OF THE NFPA CODES INCLUDING THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.

SUBMITTALS

A. SUBMIT ELECTRONIC COPIES OF PRODUCT DATA, SHOP DRAWINGS, WIRING DIAGRAMS AND LITERATURE ON SYSTEMS INDICATED BELOW. LITERATURE SHALL BE MARKED TO INDICATE THE SIZE, TYPE OR MODEL BEING PROPOSED AND ALL ACCESSORIES TO BE PROVIDED.

WIRING DEVICES/COVER PLATES/FLOOR BOXES
OCCUPANCY/VACANCY SENSORS
GROUNDING PRODUCTS
SAFETY SWITCHES
MOTOR CONTROLLERS
LIGHTING
PANELBOARDS

B. SUBMIT ELECTRONIC COPIES OF PRODUCT DATA, SHOP DRAWINGS, WIRING DIAGRAMS, LAYOUT DRAWINGS , BATTERY CALCULATIONS PER CODE (IF SYSTEM REQUIRED), AND NICET CERTIFICATE FOR DESIGN TECHNICIAN (IF SYSTEM REQUIRED). LITERATURE SHALL BE MARKED TO INDICATE THE SIZE, TYPE OR MODEL BEING PROPOSED AND ALL ACCESSORIES TO BE PROVIDED:

FIRE ALARM
LIGHTING CONTROL SYSTEMS

C. SUBMIT ELECTRONIC COPIES OF OPERATING AND MAINTENANCE MANUAL/RECORD DOCUMENTS. MANUAL/RECORD DOCUMENTS SHALL CONSIST OF MANUFACTURER'S STANDARD PRODUCT DATA, MANUFACTURER'S CURRENT PRINTED OPERATING AND MAINTENANCE INSTRUCTIONS, LIST OF ORIGINAL SPARE PARTS, LIST OF SUPPLIERS DISTRIBUTING SPARE PARTS, RECOMMENDED QUANTITIES TO BE MAINTAINED IN STORAGE AND ALL WARRANTIES. MANUAL SHALL INCLUDE INFORMATION ON THE FOLLOWING:

WIRING DEVICES/COVER PLATES/FLOOR BOXES
OCCUPANCY/VACANCY SENSORS
GROUNDING PRODUCTS
SAFETY SWITCHES
MOTOR CONTROLLERS
LIGHTING
PANELBOARDS

D. SUBMIT ELECTRONIC COPIES OF OPERATING AND MAINTENANCE MANUAL/RECORD DOCUMENTS. MANUAL/RECORD DOCUMENTS SHALL CONSIST OF MANUFACTURER'S STANDARD PRODUCT DATA, MANUFACTURER'S CURRENT PRINTED OPERATING AND MAINTENANCE INSTRUCTION, LIST OF ORIGINAL SPARE PARTS, LIST OF SUPPLIERS DISTRIBUTING SPARE PARTS, RECOMMENDED QUANTITIES TO BE MAINTAINED IN STORAGE, TEST REPORTS AS REQUIRED BY CODE (IF SYSTEM REQUIRED), APPROVAL DOCUMENTATION OF THE AHJ (IF SYSTEM REQUIRED), PROGRAMING INFORMATION STORED ON A FLASH DRIVE (FIRE ALARM ONLY), PAPER COPIES OF ALL DOCUMENTATION STORED IN THE FIRE ALARM DOCUMENT CABINET (FIRE ALARM ONLY). MANUAL SHALL INCLUDE INFORMATION ON THE FOLLOWING:

FIRE ALARM
LIGHTING CONTROL SYSTEMS

GENERAL

A. "APPROVED EQUAL" INDICATES THE SPECIFYING ENGINEER SHALL APPROVE ALL CONTRACTOR PROPOSED ALTERNATE MATERIAL OR MANUFACTURERS. ENGINEER'S DECISION IS FINAL.

B. THE ELECTRICAL CONTRACTOR SHALL BE HELD FINANCIALLY RESPONSIBLE FOR ANY AND ALL COSTS OF THE ENGINEER'S TIME REQUIRED TO REVIEW AND RESEARCH NON-SPECIFIED EQUIPMENT SUBMITTED FOR SUBSTITUTION BY THE ELECTRICAL CONTRACTOR. THESE COSTS SHALL BE AUTOMATICALLY INVOICED TO THE CONTRACTOR UNLESS SUCH SUBSTITUTIONS FOLLOW THE GUIDELINES FOR SUBSTITUTION AND ARE WITHIN THE PROPER TIME FRAME AS OUTLINED IN OTHER SECTIONS OF THIS SPECIFICATION.

WARRANTY

A. CONTRACTOR'S WARRANTY ON COMPLETE ELECTRICAL INSTALLATION SHALL BE FOR A TIME PERIOD OF ONE (1) YEAR FROM SUBSTANTIAL COMPLETION.

B. MANUFACTURER'S WARRANTY ON ALL EQUIPMENT SHALL BE FOR A TIME PERIOD OF ONE (1) YEAR FROM SUBSTANTIAL COMPLETION UNLESS NOTED OTHERWISE.

COORDINATION

A. IN GENERAL, COORDINATE WORK THOROUGHLY WITH OTHER TRADES, OWNER AND UTILITY COMPANIES TO PROVIDE EFFICIENT FLOW OF THE WORK AND TIMELY COMPLETION OF THE CONTRACT.

BASIC MATERIALS

A. IN GENERAL ALL MATERIALS SHALL BE: NEW, U.L. LISTED FOR THE SPECIFIC APPLICATION AS SPECIFIED OR AS REQUIRED, AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

B. IDENTIFICATION: LAMINATED PLASTIC LABELS ON ALL EQUIPMENT, SWITCHES, CONTROLS, ETC.

C. "APPROVED EQUAL" INDICATES THE SPECIFYING ENGINEER SHALL APPROVE ALL CONTRACTOR PROPOSED ALTERNATE MATERIAL OR MANUFACTURERS. ENGINEER'S DECISION IS FINAL.

CONDUIT

A. ELECTRICAL METALLIC TUBING (EMT): COMPLYING WITH ANSI C80.3 WITH COMPRESSION TYPE FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF CONTRACT DOCUMENTS.

B. RIGID GALVANIZED STEEL (RGS) CONDUIT: COMPLYING WITH ANSI C80.1, THREADED CONDUIT WITH APPROVED FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

C. RIGID NON-METALLIC (PVC) CONDUIT: SCHEDULE 40 PVC TYPE COMPLYING WITH NEMA TC2, U.L. 651, AND ARTICLE 347 OF NEC. FITTINGS SHALL BE PVC, CHEMICAL SOLVENT SEALING TYPE. SIZED AS SHOWN ON THE DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

D. FLEXIBLE METAL CONDUIT: FLEXIBLE STEEL CONDUIT WITH ZINC COATING AND APPROVED FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

E. LIQUIDTIGHT FLEXIBLE METAL (LT) CONDUIT: FLEXIBLE STEEL CONDUIT WITH PVC JACKET WITH APPROVED FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

F. MINIMUM CONDUIT SIZE SHALL BE 3/4".

G. EMT MAY BE USED WHERE PERMITTED BY NEC EXCEPT WHERE OTHER TYPE IS SPECIFIED HEREIN OR NOTED ON DRAWINGS.

H. RGS CONDUIT SHALL BE USED IN OUTDOOR EXPOSED LOCATIONS, INDOOR DAMP OR WET LOCATIONS, HAZARDOUS LOCATIONS, OR WHERE REQUIRED BY NEC AND WHERE NOTED ON DRAWINGS.

I. PVC CONDUIT SHALL BE USED IN UNDERGROUND INSTALLATIONS, BELOW CONCRETE FLOOR SLAB (WITH RGS CONDUIT STUB UPS), WHERE REQUIRED BY NEC AND WHERE NOTED ON THE DRAWINGS.

J. FLEXIBLE METAL CONDUIT SHALL BE USED FOR CONNECTION TO VIBRATING EQUIPMENT IN INDOOR DRY LOCATIONS, FOR CONNECTION TO INDOOR RECESSED LIGHT FIXTURES (SIX FOOT MAXIMUM LENGTH), WHERE REQUIRED BY NEC AND WHERE NOTED ON DRAWINGS.

K. LT CONDUIT SHALL BE USED FOR CONNECTION TO VIBRATING EQUIPMENT IN OUTDOOR LOCATIONS, IN DAMP OR WET INDOOR LOCATIONS, HAZARDOUS LOCATIONS, OR WHERE REQUIRED BY NEC AND WHERE NOTED ON THE DRAWINGS.

L. CONDUIT SHALL BE INSTALLED CONCEALED UNLESS NOTED OTHERWISE ON DRAWINGS.

M. WHEN NOTED ON DRAWINGS, CONDUIT SHALL BE INSTALLED EXPOSED WITH CONDUIT PARALLEL TO AND AT RIGHT ANGLES TO NEARBY SURFACES OR STRUCTURAL MEMBERS.

BOXES

A. ALL STANDARD INTERIOR OUTLET BOXES SHALL:

1. BE STAMPED, ONE PIECE, GALVANIZED STEEL.
2. BE OF PROPER SIZE AND SHAPE FOR CONDUITS ENTERING THEM.
3. BE U.L. LISTED AND NEC RATED FOR THEIR APPLICATION.
4. BE CAST TYPE FOR EXPOSED WORK BELOW 10'-0" AFF.

B. ALL PULL/JUNCTION BOXES AND ENCLOSURES SHALL:

1. BE NEMA TYPE 1 FOR INDOOR DRY LOCATIONS.
2. BE NEMA TYPE 3R OR NEMA TYPE 4 FOR INDOOR DAMP OR WET LOCATIONS AND OUTDOOR LOCATIONS.
3. BE OF PROPER SIZE AND SHAPE FOR CONDUITS ENTERING THEM.
4. BE U.L. LISTED AND LABELED FOR THEIR APPLICATION.

C. FLOOR BOXES:

1. BE CAST IRON, FULLY ADJUSTABLE (WITH INTERGRAL MEANS FOR LEVELING ADJUSTMENT PRIOR TO AND AFTER CONCRETE POUR).
2. PROVIDE COMPATIBLE FLOOR BOX SERVICE FITTINGS.
3. FURNISH WITH ALL COMPONENTS, ADAPTERS AND TRIMS REQUIRED FOR A COMPLETE INSTALLATION.

WIRE AND CABLES

A. ALL CONDUCTORS SHALL BE COPPER, 600 VOLT, TYPE THHN/THWN UNLESS OTHERWISE NOTED. MINIMUM WIRE SIZE SHALL BE #12 AWG FOR POWER WIRING AND #14 AWG FOR CONTROL WIRING.

B. ALL CONDUCTORS SHALL BE COLOR CODED WITH WIRE LABELS INSTALLED FOR EASY IDENTIFICATION.

C. ALL CONDUCTORS SIZE #10 AND SMALLER SHALL BE SOLID COPPER. CONDUCTORS SIZE #8 AND LARGER SHALL BE STRANDED.

D. ALL CONDUCTORS FOR BRANCH CIRCUITS SHALL BE COPPER.

E. MC CABLE SHALL NOT BE USED EXCEPT FOR FIXTURE WHIPS.

WIRE CONNECTIONS AND DEVICES

A. ALL CONNECTORS SHALL BE OF MATERIAL COMPATIBLE WITH THE MATERIAL OF THE CONDUCTORS TO PREVENT CORRODING, DIFFERENCES IN COEFFICIENTS OF EXPANSION AND ELECTROLYSIS AS MANUFACTURED BY IDEAL, BURNDY, THOMAS AND BETTS, AND 3-M.

IDENTIFICATION

A. ALL PANELBOARDS, SWITCHBOARDS, DISCONNECT DEVICES, CONTROLLERS, ETC., SHALL BE PROVIDED WITH A WHITE NAMEPLATE WITH BLACK ENGRAVED LETTERS MOUNTED IN A VISIBLE LOCATION ON THE DEVICE. PLATE SHALL INDICATE THE DEVICE TAG, THE SOURCE OF POWER AND THE CIRCUIT NUMBER.

B. ALL PANELBOARDS SHALL BE PROVIDED WITH A TYPEWRITTEN CIRCUIT DIRECTORY, LAMINATED AND MOUNTED INSIDE THE PANEL COVER.

C. RECEPTACLES SHALL HAVE LABELS IDENTIFYING THE PANEL AND CIRCUIT NUMBER.

D. WIRE SHALL BE COLOR CODED IN INDUSTRY STANDARD FORMAT, COLORED CONDUCTOR OR COLORED TAPE WRAPPING.

WIRE COLOR CODE FOR 120/208V, 3Ø, 4W
PHASE A: BLACK
PHASE B: RED
PHASE C: BLUE
NEUTRAL: WHITE
GROUND: GREEN

E. MARKERS FOR CONDUITS: USE FACTORY PRE-PRINTED SELF-ADHESIVE VINYL TYPE MARKERS.

F. MARKERS FOR BOX AND EQUIPMENT ENCLOSURES: USE FACTORY PRE-PRINTED SELF-ADHESIVE VINYL OR SELF-ADHESIVE VINYL CLOTH TYPE MARKERS.

G. MINIMUM SIZE:

1. MARKERS FOR EQUIPMENT: 1 1/8 BY 4 1/2 INCHES (29 BY 110mm).
2. MARKERS FOR CONDUITS: AS RECOMMENDED BY MANUFACTURER FOR CONDUIT SIZE TO BE IDENTIFIED.
3. MARKERS FOR PULL BOXES: 1 1/8 BY 4 1/2 INCHES (29 BY 110mm).
4. MARKERS FOR JUNCTION BOXES: 1/2 BY 2 1/4 INCHES (13 BY 57mm).

H. LEGEND:

1. MARKERS FOR VOLTAGE IDENTIFICATION: HIGHEST VOLTAGE PRESENT
2. MARKERS FOR SYSTEM IDENTIFICATION:
   a. EMERGENCY POWER SYSTEM: TEXT "EMERGENCY".
   b. OTHER SYSTEMS: TYPE OF SERVICE.

I. COLOR: BLACK TEXT ON ORANGE BACKGROUND UNLESS OTHERWISE INDICATED.

WIRING DEVICES

A. PROVIDE PRODUCTS LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES INC. AS SUITABLE FOR THE PURPOSE SPECIFIED AND INDICATED.

B. APPROVED MANUFACTURERS:

1. HUBBELL WIRING DEVICES-KELLEMS
2. LEVITON
3. PASS & SEYMOUR/LEGRAND

C. COLOR SHALL BE DETERMINED BY THE DESIGN PROFESSIONAL DURING SHOP DRAWING REVIEW.

D. RECEPTACLES - GENERAL REQUIREMENTS: SELF-GROUNDING, COMPLYING WITH NEMA WD 1 AND NEMA WD 6, AND LISTED AS COMPLYING WITH UL 498, AND WHERE APPLICABLE, FS W-C-596; TYPES AS INDICATED ON THE DRAWINGS. WIRING PROVISIONS: TERMINAL SCREWS FOR SIDE WIRING OR SCREW ACTUATED BINDING CLAMP FOR BACK WIRING WITH SEPARATE GROUND TERMINAL SCREW.

1. STANDARD CONVENIENCE RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, 20A, 125V, NEMA 5-20R; SINGLE OR DUPLEX AS INDICATED ON THE DRAWINGS.
2. NEMA CONFIGURATIONS SPECIFIED ARE ACCORDING TO NEMA WD 6.
3. WEATHER RESISTANT CONVENIENCE RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, 20A, 125V, GFCI, NEMA 5-20R, LISTED AND LABELED AS WEATHER RESISTANT TYPE COMPLYING WITH UL 498 SUPPLEMENT SE SUITABLE FOR INSTALLATION IN DAMP OR WET LOCATIONS; SINGLE OR DUPLEX AS INDICATED ON THE DRAWINGS. RECEPTACLE SHALL BE PROVIDED WITH A WHILE-IN-USE COVER.
4. TAMPER RESISTANT CONVENIENCE RECEPTACLES: SHALL BE USED IN ALL RESIDENTIAL UNITS AND WHERE DICTATED BY NEC.
   a. INDUSTRIAL SPECIFICATION GRADE, 20A, 125V, NEMA 5-20R, LISTED AND LABELED AS TAMPER RESISTANT TYPE. SINGLE OR DUPLEX AS INDICATED ON THE DRAWINGS.
   b. TAMPER RESISTANT AND WEATHER RESISTANT GFCI RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, DUPLEX, 20A, 125V, NEMA 5-20R, RECTANGULAR DECORATOR STYLE, LISTED AND LABELED AS TAMPER RESISTANT TYPE AND AS WEATHER RESISTANT TYPE COMPLYING WITH UL 498 SUPPLEMENT SE SUITABLE FOR INSTALLATION IN DAMP OR WET LOCATIONS.
5. USB/DUPLEX RECEPTACLE: INDUSTRIAL SPECIFICATION GRADE, 20A, 125V, NEMA 5-20R; DUPLEX WITH TWO USB CHARGING PORTS. OVERALL, 3.1A USB CHARGING CAPABILITY.
6. USB CHARGING STATION RECEPTACLE: INDUSTRIAL SPECIFICATION GRADE, 125V, FOUR USB CHARGING PORTS. OVERALL, 4.2A USB CHARGING CAPABILITY.
7. GFCI RECEPTACLES:
   a. GENERAL REQUIREMENTS: SELF-TESTING, WITH FEED-THROUGH PROTECTION AND LIGHT TO INDICATE GROUND FAULT TRIPPED CONDITION AND LOSS OF PROTECTION; LISTED AS COMPLYING WITH UL 943, CLASS A. INDUSTRIAL SPECIFICATION GRADE, DUPLEX, 20A, 125V, NEMA 5-20R, RECTANGULAR DECORATOR STYLE.
   b. PROVIDE TEST AND RESET BUTTONS OF SAME COLOR AS DEVICE.
   c. WEATHER RESISTANT GFCI RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, DUPLEX, 20A, 125V, NEMA 5-20R, RECTANGULAR DECORATOR STYLE, LISTED AND LABELED AS WEATHER RESISTANT TYPE COMPLYING WITH UL 498 SUPPLEMENT SE SUITABLE FOR INSTALLATION IN DAMP OR WET LOCATIONS. RECEPTACLE SHALL BE PROVIDED WITH A WHILE-IN-USE COVER.

E. WALL SWITCHES - GENERAL REQUIREMENTS: AC ONLY, QUIET OPERATING, GENERAL-USE SNAP SWITCHES WITH SILVER ALLOY CONTACTS, COMPLYING WITH NEMA WD 1 AND NEMA WD 6, AND LISTED AS COMPLYING WITH UL 20 AND WHERE APPLICABLE, FS W-S-896; TYPES AS INDICATED ON THE DRAWINGS. STANDARD WALL SWITCHES: INDUSTRIAL SPECIFICATION GRADE, 20 A, 120/277 V WITH STANDARD TOGGLE TYPE SWITCH ACTUATOR AND MAINTAINED CONTACTS; SINGLE POLE SINGLE THROW, DOUBLE POLE SINGLE THROW, THREE WAY, OR FOUR WAY AS INDICATED ON THE DRAWINGS.

1. WIRING PROVISIONS: TERMINAL SCREWS FOR SIDE WIRING AND SCREW ACTUATED BINDING CLAMP FOR BACK.
2. WIRING WITH SEPARATE GROUND TERMINAL SCREW.

F. WALL PLATES: CONFIGURATION: ONE PIECE COVER AS REQUIRED FOR QUANTITY AND TYPES OF CORRESPONDING WIRING DEVICES. COMPLY WITH UL 514D. SIZE: STANDARD, SCREWS: METAL WITH SLOTTED HEADS, FINISHED TO MATCH COVER.

1. FINISH:
   a. NYLON WALL PLATES: SMOOTH FINISH, HIGH-IMPACT THERMOPLASTIC. TO BE USED IN ALL FINISHED SPACES, COLOR TO MATCH DEVICE.
   b. STAINLESS STEEL WALL PLATES: BRUSHED SATIN FINISH, TYPE 302 STAINLESS STEEL.
   c. BRASS WALL PLATES: BRUSHED SATIN FINISH, FACTORY-COATED TO INHIBIT OXIDATION.
   d. ALUMINUM WALL PLATES: SMOOTH SATIN FINISH, CLEAR ANODIZED, FACTORY-COATED TO INHIBIT OXIDATION.
   e. CHROME WALL PLATES: SMOOTH FINISH, CHROME PLATED STEEL.
   f. GALVANIZED STEEL WALL PLATES: ROUNDED CORNERS AND EDGES, WITH CORROSION RESISTANT SCREWS. TO BE USED IN ALL MECHANICAL ROOMS, ELECTRICAL ROOMS, ETC.
2. WEATHERPROOF COVERS FOR WET OR DAMP LOCATIONS.
   a. GASKETED, CAST ALUMINUM, WITH HINGED LOCKABLE COVER AND CORROSION-RESISTANT SCREWS; LISTED AS SUITABLE FOR USE IN WET LOCATIONS WHILE IN USE WITH ATTACHMENT PLUGS CONNECTED AND IDENTIFIED AS EXTRA-DUTY TYPE.

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chkd APC

description
SPECS

FOR BIDDING

number
E-003

OCCUPANCY/VACANCY SENSORS

A. LIGHTING SYSTEM CONTROLS ARE DIAGRAMMATIC AND ARE GENERIC. SUCCESSFUL LIGHTING CONTROL SYSTEM VENDOR SHALL THOROUGHLY EXAMINE PLANS AND SHALL PROVIDE CONTRACTOR WITH DETAILED LAYOUT DRAWINGS AND BILL OF MATERIALS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM WITHOUT REQUESTS FOR ADDITIONAL MONETARY COMPENSATION FOR "MISSING" COMPONENTS.

B. CEILING MOUNTED SYSTEMS

1. SYSTEMS SHALL BE LOW VOLTAGE WITH ALL COMPONENTS INTERCONNECTED VIA CAT 5 CABLE WITH RJ45 CONNECTORS.
   a. CEILING SENSORS SHALL BE MULTI-TECHNOLOGY TYPE, 24 VDC, 20 mA, WITH 2 RJ45 PORTS, INDOOR USE, FCC PART 15 COMPLIANT AND UL LISTED WITH 5 YEAR WARRANTY
   b. DIMMING DAY LIGHT SENSORS SHALL BE 0-10 VOLT DIMMING TYPE, 24 VDC, 30 mA, WITH 1 RJ45 PORT, INDOOR USE, FULL DIMMING RANGE (.2 VDC TO 10 VDC), SET POINTS 20-60 FTC, FCC PART 15 COMPLIANT AND UL LISTED WITH 5 YEAR WARRANTY
   c. DIMMING SWITCHES SHALL BE 1 BUTTON, COMPATIBLE WITH ROOM CONTROLLER AND DAYLIGHT SENSOR.
   d. OVERRIDE SWITCHES SHALL BE TWO BUTTON (ON/OFF), COMPATIBLE WITH OCCUPANCY SENSOR
   e. ROOM CONTROLLER SHALL BE MULTIVOLT INPUT/OUTPUT (120/230/277 VAC 50/60HZ) WITH THREE RJ45 PORTS, INDOOR USE, FCC PART 15 COMPLIANT AND UL LISTED WITH 5 YEAR WARRANTY
   f. PROVIDE ONE HAND HELD REMOTE CONTROL SETUP CONTROLLER FOR USE DURING COMMISSIONING AND TURN OVER TO OWNER.
2. BUILDING LAYOUTS SHALL BE CONFIRMED BY VENDOR ULTIMATELY BY CONTRACTOR CHOSEN FOR PROJECT.
3. COMMISSIONING AND INITAL STARTUP WILL BE PROVIDED BY FACTORY TRAINED REPRESENTATIVE.

C. SWITCH HEIGHT WALL BOX OCCUPANCY SENSORS SHALL BE MULTI-TECHNOLOGY TYPE, SINGLE RELAY WITH MANUAL OVERRIDE BUTTON.

D. APPROVED MANUFACTURERS:

1. WATTSTOPPER
2. ACUITY CONTROLS
3. HUBBELL CONTROLS
4. EATON CONTROLS

GROUNDING AND BONDING

A. ELECTRICAL INSTALLATION SHALL BE A COMPLETELY GROUNDED SYSTEM. ALL ELECTRICAL EQUIPMENT, SUPPORTS, CABINETS, ENCLOSURES, ETC. SHALL BE GROUNDED IN ACCORDANCE WITH THE NEC, AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS.

B. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED USING A GREEN INSULATED, COPPER, EQUIPMENT GROUNDING CONDUCTOR. CONDUIT SHALL NOT BE USED AS AN EQUIPMENT GROUNDING CONDUCTOR. EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE NEC AS A MINIMUM.

FUSES

A. SHALL BE U.L. LISTED FOR ITS SPECIFIC APPLICATION.

B. ACCEPTABLE MANUFACTURERS:

1. BUSSMANN
2. LITTELFUSE

SAFETY SWITCHES

A. SWITCHES SHALL BE PROPER NEMA ENCLOSURE AS REQUIRED BY LOCATION OR NOTED ON THE DRAWINGS.

B. SWITCHES SHALL BE HORSEPOWER RATED, HEAVY DUTY, QUICK-MAKE AND QUICK-BREAK TYPE.

C. ACCEPTABLE MANUFACTURERS:

1. SQUARE D CLASS 3110 'HEAVY DUTY'
2. GENERAL ELECTRIC 'APPROVED EQUAL'
3. EATON 'APPROVED EQUAL'
4. SIEMENS 'APPROVED EQUAL'

MOTOR CONTROLLERS

A. COORDINATE THE FEATURES OF EACH MOTOR CONTROLLER WITH THE RATINGS AND CHARACTERISTICS OF THE SUPPLY CIRCUIT, THE MOTOR AND THE CONTROL SEQUENCE. MOTOR CONTROLLERS SHALL BE HORSEPOWER RATED TO SUIT THE MOTOR CONTROLLED.

B. MANUAL MOTOR STARTERS SHALL BE QUICK-MAKE, QUICK-BREAK, TOGGLE ACTION WITH OVERLOAD DEVICES AND PILOT LIGHT.

C. MAGNETIC MOTOR STARTERS SHALL BE FULL VOLTAGE, NON-REVERSING, ACROSS-THE-LINE TYPE WITH OVERLOAD DEVICES, CONTROL POWER TRANSFORMER, PILOT DEVICES AND AUXILIARY CONTACTS AS REQUIRED. AS A MINIMUM, PROVIDE STARTER WITH H-O-A SWITCH, 'RUN' PILOT LIGHT, FOUR (4) NO/NC AUXILIARY CONTACTS, MANUAL RESET PUSHBUTTON AND CONTROL TRANSFORMER SIZED FOR SPECIFIED PILOT DEVICES PLUS 100 VA ADDITIONAL CAPACITY.

D. COMBINATION MOTOR STARTERS SHALL BE SWITCH TYPE, FUSED OR NON-FUSED AS INDICATED. MAGNETIC STARTER SHALL COMPLY WITH REQUIREMENTS INDICATED ABOVE. SWITCH SHALL BE QUICK-MAKE, QUICK-BREAK, HORSEPOWER RATED. ENCLOSURE SHALL BE PROPER NEMA ENCLOSURE AS REQUIRED BY LOCATION OR NOTED ON DRAWINGS.

E. STARTER SHALL BE FURNISHED WITH LOCKING PROVISIONS IN BOTH THE ON OR OFF POSITION.

F. ACCEPTABLE MANUFACTURERS:

1. SQUARE D
2. GENERAL ELECTRIC
3. CUTLER-HAMMER
4. SIEMENS
5. ALLEN BRADLEY

LIGHTING

A. LUMINAIRES SHALL BE:

1. FURNISHED WITH PROPER OUTLET BOXES, HANGERS, HARDWARE, SUPPORTS, CANOPY EXTENSIONS, PLUGS.
2. FURNISHED WITH 6'-0" OF FLEXIBLE CONDUIT PREWIRED (DROP IN ONLY). BE U.L. LISTED IN ACCORDANCE WITH THE NEC.

B. SEE LUMINAIRE SCHEDULE ON DRAWINGS FOR DESCRIPTION.

EXISTING FIRE ALARM SYSTEM

A. EXISTING FIRE ALARM SYSTEM IS KIDDE. VERIFY EXISTING CONFIGURATION.

B. ALL DEVICES AND EQUIPMENT ADDED TO THE EXISTING FIRE ALARM SYSTEM SHALL BE 100% COMPATIBLE WITH THE EXISTING SYSTEM. ALL NEW DEVICES AND EQUIPMENT SHALL BE U.L. LISTED AND SHALL CONFORM TO NFPA 72.

C. ALL NEW WIRING SHALL BE 100% COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM AND SHALL BE AS DIRECTED BY THE MANUFACTURER OF THE EXISTING FIRE ALARM SYSTEM.

D. PROVIDE HARDWARE AND PROGRAMMING MODIFICATIONS REQUIRED TO THE EXISTING ALARM CONTROL PANEL AND ASSOCIATED ACCESSORIES TO EXPAND THE EXISTING SYSTEM AS INDICATED ON THE DRAWINGS. ALL MODIFICATIONS SHALL BE COMPLETE BY MANUFACTURER'S AUTHORIZED TECHNICIAN.

E. ALL WIRING SHALL BE VERIFIED WITH FIRE ALARM EQUIPMENT SUPPLIER AS TO QUANTITY, SIZE, ROUTING, CONDUIT, JUNCTION BOX REQUIREMENTS, ETC.

F. NEW VISUAL ALARM DEVICES SHALL BE 100% COMPATIBLE WITH THE EXISTING FIRE ALARM CONTROL PANEL; SHALL COMPLY WITH ADA REQUIREMENTS; SHALL BE LISTED AND LABELED PER U.L. STANDARD 1971; 15CD TYPE STROBE, UNLESS OTHERWISE NOTED. SURFACE MOUNT DEVICES AT 80" ABOVE FINISHED FLOOR OR AT 6" BELOW CEILING WHICHEVER IS LOWER. PROVIDE ASSOCIATED BACKBOX.

G. NEW AUDIBLE/VISUAL ALARM DEVICES SHALL BE 100% COMPATIBLE WITH THE EXISTING FIRE ALARM CONTROL PANEL; SHALL COMPLY WITH ADA REQUIREMENTS; SHALL BE LISTED AND LABELED PER U.L. STANDARD 1971; AND UL 464 15CD TYPE STROBE, UNLESS NOTED OTHERWISE. SURFACE MOUNT DEVICES AT 80" ABOVE FINISHED FLOOR OR AT 6" BELOW CEILING, WHICHEVER IS LOWER. PROVIDE ASSOCIATED BACKBOX.

H. NEW BOOSTER POWER SUPPLY (BPS) SHALL BE 100% COMPATIBLE WITH THE EXISTING FIRE ALARM CONTROL PANEL. PROVIDE BPS UNIT(S) IF EXISTING CONTROL PANEL DOES NOT HAVE CAPACITY FOR ADDITIONAL ALARM INDICATING DEVICES. BPS SHALL BE A SINGLE UNIT OR MULTIPLE UNITS AS REQUIRED TO MEET THE SPECIFIED REQUIREMENTS. BPS UNIT SHALL BE HOUSED IN AN ENCLOSURE WITH LOCKABLE DOOR. BPS SHALL BE EQUIPPED TO ALLOW ACTIVATION FROM AN EXISTING NOTIFICATION APPLIANCE CIRCUIT. BPS UNIT SHALL PROVIDE 6 TO 10 AMPS OF NOTIFICATION APPLIANCE POWER DISTRIBUTED BETWEEN FOUR TO SIX APPLIANCE CIRCUITS. BPS UNIT SHALL OPERATE FROM A 120 VAC INPUT AND BE EQUIPPED WITH BATTERY BACK UP WITH ASSOCIATED BATTERY CHARGER. BPS SHALL BE SUPERVISED FOR GROUND FAULT, OVERCURRENT, OPEN CIRCUITS AND LOW BATTERY CONDITIONS, OCCURRENCE OF ANY OF THE CONDITIONS SHALL CREATE TROUBLE SIGNAL ON THE FIRE ALARM CONTROL PANEL. BPS SHALL BE U.L. LISTED AND LABELED AS FIRE ALARM ACCESSORY FOR USE WITH U.L. LISTED FIRE ALARM CONTROL.

I. FIRE ALARM SYSTEM MODIFICATIONS AND EXPANSION SHALL BE INSTALLED AND FULLY TESTED UNDER THE SUPERVISION OF A MANUFACTURER'S SPECIFICATIONS AND THE APPROPRIATE NFPA REQUIREMENTS. REPORTS OF ALL TESTING DURING INSTALLATION SHALL BE SUBMITTED TO THE OWNER AND ENGINEER UPON REQUEST.

J. BEFORE REQUESTING FINAL APPROVAL OF THE INSTALLATION, THE INSTALLING CONTRACTOR SHALL FURNISH A WRITTEN STATEMENT TO THE EFFECT THAT THE SYSTEM HAS BEEN INSTALLED AND TESTED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND THE APPROPRIATE NFPA REQUIREMENTS.

K. PROVIDE DEMONSTRATION OF THE MODIFIED FIRE ALARM SYSTEM TO THE OWNER. PERFORM ALL THE FUNCTIONS SPECIFIED.

L. SUBMIT A CERTIFICATE OF COMPLETION PER NFPA 72.

FIELD QUALITY CONTROL

A. SEE SECTION 01 4000 - QUALITY REQUIREMENTS FOR ADDITIONAL REQUIREMENTS.

B. INSPECT EACH PRODUCT FOR DAMAGE AND DEFECTS.

C. OPERATE EACH LUMINAIRE AFTER INSTALLATION AND CONNECTION TO VERIFY PROPER OPERATION.

D. TEST SELF-POWERED EXIT SIGNS, EMERGENCY LIGHTING UNITS, AND REMOTE EMERGENCY POWER SUPPLY UNITS TO VERIFY PROPER OPERATION UPON LOSS OF NORMAL POWER SUPPLY.

E. CORRECT WIRING DEFICIENCIES AND REPAIR OR REPLACE DAMAGED OR DEFECTIVE PRODUCTS. REPAIR OR REPLACE EXCESSIVELY NOISY BALLASTS AS DETERMINED BY ARCHITECT.

F. PROVIDE "BLACK-OUT" TEST OF EMERGENCY LUMINAIRES UPON PROJECT COMPLETION IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION.

TESTING

A. PERFORM COMPLETE OPERATIONAL TEST OF ELECTRICAL INSTALLATION BEFORE ACCEPTANCE BY OWNER. TEST SHALL BE PERFORMED IN PRESENCE OF OWNER'S REPRESENTATIVE.

B. 600 VOLT CABLE SHALL BE TESTED FOR PROPER PHASING AND CONTINUITY. CABLE SHALL BE GIVEN A MEGGER TEST USING A 1000 VOLT MOTOR DRIVEN MEGGER. MINIMUM ACCEPTABLE MEGGER READINGS SHALL BE 50 MEGAOHMS.

C. CONTRACTOR SHALL MAKE COMPLETE AND ACCURATE RECORDS OF ALL TESTS. TEST RESULTS SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE UPON REQUEST.

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SPECS

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E-004

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GENERAL NOTES

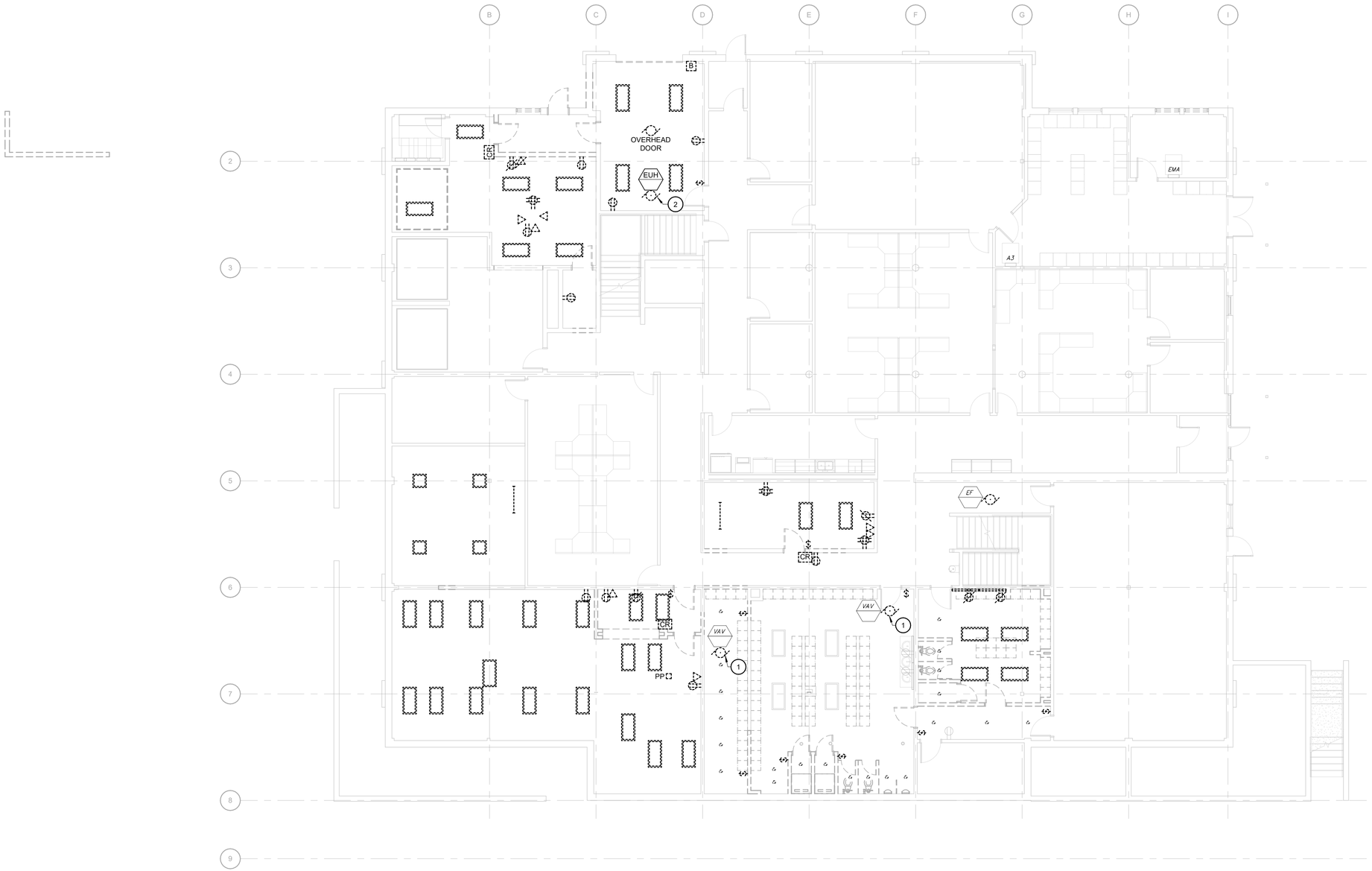
A. EXISTING CONDITIONS ARE BASED ON LIMITED SITE SURVEY AND SITE AVAILABLE DRAWINGS. CONTACT ARCHITECT OR ENGINEER IF ANY MAJOR DISCREPANCIES ARISE.

B. RE-USE EXISTING CIRCUITS AND CONDUIT AS NEEDED, IF DEEMED SALVAGEABLE, OTHERWISE PROVIDE NEW.

KEYNOTES (#)

1 VAV UNIT AND ASSOCIATED DISCONECT SHALL BE REMOVED AND RELOCATED TO THE TRAINING/ARREST CONTROL (B25) ROOM AS SHOWN ON DRAWING E-200.EXTEND WIRE AND CONDUIT AS REQUIRED. COORDINATE EXACT LOCATION WITH MECHANICAL.

2 EUH AND ASSOCIATED DISCONNECT TO BE REMOVED AND RELOCATED TO ELECT B35 ROOM AS SHOWN ON DRAWING E-200. EXTEND WIRE AND CONDUIT AS REQUIRED. COORDINATE EXACT LOCATION WITH MECHANICAL.



1 **BASEMENT ELECTRICAL DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

0 4 8 16

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chkd APC

description
BASEMENT ELECTRICAL DEMOLITION PLAN

FOR BIDDING

number
ED-100

GENERAL NOTES

A. EXISTING CONDITIONS ARE BASED ON LIMITED SITE SURVEY AND SITE AVAILABLE DRAWINGS. CONTACT ARCHITECT OR ENGINEER IF ANY MAJOR DISCREPANCIES...

B. RE-USE EXISTING CIRCUITS AND CONDUIT AS NEEDED, IF DEEMED SALVAGEABLE, OTHERWISE PROVIDE NEW.

KEYNOTES (#)



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

0 4 8 16

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FIRST FLOOR ELECTRICAL DEMOLITION PLAN

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number

ED-101

GENERAL NOTES

2

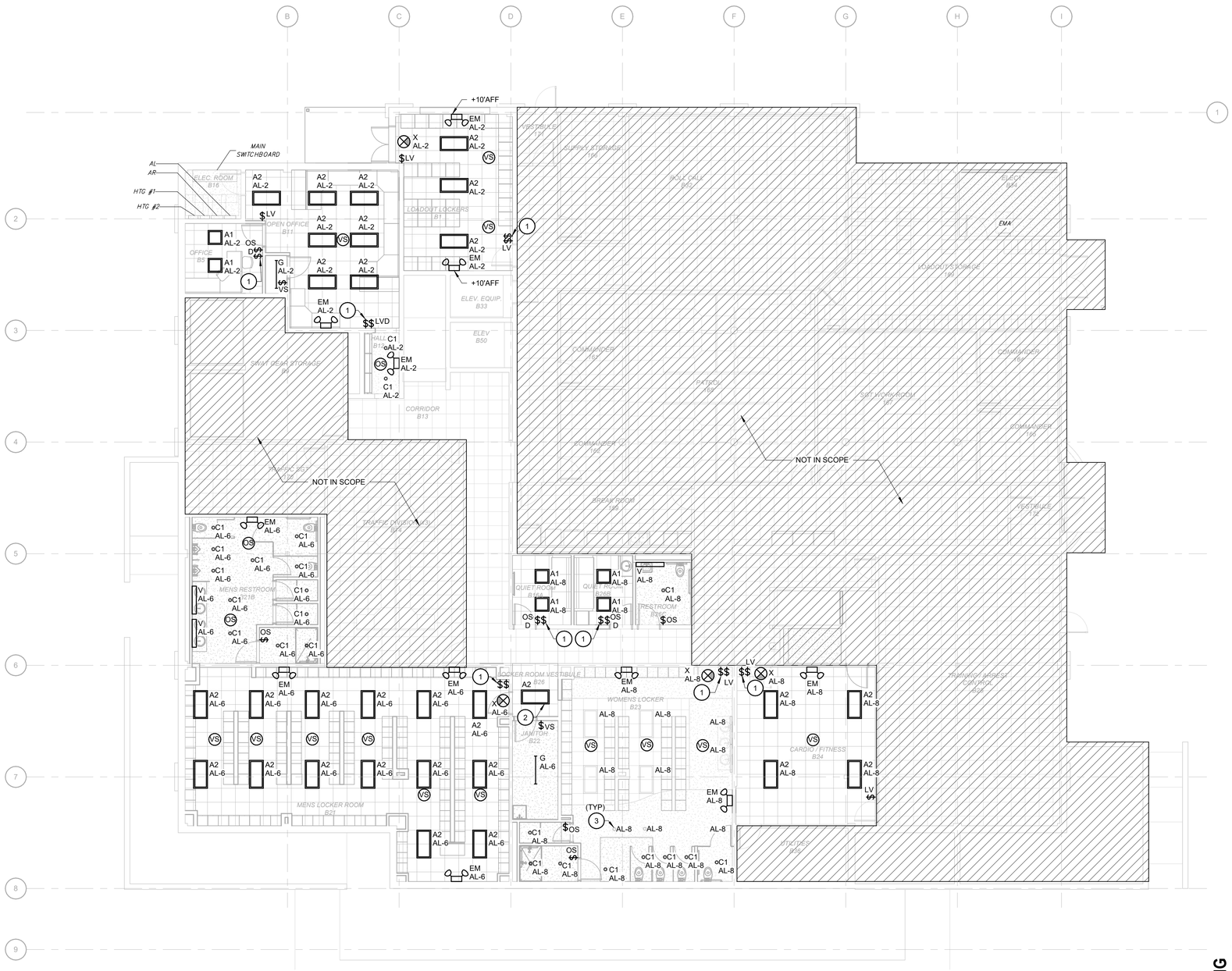
A. CODE REQUIRED EMERGENCY LIGHTING PROVIDED BY TYPE 'EM' LIGHTING IN REMODEL AREAS.

KEYNOTES (#)

1 TUNABLE WHITE CONTROLLER. SIGMA LUMINOUS SLFPC-ACC-WS-V2.

2 CONNECT NEW LUMINAIRE TO EXISTING LIGHTING CIRCUIT AND CONTROLS SERVING THIS AREA.

3 RE-CIRCUIT EXISTING LUMINAIRES TO NEW LIGHTING CIRCUIT AND CONTROLS IN WOMENS LOCKER B23.



1 **BASEMENT LIGHTING PLAN**

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

0 4 8 16

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163-19
JAS
APC

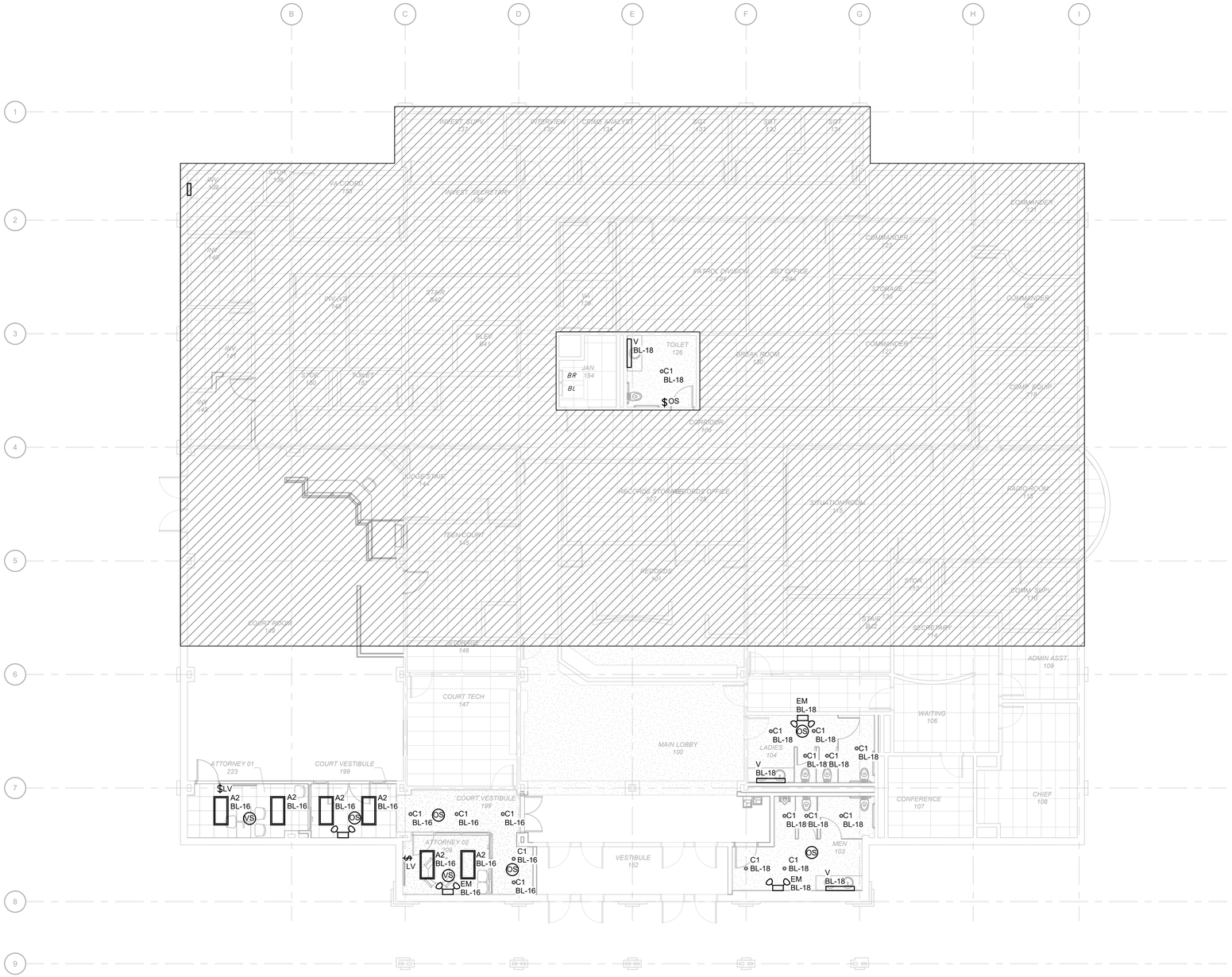
BASEMENT LIGHTING PLAN

E-100

GENERAL NOTES

A. CODE REQUIRED EMERGENCY LIGHTING PROVIDED BY TYPE 'EM' LIGHTING IN REMODEL AREAS.

KEYNOTES (#)



1 FIRST FLOOR LIGHTING PLAN

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

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FIRST FLOOR LIGHTING PLAN

FOR BIDDING

number

E-101

KEYNOTES (#)

1 RELOCATE VAV TO NEW LOCATION, COORDINATE EXACT LOCATION WITH MECHANICAL. EXTEND WIRE AND CONDUIT LIKE FOR LIKE. SEE SHEET ED-100 FOR MORE INFORMATION.

2 COORDINATE EXACT REQUIREMENTS WITH OWNER FOR RECEPTACLE LOCATIONS IN DATA B11B.

3 EF- 6 SHALL BE CONTROLLED BY LIGHTING CONTROLS IN MEN'S LOCKER ROOM.

4 EF- 7 SHALL BE CONTROLLED BY LIGHTING CONTROLS IN WOMEN'S LOCKER ROOM.

5 RCECEPTACLE SHOWN FOR REFERENCE ONLY. PROVIDE 120V/20A CONNECTION FOR INTEGRAL RECEPTACLE ON MAU-1.

6 RELOCATE EUH TO NEW LOCATION, COORDINATE EXACT LOCATION WITH MECHANICAL. EXTEND WIRE AND CONDUIT LIKE FOR LIKE. SEE SHEET ED-100 FOR MORE INFORMATION.

7 PROVIDE 208V/15A CONNECTION FOR DRYER. WIRE SHALL BE 2#12, 1#12G, 3/4"C. COORDINATE EXACT REQUIREMENTS WITH OWNER.

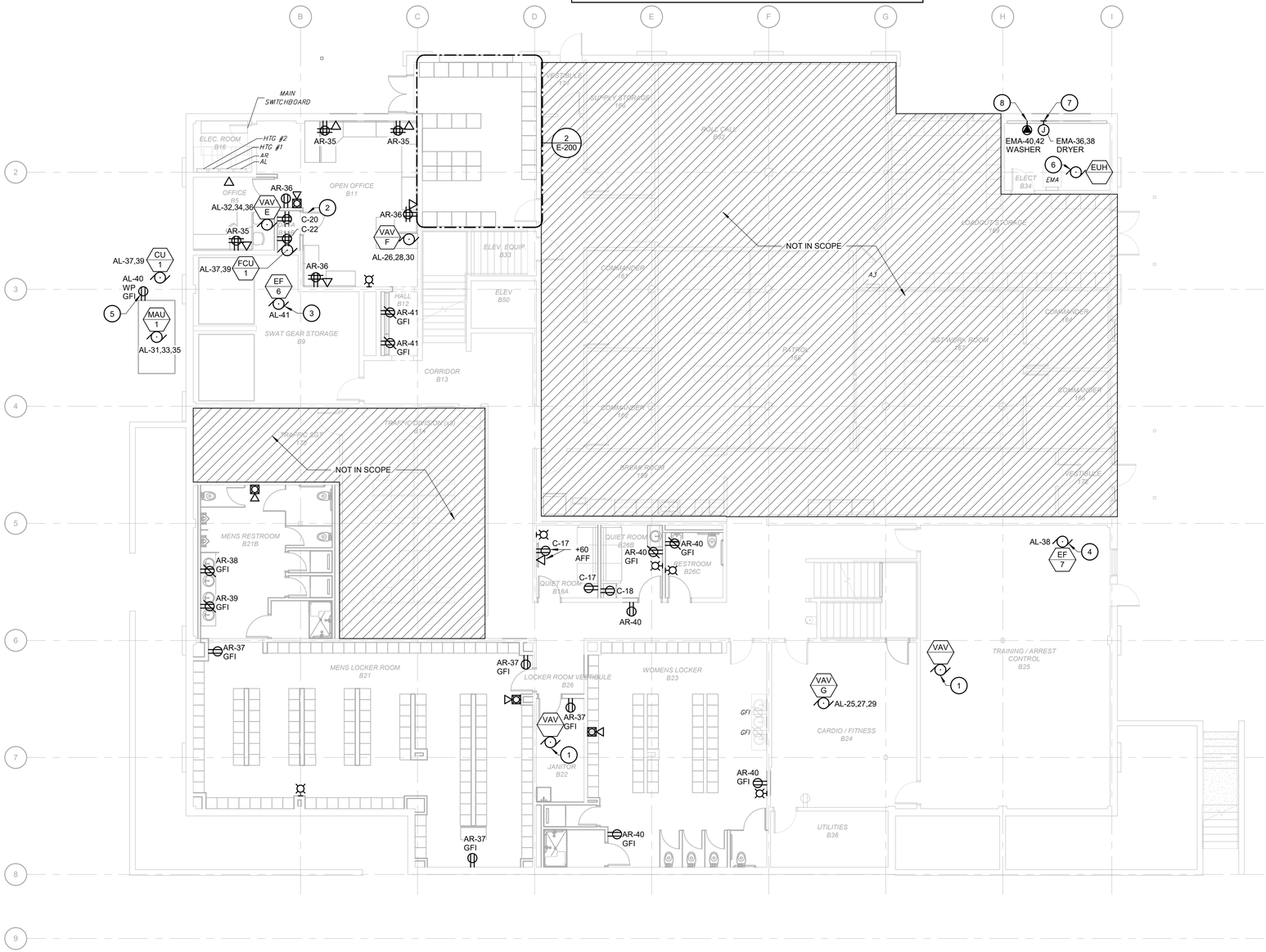
8 PROVIDE 208V/20A CONNECTION FOR WASHER. WIRE SHALL BE 2#12, 1#12G, 3/4"C. COORDINATE EXACT REQUIREMENT WITH OWNER.

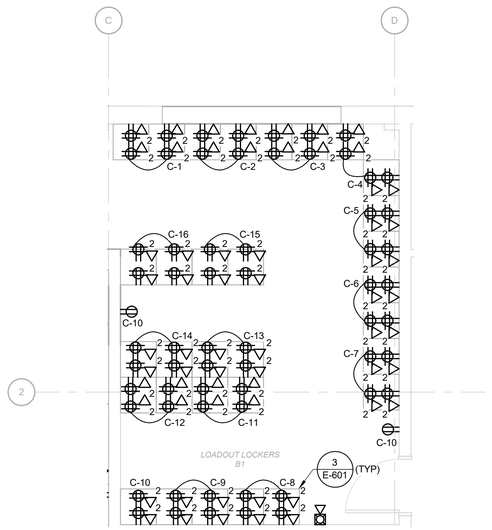
GENERAL NOTES

A. DATA OUTLETS SHALL BE ROUGH-IN ONLY. SEE DETAIL 5/E-601. ALL ASSOCIATED CABLING AND TERMINATIONS WILL BE PROVIDED BY THE OWNER.

B. ALL NETWORK DROPS ARE DUAL PORT, UNLESS NOTED OTHERWISE.

C. EXISTING CONDITIONS ARE BASED ON LIMITED SITE SURVEY AND SITE AVAILABLE DRAWINGS. CONTACT ARCHITECT OR ENGINEER IF ANY MAJOR DISCREPANCIES ARISE.





2 ENLARGED LOADOUT LOCKERS POWER AND SYSTEMS PLAN
SCALE: 1/4" = 1'-0"

1 BASEMENT POWER AND SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16 PLAN NORTH

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BASEMENT POWER AND SYSTEMS PLAN

number

E-200

GENERAL NOTES

A. DATA OUTLETS SHALL BE ROUGH-IN ONLY. SEE DETAIL 5/E-601. ALL ASSOCIATED CABLING AND TERMINATIONS WILL BE PROVIDED BY THE OWNER.

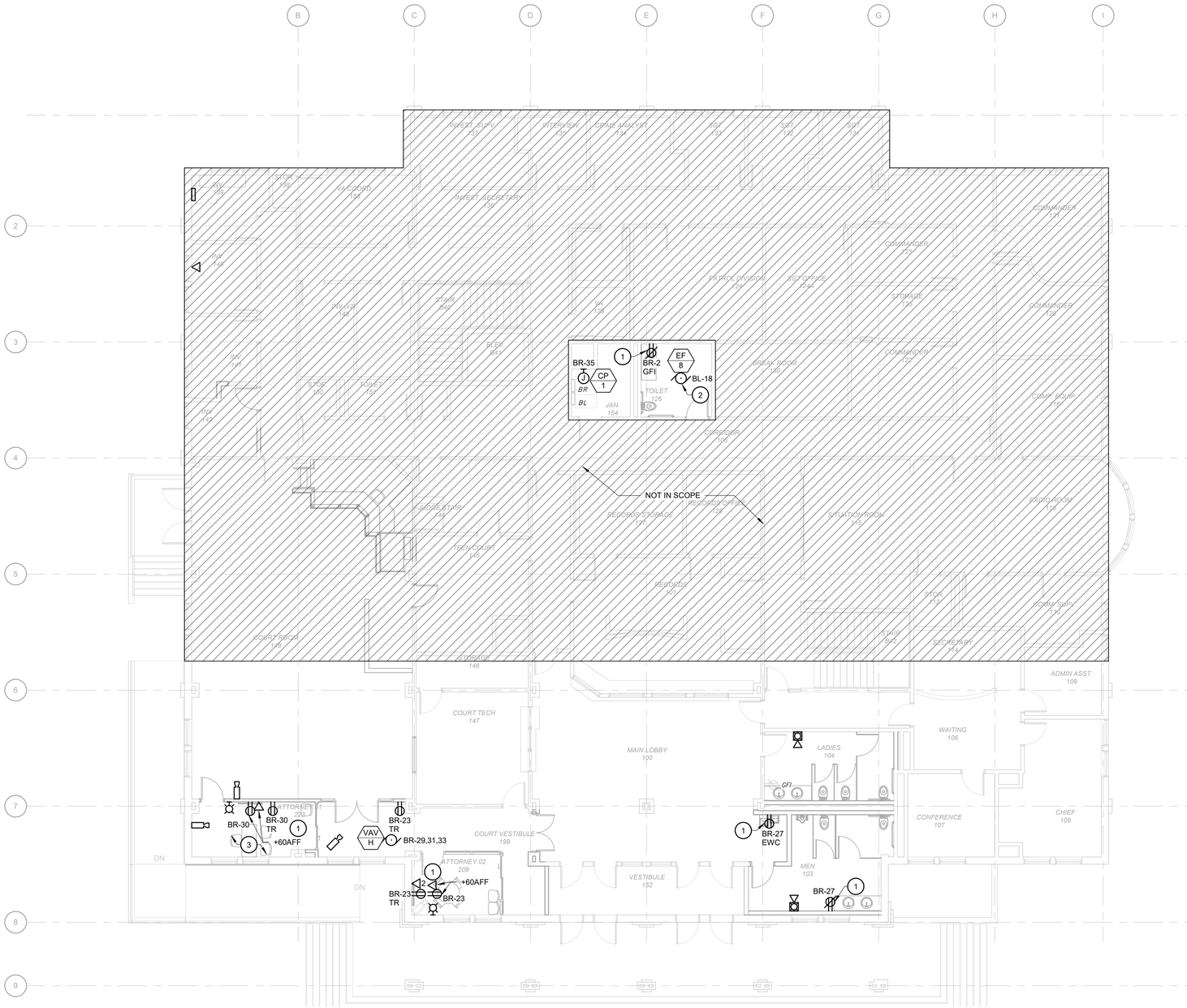
B. EXISTING CONDITIONS ARE BASED ON LIMITED SITE SURVEY AND SITE AVAILABLE DRAWINGS. CONTACT ENGINEER IF ANY MAJOR DISCREPANCIES ARISE.

KEYNOTES (#)

1 RE-CIRCUIT TO EXISTING CIRCUIT SERVING THIS AREA. EXTEND CONDUIT AND WIRES AS REQUIRED.

2 EF-8 SHALL BE CONTROLLED BY RESTROOM LIGHTING CONTROL.

3 RE-CIRCUIT TO EXISTING CIRCUIT SERVING THIS AREA. EXTEND CONDUIT AND WIRES AS REQUIRED.



1 FIRST FLOOR POWER AND SYSTEMS PLAN

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

0 4 8 16

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FIRST FLOOR POWER AND SYSTEMS PLAN

FOR BIDDING

number

E-201

EQUIPMENT DATA SCHEDULE

DESCRIPTION					LOAD DATA			DISCONNECT AT EQUIP.					
MARK	EQUIPMENT	FURNISHED BY	INSTALLED BY	LOCATION	LOAD	VOLTAGE	PHASE	DISC. TYPE	DISC. SIZE	FURNISHED BY	INSTALLED BY	WIRE & CONDUIT	REMARKS
CP 1	CIRCULATION PUMP	MC	MC	JAN 154	200 VA	120	1	SW	--	EC	EC	2#12, 1#12G, 3/4"C	
CU 1	CONDENSING UNIT	MC	MC	EXTERIOR	13.4 MCA	208	1	NF	30 A	VND	--	3#6, 1#10G, 1"C	
EF 6	EXHAUST FAN	MC	MC	SWAT GEAR STORAGE B9	3/4 HP	120	1	SW	--	VND	--	2#12, 14#12G. 3/4"C	
EF 7	EXHAUST FAN	MC	MC	TRAINING ARREST/CONTROL	3/4 HP	120	1	SW	--	VND	--	2#12, 1#12G. 3/4"C	
EF 8	EXHAUST FAN	MC	MC	TOILET 126	.06 HP	120	1	SW	--	VND	--	2#12, 1#12G. 3/4"C	
EUH	RELOCATED ELECTRIC UNIT HEATER	MC	MC	ELECT B34	.5 KW	208	1	SW	--	--	EC		RELOCATED EUH, EXTEND CONDUIT AND WIRE AS REQUIRED TO NEW LOCATION
FCU 1	FAN COIL UNIT	MC	MC	DATA B11B	.5 MCA	208	1	SW	--	EC	EC	2#12, 1#12G. 3/4"C	POWERED FROM OUTDOOR UNIT CU-1
MAU 1	MAKE UP AIR UNIT	MC	MC	EXTERIOR	30.8 FLA	208	3	NF	60 A	VND	--	3#6, 1#10G, 1"C	
VAV	RELOCATED VARIABLE AIR VOLUME	MC	MC			208	3	NF	30 A	--	EC	3#12, 1#12G, 3/4"C	RELOCATED VAV, EXTEND CONDUIT AND WIRE AS REQUIRED TO NEW LOCATION
VAV E	VARIABLE AIR VOLUME	MC	MC	OFFICE B5	2.8 FLA	208	3	NF	30 A	VND	--	3#12, 1#12G, 3/4"C	
VAV F	VARIABLE AIR VOLUME	MC	MC	OFFICE B11	6.9 FLA	208	3	NF	30 A	VND	--	3#12, 1#12G, 3/4"C	
VAV G	VARIABLE AIR VOLUME	MC	MC	CARDIO/FITNESS B24	5.6 FLA	208	3	NF	30 A	VND	--	3#12, 1#12G, 3/4"C	
VAV H	VARIABLE AIR VOLUME	MC	MC	COURT VESTIBULE	8.3 FLA	208	3	NF	30 A	VND	--	3#12, 1#12G, 3/4"C	

EQUIPMENT DATA NOTES:

GENERAL NOTES:

A.

REMARKS:

1. INSTALL DISCONNECT SWITCH ON THE SIDE OF THE EQUIPMENT HOUSING.
2. PROVIDE DISCONNECT LOCKABLE IN ACCORDANCE WITH NEC 110.25.

SHORT CIRCUIT SCHEDULE

POINT	DESCRIPTION	MIN. EQUIPMENT BRACING (KA)	CALCULATED SHORT CIRCUIT CURRENT (KA SYM. RMS)	OPD LET THRU RMS SYMM KSCA
1	1600A MAIN	65	20.040	--
2	ATS	65	19.720	--
3	MAIN SWITCHBOARD	65	19.110	--
4	RTU	--	29.682	600A LPN: 15.750
5	PANEL AR	10	32.938	200A LPN: 6.750
6	PANEL BR	10	16.062	200A LPN: 6.750
7	PANEL H2	22	45.327	400A LPN: 11.70
8	PANEL A3	10	15.584	CLASS J: <10
9	PANEL EMA	10	13.131	250 LPN: 8.70
10	**PANEL C**	**10**	**12.089**	**60A LPN: 5.0**

NOTES:

A. CONTRACTOR IS RESPONSIBLE FOR ALL QUANTITIES, FEEDER ROUTING AND INSTALLATION. INDICATED FEEDER LENGTH WAS USED TO CALCULATE FAULT CURRENT AND IS AN APPROXIMATE QUANTITY. IF THE INSTALLED FEEDER LENGTH IS 10% SHORTER OR LONGER THAN THE INDICATED...

EXISTING FEEDER SCHEDULE

MARK	CONDUIT & CONDUCTORS (SEE NOTE 1)	REMARKS
E60A3G	3#6, 1#10G, 1"C	
E100A4G	4#1, 1#6G, 1-1/2"C	
E200A4G	4#3/0, 1#6G, 2"C	
E225A4G	4#3/0, 1#4G, 2"C	
E250A4G	4#250, 1#4G, 3"C	
E400A4G	2 SETS(4#3/0, 1#3G, 2"C)	
E600A4G	2 SETS(4#350, 1#1G, 3"C)	
E1200A4G	4 SETS (4#350, 1#3/0G, 3"C)	
E1500A4	4 SETS(4#500, 3-1/2"C)	
E1500A4G	4 SETS(4#500, 1#4/0G, 3-1/2"C)	

FEEDER SCHEDULE

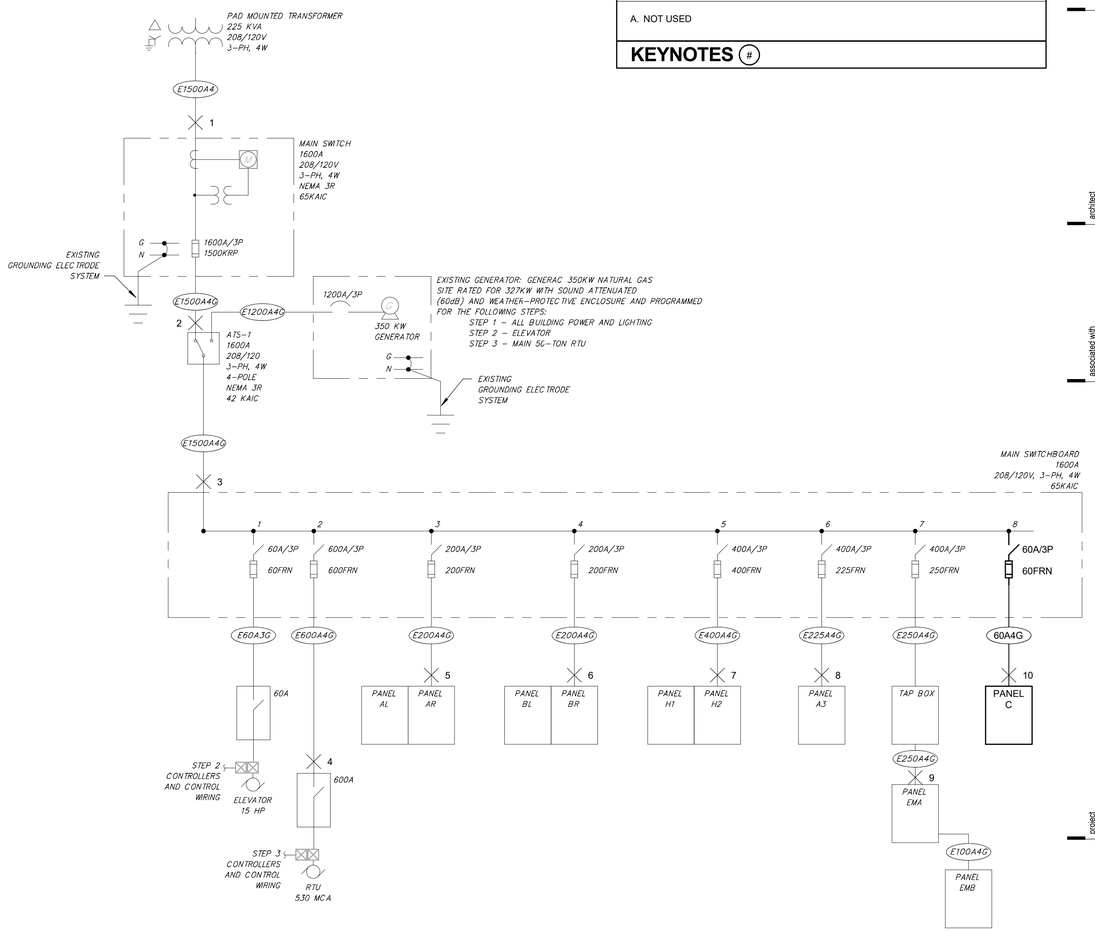
MARK	CONDUIT & CONDUCTORS (SEE NOTE 1)	REMARKS
60A4G	4#4, 1#10G, 3/4"C	

REMARKS:

1. THIS FEEDER SCHEDULE IS BASED ON 60 DEGREE CENTIGRADE (TYPE TW) WIRE AND TERMINATIONS FOR SIZES #12 TO #1, AND 75 DEGREE CENTIGRADE (TYPE THHN/THWN) WIRE AND TERMINATIONS FOR SIZES #1/0 AND LARGER. UNLESS NOTED OTHERWISE, CONDUIT IS SIZED BASED ON TYPE EMT CONDUIT. USE OF OTHER CONDUIT TYPES REQUIRES RESIZING OF CONDUIT.

LOAD SUMMARY

EXISTING MAIN SWITCHBOARD, 1600 A, 120/208V			
	DEMAND KVA	DEMAND FACTOR PER NEC 220.87 (125%)	AMPS @ 208V
UTILITY PEAK DEMAND (5/26/2022)	221.3	276.625	768
LOAD ADDED	62.1		172.6
TOTAL LOAD	283.4		940.6
EXISTING PANELBOARD AL/AR, 200A, 120/208V			
MEASURED PEAK DEMAND(5/31/2022)	25.92	32.4	90
LOAD ADDED	28.4		78.9
TOTAL LOAD	54.32		150.1



1 **ONE-LINE DIAGRAM**

SCALE: NOT TO SCALE

GENERAL NOTES

A. NOT USED

KEYNOTES (#)

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project

CASTLE ROCK POLICE DEPARTMENT
100 PERRY ST
CASTLE ROCK CO 80104

seal

issue / revision	date:
Developmt Svcs Rvw	7/20/22
Construction Doc.	6/10/22
Design Development	3/11/22
Schematic Design	1/21/22

issue / revision

job # 163-19

drawn JAS

chkd APC

description

ONE-LINE DIAGRAM

FOR BIDDING

number

E-401

COMcheck Software Version 4.1.5.1

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: CASTEL ROCK POLICE DEPARTMENT
Project Type: Alteration

Construction Site:
100 PERRY ST.
CASTLE ROCK, CO 80104

Owner/Agent:

Designer/Contractor:
FARNSWORTH GROUP
5775 MARK DABLING BLVD.
SUITE 190
CASTLE ROCK, CO 80104

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Common Space Types:Restrooms	907	0.85	771
2-Common Space Types:Locker Room	2222	0.48	1067
3-Gymnasium/Fitness Center:Exercise Area	460	0.50	230
4-Common Space Types:Office - Open Plan	416	0.81	337
5-Common Space Types:Office - Enclosed	339	0.93	315
6-Common Space Types:Corridor/Transition <8 ft wide	287	0.66	189
7-Common Space Types:Storage >=50 - <=1000 sq.ft.	92	0.46	42
8-Common Space Types:General Seating Area	168	0.42	71
		Total Allowed Watts =	3022

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Common Space Types:Restrooms (907 sq.ft.)				
LED 1: C1, C1E: 8" DOWNLIGHT: Other:	1	24	17	408
LED 2: V: 4' LED VANITY: Other:	1	6	16	96
Common Space Types:Locker Room (2222 sq.ft.)				
LED 3: A2,A2E: 2'X4' FLAT PANEL: Other:	1	17	50	850
LED 1 copy 1: C1, C1E: 8" DOWNLIGHT: Other:	1	8	17	136
Gymnasium/Fitness Center:Exercise Area (460 sq.ft.)				
LED 3 copy 1: A2,A2E: 2'X4' FLAT PANEL: Other:	1	4	50	200
Common Space Types:Office - Open Plan (416 sq.ft.)				
LED 3 copy 2: A2,A2E: 2'X4' FLAT PANEL: Other:	1	7	50	350
Common Space Types:Office - Enclosed (339 sq.ft.)				
LED 7: A1: 2'X2' FLAT PANEL: Other:	1	2	40	80
Common Space Types:Corridor/Transition <8 ft wide (287 sq.ft.)				
LED 3 copy 3: A2,A2E: 2'X4' FLAT PANEL: Other:	1	4	50	200
LED 1 copy 1: C1, C1E: 8" DOWNLIGHT: Other:	1	7	17	119

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Common Space Types:Storage >=50 - <=1000 sq.ft. (92 sq.ft.)				
LED 8: G: 4' STRIP LIGHT: Other:	1	1	20	20
Common Space Types:General Seating Area (168 sq.ft.)				
LED 7 copy 1: A1: 2'X2' FLAT PANEL: Other:	1	4	40	160
		Total Proposed Watts =		2619

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title _____ Signature _____ Date _____

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMP DESCRIPTION	VOLTAGE	LOAD (VA)	FINISH	MOUNTING	DESCRIPTION
A1	SIGMA LUMINOUS	SLFPC SERIES	LED 80 CRI	120 V	40	WHITE	RECESSED	2'X2' LED FLAT PANEL WITH TUNABLE COLOR TEMPERATURE, 5760 LUMENS, WITH WIRELESS WALL CONTROLLER
A2	SIGMA LUMINOUS	SLFPC SERIES	LED 80 CRI	120 V	50	WHITE	RECESSED	2'X4' LED FLAT PANEL WITH TUNABLE COLOR TEMPERATURE, 5760 LUMENS, WITH WIRELESS WALL CONTROLLER
C1	GREEN CREATIVE	INNOFIT GEN 2 SERIES	4000K LED 80 CRI	120 V	17	WHITE	RECESSED	8" DOWNLIGHT WITH FIELD SELECTABLE LUMEN OUTPUT, SET LUMEN OUTPUT TO 2000
EM	HE WILLIAMS	EMER/MR SERIES	LED	120 V	3.6	WHITE	WALL MOUNT 7'-0"	EMERGENCY LIGHT
G	HE WILLIAMS	75R SERIES	4000K LED 80 CRI	120 V	20	WHITE	SURFACE	4' LED NARROW STRIP, 3000 LUMENS
V	HE WILLIAMS	WMA SERIES	4000K LED 80 CRI	120 V	16	WHITE	WALL MOUNT	2' ARCHITECTURAL WALL MOUNT, 2000 LUMENS, FROSTED ACRYLIC LENS
X	HE WILLIAMS	EXIT SERIES	RED LED	120 V	4	WHITE	WALL/CEILING	ARROWS AND QUANTITY OF FACES AS INDICATED ON DRAWINGS

NOTES:
A. REMOVE ALL FINGER PRINTS FROM LENSES, REFLECTORS, AND LOUVERS FOLLOWING LIGHT FIXTURE INSTALLATION.
B. FOR CONTINUOUS FIXTURES, COORDINATE WITH SUPPLIER ON LENGTH AND REQUIRED FITTINGS, AND INSTALL WITH UNIFORM ILLUMINATION ALONG FIXTURE INCLUDING CORNERS.
C. FOR APPROVAL OF FIXTURES FROM MANUFACTURERS OTHER THAN THOSE LISTED, PROPOSED FIXTURES SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER TEN BUSINESS DAYS PRIOR TO BID FOR REVIEW. FINAL DETERMINATION OF 'EQUAL' STATUS FOR BIDDING SHALL BE THE SOLE DETERMINATION OF THE ARCHITECT/ENGINEER.

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issue / revision

job # 163-19
drawn Author
chkd Checker

description
SCHEDULES

FOR BIDDING

number
E-501

EXISTING PANELBOARD AL

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):		N				
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:		SEE SPEC				
RATED AMPERAGE:	225 A				A		B		C		MOUNTING:		SURFACE				
MAIN:	225 A MLO				15270 VA		15329 VA		13279 VA		MCB GROUND FAULT PROTECTION (Y/N):		N				
SCC RATING (SYM):	10K										MCB SHUNT TRIP (Y/N):		N				
	200A FEEDER WITH AR				130 A		130 A		111 A		MCB 100% RATED (Y/N):		N				
CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION		CKT	
1	EXTERIOR WALL LIGHTS		20 A	1	1920	655					1	20 A		OFFICE/OPEN OFFIC/LOADOUT...		2	
3	EXTERIOR SOFFIT LIGHTS		20 A	1			1920	1920			1	20 A		EVIDENCE ROOM		4	
5	ENTRANCE LIGHTS		20 A	1					1920	977	1	20 A		MENS LOCKER/RR LTG		6	
7	EXTERIOR SOFFIT LIGHTS		20 A	1	1920	862					1	20 A		WOMENS LOCKER/ CARDIO LTG		8	
9	PARKING LOT LIGHTS		20 A	1			500	1920			1	20 A		SPARE		10	
11	PARKING LOT LIGHTS		20 A	1					500	0	1	20 A		SPARE?		12	
13	PARKING LOT LIGHTS		20 A	1	250	0					1	20 A		SPARE?		14	
15	PARKING LOT LIGHTS		20 A	1			250	0			1	20 A		SPARE?		16	
17	SIGN AND FLAG POLE LIGHTS		20 A	1					1920	0	1	20 A		SPARE?		18	
19	SECURITY GATE		20 A	1	1920	0					1	20 A		SPARE?		20	
21	SPARE?		20 A	1			0	1664			2	20 A		TREADMILL RCPT		22	
23	SPARE?		20 A	1					0	1664						24	
25					672	828					3	15 A		VAV-F		26	
27	VAV-G		15 A	3			672	828								28	
29									672	828						30	
31					3695	336					3	15 A		VAV-E		32	
33	MAU-1		50 A	3			3695	336								34	
35									3695	336						36	
37	CU-1, FCU-1		20 A	2	1446	768					1	15 A		EF-7		38	
39							1446	180			1	20 A		EXERIOR RCPT		40	
41	EF-6		15 A	1					768	0	1	20 A		SPARE		42	

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
Motor	21016 VA	113.19%	23787 VA		
Lighting - Continuous	2494 VA	125.00%	3118 VA	TOTAL CONNECTED LOAD:	43878 VA
Receptacle	180 VA	100.00%	180 VA	TOTAL DEMAND:	47273 VA
				TOTAL CONNECTED CURRENT:	122 A
				TOTAL DEMAND CURRENT:	131 A

NOTES:
1. ALL BREAKERS ARE STANDARD UNLESS OTHERWISE NOTED
2. (*) NUMBER INDICATES BREAKER TYPE: 1 = AFCI, 2 = CLASS A 5mA GFCI, 3 = 30mA GFPE, 4 = SHUNT TRIP ACTIVATED, 5 = PANELBOARD FEEDER SERVING UNIT SHALL BE LOCKABLE USING A PADLOCK, IN ACCORDANCE WITH OSHA LOCK-OUT-TAG RULES, 6 = LSI, 7 = LSIG.

EXISTING PANELBOARD AR

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):		N				
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:		SEE SPEC				
RATED AMPERAGE:	225 A				A		B		C		MOUNTING:		SURFACE				
MAIN:	225 A MLO				9100 VA		10260 VA		14220 VA		MCB GROUND FAULT PROTECTION (Y/N):		N				
SCC RATING (SYM):	10K										MCB SHUNT TRIP (Y/N):		N				
	200A FEEDER WITH AL				76 A		87 A		120 A		MCB 100% RATED (Y/N):		N				
CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION		CKT	
1	DRINKING FOUNTAIN		20 A	1	600	1080					1	20 A		GENERAL USE BASE RCPT		2	
3	WEIGHT ROOM RCPTS		20 A	1			1080	720			1	20 A		ELEVATOR EQUIPMENT ROOM		4	
5	WEIGHT ROOM RCPTS		20 A	1					1920	1080	1	20 A		GENERAL USE BASE RCPTS		6	
7	DESK HOLD AREA RCPTS		20 A	1	1080	1080					1	20 A		GENERAL USE BASE RCPTS		8	
9	DEDICATED RCPTS		20 A	1			180	1080			1	20 A		GENERAL USE BASE RCPTS		10	
11	GENERAL USE BASE RCPTS		20 A	1					1080	1080	1	20 A		GENERAL USE BASE RCPTS		12	
13	RADIO BATTERY CHARGER		20 A	1	1000	0					1	20 A		SPARE		14	
15	LTG		20 A	1			1920	1200			1	20 A		OVERHEAD DOOR POWER		16	
17	LTG		20 A	1					1920	1200	1	20 A		OVERHEAD DOOR POWER		18	
19	SPARE?		20 A	1	0	1200					1	20 A		OVERHEAD DOOR POWER		20	
21	BATH GFI		20 A	1			720	1200			1	20 A		OVERHEAD DOOR POWER		22	
23	OFFICE RCPTS		20 A	1					1080	1080	1	20 A		OVERHEAD DOOR POWER		24	
25	OFFICE RCPTS		20 A	1	1080	1080					1	20 A		GENERAL USE BASE RCPTS		26	
27	OFFICE RCPTS		20 A	1			1080	0			1	20 A		SPARE		28	
29	OFFICE RCPTS		20 A	1					1080	1080	1	20 A		RESTROOM HOLDER AREA		30	
31	STORAGE RCPTS		20 A	1	0	0					2	30 A		GENSET POWER		32	
33	STORAGE RCPTS		20 A	1			0	0								34	
35	OPEN OFFICE RCPTS		20 A	1					540	720	1	20 A		OPEN OFFICE RCPTS		36	
37	MENS LOCKER RCPTS		20 A	1	720	180					1	20 A		MENS RESTROOM RCPTS		38	
39	MENS RESTROOM RCPTS		20 A	1			180	900			1	20 A		WOMENS LOCKER RCPTS		40	
41	HALL RCPTS		20 A	1					360	0	1	20 A		SPARE		42	

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
Receptacle	3600 VA	100.00%	3600 VA		
				TOTAL CONNECTED LOAD:	33580 VA
				TOTAL DEMAND:	33580 VA
				TOTAL CONNECTED CURRENT:	93 A
				TOTAL DEMAND CURRENT:	93 A

NOTES:
1. ALL BREAKERS ARE STANDARD UNLESS OTHERWISE NOTED
2. (*) NUMBER INDICATES BREAKER TYPE: 1 = AFCI, 2 = CLASS A 5mA GFCI, 3 = 30mA GFPE, 4 = SHUNT TRIP ACTIVATED, 5 = PANELBOARD FEEDER SERVING UNIT SHALL BE LOCKABLE USING A PADLOCK, IN ACCORDANCE WITH OSHA LOCK-OUT-TAG RULES, 6 = LSI, 7 = LSIG.

EXISTING PANELBOARD HTG #1

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):		N				
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:		SEE SPEC				
RATED AMPERAGE:	400 A				A		B		C		MOUNTING:		SURFACE				
MAIN:	400 A MLO				23100 VA		23460 VA		21660 VA		MCB GROUND FAULT PROTECTION (Y/N):		N				
SCC RATING (SYM):	22K										MCB SHUNT TRIP (Y/N):		N				
	400A FEEDER WITH H2				194 A		197 A		181 A		MCB 100% RATED (Y/N):		N				
CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION		CKT	
1					1800	2700										2	
3	VAV-1 ,12		20 A	3			1800	2700			3	30 A		VAV-5-B		4	
5									0	2700						6	
7					1800	1800										8	
9	VAV-2, 14,15,16		20 A	3			1800	1800			3	20 A		VAV-10		10	
11									1800	1800						12	
13					3600	1800										14	
15	VAV-9		40 A	3			3600	1800			3	20 A		VAV-6,7		16	
17									3600	1800						18	
19					1800	1800										20	
21	VAV-17		20 A	3			1800	1800			3	20 A		VAV-8		22	
23									1800	1800						24	
25					1800	1800										26	
27	HU-2		20 A	3			1800	1800			3	20 A		HU-1		28	
29									1800	1800						30	
31	HAIR DRYER		20 A	1	1200	1200					1	20 A		EXISTING LOAD		32	
33	HAIR DRYER		20 A	1			1200	1560			2	30 A		GARAGE BAY HEATER		34	
35	HAIR DRYER		20 A	1					1200	1560						36	

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	68220 VA
				TOTAL DEMAND:	68220 VA
				TOTAL CONNECTED CURRENT:	189 A
				TOTAL DEMAND CURRENT:	189 A

NOTES:
1. ALL BREAKERS ARE STANDARD UNLESS OTHERWISE NOTED
2. (*) NUMBER INDICATES BREAKER TYPE: 1 = AFCI, 2 = CLASS A 5mA GFCI, 3 = 30mA GFPE, 4 = SHUNT TRIP ACTIVATED, 5 = PANELBOARD FEEDER SERVING UNIT SHALL BE LOCKABLE USING A PADLOCK, IN ACCORDANCE WITH OSHA LOCK-OUT-TAG RULES, 6 = LSI, 7 = LSIG.

EXISTING PANELBOARD HTG #2

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):		N				
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:		SEE SPEC				
RATED AMPERAGE:	400 A				A		B		C		MOUNTING:		SURFACE				
MAIN:	400 A MLO				25200 VA		23700 VA		22700 VA		MCB GROUND FAULT PROTECTION (Y/N):		N				
SCC RATING (SYM):	22K										MCB SHUNT TRIP (Y/N):		N				
	400A FEEDER WITH H1				211 A		199 A		189 A		MCB 100% RATED (Y/N):		N				
CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION		CKT	
1					1800	2700										2	
3	VAV-18		20 A	3			1800	2700			3	20 A		VAV-3		4	
5									1800	2700						6	
7					1800	1800										8	
9	VAV-15,16,2,14		20 A	3			1800	1800			3	20 A		VAV-5-B		10	
11									1800	1800						12	
13					4500	0										14	
15	VAV-13		20 A	3			4500	0			3	20 A		SPARE?		16	
17									4500	0						18	
19	EH-1		20 A	2	2500	1800										20	
21							2500	1800			3	20 A		VAV-BASEMENT		22	
23	EH-2		20 A	2					1500	1800						24	
25					1500	1800										26	
27	SPACE		--	1			--	1800			3	20 A		VAV-BASEMENT		28	
29	SPACE		--	1					--	1800						30	
31					2500	2500										32	
33	GARAGE UNIT HEATER		20 A	3			2500	2500			3	20 A		GARAGE UNIT HEATER		34	
35									2500	2500						36	

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	71600 VA
				TOTAL DEMAND:	71600 VA
				TOTAL CONNECTED CURRENT:	199 A
				TOTAL DEMAND CURRENT:	199 A

NOTES:
1. ALL BREAKERS ARE STANDARD UNLESS OTHERWISE NOTED
2. (*) NUMBER INDICATES BREAKER TYPE: 1 = AFCI, 2 = CLASS A 5mA GFCI, 3 = 30mA GFPE, 4 = SHUNT TRIP ACTIVATED, 5 = PANELBOARD FEEDER SERVING UNIT SHALL BE LOCKABLE USING A PADLOCK, IN ACCORDANCE WITH OSHA LOCK-OUT-TAG RULES, 6 = LSI, 7 = LSIG.

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issue / revision

job #: 163-19
drawn: JAS
chkd: APC

SCHEDULES

description

FOR BIDDING

number
E-502

EXISTING PANELBOARD BL

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):					N	
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:					SEE SPEC	
RATED AMPERAGE:	225 A				A		B		C		MOUNTING:					SURFACE	
MAIN:	225 A MLO										MCB GROUND FAULT PROTECTION (Y/N):					N	
SCC RATING (SYM):	10K				6415 VA		7182 VA		7488 VA		MCB SHUNT TRIP (Y/N):					N	
	200A FEEDER WITH BR				53 A		61 A		63 A		MCB 100% RATED (Y/N):					N	

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	RM 149 (D1)		20 A	1	1000	1250					1	20 A		LOBBY LTG	2
3	RM 149 (D2)		20 A	1			1000	1250			1	20 A		LOBBT LTG	4
5	RM 149 (D3)		20 A	1					1000	1250	1	20 A		RECORD LTG	6
7	RM 149 (D4)		20 A	1	1000	1250					1	20 A		OFFICE LTG	8
9	RM 149 (D5)		20 A	1			1000	1375			1	20 A		OFFICE LTG	10
11	RM 149 (D6)		20 A	1					1000	1500	1	20 A		OFFICE LTG	12
13	SPARE		20 A	1	0	1375					1	20 A		OFFICE LTG	14
15	COURT RM LTG		20 A	1			1800	**397**			**1**	**20 A**		**COURT VESTIBULE LTG**	16
17	OFFICE LTG		20 A	1					1725	**293**	**1**	**20 A**		**MENS/WOMENS RR LTG**	18
19	SPARE		20 A	1	0	0					1	20 A		SPARE	20
21	SPARE		20 A	1			0	0			1	20 A		SPARE	22
23	SPARE		20 A	1					0	0	1	20 A		SPARE	24
25	ENTRY ROOF RCPT		20 A	1	540	--					1	--		SPACE	26
27	PLANTER RCPT		20 A	1			360	--			1	--		SPACE	28
29	EXTERIOR POLE RCPT		20 A	1					720	--	1	--		SPACE	30
31	SPACE		--	1	--	--					1	--		SPACE	32
33	SPACE		--	1			--	--			1	--		SPACE	34
35	SPACE		--	1					--	--	1	--		SPACE	36
37	SPACE		--	1	--	--					1	--		SPACE	38
39	SPACE		--	1			--	--			1	--		SPACE	40
41	SPACE		--	1					--	--	1	--		SPACE	42

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
Motor	50 VA	125.00%	63 VA		
Lighting - Continuous	640 VA	125.00%	800 VA	TOTAL CONNECTED LOAD:	21085 VA
				TOTAL DEMAND:	21258 VA
				TOTAL CONNECTED CURRENT:	59 A
				TOTAL DEMAND CURRENT:	59 A

NOTES:
1. ALL BREAKERS ARE STANDARD UNLESS OTHERWISE NOTED
2. (*) NUMBER INDICATES BREAKER TYPE: 1 = AFCI, 2 = CLASS A 5mA GFCI, 3 = 30mA GFPE, 4 = SHUNT TRIP ACTIVATED, 5 = PANELBOARD FEEDER SERVING UNIT SHALL BE LOCKABLE USING A PADLOCK, IN ACCORDANCE WITH OSHA LOCK-OUT-TAG RULES, 6 = LSI, 7 = LSIG.

EXISTING PANELBOARD BR

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):					N	
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:					SEE SPEC	
RATED AMPERAGE:	225 A				A		B		C		MOUNTING:					SURFACE	
MAIN:	225 A MLO										MCB GROUND FAULT PROTECTION (Y/N):					N	
SCC RATING (SYM):	10K				8541 VA		8916 VA		8516 VA		MCB SHUNT TRIP (Y/N):					N	
	200A FEEDER WITH BL				71 A		74 A		71 A		MCB 100% RATED (Y/N):					N	

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	SPARE		20 A	1	0	**900**					**1**	**20 A**		**TOILET/EF-8/ JAN RCPTS**	2
3	105 EWC & RCPT		20 A	1			720	720			1	20 A		OFFICE RCPT	4
5	GEN USE RCPT		20 A	1					540	720	1	20 A		PATROL DIV RCPT	6
7	RECORDS RCPT		20 A	1	720	720					1	20 A		PATROL DIV RCPT	8
9	RECORDS RCPT		20 A	1			720	720			1	20 A		COMM POLICE RCPT	10
11	RECORDS RCPT		20 A	1					540	720	1	20 A		OFFICE RCPT	12
13	SITUATION RCPT		20 A	1	360	1080					1	20 A		OFFICE RCPT	14
15	SECRETARY RCPT		20 A	1			540	1080			1	20 A		OFFICE RCPT	16
17	CONFERENCE RCPT		20 A	1					720	900	1	20 A		OFFICE RCPT	18
19	OFFICE RCPT		20 A	1	900	720					1	20 A		OFFICE RCPT	20
21	OFFICE RCPT		20 A	1			540	900			1	20 A		OFFICE RCPT	22
23	**ATTORNEY 209 RCPTS**		**20 A**	**1**					**540**	900	1	20 A		OFFICE RCPT	24
25	LADIES RCPT		20 A	1	945	480					1	20 A		COURT ROOM AMP	26
27	**EWC/RESTROOM RCPT**	**2**	**20 A**	**1**			**360**	900			1	20 A		COURT ROOM RCPT	28
29									**996**	**540**	**1**	**20 A**		**ATTORNEY 223 RCPTS**	30
31	**VAV-H**		**15 A**	**3**	**996**	720					1	20 A		JUDGE RCPT	32
33							**996**	720			1	20 A		JURY RCPT	34
35	HVAC		20 A	1					500	900	1	20 A		CLERK RCPT	36
37						0					1	20 A		SPARE	38
39								0			1	20 A		SPARE	40
41										0	1	20 A		SPARE	42

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
Motor	2987 VA	125.00%	3734 VA		
HVAC	500 VA	100.00%	500 VA	TOTAL CONNECTED LOAD:	25972 VA
Receptacle	2340 VA	100.00%	2340 VA	TOTAL DEMAND:	26719 VA
				TOTAL CONNECTED CURRENT:	72 A
				TOTAL DEMAND CURRENT:	74 A

NOTES:
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EXISTING PANELBOARD EMA

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):					N	
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:					SEE SPEC	
RATED AMPERAGE:	400 A				A		B		C		MOUNTING:					SURFACE	
MAIN:	225 A MLO										MCB GROUND FAULT PROTECTION (Y/N):					N	
SCC RATING (SYM):	-				27998 VA		27729 VA		24051 VA		MCB SHUNT TRIP (Y/N):					N	
	225A FEEDER				238 A		236 A		200 A		MCB 100% RATED (Y/N):					N	

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	LTG - GARAGE		20 A	1	650	720					1	20 A		RCPT - GENERATOR	2
3	LTG- GARAGE		20 A	1			1730	600			1	20 A		BATTERY CHARGER	4
5	LTG - BASEMENT		20 A	1					1730	1000	1	20 A		NORTH SHOP	6
7	LTG - BASEMENT		20 A	1	1220	600					1	20 A		SOUTH GATE	8
9	CONTROL CIRCUIT		20 A	1			500	0			1	20 A		SPARE	10
11	SPRINKLER COMP		20 A	2					1500	1000	1	20 A		MAINTENANCE SHOP SOUTH	12
13					1500	1300									14
15	LAWN		20 A	1			1000	1300			3	20 A		EF-5	16
17	SPARE		20 A	1					0	1300					18
19	AHU-1		30 A	2	2250	1340									20
21							2250	1340			3	20 A		CU-1	22
23	SPACE		--	1					--	1340					24
25	AHU-2		40 A	2	2660	1920									26
27							2660	1920			3	30 A		CU-2	28
29	SPARE		20 A	1					0	1920					30
31					2773	1000					1	20 A		DNA FREEZER	32
33	EXISTING LOAD		50 A	3			2773	1000			1	20 A		DNA FREEZER	34
35									2773	**832**					36
37					9233	**832**					**2**	**15 A**		**DRYER**	38
39	EMB		125 A	3			9233	**1423**							40
41									9233	**1423**	**2**	**20 A**		**WASHER**	42

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
Receptacle	4509 VA	100.00%	4509 VA		
				TOTAL CONNECTED LOAD:	80777 VA
				TOTAL DEMAND:	80777 VA
				TOTAL CONNECTED CURRENT:	224 A
				TOTAL DEMAND CURRENT:	224 A

NOTES:
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PANELBOARD C

VOLTAGE:	208/120V				CONNECTED LOAD PER						ISOLATED GROUND BUS (Y/N):					N	
PHASE / WIRE:	3Ø / 4W				PHASE						BUSSING:					SEE SPEC	
RATED AMPERAGE:	60 A				A		B		C		MOUNTING:					SURFACE	
MAIN:	60 A MLO										MCB GROUND FAULT PROTECTION (Y/N):					N	
SCC RATING (SYM):	5K				8820 VA		8460 VA		6620 VA		MCB SHUNT TRIP (Y/N):					N	
	60A FEEDER				76 A		73 A		55 A		MCB 100% RATED (Y/N):					Y	

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		C		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	LOADOUT LOCKERS RCPTS		20 A	1	1440	1440					1	20 A		LOADOUT LOCKERS RCPTS	2
3	LOADOUT LOCKERS RCPTS		20 A	1			1440	1440			1	20 A		LOADOUT LOCKERS RCPTS	4
5	LOADOUT LOCKERS RCPTS		20 A	1					1440	1440	1	20 A		LOADOUT LOCKERS RCPTS	6
7	LOADOUT LOCKERS RCPTS		20 A	1	1440	1440					1	20 A		LOADOUT LOCKERS RCPTS	8
9	LOADOUT LOCKERS RCPTS		20 A	1			1440	1080			1	20 A		LOADOUT LOCKERS RCPTS	10
11	LOADOUT LOCKERS RCPTS		20 A	1					1440	1440	1	20 A		LOADOUT LOCKERS RCPTS	12
13	LOADOUT LOCKERS RCPTS		20 A	1	1440	1440					1	20 A		LOADOUT LOCKERS RCPTS	14
15	LOADOUT LOCKERS RCPTS		20 A	1			1440	1440			1	20 A		LOADOUT LOCKERS RCPTS	16
17	QUIET ROOM RCPTS		20 A	1					360	500	1	20 A		QUIET ROOM FRIDGE	18
19	SPARE		20 A	1	0	180					1	20 A		DATA/IT RCPT	20
21	SPARE		20 A	1			0	180			1	20 A		DATA/IT RCPT	22
23	SPARE		20 A	1					0	0	1	20 A		SPARE	24

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
Receptacle	23900 VA	70.92%	16950 VA		
				TOTAL CONNECTED LOAD:	23900 VA
				TOTAL DEMAND:	16950 VA
				TOTAL CONNECTED CURRENT:	66 A
				TOTAL DEMAND CURRENT:	47 A

NOTES:
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architect

associated with

CASTLE ROCK POLICE DEPARTMENT
100 PERRY ST
CASTLE ROCK CO 80104

project

seal

issue / revision date:

- Developmt Svcs Rvw 7/20/22
- Construction Doc. 6/10/22
- Design Development 3/11/22
- Schematic Design 1/21/22

issue / revision

job # 163-19

drawn JAS

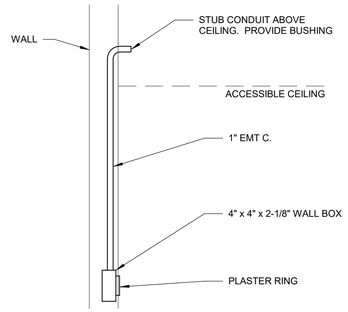
chkd APC

SCHEDULES

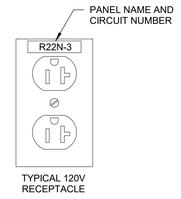
description

FOR BIDDING

number E-503

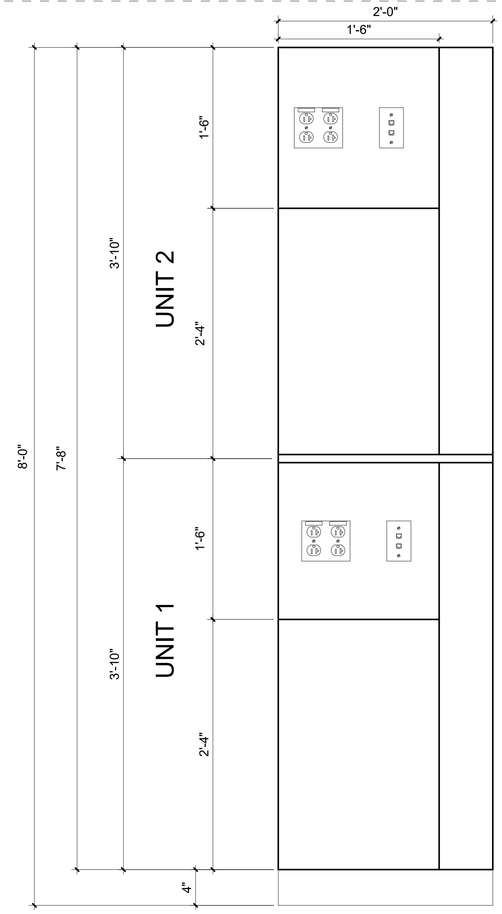


5 TELE/DATA OUTLET
SCALE: NOT TO SCALE

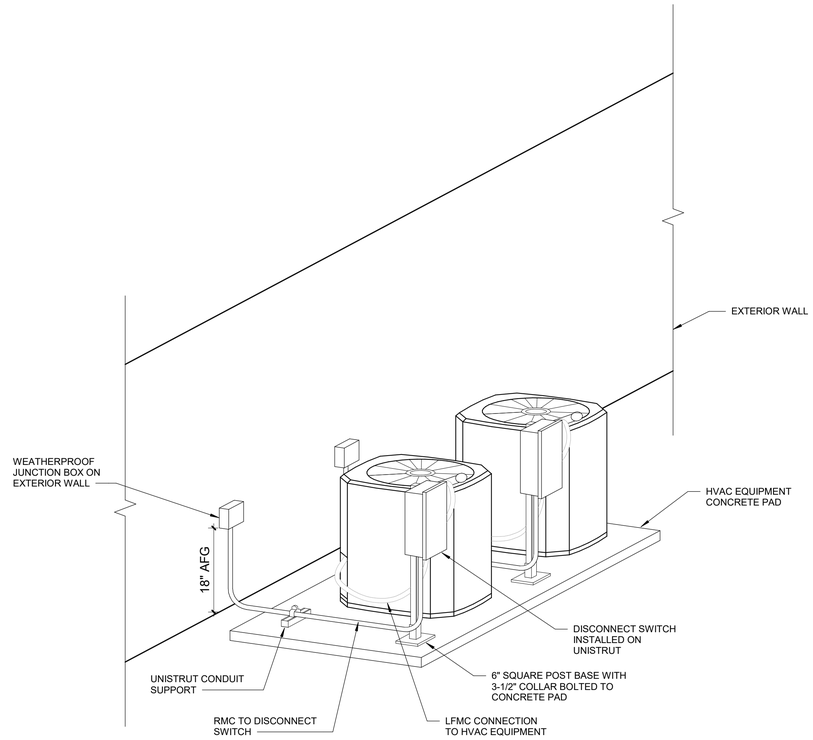


NOTE: UTILIZE ONLY CLEAR LABELS

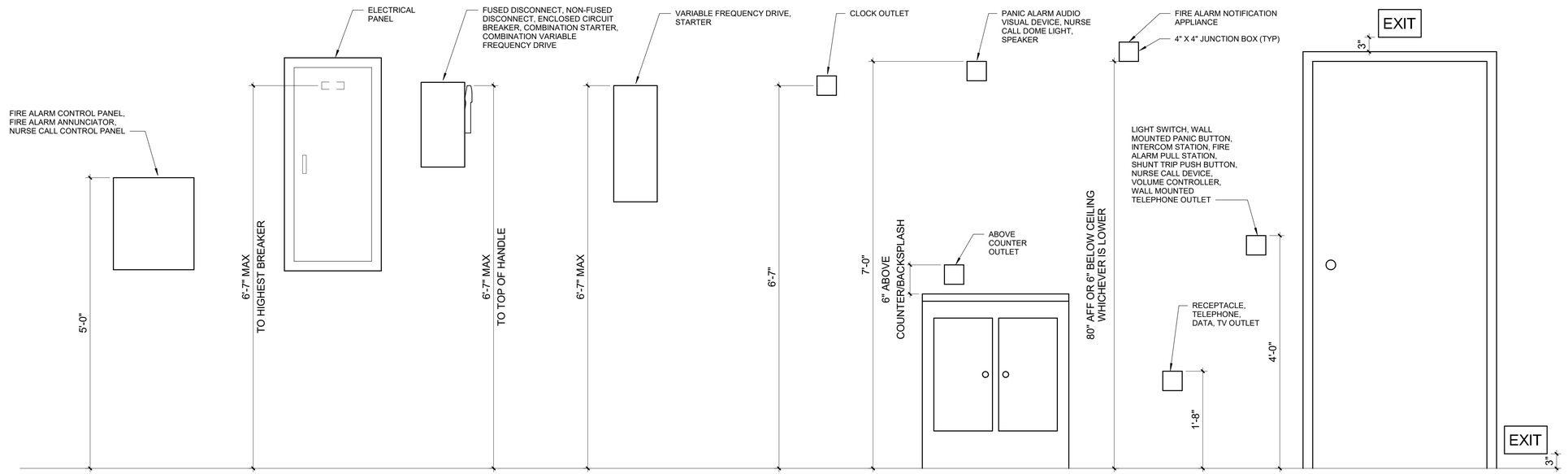
4 PLATE LABELING DETAIL
SCALE: NOT TO SCALE



3 LOAD OUT LOCKERS
SCALE: 1 1/2" = 1'-0"



2 CONDENSING UNIT DISCONNECT INSTALLATION DETAIL
SCALE: NOT TO SCALE



1 TYPICAL MOUNTING HEIGHT DETAIL
SCALE: NOT TO SCALE

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seal

issue / revision — date:
- Developmt Svcs Rvw — 7/20/22
- Construction Doc. — 6/10/22
- Design Development — 3/11/22
- Schematic Design — 1/21/22

issue / revision

job # 163-19
drawn JAS
chkd APC

DETAILS

description

FOR BIDDING

number

E-601

EXHIBIT 2

CONTRACTOR'S CERTIFICATE OF INSURANCE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 8/15/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
CRS Insurance Brokerage
9780 S Meridian Blvd Suite 400
Englewood CO 80112

CONTACT NAME: Rebecca Leatherman
PHONE (A/C, No, Ext): 303-996-7800 **FAX (A/C, No):** 303-757-7719
E-MAIL ADDRESS: rleatherman@crsdenver.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Pinnacol Assurance	41190
INSURER B : Westfield Insurance	24112
INSURER C : RSUI Indemnity	22314
INSURER D :	
INSURER E :	
INSURER F :	

INSURED MWGOL-1
MW GOLDEN CONSTRUCTORS
1700 Park Street
Castle Rock CO 80109

COVERAGES **CERTIFICATE NUMBER:** 1288293341 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
B	X COMMERCIAL GENERAL LIABILITY	Y	Y	CMM081943G	4/1/2022	4/1/2023	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 500,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						MED EXP (Any one person)	$ 5,000
	POLICY X PRO-JECT X LOC						PERSONAL & ADV INJURY	$ 1,000,000
	OTHER:						GENERAL AGGREGATE	$ 2,000,000
							PRODUCTS - COMP/OP AGG	$ 2,000,000
								$
B	AUTOMOBILE LIABILITY	Y		CMM081943G	4/1/2022	4/1/2023	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
C	UMBRELLA LIAB X OCCUR			NHA253483	4/1/2022	4/1/2023	EACH OCCURRENCE	$ 5,000,000
	X EXCESS LIAB / CLAIMS-MADE						AGGREGATE	$ 5,000,000
	DED X RETENTION $ NONE							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N	N/A		4028014	4/1/2022	4/1/2023	X PER STATUTE / OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N (Mandatory in NH)						E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
B	Leased/Rented Equipment			CMM081943G	4/1/2022	4/1/2023	Limit Deductible	100,000 1,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
The Town of Castle Rock, its officers and employees are included as additional insured for ongoing operations on the General Liability and included as additional insured on the Auto Liability with respect to operations of the named insured for the certificate holder as required by written contract. General Liability and Auto Liability coverage is primary and non-contributory.

CERTIFICATE HOLDER

Town of Castle Rock
100 North Wilcox
Castle Rock CO 80104

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



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EXHIBIT 3

TOWN OF CASTLE ROCK
AFFIDAVIT OF INDEPENDENT CONTRACTOR STATUS

I, _____ (print name), an authorized representative of **MW Golden Constructors**, holding legal authority to sign this Affidavit declare under oath that I am 18 years or older and have the capacity to sign this Affidavit.

In accordance with Section 8-70-115, C.R.S., I certify the following:

- With respect to the Agreement, I represent and warrant that it is my express intention to be employed as an independent contractor of the Town of Castle Rock (the "Town") for purposes of performing the work or services which are the subject of the Agreement. I understand and confirm that the Town reasonably relied on this intention in entering into the Agreement.

- The Town does not require I work exclusively for the Town, except that I may choose to work exclusively for the Town for a finite period of time specified in the document.

- The Town does not establish a quality standard for the work or services performed pursuant to the Agreement, except that the Town may provide plans and specifications regarding the work but cannot oversee the actual work or provide instruction as to how the work is performed.

- The Town does not pay a salary or hourly rate but rather a fixed or contract rate, as noted in the terms and conditions of the Agreement, and any Exhibits made part of the Agreement.

- The Town cannot terminate the work or services performed during the contract period unless otherwise agreed to in the terms and conditions of the Agreement.

- I am not provided with anything, if at all, more than minimal training from the Town.

- The Town does not provide me with tools or benefits for the performance of the work or services which are the subject of the Agreement, except materials and equipment may be supplied.

- The Town does not dictate the time of performance, except that a completion schedule and a range of mutually agreeable work hours may be established in the Agreement.

- The Town does not pay me personally but rather makes checks payable to the trade or business name of the entirety for which I am employed and who is a party to the Agreement; and the Town does not combine their business operations in any way with the entity's business, but instead maintains such operations as separate and distinct.

- I understand that if a professional license to practice a particular occupation under the laws of the State of Colorado requires the exercise of a supervisory function with regard to the work of services performed under this Agreement, such supervisory role shall not affect the independent contractor relationship with the Town.

- **I UNDERSTAND THAT I AM NOT ENTITLED TO UNEMPLOYMENT INSURANCE BENEFITS UNLESS UNEMPLOYMENT COMPENSATION COVERAGE IS PROVIDED BY ME OR THE ENTITY FOR WHICH I AM EMPLOYED.**

- **I UNDERSTAND THAT I AM OBLIGATED TO PAY FEDERAL AND STATE INCOME TAX ON MONEYS PAID PURSUANT TO THE AGREEMENT.**

CONTRACTOR/CONSULTANT/VENDOR

MW Golden Constructors

By: _____

Name

Digitally signed by Jason Golden
DN: C=US, E=jgolden@mwgolden.com, O=MW GOLDEN CONSTRUCTORS, CN=Jason Golden
Date: 2022.09.08 18:11:41-06'00'

STATE OF COLORADO)

) *ss.*

COUNTY OF _____)

CARRIE LEA HULL
Notary Public
State of Colorado
Notary ID # 20194036191
My Commission Expires 09-20-2023

The foregoing instrument as acknowledged before me this _8_ day of __September____, 2022 by _Jason Golden___ as _President_ of the above mentioned Contractor/Consultant/Vendor.

Witness my official hand and seal.

My commission expires:

09/20/2023

Carrie Lea Hull
_____
Notary Public