OLD TOWN TAVERN

RESTAURANT AND BAR

7330 E. MAIN ST., SUITE 105
SCOTTSDALE, AZ 85251

CITY OF SCOTTSDALE

PERMIT SET

20 MARCH 2025

DS3 PROJECT NUMBER: 25004.00

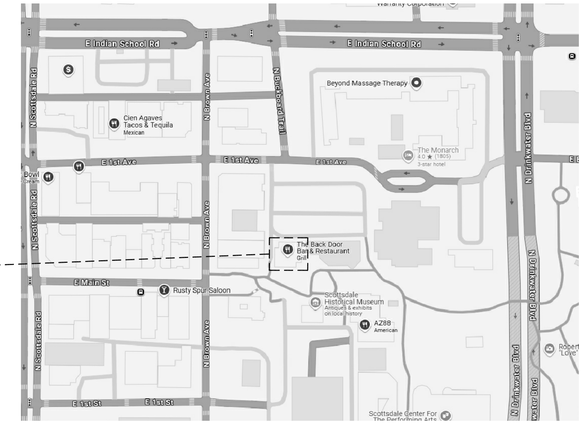
ARCHITECT
ds3 architecture
2315 E. Washington St.
Phoenix, Arizona 85034
PHONE: 602.770.0655 CONTACT: Miguel Berastegui
E-MAIL: mberastegui@ds3architecture.com INTERNET: www.ds3architecture.com

MECHANICAL/PLUMBING/ELECTRICAL ENGINEER
SOLANO STUDIOS
16631 N. Bell Rd., #1079
Scottsdale, AZ 85254
(602) 390-0634
Contact: Travis DeCocq

SCHEDULE OF DRAWINGS

VICINITY MAP

PROJECT SITE



SITEPLAN

PROJECT SUITE

DESIGN CRITERIA

APPLICABLE CODES

2009 ICC A117.1 ADA ACCESSIBILITY	ADA, 2010
INTERNATIONAL BUILDING CODE w/ AMENDMENTS	2021 EDITION
INTERNATIONAL FUEL & GAS CODE w/ AMENDMENTS	2021 EDITION
INTERNATIONAL FIRE CODE w/ AMENDMENTS	2021 EDITION
INTERNATIONAL MECHANICAL CODE w/ AMENDMENTS	2021 EDITION
INTERNATIONAL PLUMBING CODE w/ AMENDMENTS	2021 EDITION
NATIONAL ELECTRICAL CODE w/ AMENDMENTS	2020 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE w/ AMENDMENTS	2021 EDITION
INTERNATIONAL EXISTING BUILDING CODE	2021 EDITION

OTHER CRITERIA

Provide smoke alarms per IFC 907.2.11 at construction stage
Sprinklers to be designed per 2016 NFPA 13
Fire Alarms to be designed per 2016 NFPA 72

DEFERRED SUBMITTALS

ALARM & SPRINKLERS

PROJECT DATA

OWNER	SABA BROTHERS RENTALS LLC
ADDRESS	3270 N COLORADO ST
	CHANDLER AZ USA 85225
OWNER REPRESENTATIVE	PAUL MITCHELL
	OLD TOWN TAVERN - 480.275.9989
PROJECT DESCRPTION	RENOVATION OF EXISTING SUITE: THE RENOVATION WILL INVOLVE THE EXPANSION OF THE ADJACENT EXISTING RESTAURANT. THE NEW AREA WILL HAVE ADDITIONAL TABLES/SEATING, NEW BAR, NEW STORAGE, NEW OFFICE SPACE.

CURRENT ZONING	C2 DO
SITE APN#	130-23-212
BUILDING CONSTRUCTION TYPE	II-B
BUILDING OCCUPANCY TYPE	MIXED - A-2,B & M OCCUPANCIES
TI OCCUPANCY TYPE	RESTAURANT - A-2 OCCUPANCY
EXISTING SUITE AREA	2540 SF
TI RENOVATION AREA	2134 SF (RESTAURANT - INTERIOR)
TI OCCUPANCY LOAD	157
FIRE SPRINKLER SYSTEM	EXISTING

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Contractor

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SEAL

41129
BARBARA S. BERASTEGUI
State Agency 3/20/2025
ARIZONA U.S.A.

EXPIRES 06.30.2028

PROJECT NO. 25004

DRAWN BY: MAB CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION
1	6/11/25	CITY COMMENTS
2	7/29/25	CITY COMMENTS

SHEET NAME

COVER SHEET

PERMIT DRAWING

3/20/2025

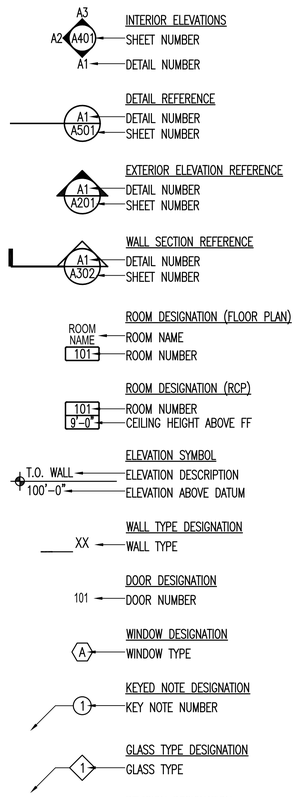
SHEET NUMBER

G000

LIST OF ABBREVIATIONS

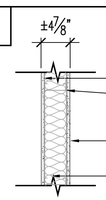
AB	ANCHOR BOLT	LT	LIGHT
ACOUST	ACOUSTICAL		
A/C	AIR CONDITION	MH	MAN HOLE
ALUM	ALUMINUM	MATL	MATERIAL
ANOD	ANODIZED	MFR	MANUFACTURE
ARCH	ARCHITECT	MAX	MAXIMUM
ASPH	ASPHALT	MECH	MECHANICAL
@	AT	MET	METAL
		MEZZ	MEZZANINE
BD	BOARD	MIN	MINIMUM
BLKG	BLOCKING	MTD	MOUNTED
BLDG	BUILDING	MULL	MULLION
BM	BEAM		
BOT	BOTTOM	NG	NATURAL GRADE
BRK	BRICK	NOM	NOMINAL
		NIC	NOT IN CONTRACT
CI	CAST IRON	NO #	NUMBER
CB	CATCH BASIN	NTS	NOT TO SCALE
CLG	CEILING		
CEM	CEMENT	OBS	OBSCURE
CL	CENTER LINE	OC	ON CENTER
CHNL	CHANNEL	OPNG	OPENING
CLF	CHAIN LINK FENCE	OPP	OPPOSITE
CT	CERAMIC TILE	OAL	OVERALL LENGTH
CLR	CLEAR	OD	OUTSIDE DIAMETER
CO	CLEAN OUT	OFD	OVERFLOW DRAIN
COL	COLUMN	OFCI	OWNER FURNISHED CONTR
CONC	CONCRETE		INSTALLED
CONST	CONSTRUCTION	PR	PAIR
CONTR	CONTRACTOR	PTN	PARTITION
CJ	CONTROL JOINT	d	PENNY (NAIL SIZE)
CONT	CONTINUOUS	PERP	PERPENDICULAR
CTR	CENTER	PLAST	PLASTER
CMU	CONC MASONRY UNIT	PL	PLATE
		PLI	PLIES
DB	DECIBEL	PLAM	PLASTIC LAMINATE
DEG	DEGREE	PLMB	PLUMBING
DET	DETAIL	PLYWD	PLYWOOD
DIA	DIAMETER	PT	POINT
DIM	DIMENSION	LB	POUNDS
DN	DOWN	PSI	LBS PER SQUARE IN
DS	DOWNSPOUT	PSF	LBS PER SQUARE FT
DWG	DRAWING	PVC	POLYVINYL CHLORIDE
EA	EACH	QT	QUARRY TILE
ELEC	ELECTRIC		
ELEV	ELEVATION	RAD	RADIUS
EQ	EQUAL	REF	REFRIGERATOR
EQUIP	EQUIPMENT	REQD	REQUIRED
EXH	EXHAUST	REV	REVISION
EXP	EXPANSION	RF	ROOF
EJ	EXPANSION JOINT	R	RISER
EXIST	EXISTING	RD	ROOF DRAIN
EXT	EXTERIOR	RM	ROOM
EIFS	EXT INSUL FIN SYSTEM	ROW	RIGHT OF WAY
FT	FEET	SCHED	SCHEDULE
FIN	FINISH	SECT	SECTION
FG	FINISH GRADE	SEL	SELECT
FIXT	FIXTURE	SHT	SHEET
FLR	FLOOR	SIM	SIMILAR
FD	FLOOR DRAIN	SS	STAINLESS STEEL
FEC	FIRE EXTINGUISHER CAB	SLDG	SLIDING
FS	FLOOR SINK	SPEC	SPECIFICATION
FND	FOUNDATION	SQ	SQUARE
FLUOR	FLUORESCENT	STD	STANDARD
FOS	FACE OF STUD	STL	STEEL
FTG	FOOTING	STRUCT	STRUCTURAL
FUR	FURRING	SUSP	SUSPENDED
FV	FIELD VERIFY		
		TEL	TELEPHONE
GA	GAUGE	THK	THICK
GALV	GALVANIZED	T&G	TONGUE & GROOVE
GC	GENERAL CONTRACTOR	TBC	TOP BACK OF CURB
GL	GALVANIZED IRON	TOF	TOP OF FOOTING
GFRC	GLASS FIBER REINF CONC	TOW	TOP OF WALL
GFRG	GLASS FIBER REINF GYP	T	TREAD
GRD	GRADE	TYP	TYPICAL
GRND	GROUND		
GYP BD	GYPSUM BOARD	UNO	UNLESS NOTED OTHERWISE
HDR	HEADER	UR	URINAL
HDW	HARDWARE		
HDWD	HARDWOOD	VERT	VERTICAL
HGT	HEIGHT	VG	VERTICAL GRAIN
HM	HOLLOW METAL	VEST	VESTIBULE
HORIZ	HORIZONTAL	VCT	VINYL COMPOSITE TILE
HB	HOSE BIB	VNR	VENEER
HW	HOT WATER		
		WC	WATER CLOSET
IN	INCH	WH	WATER HEATER
ID	INSIDE DIAMETER	WP	WEATHER PROOF
INSUL	INSULATION	WF	WIDE FLANGE
INT	INTERIOR	WMN'S	WOMEN'S
INV	INVERT	W/	WITH
		W/O	WITH OUT
JAN	JANITOR	WD	WOOD
JST	JOIST	WDW	WINDOW
JT	JOINT	WR	WATER RESISTANT
		WWR	WELDED WIRE REINFORCEMENT
LAM	LAMINATE		
LAV	LAVATORY		

DRAWING SYMBOL LEGEND



WALL TYPES

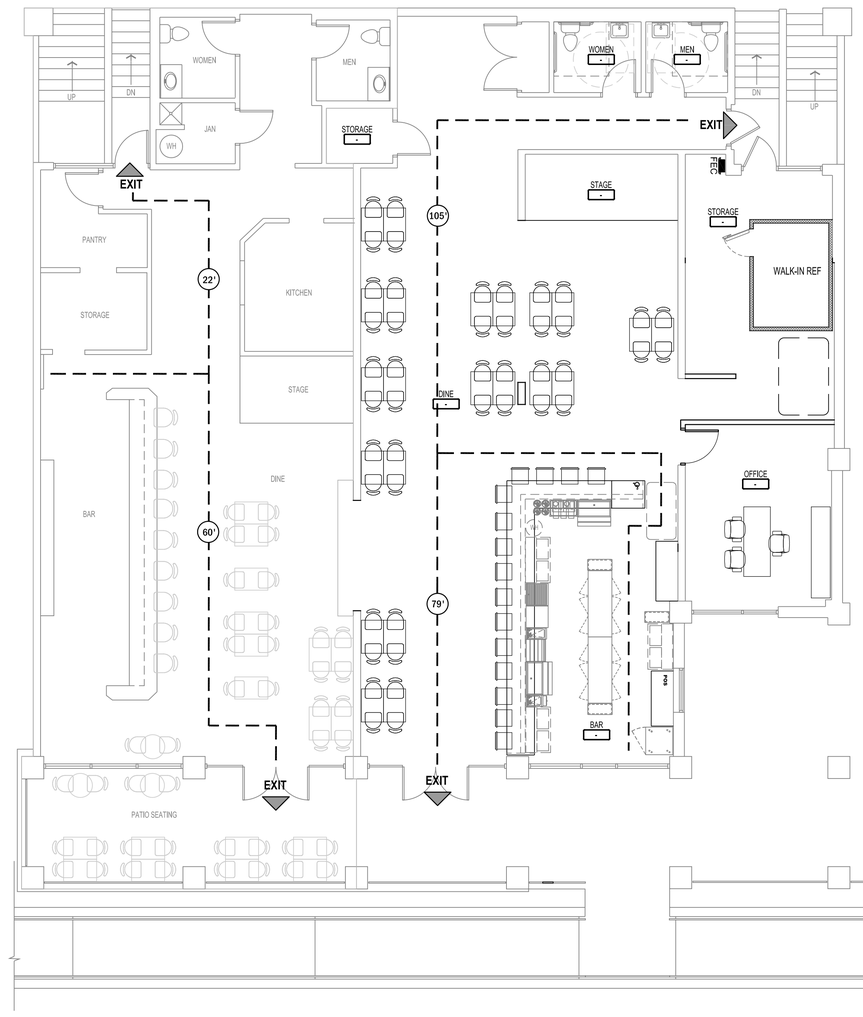
TYPE W1



FIRE TEST NONE
HEIGHT TO 6" ABOVE CEILING
HEAD TYPE A4/G001
BASE TYPE A3/G001

FACE A: 5/8" GYPSUM BOARD
STRUCTURE: 3 5/8" STEEL STUDS @ 16" O.C.
FACE B: 5/8" GYPSUM BOARD SEE FINISH SCHEDULE FOR MATERIAL FINISH
INSULATION: 3 1/2" SOUND BATTS SHOWN 5" NOMINAL ON FLOOR PLAN

CODE & EXIT PLAN



OCCUPANT LOAD

EXISTING ADJACENT SPACE:

RESTAURANT A-2 (889 sf)	1 / 15 sf	60 OL
(INSIDE SEATING - 635 SF)		
(OUTSIDE SEATING - 254 SF)		
KITCHEN/PREP/BAR (684 sf)	1 / 200 sf	5 OL
STAGE AREA (60 sf)	1 / 15 sf	4 OL
SUB-TOTAL		69 OL

NEW TI AREA:

RESTAURANT A-2 (1140 sf)	1 / 15 sf	76 OL
(INSIDE SEATING - 1140 SF)		
KITCHEN/PREP/BAR (656 sf)	1 / 200 sf	4 OL
STAGE AREA (83 sf)	1 / 15 sf	6 OL
OFFICE (223 sf)	1 / 150 sf	2 OL
SUB-TOTAL		88 OL
TOTAL		157 OL

RESTROOM FIXTURES

A2 OCCUPANCY:
WATER CLOSET - 1/40 OL FEMALE , 1/40 OL MALE
LAVATORIES - 1/75 OL FEMALE/MALE
SERVICE SINK - 1 REQUIRED

TOTAL OCCUPANT LOAD 157 - 79 MALE, 79 FEMALE

REQUIRED WATER CLOSETS MALE:	2	PROVIDED
REQUIRED WATER CLOSETS FEMALE:	2	PROVIDED
REQUIRED LAV MALE:	2	PROVIDED
REQUIRED LAV FEMALE:	2	PROVIDED

BUILDING INFORMATION

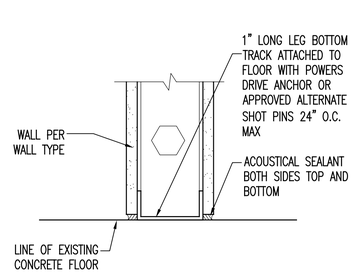
BLDG CONSTRUCTION TYPE:	TYPE IIB
PERIMETER WALLS:	MASONRY - 1 HR RATED
FLOOR CONSTRUCTION:	12" HOLLOW CORESLAB - 2 HR RATED
ROOF CONSTRUCTION:	8" HOLLOW CORESLAB - 2 HR RATED
MAIN LEVEL OCCUPANCY:	A2 - RESTAURANT/TAVERN
LOWER LEVEL OCCUPANCY:	B - BUSINESS
SEPARATION REQUIRED:	1HR - PROVIDED

NORTH

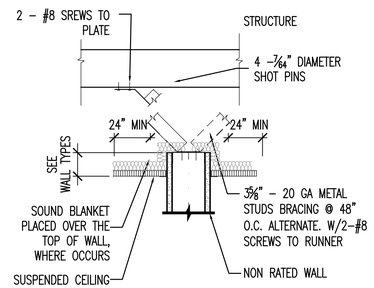
EXITING DIAGRAM LEGEND

(XXX) EXIT ACCESS TRAVEL DISTANCE AS INDICATED (XXX')

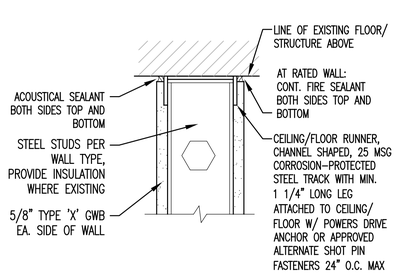
CONNECTION DETAILS



A3 BOTTOM CONNECTION
G001 SCALE: 3" = 1'-0"



A4 NON RATED TOP CONNECTION
G001 SCALE: 3" = 1'-0"



A5 TOP CONNECTION
G001 SCALE: 3" = 1'-0"

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Contractor

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SHEET NAME

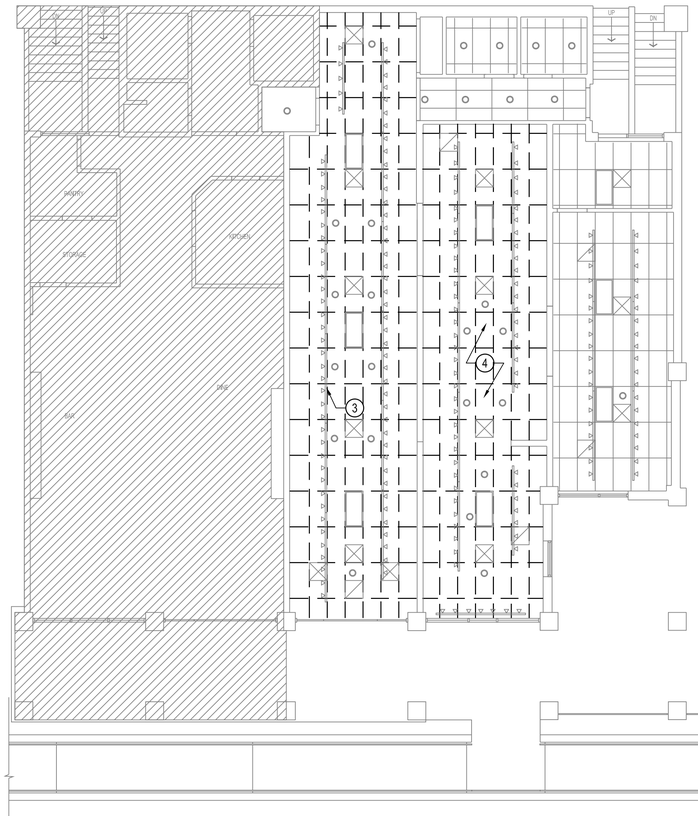
GENERAL INFORMATION AND CODE COMPLIANCE

3/20/2025

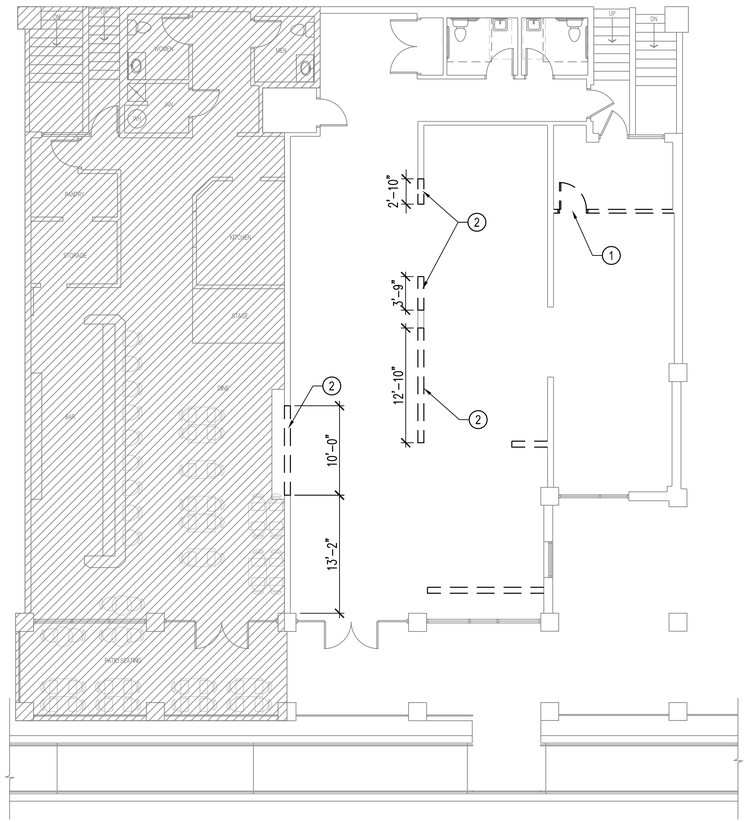
SHEET NUMBER

G001

PERMIT DRAWING



A2 AD100 DEMO RCP PLAN
1/8"=1'-0"



A4 AD100 DEMO PLAN
1/8"=1'-0"

ALTERATION NOTE:

1

306.7 Alterations. IEBC 2021 A facility that is altered shall comply with the applicable provisions in Chapter 11 of the International Building Code, ICC A117.1 and the provisions of Sections 306.7.1 through 306.7.16, unless technically infeasible.
Where compliance with this section is technically infeasible, the alteration shall provide access to the maximumextent technically feasible.
306.7.1 Alterations affecting an area containing a primary function. Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. The accessible route to the primary function area shall include toilet facilities and drinking fountains serving the area of primary function.

DEMOLITION GENERAL NOTES:

A. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF DEMOLITION. COORDINATE DISCREPANCIES WITH ARCHITECT. IF DEMOLITION IS REQUIRED AND NOT INDICATED ON THE DEMOLITION PLAN, CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND CONFIRMATION OF REMOVAL WITH THE ARCHITECT.
B. REMOVE AND TURN OVER TO OWNER ALL FIXED AND/OR FREE STANDING EQUIPMENT.
C. ALL EXISTING WALLS AND FINISHES WHICH ARE DAMAGED DUE TO THIS DEMOLITION AND/OR CONSTRUCTION ARE TO BE:
–PATCHED AND REPAIRED
–MATCH EXISTING, U.N.O. W/ NEW CONST
–PAINT OR REPLACE GYP. BOARD AS REQUIRED
D. PREP ALL AREAS DEMOLISHED FOR NEW CONSTRUCTION.
E. COORDINATE ALL NEW WALL AND FLOOR PENETRATIONS IN EXISTING CONSTRUCTION WITH MECHANICAL AND ELECTRICAL DEMOLITION DRAWINGS AND NEW CONSTRUCTION DRAWINGS BEFORE THE COMMENCEMENT OF DEMOLITION.
F. MAINTAIN EXISTING SMOKE AND FIRE BARRIERS/ PARTITIONS. PATCH, FILL, AND REPAIR ANY EXISTING PENETRATIONS IN INTERIOR AND EXTERIOR WALLS WITH APPROVED FIRE/SMOKE RESISTANT MATERIAL SUBMIT UL DESIGN # APPROPRIATE FOR EACH PENETRATION.
G. ALL REMOVED DOORS AND HARDWARE, LIGHTS, PLUMBING FIXTURES, MILLWORK AND CABINETS, AND LOOSE FURNITURE NOT RELOCATED OR USED ON THE PROJECT TO BE SALVAGED FOR OWNER INVENTORY

COORDINATE REMOVAL, STORAGE, AND TURNOVER OF UNUSED CASEWORK AND FIXTURES WITH OWNER PRIOR TO DEMOLITION

DEMOLITION PLANS KEYED NOTES:

1. REMOVE AND SALVAGE DOOR FOR REUSE
2. REMOVE PORTION OF WALL TO 6" BELOW LAY-IN CEILING – MATCH EXISTING BULKHEAD
3. SALVAGE ALL TRACK LIGHTING FOR REUSE, TYP
4. REMOVE ALL CEILING GRID AND TILES. PREP EXPOSED CEILING FOR NEW PAINT

DEMOLITION PLAN LEGEND

EXISTING PARTITION OR WALL TO REMAIN

EXISTING CONSTRUCTION TO BE REMOVED

EXISTING DOOR/WINDOW TO BE REMOVED

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BARBARA S. BERASTEGUI
REGISTERED ARCHITECT
ARIZONA U.S.A.

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DEMO PLAN

PERMIT DRAWING

3/20/2025

SHEET NUMBER

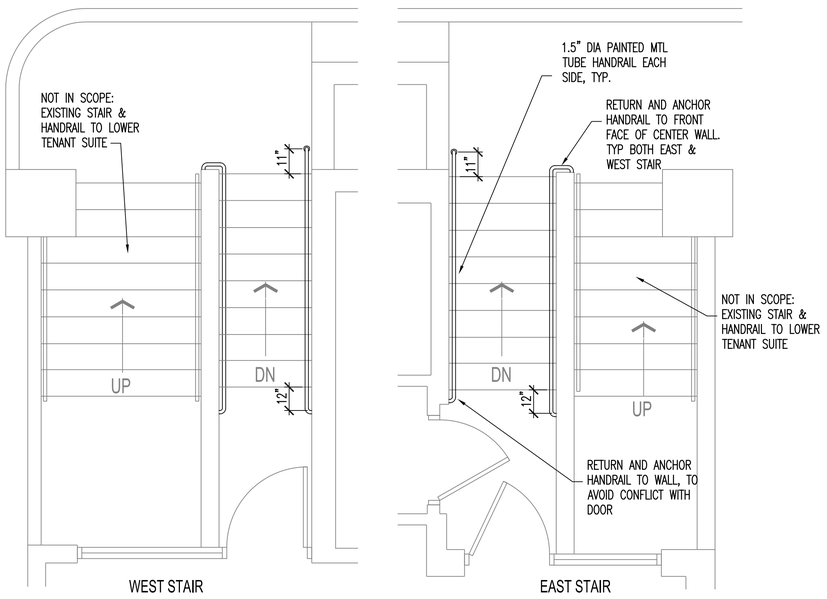
AD100

DOOR SCHEDULE				
NUMBER	SIZE WIDTH	SIZE HEIGHT	TYPE	HARDWARE
100	6' - 0"	7' - 0"	EXIST	HERCULITE GLASS ENTRY, PUSH/PULL, FLOOR PIVOT - *** SEE NOTE A & B
101	3' - 0"	7' - 0"	EXIST	RELOCATED DOOR, OFFICE LOCKSET
102	3' - 0"	7' - 0"	EXIST	STORAGE ROOM LOCKSET
103	6' - 0"	7' - 0"	EXIST	STORAGE ROOM LOCKSET
104	3' - 0"	7' - 0"	EXIST	ADA PRIVACY LOCKSET
105	3' - 0"	7' - 0"	EXIST	ADA PRIVACY LOCKSET
106	3' - 0"	7' - 0"	EXIST	EXIT DOOR, PANIC HARDWARE
107	3' - 0"	7' - 0"	EXIST	ENTRY LOCKSET WITH DEADBOLT

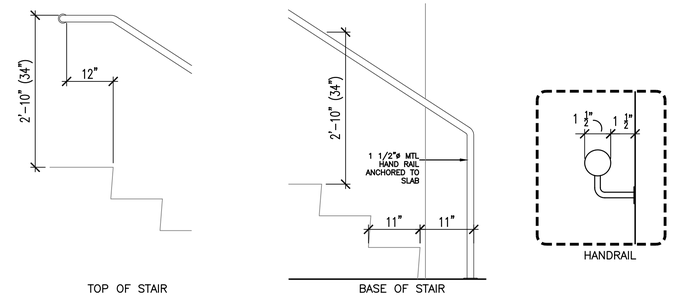
HARDWARE NOTE:

A - EXISTING STOREFRONT EXIT/ENTRY DOOR - OFFSET DOOR PULLS, THUMB LOCK, THRESHOLD AND "DOOR TO REMAIN OPEN DURING BUSINESS HOURS" SIGNAGE EXISTING

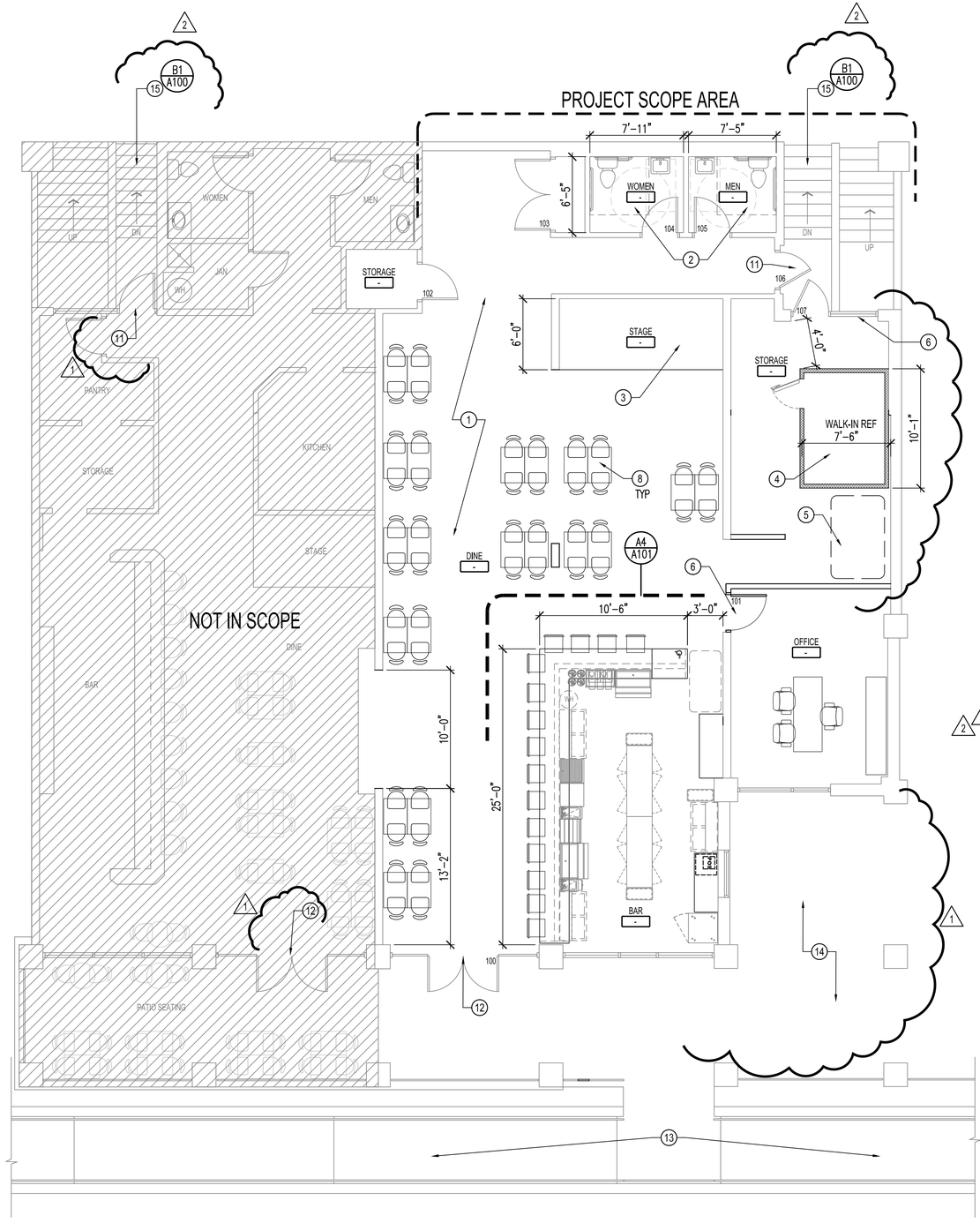
B - OCCUPANT LOAD SIGNAGE TO BE POSTED AT ENTRY/EXIT DOOR. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE PERMANENT DESIGN AND SHALL BE MAINTAINED BY THE OWNER OR AUTHORIZED AGENT



B1 / A100 STAIR PLAN — 3/8"=1'-0"



A1 / A100 HANDRAIL DET — 3/4"=1'-0"



NORTH

A4 / A100 FLOORPLAN — 3/16"=1'-0"

GENERAL NOTES:

A. DIMENSIONS ARE TO THE FACE OF EXISTING FINISH, NEW SUBSTRATE OR GRIDLINE. "CLEAR" DIMENSIONS ARE TO FACE OF FINISH.
B. FIELD VERIFY ALL EXISTING CONDITIONS AND THEIR COMPATIBILITY WITH NEW CONSTRUCTION PRIOR TO THE COMMENCEMENT OF WORK. COORDINATE DISCREPANCIES WITH ARCHITECT.
C. DO NOT SCALE DRAWINGS.
D. SEE MANUFACTURER, MECHANICAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
E. PROVIDE BACKING BEHIND ALL SURFACE MOUNTED EQUIPMENT AND/OR FIXTURES.
F. ALL NEW INTERIOR WALLS TO BE WALL TYPE W-1, AND TO HAVE LEVEL 4 FINISH U.N.O.
G. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL POWER, LIGHTING AND DIFFUSER INFORMATION.

KEY NOTES: (#)

1. ALL EXISTING FLOORING TO REMAIN
2. EXISTING ADA RESTROOMS
3. EXISTING FLOORING TO REMAIN AT STAGE AREA – NO NEW FINISH. STAGE IS NOT ELEVATED
4. NEW WALK-IN COOLER – MANUF AND STYLE BY OWNER
5. NEW STORAGE AREA SHELVING BY OWNER
6. EXISTING SAFETY GLASS
7. ** NOTE REMOVED **
8. ** NOTE REMOVED **
9. ** NOTE REMOVED **
10. ** NOTE REMOVED **
11. ALL EXISTING EGRESS DOORS HAVE PANIC HARDWARE.
12. EXISTING STOREFRONT EXIT/ENTRY DOOR – "DOOR TO REMAIN OPEN DURING BUSINESS HOURS" SIGNAGE EXISTING
13. RAMP, GUARDRAIL, AND RAILING EXISTING AND PART OF CITY PARK/PLAZA AREA
14. EXISTING WALKING AREA
15. UPGRADE EXISTING HANDRAILS TO CURRENT IBC CODE – SECTION 1014. SEE DETAILS A1 & B1 / A100

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SEAL

BARBARA S. BERASTEGUI — 41129 — Date Signed 3/20/25 — ARIZONA U.S.A.

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FLOORPLAN

PERMIT DRAWING

3/20/2025

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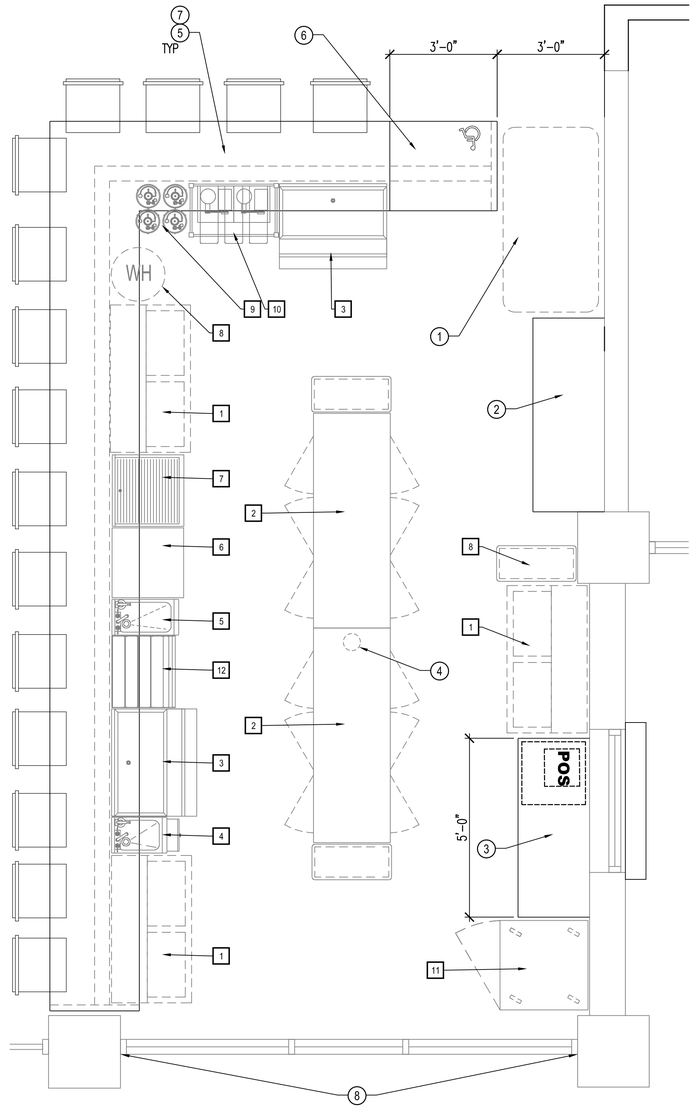
A100

BAR EQUIPMENT SCHEDULE

NO	TAG	DESCRIPTION
1	GLASS COOLER	BEV-AIR, GF48HC
2	BACK BAR REFRIGERATOR	BEV-AIR, BB72HC BLACK, GLASS DOOR PASS-THRU
3	ICE WELL	REGENCY, 18" X 36", W/ SPEED RAIL
4	HAND SINK	REGENCY, 12" X 23"
5	DUMP SINK	REGENCY, 12" X 23"
6	GLASS WASHER	ADS – ACCURATE, ET SERIES
7	GLASS RACK	REGENCY, 23" X 24"
8	TRASH CAN	BY OWNER
9	CO2 CYLINERS	BY OWNER
10	BAG-N-BOX SODA	BY OWNER
11	FREEZER	AVANTCO, 25", SOLID DOOR
12	LIQUOR RACK	REGENCY, 24"



A4 / A101 ENLARGED BAR PLAN

3/8"=1'-0"

GENERAL NOTES:

A. ALL NEW CONSTRUCTION TO CONFORM AND FOLLOW EXISTING BUILDING SPECIFICATIONS
B. DIMENSIONS ARE TO THE FACE OF EXISTING FINISH, NEW SUBSTRATE OR GRIDLINE. "CLEAR" DIMENSIONS ARE TO FACE OF FINISH.
C. FIELD VERIFY ALL EXISTING CONDITIONS AND THEIR COMPATIBILITY WITH NEW CONSTRUCTION PRIOR TO THE COMMENCEMENT OF WORK. COORDINATE DISCREPANCIES WITH ARCHITECT.
D. DO NOT SCALE DRAWINGS.
E. SEE MANUFACTURER, MECHANICAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
F. PROVIDE BACKING BEHIND ALL SURFACE MOUNTED EQUIPMENT AND/OR FIXTURES.

KEY NOTES: (#)

1. OPEN / CLEAR AREA
2. AREA FOR RACKS / SHELVING
3. TRANSACTION TABLE OR MILLWORK
4. FLOOR BOX FOR POWER FOR COOLERS
5. MAIN BAR TO BE AT 41" AFF
6. ADA PORTION OF BAR TO BE AT 34" AFF
7. BAR TOP FINISH TBD BY OWNER
8. INSTALL OPAQUE WHITE WINDOW TINT TO STOREFRONT GLAZING TO 48" A.F.F.

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Contractor

OLD TOWN TAVERN & RESTAURANT

7330 E. MAIN ST., SUITE 105
SCOTTSDALE, AZ 85251

SEAL

41129
BARBARA S. BERASTEGUI
Date Signed 3/20/25
ARIZONA U.S.A.

EXPIRES 06.30.2028

PROJECT NO. 25004

DRAWN BY: MAB CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION

SHEET NAME

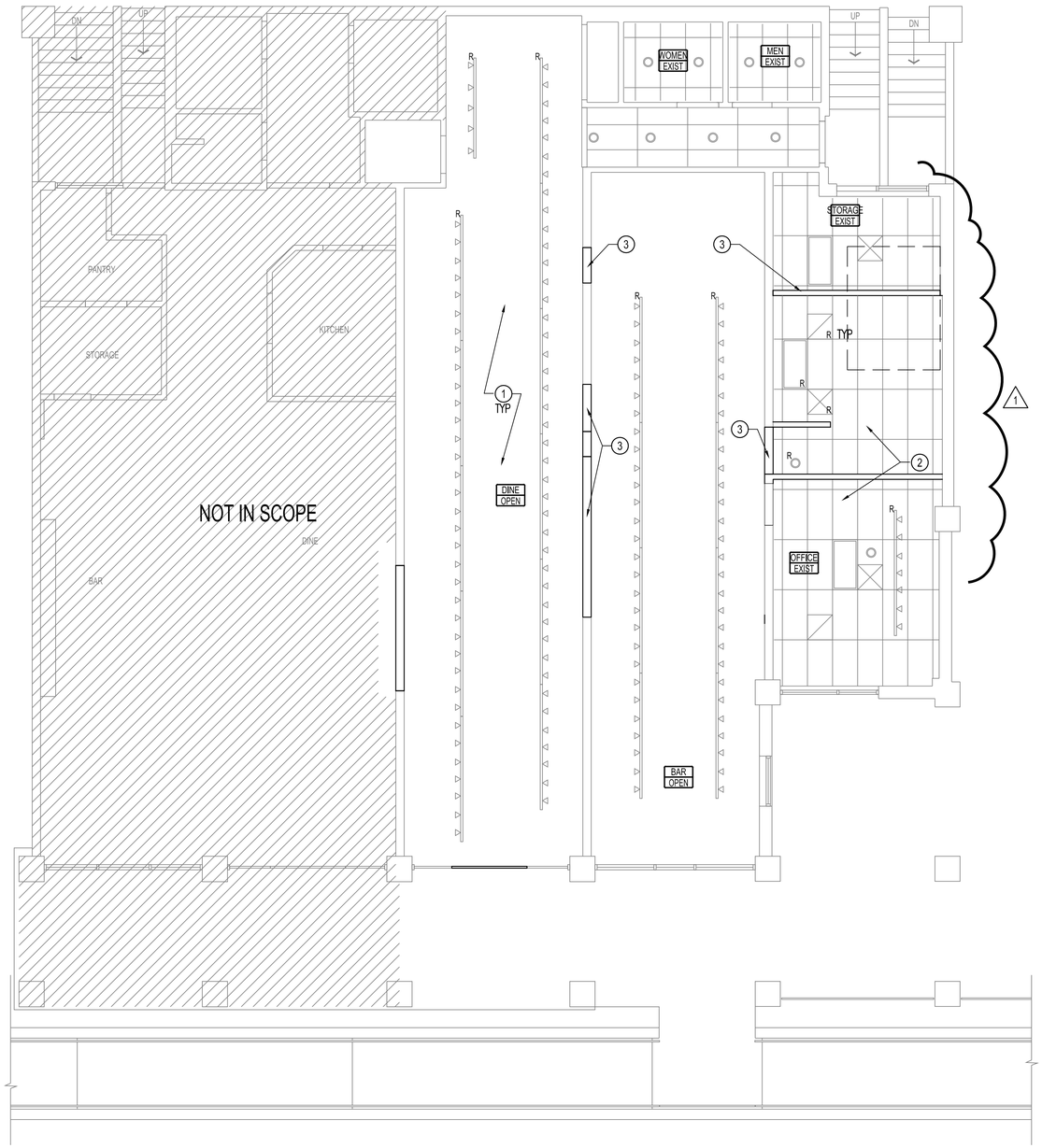
ENLARGED BAR PLAN

3/20/2025

SHEET NUMBER

A101

PERMIT DRAWING



A4 / A101 RCP
3/16"=1'-0"

GENERAL NOTES:

A. ALL NEW CONSTRUCTION TO CONFORM AND FOLLOW EXISTING BUILDING SPECIFICATIONS
B. DIMENSIONS ARE TO THE FACE OF EXISTING FINISH, NEW SUBSTRATE OR GRIDLINE. "CLEAR" DIMENSIONS ARE TO FACE OF FINISH.
C. FIELD VERIFY ALL EXISTING CONDITIONS AND THEIR COMPATIBILITY WITH NEW CONSTRUCTION PRIOR TO THE COMMENCEMENT OF WORK. COORDINATE DISCREPANCIES WITH ARCHITECT.
D. DO NOT SCALE DRAWINGS.
E. SEE MANUFACTURER, MECHANICAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
F. PROVIDE BACKING BEHIND ALL SURFACE MOUNTED EQUIPMENT AND/OR FIXTURES.
G. ALL NEW INTERIOR WALLS TO BE WALL TYPE W1 U.N.O. WALLS TO BE LEVEL 4 FINISH U.N.O.
H. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL POWER, LIGHTING AND DIFFUSER INFORMATION.

KEY NOTES: (#)

1. OPEN CEILING IN DINING & BAR AREA – PAINTED. COLOR TBD BY OWNER
2. ADJUST/MODIFY CEILING GRID AT NEW WALL LOCATIONS
3. NEW BULKHEADS – 6" BELOW CEILING GRID MIN, OR MATCH ADJACENT BULKHEAD HEIGHT AS REQUIRED

REFLECTED CEILING PLAN LEGEND:

- EXISTING 2X4 CEILING
- EXISTING GYP CEILING
- EXISTING 2X4 LIGHTING
- R — EXISTING - RELOCATED 2X4 LIGHTING
- EXISTING RECESSED LIGHTS
- R — EXISTING - RELOCATED RECESSED LIGHTS
- R — EXISTING - RELOCATED TRACK LIGHTING

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SEAL

EXPIRES 06.30.2028

PROJECT NO. 25004
DRAWN BY: MAB CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION
1	6/11/25	CITY COMMENTS

SHEET NAME

REFLECTED CEILING PLAN

3/20/2025

SHEET NUMBER

A200

PERMIT DRAWING

GENERAL MECHANICAL NOTES:

A. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

B. COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.

C. NEW MECHANICAL EQUIPMENT AND DUCTWORK ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.

D. REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.

E. COORDINATE LOCATION OF ROOF MOUNTED HVAC EQUIPMENT AND ROOF PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

F. INDOOR AIR QUALITY MEASURES: PROTECT INSIDE OF (INSTALLED AND DELIVERED) DUCTWORK AND HVAC UNITS FROM EXPOSURE TO DUST, DIRT, PAINT AND MOISTURE. REPLACE INSULATION THAT HAS GOTTEN WET AT ANY TIME DURING CONSTRUCTION, DRYING THE INSULATION IS NOT ACCEPTABLE. SEAL ANY TEARS OR JOINTS OF INTERNAL FIBERGLASS INSULATION. REMOVE DEBRIS FROM CEILING/RETURN AIR PLENUM INCLUDING DUST. AN INDEPENDENT, PROFESSIONAL DUCT CLEANING COMPANY SHALL VACUUM CLEAN ANY DUCTWORK CONNECTED TO HVAC UNITS THAT WERE OPERATED DURING THE CONSTRUCTION PERIOD AFTER NEW FILTERS, MINIMUM MERV-13, ARE INSTALLED AND PRIOR TO TURNING SYSTEM OVER TO THE OWNER.

G. INSTALL DUCTWORK PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.

H. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.

I. COORDINATE LOCATION OF EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.

J. SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.

K. COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.

L. ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.

M. LOCATE AND SET THERMOSTATS SENSORS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. INSTALL THERMOSTATS WITH TOP OF DEVICE AT MAXIMUM 48" AFF TO MEET ADA REQUIREMENTS UNLESS NOTED OTHERWISE ON PLANS. TEMPERATURE SENSORS SHALL BE MOUNTED AT A MAXIMUM OF 72" AFF. INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 16.

N. PROVIDE A MANUAL BALANCING DAMPER IN EACH BRANCH DUCT TAKEOFF FROM MAIN SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.

O. PROVIDE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES.

P. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.

Q. RIGID DUCTWORK INSULATION: PROVIDE 3/4 LB DENSITY, MINIMUM **R-8.0** DUCT WRAP, **2-1/2"** THICK, INSULATION WRAP ON RIGID ROUND, CONCEALED, SUPPLY AND RETURN AIR DUCTS. PROVIDE **2" (R-8.0)** THICK 1-1/2 LB DENSITY INTERNAL DUCT LINER ON RECTANGULAR SUPPLY AND RETURN AIR DUCTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS, INCREASE SHEET METAL SIZES ACCORDINGLY.

R. PROVIDE THERMAFLEX TYPE M-KE, FLEXMASTER TYPE 8, OR APPROVED EQUAL FLEXIBLE DUCTWORK. FLEXIBLE DUCTWORK SHALL BE LISTED UNDER UL 181 AS CLASS 1 AIR DUCT AND BE PROVIDED WITH INTEGRAL **R-8.0**, 3/4 LB DENSITY FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING.

S. PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING. AND BEFORE TURNING SYSTEM(S) OVER TO OWNER.

T. PROVIDE A COPY OF THE AIR BALANCE REPORT TO THE CITY INSPECTOR AT THE TIME OF INSPECTION.

HEAT PUMP ROOFTOP UNIT SCHEDULE

MARK	NOMINAL CAPACITY (TONS)	MANUFACTURER	SUPPLY FAN				TOT. HEATING CAPACITY (MBH)	HEAT PUMP		MIN. O/A CFM	ELECTRICAL			NOTES
			AIRFLOW (CFM)	ESP (IN)	TOTAL (MBH)	SENSIBLE (MBH)		HEAT PUMP (MBH)	AMBIENT DB (°F)		V/PH	MCA	MOCP	
RTU-1	5	ETR	1,850	0.5	49.2	45.0	57.5	57.5	32	500	208/3	43.0	60	A
RTU-2	5	ETR	1,850	0.5	49.2	45.0	57.5	57.5	32	500	208/3	43.0	60	A
RTU-3	5	ETR	1,850	0.5	49.2	45.0	57.5	57.5	32	500	208/3	43.0	60	A
RTU-4	5	ETR	1,650	0.5	49.2	45.0	57.5	57.5	32	400	208/3	43.0	60	A

NOTES:
A. EXISTING TO REMAIN. REPLACE BELTS, CLEAN COILS, RECHARGE REFRIGERANT. BALANCE TO SUPPLY AIRFLOW SHOWN.

FAN SCHEDULE

MARK	SERVICE (EA, RA, SA)	LOCATION	MANUFACTURER	MOUNTING	MODEL	AIRFLOW (CFM)	ESP (IN)	DRIVE (BELT/DIRECT)	FAN POWER	FAN RPM	ELECTRICAL		WEIGHT (LBS)	NOTES
											V/PH	FLA		
EF-1	EXHAUST	RESTROOM	ETR	CEILING	SP-A90	75	0.2	DIRECT	15 W	900	120/1	--	15	A
EF-2	EXHAUST	RESTROOM	ETR	CEILING	SP-A90	75	0.2	DIRECT	15 W	900	120/1	--	15	A
EF-3	EXHAUST	RESTROOM	ETR	CEILING	SP-A90	75	0.2	DIRECT	15 W	900	120/1	--	15	A
EF-4	EXHAUST	RESTROOM	ETR	CEILING	SP-A90	75	0.2	DIRECT	15 W	900	120/1	--	15	A

NOTES:
A. ETR = EXISTING TO REMAIN. BALANCE TO MINIMUM AIRFLOW SHOWN.

AIR BALANCE SCHEDULE

EXHAUST EQUIPMENT	AREA/EQUIPMENT SERVED				EXHAUST (CFM)	TOTALS (CFM)
EF-1	EXISTING RESTROOM				75	
EF-2	EXISTING RESTROOM				75	
EF-3	EXISTING RESTROOM				75	
EF-4	EXISTING RESTROOM				75	
KEF-1	EXISTING KITCHEN				800	
						1,100
OUTDOOR AIR EQUIPMENT	AREA/EQUIPMENT SERVED	SUPPLY AIR (CFM)	DESIGN OA (CFM)	PERCENT OA/SA		
RTU-1	EXISTING BAR / DINING	1,850	500	27.0%		
RTU-2	DINING	1,850	500	27.0%		
RTU-3	DINING/BAR	1,850	500	27.0%		
RTU-4	OFFICE/STORAGE	1,650	400	24.2%		
MUA-1	EXISTING KITCHEN	725	725	100.0%		
TOTAL AIRFLOW		7,925	2625	33.1%		2,625
			TOTAL POSITIVE AIR FLOW			1525
			PERCENT POSITIVE AIR FLOW			58.1%

OUTSIDE AIR REQUIREMENTS (IMC TABLE 403.3)

AREA PURPOSE	GROSS FLOOR AREA (SQ. FT)	CODE OUTSIDE AIR REQUIREMENTS						SYSTEM NUMBER	ACTUAL OUTSIDE AIR (CFM PER UNIT)
		CFM PER SQ. FT	CFM REQD.	CFM PER PERSON	OCCUPANCY DENSITY	NO. OF PEOPLE	CFM REQD.		
DINING	1,594	0.18	287	7.5	70	112	840	RTU-1	500
SERVICE COUNTERS	555	0.06	33	5.0	5	3	15	RTU-2	500
EXISTING KITCHEN	182	0.12	22	7.5	20	4	30	RTU-3	500
CORRIDOR/HALLWAY	632	0.06	38	0.0	0	0	0	RTU-4	400
OFFICE	240	0.06	14	5.0	5	2	10	MUA-1	725
DINING	1,141	0.18	205	7.5	100	115	863		
STORAGE	384	0.12	46	0.0	0	0	0		
BAR	226	0.18	41	7.5	100	23	173		
	4,954	TOTAL =	687				1,930	TOTAL =	2,625
					MINIMUM REQUIRED:		2,617		

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	MAX NC	MAX PRESS. DROP (IN. W.C.)	NOTES
CD-1	TITUS	TMS	CONE	LAY IN	24x24	25	0.05	A-D
CD-2	TITUS	TMS	CONE	DUCT	24x24	25	0.05	A-E
RG-1	TITUS	350FL	LOUVERED	DUCT/WALL	NECK+1-3/4"	25	0.1	A,D

NOTES:
A. NECK SIZE SHOWN ON DRAWINGS. BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
B. 4-WAY THROW PATTERN UNLESS OTHERWISE SHOWN ON DRAWINGS.
C. BAKED ENAMEL FINISH, WHITE TO MATCH CEILING COLOR.
D. FRAME TYPE TO MATCH MOUNTING LOCATION CONSTRUCTION MATERIAL. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
E. PROVIDE OPPOSED BLADE DAMPER ADJUSTABLE FROM FACE OF DEVICE.

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Contractor

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7330 E. MAIN ST., SUITE 105
SCOTTSDALE, AZ 85251

SEAL

PROJECT NO. 25005

DRAWN BY: CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION
1	06/06/25	CITY COMMENTS

SHEET NAME

Mechanical Schedules

3/14/2025

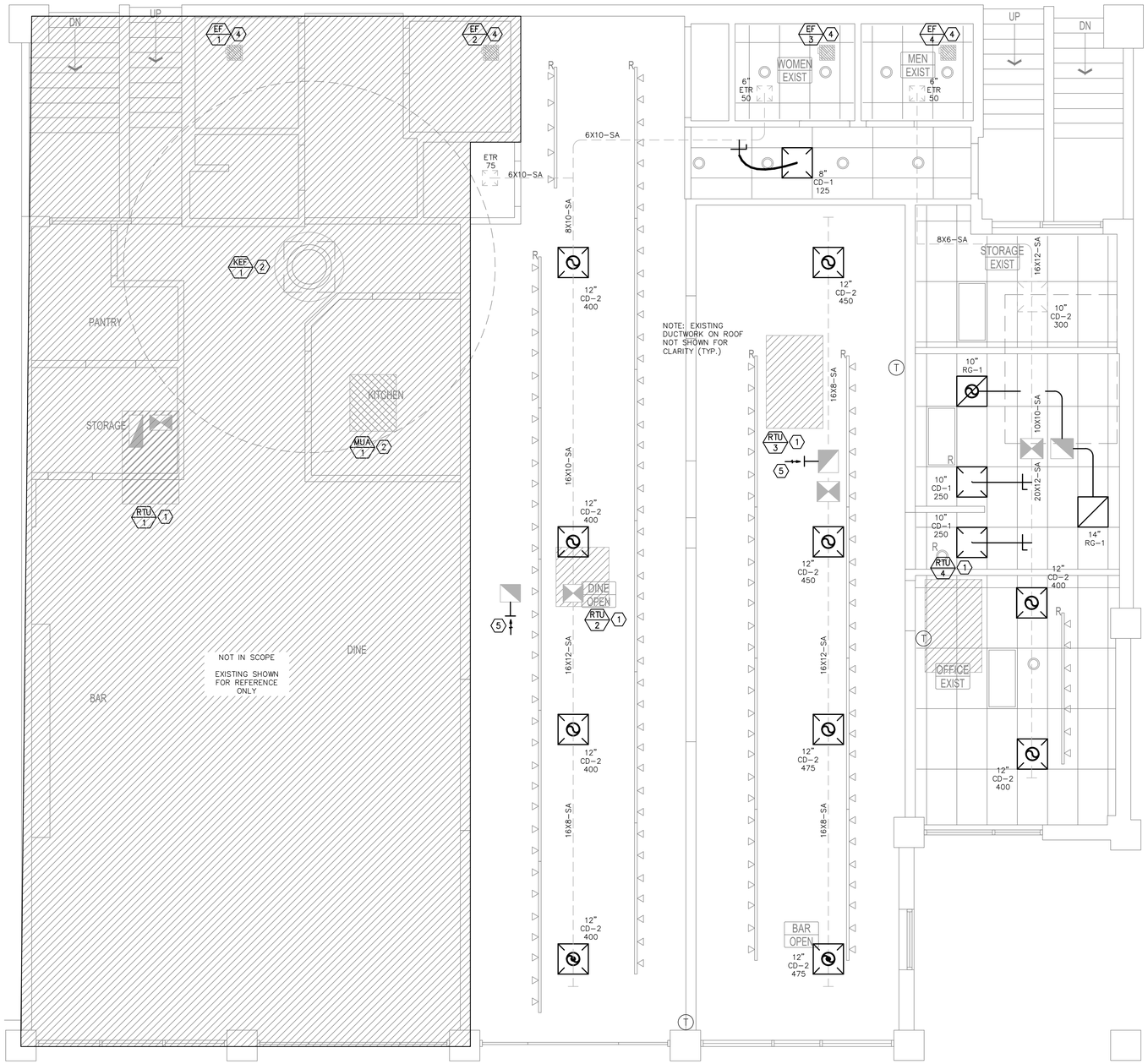
SHEET NUMBER

M001

PERMIT SET

Solano Studios, Inc.
13802 N. Scottsdale Rd.
Suite 151-3
Scottsdale, AZ 85254-3403
(623) 202-8151
Jesse@solanostudios.com

SS PROJECT #: 25020
DATE: 03/17/25
SCALE: AS NOTED



MECHANICAL PLAN NOTES:

1. EXISTING ROOFTOP UNIT TO REMAIN. . CONNECT TO EXISTING FULL SIZE SUPPLY AND RETURN AIR DUCTWORK THROUGH ROOF AND TRANSITION TO DUCTWORK INDICATED ON PLAN. BALANCE SUPPLY AIR PER SCHEDULE. BALANCE OUTSIDE AIR DUCTWORK CFM TO AIRFLOW INDICATED ON SCHEDULE.
2. EXISTING EXHAUST FAN SERVING EXISTING KITCHEN TO REMAIN.
3. RELOCATE 7-DAY PROGRAMMABLE THERMOSTAT.
4. EXISTING RESTROOM EXHAUST TO REMAIN.
5. PROVIDE 90° ELBOW ON EXISTING RA DUCT DOWN THROUGH ROOF AND TERMINATE FULLSIZE RA WITH WIRE MESH.

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Contractor

Registered Professional Engineer (Mechanical) CERTIFICATE NO. 30980 TODD A. BUSICK 06/06/25 Signed Arizona, U.S.A.

Exp 9/30/27

OLD TOWN TAVERN & RESTAURANT
7330 E. MAIN ST., SUITE 105
SCOTTSDALE, AZ 85251

SEAL

PROJECT NO. 25005

DRAWN BY: CHECKED BY:

ISSUED:

NO	DATE	DESCRIPTION
1	06/06/25	CITY COMMENTS

SHEET NAME

Mechanical Plan

3/14/2025

SHEET NUMBER

M100

PERMIT SET

Solano Studios, Inc.
13802 N. Scottsdale Rd.
Suite 151-3
Scottsdale, AZ 85254-3403
(623) 202-8151
Jesse@solanostudios.com

SS PROJECT #: 25020
DATE: 03/17/25
SCALE: AS NOTED

PLUMBING SYMBOLS

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC. ARE NECESSARILY USED ON THE DRAWINGS.

ANNOTATION

- (1) PLUMBING PLAN NOTE CALLOUT
- (1) PLUMBING EQUIPMENT DESIGNATION. (CONTRACTOR FURNISHED AND INSTALLED). REFER TO PLUMBING FIXTURE SCHEDULES.
- [1] EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED)
- (CU 1) MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- CONNECTION POINT OF NEW WORK TO EXISTING
- (1 / P1) DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AFG	ABOVE FINISHED GRADE	MBH	1000 BTU PER HOUR
BFF	BELOW FINISHED FLOOR	MIN	MINIMUM
BFG	BELOW FINISHED GRADE	ORD	OVERFLOW ROOF DRAIN
BOP	BOTTOM OF PIPE	PDI	PLUMBING DRAINAGE INSTITUTE
BOS	BOTTOM OF STRUCTURE	PVC	POLYVINYL CHLORIDE
BTU	BRITISH THERMAL UNIT	PRV	PRESSURE REDUCING VALVE
CPVC	CHLORINATED POLYVINYL CHLORIDE	RD	ROOF DRAIN
DN	DOWN	RPM	REVOLUTIONS PER MINUTE
DS	DOWNSPOUT	SF	SQUARE FEET, SUPPLY FAN
ETR	EXISTING TO REMAIN	SP	SUMP PUMP
FFA	FROM FLOOR ABOVE	TDH	TOTAL DYNAMIC HEAD
FFB	FROM FLOOR BELOW	TFA	TO FLOOR ABOVE
FF	FINISHED FLOOR	TFB	TO FLOOR BELOW
FLA	FULL LOAD AMPS	TYP	TYPICAL
FLR	FLOOR	UL	UNDERWRITERS LABORATORIES,INC.
GPM	GALLONS PER MINUTE	VS	VENT STACK
HD	HEAD, HUB DRAIN	VTR	VENT THROUGH ROOF
IE	INVERT ELEVATION	W/	WITH
IN WC	INCHES OF WATER COLUMN	W/O	WITHOUT
kW	KILOWATT	WC	WATER COLUMN
MAU	MAKE-UP AIR UNIT	WS	WASTE STACK

PIPING

- DOMESTIC COLD WATER (CW)
- SCW — SOFTENED COLD WATER (SCW)
- FW — FILTERED COLD WATER (FW)
- DOMESTIC HOT WATER (HW)
- DOMESTIC HOT WATER RECIRC. (HWR)
- 140° — 140° DOMESTIC HOT WATER (140°)
- T — TRAP PRIMER LINE (T)
- S — SOIL PIPING – ABOVE FLOOR (S)
- S — SOIL PIPING – BELOW FLOOR (S)
- W — WASTE PIPING – ABOVE FLOOR (W)
- W — WASTE PIPING – BELOW FLOOR (W)
- GW — GREASE WASTE – ABOVE FLOOR (GW)
- GW — GREASE WASTE – BELOW FLOOR (GW)
- ST — STORM DRAIN – ABOVE FLOOR (ST)
- ST — STORM DRAIN – BELOW FLOOR (ST)
- OST — OVERFLOW STORM DRAIN – ABOVE FLOOR (OST)
- VBG — VENT BELOW GRADE (VBG)
- VBF — VENT BELOW FLOOR (VBF)
- CD — CONDENSATE DRAIN (CD)
- SPD — SUMP OR SEWAGE PUMP DISCHARGE (SPD)
- G — NATURAL GAS (G)
- G — NATURAL GAS ON ROOF (G)
- MPG — MEDIUM PRESSURE NATURAL GAS (MPG)
- MPG — MEDIUM PRESSURE NATURAL GAS ON ROOF (MPG)
- LPG — LIQUIFIED PETROLEUM GAS (LPG)
- EXISTING PIPING TO BE REMOVED
- ETR — EXISTING PIPING TO REMAIN (ETR)
- V — VENT PIPING (V)
- BALL VALVE
- CONTROL VALVE
- SHUTOFF VALVE
- CHECK VALVE
- BALANCING VALVE WITH PRESSURE PORTS
- WATER METER
- STRAINER
- STRAINER WITH BLOWOFF
- RELIEF/SAFETY VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE
- GAS PRESSURE REGULATOR
- THERMOSTATIC MIXING VALVE
- BACKFLOW PREVENTER
- PRESSURE GAUGE
- THERMOMETER
- UNION
- FLANGE CONNECTION
- CLEANOUT
- CAP
- WALL CLEANOUT (WCO)
- FLOOR CLEANOUT (FCO)
- EXTERIOR CLEANOUT (ECO)
- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN

GENERAL PLUMBING NOTES:

A. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE TO OBSERVE THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY OWNER'S CONSTRUCTION MANAGER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

B. PROVIDE A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE OWNER'S CONSTRUCTION MANAGER REFLECTING ANY VARIANCES OF INSTALLED PIPING LOCATIONS OR EQUIPMENT CONTRARY TO THE CONSTRUCTION DOCUMENTS, REFER TO SPECIFICATIONS.

C. PROVIDE TO THE OWNER'S CONSTRUCTION MANAGER A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS, REFER TO SPECIFICATIONS.

D. INSTALLATION SHALL COMPLY WITH LEGALLY CONSTITUTED CODES AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND ALSO MEET ALL REQUIREMENTS OF THE LANDLORD. OBTAIN A COPY OF THE LANDLORD'S REQUIREMENTS AND REVIEW PRIOR TO SUBMITTING BID.

E. PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.

F. VERIFY LOCATION AND DEPTH OF UTILITIES AT POINTS OF CONNECTION BEFORE START OF PIPING INSTALLATION.

G. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.

H. DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.

I. INSTALL CONCEALED PIPING TIGHT TO THE STRUCTURE AND AS HIGH AS POSSIBLE. INSTALL EXPOSED PIPING TIGHT TO THE STRUCTURE, WALL OR CEILING AND AS HIGH AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS.

J. VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.

K. PIPING IN FINISHED AREAS SHALL BE ROUTED CONCEALED; EXPOSED PIPING, WHERE NECESSARY, SHALL BE ROUTED AS HIGH AS POSSIBLE AND TIGHT TO WALLS.

L. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.

M. COORDINATE PIPING INSTALLATION WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THROUGH GRADE BEAMS, FOOTING, ETC. WHERE REQUIRED AND AS NOTED ON PLANS. COORDINATE SLEEVE INSTALLATIONS WITH THE ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR AND GENERAL CONTRACTOR BEFORE CONCRETE IS INSTALLED.

N. CLEAN FAUCET AERATORS AND PIPE STRAINERS PRIOR TO TURNING BUILDING OVER TO THE OWNER.

O. PROVIDE TRAP PRIMERS WHERE REQUIRED BY LOCAL AUTHORITIES.

P. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.

Q. PAINT ALL EXPOSED GAS AND WATER PIPING USING RUST INHIBITOR PAINT. PAINT AND COLOR SHALL BE COORDINATED WITH THE ARCHITECT AND / OR OWNER.

R. COORDINATE ALL ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 10' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 2' CLEARANCE FROM ALL OTHER EQUIPMENT.

S. INSULATE PIPING ROUTED IN EXTERIOR BUILDING WALLS WITH MINIMUM 2" BATT INSULATION TO PREVENT FREEZING.

T. SEAL ALL PENETRATIONS THROUGH RATED WALLS AND CEILINGS.

U. EXAMINE THE CONTRACT DRAWINGS AND ALL AVAILABLE INFORMATION CONCERNING EXISTING INSTALLATION, STRUCTURE, AND LOCAL CONDITIONS. VISIT THE SITE TO UNDERSTAND THE NATURE AND SCOPE OF ALL WORK TO BE PERFORMED AND VERIFY EXISTING CONDITIONS. THE SUBMISSION OF A BID WILL BE TAKEN AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND THAT ALL EXISTING CONDITIONS HAVE BEEN CONSIDERED. NO ALLOWANCES WILL BE MADE AFTER THE PROJECT HAS BEEN AWARDED FOR FAILURE TO VERIFY EXISTING CONDITIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THAT OF THESE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.

PLUMBING FIXTURE SCHEDULE:

FIXTURES IN THIS SCHEDULE OR THEIR APPROVED EQUIVALENT ARE PROVIDED BY THE PLUMBING CONTRACTOR. SUBMIT SHOP DRAWINGS ON EACH OF THESE ITEMS. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION AND INSTALLATION REQUIREMENTS. VERIFY ROUGH-IN REQUIREMENTS WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE PLUMBING FIXTURE MOUNTING HEIGHTS.

(WCO) WALL CLEANOUT: ZURN Z1446, CAST IRON CLEANOUT TEE, COUNTER SUNK PLUG, STAINLESS STEEL ROUND COVER AND SCREW, AND IRON PLUG WITH GASKET SEAL. REFER TO SPECIFICATIONS FOR INSTALLATION.

(FS) FLOOR SINK: ZURN ZN1900-KC-2-23-NL, 6" DEEP CAST IRON BODY WITH ACID RESISTING ENAMELED INTERIOR, ANCHOR FLANGE WITH SEEPAGE HOLES, CLAMP COLLAR, ALUMINUM SEDIMENT BUCKET, AND 12" SQUARE NICKEL BRONZE RIM AND HALF GRATE. USE PUSH-ON JOINT OF OUTLET SIZE AS SHOWN ON PLANS.

(TMV) THERMOSTATIC MIXING VALVE: ZURN WILKINS ZW1070XL SOLID LEAD FREE BRASS BODY, THERMOSTATIC WAX ELEMENT, CORROSION RESISTANT INTERNAL PARTS, AND INTEGRAL CHECKS, ASSE 1070 COMPLIANT, CAPABLE OF 2.2 GPM WITH A 20 PSI DIFFERENTIAL AND A MINIMUM FLOW RATE OF 0.5 GPM. SET TEMPERATURE TO 110F FOR DUAL TEMPERATURE LAVATORIES AND HAND SINKS, 100F FOR SINGLE TEMPERATURE LAVATORIES AND HAND SINKS AND 120F FOR SINKS. MOUNT BELOW THE PLUMBING FIXTURE WHERE INDICATED ON PLAN(S).

(LAV) WALL-MOUNTED LAVATORY (ADA ACCESSIBLE): EXISTING TO REMAIN

(HWC) FLOOR-MOUNTED WATER CLOSET (ADA ACCESSIBLE): EXISTING TO REMAIN.

(ET) EXPANSION TANK: AMTROL "THERM-X-TROL" # ST-12, WELDED STEEL PRESSURE TANK, POLYPROPYLENE LINING, FLEXIBLE BUTYL DIAPHRAGM, AIR CHARGING VALVE, 150 PSI MAXIMUM WORKING PRESSURE, 4.5 GALLON CAPACITY, 0.45 MAXIMUM ACCEPTANCE FACTOR, 3/4" PIPE CONNECTION. SET THE AIR CHARGE PRESSURE TO MATCH EXISTING WATER SYSTEM PRESSURE.

(BFP) DOUBLE CHECK VALVE BACKFLOW PREVENTER: ZURN WILKINS, #950XL2S LEAD FREE CAST BRONZE BODY, QUARTER TURN TEST COCKS, QUARTER TURN BALL VALVES, AND STRAINER. MEETS ASSE 1015 STANDARDS.

(DCV) DUAL CHECK VALVE WITH ATMOSPHERIC PORT: ZURN WILKINS 740, 300 STAINLESS STEEL BODY, 3/8" INLET AND OUTLET, ATMOSPHERIC PORT, AND WYE PATTERN STRAINER. MEETS ASSE 1022 STANDARDS.

(HD) HUB DRAIN:
ZURN Z1019-2-DS-AR 7" DEEP X 6" DIAMETER CAST IRON BODY WITH ACID RESISTING ENAMELED INTERIOR AND EXTERIOR FUNNEL WITH 2" CAST IRON P-TRAP WITH SCREWED CONNECTION AND ALUMINUM DOME BOTTOM STRAINER.

PLUMBING PIPE MATERIAL SCHEDULE

PIPING SYSTEM	ABBREVIATION	PIPING MATERIAL
SANITARY DRAINAGE & VENT (ABOVE GRADE)	S, W, GW OR V	HUBLESS CAST IRON (PVC DWV OPTIONAL)
SANITARY DRAINAGE & VENT (BELOW GRADE)	S, W, GW OR V	SERVICE WEIGHT CAST IRON (PVC DWV OPTIONAL)
POTABLE WATER (ABOVE GRADE)	CW, HW OR HWR	TYPE L HARD DRAWN COPPER (PEX TUBING UP TO 2" OPTIONAL)
INDIRECT DRAIN - 1"& SMALLER	ID	TYPE M HARD DRAWN COPPER
INDIRECT DRAIN - 1-1/4" & LARGER	ID	TYPE DWV HARD DRAWN COPPER
REVERSE OSMOSIS	RO	CPVC PLASTIC SCHED 40 OR PEX TUBING

REFER TO SPECIFICATIONS FOR FITTINGS, INSTALLATION REQUIREMENTS AND FURTHER INFORMATION. PIPING MATERIALS WITHIN AIR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL BE LISTED AND LABELED AS HAVING A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723. A PLENUM IS AN ENCLOSED PORTION OF THE BUILDING STRUCTURE, OTHER THAN AN OCCUPIABLE SPACE BEING CONDITIONED, THAT IS DESIGNED TO ALLOW AIR MOVEMENT.

IPC WATER & WASTE FIXTURE UNITS

RXTURE TYPE	QTY	D.F.U. (EA)	TOTAL D.F.U.	HOT S.F.U. (EA)	COLD S.F.U. (EA)	COMBINED S.F.U. (EA)	TOTAL S.F.U. (HOT)	TOTAL S.F.U. (COLD)	TOTAL SERVICE S.F.U.
PUBLIC LAVATORY	4	1.0	4.0	1.50	1.50	2.00	6	6	8.0
SERVICE SINK (MOP BASIN)	1	2.0	2.0	2.25	2.25	3.00	2.25	2.25	3.0
FLOOR DRAIN (2"DW)	2	2.0	4.0	0.00	0.00	0.00	0	0	0.0
FLOOR SINK (3"DW)	3	5.0	15.0	0.00	0.00	0.00	0	0	0.0
FIRST WALL OR ROOF HYDRANT	1	0.0	0.0	0.00	2.50	2.50	0	2.5	2.5
EACH ADDITIONAL WALL OR ROOF HYDRANT	2	0.0	0.0	0.00	1.00	1.00	0	2	2.0
PUBLIC WATER CLOSET (1.28 GPF FLUSH TANK)	4	4.0	16.0	0.00	5.00	5.00	0	20	20.0
SPECIALTY KITCHEN EQUIP.									
SINK (DUMP)	2	2.0	4.0	1.50	1.50	2.00	3	3	4.0
SINK (HAND)	2	2.0	4.0	1.50	1.50	2.00	3	3	4.0
SINK (PREP / VEGGIE)	1	4.0	4.0	1.50	1.50	2.00	1.5	1.5	2.0
SINK (2 COMPARTMENT)	1	4.0	4.0	1.50	1.50	2.00	1.5	1.5	2.0
SINK (3 COMPARTMENT)	1	4.0	4.0	3.00	3.00	4.00	3	3	4.0
DISHWASHER (RESTAURANT)	2	4.0	8.0	6.00	0.00	6.00	12	0	12.0
ICE MACHINE (3/4" IW)	1	0.5	0.5	0.00	1.00	1.00	0	1	1.0
CARBONATOR	2	0.5	1.0	0.00	0.50	0.50	0	1	1.0
TOTAL UNITS:	29		70.5				32.3	46.8	65.5

MINIMUM PIPE INSULATION THICKNESS (TABLE C403.2.10)

Fluid Operating Temperature Range and Usage (F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)				
	Conductivity Btu · in./(h·ft2· °F)b	Mean Rating Temperature, °F	<1	1 TO 1-1/2	1-1/2 TO <4	4 TO <8	<8
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0	1.0
<40	0.20-0.26	75	0.5	1.0	1.0	1.0	1.5

For piping smaller than 1 1/2 inch (38 mm) and located in partitions within conditioned spaces, reduction of these thicknesses by 1 inch (25 mm) shall be permitted (before thickness adjustment required in footnote b) but not to a thickness less than 1 inch (25 mm). b For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows: T=r(1+t/r)K/k-1
Where: T = minimum insulation thickness, r = actual outside radius of pipe, t = insulation thickness listed in the table for applicable fluid temperature and pipe size, K= conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature (Btu × in/h × ft2 × °F) and k = the upper value of the conductivity range listed in the table for the applicable fluid temperature. c For direct-buried heating and hot water system piping, reduction of these thicknesses by 1 1/2 (38 mm) shall be permitted (before thickness adjustment required in footnote b but not to thicknesses less than 1 inch (25 mm).

BAR FIXTURE CONNECTION SCHEDULE

EQ. TAG #	FIXTURE/EQUIPMENT	HOT WATER (IN.)	COLD WATER (IN.)	WASTE			GAS LOAD (MBH)	GAS (IN.)	NOTES
				INDIRECT	DIRECT	VENT			
3	ICE WELL			1/2"					DRAIN TO FS
4	HAND SINK	1/2"	1/2"		2"	1-1/2"			THERMOSTAT MIXING VALVE
5	DUMP SINK & FAUCET	1/2"	1/2"	2"					DRAIN TO FS
6	GLASS WASHER	3/4"		1"					DRAIN TO FS
10	BAG-N-BOX SODA		1/2"						BFP

ELECTRIC WATER HEATER SCHEDULE

MARK	MANUFACTURER/ MODEL#	AREA SERVED	ENERGY SOURCE	TANK SIZE (GALLONS)	ELECTRICAL DATA			RECOVERY RATE (GPH)	NOTES
					VOLTS	PHASE	KW		
WH-1	AO SMITH / DEL-10	BAR SINKS	ELECTRIC	10	208	1	4.5	30	B,E

NOTES:
B. 60°F TEMPERATURE RISE WITH 120°F OPERATING TEMPERATURE.
E. PROVIDE WITH HOLDRITE MOUNTED WATER HEATER SUPPORT WITH DRAIN PAN ACCESSORY.

WATER CALCULATIONS

TOTAL WATER SUPPLY FIXTURE UNITS	65.5
WATER GPM	34.7
PREDOMINANT WATER CLOSET FIXTURE TYPE	FLUSH TANK
PIPE SIZE (IN.)	2
PIPING DEVELOPED LENGTH W/ 25% FOR FITTINGS (FT)	200
PRESSURE AT WATER METER (PSI)	65
1.50" METER LOSS INCLUDING TAP (PSI)	-2.4
1.50" BACKFLOW PREVENTER LOSS (PSI)	-13.0
HIGHEST FIXTURE ELEVATION (FT)	10
STATIC PRESSURE LOSS TO HIGHEST FIXTURE (H x 0.434)	-4.3
OTHER EQUIPMENT WATER PRESSURE LOSS (PSI)	-10.5
PRESSURE REQUIRED AT MOST REMOTE FIXTURE (PSI)	-20.0
TOTAL PRESSURE AVAILABLE FOR FRICTION LOSS	14.8
ALLOWABLE FRICTION FACTOR (14.76 PSI / 200 FT) x 100	7.4
USE 7 PSI PER 100 FEET PRESSURE DROP CHART	

WATER PIPE SIZING CHART

FIXTURE UNITS VS. PRESSURE LOSS
IN PSI / 100 FEET WITH Copper Type L PIPING MATERIAL

	COLD WATER @ 7 PSI / 100'				HOT WATER @ 7 PSI / 100'		
PIPE SIZE	FLUSH TANK SFU (CW)	FLUSH VALVE SFU (CW)	VELOCITY FEET / SEC	FLOW GPM	FLUSH TANK SFU (HW)	VELOCITY FEET / SEC	FLOW GPM
1/2"	3.4	N/A	4.6	3.4	3.4	4.7	3.4
3/4"	11.2	N/A	5.7	8.6	9.1	5.0	7.5
1"	24.3	N/A	6.7	17.1	17.7	5.0	12.9
1-1/4"	51.0	12.0	7.4	29.0	29.2	5.0	19.6
1-1/2"	104.4	35.7	8.0	44.4	48.2	5.0	27.7

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SS PROJECT #: 25020
DATE: 03/17/25
SCALE: AS NOTED

PERMIT SET

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SEAL

PROJECT NO. 25005

DRAWN BY: CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION
1	06/06/25	CITY COMMENTS

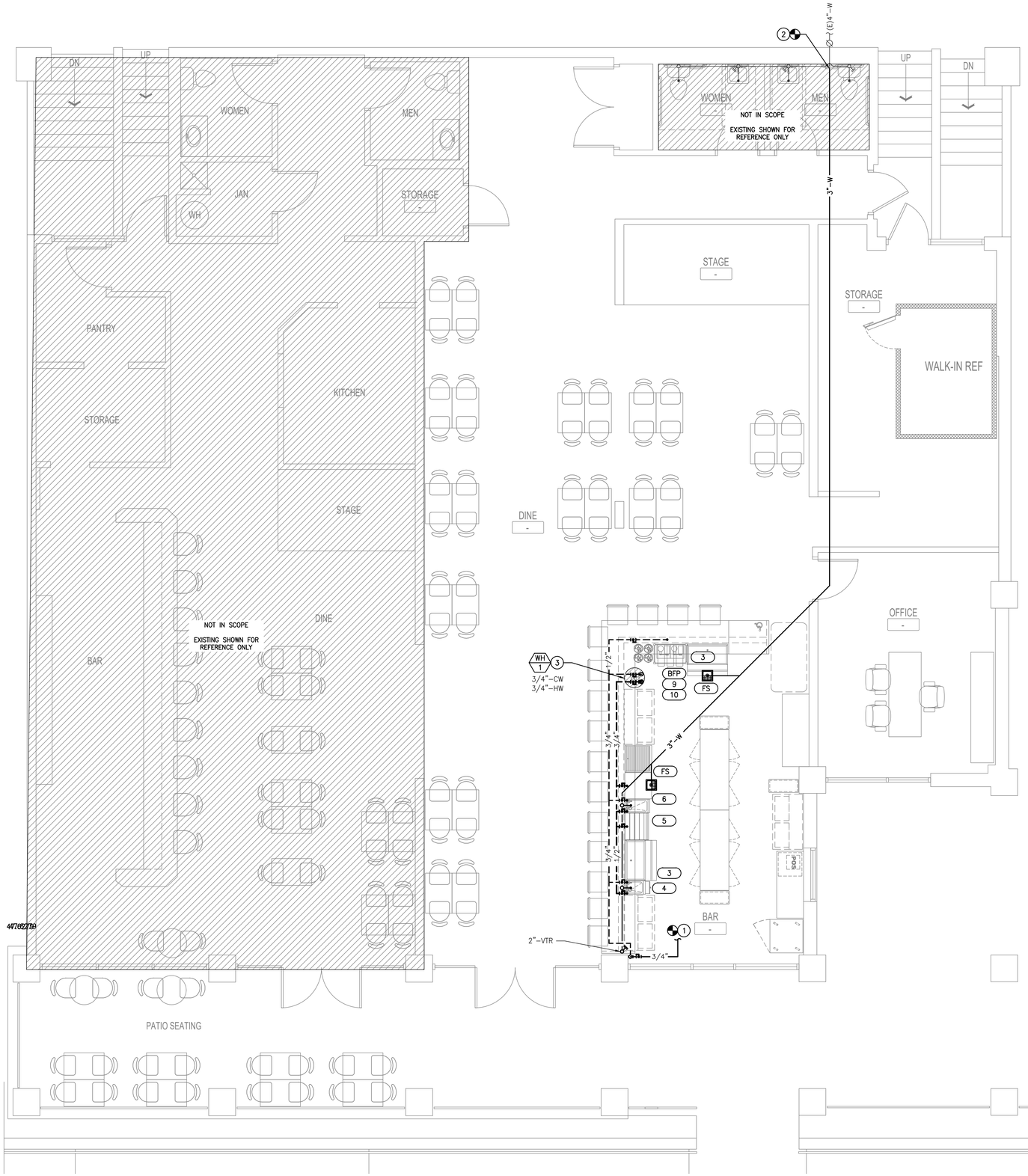
SHEET NAME

Plumbing Specifications & Notes

3/14/2025

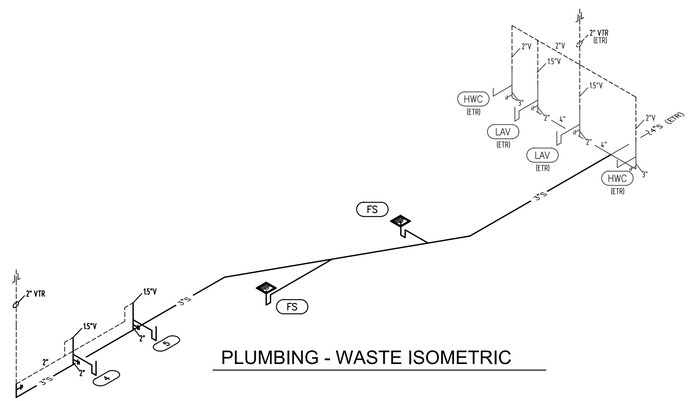
SHEET NUMBER

P100



PLUMBING - PLUMBING PLAN

SCALE: 1/4" = 1'-0"



PLUMBING - WASTE ISOMETRIC

(#) PLUMBING PLAN NOTES:

1. CONNECT NEW COLD WATER PIPING TO EXISTING MAIN. PROVIDE SHUT-OFF VALVE IF NOT EXISTING. FIELD VERIFY EXACT LOCATION OF NEW CONNECTION AND COORDINATE WITH ENGINEER IF ANY DISCREPANCIES THAT DO NOT ALLOW FOR THE MINIMUM PIPE SIZES INDICATED TO BE INSTALLED. ROUTE DOWN WALL TO BELOW COUNTER OF NEW BAR.
2. CONNECT WASTE TO EXISTING MAIN. ROUTE AT MIN. 1/4"/FT SLOPE. FIELD VERIFY EXACT POINT OF CONNECTION AND ROUTING.
3. NEW TANK TYPE WATER HEATER, INSTALL PER MANUFACTURER INSTALLATION INSTRUCTIONS.

GENERAL BACKFLOW REQUIREMENTS:

a. ROUTE WATER LINE TO SODA CARBONATORS, AND SEPARATE COLD WATER LINE TO TEA MAKERS, ICE MACHINES, AND ESPRESSO MACHINES. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.

b. INSTALL STAINLESS STEEL REDUCED PRESSURE BACKFLOW ASSEMBLY DCV AT ANY WATER LINE SERVING A BEVERAGE CARBONATOR. INSTALL LEAD FREE DOUBLE CHECK BACKFLOW ASSEMBLY BFP AT ANY WATER LINE SERVING ICE MACHINE AND THE WATER FILTER.

c. INSTALL LEAD FREE DOUBLE CHECK BACKFLOW ASSEMBLY BFP AT WATER LINE SERVING ANY ICED TEA DISPENSER.

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PROJECT NO. 25005

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ISSUED:

NO.	DATE	DESCRIPTION
1	06/06/25	CITY COMMENTS

SHEET NAME

Plumbing Plan

3/14/2025

SHEET NUMBER

P200

PERMIT SET

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SS PROJECT #: 25020
DATE: 03/17/25
SCALE: AS NOTED

1 2 3 4 5

D C B A

PLUMBING SPECIFICATIONS

GENERAL REQUIREMENTS

REQUIREMENTS UNDER DIVISION ONE AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS SHALL BE A PART OF THIS SECTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO BECOME THOROUGHLY ACQUAINTED WITH ITS CONTENTS AS TO REQUIREMENTS THAT AFFECT THIS DIVISION OR SECTION. WORK REQUIRED UNDER THIS SECTION INCLUDES MATERIAL, EQUIPMENT, APPLIANCES, TRANSPORTATION, SERVICES AND LABOR REQUIRED TO COMPLETE THE ENTIRE PLUMBING SYSTEM AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

THE SPECIFICATIONS AND THE DRAWINGS ARE COMPLEMENTARY, AND ANY PORTION OF WORK DESCRIBED IN ONE SHALL BE PROVIDED AS IF DESCRIBED IN BOTH. IN THE EVENT OF DISCREPANCIES ON THE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF SAME PRIOR TO PROCEEDING WITH THE WORK INVOLVED, IN ORDER THAT CORRECT PROGRESS OF THE WORK MAY BE PERFORMED.

DEFINITIONS

FURNISH: "TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION AND SIMILAR OPERATIONS."

INSTALL: "TO PERFORM ALL OPERATIONS AT THE PROJECT SITE INCLUDING, BUT NOT LIMITED TO, THE ACTUAL UNLOADING, UNPACKING, ASSEMBLING, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, TESTING, COMMISSIONING, STARTING UP AND SIMILAR OPERATIONS, COMPLETE, AND READY FOR THE INTENDED USE."

PROVIDE: "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

FURNISHED BY OWNER OR FURNISHED BY OTHERS: "AN ITEM FURNISHED BY THE OWNER OR UNDER OTHER DIVISIONS OR CONTRACTS, AND INSTALLED UNDER THE REQUIREMENTS OF THIS DIVISION, COMPLETE, AND READY FOR THE INTENDED USE, INCLUDING ALL ITEMS AND SERVICES INCIDENTAL TO THE WORK NECESSARY FOR PROPER INSTALLATION AND OPERATION. INCLUDE THE INSTALLATION UNDER THE WARRANTY REQUIRED BY THIS DIVISION."

AHJ: THE LOCAL CODE AND/OR INSPECTION AGENCY (AUTHORITY) HAVING JURISDICTION OVER THE WORK.

THE TERMS "APPROVED EQUAL", "EQUIVALENT", OR "EQUAL" ARE USED SYNONYMOUSLY AND SHALL MEAN "ACCEPTED BY OR ACCEPTABLE TO THE ENGINEER AS EQUIVALENT TO THE ITEM OR MANUFACTURER SPECIFIED". THE TERM "APPROVED" SHALL MEAN LABELED, LISTED, OR BOTH, BY AN NRTL, AND ACCEPTABLE TO THE AHJ OVER THIS PROJECT.

COORDINATION

COORDINATE WORK WITH THAT OF OTHER TRADES SO THAT THE VARIOUS COMPONENTS OF THE SYSTEMS WILL BE INSTALLED AT THE PROPER TIME, WILL FIT THE AVAILABLE SPACE, AND WILL ALLOW PROPER SERVICE ACCESS TO THOSE ITEMS REQUIRING MAINTENANCE. COMPONENTS WHICH ARE INSTALLED WITHOUT REGARD TO THE ABOVE SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER.

UNLESS NOTED ELSEWHERE, GENERAL CONTRACTOR WILL PROVIDE CHASES AND OPENINGS IN BUILDING CONSTRUCTION REQUIRED FOR INSTALLATION OF THE SYSTEMS SPECIFIED HEREIN. CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH INFORMATION REGARDING CHASES AND OPENINGS WHEN REQUIRED. CONTRACTOR SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT AND SHALL EXECUTE HIS WORK IN SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.

FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS. CONTRACTOR SHALL TAKE HIS OWN MEASUREMENTS AT THE BUILDING, AS VARIATIONS MAY OCCUR. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ERRORS WHICH COULD HAVE BEEN AVOIDED BY PROPER CHECKING AND VERIFICATION.

PROVIDE MATERIALS WITH TRIM THAT WILL PROPERLY FIT THE TYPES OF CEILING, WALL, OR FLOOR FINISHES ACTUALLY INSTALLED. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT INTENDED TO DESIGNATE THE REQUIRED TRIM.

GUARANTEE

THE WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL INCLUDE THE FURNISHING, INSTALLATION, AND CONNECTION OF PLUMBING SYSTEMS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. BY SIGNING THE CONTRACT, THE CONTRACTOR ACKNOWLEDGES THAT HE HAS ACQUAINTED HIMSELF WITH THE SITE AND THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED, AND THE DRAWINGS AND SPECIFICATIONS PERTAINING THERETO, AND HE INDICATES THAT HE WILL COMPLY WITH THE REQUIREMENTS AND INTENT OF PERTINENT DOCUMENTS IN THE PERFORMANCE OF THE WORK.

GUARANTEE THAT THE PLUMBING INSTALLED UNDER THIS CONTRACT IS FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF JOB ACCEPTANCE BY THE OWNER. THIS SHALL INCLUDE A GUARANTEE OF FREE CIRCULATION OF LIQUIDS THROUGHOUT THE SYSTEM AS INTENDED WITHOUT LEAKS, EXCESSIVE NOISE, OR WATER HAMMER.

IF DEFECTS OCCUR DURING THE ONE YEAR GUARANTEE PERIOD, REPAIR OR REPLACE SUCH DEFECTS AT NO EXPENSE TO THE OWNER, AND TO THE SATISFACTION OF THE OWNER, ARCHITECT AND ENGINEER.

WARRANTIES

WARRANT EACH SYSTEM AND EACH ELEMENT THEREOF AGAINST ALL DEFECTS DUE TO FAULTY WORKMANSHIP, DESIGN OR MATERIAL FOR A PERIOD OF 12 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION, UNLESS SPECIFIC ITEMS ARE NOTED TO CARRY A LONGER WARRANTY IN THE CONSTRUCTION DOCUMENTS OR MANUFACTURER'S STANDARD WARRANTY EXCEEDS 12 MONTHS. REMEDY ALL DEFECTS, OCCURRING WITHIN THE WARRANTY PERIOD(S). WARRANTIES SHALL INCLUDE LABOR AND MATERIAL. MAKE REPAIRS OR REPLACEMENTS WITHOUT ANY ADDITIONAL COSTS TO THE OWNER. PERFORM THE REMEDIAL WORK PROMPTLY, UPON WRITTEN NOTICE FROM THE ENGINEER OR OWNER.

AT THE TIME OF SUBSTANTIAL COMPLETION, DELIVER TO THE OWNER ALL WARRANTIES, IN WRITING AND PROPERLY EXECUTED, INCLUDING TERM LIMITS FOR WARRANTIES EXTENDING BEYOND THE ONE YEAR PERIOD, EACH WARRANTY INSTRUMENT BEING ADDRESSED TO THE OWNER AND STATING THE COMMENCEMENT DATE AND TERM.

EXCAVATION AND BACKFILLING

PERFORM EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF UNDERGROUND WORK UNDER THIS CONTRACT. TRENCHES SHALL BE OF SUFFICIENT WIDTH. CRIB OR BRACE TRENCHES TO PREVENT CAVE-IN OR SETTLEMENT. DO NOT EXCAVATE TRENCHES CLOSE TO COLUMNS AND WALLS OF NEW BUILDING WITHOUT PRIOR CONSULTATION WITH THE ARCHITECT. USE PUMPING EQUIPMENT IF REQUIRED TO KEEP TRENCHES FREE OF WATER. BACKFILL TRENCHES IN MAXIMUM 6" LAYERS OF WELL-TAMPED DRY EARTH IN A MANNER TO PREVENT FUTURE SETTLEMENT.

COMMON EXCAVATION SHALL COMPRISE THE SATISFACTORY REMOVAL AND DISPOSITION OF MATERIAL OF WHATEVER SUBSTANCES AND OF EVERY DESCRIPTION ENCOUNTERED, INCLUDING ROCK, IF ANY, WITHIN THE LIMITS OF THE WORK AS SPECIFIED AND SHOWN ON THE DRAWINGS. EXCAVATION SHALL BE PERFORMED TO THE LINES AND GRADES INDICATED ON THE DRAWINGS. EXCAVATED MATERIALS WHICH ARE CONSIDERED UNSUITABLE FOR BACKFILL, AND SURPLUS OF EXCAVATED MATERIAL, WHICH IS NOT REQUIRED FOR BACKFILL, SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE AND RESPONSIBILITY, AND TO THE SATISFACTION OF THE ARCHITECT.

CUTTING AND PATCHING

OBTAIN PERMISSION FROM THE ARCHITECT BEFORE CUTTING WALLS, FLOORS, CEILINGS, ETC. AS REQUIRED BY THE PROJECT. DO NOT DISTURB STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL FROM THE ARCHITECT. CUT HOLES AS SMALL AS POSSIBLE. GENERAL CONTRACTOR SHALL PATCH WALLS, FLOORS, ETC. AS REQUIRED BY WORK UNDER THIS SECTION. PATCHING SHALL MATCH ORIGINAL MATERIAL AND CONSTRUCTION. REPAIR AND REFINISH AREAS DISTURBED BY WORK TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SATISFACTORY TO THE ARCHITECT.

CONCRETE BASES

PROVIDE CONCRETE BASES FOR HIS EQUIPMENT WHERE INDICATED ON THE DRAWINGS. CONCRETE BASES SHALL HAVE CHAMFERED EDGES. SIZE OF PAD SHALL BE A MINIMUM OF 4" GREATER THAN THE FOOTPRINT OF THE EQUIPMENT THAT IT IS SUPPORTING.

CONSTRUCT EQUIPMENT BASES AND HOUSEKEEPING PADS OF A MINIMUM 28 DAY, 4000 PSI CONCRETE CONFORMING TO AMERICAN CONCRETE INSTITUTE STANDARD BUILDING CODE FOR REINFORCED CONCRETE (ACI 318-19) AND THE LATEST APPLICABLE RECOMMENDATIONS OF THE ACI STANDARD PRACTICE MANUAL. CONCRETE SHALL BE COMPOSED OF CEMENT CONFORMING TO ASTM C 150 TYPE I, AGGREGATE CONFORMING TO ASTM C33, AND POTABLE WATER. EXPOSED EXTERIOR CONCRETE SHALL CONTAIN 5 TO 7 PERCENT AIR ENTRAINMENT.

PROVIDE GALVANIZED ANCHOR BOLTS FOR EQUIPMENT PLACED ON CONCRETE EQUIPMENT BASES AND HOUSEKEEPING PADS OR ON CONCRETE SLABS. ANCHOR BOLTS SIZE, NUMBER AND PLACEMENT SHALL BE AS RECOMMENDED BY THE MANUFACTURER OF THE EQUIPMENT.

ACCESS DOORS

PROVIDE ACCESS DOORS IN CEILINGS AND WALLS WHERE INDICATED OR REQUIRED FOR ACCESS TO CONCEALED VALVES AND EQUIPMENT INSTALLED UNDER THIS SECTION. PROVIDE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, ANCHOR STRAPS; MANUFACTURED BY MILCOR, ZURN, TITUS, OR EQUAL. OBTAIN ARCHITECT'S APPROVAL OF TYPE, SIZE, LOCATION, AND COLOR BEFORE ORDERING.

PENETRATIONS

PROVIDE SLEEVES FOR PIPES PASSING THROUGH ABOVE GRADE CONCRETE OR MASONRY WALLS, CONCRETE FLOOR OR ROOF SLABS. SLEEVES ARE NOT REQUIRED FOR CORE DRILLED HOLES IN EXISTING MASONRY WALLS, CONCRETE FLOORS OR ROOFS. PROVIDE 10 GAUGE GALVANIZED STEEL SLEEVES FOR SLEEVES 6" AND SMALLER. PROVIDE GALVANIZED SHEET METAL SLEEVES FOR LARGER THAN 6". SCHEDULE 40 PVC SLEEVES ARE ACCEPTABLE FOR INSTALLATION IN AREAS WITHOUT RETURN AIR PLENUMS.

SEAL ELEVATED FLOOR, EXTERIOR WALL AND ROOF PENETRATIONS WATERTIGHT AND WEATHERTIGHT WITH NON-SHRINK, NON-HARDENING COMMERCIAL SEALANT. PACK WITH MINERAL WOOL AND SEAL BOTH ENDS WITH MINIMUM OF 1/2" OF SEALANT.

SEAL AROUND PENETRATIONS OF FIRE RATED ASSEMBLIES. COORDINATE FIRE RATINGS AND LOCATIONS WITH THE ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL SPECIFICATIONS FOR FIRE STOPPINGS. PROVIDE A PRODUCT SCHEDULE FOR UL LISTING, LOCATION, WALL OR FLOOR RATING AND INSTALLATION DRAWING FOR EACH PENETRATION FIRE STOP SYSTEM.

EXTEND PIPE INSULATION FOR INSULATED PIPE THROUGH FLOOR, WALL AND ROOF PENETRATIONS, INCLUDING FIRE RATED WALLS AND FLOORS. THE VAPOR BARRIER SHALL BE MAINTAINED. SIZE SLEEVE FOR A MINIMUM OF 1" ANNULAR CLEAR SPACE BETWEEN INSIDE OF SLEEVE AND OUTSIDE OF INSULATION.

SEAL CONCRETE OR MASONRY EXTERIOR WALL PENETRATIONS BELOW GRADE WITH "WALL PIPES" AND MECHANICAL SLEEVE SEALS. PROVIDE CAST IRON "WALL PIPES" WITH INTEGRAL WATERSTOP RING MANUFACTURED BY JOSAM, JAY R. SMITH, WADE, WATTS OR ZURN. PROVIDE MODULAR MECHANICAL SLEEVE SEALS, MANUFACTURED BY THUNDERLINE / LINK SEAL, CALPICO, INC. AND METRAFLEX.

SEAL ELEVATED CONCRETE SLAB WITH WATERPROOF MEMBRANE PENETRATIONS WITH "WALL PIPES" AND WATER PROOF SEALANT. SECURE WATERPROOF MEMBRANE FLASHING BETWEEN "WALL PIPE" CLAMPING FLANGE AND CLAMPING RING. PROVIDE CAST IRON "WALL PIPES" WITH INTEGRAL WATERSTOP RING MANUFACTURED BY JOSAM, JAY R. SMITH, WADE, WATTS OR ZURN.

PROVIDE SLEEVES FOR HORIZONTAL PIPE PASSING THROUGH OR UNDER FOUNDATION. SLEEVES SHALL BE CAST IRON SOIL PIPE TWO NOMINAL PIPE SIZES LARGER THAN THE PIPE SERVED.

PROVIDE SCHEDULE 40 PVC PIPE SLEEVES FOR VERTICAL PRESSURE PIPE PASSING THROUGH CONCRETE SLAB ON GRADE. SLEEVES SHALL BE ONE NOMINAL PIPE SIZE LARGER THAN THE PIPE SERVED AND TWO PIPE SIZES LARGER THAN PIPE SERVED FOR DUCTILE IRON PIPES WITH RESTRAINING RODS. SEAL WATER-TIGHT WITH SILICONE CAULK.

PROVIDE 1/2" THICK CELLULAR FOAM INSULATION AROUND PERIMETER OF NON-PRESSURE PIPE PASSING THRU CONCRETE SLAB ON GRADE. INSULATION SHALL EXTEND TO 2" ABOVE AND BELOW THE CONCRETE SLAB.

ELECTRICAL WIRING

LINE VOLTAGE WIRING SHALL BE PROVIDED BY ELECTRICAL. LINE VOLTAGE CONTROL AND INTERLOCK WIRING FOR PLUMBING SYSTEMS SHALL ALSO BE PROVIDED BY ELECTRICAL CONTRACTOR. LOW VOLTAGE CONTROL WIRING SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. FURNISH WIRING DIAGRAMS TO THE ELECTRICAL CONTRACTOR AS REQUIRED FOR PROPER EQUIPMENT HOOKUP. COORDINATE WITH THE ELECTRICAL CONTRACTOR THE ACTUAL WIRE SIZING AMPS FOR PLUMBING EQUIPMENT (FROM THE EQUIPMENT NAMEPLATE) TO ENSURE PROPER INSTALLATION.

SYSTEM TESTING AND ADJUSTING

UPON COMPLETION OF EACH PHASE OF THE INSTALLATION, TEST EACH SYSTEM IN CONFORMANCE WITH LOCAL CODE REQUIREMENTS AND AS NOTED BELOW. FURNISH LABOR AND EQUIPMENT REQUIRED TO TEST PLUMBING WORK INSTALLED UNDER THIS CONTRACT, AND ASSUME COSTS INVOLVED IN MAKING THE TESTS, AND REPAIRING AND/OR REPLACING DAMAGE RESULTING THEREFROM.

NOTIFY THE ARCHITECT AND THE AUTHORITY HAVING JURISDICTION, THREE (3) WORKING DAYS PRIOR TO MAKING PLUMBING SYSTEM TESTS. LEAVE CONCEALED WORK UNCOVERED UNTIL THE REQUIRED TESTS HAVE BEEN COMPLETED, BUT IF NECESSARY DUE TO CONSTRUCTION PROCEDURE, TESTS ON PORTIONS OF THE WORK MAY BE MADE, AND WHEN SATISFACTORY, THE WORK MAY BE CONCEALED. TEST PIPING BEFORE INSULATION IS INSTALLED, AND BEFORE BACKFILL. PIPES, JOINTS, FLANGES, VALVE STEMS, ETC., SHALL BE LEAK TIGHT. REPAIR OR REPLACE SYSTEM DEFECTS WITH NEW MATERIALS. CAULKING OF DEFECTIVE JOINTS, CRACKS OR HOLES WILL NOT BE PERMITTED. REPEAT TESTS AFTER DEFECTS HAVE BEEN ELIMINATED. MAKE TESTS IN THE PRESENCE OF THE ADMINISTRATIVE AUTHORITY AND/OR THE OWNER'S AUTHORIZED REPRESENTATIVE.

UPON COMPLETION OF THE SYSTEMS INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE ARCHITECT AND ENGINEER, MAKE GENERAL OPERATING TESTS TO DEMONSTRATE THAT EQUIPMENT AND SYSTEMS ARE IN PROPER WORKING ORDER, AND ARE FUNCTIONING IN CONFORMANCE WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. AS A PART OF THESE TESTS, OPEN EVERY WATER OUTLET TO ENSURE COMPLETE SYSTEM FLUSHING, REMOVE AND CLEAN FAUCET AERATORS, CLEAN STRAINERS, LIGHT PILOT LIGHTS, AND OPERATE EVERY PIECE OF EQUIPMENT FURNISHED UNDER THIS CONTRACT TO DEMONSTRATE PROPER FUNCTIONING.

TEST THE DRAINAGE AND VENT SYSTEM BY PLUGGING OPENINGS WITH TEST PLUGS, EXCEPT THOSE AT THE TOP OF THE STACKS. FILL THE SYSTEM WITH WATER; TEST RESULTS WILL BE SATISFACTORY IF THE WATER LEVEL REMAINS STATIONARY FOR NOT LESS THAN ONE (1) HOUR. SUBJECT THE DRAINAGE AND VENT SYSTEM TO A PRESSURE OF AT LEAST TEN (10) FEET OF WATER. IF LEAKS DEVELOP, REPAIR THEM AND REPEAT THE TEST.

TEST THE DOMESTIC WATER SYSTEM BY FILLING IT WITH WATER AND THEN ISOLATING THE SYSTEM FROM ITS SOURCE. KEEP THE SYSTEM CLOSED FOR A PERIOD OF TWENTY-FOUR HOURS, WITH NO FIXTURE BEING USED. THE PRESSURE DIFFERENTIAL FOR THIS TEST PERIOD SHALL NOT EXCEED 10 PSIG. TEST WATER PIPING TO A 125 PSI HYDROSTATIC PRESSURE.

PLUMBING PIPING MATERIALS

MATERIALS SPECIFIED OR NOTED ON THE DRAWINGS ARE SUBJECT TO THE APPROVAL OF LOCAL CODE AUTHORITIES. VERIFY APPROVAL BEFORE INSTALLING ANY MATERIAL OR JOINING METHOD.

DOMESTIC WATER (COLD, HOT AND HOT WATER RECIRCULATION): DOMESTIC WATER PIPING INSTALLED ABOVE THE FLOOR SLAB INSIDE THE BUILDING SHALL BE TYPE "L" HARD TEMPER COPPER TUBE WITH WROUGHT COPPER FITTINGS AND SOLDERED CONNECTIONS MADE UP WITH 95/5 SOLDER. BRAZED MECHANICALLY FORMED TEE CONNECTIONS (T-DRILL) MAY BE USED IN COPPER LINES WHERE APPROVED BY CODE; CONNECTION SHALL BE MADE WITH BRAZED SILVER SOLDER (SILFOS) JOINTS IN CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS.
FOR 2" AND SMALLER APPROVED LINKED POLYETHYLENE (PEX) TUBING MEETING ASTM F876, ASTM F877, NSF 14, AND NSF 61, WITH A PRESSURE RATING OF 160PSI AT 73°F AND BLUE OR RED COLOR CODED. DO NOT INSTALL PEX TUBING IN THE RETURN AIR PLENUM CEILING. PEX TUBING MAY BE INSTALLED IN THE RETURN AIR PLENUM CEILING IF INSULATED WITH PLENUM WRAP WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION.

UNDERGROUND DOMESTIC WATER PIPING 2" AND SMALLER SHALL BE TYPE "K" SOFT TEMPER COPPER TUBING WITH FLARED COPPER ALLOY FITTINGS AND CONNECTIONS, OR TYPE "K" HARD TEMPER COPPER TUBING WITH CONVENTIONAL WROUGHT COPPER FITTINGS AND SILVER SOLDER (SILFOS) JOINTS. INSTALL AS FEW UNDERGROUND COPPER PIPING JOINTS AS POSSIBLE. AT BUILDING SERVICE ENTRANCE, NO JOINTS SHALL BE INSTALLED UNDER OR WITHIN 5 FEET OF THE BUILDING. INSTALL DOMESTIC WATER PIPING BELOW GRADE OUTSIDE BUILDING AT ADEQUATE DEPTH TO PREVENT FREEZING.

INTERIOR WASTE AND VENT BELOW SLAB: WASTE AND VENT PIPE BELOW SLAB INSIDE BUILDING SHALL BE SERVICE WEIGHT CAST IRON SOIL PIPE WITH HUB AND SPIGOT FITTINGS WITH NEOPRENE GASKET JOINTS, MEETING ASTM A74, MANUFACTURED BY AB & I FOUNDRY, CHARLOTTE OR TYLER PIPE AND BEARING THE TRADEMARK OF THE CISPI AND NSF. HUBLESS WASTE AND VENT PIPE IS NOT PERMITTED BELOW BASE SLAB. PVC SCHEDULE 40 DWV ASTM D2665 PIPE WITH PVC MEETING ASTM B1784, "SOLID WALL" CELL CLASS 12454-B WITH ASTM 2665 SOCKET FITTINGS WITH SOLVENT WELD JOINTS IS ALSO PERMITTED WHERE APPROVED BY CODE.

INTERIOR WASTE AND VENT ABOVE SLAB: WASTE AND VENT PIPE ABOVE SLAB INSIDE BUILDING SHALL BE HUBLESS CAST IRON SOIL PIPE AND FITTINGS, MEETING ASTM A888 AND CISPI 301, MANUFACTURED BY AB & I FOUNDRY, CHARLOTTE OR TYLER PIPE AND BEARING THE TRADEMARK OF THE CISPI AND NSF. PVC SCHEDULE 40 DWV ASTM D2665 PIPE WITH PVC MEETING ASTM B1784, "SOLID WALL" CELL CLASS 12454-B WITH ASTM 2665 SOCKET FITTINGS WITH SOLVENT WELD JOINTS IS ALSO PERMITTED WHERE APPROVED BY CODE. (NOTE: PVC PIPING IS NOT ALLOWED IN CEILING RETURN AIR PLENUMS)

CONNECTIONS TO PLUMBING FIXTURES AND EQUIPMENT: 1-1/4" AND LARGER WASTE CONNECTIONS FROM FIXTURE TRAPS TO CAST IRON PIPE SHALL BE "DWV" COPPER WITH WROUGHT COPPER DRAINAGE PATTERN FITTINGS WITH COPPER SWEAT OR COMPRESSION JOINTS AT FIXTURE TRAP CONNECTIONS AND THREADED JOINTS AT CONNECTIONS TO CAST IRON PIPE.

INDIRECT AND CONDENSATE DRAIN INSIDE BUILDING: INDIRECT AND CONDENSATE DRAIN PIPE INSTALLED INSIDE THE BUILDING SHALL BE TYPE "M" HARD COPPER WITH WROUGHT COPPER FITTINGS FOR 1" AND SMALLER AND "DWV" COPPER WITH WROUGHT COPPER DRAINAGE PATTERN FITTINGS FOR 1-1/4" AND LARGER HARD TEMPER COPPER TUBE AND SOLDERED CONNECTIONS MADE WITH 95/5 SOLDER OR SCHEDULE 40 PVC PIPE AND FITTINGS WITH SOLVENT WELD JOINTS WHERE ALLOWED BY CODE. (NOTE: PVC PIPING IS NOT ALLOWED IN CEILING RETURN AIR PLENUMS). INSTALL CLEANOUTS AT ELBOWS GREATER THAN 45 DEGREES.

INDIRECT AND CONDENSATE DRAIN OUTSIDE BUILDING: INDIRECT AND CONDENSATE DRAIN PIPE INSTALLED OUTSIDE THE BUILDING ABOVE GROUND SHALL BE TYPE "M" FOR 1" AND SMALLER AND "DWV" FOR 1-1/4" AND LARGER HARD TEMPER COPPER TUBE WITH WROUGHT COPPER DRAINAGE PATTERN FITTINGS AND SOLDERED CONNECTIONS MADE WITH 95/5 SOLDER. TERMINATE AT NEAREST ROOF DRAIN, GUTTER OR OTHER LOCATION AS SHOWN DRAWINGS. INSTALL CLEANOUTS AT ELBOWS GREATER THAN 45 DEGREES.

PIPING AND EQUIPMENT INSULATION

INSULATE DOMESTIC COLD WATER, HOT WATER, HOT WATER RECIRCULATION, WITH ONE-PIECE FIBERGLASS COVERING FOR WITH FIRE-RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTEED, OWENS-CORNING OR ARMSTRONG. INSULATE INTERIOR CONDENSATE DRAINPIPE (WITHIN BUILDING) AND INTERIOR HORIZONTAL STORM DRAIN PIPING, THAT IS CONCEALED ABOVE THE CEILING WITH, 1" THICK ONE-PIECE FIBERGLASS COVERING. FOR HOT PIPING, PROVIDE PIPE HANGERS AND RISER CLAMPS SIZED FOR THE OUTSIDE DIAMETER OF PIPING. BUTT INSULATION TO HANGER OR RISER CLAMP FOR VERTICAL PIPE. SEAL EXPOSED INSULATION WITH INSULATION SEALER. EXCEPTION FOR VERTICAL PIPING: PROVIDE CLAMPS SIZED FOR THE OUTSIDE DIAMETER OF THE VERTICAL PIPE AND EXTEND CLAMP THROUGH INSULATION. SEAL PENETRATIONS OF INSULATION AND VAPOR BARRIER WITH WET COAT OF VAPOR BARRIER LAP CEMENT. FOR COLD PIPING AT HANGERS PROVIDE 8" LONG SECTIONS OF HIGH DENSITY, HIGH TEMPERATURE CALCIUM SILICATE BY JOHNS-MANVILLE, FIBERGLASS BY KNAUF, OR 8" LONG STYROFOAM BILLETS BY DOW OR FLEXIBLE UNICELLULAR PIPING INSULATION MEETING ASTM C 534-01A, TYPE I WITH INTEGRAL HIGH DENSITY PIPE SUPPORTS AND ENCASED IN STEEL INSULATION SHIELD BY COOPER B-LINE / ARMACELL OR APPROVED EQUAL. INSULATION SHALL BE CONTINUOUS ALONG THE PIPE SURFACE, EXCEPT AT VALVES, UNIONS, AND WHERE PIPING IS EXPOSED AT FIXTURES. PROVIDE INSULATION PROTECTION SHIELD AT EACH HANGER FOR INSULATED PIPING.

FOR HOT AND COLD WATER PIPING INSTALLED INSIDE MASONRY UNITS OF WALLS, PROVIDE FLEXIBLE UNICELLULAR INSULATION BY ARMACELL.

COVER FITTINGS WITH ZESTON, KNAUF, OR EQUAL ONE-PIECE PVC PREMOLDED INSULATING COVERS. FITTING COVERS, JACKETS AND ADHESIVES SHALL NOT EXCEED FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPMENT RATING OF 50 PER ASTM E84. AT ALL ELBOWS AND TEES, FILL VOIDS BETWEEN COVERS AND PIPING WITH FIBERGLASS INSULATION AND TAPE JOINTS. INSTALL PIPE INSULATION IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS. WHERE PREMOLDED INSULATING FITTINGS ARE NOT APPROVED BY LOCAL AUTHORITIES, MITER INSULATION AT FITTINGS.

PROVIDE 1" THICK FIBERGLASS INSULATION ON VENT PIPING WITHIN SIX FEET OF VENT THROUGH THE OF ROOF.

PIPING JOINTS

COPPER TUBING: JOINTS IN HARD TEMPER TUBING SHALL BE SOLDERED JOINTS USING LEAD-FREE 95/5 SOLDER EXCEPT WHERE TUBING IS INSTALLED BELOW GRADE OR BELOW THE BASE SLAB, IN WHICH CASE JOINTS SHALL BE SOLDERED WITH SILVER SOLDER (SILFOS). JOINTS IN SOFT TEMPER COPPER TUBING SHALL BE OF THE FLARED TYPE INSTALLED IN COMPLIANCE WITH THE FITTING MANUFACTURER'S RECOMMENDATIONS.

THREADED STEEL PIPE: THREADED JOINTS SHALL BE FULL AND CLEAN, CUT WITH NOT MORE THAN THREE (3) THREADS EXPOSED BEYOND THE FITTINGS. MAKE JOINTS TIGHT WITH GRAPHITE BASE PIPE JOINT COMPOUND AND PAINT EXPOSED THREADS OF FERROUS PIPE WITH ACID-RESISTING PAINT AFTER PIPING HAS BEEN TESTED AND PROVEN TIGHT. NO CAULKING, LAMP-WICK OR OTHER MATERIAL WILL BE PERMITTED FOR CORRECTION OF DEFECTIVE JOINTS.

CAST IRON PIPE BELOW GRADE: JOINTS IN BELL AND SPIGOT CAST IRON WASTE AND VENT PIPE SHALL BE NEOPRENE COMPRESSION GASKETS, TYSEAL OR EQUAL.

CAST IRON PIPE ABOVE GRADE: JOINTS IN HUBLESS PIPE SHALL BE STANDARD CISPI 310 NSF CERTIFIED BY ANACO, IDEAL, MISSON OR TYLER. JOINTS IN STORM PIPING, INCLUDING CONNECTIONS TO ROOF DRAINS, SHALL BE HEAVY DUTY COUPLINGS MEETING ASTM C1540 AND FM 1680, ANACO HUSKY #SD-4000 OR CLAMP-ALL "HI TORQUE" 125-IN.LB.

PVC PIPE: CLEAN JOINTS FREE FROM DEBRIS AND MOISTURE. APPLY PVC PRIMER MEETING ASTM F656 TO EACH JOINT. APPLY SOLVENT CEMENT MEETING ASTM D2564 AND MAKE JOINT WHILE WET AND IN ACCORDANCE WITH ASTM D2855.

PEX TUBE: THE FITTINGS ARE ENGINEERED POLYMER AND LEAD-FREE BRASS COLD EXPANSION TYPE WITH PEX REINFORCING RINGS IN COMPLIANCE WITH ASTM F1960. PEX HOSE BARB FITTINGS MEETING ASTM 1807 OF BRASS FOR USE WITH PEX TUBING WITH COPPER CRIMP RING. CUT ENDS OF TUBING STRAIGHT AND TRUE. MANUFACTURED BY IPEX PLUMBETTER PEX TUBING, VIEGA, WIRSBO OR ZURN INDUSTRIES.

PIPE ADAPTERS: MAKE CONNECTION OF NEW WASTE PIPE TO NEW OR EXISTING DISSIMILAR WASTE PIPE USING ADAPTER COUPLINGS. PROVIDE FERNCO, PROFLEX 3000 SERIES OR MISSION FLEXSEAL MR56 SERIES WITH NEOPRENE ADAPTER GASKET WITH STAINLESS STEEL SHIELD AND HOSE CLAMPS FOR CONNECTING DISSIMILAR PIPES ABOVE GRADE. PROVIDE FERNCO, 1056 SERIES OR MISSION SEWER COUPLINGS WITH NEOPRENE ADAPTER GASKET AND HOSE CLAMPS FOR CONNECTING DISSIMILAR PIPES BELOW GRADE AND COAT STAINLESS STEEL BANDS WITH MASTIC.

CPVC PIPE: CLEAN JOINTS FREE FROM DEBRIS AND MOISTURE. APPLY CPVC PRIMER MEETING ASTM F656 TO EACH JOINT. APPLY SOLVENT CEMENT MEETING ASTM F493 AND MAKE JOINT WHILE WET AND IN ACCORDANCE WITH ASTM D2855.

PIPING INSTALLATION

GENERAL: CLEAN PIPE THOROUGHLY PRIOR TO INSTALLATION. REAM ENDS OF PIPE TO REMOVE BURRS. CUT PIPE ACCURATELY TO MEASUREMENTS TAKEN ON THE JOB. INSTALL WITH ADEQUATE CLEARANCE FOR INSTALLATION OF COVERINGS WHERE REQUIRED. PIPE SHALL NOT BE SPRUNG OR BENT. NEATLY ALIGN PIPE, CONNECT IT SECURELY, AND SUPPORT IT FROM THE BUILDING STRUCTURE WITH HANGERS AS SPECIFIED BELOW. PROVIDE CHROME-PLATED ESCUTCHEONS ON PIPES PASSING THROUGH CEILINGS, FLOORS OR WALLS OF FINISHED SPACES. RUN PIPES FREELY THROUGH FLOOR AND WALL PENETRATIONS USING PIPE SLEEVES. DO NOT GROUT IN PLACE UNLESS REQUIRED FOR STRUCTURAL FIRE INTEGRITY. INSTALL PIPE CONCEALED IN FINISHED SPACES WHEREVER POSSIBLE. USE A DIELECTRIC UNION WHERE FERROUS AND COPPER PIPE CONNECT. DIELECTRIC UNION SHALL HAVE A ZINC-PLATED STEEL BODY, A THREADED NYLON INSERT, AND INSULATING PRESSURE GASKET. NO FERROUS METAL-TO-COPPER CONNECTION MADE WITHOUT INSULATING UNIONS WILL BE ALLOWED.

HANGER & SUPPORTS: PIPE HANGERS SHALL BE AS DESCRIBED IN THE SPECIFICATIONS BY B-LINE OR EQUAL BY ANVIL, MICHIGAN, TRUSCON, OR UNISTRUT. CONNECT HANGERS TO THE STRUCTURE WITH SIDE BEAM CONNECTORS AND ALL THREAD HANGER RODS. PROVIDE ENGINEERED SUPPORT STRUTS BETWEEN JOISTS AND OTHER STRUCTURAL MEMBERS AS REQUIRED TO PROVIDE A RIGID HANGING INSTALLATION. DO NOT HANG PIPES FROM OTHER PIPES, CONDUIT OR DUCTWORK. PROVIDE HANGER RODS AND SPACE HANGERS AT INTERVALS AS SPECIFIED IN 'HANGER SPACING'. PROVIDE SUPPORT WITHIN 1' OF EACH ELBOW AND TEE. PROVIDE SUPPORTS WITHIN 1' OF EACH EQUIPMENT CONNECTION. PROVIDE TWO NUTS ON THREADED SUPPORTS TO SECURELY FASTEN THE SUPPORT. INSTALL HANGER TYPES OR SUPPORTS FOR VARIOUS PIPING AS FOLLOWS:

PEX TUBE: PEX TUBING SHALL NOT BE INSTALLED WITHIN THE FIRST 18 INCHES OF PIPING CONNECTED TO THE HOT WATER HEATER. PEX TUBING SHALL NOT BE INSTALLED WITHIN 6 INCHES HORIZONTALLY OR WITHIN 12 INCHES VERTICALLY FROM ANY SOURCE OF HEAT, SUCH AS GAS APPLIANCE VENTS, LIGHT FIXTURES, HEATING APPLIANCES, ETC. PEX TUBING SHALL NOT BE INSTALLED IN LOCATIONS WHERE EXPOSED TO DIRECT SUNLIGHT. THESE TUBES SHALL NOT BE DEFORMED OR KINKED. TUBING PASSING THROUGH DRILLED OR NOTCHED METAL STUDS OR JOIST OR HOLLOW SHELL MASONRY WALLS SHALL BE PROTECTED FROM ABRASION DUE TO THERMAL EXPANSION AND CONTRACTION BY ELASTOMERIC OR PLASTIC SLEEVES. TUBING PENETRATING FRAMING MEMBERS WITHIN ONE INCH OF THE EXPOSED FRAMING SHALL BE PROTECTED BY STEEL NAIL PLATES NOT LESS THAN 18 GAUGE IN THICKNESS. THE STEEL PLATE SHALL EXTEND ALONG THE FRAMING A MINIMUM OF 1-1/2 INCHES BEYOND THE OUTSIDE DIAMETER OF THE PIPE OR TUBING. PEX TUBING GREATER THAN 3/4 INCH INSTALLED WITHIN AIR PLENUM SHALL BE INSULATED WITH 1/2" INCH THICK MASON ALLEY-K, ARMAFLEX COMPOSITE, JOHNS MANVILLE MICRO-LOK, JOHN MANVILLE MICRO-LOK HP, OWENS COMING VAPOR WICK OR OWENS COMING FIBERGLASS INSULATION. TUBING WITH A MAXIMUM NOMINAL DIAMETER OF 3/4 INCH MAY BE INSTALLED WITHOUT INSULATION SO LONG AS A MINIMUM SPACING OF 18 INCHES IS KEPT BETWEEN ADJACENT RUNS OF TUBING.

COPPER TUBE: ADJUSTABLE BAND HANGERS FOR BARE COPPER TUBE 3" AND SMALLER SHALL BE B-LINE #B3170 CT COPPER PLATED ADJUSTABLE BAND SWIVEL RING TYPE. ADJUSTABLE BAND HANGERS FOR INSULATED COPPER TUBE AND 3" SMALLER SHALL BE B-LINE #B3170 NF ADJUSTABLE BAND SWIVEL RING TYPE. CLEVIS HANGERS FOR INSULATED COPPER TUBE 4" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. SUPPORT EXPOSED COPPER TUBE 2" AND SMALLER TO WALLS OR IN CHASES WITH B-LINE #B3198RCT COPPER COATED EXTENSION SPLIT RING PIPE CLAMPS, 3/8" THREADED ROD AND B-LINE #B3199CT CEILING FLANGES. SUPPORT COPPER TUBE IN CHASES AND WALLS AT PLUMBING FIXTURES WITH PLASTIC OR COPPER BRACKETS SECURED TO STRUCTURE AND U-BOLTS SIZED TO BARE ON THE PIPE. RISER CLAMPS TO SUPPORT VERTICAL COPPER TUBE SHALL BE B-LINE #B3373CT COPPER COATED STEEL, CUT INSULATION, SEAL VAPOR BARRIER, AND ATTACH TO BARE TUBE.

STEEL PIPE: ADJUSTABLE BAND HANGERS FOR 2" AND SMALLER SHALL BE B-LINE #B3170 NF ADJUSTABLE BAND SWIVEL RING TYPE. CLEVIS HANGERS FOR 2-1/2" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. RISER CLAMPS TO SUPPORT VERTICAL PIPE SHALL BE B-LINE #B3373 GALVANIZED STEEL.

CAST IRON PIPE: ADJUSTABLE BAND HANGERS FOR 2" AND SMALLER. CLEVIS HANGERS FOR 3" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. RISER CLAMPS TO SUPPORT VERTICAL PIPE SHALL BE B-LINE #B3373 GALVANIZED STEEL.

PVC PIPE: ADJUSTABLE BAND HANGERS FOR 3" AND SMALLER. CLEVIS HANGERS FOR 4" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. RISER CLAMPS TO SUPPORT VERTICAL PIPE SHALL BE B-LINE #B3373 GALVANIZED STEEL.

INSULATION PROTECTION SHIELDS: B-LINE #B3151 OF 18 GAUGE GALVANIZED SHEET METAL. SHIELD SHALL COVER HALF OF THE CIRCUMFERENCE OF THE PIPE AND SHALL BE OF LENGTH INDICATED BY MANUFACTURER FOR PIPE SIZE AND THICKNESS OF INSULATION.

HANGER SPACING, ROD SIZES & CONNECTORS: CONNECT RODS TO STEEL BEAMS OR JOISTS WITH B-LINE #B3031 OR #B3033BEAM CLAMPS AS REQUIRED. CONNECT RODS TO CONCRETE WITH B-LINE #3014 MALLEABLE IRON SINGLE TYPE INSERTS WITH MALLEABLE IRON NUT. CONNECT RODS IN WOOD CONSTRUCTION WITH B-LINE #B3058 SIDE BEAM CONNECTORS. HANG AND SUPPORT PIPING WITH SPACING AND ROD SIZES AS FOLLOWS:

PEX TUBE: PEX TUBING 1" AND SMALLER SHALL BE SUPPORTED AT 32" INTERVALS FOR HORIZONTAL RUNS. PEX TUBING 1-1/4" AND LARGER SHALL BE SUPPORTED AT 4 FEET INTERVALS FOR HORIZONTAL RUNS. ALL SIZE TUBING SHALL BE SUPPORTED AT THE BASE AND AT EACH FLOOR FOR VERTICAL RUNS. FURTHERMORE, VERTICAL RUNS SHALL BE PROVIDED WITH MID-STORY GUIDES.

COPPER TUBE: 1-1/2" AND SMALLER - EVERY 6' WITH 3/8"HANGER RODS; 2" EVERY 10' WITH 3/8"HANGER RODS; 2-1/2" EVERY 10' WITH 3/8" HANGER RODS; 3" EVERY 10' WITH 1/2" RODS, 4" EVERY 10' WITH 5/8" HANGER RODS. SUPPORT VERTICAL COPPER TUBE EVERY 10'.

STEEL PIPE: 1" AND SMALLER - EVERY 8' WITH 3/8" HANGER RODS; 1-1/4" TO 2" EVERY 10' WITH 3/8" HANGER RODS; 2-1/2" AND 3" EVERY 10' WITH 1/2" HANGER RODS, 4" EVERY 10' WITH 5/8" HANGER RODS. SUPPORT VERTICAL STEEL PIPE EVERY 10'.

CAST IRON PIPE: EVERY 10' AND WITHIN 1' OF EACH JOINT. 2" AND SMALLER WITH 3/8" HANGER RODS; 3" WITH 1/2" HANGER RODS; 4" WITH 5/8" HANGER RODS; 6" WITH 3/4" HANGER RODS; 8" AND LARGER WITH 7/8" HANGER RODS. SUPPORT VERTICAL CAST IRON PIPE EVERY 15'.

PVC PIPE: SUPPORT ALL PIPES SIZES EVERY 4'. 1-1/2" AND SMALLER WITH 3/8" HANGER RODS; 2" WITH 1/2" HANGER RODS; 2-1/2" AND 3" WITH 1/2" HANGER RODS, 4" AND LARGER WITH 5/8" HANGER RODS. SUPPORT VERTICAL PVC PIPE EVERY 4'.

SUPPORTS ON FLOOR: SUPPORT PIPING FROM THE FLOOR WHERE REQUIRED FOR FERROUS PIPE OR INSULATED COPPER TUBE, SHALL BE B-LINE B3093 GALVANIZED STEEL WITH PIPE SADDLE, THREADED SHANK FOR HEIGHT ADJUSTMENT AND FLOOR STAND SECURED TO THE FLOOR.

UNDERGROUND WARNING TAPE: UNDERGROUND WARNING TAPE SHALL BE MARKING SERVICES INCORPORATED # 52205 FOR FERROUS SEWER PIPE AND # 52206 FOR DOMESTIC WATER PIPE OR EQUAL BY BRADY IDENTOLINE AND SETON. PROVIDE 4MIL THICK NON-ADHESIVE POLYETHYLENE TYPE TAPE. DETECTABLE UNDERGROUND WARNING TAPE SHALL BE MARKING SERVICES INCORPORATED # 52216 FOR PLASTIC GAS PIPE AND # 52218 FOR PLASTIC SEWER PIPE. PROVIDE NON-ADHESIVE 4MIL THICK TYPE TAPE WITH 18 AWG COPPER OR ALUMINUM TRACER WIRE SUITABLE FOR DETECTION UP TO 3'-0" OF BURIAL.

BELOW GROUND INSTALLATION FOR SOIL, WASTE AND STORM: INSTALL SOIL AND WASTE PIPING TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR GREASE WASTE PIPING OR PIPING 3" OR SMALLER. SLOPE STORM PIPING AT A SLOPE INDICATED ON FLOOR PLANS. LAY PIPE AT UNIFORM SLOPE, FREE FROM SAGS, WITH HUB END UPSTREAM. MAKE CHANGES IN DIRECTION FROM HORIZONTAL TO VERTICAL, AT FIXTURE BRANCHES AND OTHER BRANCH CONNECTIONS WITH SANITARY "TEES" OR SHORT SWEEP "ELLS". MAKE CHANGES IN DIRECTION FROM VERTICAL TO HORIZONTAL OR HORIZONTAL TO HORIZONTAL WITH LONG RADIUS FITTINGS, LONG SWEEPING "ELLS", COMBINATION "Y AND 1/8 BEND" FITTINGS, OR 45 DEGREE "ELLS" (1/8 BEND FITTINGS), 1/6 BEND OR 1/16 BEND AND "Y" FITTINGS. INSTALL PIPE WITH THE BARREL OF THE PIPE ON FIRM, SOLID EARTH FOR ITS ENTIRE LENGTH, AND EXCAVATE HOLES FOR THE PIPE BELLS. LAY PIPE IN A STRAIGHT LINE AND INSTALL WITH UNIFORM GRADE TO LINE WITH BATTEN BOARDS SET NOT MORE THAN 24'-0" APART. CLOSE OPEN ENDS OF PIPE WITH A STOPPER WHEN PIPE LAYING IS NOT IN PROGRESS. CENTER SPIGOTS ACCURATELY IN BELLS FOR UNIFORM CAULKING. PROVIDE A SMOOTH AND UNIFORM INVERT IN THE SYSTEM. DRILLING OR TAPPING OF SOIL AND WASTE LINES, AND SADDLE HUBS AND BANDS ARE NOT PERMITTED. LOCATE AND INSTALL SOIL AND WASTE LINES AS INDICATED ON THE DRAWINGS. DETERMINE EXACT LOCATIONS IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCE. PRIOR TO INSTALLATION OF ANY BUILDING DRAINPIPE, VERIFY ELEVATION OF CONNECTION POINT OF EXISTING SEWER, SERVICE LINE OR EXISTING TENANT CONNECTIONS INDICATED ON THE DRAWINGS.

ABOVE GROUND INSTALLATION FOR SOIL, WASTE AND STORM: INSTALL SOIL AND WASTE PIPING TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR GREASE WASTE PIPING OR PIPING 3" OR SMALLER. SLOPE STORM PIPING AT SLOPE INDICATED ON FLOOR PLANS. LAY PIPE AT UNIFORM SLOPE FREE FROM SAGS. SUPPORT PIPE WITHIN 12" OF EACH JOINT. MAKE CHANGES IN DIRECTION FROM HORIZONTAL TO VERTICAL, AT FIXTURE BRANCHES AND OTHER BRANCH CONNECTIONS WITH SANITARY "TEES" OR SHORT SWEEP "ELLS". MAKE CHANGES IN DIRECTION FROM VERTICAL TO HORIZONTAL OR HORIZONTAL TO HORIZONTAL WITH LONG RADIUS FITTINGS, LONG SWEEPING "ELLS", COMBINATION 'Y AND 1/8 BEND" FITTINGS, OR 45 DEGREE "ELLS" (1/8 BEND FITTINGS), 1/6 BEND OR 1/16 BEND AND "Y" FITTINGS. PROVIDE A SMOOTH AND UNIFORM INVERT IN THE SYSTEM. DRILLING OR TAPPING OF SOIL AND WASTE LINES, AND SADDLE HUBS AND BANDS ARE NOT PERMITTED. LOCATE AND INSTALL SOIL AND WASTE LINES AS INDICATED ON THE DRAWINGS. DETERMINE EXACT LOCATIONS IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCE.

PLUMBING VENT: CONNECT PLUMBING VENT PIPES TO FIXTURE DRAINPIPES AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE INSTALLATION PRACTICES ADOPTED AND ENFORCED BY LOCAL CODES OFFICIAL AND EXTEND VENT PIPES FULL SIZE THROUGH THE ROOF LINE. GRADE PIPE TO A UNIFORM SLOPE SO AS TO DRAIN BACK BY GRAVITY TO THE DRAINAGE PIPING SYSTEM. VENTS PASSING THROUGH THE ROOF SHALL BE MINIMUM 3" SIZE EXCEPT IN TROPICAL CLIMATES, PER LOCAL CODES. TURN FLASHING DOWN INTO STACKS AT LEAST 2" AND EXTEND FLASHING 24" IN ALL DIRECTIONS FROM THE PIPE AT THE ROOF LINE. APPLY WHITE LEAD PIPE DOPE ON MALE STEEL PIPE THREADS. VENT LINES SHALL BE AIR AND WATERTIGHT. VENT FLOOR DRAINS INDIVIDUALLY OR CONNECT THEM TO A HORIZONTALLY VENTED LINE AS SHOWN ON THE DRAWINGS.

DOMESTIC WATER: ARRANGE COLD, HOT, AND HOT WATER RECIRCULATION PIPING TO DRAIN AT THE LOWEST POINT IN EACH SYSTEM. INSTALL AT LEAST ONE PIPE UNION ADJACENT TO ALL SHUTOFF VALVES, AT CONNECTION POINTS OF EACH PIECE OF EQUIPMENT, AND ELSEWHERE IN THE SYSTEM WHERE REQUIRED TO ALLOW PROPER MAINTENANCE. PROVIDE UNIONS OF THE GROUND JOINT TYPE. MAKE ALLOWANCE FOR EXPANSION AND CONTRACTION WHERE REQUIRED BY THE INSTALLATION. WHERE WATER PIPING OCCURS IN EXTERIOR WALLS, HOLD PIPE AS CLOSE AS POSSIBLE TO THE INTERIOR FACE OF WALL AND INSTALL INSULATION BATT OR OTHER INSULATION (MINIMUM R8) BETWEEN PIPING AND THE EXTERIOR WALL FACE. INSTALL PLASTIC UNDERGROUND WARNING TAPE WITH NAME OF SERVICE INDICATED CONTINUOUSLY ALONG ITS LENGTH FOR DOMESTIC WATER PIPE FIVE FEET OUTSIDE THE BUILDING.

PIPING SANITIZATION

SANITIZE THE ENTIRE DOMESTIC WATER PIPING SYSTEM (COLD, HOT, AND HOT WATER RETURN) WITH A SOLUTION CONTAINING NOT LESS THAN 50 PPM AVAILABLE CHLORINE. KEEP SOLUTION IN THE SYSTEM FOR A MINIMUM OF 24 HOURS, WITH EACH VALVE BEING OPERATED SEVERAL TIMES DURING THE PERIOD. AFTER COMPLETION, FLUSH SYSTEM WITH CITY WATER UNTIL CHLORINE RESIDUAL IS LOWERED TO INCOMING CITY WATER LEVEL.

PIPE AND VALVE MARKERS

PROVIDE MANUFACTURER'S STANDARD PRE-PRINTED, SEMI-RIGID SNAP-ON OR PERMANENT ADHESIVE, PRESSURE-SENSITIVE VINYL PIPE MARKERS. PIPE MARKERS SHALL BE COLOR-CODED COMPLYING WITH ANSI A13.1.

INSTALL PIPE MARKERS ON EACH PLUMBING PIPING SYSTEM AND INCLUDE ARROWS TO SHOW NORMAL DIRECTION OF FLOW.

LOCATE PIPE MARKERS AND COLOR BANDS WHEREVER PIPING IS EXPOSED TO VIEW IN OCCUPIED SPACES, MACHINE ROOMS, ACCESSIBLE MAINTENANCE SPACES (SHAFTS, TUNNELS, PLENUMS) AND EXTERIOR NON-CONCEALED LOCATIONS.

PROVIDE PLASTIC LAMINATE OR BRASS VALVE TAG ON EVERY VALVE, COCK AND CONTROL DEVICE IN EACH PLUMBING PIPING SYSTEM; EXCLUDE CHECK VALVES, VALVES WITHIN FACTORY-FABRICATED EQUIPMENT UNITS, PLUMBING FIXTURE FAUCETS, CONVENIENCE AND LAWN-WATERING HOSE BIBBS, AND SHUT-OFF VALVES AT PLUMBING FIXTURES AND SIMILAR ROUGH-IN CONNECTIONS OF END-USE FIXTURES AND UNITS.

PLUMBING SPECIALTIES

CLEANOUTS, FLOOR DRAINS AND ROOF DRAINS SHALL BE BY ONE MANUFACTURER IF POSSIBLE. PROVIDE LONG SWEEP FITTINGS FOR CLEANOUT EXTENSIONS; SHORT SWEEPS AT START OF RUNS OR CHANGE IN DIRECTION AND COMBINATION WYE AND EIGHT BEND FITTINGS IN HORIZONTAL RUNS. INSTALL CLEANOUTS WITH A MINIMUM OF 18" CLEAR ALL AROUND, CONSULT LOCAL CODES FOR OTHER REQUIREMENTS, FOR EASY SYSTEM MAINTENANCE. INSTALL PLUG WITH TEFLON JOINT COMPOUND.

FLOOR CLEANOUTS: INSTALL CLEANOUTS AT POINTS AS NOTED ON THE DRAWINGS, AT THE BUILDING EXIT; AT A MINIMUM OF EVERY 50 FEET IN HORIZONTAL SOIL AND WASTE LINES; AND AT TURNS OF PIPE GREATER THAN 45 DEGREES CLEANOUTS SHALL BE FULL SIZE OF THE PIPE UP TO 4", AND 4" SIZE FOR PIPES LARGER THAN 4". DETERMINE THE TYPE OF FLOOR COVERING TO BE USED AT EACH FLOOR CLEANOUT LOCATION AND PROVIDE TOP WITH VARIATIONS SUITABLE FOR FLOOR COVERING (CARPET MARKERS, RECESSED FOR TILE AND SCORIATED FOR UNFINISHED FLOOR). ROUGH-IN AND INSTALL EACH FLOOR CLEANOUT FLUSH WITH THE FINISHED FLOOR CONSTRUCTION.

EXTERIOR CLEANOUTS: INSTALL CLEANOUTS AT POINTS AS NOTED ON THE DRAWINGS, AT THE BUILDING EXIT; AT A MINIMUM OF EVERY 100 FEET IN HORIZONTAL SOIL, WASTE AND STORM SERVICE LINES. EMBED EACH EXTERIOR CLEANOUT IN AN 18" X 18" X 8" BLOCK OF CONCRETE, FLUSH WITH FINISHED GRADE.

WALL CLEANOUTS: INSTALL WALL CLEANOUTS AT POINTS AS NOTED ON THE DRAWINGS; AT THE FOOT OF EACH SOIL, WASTE OR INTERIOR DOWNSPOUT STACK; AT HORIZONTAL SOIL AND WASTE BRANCHES LONGER THAN FIVE FEET NOT SERVED BY A FLOOR CLEANOUT; CONSULT LOCAL CODES FOR INSTALLATION AT SPECIFIC FIXTURE TYPES. INSTALL WALL CLEANOUTS ABOVE THE FLOOD RIM OF THE FIXTURE SERVED WITHIN FOUR FEET OF THE FLOOR AND INSTALL EXTENSIONS FROM THE CLEANOUT TEE TO THE WALL TO LOCATE THE PLUG WITHIN 2" OF THE WALL WHERE REQUIRED. INSTALL CLEANOUTS ON URINALS AND SINKS WHERE REQUIRED BY CODE.

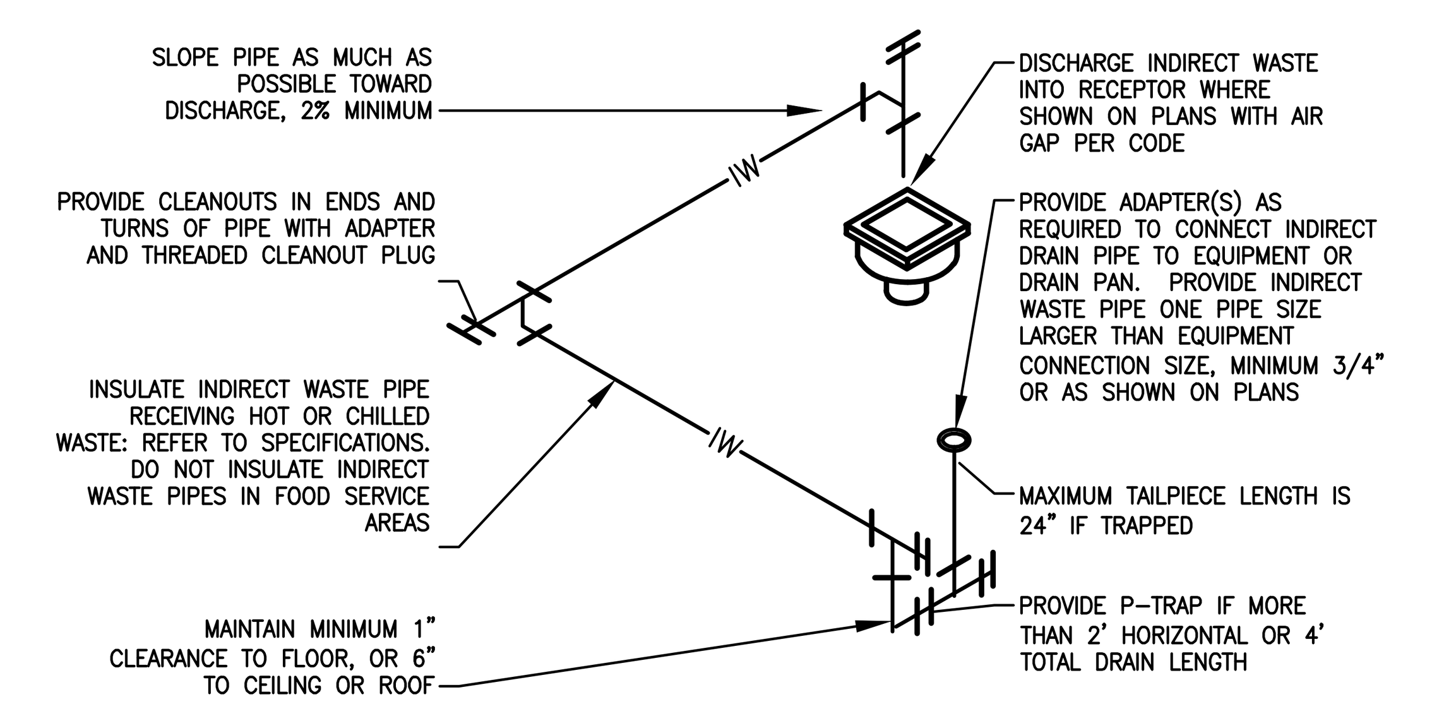
VALVES, STRAINERS, AND UNIONS

PLUMBING SYSTEM VALVES SHALL BE CRANE COMPANY OR NIBCO OF MODELS HEREIN SPECIFIED, OR APPROVED EQUAL BY HAMMOND, MILWAUKEE, STOCKHAM OR MUELLER VALVES. VALVES SHALL BE OF THE BEST QUALITY, DESIGNED FOR 125 PSI STEAM WORKING PRESSURE. INSTALL VALVES ON THE HOT AND COLD-WATER LINES AT THE WATER HEATER CONNECTIONS AND OTHER ITEMS OF EQUIPMENT, AT BRANCHES FROM MAINS SERVING GROUPS OF FIXTURES, AND AT OTHER PLACES INDICATED OR REQUIRED BY THE INSTALLATION TO ALLOW EASE OF FUTURE MAINTENANCE.

GATE VALVES: CLASS 125, SIZE 2" AND SMALLER SHALL BE NIBCO #S-113-LF NON-RISING STEM, SOLDERED LEAD FREE BRONZE BODY AND PARTS, WITH WEDGE DISC. GATE VALVES 2-1/2" AND LARGER SHALL BE NIBCO #617-0, O.S. & Y., IRON BODY FLANGED WEDGE GATE WITH BRASS SEATS AND STEM.

BALL VALVES (MAY BE USED IN LIEU OF GATE VALVES UP TO 2"): 2" AND SMALLER, NIBCO #S-685-80-LF; TWO PIECE LEAD FREE BRONZE BODY, WITH SOLDERED ENDS, CHROME PLATED BRONZE BALL WITH CONVENTIONAL PORT, 600 PSI, BLOW-OUT PROOF STEM.

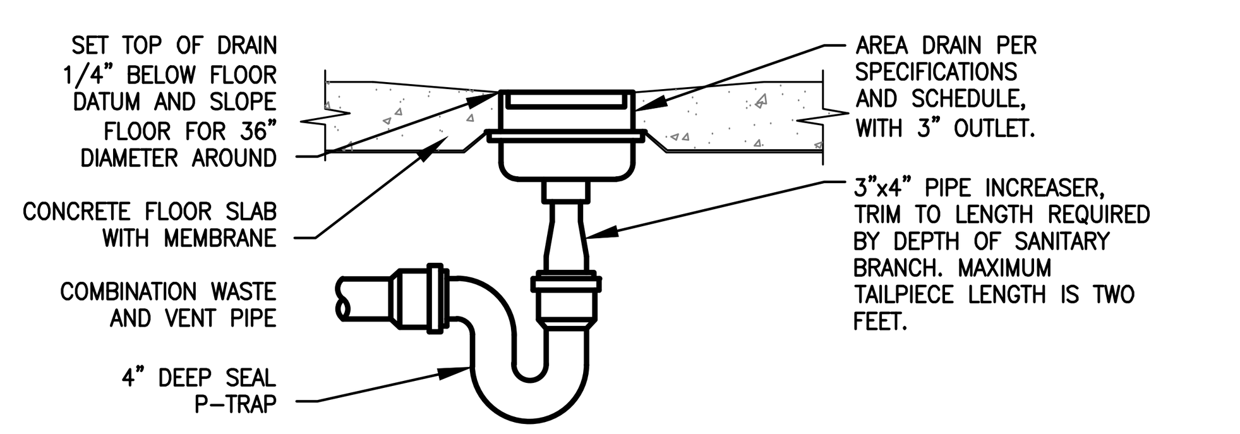
UNIONS: FERROUS UNIONS SHALL BE CRANE OR EQUAL, COMBINATION IRON AND BRASS, GROUND JOINT WITH SCREWED ENDS. COPPER UNIONS SHALL BE STREAMLINE OR EQUAL, CAST BRONZE SWEAT TYPE WITH GROUND JOINT. FERROUS TO COPPER UNIONS SHALL BE UNIVERSAL CONTROLS OR EQUAL, DIELECTRIC TYPE WITH THREADED NYLON INSERT.



ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. PROVIDE CONNECTIONS SHOWN IN EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. REFER TO SPECIFICATIONS FOR PIPE AND FITTING MATERIALS, AND INSTALLATION OF HANGERS AND SUPPORTS. PROVIDE DIELECTRIC UNION IF CONNECTING DISSIMILAR METALS. DO NOT COMBINE INDIRECT DRAIN PIPES WITH CONDENSATE DRAIN PIPES. DO NOT PROVIDE TRAP OR VENT ON INDIRECT DRAINS RECEIVING DISCHARGE UNDER PRESSURE. PROVIDE CLEANOUT IN TRAP FOR NON-CLEAR LIQUID WASTE ONLY.

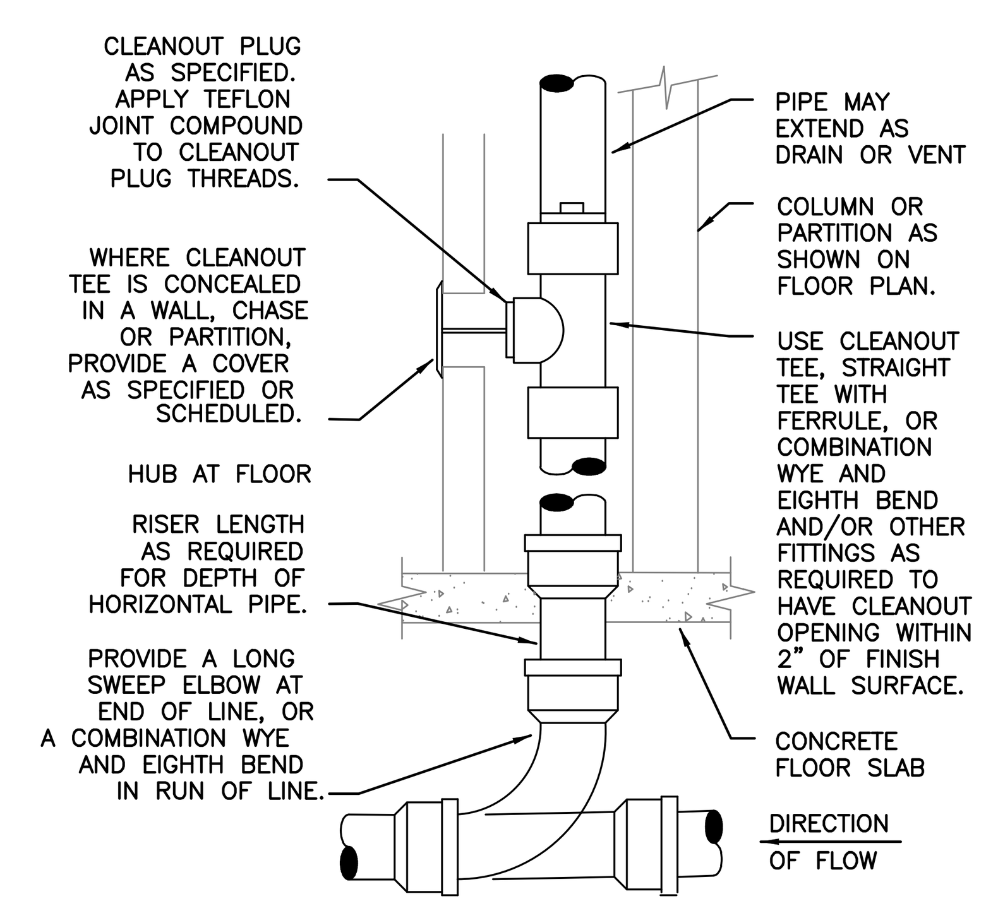
FOOD SERVICE EQUIPMENT INDIRECT WASTE: INSTALL SEPARATE INDIRECT WASTE FROM DIFFERENT EQUIPMENT - DO NOT COMBINE. SECURELY ATTACH INDIRECT DRAINS TO THEIR EQUIPMENT WITH BRACKETS OR SPLIT RING PIPE CLAMPS - REFER TO SPECIFICATIONS. LOOSE, DANGLING, OR PIPES ON THE FLOOR SHALL NOT BE ACCEPTED. INSTALL INDIRECT DRAINS HIGH AS POSSIBLE TO FACILITATE CLEANING UNDER KITCHEN EQUIPMENT.

1 INDIRECT WASTE INSTALLATION - IPC
NO SCALE



LOCATE AREA DRAINS WHERE SHOWN ON DIMENSIONED FLOOR PLAN. PROVIDE PIPE MATERIAL, WITH EXCAVATION AND BACKFILL, PER SPECIFICATIONS.

2 AREA DRAIN INSTALLATION
NO SCALE



REFER TO SPECIFICATIONS AND SCHEDULES FOR MORE INFORMATION. PROVIDE WCO AT BASE OF RAIN-LEADER DOWNSPOUTS AND SOIL STACKS. PROVIDE WCO WHERE SHOWN ON PLAN, AND ON SANITARY WASTE BRANCHES LONGER THAN FIVE FEET NOT SERVED WITH A FLOOR CLEANOUT. LOCATE ABOVE FIXTURE FLOOD RIM WITHIN FOUR FEET OF FLOOR. CONSULT LOCAL CODES AND OFFICIALS FOR OTHER WCO REQUIREMENTS.

3 WALL CLEANOUT
NO SCALE

ds3
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Contractor

Registered Professional Engineer (Mechanical) CERTIFICATE NO. 30980 TODD A. BUDZIK Date Signed 06.06.25 ARIZONA U.S.A. EXP 3/31/27

OLD TOWN TAVERN & RESTAURANT
7330 E. MAIN ST., SUITE 105
SCOTTSDALE, AZ 85251

SEAL

PROJECT NO. 25005

DRAWN BY: CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION
1	06/06/25	CITY COMMENTS

SHEET NAME

Plumbing Specifications

3/14/2025

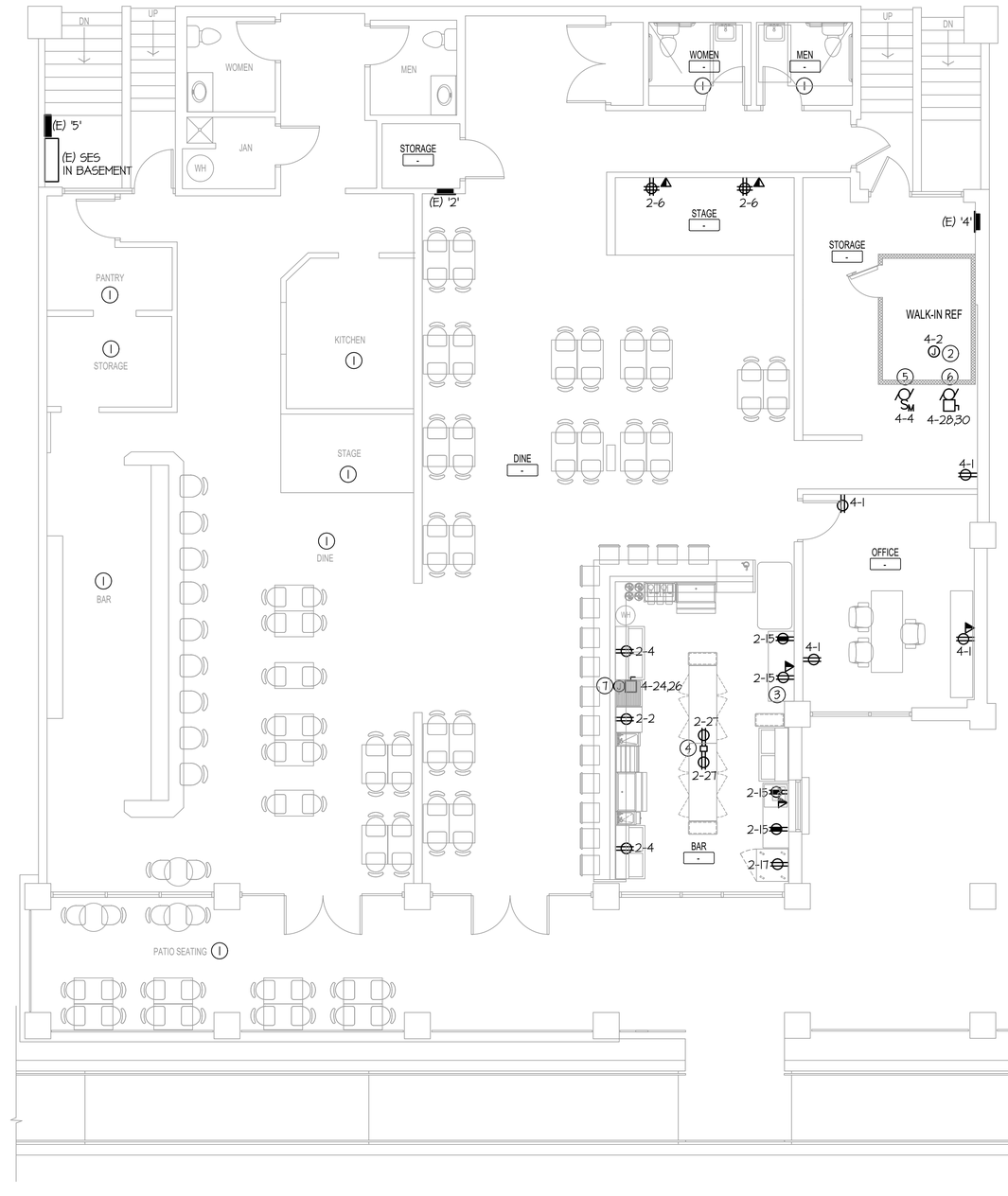
SHEET NUMBER

P300

PERMIT SET

Solano Studios, Inc.
13802 N. Scottsdale Rd.
Suite 151-3
Scottsdale, AZ 85254-3403
(623) 202-8151
Jesse@solanostudios.com

SS PROJECT #: 25020
DATE: 03/17/25
SCALE: AS NOTED



POWER PLAN
SCALE: 3/16"=1'-0"

NORTH

NOTE: ALL LIGHTING IS EXISTING TO REMAIN AND NOT IN SCOPE

NOTE: ALL HVAC EQUIPMENT IS EXISTING TO REMAIN AND NOT IN SCOPE

GENERAL NOTES

1. ALL BAR AREA RECEPTACLES SHALL BE GFCI TYPE. RECEPTACLES LOCATED BEHIND EQUIPMENT SHALL BE GFI CIRCUIT BREAKERS.
2. PROVIDE CONDUIT SEALS AT ALL WALK-IN PENETRATIONS
3. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL CONNECTION REQUIREMENTS (HP, AMPS, VOLTAGE, PHASE, MOUNTING HEIGHT, AND DISCONNECTING MEANS) FOR ALL EQUIPMENT SUPPLIED BY OTHERS

KEYNOTES:

1. THIS ROOM IS EXISTING TO REMAIN, NO WORK.
2. WP J-BOX FOR CONNECTION TO UNIT PROVIDE WALK-IN LIGHTS. CONNECT TO UNIT PROVIDED SWITCH PER MANUFACTURER REQUIREMENTS.
3. RECEPTACLE AND TELE/DATA DEVICE HIGH FOR TV. VERIFY LOCATION AND MOUNTING HEIGHT PRIOR TO ROUGH-IN.
4. POWER POLE WITH (2) GFCI DUPLEX RECEPTACLES FOR REFRIGERATOR POWER. VERIFY LOCATION PRIOR TO ROUGH-IN.
5. WALK-IN EVAP.
   1/2HP-120V-1Φ
   PROVIDE WP MANUAL SWITCH AT UNIT.
6. WALK-IN COMPRESSOR
   1HP-208V-1Φ
   PROVIDE 30A/2P WP DISC. SWITCH FUSED PER UNIT NAMEPLATE.
7. WATER HEATER: 4.5 KW-208V-1Φ
   PROVIDE 30A/2P NON FUSED DISC SWITCH AT UNIT. WIRE SIZE TO BE 2#10, 1#10 GND., 1/2" C.

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SEAL

PROJECT NO. 25004

DRAWN BY: CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION

SHEET NAME
POWER PLAN

3/28/2025

SHEET NUMBER
E1.0

PERMIT DRAWING

Registered Professional Engineer (Electrical)
CERTIFICATE NO. 32861
DONALD A. TULEY
ARIZONA, U.S.A.

SOLANO STUDIOS INC.
Solano Studios, Inc.
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SS PROJECT #: 25-027
DATE: 03/20/2025
SCALE: AS NOTED

ELECTRICAL SYMBOLS:

NOTE: NOT ALL SYMBOLS ARE USED ON THIS PROJECT

- LIGHT FIXTURE, WITH FIXTURE DESIGNATED BY LETTER.
- NL — NIGHT LIGHT- NOT SWITCHED
- CEILING OR WALLMOUNTED FIXTURE.
- JUNCTION BOX
- SINGLE FACE EXIT SIGN- NOT SWITCHED
- DOUBLE FACED EXIT SIGN- NOT SWITCHED.
- TWO HEAD EMERGENCY LIGHT WITH BATTERY.
- S — SINGLE POLE SWITCH, + 48" A.F.F.
- S_3 — THREE WAY SWITCH, + 48" A.F.F.
- S_a — OUTLET CONTROL INDICATOR
- S_D — DIMMER SWITCH
- S_M — MOTION SENSOR SWITCH
- S_T — THERMAL OVERLOAD SWITCH
- DUPLEX RECEPTACLE, + 18" A.F.F.
- $_C$ — DUPLEX RECEPTACLE WITH USB CHARGER, + 18" A.F.F.
- DUPLEX RECEPTACLE ABOVE COUNTER, VERIFY HEIGHT.
- 250 VOLT RECEPTACLE PER UNIT REQUIREMENTS
- FOURPLEX RECEPTACLE, + 18" A.F.F.
- HALF SWITCHED DUPLEX RECEPTACLE
- POWER / PHONE / DATA FLUSH FLOOR OUTLET
- TELEPHONE/DATA SYSTEM OUTLET, 4" SQUARE BOX AND COVERPLATE, 3/4" C. TO CEILING SPACE UNLESS SHOWN WITH HOMERUN, + 18" A.F.F.
- TELEVISION OUTLET PLASTER RING AT + 18" A.F.F., (U.N.O.) HUBBELL COVERPLATE. 3/4"C TO CEILING SPACE UNLESS SHOWN WITH HOMERUNS.
- CONDUIT BELOW FLOOR OR UNDERGROUND
- CONDUIT IN WALL OR ABOVE CEILING
- LA 1,3 — HOMERUN TO PANEL (SEE GROUNDING NOTE)
- E — EXISTING LIGHT OR DEVICE TO REMAIN
- ER — EXISTING LIGHT OR DEVICE TO BE REMOVED OR RELOCATED
- R — RELOCATED LIGHT OR DEVICE
- N — NEW LIGHT OR DEVICE
- A.F.F. — ABOVE FINISHED FLOOR (℄ OF OUTLET)
- I.G. — ISOLATED GROUND.
- E.C. — EMPTY CONDUIT
- MOTOR CONNECTION
- DISCONNECT SWITCH
- (F)D — DUCT SMOKE DETECTOR

LIGHTING CONTROL DEVICE LEGEND:

VERIFY COLOR WITH ARCHITECT

- (V) CEILING MOUNTED VACANCY SENSOR SENSOR SWITCH CM PT 10D (TURNS LIGHTS OFF WHEN UNOCCUPIED FOR 30 MINUTES)
- S_D WALL MOUNTED DIMMER SENSOR SWITCH SPODM-SA-D MANUAL ON/OFF DIMMING CONNECT TO CEILING MOUNTED VACANCY SENSOR
- S_V WALL MOUNTED VACANCY SENSOR SENSOR SWITCH WSX-SA-WH (MANUAL ON, OFF WHEN UNOCCUPIED)
- S WALL MOUNTED SWITCH SENSOR INTERFACE SWITCH SPODM MANUAL ON/OFF CONNECT TO CEILING MOUNTED VACANCY SENSOR.

PROVIDE POWER PACKS AS REQUIRED FOR INTERFACE BETWEEN DEVICES

SPECIFICATIONS:

1. PRIOR TO SUBMITTING BID, CONTRACTOR SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT THE CONSTRUCTION SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH IN ANY WAY AFFECTS THE WORK UNDER HIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART.
2. 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 THE CONTRACT. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED.
3. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS, ELEVATIONS AND BUILDING DETAILS. VERIFY LOCATION OF ALL OUTLETS, SWITCHES, AND WALL MOUNTED LIGHTING FIXTURES WITH ARCHITECTURAL DRAWINGS AND ACTUAL CONDITIONS. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHTING FIXTURES. VERIFY ALL CEILING TYPES WITH ARCHITECTURAL DRAWINGS BEFORE ORDERING FIXTURES.
4. PRIOR TO ROUGH-IN AND FINAL CONNECTION, VERIFY ELECTRICAL CHARACTERISTICS AND EXACT LOCATION OF EQUIPMENT.
5. GROUT AND SEAL ALL CONDUIT PENETRATIONS OF WALLS AND FLOOR SLABS TO PRESERVE FIRE RATING AND WATERTIGHT INTEGRITY.
6. ALL WIRING TO BE INSTALLED IN RACEWAYS. TYPE OF RACEWAY SHALL BE AS REQUIRED BY CODE. MINIMUM CONDUIT SIZE SHALL BE 1/2". MC CABLE WILL BE ALLOWED WHERE APPROVED BY LOCAL AUTHORITIES AND BUILDING OWNER. RACEWAYS RUN ACROSS ROOF SHALL BE MINIMUM 4" ABOVE ROOF.
7. BRANCH CIRCUIT WIRING SHALL BE THHN/THWN INSULATION. EXTERIOR WIRING SHALL BE THWN-2. PANEL FEEDERS. SHALL BE TYPE XHHW. ALL WIRE SHALL BE COPPER. MINIMUM WIRE SIZE SHALL BE #12. PER NEC SEPARATE NEUTRALS ARE TO BE PROVIDED FOR EACH CIRCUIT OR PROVIDE MULTI-POLE HANDLE TIE FOR EACH MULTI-WIRE CIRCUIT. ALL UNDER SLAB CONDUCTORS SHALL BE RATED FOR WET LOCATIONS
8. PROVIDE CODE SIZED BOND WIRE IN ALL CONDUITS.
9. ALL ELECTRICAL EQUIPMENT SHALL BE NEW , U.L. APPROVED AND COMMERCIAL GRADE.
10. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL CODE, (N.E.C.), AND ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES.
11. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE ONE (1) SET OF COMPLETE CONSTRUCTION DRAWINGS.
12. PROVIDE NEW PANEL DIRECTORIES INDICATING SPECIFIC CIRCUIT INFORMATION TO DISTINGUISH EACH CIRCUIT FROM ANY OTHER PER NEC.
13. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL DEMOLITION OF DEVICES, WIRE & CONDUIT. WHERE THESE ITEMS ARE NO LONGER USED ALL UNUSED WIRE SHALL BE REMOVED BACK TO THE PANEL. ANY DOWNSTREAM EQUIPMENT TO REMAIN IN USE SHALL BE RECONNECTED.
14. REFER TO MECHANICAL DRAWINGS FOR IECC C403.11 AND C403.11.3 REFRIGERATION PERFORMANCE REQUIREMENTS.
15. ALL FAULT CURRENT CALCULATIONS SHOWN HAS A MAXIMUM VOLTAGE DROP OF 5% PER IECC C405.10
16. A FINAL COMMISSIONING REPORT SHALL BE DELIVERED TO THE BUILDING OWNER PER IECC C408.2.5

EXISTING

PANELBOARD 2 SCHEDULE

MAINS: 125A MCB | VOLTAGE: 120/208V-3Φ-4W | TYPE: NEMA 1 | LOAD-VA | LOCATION: SEE PLAN | MOUNTING: FLUSH | MIN. A.I.C.: 10,000

CIRCUIT DESCRIPTION	BKR.	CIR. NO.	ØA	ØB	ØC	CIR. NO.	BKR.	CIRCUIT DESCRIPTION
WEST LIGHTS 1	20/1	1	900			2	20/1	BACK BAR GLASS WASHER
WEST LIGHTS 2		3	1125	900		4		BACK BAR TOP REFRIGS
EXTERIOR RCPTS		5		840	720	6		STAGE QUADS
N/L'S & EXIT SIGNS		7	500	720		8		RCPT BELOW PANEL
CENTER LIGHTS 1		9	180	900		10		CLOSET RCPT 1
CENTER LIGHTS 2		11		180	900	12		CLOSET RCPT 2
EAST LIGHTS		13	900			14		SPARE
BACK BAR RCPTS		15		720		16		WEST WALL RCPTS
BACK BAR FREEZER		17		720	1680	18		SPARE
AC UNIT	60/3	19	3843			20		SPARE ABOVE CEILING 1
		21		3843		22		SPARE ABOVE CEILING 2
		23			3843	24		SPACE
TIMECLOCK	20/1	25	200			26		SPACE
BACK BAR CENTER REFRIG'S	20/1	27		1400		28		SPACE
SPACE		29				30		SPACE
TOTAL LOAD PER PHASE:		H#	7648	9503	8043	H# 9503	/ 120 = 79.2	AMPS

EXISTING

PANELBOARD 4 SCHEDULE

MAINS: 125A MCB | VOLTAGE: 120/208V-3Φ-4W | TYPE: NEMA 1 | LOAD-VA | LOCATION: SEE PLAN | MOUNTING: FLUSH | MIN. A.I.C.: 10,000

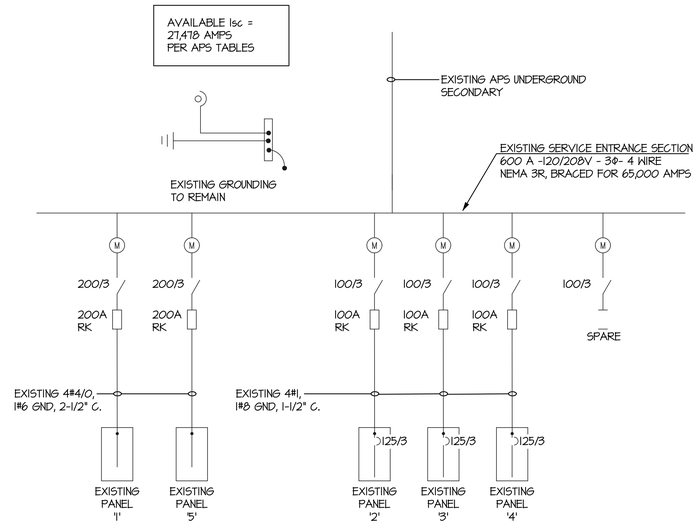
CIRCUIT DESCRIPTION	BKR.	CIR. NO.	ØA	ØB	ØC	CIR. NO.	BKR.	CIRCUIT DESCRIPTION
OFFICE RCPTS	20/1	1	720			2	20/1	WALK-IN LIGHTS
EAST SIGN		3	200	1500		4		WALK-IN EVAP
SOUTH SIGN		5		1176	1500	6		LIGHTS
SE FRONT RCPTS		7	900			8		SPARE
EAST RCPTS 1		9		900		10		
WEST RCPTS		11			900	12		
EAST RCPTS 2		13	900			14		
SPARE		15				16		
SPARE		17				18		
AC UNIT	60/3	19	3843			20		
		21		3843		22		SPACE
		23			3843	24	30/2	WATER HEATER
SPACE		25			2813	26	2	
SPACE		27	2813	920		28	20/2	WALK-IN COMPRESSOR
SPACE		29				30		
TOTAL LOAD PER PHASE:		H#	9376	8339	9976	H# 9976	/ 120 = 83.1	AMPS

PANELBOARD SYMBOLS

- ✱ CONTINUOUS DUTY/LARGEST MOTOR @ 125%
- ○ EXISTING BREAKER W/ NEW LOAD
- □ NEW BREAKER TO MATCH EXISTING TYPE
- ■ NEW CIRCUIT BREAKER, AIC RATING AS NOTED
- ▲ CIRCUIT VIA PHOTOCELL/TIMECLOCK
- ⬡ KITCHEN EQUIPMENT @ 65%
- ● PROVIDE BREAKER WITH "LOCK-ON/OFF" DEVICE
- ◆ GFCI CIRCUIT BREAKER
- ◇ SHUNT TRIP CIRCUIT BREAKER

PANELBOARD NOTES:

1. PROVIDE PERMANENT LABEL ON ALL PANELS PER NEC 110.16 "WARNING, POTENTIAL ARC FLASH HAZARDS EXIST WHILE WORKING ON THIS ENERGIZED EQUIPMENT".
2. PROVIDE PERMANENT LABELS ON ALL PANELS PER NEC 408.4(B) INDICATING 'DESIGNATION, AMPERAGE, VOLTAGE, AND NAME OF PANEL OR EQUIPMENT WHERE FED FROM'.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUIT LABELING PER NEC 408.4. WHERE EVERY CIRCUIT SHALL BE IDENTIFIED AS TO ITS SPECIFIC PURPOSE OR USE. THE IDENTIFICATION SHALL ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS. SPARE CIRCUITS SHALL ALSO BE LABELED.



ONE LINE DIAGRAM

NTS

NOTES:

1. ALL EQUIPMENT IS EXISTING TO REMAIN U.N.O. AND SHOWN FOR REFERENCE ONLY.
2. ELECTRICAL CONTRACTOR TO VERIFY ALL EXISTING SIZES & RATINGS OF FEEDERS, SWITCHES, FUSES AND CIRCUIT BREAKERS SHOWN.

GENERAL NOTES:

1. NO DESIGN CHANGES MAY BE MADE TO THE SYSTEM WITHOUT THE PRIOR APPROVAL OF THE DESIGN ELECTRICAL ENGINEER AND THE ELECTRICAL INSPECTOR

FAULT CURRENT CALCS.

PANEL 2

$f = \frac{1.732 \times 85 \times 27478}{1493 \times 208} = 2.6$ (1)

$M = 0.27$

$I_{sc} = 7,633$ AMPS

PANEL 4

$f = \frac{1.732 \times 85 \times 27478}{1493 \times 208} = 2.60$

$M = 0.28$

$I_{sc} = 7,633$ AMPS

LOAD CALCULATIONS

PEAK DEMAND ON EXISTING METER(S) = 83.2 KW

83.2 KW X 1.25 / .8 PF = 130 KVA / 360 = 361.1 AMPS

NEW LOAD:

PANEL 2	(HIGH PHASE CODE LOAD)	=	79.2 AMPS
PANEL 4	(HIGH PHASE CODE LOAD)	=	83.1 AMPS
NEW SERVICE TOTAL		=	523.4 AMPS

Registered Professional Engineer (Electrical) CERTIFICATE NO. 32861 DONALD A. TULEY Date Signed 3/28/2025 ARIZONA, U.S.A.

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SS PROJECT #: 25-027	
DATE: 03/20/2025	
SCALE: AS NOTED	

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Contractor

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7330 E. MAIN ST., SUITE 105
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SEAL

PROJECT NO. 25004

DRAWN BY: CHECKED BY:

ISSUED:

NO.	DATE	DESCRIPTION
1	8/2/2025	CITY COMMENTS

SHEET NAME

ELECTRICAL DETAILS

3/28/2025

SHEET NUMBER

E2.0

PERMIT DRAWING