

WANDERIST OFFICE & RETAIL

3743 E. INDIAN SCHOOL ROAD, PHOENIX, AZ 85018

ABBREVIATIONS

A	AIR	MICRO	MICROWAVE
A/C	AIR CONDITIONING	MIN	MINIMUM
ACT	ACOUSTICAL TREATMENT (CEILING TILE OR PANEL)	MIR	MIRROR
AD	AREA DRAIN	MISC	MISCELLANEOUS
ADD	ADDENDUM	MM	MILLIMETER - S
ADJ	ADJUSTABLE	MTL	METAL
AFF	ABOVE FINISH FLOOR	MULL	MULLION
AL, ALUM	ALUMINUM	N	NORTH
ALT	ALTERNATE	NA	NOT APPLICABLE
ANOD	ANODIZED	NIC	NOT IN CONTRACT
APPROX	APPROXIMATE	NO, #	NUMBER
ARCH	ARCHITECT, -URAL	NOM	NOMINAL
BETW	BETWEEN	NTS	NOT TO SCALE
BLDG	BUILDING	OC	ON CENTER
BOC	BOTTOM OF CURB	OD	OVERFLOW DRAIN
BOF	BOTTOM OF FOOTING	OFCl	OWNER FURNISHED/CONTRACTOR INSTALLED
CAB	CABINET	OFI	OWNER FURNISHED & INSTALLED
CARD	CARD READER	OH	OPPOSITE HAND
CB	CATCH BASIN	OPP	OPPOSITE
CEM	CEMENT	OSB	ORIENTED STRANDBOARD
CJ	CONTROL JOINT	OZ	OUNCE
CL	CENTERLINE	PCF	POUNDS PER CUBIC FEET
CLG	CEILING	PERF	PERFORATE, -D
CLO	CLOSET	PL	PLATE
CLR	CLEAR, -ANCE	PLAM	PLASTIC LAMINATE
CM	CENTIMETER	PLAS	PLASTER
CMU	CONCRETE MASONRY UNIT	PLYWD	PLYWOOD
COL	COLUMN	PNL	PANEL
CONC	CONCRETE	PNT, P	PAINT, -ED
CONST, CONSTR	CONSTRUCTION	PORC	PORCELAIN
CONT	CONTINUE, -OUS	POS	POSITION
CORR	CORRIDOR	PREFAB	PREFABRICATE, -D
CTR	CENTER	PTN	PARTITION
DEMO	DEMOLISH, DEMOLITION	R	RECEPTACLE
DEP, DEPR	DEPRESSED	R	RISER
DET, DTL	DETAIL	RAD	RADIUS
DIA	DIAMETER	RCP	REFLECTED CEILING PLAN
DIAG	DIAGONAL	RD	ROOF DRAIN
DIM	DIMENSION	REF	REFERENCE
DN	DOWN	REFL	REFLECT, -ED, -IVE, -OR
DP	DAMPPOOFING	REFR	REFRIGERATOR
DWG	DRAWING	REINF	REINFORCE
E	EAST	REM	REMOVE
EA	EACH	REQ'D	REQUIRED
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM	REV	REVISE, REVISION
EJ	EXPANSION JOINT	R	ROUGH OPENING
EL	ELEVATION	S	SOUTH
ELEC	ELECTRICAL	SCHED	SCHEDULE
ELEV	ELEVATOR	SEAL	SEALANT
EMER	EMERGENCY	SECT	SECTION
EP	ELECTRICAL PANEL	SHT	SHEET
EPS	EXPANDED POLYSTYRENE	SHTHG	SHEATHING
EQ	EQUAL	SHWR	SHOWER
EQUIP	EQUIPMENT	SIL	SILICONE
EX, (E)	EXISTING	SIM	SIMILAR
EXP	EXPOSED	SPEC	SPECIFICATION (S)
EXT	EXTERIOR	SPF	SPRAY POLYURETHANE FOAM
FA	FIRE ALARM	SPK	SPEAKER
FD	FLOOR DRAIN	SPR	SINGLE-PLY ROOFING
FDN	FOUNDATION	SQ	SQUARE
FE	FIRE EXTINGUISHER	SST, SS	STAINLESS STEEL
FEC	FIRE EXTINGUISHER CABINET	STC	SOUND TRANSMISSION CLASS
FF	FINISHED FLOOR	STD	STANDARD
FHC	FIRE HOSE CABINET	STL	STEEL
FIN	FINISH	STOR	STORAGE
FLR, FL	FLOOR, -ING	STR, STRL	STRUCTURE, STRUCTURAL
FOC	FACE OF CONCRETE	SYM	SYMMETRY, -(ICAL)
FOF	FACE OF FINISH	T	TEL/DATA OUTLET
FOM	FACE OF MASONRY	T STAT	THERMOSTAT
FOS	FACE OF STUDS	T&G	TONGUE AND GROOVE
FUT	FUTURE	TEL	TELEPHONE
GA	GAUGE	THK	THICK, -NESS
GAL, GALV	GALVANIZED	THRU	THROUGH
GFI	GROUND FAULT INTERRUPTER	TOC	TOP OF CONCRETE, CURB
GL	GLASS, GLAZING, GLAZED	TOP	TOP OF FOOTING
GWB	GYPSPUM BOARD	TOP	TOP OF PAVEMENT
GYP	GYPSPUM	TOS	TOP OF STEEL
HB	HOSE BIB	TOW	TOP OF WALL
HGT, HT	HEIGHT	TRANS, TPT	TRANSPARENT
HM	HOLLOW METAL	TV	TELEVISION
HOR, HORIZ	HORIZONTAL	TYP	TYPICAL
HSS	HOLLOW STEEL SHAPE	UC	UNDER CABINET
HVAC	HEATING, VENTILATING, AIR CONDITIONING	UL	UNDERWRITERS' LABORATORIES
ID	INSIDE DIAMETER	UNO	UNLESS NOTED OTHERWISE
INCL	INCLUDE, -D, -ING	UNO	UNLESS OTHERWISE NOTED
INSUL	INSULATE, -ION, -D, -ING	VCT	VINYL COMPOSITION TILE
INT	INTERIOR	VERT	VERTICAL
IT	JOINT	VIF	VERIFY IN FIELD
KIT	KITCHEN	W	WEST
LAM	LAMINATE	W	WIDTH
LAV	LAVATORY	W	WITH
LT	LIGHT	WO	WITHOUT
LVL	LEVEL	WC	WATER CLOSET
MANUF	MANUFACTURER	WD	WOOD
MAS	MASONRY	WDW	WINDOW
MAT, MATL	MATERIAL, -S	WDF	WIDE FLANGE
MAX	MAXIMUM	WP	WATERPROOF, -ING
MDF	MEDIUM DENSITY FIBERBOARD	WP/C	WATERPROOFING, CRYSTALLINE
MECH	MECHANIC, -AL	WT	WEIGHT
MED	MEDIUM	WWF	WELDED WIRE FABRIC
MEMB	MEMBRANE	XPS	EXTRUDED POLYSTYRENE INSULATION
MET	METAL, -LIC		
MFD	MANUFACTURED		

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GENERAL NOTES

IF THERE IS A CONFLICT BETWEEN ANY NOTES, DRAWINGS, OR SPECIFICATIONS, THE MOST RESTRICTIVE SHALL APPLY.

ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE GOVERNING EDITION OF THE INTERNATIONAL BUILDING CODE, OR SUCH OTHER LEGAL CODES, AND SHALL CONFORM TO ANY SPECIAL REQUIREMENTS OF ANY LENDING OR GOVERNMENTAL INSTITUTIONS.

CONTRACTOR AND SUBCONTRACTORS SHALL BE LICENSED IN THE STATE OF THE PROJECT SITE AND SHALL BE KNOWLEDGEABLE, SKILLED, AND COMPETENT TO PERFORM THE INTENDED WORK.

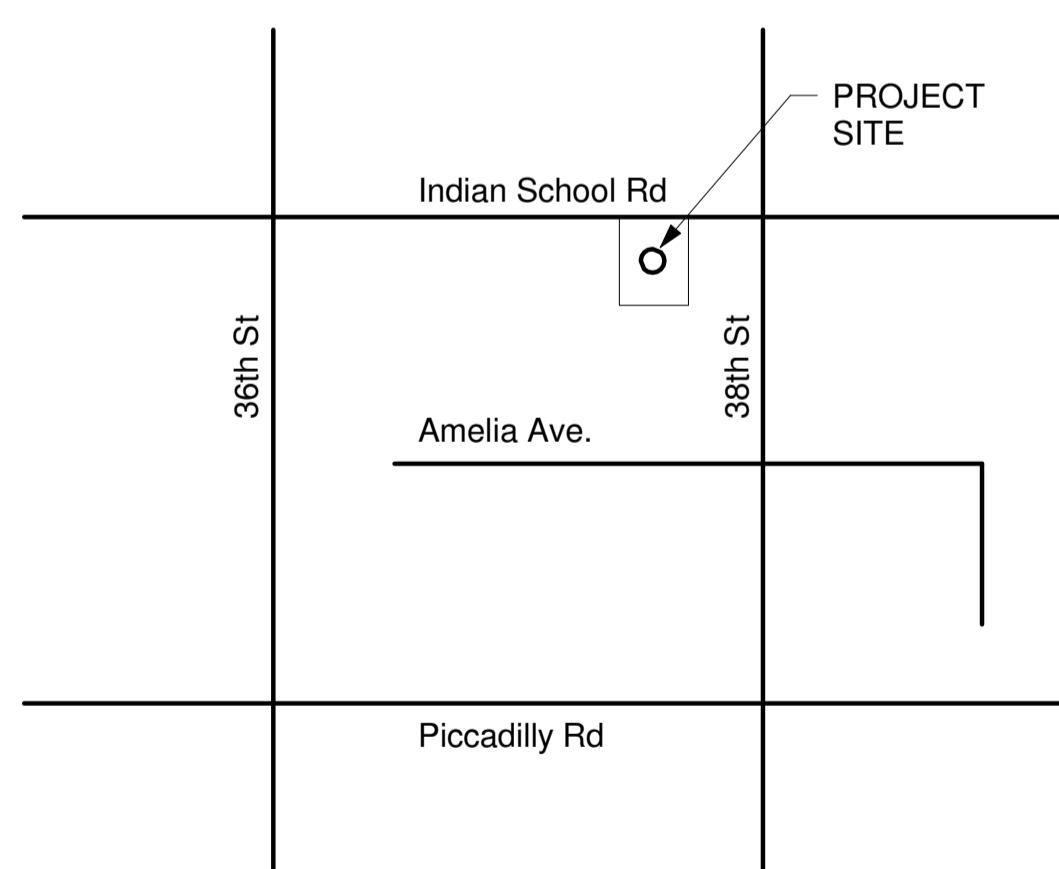
CONTRACTOR AND SUBCONTRACTOR SHALL ENSURE THAT ALL WORK IS PERFORMED IN A PROFESSIONAL MANNER BY SKILLED CRAFTSMAN OR TRADESMAN AND SHALL REPLACE ANY ITEMS DAMAGED BY THE CONTRACTOR OR SUBCONTRACTORS AT NO COST TO THE OWNER. SUBCONTRACTORS SHOULD COOPERATE FULLY WITH EACH OTHER DURING THE COURSE OF CONSTRUCTION TO DETERMINE THE EXACT EXTENT AND OVERLAP OF EACH OTHERS WORK AND TO SUCCESSFULLY COMPLETE THE EXECUTION OF THE WORK IN A TIMELY MANNER.

CONTRACTOR AND SUBCONTRACTORS SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, AND PROCEDURES, AND FOR THE SAFETY PRECAUTIONS IN CONNECTION WITH THE WORK.

CONTRACTOR AND SUBCONTRACTORS SHALL, AT ALL TIMES INDEMNIFY AND HOLD THE ARCHITECT HARMLESS AGAINST ALL LIABILITY FOR CLAIMS AND LIENS FOR LABOR PERFORMED OR MATERIALS USED OR FURNISHED TO BE USED ON THE JOB, INCLUDING ANY COSTS AND EXPENSES FOR ATTORNEY FEES AND ALL INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING TO THE ARCHITECT ARISING FROM SUCH CLAIMS.

ALL BIDS SUBMITTED AND ACCEPTED UNDER THIS CONTRACT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE DOCUMENTS.

THE ARCHITECT NEITHER WARRANTS NOR GUARANTEES ANY CONSTRUCTION MATERIAL, EQUIPMENT, APPLIANCE, FIXTURE, HARDWARE, FINISH, OR MEAN/METHOD OF CONSTRUCTION. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ANY PROJECT SITE GRADING OR DRAINAGE, NOR ANY TOXIC AND HAZARDOUS MATERIAL, GROUND EROSION, CORROSION, SUBSOIL, OR AIR AND WATER CONDITIONS, OR SIMILAR SUCH CONDITIONS OF THE PROJECT.



VICINITY MAP

PROJECT DESCRIPTION

NEW 3,760 SF OFFICE/RETAIL BUILDING CONSTRUCTED ON EXISTING SLAB ON GRADE.

DEFERRED SUBMITTALS

FIRELINE FIRE SPRINKLER FIRE ALARM FIRE ACCESS GATE ACCESS KNOX BOX

SEPARATE SUBMITTALS

SIGNAGE LANDSCAPE INVENTORY/SALVAGE GATES

CODE COMPLIANCE

2018 INTERNATIONAL BUILDING CODE
2018 UNIFORM PLUMBING CODE
2018 INTERNATIONAL MECHANICAL CODE
2017 NATIONAL ELECTRIC CODE
2018 INTERNATIONAL FUEL AND GAS CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
2012 INTERNATIONAL FIRE CODE

SPECIAL INSPECTIONS

SEE STRUCTURAL S.02

CONTRACTOR & OWNER NOTICE

THIS PROJECT HAS BEEN PERMITTED UNDER THE CITY OF PHOENIX SELF-CERTIFICATION PROGRAM. THE PROJECT IS SUBJECT TO AUDIT AND FIELD INSPECTION BY THE PLANNING & DEVELOPMENT DEPARTMENT. IF THE CONSTRUCTION OF THE PROJECT IS CONTRARY TO, OR DOES NOT MEET THE STANDARD OF THE CITY OF PHOENIX BUILDING CONSTRUCTION CODES, THE OWNER, AT HIS/HER OWN EXPENSE, SHALL REMOVE OR MODIFY ANY AND ALL COMPONENTS THAT DO NOT CONFORM. ANY DEVIATIONS FROM THE APPROVED PLAN MUST BE COORDINATED IN ADVANCE WITH THE CITY INSPECTOR AND REVISED PLANS OR SKETCHES MUST BE PROVIDED BY THE SELF-CERTIFIED PROFESSIONAL.

CERTIFICATION STATEMENT

I HEREBY CERTIFY THAT THESE DRAWINGS ARE PREPARED BY ME, UNDER MY SUPERVISION, OR REVIEWED BY ME AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE CONFORM TO THE PHOENIX BUILDING CONSTRUCTION CODE.

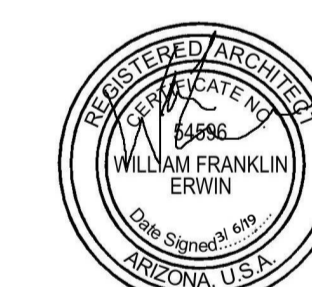
SELF CERTIFIED BY: *Donald Andrews* DATE: 03/11/19
DONALD ANDREWS CERTIFICATE #45

- PLANS WERE PREPARED BY OR UNDER THE DIRECT SUPERVISION OF, OR REVIEWED BY THE SELF-CERTIFIED PROFESSIONAL.
- PLANS ARE COMPLETE.
- THE PLANS ARE, AS OF THE DATE OF SUBMISSION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE PHOENIX BUILDING CONSTRUCTION CODE AND ALL OTHER APPLICABLE LAWS.

KIVA #18-1372
SDEV #1800276
PAPP #1806619
PRLC
QS Q16-36

SHEET ISSUE/REV:

NO.	DESCRIPTION	DATE
-	PRE-APP MTG	10.10.18
-	MINOR SITE PLAN	01.09.19
-	CITY SUBMITTAL	03.06.19



Expires 6.30.19

Owner JONATHAN PITT
Proj. Name WANDERIST OFFICE & RETAIL

COVER SHEET

Date 03/06/19

A000

Scale 1/4" = 1'-0"

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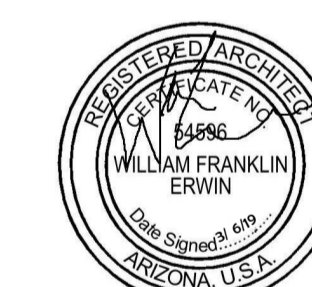
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SHEET ISSUE/REV:

NO.	DESCRIPTION	DATE
-	PRE-APP MTG	10.10.18
-	MINOR SITE PLAN	01.09.19
-	CITY SUBMITTAL	03.06.19



Owner JONATHAN PITT
 Proj. Name WANDERIST OFFICE & RETAIL

CODE DATA & EGRESS PLAN

Date 03/06/19

A001

Scale As indicated

ZONING DATA

PARCELS: 127-25-120-J & 127-25-122
 ZONING: C-1
 ADDRESS: 3743 E. INDIAN SCHOOL ROAD, PHOENIX, AZ 85018

CONSTRUCTION TYPE

TYPE VB - SPRINKLERED (UNDER SEPARATE PERMIT)
 OCCUPANCY CLASSIFICATION B, M
 2018 IECC CLIMATE ZONE - 2B

BUILDING LIMITATIONS

REFERENCE IBC TABLE 504.3, SECTION 504.4, AND SECTION 506.2

GROUP	TYPE 5B	HEIGHT
M	2 / 27,000	UL
B	3 / 27,000	UL/UL

MAX HEIGHT 60'
 THE PROPOSED BUILDING IS A SINGLE STORY

OCCUPANCY CLASSIFICATION

REFERENCE IBC TABLE 1004.1.2

AREA OF USE	OCCUPANCY	LOAD FACTOR
PARKING GARAGE	S-2	200 GROSS
STORAGE	S-1	300 GROSS
MECH/ELEC	S-1	300 GROSS
BUSINESS	B	100 GROSS
MERCANTILE	M	30 GROSS
SWIMMING POOL	A-3	50 GROSS
SWIMMING POOL DECK	A-3	15 GROSS
RESIDENTIAL UNIT	R-2	200 GROSS
RES. BALCONY/PATIO	R-2	200 GROSS
CIRCULATION SPACE	NA	100 GROSS
ASSEMBLY (UNCONCENTRATED)	A-3	15 NET
ASSEMBLY (CONCENTRATED)	A-3	7 NET

FIRE RESISTANCE RATING

BUILDING ELEMENT	TYPE 5B	TABLE
STRUCTURAL FRAME	0 HR	TABLE 601
EXTERIOR NON-BEARING WALLS	X-5'	TABLE 602
INTERIOR NON-BEARING WALLS	0 HR	TABLE 601
EXTERIOR BEARING WALLS	0 HR	TABLE 601
INTERIOR BEARING WALLS	0 HR	TABLE 601
FLOOR CONSTRUCTION	0 HR	TABLE 601
ROOF CONSTRUCTION	0 HR	TABLE 601

SAFETY GLAZING

GLAZING LOCATION	MINIMUM CATEGORY CLASSIFICATION	9 SF OR LESS	MORE THAN 9 SF
FRAMED SWING DOORS	I		II
UNFRAMED SWING DOORS	I		II
TUB AND SHOWER ENCLOSURE	NR		II
ADJACENT TO DOORS	I		II
INDIVIDUAL PANELS	II		II
ADJACENT WALKING SURFACE	NR		II

SAFETY GLAZING WILL NOT BE PROVIDED WHERE ALLOWED BY IBC 2406.3

EXIT TRAVEL DISTANCE

MAXIMUM EXIT ACCESS TRAVEL DISTANCE	IBC, TABLE 1016.2
GROUP M	250 FEET
GROUP B	300 FEET

MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE	IBC, TABLE 1014.3
GROUP M	75 FEET
GROUP B	100 FEET

DISTANCES REFLECT THE PRESENCE OF AUTOMATIC SPRINKLER SYSTEM

EGRESS COMPONENTS

EXIT SIGNS:
 1. EXITS AND EXIT ACCESS DOORS WILL BE MARKED BY AN APPROVED EXIT SIGN READILY VISIBLE FROM ANY DIRECTION OF EGRESS TRAVEL. EXIT SIGN PLACEMENT WILL BE SUCH THAT NO POINT IN A CORRIDOR IS MORE THAN 100 FEET, OR THE LISTED VIEWING DISTANCE FROM THE SIGN, WHICH EVER IS LESS, FROM THE NEAREST VISIBLE EXIT SIGN.
 2. EXIT SIGN LETTERS TO BE NOT LESS THAN 2" WIDE X 6" HIGH (EXCEPT LETTER I), AND THE MINIMUM SPACING BETWEEN THE LETTERS WILL NOT BE LESS THAN (3/4) INCHES. IBC FIGURE 1011.6.1
 3. EXIT SIGN LETTERS TO BE IN HIGH CONTRAST WITH THE BACKGROUND AND CLEARLY DISCERNABLE WHEN THE MEANS OF EGRESS ILLUMINATION IS OR IS NOT ENERGIZED.
 4. TO ENSURE CONTINUED ILLUMINATION FOR A DURATION OF NOT LESS THAN 90 MINUTES IN CASE OF PRIMARY POWER LOSS, THE SIGN WILL BE CONNECTED TO AN EMERGENCY POWER SYSTEM PROVIDED FROM AN ONSITE GENERATOR.

DOORS:
 1. MINIMUM CLEAR WIDTH SHALL BE .2 INCHES PER OCCUPANT SERVED. MINIMUM CLEAR WIDTH SHALL BE REDUCED TO .15 INCHES PER OCCUPANT SERVED IN BUILDING EQUIPPED THROUGHOUT AUTOMATIC SPRINKLER SYSTEM & EMERGENCY VOICEALARM COMMUNICATION SYSTEM, BUT NOT LESS THAN 32 INCHES. IBC, SECTION 1005.3.2 AND TABLE 1008.1.1
 2. MINIMUM HEIGHT SHALL BE 80 INCHES. IBC, SECT 1008.1.1
 3. MAXIMUM WIDTH OF SWINGING DOOR LEAF IS 48 INCHES. IBC, SECT 1008.1.1
 4. DOORS WILL BE SIDE HINGED SWINGING TYPE, AND WILL SWING IN THE DIRECTION OF TRAVEL WHERE THE AREA SERVED HAS AN OCCUPANT OF 50 OR MORE. IBC SECT 1008.1.2
 5. DOORS WILL BE SET IN MOTION WHEN SUBJECTED TO A 30 POUND FORCE, AND SWING TO THE FULLY OPEN POSITION WHEN SUBJECTED TO A 15 POUND FORCE. IBC, TABLE 1008.1.3
 6. DOORS WILL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE, OR SPECIAL EFFORT.

CORRIDORS:
 1. MINIMUM CLEAR WIDTH SHALL BE .15 INCHES PER OCCUPANT SERVED IN BUILDING EQUIPPED THROUGHOUT AUTOMATIC SPRINKLER SYSTEM & EMERGENCY VOICEALARM COMMUNICATION SYSTEM, BUT NOT LESS THAN 44 INCHES. IBC, SECT 1005.3.2 & 1018.2
 2. MIN CLEAR WIDTH WITH AN OCCUPANT CAP OF 50 OR LESS IS 36 INCHES. IBC SECT 1018.2
 3. THE MAXIMUM LENGTH OF DEAD-END CORRIDORS IS 50 FEET FOR GROUP B, M, S, & R-2 AND 20 FEET FOR ALL OTHER OCCUPANCIES. IBC, SECTION 1018.4

INTERVENING ROOMS:
 1. EGRESS FROM A ROOM OR SPACE MAY NOT PASS THROUGH ADJOINING OR INTERVENING ROOMS OR AREAS, EXCEPT WHERE SUCH ADJOINING ROOMS OR AREAS ARE ACCESSORY TO THE AREA SERVED, NOT A HIGH-HAZARD OCCUPANCY, AND PROVIDE A DISCERNABLE PATH OF EGRESS TRAVEL TO AN EXIT. IBC SECT 1014.2
 2. EGRESS MAY NOT PASS THROUGH STORAGE ROOMS, CLOSETS, OR SPACES USED FOR SIMILAR PURPOSES.
 3. EXIT ACCESS MAY NOT PASS THROUGH A ROOM THAT CAN BE LOCKED TO PREVENT EGRESS. IBC, SECTION 1014.2

CODE DATA

2018 CITY OF PHOENIX BUILDING CONSTRUCTION CODE INCLUDING THE FOLLOWING CODES AND AMENDMENTS:
 2018 IBC (INTERNATIONAL BUILDING CODE)
 2018 IECC (INTERNATIONAL ENERGY CONSERVATION CODE)
 2018 IFC (INTERNATIONAL FIRE CODE)
 2017 NEC (NATIONAL ELECTRIC CODE)
 2018 IMC (INTERNATIONAL MECHANICAL CODE)
 2018 IPC (INTERNATIONAL PLUMBING CODE)
 2018 UPC (UNIFORM PLUMBING CODE)

ACCESSIBILITY:
 CHAPTER 11 OF THE IBC
 2009 ANSI A117.1, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

OTHER:
 VARIOUS NFPA CODES AND STANDARDS AS REFERENCED BY CODES LISTED ABOVE

FIRE EXTINGUISHERS

EX PER IBC TABLE SECTION 906 PROVIDE 2-A RATED EXTINGUISHERS. MAX TRAVEL DISTANCE TO EXTINGUISHER 75'-0". MAXIMUM FLOOR AREA PER UNIT OF "A" IS 3,000 SF.
 EX EXIT SIGN

PLUMBING FIXTURE COUNTS

IBC TABLE 2902.1

CLASSIFICATION	OCCUPANCY	WATER CLOSETS	LAVS	TUB / SHOWERS	DRINKING FOUNTAINS	OTHER
BUSINESS	B	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	-	1 per 100 14/100 - 14	1 Service Sink
MERCANTILE	M	1 per 500 78/500 - 15	1 per 750 78/750 - 10	-	1 per 1000 78/1000 - 078	1 Service Sink

WATER CLOSETS
 1 REQUIRED
 2 PROVIDED

DRINKING FOUNTAINS
 1 REQUIRED
 WATER COOLER PROVIDED IN LIEU OF DRINKING FOUNTAIN

SERVICE SINK
 1 REQUIRED
 1 PROVIDED

NOTE: PER IBC 2902.2 SEPARATE FACILITIES ARE NOT REQ'D FOR EA. SEX IN MERCANTILE OCCUPANCIES W/ MAXIMUM OCCUPANT LOAD OF 100 OR FEWER OR BUSINESS OCCUPANCIES W/ 25 OR FEWER. PROVIDE UNISEX SIGNAGE PER IBC 2902.4

IECC DATA

ALL NEW FENESTRATION MUST MEET REQUIREMENTS OF 2012 IECC TABLE C402.3 CLIMATE ZONE 2

TABLE C402.3 BUILDING ENVELOPE REQUIREMENTS: FENESTRATION

CLIMATE ZONE	Vertical fenestration							
	1	2	3	4 EXCEPT MARINE 5 AND MARINE 6	6	7	8	
U-factor	0.50	0.50	0.46	0.38	0.38	0.36	0.29	0.29
Fixed fenestration	0.50	0.50	0.46	0.38	0.38	0.36	0.29	0.29
Operable fenestration	0.65	0.65	0.60	0.45	0.45	0.43	0.37	0.37
Entrance doors	1.10	0.83	0.77	0.77	0.77	0.77	0.77	0.77
SHGC	0.25	0.25	0.25	0.40	0.40	0.40	0.45	0.45
SHGC	0.25	0.25	0.25	0.40	0.40	0.40	0.45	0.45
U-factor	0.75	0.65	0.55	0.50	0.50	0.50	0.50	0.50
SHGC	0.35	0.35	0.35	0.40	0.40	0.40	NR	NR

NR = No requirement.

OCCUPANT LOAD

OCCUPANT LOAD TABLE

AREA NAME	USE GROUP	AREA	NET OR GROSS	LOAD FACTOR	OCCUPANT LOAD
OFFICE & STOCK ROOM	B	1408 SF	GROSS	100 SF	14
RETAIL AREA	M	2336 SF	GROSS	30 SF	78

NO SEPARATION BETWEEN USES REQUIRED PER TABLE 508.4

EXIT ARRANGEMENT

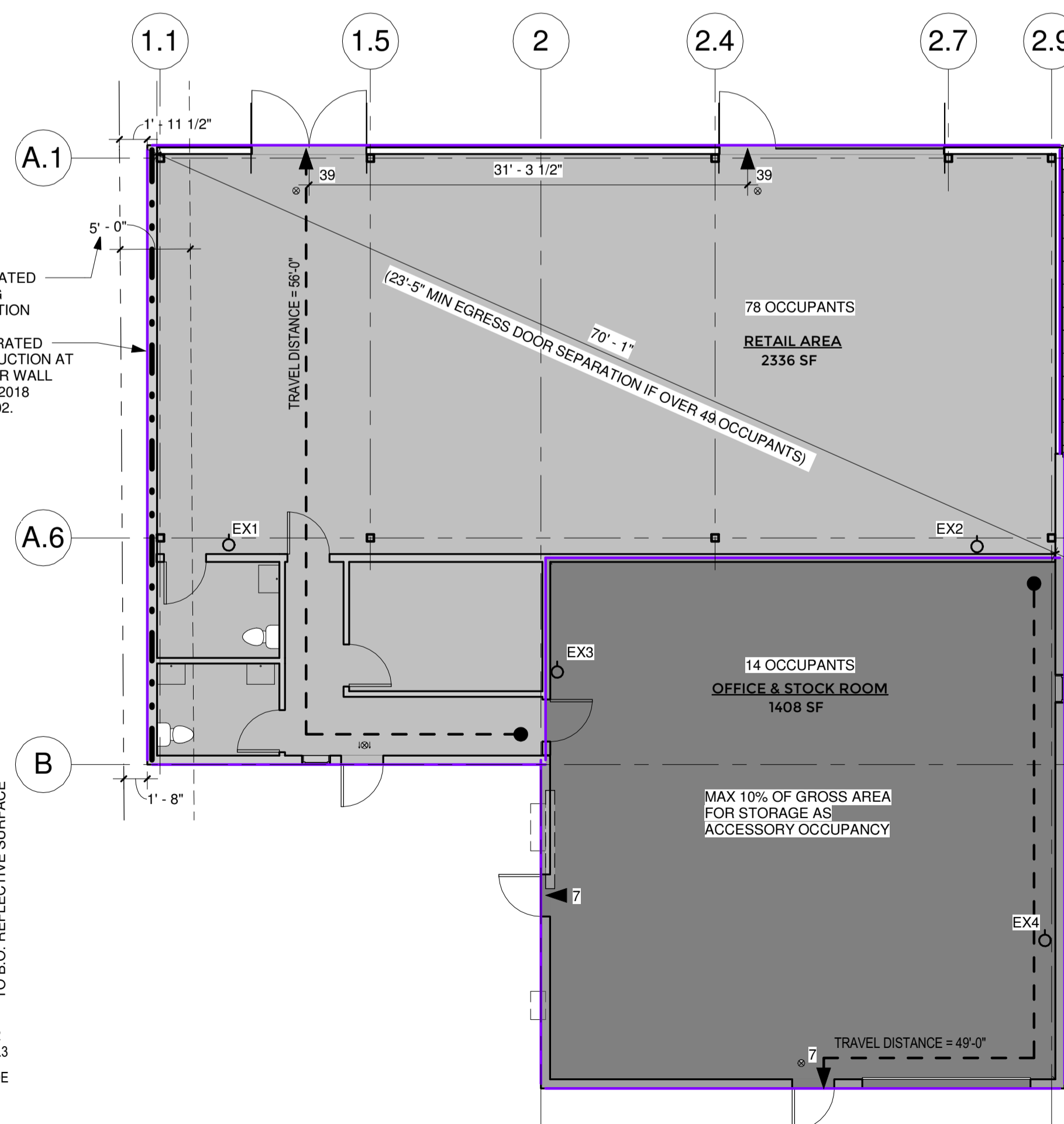
REFERENCE IBC SECTION 1015 & 1021

A MINIMUM OF TWO EXITS WILL BE PROVIDED WHERE EVER THE OCCUPANT LOAD IS GREATER THAN 49 PERSONS IN B AND M USES.

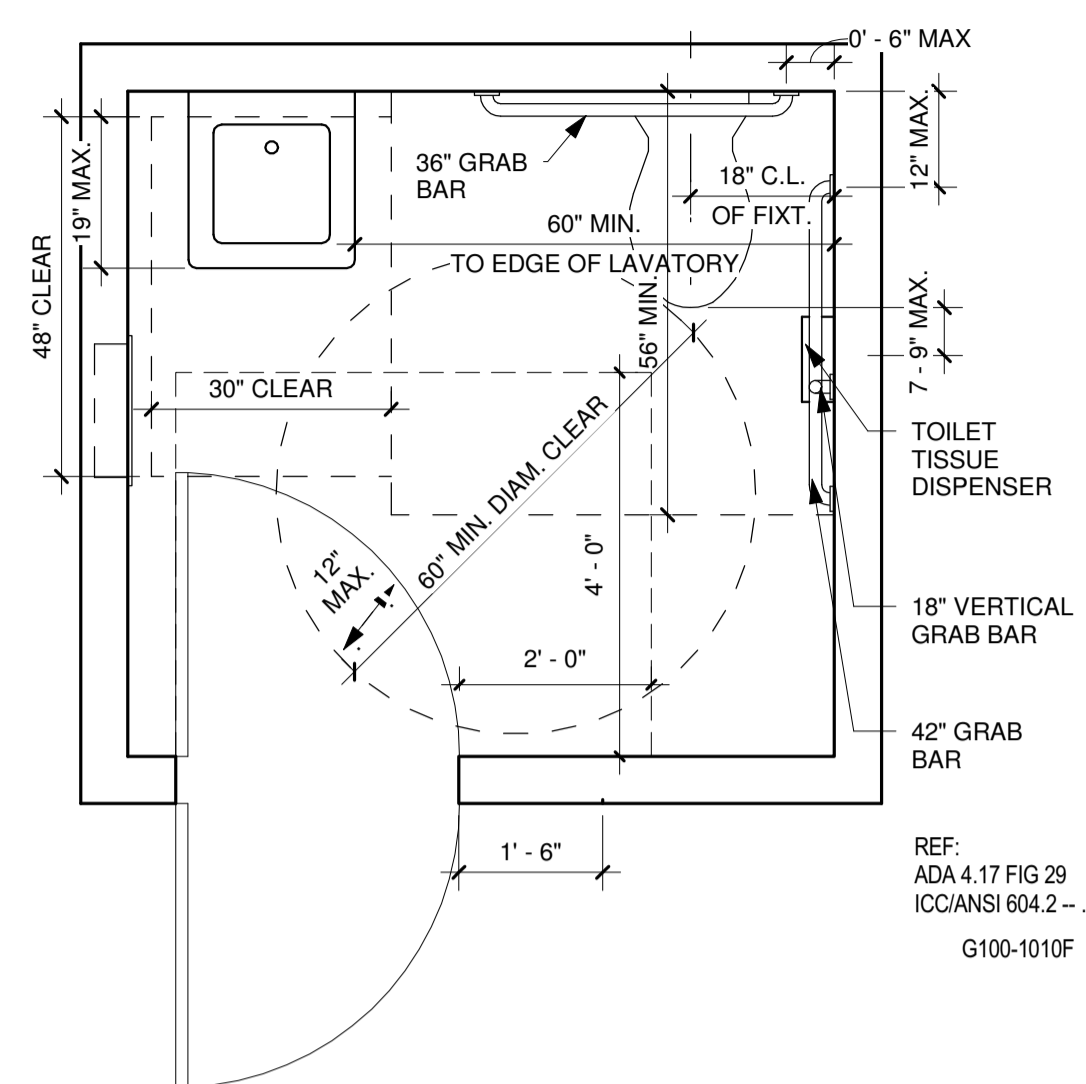
RETAIL AREA
 2 EXITS REQUIRED
 2 EXITS PROVIDED

PRINT AREA
 1 EXIT REQUIRED
 2 EXITS PROVIDED

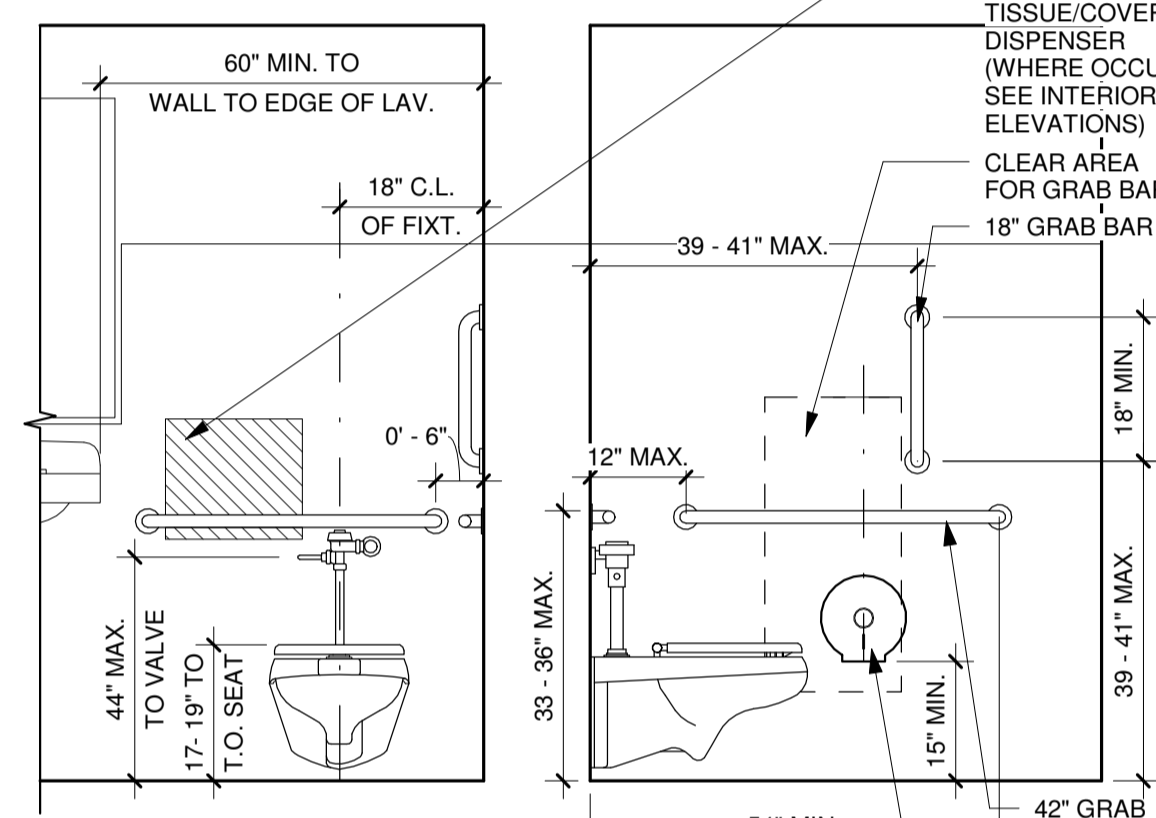
WHERE EVER TWO EXITS ARE REQUIRED FROM ANY PORTION OF THE BUILDING, THE EXITS WILL BE LOCATED A DISTANCE OF NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE SPACE.



1 CODE PLAN AND EXITING DIAGRAM
 1/8" = 1'-0"



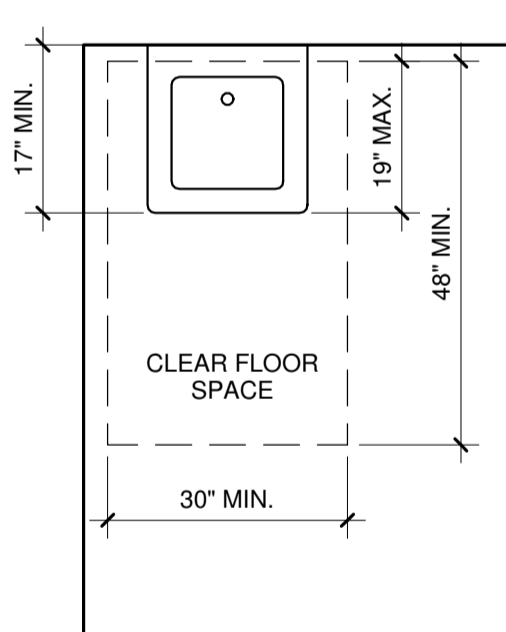
16. BATHROOM PLAN



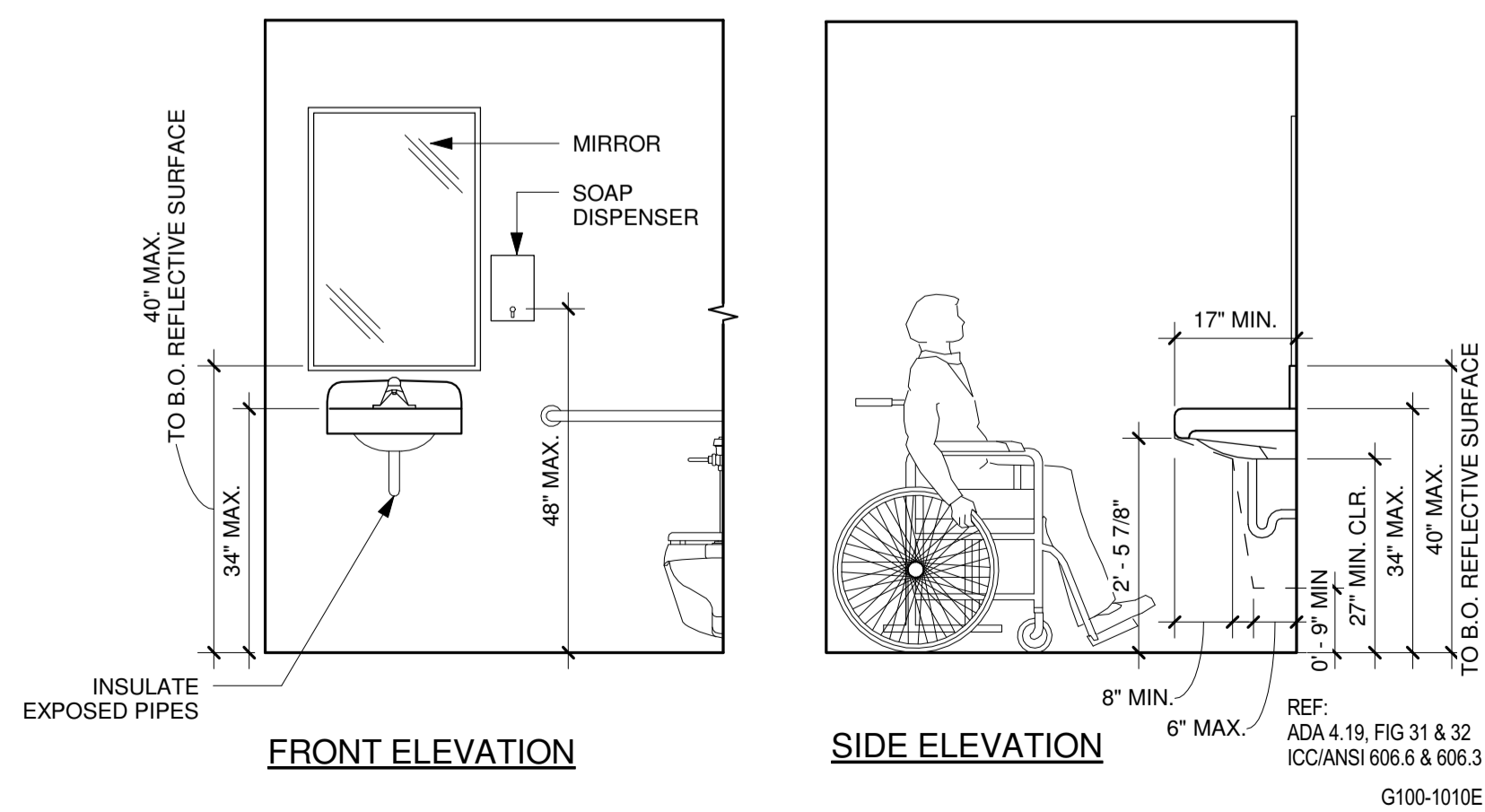
15. FRONT ELEVATION

14. SIDE ELEVATION

3 SINGLE TOILET ROOM
 1/2" = 1'-0"



SINK PLAN



FRONT ELEVATION

SIDE ELEVATION

2 ACCESSIBLE LAVATORY
 1/2" = 1'-0"

COMcheck Software Version 4.1.1.0
Envelope Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Wanderist Office & Retail
Location: Phoenix, Arizona
Climate Zone: 2b
Project Type: New Construction
Vertical Glazing / Wall Area: 29%
Skylight / Roof Area: 0%

Construction Site: 3743 E. Indian School Road, Phoenix, AZ 85018
Owner/Agent: Jonathan Pitt, Superluxe Screen Printing, 3007 N 73rd St Ste. E, Scottsdale, AZ 85251, 480.247.6653
Designer/Contractor: William Erwin, Erwin Architecture & Development, LLC, 5911 W. Park Ave, Chandler, AZ 85226, 602.677.8372, will@erwinarchitecture.com

Additional Efficiency Package(s)

Enhanced Envelope Performance

Building Area	Floor Area
1-Retail with office, print area, and support space (Retail) : Nonresidential	3744

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor _{req}
Roof 1: Attic Roof with Wood Joists, [Bldg. Use 1 - Retail with office, print area, and support space]	3744	28.0	10.0	0.026	0.027
Skylight 1: Metal Frame with Thermal Break-Glass, With Curb, Perf. Specs.: Product ID 3762, SHGC 0.35, [Bldg. Use 1 - Retail with office, print area, and support space] (c)	5	---	---	0.650	0.650
Floor 1: Slab-On-Grade-Unheated, [Bldg. Use 1 - Retail with office, print area, and support space] (d)	265	---	---	0.730	0.730
NGRTH Exterior Wall 5: Wood-Framed, 24" o.c., [Bldg. Use 1 - Retail with office, print area, and support space]	980	20.0	0.0	0.062	0.064
Window 4: Other Window-Fixed, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Retail with office, print area, and support space] (c)	673	---	---	0.180	0.500
Window 5: Other Window-Fixed, Perf. Specs.: Product ID NA, SHGC 0.33, PF 0.38, [Bldg. Use 1 - Retail with office, print area, and support space] (c)	96	---	---	0.500	0.500
Door 4: Glass (> 50% glazing) Nonmetal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.37, PF 0.38, [Bldg. Use 1 - Retail with office, print area, and support space] (c)	99	---	---	0.830	0.830
EAST Exterior Wall 1: Wood-Framed, 24" o.c., [Bldg. Use 1 - Retail with	1007	20.0	0.0	0.062	0.064

Project Title: Wanderist Office & Retail
Data filename: C:\Users\stoccl\Desktop\Wanderist.cck
Report date: 03/04/19
Page 1 of 11

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor _{req}
office, print area, and support space]	275	---	---	0.180	0.500
Window 1: Other Window-Fixed, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Retail with office, print area, and support space] (c)	22	---	---	0.650	0.650
Window 3: Metal Frame-Operable, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Retail with office, print area, and support space] (c)	980	20.0	0.0	0.062	0.064
SOUTH Exterior Wall 1: Wood-Framed, 24" o.c., [Bldg. Use 1 - Retail with office, print area, and support space]	980	20.0	0.0	0.062	0.064
Window 2: Metal Frame-Operable, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Retail with office, print area, and support space] (c)	7	---	---	0.650	0.650
Door 1: Insulated Metal, Swinging, [Bldg. Use 1 - Retail with office, print area, and support space]	42	---	---	0.610	0.610
Door 2: Insulated Metal, Garage door 14% glazing, [Bldg. Use 1 - Retail with office, print area, and support space]	126	---	---	0.310	0.310
WEST Exterior Wall 3: Wood-Framed, 16" o.c., [Bldg. Use 1 - Retail with office, print area, and support space]	750	20.0	0.0	0.064	0.064
Exterior Wall 4: Wood-Framed, 24" o.c., [Bldg. Use 1 - Retail with office, print area, and support space]	340	20.0	0.0	0.062	0.064
Door 3: Insulated Metal, Swinging, [Bldg. Use 1 - Retail with office, print area, and support space]	21	---	---	0.610	0.610

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) Other components require supporting documentation for proposed U-factors.
(c) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
(d) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope Passes: Design 12% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

William Erwin, President
Name - Title Signature Date 3/4/19

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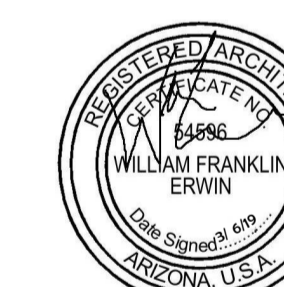
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SHEET ISSUE/REV:

NO.	DESCRIPTION	DATE
-	PRE-APP MTG	10.10.18
-	MINOR SITE PLAN	01.09.19
-	CITY SUBMITTAL	03.06.19



Expires 6.30.19

Owner: JONATHAN PITT
Proj. Name: WANDERIST OFFICE & RETAIL

ENVELOPE COMCHECK

Date: 03/06/19

A002

Scale

SELF CERTIFIED BY: DONALD ANDREWS DATE: 03/06/2019 CERTIFICATE #45

- PLANS WERE PREPARED BY OR UNDER THE DIRECT SUPERVISION OF, OR REVIEWED BY THE SELF-CERTIFIED PROFESSIONAL.
- PLANS ARE COMPLETE.
- THE PLANS ARE, AS OF THE DATE OF SUBMISSION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE PHOENIX BUILDING CONSTRUCTION CODE AND ALL OTHER APPLICABLE LAWS.

KIVA #18-1372
SDEV #1800276
PAPP #1806619
PRLC
QS Q16-36

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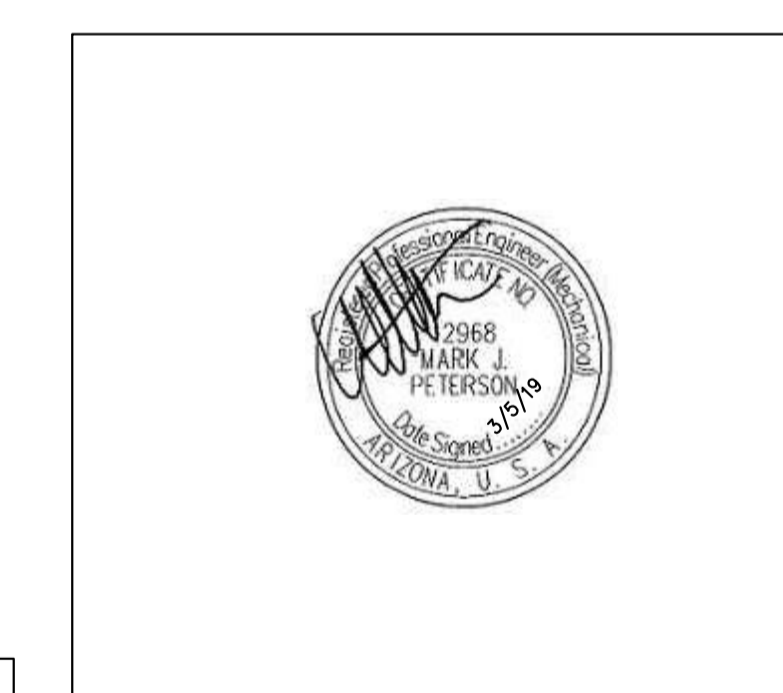
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-	CITY SUBMITTAL	03.06.19



Owner JONATHAN PITT
Proj. Nam WANDERIST OFFICE & RETAIL

PLUMBING SCHEDULES & NOTES

Date 10/08/18

P001

Scale AS SHOWN

KIVA #18-1372
SDEV #1800276
PAPP #1806619
PRLC
QS Q16-36

PLUMBING CONSTRUCTION NOTES

- EXACT LOCATION OF PLUMBING FIXTURES SHALL BE DETERMINED FROM ARCHITECTURAL DRAWINGS.
- BEFORE SUBMITTING BID, THE PLUMBING CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS AND INCLUDE IN HIS BID AN AMOUNT TO FURNISH AND INSTALL ANY FIXTURES WHICH ARE SHOWN IN ADDITION TO FIXTURES SHOWN ON THE PLUMBING DRAWINGS.
- CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF SEWERS TO WHICH NEW WASTE LINES ARE TO BE CONNECTED BEFORE MAKING UP OR INSTALLATION OF NEW WASTE SYSTEM.
- CONTRACTOR SHALL VERIFY AND COORDINATE LOCATION OF ALL PLUMBING LINES WITH DUCTWORK AND ELECTRICAL SERVICES.
- THE INSTALLATION OF ALL VALVES, UNIONS, THERMOMETERS, GAUGES, OR OTHER INDICATING OR RECORDING EQUIPMENT, OR SPECIALTIES REQUIRING FREQUENT READING, REPAIRS, ADJUSTMENT, INSPECTION, REMOVAL OR REPLACEMENT SHALL BE CONVENIENTLY AND ACCESSIBLY LOCATED WITH REFERENCE TO THE FINISHED BUILDING.
- ALL VENTS THROUGH ROOF SHALL BE 10'-0" REMOVED FROM ALL AIR INTAKES, EVAPORATIVE COOLERS, ETC.
- WHERE POSSIBLE, THE VENTS TOGETHER SO THAT A MINIMUM NUMBER TERMINATE THROUGH THE ROOF.
- CONTRACTOR SHALL NOT CUT HOLES IN STRUCTURAL MEMBERS WITHOUT FIRST SECURING WRITTEN APPROVAL FROM THE ARCHITECT.
- CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.
- CONTRACTOR SHALL ROUGH-IN ALL WASTES AND SUPPLIES FOR SPECIAL EQUIPMENT ACCORDING TO MANUFACTURERS SHOP DRAWINGS AND MAKE FINAL CONNECTIONS. ALL SUPPLIES SHALL BE VALVED.
- VERTICAL STRAIGHT RUNS OR PVC DWV SHALL BE PROTECTED FROM EXPANSION AND CONTRACTION UTILIZING ONE OR MORE OF THE FOLLOWING METHODS:
 - PROVIDE A MINIMUM OF 24 INCHES, 45 DEGREE OFFSETS EVERY 30 FEET.
 - PROVIDE CERTIFIED AND LISTED EXPANSION FITTINGS AS MANUFACTURED BY CANPLAS INDUSTRIES, LTD., OR EQUAL, IN VERTICAL RUNS IN EXCESS OF 30 FEET PROVIDED THAT THEY ARE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- WHEN WATER PIPE AND SEWERS ARE LAID PARALLEL TO EACH OTHER, ONE OF THE FOLLOWING PROCEDURES MUST BE FOLLOWED:
 - THE HORIZONTAL DISTANCE BETWEEN THE WATER PIPE AND SEWER SHALL NOT BE LESS THAN SIX (6) FEET. EACH LINE SHALL BE LAID IN A SEPARATE TRENCH OR THE SPACE IN BETWEEN FILLED WITH COMPACT FILL.
 - THE WATER SERVICE PIPE MAY BE PLACED IN THE TRENCH WITH THE BUILDING DRAIN AND/OR BUILDING SEWER, PROVIDED THE BOTTOM OF THE WATER SERVICE PIPE, AT ALL POINTS SHALL BE AT LEAST TWELVE (12) INCHES ABOVE THE TOP OF THE SEWER LINE, AND SHALL BE PLACED ON A SOLID SHELF EXCAVATED AT ONE SIDE OF THE COMMON TRENCH. SAID WATER SERVICE AND SEWER SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR USE WITHIN A BUILDING AND PRESSURE TESTED TO ASSURE WATER TIGHTNESS BEFORE BACKFILLING.
 - WATER SERVICE SHALL BE COPPER TO A MINIMUM 10'-0" OUTSIDE OF BUILDING FOR ELECTRICAL GROUNDING PURPOSES.

PLUMBING LEGEND

SYMBOL	ABBR.	DESCRIPTION
---	W	DRAIN OR WASTE PIPING
---	V	VENT PIPING
---	CW	COLD WATER PIPING
---	HW	HOT WATER PIPING
---	HWR	HOT WATER RETURN PIPING
---	G	NATURAL GAS PIPING
---	LPG	LIQUIFIED PETROLEUM GAS PIPING
---	RDL	ROOF DRAIN LEADER
---	ODL	OVERFLOW DRAIN LEADER
---	A	COMPRESSED AIR PIPING
---	RO	REVERSE OSMOSIS WATER PIPING
---	F	FIRE SPRINKLER PIPING
---	GV	GATE VALVE
---	GBV	GLOBE VALVE
---	CV	CONTROL VALVE (TWO & THREE-WAY)
---	BFV	BUTTERFLY VALVE (MANUAL & MOTORIZED)
---	BV	BALL VALVE
---	CKV	CHECK VALVE
---	BLV	BALANCE & FLOW CONTROL VALVE W/TAPS
---	NV	NEEDLE VALVE
---	MAV	MANUAL AIR VENT
---	AAV	AUTOMATIC AIR VENT (PIPE DRAIN TO F.S.)
---	ITW	INSTRUMENT THERMOMETER WELL
---	PP	PETE'S PLUG WITH P.T. ATTACHMENT
---	PG	PRESSURE GAUGE & COCK (STEAM SIPHON)
---	TH	THERMOMETER
---	ST	STRAINER W/FULL SIZE BLOW DOWN VALVE.
---	FLG	FLANGE
---	REDUCERS: A = ECCENTRIC; B = CONCENTRIC	
---	---	GAS COCK, GAS STOP VALVE
---	U	UNION
---	HB	HOSE BIBB
---	NFHB	NON-FREEZE HOSE BIB
---	FS	FLOOR SINK
---	FD	FLOOR DRAIN
---	FCO	FLOOR CLEANOUT
---	SCO	SURFACE CLEANOUT
---	WCO	WALL CLEANOUT
---	RD	ROOF DRAIN
---	OFD	OVERFLOW DRAIN
---	VTR	VENT THRU ROOF
---	SW	SOFT WATER
---	D	INDIRECT WASTE
---	POC	POINT OF CONNECTION BETWEEN NEW AND EXISTING
---	TP	TRAP PRIMER
---	AP	ACCESS PANEL
---	WHA	WATER HAMMER ARRESTOR
---	AAV	AIR ADMITTANCE VALVE

LOW FLOW REQUIREMENTS

ALL PLUMBING FIXTURES SHALL HAVE FLOW REDUCERS OR BE SO CONSTRUCTED TO MEET THE FOLLOWING REQUIREMENTS:

WATER CLOSET (TANK TYPE)	1.6 GALLONS PER FLUSH
WATER CLOSETS (FLOOR MOUNT-FLUSHMETER)	1.6 GALLONS PER FLUSH
URINALS	1.0 GALLONS PER FLUSH
SHOWER HEADS	3 GPM AT 80 PSI
LAVATORY FAUCETS (PUBLIC)	.5 GPM AT 80 PSI
RESIDENTIAL KITCHEN SINK FAUCETS	2.5 GPM AT 80 PSI
RESIDENTIAL BAR SINK FAUCETS	2.5 GPM AT 80 PSI
LAVATORY FAUCETS (RESIDENTIAL)	.5 GPM AT 80 PSI

PUBLIC RESTROOMS: IN ADDITION TO THE MAXIMUM RATE OF FLOW, LAVATORY FAUCETS IN PUBLIC RESTROOMS SHALL BE OF THE METERING, SELF CLOSING TYPE.

PIPE AND FITTINGS

SERVICE	PIPE	FITTINGS
SANITARY DRAIN, WASTE AND VENT, AND RAINWATER INTERIOR, ABOVE GRADE	CAST IRON, HUBLESS, SERVICE WEIGHT, CISPI 301	CAST IRON, WITH NEOPRENE GASKETED JOINTS & STAINLESS STEEL CLAMP- AND-SHIELD ASSEMBLIES.
WATER PIPING BELOW GRADE	TYPE "K" SOFT TEMPER COPPER TUBING	NO JOINTS PERMITTED BELOW FLOOR
ALL WATER PIPING ABOVE GRADE	TYPE "L" HARD DRAWN COPPER, ASTM B88	WROUGHT COPPER SOLDER TYPE CONFORMING TO ASME B16.22
NATURAL GAS PIPING ABOVE GRADE	SCHEDULE 40 BLACK STEEL PIPE	ASME B16.3 MALLEABLE IRON OR ASTM A234/A234M WROUGHT STEEL WELDING TYPE
SANITARY DRAIN, WASTE AND VENT, AND RAINWATER INTERIOR, BELOW GRADE WITHIN 5 FEET OF BUILDING	CAST IRON, HUBLESS, SERVICE WEIGHT, CISPI 301	CAST IRON, WITH NEOPRENE GASKETED JOINTS & STAINLESS STEEL CLAMP- AND-SHIELD ASSEMBLIES.
	PVC PIPE ASTM D2665 OR ASTM D3034	PVC FITTINGS, SOLVENT WELDED WITH ASTM D2564 SOLVENT CEMENT.

FIELD VERIFICATION NOTES:

- THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID TO FIELD VERIFY ALL EXISTING CONDITIONS WHICH MAY AFFECT HIS BID. THE FOLLOWING ITEMS SHALL BE VERIFIED:
 - EXACT PLACEMENT, SIZE AND INVERT ELEVATION OF ALL EXISTING WASTE PIPING.
 - EXACT PLACEMENT AND SIZE OF ALL EXISTING COLD WATER PIPING.
 - EXACT PLACEMENT AND SIZE OF ALL EXISTING VENT PIPING.
- ALL REFERENCES ON THESE DRAWINGS TO EXISTING WASTE, WATER AND VENT PIPING IS FOR REFERENCE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL THESE ITEMS PRIOR TO BID AND INCLUDE IN HIS BID ANY AND ALL AMOUNTS REQUIRED TO ACCOMMODATE EXISTING CONDITIONS.
- NO ALLOWANCES WILL BE MADE AFTER THE PROJECT HAS BEEN AWARDED FOR FAILURE TO VERIFY EXISTING CONDITIONS.
- ANY DISCREPANCIES WHICH MAY AFFECT THE CONTRACTORS BID SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND ARCHITECT FOR DIRECTION.

PLUMBING FIXTURE SCHEDULE

WC-1	TANK TYPE WATER CLOSET (HANDICAPPED); AMERICAN STANDARD 215AA.104 "CADET PRO" 16-1/2" HIGH FLOOR MOUNTED, VITREOUS CHINA, ELONGATED BOWL, SIPHON JET BOWL, EVERCLEAN ANTIMICROBIAL SURFACE, 1.28 GPF CONSUMPTION, WHITE IN COLOR OR AS SELECTED BY ARCHITECT. PROVIDE AMERICAN STANDARD 5901.100SS WHITE OPEN FRONT SEAT WITH SELF-SUSTAINING CHECK HINGE WITHOUT COVER. SUPPLY: WATTS BV894012K 5/8" X 3/8" OD CHROME PLATED LOOSE KEY QUARTER TURN BALL VALVE STYLE COMPRESSION ANGLE STOP WITH 12" FLEXIBLE RISER TUBE AND ESCUTCHEON.
L-1	WALL HUNG LAVATORY (HANDICAPPED); AMERICAN STANDARD 0355.012 "LUCERNE", 20" X 18", VITREOUS CHINA, WALL HUNG LAVATORY WITH FRONT OVERFLOW, SELF-DRAINING DECK AREA WITH CONTOURED BACK AND SIDE SPLASH SHIELDS AND CONCEALED WALL HANGER. SHALL INCLUDE 4TH HOLE DRILLING TO RIGHT FOR SOAP DISPENSER. SUPPLY FITTING: SYMONS MODEL S-60-G-H 4" CENTER SET SLOW-CLOSING LAVATORY FAUCET, WITH BLADE HANDLE, 0.5 GPM FLOW RATE AND WATTS 629203C CAST BRASS DRAIN WITH INTEGRAL PERFORATED GRID AND 1-1/4" TAILPIECE. WATTS 519-173R 1-1/4" X 1-1/2" SEMI-CAST BRASS P-TRAP WITH CLEANOUT. PROVIDE WATTS LFBV894016K 5/8" X 3/8" OD LOW LEAD CHROME PLATED LOOSE KEY QUARTER TURN BALL VALVE STYLE COMPRESSION ANGLE STOPS WITH 16" FLEXIBLE RISER TUBES AND ESCUTCHEONS. CERTIFIED TO NSF/ANSI STANDARD 61-G SECTION 9.
HB-1	HOSE BIBB: "WOODFORD" MODEL 24P-3/4" ANTI-SIPHON VACUUM BREAKER. WALL FAUCET

PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	DESCRIPTION	TRAP SIZE	WASTE	VENT	COLD WATER	HOT WATER	REMARKS
WC-1	WATER CLOSET TANK TYPE	INTEGRAL	4"	2"	1/2"	-	(HDCP)
L-1	LAVATORY	1-1/2"	2"	1-1/2"	1/2"	1/2"	(WALL MOUNT)
HB-1	HOSE BIBB	-	-	-	3/4"	-	W/ VACUUM BREAKER

INSTANTANEOUS WATER HEATER SCHEDULE

MARK	MODEL	TYPE	ELECTRICAL			TEMP. RISE	REMARKS
			KW	VOLTS	PHASE		
IWH-1&2	CHRONOMITE M-30L	DOMESTIC HOT WATER	3.6	120	1	57° F.	SET TEMPERATURE FOR 105°

WATER CALCULATION - UPC 2018

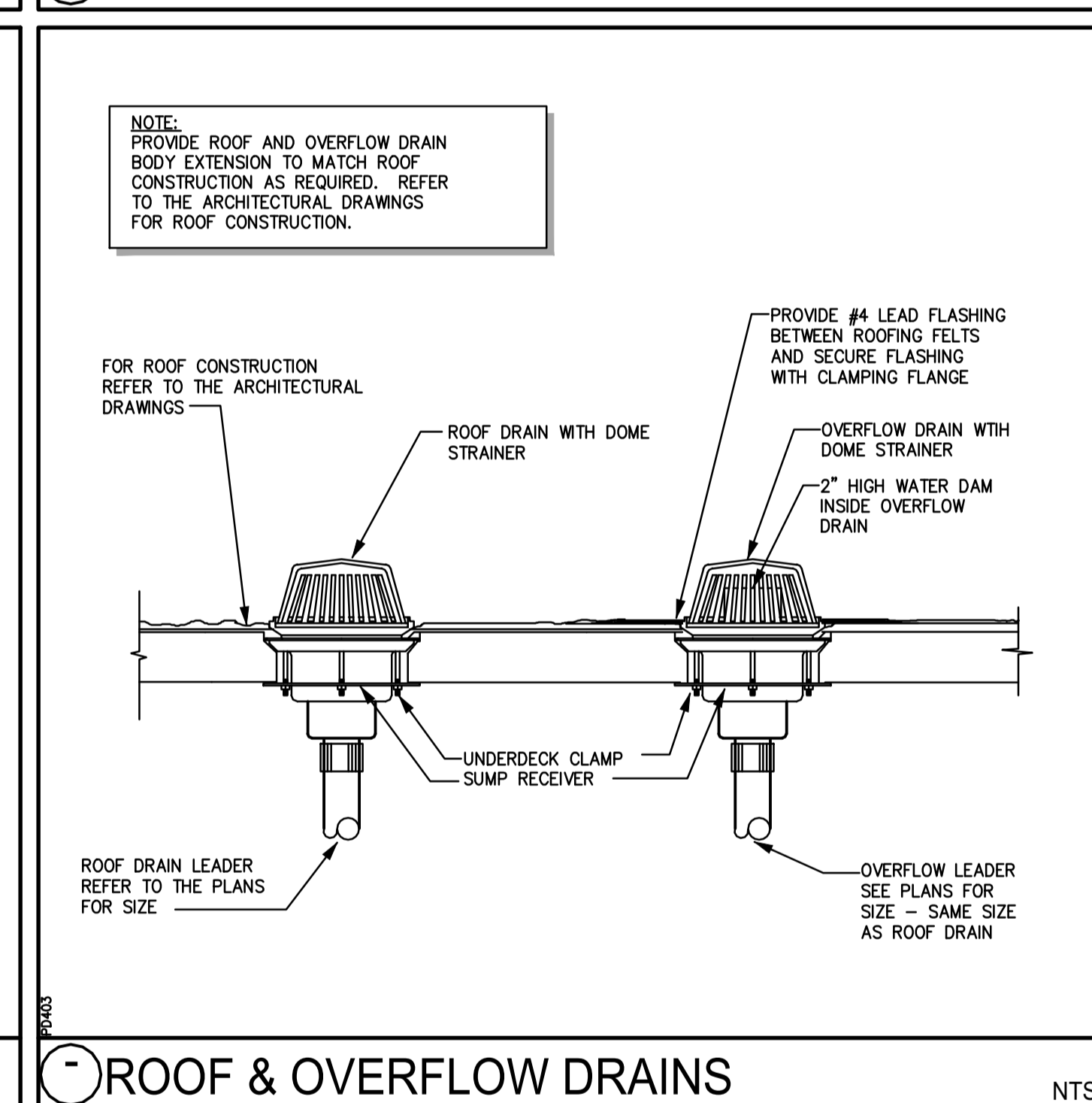
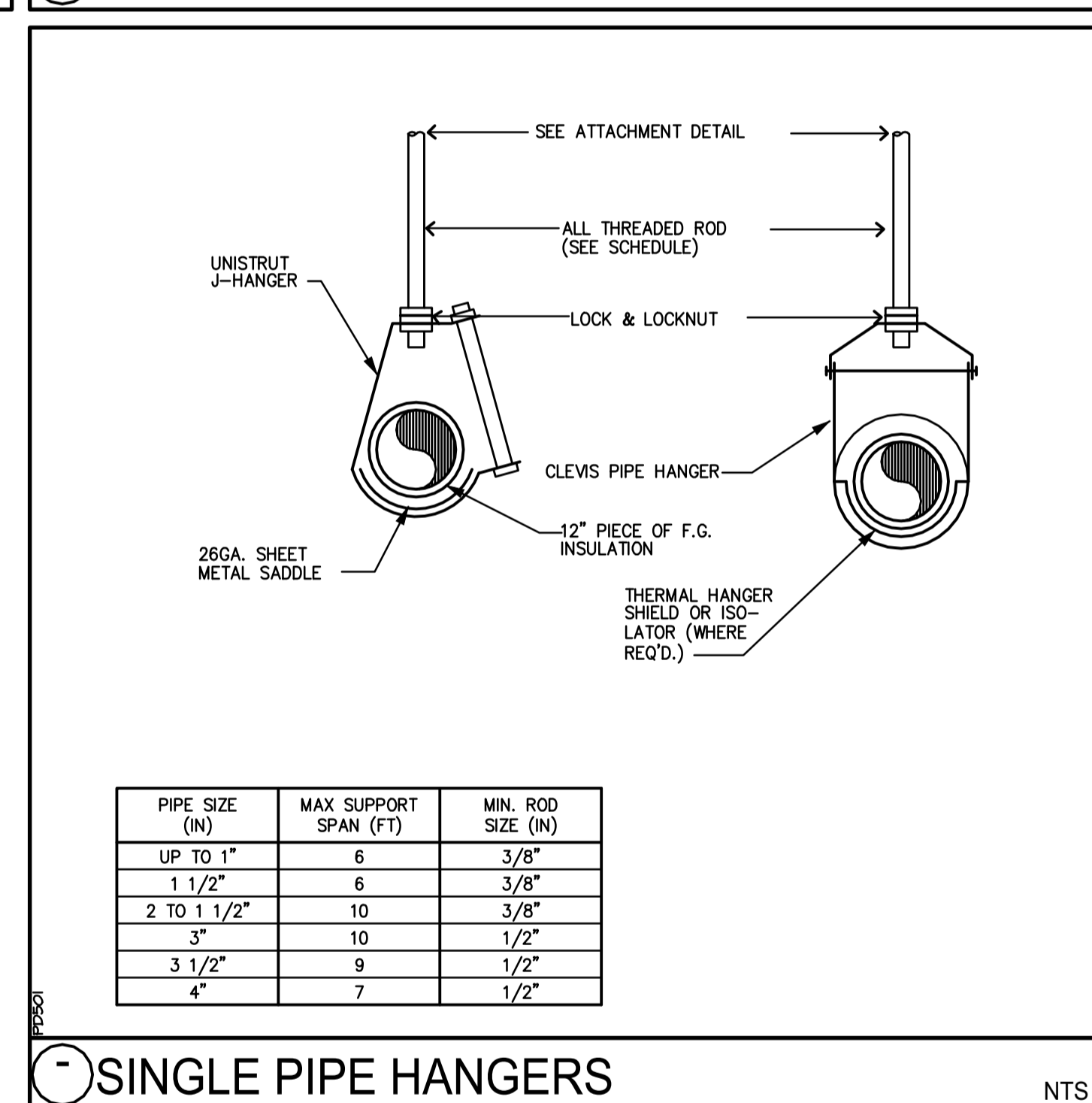
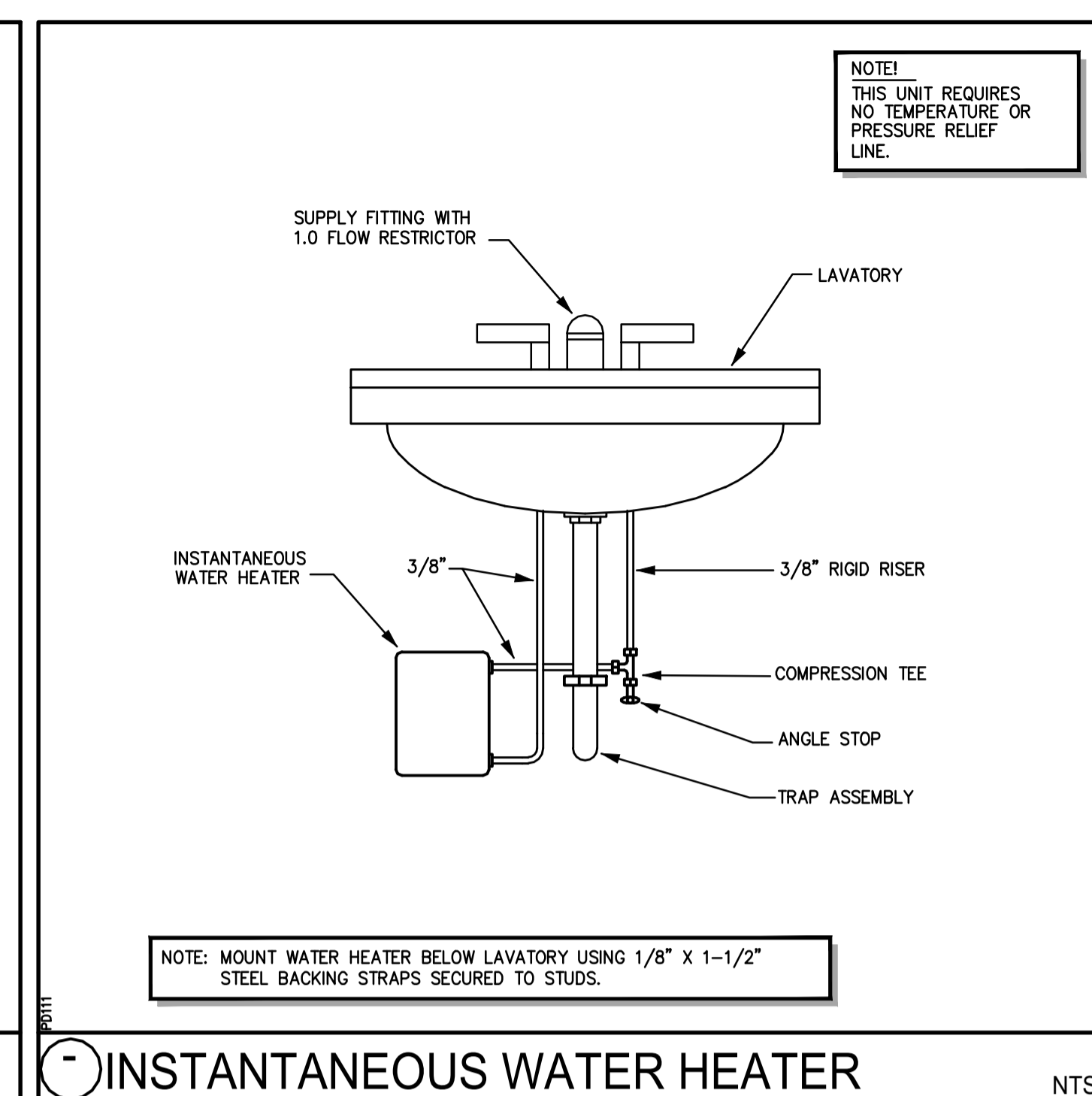
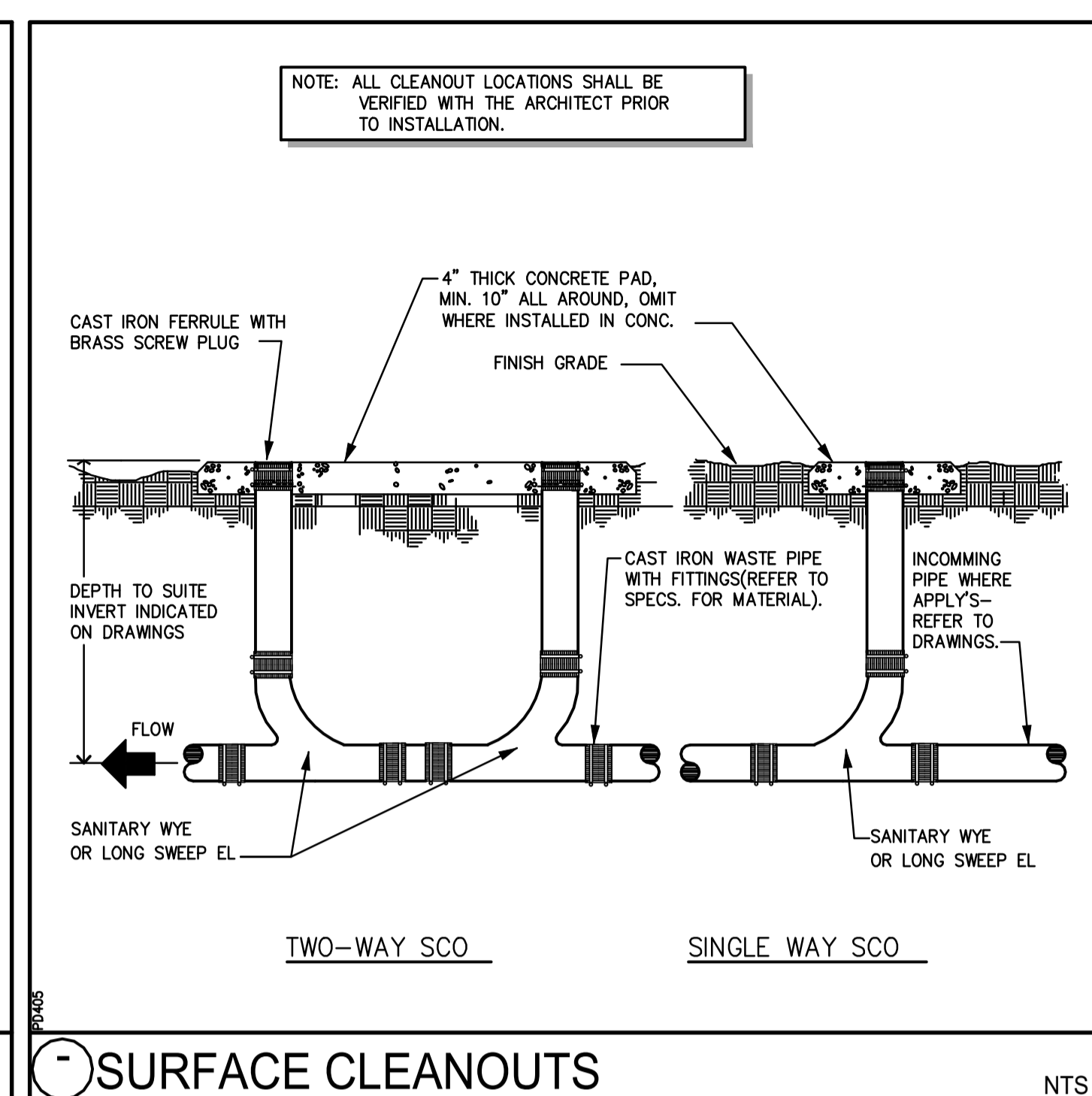
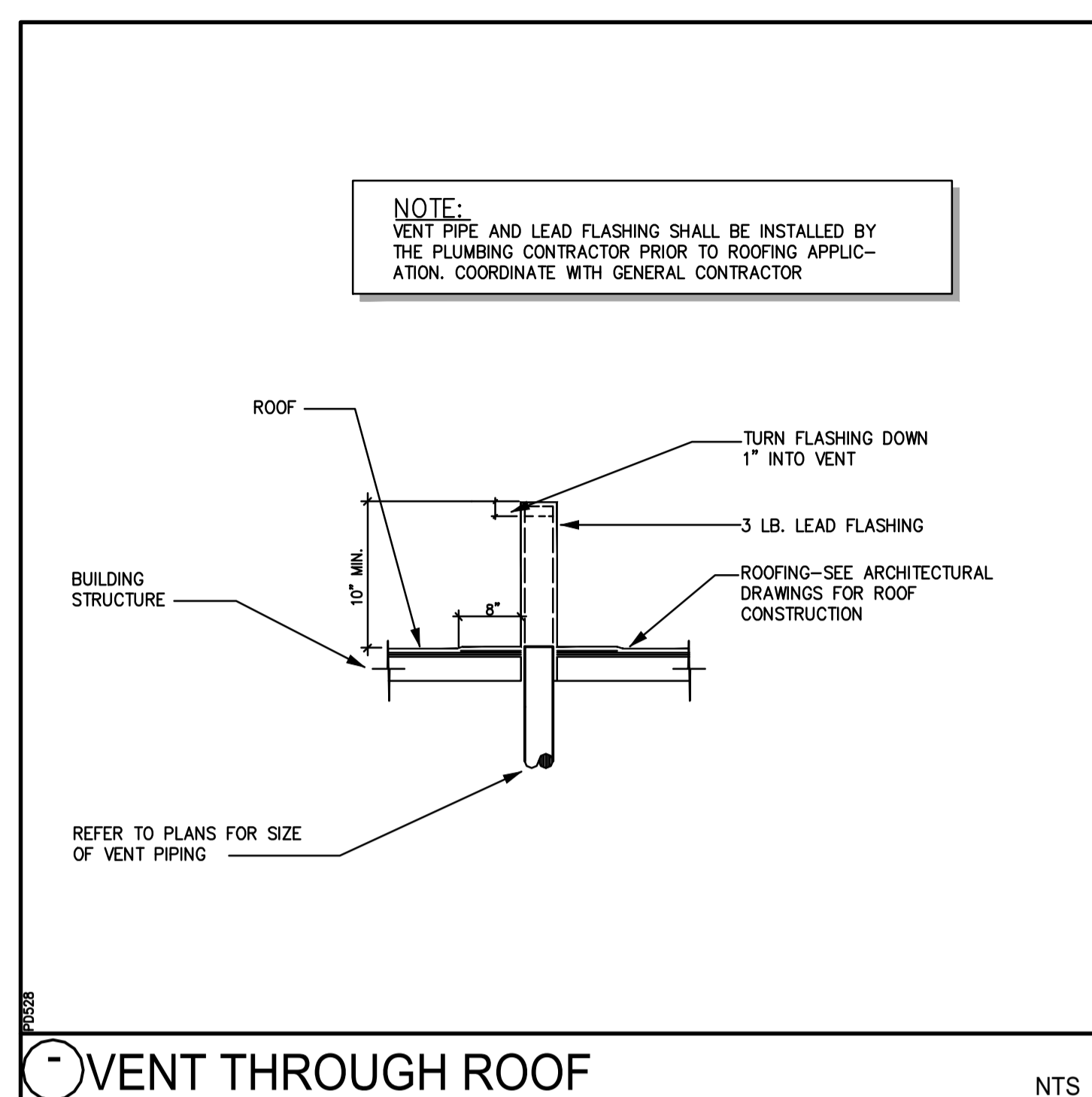
FIXTURE NAME	NO.	F.U.	ITL
WATER CLOSET (F.T.)	2	2.5 =	5
LAVATORY	2	1.0 =	2
HOSE BIBB	2	2.5 =	5
TOTAL FIXTURE UNITS			12
12 FIXTURE UNITS = 9 GALLONS PER MINUTE (G.P.M.)			
PIPE LENGTH TAP TO METER			30 FT.
PIPE LENGTH METER TO LAST FIXTURE			185 FT.
VERTICAL PIPE LENGTH TO HIGHEST FIXTURE			13 FT.
TOTAL PIPE LENGTH			228 FT.
FITTING LOSS (25%)			57 FT.
TOTAL DEVELOPED LENGTH			285 FT.
WATER PIPE SIZING CRITERIA			
STREET PRESSURE (FIELD VERIFY)			60.00 PSI
WATER METER LOSS (EXISTING 5/8" METER)(FIELD VERIFY)			8.00 PSI
STATIC LOSS (13' x 0.43)			5.59 PSI
PRESSURE RESERVED FOR FIXTURES			20.00 PSI
REDUCED PRESSURE BACKFLOW PREVENTER (RPBP)			12.00 PSI
PRESSURE AVAILABLE FOR PIPING			14.41 PSI
14.41 PSI / 285 FEET x 100 = 5.0			MAXIMUM PSI DROP ALLOWABLE PER 100 FEET PIPE LENGTH
BRANCH PIPE SIZING CHART FOR 5 PSI LOSS			
PIPE SIZE	G.P.M.	F.U.(TANK)	F.U.(F.V.)
1/2"	1-2	0-2	-
3/4"	3-6	3-7	-
1"	7-13	8-19	-

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PLUMBING DETAILS

Date 10/08/18

P002

Scale AS SHOWN

KIVA #18-1372
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PAPP #1806619
PRLC
QS Q16-36

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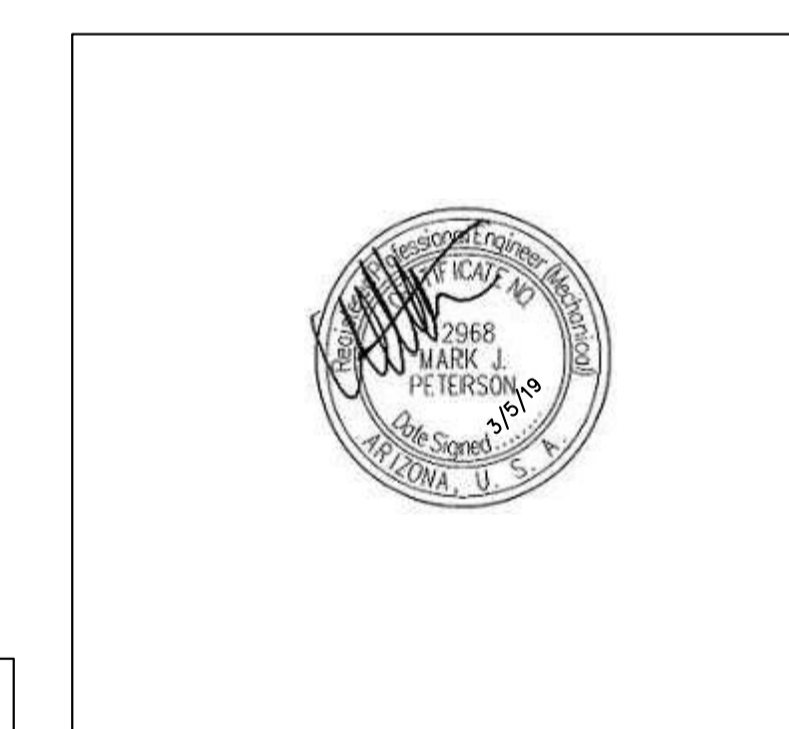
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PLUMBING SITE PLAN

Date 10/08/18

P100

Scale AS SHOWN

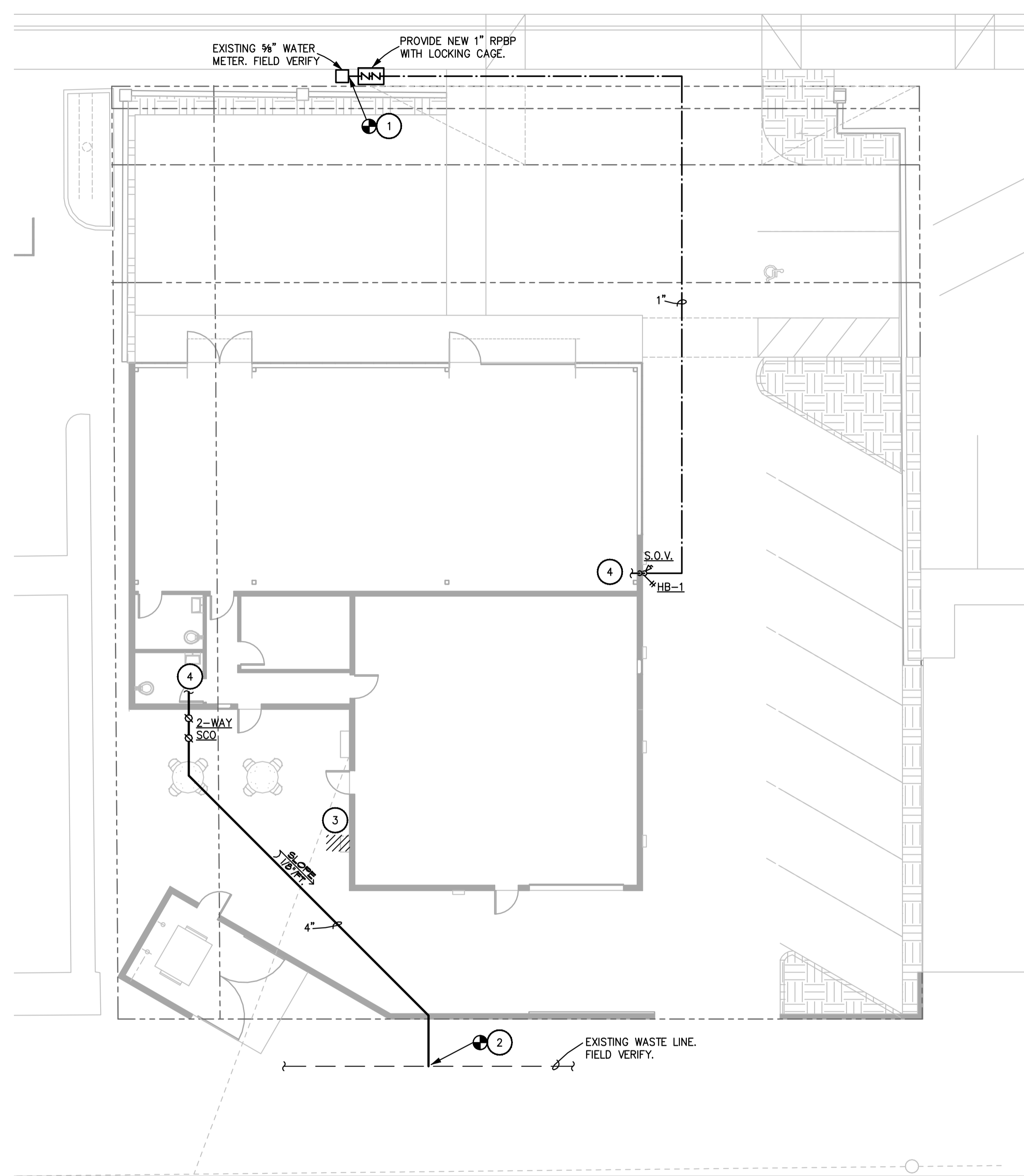
KIVA #18-1372
 SDEV #1800276
 PAPP #1806619
 PRLC
 QS Q16-36

KEY NOTES:

1. EXTEND AND CONNECT 1" CW LINE TO EXISTING 3/4" WATER METER. PROVIDE NEW 1" RPBP WITH LOCKING CAGE. FIELD VERIFY EXACT POINT OF CONNECTION, AND SIZE. PRIOR TO ANY WORK.
2. EXTEND AND CONNECT 4" WASTE LINE TO EXISTING WASTE MAIN IN ALLEY. FIELD VERIFY EXACT POINT OF CONNECTION, SIZE, FLOW, AND INVERT ELEVATION. PRIOR TO ANY WORK.
3. REMOVE EXISTING GAS METER. STUB EXISTING SOUTHWEST GAS SERVICE LINE FOR FUTURE CONNECTION.
4. SEE SHEET P200 FOR CONTINUATION.

FIELD VERIFICATION NOTES:

1. THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID TO FIELD VERIFY ALL EXISTING CONDITIONS WHICH MAY AFFECT HIS BID. THE FOLLOWING ITEMS SHALL BE VERIFIED:
 - A. EXACT PLACEMENT, SIZE AND INVERT ELEVATION OF ALL EXISTING WASTE PIPING.
 - B. EXACT PLACEMENT AND SIZE OF ALL EXISTING COLD WATER PIPING.
 - C. EXACT PLACEMENT AND SIZE OF ALL EXISTING VENT PIPING.
2. ALL REFERENCES ON THESE DRAWINGS TO EXISTING WASTE, WATER AND VENT PIPING IS FOR REFERENCE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL THESE ITEMS PRIOR TO BID AND INCLUDE IN HIS BID ANY AND ALL AMOUNTS REQUIRED TO ACCOMMODATE EXISTING CONDITIONS.
3. NO ALLOWANCES WILL BE MADE AFTER THE PROJECT HAS BEEN AWARDED FOR FAILURE TO VERIFY EXISTING CONDITIONS.
4. ANY DISCREPANCIES WHICH MAY AFFECT THE CONTRACTORS BID SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND ARCHITECT FOR DIRECTION.



PLUMBING SITE PLAN
 1"=10'-0"

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KEY NOTES:

- SEE SHEET P100 FOR CONTINUATION
- SEE SHEET P100 FOR CONTINUATION
- REMOVE EXISTING GAS METER, STUB EXISTING SOUTHWEST GAS SERVICE LINE FOR FUTURE CONNECTION.

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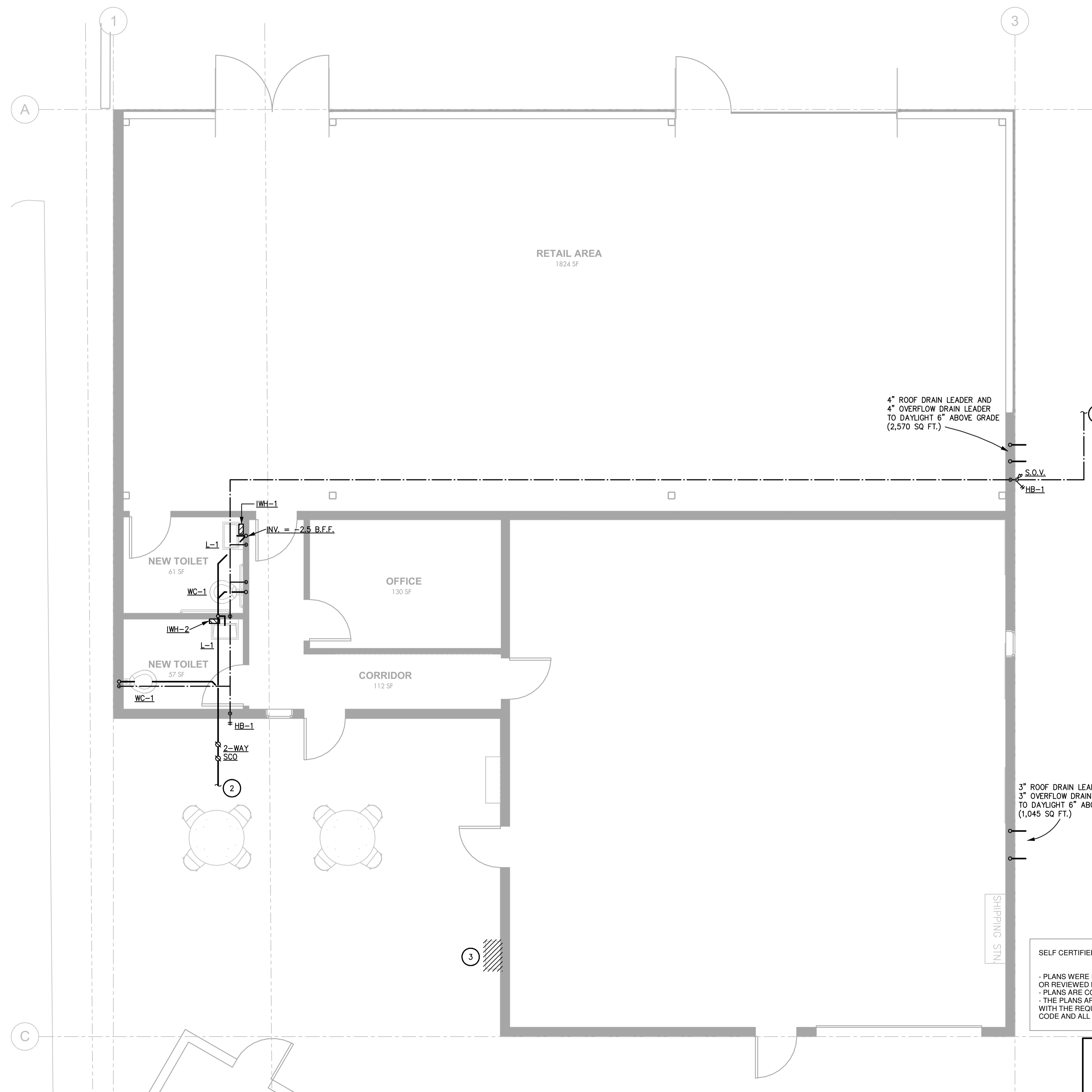
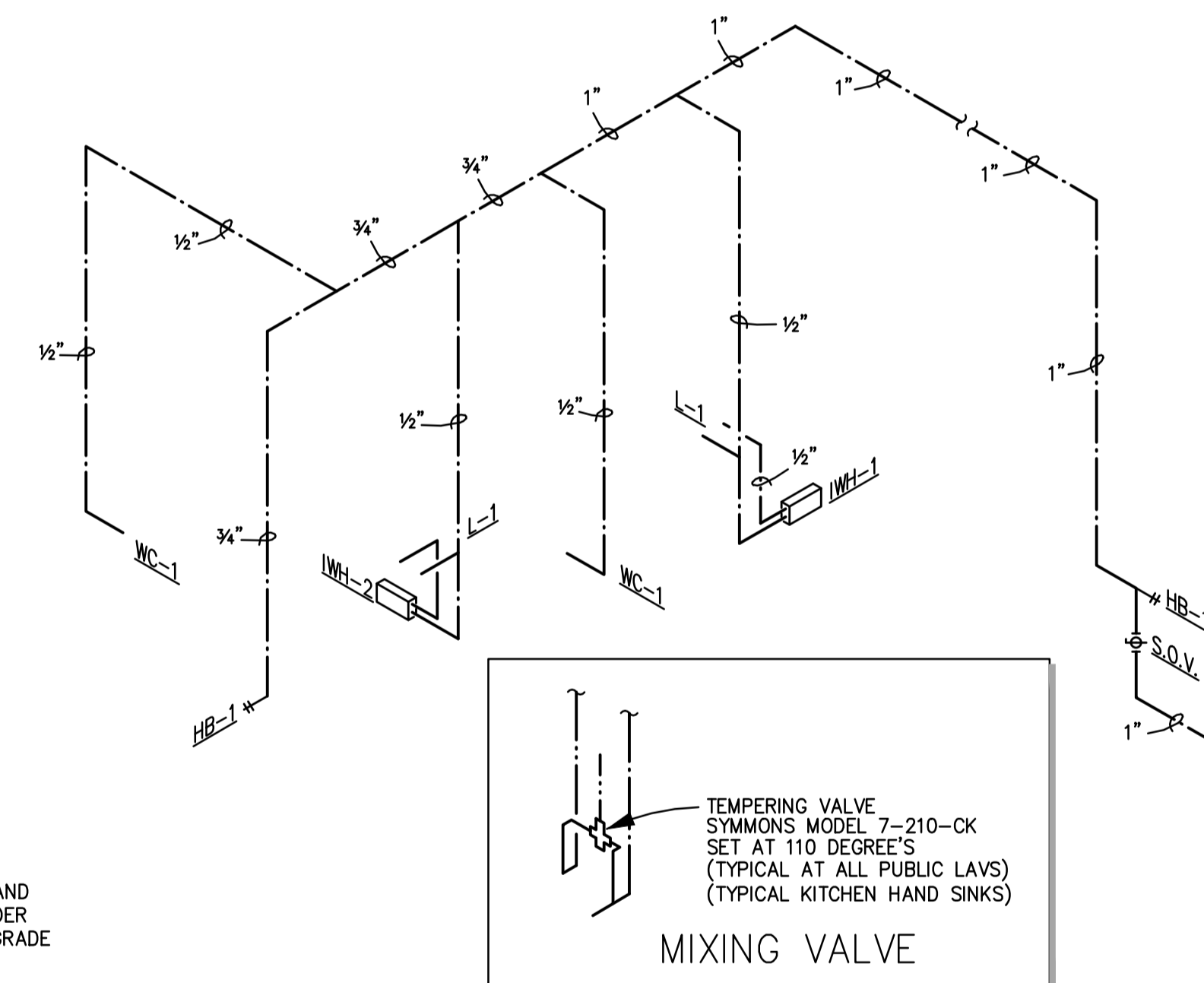
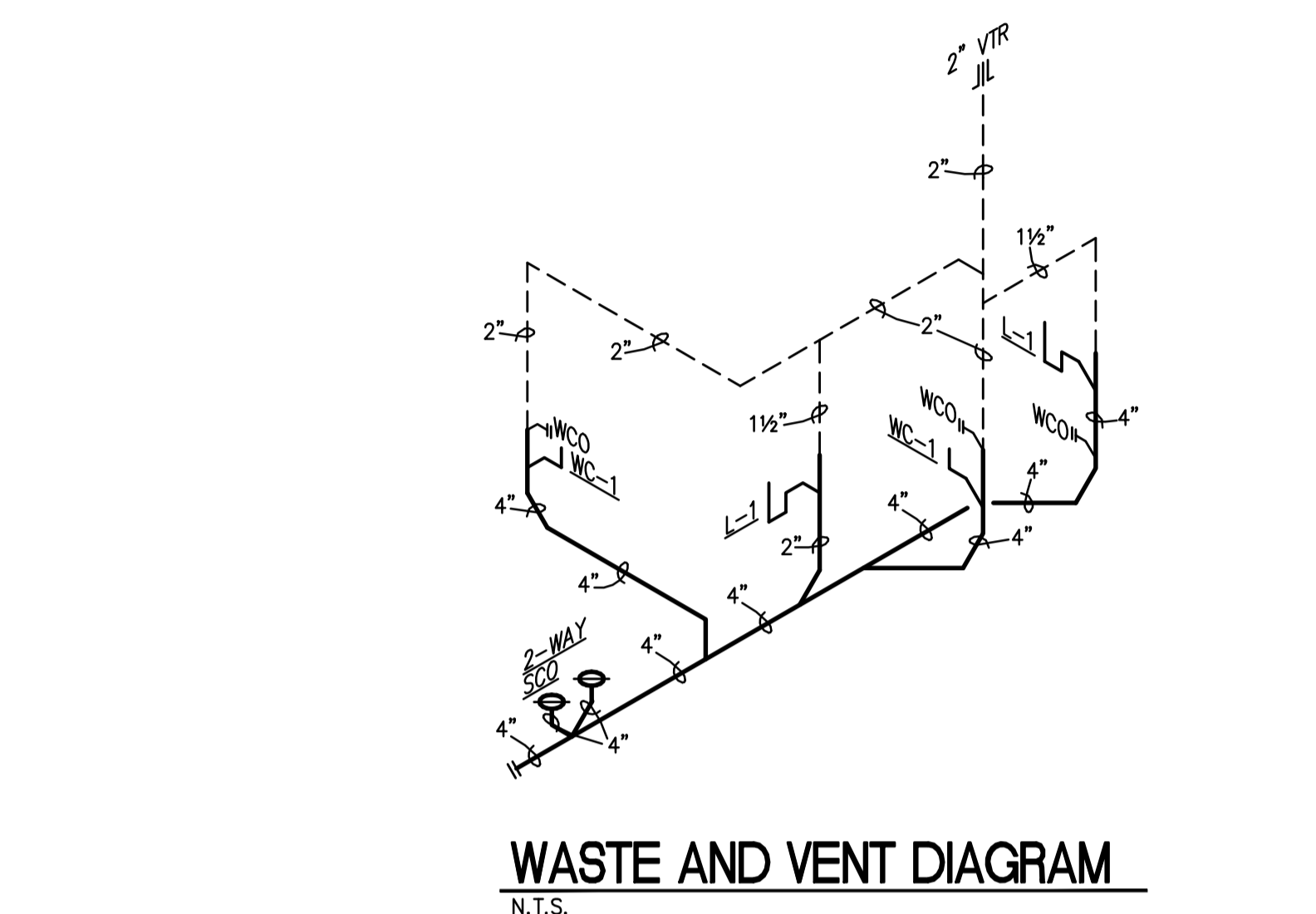
PLUMBING PLAN

Date 10/08/18

P200

Scale AS SHOWN

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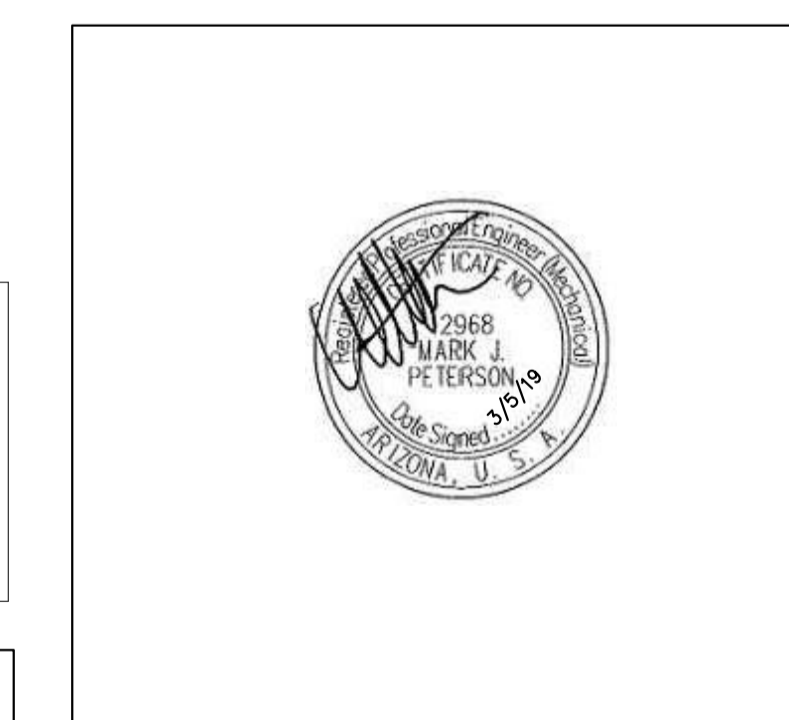
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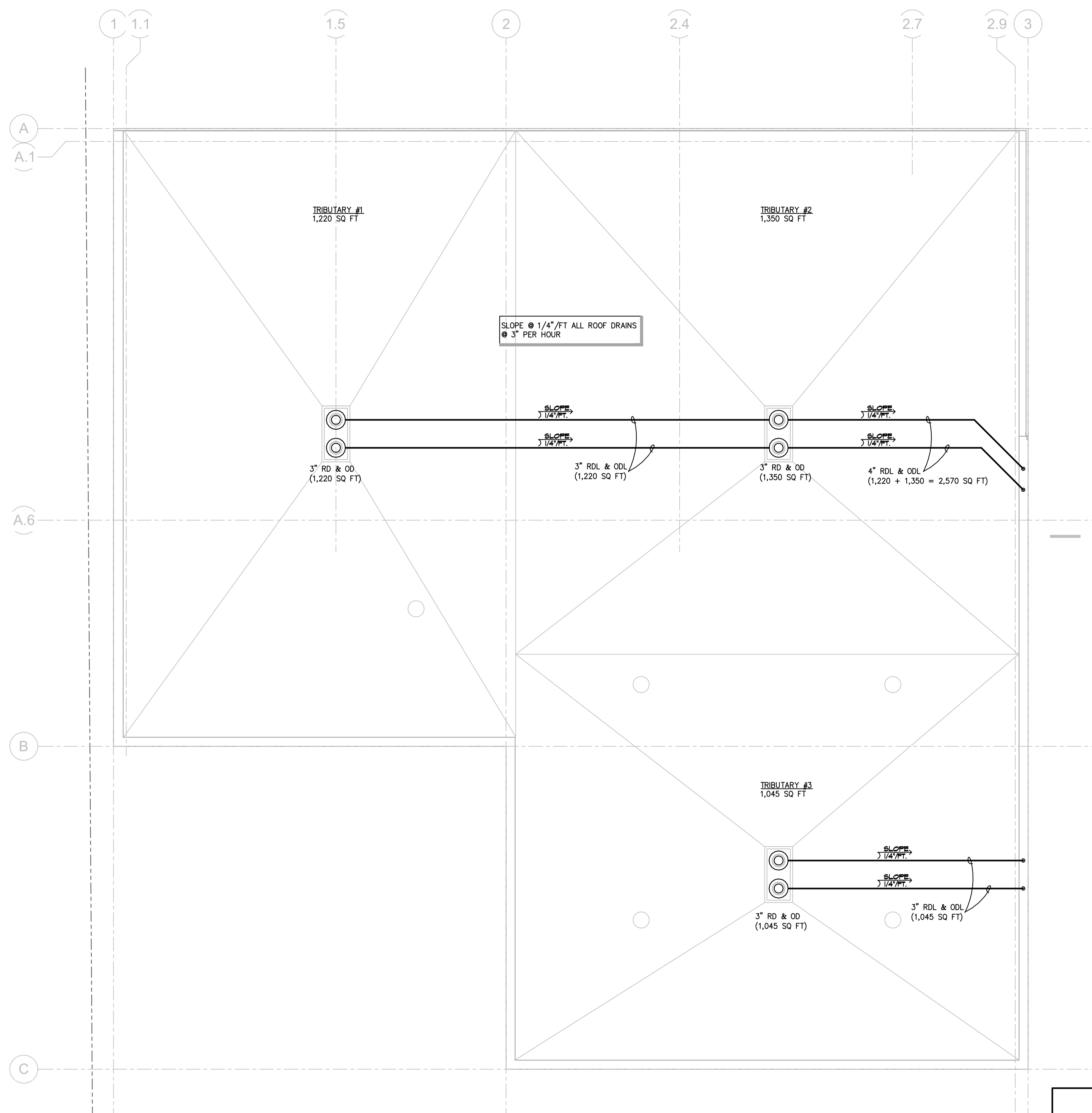
PLUMBING ROOF PLAN

Date 10/08/18

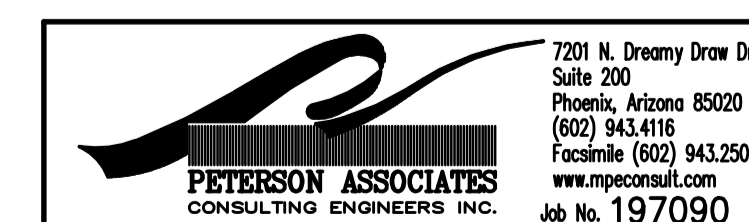
P300

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PLUMBING ROOF PLAN
1/4"=1'-0"



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SECTION 22 0100
PLUMBING SHEET SPECIFICATION (NEW BLDG - NAT GAS)

PART 1 GENERAL
1.01 SCOPE OF WORK

A. Perform all labor and furnish all materials, fixtures and equipment required to provide a complete plumbing installation as indicated on the drawings. Include furnishing and installing all miscellaneous items required for the operation of the systems, whether specifically called for or not. Connect all equipment furnished under other trades as required. Determine in advance the shut-down of existing utilities.

1.02 INSPECTION AND TESTS
A. Furnish Architect with certificate of inspection and approval by local authorities and required test reports prior to final acceptance of the project by the Architect. All work must be inspected and tested per local code requirements.

1.03 PROJECT COORDINATION
A. All Contractors shall be responsible for coordinating Work with other trades and for cutting and re-finishing of existing walls, floors, solid and suspended ceilings, etc., where required by Work shown and noted herein. Install all Work to clear new and existing architectural and structural members. Items such as pipe, fittings, etc., shall not be installed in conflict with equipment. Coordinate all cutting and patching with the General Contractor. Subcontractor shall be responsible for all cutting and patching of his Work. Obtain written permission of Architect before proceeding with any cutting or patching of structural systems.

B. Any discrepancies which may affect the Contractor's bid shall be brought to the attention of the Engineer and Architect for direction.
C. During construction, coordinate use of site and facilities and work sequence to meet the project requirements.
D. The Contractor shall coordinate with Electrical Subcontractor to insure proper electrical hookup for all plumbing equipment.
E. The Contractor shall coordinate with Mechanical Subcontractor to insure gas hookup for gas fired equipment.

F. Final location, quantity and type of fixtures shall be determined from the Architectural plans.
G. Final positioning of water heaters shall be per manufacturers installation instructions.

1.04 SUBMITTALS
A. See Architectural Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on pipe materials, pipe fittings, plumbing fixtures, plumbing specialties, valves, insulation, and accessories. Provide manufacturers' catalog information. Indicate valve data and ratings.
C. Project Record Documents: Provide two (2) sets of Record Documents and two (2) bound sets of all operation manuals, diagrams, service contracts, guarantees, etc. for Owner's use. Record actual locations of all piping, valves or equipment and incorporate into the Record Documents to show the final "Installed" conditions.
D. Submit only those manufacturers listed on the drawings or in the specific section unless prior approval was obtained.
E. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal. Partial submittals will not be reviewed by the Engineer.
F. Mark dimensions and values in units to match those specified.
G. Clearly identify specific components on multi-item equipment or data sheets.

H. The Installing Contractor shall review all submittals for compliance with plans and specifications. The contractor shall stamp each item in the submittal indicating that the review process has been completed.
I. Any discrepancies in the submittals from the requirements of the plans and specifications shall be noted by the Installing Contractor. If major discrepancies, errors, or product omissions are found, the Installing Contractor shall correct the submittals before forwarding for review by the Engineer.

1.05 REQUEST FOR INFORMATION
A. Requests for information are to be submitted to the Architect/Engineer by the General Contractor.
B. Sufficient back-up information shall be included to describe the situation. Where possible a suggested solution shall be included to facilitate response time.

1.06 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of experience.
B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years of experience.
C. Valves: Manufacturer's name and pressure rating marked on valve body.
D. Welding Materials and Procedures: Conform to ASME (BPV IX) and applicable state labor regulations.
E. Welders Certification: In accordance with ASME (BPV IX).
F. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.07 REGULATORY REQUIREMENTS
A. All materials, equipment and installation must comply with all applicable laws, codes, rules, and regulations, required by City, County and State, as well as Federal requirements.
B. Conform to applicable code for installation of backflow prevention devices.
C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

1.08 DELIVERY, STORAGE, AND PROTECTION
A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
B. Provide temporary protective coating on cast iron and steel valves.
C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.09 WARRANTY
A. Contractor shall guarantee all materials, equipment and workmanship from defect and shall replace or repair, without additional cost to the Owner, all defective material, equipment and workmanship for a period of one year after Date of Substantial Completion.
B. Submit manufacturers' warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

PART 2 PRODUCTS
2.01 APPROVED MANUFACTURERS
A. Manufacturers as indicated in these documents are approved for use in this project under the terms and conditions shown on the plans and in these specifications. Deviations from the drawings and specifications will not be allowed.
B. Substitutions of materials or products shown herein shall be at the Owner's, Architect's or Engineer's written approval only and must be made in accordance with the Architect's requirements.

2.02 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Cast Iron Pipe: CISPI 301, hubless.
1. Fittings: Cast iron.
2. Joints: CISPI 310, neoprene gasket and stainless steel clamp and shield assemblies.
B. PVC Pipe: ASTM D 2665 or ASTM D 3034.
1. Fittings: PVC.
2. Joints: Solvent welded, with ASTM D 2564 solvent cement.

2.03 SANITARY SEWER PIPING, ABOVE GRADE

A. Cast Iron Pipe: CISPI 301, hubless, service weight.
1. Fittings: Cast iron.
2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.
2.04 WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Copper Pipe: ASTM B 42, hard drawn. Type K.
1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and bronze.
2. Joints: ASTM B 32, alloy Sn95 solder.
2.05 WATER PIPING, ABOVE GRADE

A. Copper Tube: ASTM B 88 (ASTM B 88M), Type L (B), Drawn (H).
1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
2. Joints: ASTM B 32, alloy Sn95 solder.
2.06 STORM WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Cast Iron Pipe: CISPI 301, hubless, service weight.
1. Fittings: Cast iron.
2. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies.
B. PVC Pipe: ASTM D 2665 or ASTM D 3034.
1. Fittings: PVC.
2. Joints: Solvent welded, with ASTM D 2564 solvent cement.

2.07 STORM WATER PIPING, ABOVE GRADE

A. Cast Iron Pipe: CISPI 301, hubless, service weight.
1. Fittings: Cast iron.
2. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies.
2.08 NATURAL GAS PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Steel Pipe: ASTM A 53/A 53M Schedule 40 black.
1. Fittings: ASTM A 234/A 234M, wrought steel welding type, with AWWA C105/A21.5 polyethylene jacket or double layer, half-lapped 10 mil (0.25 mm) polyethylene tape.
2. Joints: ASME B31.9, welded.
3. Jacket: AWWA C105/A21.5 polyethylene jacket or double layer, half-lapped 10 mil polyethylene tape.

2.09 NATURAL GAS PIPING, ABOVE GRADE

A. Steel Pipe: ASTM A 53/A 53M Schedule 40 black.
1. Fittings: ASME B16.3, malleable iron, or ASTM A 234/A 234M, wrought steel welding type.
2. Joints: NFPA 54, threaded or welded to ASME B31.9.
2.10 FLANGES, UNIONS, AND COUPLINGS

A. Unions for Pipe Sizes 2 inches and Under:
1. Ferrous pipe: Class 150 malleable iron threaded unions.
2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
B. Flanges for Pipe Size Over 2 inches:
1. Ferrous pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
2. Copper tube and pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.
C. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.11 PIPE HANGERS AND SUPPORTS

A. Plumbing Piping - Drain, Waste, and Vent:
1. Conform to ASME B31.9.
2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
3. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
4. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
5. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
6. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
7. Vertical Support: Steel riser clamp.
8. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
9. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

B. Plumbing Piping - Water:
1. Conform to ASME B31.9.
2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inch: Malleable iron, adjustable swivel, split ring.
3. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
4. Hangers for Hot Pipe Sizes 2 Inches to 4 Inches: Carbon steel, adjustable, clevis.
5. Multiple or Trapeze Hangers: Steel channels with welded supports or spacers and hanger rods.
6. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 Inches and Over: Steel channels with welded supports or spacers and hanger rods, cast iron roll.
7. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
8. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
9. Vertical Support: Steel riser clamp.
10. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
11. Floor Support for Hot Pipe Sizes to 4 Inches: Cast iron adjustable pipe saddle, locknut, nipple, floor flange, and concrete pier or steel support.
12. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

2.12 BALL VALVES

A. Manufacturers: Apollo, Nibco, Milwaukee Valve Company
B. Construction, Up to and including 1 Inch (25 mm): MSS SP-110, Class 150, 400 psi (2760 kPa) CWP, bronze, two piece body, chrome plated brass ball, full port, teflon seats and stuffing box ring, blow-out proof stem, lever handle, solder or threaded ends.

C. Construction, 1-1/2 Inch (38 mm) to 3 Inches (75 mm): MSS SP-110, Class 150, 400 psi (2760 kPa) CWP, bronze, two piece body, chrome plated brass ball, standard port, teflon seats and stuffing box ring, blow-out proof stem, lever handle, solder or threaded ends.
2.13 BUTTERFLY VALVES

A. Manufacturers: Crane Valve, Milwaukee Valve Company
B. Construction 4 Inch (100 mm) and Larger: MSS SP-67, 200 psi (1380 kPa) CWP, cast or ductile iron body, nickel-plated ductile iron disc, resilient replaceable EPDM seat, wafer ends, extended neck, 10 position lever handle.
2.14 FLOW CONTROLS

A. Manufacturers: Griswold Controls
B. Construction: Class 125, Brass or bronze body with union on inlet, temperature and pressure test plug on inlet, blowdown/backflush drain.
C. Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure.
2.15 SWING CHECK VALVES

A. Manufacturers: Nibco, Milwaukee Valve Company
B. Up to 2 Inches (50 mm):
1. MSS SP-80, Class 125, bronze body and cap, bronze swing disc with rubber seat, solder or threaded ends.
C. Over 2 Inches (50 mm):
1. MSS SP-71, Class 125, iron body, bronze swing disc, renewable disc seal and seat, flanged or grooved ends.
2.16 SPRING LOADED CHECK VALVES

A. Manufacturers: Crane Valve, Milwaukee Valve Company
B. Class 125, iron body, bronze trim, stainless steel springs, bronze disc, Buna N seals, water style ends.
2.17 WATER PRESSURE REDUCING VALVES

A. Manufacturers: Amtrol, Cla-Val, Watts
B. Up to 2 Inches:
1. MSS SP-80, bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, threaded double union ends.
C. Over 2 Inches:
1. MSS SP-85, cast iron body, bronze fitted, elastomeric diaphragm and seat disc, flanged.
2.18 RELIEF VALVES

A. Temperature and Pressure Relief:
1. Manufacturers: Cla-Val, Henry Valve, Watts
2. AGA Z21.22 certified, bronze body, bell seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 210 degrees F, capacity ASME (BPV IV) certified and labeled.
2.19 CLEANOUTS

A. Manufacturers: Jay R. Smith, Josam, Zurn
B. Cleanouts at Exterior Surfaced Areas:
1. Round cast nickel bronze access frame and non-skid cover.
Class 150, threaded bronze body 300 psi (2070 kPa) CWP, Y pattern with 1/32 inch (0.8 mm) stainless steel perforated screen.
C. Cleanouts at Exterior Unsurfaced Areas:
1. Line type with laquered cast iron body and round epoxy coated gasketed cover.
D. Cleanouts at Interior Finished Floor Areas:
1. Laquered cast iron body with anchor flange, threaded top assembly, and round gasketed scored cover in service areas and gasketed depressed cover to accept floor finish in finished floor areas.

E. Cleanouts at Interior Finished Wall Areas:
1. Line type with laquered cast iron body and round epoxy coated gasketed cover, and round stainless steel access cover secured with machine screw.
F. Cleanouts at Interior Unfinished Accessible Areas: Calked or threaded type. Provide bolted stack cleanouts on vertical rainwater leaders.
2.20 WATER HAMMER ARRESTORS

A. Manufacturers: Jay R. Smith, Josam, Zurn
B. Water Hammer Arrestors:
1. Copper construction bellows type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range, 34 to 250 degrees F and maximum 150 psi working pressure.
2.21 PIPE INSULATION

A. Glass Fiber
1. Manufacturers: Knauf, Johns Manville, Owens Corning
2. Insulation: ASTM C 547; rigid molded, noncombustible.
a. "K" (Ks) value: ASTM C 177, 0.24 at 75 degrees F (0.035 at 24 degrees C).
b. Maximum service temperature: 850 degrees F (454 degrees C).
c. Maximum moisture absorption: 0.2 percent by volume.
3. Insulation: ASTM C 547; semi-rigid, noncombustible, end grain adhered to jacket.
a. "K" (Ks) value: ASTM C 177, 0.24 at 75 degrees F (0.035 at 24 degrees C).
b. Maximum service temperature: 650 degrees F (343 degrees C).
c. Maximum moisture absorption: 0.2 percent by volume.
4. Vapor Barrier Jacket: White kraft paper with glass fiber yarn, bonded to aluminumized film, secured with self sealing longitudinal legs and butt strips or AP jacket with outward cinch expanding staples coated with vapor barrier mastic as needed.

B. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E 84, NFPA 255, or UL 723.
C. Insulate all hot water supply and return piping with 1 inch insulation for pipe sizes under 1-1/2". Insulate all hot water supply and return piping with 1-1/2 inch insulation for pipe sizes of 1-1/2" and over.
D. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
PART 3 EXECUTION

3.01 PREPARATION
A. Ream pipe and tube ends. Remove burrs.
B. Remove scale and dirt, on inside and outside, before assembly.
C. Prepare piping connections to equipment with flanges or unions.
3.02 INSTALLATION

A. Drawings (plans, schematics and diagrams) indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing and other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.
B. Install in accordance with manufacturer's instructions.

C. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
D. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
E. Install piping to maintain headroom, conserve space, and not interfere with use of space.
F. Group piping whenever practical at common elevations.
G. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
H. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
I. Provide access where valves and fittings are not exposed.
J. All vent piping penetrating roofed areas to maintain 10'-0" from all air intakes.
K. Combine vents where possible to minimize number of roof penetrations.
L. Install vent piping penetrating roofed areas to maintain integrity of roof assembly.
M. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
N. Provide support for utility meters in accordance with requirements of utility companies.
O. Install valves with stems upright or horizontal, not inverted.
P. Pipe vents from gas pressure reducing valves to outdoors and terminate in weatherproof hood.
Q. Install water piping to ASME B31.9.
R. Steeve pipes passing through partitions, walls and floors.
S. Pipe Hangers and Supports:

1. Install in accordance with ASME B31.9.
2. Support horizontal piping as scheduled.
3. Install hangers to provide minimum 1/2 inch (15 mm) space between finished covering and adjacent work.
4. Place hangers within 12 inches (300 mm) of each horizontal elbow.
5. Use hangers with 1-1/2 inch (40 mm) minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
6. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
7. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
8. Provide copper plated hangers and supports for copper piping.
9. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
10. Provide hangers adjacent to motor driven equipment with vibration isolation.
11. Support cast iron drainage piping at every joint.
T. Pipe Hanger Spacing:

1. Metal Piping:
a. Pipe size: 1/2 inches (15 mm) to 1-1/4 inches (32 mm):
1) Maximum hanger spacing: 6.5 ft (2 m).
2) Hanger rod diameter: 3/8 inches (9 mm).
b. Pipe size: 1-1/2 inches (40 mm) to 2 inches (50 mm):
1) Maximum hanger spacing: 10 ft (3 m).
2) Hanger rod diameter: 3/8 inch (9 mm).
c. Pipe size: 2-1/2 inches (65 mm) to 3 inches (75 mm):
1) Maximum hanger spacing: 10 ft (3 m).
2) Hanger rod diameter: 1/2 inch (13 mm).
d. Pipe size: 4 inches (100 mm) to 6 inches (150 mm):
1) Maximum hanger spacing: 10 ft (3 m).
2) Hanger rod diameter: 5/8 inch (15 mm).
U. Encase exterior cleanouts in concrete flush with grade.
V. Install floor cleanouts at elevation to accommodate finished floor.
W. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping to each group of fixtures.
X. All piping passing through walls, floors and ceilings that are fire rated must be adequately sealed. The Contractor has the responsibility of reviewing the Architectural Drawings and determining the location of all fire rated walls, partitions, ceilings and floors and to provide the required sealants at penetrations.
Y. Install each fixture with trap, easily removable for servicing and cleaning.
Z. Provide chrome plated rigid or flexible supplies to fixtures with stops, reducers, and esutcheons.
AA. Install components level and plumb.
AB. Seal fixtures to wall and floor surfaces with sealant, color to match fixture.
AC. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.
AD. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.
AE. At the completion of the Work and prior to final acceptance, all parts of the Work installed under this specification shall be thoroughly cleaned. All equipment, fixtures, pipe, valves and fittings shall be cleaned of grease, metal cuttings and sludge which may have accumulated by operation of the system for testing or from other causes.

3.03 APPLICATION
A. Use grooved mechanical couplings and fasteners only in accessible locations.
B. Install unions downstream of valves and at equipment or apparatus connections.
C. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
D. Install ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.
E. Install ball or butterfly valves for throttling, bypass, or manual flow control services.
F. Provide spring loaded check valves on discharge of water pumps.
G. Provide gas ball valves in natural gas systems for shut-off service.
H. All plumbing fixtures shall be provided with water saving flow control devices to meet all Federal, State, and local water conservation laws.
3.04 INVERT ELEVATIONS

A. Drainage Piping: Establish invert elevations within 1/2 inch (10 mm) vertically of location indicated and slope to drain at minimum of 1/4 inch per foot (1:50) slope.
B. Drainage Piping: Verify invert elevations of all existing sewer lines to which new lines are to be connected prior to installation of any new work.
3.05 TESTING OF GAS PIPING

A. Air pressure test system to 75 PSI and maintain for a period of eight (8) hours with no pressure drop.

B. Purge line with nitrogen at junction with main line at gas meter to remove all air. Clear complete line by attaching a test pilot fixture at capped stub-in line at building location and let gas flow until test pilot ignites. CAUTION, failure to purge system may result in explosion within line when air-to-gas is at correct mixture.
C. Test and obtain approval on all underground piping before covering work. Provide written testing report to Architect.
3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Prior to starting work, verify system is complete, flushed and clean.
B. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
C. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
D. Maintain disinfectant in system for 24 hours.
E. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
F. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
G. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

END OF SECTION