FIXTURE

WATER CLOSET -

PRIVATE

LAVATORY - PRIVATE

LAVATORY - PRIVATE

URINAL - 3/4" INLET

KITCHEN SINK

SHOWER

UTILITY SINK

BOTTLE FILL

MOP SINK

SERVICE SINK

LAUNDRY WASHER

FLOOR DRAIN

HOSE BIB

NON-FREEZE HOSE BIB

TAG

P-1

P-2

P-3

P-5

P-6

P-7

P-8

P - 9

P - 11

WM

HB

NFHB

PLUMBING FIXTURE UNIT SCHDULE

FIXTURE

UNITS

WATER SUPPLY

FIXTURE UNITS

HOT

0.5

0.5

1.0

1.0

2.25

2.25

2.25

1.0

TOTAL

0.7

0.7

1.4

1.4

3.0

0.25

3.0

3.0

1.4

20

20

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E---

+--

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1#5

COLD

0.5

0.5

1.0

1.0

2.25

0.25

2.25

2.25

1.0

20

20

0.5

# SYMBOL & ABBREVIATIONS

BUTTERFLY VALVE

SOLENOID VALVE

2-WAY VALVE

PLUG VALVE

GATE VALVE

GLOBE VALVE

CHECK VALVE

BALL VALVE

TEE DOWN

ELBOW UP

PIPE CAP

CODP

FCO

FLFD

ΗВ

NFHB

RD

FD

AFF

AHC

ELBOW DOWN

CIRCUIT SETTER

MANUAL AIR VENT

T&P RELIEF VALVE

PRESSURE REDUCING VALVE

CLEAN OUT DECK PLATE

WALL CLEAN OUT

FLOOR CLEAN OUT

FUNNEL FLOOR DRAIN

CONCENTRIC REDUCER

ECCENTRIC REDUCER

FLEXIBLE CONNECTION

STRAINER

FLOW ARROW

PUMP

PRESSURE GAGE

THERMOMETER

HOSE BIB

ROOF DRAIN

FLOOR DRAIN

UNION

RISER TAG

EYE WASH

WALL HYDRANT

ABOVE FINISHED FLOOR

BACK FLOW PREVENTOR

ABOVE HUNG CEILING

BASKET STRAINER

NON-FREEZE HOSE BIB

OS&Y GATE VALVE

SYMBOL	ABBREVIATION	DESCRIPTION	SYMBOL	ABBREVIATION	DESCRIPTION
	NEW	NEW WORK ABOVE SLAB	_	VTR	VENT THROUGH ROOF
	NEW	NEW WORK BELOW SLAB	_	FS	FLOOR SINK
	CW	COLD WATER	_	FAI	FRESH AIR INTAKE
	HW	HOT WATER	_	RPZ	REDUCED PRESSURE ZONE - BFP
	HWC	HOT WATER RECIRCULATION	_	BP	BOOSTER PUMP
v	V	VENT	_	RP	RECIRCULATION PUMP
——————————————————————————————————————	W	WASTE LINE	_	DCV	DOUBLE CHECK VALVE — BFP
————S———	S	SOIL LINE	_	TYP	TYPICAL
———— G ———	G	GAS LINES	_	H.W. HTR	HOT WATER HEATER
—— L ——	LDR	LEADER			
SS	SS	SANITARY SEWER (SITE WORK ONLY)			
SD	SD	STORM DRAINAGE			
—— PD ——	PD	PUMP DISCHARGE			
	_	3-WAY VALVE			

- OF THE PLUMBING SYSTEMS. IF ANY DEPARTURES FROM THE DRAWINGS ARE DEEMED NECESSARY BY THE PLUMBING CONTRACTOR, DETAILS OF SUCH DEPARTURES AND THE REASONS THEREFORE SHALL BE SUBMITTED TO THE OWNER AND ENGINEER FOR APPROVAL. NO SUCH DEPARTURES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER AND ENGINEER. EQUIPMENT AND PIPING ARRANGEMENTS SHALL PROVIDE ADEQUATE AND ACCEPTABLE CLEARANCES FOR ENTRY, SERVICING, AND MAINTENANCE. ANY CHANGES TO PIPING AND EQUIPMENT LOCATIONS NECESSARY TO AVOID INTERFERENCE WITH OTHER TRADES SHALL BE MADE AT NO EXTRA COST.
- NECESSARY PERMITS AND FOR PAYING RELATED FEES.
- 4. CONNECTIONS TO EXISTING UTILITIES AND SERVICES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS, INVERT ELEVATIONS, AND SIZES OF EXISTING PLUMBING SERVICES IN FIELD, AND SHALL CONNECT NEW PLUMBING SERVICES AS
- AND CONDITIONS ON JOB SITE, AND COORDINATE THIS WORK WITH THE WORK OF
- CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR LOCATION.
- 7. PROVIDE ALL PLUMBING FIXTURES, PIPING, VALVES AND ACCESSORY ITEMS AS SPECIFIED AND AS REQUIRED FOR A COMPLETE INSTALLATION. ROUGHING DIMENSIONS OF FIXTURES MUST BE COORDINATED WITH THE GENERAL CONTRACTOR.
- 8. PITCH ALL WASTE, SANITARY, AND STORM DRAIN PIPING AT MAXIMUM SLOPE POSSIBLE, BUT NOT LESS THAN 1/8" PER FOOT FOR PIPING ≥3" AND 1/4" PER
- 9. NO PIPING SHALL RUN EXPOSED IN FINISHED AREAS.
- 10.PROVIDE DIELECTRIC FITTINGS OR COUPLINGS WHEREVER DISSIMILAR METALS ARE
- 11. PROVIDE SHUTOFF VALVES AT ALL FIXTURES AND EQUIPMENT ON COLD WATER,
- 12.ALL WORK SHALL BE PROPERLY TESTED, BALANCED, AND CLEANED AND DISINFECTED. PROVIDE A ONE YEAR WARRANTY FROM DATE OF FINAL
- 13.PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES. FOR PIPES PENETRATING FIRE RATED PARTITIONS, THE SPACE BETWEEN THE PIPE AND THE SLEEVE SHALL BE SEALED WITH FIRE STOPPING MATERIAL. PENETRATIONS FOR PIPING SHALL BE MADE BY CORE DRILLING WHENEVER POSSIBLE.
- DRILLING, PAINTING, ACCESS PANELS, AND FINAL RESTORATION REQUIRED TO FACILITATE THE INSTALLATION OF PLUMBING PIPING, INCLUDING ABOVE CEILINGS AND IN SHAFTS THAT WILL NOT BE REPLACED OR OPENED UNDER ANY OTHER SCOPE OF WORK RELATED TO THIS PROJECT. CONTRACTOR TO REMOVE AND REPLACE CEILINGS, AND OPEN AND PATCH SHAFTS AND WALLS, AS REQUIRED TO EXECUTE THE PLUMBING WORK.
- FOR CONSTRUCTION.
- 17. ALL MOTOR STARTERS AND DISCONNECT SWITCHES FOR PLUMBING EQUIPMENT SHALL BE FURNISHED BY THE PLUMBING CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED. DISCONNECT SWITCHES FURNISHED BY THE PLUMBING CONTRACTOR FOR PLUMBING EQUIPMENT SHALL BE HEAVY DUTY TYPE.
- 18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY VENTILATION AND EXHAUST AIR WHEN WELDING OR SOLDERING OPERATIONS ARE PERFORMED, AS REQUIRED BY OSHA.
- 19.INDIVIDUAL, BRANCH AND CIRCUIT VENTS SHALL CONNECT TO A VENT STACK, STACK VENT, OR EXTEND TO THE OPEN AIR. EVERY DRY VENT CONNECTING TO A HORIZONTAL DRAIN SHALL CONNECT ABOVE THE CENTERLINE OF THE HORIZONTAL DRAIN PIPE. EVERY DRY VENT SHALL RISE VERTICALLY TO A POINT NOT LESS THAN 6 INCHES ABOVE THE FLOOD LEVEL RIM OF THE HIGHEST TRAP OR TRAPPED FIXTURE BEING VENTED. A CONNECTION BETWEEN A VENT PIPE AND A VENT STACK OR STACK VENT SHALL BE MADE AT NOT LESS THAN 6 INCHES ABOVE THE FLOOD LEVEL RIM OF THE HIGHEST FIXTURE SERVED BY THE VENT. HORIZONTAL VENT PIPES FORMING BRANCH VENTS, RELIEF VENTS OR LOOPS SHALL BE LOCATED NOT LESS THAN 6 INCHES ABOVE THE FLOOD LEVEL RIM OF THE HIGHEST FIXTURE SERVED.

# WATER SYSTEM SIZING CALCULATIONS:

PIPE MATERIAL: TYPE L COPPER.

CODE OF NEW YORK STATE.

FIXTURE UNIT COUNT AT SOURCE: APPROXIMATELY 275 FIXTURES UNITS WITH SUPPLY SYSTEM PREDOMINATELY FOR FLUSH TANK TOILETS AND 8 HYDRANTS. THIS EQUATES TO APPROXIMATELY 104 GPM.

DRAINAGE FIXTURE UNIT VALUES AND WATER FIXTURE LOADS VALUES ARE

IN ACCORDANCE WITH SECTION 709 & E103 OF THE 2020 PLUMBING

PIPE SIZING AT SOURCE = 3"DIA.

PER PUBLISHED HYDRAULIC DATA, 3"DIA TYPE L COPPER AT 104 GPM = 2.61'/100' HEAD LOSS.

ALL PIPE SIZING ON THIS SYSTEM HAS BEEN BASED ON A MORE CONSERVATIVE 4'/100' HEAD LOSS ESTIMATE.

WATER PRESSURE AT SOURCE: ASSUMING 60 PSI STATIC PRESSURE.

### HEAD LOSS CALCULATIONS **VALVES & FITTINGS:**

- 3" WATER METER WITH STRAINER = 2.0 PSI
- 3" RPZ = 7.0 PSI
- (6) ISOLATION VALVES =  $\sim$  7' EQUIVALENT X 4'/100 = 0.3' = 0.13 PSI
- (14) ELBOWS =  $\sim$  90' EQUIVALENT X 4'/100' = 3.6' = 1.6 PSI
- (8) BRANCH TEE =  $\sim$  6.3' EQUIVALENT X 4'/100' = 0.24' = 0.11 PSI TOTAL PRESSURE LOSS = 10.84 PSI

FACTOR OF SAFETY (+5%) = 11.38 PSI

## PIPE LOSS CALCULATIONS

- PIPE RUN TO FARTHEST FIXTURE:  $\sim 180' \times 4'/100 = 7.2' = 3.13 \text{ PSI}$
- ELEVATION CHANGE TO FARTHEST FIXTURE: 18' = 7.8 PSI TOTAL PIPE LOSS = 10.93 PSI

TOTAL LOSS ESTIMATES = 22.31 PSI

PRESSURE AT SOURCE = 60 PSI

AVAILABLE PRESSURE AT FARTHEST FIXTURES = 37.69 PSI.

TOTAL BUILDING P-7 = 2FIXTURE COUNT: P-8 = 3P-1 = 9P-9 = 0P-11 = 2P-2 = 8P - 3 = 3WM = 2P-4 = 6HB-1 = 2P-5 = 1NFHB = 6P-6 = 1

 $FLOW = \sim 104 GPM$ 

SANITARY. ALL PIPE SIZING ON THIS SYSTEM HAS BEEN BASED ON A 1/8" PER FOOT SLOPE. TOTAL DRAINAGE FIXTURE UNITS = 77.5. AS PER TABLE 710.1(1): TOTAL FIXTURE UNITS = 274.25

MAXIMUM NUMBER OF DRAINAGE FIXTURES UNITS 4" SANITARY MAIN AT 1/8" PER FOOT SLOPE = 180 > 77.5.

DRAINAGE SYSTEM SIZING CALCULATIONS:

PIPE SIZING AT SEWER CONNECTION = 4"

NOTE: WATER FIXTURE LOADS AND PIPE SIZES CALCULATED IN ACCORDANCE WITH SECTION E103 OF THE 2020 PLUMBING CODE OF PLUMBING CODE OF NEW YORK NEW YORK STATE.

NOTE: DRAINAGE FIXTURE UNITS CALCULATED IN ACCORDANCE WITH SECTION 709 AND 710 OF THE 2020 STATE.

GENERAL NOTES

1. THE CONTRACT DRAWINGS INDICATE THE EXTENT AND GENERAL ARRANGEMENTS

2. THE PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE PREVAILING NEW YORK STATE PLUMBING AND BUILDING CODES. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE, THE MORE STRINGENT STANDARD SHALL

3. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL

- INDICATED ON DRAWINGS.
- 5. PRIOR TO FABRICATION, THIS CONTRACTOR SHALL VERIFY ALL MEASUREMENTS ALL OTHER TRADES.
- 6. ALL ACCESS PANELS SHALL BE BY GENERAL CONTRACTOR. THE PLUMBING
- FOOT FOR PIPING  $\leq 2\frac{1}{2}$ ".

JOINED.

AND HOT WATER PIPES.

INSPECTION ON ALL PARTS AND LABOR.

14.PROVIDE TRAP SEAL PRIMERS FOR FLOOR DRAINS AS REQUIRED. INSTALL THE PRIMER VALVE IN THE COLD WATER SERVICE, WITH THE TRAP CONNECTION PIPED TO THE FLOOR DRAIN TRAP. LOCATE THE VALVE IN AN ACCESSIBLE LOCATION.

15. THE PLUMBING CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, CORE

16. SEE THE ARCHITECTURAL DRAWINGS FOR EXACT PHASING AND TIME SCHEDULE

20. IN CONCEALED LOCATIONS WHERE PIPING, OTHER THAN CAST—IRON OR GALVANIZED STEEL, IS INSTALLED THROUGH HOLES OR NOTCHES IN STUDS, JOISTS, RAFTERS OR SIMILAR MEMBERS LESS THAN 11/4 INCHES FROM THE NEAREST EDGE OF THE MEMBER, THE PIPE SHALL BE PROTECTED BY STEEL PLATES. SUCH SHIELDS SHALL HAVE A THICKNESS OF NOT LESS THAN 0.0575 INCH (NO. 16 GAUGE). SUCH PLATES SHALL COVER THE AREA OF THE PIPE WHERE THE MEMBER IS NOTCHED OR BORED AND SHALL EXTEND NOT LESS THAN 2 INCHES ABOVE THE SOLE PLATES AND BELOW THE TOP PLATES.

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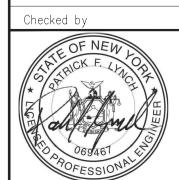
Project Title

Bedford Headquarters

550 Old Post Road Bedford, NY 10506

PLUMBING SYMBOLS. ABBREVIATIONS, & **GENERAL NOTES** 

roject No. NSPC0070.00 03-27-20 Scale AS NOTED Drawing by JRT



rawing No.

JF/RS

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