

PLUMBING WORK SPECIFICATIONS

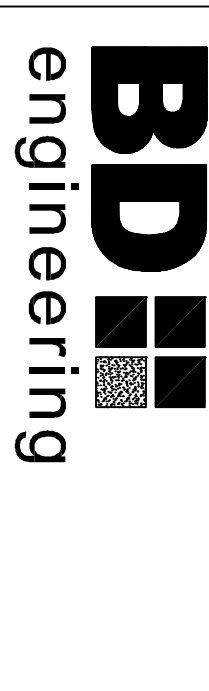
1. GENERAL:
 - A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
 - B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFROM THE ARCHITECT OF ANY SUCH PROVISIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
 - C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MAINTAINED AND REPAIR, REPAIRS WHICH INVOLVE EXTRA COSTS SHALL NOT BE MADE WITHOUT APPROVAL.
 - D. DRAWINGS ARE DIAGRAMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. PIPE ROUTING IS SHOWN DIAGRAMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISERS OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF PIPE TO AVOID OBSTRUCTIONS, CONFLICTS WITH THE SERVICES OF OTHER TRADES OR OTHER TRADES IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.
 - E. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE PROVIDED THE WORK SHALL NOT BE MADE WITHOUT APPROVAL.
 - F. THE PLUMBING CONTRACTOR SHALL PROVIDE ALL REQUIRED TRENCHING AND BACKFILLING FOR UNDERGROUND PLUMBING WORK INDICATED ON THESE DRAWINGS.
 - G. NOT APPLICABLE
 - H. NOT APPLICABLE
 - I. NOT APPLICABLE
 - J. NOT APPLICABLE
 - K. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH NON-SHRINKING FIRE PROOF GROUTING OR OTHER NONCOMBUSTIBLE MATERIAL.
 - L. PROVIDE ALL NECESSARY FLASHING AND COUNTERSINKING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING AND EQUIPMENT.
 - M. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION PERMS TO BE REMOVED UNDER THE CONTRACT SHALL BE THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.
 - N. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
 - O. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER.
 - P. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREPARED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
 - Q. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
 - R. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
2. GENERAL PROVISIONS FOR PLUMBING WORK:
 - A. SPECIFICATIONS ARE OF PARTS FROM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "TURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.
 - B. DEFINITIONS:
 - 1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
 - 2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
 - 3) "TURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
3. PIPE AND FITTINGS:
 - A. SCHEDULE 40 PNC PIPE WITH CEMENT TEE, SLIP FIT PIPE AND FITTINGS WITH SOLVENT CEMENTED JOINTS.
 - B. DOMESTIC WATER
 - 1) TYPE L HARD COPPER TUBING WITH CAST BRONZE OR WROUGHT COPPER FITTINGS AND 95/5 TIN ANTIMONY SOLDER JOINTS.
 - 2) STANDARD WEIGHT RED BRASS PIPE WITH STANDARD WEIGHT CAST BRONZE THREADED FITTINGS.
 - C. ALL EXPOSED PIPE AND FITTINGS SHALL BE CHROME PLATED BRASS.
 - D. ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE PROVIDED WITH CHROME PLATED CAST BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.
4. VALVES:
 - A. GATE VALVES:
 - 1) BRONZE RISING STEM, 200 PSI WOG, SIMILAR TO STOCKHAM #B-105, B-108.
 - B. BALL VALVES:
 - 1) TWO PIECE BRONZE END ENTRY, 600 PSI WMP, SIMILAR TO STOCKHAM #S-210 BR-R-1, #S-210 BR-R-2.
 - C. CHECK VALVES:
 - 1) BRONZE THREADED CAP, TEFLON DISC, SIMILAR TO STOCKHAM #B3101, B-5201.
5. INSULATION:
 - A. ALL INSULATION (INCLUDING JACKET, FACING AND ADHESIVE), SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURES LISTED IN ASTM E-84, NFPA 255 AND UL 273, NOT EXCEEDING A FLAME SPREAD OF 25 AND A SMOKE DEVELOPED OF 50.
 - B. ON WALLS AND FITTINGS PROVIDE PRE-APPLIED FIBERGLASS FITTINGS. VAPOR SEAL INSULATION ON "CW".
 - C. "CW" PIPING: PROVIDE 1/2 IN. THICK FIBERGLASS SECTION PIPE COVERING WITH VAPOR BARRIER JACKET.
 - D. "HW" PIPING: PROVIDE 1 IN. THICK FIBERGLASS SECTIONAL PIPE COVERING.
6. PLUMBING FIXTURES:
 - A. PROVIDE ALL FIXTURES WITH STOP VALVES AND SUPPLIES AND INSTALLATION.
 - B. "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.
 - 6) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN CRANK SPACES, OR IN ENCLOSURES.
 - 7) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
 - 8) "SIMILAR" OR "EQUivalent": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.
 - C. QUALITY ASSURANCE
 - 1) QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.
 - 2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK.
 - D. PRODUCT DELIVERY, STORAGE AND HANDLING
 - 1) MOUNTING OF EQUIPMENT: WHERE NECESSARY, SUPPLY IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.
 - 2) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS SHALL BE PERMITTED. CHANGES OF MAGNITUDE OR MATERIALS SHALL BE NOT PERMITTED WITHOUT REVIEW. GROUP COORDINATING ELECTRICAL AND MECHANICAL WORK SHALL BE FREELY ACCESSIBLE THROUGH ACCESS DOORS.
 - E. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH ORIGINAL INSTRUCTIONS. PAINT SHALL BE APPLIED TO ALL EXPOSED UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC CHROMATE FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, NUTSERS AND SUPPORTS, RED LEAD OR ZINC CHROMATE WITH FINISH COAT. ALL STEEL EQUIPMENT AND RACKS WILL BE FIELD-APPLIED ZINC CHROMATE PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRON WORK.
 - F. BRUSH AND CLEAN WORK, PRIOR TO CONCRETE, PAINTING AND FINISHING. BRUSH AND CLEAN WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.
 - G. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL PLUMBING FIXTURES SHALL BE VERIFIED BY ARCHITECT.
 - H. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
7. PIPE AND FITTINGS:
 - A. SANITARY DRAINAGE AND VENT
 - 1) SCHEDULE 40 PNC PIPE WITH CEMENT TEE, SLIP FIT PIPE AND FITTINGS WITH SOLVENT CEMENTED JOINTS.
 - B. DOMESTIC WATER
 - 1) TYPE L HARD COPPER TUBING WITH CAST BRONZE OR WROUGHT COPPER FITTINGS AND 95/5 TIN ANTIMONY SOLDER JOINTS.
 - 2) STANDARD WEIGHT RED BRASS PIPE WITH STANDARD WEIGHT CAST BRONZE THREADED FITTINGS.
 - C. ALL EXPOSED PIPE AND FITTINGS SHALL BE CHROME PLATED BRASS.
 - D. ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE PROVIDED WITH CHROME PLATED CAST BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.
8. TESTS:
 - A. DOMESTIC WATER PIPING:
 - 1) TEST PIPING HYDROSTATICALLY AT A PRESSURE OF 125 PSI.
 - 2) DURATION OF TEST SHALL BE 2 HOURS WITHOUT A LOSS IN PRESSURE.
 - B. DRAINAGE AND VENT PIPING:
 - 1) CAP ALL OUTLETS AND FILL PIPING SYSTEM TO OVERFLOWING FROM A POINT AT LEAST 10 FEET ABOVE THE FLOOR.
 - 2) THE WATER LEVEL SHALL REMAIN CONSTANT THROUGHOUT THE TEST DURATION OF 2 HOURS.
 - C. ARRANGE AND COORDINATE TESTS WITH OWNER 48 HOURS IN ADVANCE. NOTIFY ENGINEER AND ARCHITECT OF TEST DATE AND TIME.
 - D. DEFECTS DISCLOSED BY THE TESTS SHALL BE REPAIRED OR REPAIRED. TESTS SHALL BE REPEATED AS DIRECTED UNTIL ALL WORK IS PROVEN SATISFACTORY.
 - E. TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO THE BUILDING AND ITS CONTENTS AS A RESULT OF SUCH TESTS. REPAIR ANY DAMAGE CAUSED.
9. FLUSHING AND DISINFECTING POTABLE WATER SYSTEMS:
 - A. FLUSHING
 - 1) THE WATER DISTRIBUTION PIPING TO ALL FIXTURES AND OUTLETS SHALL BE FLUSHED UNTIL THE WATER RUNS CLEAR AND FREE OF DEBRIS AND PARTICLES. FAUCET AERATORS OR SCREENS SHALL BE REMOVED DURING FLUSHING OPERATIONS.
 - B. DISINFECTING
 - 1) THE HOT AND COLD WATER DISTRIBUTION PIPING IN NEW OR RENOVATED POTABLE WATER SYSTEMS SHALL BE DISINFECTED AFTER FLUSHING AND PRIOR TO USE. THE PROCEDURE USED SHALL BE AS FOLLOWS OR AN APPROVED EQUIVALENT:
 - a. ALL WATER OUTLETS SHALL BE POSTED TO WARN AGAINST USE DURING DISINFECTING OPERATIONS.
 - b. DISINFECTING SHALL BE PERFORMED BY PERSONS EXPERIENCED IN SUCH WORK.
 - c. THE WATER SUPPLY TO THE PIPING SYSTEM OR PARTS THEREOF BEING DISINFECTED SHALL BE VALVED-OFF FROM THE NORMAL WATER SOURCE TO PREVENT THE INTRODUCTION OF DISINFECTING AGENTS INTO A PUBLIC WATER SUPPLY OR PORTIONS OF A SYSTEM THAT ARE NOT BEING DISINFECTED.
 - d. THE PIPING SHALL BE DISINFECTED WITH A WATER-CHLORINE SOLUTION. DURING THE INFUSION OF THE DISINFECTING AGENT INTO THE PIPING, EACH OUTLET SHALL BE FULLY OPENED SEVERAL TIMES UNTIL A CONCENTRATION OF NOT LESS THAN 50 PARTS PER MILLION (PPM) OF FREE CHLORINE IS MAINTAINED AT EVERY OUTLET IN THE PIPING FOR AT LEAST 24 HOURS.
 - e. AN ACCEPTABLE ALTERNATE TO THE 50 PPM/24-HOUR PROCEDURE SHALL BE TO MAINTAIN A LEVEL OF NOT LESS THAN 200 PARTS PER MILLION (PPM) OF FREE CHLORINE IN THE PIPING FOR AT LEAST 6 HOURS. ALSO, SPECIAL PROCEDURES SHALL BE USED TO DISPOSE OF THE HEAVILY CONCENTRATED CHLORINE IN AN ENVIRONMENTALLY ACCEPTABLE AND APPROVED MANNER.
 - f. AT THE END OF THE REQUIRED RETENTION TIME, THE RESIDUAL LEVEL OF CHLORINE AT EVERY OUTLET SHALL BE NOT LESS THAN FIVE PARTS PER MILLION. IF THE RESIDUAL IS LESS THAN FIVE PARTS PER MILLION, THE DISINFECTING AGENT SHALL BE REPEATED UNTIL THE REQUIRED MINIMUM CHLORINE RESIDUAL IS OBTAINED AT EVERY OUTLET.
10. PRODUCE:
 - A. GENERAL REQUIREMENTS
 - 1) QUALITY ASSURANCE: COMPLY WITH NFPA 54 AND ALL LOCAL BUILDING CODES.
 - B. PRODUCTS
 - 1) PIPE, TUBE, AND SPECIALTIES
 - a. STEEL PIPE: ASTM A 53, TYPE S (SEAMLESS), GRADE B, SCHEDULE 40, PLAIN ENDS.
 - b. MALLEABLE IRON THREADED FITTINGS: ASME B16.3, CLASS 150.
 - c. MANUAL VALVES: COMPLY WITH STANDARDS LISTED OR, IF APPROPRIATE, TO ANSI Z21.15.
 - d. GAS STOPS: ASA CERTIFIED, BRONZE-BODY, PLUG TYPE WITH BRONZE PLUG, FOR 2-PSIG OR LESS NATURAL GAS. INCLUDE GAS STAMP, FLAT OR SQUARE HEAD OR LEVER HANDLE.
 - e. GAS VALVES: 150-PSIG WOG, GAS-IRON OR BRONZE BODY, BRONZE PLUG, STRAIGHTAWAY PATTERN, SQUARE HEAD, TAPERED-PLUG TYPE.
 - f. FLEXIBLE CONNECTORS: ANSI Z21.24, COPPER ALLOY.
 - 2) EXECUTION
 - a. CLOSE EQUIPMENT SHUTOFF VALVES BEFORE TURNING OFF GAS TO SECTION OF PIPING. PERFORM LEAKAGE TEST AS SPECIFIED TO DETERMINE THAT ALL EQUIPMENT IS TURNED OFF IN AFFECTED PIPING SECTION.
 - b. LOW-PRESSURE, 0.5 PSIG OR LESS, NATURAL GAS SYSTEMS: USE THE FOLLOWING: THREADED JOINTS: STEEL PIPE, MALLEABLE IRON THREADED FITTINGS, AND THREADED JOINTS.
 - c. INSTALL GAS STOPS FOR SHUTOFF TO APPLIANCES WITH NPS 2" OR SMALLER. DIPS AND SEDIMENT TRAPS: INSTALL DIPS AT POINTS WHERE CONDENSATE MAY COLLECT. INCLUDE OUTLETS OF GAS METERS. LOCATE WHERE READILY ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. DO NOT INSTALL WHERE CONDENSATE WOULD BE SUBJECT TO FREEZING.
 - d. INSTALL GAS PIPING AT UNIFORM SLOPE OF 0.1 PERCENT UPWARD TOWARD RISERS.
 - e. USE ECCENTRIC REDUCER FITTINGS TO MAKE REDUCTIONS IN PIPE SIZES. INSTALL FITTINGS WITH LEVEL SIDE DOWN.
 - f. CONNECT BRANCH PIPING FROM TOP OR SIDE OF HORIZONTAL PIPING.
 - g. INSTALL STRAINERS ON SUPPLY SIDE OF EACH CONTROL VALVE, GAS PRESSURE REGULATOR, THERMOSTAT VALVE, AND ESEWHERE AS INDICATED.
 - h. INSTALL VALVES IN ACCESSIBLE LOCATIONS, PROTECTED FROM DAMAGE. TAG VALVES WITH METAL TAG INDICATING PIPING SUPPLIED. ATTACH TAG TO VALVE WITH METAL CHAIN.
 - i. CONNECT GAS PIPING TO EQUIPMENT AND APPLIANCES WITH SHUTOFF VALVES AND UNIONS.
 - k. INSTALL GAS VALVE UPSTREAM FROM AND WITHIN 22 INCHES OF EACH APPLIANCE USING GAS. INSTALL UNION OR FLANGED CONNECTION DOWNSTREAM FROM VALVE.
 - C. GAS PIPING INSPECTION, TESTING, AND PURGING
 - 1) INSPECT, TEST, AND PURGE PIPING ACCORDING TO NFPA 54 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

no.	by	description	date
-	-	Issued For Permit & Construction	6/03/09
-	-	Issued For Client Review	3/24/09
revisions			

BRIAN D. TANNENHAUS

New Shop & Office Building for Shupper-Brickle Equipment Co.
 11 Burnt Tavern Road
 Millstone Township, NJ 08535
 Block: 57
 Lot: 14.01

NI PROFESSIONAL ENGINEER
 NO. 06 45901
 DATE: June 3, 2009



NI CERTIFICATE OF AUTHORIZATION - 24628116100
 BD Engineering, LLC
 1825 Southshore Ave. Lakewood, NJ 08701
 Project No. 080056

DRAWN BY:	CHECKED BY:	SCALE:
RS	BT	NONE

PLUMBING SPECIFICATIONS