

PLUMBING NOTES AND SPECIFICATIONS

GENERAL

- CONTRACTOR SHALL PERFORM ALL WORK SO AS TO CONFORM TO LOCAL, STATE AND NATIONAL CODES AND THE REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
  - CONTRACTOR SHALL EXAMINE SITE TO DETERMINE THE EXACT CONDITIONS EFFECTING THE PLUMBING WORK.
  - DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGRAMMATIC IN SCOPE. THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF PIPING, FIXTURES, ETC. TO A REASONABLE EXTENT AS THE BUILDING CONDITIONS MAY DICTATE. PRIOR TO THEIR INSTALLATION WITHOUT EXTRA COST TO THE OWNER, THE EXACT LOCATION AND ARRANGEMENT OF ALL EQUIPMENT AND PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES.
  - DETAILS OF CONSTRUCTION AND OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS, LEFT IN GOOD WORKING ORDER, READY FOR OPERATION.
  - SCRAP AND DEBRIS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THIS CONTRACTOR.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND START-UP OF THE SYSTEM.
  - ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND DIRT. PROVIDE SUFFICIENT FIREPROOF TARPAILINGS AND COVER ALL EQUIPMENT IN WORK AREA WITH SAME DURING INSTALLATION.
  - CONTRACTOR SHALL FINISH SHOP DRAWINGS AND EQUIPMENT CUTS TO ARCHITECT FOR APPROVAL (MINIMUM FIVE (5) COPIES).
  - CONTRACTOR SHALL FILE, SECURE AND PAY FOR ALL NECESSARY APPROVALS, PERMITS AND INSPECTIONS.
  - ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECT FOR ONE YEAR AFTER ACCEPTANCE OF THE INSTALLATION BY OWNER.
  - ALL WORK SHALL BE IN ACCORDANCE WITH THE NEW JERSEY UNIFORM CONSTRUCTION CODE AND THE NATIONAL STANDARD PLUMBING CODE.
  - THE PLUMBING SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE NATIONAL STANDARD PLUMBING CODE. CONTRACTOR TO COORDINATE TESTS WITH LOCAL OFFICIALS.
  - WHERE DEVICES REQUIRING ACCESS (VALVES, CLEANOUTS, ETC.) WOULD OTHERWISE BE RENDERED INACCESSIBLE BY BUILDING CONSTRUCTION, PROVIDE FRAMED ACCESS DOOR. ACCESS DOORS SHALL BE PRIMED, PAINTABLE STEEL, WHEN LOCATED IN EXTERIOR WALL CONSTRUCTION. ACCESS DOORS IN TOILET ROOM TILE WAINSCOT SHALL BE STAINLESS STEEL. ACCESS DOORS IN EXTERIOR WALLS SHALL BE PROVIDED WITH INSULATED DOORS. ACCESS DOORS IN COLUMN ENCLOSURES OR FIRE RESISTIVE WALLS SHALL BE FIRE RATED IN ACCORDANCE WITH BOCA ARTICLE 401.
  - COORDINATE LOCATIONS OF ALL VALVES AND CONNECTIONS TO APPLIANCES WITH EQUIPMENT SUPPLIER.
- SCOPE OF WORK:
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF ALL FIXTURES, MATERIALS, PIPING AND COMPONENTS AS REQUIRED FOR A COMPLETE AND OPERATIONALLY FUNCTIONAL SYSTEM. SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO:
- INSTALLATION OF ABOVE GROUND SANITARY DRAIN WASTE AND VENT PIPING.
  - INSTALLATION OF CLEANOUTS IN SANITARY DRAINAGE SYSTEMS.
  - INSTALLATION OF FLOOR DRAINS AS INDICATED ON THE DRAWINGS.
  - INSTALLATION OF DOMESTIC HOT AND COLD WATER PIPING INCLUDING ANTI-WATER HAMMER SHOCK ABSORBERS, VALVES, STOP VALVES, FLEX-SUPPLIES, DIELECTRIC UNIONS BETWEEN DISSIMILAR PIPING MATERIALS, ETC.
  - INSTALLATION OF DOMESTIC WATER HEATERS INCLUDING ASME APPROVED, ASA RATED TEMPERATURE AND PRESSURE RELIEF VALVES, GATE VALVES, UNIONS, REGULATION PUMPS, CHECK VALVES, CONTROLS, ETC.
  - INSTALLATION OF BACKFLOW PREVENTORS, PRESSURE REDUCING AND RELIEF VALVES AS INDICATED ON THE DRAWINGS.
  - INSTALLATION OF FIXTURES INCLUDING WALL HANGERS, SUPPORTS, STOP VALVES, FLEX-SUPPLIES, DRAIN TRAPS, STRAINERS, FAUCETS, SOAP DISPENSERS, OUTLET GUARDING SEATS AND OTHER DEVICES AS SHOWN ON THE DRAWINGS AND INDICATED IN THE SCHEDULE OF PLUMBING FIXTURES.
  - TESTING OF THE PLUMBING SYSTEM INCLUDING AIR OR WATER TEST OF DRAINAGE SYSTEM ROUGHINS, SMOKE TEST OF FINISHED DRAINAGE SYSTEM AND PRESSURE TEST OF DOMESTIC WATER SYSTEMS.
  - DISINFECTION OF THE DOMESTIC WATER SUPPLY SYSTEM.
  - PIPING SUPPORT INCLUDING SEISMIC RESTRAINT SHAY BRACING IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE.
  - INSTALLATION OF FIBERGLASS INSULATION FITTING COVERS AND JACKETS ON ALL HOT AND COLD DOMESTIC WATER PIPING.
  - CUTTING AND PATCHING AS REQUIRED.
  - PERMITS, INSPECTIONS, APPROVALS AND CERTIFICATES, INCLUDING FEES.
  - GUARANTEE.

SANITARY DRAINAGE

- ABOVE GROUND SANITARY WASTE AND VENT DRAIN PIPING SHALL BE CAST IRON, 14-MID TYPE.
- VERTICAL, NON-COMBUSTIBLE OCCUPYING AN AREA OF MORE THAN ONE SQUARE FOOT, PIPING ARRANGED IN GROUPS OF TWO OR MORE LINES, WHICH PENETRATE TWO OR MORE FLOORS, SHALL BE ENCLOSED IN SHAFT HAVING A FIRE RESISTANCE RATING IN ACCORDANCE WITH BOCA ARTICLE 401 (MINIMUM 1 HOUR).
- CLEANOUTS FOR SANITARY DRAINAGE SYSTEMS SHALL BE LOCATED IN ACCORDANCE WITH ARTICLE 5.4 OF THE NATIONAL STANDARD PLUMBING CODE.
- FLOORS DRAINING SHALL BE JAY R. SMITH MODEL NO. 2005, ROUND TOP WITH STAINLESS STEEL STRAINER. PROVIDE DEEP SEAL TRAP.
- ALL VENT PENETRATIONS THROUGH BUILDING ROOF SHALL BE MADE WATER-TIGHT BY THE USE OF PROPER FLASHING MATERIALS. SUBMIT FLASHING DETAILS FOR APPROVAL BY THE ARCHITECT.
- VENTS THRU ROOF SHALL NOT BE LESS THAN 3" TO PREVENT FROST CLOSURE. WHERE VENTS SMALLER THAN 3" ARE INDICATED ON THE DRAWINGS, INCREASE TO 3" SIZE AT LEAST 12" BELOW ROOF.
- VENTS SHALL TERMINATE NOT LESS THAN 6" ABOVE ROOF. VENTS SHALL NOT TERMINATE BELOW OR WITHIN 10' HORIZONTALLY OF ANY DOOR, WINDOW, FRESH AIR INTAKE OR OTHER VENTILATION OPENING, WHERE 10' HORIZONTAL CLEARANCE CANNOT BE MAINTAINED, EXTEND VENT TO AT LEAST 2' ABOVE VENTILATION OPENING.

DOMESTIC WATER

- DOMESTIC COLD AND HOT WATER PIPING SHALL BE COPPER TYPE "L" FITTINGS SHALL BE BROUGHT COPPER, 1/8"-3/8" SOLDER SHALL BE USED.
- ALL POTABLE WATER PIPING SHALL BE DISINFECTED AS PER ANNA STANDARD C601-54 AND AS REQUIRED BY THE LOCAL BUILDING AND HEALTH DEPARTMENT CODES.
- ANTI WATER-HAMMER SHOCK ABSORBERS SHALL BE JAY R. SMITH "HYDROCONTROL" SIZED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- PROVIDE STOP VALVES FOR ALL DOMESTIC WATER CONNECTIONS TO FIXTURES EXCEPT WHERE GATE VALVES ARE INDICATED ON THE DRAWINGS.
- ALL HOSE BIBBS AND HYDRANTS SHALL BE PROVIDED WITH APPROVED VACUUM BREAKERS.
- PROVIDE CHROME PLATED, BRASS ANGLED STOP VALVES FOR ALL WATER CLOSETS, LAVS, SINKS, ETC.
- PROVIDE ASME TEMPERATURES AND PRESSURE RELIEF VALVES FOR ALL DOMESTIC WATER HEATERS.
- DISCHARGE OF ALL RELIEF VALVES SHALL BE PIPED TO THE FLOOR TO PREVENT ACCIDENTAL SCALDING.
- PROVIDE TWO (2) GATE VALVES AND TWO (2) UNIONS AND DRAIN VALVE WITH HOSE THREAD FOR EACH DOMESTIC WATER HEATER.

HANGERS AND SUPPORTS

- ALL FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE PIPING SYSTEM. SEE "FIXTURES" SECTION OF "NOTES AND SPECIFICATIONS" AND FIXTURE SCHEDULE NOTES.
- MAXIMUM SPACING OF SUPPORTS FOR VERTICAL PIPING SHALL NOT EXCEED:

TYPE OF PIPING	MAXIMUM SPACING
CAST IRON SOIL LINES THREADED STEEL PIPE COPPER TUBE	AT BASE AND EACH STORY AT EVERY OTHER STORY AT 10'-0" INTERVALS
PROVIDE RISER CLAMPS, WALL BRACKET HANGER, ETC., AS REQUIRED. HANGERS FOR PVC PIPING SHALL BE AS APPROVED BY THE MANUFACTURER.	
TYPE OF PIPING	MAXIMUM SPACING
CAST IRON SOIL PIPE THREADED STEEL PIPE (3/4" LESS THREADED STEEL PIPE (1" & LARGER) COPPER TUBE (1 1/4" & LESS) COPPER TUBE (1 1/2" & LARGER)	AT 5'-0" (10'-0" FOR 10" LENGTHS) AT 10'-0" INTERVALS AT 12'-0" INTERVALS AT 6'-0" INTERVALS AT 10'-0" INTERVALS

- ALL RISERS SHALL BE SUPPORTED AT THE BASE.
- PROVIDE CAPABILITY FOR EXPANSION AND CONTRACTION IN ALL PIPING AS INDICATED BELOW.

TYPE OF PIPING	TYPE OF PROVISIONS
DRAIN LINES IN UNHEATED AREAS DOMESTIC HOT WATER LINES	EXPANSION FITTINGS @ 12' EXPANSION LOOP @ 100'

INSULATION

- THE FOLLOWING PIPING SHALL BE INSULATED:
  - DOMESTIC COLD WATER
  - DOMESTIC HOT WATER
- INSULATION SHALL BE 1" RIGID FIBERGLASS AND SHALL BE MANVILLE "MORO-LOCK" OR APPROVED EQUAL. PROVIDE JACKETS AS SPECIFIED BELOW.
- JACKETS FOR GENERAL PURPOSE, INDOOR USE SHALL BE MANVILLE "AP-T PLUS" PRESSURE SENSITIVE LAP SEALING SYSTEM OR APPROVED EQUAL.
- JACKETS FOR OUTDOOR USE SHALL BE MANVILLE "ZESTON 2000" PVC WITH "TERMA-HEAT" ADHESIVE OR APPROVED EQUAL.
- VALVES, FLANGES, ELBOWS, TEES, HUBS AND OTHER FITTINGS SHALL BE INSULATED USING MANVILLE "M-LO THERM" FIBERGLASS INSERTS WITH MANVILLE "ZESTON 2000" PVC FITTING COVERS SECURED WITH MANVILLE "TERMA-HEAT" ADHESIVE.
- ALL INSULATION SYSTEMS, INCLUDING INSULATION ADHESIVES AND JACKETS SHALL BE CERTIFIED IN ACCORDANCE WITH ASTM E84 FOR FLAMES/SPREAD RATINGS OF 25 OR LESS AND SMOKE DEVELOPED RATINGS OF 50 OR LESS.
- ALL BUT JOINTS OF INSULATION SECTIONS SHALL BE SEALED USING BUTT STRIPS AS RECOMMENDED BY THE MANUFACTURER FOR THE JACKET EMPLOYED.

FIXTURES

- SEE FIXTURE SCHEDULE FOR FIXTURE TYPES AND CONNECTION SIZES.
  - COORDINATE EXACT FIXTURE LOCATIONS FOR ROUGHING WITH THE ARCHITECTURAL DRAWINGS.
  - WHERE ARCHITECTURAL DRAWINGS INDICATE TOILET ROOMS TO BE HANDICAPPED ACCESSIBLE OR HANDICAPPED ADAPTABLE COORDINATE FIXTURE CLEARANCE WITH N.J.A.C. 5-23-1 "BARRIER - FREE SUBCODE".
  - UNLESS OTHERWISE INDICATED, ALL FIXTURES SHALL BE "WHITE". COORDINATE ALL FIXTURE COLORS WITH THE ARCHITECT.
  - PROVIDE POP-UP DRAIN AND OVERFLOW FOR ALL LAVS.
- TESTING AND DISINFECTION
- ALL NEW PLUMBING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE NSFC.
  - SANITARY DRAINAGE SYSTEMS ROUGHING SHALL BE PRESSURE TESTED AT NOT LESS THAN 5 PSI FOR A PERIOD OF 15 MINUTES. PROVIDE TEST TEES, TEST PLUGS AND COMPRESSOR AS REQUIRED. THE FINAL SANITARY DRAINAGE SYSTEM SHALL BE SMOKE TESTED, WHERE APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION, PERFORMANT MAY BE USED IN LIEU OF SMOKE TESTS.
  - DOMESTIC WATER SYSTEMS SHALL BE HYDROSTATIC TESTED A 150 PSI FOR NOT LESS THAN ONE HOUR.
  - ALL NEW DOMESTIC WATER SYSTEMS SHALL BE DISINFECTED USING A WATER CALORINE SOLUTION AND IN ACCORDANCE WITH THE REQUIREMENTS OF NSFC ARTICLE 10.4.

PLUMBING SYMBOLS

PIPING

UNDERGROUND SANITARY DRAIN  
ABOVE GROUND SANITARY DRAIN  
VENT PIPING

DOMESTIC COLD WATER  
DOMESTIC HOT WATER SUPPLY (140°F)  
DOMESTIC HOT WATER RETURN (140°F)  
DOMESTIC HOT WATER (180°F)

PIPE TURNING DOWN  
PIPE TURNING UP

SANITARY SYSTEMS

DECK PLATE CLEANOUT  
HORIZONTAL CLEANOUT  
VENT THRU ROOF W/FLASHING & COUNTERFLASHING  
TRAP  
ACCESS DOOR  
FLOOR DRAIN W/TRAP  
FLOOR RECEPTOR W/SPLASH PROOF RIM  
FUNNEL FLOOR DRAIN  
TRENCH DRAIN  
F.D., F.R., ETC. W/BACKWATER VALVE

DOMESTIC WATER SYSTEMS

BALANCING VALVE  
CHECK VALVE

STOP VALVE (CHROME PLATED)  
GATE VALVE (NORMALLY OPEN)

GATE VALVE (NORMALLY CLOSED)  
UNION

FLANGED CONNECTION  
SOLENOID VALVE

ANGLE VALVE

ASME APPROVED T & P RELIEF VALVE

GLOBE VALVE

THREE-WAY VALVE

PRESSURE GAUGE W/COCK

THERMOMETER

TEMPERATURE SWITCH (AQUASTAT)

FLOW SWITCH

PRESSURE SWITCH

STRAINER

ANTI-WATER HAMMER DEVICE (PDI RATING AS NOTED)

BASE MOUNTED PUMP

AUTOMATIC TRAP PRIMER W/BACKFLOW PREVENTION

WATER METER W/FLANGED CONNECTIONS

FLANGED CIRCULATING PUMP W/BRONZE CASING & IMPELLER

HOSE BIBB W/VACUUM BREAKER

FREEZE PROOF WALL HYDRANT W/VACUUM BREAKER

WATER METER ASSEMBLY W/GATE VALVES & UNIONS

FLANGED WATER METER ASSEMBLY W/ GATE VALVES

DOUBLE CHECK VALVE BACKFLOW PREVENTER W/DIP

REDUCED PRESSURE ZONE BACKFLOW PREVENTER

THERMOSTATIC MIXING VALVE

SHOWER HEAD

SHOWER VALVE (ANTI-SCALD PRESSURE BALANCED TYPE)

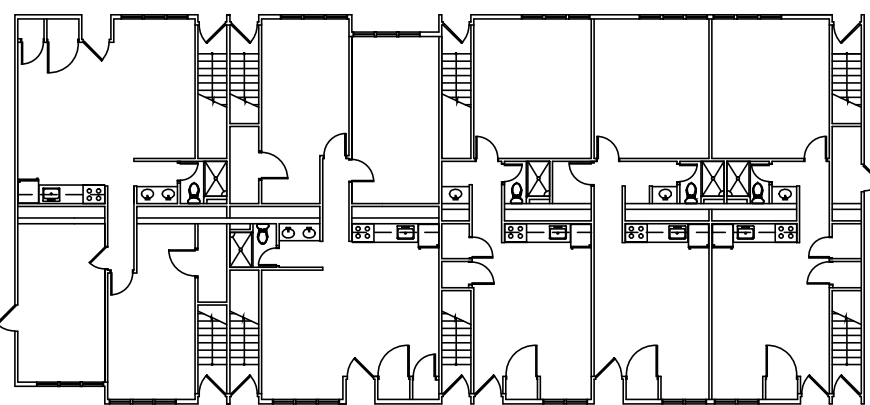
MISCELLANEOUS

CONNECT TO EXISTING

ABBREVIATIONS

ABOVE FINISHED FLOOR  
BRITISH THERMAL UNITS  
COMBUSTION AIR INTAKE  
CAST IRON  
COPPER  
CUBIC FEET  
COLD WATER  
DUCTILE IRON  
ELEVATION  
FEET PER SECOND  
GALLONS  
GAL  
GPD  
GPM  
GPM  
HEAD  
HP  
HORSEPOWER  
HOT WATER  
INSIDE DIAMETER  
IPS  
LINEAR FEET  
NOT TO SCALE  
OD  
OUTSIDE DIAMETER  
POUNDS PER SQUARE INCH  
PSI  
PSIA  
PSIG  
REGULOR  
SERVICE HEIGHT CAST IRON  
VAC  
VACUUM  
WTR  
WATER  
EXTRA HEAVY CAST IRON

Key Plan



Consultants

LINWOOD ENGINEERING ASSOCIATES, P.A.

CONSULTING MECHANICAL & ELECTRICAL ENGINEERS

**LEA** 955 Lincoln Ave. 2801 Dupont Drive-Suite 150  
Glen Rock, New Jersey Irvine, California  
07452 92512  
t: 201.857.3998 t: 714.424.0001  
f: 201.857.3994 f: 714.424.0004  
www.linwoodengineering.com

Project

INTERIOR RENOVATIONS  
AT THE  
BUTTERNUT - M RESIDENCE

**RAMAPO**  
COLLEGE  
OF NEW JERSEY  
505 Ramapo Valley Road  
Mahwah, New Jersey 07430-1680

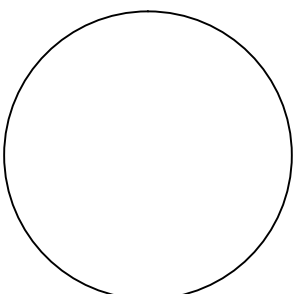
Client

**RAMAPO**  
COLLEGE  
OF NEW JERSEY  
505 Ramapo Valley Road  
Mahwah, New Jersey 07430-1680

**SNS** Architects & Engineers, PC

1 PARAGON DRIVE . MONTVALE . NEW JERSEY . 07645  
tel: 201.573.1767 fax: 201.573.0808 www.sns-arch-eng.com

Fay W. Logan, AIA  
John M. Lignos, AIA  
Lorin J. Sonenshine, AIA  
Steven Napolitano, PE



**Michael T. Davina, P.E.**  
NJ #48654  
CT #0025779

**Robert J. Hatch, P.E.**  
AR #13868  
CA #E16118  
CT #13318  
FL #69560  
MA #48516  
NJ #35419  
NY #019975  
PA #036014-E

Cert./Lic. No.  
Date 04-23-15 Scale AS NOTED  
Drawn By MD/Cadd Checked By sg

PLUMBING NOTES, SYMBOLS &  
SCHEDULES

Work Order No. Dwg. No.

**4698M** **P001**