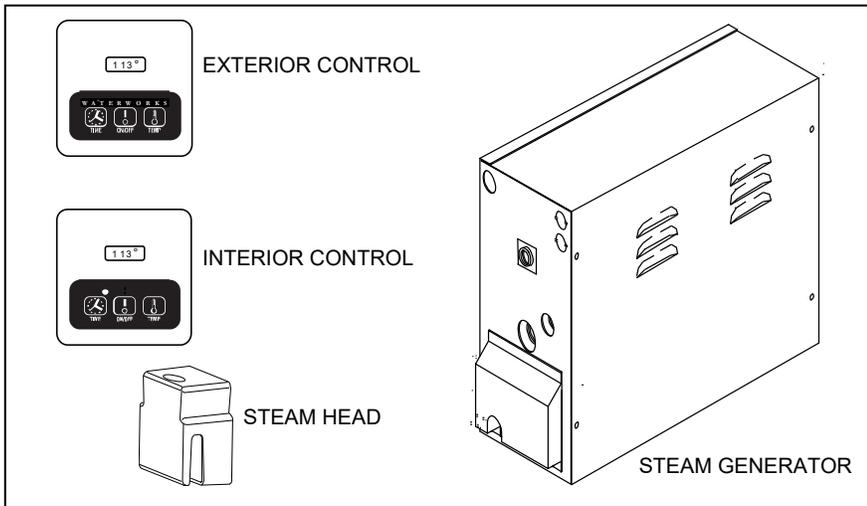


WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS



WATERWORKS STEAMBATH GENERATORS WWSU08, WWSU13 AND WWSU15 Instructions for 208V and 240V 1/3 Phase Models. (Use 240V models for 400-415V~N3 installations) FOR USE WITH WWSU45 CONTROL PACKAGE

Package includes: Exterior Control, Interior Control, control cables and a steam head.

SAVE THESE INSTRUCTIONS

READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

POST SAFETY "WARNING" LABEL OUTSIDE STEAMBATH. LABEL SHOULD BE POSTED ON OR ADJACENT TO DOOR TO STEAM ROOM IN COMMERCIAL INSTALLATIONS.

SECTION 1: GENERAL INFORMATION

Waterworks' steam generators are tested by Intertek-ETL Laboratory. The steam generators come assembled and ready for installation. Check that the size and rating of the generator is suitable for your application, refer to the Steam Room Construction and Generator Guide (Waterworks doc. 4211-36).

These steamers may be connected as a ganged system where one steamer controls one or two other steamers. Bath controls connect to the primary steamer and the primary steamer connects to the second steamer (and third steamer, if installed). This provides more power for large rooms and light commercial use. *See appendix to this document for details.* We recommend choosing steamers which are closely matched in power. The highest kW steamer should be the primary unit. Each steamer should have its own automatic drain.

For commercial use, we recommend checking with your local inspectors to confirm the steamer system is acceptable for your use. Many jurisdictions will require an ASME boiler for commercial use: WATERWORKS steamers are not boilers.

Note: These steamers may be configured for single or three phase power during installation

IMPORTANT

An exhaust fan installed outside the steam room is strongly recommended to remove excess steam from the bathroom or shower area.



CAUTION

Electrical grounding is required on all WATERWORKS Steam bath Generators.

All electrical supplies should be disconnected when servicing generator.

All wiring must be installed by a licensed electrical contractor in accordance with local and national codes.

All plumbing must be installed by a licensed plumber in accordance with all applicable local and national codes.

Steam generators are for indoor use only.

Steam generators are not for space heating purposes.

Be certain that steam bath enclosures are properly sealed to avoid water damage from escaping steam. It is recommended that 100% silicone caulk be used to seal all pipes and fittings. Steam must be prevented from escaping into the wall cavity.

Never shut off the water to a steam generator that is in use.

Electric Shock Hazard - High voltage exists within this equipment. There are no user serviceable parts in this equipment.

WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS

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W A T E R W O R K S I N S T A L L A T I O N A N D S E R V I C E I N S T R U C T I O N S

Thank you for purchasing your new Waterworks steam generator.

FOR THE SAFETY OF YOU AND YOUR FAMILY OR CUSTOMERS, PLEASE READ THE FOLLOWING WARNINGS AND ALL INSTRUCTIONS BEFORE USING YOUR STEAMBATH.

POST "STEAMBATH INSTRUCTIONS" LABEL OUTSIDE STEAMBATH FOR SAFETY WARNINGS.

SAVE THIS MANUAL

FOR THE SAFETY OF YOU AND YOUR FAMILY OR CUSTOMERS, PLEASE READ THE FOLLOWING WARNINGS AND ALL INSTRUCTIONS BEFORE USING YOUR STEAMBATH. POST "STEAMBATH INSTRUCTIONS" LABEL OUTSIDE STEAMBATH FOR SAFETY WARNINGS.



WARNING



Electric Shock Hazard - High voltage exists within this equipment. Disconnect all electrical power before servicing the generator. All installation and service to this equipment should be performed by qualified licensed personnel in accordance with local and national codes. There are no user serviceable parts in this equipment.

Electrical grounding is required on all Waterworks steambath generators. The generator is designed for hookup with copper wire only, 75°C or better.

Wire the controls exactly as described. Do not connect any additional wiring or power supplies to the controls or their terminals in the generator.

Service only by authorized personnel!

All plumbing must be installed by a licensed plumber in accordance with all applicable local and national codes.

Install indoors only. Protect from freezing. Generator must be level side to side and end to end.

The pressure relief valve and generator drain must be installed in such a fashion that the risk of scalding is reduced to a minimum. Draining these outlets into the steam room may present a scald hazard and may damage materials used to construct the room.



Danger To reduce the risk of explosions, do not interconnect steam lines!!

Caution The steam outlet carries hot vapor! A separate steam line is required for each steam outlet. Do not connect a valve or shut-off in the steam line! Avoid traps and valleys in the steam line where water could collect and cause a steam blockage. The hot steam line must be insulated against user contact.

Do not install the steam head near a bench or where steam may spray or where condensation will drip on the user as this will present a scald hazard.

Be certain that steambath enclosures are properly sealed to avoid water damage from escaping steam. It is recommended that 100% silicone caulk be used to seal all pipes and fittings. Steam must be prevented from escaping into the wall cavity. Centering the steam pipe is critical in rooms made of plastic, acrylic, resin, fiberglass or similar materials. Allowing the steam pipe to touch materials not rated 240°F or higher will result in damage to these materials.

Merci pour l'achat de votre nouveau WATERWORKS générateur de vapeur.

POUR LE SÉCURITÉ DE VOTRE FAMILLE ET VOUS OU CLIENTS, VEUILLEZ LIRE LES AVERTISSEMENTS SUIVANTS ET TOUTES LES INSTRUCTIONS AVANT D'UTILISER VOTRE BAIN DE VAPEUR.

POST "BAIN DE VAPEUR" LABEL HORS D UN BAIN DE d'INSTRUCTIONS POUR DES AVERTISSEMENTS EN MATIÈRE DE SÉCURITÉ.

ENREISTREZ CE MANUEL

POUR LA SÉCURITÉ DE VOTRE FAMILLE ET VOUS OU VOS CLIENTS, VEUILLEZ LIRE APRÈS AVERTISSEMENTS ET TOUTES LES INSTRUCTIONS AVANT D'UTILISER VOTRE BAIN DE VAPEUR. POST "BAIN DE VAPEUR" LABEL HORS D UN BAIN DE VAPEUR D'INSTRUCTIONS POUR DES AVERTISSEMENTS EN MATIÈRE DE SÉCURITÉ.



AVERTISSEMENT



Risque de choc électrique - Haute tension existe au sein de ce matériel. Débranchez toute source d'alimentation avant de procéder à l'entretien du générateur. Toutes les instructions d'installation et service à cet équipement doit être effectuée par du personnel autorisé qualifié conformément aux codes locaux et nationaux. Il n'y a pas de pièce réparable par l'utilisateur à cet équipement.

Mise à la terre électrique est requis sur tous les générateurs bain de vapeur Waterworks. Le générateur est conçu pour connecter un fil de cuivre uniquement, 75 °C ou mieux.

Câbler le contrôle très exactement comme indiqué. Ne connectez aucun câblage supplémentaire ou blocs d'alimentation pour les commandes ou leurs terminaux dans le générateur.

Service uniquement par le personnel autorisé!

Toute la tuyauterie doit être installé par un plombier sous licence conformément à tous les codes locaux et nationaux applicables.

Installer à l'intérieur uniquement. Protéger du gel. Générateur doit être mise à niveau latérale et l'extrémité à l'autre.

La valve de limitation de pression et purge du générateur doit être installé de telle façon que le risque de brûlure est réduit à un minimum. Vidange de ces prises dans la salle de vapeur peut présenter un risque de brûlure et peut endommager les matériaux utilisés pour construire la salle.



Danger Pour réduire les risques d'explosion, ne pas connecter les conduites de vapeur t!!

Attention La sortie vapeur transporte vapeur chaude ! Une conduite de vapeur distincte est requise pour chaque sortie vapeur. Ne connectez pas une valve ou l'arrêt dans la conduite de vapeur! Éviter les pièges et les vallées dans la conduite de vapeur où l'eau pourrait recueillir et provoquer un blocage de vapeur. La vapeur chaude ligne doit être isolée par rapport au contact de l'utilisateur.

Ne pas installer la tête de vapeur près d'un banc ou où la vapeur peut pulvériser ou où la condensation s'égoutter sur l'utilisateur comme cela présentera un risque de brûlure.

Etre certain que le bain de vapeur boîtiers sont étanches afin d'éviter les dégâts d'eau de s'échapper la vapeur. Il est recommandé que 100% mastic au silicone utilisée pour obturer tous les raccords et tuyaux. La vapeur doit être empêché de s'échapper dans la cavité du mur. Centrage du tube à vapeur est critique dans les chambres faites de plastique, de l'acrylique, résine, la fibre de verre ou des matériaux similaires. Permettant le tube à vapeur pour toucher les matériaux non coté 115°C ou plus aura pour effet d'endommager ces matériaux.

POST "WARNING LABEL OUTSIDE STEAMBATH FOR SAFETY WARNINGS

 WARNING	
REDUCE THE RISK OF OVERHEATING AND SCALDING	
<ol style="list-style-type: none"> 1. Exit immediately if uncomfortable, dizzy or sleepy. Staying too long in a heated area is capable of causing overheating. 2. Supervise children at all times. 3. Check with a doctor before use if pregnant, diabetic, in poor health or under medical care. 4. Breathing heated air in conjunction with consumption of alcohol, drugs or medication is capable of causing unconsciousness. 	
CAUTION! Do not contact steam head. Stay at least 12" away from hot steam escaping from the steam outlet.	
REDUCE THE RISK OF SLIPPING AND FALL INJURY	
Use care when entering or exiting the steam room, floor may be slippery.	
05-21-07 4110-79	NOTE: <i>For additional safety instructions, see owner's manual.</i>

Étiquette d'avertissement "Extérieur poste bain de vapeur pour les avertissements relatifs à la sécurité

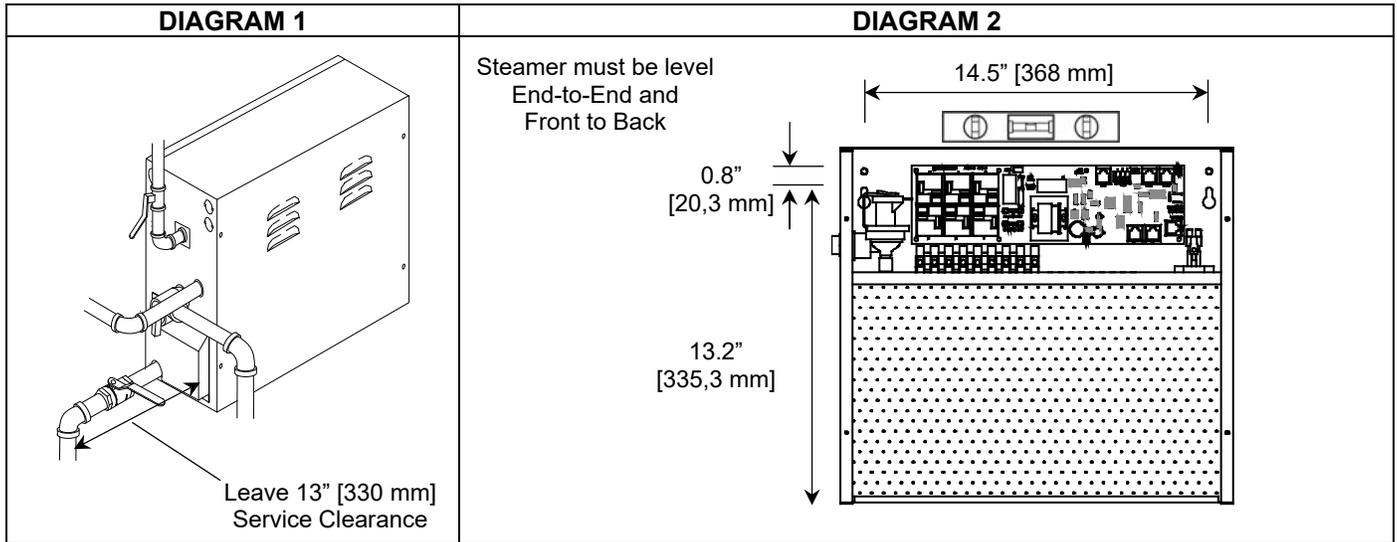
 AVERTISSEMENT	
Réduire le risque de surchauffe et de brûlures	
<p>Quitter immédiatement si mal à l'aise, étourdi ou somnolent. De rester trop longtemps dans une zone chauffée est capable de causer une surchauffe.</p> <p>Supervisez les enfants en tout temps.</p> <p>Vérifier avec un médecin avant d'utiliser en cas de grossesse, diabétique, en mauvaise santé ou nécessitent des soins médicaux.</p> <p>Respirer de l'air chaud en conjonction avec la consommation d'alcool, de drogues ou de médicaments peuvent causer la perte de conscience.</p>	
PRUDENCE!	Ne contactez pas tête de vapeur. Séjour d'au moins 305 mm de vapeur s'échappant de la tête de vapeur.
Réduire le risque de dérapage et de chute	
Utiliser les soins en entrant ou en sortant de la salle de vapeur, le sol peut être glissant.	
05-03-16 4110-791	Remarque : Pour d'autres consignes de sécurité, voir le manuel du propriétaire.

IMPORTANT USER SAFETY INSTRUCTIONS

- 1. READ AND FOLLOW ALL INSTRUCTIONS.—SAVE THESE INSTRUCTIONS!**
- The steam bath is not intended for use by anyone (including children) with reduced physical, sensory or mental capabilities or who lack experience or knowledge, unless they have supervision or training on the use of the steam bath by a person responsible for their safety.
- WARNING** - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times. Ensure they do not play in the steam bath.
- WARNING** - To reduce the risk of injury:
 - The wet surfaces of steam enclosures may be slippery. Use care when entering or leaving.
 - The steam head is hot. Do not touch the steam head and avoid the steam near the steam head.
 - Prolonged use of the steam system can raise excessively the internal human body temperature and impair the body's ability to regulate its internal temperature (hyperthermia). Limit your use of steam to 10 to 15 minutes until you are certain of your body's reaction.
 - Excessive temperatures have a high potential for causing fetal damage during the early months of pregnancy. Pregnant or possibly pregnant women should consult a physician regarding correct exposure.
 - Obese persons and persons with a history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a steam bath.
 - Persons using medication should consult a physician before using a steam bath since some medication may induce drowsiness while other medications may affect heart rate, blood pressure and circulation.
- WARNING** - Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F (37°C). The symptoms of hyperthermia include an increase in the internal temperature of the body, dizziness, lethargy, drowsiness and fainting. The effects of hyperthermia include:
 - Failure to perceive heat:
 - Failure to recognize the need to exit the steam bath:
 - Unawareness of impending risk:
 - Fetal damage in pregnant women:
 - Physical inability to exit the steam bath: and
 - Unconsciousness.
- WARNING** - The use of alcohol, drugs or medication can greatly increase the risk of hyperthermia

-
- 1. Lire et suivre toutes les instructions. -- Conservez ces instructions !**
 - Le bain de vapeur n'est pas destiné à être utilisé par toute personne (y compris les enfants) avec toutes leurs capacités physiques, sensorielles ou mentales ou qui manquent d'expérience ou de connaissances, à moins qu'ils aient la supervision ou de la formation sur l'utilisation du bain de vapeur par une personne responsable de leur sécurité.
 - Avertissement** : Pour réduire les risques de blessures, ne pas permettre aux enfants d'utiliser ce produit, sauf s'ils sont étroitement surveillés en tout temps. S'assurer qu'ils ne jouent pas dans le bain de vapeur.
 - Avertissement** : pour limiter les risques de blessure :
 - Les surfaces mouillées de boîtiers de vapeur peut être glissant. Soyez prudent lorsque vous entrant ou sortant.
 - La tête de vapeur est chaud. Ne pas toucher la tête de vapeur et éviter la vapeur près de la tête de vapeur.
 - Une utilisation prolongée de la chaudière à vapeur peut augmenter excessivement la température du corps humain et d interne nuisent à la capacité du corps de régler sa température interne (hyperthermie). Limitez votre consommation de vapeur pour 10 à 15 minutes jusqu'à ce que vous soyez certain de la réaction de votre corps.
 - Des températures excessives ont un haut potentiel de causer de dommages foetaux pendant les premiers mois de la grossesse. Enceinte ou peut-être les femmes enceintes devraient consulter un médecin au sujet de l'exposition correcte.
 - Les personnes obèses et les personnes ayant des antécédents de maladie du coeur, tension artérielle basse ou élevée, des problèmes du système circulatoire ou de diabète devraient consulter un médecin avant d'utiliser un bain de vapeur.
 - Les personnes qui utilisent ces médicaments devraient consulter un médecin avant d'utiliser un bain à vapeur depuis quelques médicaments peut induire une somnolence tandis que d'autres médicaments peuvent affecter la fréquence cardiaque, la tension artérielle et de la circulation.
 - Avertissement** - L'hyperthermie survient lorsque la température interne du corps atteint un niveau à plusieurs degrés au-dessus de la normale de la température corporelle de 37 °C. Les symptômes de l'hyperthermie comprennent une augmentation de la température interne du corps, sensation vertigineuse, léthargie, somnolence et d'évanouissement. Les effets de l'hyperthermie comprennent :
 - L'incapacité de percevoir la chaleur
 - L'incapacité à reconnaître la nécessité de quitter le bain de vapeur :
 - La méconnaissance de l'imminence d'un risque :
 - Dommages au fœtus chez les femmes enceintes :
 - Incapacité physique pour quitter le bain de vapeur : et
 - L'inconscience.
 - Avertissement** - La consommation d'alcool, de drogues ou de médicaments peut augmenter considérablement le risque d'une hyperthermie

SECTION 1: MOUNTING THE STEAM GENERATOR



The Waterworks steam generator can be hung on a wall or sit on its base. The best mounting location will satisfy all or most of the following:

WARNING: The generator will not operate properly, unless it is mounted level with the arrows pointed up

1. **The generator should be installed in a dry, well ventilated area.** Suggested locations are under a vanity, in a closet, attic, crawl space or basement. **Do not mount outdoors.**
2. If the generator will be in an area difficult to access, the water supply should be equipped with easily access water shut-off valve in case of emergency.
3. If the steam line is in an area where the temperature will be below 39°F (4°C) best results can be obtained by insulating the steam pipe. **Do Not mount the generator in an area subject to freezing.**
4. The generator must be mounted in a minimum 7 cubic feet (0,2 cubic meter) space.
5. **The location must allow access for service!** Provide clearance for plumbing and electrical service and for element removal. See Diagram 1.
6. The steam line should slope to allow condensation to drain. The mounting location should minimize the number of bends and elbows in the steam line
7. The mounting location should allow for a drain hook up.
8. The steam line should be less than 20 ft (6 m) long; 3 ft (1 m) is preferred. Steam lines over 20ft (6 m) long should be insulated.

WARNING

- There must be no dips or valleys in the steam line.
- Install the steam head so as to avoid potential user direct contact with the steam or where condensation may drip on the user as this may present a scald hazard.
- **Do Not** install any valves or other shut-off devices in the steam line!
- **Do Not** interconnect steam lines! A separate steam line is required for each generator!
- **Do Not** connect the drain line to the steam line or allow the drain empty into the steam room!
- **Do Not** connect the pressure relief valve into the steam line or vent it where someone nearby could be scalded! **Do Not** allow the relief valve to vent into the steam room!

WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS

SECTION 1: MOUNTING THE STEAM GENERATOR (continued)

1. WALL MOUNTING: Remove the side cover. Note the location of the mounting holes on the back of the generator. The screws must set directly into studs or equivalent supports. Drill pilot holes on 14-1/2" (368 mm) centers and install the two #10 1/2" screws, provided. See at right.

- a) Carefully hang the generator on the two screws. Tighten the screws.
- a) The generator may be further secured with two screws mounted on the same 14-1/2" (368 mm) centers as shown.
- b)
- c) Replace the front cover with its four screws.

2. FLOOR MOUNTING:

- a) In general, the width of the unit allows it to sit on a shelf, across the ceiling joists or on a floor. The generator must be restrained from moving. Normally, the piping will provide adequate support. If not, additional support must be provided.
- b) All floor installed generators must provide for routine draining of the tank and for draining the safety valve's outlet.

SECTION 2: WATER QUALITY REQUIREMENTS

The nature of a boiler or steam bath generator requires testing of the feedwater to avoid potential high concentrations of impurities which can cause a deposit or scale to form on the internal surfaces. This deposit or scale can interfere with the equipment's proper operation and even cause premature boiler or generator failure. Concentration of impurities is generally controlled by treating the feedwater and or "blowing down" the generator or boiler when it is not heating. The "blow down" process involves removing a portion of the tank water with high solid concentration and replacing it with makeup water.

This is particularly important in areas with high calcium levels and other water quality problems. Calcium build-up can cause poor steamer performance and damage the heating elements!

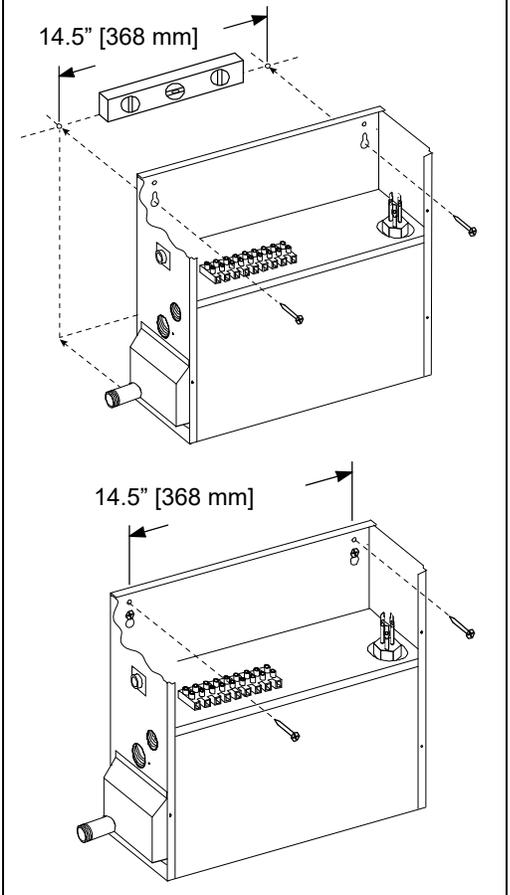
Be especially careful to prevent foaming in the steamer's water! Foaming water will affect the water level measuring systems in steamers and boilers, causing operation problems and possibly leading to early element failures!

To insure proper operation, the water supply should be tested prior to operating the equipment. There are several treatment processes which can be used if you have a problem with hard water. A local reliable water treatment company can recommend the appropriate treatment if required. The recommended feedwater quality is listed on the next page.

Recommended Feedwater Quality

Hardness	10 – 30 ppm - (0.5 - 1.75 gpg)
T-Alkalinity	150 – 700 ppm - (8.75 - 40.8 gpg)
Silica Range	15 – 25 ppm - (1.28 - 1.45 gpg)
PH (strength of alkalinity)	10.5 -- 11.5

WALL MOUNTING



WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS

IMPORTANT!

Regular maintenance will help your steamer work properly for a long time. Check for leaks, loose or damaged wires, signs of corrosion and calcium build up in the tank on the level probe.

SECTION 3: PLUMBING INSTRUCTIONS

All plumbing shall be installed by a licensed plumber and conform with local & national codes.

Materials Needed:

- 3/8NPT, 1/2NPT and 3/4NPT unions: recommended to allow easy disconnect of steamer for servicing
- 3/8" copper pipe and 3/8" male NPT adapter for the water supply to the generator.
- 3/8" water supply shut-off valve.
- 3/8" supply valve housing and filter (optional depending on local water conditions).
- 1/2" copper pipe and (2) 1/2" male NPT adapters for the steam line between the generator and the steam room outlet.
- 3/4" copper pipe and 3/4" male NPT adapter for the tank drain.
- 3/4" copper pipe, fittings, and a union for the Pressure Relief Safety Valve drain.
- Tube 100% silicone caulk.
- Pipe compound suitable for drinking water use at more than 212°F (100°C).

1. INSTALL WATER LINE Connect a cold water line to the generators water valve. The valve input is 3/8" NPT. A shut-off valve should be placed in the line for each generator to allow easier servicing later, if needed, and for emergency shut-off. Make sure the shut-off is open, providing water to the generator before first turning the on.

IMPORTANT

- Water pressure required: 20-100 psi (138-690 kPa)
- If the generator is mounted in a place difficult for the home owner to access, the water supply shut-off valve should be located where it can be quickly accessed in an emergency.
- Do not use a saddle valve or saddle fitting for the water shut-off valve.
- Flush water supply line before final hookup.

2. INSTALL STEAM LINE

- At the generator:** Install a 1/2" male NPT sweat adapter directly into the tank. Install a 1/2" union in the steam line to allow easy disconnection for later servicing. **Note:** *There must be no valves, shut offs or restrictions in the steam line!*
- Run the 1/2" copper steam line from the generator to the steam room. Refer to SECTION 1: MOUNTING THE STEAM GENERATOR and Diagrams 3a and 3b.
 - The steam line must slope to allow condensation to drain into the tank or room.
 - There must be no dips in the steam line. Low areas may collect condensation and cause faulty operation or cause hot water to spit into the room.
- The steam line should enter the steam room 18" (460 mm) above the floor or at least 12" (305 mm) above a tub rim or ledge. The steam line outlet should be at least 6" (150 mm) from other steam heads to either side and 12" (305 mm) from walls or other surfaces to either side. See Diagrams 4, 5 and 6.

SECTION 3: PLUMBING INSTRUCTIONS *(continued)*

Diagram 3a

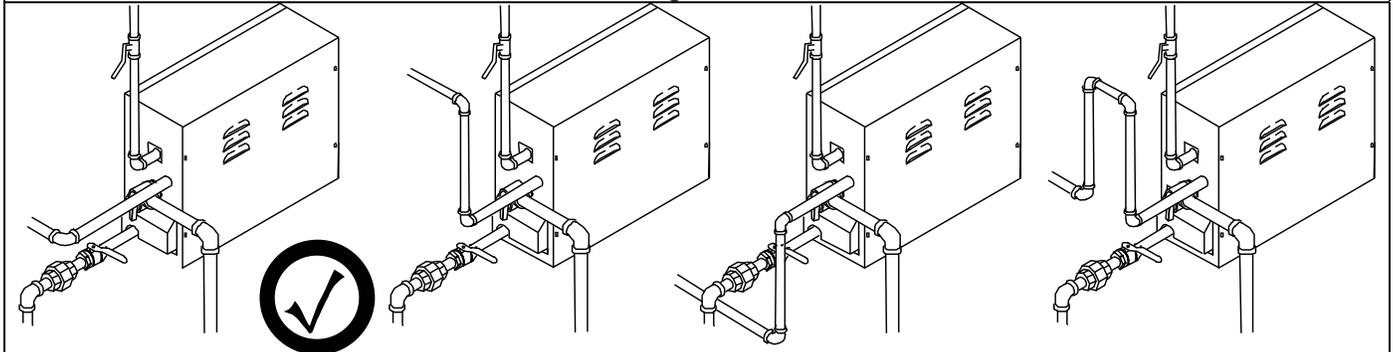
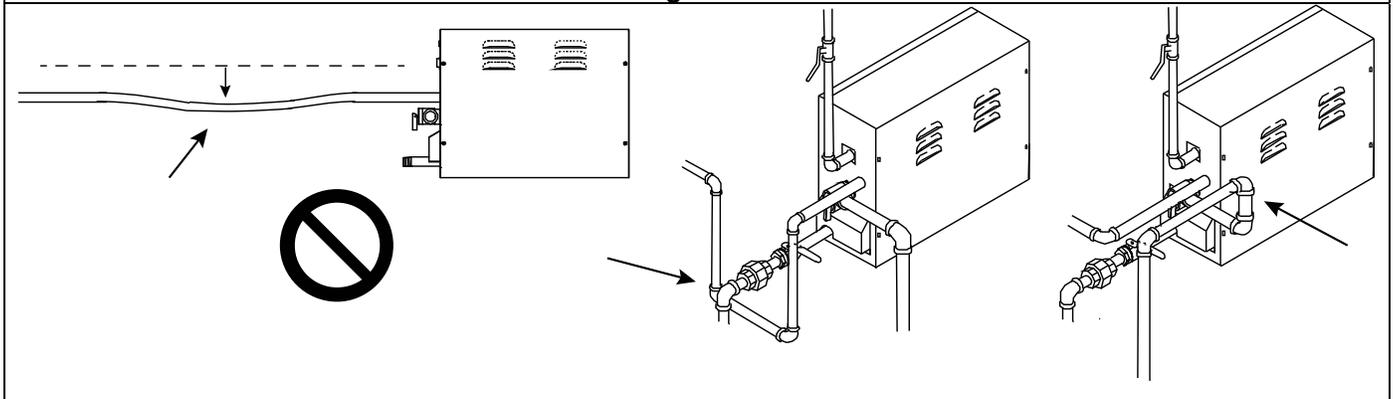


Diagram 3b

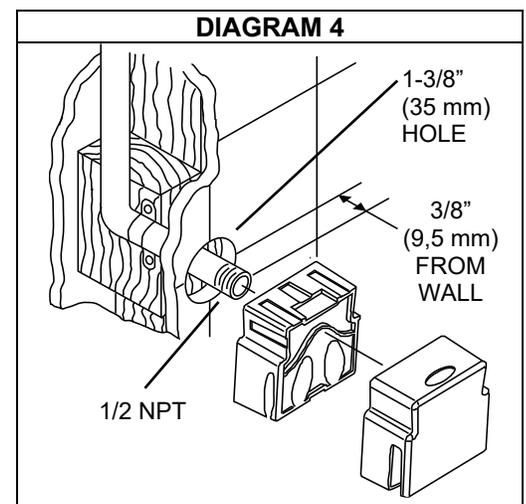


Note: See Diagram 6 for a typical installation. Additional steam heads may be added to any installation to reduce steam noise or to provide more steam dispersion around a large room. *For large WWSU15 steamers, we recommend using 2 steam heads to reduce the noise level while steaming.*

Note: *if steam vents are too close to other surfaces, the steam may be cooled and the surfaces damaged.*

- d) **At the steam room:** Drill/prepare a 1-3/8" (35 mm) hole for the steam line entry. Center the 1/2" copper steam pipe in the hole. See Diagram 4.
- Terminate the steam line with a 1/2" NPT male adapter.
 - Stub the line out into the room 3/8" (9,5 mm) from the finished surface.
 - Secure the steam line to a structural member.

3. INSTALL STEAM HEAD INSULATOR: Fill in gap (using 100% Silicone caulk between steam pipe and finished wall surface at point of entry (see Diagram 4). Apply silicone caulk to the finished wall side of the steam head insulator (see Diagram 5) and screw on hand tight until it is flush with the wall with the opening pointing down. If a hand tight fit does not align with the opening pointing down, use Teflon tape on the steam line threads to adjust the fit.



SECTION 3: PLUMBING INSTRUCTIONS *(continued)*

4. INSTALL STEAM HEAD: Slide the steam head on until it rests firmly against the finished wall. Tighten the hex head screw underneath the steam head to secure it in place with the Allen wrench provided. The steam head should be level with its fragrance reservoir at the top. See Diagrams 4 and 6.

IMPORTANT

All fixture holes must be sealed with 100% silicon caulk to avoid moisture damage within walls. Check all of the standard fixtures in the steam room.

DIAGRAM 5

SILICONE
BACK
SIDE

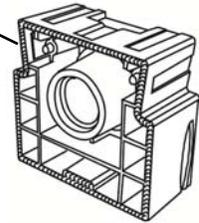
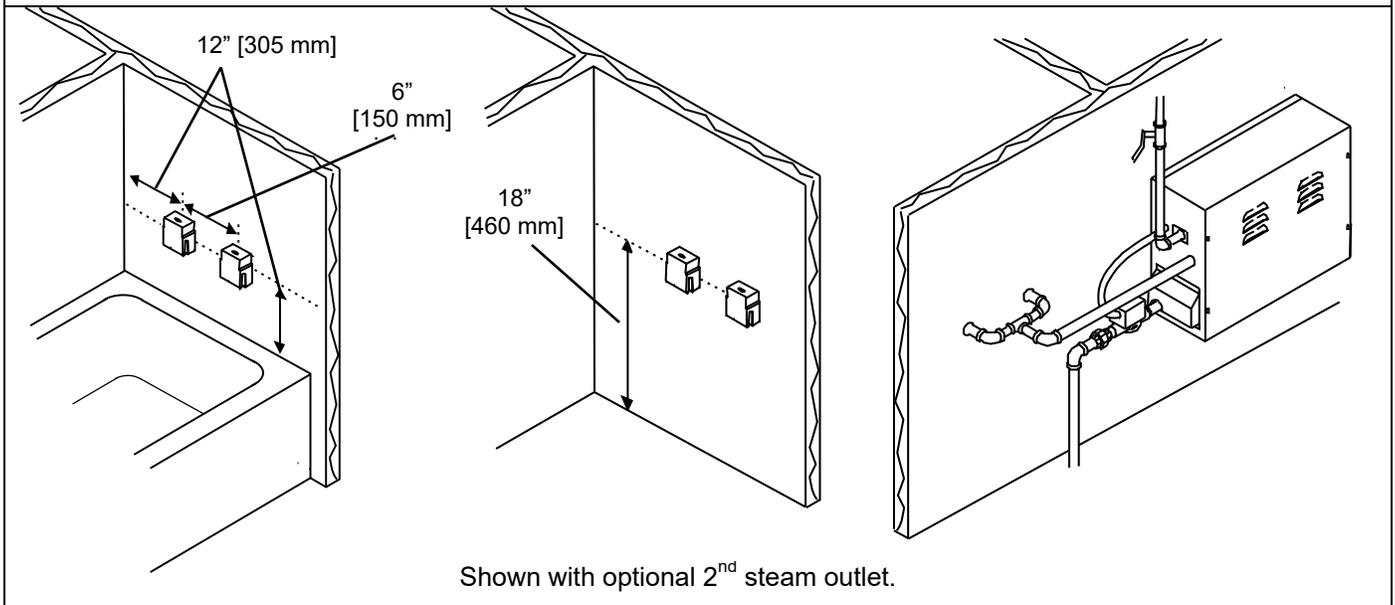


DIAGRAM 6

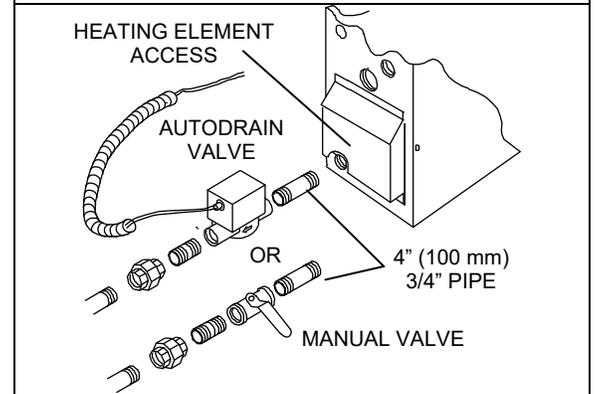


5. INSTALL PRESSURE RELIEF SAFETY VALVE: Install the pressure relief valve into its port on the generator. Install the safety valve within 6" [150] mm of the generator. Run a 3/4" copper line from the valve to a gravity flow drain. The pressure relief valve outlet must drain in accordance with local and national codes.

AUTODRAIN *All generators must have a drain valve installed to allow draining the tank for cleaning and maintenance. A manual ball valve is supplied. An electronic ball valve is available in the ADK Autodrain option. When installed, Autodrain automatically rinses and empties the steam tank approximately 25 minutes after a steam bath stops. This cleans the tank to reduce problems caused by poor water quality and ensures every steam bath starts with clean, fresh water.*

6. INSTALL DRAIN VALVE: Install 3/4" NPT pipe nipple directly into the tank as shown in Diagram 7. Install a 3/4" ball valve or an Autodrain on the nipple then add another nipple to the outlet of the valve. Add a union to the outlet nipple to allow easy disconnection during servicing. Run a 3/4" copper line from the union to a gravity flow drain. The drain must be connected in accordance with local and national codes.

DIAGRAM 7



Diagrams 7 and 8 show the optional Autodrain valve

WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS

SECTION 3: PLUMBING INSTRUCTIONS *(continued)*

IMPORTANT

All drain lines must run downhill, away from the steam generator! *Also see Diagram 3*

- Do not run the drain uphill.
- Do not drain the safety valve into the steam line!
- Do not drain the safety valve into the steam room! Draining the tank into the steam room may present a scald hazard or damage the materials used to construct the steam room.
- Do not drain into the steam room!

SECTION 4: WIRING INSTRUCTIONS

ALSO SEE ELECTRICAL INFORMATION CHART AND WIRING DIAGRAMS

1. ELECTRICAL ROUGH-IN: Size wire for the generator as required by local or national codes. See the electrical information on page 13 for further information. Use copper wire only. Leave 4ft (1,2 m) of slack wire at generator location for finish hookup. Connect the generator to a dedicated circuit breaker. A GFI device is usually not required by safety agencies. One may be installed if required by local codes or the owner. *A GFI device will tend to nuisance trip due to heater element aging.*

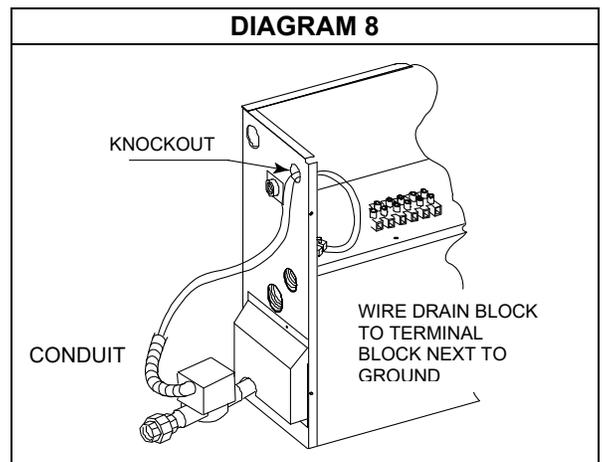
- a. Route the copper supply wire with appropriate strain relief through the hole marked POWER ENTRY.
- b. Connect the supply wires to the power terminal block as indicated on the wire diagram for your voltage and phase. This may require moving factory installed jumper. *Do not change the steamer's internal jumpers or wiring. Only the supply wiring side of the terminal blocks require configuration by the installer.*
- c. Connect the Earth wire to the copper Earth ground lug.
- d. Cover the supply wires inside the steamer with a protective mesh or similar material to protect them from water valve heating.

2. ELECTRICAL INFORMATION Waterworks steamers are available in 2 basic versions, one for 208V (intended for 208VAC single and three phase for North American use) and 240V (intended for all other installations. The 240V models are rated at 240VAC and may be used on 208 to 240V single phase Line-to-Line or 208 to 240V~N (Line-to-Neutral) or 208V to 240V three phase Delta without Neutral or for Y-connected three phase 380 to 415V~N3.

All Units are factory wired for single phase installation. The installer may change the input to three phase or three phase with Neutral during initial installation (see the wiring diagrams on page 19-20).

The National Electrical Code (NEC) limits a steamer's current to 48 Amps so, in some cases, two separate power supplies are required: WWSU11 & WSU1514 208V single phase and WSU15 240V single phase require this method

See page 20 for Mains Wiring Details: Note: jumpers shown are supplied with the steamer)



W A T E R W O R K S I N S T A L L A T I O N A N D S E R V I C E I N S T R U C T I O N S

Electrical Information:

Model	Nominal VAC	Room Size cu ft		Room Size cu m	
		min	Max	min	Max
WWSU08	208	80	200	2.3	5.7
	240				
WWSU11	208	175	375	5.0	10.6
	240				
WWSU14	208	350	550	9.9	15.6
	240				

Notes:

- * Use only copper wire rated 600V~ and 75°C minimum
- * All models require Earth ground
- * All line voltage must be more than 195V~ while the steamer is heating
- * Steamers must be connected to a means for disconnecting all supply voltages
- * All WWSU14 and 208 WWSU11 single phase require two Mains supplies

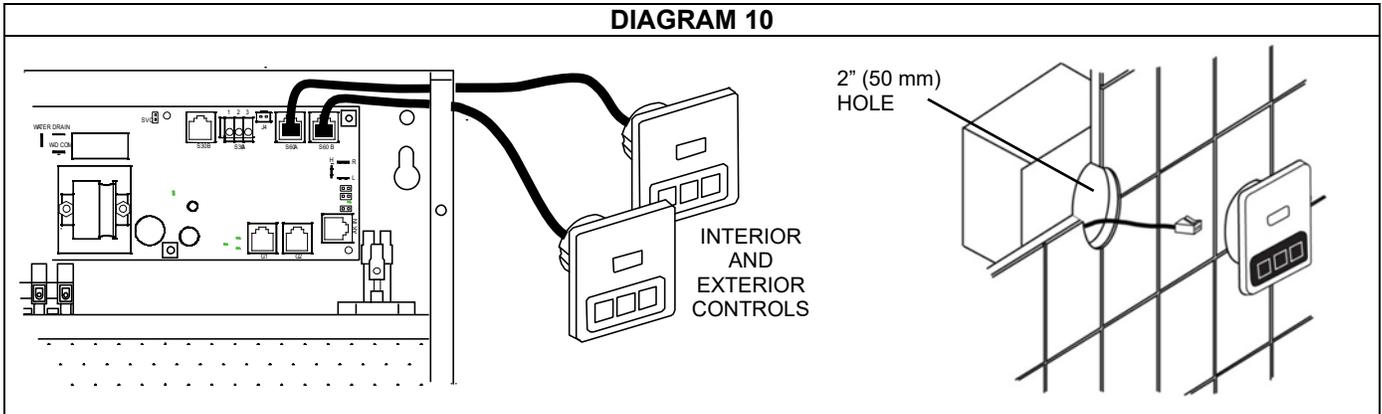
Model	Nominal VAC	Watts at operating VAC				
		208	230	240	400	415
WWSU08	208	7511				
	240	5633	6888	7500	6888	7500
WWSU11	208	11267				
	240	8262	10102	11000	10102	11000
WWSU14	208	13576				
	240	10516	12858	14000	12858	14000

Model	Nominal VAC	Amps 1 phz			Recommended Breaker		
		208	230	240	208	230	240
WWSU08	208	36			50		
	240	27	30	31	40	40	40
WWSU11	208	18 & 36			30 & 50		
	240	40	44	46	50	60	60
WWSU14	208	24 & 42			30 & 60		
	240	18 & 33	20 & 36	21 & 38	30 & 50	30 & 50	30 & 50

Model	Nominal VAC	Amps at operating VAC, 3 phz					Recommended Breaker				
		208	230	240	400	415	208	230	240	400	415
WWSU08	208	21					30				
	240	16	17.3	18.1	10.0	10.5	20	30	30	15	15
WWSU11	208	31					40				
	240	23	25.4	26.6	14.6	15.4	30	40	40	20	20
WWSU14	208	38					50				
	240	29	32.3	33.8	18.6	19.6	40	40	50	30	30

SECTION 5. BATH CONTROLS

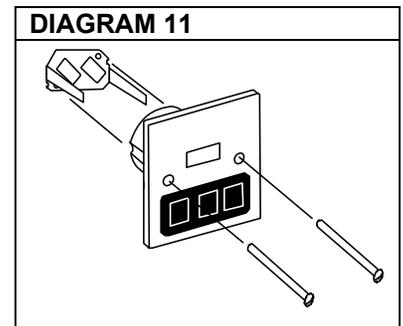
- INTERIOR AND EXTERIOR CONTROLS ROUGH-IN** (See Diagram 13) The low voltage controls can be mounted **up to 25ft (7,6 m)** from the generator, one inside and the other outside the steam room. The **interior control must be mounted inside the steam room** so its built in temperature sensor will function. String the 25ft (7,6 m) cable from the control location through ½" (13mm) holes in the wall studs or ceiling joists to the generator. Note: *Do not staple through or damage cable. Use factory supplied cables only.* Optional for tile rooms, a rough-in box may be installed at the desired control mounting location. A mounting plate with proper diameter hole and instructions are included with the control kit. Tile up to the hole in mounting plate as indicated in Diagram 10.



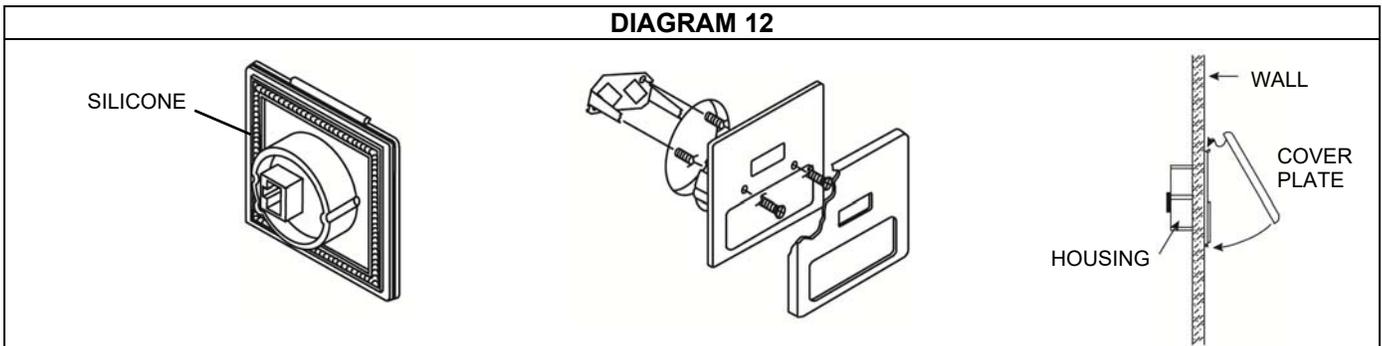
3A INSTALL GENERATOR CONTROL

The low voltage exterior control can be mounted directly to a finished wall outside the steam room. The low voltage interior control must be mounted inside the steam room. See step 1 of this section.

- Use a 2" (50 mm) hole saw, to drill a hole in the finished wall where the control is to be mounted (the control cable should already be roughed-in to this location). *This must be inside the room for interior controls.*
- With the decorative cover removed from the control switch assembly, insert the two control mounting screws through the control housing (you may need to punch through skinned holes) and screw a few turns into the mounting bracket. Locate the control cable and plug it into the back of the control housing. See diagram 11.



Run a bead of 100% silicon caulk in-between the 2 ridges around the perimeter on the back of the control housing. See diagram 12.



WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS

Insert the mounting bracket into the wall cavity by first pushing with the control housing and then with a hard flat surface on the control housing mounting screws which extend out through the control face. See diagram 12

Once the mounting bracket has been inserted into the finished wall, center the control and tighten the mounting screws to draw the control housing securely against the finished wall. Do not over tighten the mounting screws. Add a little silicone over the screw heads to seal the screw holes.

3. Install the decorative cover plate by sliding the top of the cover plate over the tab on the top of the control housing and pushing on the bottom of the cover plate to complete the snap fit. See diagram 12.

4. Route the generator end of the control cable through a knockout in the end of the generator using the strain relief provided. Plug the control cable into the S60 A or S60 B connector on the steamer's circuit board (top edge, right end). See diagram 10.

SECTION 6. CONTROL OPTIONS

1. SELECT STEAMBATH RUN TIME

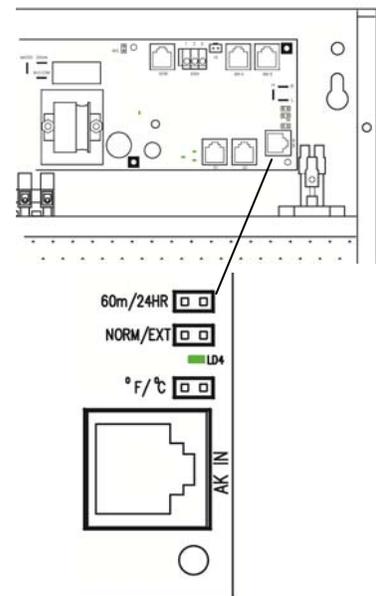
The temperature display can be set for a maximum bath time adjustable up to 60 minutes or up to 24 hours. Set the circuit board jumper as shown below. The jumper is located at the right edge of the board just above the AK IN jack.

 on one pin	 on both pins
60 minute maximum bath time	24 hour maximum bath time
NORM = normal operation	Leave on one pin only
°F = Display temperatures in Fahrenheit	°C = display temperatures in Celsius

Jumper Positions

3. SELECT TEMPERATURE DISPLAY

When using the interior and exterior controls, the temperature display can be set to Fahrenheit (°F) or Celsius (°C). Set the circuit board jumper as shown above. The jumper is located at the right edge of the board just above the AK IN jack.



SECTION 7. INITIAL START

1. Assure power and water are on. Press the control's ON/OFF switch. The control should light then the water valve should turn on to fill the steamer. *While filling, check for leaks.*

2. After the tank has filled to a safe level, the heating elements will turn on. Allow about 10 minutes for the steam to appear in the steam room.

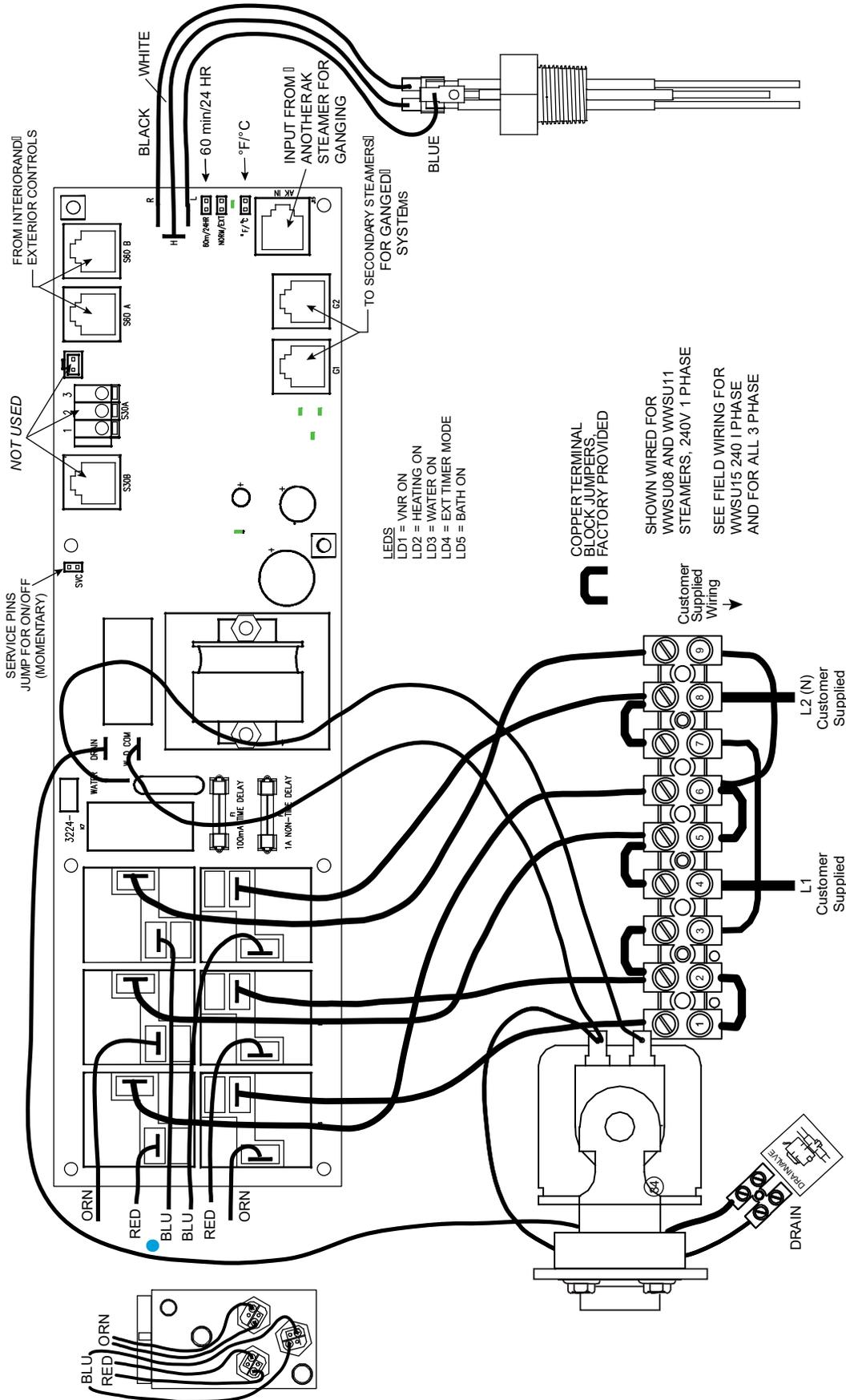
3. Once the steam is visible, use the control to turn the bath off. The steam should stop within a couple minutes and the water valve should turn off. The control should not be lit.

4. Press the ON/OFF switch again. The control should light.

5. Within one minute the unit should again produce steam. It should call for water once every two minutes or more depending on its power rating. It's normal for the flow of steam out the steam head to slow for up to 10 seconds each time the unit calls for water.

6. The unit will shut down automatically in up to 60 minutes (depending on the TIME setting). When the bath time runs out the steamer will stop and there should not be any water flow. The controls should not be lit.

WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS



WATERWORKS INSTALLATION AND SERVICE INSTRUCTIONS

STEAMER FIELD WIRING

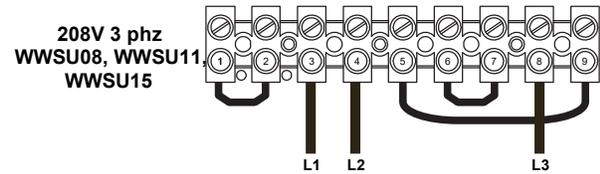
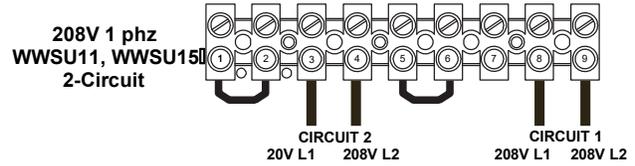
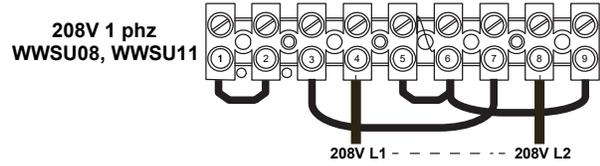
WATTS	
Model	208V
WWSU08	7511
WWSU11	11267
WWSU15	13576

AMPS 1 PhZ		
Model	208V	
WWSU08	36	
WWSU11	18 & 36	See Note(2)
WWSU15	24 & 42	See Note(2)

AMPS 3 PhZ	
Model	208V
WWSU08	21
WWSU11	31
WWSU15	38

Notes:

- (1) Use only copper wire rated 75°C or better
- (2) WWSU11 and WWSU15 single phase require two feed circuits.
Circuit 1 drives one element and the controls, and is the lower amperage circuit.
Circuit 2 drives two elements and is the higher amperage circuit.



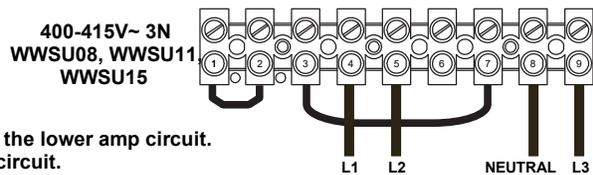
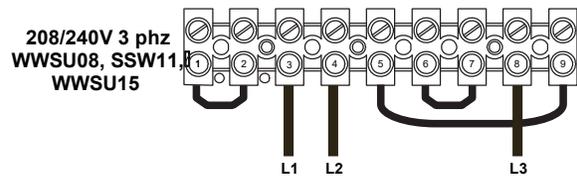
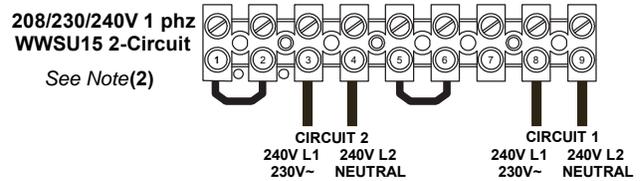
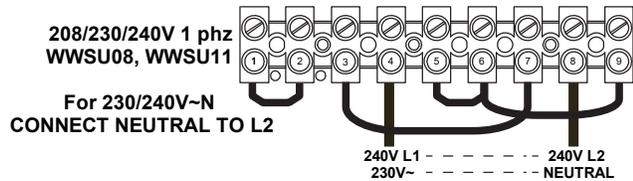
WATTS			
Model	208V	230/400V	240/415V
WWSU08	6888	6888	7500
WWSU11	8262	10102	11000
WWSU15	10516	12858	14000

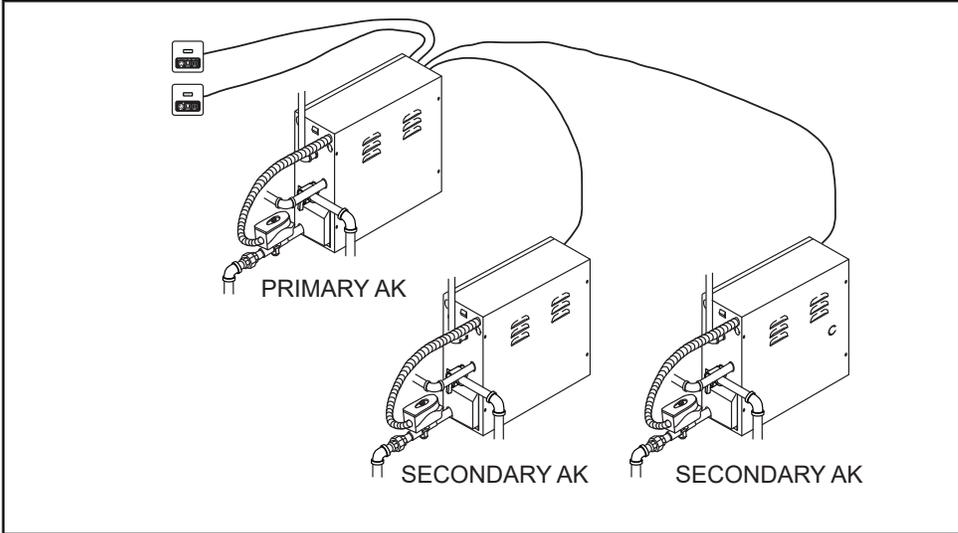
AMPS 1 Phase				
Model	208V	230V	240V	
WWSU08	27	30	31	
WWSU11	40	44	46	
WWSU15	18 & 33	20 & 36	21 & 38	See Note(2)

AMPS 3 Phase (V~ 3N)				
Model	208V	240V	400V~N3	415V~N3
WWSU08	16	18	10	11
WWSU11	23	26	15	15
WWSU15	29	34	19	20

Notes:

- (1) Use only copper wire rated 75°C or better
- (2) WWSU15 single phase requires two feed circuits.
Circuit 1 drives one element and the controls, and is the lower amp circuit.
Circuit 2 drives two elements and is the higher amp circuit.





**STEAMBATH GENERATORS
FOR USE WITH STEAM SYSTEMS INCORPORATING
ONE WWSU PRIMARY STEAM GENERATOR AND
ONE OR TWO WWSU SECONDARY STEAM GENERATOR(S)**

These instructions apply to
WWSU08, WWSU11 AND WWSU15 Steamers

Save these instructions! Read all instructions carefully before installation.

*These instructions supplement the WWSU steamer installation instructions,
WATERWORKS document number 4211-166*

CAUTION

Electrical grounding is required on all WATERWORKS Steam bath Generators.

All electrical supplies should be disconnected when servicing generator.

All wiring must be installed by a licensed electrical contractor in accordance with local and national codes.

All plumbing must be installed by a licensed plumber in accordance with all applicable local and national codes.

Steam generators are for indoor use only.

Steam generators are not for space heating purposes.

Be certain that steam bath enclosures are properly sealed to avoid water damage from escaping steam. It is recommended that 100% silicone caulk be used to seal all pipes and fittings. Steam must be prevented from escaping into the wall cavity.

Never shut off the water to a steam generator that is in use.

Electric Shock Hazard - High voltage exists within this equipment. There are no user serviceable parts in this equipment.

SECTION 1: GENERAL INFORMATION

Waterworks' steam generators are tested by Intertek-ETL Laboratory. The steam generators come assembled and ready for installation. Check that the size and rating of the generator is suitable for your application, refer to the Steam Room Construction and Generator Guide (Waterworks doc. 4211-36).

These steamers may be connected as a ganged system where one steamer controls one or two other steamers. Bath controls connect to the primary steamer and the primary steamer connects to the second steamer (and third steamer, if installed). This provides more power for large rooms and light commercial use. See appendix to this document for details. We recommend choosing steamers which are closely matched in power. The highest kW steamer should be the primary unit. Each steamer should have its own automatic drain.

For commercial use, we recommend checking with your local inspectors to confirm the steamer system is acceptable for your use. Many jurisdictions will require an ASME boiler for commercial use: WATERWORKS steamers are not boilers.

Note: These steamers may be configured for single or three phase power during installation

IMPORTANT

An exhaust fan installed outside the steam room is strongly recommended to remove excess steam from the bathroom or shower area.

WARNING

REDUCE THE RISK OF OVERHEATING AND SCALDING

- Exit immediately if uncomfortable, dizzy or sleepy. Staying too long in a heated area is capable of causing overheating.
- Supervise children at all times.
- Check with a doctor before use if pregnant, diabetic, in poor health or under medical care.
- Breathing heated air in conjunction with consumption of alcohol, drugs or medication is capable of causing unconsciousness.

CAUTION! Do not contact steam head. Stay at least 12" away from hot steam escaping from the steam outlet.

REDUCE THE RISK OF SLIPPING AND FALL INJURY

Use care when entering or exiting the steam room, floor may be slippery.

4211-07 4/10/19 NOTE: For additional safety instructions, see owner's manual.

WARNING

! Do not put a shut-off valve in the steam line!
The line must be unrestricted from the steamer into the steam room !
To reduce the risk of explosion, do not interconnect steam outlets!

- Do not mount outdoors.
- Protect from freezing.
- Unit must be located so as to allow access for service.
- The steam steamer will not operate properly unless it is mounted level with the arrows pointed up.
- A separate line must be provided for each steam outlet.
- Avoid traps and valleys where water could collect and cause a steam blockage.]
- The hot steam must be insulated against user contact. Install the steam head so as to avoid potential user contact.
- Do not install the steam head near benches or where condensation will drip on the user or puddle as this will present a scald hazard.
- The pressure relief valve must be installed in manner that reduces the risk of scalding.
- Do Not drain the pressure valve or steamer into the steam room!
- Draining the pressure relief valve into the steam room may present a scald hazard!

IMPORTANT

Before deciding on a mounting location, please read through these installation instructions completely and take a careful look at all of the diagrams.

An exhaust fan installed outside the steam room is strongly recommended in order to remove excess steam from the steambath or shower area

It is strongly recommended that no exhaust fan be installed inside the steam room. Doing so will result in a loss of heat and steam through the exhaust fan and port.

Insulate all steam lines and drain lines within the enclosed space.

Each steamer must be provided with at least six (6) inches for wiring access at the control wiring end.

Each steamer must be provided with at least fifteen (15) inches clearance at the pipe end.

There should be at least thirty-six (36) inches in front of the louvered cover at each steamer for service access.

SECTION 2: SELECT MOUNTING LOCATION (continued)

The WATERWORKS Steam Generator can be hung on a wall or set on it's base. The best mounting location will satisfy all or most of the following conditions:

1. The steam line should slope to allow condensation to drain into the steam room.
2. The steam line should be less than 20 ft (6m) long; 10 ft (3m) is preferred. Steam lines over 20 ft (6m) long should be insulated.
3. The mounting location should minimize the number of bends and elbows in the steam line.
4. The steam line should enter the room 18" (460 mm) above the floor or at least 12" (305 mm) above a tub rim or ledge.
5. No steam head shall be more than 30 inches (760 mm) above the floor.
6. The steam outlet should be located to avoid potential user contact.
7. The steamers should be installed in a dry, well ventilated area. The space provided should be at least: 7 cu ft (0,2m³) for one steamer or 17 cu ft (0,5m³) for two steamers or 27 cu ft (0,8m³) for three.
 Suggested locations are under a vanity or in a closet, attic, crawl space or basement. Note: *The steamer must be in an area protected from freezing.*
8. The slave steamers should be installed within a 25 ft (7,6m) cable length of the primary steamer and the secondary steamer(s) should be within a 25 ft (7,6m) cable length of the control installation.

Note: *Longer control and slave cables are available; contact Service at 1-800-927-2120, Ext 3 for assistance.* The installation should provide clearance for service and element removal. See diagram 3.

10. The mounting location should allow for a drain hookup. There should be no more than three 90° bends and 10 ft (3m) of pipe between any steamer's drain outlet and its drain valve inlet. See diagram 15.
11. Refer to the mounting instructions in WATERWORKS installation instructions document 4211-166 for details regarding mounting individual steamers.

Refer to the following diagrams for some suggested systems (and some not allowable steam pipings).

DIAGRAM 1: SERVICE CLEARANCE

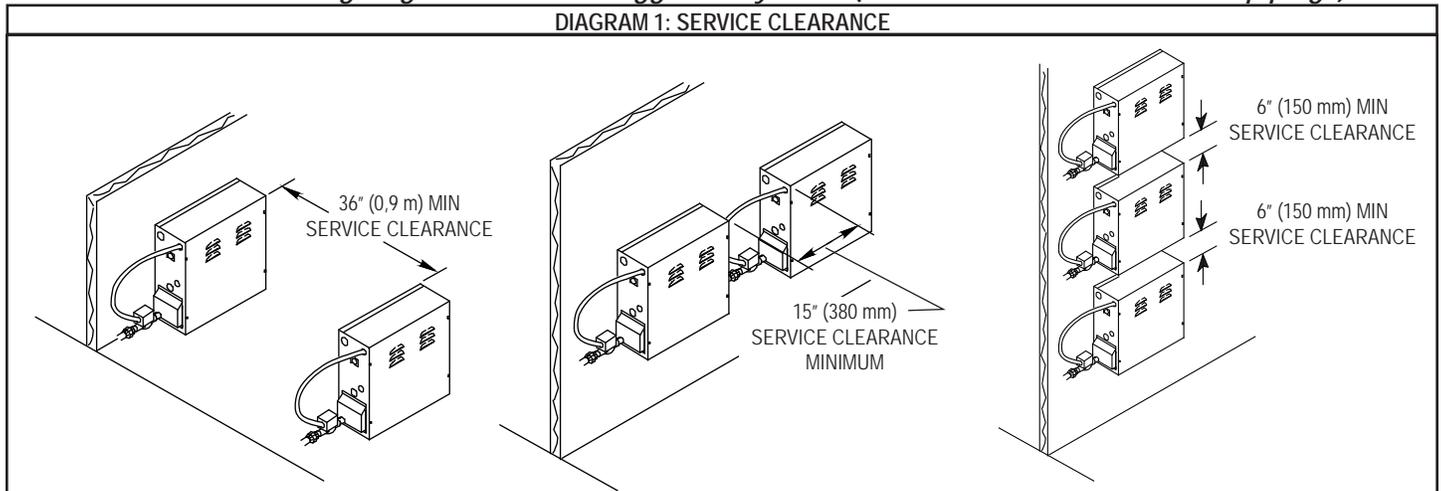


DIAGRAM 2

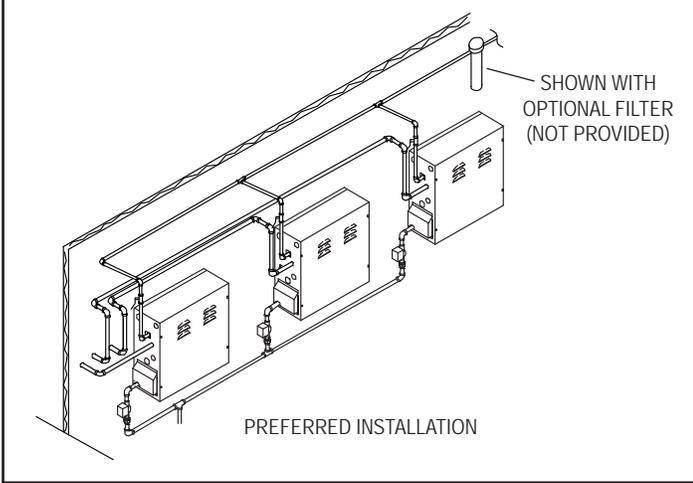


DIAGRAM 3: WATER LINES

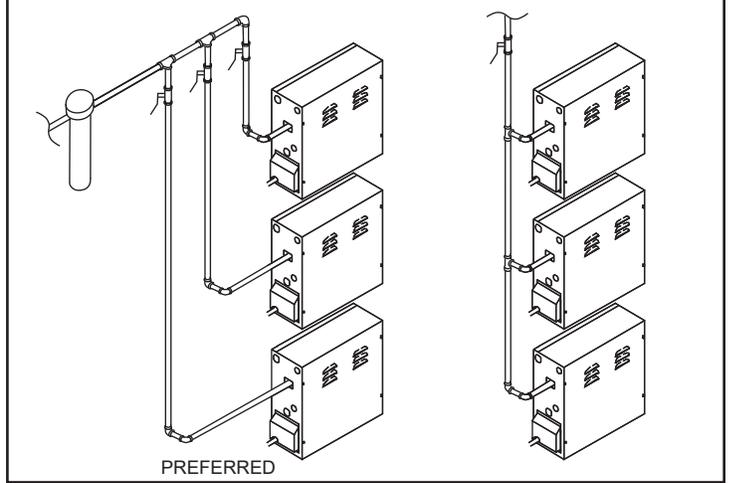


DIAGRAM 4: SOME TYPICAL DRAIN LINES

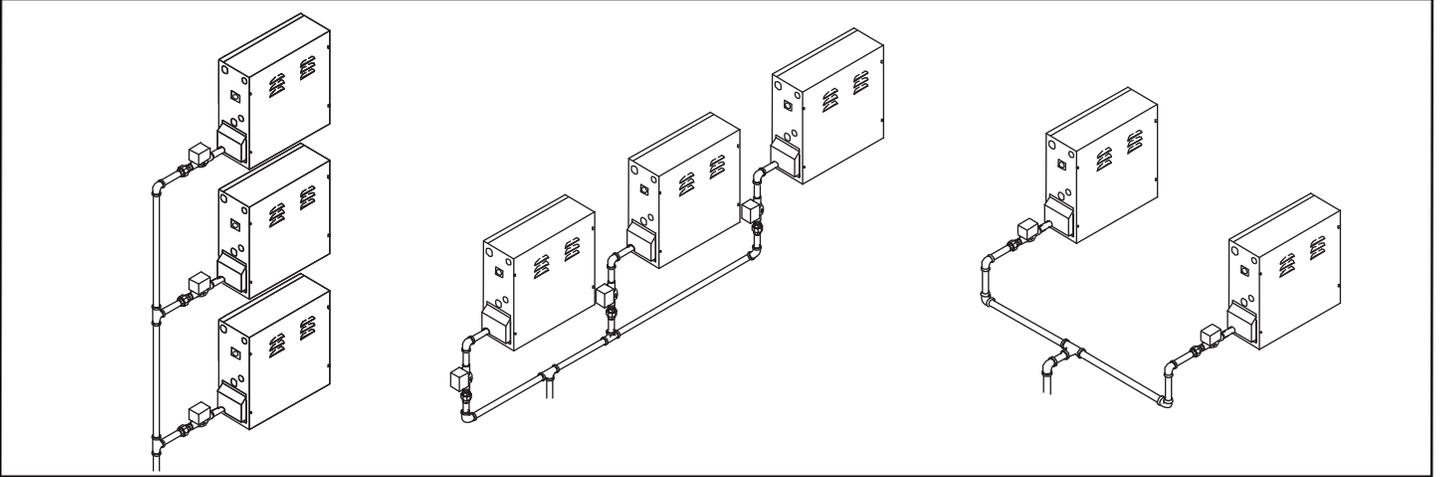


DIAGRAM 5: TYPICAL STEAM LINES

IMPORTANT

- Input water pressure must be 20-100 psi (138-689 kPa)
- If the generators are mounted in a place difficult for the home owner to access, the water supply shut-off valve should be located where it can be quickly accessed in an emergency.
- Do not use a saddle valve or saddle fitting for the water shut-off valve.
- Flush water supply line before final hookup.

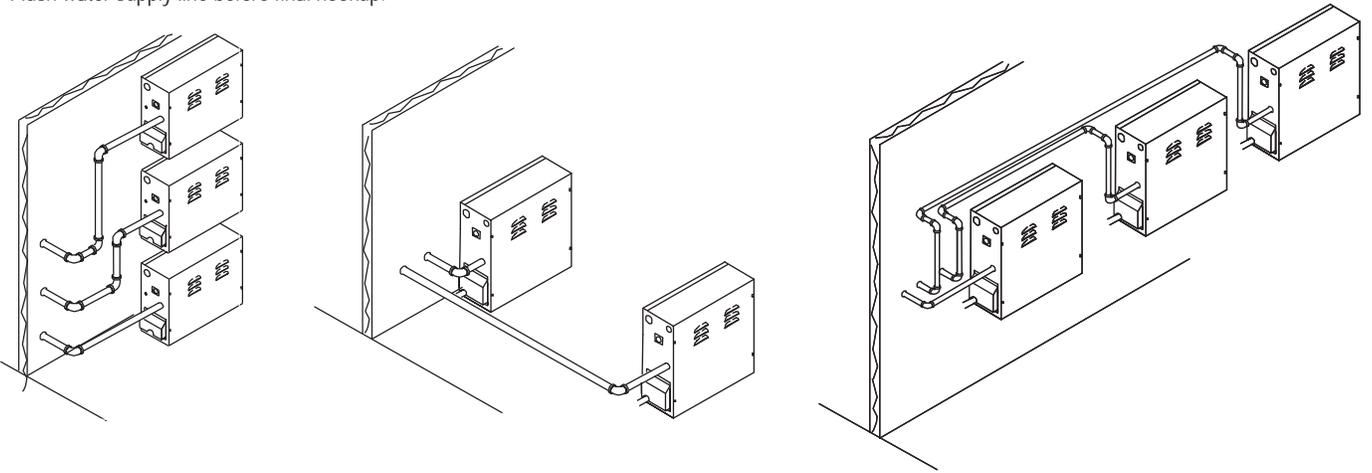


DIAGRAM 6a: ACCEPTABLE

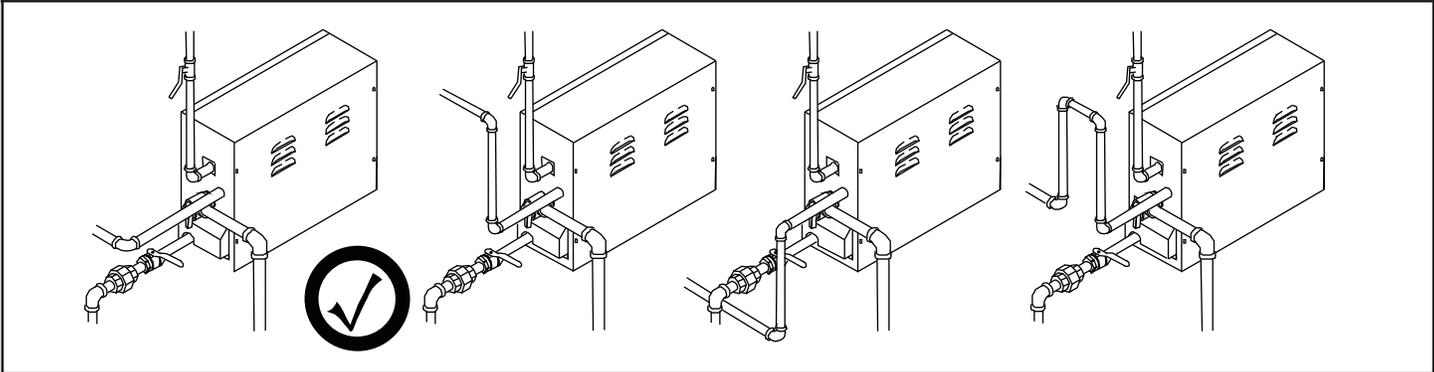


DIAGRAM 6b: NOT ACCEPTABLE

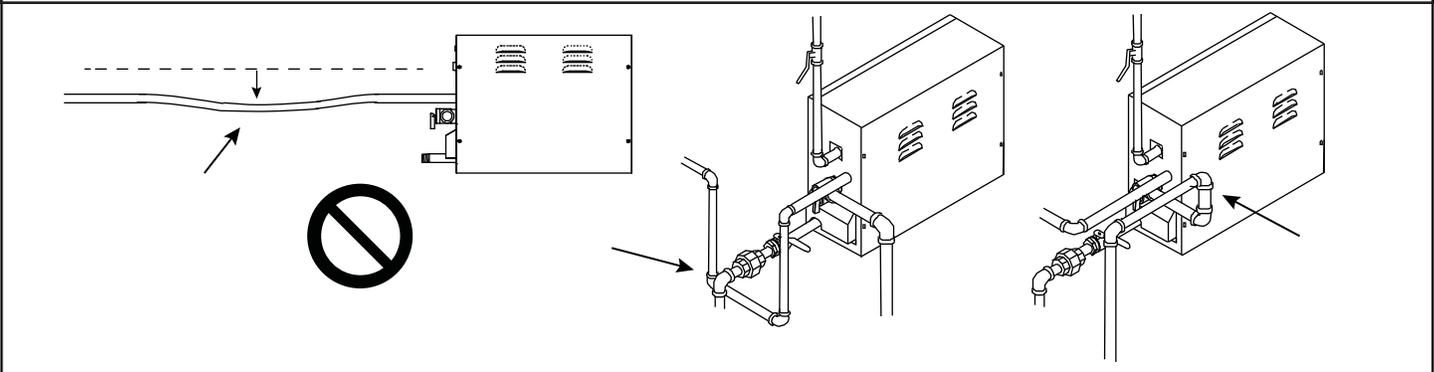
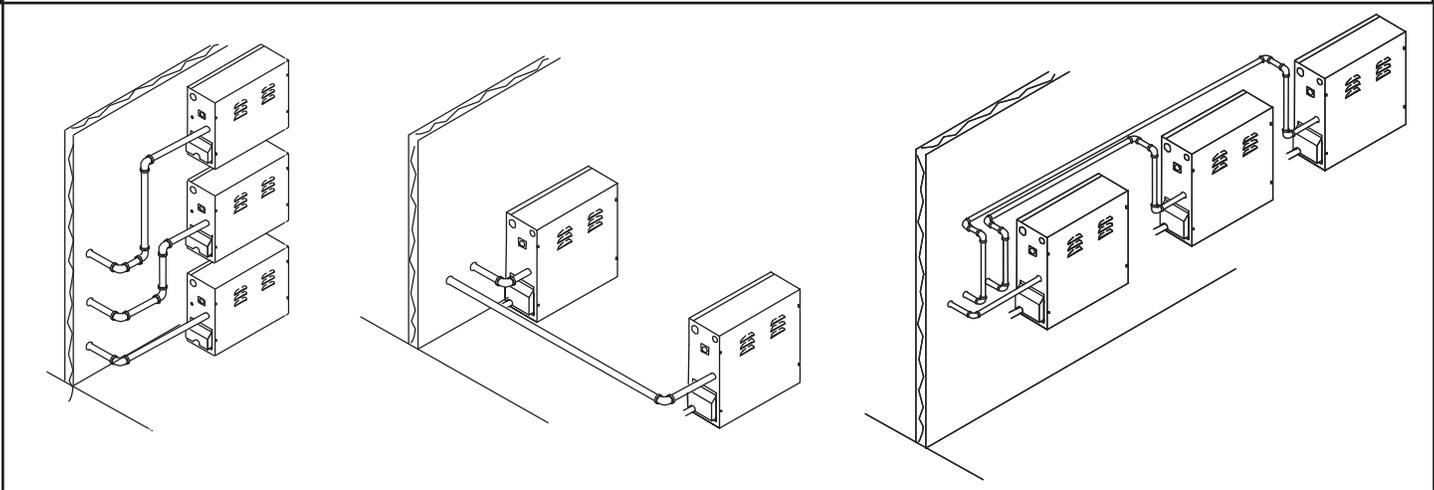


DIAGRAM 7: TYPICAL STEAM LINES



SECTION 4: PLUMBING THE GENERATORS (continued)

All plumbing shall be installed by a licensed plumber and conform with local and national codes.

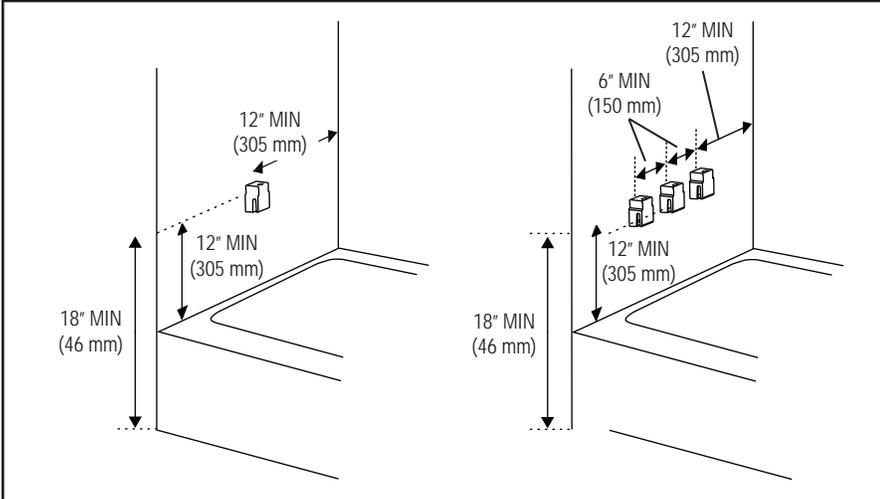
Refer to the plumbing instructions in the individual installation instructions document 4211-1551 for details regarding plumbing of the individual steamers in your system.

INSTALL THE PRESSURE RELIEF VALVE

Each steamer must have its own pressure safety valve, 10psi (69 kPa). Connect the input of the pressure relief valve into its port on the steamer. The valve must be within 6" (150 mm) of the steam tank. Run a 3/4" copper pipe from the valve to an appropriate drain.

Do not connect the valve's outlet to the generator's drain line! Do not connect the valve's outlet to the steam line!

DIAGRAM 8: LOCATING THE STEAM HEADS



IMPORTANT

The steam pipe entry into the steam room and the steam head must be caulked to avoid damage caused by steam leakage into the wall.

Centering the steam pipe is critical through walls made of plastic, acrylic, resin, fiberglass, or similar materials. Allowing the pipe to touch materials not rated for 212°F (100°C) or higher will result in damage to these materials.

If the steam line is in an area where the temperature will be below 40°F (4°C) or if the line is more than 20 feet (6 m) long, insulate the steam line for best results.

SECTION 5: WIRING INSTRUCTIONS

1. ELECTRICAL ROUGH-IN

Use correct size and type of power wires and circuit breakers to meet electrical codes. Leave 4 feet (1,2 m) of slack wire at generator location to finish hookup. Connect each generator to a dedicated circuit breaker.

2. ELECTRICAL FINISH

At the generator, route the copper supply wire with an appropriate strain relief through the hole marked POWER ENTRY. Connect the supply wires to the power terminal block. Refer to the wiring diagrams to determine your connection points and the necessary jumper connection. Connections can be varied to use either single phase or 3 phase or 3 phase +Neutral. Connect the earth ground to the ground lug (green screw).

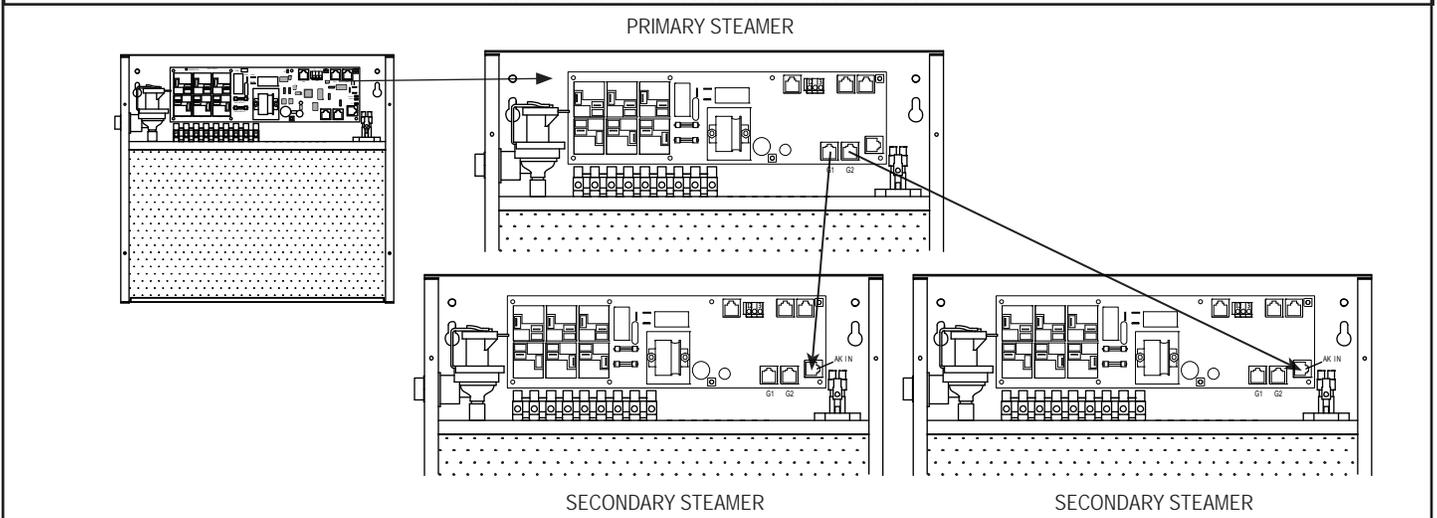
Notes:

- Two power circuits are required for 208V AK11s and for 208 and 240V AK14s.
- Supply voltage must be 200V or higher. 240V models may be used with available voltages to 240V (and 380V-415V-3N).
- Use copper power wire only! All wire is to be UL Listed, 300V 75°C minimum unless otherwise specified.
- A GFI device is not required by UL or NEC. One may be installed if required by local codes or the owner. A GFI device will tend to nuisance trip due to heater element aging.

3. CONNECT STEAMERS TOGETHER

Connect a control cable from the Primary steamer's G1 or G2 jack to the secondary steamer's AK IN jack. Repeat for the third steamer, if installed. Note: We recommend system steamers be of similar wattages and, if not the same, the largest wattage should be in the primary steamer. See diagram below.

DIAGRAM 9: CONNECTING STEAMERS



SECTION 5: WIRING INSTRUCTION (continued)

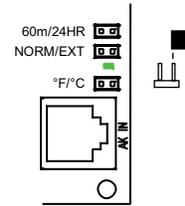
4. **SET OPTION JUMPERS**

Set jumpers in the Primary steamer as instructed in the single steamer instructions.

Secondary steamers should have their jumpers placed on only one pin (*see diagram at right*).

4. **CONNECT CONTROLS**

Connect controls only to the Primary steamer. Refer to the individual steamer instructions for requirements.



SECTION 6: OPERATIONAL TEST *After controls and slave generators are connected*

After connecting the control, temperature sensor and secondary steamer(s) to the Primary generator:

1. Assure power and water are on.
2. Press the control's ON/OFF switch. A light vibration should be felt in the control and the control's display should light-up. (see control instructions included with control kit)
3. Allow 10 minutes for the steam to start. *The time to see steam start will vary depending on each generator's power rating.*
4. Once the steam starts, press the ON/OFF switch. The steam should stop; there shouldn't be any water flow.
5. Press the ON/OFF switch.
6. Within one minute the units should again produce steam. The generators should call for water once every two minutes or more depending on their power rating. It's normal for the flow of steam out the steam head to slow for up to 10 seconds each time a unit calls for water.
7. The units will shut down automatically in 60 minutes (or the time set using an interior or exterior control). When the time runs out the steam will stop and there should not be any water flow.

THE SYSTEM IS NOW READY FOR OPERATION.

WATERWORKS STEAM ROOM CONSTRUCTION & GENERATOR SIZING GUIDE

INTRODUCTION

The following information is presented as an aid to those installing a steam appliance or constructing a steam room. Due to complex construction variables, climate variances and changes in the manufacturing specifications, this information represents suggestions only. It is recommended that you consult your architect, material manufacturer and/or specification engineer regarding your particular installation. Please see "Disclaimer" at the end of this guide.

OBJECTIVE:When planning a steam room project the objectives of **comfort and relaxation** should be kept in mind. A room properly designed and constructed should maintain a temperature range of 115° to 120°F (46° to 49°C), heat to this temperature in 15 to 20 minutes and have a comfortable and **relaxing seating arrangement**. If space permits, seating which allows the bather to recline or even to lay down greatly enhances the steam bath experience.

STEAM ROOM DESIGN CONSIDERATIONS:

1. A steam room, **unlike a sauna**, is a moist environment. Avoid using construction materials, which are subject to corrosion or decay.
2. All inside surfaces of the steam room must be completely sealed and covered with a waterproof finish such as tile. Sheet-rock surfaces are not recommended. However, fiberglass re-enforced cement Sheet-rock such as "Dura Rock" or "Wonder Board" may be used if properly sealed against moisture with a commercial waterproof paint. All joints or cracks including shower head, handle escutcheon and SteamSafe Steam Dispersion Device escutcheon should be **sealed with silicone**. Acrylic enclosures recommended for steam by the manufacturer also make excellent steam rooms.
3. Ceiling and seats inside the steam enclosure should be sloped to allow condensation to run off the interior surfaces and prevent dripping on the bather. A **ceiling slope** of 2" per foot (16,6cm per meter) should be adequate. In some installations, sloping the ceiling from the center may be required to minimize the ceiling height.
4. A **floor drain** should be provided for cleaning and allowing water drainage. A nonskid floor surface should be used for safety.
5. **Ceiling height** should be limited to 8' (2,4M). Heights in excess of 8' (2,4M) may result in hot or adequate temperatures near the ceiling but uncomfortably cool floor temperatures.
6. An area for **mounting the steam generator** must be selected to provide the following.
 - a. Allow access for servicing and provide sufficient space to remove elements should they ever need replacing.
 - b. Protect the steam generator from freezing, moisture and areas which might exceed 140°F (60°C). Do not mount the steam generator in the steam room or in an outdoor location.
 - c. The all-copper line from the steam generator to the steam room should not exceed 25ft (7,6M), should always slope toward the steam generator or head, should not form traps or valleys allowing condensation to accumulate and should be insulated to prevent heat loss and prevent burns from accidental contact.
 - d. The steam head should be located in accordance with the appliance installation instructions and minimize potential user contact.
 - e. When installing the steam generator, plumbing unions should be used to allow removal of appliance should service be required.
7. When selecting a construction material for lining the inside of your steam room, make sure to contact the material manufacturer to determine that the material is warranted for the hot, moist conditions of a steam room.
8. The steam room must be totally enclosed.
9. **Ceiling vents** in the steam room are not recommended. If used, they must form a vapor-tight seal and positive closing. Ducts must be waterproof.
10. **Skylights and exterior windows** are not recommended. If used, they must be double pane. Caution must be used to insure that the height and size of a window or skylight in a steam room does not prevent the room from maintaining comfortable temperatures in a reasonable length of time.

SELECTING THE PROPER STEAM GENERATOR

In order to achieve the objective of comfort and relaxation, the selection of the proper steam generator model and size are as critical as design of the steam room itself.

POWER (KW) SELECTION CONSIDERATIONS:

1. Cubic footage of steam room and surface area.
2. Steam room surface material mass, R factor and thermal conductivity.
3. Ceiling height relative to height of seating.
4. Are steam room walls exterior walls subject to large temperature fluctuations?
5. Actual line voltage and phase available: Steam generators are rated at 208V or 240V and may be wired to 1 or 3 phase during installation. Use 240V models for 230V-N and 400V-N3. Using a line voltage lower than the rated voltage will lower the steam output.
6. To avoid rewiring and provide the capability to "size-up" if it turns out a steam generator of insufficient size is installed, it is strongly recommended that the next larger or even second larger wire size be installed for the steam generator you select.

DISCLAIMER

This information represents recommendations only. Due to conditions of your installation, these suggestions may not be applicable. We can not warrant and should not be relied upon for information given concerning steam room materials or construction techniques.

INSTALLATION OVERVIEW AND SUGGESTED SIZING PROCEDURE

1. Calculate the cubic footage of the enclosure. Length x Width x Height (in feet) = Cubic feet.
Ignore deductions for benches or other intrusions as they represent surface area to heat.

L x W x H = _____

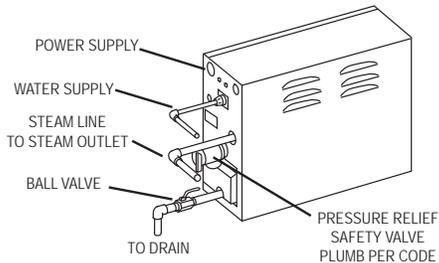
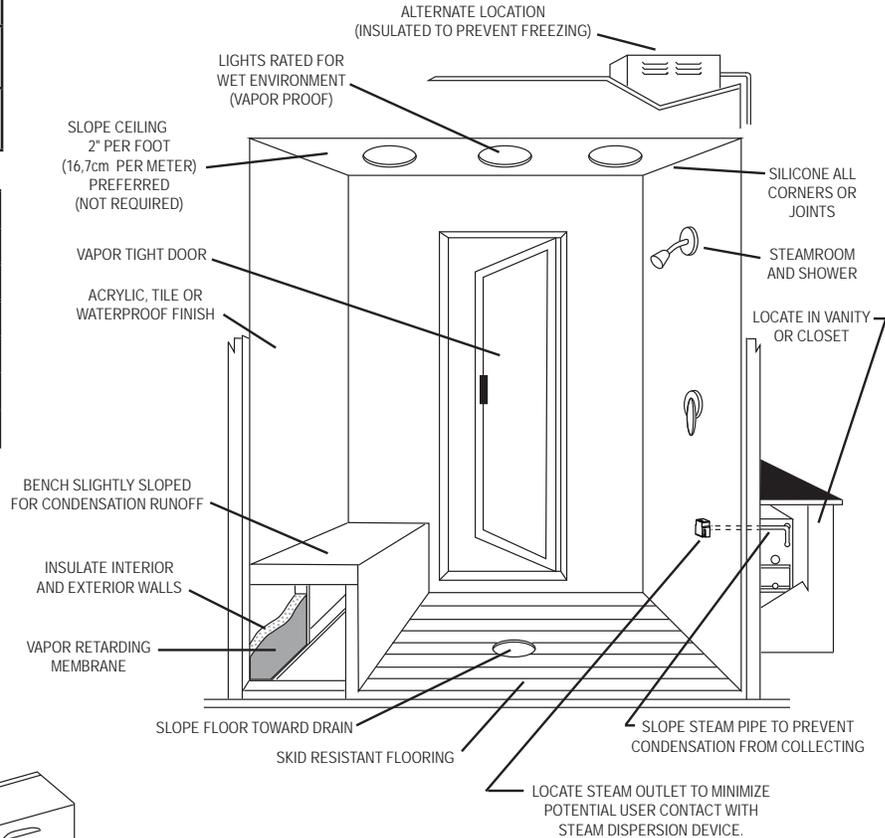
2. Add the following adjustments to the cubic footage calculated in #1 above to account for your specific design features.

- A. Acrylic or Cultured Marble Tile + 0% _____
- B. Ceramic Tile +20% _____
- C. For each glass or glass block wall or exterior wall exposed to freezing +10% _____
- D. Porcelain Tile or Natural Stones (Marble, Granite, Travertine or Slate) +100% _____

Total (1+2A+2B+2C+2D) _____

Models	240V Models 240V 1/3 Phz	208V Models 208V 1/3 Phz
WWSU08	80-200 cu ft (2.3-5.7 m ³)	80-200 cu ft (2.3-5.7 m ³)
WWSU11	175-375 cu ft (5.0-10.6 m ³)	175-375 cu ft (5.0-10.6 m ³)
WWSU15	350-550 cu ft (9.9-15.6 m ³)	350-550 cu ft (9.9-15.6 m ³)
WWSU18	500-800 cu ft (152.4-243.8 m ³)	500-800 cu ft (152.4-243.8 m ³)
WWSU21	700-1000 cu ft (213.4-304.8 m ³)	700-1000 cu ft (213.4-304.8 m ³)

WWSU 240V Models Wattage Ratings (approx)			
MODELS	at 240V	at 230V-N	at 400V-N3
WWSU08	7500	6890	6890
WWSU11	11000	10100	10100
WWSU15	14000	12860	12860
WWSU18	22000	20205	20205
WWSU22	25000	22960	22960



ALTERNATE BASEMENT LOCATION
INSULATED AND DRY