BLOCK 833 LOT 18 QUALIFICATION CODE _____ ADDRESS (SITE) 1648 Forgelond RD. PERMIT NO. 04-1195

called 3/31 no answer

CONSTRUCTION PERMIT APPLICATION

C30 · 91

Application Completes: Sections I, II, III (optional), IV, VI, and VII

I. IDENTIFICATION

1. Propsed Work Site at: 1648 Forgelond RD.
2. Name of Owner in Fee: Jacquelyn Stiehl
   Address 1648 Forgelond Ln (street) Brick (municipality) 08724 (zip code)
3. Ownership in Fee: Public _____ Private ✓
4. Principal Contractor: Home Owner Tel. ( ) _____
   Address _____
   License No. OR, if new home, Builder Reg. No. _____ Exp. Date _____
   Federal Employee No. _____ FAX: ( ) _____
5. Architect or Engineer _____ Tel. ( ) _____
   Address _____
6. Responsible Person in Charge of Work _____
   Tel. ( ) _____ FAX ( ) _____

pool permit pool heater - 01-24641

V. FEE SUMMARY (for office use only)

		Update	Update
1. Building	$		
2. Electrical	0593		
3. Plumbing	60		
4. Fire Protection			
5. Elevator Devices			
6. Subtotal	$		
7. Less 20% for State Plan Review			
8. Subtotal	$		
9. DCA Training Fee	1		
10. Subtotal			
11. Cert. of Occupancy			
12. Other			
13. TOTAL	$ 61		

VI. BUILDING/SITE CHARACTERISTICS

	(office use only)
1. Number of Stories	
2. Height of Structure ft.	
3. Area — Largest Floor sq. ft.	
4. New Building Area sq. ft.	
5. Volume of New Structure cu. ft.	
6. Construction Classification	
7. Total Land Area Disturbed sq. ft.	
8. Flood Hazard Zone	
9. Base Flood Elevation ft.	
10. Wetlands yes	
no	
11. Max. Live Load	
12. Max. Occupancy Load	

II. PROPOSED WORK

	Est. Cost	Plans Rec'd by	Date Rec'd	Rejection Date	Approval Date	Re-viewer	Resubmission Dates Approval	Resubmission Dates Rejection	Re-viewer
1. ☐ Minor Work		MH	3/29/04						
2. ☐ New Building									
3. ☐ Addition									
4. ☐ Alteration									
5. ☐ Fire Protection									
6. ☒ Plumbing	1000				3/31/04				
7. ☐ Electrical									
8. ☐ Elevator Devices									
9. ☐ Asbestos Abat. Subch. 8									
10. ☐ Lead Hazard Abatement									
11. ☐ Demolition									
TOTAL COSTS	1000								

OPTIONAL (for office use only)

III. DO YOU WANT: (optional)

1. ☐ Partial Releases
2. ☐ Prototype Processing

IV. DOES OR WILL YOUR BUILDING CONTAIN ANY OF THE FOLLOWING?

1. ☐ Elevators/Escalators/Lifts/ Dumbwaiters/Moving Walks
2. ☐ High Pressure Boilers
3. ☐ Pressure Vessels
4. ☐ Refrigeration Systems
5. ☐ Cross-Connections/Backflow Preventers
6. ☐ Hazardous Uses/Places of Assembly
7. ☐ Sprinklers
8. ☐ Smoke Control Systems in Open Wells
9. ☐ Underground Storage Tanks

VII. DESCRIPTION OF BUILDING USE

A. RESIDENTIAL

1. ☐ Hotels (R-1)
2. ☐ Multi-Family (R-2)
3. ☐ Two-Family (R-3) BOCA
4. ☐ Two-Family (R-4) CABO
5. ☐ One-Family (R-3) BOCA
6. ☐ One-Family (R-4) CABO

No. of dwelling units:
Before Construction _____
After Construction _____
Net Gain or Loss _____

B. NON-RESIDENTIAL

1. State Specific Use:
2. Use Group:
3. Change in Use Group, Indicate Former:

CERTIFICATION IN LIEU OF OATH

I. OWNER SECTION (to be completed if the applicant is the owner in fee)

I hereby certify that I am the owner in fee of the property listed on Page 1.

Mark the following applicable boxes:

A. (X) I further certify that a new home (private residence) will be constructed on this property for my own use and occupancy. This dwelling is to be occupied by myself and is not to be used for any purpose other than single family residential use. I attest that all construction, plumbing, or electrical work will be done, in whole or in part, by me or by subcontractors under my supervision, in accordance with all applicable laws; and, I further acknowledge that said new home is not covered under the New Home Warranty and Builders Registration Act (N.J.S.A. 46:3B-1 et seq.) and that such fact shall be disclosed to any person purchasing this property within ten years of the date of issuance of a certificate of occupancy.

I UNDERSTAND THAT IN MARKING BOX A, I ACKNOWLEDGE THAT I AM ASSUMING RESPONSIBILITY FOR THE WORK DONE ON SAID PROPERTY, THE CONDITION OF THE PROPERTY PRIOR TO, DURING, AND AFTER ANY WORK PERFORMED, AND FOR THE PERFORMANCE OF THE SUBCONTRACTORS I HIRE, EMPLOY, OR OTHERWISE CONTRACT OR WITH WHOM I MAKE AGREEMENTS TO PERFORM WORK. I AM VOLUNTARILY AND KNOWINGLY ASSUMING THIS RESPONSIBILITY.

B. ( ) I further certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23-2.15(e)1.vii:

I personally prepared the plans submitted for: 1) the new home referred to in A.; or, 2) an addition, alteration, renovation, or repair to an existing single family residence owned and occupied by myself and located on the property listed on Page 1; or, 3) a new structure that will be physically separate from, but that will be deemed part of, an existing single family residence that is owned and occupied by myself and located on the property listed on Page 1.

C. ( ) I further certify that I will perform or supervise the following work:
C.1. ( ) Building C.2. ( ) Fire Protection

I further certify that I will perform the following work:
C.3. ( ) Electrical C.4. ( ) Plumbing

D. ( ) I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I understand that if any of the above statements are willfully false, I am subject to punishment.

Signature _____ Date 3-29-2004

II. AGENT SECTION (to be completed if the applicant is not the owner in fee)

I hereby certify the following as required by the Uniform Construction Code, N.J.A.C. 5:32-2.15(d): the proposed work is authorized by the owner in fee; and I have been authorized by the owner in fee to make this application as his agent.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I understand that if any of the above statements are willfully false, I am subject to punishment.

( ) Check if contractor.

Agent Name _____

Address _____

_____

Telephone (_____) _____

Signature _____

III. ( ) LEAD HAZARD ABATEMENT: Include Homeowner or Building Owner Affidavit as per N.J.A.C. 5:17.

NJ UCCARS 5.24E

TOWNSHIP OF BRICK
401 CHAMBERS BRIDGE RD
DIVISION OF INSPECTIONS

UCC NEW JERSEY
PLUMBING
SUBCODE
TECHNICAL SECTION

Date Received 03/29/2004
Date Issued 4/12/04
Control # C30-91
Permit # 04-1195

A. IDENTIFICATION-APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS. NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000

Block 833 Lot 18 Qual

Work Site Location 1648 FORGE POND RD
POOL HEATER

Owner in Fee STIEHL, JACQUELYN

Address SAME
BRICK, NJ 08724-

Tele [redacted]

Contractor

Address

Tele.( )

Lic. No. or Bldrs. Reg. No.

Federal Emp. No. HO-

B. PLUMBING CHARACTERISTICS

Use Group Present U Proposed U

Building Sewer Size [ ] Public Sewer [ ] Private Septic

Water Sewer Size [ ] Public Water [ ] Private Well

Estimated Cost of Plumbing Work $ 600

JOB SUMMARY (Office Use Only)

PLAN REVIEW
[ ] No Plans Required
Joint Plan Review Required:
[ ] Bldg [ ] Elect
[ ] Fire [ ] Elevator
[ ] Plumb. Plans Approved
Date: 3/31/04
Approved By:

SUBCODE APPROVAL
[ ] CO [ ] CCO [ ] CA
Approved By:
Date:

INSPECTIONS Type	Dates (Month/Day) Failure	Failure	Approval	Initial
Slab				
Rough				
Water				
Sewer				
Fixtures				
Gas Equip.				
Gas Piping				
Solar				
TCO				

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application and perform the work listed on this application.

Signature/Contractor Seal

[ ] Licensed Plumbing Contractor [ ] Exempt Applicant

D. TECHNICAL SITE DATA (List all fixtures.)

NO.	FIXTURE/EQUIPMENT	FEE (Office Use Only)
0	Water Closet	0
0	Urinal / Bidet	0
0	Bath Tub	0
0	Lavatory	0
0	Shower	0
0	Floor Drain	0
0	Sink	0
0	Dishwasher	0
0	Drinking Fountain	0
0	Washing Machine	0
0	Hose Bib	0
0	Water Heater	0
0	Fuel Oil Piping	0
1	Gas Piping 90' CO/POT 1½-350,000	25
0	Steam Boiler	0
0	Hot Water Boiler	0
0	Sewer Pump	0
0	Interceptor / Separator	0
0	Backflow Preventer	0
0	Greasetrap	0
0	Sewer Connection	0
0	Water Service Connection	0
0	Stacks	0
	Other POOL HEATER	35
	Other	0

Administrative Surcharge	$	0
Minimum Fee	$	0
TOTAL FEE	$	60
DCA State Permit Fee	$	1

Paid [ ] Check #
Collected by:

U.C.C. F130 (rev. 3/96)

C3E

TOWNSHIP OF BRICK
401 CHAMBERS BRIDGE RD
DIVISION OF INSPECTIONS

Date Issued 04/12/2004
Control #
Permit # 04-1195

UCC NEW JERSEY

CONSTRUCTION PERMITE

IDENTIFICATION Block 833 Lot 18 Qual

Work Site Location 1648 FORGE POND RD
POOL HEATER
Owner in Fee STIENL, JACQUELYN
Address SAME
BRICK, NJ 08724-
Telephone [redacted]

Contractor H O M E O W N E R
Address
Telephone ( )
Lic. No. or Bldrs. Reg. No.
Federal Emp. No. HO-

Is hereby granted permission to perform the following work:

[ ] BUILDING [X] PLUMBING [ ] LEAD HAZARD ABATEMENT
[ ] ELECTRICAL [ ] FIRE PROTECTION [ ] DEMOLITION
[ ] ELEVATOR DEVICES [ ] ASBESTOS ABATEMENT [ ] OTHER
(Subchapter 8 only)

DESCRIPTION OF WORK:
POOL HEATER

NOTE: If construction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.

Estimated Cost of Work $ 600

D. Thuncan 04/12/2004
Construction Official Date

PAYMENTS (Office Use Only)

Building	0
Electrical	0
Plumbing	60
Fire Protection	0
Elevator Devices	0
Other	
DCA State Permit Fee	1
Cert. of Occupancy	0
Other	
Total	61
Check No.	0593
Cash	
Collected By	MJR

04/12/04 1:34PM 000000#8238
XX02 SERV.002

#1195	
PLUMBING	$60.00
DCA	$1.00
CHECK	$61.00

U.C.C. F170 (rev. 3/96) NJ UCCARS 5.24E

NJ UCCARS 5.24E

TOWNSHIP OF BRICK
401 CHAMBERS BRIDGE RD
DIVISION OF INSPECTIONS

UCC NEW JERSEY
PLUMBING
SUBCODE
TECHNICAL SECTION

Date Received 03/29/2004
Date Issued 4/12/04
Control # C30-91
Permit # 04-1195

A. IDENTIFICATION-APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS. NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000

Block 833 Lot 18 Qual

Work Site Location 1648 FORGE POND RD

POOL HEATER

Owner in Fee STIEHL, JACQUELYN

Address SAME

BRICK, NJ 08724-

Tele [redacted]

Contractor

Address

Tele.( )

Lic. No. or Bldrs. Reg. No.

Federal Emp. No. HO-

B. PLUMBING CHARACTERISTICS

Use Group Present U Proposed U

Building Sewer Size [ ] Public Sewer [ ] Private Septic

Water Sewer Size [ ] Public Water [ ] Private Well

Estimated Cost of Plumbing Work $ 600

JOB SUMMARY (Office Use Only)

PLAN REVIEW
[ ] No Plans Required
Joint Plan Review Required:
[ ] Bldg [ ] Elect
[ ] Fire [ ] Elevator
[ ] Plumb./Plans Approved
Date: 3/31/04
Approved By:

SUBCODE APPROVAL
[ ] CO [ ] CCO [ ] CA
Approved By:
Date:

INSPECTIONS Type	Dates (Month/Day) Failure	Failure	Approval	Initial
Slab				
Rough				
Water				
Sewer				
Fixtures				
Gas Equip.				
Gas Piping				
Solar				
TCO				

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application and perform the work listed on this application.

Signature/Contractor Seal

[ ] Licensed Plumbing Contractor [ ] Exempt Applicant

D. TECHNICAL SITE DATA (List all fixtures.)

NO.	FIXTURE/EQUIPMENT	FEE (Office Use Only)
0	Water Closet	0
0	Urinal / Bidet	0
0	Bath Tub	0
0	Lavatory	0
0	Shower	0
0	Floor Drain	0
0	Sink	0
0	Dishwasher	0
0	Drinking Fountain	0
0	Washing Machine	0
0	Hose Bib	0
0	Water Heater	0
0	Fuel Oil Piping	0
1	Gas Piping 90'CF/pot 1½-350,000	25
0	Steam Boiler	0
0	Hot Water Boiler	0
0	Sewer Pump	0
0	Interceptor / Separator	0
0	Backflow Preventer	0
0	Greasetrap	0
0	Sewer Connection	0
0	Water Service Connection	0
0	Stacks	0
	Other POOL HEATER	35
	Other	0

	Administrative Surcharge	$ 0
Paid [ ] Check #	Minimum Fee	$ 0
Collected by:	TOTAL FEE	$ 60
	DCA State Permit Fee	$ 1

U.C.C. F130 (rev. 3/96)

Counter Form
PLEASE PRINT

PLUMBING

Contractor: Home Owner/Lee Stiehl
Address: 1648 Forge Pond RD
[redacted]
Phone
Lis #:
Federal Emp # or SSN

Technical Data

Fixtures	Quantity
Water Closets (Toilet)	
Urinals/Bidets	
Bath Tub (w/or w/out shower head)	
Lavatory (BR Sink)	
Shower	
Floor Drain	
Sink	
Dishwasher	
Drinking Fountain	
Washing Machine	
Hose Bib	
Gas Piping	83'
Fuel Oil Piping	
Water Heater	
Steam Boiler	
Hot Water Boiler	Pool Boiler
Sewer Pump	
Interceptor/Separator	
Backflow Preventer	
Greasetrap	
Air Conditioner (Condensate Drain)	
Septic Tank Closure	
Sewer Service Connection	
Water Service Connection	
Active Solar System	
Auxiliary Meter	
Sprinkler Heads	
Sump Pump	
Pool Heater	350,000 Hayward Pool Heater
Other:	

Estimated Cost of Plumbing Work $600,00

I hereby certify that I am the agent/owner of record and am authorized to make this application and perform the work listed on this application.

Signature: Lee Stiehl
Please Print Name: Lee Stiehl

CONTRACTOR'S SEAL

Mrs. Jackie Stiehl
1648 Forge Pond Rd.
Brick, NJ 08724

FIRE

Contractor:
Address:
Phone #:
Lis #:
Federal Emp # or SSN

Technical Data

Description of Work:

Heating Type: ____Gas ____Oil ____Electric ____Solar
Heating System is ____New ____Existing
Location of Furnace/Boiler:
Water Supply Source
Method of Valve Supervision
Local Alarm Supervision
Central Supervision:
Proprietary Supervision:

Flammable Storage Tanks _____capacity_____fuel
Combustible Storage Tanks_____capacity_____fuel
LPG Storage Tanks_____capacity_____fuel

Item	Quantity
Wet Sprinkler Heads	
Dry Sprinkler Heads	
Total	
Smoke Detectors	
Heat Detectors	
Total	
Stand Pipes	
Kitchen Hood Exhaust System	

Pre-Engineered Systems:
CO2 Suppression
Halon Suppression
Foam Suppression
Dry Chemical
Wet Chemical

Gas/ Oil Fired Appliances:
Gas Stove
Gas Dryer
Furnace (Gas or Oil)
Gas Fireplace
Gas Logs
Total Appliances

Wood Burning Stove
Wood Fireplace
Other:

Estimated Cost of Fire Work

I hereby certify that I am the agent/owner of record and am authorized to make this application and perform the work listed on this application.

Signature:
Print Name:

Township of Brick

Counter Form

(PLEASE PRINT)

Site Location:_____

Block:_____ Lot:_____

Owner's Name:_____

Owner's Mailing Address:_____

_____

Phone: (_____)_____

BUILDING

Contractor:_____

Address:_____

_____

Phone#:_____

Lis #_____

Federal Emp # or SSN_____

Technical Data

Description of Work:

Type of Work

___New Building ___Siding

___Addition ___Fence

___Alteration ___Pool

___Roofing ___Demolition

___Asbestos Abatement ___Sign _____sq ft

Building Characteristics

Use Group Present:_____ Proposed:_____

No of Stories:_____

Height of Structure:_____

Area of the largest floor:_____

Area of New Structure:_____

Volume of New Structure:_____

Total Land Disturbed:_____

Cost of Alteration: $_____

Cost of New Building: $_____

Total Cost of New Building Work: $_____

I hereby certify that I am the agent/owner of record and am authorized to make this application and perform the work listed on this application.

Signature:_____

Please Print Name_____

ELECTRICAL

Contractor:_____

Address:_____

_____

Phone#:_____

Lis #:_____

Federal Emp # or SSN_____

Technical Data

Item Quantity

Lighting Fixtures_____

Receptacles_____

Switches_____

Detectors_____

Light Poles_____

Motors w/ Fract. HP_____

Emergency & Exit Lights_____

Communication Points_____

Alarm Devices/FAC Panel_____

Total_____

Pool (Receptacles, Switches, Lights, Motor 1HP) _____

Spa/Hot Tub/Storable Pool_____

Electric Range_____KW

Oven/Surface Unit_____KW

Electric Water Heater_____KW

Electric Dryer_____KW

Dishwasher_____KW

Garbage Disposal_____HP

A/C Unit –Central Air_____KW

Space Heater/Air Handler_____KW

Baseboard Heating_____KW

Motors 1+ HP_____

Transformer/Generator_____KW

Light Stander_____AMP

Service_____AMP

Subpanel_____AMP

Motor Control Center_____AMP

Sign/Outline Light_____KW

Furnace_____

Steam Boiler_____

Other:

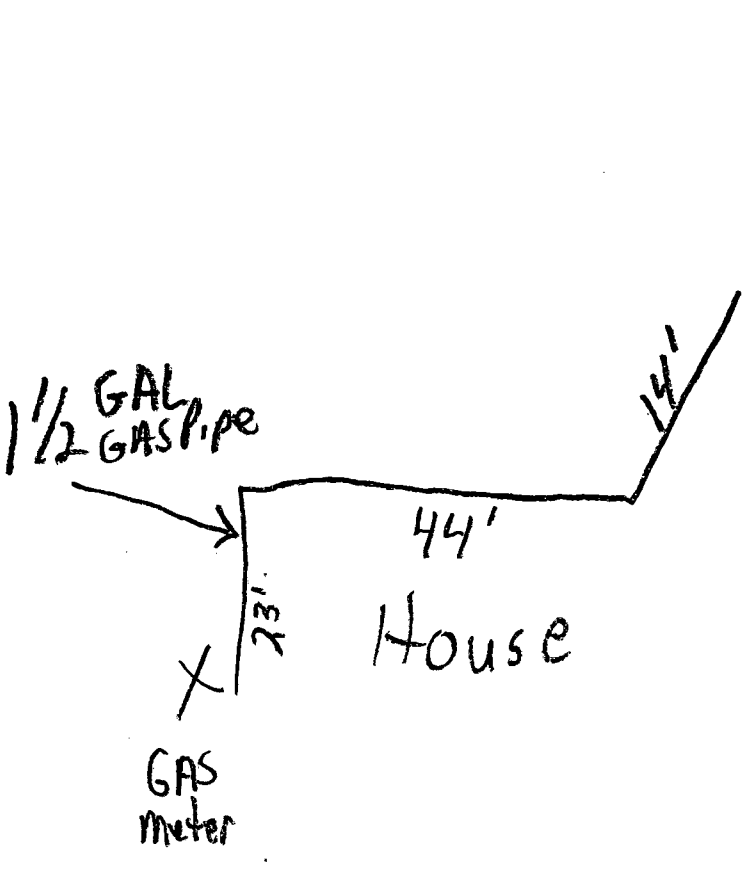
Estimated Cost of Electrical Work:_____

I hereby certify that I am the agent/owner of record and am authorized to make this application and perform the work listed on this application.

Signature:_____

Please Print Name_____

CONTRACTOR'S SEAL



350,000

90' of 1½ - 350,000

81' total Length OF GAS Pipe

3/31/04

58
23
81

HAYWARD®

Installation, Operation & Service Procedures Pool and Spa/Hot Tub Heaters

Models H150, H200, H250, H300, H350 & H400

FOR YOUR SAFETY

WARNING: If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

— Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

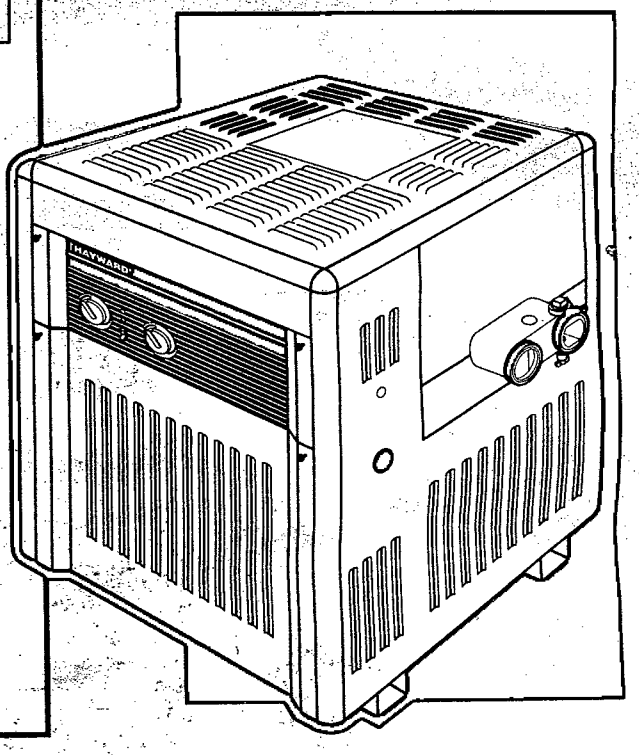
WHAT TO DO IF YOU SMELL GAS

- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

DESIGN AMERICAN GAS ASSOCIATION CERTIFIED

CANADIAN GAS ASSOCIATION APPROVED



Mrs. Jackie Stiehl
1648 Forge Pond Rd.
Brick, NJ 08724

PATENT No. 6026804

1301208801 0101

Section II. Heater Sizing

Selecting the correct size heater:

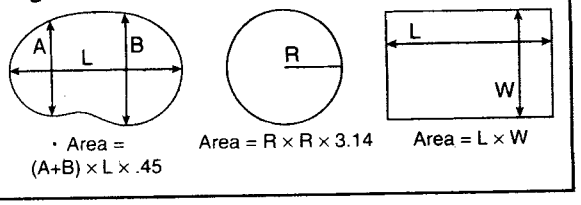
Factors influencing heater sizing include pool/spa size, average wind velocity, ambient temperature and desired increase in temperature over ambient. A pool/spa in a warm area with little or no wind will not require as large a heater as one in a cool, windy location. Detailed sizing information is provided below.

For a swimming pool:

1. Determine pool's surface area in square feet. For indoor pool installations divide the pool's surface area by 3.

Pool Surface Area
Figure 1

16.5 X 32



· Area = (A+B) × L × .45

Area = R × R × 3.14

Area = L × W

2. Determine desired pool water temperature (usually 78 - 82°F).
3. Determine average air temperature of coldest month of use.
4. The temperature rise is the difference between 2 & 3.
5. Locate in Figure 2 the surface area equal to or just greater than the pool's surface area and the temperature degree rise and select the appropriate heater model.

Figure 2 is based on 3½ MPH wind velocity and elevation of up to 2,000 feet above sea level.

When not in use, keep pool covered to reduce heat loss, chemical usage and dirt load on the filtering system.

For a spa or hot tub:

Determine spa capacity in gallons (surface area × average depth × 7½).

The reference table lists the time required in minutes to raise the temperature of the spa/hot tub by 30°F. Locate in the table below the spa/hot tub size in gallons equal to or just greater than the spa/hot tub size in gallons. Select the desired time to raise the spa/hot tub temperature 30°F, read to the left and select the appropriate heater model.

This guide can be adjusted for other temperatures rises. For example, if a 15°F increase in temperature is desired, simply divide the time for 30°F rise by the ratio of 30/15 = 2.

⚠NOTE: Heat losses and/or heat absorbed by spa walls (such as concrete) or other objects will add to the heat-up time.

Spa sizing is based on an insulated and covered spa. Always cover spa or hot tub when not in use to minimize heat loss and evaporation.

Figure 2 - Recommended Heater Model

Temp. Rise °F	10°	15°	20°	25°	30°	35°
Model	Pool Surface Area In Square Feet					
H150	1385	924	693	554	462	396
H200	1848	1232	924	739	616	528
H250	2309	1540	1155	924	770	660
H300	2771	1848	1386	1109	924	792
H350	3233	2156	1617	1293	1078	924
H400	3695	2463	1848	1478	1232	1056

Figure 3 - Recommended Heater Model

Model	Spa/Hot Tub Size in Gallons								
	200	300	400	500	600	700	800	900	1,000
	Time in Minutes to Raise Spa/Tub Temperature 30°F								
H400	9	14	19	23	28	33	37	42	47
H350	11	16	21	27	32	37	43	48	54
H300	12	19	25	31	37	44	50	56	62
H250	15	22	30	37	45	52	60	67	75
H200	19	28	37	47	56	66	75	84	94
H150	25	37	50	62	75	87	100	112	125

Section III. Installation

Equipment inspection:

On receipt of the heater equipment, inspect the heater carton and optional DHI or HWS vent (if used) carton for damage. If any carton is damaged, note it when signing for it. Remove the equipment from the carton(s) and advise the carrier of any damages at once.

Important notice:

The instructions herein are intended for the use of a qualified technician, specifically trained and experienced in the installation of this type of heating equipment. Some states or provinces require that installation and service people performing the installation be licensed. If this is the case in the state or province where heater is located the contractor must be properly licensed.

⚠WARNING: Failure to comply with the appliance and vent package installation instructions and service instructions in this manual may result in equipment damage, fire, asphyxiation, or carbon monoxide poisoning. Exposure to products of incomplete combustion (carbon monoxide) can cause cancer and birth defects or other reproductive harm.

Conformance with codes:

The heater shall be installed in accordance with all local and state codes. The heater installation and vent sizing, installation and termination shall conform with the National Fuel Gas Code ANSI Z223.1 (latest edition) and with the requirements of the authority having jurisdiction. Design Certification in the United States is in compliance with American National Standard Z21-56 (latest edition).

For Canadian installations, the heater is to be installed in accordance with standards CAN/CGA - B149.1 and B149.2 - INSTALLATION CODES FOR GAS-BURNING APPLIANCES AND EQUIPMENT and/or Local Codes, and, if applicable, Standard CSA C22.1 – CANADIAN ELECTRICAL CODE, Part 1.

Sea level/high altitude installation:

The H-Series heaters may be installed up to 2000 feet of elevation above sea level. For elevations from 2000 to 4500 feet above sea level, heater shall be a high altitude model which has a suffix "H" in the heater model designation (Example: Model H400H1). For elevations above 4500 feet, consult customer service at Hayward.

Location of heater:

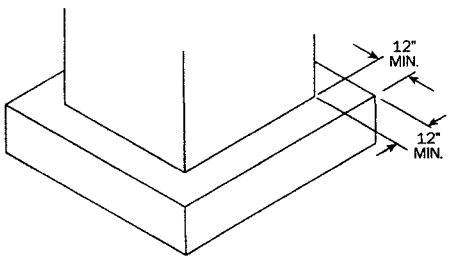
Locate the pool/spa heater in an area where leakage of heat exchanger or connections will not result in damage to the area adjacent to the heater or to the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, with drain outlet, be installed under the heater. The pan must not restrict air flow.

This heater must be installed at least five feet from the inside wall of a pool/spa unless separated from the pool/spa by a solid fence, wall or other permanent solid barrier. This heater must be installed also at least five feet from the wall of an above-ground pool.

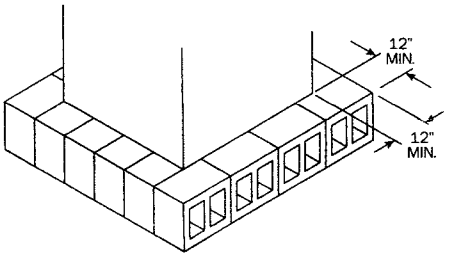
Flooring:

The H-Series pool/spa heaters must be installed on a non-combustible floor or slab. Installation on other floors may be accomplished provided the floor under the appliance is protected with hollow masonry not less than 4 inches thick covered with sheet metal of not less than 24 gauge. Such masonry must be laid with ends unsealed and joints matched in such a way as to provide a free circulation of air from side to side through masonry. The masonry must extend a minimum of 12 inches beyond the heater to all sides. See Figure 4. In all cases, floor protection is the responsibility of the installer and the installer must check to be certain that the floor is not exposed to excessive heat during extended periods of operation.

Figure 4



INSTALLATION ON CONCRETE SLAB



INSTALLATION ON BLOCKS

Outdoor/Indoor* vents:

The H-Series heaters may be installed outdoors when equipped with the integral vent (Figure 5) or the optional high wind HWS vent (Figure 6). For indoor installations, a DHI vent (Figure 7) must be used.

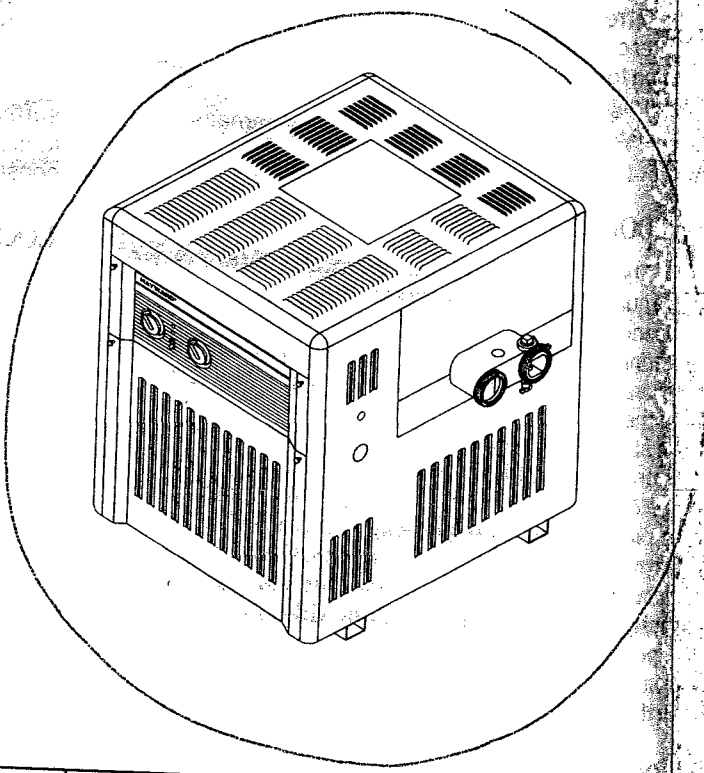
⚠ ***NOTE:** For Canadian indoor installations , these heaters can only be installed in an enclosure that is not normally occupied and does not directly communicate with occupied areas; i.e. outdoor shelter.

Check to be sure that the vent supplied with the heater is the correct one for the installation location.

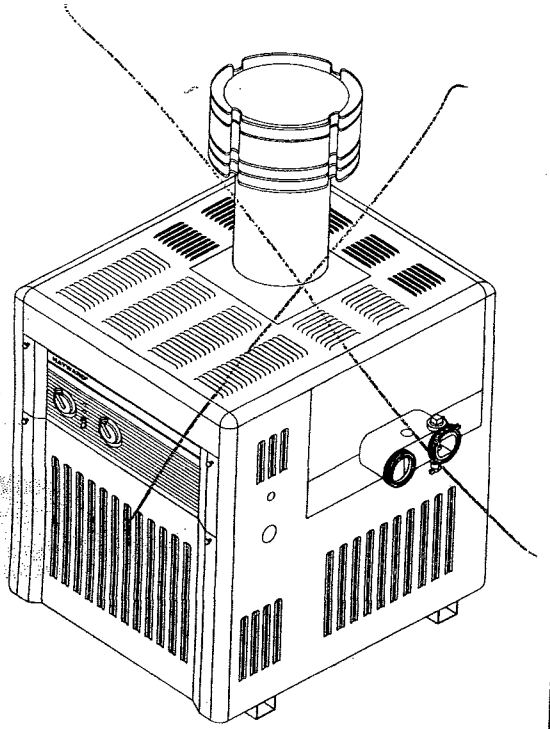
Outdoor heater-high wind conditions:

In areas where high winds are a daily occurrence, or where severe downdrafts are present due to surrounding structures, it may be necessary to install the HWS high wind vent (Figure 6). Installation instructions are provided in the carton with the HWS vent.

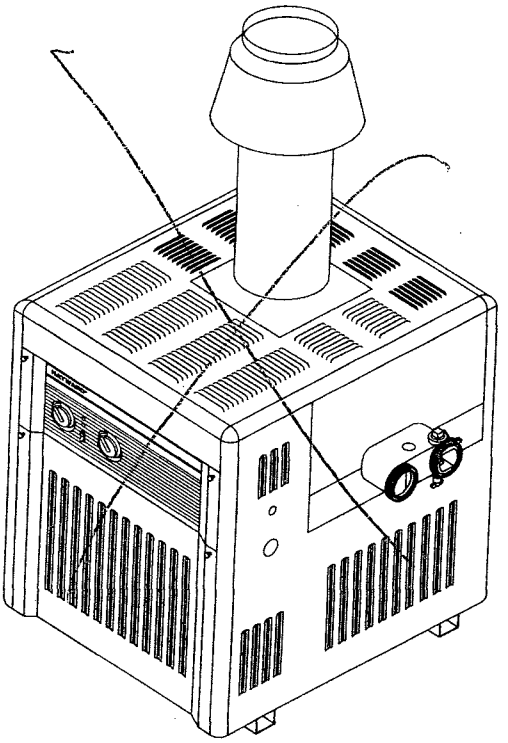
Integral Vent
Figure 5



High Wind Vent (HWS)
Figure 6



Indoor Drafthood (DHI)
Figure 7



Outdoor installation and venting:

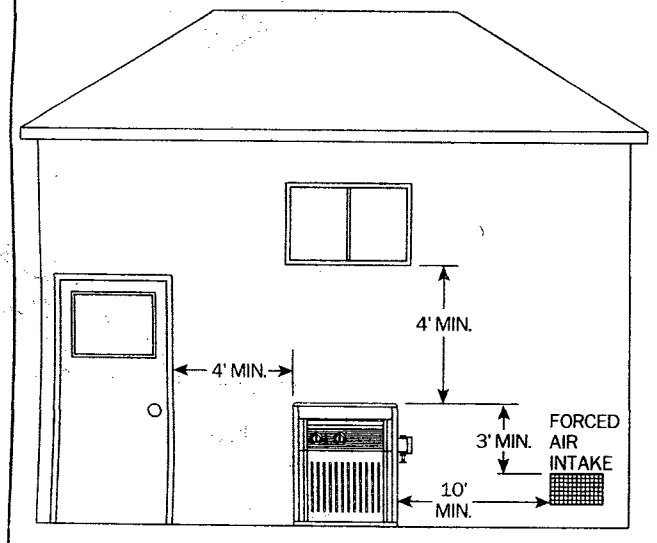
The following installation and service clearances must be maintained from surfaces to provide adequate air flow to the heater.

Outdoor Installations
Top - Open and unobstructed Front - Unobstructed Back - 6" Non-combustible floor Right side (Water side) - 12" Left side - 6"

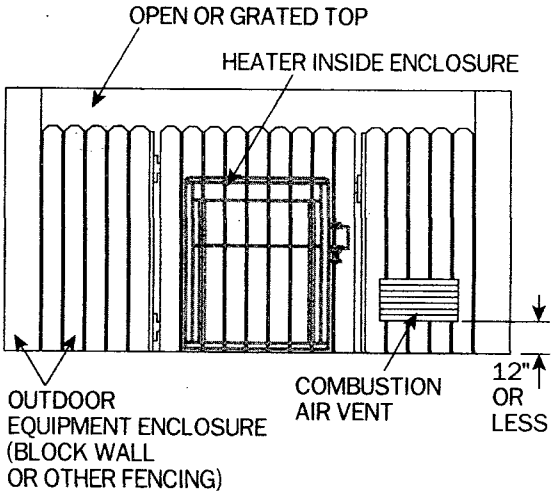
Figure 9

1. Outdoor models with integral vent or HWS vent are self-venting and do not require additional vent piping.
2. Do not install in a location where growing shrubs may in time obstruct a heater's combustion air and venting areas.
3. When locating an outdoor model consider that high winds can roll over or deflect off adjacent buildings, walls, and shrubbery to create a negative draft causing flame rollout and sooting, reducing combustion efficiency and damaging controls. Normally, placing the heater at least 2 feet from any wall will prevent this condition.
4. The venting system shall terminate at least 4 feet below, 4 feet horizontally from, or 1 foot above any door, window, or gravity air inlet into any building. The bottom of the vent terminal shall be located at least 12 inches above grade. A venting system shall terminate at least 3 feet above any forced air inlet located within 10 feet. See Figure 10.
   ⚠WARNING: (Canadian Installations Only) – The venting system shall not be installed with the top of the vent assembly within 10 feet below or to either side of any opening into the building.
5. Do not install this appliance under an overhang less than 3 feet from the top of the appliance. The area under the overhang must be open on three sides.
6. Do not install heater directly under a roof overhang edge that is not equipped with a rain gutter. Cascading rain water off the roof edge could otherwise cause pilot outage or other operating problems.
7. Do not install heater where water spray from ground sprinklers can contact heater. Sprinkler water could cause pilot outage or other operating problems.
8. Do not install within 3 feet of an air conditioning condensing unit. Blown air from a condensing unit adjacent to heater could cause pilot outage, poor combustion, or other operating problems.
9. Do not install under a deck.
10. Any enclosure around the heater must provide a combustion air vent commencing within 12 inches of the bottom of the enclosure. The vent opening shall have a minimum free area of 1 square inch per 4,000 BTU per hour of total input rating of all heaters in the enclosure. See Figure 11.

Outdoor Installation
Figure 10



Outdoor Enclosure
Figure 11



Gas supply and piping:

Refer to the charts on Figure 20 for gas pipe sizing for low pressure natural gas, low pressure single stage propane gas and high pressure two stage propane gas systems.

Gas pipe size:

Follow local gas codes for proper gas line material selection (copper, iron or plastic pipe etc.)

LOW PRESSURE NATURAL GAS PIPE SIZING: (Based upon gas pressure of 0.5 psig or less and a pressure drop of 0.5 inch W.C.)

DISTANCE FROM METER TO INLET OF GAS VALVE	MODEL	H150	H200	H250	H300	H350	H400
	BTU	150,000	200,000	250,000	300,000	350,000	400,000
	LINE MATERIAL	IRON OR PLASTIC PIPE	IRON OR PLASTIC PIPE	IRON OR PLASTIC PIPE	IRON OR PLASTIC PIPE	IRON OR PLASTIC PIPE	IRON OR PLASTIC PIPE
0 to 50 feet		¾"	1"	1"	1¼"	1¼"	1¼"
50 to 100 feet		1"	1"	1¼"	1¼"	1¼"	1¼"
100 to 200 feet		1¼"	1¼"	1¼"	1½"	1½"	1½"
200 to 300 feet		1¼"	1¼"	1½"	2"	2"	2"

LOW PRESSURE PROPANE GAS PIPE SIZING "SINGLE STAGE": (Based upon gas pressure of 11 inches W.C. inlet pressure at a pressure drop of 0.5 inch W.C.)

DISTANCE FROM OUTLET OF TANK REGULATOR TO INLET OF GAS VALVE	MODEL	H150		H200		H250		H300		H350		H400	
	BTU	150,000		200,000		250,000		300,000		350,000		400,000	
	LINE MATERIAL	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING
0 to 50 feet		¾"	⅞"	¾"	⅞"	1"	1⅛"	1"	1⅛"	1"	1⅛"	1"	–
50 to 100 feet		¾"	1⅛"	1"	1⅛"	1"	1⅛"	1"	–	1¼"	–	1¼"	–
100 to 200 feet		1"	1⅛"	1"	–	1¼"	–	1¼"	–	1¼"	–	1¼"	–
200 to 300 feet		1"	–	1¼"	–	1¼"	–	1¼"	–	1¼"	–	1½"	–

It is ***VERY IMPORTANT,*** when installing a propane heater on a two (2) stage regulation system, to follow the gas line sizing chart below—without exception.

HIGH PRESSURE "TWO STAGE" SYSTEMS:

HIGH PRESSURE PROPANE GAS PIPE SIZING "FIRST STAGE": (Based upon gas pressure of 10 psig inlet pressure at a pressure drop of 1 psi.)

DISTANCE FROM OUTLET OF 1st STAGE REGULATOR TO INLET OF 2nd STAGE REGULATOR	MODEL	H150		H200		H250		H300		H350		H400	
	BTU	150,000		200,000		250,000		300,000		350,000		400,000	
	LINE MATERIAL	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING
0 to 50 feet		½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"
50 to 100 feet		½"	½"	½"	½"	½"	½"	½"	½"	½"	⅝"	½"	⅝"
100 to 150 feet		½"	½"	½"	½"	½"	½"	½"	⅝"	½"	⅝"	½"	⅝"

LOW PRESSURE PROPANE GAS PIPE SIZING "SECOND STAGE": (Based upon gas pressure of 11 inches W.C. inlet pressure at a pressure drop of 0.5 inch W.C.)

DISTANCE FROM OUTLET OF 2nd STAGE REGULATOR TO INLET OF GAS VALVE	MODEL	H150		H200		H250		H300		H350		H400	
	BTU	150,000		200,000		250,000		300,000		350,000		400,000	
	LINE MATERIAL	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING	IRON PIPE	TUB-ING
0 to 10 feet		½"	⅝"	½"	⅝"	½"	¾"	¾"	¾"	¾"	⅞"	¾"	⅞"

Figure 20

All gas installations:

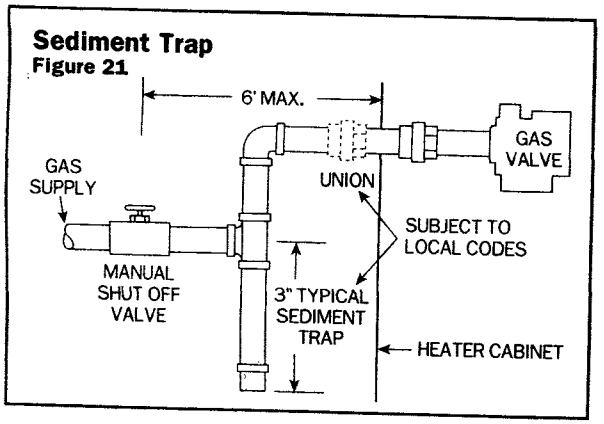
The H-Series heater is to be installed with a gas connection located on the left side (or right side, if necessary). Insert the pipe to the gas valve through the star-slit black plastic cap in the cabinet side. It is recommended that a ground-joint union be installed inside (or outside if space does not allow) the heater cabinet to facilitate servicing the burner assembly tray. See Figure 21.

An A.G.A. Certified main gas valve shutoff must be installed outside of cabinet and within 6 feet of the heater. Gas shutoff valve must have an I.D. large enough to supply the proper amount of gas volume to the heater.

⚠NOTE: Apply joint compounds (pipe dope) sparingly and only to the male threads of pipe joints. Do not apply joint compound to the first two threads. Use joint compounds resistant to the action of liquefied petroleum gas. Do not over tighten the gas inlet pipe or damage may result. See Figure 21.

To prevent dirt and moisture from entering gas valve, a sediment trap should be installed in the gas line close to the valve. See Figure 21.

Sediment Trap
Figure 21



Do not use flexible appliance connectors on any gas connections unless the connector is A.G.A. approved for outdoor installation, is marked with the BTUH capacity (which must be equal to or greater than the heater rated input), and the type of gas (Natural or LP) to be used.

Reduction of the gas supply pipe or tubing to the inlet of the heater gas valve must be made at the valve only and must match the valve inlet size (3/4").

If more than one appliance is installed on the gas line, consult the local gas company for the proper gas line size.

Any questions concerning the installation of the proper gas line size can be directed to Hayward Technical Service. Telephone numbers can be found in Troubleshooting Guide Section.

NATURAL GAS

The gas meter must have the capacity to supply enough gas to the pool heater and any other gas appliances if they are on the same pipeline (Example: 225 meter = 225,000 BTUH). If doubt exists as to the meter size, consult local gas utility for assistance. Hayward **will not** be responsible for heaters that soot up due to improper meter and gas line sizing resulting in improper gas volume.

PROPANE GAS

All propane gas tanks must be located outdoors and away from pool/spa structure and in accordance with the standard for storage and handling of propane gas, ANSI/NFPA 58 (latest edition) and applicable local codes. If propane gas tank is installed underground, the discharge of the regulator vent must be above the highest probable water level.

Propane tanks must be sufficient capacity to provide adequate vaporization for the full capacity of the equipment at the lowest expected temperatures. Consult a propane company expert for correct sizing.

⚠NOTE: Whenever a high pressure double regulation system is utilized for propane gas, consult a propane professional for accurate pipe and pressure sizing. Make sure that 1st and 2nd stage regulators are large enough to handle the BTUH input listed for the heater(s) being used.

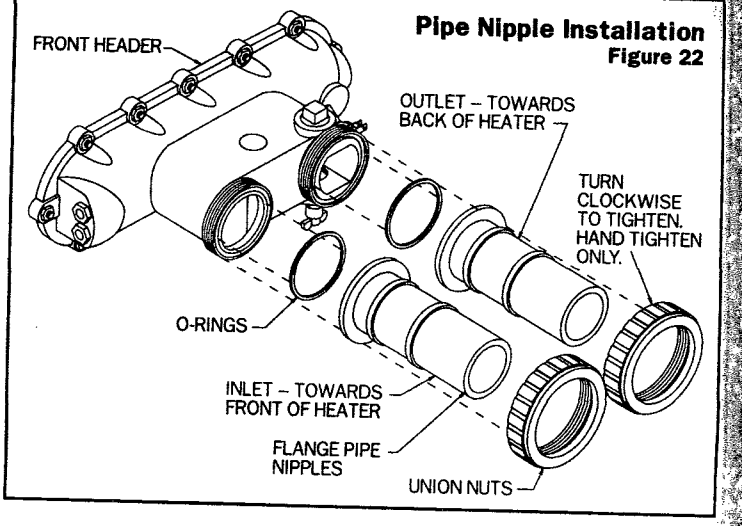
Hayward **will not** be responsible for heaters that soot up due to improper gas line or Propane tank sizing resulting in improper gas volume.

Water piping:

The H-Series heater is designed for use with pool and spa/hot tub water only, as furnished by municipal water distribution systems. The warranty does not cover heater use with mineral water, sea, salt or other non-potable waters.

Do not install any restriction in the water pipe between heater outlet and pool/spa with the exception of a three-way switching valve and an in-line chlorinator and associated check valve. Blockage of water flow from heater return to pool may result in

Pipe Nipple Installation
Figure 22



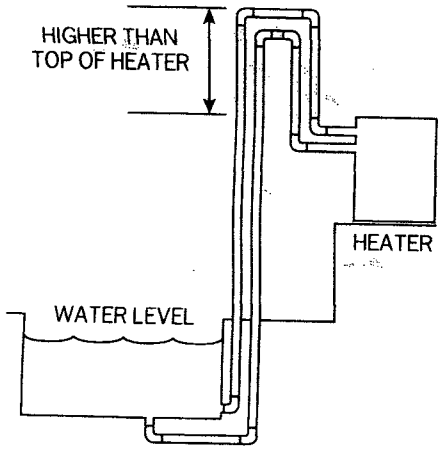
Installation above pool/spa surface:

If heater is installed less than three (3) feet above the surface of the pool/spa water, install eyeball fittings or directional flow fittings on the end of the return water line to the pool/spa to create adequate back pressure at the heater to operate the pressure safety switch when filter pump is running.

If heater is installed more than three (3) feet above surface of pool/spa water, install a loop as shown on Figure 27 to prevent drainage of water in heater during filter change.

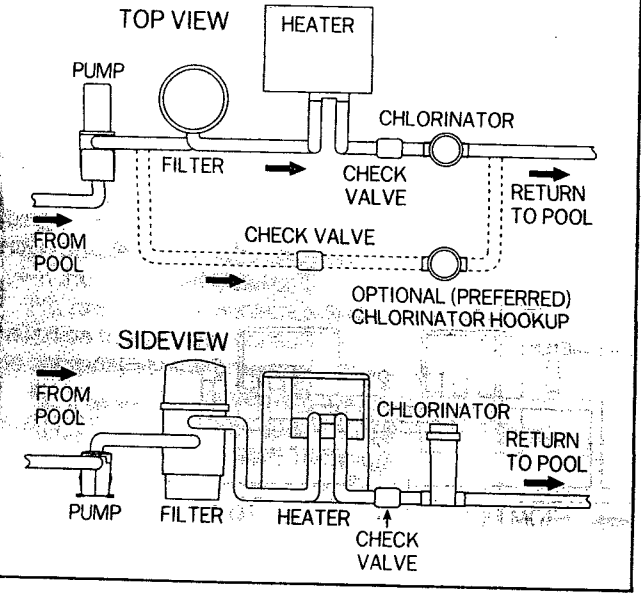
For installation below pool/spa surface, refer to Section IV.

Heater Installation Above Pool
Figure 27



Automatic chlorinators and chemical feeders:

Automatic Chlorinator
Figure 28

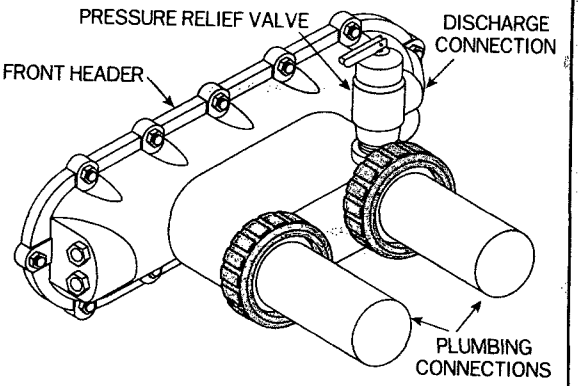


If used, a chlorinator must be installed downstream from the heater in the pool return line and at a lower elevation than the heater outlet connection. See Figure 28. Install a separate positive seal, corrosion resistant check valve (EXAMPLE: Rainbow Plastics #17288 or #172323) between the heater outlet and chlorinator to prevent highly concentrated sanitizers from back-siphoning into the heater. Back-siphoning usually occurs when the pump is shut off and a pressure-suction differential is created.

Pressure relief valve:

It may be necessary to install a pressure relief valve to conform with local building codes. A 3/4" pressure relief valve with a discharge capacity greater than or equal to the BTUH input of the heater and a pressure relief rating less than the heater working pressure is recommended (see rating plate.

Pressure Relief Valve
Figure 29



A 3/4" NPT connection is provided in the front header for installation of a pressure relief valve. See Figure 29. The valve shall be installed directly to the header in a vertical position. To avoid scalding or water damage due to relief valve operation, connect a drain pipe to the valve outlet and run the line to a safe place of discharge. The drain pipe must be at least the same size as the valve discharge connection throughout its entire length and must pitch downward from the valve. No shutoff valve or restriction shall be installed between the relief valve and the discharge of the drainline. The valve lever should be lifted at least once a year to ensure that the waterway is clear.

Section IV. Installer Check-out And Start-up

General:

Some of the following procedures will require the heater to be operating. Full lighting and shutdown instructions are included on the lighting instructions label secured inside the cabinet. The instruction labels are shown in Figures 39 and 40. The millivolt heater must be lit manually. The electronic ignition models are lit automatically on each call for heat.

Water must be flowing through the heater during operation. Check that the pump is operating and the system is filled with water and purged of all air, prior to starting heater.

Gas line testing:

The appliance and its gas connection shall be leak tested before placing the appliance in operation. The heater and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of ½ psig (3.45 kPa). The heater must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psig (3.45 kPa).

Gas supply line must be capped when not connected. After pressure testing, reconnect the gas piping to the gas valve. Turn gas supply on and test all pipe and pilot tubing joints for leaks. Use a soap and water solution. Bubbles forming indicate a leak. ***Never use an open flame (match, lighter, torch, etc.) as a leak could cause an explosion or injury.*** Shut off gas and fix even the smallest leak right away. Be sure to leak test main burner and pilot tube fittings using above procedure once heater is in operation.

Gas pressure test procedure:

The following gas pressure requirements are important to the proper operation of the burners and pilots in gas heaters. Improper gas pressure or gas volume will create the following conditions:

1. Flame burns totally yellow.
2. Flame lifts off burner.
3. Heat exchanger soots up.
4. Pilot outage on millivolt heaters.

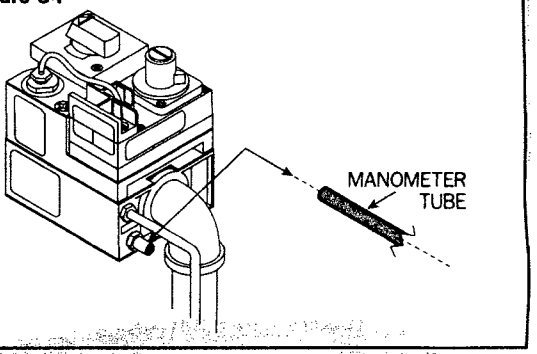
The pressure regulator on all H-Series heaters is preset at the factory and normally needs no adjustment. If gas pressure is inadequate, check for undersized piping between meter and heater or for low capacity gas meter.

A. Gas pressure test procedure:
   1. Obtain necessary equipment:
      a. Manometer to read pressure in inches of water column.
      b. ⅛" nipple (⅛" pipe thread x 1" long).
      c. 5/16" open end wrench.
      d. Screwdriver.

⚠SAFETY WARNING: Do not remove the ⅛" plug with the gas valve in the "ON" position. The gas valve must be in the "PILOT" or "OFF" position when the plug is removed.

2. Remove ⅛" plug from gas valve.
3. Install ⅛" pipe nipple into gas valve.
4. Attach manometer to the ⅛" pipe nipple. See Figure 34.

Gas Pressure
Figure 34



5. Turn on water system and start heater following the lighting instructions on the label inside the cabinet. If there is more than just the pool/spa heater connected to the gas supply line, turn each of those appliances on while testing the heater.
6. Take pressure reading with the heater running. Propane gas must have 9" W.C. (water column pressure). Natural gas must have 3.5" W.C. See Figure 35.

Gas Pressure Reading
Figure 35