PREMIER™ SERIES
ELDERLY HOUSING SIZING

Job Site Information:

Present Water Heating Equipment

Type of Heater: ❑ Instantaneous ❑ Indirect ❑ Direct Fired

Make and Model _____

Storage Volume _____ Gal.

Recovery _____

Fuel _____

Operating Temp. _____

Boiler Make and Model _____

BTU's _____

Avg. Boiler Water Temp. _____

Recirculating Line Size _____

Circulator Make and Model _____

Control _____

Are there any problems with the present hot water? _____

Options

Will new boiler be installed? _____

For hot water only? _____

If no, will old boiler be used for both hot water and heat? ___

*If for hot water and heating, what is the space heating load?

_____ BTU's

Sizing Information

Input:

- Number of Apartments, A
- Average number of People per Apartment, P

Sizing Commercial Premier Modules for Elderly Housing

- Determine usage as minimal, $1^1/_4$ persons with private kitchen facilities; or average, $1^1/_2$ persons and/or with central dining facilities.
- Select proper number of WH-7C modules from Table 1 and the required heat generator capacity from Figure 1.

Recommendations:

- Number_____ Models _____
- Flow (GPM) _____
- Feet of Head _____
- Size Manifold _____

WH-7C

Number of Apartments	No. of WH-7C	Flow (GPM)	Feet of Head	Size Manifold
2-10	1	7	20	$^3/_4$"
11-38	2	14	20	1"
39-66	3	21	20	$1^1/_4$"
67-94	4	28	20	$1^1/_2$"
95-122	5	35	20	$1^1/_2$"
123-150	6	42	20	2"

For number of 7C's, y =.053T+1.7 (note: round down)

WHS-60CZDW

Number of Apartments	No. of WHS-60CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-16	1	10	20	1"
17-70	2	21	20	$1^1/_2$"
71-115	3	31	20	$1^1/_2$"
116-160	4	42	20	2"
161-200	5	52	20	2v

For number of 60C's, y = .043T+1.62 (note: round down)

WHS-80CZDW

Number of Apartments	No. of WHS-80CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-22	1	10	20	1"
23-104	2	21	20	$1^1/_2$"
105-164	3	31	20	2"
165-230	4	42	20	2"

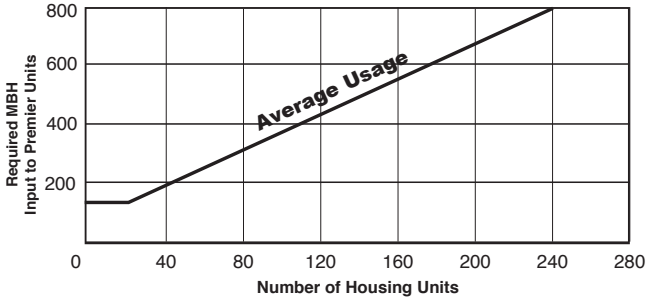
For number of 80C's, y = .038T+1.52 (note: round down)

WHS-120CZDW

Number of Apartments	No. of WHS-120CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-34	1	10	20	1"
35-121	2	21	20	$1^1/_2$"
122-196	3	31	20	2"
197-260	4	42	20	2"

For number of 120C's, y = .023T+1.63 (note: round down)

Figure 1. Required Heat Generator Capacity - MBH



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MC6106 Part #: 9040-572 (06/19)

PREMIER™ SERIES
APARTMENT HOUSE SIZING

Job Site Information:

Present Water Heating Equipment

Type of Heater: ❑ Instantaneous ❑ Indirect ❑ Direct Fired

Make and Model _____

Storage Volume _____ Gal.

Recovery _____

Fuel _____

Operating Temp. _____

Boiler Make and Model _____

BTU's _____

Avg. Boiler Water Temp. _____

Recirculating Line Size _____

Circulator Make and Model _____

Control _____

Are there any problems with the present hot water? _____

Options

Will new boiler be installed? _____

For hot water only? _____

If no, will old boiler be used for both hot water and heat? ___

*If for hot water and heating, what is the space heating load?

_____ BTU's

Sizing Information

Input:

- Number of Apartments, A
- Average number of People per Apartment, P

Sizing Commercial Premier Modules for Apartment Buildings

- Determine whether the apartment building usage should be classified as minimal, small shower head, 2 to 3 GPM, 2½ persons average occupancy; or average regular shower heads, 4 to 6 GPM, 3 to 4 persons per apartment.
- Select proper number of WH-7C modules from Table 1 and the required heat generator capacity from Figure 1.

Recommendations:

- Number_____ Models _____
- Flow (GPM) _____
- Feet of Head _____
- Size Manifold _____

WH-7C

Number of Apartments	No. of WH-7C	Flow (GPM)	Feet of Head	Size Manifold
2-5	1	7	20	¾"
6-25	2	14	20	1"
26-44	3	21	20	1 ¼"
46-63	4	28	20	1 ½"
64-82	5	35	20	1 ½"
83-100	6	42	20	2"

For number of 7C's, y =.053T+1.7 (note: round down)

WHS-60CZDW

Number of Apartments	No. of WHS-60CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-8	1	10	20	1"
9-32	2	21	20	1 ½"
33-55	3	31	20	1 ½"
56-79	4	42	20	2"
80-105	5	52	20	2"

For number of 60C's, y = .043T+1.62 (note: round down)

WHS-80CZDW

Number of Apartments	No. of WHS-80CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-12	1	10	20	1"
13-40	2	21	20	1 ½"
41-66	3	31	20	2"
67-92	4	42	20	2"

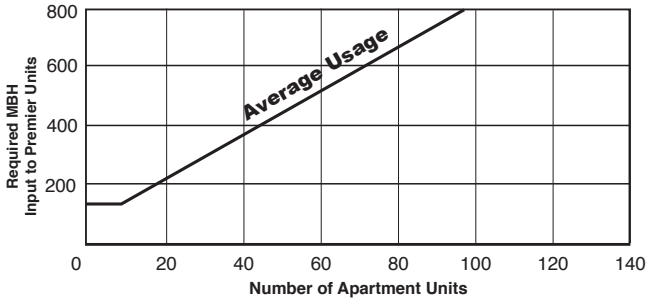
For number of 80C's, y = .038T+1.52 (note: round down)

WHS-120CZDW

Number of Apartments	No. of WHS-120CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-16	1	10	20	1"
17-62	2	21	20	1 ½"
63-105	3	31	20	2"
106-150	4	42	20	2"

For number of 120C's, y = .023T+1.63 (note: round down)

Figure 1. Required Heat Generator Capacity - MBH



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PREMIER™ SERIES
MOTEL SIZING

Job Site Information:

Present Water Heating Equipment

Type of Heater: ❑ Instantaneous ❑ Indirect ❑ Direct Fired

Make and Model _____

Storage Volume _____ Gal.

Recovery _____

Fuel _____

Operating Temp. _____

Boiler Make and Model _____

BTU's _____

Avg. Boiler Water Temp. _____

Recirculating Line Size _____

Circulator Make and Model _____

Control _____

Are there any problems with the present hot water? _____

Options

Will new boiler be installed? _____

For hot water only? _____

If no, will old boiler be used for both hot water and heat? ___

*If for hot water and heating, what is the space heating load?

_____ BTU's

Sizing Information

Input:

- Number of Rooms, A
- Average number of Occupants per Room, P

Sizing Commercial Premier Modules for Motels

- Determine whether the motel should be classified as minimal, small shower head, 1 1/2 persons typical occupancy; or average, regular shower heads 4-6 GPM, 2 persons per room (convention motel with scheduled meetings or tour buses with scheduled departures).
- Select proper number of WH-7C modules from Table 1 and the required heat generator capacity from Figure 1.
- Laundry and food service are not included, these loads should be calculated separately.

Recommendations:

- Number _____ Models _____
- Flow (GPM) _____
- Feet of Head _____
- Size Manifold _____

WH-7C

Number of Rooms	No. of WH-7C	Flow (GPM)	Feet of Head	Size Manifold
2-5	1	7	20	3/4"
6-25	2	14	20	1"
26-44	3	21	20	1 1/4"
45-63	4	28	20	1 1/2"
64-82	5	35	20	1 1/2"
83-100	6	42	20	2"

For number of 7C's, y =.053T+1.7 (note: round down)

WHS-60CZDW

Number of Rooms	No. of WHS-60CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-9	1	10	20	1"
10-37	2	21	20	1 1/2"
38-62	3	31	20	1 1/2"
63-194	4	42	20	2"
95-128	5	52	20	2"

For number of 60C's, y = .043T+1.62 (note: round down)

WHS-80CZDW

Number of Rooms	No. of WHS-80CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-14	1	10	20	1"
15-48	2	21	20	1 1/2"
49-80	3	31	20	2"
81-115	4	42	20	2"

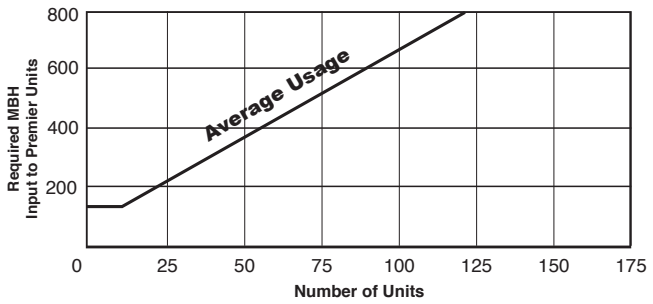
For number of 80C's, y = .038T+1.52 (note: round down)

WHS-120CZDW

Number of Rooms	No. of WHS-120CZDW	Flow (GPM)	Feet of Head	Size Manifold
2-18	1	10	20	1"
19-72	2	21	20	1 1/2"
73-123	3	31	20	2"
124-176	4	42	20	2"

For number of 120C's, y = .023T+1.63 (note: round down)

Figure 1. Required Heat Generator Capacity - MBH



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PREMIER™ SERIES
COIN OPERATED LAUNDRY SIZING

• Sizing Information

Machine Type/Model	Quantity		Gallons Per Cycle		Cycle Per Hour*		Gallons Per Hour
		x		x		=	
		x		x		=	
		x		x		=	
		x		x		=	
		x		x		=	
Total # Machines	Total Gals Per Cycle				Total GPH Load**		
					Corrected Total		

* If Cycle Per Hour Date is not available, use 1.5.

** Calculation based on a 40°F inlet water temperature.
Use the correction factors on the right for other inlet water temperatures:

Inlet Water Temperature	Multiply Total GPH Load by:
50° F	0.90
60° F	0.80
70° F	0.70

• Determining Storage Volume

Sizing Commercial Premier for Coin Operated Laundry

Diversification Table

The number of machines drawing water at any one time varies widely. From the table below, determine the applicable diversification factor to use for this application.

Total No. Machines	Factor (D.F.)
1-12	100%
13-24	80%
25-36	60%
37-48	50%

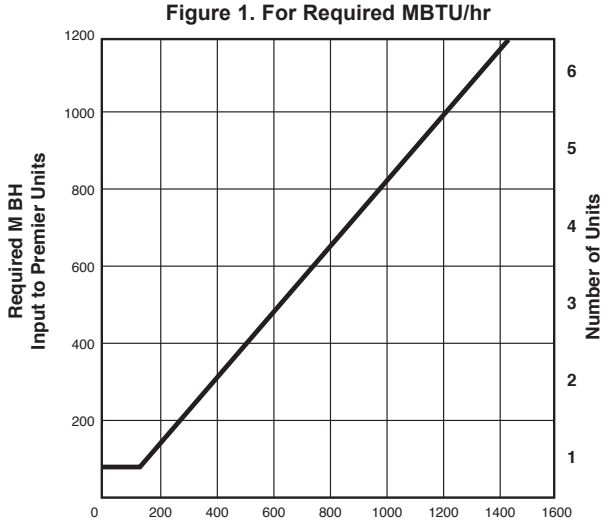
Calculation: Total Storage Required
Total gals/cycle x D.F.

Selection of Models

Calculation: Total Storage ÷ Number of Units = Storage Tank Gallon

Storage Tank Gallon	Premier Models
0-41	WH-7C's
42-60	WH-60C's
61-80	WH-80C's
81-120	WH-120C's
120+	

Figure 1. For Required MBTU/hr



Sizing based on recovery from 50° to 150° F plus storage.

_____ BTU/hr

_____ Number of Tanks

_____ Model Number

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MC6111 Part #: 9040-576 (06/19)

PREMIER™ SERIES
HEAT GENERATOR / SPACE HEATING SIZING

Introduction

There are two installation conditions that must be considered when sizing a heat generator/commercial Premier installation:

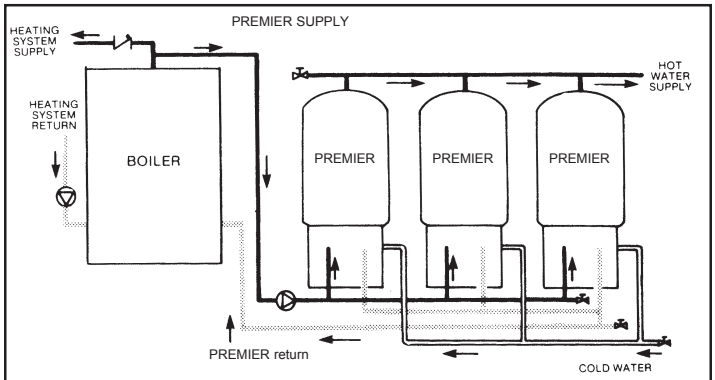
A. When the heat generator is to work with the Premier to provide **service hot water load only**.

B. When there are commercial applications that require sizing the heat generator for the **combined space heating and service hot water loads** the heat generator must be large enough to accommodate both loads. However, since both peaks do not occur simultaneously, it is advantageous to take diversity factors into consideration in sizing, since unnecessarily large equipment is wasteful of energy.

The following guide will provide a "rule of thumb" method of estimation the additional heat generating capacity required for service hot water heating on typical Premier installations.

NOTE: This guide is to be used in conjunction with Figure 1 from AMTROL's Commercial Evaluation and Sizing Forms for:

1. Apartment Houses 2. Motels 3. Nursing Homes 4. Coin Operated Laundry



TYPICAL MODULAR INSTALLATION

A. Service Hot Water Load Only

The heat generator installed to take care of the **service hot water load only** must meet the minimum capacity shown in the Evaluation and Sizing Forms for the particular application.

B. Space Heating and Service Hot Water Loads Combined

The factors which affect sizing for this type of installation are:

1. The piping and pickup losses which are typically applied when a boiler is installed only for space heating.
2. The number of hours of occurrence of temperatures anywhere near design temperatures for space heating represent an extremely low percentage of the total hours in the heating season.
3. The maximum space heating requirements do not occur at the time of day when the maximum peak service demands occur.
4. Service hot water heating equipment must be sized to supply the maximum rate of use for various periods of time from a few minutes to any hour or longer, and since these periods differ from day to day, and from month to month, the design capacity is significantly greater that that required for the vast majority of hours of service hot water usage.

Rule-of-Thumb Estimating Method

The factors shown provide a "rule-of-thumb" method for estimating the additional heat generating capacity required for service hot water heating on typical installations. The first is to calculate the ratio of maximum service hot water load to the **gross** output for space heating (including the normal allowance for piping and pickup). From Figure 2 determine the equivalent factor - this is multiplied by the service hot water load, and the product added to the gross space heating load, to determine the total heat generator capacity.

EXAMPLE: 50 unit apartment, gross output required for space heating is 1,100,000 btu/h. Service hot water usage is minimal.

Step 1. From **Figure 1**, Curve I, required for capacity for service hot water = 330,000 btu/h

Step 2. The ratio of service hot water capacity to gross space heating capacity:

$$\frac{\text{Maximum service hot water load}}{\text{Gross space heating}} = \frac{333{,}000}{1{,}100{,}000} = 0.3$$

Step 3. From **Figure 2**, factor = 0.2

0.2 x 330,000 = 66,000 btu/h

Step 4. Size of heat generator for combined service hot water and space heating loads:

1,100,000 + 66,000 = 1,166,000 btu/h

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