HOT WATER REQUIREMENTS
MOTELS AND HOTELS

TABLE B
TWO HOUR PEAK PERIOD
USE WITH TABLES 2 hr. A THRU 2 HR. G

MOTELS AND HOTELS

This table maybe used as a guide for estimating the two hour hot water demand for various sized Motels and Hotels. Minimum storage capacities are also shown. The table assumes an average occupancy of 1 1/2 persons per unit and 5 minute showers.

NOTE: Hot water load for restaurants, laundry operations or other uses should be considered separately.

Motels and Hotels with convention facilities and / or along busy interstate highways will commonly have a one hour peak period. Use the One Hour Availability Tables for sizing.

IMPORTANT - Calculations below based on 3 GPM shower flow rate of mixed temperature water. If shower flow is up to 5 GPM, multiply gallon requirements in chart (sect.3) by 1.6.

TABLE B: HOT WATER REQUIREMENTS-MOTELS AND HOTELS

(1) Number of Units (1 1/2 Persons/Units)	(2) Actual Number of Persons	(3) Gals. Required 2 Hour Period 140°F Water		(4) *Minimum Storage Capacity
		40°F Inlet 100° TR	60°F Inlet 80°F TR	
1-3	4	50	45	50
4	6	66	56	60
5-6	9	100	85	72
7-8	12	132	112	85
9-10	15	165	140	100
11-15	22	230	196	113
16-20	30	300	255	130
21-25	37	370	315	148
26-30	45	450	382	162
31-35	52	520	442	175
36-40	60	570	485	188
41-45	67	600	510	200
46-50	75	650	552	210
51-75	112	840	714	255
76-100	150	1050	892	300
101-125	187	1272	1080	325
126-150	225	1350	1148	360
151-175	262	1575	1340	395
186-200	300	1800	1530	410
201-250	375	2250	1912	500
251-300	450	2700	2295	600
301-350	525	3150	2678	700

For conditions other than those stated above, consult your A. O. Smith supplier.

*Storage capacities shown are theoretical minimums. See AOSTT35100 for storage tank sizes carried in stock and AOSTT35200 for insulated tanks.

Diversity factors as previously mentioned have been used in calculating expected hot water requirements.

TO USE TABLE B

1. Determine number of units from Column (1).
2. Determine number of persons from Column (2).
   NOTE: If average occupancy differs from 1 1/2 persons per unit, disregard Column (1) and use Column (2) "Actual Number of persons" for estimating Two Hour demand and minimum storage capacity.
3. Read estimated Two Hour demand from Section (3) for either 40° or 60°F inlet temperature.
4. Read minimum storage capacity from Column (4).
5. Consult appropriate availability table for equipment selection. (Be sure storage capacity of system selected is no less than shown in Column (4).

See reverse side for examples

MOTEL/HOTEL EXAMPLE

Problem: What A. O. Smith equipment will provide enough hot water for the shower water load of a motel or hotel with 100 units with 150 persons at 40°F inlet remperature?

This is known

Number of Units	Actual Number of Persons
100	150

Find this on TABLE B: MOTELS/HOTELS (AOSSG88090)

Gal of 140°F water required in 2hr. period, 40°F Inlet	Minimum Storage Capacity
1050	300

Equipment must have: Minimum Storage Capacity of : 300 gallons
and in a 2 hr. period, heat to 140°F: 1050 gallons

Next, choose the type of fuel most suited to your installation: gas, oil, or electricity. Use the TWO HOUR AVAILABILITY TABLES in AOSSG88125 to complete the equipment section. Space limitations, installation costs and difference in cost of various heater and tank combinations that meet minimum storage and recovery requirements will naturally influence the final selection of equipment. Use one Hour Availability Tables for convention type motel.

GAS

COPPER HEAT EXCHANGER TYPE WATER HEATER W/AUXILIARY STORAGE TANK

Table 2 hr. A on AOSSG88125 shows the next larger storage tank above 300 gallons is 350 gallons. The table indicates that either a T-350 tank with a HW-520 heater or a T-400 tank and a HW-420 heater can supply the required 1050 gallons in two hours.

Recommended equipment: One HW-520 & one T-350 storage tank; or one HW-420 & on T-400 storage tank.

GAS FIRED TANK-TYPE WATER HEATERS-MANIFOLDED

Table 2 hr. B on AOSSG88125 shows 3 heaters are needed to supply the 300 gallons required storage. Three BTC-197 heaters will exceed the requirements of 1050 gallons, i.e., 1356 gallons.

Recommended equipment: Three BTC-197 heaters manifolded in parallel.

GAS-FIRED TANK-TYPE WATER HEATERS W/ AUXILIARY STORAGE TANKS

Table 2 hr. C on AOSSG88125 indicates a BTC-500 heater with a T-350 storage tank is the first combination to meet the requirements. It shows 1237 gallons available with 419 gallons storage capacity, (350 + 69 = 419).

Recommended equipment: One BTC-500 heater with one T-350 storage tank.

OIL

OIL-FIRED TANK-TYPE WATER HEATERS-MANIFOLDED

Table 2 hr. D on AOSSG88125 shows the first group of COF heaters to meet the 300/1050 gallon requirement are four COF-199's. This bank of heaters has 344 gallons storage and can supply 1688 gallons.

Recommended equipment: Four COF-199 heaters manifolded in parallel.

OIL-FIRED TANK-TYPE WATER HEATERS W/ AUXILIARY STORAGE TANKS

Table 2 hr. B on AOSSG88125 shows the T-200 storage tank and the storage capacity in any of the COF'S falls short of the 300 gallon requirements. So, a T-350 storage tank is needed, and with a COF-455 it can supply 1160 gallons to meet the 1050 gallon requirement.

Recommended equipment: One COF-455 and one T-350 storage tank.

ELECTRIC

ELECTRIC BOOSTER W/ AUXILIARY STORAGE TANK

Table 2 hr. F on AOSSG88125 shows 2 CMC-54 heaters with 108 KW total and a T-350 storage tank can meet the requirements of 300/1050 gallons of the example with 350 gallons storage and 1165 gallons availability.

Recommended equipment: 2 CMC-54 heaters w/54 KW each and one T-350 storage tank.

COMMERCIAL ELECTRIC STORAGE-TYPE WATER HEATERS

Table 2 hr. G on the inside of AOSSG88125 shows a manifolded bank of three DVE-120 heaters with 36 KW each will have combined storage of 360 gallons and can supply 1173 gallons to meet the 300/1050 requirements.

Recommended equipment: Three DVE-120 heaters w/36 KW each.

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