READY MIX CONCRETE

REQUIREMENTS

Hot water requirements of the Ready-Mix Concrete Industry are best served by a storage tank large enough to permit the high GPM flow rate required for initial fill of the transient mix trucks or the batch machinery at the start of the day. Initial filling time for trucks can be as fast as three minutes. This dump draw characteristic along with how many trucks will be filled in a relatively short period of time must be considered in determining storage requirements. Heater recovery should be based on meeting maximum hourly demand for refilling trucks, machinery, etc., throughout the day.

Theoretical requirement of hot water per yard of concrete is approximately 30 gallons. National Ready Mixed Concrete Association advises that when allowances are made for moisture content of aggregates, etc., 25 gallons of added water per yard of Ready-Mix is a good criteria. Average size of hot water tank on each truck will be 150 gallon capacity.

Modern hot water systems for this industry are designed to supply 180°F water. This is not to imply that water of this temperature is to be directly mixed with cement and produce unwanted flash setting. Higher temperatures are needed to offset temperature drops from cold equipment and also to serve as a means of warming aggregates. Operational methods must provide for proper introduction timing of hot water. Some plants may batch hot and cold water in correct proportions to meet immediate needs.

EQUIPMENT SELECTION
(Tables A & B on reverse side)

Table A is presented to show storage tank sizes relating to fast initial filling in succession of various size trucks.

Table B indicates recovery capacity in gallons per hour required of the water heating equipment during the day for the same various size trucks at certain known intervals.

NOTE: Sizing shown has assumed 100% system efficiency, after generation. Uninsulated storage tanks in cold ambients are at times used in this industry. High temperature storage may require certain allowances in these cases.

READY-MIX CONCRETE
Table A
Tank Size Selection Chart

CAPACITY OF TRUCKS

No. of Trucks Filling in Succession	6 yd.		8 yd.		10 yd.		12 yd.	
	Vol. of Water Required Gallons	Suggested Tank Size Gallons	Vol. of Water Required Gallons	Suggested Tank Size Gallons	Vol. of Water Required Gallons	Suggested Tank Size Gallons	Vol. of Water Required Gallons	Suggested Tank Size Gallons
1	300	350	350	400	400	500	450	500
2	600	2-350	700	750	800	1000	900	1000
3	900	1000	1050	1000	1200	1500	1350	1500
4	1200	1500	1400	1500	1600	2000	1800	2000
5	1500	2000	1750	2000	2000	2000	2250	2-1500
6	1800	2000	2100	2000	2400	2000*	2700	2-1500

* Where generating equipment is based on a 50-minute truck load interval use 2-1500 gallon storage tanks installed in parallel.

READY-MIX CONCRETE
Table B
Hot Water Requirements After Initial Loading
(Size Heater(s) from This Table)

TRUCK CAPACITIES

Time Between Fills	6 yd.			8 yd.			10 yd.			12 yd.		
	Gal. per hr. Hot Water*	Min. Input		Gal. per hr. Hot Water*	Min. Input		Gal. per hr. Hot Water*	Min. Input		Gal. per hr. Hot Water	Min. Input	
		Gas BTU/hr.	Oil GPH		Gas BTU/hr.	Oil GPH		Gas BTU/hr	Oil GPH		Gas BTU/hr	Oil GPH
10	1800	2,630,000	18.9	2100	3,060,000	22.0	2400	3,510,000	25.2	2700	3,940,000	28.4
20	900	1,315,000	9.45	1050	1,530,000	11.0	1200	1,750,000	12.6	1350	1,970,000	14.2
35	515	752,000	5.4	600	875,000	9.2	685	1,000,000	7.2	762	1,112,000	8.0
50	360	525,000	3.8	420	612,000	6.4	480	700,000	5.0	540	788,000	5.7

*180°F Final Temperature -Cold water temperature assumed to be 40°F with a 140°F temperature rise.
NOTE: If uninsulated storage tanks are in cold rooms, allowance in recovery capacity should be made for standby loss.

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