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Mello Aff #2, Par 27

Table 2 Embodied Energy for Cement and Concrete Production

Embodied Energy for Cement and Concrete Production

	% by weight	Btus per ton		Btus/yard concrete	Energy %
		Materials	Hauling		
Cement	12%	5,792,000	504,000	1,574,000	94%
Sand	34%	5,000	37,000	29,000	1.7%
Crushed Stone	48%	46,670	53,000	100,000	5.9%
Water	6%	0	0	0	0%
Concrete	100%	817,600		1,700,000	100%

Notes:

Calculations of energy requirements for cement production based on figures supplied by the Portland Cement Association, 1990 data. Aggregate and hauling energy requirements based on data supplied by PCA and based on the following assumptions:

- *Cement hauled 50 miles to ready-mix plant*
- *Aggregate hauled 10 miles to plant*
- *Concrete mix hauled 5 miles to building site*
- *Concrete mix: 500 lbs. cement, 1,400 lbs. sand, 2,000 lbs. crushed stone, 260 lbs. water/yard.*

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Table 4 CO Emissions from Cement and Concrete Production

CO_2 Emissions from Cement and Concrete Production

	lbs CO_2 per ton of cement	lbs CO_2 per cu. yd. of concrete	Percent of total CO_2
CO_2 emissions from energy use	1,410	381	60
CO_2 emissions from calcining of limestone	997	250	40
Total CO_2 emissions	2,410	631	100

Notes:

Calculations of energy requirements for cement and concrete as in Table 2.

CO_2 emissions from different fuels from ACEEE Consumer Guide to Home Energy Savings, 1991.

Estimates of emissions from calcining limestone from CO_2 Release from Cement Production 1950-1985, by Richard Griffin, Institute for Energy Analysis, Oak Ridge Assoc. Universities, 8/87.

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