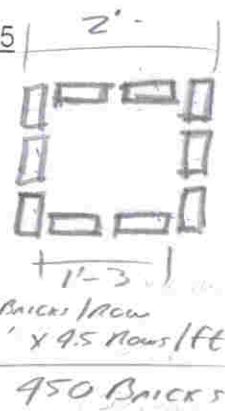


ARCT-1260 Construction Cost Estimating  
Quiz No. 6

Name: KEY

Take Home, Due Mon. April 4, 2005

Determine the lump sum labor & material price for the CMU and brick construction required for 4 piers as shown in the section below. Use a price of \$0.45/pound of steel, \$1.25 per CMU and \$325/1000 brick. Use hook & eye brick ties one each side spaced every 2' vertical. Use Type S mortar. Assume scaffolding will be supplied by the general contractor. Include cleaning of this rough brick. Use 1.6 burden, 5% overhead & 8% profit.



Block Area

ASSUME 10' HIGH X 2 BLOCK WIDE  
 $= 10' \times 2(1.33') = 26.67 \text{ SF} \times$   
 $\times 1.125 / \text{SF}$   
30 BLOCK  
 + 5% WASTE = 1 BLOCK  
ORDER 31 BLOCK

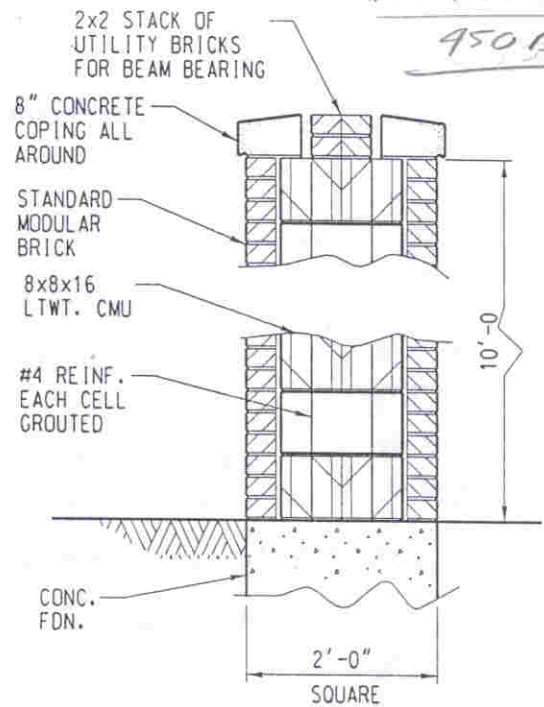
Brick Area

$2' \times 10' \times 2 \text{ SIDES} = 40 \text{ SF}$   
 $1.33' \times 10' \times 2 \text{ SIDES} = 26.67 \text{ SF}$   
66.67 SF \*  
 $\times 6.75 / \text{SF}$   
450 BRICK \*  
 + 5% WASTE 23 BRICK  
ORDER 473 BRICK

+ 4 UTILITY BRICK BEARING AREA.

Mortar

Block :  $26.67 \text{ SF} \times \frac{6.0 \text{ CF}}{100 \text{ SF}} = 1.6 \text{ CF}$   
 Brick :  $66.67 \text{ SF} \times \frac{8.1 \text{ CF}}{100 \text{ SF}} = 5.4 \text{ CF}$   
7 CF  
 + 10% WASTE USE 8 CF



TIES - Hook & Eye  
 $5 \times 4 \text{ SIDES} = 20 \text{ TIES}$

REINFORCING - #4  
 $4 \times 10' \times 0.668 = 27 \#$

GROUT  
 $26.67 \text{ SF} \div 3.63 \text{ SF} \times 1.10 = 8 \text{ CF}$

COPING - 8" Conc  
 $2' \times 4 \text{ SIDES} = 18' \text{ (FOR MITER CUT CORNERS)}$

Additional WorkspaceMATERIALS

BLOCK :	31 x #12 <sup>s</sup> /cmu	= \$39
BRICK :	500 x $\frac{\$325}{1000}$	= \$163
UTILITY BRICK :	4 x $\frac{\$600}{1000}$	= \$3
#4 REINF :	27# x $\frac{\$0.45}{\#}$	= \$12
GROUT :	8 CF x \$3/CF	= \$24
MORTAR :	8 CF x $\frac{\$336}{1000}$	= \$27
CORING :	8 LF x $\frac{\$900}{1000}$	= \$77
BRICK TIES :	20 x $\frac{\$300}{1000}$	= \$6

MATERIALS TOTAL = \$351

LABOR

BLOCK :	B/L	6 hrs/100 SF x 26.67 SF x $\frac{\$23.00}{hr}$ x 1.6	= \$59
	L/A	8 hrs/100 SF x 26.67 SF x $\frac{\$18.50}{hr}$ x 1.6	= \$63
BRICK :	B/L	10 hrs/100 SF x 66.67 SF x $\frac{\$23.00}{hr}$ x 1.6	= \$246
	L/A	11 hrs/100 SF x 66.67 SF x $\frac{\$18.50}{hr}$ x 1.6	= \$217
CORING :	B/L	0.133 hrs/LF x 8 LF x $\frac{\$23.00}{hr}$ x 1.6	= \$39
	L/A	0.133 hrs/LF x 8 LF x $\frac{\$18.50}{hr}$ x 1.6	= \$32
REINF :	B/L	0.023 hrs/# x 27# x $\frac{\$23.00}{hr}$ x 1.6	= \$23
GROUT :	B/L	0.011 hrs/SF x 26.67 SF x $\frac{\$23.00}{hr}$ x 1.6	= \$11
	L/A	0.022 hrs/SF x 26.67 SF x $\frac{\$18.50}{hr}$ x 1.6	= \$17
	OP	0.011 hrs/SF x 26.67 SF x $\frac{\$29.00}{hr}$ x 1.6	= \$11
TIES :	B/L	7.69 hrs/1000 x 20 x $\frac{\$23.00}{hr}$ x 1.6	= \$6
			= \$10
UTILITY BRICK :	B/L		
CURSING	B/L	2.2 hrs/1000 x 450 x $\frac{\$23.00}{hr}$ x 1.6	= \$36
	L/A	1.1 hrs/1000 x 450 x $\frac{\$18.50}{hr}$ x 1.6	= \$15

TOTAL LABOR = \$785

TOTAL

\$1136

x 4 = \$4544

+ 5% O/H = \$227

+ 8% PROFIT = \$364

\$5135IGNORE  
PUMP COST