MASONRY CHAPTER 10

TYPES

Masonry covers installing brick, concrete block, mortar-bound rubble, ceramic tile, quarry tile, structural tile (glazed or face), and also lathing and plastering.

BRICK AND CONCRETE BLOCK

Labor for the installation of brick and concrete block includes mixing mortar, carrying materials to the mason, hoisting materials, and laying brick and block. It also includes tooling joints, erecting and dismantling scaffold, sawing block, and culling brick and block. Labor for this type of masonry includes cleaning brick and block in place.

MORTAR-BOUND RUBBLE

The installation of mortar-bound rubble includes labor for mixing mortar, rough-cutting stone, carrying mortar and rubble to the mason, hoisting materials, and laying rubble. Tooling and pointing joints, erecting and dismantling scaffold, and cleaning rubble in place are also part of the installation.

CERAMIC AND QUARRY TILE

The installation of ceramic and quarry tile includes mixing mortar for bed coat and joints, carrying mortar and tile to the tile setter, spreading bed coat, cutting tile, and setting tile. Labor estimates should also include slushing and finishing joints, cleaning tile in place, and erecting and dismantling scaffold.

STRUCTURAL TILE

The installation of structural face tile and glazed structural tile units includes mixng mortar, carrying mortar and tile to the mason, hoisting materials, laying tile, tooling joints, erecting and dismantling scaffold, cutting tile, and cleaning tile in place.

LATH AND PLASTER

Labor for lathing and plastering includes handling material into place; hoisting materials; cutting and installing hanging wires and straps; cutting and fastening lathing

channels, angles, beads, and moldings; and installing furring strips, metal lath, and gypsum lath. Labor also includes mixing plaster, installing and finishing plaster, erecting and dismantling scaffold, and curing and drying plaster.

ESTIMATING TABLES

Unit masonry Tables 10-1 through 10-3 include inking mortar, carrying materials, culling, cutting, hoisting, laying masonry, tooling joints, and cleaning work in place. For lathing (Table 10-4, page 10-4), labor ineludes installing required metal fastenings and furring. Estimates for plastering (Table 10-5, page 10-4) include mixing, hoisting, finishing, and curing. Allowances are made for erecting and dismantling scaffolds in all cases. Estimates do not provide for loading and hauling material to the jobsite. Tables 10-6 and 10-7, pages 10-5 and 10-6, contain conversion actors.

EXAMPLE OF TABLE USE

Problem. Twenty housing units are to be built in Germany when weather is generally favorable for construction. Estimate the number of working days it will take to com - plete the project. Material estimates are as follows:

8-inch concrete block —	20,000 sq ft
Acid cleaning block	20,000 sq ft
6-inch quarry tile	1,000 sq ft
Tile base (6-inch)	500 lin ft
Acid cleaning tile	1,250 sq ft
Glass block	1,000 sq ft
Metal lath - walls (metal studs)	25,000 sq ft
Metal lath - ceiling (wood joists)	10,000 sq ft
Metal lath - base	2,500 lin ft
Corner bead	2,500 lin ft
Lath at openings	4,000 lin ft
Plastering walls (2 coats) —	25,000 sq ft
Plastering walls (plain finish) –	10,000 sq ft
Scaffolding	1 story - 8 crews

Solution. Labor is mostly inexperienced, so the man-hours/unit are figured at 30 percent above tables.

	Units	x	Man-hours/unit	= Subtotal
Laying block	20. 0		143	2,860
Cleaning block	20. 0		33	660
Laying tile: Floor	1.0		208	208
Base	0.5		299	150
Cleaning tile	1.25		13	16
Glass block	1.0		325	325
Metal lath: Walls	25.0		52	1,300
Ceiling	10.0		13	130
Base	2.5		46	115
Corner	2.5		46	115
Openings	4.0		91	364
Plastering: Walls	25.0		31	775
Ceilings	10.0		55	550
Scaffold	8.0		26	208
Total man-hours:				7,776

Assuming an 8-hour workday, work requires 972 man-days. An engineer company consisting of 60 laborers, using organic equipment, could complete the project in 16.2 (972 /60) working days.

Table 10-1. Structural tile

Work element description	Unit	Man-hours/unit
Backup tile	1,000 sq ft	
4" wall		100
8" wall		100
12" wall		140
Glazed tile	1,000 sq ft	
4" wall		230
8" wall		280
Glass and terra-cotta block, complete	1,000 sq ft	200
Acid cleaning tile	1,000 sq ft	10
Typical tile crew: 1 leader and 6 workers.		

Table 10-2. Brick, concrete block, and mortar-bound rubble

Work element description	Unit	Man-hours/unit
Common brick	1,000 sq ft	
8" wall		150
12" wall		200
16" wall		300
Acid cleaning brick	1,000 sq ft	20
Concrete block	1,000 sq ft	
4" wall		76
8" wall		100
12" wall		150
Acid cleaning block	1,000 sq ft	25
Mortar-bound rubble, complete	cu yd	30
Erect and dismantle tubular scaffold	story - 1 crew	20
Typical crew: 1 leader and 6 workers for masonry; 1 leader and 3 workers for scaffolding.		

Table 10-3. Ceramic and quarry tile

Work element description	Unit	Man-hours/unit
Floors	1,000 sq ft	
Ceramic		
Paper-backed		160
Unmounted		240
Quarry		
4" square		200
6" square		160
9" square		80
Walls (includes preparation of surface)	1,000 sq ft	250
Base	1,000 lin ft	230
Cap	1,000 lin ft	190
Typical tile crew: 1 leader and 3 workers.		

Table 10-4. Lathing

Work element description	Unit	Man-hours/unit
Walls	1,000 sq ft	
Wood lath		10
Metal lath		10
Wood studs, 2" solid partition		35
Metal studs, 2 sides		25
Ceiling	1,000 sq ft	
Wood joists		10
Suspended		30
Base	1,000 lin ft	
Wood		30
Metal		35
Corner bead	1,000 lin ft	35
Moldings at openings	1,000 lin ft	70

Typical lathing crew: 1 leader and 3 workers.

Table 10-5. Plastering

Work element description	Unit	Man-hours/unit
Interior walls	1,000 sq ft	
2 coats		21
3 coats		21
2" solid partition		70
Metal studs, 2 sides		40
Ceiling (3 coats)	1,000 sq ft	42*
Exterior, stucco	1,000 sq ft	45

Typical plastering crew: 1 leader and 6 workers.
*Add 8 man-hours/unit for sand finish.

Table 10-6. Masonry conversion units

Material description	Conversion unit	Waste %	Unit
Masonry units			
8-inch blocks	0.89 sq ft per block		
1. Full stretcher	8" x 8" x 16"	10 ea	ea
2. Half stretcher	8" x 8" x 8"	10 ea	ea
3. Corner block	8" x 8" x 16"	10 ea	ea
4. Full jamb	8" x 8" x 16"	10 ea	ea
5. Half jamb	8" x 8" x 8"	10 ea	ea
6-inch blocks	0.89 sq ft per block		
1. Full stretcher	6" x 8" x 16"	10 ea	ea
2. Half stretcher	6" x 8" x 8"	10 ea	ea
3. Corner	6" x 8" x 16"	10 ea	ea
4. Full jamb	6" x 8" x 16"	10 ea	ea
5. Half jamb	6" x 8" x 8"	10 ea	ea
NOTE: All specials requiring field cutting shall be ordered as full-size blocks.			
Mortar materials. (For 1 to 3 mix and 8" x 16" blocks)			
Cement, portland, type I (includes 20% waste)			
1. 1/4-inch joint	0.80 cu ft/100 sq ft wall	----	sack
2. 3/8-inch joint	1.10 cu ft/100 sq ft wall	----	sack
3. 1/2-inch joint	1.40 cu ft/100 sq ft wall	----	sack
Lime, hydrated, dry type "M" (includes 20% waste)			
NOTE: 1 sack line = 1 cubic foot.			
1. 1/4-inch joint	0.60 cu ft/100 sq ft wall	----	sack
2. 3/8-inch joint	0.81 cu ft/100 sq ft wall	----	sack
3. 1/2-inch joint	1.05 cu ft/100 sq ft wall	----	sack
Masonry wash materials.			
Muriatic acid	10 lb/100 sq ft surface	10 lb	lb
Soap, powdered, navy type	2 lb/100 sq ft surface	10 lb	lb
Core fill materials. (Conversion units for RST spaced 24" OC.)			
Cement, portland, type I			
1. 8- and 6-inch walls	3 sacks/100 sq ft wall	10 sacks	sack
2. 4-inch walls	2 sacks/100 sq ft wall	10 sacks	sack

NOTES:
1. Volume of 1 cell in an 8- by 8-inch block is equal to 1/8 cubic foot.
2. 7 sacks/cubic yard.

Table 10-7. Material weights and measures

Material	Length (inches)	Width (inches)	Thickness (inches)	Weight lb/each	Weight lb/barrel	Weight lb/cu ft	Weight lb/cu yd	Weight tons/1,000
Asbestos						110 to 120		
Brick, common	8 1/4	4	2 1/2	5.40				2.70
Brick, fire, std.	9	4 1/2	2 1/2	7.00				3.50
Brick, hard	8 1/2	4 1/4	2 1/4	6.48				3.24
Brick, soft	8 1/4	4	2 1/4	4.32				2.60
Cement, bag				94.00	376			
Clay, dry						63 to 95	1,700 to 2,295	
Clay, fire						130	3,500	
Clay, wet						120 to 140	2,970 to 3,200	