

# STONE, DIMENSION

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**Domestic survey data and tables were prepared by Samir Hakim, statistical assistant.**

Dimension stone is a natural rock material quarried for the purpose of obtaining blocks or slabs that meet specifications as to size (width, length, and thickness) and shape (Barton, 1968, p. 4). Color, grain texture and pattern, and surface finish of the stone also are normal requirements by both customers and the stone industry. Durability (essentially based on mineral composition, hardness, and past performance), strength, and the ability of the stone to take a polish are other important selection criteria.

Although various igneous, metamorphic, and sedimentary rocks are used as dimension stone, the principal rock types are granite, limestone, marble, sandstone, and slate. Other varieties of dimension stone that are normally considered to be special minor types include alabaster (massive gypsum) and soapstone (massive talc).

U.S. production of dimension stone in 2003 was estimated to be 1.34 million metric tons (Mt) valued at \$268 million, which was about a 5.5% increase in value compared with that of 2002 (table 1). U.S. production tonnage of dimension stone in 2003 increased by 6.3% compared with that of 2002. Exports decreased slightly in value to \$63.5 million, and imports for consumption increased by 17% in value to about \$1.4 billion. The value of apparent consumption was estimated to be \$1.59 billion.

In recent years, most dimension stone has been used in construction applications with the largest portions being sold or used as ashlar and partially squared pieces, curbing, flagstone, and rough block for building and construction. Monumental stone, another major type, includes memorials of various kinds.

A noteworthy event that involved the U.S. dimension stone industry was the construction of the National World War II Memorial on the National Mall in Washington, DC. Construction began in September 2001, and the dedication of the memorial was on May 29, 2004. New England Stone, LLC of Rhode Island, assisted by three subcontractors, provided all the stone for the memorial. The monument consists of 17,644 individual stone pieces weighing a total of about 7,050 metric tons (t). The primary types of stone used were Kershaw granite (for all of the vertical elements of the memorial) quarried in South Carolina and Greene County granite (paving stone) quarried in Georgia. Some imported stones were used for trim and decorative elements of the memorial (Stoneworld, 2004<sup>1</sup>).

Dimension stone production data for the United States are derived by the U.S. Geological Survey (USGS) from a voluntary canvass of U.S. quarry producers of rough and dressed dimension stone. Of the 220 dimension-stone-producing operations included in the survey for 2003, 107 (49%) responded, which represented 62% of the tonnage; the remaining tonnage was estimated based partly on prior years' reporting (table 1). Data in this report cover rough crude

quarried stone, irregular-shaped and rectangular blocks, and more highly processed stone. A number of other terms also are used to describe further processing, such as "worked," "dressed," "finished," and "manufactured." These and other terms used by the dimension stone industry describe such features as the mineral composition of the rock, the shape of the product, the method of finishing a stone, and the type of finish applied (Stone World, 2003, p. 128-158). No adjustments are made in the data to account for the sometimes substantial losses in processing rough stone into dressed stone. Sold or used data are considered to be equivalent to production because changes in stocks are not surveyed.

## Description and Terminology

Scientific and commercial descriptions of various dimension stone types overlap. The scientific description of dimension stone types is focused primarily on the stone's geographic locality and mineralogical composition, whereas the commercial description is focused primarily on the locality and color of the stone. Furthermore, various combinations of the scientific and commercial descriptions are used by stone producers to market their stone products effectively. The descriptions that follow were adapted from Currier (1960, p. 1-10) and Barton (1968, p. 2-8).

**Granite.**—Commercial granites include all feldspathic crystalline rocks of mainly interlocking texture and with individual mineral grains that are visible to the naked eye. This category includes such rock types as anorthosite, gneiss, granite, granodiorite, monzonite, syenite, and all other intermediate igneous and coarse-grained metamorphic rock types. Primary colors of commercial granites are white, gray, pink, and red; green and brown are secondary colors. Although black granites are also included in this category and range in color from dark gray to black, they are not true granites mineralogically but rather mafic rocks, such as diabases, diorites, gabbros, and similar rocks.

**Limestone.**—Commercial limestones are rocks of sedimentary origin that primarily are composed of calcium carbonate with or without magnesium. Included in this category are calcitic limestone, dolomite, dolomitic limestone, and travertine, which is a calcitic rock that is precipitated from hot springs.

**Marble.**—Commercial marble includes metamorphosed limestones and serpentine rocks, all of which are capable of taking a polish. An important member of this classification is serpentine marble, which is also known as verde antique, and composes green-to-black serpentine, which is a hydrous magnesium silicate mineral that is crisscrossed by veins of lighter minerals, such as calcite or dolomite.

**Sandstone.**—Commercial sandstone is a lithified sand that comprises chiefly quartz or quartz and feldspar with a fragmental (clastic) texture. Sandstone contains interstitial cementing materials, such as calcite, clay, iron oxides, or silica. Arkose (abundant

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

feldspar grains), graywacke (abundant angular rock fragments), and conglomerate (abundant rounded rock fragments) are included in this category. Other members of this category include bluestone, which is a dense, hard, fine-grained feldspathic sandstone that splits easily along planes into thin, smooth slabs; brownstone, which is feldspathic sandstone of brown to reddish-brown color owing to abundant iron oxide; and flagstone, which is a sandstone or sandy slate, typically red, tan or gray, that splits into large, thin slabs.

**Slate.**—Commercial slate is a microgranular metamorphic rock formed by the recrystallization of clay sediments, such as claystone, shale, or siltstone. Characterized by excellent parallel cleavage, slates may be easily split into relatively thin slabs.

**Greenstone.**—Commercial greenstones are the result of the metamorphosis of basaltic rocks. Greenstone is named because of the predominance of greenish minerals, such as actinolite, chlorite, or epidote.

**Basalt and Traprock.**—Commercial basalt and traprock includes igneous rocks that are too fine grained to be termed “black granite.” The name traprock is derived from the Swedish word “trappa,” which means step, because of the characteristic terraced or steplike appearance of certain basalt lava fields. This category includes extrusive igneous rocks, such as andesite, basalt, or dacite, and intrusive igneous rocks, such as amphibolites, diabase, diorites, fine-grained gabbros, peridotites, and pyroxenites.

**Miscellaneous.**—This category includes commercial dimension stone types that do not easily fall into the aforementioned categories, such as soapstone, steatite, or talc, which contain various amounts of the mineral talc. Additional miscellaneous dimension stones include diatomite, mylonite, pumice, schist, tripoli, tuff, porous or scoriaceous volcanic rocks, or any other rocks used as building stones.

## Production

Rough stone blocks split or cut from a quarry face are transported to processing plants that are typically located at the quarry site, at least for preliminary sizing. Further dressing, which includes final sizing and finishing operations, such as decorating, edging, and polishing, also may be done at the quarry site.

In 2003, granite accounted for 463,000 t (35%) of the total domestic dimension stone production of 1.34 Mt, followed by limestone (28%), sandstone (13%), marble (5%), miscellaneous stone (18%), and slate (1%). Granite accounted for about \$112 million (42%) of total domestic production of \$268 million, followed by limestone (28%), miscellaneous (10%), sandstone (9%), marble (7%), and slate (4%).

Production was reported in 34 States and Puerto Rico. Leading producer States, in descending order by tonnage, were Indiana, Georgia, Vermont, Wisconsin, and Texas. These States accounted for 48% of the domestic production. The leading producer States, in descending order by value, were Indiana, Vermont, South Dakota, Georgia, and Wisconsin. These States contributed about 50% of the value of domestic production (table 3).

The top five producing companies were Rock of Ages Corp. in Vermont, North Carolina, and Pennsylvania; Fletcher Granite Co., Inc. in Massachusetts and New Hampshire; Oolitic Victor Stone Co. in Indiana; Buechel Stone Corp. in Wisconsin; and American Sandstone in Arizona. These companies produced

about 28% of domestic production in tonnage and about 23% of production value. The leading 14 companies accounted for 55% of total domestic tonnage and 51% of the value.

**Granite.**—Dimension granite was produced by 38 companies operating 67 quarries in 18 States. Production was 463,000 t and was valued at \$112 million. Granite production tonnage increased by 7.4%, and the value increased by about 3% compared with those of 2002. The top five producing States, in descending order by tonnage, were Massachusetts, Georgia, Vermont, South Dakota, and New Hampshire. Massachusetts accounted for 17% of the tonnage of U.S. granite production. Massachusetts and Georgia combined accounted for 19% of the value of the U.S. granite production (table 4).

Cold Spring Granite, Fletcher Granite, and Rock of Ages, which were the leading producers, accounted for 46% of U.S. granite production in tonnage and 48% of U.S. granite production in value.

**Limestone.**—Dimension limestone was produced by 27 companies from 29 quarries in 9 States. Production increased by about 4% to 373,000 t from 359,000 t in 2003, and the value increased by about 5% to \$73.7 million from \$70 million in 2003. The top five producing States, in descending order by tonnage, were Indiana, Texas, Oklahoma, Kansas, and Minnesota. Indiana produced 64% of the U.S. tonnage and 57% of the value (table 5).

Buechel Stone, Featherlite Corp., Independent Limestone Co., Indiana Limestone, and Oolitic Victor Stone, which were the leading producers, accounted for 74% of all U.S. limestone tonnage and about 44% of the value.

**Sandstone.**—Dimension sandstone was produced by 22 companies that operated 25 quarries in 16 States. Production decreased about 11% to 176,000 t in 2003 from 198,000 t in 2002. The value decreased slightly to \$22.8 million in 2003 from \$23.1 million in 2002. The top five producing States, in descending order by tonnage, were Arizona, New York, Ohio, Arkansas, and Michigan (table 6).

American Sandstone, Finger Lakes Stone Co. Inc., Hackett Quarry Co., Jude Stone Quarry Co., and Loukonen Brothers Stone Co., which were the leading producers, accounted for about 75% of the tonnage and 65% of the value of domestic production.

**Marble.**—Marble was mined by six companies that operated eight quarries in five States. Production decreased in 2003 to 60,500 t valued at \$18.4 million from 66,500 t valued at \$19.6 million in 2002 (table 10). Georgia was the leading producing State, followed by Vermont, Alabama, Colorado, and Tennessee. The leading producers were Georgia Marble Co., Tennessee Marble Co., and Vermont Quarries Co. Additional data have been withheld to avoid disclosing company proprietary information.

**Slate.**—Slate was produced by 11 companies that operated 15 quarries in 5 States. Production decreased to 18,500 t in 2003 from 18,700 t in 2002. The value decreased slightly to \$11.2 million in 2003 from \$11.5 million in 2002 (table 12). The producing States were California, Pennsylvania, and Vermont. The leading producers were John Hadeka Slate Co., Pennsylvania Big Red Slate Co. Inc., Quarry Slate Industries Inc., U.S. Quarried Slate Products Inc., and Williams and Sons Slate and Tile Inc. Additional data have been withheld to avoid disclosing company proprietary information.

## Consumption

Rough stone represented about 55% of the tonnage and 42% of the value of all dimension stone sold or used by domestic producers, which included exports. The largest uses of rough stone, by tonnage, were in construction (41%) and monumental stone (25%) applications. Dressed stone represented 45% by tonnage and 58% by value of the total stone sold or used. The largest uses within dressed stone, by tonnage, were in flagging (25%), ashlar and partially squared pieces (24%), and curbing (22%) (table 7).

Uses for the different varieties of dimension stone varied considerably. The major uses of granite sold or used in 2003, by tonnage, were in curbing (28%), monumental rough stone (21%), other rough stone including exports and unlisted uses (16%), and monumental dressed stone (14%) (table 8). Primary uses of limestone, by tonnage, were in rough blocks for building and construction (52%) and ashlar and partially squared pieces (17%) (table 9). Primary uses of marble, by tonnage, were dressed stone for slabs and blocks, flagging, monumental, panels and veneer, ashlar and partially squared pieces, tile, and unspecified and unlisted uses (44%) and rough blocks for building and construction (35%) (table 10). Primary uses of sandstone, by tonnage, were in dressed stone for flagging (63%) and rough blocks for building and construction (17%) (table 11). Dimension slate sold or used by producers in the United States in 2003, by tonnage, was principally for flooring (48%), roofing (26%), and structural and sanitary purposes (13%) (table 12).

Overall, the value of apparent consumption of dimension stone in the United States was estimated to be \$1.59 billion in 2003; this was an increase of about 15% compared with that of 2002. Apparent consumption is defined as production plus imports for consumption minus exports. Value data are used in the apparent consumption calculation because tonnage data are not available for imports and exports. Also, changes in industry stocks are not considered because the data are not available.

## Prices

The average 2003 value for dimension stone was \$200 per metric ton; this was a decrease of 0.5% from that of 2002 based on the USGS canvass. The average unit values per metric ton for different types of dimension stone were granite, \$242 per ton; limestone, \$198 per ton; marble, \$304 per ton; sandstone, \$130 per ton; and slate, \$605 per ton. Available price data show considerable variation. Prices are substantially different not only for the kind of stone, but also for the appearance of the same kind of stone. Color, grain structure, and finish contribute significantly to price and marketability.

## Foreign Trade

**Exports.**—In 2003, total exports of dimension stone decreased in value slightly to about \$63.5 million compared with those of 2002; granite accounted for 68% of the export value. The largest share of granite was exported to China (table 13). Although unreported, a significant amount of granite was probably reexported back to the U.S. market.

**Imports.**—The value of imports for consumption of dimension stone types increased in 2003 by 17% to \$1.39 billion. Italy, which continued to be the major single source of granite, accounted for 33% of granite imports by value. Other important granite import sources included Brazil (25%), India (15%), and China (11%) (table 14). Italy also was a major source of rough and dressed marble imports (tables 15, 16). Duties on imported dimension stone are listed in table 2.

## World Review

World dimension stone production, including the United States, was estimated to be approximately 77 Mt in 2002, the last year for which data were available; this was an increase of about 400,000 t compared with that of 2001. Although there was probably some small-scale production in the majority of the world's nations, dimension stone was produced and officially reported in about 35 countries. The top five producing countries in 2002, in descending order by tonnage, were China, Italy, India, Iran, and Spain. These countries accounted for about 72% of the world's production. The United States ranked 11th in world production of dimension stone in 2002 (Internazionale Marmi e Macchine Carrara S.p.A., 2004§).

## Outlook

Dimension stone sales during the near term are expected to remain level. For residential and office building construction, growth in the use of dimension stone is expected in new prestige markets for home improvement as well as in renovations to attract and keep tenants. Conversely, some sectors of the stone industry report a lack of skilled labor at quarries and that, in recent years, competent masons have left the stone industry for more lucrative and higher paying building projects, such as courthouses, schools, and restorations.

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TABLE 1  
 SALIENT U.S. DIMENSION STONE STATISTICS<sup>1</sup>

(Thousand metric tons and thousand dollars)

	1999	2000	2001	2002	2003
Sold or used by producers: <sup>2</sup>					
Quantity	1,250	1,320	1,220	1,260	1,340
Value	254,000	235,000	263,000	254,000	268,000
Exports, value	54,500	59,800	73,500	64,400	63,500
Imports for consumption, value	808,000	986,000	1,070,000	1,190,000	1,390,000

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Includes Puerto Rico and other U.S. possessions and territories.

TABLE 2  
U.S. IMPORT DUTIES ON DIMENSION STONE

Tariff item	Harmonized Tariff Schedule of the United States	Normal trade relations (NTR) January 1, 2003	Non-NTR January 1, 2003
Slate, rough blocks or slabs	2514.00.0000	Free	25% ad valorem.
Rough blocks or slabs of marble, travertine, other calcareous monumental or building stone:	2515.00.0000		
Marble and travertine:			
Crude or roughly trimmed	2515.11.0000	Free	\$22.95 per cubic meter.
Marble, merely cut	2515.12.1000	do.	13% ad valorem.
Travertine, merely cut	2515.12.2000	3.0% ad valorem	50% ad valorem.
Other calcareous stone alabaster	2515.20.0000	do.	Do.
Rough blocks or slabs of granite, porphyry, basalt, sandstone, other monumental or building stone:	2516.00.0000		
Granite:			
Crude or roughly trimmed	2516.11.0000	Free	\$8.83 per cubic meter.
Merely cut	2516.12.0000	2.8% ad valorem	60% ad valorem.
Sandstone:			
Crude or roughly trimmed	2516.21.0000	Free	\$5.30 per cubic meter.
Merely cut	2516.22.0000	3.0% ad valorem	50% ad valorem.
Other monumental or building stone	2516.90.0000	do.	Do.
Setts, curbstones, flagstones	6801.00.0000	2.8% ad valorem	60% ad valorem.
Worked monumental or building stone:	6802.00.0000		
Tiles and cubes under 7 centimeters squares, granules	6802.10.0000	4.8% ad valorem	40% ad valorem.
Other stone and articles with a flat or even surface:			
Marble, travertine, and alabaster:	6802.21.0000		
Travertine	6802.21.1000	4.2% ad valorem	50% ad valorem.
Other	6802.21.5000	1.9% ad valorem	13% ad valorem.
Other calcareous stone	6802.22.0000	4.9% ad valorem	50% ad valorem.
Granite	6802.23.0000	3.7% ad valorem	60% ad valorem.
Other stone	6802.29.0000	6.0% ad valorem	30% ad valorem.
Other marble, travertine, and alabaster:	6802.91.0000		
Marble:			
Slabs	6802.91.0500	2.5% ad valorem	15% ad valorem.
Other	6802.91.1500	4.9% ad valorem	50% ad valorem.
Travertine articles of subheading 6802.21.1000 that have been dressed or polished, but not further worked	6802.91.2000	4.2% ad valorem	50% ad valorem.
Other	6802.91.2500	3.7% ad valorem	40% ad valorem.
Alabaster	6802.91.3000	4.7% ad valorem	50% ad valorem.
Other calcareous stone	6802.92.0000	4.9% ad valorem	Do.
Granite	6802.93.0000	3.7% ad valorem	60% ad valorem.
Other stone	6802.99.0000	6.5% ad valorem	40% ad valorem.
Worked slate and articles:	6803.00.0000		
Roofing slate	6803.00.1000	3.3% ad valorem	25% ad valorem.
Other	6803.00.5000	Free	Do.

TABLE 3  
DIMENSION STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES,  
BY STATE<sup>1</sup>

State	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
California	41,000	\$9,870	40,200	\$9,920
Colorado	18,200	2,400	4,630	1,610
Georgia	111,000	18,200	114,000	22,700
Indiana	237,000	39,500	242,000	42,100
Kansas	15,100	1,900	15,300	1,640
Maryland	20,500	2,120	23,700	2,700
Massachusetts	80,600	11,300	81,000	11,300
Minnesota	21,600	12,400	15,500	11,900
Montana	11,600	2,620	14,300	2,590
New Mexico	20,200	1,370	56,900	2,590
New York	46,400	5,990	65,300	6,110
North Carolina	41,300	17,900	46,900	18,700
Ohio	30,200	4,990	29,900	4,960
Oklahoma	16,500	2,100	17,500	2,300
Pennsylvania	36,700	11,900	31,900	10,400
South Carolina	9,230	850	8,230	650
Texas	65,300	12,200	86,600	16,400
Vermont	101,000	27,000	102,000	26,700
Virginia	5,900	651	5,900	651
Wisconsin	99,800	19,300	101,000	19,700
Other <sup>2</sup>	229,000	49,700	235,000	52,800
Total	1,260,000	254,000	1,340,000	268,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes Alabama, Arizona, Arkansas, Connecticut, Idaho, Maine, Michigan, Missouri, New Hampshire, South Dakota, Tennessee, Utah, Washington, West Virginia, and Puerto Rico and other U.S. possessions and territories.

TABLE 4  
DIMENSION GRANITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES,  
BY STATE<sup>1</sup>

State	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
California	17,300	\$5,810	18,300	\$6,010
Georgia	77,700	10,000	77,100	10,100
Massachusetts	80,600	11,300	81,000	11,300
South Carolina	9,230	850	8,230	650
Wisconsin	3,240	2,420	13,200	3,600
Other <sup>2</sup>	243,000	78,900	265,000	80,100
Total	431,000	109,000	463,000	112,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes Maine, Minnesota, Missouri, New Hampshire, New York, Oklahoma, North Carolina, Pennsylvania, South Dakota, Texas, Vermont, Virginia, and Puerto Rico and other U.S. possessions and territories.

TABLE 5  
DIMENSION LIMESTONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES,  
BY STATE<sup>1</sup>

State	2002		2002	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Indiana	235,000	\$39,500	240,000	\$42,100
Kansas	12,300	1,560	13,200	1,440
Other <sup>2</sup>	112,000	29,000	120,000	30,100
Total	359,000	70,000	373,000	73,700

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes Arkansas, California, Minnesota, Ohio, Oklahoma, Texas, and Wisconsin.

TABLE 6  
DIMENSION SANDSTONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES,  
BY STATE<sup>1</sup>

State	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
New York	44,300	\$4,660	43,000	\$4,740
Pennsylvania	2,390	364	2,340	357
Other <sup>2</sup>	151,000	18,100	131,000	17,700
Total	198,000	23,100	176,000	22,800

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes Arizona, Arkansas, California, Colorado, Idaho, Kansas, Michigan, New Mexico, Ohio, Oklahoma, Utah, Virginia, West Virginia, and Wisconsin.

TABLE 7  
DIMENSION STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1,2</sup>

Use	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
<b>Rough stone:</b>				
Rough blocks for building and construction	290,000	\$38,900	301,000	\$42,100
Irregular-shaped stone	151,000	19,800	171,000	19,800
Monumental	146,000	26,100	186,000	28,100
Other <sup>3</sup>	66,100	20,300	76,300	21,700
<b>Dressed stone:</b>				
Ashlars and partially squared pieces	94,100	18,500	143,000	29,100
Slabs and blocks for building and construction	25,600	6,380	13,000	3,730
Monumental	64,400	29,600	67,700	35,300
Curbing	130,000	22,000	128,000	21,700
Flagging	156,000	16,700	149,000	18,100
Flagging (slate)	2,800	945	2,280	825
Roofing slate	3,450	5,260	5,210	5,340
Structural and sanitary	2,290	2,560	2,340	2,670
Flooring slate	9,040	1,970	8,790	1,760
Other <sup>4</sup>	117,000	45,600	83,100	39,200
Grand total	1,260,000	254,000	1,340,000	268,000

<sup>1</sup>Includes Puerto Rico and other U.S. possessions and territories.

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Includes flagging, exports, uses not specified, and uses not listed.

<sup>4</sup>Includes panels and veneer, tile, blackboards, exports, uses not specified, and uses not listed.

TABLE 8  
DIMENSION GRANITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1</sup>

Use	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
<b>Rough stone:</b>				
Rough blocks for building and construction	52,300	\$9,040	50,800	\$9,900
Irregular-shaped stone	1,570	235	29,300	967
Monumental	99,800	19,300	97,200	18,700
Other <sup>2</sup>	60,500	19,500	72,200	21,100
<b>Dressed stone:</b>				
Ashlars and partially squared pieces	1,380	838	3,270	1,010
Slabs and blocks for building and construction	1,610	1,340	751	751
Monumental	64,100	29,100	63,800	30,100
Curbing	129,000	22,000	128,000	21,600
Other <sup>3</sup>	20,100	7,860	17,800	7,480
Grand total	431,000	109,000	463,000	112,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes exports and uses not listed.

<sup>3</sup>Includes panels and veneer, tile, uses not specified, and uses not listed.

TABLE 9  
DIMENSION LIMESTONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1</sup>

Use	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
<b>Rough stone:</b>				
Rough blocks for building and construction	184,000	\$23,400	193,000	\$25,400
Irregular-shaped stone	11,000	963	10,000	980
Monumental	14,900	3,950	16,100	4,400
Other <sup>2</sup>	3,700	549	4,080	574
<b>Dressed stone:</b>				
Ashlars and partially squared pieces	52,900	8,710	64,900	14,800
Slabs and blocks for building and construction	18,400	3,870	9,370	1,770
Flagging	10,600	4,220	11,600	4,320
Other <sup>3</sup>	63,500	24,400	63,500	21,400
Grand total	359,000	70,100	373,000	73,700

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes exports and uses not listed.

<sup>3</sup>Includes curbing, panels and veneer, tile, uses not specified, and uses not listed.

TABLE 10  
DIMENSION MARBLE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1,2</sup>

Use	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
<b>Rough stone:</b>				
Rough blocks for building and construction	18,300	\$3,830	20,900	\$3,740
Other <sup>3</sup>	13,000	2,500	13,000	2,500
<b>Dressed stone:</b>				
Slabs and blocks for building and construction	W	W	W	W
Monumental	W	W	W	W
Flagging	W	W	W	W
Tile	W	W	W	W
Other <sup>4</sup>	35,200	13,300	26,600	12,100
Grand total	66,500	19,600	60,500	18,400

W Withheld to avoid disclosing company proprietary data; included with "Dressed stone, other."

<sup>1</sup>Includes Puerto Rico.

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Includes monumental, uses not specified, and uses not listed.

<sup>4</sup>Includes slabs and blocks, flagging, monumental, panels and veneer, ashlars and partially squared pieces, tile, uses not listed, and uses indicated by symbol W.

TABLE 11  
DIMENSION SANDSTONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1</sup>

Use	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
<b>Rough stone:</b>				
Rough blocks for building and construction	29,200	\$2,160	29,900	\$2,720
Irregular-shaped stone	18,100	2,220	11,400	1,680
Other <sup>2</sup>	--	--	--	--
<b>Dressed stone:</b>				
Ashlars and partially squared pieces	17,000	3,210	15,400	3,060
Slabs and blocks for building and construction	2,500	751	2,490	746
Curbing	W	W	W	W
Flagging	124,000	10,200	111,000	10,600
Panels and veneer	1,370	341	907	300
Other <sup>3</sup>	5,780	4,280	4,660	3,720
Grand total	198,000	23,100	176,000	22,800

W Withheld to avoid disclosing company proprietary data; included with "Dressed stone, other." -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes flagging and uses not listed.

<sup>3</sup>Includes tile, curbing, exports, uses not specified, uses not listed, and uses indicated by symbol W.

TABLE 12  
DIMENSION SLATE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1</sup>

Use	2002		2003	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Flagging	2,800	\$945	2,280	\$825
Roofing	3,450	5,260	4,840	5,020
Structural and sanitary purposes	2,290	2,560	2,340	2,670
Flooring	9,040	1,970	8,790	1,760
Other <sup>2</sup>	1,080	772	191	932
Total	18,700	11,500	18,500	11,200

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes uses not specified, and uses not listed.

TABLE 13  
U.S. EXPORTS OF DIMENSION STONE, BY TYPE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Type	2002		2003		Major destination in 2003, percentage <sup>2</sup>
	Quantity	Value	Quantity	Value	
Marble, travertine, alabaster worked <sup>3</sup>	32	4,180	32	3,420	Canada, 51%.
Marble, travertine, crude or roughly trimmed	2	677	3	1,340	Canada, 52%.
Marble, travertine, merely cut, by sawing or otherwise <sup>4</sup>	7	843	6	935	Mexico, 11%.
Granite, crude or roughly trimmed	128	39,600	138	39,700	China, 45%.
Granite, merely cut by sawing or otherwise <sup>4</sup>	12	4,210	6	3,580	Australia, 19%.
Sandstone, crude or roughly trimmed	9	994	6	798	Canada, 75%.
Sandstone, merely cut, by sawing or otherwise <sup>4</sup>	5	1,150	5	1,560	Canada, 89%.
Slate, worked and articles of slate	NA	6,330	NA	5,210	The Bahamas, 33%.
Slate, whether or not roughly trimmed or merely cut <sup>4</sup>	NA	621	NA	508	Canada, 52%.
Other calcareous monumental or building stone; alabaster <sup>5</sup>	13	2,950	15	3,420	Canada, 90%.
Other monumental or building stone <sup>6</sup>	10	2,870	13	3,050	Canada, 77%.
Total	XX	64,400	XX	63,500	

NA Not available. XX Not applicable.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>By value.

<sup>3</sup>Further worked than simply cut with a flat surface.

<sup>4</sup>Blocks or slabs.

<sup>5</sup>Crude, roughly trimmed, or merely cut into blocks or slabs. Other than marble and travertine (includes alabaster).

<sup>6</sup>Crude, roughly trimmed, or merely cut into blocks or slabs. Other than calcareous stone and alabaster, granite, sandstone, slate, dolomite, quartzite, and steatite.

Source: U.S. Census Bureau.

TABLE 14  
U.S. IMPORTS FOR CONSUMPTION OF DIMENSION GRANITE, BY COUNTRY<sup>1</sup>

(Thousand dollars)

Country	Dressed									Total worked	Total dressed
	Worked granite								Other		
	Rough granite <sup>3</sup>	Simply cut <sup>4</sup>	Not cut to size <sup>5</sup>	Cut to size <sup>2</sup>							
				Maximum 1.5 centimeters	1.5-7.5 centimeters	Monumental minimum 7.5 centimeters	Building minimum 7.5 centimeters				
2002:											
Argentina	11	44	153	--	1,020	--	37	222		1,430	1,470
Brazil	3,410	12,200	24,300	4,090	61,500	49	2,250	22,200		114,000	127,000
Canada	4,350	1,310	388	2,840	13,700	7,970	11,800	7,590		44,200	45,500
China	1,130	4,170	2,340	8,710	15,600	2,690	5,830	11,400		46,500	50,700
Finland	4	9	--	10	330	--	--	161		501	510
India	2,530	6,320	6,150	8,980	32,500	6,050	3,210	13,800		70,700	77,100
Italy	3,840	16,300	33,800	10,300	96,300	151	5,540	34,300		180,000	197,000
Japan	3	--	--	--	--	6	3	5		14	14
Mexico	315	410	17	--	1,090	--	51	166		1,320	1,730
Norway	31	--	--	27	610	20	--	25		682	682
Portugal	84	61	24	53	73	--	26	147		323	384
Saudi Arabia	42	188	83	12	1,110	--	3	69		1,280	1,460
South Africa	2,490	247	14	40	1,500	11	24	223		1,820	2,060
Spain	1,180	982	3,760	674	11,800	--	312	3,580		20,100	21,100
Other	1,610	999	9,880	597	8,020	77	623	3,230		22,400	23,400
Total	21,000	43,200	80,900	36,400	245,000	17,000	29,700	97,200		506,000	549,000

See footnotes at end of table.

TABLE 14--Continued  
U.S. IMPORTS FOR CONSUMPTION OF DIMENSION GRANITE, BY COUNTRY<sup>1</sup>

(Thousand dollars)

Country	Dressed									Total worked	Total dressed
	Worked granite								Other		
	Rough granite <sup>3</sup>	Simply cut <sup>4</sup>	Not cut to size <sup>5</sup>	Cut to size <sup>2</sup>							
				Maximum 1.5 centimeters	1.5-7.5 centimeters	Monumental minimum 7.5 centimeters	Building minimum 7.5 centimeters				
2003:											
Argentina	37	201	217	29	1,220	--	54	352		1,870	2,070
Brazil	6,600	16,700	35,900	4,960	89,700	58	2,740	25,700		159,000	176,000
Canada	4,230	1,050	182	1,950	12,500	7,790	13,400	9,820		45,600	46,600
China	3,470	6,000	3,420	13,600	23,200	3,340	7,080	19,300		69,900	75,900
Finland	10	--	13	15	143	--	--	117		288	288
India	3,890	7,660	11,200	10,000	45,100	5,920	4,250	19,400		95,900	104,000
Italy	4,800	17,500	41,400	10,700	115,000	209	8,840	39,200		215,000	233,000
Japan	--	--	--	--	22	11	--	--		33	33
Mexico	193	930	60	20	808	--	128	400		1,420	2,350
Norway	77	11	12	16	320	--	8	16		372	383
Portugal	144	35	10	133	119	--	6	109		377	412
Saudi Arabia	70	72	80	66	1,200	--	49	73		1,470	1,540
South Africa	2,450	311	129	9	2,580	--	38	119		2,880	3,190
Spain	720	2,240	3,370	637	11,600	--	1,420	3,600		20,600	22,900
Other	1,100	1,170	14,300	652	10,100	101	1,060	8,640		34,800	36,000
Total	27,800	53,900	110,000	42,800	313,000	17,400	39,000	127,000		650,000	703,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>One or more faces worked more than simply cut.

<sup>3</sup>Normal quarry products. Includes crude or roughly trimmed and roughly cut by sawing or otherwise. Harmonized Tariff Schedule of the United States (HTS) codes 2516.11.0000, 2516.12.0030, and 2516.12.0060.

<sup>4</sup>Simply cut with a flat even surface. HTS code 6802.23.0000.

<sup>5</sup>Only one face worked more than simply cut. HTS code 6802.93.0010.

Source: U.S. Census Bureau.

TABLE 15  
U.S. IMPORTS FOR CONSUMPTION OF MAJOR CATEGORIES OF DIMENSION MARBLE AND OTHER CALCAREOUS STONE, BY COUNTRY<sup>1</sup>

Country	Dressed							
	Marble, slabs <sup>2</sup>		Marble, other <sup>3</sup>		Other calcareous stone <sup>4</sup>		Rough marble <sup>5</sup>	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2002:								
Brazil	3,850	\$1,840	226	\$193	1,610	\$795	141	\$225
China	10,100	5,350	21,900	15,500	22,000	11,300	523	528
France	323	535	356	931	48,200	16,300	215	237
Greece	7,060	6,590	6,470	7,320	2,430	2,460	--	--
India	1,770	1,300	2,040	3,030	2,300	1,540	370	278
Israel	901	733	3,670	3,090	15,300	14,300	427	386
Italy	47,700	47,900	69,400	71,500	79,500	61,300	5,770	3,750
Mexico	1,330	1,060	14,000	15,300	16,600	11,300	271	197
Portugal	1,830	1,240	1,410	1,140	10,600	7,440	148	221
Spain	11,200	7,590	31,100	22,700	79,800	46,600	1,340	879
Taiwan	774	718	2,290	3,770	722	681	104	107
Turkey	6,320	4,320	14,200	9,560	7,230	5,670	3,810	1,900
Other	3,460	3,690	13,700	12,800	51,200	27,900	1,240	1,080
Total	96,700	82,900	181,000	167,000	337,000	208,000	14,400	9,790

See footnotes at end of table.

TABLE 15--Continued

U.S. IMPORTS FOR CONSUMPTION OF MAJOR CATEGORIES OF DIMENSION MARBLE AND OTHER CALCAREOUS STONE, BY COUNTRY<sup>1</sup>

Country	Dressed							
	Marble, slabs <sup>2</sup>		Marble, other <sup>3</sup>		Other calcareous stone <sup>4</sup>		Rough marble <sup>5</sup>	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2003:								
Brazil	3,020	2,650	193	135	1,320	1,100	57	44
China	10,200	4,950	28,100	18,700	26,000	17,700	627	433
France	326	375	470	905	14,200	18,200	12	31
Greece	5,480	5,840	10,100	7,140	8,600	2,130	2	3
India	1,630	1,470	4,040	5,210	18,200	3,930	263	155
Israel	1,600	1,370	4,450	4,360	37,500	12,400	173	136
Italy	50,000	57,600	62,500	70,500	133,000	53,300	1,440	1,900
Mexico	3,410	2,700	13,500	14,400	10,100	12,300	563	101
Portugal	1,890	1,090	2,170	1,900	10,400	7,230	83	63
Spain	12,500	9,830	32,900	25,500	75,100	53,700	815	644
Taiwan	366	373	2,240	3,430	592	431	84	83
Turkey	5,600	4,710	37,600	26,300	9,730	6,180	1,020	383
Other	5,820	4,290	14,300	13,900	43,700	27,100	1,320	888
Total	102,000	97,200	213,000	192,000	388,000	216,000	6,450	4,860

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.<sup>2</sup>Worked more than simply cut with a flat surface. Harmonized Tariff Schedule of the United States (HTS) code 6802.91.0500.<sup>3</sup>Merely cut by sawing or otherwise.<sup>4</sup>Worked more than simply cut with a flat surface. Other than marble and travertine. HTS code 6802.92.0000.<sup>5</sup>Simply cut by sawing or otherwise into rectangular blocks or slabs. HTS code 2515.12.1000.

Source: U.S. Census Bureau as modified by the U.S. Geological Survey.

TABLE 16  
U.S. IMPORTS FOR CONSUMPTION OF DIMENSION STONE, BY TYPE<sup>1</sup>

Type	Quantity	2002		2003		Major source for 2003, percentage <sup>2</sup>
		Quantity (metric tons)	Value (thousands)	Quantity	Value (thousands)	
Calcareous stone, other <sup>3</sup>	metric tons	16,100	\$8,460	28,300	\$7,320	Italy, 25%.
Marble and alabaster <sup>4</sup>	do.	15,300	10,100	18,700	11,000	Italy, 46%.
Sandstone, cut, by sawing or otherwise <sup>5</sup>	do.	1,030	567	1,250	869	Germany, 26%.
Slate, roofing	million square feet	11	6,690	11	6,610	China, 38%.
Slate, roughly trimmed or simply cut <sup>5</sup>	do.	11,700	5,550	15,400	6,260	China, 38%.
Slate, worked and articles of slate, and other <sup>6</sup>	do.	NA	68,400	NA	71,900	India, 42%.
Travertine, monumental or building stone and articles thereof <sup>7</sup>	do.	40,900	21,800	35,600	19,100	Turkey, 35%.
Travertine, worked monumental or building stone <sup>8</sup>	do.	76,600	41,600	97,100	45,300	Turkey, 43%.
Other stone, monumental or building stone <sup>9</sup>	do.	8,760	5,270	10,700	5,670	Mexico, 24%.

NA Not available.

<sup>1</sup>Data are rounded to no more than three significant digits. Does not include totals shown on tables 14 and 15.<sup>2</sup>By value.<sup>3</sup>Other than marble, travertine, and alabaster. Simply cut with a flat surface.<sup>4</sup>Simply cut with a flat surface.<sup>5</sup>Rectangular blocks or slabs.<sup>6</sup>Other than roofing, including agglomerated slate.<sup>7</sup>Simply cut with a flat surface. Other than tiles and granules.<sup>8</sup>Dressed or polished but not further worked.<sup>9</sup>Simply cut with a flat surface. Other than granite, calcareous stone, alabaster, slate, dolomite, quartzite, and steatite.

Source: U.S. Census Bureau.