

STONE, DIMENSION

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Dimension stone can be defined as 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 are also normal requirements. Durability (essentially based on mineral composition and hardness and past performance), strength, and the ability of the stone to take a polish are other important selection criteria.

Although a variety of 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), soapstone (massive talc), and various products fashioned from natural stone.

U.S. production of dimension stone in 1999 was estimated to be 1.25 million metric tons (Mt) valued at \$255 million—a 13% increase in value compared with that of 1998. Additionally, U.S. production of dimension stone in 1999 was the largest amount reported since 1993. Exports decreased by 8.6% in value, to \$54.5 million, and imports for consumption increased by 16% in value, to \$808 million. Apparent consumption was estimated to be \$1.01 billion.

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

Dimension stone production data for the United States are derived by the U.S. Geological Survey (USGS) from a voluntary survey of U.S. quarry producers of rough and dressed dimension stone. Data in this report cover rough crude quarried, 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 items 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, 1999, p. 96-126). 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. Of the 230 producing operations included in the survey for 1999, 99 or 43%, responded, which represents 64% of the tonnage; the remainder was estimated (table 1).

Description and Terminology

There is overlap between scientific and commercial descriptions of various dimension stone types. The scientific description of dimension stone types is focused primarily on the stone’s 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 effectively market their stone products. The descriptions that follow were adapted from Barton (1968, p. 2-8) and Currier (1960, p. 1-10).

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

Limestone.—Commercial limestones are rocks of sedimentary origin primarily composed of calcium carbonate or calcium and magnesium. Included in this category are calcitic limestone, dolomite, dolomitic limestone, and travertine (a rock that forms from evaporation of surface waters rich in calcium carbonate or chemically precipitated from hot springs).

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

Sandstone.—Commercial sandstone is a lithified sand composed chiefly of quartz or quartz and feldspar of fragmental (clastic) texture. Sandstone contains interstitial cementing materials such as calcite, clay, iron oxides, or silica. Arkose (abundant feldspar grains), conglomerates, and graywacke (abundant rock fragments) are included in this category. Other members of this category include bluestone (a dense, hard, fine-grained feldspathic sandstone, which splits easily along planes into thin, smooth slabs), brownstone (feldspathic sandstone of brown to reddish-brown color, owing to abundant iron oxide), and flagstone (a sandstone or slate that splits into large, thin slabs).

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

Greenstone.—Commercial greenstones are the result of the metamorphism 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 term “trappa,” meaning stairway—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 dimension stone types that do not easily fall into the aforementioned categories, such as soapstone, talc, or steatite (rocks containing various amounts of talc). Additional miscellaneous dimension stones include diatomite, mylonites, 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, frequently located at the quarry site, at least for preliminary sizing. Further dressing, including final sizing and finishing operations, such as polishing, edging, and decorating, also may be done at the quarry site.

In 1999, limestone accounted for 446,000 metric tons (t), or 36%, of the total domestic dimension stone production of 1.25 Mt, followed by granite (35%), sandstone (16%), marble (3%), slate (2%), and miscellaneous stone (8%). Granite accounted for \$115 million, or 45%, of total domestic production value of \$255 million, followed by limestone (29%), sandstone (10%), slate (6%), marble (4%), and miscellaneous (6%).

Production was reported in 34 States and Puerto Rico. Leading producer States, in descending order by tonnage, were Indiana, Vermont, Wisconsin, Georgia, and Texas. These States accounted for 48% of the domestic production. The leading producer States, in descending order by value, were Indiana, Vermont, Texas, Minnesota, and South Dakota. These States contributed 49% of the value of domestic production (table 3).

The top five producing companies, listed alphabetically, were Cold Spring Granite Co., in California, Minnesota, New York, Oklahoma, South Dakota, and Texas; Fletcher Granite Co., Inc., in Massachusetts and New Hampshire; Indiana Limestone Co., Inc., in Indiana; Oolitic Victor Stone Co., in Indiana; and Rock of Ages Corp., in New Hampshire and Vermont. These companies produced about 28% of domestic production in tonnage and about 30% of production value. The leading 14 companies accounted for more than one-half the domestic tonnage and value.

Granite.—Dimension granite was produced by 41 companies operating 75 quarries in 19 States. Production was 437,000 t valued at \$115 million. Granite production tonnage increased 4% and value increased 5% compared with that of 1998. The top five producing States, in descending order by tonnage, were Georgia, Massachusetts, North Carolina, California, and South Carolina. Massachusetts accounted for 16% of the tonnage of U.S. granite production. Massachusetts and North Carolina combined accounted for 30% of the value of the U.S. granite production (table 4).

The leading producers were Cold Spring Granite, Fletcher Granite, and Rock of Ages, accounting for about one-half of U.S. production in tonnage and value.

Limestone.—Dimension limestone was produced by 27 companies from 33 quarries in 9 States. Production increased by 20%, to 446,000 t in 1999 from 373,000 t in 1998, and the value increased by 23%, to \$74.9 million in 1999 from \$61.1 million in 1998. The top five producing States, in descending order by tonnage, were Indiana, Wisconsin, Texas, Minnesota, and Kansas. Indiana produced 57% of the U.S. tonnage and 45% of the value (table 5).

The leading producers were Buechel Stone Corp., B.G. Hoadley Quarries, Inc., Indiana Limestone, Justin Industries, Inc., and Oolitic Victor Stone. These firms accounted for more than 50% of the total U.S. tonnage and value.

Marble.—Marble was mined by 7 companies operating 11 quarries in 5 States. Production declined to 40,300 t valued at \$9.5 million in 1999 from 40,500 t valued at \$10.4 million in 1998 (table 10). Vermont was the leading producing State, followed by Tennessee, Georgia, Colorado, and Arkansas. 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.

Sandstone.—Dimension sandstone was produced by 26 companies operating 35 quarries in 16 States. Production increased to 197,000 t in 1999 from 185,000 t in 1998. The value increased by 19%, to \$25.9 million in 1999 from \$21.8 million in 1998. The top five producing States, in descending order by tonnage, were New York, Arizona, Ohio, Pennsylvania, and California. New York was the leading producing State with 23% of the tonnage and 28% of the value (table 6).

The leading producers were American Sandstone, Finger Lakes Stone Co., Inc., Jude Stone Quarry Co., Ulti-Solutions, Inc., and Waller Brothers Stone Co. These companies accounted for about 58% of the tonnage and 46% of the value of domestic production.

Slate.—Slate was produced by 13 companies operating 21 quarries in 5 States. Production decreased by 4%, to 28,600 t in 1999 from 30,000 t in 1998. The value increased by 5%, to \$14 million in 1999 from \$13.3 million in 1998 (table 12). The producing States, in descending order by tonnage, were Vermont, Pennsylvania, New York, North Carolina, and California. The leading producers were Dally Slate Co., Alfred McAlpine Plc, Ritchie Bros. Slate Co., Quarry Slate Industries, Inc., and U.S. Quarried Slate Products, Inc. Additional data have been withheld to avoid disclosing company proprietary information.

Consumption

Rough stone represented 57% of the tonnage and 40% of the value of all dimension stone sold or used by domestic producers, including exports. The largest uses of rough stone were in construction (49%) and monumental (19%) applications, by tonnage. Dressed stone represented 44%, by tonnage, and 60%, by value of the total stone sold or used. The largest uses of dressed stone were in flagging (25%), ashlar and partially squared pieces (19%), and curbing (10%), by tonnage (table 7).

Uses for the different varieties of dimension stone varied considerably. The major uses of granite sold or used in 1999 were in monumental rough stone (29%), rough blocks for construction (21%), curbing (12%), monumental dressed stone (8%), and ashlar and partially squared pieces (6%), by tonnage (table 8). Primary uses of limestone were in rough blocks for building and construction (47%) and irregular-shaped stone (13%), by tonnage (table 9). Primary uses of marble were rough blocks for building and construction (29%), tile (16%), and monumental dressed stone (12%), by tonnage (table 10). Primary uses of sandstone were in dressed stone for flagging (57%) and rough blocks for building and construction (15%), by tonnage (table 11). Dimension slate sold or used by producers in the United States in 1999 was principally for flooring (37%), roofing (36%), and flagging (7%), by tonnage (table 12).

Apparent consumption is defined as production plus imports for consumption minus exports. Overall, the apparent consumption of dimension stone in the United States was estimated to be \$1.01 billion in 1999, an increase of 16% compared with that of 1998. 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 1999 value for dimension stone was \$204 per metric ton—an increase of 3.6% from that of 1998, based on the USGS survey. The average unit values for different types of dimension stone were granite, \$263 per ton; limestone, \$168 per ton; sandstone, \$132 per ton; marble, \$237 per ton; and slate, \$490 per ton. Price data that are available show considerable variation. Prices are substantially different, not only for the kind of stone, but also for appearance of the same kind of stone. Color, grain structure, and finish contribute significantly to price and marketability.

Foreign Trade

Exports.—In 1999, total exports of dimension stone types decreased in value by about 9%, to about \$55 million, compared with those of 1998; granite accounted for 59% of the export value. The largest share of granite was exported to Italy (table 13).

Imports.—The value of imports for consumption of dimension stone types increased in 1999 by about 16%, to \$808

million. Italy continued to be the major single source of granite, accounting for 45% of granite imports. Brazil, Canada, and India each accounted for about 14% of granite imports (table 14). Italy also was a major source of rough and dressed marble, slate, and travertine imports (tables 15-16). Duties on imported dimension stone are given in table 2.

World Review

World dimension stone production, excluding the United States, was estimated to be approximately 60 Mt in 1998 and preliminary numbers indicate that this total is unchanged for 1999. Although some small-scale production probably occurs in the majority of the world's nations, dimension stone was produced and officially reported in about 34 countries. The top five producing countries in 1998 were, in descending order by tonnage, China (13.0 Mt), Italy (9.89 Mt), India (8.57), Iran (6.50 Mt), and Spain (5.56 Mt)—these countries accounted for about 73% of the world production. The United States was ranked 11th in world production of dimension stone in 1998 (Internazionale Marmi e Macchine Carrara S.p.A., International Quarry Production, accessed August 15, 2000, at URL <http://www.immcarrara.com/stats/english-version/index-stone-sector.html>).

Outlook

Demand is expected to grow for dimension stone during the next 5 or more years because of improved technology and variety and the increased costs of alternative construction materials. Additionally, for residential and office building construction, growth in use of dimension stone is expected in new prestige markets as well as in renovations to attract and keep tenants.

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GENERAL SOURCES OF INFORMATION

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TABLE 1
SALIENT U.S. DIMENSION STONE STATISTICS 1/

(Thousand metric tons and thousand dollars)

	1995	1996	1997	1998	1999
Sold or used by producers: 2/					
Quantity	1,160	1,150	1,180	1,140 r/	1,250
Value	\$233,000	\$234,000	\$225,000	\$225,000 r/	\$255,000
Exports (value)	\$51,800	\$49,500	\$54,800	\$59,600	\$54,500
Imports for consumption (value)	\$478,000	\$462,000	\$548,000	\$698,000	\$808,000

r/ Revised.

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

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

TABLE 2
U.S. IMPORT DUTIES ON DIMENSION STONE

Tariff item	HTS. No.	Normal Trade Relation (NTR)	
		January 1, 1999	Non-NTR January 1, 1999
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 square, 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:			
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:			
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:			
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 1/

State	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Alabama	W	W	7,210	\$2,380
California	28,500	\$4,710	29,400	4,930
Colorado	14,200	3,410	14,700	3,430
Georgia	82,800 r/	12,100 r/	83,400	12,200
Idaho	22,700 r/	4,710	39,300	5,510
Indiana	222,000 r/	28,300 r/	255,000	33,500
Kansas	15,800	1,240	16,100	1,640
Maryland	23,100	2,730	26,000	3,160
Massachusetts	85,800	17,600	70,400	16,900
Minnesota	49,800 r/	19,200 r/	42,700	20,700
Montana	W	W	9,500	1,440
New Mexico	W	W	17,900	2,320
New York	52,900	8,870	49,300	8,940
North Carolina	50,600 r/	17,300 r/	54,700	17,700
Ohio	24,100	2,360	25,600	2,390
Oklahoma	3,480	635	3,480	635
Pennsylvania	45,200	9,480	50,800	12,600
South Carolina	12,900	1,150	9,230	855
Texas	40,900	16,700	82,500	24,200
Vermont	99,800 r/	26,300 r/	98,600	25,600
Virginia	5,430	600	5,640	624
Wisconsin	77,100	10,800	85,500	13,400
Other 2/	179,000 r/	36,700 r/	177,000	40,300
Total	1,140,000 r/	225,000 r/	1,250,000	255,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

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

2/ Includes Arizona, Arkansas, Connecticut, Maine, Michigan, Missouri, New Hampshire, South Dakota, Tennessee, Utah, Washington, West Virginia, Puerto Rico and other U.S. possessions and territories, and States indicated by symbol W.

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

State	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
California	9,620	\$1,720	9,420	\$1,830
Georgia	75,500 r/	10,100 r/	76,100	10,200
Massachusetts	85,800	17,600	70,400	16,900
North Carolina	W	W	53,100	16,900
South Carolina	12,900	1,150	9,230	855
Wisconsin	W	W	2,860	2,480
Other 2/	237,000 r/	79,200 r/	216,000	66,100
Total	420,000 r/	110,000	437,000	115,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

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

2/ Includes Idaho, Maine, Minnesota, Missouri, Montana, New Hampshire, New Mexico, New York, Oklahoma, Pennsylvania, South Dakota, Texas, Vermont, Virginia, Puerto Rico and other U.S. possessions and territories, and States indicated by symbol W.

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

State	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Indiana	219,000 r/	28,300 r/	252,000	\$33,500
Kansas	14,800	1,150	15,200	1,510
Wisconsin	66,100	8,120	72,600	10,000
Other 2/	73,400 r/	23,500 r/	106,000	29,900
Total	373,000	61,100	446,000	74,900

r/ Revised.

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

2/ Includes Alabama, Arkansas, California, Minnesota, Ohio, Texas, Vermont, and Puerto Rico and other U.S. possessions and territories.

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

State	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
New York	47,600	\$6,980	44,900	\$7,370
Pennsylvania	18,200	2,590	17,100	2,490
Other 2/	119,000	12,200 r/	135,000	16,000
Total	185,000	21,800	197,000	25,900

r/ Revised.

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

2/ Includes Alabama, Arizona, Arkansas, California, Colorado, Idaho, Kansas, Michigan, North Carolina, Ohio, Oklahoma, West Virginia, and Wisconsin.

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

Use	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Rough stone:				
Rough blocks for building and construction	317,000	\$43,700	345,000	\$47,000
Irregular-shaped stone	93,000	9,540	143,000	13,100
Monumental	123,000	21,000	133,000	25,000
Other 3/	84,100	17,500	87,200	17,900
Dressed stone:				
Ashlars and partially squared pieces	100,000 r/	23,000 r/	103,000	22,600
Slabs and blocks for building and construction	42,400	7,750	52,300	11,000
Monumental	37,800	19,500	39,000	20,500
Curbing	115,000	25,700	52,900	22,900
Flagging	133,000	12,100	134,000	14,700
Flagging (slate)	5,510	473	2,110	434
Roofing slate	9,440	6,640	10,300	6,900
Structural and sanitary	1,420	2,470	2,050	2,810
Flooring slate	10,100	2,150 r/	10,600	2,140
Other 4/	63,500 r/	33,400 r/	139,000	48,400
Total	1,140,000 r/	225,000 r/	1,250,000	255,000

r/ Revised.

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

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

3/ Includes flagging (1999), exports, uses not specified, and uses not listed.

4/ 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 1/

Use	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Rough stone:				
Rough blocks for building and construction	57,800	\$13,400	90,800	\$18,000
Irregular-shaped stone	1,120	962	4,540	173
Monumental	117,000	19,400	126,000	23,400
Other 2/	55,400	12,400	53,700	11,400
Dressed stone:				
Ashlars and partially squared pieces	31,200 r/	12,100	25,700	10,200
Slabs and blocks for building and construction	W	W	1,290	225
Monumental	32,800	18,100	33,400	18,700
Curbing	115,000	25,700	52,600	22,900
Other 3/	9,670 r/	8,560 r/	48,700	10,400
Total	420,000 r/	110,000	437,000	115,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Dressed stone: Other."

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

2/ Includes exports and uses not listed.

3/ 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 1/

Use	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Rough stone:				
Rough blocks for building and construction	215,000	25,400	208,000	24,100
Irregular-shaped stone	27,500	2,330	60,100	4,110
Other 2/	25,700	4,860	30,800	5,590
Dressed stone:				
Ashlars and partially squared pieces	45,700	7,440	50,600	8,320
Slabs and blocks for building and construction	35,000	4,740	44,000	4,590
Flagging	9,160	1,140	5,920	483
Other 3/	15,300	15,200	46,200	27,800
Total	373,000	61,100	446,000	74,900

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

2/ Includes exports and uses not listed.

3/ Includes monumental stone (1999), panels and veneer, tile (1999), uses not specified, and uses not listed.

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

Use	1998		1999	
	Quantity (metric tons)	Quantity (metric tons)	Quantity (metric tons)	Value (thousands)
Rough stone:				
Rough blocks for building and construction	11,400	2,350	11,500	2,400
Other 3/	7,260	1,820	7,430	1,870
Dressed stone:				
Slabs and blocks for building and construction	4,620	2,170	4,080	1,180
Monumental	4,950	1,400	4,950	1,400
Flagging	444	29	444	29
Tile	W	W	6,380	1,650
Other 4/	11,900	2,670	5,520	1,010
Total	40,500	10,400	40,300	9,540

W Withheld to avoid disclosing company proprietary data; included with "Dressed stone: Other."

1/ Includes Puerto Rico.

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

3/ Includes monumental, uses not specified, and uses not listed.

4/ Includes panels and veneer, ashlars and partially squared pieces, and uses not listed.

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

Use	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Rough stone:				
Rough blocks for building and construction	27,100	\$2,220	28,900	\$2,160
Irregular-shaped stone	11,900	1,610	9,020	1,180
Dressed stone:				
Ashlars and partially squared pieces	9,080	1,000	11,700	1,630
Slabs and blocks for building and construction	2,270	626	2,880	761
Flagging	108,000	9,770	112,000	12,900
Other 2/	26,500	6,530	32,400	7,230
Total	185,000	21,800	197,000	25,900

1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Includes panels and veneer, tile, curbing, exports, uses not specified, and uses not listed.

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

Use	1998		1999	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Flagging	5,510	\$473	2,110	\$434
Roofing	9,440	6,640	10,300	6,900
Structural and sanitary purposes	1,420	2,470	2,050	2,810
Flooring	10,100	2,150	10,600	2,140
Other 2/	3,530	1,610	3,560	1,700
Total	30,000	13,300	28,600	14,000

1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Includes blackboards, uses not specified, and uses not listed.

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

(Thousand metric tons and thousand dollars)

Type	1998		1999		Major destination in 1999, (percentage) 2/
	Quantity	Value	Quantity	Value	
Marble, travertine, alabaster worked 3/	40	3,670	33	4,770	Canada, 35%.
Marble, travertine--crude or roughly trimmed	1	1240	1	725	Canada, 46%.
Marble, travertine--merely cut, by sawing or otherwise 4/	7	1,770	4	2,030	Italy, 28%.
Granite, crude or roughly trimmed	121	26,700	150	25,900	Italy, 38%.
Granite, merely cut by sawing or otherwise 4/	24	10,300	16	6,430	Singapore, 25%.
Sandstone, crude or roughly trimmed	3	376	5	570	Canada, 83%.
Sandstone, merely cut, by sawing or otherwise 4/	6	1,180	6	1,250	Canada, 87%.
Slate, worked and articles of slate	NA	9,820	NA	8,760	Belize, 51%.
Slate, whether or not roughly trimmed or merely cut 4/	NA	739	NA	504	Canada, 66%.
Other calcareous monumental or building stone; alabaster 5/	14	2,130	8	2,170	Canada, 43%.
Other monumental or building stone 6/	8	1,700	8	1,430	Canada, 71%.
Total	XX	59,600	XX	54,500	

NA Not available. XX Not applicable.

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

2/ By value.

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

4/ Blocks or slabs.

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

6/ 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 1/

(Thousand dollars)

Country	Dressed									Total worked	Total dressed
	Worked granite										
	Rough granite 3/	Simply cut 4/	Not cut to size 5/	Cut to size 2/					Other		
				Max. 1.5 centimeters	1.5-7.5 centimeters	Monumental min. 7.5 centimeters	Building min. 7.5 centimeters				
1998:											
Argentina	149	69	76	11	228	19	44	61	439	508	
Brazil	490	2,240	4,850	1,600	17,200	576	1,890	10,700	36,800	39,000	
Canada	4,260	1,220	289	2,810	9,880	6,030	8,040	4,570	31,600	32,800	
China	461	870	509	1,990	2,250	738	1,870	5,180	12,500	13,400	
Finland	25	--	--	1	--	--	--	13	14	14	
India	2,760	4,890	1,390	4,980	12,100	3,730	1,870	5,940	30,000	34,900	
Italy	1,480	9,860	21,600	6,520	46,400	348	12,400	25,800	113,000	123,000	
Japan	20	6	9	23	15	--	--	41	88	94	
Mexico	38	178	3	34	1,830	--	814	15	2,690	2,870	
Norway	3	--	--	--	2	4	--	158	164	164	
Portugal	1	33	--	18	112	--	37	44	211	244	
Saudi Arabia	77	88	207	6	614	--	20	18	865	953	
South Africa	415	--	--	--	45	--	12	126	183	183	
Spain	128	516	1,810	398	7,370	18	591	1,440	11,600	12,100	
Other	688	437	268	112	1,040	76	381	1,200	3,070	3,510	
Total	11,000	20,400	31,000	18,500	99,000	11,500	28,000	55,300	243,000	264,000	
1999:											
Argentina	2	16	303	--	822	--	71	153	1,350	1,370	
Brazil	1,610	3,480	7,190	1,850	24,400	185	1,970	8,690	44,300	47,800	
Canada	3,940	1,720	153	2,170	13,600	5,470	10,700	5,120	37,200	38,900	
China	728	2,090	1,030	2,580	4,700	1,200	2,340	7,100	19,000	21,000	
Finland	14	--	--	--	--	--	--	111	111	111	
India	2,720	3,220	1,890	6,790	12,800	4,330	2,320	5,220	33,300	36,500	
Italy	3,800	11,800	26,900	8,440	56,400	575	12,700	26,300	131,000	143,000	
Japan	--	16	--	--	2	--	--	--	2	18	
Mexico	23	254	49	21	2,210	--	823	11	3,120	3,370	
Norway	13	--	--	36	178	20	--	--	234	234	
Portugal	32	141	--	--	125	--	5	101	231	372	
Saudi Arabia	217	55	115	28	603	--	36	161	943	998	
South Africa	1,860	224	--	24	364	--	25	185	598	822	
Spain	214	842	1,770	859	7,260	3	1,750	2,310	13,900	14,800	
Other	893	679	1,170	344	2,750	55	1,030	1,110	6,460	7,140	
Total	16,100	24,500	40,600	23,100	126,000	11,800	33,800	56,600	292,000	317,000	

-- Zero.

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

2/ One or more faces worked more than simply cut.

3/ Normal quarry products. Includes crude or roughly trimmed and roughly cut by sawing or otherwise. HTS No. 2516.11.0000, 2516.12.0030, and 2516.12.0060.

4/ Simply cut with a flat even surface. HTS No. 6802.23.0000.

5/ Only one face worked more than simply cut. HTS No. 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 1/

Country	Dressed marble slabs 2/		Dressed marble--other 3/		Dressed other calcareous stone 4/		Rough marble 5/	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
1998:								
China	2,030	\$1,340	4,110	\$4,710	3,360	\$2,740	89	\$58
France	43	36	604	1,120	35,400	17,500	51	95
Greece	5,430	5,810	4,430	5,150	4,970	6,160	1	3
India	683	571	976	1,250	510	593	3	9
Italy	40,200	39,600	57,000	55,600	64,800	55,700	3,820	2,180
Mexico	875	830	6,790	6,700	9,920	9,140	226	204
Portugal	1,300	1,100	2,290	2,100	10,900	7,620	104	18
Spain	7,130	5,770	20,500	17,800	48,500	36,300	257	215
Taiwan	1,050	1,240	4,140	6,970	1,260	925	17	99
Turkey	4,400	3,640	3,200	2,680	4,460	3,330	60	91
Other r/	6,600	3,850	7,470	7,430	52,400	17,000	588	576
Total	69,800	63,800	111,000	112,000	236,000	157,000	5,220	3,550
1999:								
China	4,830	2,910	6,120	6,340	7,740	5,000	75	98
France	104	182	161	175	20,100	18,400	3	7
Greece	4,820	4,960	5,050	5,820	24,300	3,600	214	163
India	805	728	1,120	1,260	2,010	770	63	59
Italy	43,200	37,600	57,300	58,700	80,400	55,100	2,490	2,560
Mexico	609	780	8,250	7,630	11,300	10,700	243	303
Portugal	940	733	1,930	1,570	14,000	7,800	138	91
Spain	8,720	5,770	22,700	19,700	65,900	38,100	740	1,050
Taiwan	1,050	1,180	4,620	8,450	1,420	645	45	57
Turkey	3,740	3,120	5,270	3,760	6,100	3,760	120	134
Other	5,970	5,530	8,950	10,200	57,100	24,300	8,190	1,250
Total	74,700	63,500	121,000	124,000	290,000	168,000	12,300	5,770

r/ Revised.

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

2/ Worked more than simply cut with a flat surface. HTS No. 6802.91.0500.

3/ Merely cut by sawing or otherwise.

4/ Worked more than simply cut with a flat surface. Other than marble and travertine. HTS No. 6802.92.0000.

5/ Simply cut by sawing or otherwise into rectangular blocks or slabs. HTS No. 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 1/

Type		1998		1999		Major source for 1999, (percentage) 2/
		Quantity metric tons	Value (thousands)	Quantity	Value (thousands)	
Calcareous stone--other 3/		11,100	\$5,900	32,100	\$5,120	Mexico, 36%.
Marble and alabaster 4/	do.	15,600	6,950	16,600	11,000	Italy, 34%.
Sandstone, cut, by sawing or otherwise 5/	do.	410	239	497	224	India, 45%.
Slate, roofing	million square feet	9	5,110	10	6,660	Canada, 35%.
Slate, roughly trimmed or simply cut 5/	do.	3,440	1,490	5,000	2,140	China, 34%.
Slate, worked and articles of slate, and other 6/	do.	NA	39,600	NA	50,600	India, 32%.
Travertine, monumental or building stone and articles thereof 7/	do.	19,900	11,000	28,700	15,100	Italy, 53%.
Travertine, worked monumental or building stone 8/	do.	43,800	25,200	59,100	34,900	Italy, 50%.
Other stone-monumental or building stone 9/	do.	5,400	2,680	10,800	4,310	Canada, 29%.

NA Not available.

1/ Data are rounded to no more than three significant digits. Does not include totals shown on tables 14 and 15.

2/ By value.

3/ Other than marble, travertine, and alabaster. Simply cut with a flat surface.

4/ Simply cut with a flat surface.

5/ Rectangular blocks or slabs.

6/ Other than roofing, including agglomerated slate.

7/ Simply cut with a flat surface. Other than tiles and granules.

8/ Dressed or polished but not further worked.

9/ Simply cut with a flat surface. Other than granite, calcareous stone, alabaster, slate, dolomite, quartzite, and steatite.

Source: U.S. Census Bureau.