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2017 Minerals Yearbook

STONE, DIMENSION [ADVANCE RELEASE]

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Stone, Dimension

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U.S. production of dimension stone in 2017 was estimated to be 2.81 million metric tons (Mt) valued at $446 million, which was a slight increase in tonnage and a slight increase in value compared with production in 2016. Exports increased by 6% in value to $69.7 million, and imports for consumption decreased in value by 3% to $2.11 billion. The value of apparent consumption was estimated to be $2.49 billion in 2017, 3% less than that of 2016 (table 1). World dimension granite and marble production was estimated to be 155 Mt in 2014, the most recent year for which data were available (Gussoni, 2016, p. 68). Trade data in this report are from the U.S. Census Bureau. All percentages in the report were calculated using unrounded data.

Dimension stone is natural rock material quarried for the purpose of obtaining blocks or slabs that meet specifications as to size (width, length, and thickness) and shape. Color, grain texture and pattern, and surface finish of the stone also are normal requirements from both customers and the stone industry. Durability (a time measure of the ability of dimension stone to endure and maintain its essential and distinctive characteristics), 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).

Throughout history, various civilizations have used dimension stone as a building material. With the advent of modern construction materials and techniques (such as reinforced concrete), the use of dimension stone for framework and structural support in buildings diminished. In recent years, most dimension stone has been used in construction applications and for renovation and restoration, with the largest portions being sold or used as ashlars (rectangular or square cut stone used for building purposes) and masonry and partially squared pieces, curbing, flagstone, and rough block for building and construction. The major nonconstruction application is monumental stone, which includes memorials of various kinds.

Architects, builders, and quarriers have important roles in the selection of specific dimension stone types for appropriate end uses. Furthermore, most dimension stone types are not isotropic (possessing physical properties that are uniform in all directions), particularly sedimentary rocks (Smith, 1999, p. 360). Extensive testing of the physical properties of a stone are important in order to select the stone for the most appropriate end use. For example, ashlars must possess color variability and sustainability along with weathering resistance, and solid stone masonry bridge piers must possess compressive strength and abrasion and weathering resistance (Smith, 1999, p. 361).

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 comprises 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 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.

Legislation and Government Programs

One of the most important issues affecting the dimension stone industry has been the potential effect of crystalline silica on human health. The understanding of the regulations, the implementation of the measurements and actions taken to mitigate exposure to crystalline silica, and the appreciation of the effect of such exposure on the future of many industries remain central to an ongoing debate. On March 25, 2016, the Occupational Safety and Health Administration (OSHA) issued a final ruling on permissible occupational exposure limits to respirable crystalline silica. By issuing the ruling, OSHA amended its existing standards for occupational exposure to respirable crystalline silica. The final rule established a new permissible exposure limit of 50 micrograms of respirable crystalline silica per cubic meter of air as an 8-hour time-weighted average in all industries covered by the rule. Phased implementation of the new regulations was scheduled to take effect from 2017 through 2021 (Occupational Safety and Health Administration, 2016, p. 16286, 16288). Subsequently, OSHA announced a delay in enforcement of the crystalline silica standard for the construction industry in order to conduct further outreach and education with employers in the construction industry. Enforcement in the construction industry began on September 23, 2017—delayed from June 23, 2017 (Occupational Safety and Health Administration, 2017).

Production

Dimension stone production data for the United States were 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 254 dimension-stone-producing operations included in the survey for 2017, 104 (41%) responded, which represented 50% of the tonnage; the remaining tonnage was estimated based on prior years' reporting and (or) employment data provided by the Mine Safety and Health Administration.

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. 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.

In any given year, commercial and residential construction accounts for a significant portion of the consumption of dimension stone of all types. In 2017, sales of new homes increased by about 8% compared with the previous year. Sales of existing homes increased slightly in 2017 compared with 2016, likely causing a slowing of residential and commercial renovation and refurbishment activity (National Association of Home Builders, 2018).

In 2017, limestone accounted for 1.36 Mt (48%) of the total domestic dimension stone production quantity of 2.81 Mt, followed by sandstone (23%), granite (18%), miscellaneous stone (7%), marble (2%), and slate (2%). By value, limestone accounted for about $205 million (46%) of the $446 million total domestic production value, followed by granite (25%), sandstone (12%), miscellaneous stone (8%), slate (5%), and marble (4%) (table 2).

Production of dimension stone was reported in 34 States. Leading producer States were, in descending order by tonnage, Texas, Indiana, Wisconsin, Georgia, and Vermont. These States accounted for about 70% of domestic production. Leading producer States were, in descending order by value, Texas, Indiana, Wisconsin, Vermont, and Massachusetts. These States contributed about 60% of the value of domestic production (table 3).

The top five producing companies were Gordon Stone Co. in Texas; Indiana Limestone Co. in Indiana; Mezger Enterprises, Inc. in Texas; Buechel Stone Corp. in Wisconsin; and Swenson Granite Works in New Hampshire and Vermont. These companies accounted for about 26% of domestic production tonnage and about 14% of production value. The leading 15 companies accounted for 44% of total domestically produced tonnage and 34% of production value.

Rough stone blocks split or cut from a quarry face are transported to processing plants that typically are 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 2017, the Natural Stone Institute (a joint venture between the Marble Institute of America and the Building Stone Institute) announced the creation of a natural stone testing laboratory in Oberlin, OH. The laboratory offered state-of-the-art testing and reporting functions for dimension stone industry members that

were introducing new stone, require project-specific testing, or need revised technical data (Natural Stone Institute, 2017).

Granite.—Dimension granite was produced by 34 companies operating 51 quarries in 16 States. Production was 504,000 metric tons (t) valued at $110 million. Granite production tonnage decreased by 15% and the value decreased by 16% compared with those of 2016. The top producing States were, in descending order by tonnage, Georgia and Vermont, and they accounted for 37% of the tonnage and 19% of the value of U.S. granite production (table 4). Champlain Stone Ltd., Coldspring Granite Co., North Carolina Granite Corp., Swenson Granite Works, and Williams Stone Co. Inc., which were the leading producers, accounted for 60% of U.S. granite production by tonnage and 63% of U.S. granite production by value.

Limestone.—Dimension limestone was produced by 82 companies from 91 quarries in 17 States. Production decreased by 9% in 2017 to 1.36 Mt from 1.49 Mt in 2016. The value increased by 12% to $205 million in 2017 from $184 million in 2016. The top five producing States were, in descending order by tonnage, Texas, Indiana, Wisconsin, Missouri, and Tennessee, which combined produced 91% of U.S. tonnage and 88% of the value (table 5). Buechel Stone; Independent Limestone Co., LLC; Indiana Limestone Co.; Mezger Enterprises; and Texas Stone Quarries, which were the leading producers, accounted for about 31% of all U.S. limestone tonnage and about 24% of the value.

Marble.—Marble was mined by five companies that operated five quarries in four States. Production tonnage decreased by 5% in 2017 to 56,100 t valued at $17.5 million from 59,100 t valued at $18.9 million in 2016 (table 10). Colorado was the leading producing State by tonnage, followed by Vermont, Tennessee, and Georgia. The leading producers were Colorado Stone Quarries, Inc. and Vermont Quarries Corp.

Sandstone.—Dimension sandstone was produced by 53 companies that operated 58 quarries in 14 States. Production tonnage increased by 18% to 650,000 t in 2017 from 550,000 t in 2016. The production value increased by 10% to $55.6 million in 2017 from $50.3 million in 2016 (table 6). The top five producing States were, in descending order by tonnage, Texas, Oklahoma, Ohio, New York, and Pennsylvania and accounted for 87% of U.S. tonnage and 82% of value. Cleveland Quarries, Drake Stone Products Inc., Gordon Stone Co., Harley Gray Stone Co., and Millsap Materials LLC, which were the leading producers, accounted for about 67% of the tonnage and 32% of the value of domestic production.

Slate.—Slate was produced by 14 companies that operated 14 quarries in six States. Production tonnage increased by 21% to 50,100 t in 2017 from 41,300 t in 2016. The value increased by 8% to $22.2 million in 2017 from $20.5 million in 2016 (table 12). The top producing States by tonnage were Vermont, Idaho, and Virginia. The leading producers were Newmont Slate Co., Quarry Slate Industries Inc., and Scrivanich Natural Stone.

Consumption

For the purposes of this report, apparent consumption is defined as production plus imports for consumption minus exports. Value data were used in the apparent consumption calculation because tonnage data were not available for all imports and exports. Overall, the value of apparent consumption of dimension stone in the United States was estimated to be $2.49 billion in 2017, 3% less than that of 2016 (table 1).

In 2017, rough stone represented about 58% of the tonnage and 45% of the value of all dimension stone sold or used by domestic producers, which included exports. The leading uses of rough stone, by tonnage, were in building and construction (51%) and irregular-shaped stone (38%). Dressed stone represented 42% by tonnage and 55% by value of the total stone sold or used. The leading uses within dressed stone, by tonnage, were in ashlars and partially squared pieces (43%), flagging (14%), and slabs and blocks for building and construction (11%) (table 7).

Uses for the different varieties of dimension stone varied considerably. The major uses of granite sold or used in 2017, by tonnage, were in curbing (26%), monumental rough stone (20%), rough blocks for building and construction (19%), and in irregular-shaped stone (12%) (table 8). Primary uses of limestone, by tonnage, were in rough blocks for building and construction (38%), ashlars and partially squared pieces (26%), and irregular-shaped stone (19%) (table 9). The primary use of marble, by tonnage, was in rough stone for building and construction (44%) (table 10). Primary uses of sandstone, by tonnage, were in irregular-shaped stone (43%), rough blocks for building and construction (18%), and flagging (16%) (table 11). Dimension slate sold or used by producers in the United States in 2017, by tonnage, was principally for roofing (53%) and flagging (41%) (table 12).

Prices

The average 2017 value as reported by domestic producers for dimension stone was $159 per metric ton, a slight decrease from that of 2016 based on the USGS canvass data. The average unit values for various types of dimension stone were granite, $217 per ton; limestone, $151 per ton; marble, $312 per ton; sandstone, $86 per ton; and slate, $443 per ton (table 2). Available price data show considerable variation. Prices are substantially different not only for the type of stone but also for the appearance of the same type of stone. Color, grain structure, and finish contribute significantly to price and marketability.

Foreign Trade

Exports.—In 2017, the value of total exports of dimension stone increased by 6% to $69.7 million compared with that of 2016; various types of marble accounted for 41% of the export value. The largest share of marble was exported to Canada (table 13). Although unreported, a significant quantity of U.S. marble processed overseas probably was exported back to the U.S. market.

Imports.—The value of imports for consumption of dimension stone decreased by 3% in 2017 to $2.11 billion (tables 1, 15, 16, 17). Brazil continued to be the leading source of imported granite in 2017, accounting for 45% by value. China, which was a major source of granite, accounted for 24% of granite imports by value. Other important import sources of

granite included India (17%) and Italy (8%) (table 15). In 2017, Turkey superseded China as the leading source of rough and dressed marble imports and accounted for about 29% by tonnage. Additionally, Turkey accounted for 15% of the total value of rough and dressed marble imports in 2017. In 2017, China remained a leading source of rough and dressed marble imports and accounted for about 26% by tonnage and 26% by value. Italy continued to be a major source of rough and dressed marble imports and accounted for 15% by tonnage and 32% by value. In 2017, Italy again had the highest total value of rough and dressed marble imports (tables 16, 17). Duties on imported dimension stone are listed in table 14.

World Review

World dimension granite and marble production, including the United States, was estimated to be approximately 155 Mt in 2014, the most recent year for which data were available. Although some small-scale production was likely in many nations, dimension granite and marble were produced and officially reported in 27 countries. The top five producing countries in 2014 were, in descending order by tonnage, China, India, Turkey, Iran, and Italy, and these countries accounted for about 74% of the world's dimension granite and marble production. Global production of dimension granite and marble increased by 12% in 2014 compared with that of 2013. The United States ranked 18th in world production of dimension granite and marble in 2014 (Gussoni, 2016, p. 68).

Outlook

U.S. apparent consumption, by value, of dimension stone decreased by 3% in 2017. U.S. production of dimension stone, by tonnage, decreased by about 5% in 2017. U.S. production of dimension stone, by value, decreased slightly in 2017. Exports of dimension stone, by value, increased by 6% in 2017. Imports of dimension stone, by value, decreased by about 3% in 2017. Therefore, the change in U.S. apparent consumption of dimension stone in 2017 was likely the result of steady growth in new commercial and residential construction offset by decreased activity in the home remodeling and renovation market. The trends in these activities are expected to continue in 2018.

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TABLE 1
SALIENT U.S. DIMENSION STONE STATISTICS[1]

(Thousand metric tons and thousand dollars)

	2013	2014	2015	2016	2017
Sold or used by producers:					
Quantity	2,280	2,470	2,630	2,780 r	2,810
Value	459,000	470,000	461,000	445,000	446,000
Exports, value	61,100	70,300	74,900	65,500	69,700
Imports for consumption, value	2,100,000	2,230,000	2,380,000	2,170,000	2,110,000
Apparent consumption, value[2]	2,500,000	2,630,000	2,760,000	2,560,000 r	2,490,000

rRevised.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits.
[2]Equals value of sold or used by producers plus imports for consumption minus exports.

TABLE 2
DIMENSION STONE SOLD OR USED BY PRODUCERS IN
THE UNITED STATES, BY TYPE[1, 2]

	2016		2017	
Type	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Granite	593,000	$130,000	504,000	$110,000
Limestone	1,490,000	184,000	1,360,000	205,000
Marble	59,100	18,900	56,100	17,500
Sandstone	377,000	47,900	650,000	55,600
Slate	41,300 r	20,500 r	50,100	22,200
Miscellaneous stone[3]	227,000	44,700	197,000	36,600
Total	2,780,000 r	445,000	2,810,000	446,000

rRevised.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Does not include American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands.
[3]Includes any other type of stone used as building stone and commercial stone that does not fit other listed categories.

TABLE 3
DIMENSION STONE SOLD OR USED BY PRODUCERS IN
THE UNITED STATES, BY STATE[1]

State	2016		2017	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Alabama	W	W	W	W
Arizona	70,100	$5,850	53,900	$5,470
Arkansas	8,280	1,110	7,430	983
California	17,200	6,750	19,000	6,890
Colorado	20,300	10,200	29,800	11,900
Connecticut	W	W	9,530	1,580
Georgia	139,000	13,100	131,000	13,000
Idaho	46,400	7,970	52,200	8,260
Illinois	W	W	W	W
Indiana	236,000	42,800	223,000	38,900
Kansas	12,600	1,270	W	W
Maine	3,380	1,880	W	W
Maryland	5,530	1,380	8,810	2,070
Massachusetts	159,000	40,200	W	W
Michigan	W	W	W	W
Minnesota	51,500	20,500	60,500	21,400
Missouri	W	W	58,500	14,600
Montana	W	W	26,700	4,620
Nevada	W	W	W	W
New Hampshire	W	W	W	W
New Mexico	W	W	W	W
New York	92,700	13,200	84,400	13,900
North Carolina	92,400	18,000	84,400	14,600
Ohio	16,700	6,810	W	W
Oklahoma	67,300	5,790	55,000	7,260
Pennsylvania	38,700 r	7,410 r	26,300	6,600
South Dakota	W	W	W	W
Tennessee	56,600	9,840	45,700	8,530
Texas	1,180,000	130,000	1,330,000	142,000
Utah	7,440	996	3,770	470
Vermont	98,800	29,100	104,000	27,200
Virginia	13,400	8,360	14,600	8,760
Washington	W	W	W	W
Wisconsin	225,000	38,500	192,000	36,000
Other	129,000	24,700	197,000	51,600
Total	2,780,000 r	445,000	2,810,000	446,000

rRevised. W Withheld to avoid disclosing company proprietary data; included in "Other."
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.

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

State	2016		2017	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Georgia	128,000	$11,000	121,000	$11,000
Vermont	61,600	12,200	65,300	10,200
Other[2]	403,000 r	106,000 r	318,000	88,400
Total	593,000	130,000	504,000	110,000

rRevised.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes California, Connecticut, Maine, Maryland, Massachusetts, Minnesota, Missouri, New Hampshire, New York, North Carolina, Oklahoma, South Dakota, Texas, Virginia, and Wisconsin.

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

State	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Indiana	236,000	$42,800	223,000	$38,900
Kansas	12,400	1,240	6,440	1,400
Missouri	--	--	47,300	7,960
Tennessee	20,200	2,330	28,700	4,990
Texas	995,000	102,000	821,000	107,000
Wisconsin	139,000	18,600	113,000	22,300
Other[2]	83,400	16,700	117,000	22,400
Total	1,490,000	184,000	1,360,000	205,000

-- Zero.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes Alabama, Arkansas, California, Connecticut, Idaho, Illinois, Minnesota, New Hampshire (2016), New York, Ohio, Oklahoma, Utah, and Virginia.

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

State	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Arizona	66,100	$5,390	W	W
Arkansas	7,730	1,040	W	W
Colorado	9,040	1,810	10,500	1,970
New York	18,900	1,270	19,700	1,700
Ohio	13,500	6,770	20,100	7,390
Oklahoma	42,700	3,800	27,900	5,040
Pennsylvania	30,600	4,210	19,700	3,970
Tennessee	14,900	1,650	W	W
Texas	326,000 r	22,200 r	476,000	27,400
Other[2]	20,800	2,200	76,100	8,070
Total	550,000 r	50,300 r	650,000	55,600

rRevised.
W Withheld to avoid disclosing company proprietary data; included in "Other."
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes Arizona (2017), Arkansas (2017), Kansas, Maryland, Michigan, Montana (2016), North Carolina (2016), Tennessee (2017), Washington (2016), and Wisconsin.

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

Use	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Rough stone:				
Rough blocks for building and construction	764,000 r	$119,000 r	830,000	$131,000
Irregular-shaped stone	833,000 r	53,600 r	610,000	42,600
Monumental	115,000	15,600	113,000	19,200
Other[2]	82,200	10,500	73,300	10,500
Dressed stone:				
Ashlars and partially squared pieces	458,000	78,300	514,000	96,700
Slabs and blocks for building and construction	52,600	12,900	134,000	29,400
Monumental	71,300	25,700	26,300	12,400
Curbing	167,000	31,800	132,000	28,500
Flagging	122,000	12,200	163,000	14,500
Flagging (slate)	16,600 r	5,220 r	20,300	3,900
Panels and veneer	96,800	31,100	89,000	21,200
Roofing slate	21,800	13,500	26,400	16,900
Flooring slate	904	1,220	623	782
Tile, all dimensions	1,330	201	18,500	3,760
Other[3]	156,000	36,700	62,600	15,400
Total	2,960,000 r	448,000 r	2,810,000	446,000

rRevised.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes flagging stone, exports, uses not specified, and uses not listed.
[3]Includes blackboards, exports, structural and sanitary, uses not specified, and uses not listed.

TABLE 8
DIMENSION GRANITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE[1]

Use	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Rough stone:				
Rough blocks for building and construction	88,100	$27,400	97,900	$25,100
Irregular-shaped stone	64,300	2,110	58,400	1,670
Monumental	91,100	11,700	103,000	17,100
Other[2]	18,200	1,650	4,110	1,360
Dressed stone:				
Ashlars and partially squared pieces	12,200	6,880	28,800	10,400
Slabs and blocks for building and construction	6,950	1,330	14,700	4,200
Monumental	71,300	25,700	16,500	9,970
Curbing	165,000	31,400	132,000	28,500
Other[3]	75,700	21,400	48,900	11,300
Total	593,000	130,000	504,000	110,000

[1]Table includes data available through February 14, 2019. 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 flagging, 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	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Rough stone:				
Rough blocks for building and construction	469,000	$67,700	515,000	$75,600
Irregular-shaped stone	537,000	40,500	260,000	32,100
Other[2]	17,200	2,570	15,900	1,780
Dressed stone:				
Ashlars and partially squared pieces	309,000	43,100	357,000	58,300
Slabs and blocks for building and construction	13,000	1,990	94,900	17,900
Flagging	32,000	3,110	21,800	2,920
Panels and veneer	49,400	10,100	44,100	5,940
Other[3]	61,200	14,700	48,400	10,500
Total	1,490,000	184,000	1,360,000	205,000

[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes exports, monumental, and uses not listed.
[3]Includes curbing limestone, monumental, tile, uses not specified, and uses not listed.

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

Use	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Rough stone, rough blocks for building and construction	22,200	$3,880	24,800	$5,200
Dressed stone[2]	W	W	11,600	3,000
Other[2, 3]	W	W	19,800	9,300
Total	59,100	18,900	56,100	17,500

W Withheld to avoid disclosing company proprietary data; included in total.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes slabs and blocks, exports, flagging, monumental, panels and veneer, ashlars and partially squared pieces, tile, and uses not listed.
[3]Includes monumental stone, exports, uses not specified, and uses not listed.

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

Use	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Rough stone:				
Rough blocks for building and construction	123,000 r	$15,100 r	117,000	$16,500
Irregular-shaped stone	210,000 r	7,540 r	277,000	6,410
Other[2]	17,000	1,930	50,300	1,310
Dressed stone:				
Ashlars and partially squared pieces	47,200	9,560	57,400	13,700
Flagging	60,500	4,440	106,000	6,800
Panels and veneer	12,300	5,110	9,610	3,900
Slabs and blocks for building and construction	12,700	1,650	12,800	2,290
Other[3]	67,200	4,960	19,000	4,600
Total	550,000 r	50,300 r	650,000	55,600

rRevised.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes exports, monumental, and uses not specified.
[3]Includes 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	2016 Quantity (metric tons)	2016 Value (thousands)	2017 Quantity (metric tons)	2017 Value (thousands)
Flagging	16,600 r	$5,220 r	20,300	$3,900
Roofing	21,800	13,500	26,400	16,900
Flooring	904	1,220	623	782
Other[2]	2,060	510	2,710	624
Total	41,300 r	20,500 r	50,100	22,200

rRevised.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes structural and sanitary purposes, 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	2016 Quantity	2016 Value	2017 Quantity	2017 Value	Major destination in 2017, by value
Marble, travertine, alabaster worked[2]	89	8,930	82	9,770	Canada, 48%.
Marble, travertine, crude or roughly trimmed	11	10,900	15	15,100	Italy, 95%.
Marble, travertine, merely cut, by sawing or otherwise[3]	4	3,690	4	3,750	China, 26%.
Granite, crude or roughly trimmed	41	13,900	38	13,600	China, 58%.
Granite, merely cut by sawing or otherwise[3]	22	7,140	26	8,710	Canada, 71%.
Slate, worked and articles of slate	NA	2,270	NA	2,550	Canada, 45%.
Slate, whether or not roughly trimmed or merely cut[3]	2 r	276	2	456	United Kingdom, 41%.
Other calcareous monumental or building stone; alabaster[4]	28	11,300	21	8,720	Canada, 94%.
Other monumental or building stone[5]	27	7,160	22	7,110	Canada, 93%.
Total	XX	65,500	XX	69,700	

rRevised. NA Not available. XX Not applicable.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Further worked than simply cut with a flat surface.
[3]Blocks or slabs.
[4]Crude, roughly trimmed, or merely cut into blocks or slabs. Other than marble and travertine.
[5]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. IMPORT DUTIES ON DIMENSION STONE[1]

Tariff item	HTS[2] code	NTR,[3] January 1, 2017	Non-NTR,[3] January 1, 2017
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	do.	$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	2516.20.1000	Free	$5.30 per cubic meter.
Merely cut	2516.20.2000	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:	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.
Granite	6802.23.0000	3.7% ad valorem	60% ad valorem.
Other calcareous stone	6802.29.1000	4.9% ad valorem	50% ad valorem.
Other stone	6802.29.9000	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:			
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.

Do., do. Ditto.
[1]Table includes data available through February 14, 2019.
[2]Harmonized Tariff Schedule of the United States.
[3]Normal trade relations.

TABLE 15
U.S. IMPORTS FOR CONSUMPTION OF DIMENSION GRANITE, BY COUNTRY OR LOCALITY[1]

(Thousand dollars)

		Dressed								
			Worked granite							
				Cut to size[5]						
						Minimum 7.5 centimeters				
Country or locality	Rough granite[2]	Simply cut[3]	Not cut to size[4]	Maximum 1.5 centimeters	1.5–7.5 centimeters	Monumental	Building	Other	Total worked	Total dressed
2016:										
Argentina	--	--	4	--	251	--	22	183	460	460
Brazil	966	1,130	114,000	926	321,000	74	1,640	70,700	508,000	509,000
Canada	3,750	1,110	790	812	2,840	7,570	4,430	3,800	20,200	21,400
China	2,360	15,000	10,200	4,470	110,000	21,200	8,780	93,700	248,000	263,000
Finland	7	--	5	--	--	--	--	3	8	8
India	1,310	2,920	18,100	1,140	107,000	18,100	2,030	19,900	167,000	169,000
Italy	638	1,170	8,440	474	65,500	20	1,030	16,000	91,500	92,700
Japan	--	5	--	--	2	--	27	77	106	111
Mexico	--	91	209	--	310	19	--	61	599	690
Norway	170	--	--	--	2	--	33	8	43	43
Portugal	3	44	140	--	244	--	--	80	464	508
Saudi Arabia	--	21	445	--	1,540	--	--	181	2,160	2,190
South Africa	1,220	87	366	--	2,380	--	--	477	3,220	3,310
Spain	--	119	5,210	283	22,100	--	498	4,450	32,500	32,600
United Kingdom	329	12	17	--	--	--	22	5	44	56
Zimbabwe	--	--	59	--	84	--	--	--	143	143
Other	475	1,070	1,030	61	3,440	69	98	2,800	7,490	8,570
Total	11,200	22,800	159,000	8,160	637,000	47,000	18,600	212,000	1,080,000	1,100,000
2017:										
Argentina	--	--	--	--	210	--	--	186	396	396
Brazil	858	1,240	98,000	1,320	299,000	133	1,080	52,300	452,000	453,000
Canada	4,990	912	241	571	3,330	9,600	4,380	2,610	20,700	21,600
China	1,370	12,300	8,660	3,700	104,000	21,400	8,570	80,600	227,000	239,000
Finland	--	--	--	--	11	--	--	--	11	11
India	993	3,640	18,800	1,090	107,000	16,200	1,000	22,700	167,000	170,000
Italy	125	1,010	8,120	316	54,700	452	2,220	14,100	79,900	80,900
Japan	--	3	--	21	23	10	46	50	150	153
Mexico	--	105	15	3	185	3	27	34	267	372
Norway	54	--	--	--	--	5	--	10	15	15
Portugal	10	3	22	--	247	--	44	267	580	583
Saudi Arabia	--	--	192	--	760	--	--	55	1,010	1,010
South Africa	1,720	27	317	--	2,430	--	48	764	3,560	3,590
Spain	--	119	4,560	121	24,700	25	384	4,540	34,300	34,500
United Kingdom	19	11	--	--	41	--	--	41	82	93
Zimbabwe	--	--	--	--	28	--	--	--	28	28
Other	525	830	683	132	2,630	146	131	999	4,720	5,550
Total	10,700	20,200	140,000	7,270	599,000	48,100	17,900	179,000	991,000	1,010,000

-- Zero.

[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits; may not add to totals shown.

[2]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.

[3]Simply cut with a flat even surface; HTS code 6802.23.0000.

[4]Only one face worked more than simply cut; HTS code 6802.93.0010.

[5]One or more faces worked more than simply cut.

Source: U.S. Census Bureau.

TABLE 16
U.S. IMPORTS FOR CONSUMPTION OF MAJOR CATEGORIES OF DIMENSION MARBLE AND OTHER CALCAREOUS STONE, BY COUNTRY OR LOCALITY[1]

	Dressed							
	Marble, slabs[2]		Marble, other[3]		Other calcareous stone[4]		Rough marble[5]	
Country or locality	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2016:								
Brazil	26,300	29,300	863	933	822	945	223	122
Canada	297	906	1,150	4,210	10,900	19,500	3	11
China	98,600	63,500	89,700	149,000	25,400	24,900	377	430
Egypt	1,070	554	2,510	1,360	1,440	850	890	278
France	336	986	316	1,090	4,920	7,780	24	81
Greece	6,130	10,400	6,530	11,400	1,070	1,060	29	27
India	41,800	25,100	12,400	18,300	3,000	1,670	192	156
Israel	1,400	1,620	600	699	2,430	3,650	14	17
Italy	106,000	225,000	30,400	71,300	18,900	27,500	359	1,180
Lebanon	39	14	3	19	1,220	1,860	--	--
Mexico	1,460	1,050	2,540	3,130	4,660	5,370	23	18
Portugal	1,430	1,860	1,060	2,330	11,500	11,500	19	18
Spain	16,900	15,100	7,830	7,870	7,050	7,430	1	5
Taiwan	557	732	1,720	3,950	55	78	3	7
Turkey	65,400	46,900	93,900	75,100	16,800	11,800	498	289
Other	5,620	5,730	8,830	11,100	17,200	14,400	125	142
Total	373,000	429,000	260,000	362,000	127,000	140,000	2,780	2,780
2017:								
Brazil	34,100	34,200	806	657	1,270	1,370	373	194
Canada	264	380	986	5,270	24,300	17,800	7	51
China	96,500	70,200	91,400	158,000	32,500	25,400	878	797
Egypt	1,360	831	2,880	1,380	1,650	723	308	70
France	227	810	206	556	5,800	9,000	55	55
Greece	7,260	11,100	6,710	12,500	1,350	1,860	24	9
India	62,900	35,500	16,100	26,500	4,550	2,400	74	67
Israel	1,370	1,880	383	762	1,920	2,070	--	--
Italy	94,200	219,000	24,800	71,600	9,970	21,000	787	1,980
Lebanon	8	4	77	62	784	2,050	--	--
Mexico	630	494	4,580	3,950	4,360	5,040	16	8
Portugal	1,580	2,580	1,530	2,910	12,400	13,400	--	--
Spain	12,600	12,300	5,890	6,460	5,940	5,240	8	12
Taiwan	374	633	1,890	4,640	43	91	25	36
Turkey	89,900	54,100	137,000	81,700	24,800	13,500	246	174
Other	6,690	6,990	9,730	13,600	17,300	17,100	141	185
Total	410,000	451,000	305,000	391,000	149,000	138,000	2,940	3,630

-- Zero.

[1]Table includes data available through February 14, 2019. 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; Harmonized Tariff Schedule of the United States (HTS) code 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 code 6802.92.0000.

[5]Simply cut by sawing or otherwise into rectangular blocks or slabs; HTS code 2515.12.1000.

Source: U.S. Census Bureau; data adjusted by the U.S. Geological Survey.

TABLE 17
U.S. IMPORTS FOR CONSUMPTION OF DIMENSION STONE, BY TYPE[1]

Type		2016 Quantity	2016 Value (thousands)	2017 Quantity	2017 Value (thousands)	Major source for 2017, by value
Marble and alabaster[2]	metric tons	36,500 r	$39,200	27,700	$31,000	Italy, 26%.
Slate, roofing	million square feet	1,180,000 r	9,250	741,000	8,500	Spain, 49%.
Slate, roughly trimmed or simply cut[3]	do.	9,150	4,480	8,640	4,040	China, 51%.
Slate, worked and articles of slate, and other[4]	do.	NA	56,500	NA	48,800	China, 54%.
Travertine, monumental or building stone and articles thereof[5]	do.	22,700	11,700	22,900	15,100	Turkey, 43%.
Travertine, worked monumental or building stone[6]	do.	18,000	14,000	15,600	11,200	Turkey, 42%.

rRevised. do. Ditto. NA Not available.
[1]Table includes data available through February 14, 2019. Data are rounded to no more than three significant digits.
[2]Simply cut with a flat surface.
[3]Rectangular blocks or slabs.
[4]Other than roofing, including agglomerated slate.
[5]Simply cut with a flat surface, other than tiles and granules.
[6]Dressed or polished but not further worked.

Source: U.S. Census Bureau.