USG CORP
Form 10-K
February 14, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K
(Mark One)
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018
OR
o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission File Number 1-8864
USG CORPORATION
(Exact name of Registrant as Specified in its Charter)

| | |
|---|---|
| Delaware | 36-3329400 |
| (State or Other Jurisdiction of Incorporation or Organization) | (I.R.S. Employer Identification No.) |
| 550 W. Adams Street, Chicago, Illinois | 60661-3676 |
| (Address of Principal Executive Offices) | (Zip Code) |

Registrant's Telephone Number, Including Area Code: (312) 436-4000

Securities Registered Pursuant to Section 12(b) of the Act:

| Title of Each Class | Name of Exchange on Which Registered |
|---|---|
| Common Stock, $0.10 par value | New York Stock Exchange<br>Chicago Stock Exchange |
| Preferred Stock Purchase Rights (subject to Rights Agreement dated December 21, 2006, as amended) | New York Stock Exchange<br>Chicago Stock Exchange |

Securities Registered Pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes x No o
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes o No x
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and "emerging growth company" in Rule 12b-2 of the Exchange Act.

| | | | |
|---|---|---|---|
| Large accelerated filer | x | Accelerated filer | o |
| Non-accelerated filer | o | Smaller reporting company | o |
| | | Emerging growth company | o |

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Indicate by check mark whether the registrant is a shell company (as defined in Exchange Act Rule 12b-2). Yes o No x

The aggregate market value of the registrant’s common stock held by non-affiliates computed by reference to the New York Stock Exchange closing price on June 30, 2018 (the last business day of the registrant’s most recently completed second fiscal quarter) was approximately $3,488,342,026. Solely for this purpose, directors, executive officers and greater than 10% record shareholders are considered the affiliates of the registrant.

The number of shares of the registrant’s common stock outstanding as of January 31, 2019 was 140,099,470.

Documents Incorporated By Reference: None.

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# PART I

## Item 1. BUSINESS

In this annual report on Form 10-K, "USG," "we," "our" and "us" refer to USG Corporation, a Delaware corporation, and its subsidiaries included in the consolidated financial statements, except as otherwise indicated or as the context otherwise requires.

### General

USG, through our subsidiaries and joint ventures, is a leading manufacturer of building materials and innovative solutions that was originally formed in 1902. We produce a wide range of products for use in new residential, new nonresidential, and residential and nonresidential repair and remodel construction as well as products used in certain industrial processes. Our businesses are cyclical in nature and sensitive to changes in general economic conditions, including conditions in the North American housing and construction-based markets. Our expansion through two 50/50 joint ventures, referred to as USG Boral Building Products, or UBBP, we formed in 2014 with Boral Limited, or Boral, into the markets of Asia, Australasia, and the Middle East has significantly increased our exposure to the economic conditions in those areas.

The effects of market conditions on our operations are discussed in Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations.

### Merger Agreement with Knauf

On June 10, 2018, we entered into an Agreement and Plan of Merger, as it may be amended from time to time, or the Merger Agreement, with Gebr. Knauf KG, a limited partnership (Kommanditgesellschaft) organized under the laws of Germany, or Knauf, and World Cup Acquisition Corporation, a Delaware corporation and an indirect, wholly-owned subsidiary of Knauf, or Merger Sub. The Merger Agreement provides that, subject to the satisfaction of customary closing conditions, Merger Sub will be merged with and into USG, or the Merger, with USG continuing as the surviving corporation and an indirect, wholly-owned subsidiary of Knauf. Pursuant to the terms of the Merger Agreement, at the effective time of the Merger, each share of common stock, par value $0.10, of USG issued and outstanding immediately prior to the effective time of the Merger (other than shares of common stock owned by Knauf and its subsidiaries, USG and its subsidiaries and certain excluded holders) will be converted into the right to receive $43.50 in cash, without interest and subject to tax withholding, or the closing consideration. In addition, as contemplated by the Merger Agreement, we announced on August 9, 2018 that USG had declared a conditional special cash dividend of $0.50 per share, or the conditional special dividend, payable to holders of record of our common stock as of the close of business on August 21, 2018. Payment of the conditional special dividend was conditioned on adoption of the Merger Agreement by our stockholders at the special meeting held on September 26, 2018, or the special meeting. The Merger Agreement was adopted by our stockholders at the special meeting and following certification of the vote in favor of adoption, the conditional special dividend was paid on October 2, 2018.

The Merger, which is currently expected to close in early 2019, is subject to the satisfaction or waiver of certain customary closing conditions, including, among others, receipt of certain regulatory approvals. The Merger Agreement contains certain termination rights for both USG and Knauf. If the Merger Agreement is terminated under certain specified circumstances, we will be required to pay Knauf a termination fee of $215 million.

See Note 4, Equity Method Investments, to the consolidated financial statements in Part II, Item 8 of this report for additional information regarding the default notice under the UBBP Shareholders Agreement delivered by Boral in connection with the Merger. Additional information about the Merger Agreement is set forth in Note 19, Merger Agreement, to the consolidated financial statements in Part II, Item 8 of this report, and our Current Report on Form 8-K filed with the Securities and Exchange Commission, or the SEC, on June 11, 2018.

### Segments

Our reportable segments align with how we manage our businesses, review operating performance and allocate resources considering the discrete information available for the geographies within those divisions. Our operating structure is generally aligned by product type and consists of three divisions, in addition to UBBP: Gypsum, Performance Materials and Ceilings. The operations of the divisions are similar throughout North America.

Our operations are organized into five reportable segments: U.S. Wallboard and Surfaces, U.S. Performance Materials, U.S. Ceilings, Canada, and UBBP. See Note 13, Segments, to the consolidated financial statements in Part II, Item 8 of this report for financial information regarding our reportable segments.

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The following graph reflects the breakdown by segment of our 2018 consolidated net sales of $3.3 billion.
Net sales of UBBP of $1.2 billion are excluded from the graph above as the joint ventures are accounted for as equity method investments.

Gypsum

BUSINESS

Our Gypsum division manufactures and markets gypsum and related products in the United States, Canada and Mexico. It is composed of our U.S. Wallboard and Surfaces segment, the Gypsum operations of our Canada segment and the Gypsum operations in Mexico, which do not rise to the level of a reportable segment and thus are included in Other. We are the largest manufacturer of gypsum wallboard in the United States and accounted for approximately 24.5% of total industry shipments of gypsum board in 2018. The gypsum board market, as determined by the Gypsum Association, includes gypsum wallboard, other gypsum-related paneling products and imports. As such, we've included the Gypsum products of USG Sheetrock® brand gypsum wallboard and Securock® brand glass mat sheathing and the Performance Materials product of Fiberock® brand gypsum fiber panels in our estimate of our market share of the gypsum board market. In Canada, we accounted for approximately 31% of Canadian domestic shipments of gypsum board in 2018.

PRODUCTS

Gypsum's products are used in a variety of building applications to construct walls and ceilings of residential, nonresidential and institutional buildings. We also produce gypsum-based products for agricultural and industrial customers to use in a wide variety of applications, including soil conditioning, road repair, fireproofing and ceramics. The major product lines within the Gypsum division are:

| WALLBOARD | |
|---|---|
| USG Sheetrock® brand gypsum wallboard and Securock® brand glass mat sheathing portfolios | Gypsum panels that provide aesthetic as well as sound-dampening, fire-retarding, abuse-resistance and moisture-control value |
| SURFACES | |
| USG Sheetrock® brand joint compound portfolio, as well as corner bead, joint tape, and plaster | Used for finishing wallboard joints |
| Construction plaster products, sold under the brand names Red Top®, Imperial®, Diamond® and Supremo™ and industrial gypsum | Used to provide a custom finish for residential and commercial interiors and provide aesthetic, sound-dampening, fire-retarding and abuse-resistance value |

As the leader in lightweight innovation, we offer the industry's broadest portfolio of lightweight gypsum panels for use in interior wall and ceiling applications including our USG Sheetrock® Brand UltraLight Panels and USG Sheetrock® Brand EcoSmart Panels. See Note 13, Segments, to the consolidated financial statements in Part II, Item 8 of this report for additional information regarding product types that accounted for more than 10% of our consolidated net sales.

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## MANUFACTURING

Our Gypsum division manufactures products at plants located throughout the United States, Canada and Mexico, some of which are shared with the Performance Materials division. See Item 2, Properties.

Gypsum rock is mined or quarried at company-owned locations in North America. See Item 2, Properties. Our mines and quarries provided approximately 53% of the gypsum used by our plants in North America in 2018. Some of our manufacturing plants purchase or acquire synthetic gypsum and natural gypsum rock from outside sources. In 2018, outside sources of synthetic gypsum and natural gypsum rock accounted for approximately 39% and 8%, respectively, of the gypsum used in our North American plants.

Synthetic gypsum is a byproduct of flue gas desulphurization carried out by electricity generation or industrial plants that burn coal as a fuel. The suppliers of this kind of gypsum are primarily power companies, which are required to operate scrubbing equipment for their coal-fired generating plants under federal environmental regulations. We have entered into a number of long-term supply agreements to acquire synthetic gypsum. Certain power companies have switched to using natural gas instead of coal for their electricity generation needs. In the event more power companies switch to using natural gas instead of coal, the availability of synthetic gypsum may decrease which could result in an increase to our cost. See Item 1A, Risk Factors.

We produce wallboard paper at four company-owned production facilities located in the United States. Vertical integration in paper helps to ensure a continuous supply of high-quality paper that is tailored to the specific needs of our production processes. We augment our paper needs through purchases from outside suppliers when necessary. We did not make any material purchases of paper from outside suppliers in 2018.

## MARKETING AND DISTRIBUTION

Our Gypsum products are marketed and distributed through specialty wallboard distributors, building materials dealers, home improvement centers and other retailers and contractors. Sales of Gypsum products are seasonal in the sense that sales are generally greater from spring through autumn than during the remaining part of the year.

Based on our estimates using publicly available data, internal surveys and industry shipment data for gypsum board, as reported by the Gypsum Association, we estimate that during 2018 volume demand for gypsum board was generated by:

- residential and nonresidential repair and remodel activity of about 50%,
- new residential construction of about 35%,
- new nonresidential construction of about 10%, and
- other activities, such as exports and temporary construction, of about 5%.

## COMPETITION

Industry shipments of gypsum board in the United States (including gypsum wallboard, other gypsum-related paneling products and imports), as reported by the Gypsum Association, were an estimated 25.4 billion square feet in 2018, down approximately 1% from 25.7 billion square feet in 2017. Our share of the gypsum board market in the United States, which includes for comparability shipments of USG Sheetrock® brand gypsum wallboard, Fiberock® brand gypsum fiber panels and Securock® brand glass mat sheathing, decreased to 24.5% in 2018 from 25.4% in 2017.

The principal methods of competition are product quality and performance, range of products, product availability, product pricing, compatibility of systems and customer service. Our principal competitors include:

| | United States | Canada | Mexico |
|---|---|---|---|
| American Gypsum Company LLC (a unit of Eagle Materials Inc.) | x | | |
| Cabot Gypsum Company | | x | |
| CertainTeed Corporation (a subsidiary of Compagnie de Saint-Gobain SA) | x | x | |
| Continental Building Products, Inc. | x | x | |
| Georgia-Pacific (a subsidiary of Koch Industries, Inc.) | x | x | |
| National Gypsum Company | x | | |
| PABCO Gypsum (a division of PABCO Building Products) | x | | |
| Panel Rey, S.A. (a Grupo Promax Company) | x | | x |
| Plaka (a unit of Knauf International GmbH) | | | x |

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## Performance Materials

### BUSINESS

Our Performance Materials division manufactures and markets a series of innovative products in the United States that provide solutions to our customers to help close the skilled labor gap and increase job site efficiency. It consists solely of our U.S. Performance Materials segment.

### PRODUCTS

Performance Materials products are used in a variety of interior and exterior building applications of residential and nonresidential buildings, as well as in certain industrial applications. These products can be grouped under three product categories of underlayment, building envelope and structural. The major products within these three categories are as follows:

| | |
|---|---|
| UNDERLAYMENT | |
| USG Durock® brand cement board | Provides water and fire-resistant assemblies for both interior and exterior applications |
| Fiberock® brand backerboard | Includes abuse-resistant interior wall panels, tile backer boards and flooring underlayments |
| USG Durock™ brand shower systems | A fully bonded waterproofing system for tiled shower installations |
| USG Performance Flooring, including Levelrock® brand systems of poured gypsum flooring | Provides surface leveling, enhanced sound-dampening and fire-resistant performance for residential and commercial flooring applications |
| BUILDING ENVELOPE | |
| Securock® ExoAir® 430 air barrier system | Integrated gypsum sheathing panels with pre-applied fluid air barrier membrane that provides structural performance and moisture, mold and air control |
| Securock® brand roof board portfolios | Roof boards for use in low-slope commercial roofing systems that provides moisture, mold and fire resistant value |
| STRUCTURAL | |
| USG Structural Panels | High-strength, glass fiber, reinforced structural concrete panels for use in subfloor, roof deck, foundation walls and other noncombustible applications |

### MANUFACTURING

Our Performance Materials division manufactures products at plants located throughout the United States, most of which are shared with our Gypsum division. See Item 2, Properties.

### MARKETING AND DISTRIBUTION

Our Performance Materials products are marketed and distributed through specialty distributors, home improvement centers, contractors and other retailers. Sales of Performance Materials products are generally greater from spring through autumn than during the remaining part of the year. Based on our estimates using internal surveys, we estimate that during 2018 volume demand was generated by:

- residential and nonresidential repair and remodel activity of about 49%,
- new residential construction of about 13%,
- new nonresidential construction of about 33%, and
- other activity, including exports, of about 5%.

### COMPETITION

The principal methods of competition are product quality and performance, range of products, product availability, product pricing, compatibility of systems and customer service. Our principal competitors include National Gypsum Company, Georgia Pacific, James Hardie Building Products, Schluter Systems, the ARDEX Group and Laticrete.

## Ceilings

### BUSINESS

Our Ceilings division manufactures and markets interior ceiling systems products in the United States, Canada and Mexico. It consists of our U.S. Ceilings segment, the ceilings operations of our Canada segment and our ceilings

operations in Mexico, which do not rise to the level of a reportable segment and are included in Other. We are a leading manufacturer and supplier of

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interior ceilings products including ceiling tile, ceiling grid and specialty ceilings used primarily in nonresidential applications. In 2017, we acquired Ceilings Plus, a leader in the specialty ceilings market. We estimate that we are the second-largest manufacturer of ceiling grid and acoustical ceiling tile.

PRODUCTS

The major product lines within the Ceilings division are:

| | |
|---|---|
| CEILING TILE | |
| Radar™, Eclipse™, Mars™ and Halcyon™ | Provides qualities such as sound absorption, fire retardation and convenient access to the space above the ceiling for electrical and mechanical systems, air distribution and maintenance |
| CEILING GRID | |
| Donn®, DX®, Fineline®, Centricitee™ and Identitee® DXI™ | Provides qualities such as fire retardation and convenient access to the space above the ceiling for electrical and mechanical systems, air distribution and maintenance |
| SPECIALTY CEILINGS | |
| Curvatura™, Compasso®, Radians®, Illusions™, Multiples™, Runways™, Barz™, Planx™, Mirra™, Corniche™, Wallforms™ and Parti™ | Provides qualities such as aesthetics, sound absorption, fire retardation and convenient access to the space above the ceiling for electrical and mechanical systems, air distribution and maintenance |
| ENSEMBLE® | |
| Ensemble® Acoustical Drywall Ceiling | Provides a monolithic drywall look with acoustical performance |

MANUFACTURING

Our Ceilings division manufactures products at plants located in the United States and Canada. See Item 2, Properties. Principal raw materials used to produce Ceilings' products include mineral fiber, aluminum, steel, perlite and starch. We produce mineral fiber and obtain all other raw materials from outside suppliers.

MARKETING AND DISTRIBUTION

Ceilings sells products primarily in markets related to the construction and renovation of nonresidential buildings. During 2018, based on our estimates using internal surveys, approximately:

- 75% of net sales were from repair and remodel activity, primarily nonresidential,
- 20% of net sales were from new nonresidential construction, and
- 5% of net sales were from new residential construction.

Products are marketed and distributed through a network of distributors, installation contractors and home improvement centers. Sales of Ceilings' products are seasonal in nature and are generally lower in the fourth quarter of the calendar year as compared to the first three quarters of the year.

COMPETITION

Principal methods of competition are product quality and performance, range of products, product availability, product pricing, compatibility of systems and customer service. Our principal competitors include the following:

| | United States | Canada | Mexico |
|---|---|---|---|
| Ceiling Tile | | | |
| Armstrong World Industries, Inc., | x | x | x |
| CertainTeed Corporation (a subsidiary of Compagnie de Saint-Gobain SA) | x | x | x |
| Odenwald Faserplattenwerk GmbH (OWA) | x | x | x |
| Rockfon (a subsidiary of Rockwool International A/S) | x | x | |
| | | | |
| Ceiling Grid | | | |
| CertainTeed Corporation (a subsidiary of Compagnie de Saint-Gobain SA) | x | x | x |
| Chicago Metallic Corporation (a subsidiary of Rockwool International A/S) | x | x | x |
| WAVE (a joint venture between Armstrong World Industries Inc. and Worthington Industries) | x | x | |

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## USG Boral Building Products

### BUSINESS

In 2014, we and certain of our subsidiaries formed UBBP, 50/50 joint ventures, with Boral. UBBP manufactures, distributes and sells certain building products, mines raw gypsum and sells natural and synthetic gypsum throughout Asia, Australasia and the Middle East. UBBP is a leader in most of the markets it serves. See Note 4, Equity Method Investments, to the consolidated financial statements in Part II, Item 8 of this report for additional information related to our equity method investments.

### PRODUCTS

UBBP manufactures and distributes products for wall, ceiling, floor lining and exterior systems that utilize gypsum wallboard, referred to as plasterboard in the regions in which UBBP operates, mineral fiber ceiling tiles, steel grid and joint compound. UBBP's significant brand names include USG Boral Sheetrock® Brand premium plasterboard, USG Boral NextGen®, Elephant®, Jayaboard®, Durock® and Donn® DX®. UBBP launched USG Boral Sheetrock® Brand products, which leverages USG technology, in Australia, South Korea, Indonesia, Vietnam, China, Thailand, India and Oman. UBBP is able to sell USG Boral Sheetrock® Brand at a premium price in some markets and acceptance of lightweight technology continues to increase, which is led by Australia with a conversion rate above 90%.

### MANUFACTURING

UBBP has 23 plasterboard lines, three gypsum mines and 36 other non-board lines for metal products, metal ceiling grid, ceiling tile, joint compound and cornice throughout twelve countries in Asia, Australasia and the Middle East.

## Executive Officers of the Registrant

See Part III, Item 10, Directors, Executive Officers and Corporate Governance - Executive Officers of the Registrant (as of February 14, 2019).

## Other Information

### RESEARCH AND DEVELOPMENT

To differentiate through innovation and strengthen our leadership in the building materials industry, we perform extensive research and development at the USG Corporate Innovation Center in Libertyville, Illinois, using open innovation models and external partnerships. New technologies and products are developed by collaborating with suppliers, universities and national research laboratories to provide solutions to customer needs. With fire, acoustical, structural and environmental testing capabilities, the research center allows us to conduct our own on-site evaluation of products and systems. Chemical analysis and materials characterization support product development and safety/quality assessment programs. Development activities can be taken to an on-site pilot plant before being transferred to a full-size plant. Research and development activities have been focused on industry challenges including shortage of skilled labor, speed of construction and sustainability. UBBP also operates a research and development center in Thailand.

### SUSTAINABILITY

The adoption of green building codes and standards, such as the Leadership in Energy and Environmental Design, or LEED, rating system established by the U.S. Green Building Council to encourage the design and construction of buildings that are environmentally friendly, combined with an increase in customer preference for products that can assist in obtaining LEED credit, or are otherwise environmentally preferable, has increased demand for products, systems and services that contribute to building sustainable spaces. Many of our products meet the requirements for the awarding of LEED credits, and we continue to develop new products and systems to address market demand for products that enable construction of buildings that require fewer natural resources to build, operate and maintain. Our competitors also have developed and introduced to the market more environmentally responsible products.

We expect that there will be increased demand over time for products, systems and services that meet regulatory and customer sustainability standards and preferences and decreased demand for products that produce significant greenhouse gas emissions. We also believe that our ability to continue to provide these products and systems to our customers will be necessary to maintain our competitive position in the marketplace.

### ENERGY

Our primary supplies of energy have been adequate, and we have not been required to curtail operations as a result of insufficient supplies. Supplies are likely to remain sufficient for our projected requirements. Currently, we are using swap

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contracts to hedge a significant portion of our anticipated purchases of natural gas to be used in our manufacturing operations over the next 12 months and beyond. We review our positions regularly and make adjustments as market conditions warrant.

SIGNIFICANT CUSTOMERS

On a worldwide basis, for each of the years ended December 31, 2018, 2017, and 2016, The Home Depot accounted for 24%, 23% and 23% of our net consolidated sales, respectively, and L&W Supply Corporation, or L&W, accounted for 14%, 16% and 19% of our consolidated net sales, respectively. On October 31, 2016, we completed the sale of L&W to American Builders & Contractors Supply Co., Inc., or ABC Supply, for $675 million. Our U.S. Wallboard and Surfaces, U.S. Performance Materials, U.S. Ceilings and Canada segments each had net sales to these customers in each of those years.

INTELLECTUAL PROPERTY

We consider patents, copyrights, trademarks, trade secrets, proprietary technology and similar intellectual property as critical to our success. We hold numerous patents and have registered numerous trademarks of varying duration in multiple legal jurisdictions. Further, we have filed patent applications and applications for the registration of trademarks in the United States and internationally. Although we consider our patents, trademarks, trade secrets and licenses to constitute valuable assets, we do not regard any of our businesses as being materially dependent upon an individual patent, trademark, trade secret, or license.

OTHER

Because we generally fill orders upon receipt, no segment has any significant order backlog.

None of our segments have any special working capital requirements.

No material part of our business is subject to renegotiation of profits or termination of contracts or subcontracts at the election of any government.

As of December 31, 2018, we had approximately 7,300 employees worldwide in our consolidated operations.

See Item 1A, Risk Factors, for information regarding the risks associated with conducting business in international locations, as well as the possible effects that compliance with environmental laws and regulations may have on our businesses and operating results.

Available Information

We maintain a website at www.usg.com and make available free of charge at this website our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports as soon as reasonably practicable after they are electronically filed with or furnished to the SEC. The information on our website is not, and will not be deemed to be, a part of this annual report on Form 10-K, or incorporated into any of our other filings with the SEC, except where we expressly incorporated such information. If you wish to receive a paper copy of any exhibit to our reports filed with or furnished to the SEC, the exhibit may be obtained, upon payment of reasonable expenses, by writing to: Corporate Secretary, USG Corporation, 550 West Adams Street, Chicago, Illinois 60661-3676.

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## Item 1A. RISK FACTORS

Our business, financial condition, operating results and cash flows are subject to various risks and uncertainties. We have described below significant factors that may adversely affect us and our industry. You should carefully consider these factors, together with all of the other information in this annual report on Form 10-K and in other documents that we file with the SEC, before making any investment decision about our securities.

The Merger may not be completed within the expected timeframe, or at all, and the failure to complete the Merger could adversely affect the market price of our common stock, as well as our business, results of operations, and financial condition.

There can be no assurance that the Merger will be completed in the expected timeframe, or at all. The Merger Agreement contains a number of conditions that must be satisfied or waived prior to the completion of the Merger, including (i) the receipt of all consents, approvals or authorizations of, declarations or filings under applicable competition laws and foreign investment laws; (ii) the absence of certain legal impediments preventing the completion of the Merger; and (iii) the accuracy of the representations and warranties of the parties and the compliance by the parties with their respective covenants in the Merger Agreement. There can be no assurance that these conditions will be satisfied or waived, or the conditions to, or timing of, satisfying these conditions.

Many of the conditions to completion of the Merger are not within our control, and we cannot predict when or if these conditions will be satisfied (or waived, as applicable). Even if regulatory approval is obtained, it is possible conditions will be imposed that could result in a material delay in, or the abandonment of, the Merger or otherwise have an adverse effect on us. Further, though not a condition to completion of the Merger, there is a risk of availability of sufficient financing available to Knauf to allow it to pay the closing consideration.

If the Merger is not completed within the expected timeframe or at all, we may be subject to a number of material risks. The price of our common stock will likely decline to the extent that current market prices reflect a market assumption that the Merger will be completed, as opposed to our current operational performance and market conditions. In addition, some costs related to the Merger must be paid whether or not the Merger is completed, and we have incurred, and will continue to incur, significant fees for professional services and other transaction costs in connection with the Merger, as well as the diversion of management and resources towards the Merger, for which we will have received little or no benefit if completion of the Merger does not occur. We may also experience negative reactions from our investors, employees, suppliers and customers. In addition, if the Merger Agreement is terminated under certain specified circumstances, we will be required to pay Knauf a termination fee of $215 million. Boral may also exercise its right to purchase our 50% interest in UBBP, as discussed further in Note 4, Equity Method Investments, to the consolidated financial statements in Part II, Item 8 of this report, in the event the Merger is not completed.

The pendency of the Merger could adversely affect our business, results of operations, financial condition and the market price of our common stock.

The pendency of the Merger has caused disruptions in, and created uncertainty surrounding, our business, which could have an adverse effect on our business, results of operations, financial condition and the market price of our common stock. These risks to our business include the following, all of which could be exacerbated by a delay in the completion of the Merger: (i) the potential negative impact on UBBP's business, results of operations and financial condition as a result of the uncertainty around the future ownership of UBBP; (ii) the effect of restrictions placed on us and our subsidiaries’ ability to operate our businesses under the Merger Agreement, including our ability to pursue alternatives to the Merger; (iii) the risk of disruption resulting from the Merger, including the diversion of our management’s attention from ongoing business operations; (iv) the effect of the pendency of the Merger on our ability to retain and hire employees; (v) the effect of the pendency of the Merger on our business relationships, operating results and businesses generally; (vi) the occurrence of any event giving rise to the right of a party to terminate the Merger Agreement; and (vii) the outcome of legal proceedings that have been instituted against us related to the Merger and any additional proceedings that may be instituted in the future.

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Our businesses are cyclical, regional and seasonal in nature and subject to industry downturns.

Our businesses are cyclical and sensitive to changes in general economic conditions, including conditions in the North American housing and construction-based markets. Housing starts in the United States remain below the long-term historical average of 1.44 million, while new nonresidential construction and the residential and nonresidential repair and remodel market in the United States have experienced slower than average growth over the past several years. Moreover, we operate in a variety of regional markets, so our businesses are subject not only to general economic conditions, but also to localized economic conditions in each of those regions. Housing and construction-based markets are impacted by broader economic circumstances, including employment levels, the availability of skilled labor, household formation, home ownership rate, new and existing home price trends, availability of mortgage financing, interest rates, deductibility of mortgage interest and real estate taxes, consumer confidence, job growth and discretionary business investment, and these markets may experience a downturn. Adverse conditions in the markets or regions where we operate, or the failure of these markets or regions to return to historical levels, may have a material adverse effect on our business, financial condition, operating results and cash flows.

In addition, our businesses are seasonal and impacted by pre-buy activity in advance of price increases, which has caused in the past, and will likely cause in the future, our quarterly results to vary significantly. This variability in our sales impacts our cost structure as we may need to maintain staffing levels and consistency of supply to meet anticipated demand in future quarters. In addition, unfavorable weather conditions, such as snow, heavy rainfall or natural disasters could reduce construction activity and adversely affect demand for our products.

We operate in highly competitive markets, and we may not be able to maintain current price levels for our products or achieve price increases for our products.

The markets for our products are competitive, and competition varies by region. Principal methods of competition include product quality and performance, range of products, product availability, product pricing, compatibility of systems and customer service. Prices for our products are affected by demand and available supply in the markets for our products. Currently, there is excess wallboard production capacity in the United States and Canada. Several of our competitors have also recently added, or are in the process of adding, capacity in the United States, and new competitors have entered certain markets, including wallboard imports from Mexico into certain regions in the South. Excess production capacity could negatively impact our ability to implement price increases or cause us to reduce pricing to maintain or grow our sales. Any inability to maintain or increase prices, particularly in light of cost inflation, including in raw materials, transportation and labor, could further adversely affect our business, financial condition, operating results and cash flows.

We are dependent on sales to our major customers, and the number of our customers with significant buying power is increasing.

For the year ended December 31, 2018, our two largest customers, The Home Depot and L&W, collectively accounted for approximately 38% of our sales, while our top four customers collectively accounted for approximately 50% of our sales. We face strong competition for these and our other major customers. As is customary in our industry, we generally do not enter into long-term contracts with our customers, which may choose to reduce or delay purchases of our products at any time. If one or more of our major customers reduces or delays substantial orders, our business, financial condition, operating results and cash flows may be materially and adversely affected, particularly for the period in which the reduction or delay occurs and also possibly for subsequent periods.

Certain of our customers are also large companies with significant buying power. The ongoing consolidation taking place in the gypsum specialty dealer channel will likely further enhance the ability of certain of our customers to seek more favorable terms, including pricing, for the products that they purchase from us. Accordingly, our ability to maintain or raise prices in the future may be limited, including during periods of raw material and other cost increases such as 2018. If we are forced to reduce prices or to maintain prices during periods of increased costs, or if we lose customers because of pricing or other methods of competition, our business, financial condition, operating results and cash flows may be materially and adversely affected.

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L&W is currently our largest customer in the gypsum specialty dealer channel, accounting for 14% of our consolidated net sales in 2018. Specialty dealers often have multiple suppliers for product categories. Following the sale of L&W in 2016, L&W diversified its supplier base, resulting in a reduction in our sales to L&W, and this diversification continued in 2018. To address the loss of sales to L&W, we have made efforts to grow our business with current customers and serve new customers. However, our efforts to replace the loss of sales to L&W may not be successful, and we may experience market share loss or unfavorable pricing, in which case our net sales, operating results and cash flows may be materially and adversely impacted.

A small number of our stockholders could significantly influence our business, affairs and stock price.

Based on filings made with the SEC, as of January 31, 2019 Berkshire Hathaway Inc. controlled approximately 31% of our common stock and Knauf controlled approximately 10.5% of our common stock. Accordingly, a small number of our stockholders have affected, and in the future may continue to affect, matters requiring approval by stockholders, including the election of directors. One or more of these stockholders may have interests that differ from other stockholders and may vote on such matters in a way that is adverse to the interests of those other stockholders. In addition, if one or more of these stockholders engage in sales of our common stock, our share price may decline.

Increased costs, or decreased availability, of key raw materials, transportation or energy will increase our cost of products sold.

The cost and availability of raw materials, transportation and energy are critical to our operations. We use substantial quantities of natural gypsum, synthetic gypsum, wastepaper, mineral fiber, steel, perlite, starch, siloxane and plastic pails. We have experienced significant inflation in the cost of many of these items. In addition, the cost of certain of these items has been volatile, and availability has sometimes been limited. We obtain some of these materials from a limited number of suppliers or sole source suppliers, which increases the risk of unavailability. We are not always able to pass increased costs on to our customers due to market conditions or existing agreements with our customers at agreed prices. In addition, imposition of more or new tariffs, quotas, trade barriers, and similar restrictions on the importation of raw materials used in our products may increase our costs. If price increases for our finished products significantly trail the increase in costs, our business, financial condition, operating results and cash flows may be materially and adversely affected. As an example, in 2018 we were not able to completely offset the significant increases in raw material costs, in particular for synthetic gypsum, natural gypsum and siloxane, which negatively impacted operating profit.

Approximately 39% of the gypsum used in our plants is synthetic gypsum. Nine of our Gypsum plants in operation use synthetic gypsum for all of their needs, while another four use it for some of their needs. The suppliers of synthetic gypsum are primarily coal-fired electricity generating plants, many of whom have switched to using natural gas instead of coal for their electricity generation needs due to its lower cost. As a result, we have experienced increases in the cost of synthetic gypsum and the cost to transport synthetic gypsum to our plants. In addition, existing or future changes in environmental regulations may make it more difficult or costly for power companies to burn coal, which may result in a further shift away from coal-based sources of energy. If this occurs, the availability of synthetic gypsum will likely continue to decrease. We could incur substantial costs in connection with any significant reduction in the availability of synthetic gypsum, including costs to convert our plants to use natural gypsum, costs to obtain or develop additional sources of natural gypsum or increased costs to transport synthetic gypsum to our plants from farther away, which may materially and adversely affect our business, financial condition, operating results and cash flows.

Transportation costs are a significant portion of our variable costs because we are responsible in most cases for delivering our products to our customers. Reductions in the availability of certain modes of transportation, such as trucking, could limit our ability to deliver our products to our customers on time or obtain raw materials, which may materially and adversely affect our business, financial condition, operating results and cash flows. During 2018 we experienced a shortage of available trucks and truck drivers, which resulted in significant increases in our transportation costs and adversely impacted our profitability. Increases in the cost of fuel, or if we are required to transport raw materials or finished products over longer distances, could result in further material increases in the cost of transportation that could also materially and adversely affect our operating profits.

Similarly, paper is also a significant component of our variable costs. We produce a majority of our wallboard paper at our paper mill in Otsego, Michigan with the remainder produced at three other company-owned production facilities, and augment our paper needs through purchases from outside suppliers when necessary. If our utilization increases or if our current supply of wallboard paper is disrupted, particularly at our Otsego paper mill, we may be required to purchase additional paper from outside suppliers, which may only be available at increased cost. We also buy various grades of wastepaper, and shortages occur periodically in one or more grades and may vary among geographic regions. As a result, we have experienced, and in the future may experience, volatility in wastepaper availability and cost, affecting the mix of products manufactured at particular locations or the cost of producing them.

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We use natural gas extensively in the production of our products in the United States, Canada and Mexico. The price of natural gas can fluctuate significantly because of weather, environmental or other regulatory changes, which can materially impact our results of operations for a particular period. In an attempt to reduce our price risk related to fluctuations in natural gas prices, we enter into hedging agreements using swaps for natural gas purchases in the United States and Canada. Because we hedge the majority of our exposures, we would not be able to participate, for the portion we hedged, in substantial or extended declines in natural gas prices. As a result, our costs would remain elevated in such an environment. During periods of rising natural gas prices on the other hand, our production costs will rise to a lesser extent because of our hedging activities.

Our facilities may experience unexpected operational difficulties or catastrophic events.

Our facilities may be forced to cease operations unexpectedly due to equipment failures or events beyond our control, such as hurricanes, fires, floods, earthquakes or other environmental catastrophes. Any equipment downtime or facility damage may hinder our ability to meet customer demand, reduce our sales or impede our ability to deliver our products in an efficient and cost-effective manner, and could require that we make significant capital expenditures. Several of our plants, and production lines within our plants, are dedicated to specific products. If any of those plants or lines are unable to operate for a prolonged period, it would reduce our ability to effectively compete in the markets for those products, which could materially and adversely affect our business, financial condition, operating results and cash flows.

We do not have majority control over UBBP, which involves risks not otherwise present when we operate our business through wholly-owned entities.

A substantial portion of our international operations are conducted through UBBP, which are operated in accordance with the terms of a Shareholders Agreement. UBBP involves risks not otherwise present when we operate our business through wholly-owned entities, including:

- Entering into the Merger Agreement to be acquired by Knauf constituted a change of control under the Shareholders Agreement such that, even if the Merger is not completed, or if certain other events of default under the Shareholders Agreement occur with respect to us, we may be required to sell our entire interest in UBBP to Boral at fair market value, as determined in accordance with the Shareholders Agreement. In the event we are forced to sell our interest in UBBP, it may be under terms that we do not consider favorable to us. On August 28, 2018, Boral delivered a default notice under the Shareholders Agreement to commence the process to establish the fair market value of our 50% interest in UBBP. Once fair market value is established, Boral will have the right to purchase our 50% interest in UBBP in accordance with the Shareholders Agreement. Boral's exercise of its right to purchase our 50% interest in UBBP could occur prior to the closing of the Merger Agreement, in which case we would receive the cash proceeds for our interest, and we would no longer own an interest in UBBP.
- In the event we are required to sell our interest in UBBP to Boral, we may be restricted from competing in UBBP's markets for a period of time, many of which we anticipate to be high-growth markets. In addition, in the event we are required to sell our interest in UBBP to Boral, certain of our intellectual property will continue to be licensed to UBBP on an exclusive basis for a period of time.
- Certain major decisions with respect to UBBP require the majority or unanimous approval of the joint ventures' boards or shareholders, which could result in a deadlock given the 50/50 ownership and equal board representation structure. Boral may have economic or other business interests or goals that are or become inconsistent with ours, and we may not be able to obtain approval of certain matters that would be in our or UBBP's best interests. In addition, we may be required to spend additional resources to resolve any dispute with Boral.
- A deadlock with respect to certain fundamental decisions may result in the triggering of a sale process of UBBP. In such a case, the terms of the sale may be less attractive than if we had held onto our investment.
- The Shareholders Agreement limits our ability to transfer our interest in UBBP. As a result, we may be unable to sell our interest in UBBP when we would otherwise like.
- UBBP may not pay dividends if such payments are, among other things, restricted pursuant to the terms of the credit facilities maintained by UBBP, inconsistent with the then-applicable strategic plan, or illegal. Accordingly, we may not receive dividend payments from UBBP in the amounts that we currently anticipate or at all, which may adversely impact our ability to receive any economic benefit from UBBP.

- In the event Boral is subject to a change of control, or if certain other events of default under the Shareholders Agreement occur with respect to Boral, we will have the right to acquire Boral's interest in UBBP at fair market value, but it may be on terms that we do not find favorable. In this circumstance, if we do not complete the

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acquisition due to lack of funding or otherwise, we would remain in the joint venture, but possibly under ownership that we do not find acceptable.

- In certain circumstances, a capital call may be issued to the shareholders of UBBP in order to obtain additional funding for the joint ventures' operations. If we do not provide capital and Boral does, Boral may receive additional shares in UBBP, thereby diluting our interest and diminishing our rights under the Shareholders Agreement. Further, although we intend for UBBP to be self-funding, we may nonetheless determine in the future that we need to provide additional capital in order for UBBP to continue operating.
- Boral may become insolvent, refuse to make additional capital contributions or fail to meet its obligations under the Shareholders Agreement or the two share sale and subscription agreements entered into with Boral, which may result in certain liabilities to us.
- UBBP has relied in part on new products and technology we have developed. UBBP is contractually entitled to some, but not all, of our new products and recently licensed several new products and technologies from us, including USG Sheetrock® Brand EcoSmart Panels and Ensemble® Acoustical Drywall Ceiling. If UBBP is unable to successfully commercialize on our innovation efforts, the opportunity to grow the joint ventures or for us to deploy our products in UBBP's territory will be adversely impacted.
- UBBP is required to protect our licensed trade secrets and confidential intellectual property in its territory, which includes countries where there is a high risk of intellectual property loss, and we also expend significant efforts to secure and enforce our intellectual property rights in UBBP's territory. If UBBP is not diligent with its protections or our efforts are insufficient and competitors acquire our trade secrets and confidential intellectual property, then there may be a material adverse impact on our business both inside and outside of UBBP's territory.

If any of these risks were to materialize, our business, financial condition, operating results and cash flows could be materially and adversely impacted.

Our international operations expose us to risks that would not otherwise be present in our U.S. operations.

Our international business operations in the countries within the territory of UBBP and in Canada and Mexico, including our ability to introduce new products into these markets, are important to our operations, growth and prospects. Our foreign operations and our international expansion subject us to a number of risks, including:

- sensitivity to general economic conditions in each of the countries in which we or UBBP operate, including, in particular, the housing and construction-based markets;
- compliance with United States laws affecting operations outside of the United States, such as the Foreign Corrupt Practices Act or similar anti-bribery laws and regulations, or corruption in foreign countries;
- compliance with a variety of local laws and regulations, including environmental and safety laws and regulations;
- changes in U.S. or foreign tax laws and the interpretation of those laws;
- imposition of more or new tariffs, quotas, trade barriers, and similar restrictions on our sales outside the United States, including cross-border intercompany sales;
- fluctuations in currency values and the impact on our consolidated results;
- changes in foreign currency exchange controls;
- discriminatory or conflicting fiscal policies;
- difficulties enforcing intellectual property and contractual rights, and securing information and infrastructure, in certain jurisdictions;
- greater risk of uncollectible accounts and longer collection cycles; and
- nationalization of properties by foreign governments.

Moreover, political and economic changes or volatility, geopolitical regional conflicts, terrorist activity, political unrest, civil strife, acts of war, epidemics, public corruption and other economic or political uncertainties could interrupt and negatively affect our business operations. All of these factors could result in increased costs or decreased revenues, and could materially and adversely affect our business, financial condition, operating results and cash flows.

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Our success is dependent on our ability to innovate and protect our intellectual property and other proprietary rights.
We believe that we maintain a leadership position and price premium in part because of our innovation and introduction of new products. As a result, our success also depends, in part, upon securing and enforcing our intellectual property rights. We rely on a combination of contractual rights and patent, copyright, trademark and trade secret laws to establish and protect our intellectual property. Despite our efforts to safeguard and maintain our intellectual property, the steps we have taken may be limited in their effect. Existing patent, copyright, trademark and trade secret laws offer only limited protection, and it may be expensive and time consuming to assert these protections against competitors who infringe on our rights, and our patents could be invalidated or circumvented. In addition, others may develop substantially equivalent or superseding proprietary technology, or competitors may offer similar competing products that do not infringe on our intellectual property rights, thereby substantially reducing the value of our proprietary rights. Moreover, the laws of some foreign countries in which our products are or may be manufactured or sold may not protect our products or intellectual property rights to the same extent as do the laws of the United States. This risk may be heightened in connection with our investments in UBBP because it results in the use of our intellectual property in additional foreign jurisdictions, some of which lack robust or accessible intellectual property protection enforcement mechanisms.
We intend to continue making investments in research and development to develop new and improved products and more efficient manufacturing methods in order to maintain our market leadership position. If we do not make these investments, or we are not able to successfully commercialize our innovation efforts, our revenues, operating results and market share may be materially and adversely affected.
Our businesses are capital intensive, leading to high levels of fixed costs, and capital expenditures to maintain our market leadership position and expand our businesses may not achieve their intended results.
Our businesses are capital intensive, and regularly require capital expenditures to maintain equipment, expand operations, improve efficiency and comply with applicable laws and regulations. We are limited in our ability to quickly reduce fixed costs in response to reduced demand for our products, so these fixed costs may result in higher average unit costs and lower margins if we are unable to offset with price increases. Alternatively, we may not be able to quickly respond to unanticipated increased demand for our products, which could result in our inability to satisfy customer demand and loss of market share.
In order to standardize and automate production across our businesses, we are investing in capital improvement projects, including an anticipated $300 million investment in Advanced Manufacturing that began in late 2016, which we believe will materially improve our operating results. Future downturns in our industry or businesses may prevent us from having the funds necessary to make anticipated capital expenditures, and there may be delays or cost increases in completing these projects. Our return on investment from our Advanced Manufacturing investments or other capital expenditures may not be sufficient to recover the expenses associated with these initiatives and we may not achieve the expected $100 million in incremental EBITDA from Advanced Manufacturing in the anticipated timeframe. See Part II, Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity Outlook for additional information regarding our Advanced Manufacturing initiatives.
A disruption in our information technology systems due to a catastrophic event or security breach could interrupt or damage our operations.
In the conduct of our business we collect, use, transmit and store data on information systems. We have put in place security measures designed to protect against unauthorized access to, or corruption of, our information systems and data or disruption of our operations. However, advanced cybersecurity threats are increasingly difficult to identify and prevent. The security measures we have implemented may not be sufficient to prevent breaches, and we may be required to incur additional costs to strengthen our systems as cyber-attacks continue to evolve. Any security breach or compromise of our information systems could significantly impact our operations, damage our reputation, cause the disclosure of confidential customer, employee, supplier or company information, including our intellectual property, and result in significant losses, litigation, fines and costs. The regulatory environment related to information security, data collection and privacy is also growing more rigorous, with new and constantly changing requirements applicable to our business, and compliance with those requirements could result in additional costs.

We also compete through our use and improvement of information technology. In order to remain competitive, we need to provide customers with timely, accurate, easy-to-access information about product availability, orders and delivery status. While we have provided manual processes for short-term failures and disaster recovery capability, a prolonged disruption of systems or other failure to meet customers' expectations regarding the capabilities and reliability of our systems may materially and adversely affect our operating results.

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Compliance with environmental and safety laws and regulations or product safety concerns could cause us to make modifications to how we manufacture our products, negatively affect our results and also require that we make significant capital investments or otherwise increase our costs.

We operate plants, mines and quarries in North America. As a result, we are subject to numerous federal, state, local and foreign laws and regulations governing the protection of the environment and occupational health and safety, including laws regulating air emissions, wastewater discharges, the management and disposal of hazardous materials and wastes, and the health and safety of our employees. We are also required to obtain permits from governmental authorities for certain operations. If we were to fail to comply with these laws, regulations or permits, we could incur fines, penalties or other sanctions and be subject to private litigation. In addition, in the past we have been, and in the future could be, held responsible for costs and damages arising from any contamination at our past or present facilities or at third-party waste disposal sites. Further, new environmental and safety laws and regulations may cause us to incur material expenses relating to compliance, impact the availability and cost of raw materials and have a material and adverse impact on our operations and results.

Many U.S. and foreign jurisdictions have adopted or are considering measures to reduce greenhouse gas, or GHG, emissions, including carbon dioxide and methane. Legislation or regulations requiring reductions in GHG emissions could affect future expansions or modifications at our plants, mines and quarries and may require that we incur significant costs and additional capital investment to satisfy permitting requirements. In addition, enactment of new climate change legislation, regulatory initiatives or treaties impacting the locations where we conduct business could have a material adverse effect on our operations. For example, legislation establishing a “carbon tax” on energy use or a “cap and trade” could materially and adversely increase the cost of energy used in our manufacturing processes.

Legal challenges to the U.S. EPA’s final rule regarding the use of synthetic gypsum, or subsequent state legislation, could also result in laws or regulations that adversely affect the classification, use, storage and disposal of synthetic gypsum. Such laws or regulations may require significant capital investments to convert those plants and lines that use synthetic gypsum to natural gypsum.

The building materials industry has been subject to claims relating to raw materials, as well as claims for incidents of catastrophic loss, such as building fires. We have rigorous product safety and quality standards and a strong commitment to product safety and quality. However, if our products do not meet applicable safety standards or customers’ expectations regarding safety, we could experience decreased sales, increased costs and/or be exposed to legal and reputational risks. Events that give rise to actual, potential or perceived product safety concerns could expose us to government enforcement action and/or private litigation. Reputational damage caused by real or perceived product safety concerns could negatively affect our business and results of operations, and product liability insurance coverage may not be available or adequate in all circumstances to cover claims that may arise in the future.

Legal and governmental proceedings, including those involving antitrust, tax, environmental, intellectual property, the Merger or other matters, may result in significant costs.

We are party to litigation and governmental proceedings, including legal proceedings in connection with the Merger. We could become subject to additional legal claims in the future, some of which could become material. We may also initiate legal proceedings to defend and enforce our proprietary rights. The outcome of legal and governmental proceedings may differ from our expectations because the outcomes of litigation and governmental proceedings are often difficult to reliably predict. Various developments can lead to changes in management’s estimates of liabilities. Those developments include judicial rulings or judgments, settlements, or regulatory developments or changes in applicable law. A future adverse ruling, settlement or unfavorable development could result in charges that could have a material adverse effect on our results of operations in any particular period, or we could be unsuccessful in protecting our intellectual property. For a more detailed discussion of certain of the legal proceedings in which we are involved, see Item 3, Legal Proceedings, below.

We may pursue acquisitions, joint ventures and other transactions to complement or expand our businesses, which even if completed, may involve a number of risks, or we may not be able to pursue a desired transaction under the Merger Agreement.

We may pursue additional opportunities to acquire businesses or technologies and to form joint ventures that we believe could complement, enhance or expand our current businesses or product lines or that might otherwise offer us

growth opportunities. Such pursuits may be costly and unsuccessful and cause diversion of management's attention from day-to-day operations. Even if completed, potential issues associated with these activities could include, among other things, difficulty with integrating

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business operations, infrastructure and personnel, and our ability to realize the full extent of the expected returns, benefits, cost savings or synergies as a result of a transaction within the anticipated time frame, or at all.
Under the Merger Agreement, we and our subsidiaries are prohibited from acquiring any business or forming any joint venture, subject to certain exceptions. This restriction to pursue a transaction that we may otherwise believe to be in our best interest could have an adverse effect on our business, financial condition, operating results and cash flows.
Significant changes in factors and assumptions used to measure our defined benefit plan obligations, actual investment returns on pension assets and other factors could negatively impact our operating results and cash flows.
The recognition of costs and liabilities associated with the pension and postretirement plans is affected by assumptions made by management and used by actuaries engaged by us to calculate the benefit obligations and the expenses recognized for these plans. The inputs used in developing the required estimates are calculated using a number of assumptions, which represent management's best estimate of the future. The assumptions that have the most significant impact on costs and liabilities are the discount rate, the estimated long-term return on plan assets for the funded plans, retirement rates, and mortality rates. These assumptions are generally updated annually.
As of December 31, 2018, our pension plans were underfunded by $137 million and our unfunded postretirement plan liabilities were approximately $132 million. While discount rates have increased in 2018, in recent years declining interest rates have negatively impacted the funded status of our pension and postretirement plans. If the interest rates decline again, funding requirements for our pension plans may become more significant. If our cash flows and capital resources are insufficient to fund our obligations under these pension and postretirement plans, we could be forced to reduce or delay investments and capital expenditures, seek additional capital, or incur indebtedness.
We are generally not permitted to return capital to our stockholders under the Merger Agreement, and even if we are able to do so, we may not be able to fully execute our stock repurchase program and may not otherwise return capital to our stockholders in the foreseeable future.
In February 2018 we announced an increase in our stock repurchase program, bringing the total size of the program to $500 million. However, the Merger Agreement limits our ability to repurchase shares of our common stock, subject to certain exceptions, and share repurchases under the program will not continue so long as the Merger Agreement is in effect and has not been terminated. If the program were to recommence, there is no guarantee as to the exact number of shares or value that will be repurchased and we may discontinue purchases at any time. Whether we make any further repurchases would depend on many factors, including but not limited to our business and financial performance, the business and market conditions at the time, including the price of our shares, and other factors that management considers relevant. Additionally, we expect to fund any repurchases under our stock repurchase program through cash on hand, which may impact our ability to pursue potential strategic opportunities. Although our stock repurchase program is intended to enhance long-term stockholder value, short-term stock price fluctuations could reduce the program's effectiveness and there can be no assurance that any stock repurchases will enhance stockholder value.
In addition, the Merger Agreement also limits our ability to declare any dividend in respect of our common stock, other than the conditional special dividend paid to holders of our common stock in connection with the Merger. Other than the conditional special dividend, we have not paid a dividend on our common stock since the first quarter of 2001, and there can be no assurance that we will do so in the foreseeable future.
Our credit agreement also limits our ability to pay a dividend or repurchase our stock unless specified borrowing availability and fixed charge coverage ratio tests are met, and it prohibits payment of a dividend or repurchase of our stock if a default exists under the agreement. Accordingly, we may be required to cease repurchasing stock for periods of time in order to maintain compliance with our credit agreement terms. If we do not pay dividends or continue to execute on our stock repurchase program, investors will have to rely on the possibility of stock appreciation and sell their shares to realize a return on their investment.
We may not be able to pursue certain strategic opportunities unless we increase our indebtedness and leverage ratio. Our level of indebtedness also requires us to dedicate a portion of our cash flow to debt payments and limits our ability to engage in certain business activities.
As of December 31, 2018, we had $1.1 billion of outstanding debt, consisting of senior notes and industrial revenue bonds, which is slightly above our target leverage ratio range of 1.5x to 2.0x adjusted debt/EBITDA. We may not be

able to pursue certain strategic opportunities that may otherwise be available to us without incurring additional indebtedness and thereby increasing our leverage ratio outside of our target range.

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Our current debt service obligations also require us to dedicate a portion of our cash flow from operating activities to payments on our indebtedness, which reduces the availability to use our cash flow for other purposes, including capital expenditures, research and development efforts, potential acquisitions or investments. If we are unable to fund our business activities, meet our obligations under our debt agreements or are contractually restricted from pursuing activities or transactions that we believe are in our long-term best interests, including any activities prohibited by the Merger Agreement, our business, financial condition, results of operations and cash flows could be adversely affected. Our indebtedness also may increase our vulnerability to economic and industry downturns and changing market conditions and place us at a competitive disadvantage relative to competitors that have less debt. We are required to post letters of credit or cash as collateral primarily in connection with our hedging transactions, insurance programs and bonding activities. The amounts of collateral we are required to post may vary based on our financial position and credit ratings. Use of letters of credit as collateral reduces our borrowing availability under our domestic revolving credit agreement and, therefore, like the use of cash as collateral, reduces our overall liquidity and our ability to fund other business activities.

The terms of our debt agreements, including our credit facility, may also limit our ability to engage in certain activities and transactions that may be in our long-term interest. Among other things, unless we obtain approval, the covenants contained in our debt agreements may restrict or limit our ability to incur additional indebtedness, pay dividends or repurchase our common stock, make guarantees, sell our assets or make other fundamental changes, engage in mergers, acquisitions and dispositions, make investments, change our business purpose, or enter into certain transactions with affiliates. We may also be required to maintain specified financial ratios, which may require that we take action to reduce our debt or to act in a manner contrary to our current business plans. Our ability to comply with these covenants and financial ratios may be affected by events beyond our control, and we may not be able to continue to meet those covenants and ratios. Breach of any of the covenants or ratios contained in the agreements governing our debt, or our inability to pay interest on, or principal of, our outstanding debt as it becomes due, could result in an event of default, in which case, our lenders could declare all amounts outstanding to be immediately due and payable. If this occurs, we may not be able to refinance the accelerated debt on favorable terms, or at all, or repay the accelerated debt, and our liquidity may be adversely impacted.

## Item 1B. UNRESOLVED STAFF COMMENTS

None

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Item 2.PROPERTIES

Our leased corporate headquarters is located in Chicago, Illinois. We operate plants, mines, quarries, and other facilities throughout North America. The locations of our production properties in operation for our consolidated segments as of December 31, 2018 are as follows (plants are owned unless otherwise indicated):

| | U.S. Wallboard and Surfaces | | U.S. Performance Materials | | | U.S. Ceilings | | |
|---|---|---|---|---|---|---|---|---|
| | Gypsum wallboard and other gypsum products | Surface preparation and joint treatment products | Under-layment | Building Envelope | Structural | Ceiling Tile | Ceiling Grid | Specialty Ceilings |
| Alabaster (Tawas City), Michigan | x | | | | | | | |
| Aliquippa, Pennsylvania[1] | x | | | | | | | |
| Atlanta, Georgia[3] | | | | | | | | x |
| Auburn, Washington | | x | | | | | | |
| Baltimore, Maryland[1] | x | x | x | | | | | |
| Bridgeport, Alabama[1] | x | x | | | | | | |
| Cartersville, Georgia | | | | | | | x | |
| Chamblee, Georgia | | x | | | | | | |
| Cloquet, Minnesota | | | | | | x | | |
| Commerce, California[3] | | | | | | | | x |
| Dallas, Texas | | x | | | | | | |
| Delavan, Wisconsin | | | | | x | | | |
| Detroit (River Rouge), Michigan | x | | x | | | | | |
| East Chicago, Indiana[1] | x | x | | | | | | |
| Fort Dodge, Iowa | x | x | x | | | | | |
| Galena Park, Texas[1] | x | x | | | | | | |
| Greenville, Mississippi | | | | | | x | | |
| Gypsum, Ohio[1] | | x | x | x | | | | |
| Jacksonville, Florida[1] | x | x | | x | | | | |
| New Orleans, Louisiana[1] | | | x | | | | | |
| Norfolk, Virginia[1] | x | | | | | | | |
| North Kansas City, Missouri | x | | | | | | | |
| | x | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Oakfield, New York | | | | | | | |
| Otsego, Michigan | x | | | | | | |
| Phoenix (Glendale), Arizona[3] | | x | | | | | |
| Plaster City, California | x | | | x | | | |
| Port Reading, New Jersey | | x | | | | | |
| Rainier, Oregon | x | | | | | | |
| Shoals, Indiana[2] | x | | | | | | |
| Sigurd, Utah | x | x | | | | | |
| Southard, Oklahoma | x | | x | | | | |
| Sperry, Iowa[2] | x | | | | | | |
| Stockton, California | | | | | | x | |
| Sweetwater, Texas | x | | x | x | | | |
| Torrance, California | | x | x | | | | |
| Walworth, Wisconsin | | | | | x | | |
| Washingtonville, Pennsylvania[1,3] | x | | | | | | |
| Westlake, Ohio | | | | | | x | x |
| Weirton, West Virginia[3] | | x | | | | | |

[1] Plants supplied fully by synthetic gypsum
[2] Plants supplied partially by synthetic gypsum
[3] Leased

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| Canada | Gypsum wallboard and other gypsum products | Surface preparation and joint treatment products | Ceiling Grid | Specialty Ceilings |
|---|---|---|---|---|
| Calgary, Alberta[3] | | x | | |
| Hagersville, Ontario[2] | x | x | | |
| Montreal, Quebec[2] | x | x | | |
| Oakville, Ontario | | | x | x |
| Surrey, British Columbia[3] | | x | | |

[2] Plants supplied partially by synthetic gypsum
[3] Leased

OTHER

We operate the following facilities located in Mexico for our gypsum wallboard and other gypsum products that are not included in the above reportable segments:

| | |
|---|---|
| Monterrey, Nuevo Leon | San Luis Potosi, San Luis Potosi |
| Puebla, Puebla | Tecoman, Colima |
| Saltillo, Coahuila | |

We operate the following facilities in the United States, Canada and Mexico:

Paper

| | |
|---|---|
| Galena Park, Texas | Oakfield, New York |
| North Kansas City, Missouri | Otsego, Michigan |

Mines or quarries

| | |
|---|---|
| Alabaster, Michigan | Shoals, Indiana |
| Fort Dodge, Iowa | Sigurd, Utah |
| Hagersville, Ontario | Southard, Oklahoma |
| Monterrey, Nuevo Leon | Sperry, Iowa |
| Plaster City, California | Sweetwater, Texas |
| San Luis Potosi, San Luis Potosi | Tecoman, Colima |

We operate a mica-processing plant at Spruce Pine, North Carolina. We manufacture mineral fiber products at Red Wing, Minnesota, and Walworth, Wisconsin, and metal specialty systems at Oakville, Ontario.

Gypsum's USG Sheetrock® brand gypsum wallboard plants operated at approximately 60% of capacity during 2018.

Item 3. LEGAL PROCEEDINGS

See Part II, Item 8, Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements, Note 17, Litigation, for information on legal proceedings.

Item 4. MINE SAFETY DISCLOSURES

The information concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K promulgated by the SEC is included in Exhibit 95 to this report.

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PART II

## Item 5. MARKET FOR THE REGISTRANT’S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock trades on the New York Stock Exchange, or NYSE, and the Chicago Stock Exchange under the symbol USG. The NYSE is the principal market for our common stock. As of January 31, 2019, there were 1,580 record holders of our common stock. Except for the conditional special dividend disclosed in Item 1, Business, we currently do not pay dividends on our common stock. Our credit facility limits our ability to pay cash dividends on or repurchase our common stock unless specified borrowing availability and fixed charge ratios are met. In addition, the Merger Agreement limits our ability to pay dividends on or repurchase shares of our common stock as discussed below

See Part III, Item 12, Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters, for information regarding common stock authorized for issuance under equity compensation plans.

Pursuant to our Deferred Compensation Program for Non-Employee Directors, five of our non-employee directors deferred the $120,000 annual equity grant and two of our non-employee directors deferred all or a portion of the quarterly retainer payment that those non-employee directors were entitled to receive on December 31, 2018 under our Non-Employee Director Compensation Program, into a total of approximately 14,655 deferred stock units. These units will increase or decrease in value in direct proportion to the market value of our common stock and will be paid in shares of common stock following termination of service as a director. The issuance of these deferred stock units was effected through a private placement under Section 4(a)(2) of the Securities Act of 1933, as amended, and was exempt from registration under Section 5 of that Act. Following the adoption of the Merger Agreement by our stockholders and the payment of the conditional special dividend, on October 2, 2018, six of our non-employee directors received an aggregate total of approximately 2,732 dividend equivalents on outstanding deferred stock units in the form of additional deferred stock units.

PERFORMANCE GRAPH

The following graph and table compare the cumulative total stockholder return on our common stock with the Standard and Poor’s 500 Index, or S&P 500, and the Dow Jones U.S. Construction and Materials Index, or DJUSCN, in each case assuming an initial investment of $100 and full dividend reinvestment, for the five-year period ended December 31, 2018.

| | Value of Investment as of December 31, | | | | | |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| USG | $100 | $ 99 | $ 86 | $102 | $136 | $152 |
| S&P 500 | 100 | 114 | 115 | 129 | 157 | 150 |
| DJUSCN | 100 | 99 | 106 | 127 | 147 | 115 |

All amounts are rounded to the nearest dollar.

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On February 1, 2017, we announced that our Board of Directors, or our Board, approved a stock repurchase program of $250 million, and on February 1, 2018 we announced an increase in this stock repurchase program, bringing the total size of the program to $500 million. Under the program, we may repurchase shares from time to time in open market transactions or in privately-negotiated transactions in accordance with applicable securities laws, including under plans complying with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended, or the Exchange Act. The program remains in effect and has no set expiration date, and approximately $240 million of shares may yet be purchased under the program. However, there has been no repurchase activity under the program since April 2018. In addition, the Merger Agreement limits our ability to repurchase shares of our common stock, subject to certain exceptions, and share repurchases under the program will not continue so long as the Merger Agreement is in effect and has not been terminated.

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Item 6. SELECTED FINANCIAL DATA

| (millions, except per-share and employee data) | Years Ended December 31, | | | | |
|---|---|---|---|---|---|
| | 2018 | 2017 (a) | 2016 (a) | 2015 (b) | 2014 (b) |
| Statement of Income Data: | | | | | |
| Net sales | $3,336 | $3,204 | $3,017 | $2,913 | $2,904 |
| Cost of products sold | 2,730 | 2,548 | 2,317 | 2,269 | 2,294 |
| Gross profit | 606 | 656 | 700 | 644 | 610 |
| Selling and administrative expenses | 379 | 303 | 297 | 300 | 324 |
| Litigation settlement charge (c) | — | — | — | — | 48 |
| Long-lived asset impairment charges (d) | — | — | 10 | — | 90 |
| Contract termination charge and (recovery) loss on receivable (e) | — | — | (3) | (7) | 15 |
| Operating profit | 227 | 353 | 396 | 351 | 133 |
| Income from equity method investments | 42 | 59 | 49 | 48 | 33 |
| Interest expense, net | (50) | (65) | (141) | (161) | (178) |
| Income and gain from sale of equity method investment to related party (f) | — | — | — | 13 | 2 |
| Gain on deconsolidation of subsidiaries and consolidated joint ventures (g) | — | — | — | — | 27 |
| Loss on extinguishment of debt | — | (22) | (37) | (19) | — |
| Other income, net | 8 | 10 | 7 | 4 | 16 |
| Income from continuing operations before income taxes | 227 | 335 | 274 | 236 | 33 |
| Income tax (expense) benefit (h) | (34) | (238) | (63) | 740 | (7) |
| Income from continuing operations | 193 | 97 | 211 | 976 | 26 |
| Income (loss) from discontinued operations, net of tax | 3 | (9) | 20 | 15 | 12 |
| Gain on sale of discontinued operations, net of tax | — | — | 279 | — | — |
| Net income | 196 | 88 | 510 | 991 | 38 |
| Less: Net income attributable to noncontrolling interest | — | — | — | — | 1 |
| Net income attributable to USG | $196 | $88 | $510 | $991 | $37 |
| Income from continuing operations per average common share: | | | | | |
| Basic | $1.38 | $0.67 | $1.45 | $6.70 | $0.18 |
| Diluted | 1.36 | 0.66 | 1.44 | 6.62 | 0.17 |
| | | | | | |
| Balance Sheet Data (as of the end of the year): | | | | | |
| Working capital | $550 | $576 | $527 | $408 | $546 |
| Cash and cash equivalents (b) | 328 | 394 | 427 | 442 | 231 |
| Property, plant and equipment, net (b) | 1,838 | 1,762 | 1,707 | 1,771 | 1,891 |
| Total assets | 3,842 | 3,851 | 3,869 | 4,736 | 3,936 |
| Long-term debt (i) | 1,079 | 1,078 | 1,083 | 1,675 | 2,191 |
| Total stockholders' equity | 1,919 | 1,845 | 1,886 | 1,436 | 408 |
| Cash dividend declared per share | 0.50 | — | — | — | — |

(a) Results have been adjusted from the originally reported amounts to reflect the adoption of Accounting Standard Update (ASU) 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

(b) Results have been adjusted from the originally reported amounts to reflect L&W, which was sold on October 31, 2016, as a discontinued operation. We recorded a gain of $279 million on the sale of the business. See Note 3, Acquisitions and Dispositions, to our consolidated financial statements in Part II, Item 8 of this report. The Statements of Income results have also been adjusted to reflect the adoption of ASU 2017-07.

(c) Reflects a charge related to the settlement of the U.S. wallboard pricing class action lawsuits.

(d) Reflects long–lived asset impairment charges on mining operations in 2016. See Note 12, Long-Lived Asset Impairment Charges, to our consolidated financial statements in Part II, Item 8 of this report. The amount in 2014 reflects impairment charges on manufacturing facilities, capitalized costs for the construction of future facilities and ocean vessels.

(e) Item relates to our shipping operations, which we exited in 2015.

(f) Reflects the gain recorded on the sale of our equity method investment in our Knauf-USG joint venture to our 50/50 joint venture partner in 2015 and our share of the net income from the equity method investment for all periods presented.

(g) Reflects the gain recorded on the deconsolidation and contribution to UBBP of certain of our wholly-owned subsidiaries and consolidated joint ventures.

(h) Income tax expense for 2018 and 2017 includes a benefit of $11 million and a charge of $145 million, respectively, related to the Tax Cuts and Jobs Act, or the 2017 Tax Act. See Note 14, Income Taxes, to our consolidated financial statements in Part II, Item 8 of this report. The 2015 benefit includes the reversal of a tax valuation allowance of $731 million.

(i) Excludes currently maturing portion of long-term debt.

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## Item 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

### OVERVIEW

USG, through our subsidiaries and joint ventures, is a leading manufacturer of building materials and innovative solutions. We produce a wide range of products under recognized brand names including Sheetrock®, Durock®, Fiberock®, and Securock® serving the new residential, new nonresidential, and residential and nonresidential repair and remodel construction markets as well as products used in certain industrial processes, enabling our customers to build the outstanding spaces where people live, work and play. See Note 19, Merger Agreement, to the consolidated financial statements in Part II, Item 8 of this report for information related to the Merger.

### KEY STRATEGIES

Our strategy includes the following four pillars:

- Profitably grow our core portfolio,
- Innovate to address industry challenges,
- Align and enable our organization, and
- Maintain disciplined capital allocation.

### MARKET CONDITIONS AND OUTLOOK

Our businesses are cyclical in nature and sensitive to changes in general economic conditions, including conditions in the housing and construction-based markets in North America. Our business in the markets of Asia, Australasia, and the Middle East also significantly exposes us to the economic conditions in those areas. However, the UBBP joint ventures have helped diversify USG’s overall exposure to changes in North American economic conditions.

The following table summarizes the current market conditions and outlook for our primary end markets in North America.

| End Market | Lead time | Metric | Source | Market Condition/Outlook |
|---|---|---|---|---|
| New Residential | Installation of gypsum products[a] into a single family home typically follows a housing start by 90-120 days | Housing starts (seasonally adjusted) | U.S. Census Bureau | November 2018 - 1.179 million [e]<br>November 2017 - 1.122 million [e]<br>December 2017 - 1.202 million |
| | | | Industry forecast (Blue Chip Economic Indicators) | 2019 - 1.21 million to 1.34 million [b] |
| New Nonresidential | Installation of gypsum[a] and ceilings products typically follows signing of construction contracts by about 12 to 18 months | Change in floor space for which contracts are signed | Dodge Data & Analytics | 2018 from 2017 - no change |
| | | | Industry forecast (Dodge Data & Analytics) [c] | 2019 from 2018 - no change |
| Repair and Remodel [d] | Remodels typically begin within two years from purchase | Sales of existing homes (seasonally adjusted) | National Association of Realtors | 2018 - 5.34 million<br>2017 - 5.51 million |

(a) Gypsum products include products manufactured and marketed by our U.S. Wallboard and Surfaces segment and Fiberock® brand gypsum fiber panels manufactured and marketed by our U.S. Performance Materials segment.
(b) Forecast based on the average of the bottom ten and top ten forecasts included in the report, respectively.
(c) Dodge Data & Analytics' forecast includes several building types which do not generate significant demand for our products.
(d) The repair and remodel market includes renovation of both residential and nonresidential buildings.
(e)

At the time of the filing of this Form 10-K, December 2018 housing starts were not available from the U.S. Census Bureau.

While sales of products in our U.S. Wallboard and Surfaces and U.S. Performance Materials segments have generally improved with the modest recovery in residential housing, the segments continue to be adversely affected by the low level of residential and other construction activity compared to historical averages. The results of our U.S. Ceilings segment, which primarily serves the nonresidential market, have shown some improvement over the longer term. However, the results also continue to be adversely affected by the low levels of new nonresidential construction activity as compared to historical averages. Our U.S. Ceilings segment is also adversely affected by changing construction preferences, such as the shift to open plenum and specialty ceilings. We acquired Ceilings Plus in 2017 to help address this trend.

Modest improvement is also expected in the construction industry in Canada. Other international markets, including those that are within the UBBP territory, provide opportunities for our operations to serve the demand in these regions. The

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construction growth rate in Australia is expected to remain low, driven by low residential housing growth. In South Korea, the construction industry has slowed and forecasts low growth rates in the residential and commercial sectors. The construction industry in Thailand is projecting growth, driven by non-residential infrastructure spending. Several emerging markets which are within the UBBP territory are forecasted to experience growth. The markets within the UBBP territory are adopting modern construction practices and newer technology, which provide more opportunities. We anticipate that the performance of the UBBP joint ventures will partially offset some of the potential cyclicality in our North American businesses.

The following table summarizes the industry information on U.S. wallboard shipments and capacity.

| U.S. Industry Information | Metric | Source | Market Condition/Outlook |
| --- | --- | --- | --- |
| U.S. industry shipments of gypsum board [(a)] | Billion of square feet (bsf) | Gypsum Association | Twelve months 2018 - 25.4 bsf<br>Twelve months 2017 - 25.7 bsf |
| | | USG forecast | 2019 shipments expected to increase by low single digits |
| U.S. wallboard capacity | Billion of square feet (bsf) | Gypsum Association | 1/1/2019 - 34.1 bsf |
| U.S. industry capacity utilization rate | Annualized shipments as a percentage of industry capacity | USG estimate | Twelve months 2018 - 74%<br>Twelve months 2017 - 76% |

(a) The gypsum board market as determined by the Gypsum Association includes gypsum wallboard, other gypsum-related paneling products, such as glass mat sheathing and gypsum fiber boards, and imports.

We shipped 5.81 billion square feet of USG Sheetrock® brand gypsum wallboard in 2018, a 5% decrease from 6.12 billion square feet in 2017. Our share of the gypsum board market in the United States, which includes, for comparability, shipments of the Gypsum products of USG Sheetrock® brand gypsum wallboard and Securock® brand glass mat sheathing and the Performance Materials product of Fiberock® brand gypsum fiber panels, decreased to 24.5% in 2018 from 25.4% in 2017.

There is excess wallboard production capacity industry-wide in the United States. Based on current industry trends and forecasts, demand for gypsum wallboard is expected to increase in 2019, but the magnitude of any increase will depend on the levels of housing starts and repair and remodel activity, among other factors. We project that the industry capacity utilization rate will increase modestly in 2019 compared to 2018.

We could experience pressure on gypsum wallboard selling prices and our gross margins at these levels of capacity utilization. Our U.S. Wallboard and Surfaces segment implemented a price increase for wallboard in February 2019. However, it is uncertain that we will be able to maintain the increase or obtain additional increases in our selling prices. If we are unable to maintain or implement additional price increases, our net sales, operating results and cash flows may be materially and adversely impacted.

GEOGRAPHIC INFORMATION

In 2018, we recorded $3.3 billion of net sales in our consolidated statement of income, and net sales for UBBP, which are not included in our consolidated statements of income, were $1.2 billion. The following charts reflect the geographic breakdown of net sales for the year ended December 31, 2018.

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CURRENCY IMPACT

The impact of currency on consolidated and segment results for 2018 and 2017 has been derived by translating current period results at the year-to-date average foreign currency rates for the period ending December 31, 2017 and December 31, 2016, respectively.

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CONSOLIDATED RESULTS OF OPERATIONS

| (millions, except per-share data) | 2018 | 2017 (a) | 2016 (a) | Favorable (Unfavorable) 2018 vs. 2017 $ | % | 2017 vs. 2016 $ | % |
|---|---|---|---|---|---|---|---|
| Net sales | $3,336 | $3,204 | $3,017 | $132 | 4 % | $187 | 6 % |
| Cost of products sold | 2,730 | 2,548 | 2,317 | (182) | (7)% | (231) | (10)% |
| Gross profit | 606 | 656 | 700 | (50) | (8)% | (44) | (6)% |
| Selling and administrative expenses | 379 | 303 | 297 | (76) | (25)% | (6) | (2)% |
| Long-lived asset impairment charges | — | — | 10 | — | * | 10 | 100 % |
| Recovery of receivable | — | — | (3) | — | * | (3) | (100)% |
| Operating profit | 227 | 353 | 396 | (126) | (36)% | (43) | (11)% |
| Income from equity method investments | 42 | 59 | 49 | (17) | (29)% | 10 | 20 % |
| Interest expense | (57) | (69) | (145) | 12 | 17 % | 76 | 52 % |
| Interest income | 7 | 4 | 4 | 3 | 75 % | — | — % |
| Loss on extinguishment of debt | — | (22) | (37) | 22 | 100 % | 15 | 41 % |
| Other income, net | 8 | 10 | 7 | (2) | * | 3 | 43 % |
| Income from continuing operations before income taxes | 227 | 335 | 274 | (108) | (32)% | 61 | 22 % |
| Income tax (expense) benefit | (34) | (238) | (63) | 204 | * | (175) | * |
| Income from continuing operations | 193 | 97 | 211 | 96 | 99 % | (114) | (54)% |
| Income (loss) from discontinued operations, net of tax | 3 | (9) | 20 | 12 | * | (29) | * |
| Gain on sale of discontinued operations, net of tax | — | — | 279 | — | * | (279) | * |
| Net income | $196 | $88 | $510 | $108 | 123 % | $(422) | (83)% |
| Diluted earnings per share - net income | $1.38 | $0.60 | $3.46 | $0.78 | | $(2.86) | |

* not meaningful
(a) Results have been adjusted from the originally reported amounts to reflect the adoption of ASU 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

NET SALES

Consolidated net sales in 2018 increased $132 million, or 4%, compared with 2017, driven by higher net sales in all four consolidated segments. The increase reflected higher prices for most of our products including USG Sheetrock® brand gypsum wallboard, USG Sheetrock® brand joint compound, USG Durock® brand cement board, Securock® brand roof boards, ceiling tile and grid. The increase in sales was also due to higher volumes of USG Performance Flooring, including Levelrock® brand gypsum underlayment, ceiling tile and grid. Partially offsetting the increased prices and volumes were lower volumes of USG Sheetrock® brand gypsum wallboard and USG Sheetrock® brand joint compound. On a consolidated basis, foreign currency exchange rate fluctuations unfavorably impacted our net sales by $2 million.

Consolidated net sales in 2017 increased $187 million, or 6%, compared with 2016, driven by higher net sales in all four consolidated segments. The increase reflected higher volumes of USG Sheetrock® brand gypsum wallboard, USG Sheetrock® brand joint compound, USG Durock® brand cement board, USG Durock™ brand glass-mat tile backerboard, Fiberock® brand tile backerboard and underlayment and ceiling tile offset by lower volumes of ceiling grid and lower prices for gypsum wallboard and joint compound. On a consolidated basis, foreign currency exchange rate fluctuations positively impacted our net sales by $6 million.

GROSS PROFIT

Gross profit was $606 million in 2018 compared to $656 million in 2017. As a percentage of net sales, gross profit was 18.2% in 2018 and 20.5% in 2017. The decrease of $50 million in gross profit was driven by increased costs per unit of products across our four consolidated segments and higher transportation costs, offset by higher volumes and higher average selling prices in our U.S. Performance Materials, U.S. Ceilings and Canada segments and higher

average selling prices in our U.S. Wallboard and Surfaces segment. Also contributing to the decrease in gross profit were costs incurred for the expansion of our Jacksonville and Delavan facilities, offset by the gain of $13 million on the sale of a surplus property and $27 million in incremental savings driven by our Advanced Manufacturing initiatives.

Gross profit was $656 million in 2017 compared to $700 million in 2016. As a percentage of net sales, gross profit was 20.5% in 2017 and 23.2% in 2016. The decrease of $44 million in gross profit was driven by increased costs of manufacturing due primarily to higher costs of raw materials, notably waste paper and steel, and a $3 million less favorable adjustment to our asset retirement obligation due to changes in cash flow estimates. Also driving the decrease was the absence of $7 million for items recorded in 2016, which included a gain of $11 million for the sale of surplus property offset by a $2

million adjustment to customer reserves and $2 million of severance and other charges related to the decision to indefinitely idle our mining operations in Little Narrows, Nova Scotia, Canada.

SELLING AND ADMINISTRATIVE EXPENSES

Selling and administrative expenses totaled $379 million in 2018, $303 million in 2017 and $297 million in 2016. As a percentage of net sales, selling and administrative expenses increased to 11.4% in 2018 compared to 9.5% in 2017 and 9.8% in 2016. Our selling and administrative expenses in 2018 included $19 million in costs associated with the Merger, $11 million in costs associated with the integration of USG Ceilings Plus and our business unit realignment announced in the fourth quarter of 2017, an $8 million charge for the termination of a marketing contract associated with U.S. Performance Materials products, a $5 million charge for a legal judgment on a contract dispute from 2004 and $6 million in selling and administrative expenses for USG Ceilings Plus. The remaining $27 million increase in selling and administrative expenses primarily reflected planned increased marketing and compensation expenses in support of our strategy and increased costs for information technology and professional fees related to system implementation.

The increase of $6 million in selling and administrative expenses for 2017 reflected higher costs for marketing and services including those in support of product growth initiatives offset by the absence of $4 million for the exit of commercial office space, which reflected the remaining lease term and accelerated depreciation.

LONG-LIVED ASSET IMPAIRMENT CHARGES

We recorded long-lived asset impairment charges of $10 million in 2016. These charges resulted from the decision to indefinitely idle our mining operations in Little Narrows, Nova Scotia, Canada, after completing a review of our gypsum sourcing needs. See Note 12, Long-Lived Asset Impairment Charges, to our consolidated financial statements in Part II, Item 8 of this report for additional information related to long-lived asset impairment charges.

RECOVERY OF RECEIVABLE

In 2016, we recovered $3 million of a previously deemed uncollectible receivable through a settlement agreement.

INCOME FROM EQUITY METHOD INVESTMENTS

Income from equity method investments was $42 million in 2018, $59 million in 2017, and $49 million in 2016. The decrease from 2017 to 2018 was driven by a decrease in the net income of UBBP, due primarily to lower margins in South Korea, Indonesia and Thailand offset by lower selling and administrative expenses.

The increase from 2016 to 2017 was driven by an increase in the net income of UBBP, which was due to a favorable currency impact of $2 million and the absence of $8 million in impairment charges recorded in 2016.

INTEREST EXPENSE

Interest expense was $57 million in 2018, $69 million in 2017 and $145 million in 2016. The decrease in interest expense in 2018 reflected lower interest rates on outstanding debt. The decrease in interest expense for 2017 as compared to 2016 primarily reflected lower debt levels and lower interest rates on our outstanding debt.

LOSS ON EXTINGUISHMENT OF DEBT

We recorded a loss on extinguishment of debt, including premiums and write-off of unamortized debt issuance costs, of $22 million in 2017 and $37 million in 2016. The loss in 2017 included $21 million, primarily for premiums paid as a result of a tender offer and repurchase of our 7.75% Senior Notes due 2018, referred to as our 7.75% Notes, and write-off of $1 million for deferred fees upon the amendment of our credit facility. The loss in 2016 was a result of the early redemption of our 6.3% Senior Notes due 2016 and repayment of our 7.875% Senior Notes due 2020 and 5.875% Senior Notes due 2021.

OTHER INCOME, NET

Other income, net was $8 million in 2018 compared to $10 million in 2017. During 2018, we recorded a loss of $8 million on the sale of our interest in a joint venture in South Africa, inclusive of $4 million of deferred currency loss and $2 million of net losses on foreign currency transactions offset by the non-service cost components of pension and postretirement plans of $18 million. In 2017, we recorded $12 million of pension settlement charges related to lump sum benefits paid to former USG employees and $4 million of net losses on foreign currency transactions offset by non-service cost components of pension and postretirement plans of $26 million.

Other income, net was $10 million in 2017 as compared to $7 million in 2016. The increase of $3 million primarily reflected lower pension settlement expense of $8 million in 2017 offset by the absence of the receipt of $4 million in

remaining

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payments under a settlement agreement with a former trading partner. The remaining fluctuation was driven by foreign currency transactions.

INCOME TAX EXPENSE (BENEFIT)

Our effective tax rate was 15% in 2018, 71% in 2017 and 23% in 2016. Our effective tax rate has historically been sensitive to the geographic mix of earnings. When the percentage of pretax earnings generated outside of the United States increased, our effective tax rate generally decreased. Conversely, when the percentage of pretax earnings generated outside of the United States decreased, our effective tax rate generally increased.

The effective tax rate for each of 2018, 2017 and 2016 was significantly impacted by the charges and credits described in detail below. Excluding the impact of these charges and credits, the effective tax rate was 20% in 2018, 28% in 2017 and 31% in 2016.

Income tax expense was $34 million in 2018 compared with income tax expense of $238 million in 2017. Income tax expense in 2018 reflected the lower federal rate enacted in connection with the 2017 Tax Act and included a $11 million non-cash tax benefit related to the finalization of the measurement of the 2017 Tax Act in the fourth quarter of 2018. Additionally, $7 million of tax benefit was recorded for stock-based compensation during the year.

Income tax expense was $238 million in 2017 compared with income tax expense of $63 million in 2016. The income tax expense in 2017 included a $145 million non-cash tax charge related to the revaluation and change in realizability of our deferred tax assets due to the 2017 Tax Act.

Income tax expense was $63 million in 2016 and was related to tax expense from domestic, foreign, state and local jurisdictions. This expense was partially offset by foreign tax credits attributable to tax planning strategies to optimize foreign tax credit utilization and management's intention to amend its tax returns for the tax years 2012-2014 in order to claim credits for previously deducted foreign tax.

INCOME (LOSS) FROM DISCONTINUED OPERATIONS, NET OF TAX

We recorded income in 2018 from discontinued operations of $3 million driven by net pension and postretirement benefits. In 2017, the loss of $9 million primarily related to a pension settlement charge triggered by lump sum benefits paid to former employees of L&W. The income of $20 million for 2016 primarily reflected the income recorded by L&W prior to the sale to ABC Supply on October 31, 2016. We also recorded losses of $1 million and $2 million in 2017 and 2016, respectively, related to our European operations which were sold in December 2012. See Note 3, Acquisitions and Dispositions, to our consolidated financial statements in Part II, Item 8 of this report for additional information.

GAIN ON SALE OF DISCONTINUED OPERATIONS, NET OF TAX

In 2016, we completed the sale of L&W, our distribution business, to ABC Supply and received proceeds of $675 million, inclusive of a $6 million final working capital adjustment. The sale resulted in a gain, net of tax, of $279 million. See Note 3, Acquisitions and Dispositions, to our consolidated financial statements in Part II, Item 8 of this report for additional information.

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SEGMENT RESULTS OF OPERATIONS

Net sales and operating profit (loss) for our consolidated reportable segments were as follows:

| | | | | Favorable (Unfavorable) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 2018 vs. 2017 | | 2017 vs. 2016 | |
| (millions) | 2018 | 2017 (a) | 2016(a) | $ | % | $ | % |
| Net Sales: | | | | | | | |
| U.S. Wallboard and Surfaces | $1,927 | $1,916 | $1,778 | $11 | 1 % | $138 | 8 % |
| U.S. Performance Materials | 392 | 373 | 357 | 19 | 5 % | 16 | 4 % |
| U.S. Ceilings | 541 | 477 | 467 | 64 | 13 % | 10 | 2 % |
| Canada | 448 | 405 | 389 | 43 | 11 % | 16 | 4 % |
| Other | 252 | 245 | 220 | 7 | 3 % | 25 | 11 % |
| Eliminations | (224) | (212) | (194) | (12) | (6)% | (18) | (9)% |
| Total | $3,336 | $3,204 | $3,017 | $132 | 4 % | $187 | 6 % |
| | | | | | | | |
| Operating Profit (Loss): | | | | | | | |
| U.S. Wallboard and Surfaces | $248 | $306 | $328 | (58) | (19)% | $(22) | (7)% |
| U.S. Performance Materials | (8) | 24 | 40 | (32) | (133)% | (16) | (40)% |
| U.S. Ceilings | 78 | 92 | 98 | (14) | (15)% | (6) | (6)% |
| Canada | 19 | 13 | 27 | 6 | 46 % | (14) | (52)% |
| Other | 14 | 11 | (4) | 3 | 27 % | 15 | * |
| Corporate | (124) | (92) | (93) | (32) | (35)% | 1 | 1 % |
| Eliminations | — | (1) | — | 1 | * | (1) | * |
| Total | $227 | $353 | $396 | $(126) | (36)% | $(43) | (11)% |

* Not meaningful

(a) Results have been adjusted from the originally reported amounts to reflect the adoption of ASU 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

U.S. Wallboard and Surfaces

Our U.S. Wallboard and Surfaces segment manufactures and markets gypsum and related products in the United States. These products are used in a variety of building applications to construct walls and ceilings of residential, nonresidential and institutional buildings, as well as in certain industrial applications.

2018 COMPARED WITH 2017

Net sales for U.S. Wallboard and Surfaces in 2018 were $1.9 billion, an increase of $11 million, or 1%, compared with 2017. The net sales increase was due to the following:

| | Sales | | Volume | | Price | |
|---|---|---|---|---|---|---|
| (millions) | $ | % | $ | % | $ | % |
| Change to 2018 from 2017 | | | | | | |
| USG Sheetrock® brand gypsum wallboard | $(19) | (2)% | $(50) | (5)% | $31 | 3% |
| USG Sheetrock® brand joint compound | 5 | 2 % | (1) | —% | 6 | 2% |
| Other | 25 | | | | | |
| Total increase in net sales | $11 | 1 % | | | | |

Sales for USG Sheetrock® brand gypsum wallboard decreased $19 million in 2018 compared to 2017 due to lower volumes offset by a higher average selling price. We shipped 5.81 billion square feet of USG Sheetrock® brand gypsum wallboard in 2018, a 5% decrease from 6.12 billion square feet in 2017. Offsetting the decrease in volumes were higher average selling prices in USG Sheetrock® brand gypsum wallboard driven by the 2018 price increases.

Sales for USG Sheetrock® brand joint compound increased $5 million in 2018 compared to 2017 due to a higher average selling price offset by lower volumes. The increase in average selling price was driven by a price increase in the first quarter of 2018. U.S. Wallboard and Surfaces net sales also increased $25 million due to higher net sales of other products, including glass-mat panels and surfaces products, higher royalties and higher freight as a result of higher sales.

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Operating profit for U.S. Wallboard and Surfaces was $248 million in 2018 and $306 million in 2017, or a $58 million decrease, and reflected the following:

| (millions) | Operating Profit (a) $ | Volume $ | Price $ | Cost $ |
|---|---|---|---|---|
| Change to 2018 from 2017 | | | | |
| USG Sheetrock® brand gypsum wallboard | $ (42) | $ (21) | $ 31 | $ (52) |
| USG Sheetrock® brand joint compound | (13) | — | 6 | (19) |
| Other | (3) | | | |
| Total decrease in operating profit | $ (58) | | | |

The decrease in operating profit primarily reflected lower gross profits of USG Sheetrock® brand gypsum wallboard and USG Sheetrock® brand joint compound and higher transportation costs and selling and administrative expenses. The lower gross profit of USG Sheetrock® brand gypsum wallboard reflected higher cost per unit and lower volumes offset by higher average selling price. The higher per unit cost primarily reflected an increase in costs per unit of 25% for fixed costs and 10% for conversion costs due to higher labor costs, an increase in costs per unit of 6% for raw materials, primarily for synthetic gypsum, gypsum rock and oil based commodity products offset by lower paper costs.

The lower gross profit for USG Sheetrock® brand joint compound reflected a higher per unit cost offset by higher average selling price. The higher per unit cost for joint treatment reflected increased cost per unit for raw materials, primarily resin used for containers and transportation costs.

Offsetting the higher costs across the segment were $17 million of savings attributable to our Advanced Manufacturing initiatives and a $13 million gain on the sale of a surplus property. Increased selling and administrative expenses reflected increased compensation and marketing expenses. As a percentage of sales, selling and administrative expenses increased 40 basis points.

2017 COMPARED WITH 2016

Net sales for U.S. Wallboard and Surfaces in 2017 increased $138 million, or 8%, compared with 2016. The net sales increase was due to the following:

| | Sales | | Volume | | Price | |
|---|---|---|---|---|---|---|
| (millions) | $ | % | $ | % | $ | % |
| Change to 2017 from 2016 | | | | | | |
| USG Sheetrock® brand gypsum wallboard | $52 | 6% | $59 | 6% | $(7) | —% |
| USG Sheetrock® brand joint compound | 21 | 6% | 23 | 6% | (2) | —% |
| Other | 65 | | | | | |
| Total increase in net sales | $138 | 8% | | | | |

The increase in net sales reflected higher volumes of USG Sheetrock® brand gypsum wallboard due to higher shipments to big box retailers and specialty dealers, including new customers, and higher volumes of USG Sheetrock® brand joint compound as a result of higher shipments to big box retailers. We shipped 6.12 billion square feet of USG Sheetrock® brand gypsum wallboard in 2017, a 6% increase from 5.76 square feet in 2016. Offsetting the increase in volumes were lower average selling prices in USG Sheetrock® brand gypsum wallboard and USG Sheetrock® brand joint compound primarily driven by a change in mix and regional pricing differences as we balance price and volume across the country with new customers and the continued transition under the L&W supply agreement.

Sales also increased by $65 million due to net sales of other products including glass-mat panels, paper and joint compound accessory products, $8 million in higher royalties and higher freight as a result of higher sales.

Operating profit for U.S. Wallboard and Surfaces was $306 million in 2017 and $328 million in 2016, or a $22 million decrease, and reflected the following:

| (millions) | Operating Profit (a) $ | Volume $ | Price $ | Cost $ |
|---|---|---|---|---|
| Change to 2017 from 2016 | | | | |
| USG Sheetrock® brand gypsum wallboard | $ (16 ) | $ 26 | $ (7 ) | $ (35 ) |
| USG Sheetrock® brand joint compound | (1 ) | 6 | (2 ) | (5 ) |
| Other | (5 ) | | | |
| Total decrease in operating profit | $ (22 ) | | | |

(a) Results have been adjusted from the originally reported amounts to reflect the adoption of ASU 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

The decrease in operating profit primarily reflected higher per unit costs of USG Sheetrock® brand gypsum wallboard and USG Sheetrock® brand joint compound partially offset by higher volumes of these products as discussed above. Higher manufacturing per unit costs of USG Sheetrock® brand gypsum wallboard reflected an increase in per unit cost of 11% for raw materials, primarily due to waste paper. Offsetting the higher costs for raw materials were improved per unit costs of 3% for energy and 2% for fixed costs due to higher volumes. The increased per unit costs of USG Sheetrock® brand joint compound were also driven by increased costs of raw materials.

Further contributing to the decrease in operating profit in 2017 was a $5 million less favorable adjustment year over year to our asset retirement obligations due to changes in cash flow estimates and the absence of $9 million for items recorded in 2016, which included a gain of $11 million for the sale of surplus property offset by a $2 million adjustment to customer reserves. Offsetting the decrease in operating profit was higher gross profit of $9 million on other products including glass-mat panels, and lower selling and administrative expenses of $3 million. As a percentage of sales, selling and administrative expenses decreased 50 basis points.

U.S. Performance Materials

Our U.S. Performance Materials segment manufactures and markets a series of innovative products in the United States in the product categories of underlayment, building envelope and structural. These products are used in a variety of interior and exterior building applications of residential and nonresidential buildings, as well as in certain industrial applications.

2018 COMPARED WITH 2017

Net sales for U.S. Performance Materials in 2018 were $392 million, an increase of $19 million, or 5%, compared with 2017. The net sales increase was due to the following:

| | Sales | | Volume | | Price | |
|---|---|---|---|---|---|---|
| (millions) | $ | % | $ | % | $ | % |
| Change to 2018 from 2017 | | | | | | |
| USG Durock® brand cement board | $4 | 3 % | $1 | 1 % | $3 | 2 % |
| USG Performance Flooring | 9 | 13 % | 9 | 13 % | — | — % |
| Securock® brand roof boards | 5 | 11 % | (1 ) | (2 )% | 6 | 13 % |
| Other | 1 | | | | | |
| Total increase in net sales | $19 | 5 % | | | | |

The increase in net sales was driven by higher volumes of USG Durock® brand cement board, and USG Performance Flooring, which includes Levelrock® brand gypsum underlayment, due to increased shipments to all customer segments and organic growth in key markets. Also driving the increase in U.S. Performance Materials is higher average selling price for USG Durock® brand cement board and Securock® brand roof boards.

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Operating loss for U.S. Performance Materials was $8 million in 2018 compared to operating profit of $24 million in 2017, or a $32 million decrease, and reflected the following:

| (millions) | Operating Profit (a) $ | Volume $ | Price $ | Cost $ |
|---|---|---|---|---|
| Change to 2018 from 2017 | | | | |
| USG Durock® brand cement board | $ (3) | $ — | $ 3 | $ (6) |
| USG Performance Flooring | 4 | 9 | — | (5) |
| Securock® brand roof boards | 1 | — | 6 | (5) |
| Selling and administrative expenses | (19) | | | |
| Other | (15) | | | |
| Total decrease in operating profit | $ (32) | | | |

The decrease in operating profit was driven primarily by higher selling and administrative expenses and miscellaneous costs as well as a higher cost per unit of USG Durock® brand cement board, USG Performance Flooring, including Levelrock® brand gypsum underlayment, and Securock® brand roof boards. The increased cost per unit of each reflected higher raw material and transportation costs. Offsetting the higher costs was improved pricing of USG Durock® brand cement board and USG Securock® brand roof boards and $5 million of savings across the segment attributable to our Advanced Manufacturing initiatives.

The $19 million increase in selling and administrative expenses was reflective of increased marketing and compensation expenses, including the addition of technical sales personnel to accelerate the adoption of new products and an $8 million charge for the termination of a marketing contract. As a percentage of sales, selling and administrative expenses increased 240 basis points. Included in Other was $10 million of higher miscellaneous costs, including our expansion of our Jacksonville and Delavan facilities and higher depreciation expense.

2017 COMPARED WITH 2016

Net sales for U.S. Performance Materials in 2017 increased $16 million, or 4%, compared with 2016. The net sales increase was due to the following:

| (millions) | Sales $ | Sales % | Volume $ | Volume % | Price $ | Price % |
|---|---|---|---|---|---|---|
| Change to 2017 from 2016 | | | | | | |
| USG Durock® brand cement board | $3 | 2 % | $3 | 2 % | $— | — % |
| USG Durock™ brand glass-mat tile backerboard | 3 | 39% | 3 | 39% | — | — % |
| Fiberock® brand tile backerboard and underlayment | 2 | 7 % | 3 | 12% | (1) | (5)% |
| Other | 8 | | | | | |
| Total increase in net sales | $16 | 4 % | | | | |

The increase in net sales in 2017 was driven by increased volumes of USG Durock® brand cement board, USG Durock™ brand glass-mat tile backerboard and Fiberock® brand tile backerboard and underlayment. The higher volumes of these products primarily reflected increased sales into the repair and remodel market with higher shipments to big box retailers and specialty dealers. Lower average selling price of Fiberock® brand tile backerboard and underlayment slightly offset the increases in volumes.

The increase in Other reflected higher sales of $8 million of other products including Securock® brand roof boards, Levelrock® brand gypsum underlayment, tile and flooring accessories and Securock® ExoAir® 430 air barrier system and higher freight due to increased shipments.

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Operating profit for U.S. Performance Materials was $24 million in 2017 and $40 million in 2016, or a $16 million decrease, and reflected the following:

| (millions) | Operating Profit (a) $ | Volume $ | Price $ | Cost $ |
|---|---|---|---|---|
| Change to 2017 from 2016 | | | | |
| USG Durock® brand cement board | $ (2 ) | $ 1 | $ — | $(3) |
| USG Durock™ brand glass-mat tile backerboard | 1 | 1 | — | — |
| Fiberock® brand tile backerboard and underlayment | (1 ) | 1 | (1 ) | (1 ) |
| Other | (14 ) | | | |
| Total decrease in operating profit | $ (16 ) | | | |

(a) Results have been adjusted from the originally reported amounts to reflect the adoption of ASU 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

The decrease in operating profit in 2017 reflected lower gross profit on USG Durock® brand cement board and Fiberock® brand tile backerboard and underlayment as a result of higher per unit cost offset by higher gross profit on USG Durock™ brand glass-mat tile backerboard. The increased per unit cost for Durock® brand cement board primarily reflected increased transportation costs offset by lower cost of raw materials. The higher cost per unit for Fiberock® brand tile backerboard and underlayment was driven by an increase in the cost of raw materials, primarily waste paper, and increased transportation costs offset slightly by lower energy costs.

Included in Other was lower gross profit on other products of $8 million, including Securock® brand roof boards, which reflected higher costs of raw materials and transportation costs, a $1 million increase in operational reserves and $4 million of higher selling and administrative expenses. As a percentage of sales, selling and administrative expenses increased 100 basis points which reflected increased marketing and compensation costs.

U.S. Ceilings

Our U.S. Ceilings segment manufactures and markets interior ceiling systems products in the United States and is a leading supplier of interior ceilings products used primarily in nonresidential applications.

2018 COMPARED WITH 2017

Net sales for U.S. Ceilings increased to $541 million in 2018, a $64 million, or 13%, increase from $477 million in 2017. The increase reflected the following:

| | Sales | | Volume | | Price | |
|---|---|---|---|---|---|---|
| (millions) | $ | % | $ | % | $ | % |
| Change to 2018 from 2017 | | | | | | |
| Ceiling grid | $16 | 11% | $3 | 2% | $13 | 9% |
| Ceiling tile | 9 | 4% | 3 | 2% | 6 | 2% |
| Specialty ceilings | 36 | * | | | | |
| Other | 3 | | | | | |
| Total increase in net sales | $64 | | | | | |

* not meaningful

The increase in net sales of ceiling grid and ceiling tile was primarily driven by higher average selling price and higher volumes. The increased average selling price for ceiling grid resulted from multiple price increases and the higher average selling price for ceiling tile reflected product mix. Further contributing to the increase in net sales for U.S. Ceilings were $36 million of incremental sales from USG Ceilings Plus for specialty ceilings.

Operating profit for U.S. Ceilings of $78 million in 2018 decreased $14 million, or 15%, from $92 million in 2017. The decrease reflected the following:

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| | Operating Profit | Volume | Price | Cost |
|---|---|---|---|---|
| (millions) | $ | $ | $ | $ |
| Change to 2018 from 2017 | | | | |
| Ceiling grid | $ 6 | $ 2 | $ 13 | $ (9) |
| Ceiling tile | (2) | 1 | 6 | (9) |
| Other | (18) | | | |
| Total decrease in operating profit | $ (14) | | | |

The decrease in operating profit reflected higher selling and administrative expenses and lower gross margin for ceiling tile offset by higher margin for ceiling grid. The increase in ceiling grid gross margin was due primarily to higher average selling price partially offset by higher costs per unit. The higher cost per unit for ceiling grid was driven primarily by increased raw material costs, primarily steel. Gross profit for ceiling tile decreased compared to 2017 due to an increased cost per unit partially offset by higher volumes and a higher average selling price. The increased cost per unit for ceiling tile was due to increased cost for raw materials, primarily mineral fiber costs. The increased costs per unit for both ceiling grid and ceiling tile were slightly offset by $4 million in incremental savings across the segment from our Advanced Manufacturing initiatives.

The increase in gross profit for ceiling grid was offset by higher costs for USG Ceilings Plus, which included $7 million of integration costs and $6 million of additional selling and administrative expenses. As a percentage of sales, selling and administrative expenses for U.S. Ceilings increased by 270 basis points.

2017 COMPARED WITH 2016

Net sales for U.S. Ceilings increased to $477 million in 2017, a $10 million, or 2%, increase from $467 million in 2016. The increase reflected the following:

| | Sales | | Volume | | Price | |
|---|---|---|---|---|---|---|
| (millions) | $ | % | $ | % | $ | % |
| Change to 2017 from 2016 | | | | | | |
| Ceiling grid | $ (2) | (1)% | $ (3) | (2)% | $ 1 | 1% |
| Ceiling tile | 6 | 2% | 6 | 2% | — | —% |
| Other | 6 | | | | | |
| Total increase in net sales | $ 10 | | | | | |

The increase in net sales reflected higher sales of ceiling tile of $6 million due to higher volumes, primarily to our specialty dealers, offset by lower sales of ceiling grid of $2 million as a result of lower volumes, primarily to our customers in the retail channel. The increase in other included one month of net sales of $4 million from USG Ceilings Plus for specialty ceilings, $1 million in higher royalties and higher freight due to increased sales.

Operating profit for U.S. Ceilings of $92 million in 2017 decreased $6 million, or 6%, from $98 million in 2016. The decrease reflected the following:

| | Operating Profit | Volume | Price | Cost |
|---|---|---|---|---|
| (millions) | $ | $ | $ | $ |
| Change to 2017 from 2016 | | | | |
| Ceiling grid | $ (8) | $ (2) | $ 1 | $ (7) |
| Ceiling tile | (2) | — | — | (2) |
| Other | 4 | | | |
| Total decrease in operating profit | $ (6) | | | |

(a) Results have been adjusted from the originally reported amounts to reflect the adoption of ASU 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

The decrease in operating profit for 2017 was driven by a decrease in gross profit for both ceiling grid and ceiling tile in 2017 compared with 2016. The lower gross profit for ceiling grid reflected lower volumes and higher per unit cost partially offset by higher average selling price. The higher per unit cost for ceiling grid was due to an increase in raw

materials costs, primarily steel. The decrease in gross profit for ceiling tile primarily reflected higher per unit cost which was driven by an

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increase in energy costs due to higher prices of natural gas. Other primarily included a decrease in miscellaneous costs and selling and administrative expenses. As a percentage of sales, selling and administrative expenses declined by 50 basis points.

Canada [(a)]

Our Canada segment manufactures gypsum products and ceiling grid and markets gypsum products, ceiling grid and ceiling tile in Canada and is a leading supplier of gypsum wallboard. These products are used in a variety of building applications, including residential, nonresidential and institutional buildings, as well as in certain industrial applications.

2018 COMPARED WITH 2017

Net sales for our Canada segment in 2018 were $448 million, an increase of $43 million compared to net sales in 2017 of $405 million. Sales of gypsum wallboard increased $23 million due to a 6% increase of average selling price and a 4% increase in volume. Also increasing Canada net sales were $6 million for glass-mat panels and industrial gypsum products, $3 million of specialty ceilings, $3 million for ceiling tile and grid and increased freight costs.

Operating profit for our Canada segment was $19 million in 2018 compared with $13 million in 2017. Gross profit for gypsum wallboard increased $8 million due to higher volume and higher average selling price offset by a higher per unit cost. Gross profit of other products was flat compared to 2017. Selling and administrative expenses increased $2 million in 2018 compared to 2017.

2017 COMPARED WITH 2016

Net sales for our Canada segment in 2017 were $405 million, an increase of $16 million compared to net sales in 2016 of $389 million. Sales of gypsum wallboard increased $15 million due to a 10% increase of average selling price offset by a 2% decrease in volume. The increase in the average selling price reflected the final decisions of the Canadian authorities on the minimum pricing of gypsum board into Western Canada. The decisions were as a result of an anti-dumping proceeding initiated by a competing Canadian wallboard manufacturer. The minimum pricing of gypsum board in Western Canada also reduced our volumes. The increase in net sales in 2017 was also driven by an increase of $5 million in other products, including glass-mat panels, industrial products and specialty ceilings, and a favorable impact of foreign currency translation of $7 million offset by a decrease in net sales of joint treatment of $3 million and ceiling tile of $2 million and lower freight of $6 million.

Operating profit for our Canada segment was $13 million in 2017 compared with $27 million in 2016. This decrease of $14 million reflected a lower gross profit on joint treatment of $3 million and ceiling grid of $1 million. Also negatively impacting operating profit were increased royalties of $9 million, higher losses on our foreign exchange contracts of $7 million and higher other miscellaneous costs of $4 million. Offsetting these reductions to operating profit was an increase in gross profit for gypsum wallboard of $10 million driven primarily by the increase in average selling price offset by an increase of 6% in cost due to higher costs of waste paper. Selling and administrative expenses decreased 40 basis points as a percentage of sales.

(a) Results have been adjusted from the originally reported amounts to reflect the adoption of ASU 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

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USG Boral Building Products

UBBP, our 50/50 joint ventures with Boral, manufactures, distributes and sells certain building products, mines raw gypsum and sells natural and synthetic gypsum throughout Asia, Australasia and the Middle East. UBBP also manufactures and distributes products for wall, ceiling, floor lining and exterior systems that utilize gypsum wallboard, referred to as plasterboard in the regions in which UBBP operates, mineral fiber ceiling tiles, steel grid and joint compound. See Note 4, Equity Method Investments, for additional information regarding the default notice under the UBBP Shareholders Agreement delivered by Boral in connection with the Merger.

The following reflects the net sales and operating profit as recorded by UBBP and the equity income recorded by USG:

| | | | | Favorable (Unfavorable) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 2018 vs. 2017 | | 2017 vs. 2016 | |
| (millions) | 2018 | 2017 | 2016 | $ | % | $ | % |
| Net sales | $1,182 | $1,200 | $1,052 | $(18) | (2 )% | $148 | 14% |
| Operating profit [(a)] | 117 | 160 | 133 | (43 ) | (27)% | 27 | 20% |
| USG share of income from investment accounted for using the equity method [(b)] | 42 | 59 | 49 | (17 ) | (29)% | 10 | 20% |

(a) Operating profit in 2016 included long-lived asset impairment charges of $14 million for Oman and $8 million for China.

(b) USG share of income from investment accounted for using the equity method in 2016 included long-lived asset impairment charges of $4 million for Oman and $4 million for China.

2018 COMPARED WITH 2017

Net sales for UBBP decreased $18 million to $1.2 billion in 2018. The decrease reflected lower shipments of plasterboard in South Korea and China, partially offset by higher shipments in Australia, Thailand, India and Vietnam. Plasterboard shipments decreased 3% in 2018 to 4.7 billion square feet from 4.9 billion square feet in 2017. Shipments of adjacent products, including mineral fiber ceiling tiles and performance material products increased in 2018 as compared to 2017. Net sales of UBBP also reflected an unfavorable impact of currency translation of $10 million.

Operating profit for UBBP decreased to $117 million in 2018 from $160 million in 2017. Operating profit in 2018 reflected lower margins in South Korea, Thailand, Indonesia and Australia. Lower margins were reflective of higher input costs, including energy and raw materials of waste paper, steel, and gypsum, which were partially offset by lower selling and administrative expenses.

Our share of equity income from UBBP was $42 million in 2018 compared to $59 million in 2017. The decrease reflected lower net income recorded by UBBP.

2017 COMPARED WITH 2016

Net sales for UBBP increased $148 million to $1.2 billion in 2017. The increase reflected higher shipments of plasterboard in South Korea, China, Australia, and Thailand, offset by lower shipments in Vietnam and Thailand. Plasterboard shipments increased 7% in 2017 to 4.9 billion square feet from 4.6 billion square feet in 2016 and reflected continued improved market acceptance of lightweight products. Shipments of adjacent products, including joint compounds and steel studs, also increased in 2017 as compared to 2016. Net sales of UBBP also reflected a favorable impact of currency translation of $27 million.

Operating profit for UBBP increased to $160 million in 2017 from $133 million in 2016. The increase of $27 million reflected improved margins in Australia, South Korea, Thailand, China and Indonesia. While margins improved overall, UBBP incurred higher costs for raw materials, notably waste paper, steel, and energy. UBBP's operating profit also included a favorable currency impact of $4 million. Offsetting the increased margins were higher selling and administrative expenses reflective of higher sales. Operating profit for 2016 also included impairment of long-lived assets in China of $8 million and in Oman of $14 million.

Our share of equity income from UBBP was $59 million in 2017 compared to $49 million in 2016. The increase was driven by a favorable currency impact of $2 million and the absence of the 2016 long-lived asset impairment charges.

Corporate[(a)]

Operating expenses for Corporate were $124 million in 2018, $92 million in 2017 and $93 million in 2016. The increase reflected Merger-related costs of $19 million, $5 million for a legal judgment on a contract dispute from 2004 and business realignment costs of $5 million. The remaining increase of $3 million primarily reflected increased costs for information technology and professional fees related to system implementation offset by lower incentive compensation expenses.



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The decrease of $1 million in 2017 from 2016 reflected the absence of $4 million in charges for the remaining lease term and accelerated depreciation associated with the exit of commercial office space, and lower costs for incentive compensation offset by higher costs for marketing and services including those in support of product growth initiatives.

[a] Results for 2017 and 2016 have been adjusted from the originally reported amounts to reflect the adoption of ASU 2017-07 which we adopted on January 1, 2018. See Note 2, Recent Accounting Pronouncements, to our consolidated financial statements in Part II, Item 8 of this report.

Liquidity and Capital Resources

LIQUIDITY

As of December 31, 2018, we had $426 million of cash and cash equivalents and marketable securities compared with $493 million as of December 31, 2017. See discussion below under Cash Flows for an explanation of this change. Our total liquidity was $597 million as of December 31, 2018 (including $171 million of borrowing availability under our credit facility) compared to $648 million as of December 31, 2017 (including $155 million of borrowing availability under our credit facility). The decrease in liquidity primarily reflected lower operating performance in 2018.

We invest in cash equivalents and marketable securities pursuant to an investment policy that has preservation of principal as its primary objective. The policy includes provisions regarding diversification, credit quality and maturity profile that are designed to minimize the overall risk profile of our investment portfolio. The securities in the portfolio are subject to normal market fluctuations. See Note 5, Marketable Securities, to the consolidated financial statements in Part II, Item 8 of this report for additional information regarding our investments in marketable securities.

Total debt as of December 31, 2018 and 2017 consisted of senior notes and industrial revenue bonds and amounted to $1.079 billion ($1.089 billion in aggregate principal amount less $10 million of unamortized debt issuance costs) and $1.078 billion ($1.089 billion in aggregate principal amount less $11 million of unamortized debt issuance costs), respectively. See Note 6, Debt, to the consolidated financial statements in Part II, Item 8 of this report for additional information about our debt.

We maintain a credit facility with a maximum borrowing limit of $220 million (including a $50 million borrowing sublimit for our subsidiary CGC Inc. (or CGC) that is available to fund working capital needs and other general corporate purposes and matures on May 1, 2022. The facility is guaranteed by certain of our significant subsidiaries and secured by such parties' eligible trade receivables and inventory. The maximum borrowing limit under the credit agreement may be increased up to $450 million at our request and with our lenders' approval. The credit agreement contains other covenants and events of default that are customary for similar agreements. The credit agreement specifies that the maximum principal that may be borrowed is impacted by any outstanding borrowings and letters of credit under the credit agreement, by a borrowing base (comprised of eligible trade receivables and inventory), and the minimum excess availability that may be required due to the Covenant Trigger Threshold, described below, being applicable. As of December 31, 2018, the maximum principal we could borrow after taking into account the foregoing factors was approximately $171 million.

The credit agreement contains a covenant that would require us to maintain a minimum fixed charge coverage ratio of not less than 1.0-to-1.0 in the event that excess availability falls below the Covenant Trigger Threshold equal to 10% of the lesser of (a) the aggregate revolving commitment and (b) the aggregate of the USG and CGC borrowing base. As of December 31, 2018, our fixed charge coverage ratio was 1.29-to-1.0; and therefore, we are not required to maintain minimum excess availability of no less than the Covenant Trigger Threshold so that the financial covenant will remain inapplicable.

As of December 31, 2018 and during the year then ended, there were no borrowings under the facility. Had there been any borrowings as of that date, the applicable interest rate would have been 3.81% for loans in the U.S. and 3.31% for loans in Canada. Outstanding letters of credit as of December 31, 2018 totaled $19 million.

Under the Merger Agreement, we are prohibited from incurring, guaranteeing or assuming any indebtedness, or issuing or selling any debt securities, guarantees, loans or advances that were not in existence as of the date of the Merger Agreement, subject to certain exceptions.

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CASH FLOWS

The following table presents a summary of our cash flows:

| (millions) | 2018 | 2017 | 2016 |
|---|---|---|---|
| Net cash provided by (used for): | | | |
| Operating activities from continuing operations | $281 | $382 | $314 |
| Investing activities from continuing operations | (195 ) | (225 ) | 70 |
| Financing activities from continuing operations | (150 ) | (202 ) | (1,129) |
| Discontinued operations | 3 | 6 | 726 |
| Effect of exchange rate changes on cash | (5 ) | 6 | (5 ) |
| Net decrease in cash and cash equivalents | $(66 ) | $(33 ) | $(24 ) |

Operating Activities: Net cash provided by operating activities decreased in 2018 from 2017 due primarily to lower operating margins and an increase in cash outflows related to working capital. This was led by an increase in inventories due to increased costs for raw materials and higher balances of finished goods, slightly offset by an increase in accounts payable, which also reflected higher costs of materials. We received $12 million less in dividends from UBBP compared to 2017. In 2018, we contributed $63 million to our pension and postretirement plans as compared to $77 million in 2017. We made $53 million in interest payments, net of capitalized interest, in 2018 as compared to $82 million in 2017. The decrease in interest payments primarily reflected lower interest rates on our outstanding debt throughout 2018.

As of December 31, 2018, working capital (current assets less current liabilities) amounted to $550 million, and the ratio of current assets to current liabilities was 2.31-to-1. As of December 31, 2017, working capital amounted to $576 million, and the ratio of current assets to current liabilities was 2.39-to-1.

Higher cash provided by operating activities in 2017 compared to 2016 was due primarily to lower cash payments to our pension and postretirement plans and lower cash payments for interest. In 2017, we contributed $77 million to our pension and postretirement plans as compared to $174 million in 2016. We made $82 million in interest payments in 2017 as compared to $153 million in 2016. The decrease in interest payments primarily reflected lower debt levels and lower interest rates on outstanding debt. These lower cash outflows were offset by an increase in cash outflows related to working capital. This was led by an increase in accounts receivable as a result of higher sales, an increase in inventories due to increased costs for raw materials and a decrease in accrued employee compensation and interest expense, offset by an increase in accounts payable, which also reflected higher costs of materials.

Investing Activities: Investing cash flows used $195 million of net cash in 2018 and $225 million during 2017, a decrease of $30 million. Significant cash outflows in 2018 included $219 million for capital expenditures as compared to $168 million in 2017. The increase of $51 million for capital expenditures reflected expenditures for the replacement, modernization and expansion of operations, including Advanced Manufacturing initiatives. This was offset by net sales of marketable securities of $1 million in 2018 compared to net purchases of $8 million in 2017. In addition, in 2018 we disposed of assets and an equity method investment which generated $17 million of cash and we received a $4 million payment on a loan from a related party. Significant cash outflows in 2017 that did not repeat in 2018 included $52 million for the acquisition of Ceilings Plus.

Investing cash flows used $225 million of net cash in 2017 and provided $70 million of net cash during 2016. Net purchases of marketable securities was $8 million in 2017, compared to net sales of $139 million in 2016. Significant cash outflows in 2017 reflected $168 million for capital expenditures and $52 million for our acquisition of Ceilings Plus. The increase of $85 million in 2017 as compared to 2016 for capital expenditures reflected expenditures for the replacement, modernization and expansion of operations, including Advanced Manufacturing initiatives.

Financing Activities: The net cash used for financing activities in 2018 reflected the repurchase of $76 million of common stock under our stock repurchase program. See Part II, Item 5 of this report for restrictions on our stock repurchase program. We also paid $70 million for the conditional special dividend pursuant to the Merger Agreement. See Note 19, Merger Agreement, in Part II, Item 8 of this report for additional information regarding the conditional special dividend and the Dividend Make-Whole Amount Plan.

The net cash used for financing activities in 2017 was driven by the $520 million paid to redeem $500 million of our 7.75% Notes, including tender premiums, and the repurchase of $184 million of common stock under our stock

repurchase program. This was partially offset by the issuance of $500 million of our 4.875% Senior Notes due 2027, referred to as our 4.875% Notes, net of debt issuance fees. The net cash used for financing activities in 2016 included the repayment of $1.1 billion of debt during the year.

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Discontinued Operations: Net cash provided by discontinued operations was $3 million, $6 million and $726 million for 2018, 2017 and 2016, respectively. The cash received in 2017 primarily reflected a working capital adjustment associated with the sale of L&W. The cash inflow in 2016 reflected the cash received for the sale of L&W for $669 million and higher cash inflows for accounts payable offset by higher cash outflows for accounts receivable and inventories.

LIQUIDITY OUTLOOK

In 2019, we plan to spend approximately $200 million on capital expenditures in the normal course of our business, which includes approximately $50 million allocated for Advanced Manufacturing projects to standardize and automate production across our businesses, approximately $76 million for growth investments, and approximately $74 million for maintenance. Estimated future spending on approved capital expenditures for the replacement, modernization and expansion of operations totaled $173 million as of December 31, 2018. We have slowed the pace of investment in Advanced Manufacturing based on business conditions and investment priorities, and intend to invest $300 million total over a longer period than originally planned. The program has delivered the anticipated benefits to date and we continue to expect to achieve $100 million in incremental EBITDA, but over a longer timeframe than originally communicated.

Interest payments for 2019 are expected to be $57 million. We expect to fund our capital expenditures and our interest payments with cash from operations or cash on hand.

Our Board of Directors has approved the authorization to repurchase up to $500 million under our stock repurchase program. As of December 31, 2018, we have repurchased $260 million, leaving $240 million of authorization remaining. The program remains in effect and has no set expiration date; however, there has been no repurchase activity under the program since April 2018. In addition, the Merger Agreement limits our ability to repurchase shares of our common stock, subject to certain exceptions. Share repurchases under the program will not continue as long as the Merger Agreement is in effect and has not been terminated.

The Merger Agreement also contains certain termination rights for both USG and Knauf. If the Merger Agreement is terminated under certain specified circumstances, we will be required to pay Knauf a termination fee of $215 million.

Since formation, UBBP was funded from its net cash flows from operations and third-party financing. It is our intent that as an ongoing operation, UBBP will continue to self-fund. UBBP targets the distribution of 50% of combined after tax profits to USG and Boral; however, this dividend may be adjusted by the UBBP board with unanimous resolution. During the second and fourth quarters of 2018, UBBP paid cash dividends on earnings through September 2018 of which our 50% share totaled $30 million.

Had certain U.S. Dollar denominated performance targets been satisfied by UBBP, we would have been obligated to pay Boral an earnout payment in an amount up to $50 million in 2019, based on UBBP performance during the first five years. The performance period ended on December 31, 2018. Because the performance targets were not achieved, no earnout will be paid.

We believe that cash on hand, cash equivalents, marketable securities, cash available from future operations and our credit facility will provide sufficient liquidity to fund our operations for at least the next 12 months. Cash requirements include, among other things, capital expenditures, working capital needs, employee retirement plans funding, interest payments and other contractual obligations.

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CONTRACTUAL OBLIGATIONS AND OTHER COMMITMENTS

As of December 31, 2018, our contractual obligations and commitments were as follows:

| | Payments Due by Period | | | | |
|---|---|---|---|---|---|
| (millions) | Total | 2019 | 2020-2021 | 2022-2023 | Thereafter |
| Debt obligations (a) | $1,089 | $— | $ — | $ — | $ 1,089 |
| Other long-term liabilities (b) | 487 | 5 | 26 | 4 | 452 |
| Interest payments (c) | 513 | 57 | 114 | 115 | 227 |
| Purchase obligations (d) | 624 | 187 | 225 | 63 | 149 |
| Capital expenditures (e) | 150 | 100 | 50 | — | — |
| Operating leases | 136 | 46 | 66 | 18 | 6 |
| Unrecognized tax benefits (f) | 14 | 1 | 7 | 5 | 1 |
| Total | $3,013 | $396 | $ 488 | $ 205 | $ 1,924 |

(a) Excludes unamortized deferred issuance costs of $10 million.

(b) Other long-term liabilities primarily consist of asset retirement obligations that principally extend over a 50-year period. The majority of associated payments are payable toward the latter part of that period.

(c) Reflects estimated interest payments on debt obligations as of December 31, 2018.

(d) Purchase obligations primarily consist of contracts to purchase energy, certain raw materials and finished goods.

(e) Reflects estimates of future spending on active capital projects that were approved prior to December 31, 2018 but were not completed by that date.

(f) Reflects estimated payments (if required) of gross unrecognized tax benefits.

The table above excludes liabilities related to both our defined benefit pension plans and postretirement benefits (retiree health care and life insurance). For 2018, our defined benefit pension plans had no minimum funding requirements under the Employee Retirement Income Security Act of 1974. We are evaluating our level of funding for pension plans and currently estimate that we will contribute approximately $62 million to our pension plans in 2019. We voluntarily provide postretirement benefits for eligible employees and retirees and estimate cash payments to be $9 million in 2019. See Note 9, Employee Retirement Plans, to the consolidated financial statements in Part II, Item 8 for additional information on future expected cash payments for pension and other postretirement benefits.

OFF-BALANCE-SHEET ARRANGEMENTS

With the exception of letters of credit, it is not our business practice to use off-balance-sheet arrangements, such as third-party special-purpose entities.

GUARANTEES

We are party to a variety of agreements under which we may be obligated to indemnify a third party with respect to certain matters. We do not consider the maximum potential amount of future payments that we could be required to make under these agreements to be material.

Legal Contingencies

We are named as defendants in litigation arising from our operations, including lawsuits or claims arising from commercial disputes, product performance or warranties, product liability, and worksite or vehicular accidents.

In 2015, USG, our subsidiary United States Gypsum Company, our former subsidiary L&W Supply Corporation, and seven other wallboard manufacturers were named as defendants in a lawsuit filed by twelve homebuilders alleging that the defendants conspired to fix the price of wallboard sold in the United States. Earlier, in 2013, class action lawsuits making similar allegations were filed in Canada on behalf of a class of purchasers of wallboard in Canada. We believe that the cost, if any, of resolving the homebuilders’ lawsuit and Canadian class action litigation will not have a material effect on our results of operations, financial position or cash flows.

In 2015, United States Gypsum Company was served with a federal grand jury subpoena requesting the production of company records in connection with a federal investigation of the gypsum drywall industry. Two former employees of USG have also been served with subpoenas. In the third quarter of 2018, we were informed that the grand jury investigation was closed. No charges were brought.

See Note 17, Litigation, to the consolidated financial statements in Part II, Item 8 of this report for additional information regarding litigation matters. See, also, Part I, Item 1A, Risk Factors, for information regarding the possible effects of environmental laws and regulations on our businesses.

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Critical Accounting Policies

In preparing our consolidated financial statements in conformity with accounting principles generally accepted in the United States, we make decisions that impact the reported amounts of assets, liabilities, revenues and expenses, and related disclosures. Such decisions include the selection of the appropriate accounting principles to be applied and the assumptions on which to base accounting estimates. In reaching such decisions, we apply judgments based on our understanding and analysis of the relevant circumstances, current developments and historical experience. Actual amounts could differ materially from those estimated at the time the consolidated financial statements are prepared.

Our significant accounting policies are described in Note 1 to the consolidated financial statements in Part II, Item 8 of this report. Some of these significant accounting policies require us to make difficult, subjective or complex judgments or estimates. An accounting estimate is considered to be critical if it meets both of the following criteria: (1) the estimate requires assumptions about matters that are highly uncertain at the time the accounting estimate is made and (2) different estimates reasonably could have been used, or changes in the estimate are reasonably likely to occur from period to period, that would have a material impact on the presentation of our financial condition, changes in financial condition, results of operations or cash flows. Our critical accounting estimates are as follows:

EMPLOYEE RETIREMENT PLANS

We maintain defined benefit pension plans for most of our employees. Most of these plans require employee contributions in order to accrue benefits. We also maintain plans that provide postretirement benefits (retiree health care and life insurance) for eligible existing retirees and for eligible active employees who may qualify for coverage in the future. The accounting for these plans depend on assumptions made by management, which are used by actuaries we engage to calculate the projected and accumulated benefit obligations and the annual expense recognized for these plans. The assumptions used in developing the required estimates primarily include discount rates, expected return on plan assets for the funded plans, compensation increase rates, retirement rates, mortality rates and, for postretirement benefits, retirement rates and levels of a company-provided subsidy.

We determined the assumed discount rate based on a hypothetical AA yield curve represented by a series of annualized individual discount rates. Each underlying bond issue is required to have a credit rating of Aa or better by Moody’s Investors Service or a credit rating of AA or better by Standard & Poor’s Global Ratings. We consider the underlying types of bonds and our projected cash flows of the plans in evaluating the yield curve selected. The use of a different discount rate would impact net pension and postretirement benefit costs and benefit obligations. In determining the expected return on plan assets, we use a “building block” approach, which incorporates historical experience, our pension plan investment guidelines, asset allocation, and expectations for long-term rates of return. The use of a different rate of return would impact net pension cost. A one-half percentage point change in the assumed discount rate and return on plan asset rate would have the following effects (dollars in millions):

| Assumptions | Percentage Change | Increase (Decrease) in 2019 Net Annual Benefit Cost | 2018 Projected Benefit Obligation |
|---|---|---|---|
| Pension Benefits: | | | |
| Discount rate | 0.5% increase | $ (7 ) | $ (79 ) |
| Discount rate | 0.5% decrease | 7 | 87 |
| Expected return on plan assets | 0.5% increase | (8 ) | N/A |
| Expected return on plan assets | 0.5% decrease | 8 | N/A |
| Postretirement Benefits: | | | |
| Discount rate | 0.5% increase | $ (1 ) | $ (8 ) |
| Discount rate | 0.5% decrease | 1 | 9 |

Compensation increase rates are based on historical experience and anticipated future management actions. Retirement rates are based primarily on actual plan experience, while standard actuarial tables are used to estimate mortality rates.

We no longer have significant exposure to health care cost trend rates due to the modifications we made to our U.S. postretirement health care plan. The changes limit the increase in the annual amount we pay for retiree health care coverage for certain current and future retirees to 3%. They also require retiree medical plan participants to purchase individual coverage in the Affordable Insurance Exchanges or individual Medicare marketplace using a company-funded subsidy based upon years of service at retirement.

Results that differ from these assumptions are accumulated and amortized over future periods and, therefore, generally affect the net benefit cost of future periods. The sensitivity of assumptions reflects the impact of changing one assumption at a

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time and is specific to conditions at the end of 2018. Economic factors and conditions could affect multiple assumptions simultaneously, and the effects of changes in assumptions are not necessarily linear.
See Note 9, Employee Retirement Plans, to our consolidated financial statements in Part II, Item 8 of this report for additional information regarding costs, plan obligations, plan assets discount rates and other assumptions.
INCOME TAXES
We record income taxes (benefit) under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized based on the future tax consequences to temporary differences between the financial statement carrying values of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply in the years in which the temporary differences are expected to be recovered or paid.
The 2017 Tax Act amended the Internal Revenue Code to reduce tax rates and modify policies, credits and deductions. For businesses, the 2017 Tax Act reduced the corporate federal tax rate from a maximum of 35% to a flat 21%. The provisional effect on deferred tax assets and liabilities of the change in tax rates was recognized in earnings in the period ended December 31, 2017, which was when the change was enacted, and finalized in the fourth quarter of 2018 at the completion of the Staff Accounting Bulletin 118 measurement period. As a result, in the fourth quarter of 2018 we recorded a tax benefit of $11 million resulting from the release of a portion of the valuation allowance on our foreign tax credit carryforward, as well as a reversal of sequestration previously recorded on our AMT credits based upon recently issued guidance from the United States Office of Management and Budget. Ongoing guidance and accounting interpretation for the 2017 Tax Act are expected over the coming months and years and we will consider any changes in the accounting for the 2017 Tax Act in the period in which such additional guidance is issued. We do not expect the ongoing guidance and interpretations to have a material impact on our financial statements.
A reduction of the carrying values of deferred tax assets by a valuation allowance is required if, based on the available evidence, it is more likely than not that such assets will not be realized. The need to establish valuation allowances for deferred tax assets is assessed periodically. In assessing the requirement for, and amount of, a valuation allowance in accordance with the more-likely-than-not standard, we give appropriate consideration to all positive and negative evidence related to the realization of the deferred tax assets. This assessment considers, among other matters, the nature, frequency and severity of current and cumulative losses, forecasts of future profitability, the duration of statutory carryforward periods, our experience with operating loss and tax credit carryforwards not expiring unused and tax planning strategies. A history of cumulative losses for a certain threshold period is a significant form of negative evidence used in the assessment, and we are required to have a policy regarding the duration of the threshold period. We believe the historical cyclical nature of our operations show economic cycles ranging from 7 to 10 years with demand troughs historically showing recovery over four years. Accordingly, we have a policy of four years as our threshold period for cumulative losses.
We weigh, based upon the level of objectivity, all available evidence in our assessment related to the realization of deferred tax assets. Our ability to generate sufficient taxable income in the future, taking into consideration federal foreign tax credits limitations and expirations and state laws on net operating loss, or NOL, expirations, will determine the need for a valuation allowance.
We recognize the tax benefits of an uncertain tax position only if those benefits are more likely than not to be sustained upon examination by the relevant taxing authorities. Unrecognized tax benefits are subsequently recognized at the time the more-likely-than-not recognition threshold is met, the tax matter is effectively settled or the statute of limitations for the relevant taxing authority to examine and challenge the tax position has expired, whichever is earlier.
See Note 14, Income Taxes, to our consolidated financial statements in Part II, Item 8 of this report for additional information regarding these items.
Recently Issued Accounting Pronouncements
See Note 2, Recent Accounting Pronouncements, to the consolidated financial statements in Part II, Item 8 of this report for information related to new accounting standards.
Forward-Looking Statements

This report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 related to management's expectations about future conditions, including, but not limited to, statements regarding the Merger with Knauf, including expected timing, completion and effects of the Merger and its pendency. Any forward-looking statements

represent our views only as of the date of this report and should not be relied upon as representing our views as of any subsequent date, and we undertake no obligation to update any forward-looking statement. Forward-looking statements include, but are not limited to, statements under the following headings: (1) “Business” about: (a) the availability of synthetic gypsum and sufficiency of energy supplies; and (b) demand for new products and systems that meet regulatory and customer sustainability standards and preferences and our ability to provide such products and systems to maintain our competitive position; (2) “Risk Factors” about significant factors that may adversely affect us and our industry, including the Merger; (3) “Legal Proceedings” and "Legal Contingencies" about the outcome and effect of ongoing and future legal and governmental proceedings; and (4) “Management’s Discussion and Analysis” about: (a) market conditions and outlook, including anticipated changes in new residential and nonresidential construction and repair and remodel spending, the construction industries in the U.S. and Canada and the countries within the UBBP territory, UBBP's effect on the cyclicality of our North American businesses, U.S. industry shipments of gypsum board, demand for gypsum wallboard and industry capacity utilization rate, and our selling prices and margins; (b) our liquidity outlook, including our expected capital expenditures and interest payments, and the funding thereof, our planned investment, timing and returns from our Advanced Manufacturing projects, the execution of our stock repurchase program, UBBP's dividend policy and its ability to self-fund, and cash requirements and adequacy of resources to fund them; (c) future contributions to our pension plans and cash payments for postretirement benefits; and (d) the impact of ongoing tax guidance and interpretations.

Some of the risk factors that affect our business and financial results are discussed in this report under the caption “Risk Factors.” You should recognize that actual business, market or other conditions, including the risk factors discussed in “Risk Factors” and those described elsewhere in this report or in our other SEC filings, could cause our actual results to differ materially from those stated in the forward-looking statements.

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## Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We use derivative instruments to manage selected commodity price and foreign currency exposures. We do not use derivative instruments for speculative trading purposes, and we typically do not hedge beyond five years.

### COMMODITY PRICE RISK

We use swap contracts to manage our exposure to fluctuations in commodity prices associated with anticipated purchases of natural gas. Currently, a significant portion of our anticipated purchases of natural gas is hedged for 2019. The aggregate notional amount of these hedge contracts in place as of December 31, 2018 was 41 million mmBTUs, and they mature by December 31, 2022. We review our positions regularly and make adjustments as market and business conditions warrant. The fair value of these contracts was a $12 million unrealized loss as of December 31, 2018.

A sensitivity analysis was prepared to estimate the potential change in the fair value of our natural gas hedge contracts assuming a hypothetical 10% change in market prices. Based on the results of this analysis, which may differ from actual results, the potential change in the fair value of our natural gas hedge contracts was $9 million as of December 31, 2018 and 2017. This analysis does not consider the underlying exposure.

### FOREIGN CURRENCY EXCHANGE RISK

We have foreign exchange forward contracts to hedge forecasted purchases of products and services denominated in foreign currencies. The notional amount of these contracts was $98 million as of December 31, 2018, and they mature by December 31, 2019. The fair value of these contracts was a $6 million unrealized gain as of December 31, 2018.

A sensitivity analysis was prepared to estimate the potential change in the fair value of our foreign exchange forward contracts assuming a hypothetical 10% change in foreign exchange rates. Based on the results of this analysis, which may differ from actual results, the potential change in the fair value of our foreign exchange forward contracts as of December 31, 2018 and 2017 was $10 million and $11 million, respectively. This analysis does not consider the underlying exposure.

### INTEREST RATE RISK

As of December 31, 2018, all of our outstanding debt was fixed-rate debt. Consequently, our debt is not subject to risk from changing interest rates.

A sensitivity analysis was prepared to estimate the potential change in fair value of our marketable securities portfolio assuming a hypothetical 100-basis-point increase in interest rates. Based on the results of this analysis, which may differ from actual results, the potential change in fair value of our marketable securities as of December 31, 2018 and 2017 was immaterial in both years.

See Notes 1, Significant Accounting Policies, and 7, Derivative Instruments, to the consolidated financial statements in Part II, Item 8 for additional information regarding our financial exposures.

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## Item 8.FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA


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All other schedules have been omitted because they are not required or applicable or the information is included in the consolidated financial statements or notes thereto.

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USG CORPORATION
CONSOLIDATED STATEMENTS OF INCOME

| (millions, except share and per-share data) | Years Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Net sales | $3,336 | $ 3,204 | $ 3,017 |
| Cost of products sold | 2,730 | 2,548 | 2,317 |
| Gross profit | 606 | 656 | 700 |
| Selling and administrative expenses | 379 | 303 | 297 |
| Long-lived asset impairment charges | — | — | 10 |
| Recovery of receivable | — | — | (3) |
| Operating profit | 227 | 353 | 396 |
| Income from equity method investments | 42 | 59 | 49 |
| Interest expense | (57) | (69) | (145) |
| Interest income | 7 | 4 | 4 |
| Loss on extinguishment of debt | — | (22) | (37) |
| Other income, net | 8 | 10 | 7 |
| Income from continuing operations before income taxes | 227 | 335 | 274 |
| Income tax expense | (34) | (238) | (63) |
| Income from continuing operations | 193 | 97 | 211 |
| Income (loss) from discontinued operations, net of tax | 3 | (9) | 20 |
| Gain on sale of discontinued operations, net of tax | — | — | 279 |
| Net income | $196 | $ 88 | $ 510 |
| | | | |
| Earnings per common share - basic: | | | |
| Income from continuing operations | $1.38 | $ 0.67 | $ 1.45 |
| Income (loss) from and gain on sale of discontinued operations | 0.02 | (0.06) | 2.04 |
| Net income | $1.40 | $ 0.61 | $ 3.49 |
| | | | |
| Earnings per common share - diluted: | | | |
| Income from continuing operations | $1.36 | $ 0.66 | $ 1.44 |
| Income (loss) from and gain on sale of discontinued operations | 0.02 | (0.06) | 2.02 |
| Net income | $1.38 | $ 0.60 | $ 3.46 |
| | | | |
| Average common shares | 140,250,482 | 144,447,488 | 145,929,506 |
| Dilutive awards under long-term incentive plan | 2,360,818 | 2,263,358 | 1,731,473 |
| Average diluted common shares | 142,611,300 | 146,710,846 | 147,660,979 |
| | | | |
| Cash dividend declared per share | $0.50 | $ — | $ — |

See accompanying Notes to Consolidated Financial Statements

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USG CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

| (millions) | Years Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Net income | $196 | $88 | $510 |
| | | | |
| Other comprehensive income (loss), net of tax: | | | |
| Derivatives qualifying as cash flow hedges: | | | |
| Gain (loss) on derivatives qualifying as cash flow hedges, net of tax (benefit) of $1, ($10), and $2, respectively | 6 | (14) | 1 |
| Less: Reclassification adjustment for loss on derivatives included in net income, net of tax (benefit) of $0, ($3), and ($4), respectively | (2) | (3) | (6) |
| Net derivatives qualifying as cash flow hedges | 8 | (11) | 7 |
| | | | |
| Pension and postretirement benefits: | | | |
| Changes in pension and postretirement benefits, net of tax (benefit) of $9, ($27), and ($19), respectively | 28 | (65) | (34) |
| Less: Amortization of prior service cost included in net periodic benefit cost, net of tax (benefit) of ($2), ($10), and ($7), respectively | (6) | (14) | (9) |
| Net pension and postretirement benefits | 34 | (51) | (25) |
| | | | |
| Foreign currency translation: | | | |
| Changes in foreign currency translation, net of tax of $0 in all periods | (40) | 58 | (53) |
| Less: Translation loss realized upon sale of foreign equity method investment, net of tax (benefit) of ($2), $0, and $0, respectively | (4) | — | — |
| Net foreign currency translation | (36) | 58 | (53) |
| | | | |
| Other comprehensive income (loss), net of tax | 6 | (4) | (71) |
| | | | |
| Comprehensive income | $202 | $84 | $439 |

See accompanying Notes to Consolidated Financial Statements

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USG CORPORATION
CONSOLIDATED BALANCE SHEETS

| (millions, except share data) | As of December 31, | |
|---|---|---|
| | 2018 | 2017 |
| Assets | | |
| Cash and cash equivalents | $328 | $394 |
| Short-term marketable securities | 55 | 62 |
| Receivables (net of reserves: 2018 - $10 and 2017 - $9) | 233 | 233 |
| Inventories | 290 | 252 |
| Income taxes receivable | 21 | 15 |
| Other current assets | 44 | 35 |
| Total current assets | 971 | 991 |
| Long-term marketable securities | 43 | 37 |
| Property, plant and equipment, net | 1,838 | 1,762 |
| Deferred income taxes | 246 | 287 |
| | 662 | 686 |

| | | |
|---|---|---|
| Equity method investments | | |
| Goodwill and intangible assets | 40 | 43 |
| Other assets | 42 | 45 |
| Total assets | $3,842 | $3,851 |
| Liabilities and Stockholders' Equity | | |
| Accounts payable | $290 | $280 |
| Accrued expenses | 129 | 135 |
| Income taxes payable | 2 | — |
| Total current liabilities | 421 | 415 |
| Long-term debt | 1,079 | 1,078 |
| Deferred income taxes | 5 | 4 |
| Pension and other postretirement benefits | 254 | 326 |
| Other liabilities | 164 | 183 |
| Total liabilities | 1,923 | 2,006 |
| Stockholders' Equity: | | |
| Preferred stock – $1 par value, authorized 36,000,000 shares; outstanding | — | — |

| | 2018 | 2017 |
|---|---|---|
| - none | | |
| Common stock – $0.10 par value; authorized 200,000,000 shares; issued: 2018 and 2017 - 146,513,000 shares | 15 | 15 |
| Treasury stock at cost; 2018 - 6,442,000 shares and 2017 - 5,571,000 shares | (200) | (169) |
| Additional paid-in capital | 3,030 | 3,057 |
| Accumulated other comprehensive loss | (383) | (389) |
| Retained earnings (accumulated deficit) | (543) | (669) |
| Total stockholders' equity | 1,919 | 1,845 |
| Total liabilities and stockholders' equity | $3,842 | $3,851 |

See accompanying Notes to Consolidated Financial Statements

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USG CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

| (millions) | Years Ended December 31, 2018 | 2017 | 2016 |
|---|---|---|---|
| Operating Activities | | | |
| Net income | $196 | $88 | $510 |
| Less: Income (loss) from discontinued operations, net of tax | 3 | (9) | 20 |
| Less: Gain on sale of discontinued operations, net of tax | — | — | 279 |
| Income from continuing operations | 193 | 97 | 211 |
| Adjustments to reconcile income from continuing operations to net cash: | | | |
| Depreciation, depletion, amortization, and accretion | 150 | 132 | 134 |
| Loss on extinguishment of debt | — | 22 | 37 |
| Long-lived asset impairment charges | — | — | 10 |
| Recovery of receivable | — | — | (3) |
| Share-based compensation expense | 21 | 18 | 18 |
| Deferred income taxes | 28 | 255 | 57 |
| (Gain) loss on asset dispositions | (12) | 1 | (9) |
| Loss on sale of equity method investment | 8 | — | — |
| Income from equity method investments | (42) | (59) | (49) |
| Dividends received from equity method investments | 30 | 42 | 47 |
| Pension settlement | — | 12 | 20 |
| (Increase) decrease in working capital | | | |
| Receivables | (5) | (32) | 6 |
| Income taxes receivable, net | (4) | (12) | 3 |
| Inventories | (42) | (13) | (20) |
| Other current assets | 1 | (3) | 9 |
| Payables | 7 | 20 | 21 |
| Accrued expenses | (2) | (36) | (39) |
| Increase in other assets | — | 4 | — |
| Decrease in pension and other postretirement benefits | (40) | (57) | (142) |
| Decrease in other liabilities | (23) | (13) | (6) |
| Other, net | 13 | 4 | 9 |
| Net cash provided by operating activities of continuing operations | 281 | 382 | 314 |
| Net cash provided by operating activities of discontinued operations | 3 | — | 59 |
| Net cash provided by operating activities | $284 | $382 | $373 |
| Investing Activities | | | |
| Purchases of marketable securities | (102) | (105) | (274) |
| Sales or maturities of marketable securities | 103 | 97 | 413 |
| Capital expenditures | (219) | (168) | (83) |
| Net proceeds from asset dispositions | 14 | 2 | 12 |
| Net proceeds from sale of equity method investment | 3 | — | — |
| Acquisition of business, including working capital adjustment | 2 | (52) | — |
| Receipt of collection on loan from former joint venture | 4 | — | — |
| Return of capital | — | — | 1 |
| Insurance proceeds | — | 1 | 1 |
| Net cash (used for) provided by investing activities of continuing operations | (195) | (225) | 70 |
| Net cash provided by investing activities of discontinued operations | — | 6 | 667 |

| | | | |
|---|---|---|---|
| Net cash (used for) provided by investing activities | $(195) | $(219) | $737 |
| Financing Activities | | | |
| Issuance of debt | — | 500 | — |
| Repayment of debt | — | (521) | (1,131) |
| Payment of debt issuance fees | — | (8) | — |
| Issuance of common stock | 11 | 15 | 4 |
| Repurchase of common stock | (76) | (184) | — |
| Repurchases of common stock to satisfy employee tax withholding obligations | (15) | (4) | (2) |
| Conditional special dividend | (70) | — | — |
| Net cash used for financing activities of continuing operations | $(150) | $(202) | $(1,129) |

(continued on the next page)

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USG CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

| (millions) | Years Ended December 31, 2018 | 2017 | 2016 |
|---|---|---|---|
| Effect of exchange rate changes on cash | (5) | 6 | (5) |
| Net decrease in cash and cash equivalents from continuing operations | (69) | (39) | (750) |
| Net increase in cash and cash equivalents from discontinued operations | 3 | 6 | 726 |
| Net decrease in cash and cash equivalents | $ (66) | $ (33) | $ (24) |
| Cash, cash equivalents, and restricted cash at beginning of period | 394 | 427 | 451 |
| Cash, cash equivalents, and restricted cash at end of period | $ 328 | $ 394 | $ 427 |
| Supplemental Cash Flow Disclosures: | | | |
| Interest paid, net of interest capitalized | $ 53 | $ 82 | $ 153 |
| Income taxes paid, net of refunds received | 9 | 10 | 4 |
| Noncash Investing and Financing Activities: | | | |
| Amount in accounts payable for capital expenditures | $ 23 | $ 18 | $ 15 |

| | | | |
|---|---|---|---|
| Reversal of USG Boral Building Products earnout | — | — | (24) |
| Dividend Payable | 2 | — | — |

See accompanying Notes to Consolidated Financial Statements

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USG CORPORATION
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

| (millions, except share data) | Common Shares Issued (000) | Treasury Shares (000) | Common Stock | Treasury Stock | Additional Paid-in Capital | Accumulated Other Comprehensive Income (Loss) | Retained Earnings (Deficit) | Total Stockholders' Equity |
|---|---|---|---|---|---|---|---|---|
| Balance as of January 1, 2016 | 145,667 | — | $ 15 | $ — | $ 3,027 | $ (314 ) | $ (1,292 ) | $ 1,436 |
| Net income | | | | | | | 510 | 510 |
| Other comprehensive loss | | | | | | (71 ) | | (71 ) |
| Share-based compensation | | | | | 18 | | | 18 |
| Tax deficiencies in share-based compensation | | | | | (11 ) | | | (11 ) |
| Stock issuances | 500 | 85 | | 2 | 4 | | | 6 |
| Repurchase of common stock | | (85 ) | | (2 ) | | | | (2 ) |
| Balance as of December 31, 2016 | 146,167 | — | $ 15 | $ — | $ 3,038 | $ (385 ) | $ (782 ) | $ 1,886 |
| Impact due to adoption of ASU 2016-09 (stock compensation) | | | | | | | 25 | 25 |
| Net income | | | | | | | 88 | 88 |
| Other comprehensive loss | | | | | | (4 ) | | (4 ) |
| Share-based compensation | | | | | 18 | | | 18 |
| Stock issuances | 346 | 577 | | 19 | (5 ) | | | 14 |
| Repurchase of common stock | | (6,148 ) | | (188 ) | | | | (188 ) |
| Other | | | | | 6 | | | 6 |
| Balance as of December 31, 2017 | 146,513 | (5,571 ) | $ 15 | $ (169 ) | $ 3,057 | $ (389 ) | $ (669 ) | $ 1,845 |
| Impact due to adoption of ASU 2014-09 (revenue recognition) | | | | | | | 2 | 2 |
| Net income | | | | | | | 196 | 196 |
| Other comprehensive loss | | | | | | 6 | | 6 |
| Share-based compensation | | | | | 21 | | | 21 |
| Stock issuances | | 1,682 | | 60 | (48 ) | | | 12 |
| Repurchase of common stock | | (2,553 ) | | (91 ) | | | | (91 ) |
| Conditional special dividend | | | | | | | (72 ) | (72 ) |
| Balance as of December 31, 2018 | 146,513 | (6,442 ) | $ 15 | $ (200 ) | $ 3,030 | $ (383 ) | $ (543 ) | $ 1,919 |

See accompanying Notes to Consolidated Financial Statements

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

In the following Notes to Consolidated Financial Statements, "USG," "we," "our" and "us" refer to USG Corporation and its subsidiaries included in the consolidated financial statements, except as otherwise indicated or as the context otherwise requires.

1. Significant Accounting Policies

Nature of Operations

USG, through our subsidiaries and joint ventures, is a leading manufacturer of building materials and innovative solutions. We produce a wide range of products for use in new residential, new nonresidential, and residential and nonresidential repair and remodel construction as well as products used in certain industrial processes. Our products are distributed through building materials dealers, specialty wallboard distributors, home improvement centers, other retailers and sold directly to contractors.

Segments

Our operating structure is generally aligned by product type and consists of three divisions, in addition to USG Boral Building Products, or UBBP, our joint ventures in Asia, Australasia and the Middle East: Gypsum, Performance Materials and Ceilings. The operations of the divisions are similar throughout North America. Our reportable segments reflect the operating structure and align with how we manage our business, review operating performance and allocate resources considering the discrete information available for the geographies within the divisions. We have five reportable segments: U.S. Wallboard and Surfaces, U.S. Performance Materials, U.S. Ceilings, Canada, and UBBP.

Our reportable segments are determined considering both qualitative and quantitative metrics for aggregation of the product type within geographies for which discrete financial information is available. Our U.S. Wallboard and Surfaces, U.S. Performance Materials and U.S. Ceilings reportable segments were identified based on products manufactured and marketed. Our Canada segment is a separately reportable segment; while it has similar qualitative factors to U.S. operations, it has different quantitative metrics and, therefore, cannot be aggregated. Our operating segments in Mexico and Latin America, as well as our mining operation in Little Narrows, Nova Scotia, Canada, which we indefinitely idled in 2016, are included in Other, as reconciling items to our consolidated segments.

Consolidation and Presentation

Our consolidated financial statements include the accounts of USG Corporation and its majority-owned subsidiaries. Entities in which we have more than a 20% but not more than 50% ownership interest are accounted for using the equity method of accounting. All intercompany balances and transactions are eliminated in consolidation.

Use of Estimates

The preparation of our consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets, liabilities, revenues and expenses. Actual results could differ from these estimates.

Revenue Recognition

We recognize revenue upon transfer of control of our products to the customer which generally occurs upon shipment. We enter into agreements with customers to offer rebates, generally based on achievement of specified sales levels and various marketing allowances that are common industry practice. Reductions to revenue for customer programs and incentive offerings, including promotions and other volume-based incentives, are estimated using the most likely amount method and recorded in the period in which the sale occurs. Provisions for early payment discounts are accrued in the same period in which the sale occurs. We do not have any material payment terms as payment is received shortly after the point of sale. We pay commissions to third parties to obtain contracts. As these contracts are less than one year, these costs are expensed as incurred.

Shipping and Handling Costs

We include shipping and handling costs billed to customers in net sales and account for related costs as fulfillment activities and present the expenses in "Cost of products sold" when control of our products transfers to the customer.

Advertising

Advertising expenses consist of media advertising and related production costs and sponsorships. We charge advertising expenses to earnings as incurred. These expenses amounted to $15 million, $10 million and $12 million for the years ended December 31, 2018, 2017 and 2016, respectively, and are included in "Selling and administrative expenses" in our consolidated statements of income.

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Research and Development

We charge research and development expenditures to earnings as incurred. These expenditures amounted to $22 million, $23 million and $24 million for the years ended December 31, 2018, 2017 and 2016, respectively, and are included in "Cost of products sold" and "Selling and administrative expenses" in our consolidated statements of income.

Legal Costs

We expense legal costs as incurred.

Income Taxes

We record income tax expense under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized based on temporary differences between the financial statement carrying values of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply in the years in which the temporary differences are expected to be recovered or paid. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in earnings in the period when the change is enacted. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized.

A reduction of the carrying values of deferred tax assets by a valuation allowance is required if, based on all available evidence, it is more likely than not that such assets will not be realized. The need to establish valuation allowances for deferred tax assets is assessed at each reporting date. In assessing the requirement for, and amount of, a valuation allowance in accordance with the more-likely-than-not standard, we give appropriate consideration to all positive and negative evidence related to the realization of the deferred tax assets. This assessment considers, among other matters, the nature, frequency and severity of current and cumulative losses, forecasts of future profitability, the duration of statutory carryforward periods, our experience with operating loss and tax credit carryforwards not expiring unused and tax planning strategies.

A history of cumulative losses for a certain threshold period is a significant form of negative evidence used in the assessment, and we are required to have a policy regarding the duration of the threshold period. We believe the historical cyclical nature of our operations show economic cycles ranging from 7 to 10 years with demand troughs historically showing recovery over four years. Accordingly, we have a policy of four years as our threshold period for cumulative losses.

Inventory Valuation

All of our inventories are stated at the lower of cost or net realizable value and are valued under the average cost method. Our inventories include materials, labor and applicable factory overhead costs. Depreciation associated with manufacturing assets is excluded from inventory cost but is included in "Cost of products sold".

Earnings per Share

Basic earnings per share is based on the weighted average number of common shares outstanding. Diluted earnings per share is based on the weighted average number of common shares outstanding plus the dilutive effect, if any, of market share units, or MSUs, restricted stock units, or RSUs, performance shares, stock options and the deferred shares associated with our deferred compensation program for non-employee directors. The shares that were not included in the computation of diluted earnings per share for those periods because their inclusion would be anti-dilutive were as follows:

| (millions, common shares) | 2018 | 2017 | 2016 |
|---|---|---|---|
| Stock options, RSUs, MSUs and performance shares | — | 0.7 | 1.5 |
| Deferred shares associated with a deferred compensation program for non-employee directors | — | 0.2 | 0.2 |

Business Combinations

Business combinations are accounted for using the acquisition method of accounting. The purchase price of the acquisition is allocated to the tangible and intangible assets acquired and liabilities assumed based on their fair values at the acquisition date. The calculation of fair value of the identified intangible assets are determined using cash flow models following the income approach or a discounted market-based methodology approach. Significant inputs include projected revenues, gross margins, operating expenses, estimated attrition rate and discount rates. The excess of fair value of the purchase price over the fair values of the tangible and identifiable intangible assets acquired and

liabilities assumed is recorded as goodwill. During the measurement period, which may be up to one year from the acquisition date, we may record adjustments to the net assets with the corresponding offset to goodwill. The results of operations of the acquired business are included in our consolidated results of operations beginning on the date of the acquisition. Acquisition-related expenses are expensed as incurred.

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Cash and Cash Equivalents

Cash and cash equivalents include highly liquid investments, primarily money market funds, with maturities of three months or less at the time of purchase.

Marketable Securities

Our marketable securities, which meet the definition of debt securities, are classified as available-for-sale securities and reported at fair value, with unrealized gains and losses excluded from earnings and reported in accumulated other comprehensive income (loss), or AOCI. If it is deemed that marketable securities have unrealized losses that are other than temporary, these losses will be recorded in earnings immediately. Situations in which losses may be considered other than temporary include when we have decided to sell a security, or when it is more likely than not that we will be required to sell the security, before we recover its amortized cost basis. Cost basis for securities sold are determined on a first-in-first-out basis.

Receivables

Receivables are recorded at net realizable value, which includes allowances for cash discounts and doubtful accounts. We review the collectability of receivables on an ongoing basis and reserve for receivables determined to be uncollectible. This determination is based on the delinquency of the account, the financial condition of the customer and our collection experience.

We include short-term financing receivables in "Receivables" and long-term financing and loan receivables in "Other assets" on our consolidated balance sheets. Financing and loan receivables are recorded at net realizable value which includes an allowance for credit losses. We review the collectability of financing and loan receivables on an ongoing basis and reserve for financing and loan receivables determined to be uncollectible. This determination is based on the delinquency of the account and the financial condition of the other party. As of December 31, 2018 and 2017, the allowance for credit losses was immaterial.

Equity Method Investments

The equity method of accounting is used for investments in joint ventures that we do not consolidate, but over which we have the ability to exercise significant influence. These investments are initially recorded at cost and subsequently adjusted for our share of the net income or loss and cash contributions and distributions to or from these entities. If the underlying net assets in our investments are denominated in a foreign currency, we adjust the value of our investment for translation gains or losses with a corresponding adjustment to our AOCI.

Losses in the value of an equity method investment that are other than temporary are recognized when the current fair value of the investment is less than its carrying value. We review our investments in equity method investments for impairment whenever factors indicate an other than temporary loss in value. If we conclude a loss in value is other than temporary, an impairment charge is recognized for the difference between the investment’s carrying value and its estimated fair value.

Property, Plant and Equipment

Property, plant and equipment is recorded at cost. We record depreciation of property, plant and equipment on a straight-line basis over the expected useful lives of the assets. We have determined estimated useful lives to be 50 years for buildings and improvements, a range of 10 to 25 years for machinery and equipment, and a range of 5 to 7 years for computer software and systems development costs. Leasehold improvements are capitalized and amortized over the shorter of the remaining lease term or economic useful life. We record depletion to spread the cost of gypsum and other applicable resources over the estimated quantities of material recoverable.

We capitalize interest during the active construction period of major capital projects. Capitalized interest is added to the cost of the underlying assets and is depreciated over the useful lives of those assets. We recorded capitalized interest of $6 million, $3 million and $1 million for the years ended December 31, 2018, 2017 and 2016, respectively. Facility start-up costs that cannot be capitalized are expensed as incurred and recorded in "Cost of products sold".

Property, plant and equipment is reviewed for impairment when indicators of a potential impairment are present by comparing the carrying values of the assets with their estimated future undiscounted cash flows. If we determine an impairment exists, the asset is written down to fair value.

Intangible Assets

We perform impairment tests for intangible assets with indefinite useful lives once a year, or more frequently if events occur or circumstances change that would more likely than not reduce the fair value of an intangible asset below its carrying value. The impairment test for assets with indefinite lives consists of a comparison of the fair value of the asset with its carrying value. If the carrying value of an intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess. Intangible assets determined to have indefinite useful lives, primarily composed of trade names, are not amortized. An

income approach is used for valuing trade names. Assumptions used in the income approach include projected revenues and assumed royalty, long-term growth and discount rates. As of December 31, 2018 and 2017, our indefinite lived intangibles, which are included in "Goodwill and intangible assets" on our consolidated balance sheets, totaled $18 million and $19 million, respectively.

We perform impairment tests on definite lived intangible assets upon identification of events or circumstances that may indicate the carrying value of the assets might be unrecoverable by comparing their undiscounted cash flows with their carrying value. If we determine impairment exists, the assets are written down to estimated fair value. As of December 31, 2018 and 2017, our definite lived intangibles, which are included in "Goodwill and intangible assets" on our consolidated balance sheets, totaled $7 million and $8 million, respectively.

Goodwill

We perform an impairment test on goodwill as of October 1, or more frequently if events occur or circumstances change that would more likely than not reduce the fair value below its carrying value. In testing goodwill for impairment, we have the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the estimated fair value of a reporting unit is less than its carrying value, including goodwill. If we elect to perform a qualitative assessment and determine that an impairment is more likely than not, we are then required to perform a quantitative impairment test, otherwise no further analysis is required.

We also may elect not to perform the qualitative assessment and, instead, proceed directly to the quantitative impairment test. Our assessment compares the current fair value of each reporting unit to its carrying value, including goodwill. If the carrying value of a reporting unit exceeds its fair value, we recognize an impairment loss equal to the difference between the carrying value and the estimated fair value of the reporting unit. As of December 31, 2018 and 2017, goodwill totaled $15 million and $16 million, respectively, and is included in "Goodwill and intangible assets" on our consolidated balance sheets.

Asset Retirement Obligations

Our asset retirement obligations include reclamation requirements as regulated by government authorities or contractual obligations related principally to assets such as our mines, quarries, landfills, ponds and wells. The accounting for asset retirement obligations requires estimates by management about the timing of asset retirements, the cost of retirement obligations, discount and inflation rates used in determining fair values and the methods of remediation associated with our asset retirement obligations. We generally use assumptions and estimates that reflect the most likely remediation method on a site-by-site basis. Our estimated liability for asset retirement obligations is revised annually, and whenever events or changes in circumstances indicate that a revision to the estimate is necessary.

In instances where a decrease in the asset retirement obligation is in excess of the related remaining net book value of the asset retirement costs, the excess is recorded to the consolidated statement of income as a reduction in "Cost of products sold." Asset retirement obligations are included in "Other liabilities" on the consolidated balance sheets.

Share-Based Compensation

Our current long-term incentive plan authorizes the Board’s Compensation and Organization Committee to provide equity-based compensation in the form of stock options, stock appreciation rights, restricted stock, RSUs, MSUs, performance shares and units, and other cash incentive and share-based awards for the purpose of providing our employees, officers and non-employee directors incentives and rewards for performance. We award share-based compensation to employees in the form RSUs, MSUs and performance shares and to non-employee directors in the form of shares of our common stock. We last granted stock options in 2012. All grants under share-based payment programs are accounted for at fair value at the date of grant. We recognize expense on share-based awards to employees expected to vest over the service period, which is the shorter of the period until the employees’ retirement eligibility dates or the service period of the award. We record forfeitures as they occur.

Derivative Instruments

We use derivative instruments to manage selected commodity price and foreign currency exposures. We do not use derivative instruments for speculative trading purposes and we typically do not hedge beyond five years. All derivative instruments are recorded on the balance sheet at fair value. For derivatives designated as cash flow hedges,

the effective portion of changes in the fair value of the derivative is recorded to AOCI, and is reclassified to earnings when the underlying forecasted transaction affects earnings. The ineffective portion of changes in the fair value of the derivative is reported in "Cost of products sold" in the current period. For contracts designated as cash flow hedges, we reassess the probability of the underlying forecasted transactions occurring on a quarterly basis. For derivatives designated as net investment hedges, we record changes in fair



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value to AOCI. For derivatives not designated as hedging instruments, all changes in fair value are recorded to earnings in the current period. Cash flows from derivative instruments are included in operating activities in our consolidated statements of cash flows.

We use swaps to hedge a significant portion of our anticipated purchases of natural gas to be used in our manufacturing operations. Generally, we hedge the cost of a majority of our anticipated purchases of natural gas over the next 12 months. However, we review our positions regularly and make adjustments as market conditions warrant. The majority of contracts currently in place are designated as cash flow hedges and the remainder are not designated as hedging instruments.

We have operations outside of the United States and use forward contracts to hedge the risk of changes in cash flows resulting from selected forecasted intercompany and third-party sales or purchases, as well as intercompany loans, denominated in non-U.S. currencies, or to hedge the risk of selected changes in our net investment in foreign subsidiaries. These contracts are designated as either cash flow or net investment hedges or are not designated as hedging instruments.

Purchase Obligations

In the ordinary course of business we have entered into unconditional purchase obligations, which include noncancelable purchase commitments and take-or-pay arrangements with suppliers for the purchase of goods and services. On an ongoing basis, we review our agreements and assess the likelihood of a shortfall compared to the commitments and record a liability if the shortfall is probable and estimable.

Foreign Currency Translation

We translate foreign-currency-denominated assets and liabilities into U.S. Dollars at the exchange rates existing as of the respective balance sheet dates. We translate income and expense items at the average exchange rates during the respective periods. We record translation adjustments resulting from fluctuations in exchange rates to AOCI on our consolidated balance sheets.

We record transaction gains and losses to earnings. We recorded a total transaction loss of $6 million in 2018, a loss of $4 million in 2017 and a gain of $3 million in 2016. Transaction gains and losses are included in "Other income, net" in our consolidated statements of income.

Fair Value Measurements

Certain assets and liabilities are required to be recorded at fair value. The estimated fair values of those assets and liabilities have been determined using market information and valuation methodologies. Changes in assumptions or estimation methods could affect the fair value estimates. However, we do not believe any such changes would have a material impact on our financial condition, results of operations or cash flows. There are three levels of inputs that may be used to measure fair value:

- Level 1 – Quoted prices for identical assets and liabilities in active markets;
- Level 2 – Quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; and model-derived valuations in which all significant inputs and significant value drivers are observable in active markets; and
- Level 3 – Valuations derived from valuation techniques in which one or more significant inputs or significant value drivers are unobservable.

Certain assets and liabilities are measured at fair value on a nonrecurring basis rather than on an ongoing basis, but are subject to fair value adjustments in certain circumstances, such as an acquisition, when there is evidence of impairment or when a new liability is being established that requires fair value measurement.

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## 2. Recent Accounting Pronouncements

### Recently Adopted Accounting Pronouncements

We adopted Accounting Standard Update, or ASU, 2014-09, “Revenue from Contracts with Customers (Topic 606),” and all related amendments on January 1, 2018 using the modified retrospective method and practical expedients. Topic 606 supersedes the revenue recognition requirements in "Revenue Recognition (Topic 605)" and requires entities to recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.

On January 1, 2018, we recorded an increase of $2 million to our opening balance of retained earnings for the cumulative effect of adopting Topic 606. The adjustment related to a change to the point in time at which we record revenue for most customers. Prior period amounts have not been restated and continue to be reported under the legacy accounting guidance of Topic 605. As of and for the year ended December 31, 2018, the impact of applying Topic 606 as compared to applying Topic 605 is immaterial to our financial statements.

We adopted ASU 2017-07, “Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost,” on January 1, 2018 using the practical expedient. This ASU required us to disaggregate and present current service cost along with other current compensation costs for employees while presenting other net benefit cost components below operating profit. In addition, only the service cost component of net benefit cost is eligible for capitalization in our inventory and fixed assets. We retrospectively adopted the presentation of service cost and prospectively adopted the capitalization of only service cost into inventory and fixed assets.

The effect of the adoption of ASU 2017-07 on our consolidated statements of income for the year ended December 31, 2017 and 2016 was as follows.

| (millions) | Year ended December 31, 2017 | | | Year ended December 31, 2016 | | |
|---|---|---|---|---|---|---|
| | As Restated | Adjustment for Adoption of ASU 2017-07 | As Previously Reported | As Restated | Adjustment for Adoption of ASU 2017-07 | As Previously Reported |
| Gross profit | $656 | $ (9) | $ 665 | $700 | $ (5) | $ 705 |
| Operating profit | 353 | (14) | 367 | 396 | 2 | 394 |
| Other income, net | 10 | 14 | (4) | 7 | (2) | 9 |
| Net income | 88 | — | 88 | 510 | — | 510 |

In the fourth quarter of 2018 we early adopted ASU 2018-14, "Compensation-Retirement Benefits-Defined Benefit Plans-General (Topic 715-20): Disclosure Framework-Changes to the Disclosure Requirements for Defined Benefit Plans," which modifies the disclosure requirements for defined benefit pension plans and other post-retirement plans. The adoption resulted in new disclosures, including comparative information for all years presented and the removal of certain disclosures no longer required.

We adopted ASU 2016-18, “Statement of Cash Flows (Topic 230): Restricted Cash,” which requires amounts generally described as restricted cash and restricted cash equivalents to be included with cash and cash equivalents when reconciling beginning-of-period and end-of-period total amounts shown on the statement of cash flows using the retrospective approach. The adoption resulted in a $9 million reduction of our net cash provided by investing activities on our consolidated statement of cash flows for the year ended December 31, 2016.

We adopted ASU 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting," on January 1, 2017. This ASU simplifies certain aspects of accounting for employee share-based payments. Upon adoption, we recorded to retained earnings a $25 million cumulative-effect adjustment for previously unrecognized excess tax benefits and an immaterial cumulative-effect adjustment for the reversal of cumulative forfeiture estimates to record forfeitures as they occur.

We adopted ASU 2018-02, "Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income," in the first quarter of 2018. The ASU allows for the reclassification of stranded tax effects on items resulting from the Tax Cuts and Jobs Act, or the 2017 Tax Act, from accumulated other comprehensive income, or AOCI, to retained earnings. We elected not to reclassify the income tax effects of the 2017 Tax Act.

We adopted ASU 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments" on January 1, 2018 using the retrospective transition method. Topic 230 addresses specific cash flow issues with the

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stated objective of reducing the existing diversity in practice. There was no impact on adoption to our consolidated cash flow statements and disclosures as we were already compliant with the provisions of the standard.

Recently Issued Accounting Pronouncements

The Financial Accounting Standards Board, or FASB, issued ASU 2016-02, “Leases (Topic 842),” which supersedes existing lease guidance. The new standard requires lessees to recognize assets and liabilities on the balance sheet for the rights and obligations created by long-term leases and to disclose additional quantitative and qualitative information about leasing arrangements. Subsequently, the FASB has issued various ASUs to provide further clarification around certain aspects of Topic 842. We will adopt the new standard on January 1, 2019 using the modified retrospective transition method and will record a cumulative-effect adjustment to the opening balance of retained earnings at the adoption date.

At transition, we will elect the package of practical expedients that allow us not to reassess under the new standard prior conclusions about lease identification, lease classification and initial direct costs. We expect to make the election to treat lease and non-lease components as a single lease component at the transition date. We are continuing to assess the completeness of our portfolio of leases, determine changes required in our lease accounting processes, and in the process of inputting our active leases into our new accounting software. The adoption of Topic 842 is expected to have a significant impact on our consolidated balance sheets and increase our disclosures on leases.

In August 2018, the FASB, issued ASU 2018-15, "Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract," which clarifies the accounting for implementation costs in cloud computing arrangements.

ASU 2018-15 is effective for us on January 1, 2020, and earlier adoption is permitted. We are currently evaluating the impact of this standard on our consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments". Topic 326 eliminates the probable initial recognition threshold and, instead, requires the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. This standard is effective for us on January 1, 2020, and earlier adoption is permitted. We are currently evaluating the impact of Topic 326 on our consolidated financial position, results of operations and disclosures. We do not expect the adoption of Topic 326 to have a significant impact to our consolidated financial statements.

In August 2017, the FASB issued ASU 2017-12, “Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities,” which expands and refines hedge accounting for both non-financial and financial risk components and aligns the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements. The new standard is effective for us on January 1, 2019. We do not expect the adoption of ASU 2017-12 to have a significant impact to our consolidated financial statements or disclosures.

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement - Disclosure Framework (Topic 820)". The updated guidance improves the disclosure requirements on fair value measurements. The ASU is effective for us on January 1, 2020. Early adoption is permitted for any removed or modified disclosures. We are currently assessing the timing and impact of adoption.

3. Acquisitions and Dispositions

Acquisition of Ceilings Plus

On November 30, 2017, we completed our acquisition of Ceilings Plus for $50 million, net of working capital adjustments. The addition of Ceilings Plus to our U.S. Ceilings segment expands our operations in the specialty ceilings markets. We finalized our valuation in the second quarter of 2018. The fair value of tangible assets acquired, less liabilities assumed, in connection with the Ceilings Plus acquisition was $15 million. The fair value of intangible assets acquired, which included customer relationships and trade names, totaled $20 million. The resulting goodwill recorded was $15 million and all is expected to be deductible for tax purposes. The goodwill consists largely of Ceilings Plus' expected future product sales and synergies with the existing U.S. Ceilings product offerings. No impairment was recorded in 2018.

Discontinued Operations

On October 31, 2016, we completed the sale of our L&W distribution business to ABC Supply for total cash consideration of $675 million inclusive of the final working capital adjustment and recorded a gain on the sale of $279 million. For the year ended December 31, 2016, L&W met the criteria to be classified as held for sale and to be presented as a discontinued operation.

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The summarized financial information related to L&W that has been excluded from continuing operations and reported as a discontinued operation is as follows:

| (millions) | Ten months ended October 31, 2016 |
|---|---|
| Net sales | $ 1,252 |
| Cost of products sold | 1,196 |
| Gross profit | 56 |
| Selling and administrative expenses [(a)] | 22 |
| Operating profit | 34 |
| Income tax expense | 12 |
| Net income from discontinued operations | $ 22 |
| | |
| Gain on sale of discontinued operations | $ 279 |

(a) The ten month period ended October 31, 2016 included transaction costs of $8 million.

For the twelve months ended December 31, 2017 and 2016, we recorded a net loss of $9 million and net income of $22 million, respectively, to "Income (loss) from discontinued operations." The 2017 amounts reflected a $8 million loss for L&W primarily due to a pension settlement and a loss of $1 million for our European operations which were sold in December 2012. The 2016 net income from discontinued operations was comprised of the $22 million net income for L&W operations for the ten months prior to the disposition and expense of $2 million for our European operations which were sold in December 2012.

Upon the close of the sale, we entered into a supply agreement with L&W. For the year ended December 31, 2018 and 2017, we recorded sales of $471 million and $510 million, respectively, and cash inflows related to payments on trade receivables of $467 million and $489 million, respectively. For the year ended December 31, 2016, the sales sold by L&W to third party customers totaled $568 million, and for the two months in 2016 after the sale of L&W, we recorded a cash inflow of $102 million related to payments on trade receivables.

4. Equity Method Investments

Equity method investments were as follows:

| | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|
| (millions) | Carrying Value | Ownership Percentage | Carrying Value | Ownership Percentage |
| USG Boral Building Products | $ 660 | 50% | $ 679 | 50% |
| Other equity method investments | 2 | 50% | $ 7 | 33% - 50% |
| Total equity method investments | $ 662 | | $ 686 | |

Investments in USG Boral Building Products (UBBP)

UBBP is our 50/50 joint ventures with Boral Limited, or Boral. We account for our investment in UBBP using the equity method of accounting. During 2018, UBBP paid cash dividends on earnings through December 2018 of which our 50% share totaled $30 million. As of December 31, 2018, the amount of our consolidated retained earnings which represents undistributed earnings from UBBP is $72 million.

The satisfaction by UBBP of certain U.S. Dollar denominated performance targets for the 5 years ended December 31, 2018 would have required us to pay Boral an earnout payment of up to $50 million. The performance targets were not satisfied by UBBP. At December 31, 2018 and 2017, there is no liability recorded for the earnout payment.

UBBP is operated in accordance with the terms of a Shareholders Agreement. The Shareholders Agreement provides that a change of control, which includes the signing of the Merger Agreement, with respect to one party constitutes an event of default that allows the non-defaulting party the opportunity to purchase the defaulting shareholder's interest in UBBP for fair market value, as determined in accordance with the Shareholders Agreement. On August 28, 2018, Boral delivered a default notice under the Shareholders Agreement to commence the process to establish the fair

market value of our 50% interest in UBBP. Once fair market value is established, Boral will have the right to purchase our 50% interest in UBBP in accordance with the Shareholders Agreement. Boral’s exercise of its right to purchase our 50% interest in UBBP could occur prior to the

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closing of the Merger Agreement (as defined in Note 19, Merger Agreement), in which case we would receive the cash proceeds for our interest, and we would no longer own an interest in UBBP.

Our underlying net assets in our investments are denominated in a foreign currency, and translation gains or losses will impact the recorded value of our investments. Translation gains and losses recorded in other comprehensive income were as follows:

| (millions) | 2018 | 2017 | 2016 |
|---|---|---|---|
| Translation (loss) gain | $(31) | $ 40 | $(30) |

Transactions with UBBP

Our U.S. Wallboard and Surfaces and U.S. Performance Materials segments sell products to UBBP. Total sales to UBBP for each of the years ended December 31, 2018, 2017 and 2016 were immaterial.

In 2014, in connection with the formation of UBBP, we contributed our ownership interest in a joint venture in China to UBBP but retained our loan receivable from this joint venture. As of December 31, 2018 and 2017, the loan receivable, including interest, totaled $9 million and $13 million, respectively, and is included in "Other assets" on our consolidated balance sheets.

Summarized Financial Information

Statements of Income

| | For the year ended December 31, | | |
|---|---|---|---|
| (millions) | 2018 | 2017 | 2016 |
| USG Boral Building Products: | | | |
| Net sales | $1,182 | $1,200 | $1,052 |
| Gross profit [(a)] | 317 | 369 | 337 |
| Operating profit | 117 | 160 | 133 |
| Net income from continuing operations before taxes | 131 | 174 | 142 |
| Net income | 86 | 121 | 95 |
| Net income attributable to USG Boral Building Products | 84 | 117 | 99 |
| USG share of income from investment accounted for using the equity method [(b)] | 42 | 59 | 49 |

(a) Year ended December 31, 2016 includes long-lived asset impairment charges of $8 million for China and of $14 million for Oman.

(b) Year ended December 31, 2016 includes long-lived asset impairment charges of $4 million for China and of $4 million for Oman.

Balance Sheets

| (millions) | December 31, 2018 | December 31, 2017 |
|---|---|---|
| USG Boral Building Products: | | |
| Current assets | $ 392 | $ 438 |
| Non-current assets | 964 | 981 |
| Current liabilities[(a)] | 232 | 255 |
| Long-term debt | 10 | 10 |
| Other non-current liabilities | 22 | 12 |
| Shareholders' equity[(b)] | 1,092 | 1,142 |

(a) Includes the current portion of long-term debt of $15 million and $16 million as of December 31, 2018 and 2017, respectively.

(b) Shareholders' equity includes $64 million and $66 million related to non-controlling interests as of December 31, 2018 and 2017, respectively.

Investment in South Africa Joint Venture

During the second quarter of 2018, we completed the sale of our 33% interest in a joint venture in South Africa for approximately $3 million. We recorded a loss on the sale of $8 million in "Other income, net" on our accompanying consolidated income statements. The loss, which totaled $5 million net of tax, was driven primarily by foreign

currency losses included in equity that were recognized upon the disposition of the joint venture and was recorded within Other, as it does not relate to a reportable segment.

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5. Marketable Securities

Our investments in marketable securities as of December 31, 2018 and 2017 consisted of the following:

| (millions) | 2018 | | 2017 | |
|---|---|---|---|---|
| | Amortized Cost | Fair Value | Amortized Cost | Fair Value |
| Corporate debt securities | $ 73 | $ 73 | $ 68 | $ 68 |
| U.S. government and agency debt securities | 5 | 5 | 6 | 6 |
| Asset-backed debt securities | 15 | 15 | 11 | 11 |
| Certificates of deposit | 5 | 5 | 13 | 13 |
| Municipal debt securities | — | — | 1 | 1 |
| Total marketable securities | $ 98 | $ 98 | $ 99 | $ 99 |

The realized and unrealized gains and losses as of and for the years ended December 31, 2018, 2017 and 2016 were immaterial.

Contractual maturities of marketable securities as of December 31, 2018 were as follows:

| (millions) | Amortized Cost | Fair Value |
|---|---|---|
| Due in 1 year or less | $ 55 | $ 55 |
| Due in 1-5 years | 43 | 43 |
| Total marketable securities | $ 98 | $ 98 |

Actual maturities may differ from the contractual maturities because issuers of the securities may have the right to prepay them.

6. Debt

Total debt as of December 31 consisted of the following:

| (millions) | 2018 | 2017 |
|---|---|---|
| 4.875% senior notes due 2027 | $500 | $500 |
| 5.5% senior notes due 2025 | 350 | 350 |
| Industrial revenue bonds (due 2028 through 2034) | 239 | 239 |
| Total | $1,089 | $1,089 |
| Less: Unamortized debt issuance costs | 10 | 11 |
| Total | $1,079 | $1,078 |

Issuance of Senior Notes

During 2017, we issued $500 million of 4.875% senior notes due 2027, referred to as our 4.875% Notes. The net proceeds from the issuance of these notes and cash on hand were used to fund the repurchase of our 7.75% senior notes due 2018, referred to as our 7.75% Notes, and all related costs and expenses. We deferred $7 million of debt issuance costs that are being amortized to interest expense over the term of the 4.875% Notes.

Repurchases and Redemptions of Senior Notes

During 2017, we repurchased $500 million of our 7.75% Notes through a cash tender offer and subsequent redemption for aggregate consideration of $536 million, including premiums of $20 million and accrued interest of $16 million. For the year ended December 31, 2017, we recorded a pre-tax loss on the early extinguishment of debt of $21 million.

During 2016, we repaid $500 million of our 6.3% senior notes due 2016, referred to as the 6.3% Notes, $250 million of our 7.875% senior notes due 2020, referred to as the 7.875% Notes, and $350 million of our 5.875% senior notes due 2021, referred to as the 5.875% Notes. The retirement of the 6.3% Notes, the 7.875% Notes and the 5.875% Notes included premiums of $30 million and accrued interest of $9 million. As a result of these transactions, we recorded a loss on the early extinguishment of debt, before tax, of $37 million including premiums, write-off of deferred financing fees, debt discount and broker fees.

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Senior Notes

Our senior notes are senior unsecured obligations, rank equally with all of our other existing and future unsecured senior indebtedness and are guaranteed by certain of our domestic subsidiaries. The indentures governing the notes contain events of default, covenants and restrictions that are customary for similar securities, including a limitation on our ability and the ability of certain of our subsidiaries to create or incur secured indebtedness.

| | | |
|---|---|---|
| Interest rate | 5.5% | 4.875% |
| Principal net of discount (in millions) [(a)] | $350 | $500 |
| Maturity | March 1, 2025 | June 1, 2027 |
| Call date [(b)] | March 1, 2020 | June 1, 2022 |
| Mandatory redemption offer | at 101% plus accrued and unpaid interest in the event of a change in control | at 101% plus accrued and unpaid interest in the event of a change in control |

(a) Principal amounts exclude unamortized debt issuance costs.

(b) Callable at any time, in whole or in part, prior to the call date at a redemption price equal to 100% of the principal plus a premium (as outlined in the respective indentures), plus any accrued and unpaid interest on the principal amount being called. Callable after the call date at stated redemption prices (as outlined in the applicable indenture), plus any accrued and unpaid interest on the principal amount being called.

Credit Facility

In 2017, we amended and restated our credit facility agreement to, among other things, increase the maximum borrowing limit from $180 million to $220 million. As a result, we recorded a pre-tax loss on extinguishment of debt of $1 million for the year ended December 31, 2017 and incurred $1 million of debt issuance costs. Our credit facility requires us to maintain a minimum fixed charge coverage ratio in the event excess availability falls below a minimum threshold. Because our excess borrowing availability as of December 31, 2018 of $171 million exceeds this threshold, the requirement to maintain the minimum fixed charge coverage ratio is not applicable. As of December 31, 2018, we were in compliance with the covenants contained in our credit facility.

As of December 31, 2018 and during the year then ended, there were no borrowings under the credit facility. Outstanding letters of credit as of December 31, 2018 totaled $19 million.

Industrial Revenue Bonds

Our $239 million of industrial revenue bonds have fixed interest rates ranging from 5.5% to 6.4%. The weighted average rate of interest on our industrial revenue bonds is 5.875%. These bonds mature during the years 2028 through 2034.

OTHER INFORMATION

| (millions) | December 31, 2018 | December 31, 2017 |
|---|---|---|
| Fair value of debt | $ 1,099 | $ 1,134 |
| Accrued interest | 12 | 12 |

The fair value of our debt was determined using the fair value hierarchy of inputs described in Note 1. The fair values were determined utilizing prices from independent pricing services. The vendors' methodologies utilize various forms of market data, including but not limited to, trade data, yield, spreads, bids and offers. We review the values provided by the independent pricing service for reasonableness. We have not adjusted the prices obtained from the independent pricing service. As a result, the fair values are classified as Level 2. See Note 8, Fair Value Measurements, for further discussion on fair value measurements.

As of December 31, 2018, the amounts of total debt outstanding maturing in each of the next five years and beyond were as follows:

| (millions) | 2019 through 2023 | After 2023 |
|---|---|---|
| Debt maturities (principal amounts) | $ — | $1,089 |

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7. Derivative Instruments

We use derivative instruments to manage selected commodity price and foreign currency exposures as described below.

| Derivative Instruments | Type | Hedged Item | Aggregate Notional Amount | Contracts Maturing Through |
|---|---|---|---|---|
| Commodity | Natural gas swaps | Purchases of natural gas | 41 million mmBTUs* | December 31, 2022 |
| Foreign Exchange | Forward contracts | Purchases of products and services denominated in a foreign currency | $98 million | December 31, 2019 |

* - millions of British Thermal Units

COUNTERPARTY RISK, MASTER NETTING ARRANGEMENTS AND BALANCE SHEET OFFSETTING

We are exposed to credit losses in the event of nonperformance by the counterparties to our derivative instruments. As of December 31, 2018, our derivatives were in a $6 million net liability position. All of our counterparties have investment grade credit ratings; accordingly, we anticipate that they will be able to fully satisfy their obligations under the contracts.

All of our derivative contracts are governed by master netting agreements negotiated between us and the counterparties that reduce our counterparty credit exposure. The agreements outline the conditions (such as credit ratings and net derivative fair values) upon which we, or the counterparties, are required to post collateral. As required by certain of our agreements, we had $7 million of collateral posted with our counterparties related to our derivatives as of December 31, 2018. Amounts paid as cash collateral are included in "Receivables" on our consolidated balance sheets.

We have not adopted an accounting policy to offset fair value amounts related to derivative contracts under our master netting arrangements; therefore, individual derivative contracts are reflected on a gross basis, as either assets or liabilities, on our consolidated balance sheets, based on their fair value as of the balance sheet date.

FINANCIAL STATEMENT INFORMATION

The following are the pre-tax effects of derivative instruments on our consolidated statements of income and our consolidated statements of comprehensive income for the years ended December 31, 2018, 2017 and 2016:

| | Amount of Gain or (Loss) Recognized in Other Comprehensive Income (Loss) on Derivatives (Effective Portion) | | | Location of Gain or (Loss) Reclassified from AOCI into Income (Effective Portion) | Amount of Gain or (Loss) Reclassified from AOCI into Income (Effective Portion) | | |
|---|---|---|---|---|---|---|---|
| (millions) | 2018 | 2017 | 2016 | | 2018 | 2017 | 2016 |
| Derivatives in Cash Flow Hedging Relationships | | | | | | | |
| Commodity contracts | $ (1 ) | $ (19 ) | $ 6 | Cost of products sold | $ (2 ) | $ (4 ) | $ (15 ) |
| Foreign exchange contracts | 8 | (5 ) | (3 ) | Cost of products sold | — | (2 ) | 5 |
| Total | $ 7 | $ (24 ) | $ 3 | | $ (2 ) | $ (6 ) | $ (10 ) |

| Location of Gain or (Loss) | Amount of Gain or (Loss) Recognized in Income on Derivatives |
|---|---|

| (millions) | Recognized in Income on Derivatives | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| Derivatives Not Designated as Hedging Instruments | | | | |
| Commodity contracts | Cost of products sold | $ 1 | $ (1 ) | $ 1 |
| Total | | $ 1 | $ (1 ) | $ 1 |

For both commodity contracts and foreign exchange contracts, no ineffectiveness was recorded in 2018, 2017 or 2016.

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The fair values of derivative instruments on the consolidated balance sheets are as follows:

| (millions) | Balance Sheet Location | Fair Value 12/31/18 | Fair Value 12/31/17 | Balance Sheet Location | Fair Value 12/31/18 | Fair Value 12/31/17 |
|---|---|---|---|---|---|---|
| Derivatives in Cash Flow Hedging Relationships | | | | | | |
| Commodity contracts | Other current assets | $ 2 | $ 1 | Accrued expenses | $ 6 | $ 6 |
| Commodity contracts | Other assets | 2 | 1 | Other liabilities | 10 | 8 |
| Foreign exchange contracts | Other current assets | 6 | — | Accrued expenses | — | 3 |
| Total derivatives in hedging relationships | | $ 10 | $ 2 | | $ 16 | $ 17 |
| Derivatives Not Designated as Hedging Instruments | | | | | | |
| Commodity contracts | Other current assets | $ — | $ — | Accrued expenses | $ — | $ — |
| Commodity contracts | Other assets | — | — | Other liabilities | — | — |
| Total derivatives not designated as hedging instruments | | $ — | $ — | | $ — | $ — |
| Total derivatives | Total assets | $ 10 | $ 2 | Total liabilities | $ 16 | $ 17 |

As of December 31, 2018 and 2017, we had no derivatives designated as net investment or fair value hedges.

## 8. Fair Value Measurements

Certain assets and liabilities are required to be recorded at fair value. The fair values of our cash equivalents, equity mutual funds, marketable securities and derivatives were determined using the fair value hierarchy of inputs described in Note 1, Significant Accounting Policies.

| | USG Valuation Method |
|---|---|
| Level 1 | Cash equivalents and equity mutual funds consist of money market funds that are valued based on quoted prices in active markets. |
| Level 2 | Marketable securities, including certain cash equivalents, are valued using a "market value" approach. Values are based on quoted prices and other observable market inputs received from data providers.<br>Derivatives are valued using the "income" approach such as discounted-cash-flow models and readily observable market data. The inputs for the valuation models are obtained from data providers and include end-of-period spot and forward natural gas prices, foreign currency exchange rates, natural gas price volatility and LIBOR and swap rates for discounting the cash flows implied from the derivative contracts. |
| Level 3 | No level 3 investments. |

Our assets and liabilities measured at fair value on a recurring basis were as follows:

| (millions) | Quoted Prices in Active Markets for Identical Assets (Level 1) 12/31/18 | 12/31/17 | Significant Other Observable Inputs (Level 2) 12/31/18 | 12/31/17 | Significant Unobservable Inputs (Level 3) 12/31/18 | 12/31/17 | Total 12/31/18 | 12/31/17 |
|---|---|---|---|---|---|---|---|---|
| Cash equivalents | $ 121 | $ 124 | $ 36 | $ 24 | $ — | $ — | $ 157 | $ 148 |
| Equity mutual funds | 5 | 6 | — | — | — | — | 5 | 6 |
| Marketable securities: | | | | | | | | |
| Corporate debt securities | — | — | 73 | 68 | — | — | 73 | 68 |
| U.S. government and agency debt securities | — | — | 5 | 6 | — | — | 5 | 6 |
| Asset-backed debt securities | — | — | 15 | 11 | — | — | 15 | 11 |
| Certificates of deposit | — | — | 5 | 13 | — | — | 5 | 13 |
| Municipal debt securities | — | — | — | 1 | — | — | — | 1 |
| Derivative assets | — | — | 10 | 2 | — | — | 10 | 2 |
| Derivative liabilities | — | — | (16 ) | (17 ) | — | — | (16 ) | (17 ) |

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9. Employee Retirement Plans

We maintain defined benefit pension plans for most of our employees. Most of these plans require employee contributions in order to accrue benefits. Benefits payable under the plans are based on employees' years of service and compensation during specified years of employment. Effective December 31, 2010, we amended the USG Corporation defined benefit pension plan to replace the final average pay formula with a cash balance formula for employees hired after that date. In November 2016, we amended the U.S. pension plan to allow retirees and all terminated vested employees to take a lump-sum at all times without restriction.

We also maintain plans that provide postretirement benefits (retiree health care and life insurance) for eligible employees. Employees hired before January 1, 2002 generally become eligible for the postretirement benefit plans when they meet minimum retirement age and service requirements. The cost of providing most postretirement benefits is shared with retirees.

Upon the sale of L&W, we retained responsibility for the benefits payable to employees of L&W for the benefits accrued while employed by USG under the USG pension and postretirement plans. All L&W employees had the option to receive a lump sum benefit payment from the USG Corporation pension plan upon termination of their employment from USG. The total of the lump sum distributions made by the USG Corporation pension plan to both L&W employees and USG retirees or terminated vested employees during both 2017 and 2016 exceeded the settlement threshold and, as a result, we incurred settlement expense of $25 million and $26 million, respectively. The benefits payable to employees of L&W who did not take lump sum distributions in connection with their termination or retirement from USG are included in our benefit obligation as of December 31, 2018.

The location of the pre-tax settlement expense within our consolidated statements of income and the group of employees for which it is related is presented in the following chart. There was no settlement expense in 2018.

| (millions) | | 2017 | 2016 |
|---|---|---|---|
| Other income, net | USG retirees or terminated vested employees | $ 12 | $ 11 |
| Income (loss) from discontinued operations | Terminated employees of L&W | 13 | — |
| Gain on sale of discontinued operations | Terminated employees of L&W | — | 15 |
| Total | | $ 25 | $ 26 |

Additionally, as a result of the sale of L&W, we recorded a curtailment gain of $20 million for the year ended December 31, 2016 for our postretirement plan to "Gain on sale of discontinued operations" in our consolidated statement of income, for those benefits no longer accruable to the employees of L&W who were not retirement eligible or did not elect retirement upon employment termination from USG.

We previously amended our U.S. postretirement benefit plan to require retiree medical plan participants to begin purchasing individual coverage in the Affordable Insurance Exchanges or individual Medicare marketplace beginning January 1, 2016 using a company-funded subsidy. The subsidy is determined based upon years of service at retirement and Medicare eligibility. As a result of the amendments, the measurement of the accumulated postretirement benefit obligation, or APBO, was reduced and a credit to unrecognized prior service cost is being amortized into the statement of income over the average remaining service of active plan participants to retirement eligibility. This is reflected in net amortization of postretirement benefits in the table below and included in "Other income, net" in the consolidated statements of income. The subsidy provided to retirees eligible for Medicare will end December 31, 2019 at which time there will be no remaining credit to be amortized to the income statement for the unrecognized prior service cost.

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The components of the pre-tax total recognized in net pension and postretirement costs and other comprehensive income are summarized in the following table:

| | Pension | | | Postretirement | | |
|---|---|---|---|---|---|---|
| (millions) | 2018 | 2017 | 2016 | 2018 | 2017 | 2016 |
| Service cost of benefits earned | $50 | $44 | $45 | $2 | $2 | $2 |
| Interest cost on projected benefit obligation | 62 | 61 | 66 | 5 | 5 | 6 |
| Expected return on plan assets | (97 ) | (93 ) | (89 ) | — | — | — |
| Settlement [(a)] | — | 25 | 35 | — | — | — |
| Curtailment | — | — | — | — | — | (20 ) |
| Net amortization | 31 | 22 | 22 | (23 ) | (23 ) | (27 ) |
| Net pension & postretirement cost [(b)] | $46 | $59 | $79 | $(16) | $(16) | $(39) |
| Net actuarial (loss) gain | $(14) | $77 | $58 | $(15) | $10 | $(6 ) |
| Net amortization | (31 ) | (22 ) | (22 ) | 23 | 23 | 27 |
| Settlement | — | (25 ) | (35 ) | — | — | — |
| Curtailment | — | — | — | — | — | 20 |
| Deferred currency exchange | (7 ) | 4 | 2 | (1 ) | 1 | (7 ) |
| Total recognized in other comprehensive income | $(52) | $34 | $3 | $7 | $34 | $34 |
| Total recognized in net pension & postretirement cost and other comprehensive income | $(6 ) | $93 | $82 | $(9 ) | $18 | $(5 ) |

(a) In 2016, $26 million of the settlement charge reflects the increase in lump sum benefits paid largely driven by the sale of L&W and $9 million reflected payments from our supplemental plan.

(b) Net pension costs, excluding settlement costs, includes amounts allocated to income (loss) from discontinued operations for L&W totaling a benefit of $1 million for 2018, a benefit of $1 million for 2017, and an expense of $7 million for 2016. Net postretirement benefit, excluding curtailment gain, includes a net benefit allocated to income (loss) from discontinued operations for L&W of $3 million for 2018, $1 million for 2017 and $3 million for 2016.

We use a December 31 measurement date for our plans. The accumulated benefit obligation, or ABO, for the defined benefit pension plans was $1.374 billion as of December 31, 2018 and $1.506 billion as of December 31, 2017.

| | As of December 31, | |
|---|---|---|
| (millions) | 2018 | 2017 |
| Selected information for pension plans with accumulated benefit obligations in excess of plan assets: | | |
| Accumulated benefit obligation | $(35 ) | $(35 ) |
| Fair value of plan assets | 3 | 3 |
| Selected information for pension plans with benefit obligations in excess of plan assets: | | |
| Benefit obligation | $(1,568) | $(1,769) |
| Fair value of plan assets | 1,431 | 1,576 |
| Selected information for postretirement plans with benefit obligations in excess of plan assets: | | |
| Benefit obligation | $(132 ) | $(150 ) |
| Fair value of plan assets | — | — |

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The following table summarizes projected benefit obligations, plan assets and funded status as of December 31:

| | Pension | | Postretirement | |
|---|---|---|---|---|
| (millions) | 2018 | 2017 | 2018 | 2017 |
| Change in Benefit Obligation: | | | | |
| Benefit obligation as of January 1 | $1,770 | $1,610 | $150 | $135 |
| Service cost | 50 | 44 | 2 | 2 |
| Interest cost | 62 | 61 | 5 | 5 |
| Settlements | — | (121) | — | — |
| Participant contributions | 10 | 9 | — | — |
| Benefits paid | (110) | (51) | (6) | (6) |
| Actuarial (gain) loss | (192) | 202 | (15) | 10 |
| Foreign currency translation | (21) | 16 | (4) | 4 |
| Benefit obligation as of December 31 | $1,569 | $1,770 | $132 | $150 |
| Change in Plan Assets: | | | | |
| Fair value as of January 1 | $1,577 | $1,435 | $— | $— |
| Actual return on plan assets | (81) | 217 | — | — |
| Employer contributions | 56 | 71 | 6 | 6 |
| Participant contributions | 10 | 9 | — | — |
| Benefits paid | (110) | (51) | (6) | (6) |
| Settlements | — | (121) | — | — |
| Foreign currency translation | (20) | 17 | — | — |
| Fair value as of December 31 | $1,432 | $1,577 | $— | $— |
| Funded status | $(137) | $(193) | $(132) | $(150) |
| Components on the Consolidated Balance Sheets: | | | | |
| Noncurrent assets | $1 | $— | $— | $— |
| Current liabilities | (7) | (8) | (9) | (9) |
| Noncurrent liabilities | (131) | (185) | (123) | (141) |
| Net liability as of December 31 | $(137) | $(193) | $(132) | $(150) |
| Pretax Components in AOCI: | | | | |
| Net actuarial loss (gain) | $369 | $421 | $(5) | $11 |
| Prior service credit | — | — | (19) | (42) |
| Total as of December 31 | $369 | $421 | $(24) | $(31) |

For our defined benefit pension and postretirement plans, the 2018 actuarial gain of $192 million and $15 million, respectively, was primarily due to an increase in the discount rates.

ASSUMPTIONS

The following tables reflect the assumptions used in the accounting for our plans:

| | Pension | | Postretirement | |
|---|---|---|---|---|
| | 2018 | 2017 | 2018 | 2017 |
| Weighted average assumptions used to determine benefit obligations as of December 31: | | | | |
| Discount rate | 4.21% | 3.55% | 4.09% | 3.42% |
| Compensation increase rate | 3.55% | 3.54% | N/A | N/A |
| Interest crediting rate | 4.00% | 4.00% | N/A | N/A |
| Weighted average assumptions used to determine net cost for years ended December 31: | | | | |
| Discount rate | 3.55% | 4.02% | 3.42% | 3.90% |
| Expected return on plan assets | 6.55% | 6.54% | N/A | N/A |
| Compensation increase rate | 3.54% | 3.55% | N/A | N/A |

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We no longer have significant exposure to health care cost trend rates due to the modifications we made to our U.S. postretirement health care plan to limit the increase in the annual amount we pay for retiree health care coverage for certain current and future retirees to 3% and to require retiree medical plan participants to begin purchasing individual coverage in the Affordable Insurance Exchanges or individual Medicare marketplace beginning January 1, 2016 using a company-funded subsidy based upon years of service at retirement.

For the measurement of the APBO at December 31, 2018 for our Canadian postretirement health care plan, the assumed health care cost trend rates start with a 5.92% increase in 2019, followed by a gradual decline in increases to 4% for 2046 and beyond. For the measurement of the APBO at December 31, 2017, the assumed health care cost trend rates started with a 5.95% increase in 2018, followed by a gradual decline in increases to 4% for 2046 and beyond.

RETIREMENT PLAN ASSETS

Investment Policies and Strategies: We have established investment policies and strategies for the defined benefit pension plans' assets with a long-term objective of maintaining the plans' assets at a level equal to or greater than that of their liabilities (as measured by a funded ratio of 100% or more of the PBO) and maximizing returns on the plans' assets consistent with our moderate tolerance for risk. Contributions are made to the plans periodically as needed to meet funding targets or requirements. Factors influencing our determination to accept a moderate degree of risk include the timing of plan participants' retirements and the resulting disbursement of retirement benefits, the liquidity requirements of the plans and our financial condition.

Our overall long-term objective is to achieve a 6.6% rate of return on plan assets with a moderate level of risk as indicated by the volatility of investment returns. This rate of return target was established using a "building block" approach. In this approach, ranges of long-term expected returns for the various asset classes in which the plans invest are estimated. The estimated ranges are primarily based on observations of historical asset returns and their historical volatility. In determining the expected returns, we also consider consensus forecasts of certain market and economic factors that influence returns, such as inflation, gross domestic product trends and dividend yields. We then calculate an overall range of likely expected rates of return by applying the expected asset returns to the plans' target asset allocation. The most likely rate of return is then determined and is adjusted to account for investment management fees.

Our investment strategy is to invest in a diversified mix of asset classes in accordance with an asset allocation that we believe is likely to achieve our long-term target return while prudently considering risk. In order to manage risk, the plans' pension and investment committees periodically rebalance the asset allocations as outlined by our investment policy statements. Our investment policy statements include glide paths which outline how our asset allocation would increase the portion of liability-hedging assets, such as fixed income, as our funded status improves in the future. This liability-driven investing approach is carried out by professional investment managers who help the committees in this process. The committees also monitor the investment performance of the individual investment managers compared to their benchmark returns and investment guidelines on an ongoing basis, in part through the use of quarterly investment portfolio reviews and compliance reporting by investment managers. The pension and investment committees also evaluate risk by periodically conducting asset/liability studies to assess the correlation of the plans' assets and liabilities and the degree of risk in the target asset allocations. The plans limit the use of leverage to select investment strategies where leverage is typically employed, such as private equity and real estate. Certain investment managers may utilize derivatives, such as swaps, bond futures, and options, as part of their investment strategies. This is done primarily to gain a desired market exposure or manage factors such as interest rate risk or duration of a bond portfolio.

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The following table shows the aggregate target asset allocation on a weighted average basis for all the plans and the acceptable ranges around the targets as of December 31, 2018.

| Asset Categories | Asset Category Description | Investment Policy Target | Range |
|---|---|---|---|
| Equity | Institutional commingled/pooled equity funds, equity mutual funds and direct holdings of the common stock of U.S. and non-U.S. companies; equity funds and direct holdings are invested in companies with a range of market capitalizations | 35% | 32%-39% |
| Fixed income | U.S. Treasury securities, non-U.S. government debt securities such as Canadian federal bonds, corporate bonds of companies from diversified industries and mortgage-backed securities | 55% | 43%-66% |
| Limited partnerships | Investments in funds that follow any of several different strategies, including investing in distressed debt, energy development, infrastructure, and hedge funds. These investments use strategies with returns normally expected to have a reduced correlation to the return of equities as compared to other asset classes and often provide a current income component that is a meaningful portion of the investment’s total return. | 5% | 2%-8% |
| Other real assets | Primarily investments in large core, private real estate funds that directly own a diverse portfolio of properties located in the United States. It also includes an allocation to funds investing in equities of real estate and infrastructure companies | 5% | 2%-9% |
| Cash equivalents and short-term investments | Primarily short-term investment funds or registered money market funds with daily liquidity | —% | 0%-5% |
| Total | | 100% | |

Fair Values of Plan Assets: Pension assets are classified based on the valuation methodologies and inputs used to determine the fair value as described in Note 1.

Level 1 investments include direct investments in common stocks of U.S. and non-U.S. companies that trade on liquid exchanges. These investments are valued based on the closing price on these exchanges.

Level 2 investments include primarily fixed income securities such as corporate, or government debentures, mortgage- and asset-backed securities. They are valued primarily using income and market approaches, such as pricing based on recent market transactions, and values are based on quoted prices or other observable market inputs received from data providers. Commingled funds not traded on an exchange, even though their underlying investments are common stocks traded on liquid exchanges, are also included in the Level 2 category. The net asset value of commingled funds investing in either stocks or fixed income securities is calculated by subtracting the value of any liabilities from the market value of all securities owned by a fund.

Level 3 investments include real estate, infrastructure, or direct energy investments as well as distressed securities or hedge funds. These are valued using income approach methodologies such as discounted cash flows, or market approach methodologies such as relative value (specific to equity securities), direct capitalization and comparable sales (specific to real estate investments). Some of the key inputs used to value these securities include discount rate, EBITDA multiple, yield-to-worst, yield-to-maturity, and cap rate (specific to real estate investments).

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The fair values by hierarchy of inputs as of December 31 were as follows:

| | Quoted Prices in Active Markets for Identical Assets (Level 1) | | Significant Other Observable Inputs (Level 2) | | Significant Unobservable Inputs (Level 3) | | Total | |
|---|---|---|---|---|---|---|---|---|
| (millions) | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 |
| Asset Categories: | | | | | | | | |
| Equity: | | | | | | | | |
| Common and preferred stock | $ 88 | $ 92 | $— | $— | $ — | $ — | $88 | $92 |
| Commingled/pooled/mutual funds [(a)] | — | — | 450 | 553 | — | — | 450 | 553 |
| Total equity | 88 | 92 | 450 | 553 | — | — | 538 | 645 |
| Fixed income: | | | | | | | | |
| U.S. government and agency debt securities | — | — | 11 | 8 | — | — | 11 | 8 |
| Non-U.S. government and agency debt securities | — | — | 55 | 68 | — | — | 55 | 68 |
| Investment-grade debt securities | — | — | 268 | 334 | — | — | 268 | 334 |
| High-yield debt securities | — | — | 40 | 42 | — | — | 40 | 42 |
| Commingled/pooled funds [(a)] | — | — | 362 | 305 | — | — | 362 | 305 |
| Mortgaged backed securities | — | — | 5 | 1 | — | — | 5 | 1 |
| Other | — | — | 12 | 13 | 1 | 1 | 13 | 14 |
| Total fixed income | — | — | 753 | 771 | 1 | 1 | 754 | 772 |
| Limited partnerships | — | — | — | — | 83 | 91 | 83 | 91 |
| Other real estate assets | — | — | 16 | 18 | 35 | 39 | 51 | 57 |
| Cash equivalents and short-term investments | — | — | 10 | 14 | — | — | 10 | 14 |
| Total | $ 88 | $ 92 | $1,229 | $1,356 | $ 119 | $ 131 | $1,436 | $1,579 |
| Cash on hand | | | | | | | 1 | — |
| Receivables | | | | | | | 5 | 2 |
| Accounts payable | | | | | | | (10 ) | (4 ) |
| Total | | | | | | | $1,432 | $1,577 |

(a) Certain investments in commingled/pooled equity funds have been classified as Level 2 because observable quoted prices for these institutional funds are not available.

A reconciliation of the change in the fair value measurement of the defined benefit plans' consolidated assets using significant unobservable inputs (Level 3) between January 1, 2017 and December 31, 2018 is as follows:

| (millions) | Fixed Income | Other Real Estate Assets | Limited Partnerships | Total |
|---|---|---|---|---|
| Balance as of January 1, 2017 | $ 1 | $ 38 | $ 103 | $142 |
| Realized losses | — | 1 | 15 | 16 |
| Unrealized gains | — | 2 | (1 ) | 1 |
| Purchases, sales and settlements: | | | | |
| Purchases | — | — | 9 | 9 |
| Sales | — | (2 ) | (35 ) | (37 ) |
| Settlements | — | — | — | — |
| Net transfers into (out of) Level 3 | — | — | — | — |
| Balance as of December 31, 2017 | $ 1 | $ 39 | $ 91 | $131 |
| Realized gains | — | 1 | 4 | 5 |
| Unrealized gains (losses) | — | 1 | (8 ) | (7 ) |

| | | | | |
|---|---|---|---|---|
| Purchases, sales and settlements: | | | | |
| Purchases | — | — | 14 | 14 |
| Sales | — | (6 ) | (18 ) | (24 ) |
| Settlements | — | — | — | — |
| Net transfers into (out of) Level 3 | — | — | — | — |
| Balance as of December 31, 2018 | $ 1 | $ 35 | $ 83 | $119 |

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CASH FLOWS

We are evaluating our level of funding for pension plans and currently estimate that we will contribute approximately $62 million to our pension plans in 2019. Our cash payments for postretirement plans are estimated to be $9 million in 2019.

Total benefit payments we expect to make to participants, which include payments funded from USG's assets as well as payments from our pension plans' assets, are as follows (in millions):

| Years ended December 31 | Pension Benefits | Postretirement Benefits |
|---|---|---|
| 2019 | $ 115 | $ 9 |
| 2020 | 117 | 8 |
| 2021 | 114 | 8 |
| 2022 | 117 | 8 |
| 2023 | 121 | 8 |
| 2024 - 2028 | 581 | 40 |

DEFINED CONTRIBUTION PLANS

Total charges for our defined contribution plans amounted to approximately $12 million, $8 million and $5 million for the years ended December 31, 2018, 2017 and 2016, respectively. USG's contributions are charged to cost of products sold and selling and administrative expenses.

10. Share-Based Compensation

We grant share-based compensation to eligible participants under our 2016 Long-Term Incentive Plan, or New LTIP, which was approved by our Board of Directors and stockholders in 2016, and prior thereto under our prior Long-Term Incentive Plan, which, together with the New LTIP, is referred to as the LTIP. As of December 31, 2018, a total of 6 million shares of common stock were reserved for future grants under the New LTIP. We may issue shares of our common stock upon option exercises and upon the vesting or grant of other awards under the LTIP from our authorized but unissued shares or from treasury shares.

Our expense in continuing operations for share-based arrangements was $21 million in 2018, $18 million in 2017 and $18 million in 2016 and is included in "Selling and administrative expenses" in our consolidated statements of income. In 2018 we recognized a $7 million net income tax benefit for share-based arrangements in the consolidated statement of income; no income tax effects were recognized in 2017 or 2016.

MARKET SHARE UNITS

We granted MSUs with the following weighted average grant date fair values:

| | 2018 | 2017 | 2016 |
|---|---|---|---|
| Weighted average grant date fair values | $34.22 | $35.79 | $19.59 |

MSUs generally vest after a three-year period based on our actual stock price performance during such period. The number of MSUs earned will vary from 0% to 150% of the number of MSUs awarded depending on the actual performance of our stock price. In the case of termination of employment due to death, disability or retirement during the performance period, vesting will be pro-rated based on the number of full months employed in the grant year. Awards earned will be issued at the end of the three-year period. Each MSU earned will be settled in shares of our common stock.

We estimated the fair value of each MSU granted on the date of grant using a Monte Carlo simulation that used the assumptions noted in the following table. Volatility was based on stock price history immediately prior to grant for a period commensurate with the expected term. The risk-free rate was based on zero-coupon U.S. government issues at the time of grant. The expected term represents the period from the valuation date to the end of the performance period.

| Assumptions: | 2018 | 2017 | 2016 |
|---|---|---|---|
| Expected volatility | 32.62% | 32.10% | 34.02% |
| Risk-free rate | 2.37 % | 1.39 % | 0.86 % |
| Expected term (in years) | 2.95 | 2.96 | 2.95 |
| Expected dividends | — | — | — |

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Nonvested MSUs outstanding as of December 31, 2018 and MSU activity during 2018 were as follows:

| | Number of MSUs (000) | Weighted Average Grant Date Fair Value |
|---|---|---|
| Nonvested at January 1, 2018 | 1,097 | $ 25.01 |
| Granted | 429 | 34.22 |
| Vested | (730 ) | 19.59 |
| Forfeited | (8 ) | 35.79 |
| Nonvested at December 31, 2018 | 788 | $ 34.93 |

With respect to the MSUs granted in 2016, for which the three-year period ended December 31, 2018, 730,145 vested for approximately 1,095,218 shares of common stock based on the actual performance of our stock price.
Total unrecognized compensation cost related to nonvested share-based compensation awards represented by MSUs granted under the LTIP was $5 million as of December 31, 2018. We expect that cost to be recognized over a weighted average period of 1.7 years.

PERFORMANCE SHARES

We granted performance shares with the following weighted average grant date fair values:

| | 2018 | 2017 | 2016 |
|---|---|---|---|
| Weighted average grant date fair values | $34.21 | $39.42 | $21.10 |

The performance shares generally vest after a three-year period based on our total stockholder return relative to the performance of the Dow Jones U.S. Construction and Materials Index, with adjustments to that index in certain circumstances, for the three-year period. The number of performance shares earned will vary from 0% to 200% of the number of performance shares awarded depending on that relative performance. Vesting will be pro-rated based on the number of full months employed during the performance period in the case of death, disability or retirement, and pro-rated awards earned will be settled in common stock at the end of the three-year period.
We estimated the fair value of each performance share granted on the date of grant using a Monte Carlo simulation that uses the assumptions noted in the following table. Volatility was based on stock price history immediately prior to grant for a period commensurate with the expected term. The risk-free rate was based on zero-coupon U.S. government issues at the time of grant. The expected term represents the period from the grant date to the end of the three-year performance period.

| Assumptions: | 2018 | 2017 | 2016 |
|---|---|---|---|
| Expected volatility | 32.61% | 32.10% | 34.02% |
| Risk-free rate | 2.37 % | 1.39 % | 0.86 % |
| Expected term (in years) | 2.95 | 2.96 | 2.95 |
| Expected dividends | — | — | — |

Nonvested performance shares outstanding as of December 31, 2018 and performance share activity during 2018 were as follows:

| | Number of Performance Shares (000) | Weighted Average Grant Date Fair Value |
|---|---|---|
| Nonvested at January 1, 2018 | 256 | $ 29.14 |
| Granted | 104 | 34.21 |
| Vested | (143 ) | 21.10 |
| Forfeited | (2 ) | 33.35 |
| Nonvested at December 31, 2018 | 215 | $ 36.93 |

With respect to the performance shares granted in 2016, for which the three-year performance period ended December 31, 2018, 143,033 of the performance awards vested for 286,066 common shares.

Total unrecognized compensation cost related to nonvested share-based compensation awards represented by performance shares granted under the LTIP was $4 million as of December 31, 2018. We expect that cost to be recognized over a weighted average period of 1.6 years.



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RESTRICTED STOCK UNITS

We granted RSUs with the following weighted average grant date fair values:

| | 2018 | 2017 | 2016 |
|---|---|---|---|
| Weighted average grant date fair values | $36.92 | $31.57 | $23.94 |

RSUs granted as special retention awards generally vest after a specified number of years from the date of grant or at a specified date and RSUs granted with performance goals vest if those goals are attained. RSUs may vest earlier in the case of death, disability, retirement or a change in control. Each RSU is settled in a share of our common stock after the vesting period. The fair value of each RSU granted is equal to the closing market price of our common stock on the date of grant.

RSUs outstanding as of December 31, 2018 and RSU activity during the year then ended were as follows:

| | Number of RSUs (000) | Weighted Average Grant Date Fair Value |
|---|---|---|
| Nonvested at January 1, 2018 | 304 | $ 14.67 |
| Granted | 44 | 36.92 |
| Vested | (50 ) | 26.64 |
| Forfeited | (10 ) | 28.29 |
| Nonvested at December 31, 2018 | 288 | $ 30.05 |

As of December 31, 2018, there was $4 million of total unrecognized compensation cost related to nonvested share-based compensation awards represented by RSUs granted under the LTIP. We expect that cost to be recognized over a weighted average period of 1.6 years. The total fair value of RSUs that vested was $1 million during 2018, $2 million during 2017 and $2 million during 2016.

STOCK OPTIONS

All outstanding stock options are exercisable. The stock options generally expire ten years from the date of grant, or earlier in the event of death, disability or retirement.

A summary of stock options outstanding as of December 31, 2018 and of stock option activity during the year then ended is presented below:

| | Number of Options (000) | Weighted Average Exercise Price | Weighted Average Remaining Contractual Term (years) | Aggregate Intrinsic Value (millions) |
|---|---|---|---|---|
| Outstanding at January 1, 2018 | 1,261 | $ 15.72 | 2.48 | $ 28 |
| Exercised | (677 ) | 16.02 | | |
| Canceled | (50 ) | 34.67 | | |
| Outstanding, exercisable and vested at December 31, 2018 | 534 | $ 13.55 | 1.89 | $ 16 |

| (millions) | 2018 | 2017 | 2016 |
|---|---|---|---|
| Intrinsic value of stock options exercised | $ 17 | $ 7 | $ 4 |
| Cash received from stock options exercised | $ 11 | $ 14 | $ 4 |
| Fair value of stock options vested | $ — | $ — | $ 1 |

Intrinsic value for stock options is defined as the difference between the current market value of our common stock and the exercise price of the stock options.

NON-EMPLOYEE DIRECTOR DEFERRED STOCK UNITS

Our non-employee directors may elect to receive a portion of their compensation as deferred stock units. In August 2017, we amended this program to remove the election to receive cash or shares of USG common stock upon termination of board service and, as a result, all deferred stock units granted after August 2017 will be paid in shares of USG common stock. Also in August 2017, four of our non-employee directors elected to receive shares of stock for previously granted deferred stock units, and as a result, in 2017, we recorded a reclassification from a liability to

equity of $6 million for these previously deferred awards.

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KNAUF TRANSACTION

At the effective time of the Merger (as defined in Note 19, Merger Agreement), subject to certain exceptions, each MSU, performance share, and RSU that is outstanding immediately prior to the Merger will become fully vested. At the effective time of the Merger, these awards, along with each deferred stock unit, will be converted into the right to receive a cash payment equal to (i) the number of shares of our common stock earned on each underlying share, determined by substituting the closing consideration of $43.50 for the market value or the ending stock price in determining the achievement of the performance goal as applicable, multiplied by (ii) the closing consideration of $43.50 per share. Each stock option that is outstanding immediately prior to the Merger will be converted into the right to receive a cash payment equal to the (i) the number of shares of our common stock subject to such option at the effective time of the Merger, multiplied by (ii) the excess, if any, of the closing consideration of $43.50 per share over the exercise price of the option. A Dividend Make-Whole Amount Plan was approved by USG in connection with the Merger. See Note 19, Merger Agreement, for further discussion.

11. Supplemental Balance Sheet Information

INVENTORIES

Inventories as of December 31 consisted of the following:

| (millions) | 2018 | 2017 |
|---|---|---|
| Finished goods | $168 | $140 |
| Work in progress | 42 | 39 |
| Raw materials | 80 | 73 |
| Total | $290 | $252 |

PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment as of December 31 consisted of the following:

| (millions) | 2018 | 2017 |
|---|---|---|
| Land and mineral deposits | $206 | $120 |
| Buildings and improvements | 1,022 | 1,100 |
| Machinery and equipment | 2,717 | 2,595 |
| | 3,945 | 3,815 |
| Reserves for depreciation and depletion | (2,107 ) | (2,053 ) |
| Total | $1,838 | $1,762 |
| Annual depreciation and depletion expense | $133 | $129 |

ACCRUED EXPENSES

Accrued expenses as of December 31 consisted of the following:

| (millions) | 2018 | 2017 |
|---|---|---|
| Self-insurance reserves | $13 | $12 |
| Employee compensation | 17 | 17 |
| Interest | 12 | 12 |
| Derivatives | 6 | 9 |
| Pension and other postretirement benefits | 16 | 17 |
| Environmental | 13 | 17 |
| Other | 52 | 51 |
| Total | $129 | $135 |

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ASSET RETIREMENT OBLIGATIONS

Changes in our liability for asset retirement obligations consisted of the following:

| (millions) | 2018 | 2017 |
|---|---|---|
| Balance as of January 1 | $118 | $113 |
| Accretion expense | 7 | 7 |
| Liabilities incurred | — | 3 |
| Changes in estimated cash flows | (9) | (4) |
| Liabilities settled | (1) | (3) |
| Reclass to accrued expenses | (2) | — |
| Foreign currency translation | (2) | 2 |
| Balance as of December 31 | $111 | $118 |

ASSET DISPOSITIONS

In the second quarter of 2018, we recorded a gain of $13 million, or $9 million net of tax, on the sale of a surplus property. The pre-tax gain was recorded in "Cost of products sold" within the U.S. Wallboard and Surfaces segment.

ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

Changes in the balances of each component of AOCI are summarized in the following table:

| (millions) | Derivatives | Pension and Other Postretirement Benefit Plans | Foreign Currency Translation | Total AOCI |
|---|---|---|---|---|
| Balance as of January 1, 2016 | $ 20 | $ (221) | $ (113) | $(314) |
| Other comprehensive income (loss) before reclassifications, net of tax | 1 | (34) | (53 | |