ARMSTRONG WORLD INDUSTRIES INC
Form 10-K
February 26, 2018
UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017

OR

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 1-2116

ARMSTRONG WORLD INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Pennsylvania	23-0366390
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

2500 Columbia Avenue, Lancaster, Pennsylvania	17603
(Address of principal executive offices)	(Zip Code)

Registrant’s telephone number, including area code (717) 397-0611

Securities registered pursuant to Section 12(b) of the Act:

Title of each class

Common Stock ($0.01 par value)

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 No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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, and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter time period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) 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.

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

Large accelerated filer	Accelerated filer
Non-accelerated filer	Smaller reporting company
Emerging growth company	

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

The aggregate market value of the Common Stock of Armstrong World Industries, Inc. held by non-affiliates based on the closing price ($46.00 per share) on the New York Stock Exchange (trading symbol AWI) of June 30, 2017 was approximately $2.0 billion. As of February 21, 2018, the number of shares outstanding of the registrant's Common Stock was 53,105,216.

Documents Incorporated by Reference

Certain sections of Armstrong World Industries, Inc.’s definitive Proxy Statement for use in connection with its 2018 annual meeting of shareholders, to be filed no later than April 30, 2018 (120 days after the last day of our 2017 fiscal year), are incorporated by reference into Part III of this Form 10-K Report where indicated.

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When we refer to “AWI,” the “Company,” “we,” “our” and “us”, we are referring to Armstrong World Industries, Inc. and its subsidiaries.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this Annual Report on Form 10-K and the documents incorporated by reference may constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Those forward-looking statements are subject to various risks and uncertainties and include all statements that are not historical statements of fact and those regarding our intent, belief or expectations, including, but not limited to, our expectations concerning our residential and commercial markets and their effect on our operating results; our expectations regarding the payment of dividends; and our ability to increase revenues, earnings and EBITDA (as discussed below). Words such as “anticipate,” “expect,” “intend,” “plan,” “target,” “project,” “predict,” “believe,” “may,” “wil “could,” “should,” “seek,” “estimate” and similar expressions are intended to identify such forward-looking statements. These statements are based on management’s current expectations and beliefs and are subject to a number of factors that could lead to actual results materially different from those described in the forward-looking statements. Although we believe that the assumptions underlying the forward-looking statements are reasonable, we can give no assurance that our expectations will be attained. Factors that could have a material adverse effect on our financial condition, liquidity, results of operations or future prospects or which could cause actual results to differ materially from our expectations include, but are not limited to:

- economic conditions;
- construction activity;
- the announced sale of our Europe, Middle East and Africa (including Russia) (“EMEA”) and Pacific Rim businesses is subject to various risks and uncertainties and may not be completed in accordance with the expected plans or anticipated timeline, or at all, and will involve significant time and expense, which could disrupt or adversely affect our business;
- competition;
- key customers;
- availability and costs of raw materials and energy;
- Worthington Armstrong Venture (“WAVE”), our joint venture with Worthington Industries, Inc;
- environmental matters;
- covenants in our debt agreements;
- our indebtedness;
- our liquidity;
- international operations;
- strategic transactions;
- negative tax consequences;
- the tax consequences of the separation of our flooring business from our ceilings business;
- defined benefit plan obligations;
- cybersecurity breaches, claims and litigation;
- labor;
- intellectual property rights;
- costs savings and productivity initiatives; and
- other risks detailed from time to time in our filings with the Securities and Exchange Commission (the “SEC”), press releases and other communications, including those set forth under “Risk Factors” included elsewhere in this Annual Report on Form 10-K and in the documents incorporated by reference.

Such forward-looking statements speak only as of the date they are made. We expressly disclaim any obligation to release publicly any updates or revisions to any forward-looking statements to reflect any change in our expectations with regard thereto or change in events, conditions or circumstances on which any statement is based.

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PART I

ITEM 1. BUSINESS

Armstrong World Industries, Inc. ("AWI" or the "Company") is a Pennsylvania corporation incorporated in 1891. When we refer to "we," "our" and "us" in this report, we are referring to AWI and its subsidiaries.

We are a global leader in the design, innovation and manufacture of commercial and residential ceiling, wall and suspension system solutions. We design, manufacture and sell ceiling systems (primarily mineral fiber, fiberglass wool and metal) throughout the Americas.

On November 17, 2017, we entered into a Share Purchase Agreement (the "Purchase Agreement") with Knauf International GmbH ("Knauf"), to sell certain subsidiaries comprising our business in Europe, the Middle East and Africa (including Russia) ("EMEA") and the Pacific Rim, including the corresponding businesses and operations conducted by Worthington Armstrong Venture ("WAVE"), our joint venture with Worthington Industries, Inc., in which AWI holds a 50% interest. The consideration to be paid by Knauf in connection with the sale is $330.0 million in cash, inclusive of amounts due to WAVE, subject to certain adjustments as provided in the Purchase Agreement, including adjustments based on the economic impact of any required regulatory remedies and a working capital adjustment. The transaction, which is subject to regulatory approvals and other customary conditions, is currently anticipated to close in mid-2018. Our EMEA and Pacific Rim segment's historical financial results have been reflected in AWI's Consolidated Financial Statements as a discontinued operation for all periods presented.

On January 13, 2017, we acquired the business and assets of Tectum, Inc. ("Tectum"), based in Newark, Ohio. Tectum is a manufacturer of acoustical ceiling, wall and structural solutions for commercial building applications with two manufacturing facilities. Tectum's operations from the date of acquisition, and its assets and liabilities as of December 31, 2017, have been included as a component of our Architectural Specialties segment.

On April 1, 2016, we completed our separation of Armstrong Flooring, Inc. ("AFI"). AFI's historical financial results have been reflected in AWI's Consolidated Financial Statements as a discontinued operation for all periods presented.

See Note 4 to the Consolidated Financial Statements for additional information related to our acquisition and discontinued operations.

We are focused on driving sustainable shareholder value creation. Our strategic priority is to accelerate profitable sales and earnings growth. Our goal is to expand into new markets and grow in existing markets in the Americas by selling a broader array of products and solutions into those markets.

Reportable Segments

Effective December 31, 2017 and in connection with the announced sale of our EMEA and Pacific Rim businesses, our historical EMEA and Pacific Rim segments have been excluded from our results of continuing operations. As a result, effective December 31, 2017 and for all periods presented, our operating segments are as follows: Mineral Fiber, Architectural Specialties and Unallocated Corporate. See Note 3 to the Consolidated Financial Statements and Management's Discussion and Analysis of Financial Condition and Results of Operations in Item 7 of this Form 10-K for additional financial information.

Markets

We are well positioned in the industry segments and markets in which we operate, often holding a leadership or significant market share position. The major markets in which we compete are:

Commercial. Our revenue opportunities come from new construction as well as renovation of existing buildings. Renovation work is estimated to represent the majority of the commercial market opportunity. Most of our revenue comes from the following sectors of commercial building – office, education, transportation, healthcare and retail. We monitor U.S. construction starts and follow project activity. Our revenue from new construction can lag behind construction starts by as much as 18 to 24 months. We also monitor office vacancy rates, the Architecture Billings Index, state and local government spending, gross domestic product ("GDP") and general employment levels, which can indicate movement in renovation and new construction opportunities. We believe that these statistics, taking into account the time-lag effect, provide a reasonable indication of our future revenue opportunity from commercial renovation and new construction. Additionally, we believe that customer preferences for product type, style, color, availability, affordability and ease of installation also affect our revenue.

In our Mineral Fiber segment, we estimate that a majority of our commercial market sales are used for renovation purposes by end-users of our products. The end-use of our products is based on management estimates as such information is not easily determinable.

Residential. We also sell mineral fiber products for use in single and multi-family housing. These products compete against mineral fiber and fiberglass products from other manufacturers, as well as drywall. We compete directly with other domestic and international suppliers of these products. We estimate that existing home renovation (also known as replacement / remodel) work represents the majority of the residential market opportunity. Key U.S. statistics that indicate market opportunity include existing home sales (a key indicator for renovation opportunity), housing starts, housing completions, home prices, interest rates and consumer confidence.

Approximately 75% of our consolidated net sales are to distributors. Sales to large home centers account for slightly less than 10% of our consolidated sales. Our remaining sales are to contractors and retailers.

Geographic Areas

See Note 3 to the Consolidated Financial Statements and Management's Discussion and Analysis of Financial Condition and Results of Operations in Item 7 of this Form 10-K for additional financial information by geographic areas.

Customers

We use our reputation, capabilities, service and brand recognition to develop long-standing relationships with our customers. We principally sell commercial products to building materials distributors, who re-sell our products to contractors, subcontractors' alliances, large architect and design firms, and major facility owners. We have important relationships with national home centers such as Lowe's Companies, Inc. and The Home Depot, Inc., as well as wholesalers who re-sell our products to dealers who service builders, contractors and consumers.

Net sales to three commercial distributors totaling $426.1 million, included within our Mineral Fiber and Architectural Specialties segments, individually exceeded 10% of our consolidated net sales in 2017.

Working Capital

We produce goods for inventory and sell on credit to our customers. Generally, our distributors carry inventory as needed to meet local or rapid delivery requirements. We sell our products to select, pre-approved customers using customary trade terms that allow for payment in the future. These practices are typical within the industry.

Competition

We face strong competition in all of our businesses. Principal attributes of competition include product performance, product styling, service and price. Competition comes from both domestic and international manufacturers. Additionally, some of our products compete with alternative products or finishing solutions, namely, drywall and exposed structure (also known as open plenum). Excess industry capacity exists for certain products, which tends to increase price competition. The following companies are our primary competitors:

CertainTeed Corporation (a subsidiary of Saint-Gobain), Chicago Metallic Corporation (owned by ROCKWOOL International A/S), Georgia-Pacific Corporation, Rockfon A/S (owned by ROCKWOOL International A/S), USG Corporation, Ceilings Plus (owned by USG Corporation), Rulon International, and 9Wood.

Raw Materials

We purchase raw materials from numerous suppliers worldwide in the ordinary course of business. The principal raw materials include: fiberglass, perlite, starch, waste paper, pigments and clays. We manufacture most of the production needs for mineral wool at one of our manufacturing facilities. Finally, we use aluminum and steel in the production of metal ceilings by us and by WAVE, our joint venture that manufactures ceiling grid.

We also purchase significant amounts of packaging materials and consume substantial amounts of energy, such as electricity and natural gas and water.

In general, adequate supplies of raw materials are available to all of our operations. However, availability can change for a number of reasons, including environmental conditions, laws and regulations, shifts in demand by other industries competing for the same materials, transportation disruptions and/or business decisions made by, or events that affect, our suppliers. There is no assurance that these raw materials will remain in adequate supply to us.

Prices for certain high usage raw materials can fluctuate dramatically. Cost increases for these materials can have a significant adverse impact on our manufacturing costs. Given the competitiveness of our markets, we may not be able to recover the increased manufacturing costs through increasing selling prices to our customers.

Sourced Products

Some of the products that we sell are sourced from third parties. Our primary sourced products include specialty ceiling products. We purchase some of our sourced products from suppliers that are located outside of the U.S., primarily from the Pacific Rim and Europe. Sales of sourced products represented approximately 15% of our total consolidated revenue in 2017.

In general, we believe we have adequate supplies of sourced products. However, we cannot guarantee that the supply will remain adequate.

Seasonality

Generally, our sales tend to be stronger in the second and third quarters of our fiscal year due to more favorable weather conditions, customer business cycles and the timing of renovation and new construction.

Patent and Intellectual Property Rights

Patent protection is important to our business. Our competitive position has been enhanced by patents on products and processes developed or perfected within AWI or obtained through acquisitions and licenses. In addition, we benefit from our trade secrets for certain products and processes.

Patent protection extends for varying periods according to the date of patent filing or grant and the legal term of a patent in the various countries where patent protection is obtained. The actual protection afforded by a patent, which can vary from country to country, depends upon the type of patent, the scope of its coverage and the availability of legal remedies. Although we consider that, in the aggregate, our patents, licenses and trade secrets constitute a valuable asset of material importance to our business, we do not believe we are materially dependent upon any single patent or trade secret, or any group of related patents or trade secrets.

Certain of our trademarks, including without limitation, , Armstrong®, Calla®, Cirrus®, Cortega®, Dune™, Humiguard®, Infusions®, Lyra®, MetalWorks™, Optima®, Perla™, Soundscapes®, Sustain®, Tectum®, Total Acoustics®, Ultima®, and WoodWorks®, are important to our business because of their significant brand name recognition. Registrations are generally for fixed, but renewable, terms.

In connection with the separation and distribution of AFI, we entered into several agreements with AFI that, together with a plan of division, provided for the separation and allocation of assets between AWI and AFI. These agreements include a Trademark License Agreement and a Transition Trademark License Agreement. Pursuant to the Trademark License Agreement, AWI provided AFI with a perpetual, royalty-free license to utilize the “Armstrong” trade name and logo. Pursuant to the Transition Trademark License Agreement, AFI provided us with a five-year royalty-free license to utilize the “Inspiring Great Spaces” tagline, logo and related color scheme.

Pursuant to our Purchase Agreement with Knauf related to the sale of our EMEA and Pacific Rim businesses and prior to the closing, AWI anticipates entering into an agreement with Knauf relating to the use of certain intellectual property by Knauf after the closing, including the Armstrong trade name.

We review the carrying value of trademarks annually for potential impairment. See the “Critical Accounting Estimates” section of Management’s Discussion and Analysis of Financial Condition and Results of Operations in Item 7 of this Form 10-K for further information.

Employees

As of December 31, 2017, we had approximately 3,900 full-time and part-time employees worldwide compared to approximately 3,700 as of December 31, 2016. The increase in total worldwide employees as of December 31, 2017 in comparison to December 31, 2016 was primarily due to our addition of Tectum employees, partially offset by a reduction of employees related to the closure of one of our plants in China. Excluding our EMEA and Pacific Rim businesses, we had approximately 2,200 employees as of December 31, 2017 compared to approximately 2,000 as of December 31, 2016.

As of December 31, 2017, approximately 75% of our 1,100 production employees in the U.S. were represented by labor unions. Collective bargaining agreements covering approximately 460 employees at two U.S. plants will expire during 2018. Outside the U.S., most of our production employees are covered by either industry-sponsored and/or state-sponsored collective bargaining mechanisms. We believe that our relations with our employees are satisfactory.

Research & Development

Research and development ("R&D") activities are important and necessary in helping us improve our products' competitiveness. Principal R&D functions include the development and improvement of products and manufacturing processes. We incurred $17.4 million in 2017, $17.8 million in 2016 and $18.7 million in 2015 of R&D expenses.

Sustainability and Environmental Matters

The adoption of environmentally responsible building codes and standards such as the Leadership in Energy and Environmental Design ("LEED") rating system established by the U.S. Green Building Council, has the potential to increase demand for products, systems and services that contribute to building sustainable spaces. Many of our products meet the requirements for the award of LEED credits, and we are continuing to develop new products, systems and services 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 products with an increased focus on sustainability.

We expect that there will be increased demand over time for products, systems and services that meet evolving 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, systems and services to our customers will be necessary to maintain our competitive position in the marketplace. We are committed to complying with all environmental laws and regulations that are applicable to our operations.

Legal and Regulatory Proceedings

Regulatory activities of particular importance to our operations include proceedings under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), and state Superfund and similar type environmental laws governing existing or potential environmental contamination at several domestically owned, formerly owned and non-owned locations allegedly resulting from past industrial activity. In a few cases, we are one of several potentially responsible parties and have agreed to jointly fund required investigation, while preserving our defenses to the liability. We may also have rights of contribution or reimbursement from other parties or coverage under applicable insurance policies.

Most of our facilities are affected by various federal, state and local environmental requirements relating to the discharge of materials or the protection of the environment. We make expenditures necessary for compliance with applicable environmental requirements at each of our operating facilities. We have not experienced a material adverse effect upon our capital expenditures or competitive position as a result of environmental control legislation and regulations.

On September 8, 2017, Roxul USA, Inc. (d/b/a Rockfon) filed litigation against us in the United States District Court for the District of Delaware alleging anticompetitive conduct seeking remedial measures and unspecified damages. Roxul USA, Inc. is a significant ceilings systems competitor with global headquarters in Europe and expanding operations in the Americas. We believe the allegations are without merit and are vigorously defending the matter.

We are involved in various other lawsuits, claims, investigations and other legal matters from time to time that arise in the ordinary course of business, including matters involving our products, intellectual property, relationships with suppliers, relationships with distributors, relationships with competitors, employees and other matters. From time to time, for example, we may be a party to various litigation matters that involve product liability, tort liability and other claims under various allegations, including illness due to exposure to certain chemicals used in the workplace; or medical conditions arising from exposure to product ingredients or the presence of trace contaminants. Such allegations may involve multiple defendants and relate to legacy products that we and other defendants purportedly manufactured or sold. We believe that any current claims are without merit and intend to defend them vigorously. For these matters, we also may have rights of contribution or reimbursement from other parties or coverage under applicable insurance policies. When applicable and appropriate, we will pursue coverage and recoveries under those policies, but are unable to predict the outcome of those demands. While complete assurance cannot be given to the outcome of these proceedings, we do not believe that any current claims, individually or in the aggregate, will have a material adverse effect on our financial condition, liquidity or results of operations.

Liabilities of $13.5 million and $4.7 million as of December 31, 2017 and December 31, 2016, respectively, were recorded for environmental liabilities that we consider probable and for which a reasonable estimate of the probable liability could be made. See Note 27 to the Consolidated Financial Statements and Risk Factors in Item 1A of this Form 10-K, for information regarding the possible effects that compliance with environmental laws and regulations may have on our businesses and operating results.

Website

We maintain a website at http://www.armstrongceilings.com. Information contained on our website is not incorporated into this document. Annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, all amendments to those reports and other information about us are available free of charge through this website as soon as reasonably practicable after the reports are electronically filed with the SEC. Reference in this Form 10-K to our website and the SEC's website is an inactive text reference only.

ITEM 1A. RISK FACTORS

Unstable market and economic conditions could have a material adverse impact on our financial condition, liquidity or results of operations.

Our business is influenced by market and economic conditions, including inflation, deflation, interest rates, availability and cost of capital, consumer spending rates, energy availability and the effects of governmental initiatives to manage economic conditions. Volatility in financial markets and the continued softness or further deterioration of national and global economic conditions could have a material adverse effect on our financial condition, liquidity or results of operations, including as follows:

- the financial stability of our customers or suppliers may be compromised, which could result in additional bad debts for us or non-performance by suppliers;
- commercial and residential consumers of our products may postpone spending in response to tighter credit, negative financial news and/or stagnation or further declines in income or asset values, which could have a material adverse impact on the demand for our products;
- the value of investments underlying our defined benefit pension plans may decline, which could result in negative plan investment performance and additional charges which may involve significant cash contributions to such plans, to meet obligations or regulatory requirements; and
- our asset impairment assessments and underlying valuation assumptions may change, which could result from changes to estimates of future sales and cash flows that may lead to substantial impairment charges.

Continued or sustained deterioration of economic conditions would likely exacerbate and prolong these adverse effects.

Our business is dependent on construction activity. Downturns in construction activity could adversely affect our financial condition, liquidity or results of operations.

Our businesses have greater sales opportunities when construction activity is strong and, conversely, have fewer opportunities when such activity declines. The cyclical nature of commercial and residential construction activity, including construction activity funded by the public sector, tends to be influenced by prevailing economic conditions, including the rate of growth in gross domestic product, prevailing interest rates, government spending patterns, business, investor and consumer confidence and other factors beyond our control. Prolonged downturns in construction activity could have a material adverse effect on our financial condition, liquidity or results of operations.

Our business could be adversely impacted as a result of uncertainty related to the proposed disposition of our EMEA and Pacific Rim businesses.

The proposed disposition of our EMEA and Pacific Rim businesses to Knauf could cause disruptions to our business or our business relationships, which could have an adverse impact on our results of operations. For example, our employees may experience uncertainty about their future roles with us, which may adversely affect our ability to hire and retain key personnel, and parties with which we have business relationships may experience uncertainty as to the future of such relationships and seek alternative relationships with third parties or seek to alter their present business relationships with us. In addition, our management team and other employees are devoting significant time and effort to activities related to the proposed disposition.

We have incurred and will continue to incur significant costs, expenses and fees for professional services and other transaction costs in connection with the proposed disposition, and many of these fees and costs are payable regardless of whether or not the disposition is completed. In the event the disposition is not completed for any reason, or the timing of its consummation is delayed, our operating results may be adversely affected as a result of the incurring of these significant additional expenses and the diversion of management’s attention.

The proposed disposition of our EMEA and Pacific Rim businesses is subject to the receipt of consents and clearances from regulatory authorities that may impose conditions that could have an adverse effect on us or Knauf or, if not obtained, could prevent the completion of the proposed disposition.

Before the proposed disposition of our EMEA and Pacific Rim businesses to Knauf may be completed, applicable waiting periods must expire or terminate under antitrust and competition laws and clearances or approvals must be obtained from various regulatory entities. In deciding whether to grant antitrust or regulatory clearances, the relevant governmental entities will consider the effect of the disposition on competition within their relevant jurisdiction.

There can be no assurance that regulators will not impose conditions, terms, obligations or restrictions to the consummation of the disposition and that such conditions, terms, obligations or restrictions will not have the effect of delaying the completion of the disposition, or resulting in additional material costs to us. In addition, we cannot provide assurance that any such conditions, terms, obligations or restrictions will not result in the delay or abandonment of the disposition. Additionally, the completion of the disposition is conditioned on the absence of certain restraining orders or injunctions by judgment, court order or law that would prohibit the completion of the disposition.

Our markets are highly competitive. Competition can reduce demand for our products or cause us to lower prices. Failure to compete effectively by meeting consumer preferences, developing and marketing innovative solutions, maintaining strong customer service and distribution relationships, growing market share, and expanding our solutions capabilities and reach could adversely affect our results.

Our markets are highly competitive. Competition can reduce demand for our products, negatively affect our product sales mix or cause us to lower prices. Failure to compete effectively by meeting consumer preferences, developing and marketing innovative solutions, maintaining strong customer service and distribution relationships, growing market share and expanding our solutions capabilities and reach could have a material adverse effect on our financial condition, liquidity or results of operations. Our customers consider our products’ performance, product styling, customer service and price when deciding whether to purchase our products. Shifting consumer preference in our highly competitive markets, from acoustical solutions to other ceiling and wall products, for example, whether for performance or styling preferences or our inability to develop and offer new competitive performance features could have an adverse effect on our sales. Similarly, our ability to identify, protect and market new and innovative solutions is critical to our long-term growth strategy, namely to sell into more spaces and sell more solutions in every space. In addition, excess industry capacity for certain products in several geographic markets could lead to industry consolidation and/or increased price competition. In certain local markets, we are also subject to potential increased price competition from foreign competitors, which may have lower cost structures.

Sales fluctuations to and changes in our relationships with key customers could have a material adverse effect on our financial condition, liquidity or results of operations.

Some of our markets are dependent on certain key customers, including independent distributors. The loss, reduction, or fluctuation of sales to key customers, or any adverse change in our business relationship with them, whether as a result of competition, industry consolidation or otherwise, could have a material adverse effect on our financial condition, liquidity or results of operations.

Customer consolidation, and competitive, economic and other pressures facing our customers, may put pressure on our operating margins and profitability.

A number of our customers, including distributors and contractors, have consolidated in recent years and consolidation could continue. Such consolidation could impact margin growth and profitability as larger customers may realize benefits of scale with increased buying power and reduced inventories. The economic and competitive landscape for our customers is constantly changing, and our customers' responses to those changes could impact our business. These factors and others could have an adverse impact on our business, financial condition or results of operations.

If the availability of raw materials or energy decreases, or the costs increase, and we are unable to pass along increased costs, our financial condition, liquidity or results of operations could be adversely affected.

The availability and cost of raw materials, packaging materials, energy and sourced products are critical to our operations. For example, we use substantial quantities of natural gas and petroleum-based raw materials in our manufacturing operations. The cost of some of these items has been volatile in recent years and availability has been limited at times. We source some materials from a limited number of suppliers, which, among other things, increases the risk of unavailability. Limited availability could cause us to reformulate products or limit our production. Decreased access to raw materials and energy or significant increased cost to purchase these items and any corresponding inability to pass along such costs through price increases could have a material adverse effect on our financial condition, liquidity or results of operations.

The performance of our WAVE joint venture is important to our financial results. Changes in the demand for, or quality of, WAVE products, or in the operational or financial performance of the WAVE joint venture, could have a material adverse effect on our financial condition, liquidity or results of operations. Similarly, if there is a change with respect to our joint venture partner that adversely impacts its relationship with us, WAVE's performance could be adversely impacted.

Our equity investment in our WAVE joint venture remains important to our financial results. We believe an important element in the success of this joint venture is the relationship with our partner, Worthington Industries, Inc. If there is a change in ownership, a change of control, a change in management or management philosophy, a change in business strategy or another event with respect to our partner that adversely impacts our relationship, WAVE's performance could be adversely impacted. In addition, our partner may have economic or business interests or goals that are different from or inconsistent with our interests or goals, which may impact our ability to influence or align WAVE's strategy and operations.

We may be subject to liability under, and may make substantial future expenditures to comply with, environmental laws and regulations, which could materially adversely affect our financial condition, liquidity or results of operations.

We are actively involved in environmental investigation and remediation activities relating to several domestically owned, formerly owned and non-owned locations allegedly resulting from past industrial activity, for which our ultimate liability may exceed the currently estimated and accrued amounts. See Note 27 to the Consolidated Financial Statements for further information related to our current environmental matters and the potential liabilities associated therewith. It is also possible that we could become subject to additional environmental matters and corresponding liabilities in the future.

The building materials industry has been subject to claims relating to raw materials such as silicates, polychlorinated biphenyl ("PCB"), PVC, formaldehyde, fire-retardants and claims relating to other issues such as mold and toxic fumes, as well as claims for incidents of catastrophic loss, such as building fires. We have not received any significant claims involving our raw materials or our product performance; however, product liability insurance coverage may not be available or adequate in all circumstances to cover claims that may arise in the future.

In addition, our operations are subject to various environmental, health, and safety laws and regulations. These laws and regulations not only govern our current operations and products, but also impose potential liability on us for our past operations. Our costs to comply with these laws and regulations may increase as these requirements become more stringent in the future, and these increased costs may materially adversely affect our financial condition, liquidity or results of operations.

The agreements that govern our indebtedness contain a number of covenants that impose significant operating and financial restrictions, including restrictions on our ability to engage in activities that may be in our best long-term interests.

The agreements that govern our indebtedness include covenants that, among other things, may impose significant operating and financial restrictions, including restrictions on our ability to engage in activities that may be in our best long-term interests. These covenants may restrict our ability to:

- incur additional debt;
- pay dividends on or make other distributions in respect of our capital stock or redeem, repurchase or retire our capital stock or subordinated debt or make certain other restricted payments;
- make certain acquisitions;
- sell certain assets;
- consolidate, merge, sell or otherwise dispose of all or substantially all of our assets; and
- create liens on certain assets to secure debt.

Under the terms of our senior secured credit facility, we are required to maintain specified leverage and interest coverage ratios. Our ability to meet these ratios could be affected by events beyond our control, and we cannot assure that we will meet them. A breach of any of the restrictive covenants or ratios would result in a default under the senior secured credit facility. If any such default occurs, the lenders under the senior secured credit facility may be able to elect to declare all outstanding borrowings under our facilities, together with accrued interest and other fees, to be immediately due and payable, or enforce their security interest. The lenders may also have the right in these circumstances to terminate commitments to provide further borrowings.

Our indebtedness may adversely affect our cash flow and our ability to operate our business, make payments on our indebtedness and declare dividends on our capital stock.

Our level of indebtedness and degree of leverage could:

- make it more difficult for us to satisfy our obligations with respect to our indebtedness;
- make us more vulnerable to adverse changes in general economic, industry and competitive conditions and adverse changes in government regulation;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate;
- place us at a competitive disadvantage compared to our competitors that are less leveraged and, therefore, more able to take advantage of opportunities that our leverage prevents us from exploiting;
- limit our ability to refinance existing indebtedness or borrow additional amounts for working capital, capital expenditures, acquisitions, debt service requirements, execution of our business strategy or other purposes;
- restrict our ability to pay dividends on our capital stock; and
- adversely affect our credit ratings.

We may also incur additional indebtedness, which could exacerbate the risks described above. In addition, to the extent that our indebtedness bears interest at floating rates, our sensitivity to interest rate fluctuations will increase.

Any of the above listed factors could materially adversely affect our financial condition, liquidity or results of operations.

We require a significant amount of liquidity to fund our operations, and borrowing has increased our vulnerability to negative unforeseen events.

Our liquidity needs vary throughout the year. If our business experiences materially negative unforeseen events, we may be unable to generate sufficient cash flow from operations to fund our needs or maintain sufficient liquidity to operate and remain in compliance with our debt covenants, which could result in reduced or delayed planned capital expenditures and other investments and adversely affect our financial condition or results of operations.

We are subject to risks associated with our international operations in both established and emerging markets. Legislative, political, regulatory and economic volatility, as well as vulnerability to infrastructure and labor disruptions, could have an adverse effect on our financial condition, liquidity or results of operations.

On November 20, 2017, we announced that we had entered into a definitive agreement with Knauf to sell our EMEA and Pacific Rim businesses. This transaction, which is subject to regulatory approvals and other customary conditions, is currently anticipated to close in mid-2018.

A significant portion of our products move in international trade. See Notes 3 and 4 to the Consolidated Financial Statements for further information. Our international trade is subject to currency exchange fluctuations, trade regulations, import duties, logistics costs, delays and other related risks. Our international operations are also subject to various tax rates, credit risks in emerging markets, political risks, uncertain legal systems, high costs in repatriating profits to the United States from some countries, and loss of sales to local competitors following currency devaluations in countries where we import products for sale. In addition, our international growth strategy depends, in part, on our ability to expand our operations in certain emerging markets. However, some emerging markets have greater political and economic volatility and greater vulnerability to infrastructure and labor disruptions than established markets. Similarly, our efforts to enhance the profitability or accelerate the growth of our operations in certain markets depends largely on the economic and geopolitical conditions in those local or regional markets.

In addition, in many countries outside of the United States, particularly in those with developing economies, it may be common for others to engage in business practices prohibited by laws and regulations applicable to us, such as the Foreign Corrupt Practices Act or similar local anti-corruption or anti-bribery laws. These laws generally prohibit companies and their employees, contractors or agents from making improper payments to government officials for the purpose of obtaining or retaining business. Failure to comply with these laws, as well as U.S. and foreign export and trading laws, could subject us to civil and criminal penalties. As we continue to expand our business, we may have difficulty anticipating and effectively managing these and other risks that our operations may face, which may adversely affect our business outside the United States and our financial condition, liquidity or results of operations.

We may pursue strategic transactions that could create risks and present unforeseen integration obstacles or costs, any of which could materially adversely affect our financial condition, liquidity or results of operations.

We have evaluated, and expect to continue to evaluate, potential strategic transactions as opportunities arise. We routinely engage in discussions with third parties regarding potential transactions, including joint ventures, which could be significant. Any such strategic transaction involves a number of risks, including potential disruption of our ongoing business and distraction of management, difficulty with integrating or separating personnel and business operations and infrastructure, and increasing or decreasing the scope, geographic diversity and complexity of our operations. Strategic transactions could involve payment by us of a substantial amount of cash, assumption of liabilities and indemnification obligations, regulatory requirements, incurrence of a substantial amount of debt or issuance of a substantial amount of equity. Certain strategic opportunities may not result in the consummation of a transaction or may fail to realize the intended benefits and synergies. If we fail to consummate and integrate our strategic transactions in a timely and cost-effective manner, our financial condition, liquidity or results of operation could be materially and adversely affected.

Negative tax consequences can have an unanticipated effect on our financial results.

We are subject to the tax laws of the many jurisdictions in which we operate. The tax laws are complex, and the manner in which they apply to our operations and results is sometimes open to interpretation. Because our income tax expense for any period depends heavily on the mix of income derived from the various taxing jurisdictions, our income tax expense and reported net income may fluctuate significantly, and may be materially different than forecasted or experienced in the past. Our financial condition, liquidity, results of operations or tax liability could be adversely affected by changes in the effective tax rate as a result of a change in the mix of earnings in countries with differing statutory tax rates, changes in our overall profitability, changes in tax legislation and rates, changes in the amount of earnings permanently reinvested offshore, the results of examinations of previously filed tax returns, and ongoing assessments of our tax exposures.

Our financial condition, liquidity, results of operations or tax liability could also be adversely affected by changes in the valuation of deferred tax assets and liabilities. We have substantial deferred tax assets related to U.S. domestic foreign tax credits, or FTCs, and state net operating losses, or NOLs, which are available to reduce our U.S. income tax liability and to offset future state taxable income. However, our ability to utilize the current carrying value of these deferred tax assets may be impacted as a result of certain future events, such as changes in tax legislation and insufficient future taxable income prior to expiration of the FTCs and NOLs.

If the separation and distribution of Armstrong Flooring, Inc. (“AFI”) fails to qualify as a tax-free transaction for U.S. federal income tax purposes, then AFI, AWI and AWI’s shareholders could be subject to significant tax liability or tax indemnity obligations.

On April 1, 2016, we completed our previously announced separation of AFI by allocating the assets and liabilities related primarily to the Resilient Flooring and Wood Flooring segments to AFI and then distributing the common stock of AFI to our shareholders at a ratio of one share of AFI common stock for every two shares of AWI common stock. In connection with the distribution, we received an opinion from our special tax counsel, on the basis of certain facts, representations, covenants and assumptions set forth in such opinion, substantially to the effect that, for U.S. federal income tax purposes, the separation and distribution should qualify as a transaction that generally is tax-free to us and our shareholders under Sections 355 and 368(a)(1)(D) of the Internal Revenue Code.

Notwithstanding the tax opinion, the Internal Revenue Service (“IRS”) could determine on audit that the distribution should be treated as a taxable transaction if it determines that any of the facts, assumptions, representations or covenants set forth in the tax opinion is not correct or has been violated, or that the distribution should be taxable for other reasons, including as a result of a significant change in stock or asset ownership after the distribution, or if the IRS were to disagree with the conclusions of the tax opinion. If the distribution is ultimately determined to be taxable, the distribution could be treated as a taxable dividend to each U.S. holder of our common shares who receives shares of AFI in connection with the spinoff for U.S. federal income tax purposes, and such shareholders could incur significant U.S. federal income tax liabilities. In addition, we and/or AFI could incur significant U.S. federal income tax liabilities or tax indemnification obligations, whether under applicable law or the Tax Matters Agreement that we entered into with AFI, if it is ultimately determined that certain related transactions undertaken in anticipation of the distribution are taxable.

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.

We maintain pension and postretirement plans throughout the world, with the most significant plans located in the U.S. The recognition of costs and liabilities associated with these plans for financial reporting purposes 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 reported results are the discount rate, the estimated long-term return on plan assets for the funded plans, retirement rates, and mortality rates and, for postretirement plans, the estimated inflation in health care costs. These assumptions are generally updated annually.

Our U.S. pension plans were overfunded by $29.6 million as of December 31, 2017. Our unfunded U.S. postretirement plan liabilities were $86.6 million as of December 31, 2017. If our cash flows and capital resources are insufficient to fund our pension and postretirement plans obligations, we could be forced to reduce or delay investments and capital expenditures, seek additional capital, or restructure or refinance our indebtedness.

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, which are vulnerable to an increasing threat of continually evolving cyber security risks. Any security breach or compromise of our information systems could significantly 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 security measures we have implemented to protect against unauthorized access to our information systems and data may not be sufficient to prevent breaches. The regulatory environment related to information security, data collection and privacy is evolving, 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 using state-of-the-art systems. While we have 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.

Adverse judgments in regulatory actions, product claims, environmental claims and other litigation could be costly. Insurance coverage may not be available or adequate in all circumstances.

In the ordinary course of business, we are subject to various claims and litigation. Any such claims, whether with or without merit, could be time consuming and expensive to defend and could divert management's attention and resources. While we strive to ensure that our products comply with applicable government regulatory standards and internal requirements, and that our products perform effectively and safely, customers from time to time could claim that our products do not meet warranty or contractual requirements, and users could claim to be harmed by use or misuse of our products. These claims could give rise to breach of contract, warranty or recall claims, or claims for negligence, product liability, strict liability, personal injury or property damage. They could also result in negative publicity.

In addition, claims and investigations may arise related to patent infringement, distributor relationships, commercial contracts, antitrust or competition law requirements, employment matters, employee benefits issues, and other compliance and regulatory matters, including anti-corruption and anti-bribery matters. While we have processes and policies designed to mitigate these risks and to investigate and address such claims as they arise, we cannot predict or, in some cases, control the costs to defend or resolve such claims.

We currently maintain insurance against some, but not all, of these potential claims. In the future, we may not be able to maintain insurance at commercially acceptable premium levels. In addition, the levels of insurance we maintain may not be adequate to fully cover any and all losses or liabilities. If any significant judgment or claim is not fully insured or indemnified against, it could have a material adverse impact. We cannot assure that the outcome of all current or future litigation will not have a material adverse effect on our financial condition, liquidity or results of operations.

Increased costs of labor, labor disputes, work stoppages or union organizing activity could delay or impede production and could have a material adverse effect on our financial condition, liquidity or results of operations.

Increased costs of labor, including the costs of employee benefits plans, labor disputes, work stoppages or union organizing activity could delay or impede production and have a material adverse effect on our financial condition, liquidity or results of operations. As the majority of our manufacturing employees are represented by unions and covered by collective bargaining or similar agreements, we often incur costs attributable to periodic renegotiation of those agreements, which may be difficult to project. We are also subject to the risk that strikes or other conflicts with organized personnel may arise or that we may become the subject of union organizing activity at our facilities that do not currently have union representation. Prolonged negotiations, conflicts or related activities could also lead to costly work stoppages and loss of productivity.

Our intellectual property rights may not provide meaningful commercial protection for our products or brands, which could adversely impact our financial condition, liquidity or results of operations.

We rely on our proprietary intellectual property, including numerous patents and registered trademarks, as well as our licensed intellectual property to market, promote and sell our products. We monitor and protect against activities that might infringe, dilute, or otherwise harm our patents, trademarks and other intellectual property and rely on the patent, trademark and other laws of the U.S. and other countries. However, we may be unable to prevent third parties from using our intellectual property without our authorization. In addition, the laws of some non-U.S. jurisdictions, particularly those of certain emerging markets, provide less protection for our proprietary rights than the laws of the U.S. and present greater risks of counterfeiting and other infringement. To the extent we cannot protect our intellectual property, unauthorized use and misuse of our intellectual property could harm our competitive position and have a material adverse effect on our financial condition, liquidity or results of operations.

Our cost-saving and productivity initiatives may not achieve expected savings in our operating costs or improved operating results.

We aggressively look for ways to make our operations more efficient and effective. We reduce, move, modify and expand our plants and operations, as well as our sourcing and supply chain arrangements, as needed, to control costs and improve productivity. Such actions involve substantial planning, often require capital investments and may result in charges for fixed asset impairments or obsolescence and substantial severance costs. Our ability to achieve cost savings and other benefits within expected time frames is subject to many estimates and assumptions. These estimates and assumptions are subject to significant economic, competitive and other uncertainties, some of which are beyond our control. If these estimates and assumptions are incorrect, if we experience delays, or if other unforeseen events occur, our financial condition, liquidity or results of operations could be materially and adversely affected.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We own a 100-acre, multi-building campus in Lancaster, Pennsylvania comprising the site of our corporate headquarters and most of our non-manufacturing operations.

As of December 31, 2017, we had 16 manufacturing plants in eight countries. Three of our plants are leased and the remaining 13 are owned. We operate eight plants located throughout the United States. In addition, our WAVE joint venture operates nine additional plants in five countries.

Upon closure of the sale of our EMEA and Pacific Rim businesses, we will have ten plants, including eight plants in the U.S. One of our plants will be leased and the remaining nine will be owned.

Operating Segment	Number of Plants	Location of Principal Facilities
Mineral Fiber	6	U.S. (Florida, Georgia, Ohio, Oregon, Pennsylvania and West Virginia)
Architectural Specialties	3	U.S. (Ohio), Canada
Unallocated Corporate	1	China

During the fourth quarter of 2016, we idled one of our plants in China, which is reported as a component of our Unallocated Corporate segment as it will be retained by AWI after the sale of our Pacific Rim business. During the fourth quarter of 2017, we announced the closing of our St. Helens, Oregon mineral fiber manufacturing facility, expected to occur in the first half of 2018.

Sales and administrative offices are leased and/or owned worldwide, and leased facilities are utilized to supplement our owned warehousing facilities.

Production capacity and the extent of utilization of our facilities are difficult to quantify with certainty. In any one facility, utilization of our capacity varies periodically depending upon demand for the product that is being manufactured. We believe our facilities are adequate and suitable to support the business. Additional incremental investments in plant facilities are made as appropriate to balance capacity with anticipated demand, improve quality and service, and reduce costs.

ITEM 3. LEGAL PROCEEDINGS

See the "Specific Material Events" section of the "Environmental Matters" section of Note 27 to the Consolidated Financial Statements, which is incorporated herein by reference, for a description of our significant legal proceedings.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

AWI's common shares trade on the New York Stock Exchange under the ticker symbol "AWI." As of February 21, 2018, there were approximately 270 holders of record of AWI's common stock.

	First	Second	Third	Fourth	Total Year
2017					
Price range of common stock - high	$48.00	$47.95	$51.98	$61.50	$61.50
Price range of common stock - low	$38.45	$41.20	$43.77	$49.25	$38.45
2016					
Price range of common stock - high	$48.66	$48.39	$45.75	$45.00	$48.66
Price range of common stock - low	$35.92	$36.33	$37.49	$36.38	$35.92

The above figures represent the high and low intra-day sale prices for our common stock as reported by the New York Stock Exchange. Historical prices have not been restated as a result of our separation of AFI on April 1, 2016.

There were no cash dividends declared during 2017 or 2016.

Dividends are paid when declared by our Board of Directors and in accordance with restrictions set forth in our debt agreements. In general, our debt agreements allow us to make "restricted payments," which include dividends and stock repurchases, subject to certain limitations and other restrictions and provided that we are in compliance with the financial and other covenants of our debt agreements and meet certain liquidity requirements after giving effect to the restricted payment. For further discussion of the debt agreements, see the Financial Condition and Liquidity section of Management's Discussion and Analysis of Financial Condition and Results of Operations in Item 7 and Risk Factors in Item 1A in this Form 10-K.

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased[1]	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Approximate Value of Shares that may yet be Purchased under the Plans or Programs

October 1 – 31, 2017	-	$ -	-	$ 280,864,974
November 1 – 30, 2017	509	$ 51.50	-	280,864,974
December 1 – 31, 2017	84,865	$ 59.56	83,943	275,865,282
Total	85,374		83,943	

[1] Includes shares reacquired through the withholding of shares to pay employee tax obligations upon the exercise of options or vesting of restricted shares previously granted under long-term incentive plans. For more information regarding securities authorized for issuance under our equity compensation plans, see Note 21 to the Consolidated Financial Statements included in this Form 10-K.

On July 29, 2016, the Company announced that its Board of Directors had approved a share repurchase program pursuant to which the Company is authorized to repurchase up to $150.0 million of its outstanding shares of common stock through July 31, 2018 (the "Program"). On October 31, 2017, we announced that our Board of Directors had approved an additional $250.0 million authorization to repurchase shares of our outstanding common stock under the Program. The Program was also extended to October 31, 2020. Repurchases under the Program may be made through open market, block and privately-negotiated transactions, including Rule 10b5-1 plans, at times and in such amounts as management deems appropriate, subject to market and business conditions, regulatory requirements and other factors. The Program does not obligate the Company to repurchase any particular amount of common stock and may be suspended or discontinued at any time without notice. During 2017, 1.8 million shares were repurchased under the Program for a total cost of $80.4 million, or an average price of $43.58 per share. Since inception of the Program, we have repurchased 2.95 million shares under the Program for a total cost of $124.2 million, or an average price of $42.03 per share.

ITEM 6. SELECTED FINANCIAL DATA

The following selected historical consolidated financial data should be read in conjunction with our audited consolidated financial statements, the accompanying notes and Management's Discussion and Analysis of Financial Condition and Results of Operations included in this Form 10-K. The selected historical consolidated financial data for the periods presented have been derived from our audited consolidated financial statements.

	2017	2016	2015	2014	2013
(amounts in millions, except for per-share data)					
Income statement data					
Net sales	$893.6	$837.3	$805.1	$798.3	$780.8
Operating income	255.1	188.9	157.0	203.1	186.3
Earnings from continuing operations	220.6	99.3	57.9	104.6	91.3
Per common share - basic (a)	$4.12	$1.79	$1.04	$1.89	$1.57
Per common share - diluted (a)	$4.08	$1.78	$1.03	$1.88	$1.55
Dividends declared per share of common stock	-	-	-	-	-
Balance sheet data (end of period)					
Total assets	$1,873.5	$1,758.0	$2,687.2	$2,599.6	$2,907.7
Long-term debt	817.7	848.6	936.1	986.3	1,023.7
Total shareholders' equity	419.3	266.4	768.8	649.1	673.2

Notes:

(a) See definition of basic and diluted earnings per share in Note 2 to the Consolidated Financial Statements.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Armstrong World Industries, Inc. ("AWI") is a Pennsylvania corporation incorporated in 1891.

This discussion should be read in conjunction with the financial statements, the accompanying notes, the cautionary note regarding forward-looking statements and risk factors included in this Form 10-K.

Overview

We are a global leader in the design, innovation and manufacture of commercial and residential ceiling, wall and suspension system solutions. We design, manufacture and sell ceiling systems (primarily mineral fiber, fiberglass wool and metal) throughout the Americas.

On November 17, 2017, we entered into a Share Purchase Agreement (the "Purchase Agreement") with Knauf International GmbH ("Knauf"), to sell certain subsidiaries comprising our business in Europe, the Middle East and Africa (including Russia) ("EMEA") and the Pacific Rim, including the corresponding businesses and operations conducted by Worthington Armstrong Venture ("WAVE"), our joint venture with Worthington Industries, Inc., in which AWI holds a 50% interest. The total consideration to be paid by Knauf in connection with the sale is $330 million in cash, inclusive of amounts due to WAVE, subject to certain adjustments as provided in the Purchase Agreement, including adjustments based on the economic impact of any required regulatory remedies and a working capital adjustment. The transaction, which is subject to regulatory approvals and other customary conditions, is currently anticipated to close in mid-2018. EMEA and Pacific Rim segment historical financial results have been reflected in AWI's Consolidated Financial Statements as discontinued operations for all periods presented.

In January 2017, we acquired the business and assets of Tectum, Inc. ("Tectum"), based in Newark, Ohio. Tectum is a manufacturer of acoustical ceiling, wall and structural solutions for commercial building applications with two manufacturing facilities. Tectum's operations from the date of acquisition, and its assets and liabilities as of December 31, 2017, have been included as a component of our Architectural Specialties segment.

On April 1, 2016, we completed our separation of Armstrong Flooring, Inc. ("AFI"). AFI's historical financial results have been reflected in AWI's Consolidated Financial Statements as a discontinued operation for all periods presented.

See Note 4 to the Consolidated Financial Statements for additional information related to our acquisitions and discontinued operations.

As of December 31, 2017, we had 16 manufacturing plants in eight countries, including eight plants located throughout the U.S. During the fourth quarter of 2016 we idled one of our mineral fiber plants in China, reported as a component of our Unallocated Corporate segment as it will be retained by AWI after the sale of the Pacific Rim business. Upon closure of the sale of our EMEA and Pacific Rim businesses, we will have ten plants, including eight plants in the U.S.

During the fourth quarter of 2017, we announced the closing of our St. Helens, Oregon mineral fiber manufacturing facility, expected to occur in the first half of 2018.

WAVE operates 9 additional plants in five countries to produce suspension system (grid) products, which we use and sell in our ceiling systems. Upon closure of the sale of its corresponding EMEA and Pacific Rim businesses, WAVE will operate five plants in the U.S.

Reportable Segments

Effective December 31, 2017 and in connection with the anticipated sale of our EMEA and Pacific Rim businesses, our EMEA and Pacific Rim segments have been excluded from our results of continuing operations. As a result, effective December 31, 2017 and for all periods presented, our operating segments are as follows: Mineral Fiber, Architectural Specialties and Unallocated Corporate.

Mineral Fiber – produces suspended mineral fiber and soft fiber ceiling systems for use in commercial and residential settings. Products offer various performance attributes such as acoustical control, rated fire protection and aesthetic appeal. Commercial ceiling products are sold to resale distributors and to ceiling systems contractors. Residential ceiling products are sold primarily to wholesalers and retailers (including large home centers). The Mineral Fiber segment also includes the results of WAVE, which manufactures suspension system (grid) products and ceiling component products that are invoiced by both us and WAVE. Segment results relating to WAVE consist primarily of equity earnings and reflect our 50% equity interest in the joint venture. Ceiling component products consist of ceiling perimeters and trim, in addition to grid products that support drywall ceiling systems. To a lesser extent, however, in some markets, WAVE sells its suspension systems products to us for resale to customers. Mineral Fiber segment results reflect those sales transactions.

Architectural Specialties – produces and sources ceilings and walls for use in commercial settings. Products are available in numerous materials, such as metal and wood, in addition to various colors, shapes and designs. Products offer various performance attributes such as acoustical control, rated fire protection and aesthetic appeal. We produce standard and customized products, with the majority of Architectural Specialties revenues derived from sourced products. Architectural Specialties products are sold to resale distributors and ceiling systems contractors. The majority of revenues are project driven, which can lead to more volatile sales patterns due to project scheduling.

Unallocated Corporate – includes assets, liabilities, income and expenses that have not been allocated to our other business segments and consist of: cash and cash equivalents, the net funded status of our U.S. Retirement Income Plan ("RIP"), the estimated fair value of interest rate swap contracts, outstanding borrowings under our senior credit facilities and income tax balances. Effective December 31, 2017 and for all periods presented, our Unallocated Corporate segment also includes all assets, liabilities, income and expenses formerly reported in our EMEA and Pacific Rim segments that are not included in the pending sale to Knauf.

Factors Affecting Revenues

For information on our segments' 2017 net sales by geography, see Note 3 to the Consolidated Financial Statements included in this Form 10-K.

Markets. We compete in building material markets in the Americas. We closely monitor publicly available macroeconomic trends that provide insight into commercial and residential market activity, including GDP, office vacancy rates, the Architecture Billings Index, new commercial construction starts, state and local government spending, corporate profits and retail sales.

In addition, we noted several factors and trends within our markets that directly affected our business performance during 2017, including:

Mineral Fiber

We experienced lower renovation activity, partially offset by growth from new construction, leading to a slight overall decline in volume.

Architectural Specialties

We experienced strong growth due to new commercial construction activity and increased market penetration, partially driven by the acquisition of Tectum.

Average Unit Value. We periodically modify sales prices of our products due to changes in costs for raw materials and energy, market conditions and the competitive environment. In certain cases, realized price increases are less than the announced price increases because of project pricing, competitive reactions and changing market conditions. Additionally, we offer a wide assortment of products that are differentiated by style, design and performance attributes. Pricing and margins for products within the assortment vary. In addition, changes in the relative quantity of products purchased at different price points can impact year-to-year comparisons of net sales and operating income. We focus on improving sales dollars per unit sold, or average unit value ("AUV"), as a measure that accounts for the varying assortment of products and geographic mix impacting our revenues. We estimate that favorable AUV increased our Mineral Fiber and total consolidated net sales for 2017 by approximately $29 million compared to 2016. Architectural Specialties revenues are generally earned based on individual contracts that include a mix of products, manufactured by us and sourced, that vary by project. As such, we do not track AUV performance for this segment, but rather attribute all changes in net sales to volume.

In the first and fourth quarters of 2017, we implemented ceiling tile pricing increases. We also implemented a pricing increase on grid products in the third quarter of 2017. Finally, in the fourth quarter of 2017 we also announced price increases on certain architectural specialties products, ceiling tile and grid products effective in the first quarter of 2018. We may implement additional pricing actions based on numerous factors, most notably upon future movements in raw material prices.

Factors Affecting Operating Costs

Operating Expenses. Our operating expenses are comprised of direct production costs (principally raw materials, labor and energy), manufacturing overhead costs, freight, costs to purchase sourced products and selling, general, and administrative ("SG&A") expenses.

Our largest individual raw material expenditures are for fiberglass, perlite, starch, waste paper, pigments and clays. We manufacture most of the production needs for mineral wool at one of our manufacturing facilities. Natural gas and packaging materials are also significant input costs. Fluctuations in the prices of these inputs are generally beyond our control and have a direct impact on our financial results. In 2017, the costs for raw materials, sourced products and energy negatively impacted operating income by approximately $3 million, compared to 2016.

During the fourth quarter of 2017, we announced the closing of our St. Helens, Oregon mineral fiber manufacturing facility, expected to occur in the first half of 2018. Production activity will move to existing facilities in the U.S. We will continue to evaluate the efficiency of our manufacturing footprint and may take additional actions in support of our cost and standardization initiatives. The charges associated with any additional cost reduction initiatives could include severance and related termination benefits, fixed asset write-downs, asset impairments and accelerated depreciation and may be material to our financial statements.

See also "Results of Operations" for further discussion of other significant items affecting operating costs.

Employees

As of December 31, 2017, we had approximately 3,900 full-time and part-time employees worldwide compared to approximately 3,700 as of December 31, 2016. Excluding our EMEA and Pacific Rim businesses, we had approximately 2,200 employees as of December 31, 2017 compared to approximately 2,000 as of December 31, 2016. The increase in total worldwide employees as of December 31, 2017 in comparison to December 31, 2016 was primarily due to our addition of Tectum employees, partially offset by a reduction of employees related to the closure of one of our plants in China.

Collective bargaining agreements covering approximately 460 employees at two U.S. plants will expire during 2018. We believe that our relations with our employees are satisfactory.

CRITICAL ACCOUNTING ESTIMATES

In preparing our consolidated financial statements in accordance with U.S. generally accepted accounting principles ("GAAP"), we are required to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. We evaluate our estimates and assumptions on an on-going basis, using relevant internal and external information. We believe that our estimates and assumptions are reasonable. However, actual results may differ from what was estimated and could have a significant impact on the financial statements.

We have identified the following as our critical accounting estimates. We have discussed these critical accounting estimates with our Audit Committee.

U.S. Pension Credit and Postretirement Benefit Costs – We maintain pension and postretirement plans throughout the world, with the most significant plans located in the U.S. Our defined benefit pension and postretirement benefit costs are developed from actuarial valuations. These valuations 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 reported results are the discount rate, the estimated long-term return on plan assets and the estimated inflation in health care costs. These assumptions are generally updated annually.

Management utilizes the Aon Hewitt AA only above median yield curve, which is a hypothetical AA yield curve comprised of a series of annualized individual discount rates, as the primary basis for determining discount rates. As of December 31, 2017 and 2016, we assumed discount rates of 3.63% and 4.12%, respectively, for the U.S. defined benefit pension plans. As of December 31, 2017 and 2016, we assumed a discount rates of 3.60% and 4.10%, respectively, for the U.S. postretirement plan. The effects of the change in discount rate will be amortized into earnings as described below. Absent any other changes, a one-quarter percentage point increase or decrease in the discount rates for the U.S. pension and postretirement plans would not have a material impact on 2018 operating income.

We manage two U.S. defined benefit pension plans, our RIP, which is a qualified funded plan, and a nonqualified unfunded plan. For the RIP, the expected long-term return on plan assets represents a long-term view of the future estimated investment return on plan assets. This estimate is determined based on the target allocation of plan assets among asset classes and input from investment professionals on the expected performance of the asset classes over 10 to 30 years. Historical asset returns are monitored and considered when we develop our expected long-term return on plan assets. An incremental component is added for the expected return from active management based on historical information obtained from the plan's investment consultants. These forecasted gross returns are reduced by estimated management fees and expenses. Over the 10 year period ended December 31, 2017, the historical annualized return was approximately 5.5% compared to an average expected return of 7.1%. The actual gain on plan assets achieved for 2017 was 12.4%. The difference between the actual and expected rate of return on plan assets will be amortized into earnings as described below.

The expected long-term return on plan assets used in determining our 2017 U.S. pension cost was 6.50%. We have assumed a return on plan assets for 2018 of 6.50%. The 2018 expected return on assets was calculated in a manner consistent with 2017. A one-quarter percentage point increase or decrease in this assumption would increase or decrease 2018 operating income by approximately $3.7 million.

Contributions to the unfunded plan were $3.9 million in 2017 and were made on a monthly basis to fund benefit payments. We estimate the 2018 contributions will be approximately $4.0 million. See Note 16 to the Consolidated Financial Statements for more information.

The estimated inflation in health care costs represents a 5-10 year view of the expected inflation in our postretirement health care costs. We separately estimate expected health care cost increases for pre-65 retirees and post-65 retirees due to the influence of Medicare coverage at age 65, as illustrated below:

	Assumptions		Actual	
	Post 65	Pre 65	Post 65	Pre 65
2016	9.0 %	7.5 %	8.6 %	3.3 %
2017	8.5 %	7.3 %	6.8 %	11.3 %
2018	9.2 %	8.0 %		

The difference between the actual and expected health care costs is amortized into earnings as described below. As of December 31, 2017, health care cost increases are estimated to decrease ratably until 2026, after which they are estimated to be constant at 4.5%. A one percentage point increase or decrease in the assumed health care cost trend rate would not have a material impact on 2018 operating income. See Note 16 to the Consolidated Financial Statements for more information.

Actual results that differ from our various pension and postretirement plan estimates are captured as actuarial gains/losses. When certain thresholds are met, the gains and losses are amortized into future earnings over the remaining life expectancy of participants. Changes in assumptions could have significant effects on earnings in future years.

We recognized a decrease in net actuarial losses related to our U.S. pension benefit plans of $34.8 million in 2017 primarily due to a better than expected return on assets and a partial settlement of the RIP in 2017, partially offset by changes in actuarial assumptions (most significantly a 49 basis point decrease in the discount rate). The $34.8 million actuarial gain impacting our U.S. pension plans is reflected as a component of other comprehensive income in our Consolidated Statement of Earnings and Comprehensive Income along with actuarial gains and losses from our foreign pension plan and our U.S. postretirement benefit plan.

Income Taxes – Our effective tax rate is primarily determined based on our pre-tax income and the statutory income tax rates in the jurisdictions in which we operate. The effective tax rate also reflects the tax impacts of items treated differently for tax purposes than for financial reporting purposes. Some of these differences are permanent, such as expenses that are not deductible in our tax returns, and some differences are temporary, reversing over time, such as depreciation expense. These temporary differences create deferred income tax assets and liabilities. Deferred income tax assets are also recorded for net operating loss (“NOL”) and foreign tax credit (“FTC”) carryforwards.

Deferred income tax assets and liabilities are recognized by applying enacted tax rates to temporary differences that exist as of the balance sheet date. We reduce the carrying amounts of deferred tax assets by a valuation allowance 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 quarterly. 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 and foreign source income (“FSI”), the duration of statutory carryforward periods, and our experience with operating loss and tax credit carryforward expirations. A history of cumulative losses is a significant piece of negative evidence used in our assessment. If a history of cumulative losses is incurred for a tax jurisdiction, forecasts of future profitability are not used as positive evidence related to the realization of the deferred tax assets in the assessment.

As of December 31, 2017, we have recorded valuation allowances totaling $47.4 million for various federal, state, and foreign deferred tax assets. While we have considered future taxable income in assessing the need for the valuation allowances based on our best available projections, if these estimates and assumptions change in the future or if actual results differ from our projections, we may be required to adjust our valuation allowances accordingly. Such adjustments could be material to our Consolidated Financial Statements.

As further described in Note 14 to the Consolidated Financial Statements, our Consolidated Balance Sheet as of December 31, 2017 includes net deferred income tax assets of $96.8 million. Included in this amount are deferred federal income tax assets for FTC carryforwards of $15.7 million, and state NOL deferred income tax assets of $35.6 million. We have established valuation allowances in the amount of $47.4 million consisting of $10.3 million for federal deferred tax assets related to FTC carryovers, $17.7 million for differences between book and tax basis of undistributed foreign earnings, and $19.4 million for state deferred tax assets, primarily operating loss carryovers.

Inherent in determining our effective tax rate are judgments regarding business plans and expectations about future operations. These judgments include the amount and geographic mix of future taxable income, the amount of FSI, limitations on usage of NOL carryforwards, the impact of ongoing or potential tax audits, and other future tax consequences.

We estimate we will need to generate future U.S. taxable income of approximately $506.8 million for state income tax purposes during the respective realization periods (ranging from 2018 to 2036) in order to fully realize the net deferred income tax assets.

As previously disclosed in prior SEC filings, our ability to utilize deferred tax assets may be impacted by certain future events, such as changes in tax legislation and insufficient future taxable income prior to expiration of certain deferred tax assets.

We recognize the tax benefits of an uncertain tax position if those benefits are more likely than not to be sustained based on existing tax law. Additionally, we establish a reserve for tax positions that are more likely than not to be sustained based on existing tax law, but uncertain in the ultimate benefit 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.

Impairments of Long-Lived Tangible and Intangible Assets – Our indefinite-lived intangibles are primarily trademarks and brand names, which are integral to our corporate identity and expected to contribute indefinitely to our corporate cash flows. Accordingly, they have been assigned an indefinite life. We conduct our annual impairment test for non-amortizable intangible assets during the fourth quarter, although we conduct interim impairment tests if events or circumstances indicate the asset might be impaired. We conduct impairment tests for tangible assets and amortizable intangible assets when indicators of impairment exist, such as operating losses and/or negative cash flows. If an indication of impairment exists, we compare the carrying amount of the asset group to the estimated undiscounted future cash flows expected to be generated by the assets. If the undiscounted cash flows of an impaired asset are less than the carrying value, an estimate of an asset group's fair value is based on discounted future cash flows expected to be generated by the asset group, or based on management's estimated exit price assuming the assets could be sold in an orderly transaction between market participants or estimated salvage value if no sale is assumed. If the fair value is less than the carrying value of the asset group, we record an impairment charge equal to the difference between the fair value and carrying value of the asset group.

The principal assumption utilized in our impairment tests for definite-lived intangible assets is operating profit adjusted for depreciation and amortization. The principal assumptions utilized in our impairment tests for indefinite-lived intangible assets include revenue growth rate, discount rate and royalty rate. Revenue growth rate and operating profit assumptions are primarily derived from those utilized in our operating plan and strategic planning processes. The discount rate assumption is calculated based upon an estimated weighted average cost of equity which reflects the overall level of inherent risk and the rate of return a market participant would expect to achieve. The royalty rate assumption represents the estimated contribution of the intangible assets to the overall profits of the reporting unit.

In 2017, indefinite-lived intangibles were tested for impairment based on our existing reporting units, which changed as a result of the announced future sale of our EMEA and Pacific Rim segments. No other methodologies used for valuing our intangible assets changed from prior periods.

The cash flow estimates used in applying our impairment tests are based on management's analysis of information available at the time of the impairment test. Actual cash flows lower than the estimate could lead to significant future impairments. If subsequent testing indicates that fair values have declined, the carrying values would be reduced and our future statements of income would be affected.

There were no material impairment charges recorded in 2017, 2016 or 2015 related to intangible assets.

We did not test tangible assets within our continuing operations for impairment in 2017, 2016 or 2015 as no indicators of impairment existed.

We cannot predict the occurrence of certain events that might lead to material impairment charges in the future. Such events may include, but are not limited to, the impact of economic environments, particularly related to the commercial and residential construction industries, material adverse changes in relationships with significant customers, or strategic decisions made in response to economic and competitive conditions.

See Notes 3 and 10 to the Consolidated Financial Statements for further information.

Environmental Liabilities – We are actively involved in the investigation, closure and/or remediation of existing or potential environmental contamination under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), and state Superfund and similar type environmental laws at several domestically owned, formerly owned and non-owned locations allegedly resulting from past industrial activity. In a few cases, we are one of several potentially responsible parties and have agreed to jointly fund the required investigation, while preserving our defenses to the liability. We may also have rights of contribution or reimbursement from other parties or coverage under applicable insurance policies.

We provide for environmental remediation costs and penalties when the responsibility to remediate is probable and the amount of associated costs is reasonably determinable. Accruals are estimates based on the judgment of management related to ongoing proceedings. Estimates of our future liability at the environmental sites are based on evaluations of currently available facts regarding each individual site. In determining the probability of contribution, we consider the solvency of other parties, the site activities of other parties, whether liability is being disputed, the terms of any existing agreements and experience with similar matters, and the effect of our October 2006 Chapter 11 reorganization upon the validity of the claim.

We evaluate the measurement of recorded liabilities each reporting period based on current facts and circumstances specific to each matter. The ultimate losses incurred upon final resolution may materially differ from the estimated liability recorded. Changes in estimates are recorded in earnings in the period in which such changes occur.

We are unable to predict the extent to which any recoveries from other parties or coverage under insurance policies might cover our final share of costs for these sites. Our final share of investigation and remediation costs may exceed any such recoveries, and such amounts net of insurance recoveries may be material.

ACCOUNTING PRONOUNCEMENTS EFFECTIVE IN FUTURE PERIODS

See Note 2 to the Consolidated Financial Statements for further information.

RESULTS OF OPERATIONS

Unless otherwise indicated, net sales in these results of operations are reported based upon the AWI location where the sale was made. Please refer to Notes 3 and 4 to the Consolidated Financial Statements for a reconciliation of segment operating income to consolidated earnings from continuing operations before income taxes and additional financial information related to discontinued operations.

2017 COMPARED TO 2016

CONSOLIDATED RESULTS FROM CONTINUING OPERATIONS

(dollar amounts in millions)

	2017	2016	Favorable	
Total consolidated net sales	$893.6	$837.3	6.7	%
Operating income	$255.1	$188.9	35.0	%

Consolidated net sales increased due to favorable AUV of $29 million and higher volumes of $27 million.

Cost of goods sold was 63.8% of net sales in 2017, compared to 63.5% in 2016 due to higher manufacturing and input costs. The increase in cost of goods sold as a percentage of sales in comparison to 2016 was impacted by $10 million of accelerated depreciation charges due to management's decision to permanently close a plant in China that will be retained by AWI after the sale of our Pacific Rim business and management's decision to close our St. Helens, Oregon plant. Cost of goods sold for 2017 were also impacted by an increase in manufacturing and input costs and $3 million of severance and other charges associated with the announced closure of our St. Helens, Oregon plant. Partially offsetting these increases was a $10 million reduction in RIP expense and a $10 million reduction of cost of goods sold related to environmental insurance settlements recorded in 2017.

SG&A expenses in 2017 were $135.7 million, or 15.2% of net sales, compared to $155.5 million, or 18.6% of net sales, in 2016. The decrease in SG&A expenses was impacted by a $7 million decrease in the RIP expense, a $6 million reduction in expenses resulting from an increase in certain selling, promotional and administrative processing service reimbursements from WAVE and a $5 million reduction related to environmental insurance settlements, net of charges. These decreases in SG&A expenses were partially offset by higher SG&A expenses as a result of the Tectum acquisition and $2 million of severance related to cost control measures in the U.S.

Separation costs of $34.5 million in 2016 were primarily related to outside professional services and employee retention and severance accruals incurred in conjunction with our initiative to separate our flooring business from our ceilings business.

Equity earnings from our WAVE joint venture were $67.0 million in 2017, compared to $73.1 million in 2016. The decrease in WAVE earnings was primarily driven by an increase in selling and administrative processing charges from AWI and Worthington Industries, Inc. WAVE earnings were also negatively impacted by higher input costs, particularly steel. See Note 9 to the Consolidated Financial Statements for further information.

Interest expense was $35.4 million in 2017, compared to $49.5 million in 2016. Interest expense in 2016 included higher debt financing costs as a result of the refinancing of our credit facilities in April 2016 and $8.3 million of net losses that were reclassified from accumulated other comprehensive income as a result of the settlement of interest rate swaps which occurred in April 2016 and in connection with our entering into $450.0 million of notional amount of basis rate swaps during the fourth quarter of 2016. Also contributing to the decrease in interest expense was a reduction in total debt outstanding and a lower interest rate spread in comparison to 2016.

Other non-operating income was $2.4 million in 2017 and $11.2 million in 2016. The changes in other non-operating income were primarily due to foreign exchange rate gains on the translation of unhedged cross-currency intercompany loans in 2016.

Income tax expense was $1.5 million and $51.3 million in 2017 and 2016, respectively. The effective tax rate for 2017 was 0.7% as compared to a rate of 34.1% for 2016. On December 22, 2017, the U.S. federal government enacted the Tax Cut and Jobs Act of 2017 (the "2017 Tax Act"), resulting in significant changes from previous tax law. Effective January 1, 2018, the 2017 Tax Act reduces the federal corporate income tax rate from 35% to 21%. As a result, we recorded a net $82.5 million income tax benefit in the fourth quarter of 2017. Excluding the impact of the 2017 Tax Act, income tax expense for 2017 increased in comparison to 2016 due to an increase in pre-tax income, a decrease in reversals of reserves for uncertain tax positions from the expiration of the federal statute of limitations and an increase to the valuation allowance on foreign tax credits due to the anticipated sale of our EMEA and Pacific Rim businesses.

Total other comprehensive income ("OCI") was $57.9 million for 2017 compared to $23.6 million for 2016. Foreign currency translation adjustments represent the change in the U.S. dollar value of assets and liabilities denominated in foreign currencies. Foreign currency translation adjustments in 2017 were driven primarily by changes in the exchange rates of the British pound, the Chinese renminbi, the Russian ruble and the Canadian dollar. Derivative gain/loss represents the mark to market value adjustments of our derivative assets and liabilities and the recognition of gains and losses previously deferred in OCI. Derivative gains in 2016 were impacted by $8.3 million of net losses related to settlements of interest rates swaps. Pension and postretirement adjustments represent actuarial gains and losses related to our defined benefit pension and postretirement plans and amortization of net losses on the U.S. pension plans. Increases in OCI in 2017 primarily related to our U.S. pension plans.

REPORTABLE SEGMENT RESULTS

Mineral Fiber

(dollar amounts in millions)

	2017	2016	Change is Favorable
Total segment net sales	$756.4	$736.6	2.7 %
Operating income	$231.9	$223.9	3.6 %

Net sales increased due to favorable AUV of $29 million, partially offset by lower volumes of $10 million. The favorable AUV was primarily due to improved mix from the sale of higher end ceiling tile products, while the decrease in volumes was primarily in lower end ceiling tile products.

Operating income increased due to lower SG&A expenses of $20 million and the favorable margin impact of higher AUV of $12 million, partially offset by higher manufacturing and input costs of $13 million, lower earnings from WAVE of $6 million and the negative impact of lower volumes of $2 million. The reduction in SG&A expenses was impacted by $6 million of additional expense reimbursements from WAVE and $5 million of environmental insurance settlements, net of charges, both recorded in 2017. The increase in manufacturing costs was impacted by higher costs associated with planned enhancements to our manufacturing footprint to produce high end products and $7 million of severance and accelerated depreciation charges, primarily associated with the announced closure of our St. Helens manufacturing plant, partially offset by a $10 million reduction in costs related to environmental insurance settlements, net of charges, in 2017.

Architectural Specialties

(dollar amounts in millions)

	2017	2016	Change is Favorable
Total segment net sales	$137.2	$100.7	36.2 %
Operating income	$27.7	$19.2	44.3 %

Net sales increased due to higher volumes, partially as a result of our acquisition of Tectum and increased new construction activity.

Operating income increased due to the positive impact of higher volumes, partially offset by an increase in SG&A expenses due primarily to the acquisition of Tectum and investments in selling and design capabilities.

Unallocated Corporate

Unallocated Corporate expense of $5 million decreased from $54 million in the prior year, due to $35 million of charges incurred in connection with our separation of AFI in 2016 and a $17 million decrease in RIP expense.

FINANCIAL CONDITION AND LIQUIDITY

Cash Flow

The discussion that follows includes cash flows related to discontinued operations.

Operating activities for 2017 provided $170.4 million of cash, compared to $49.3 million of cash provided in 2016. The increase was primarily due to changes in working capital, most notably a decrease accounts payable and accrued expenses related to the separation of AFI.

Net cash used for investing activities was $54.2 million in 2017, compared to $17.0 million in 2016. The change in investing activities cash flows was primarily due to the acquisition of Tectum and lower dividends from our WAVE joint venture, partially offset by decreased purchases of property, plant and equipment.

Net cash used by financing activities was $102.7 million in 2017, compared to $128.9 million in 2016. The favorable change in use of cash was primarily the result of lower payments of debt, partially offset by higher repurchases of outstanding common stock.

Liquidity

Our liquidity needs for operations vary throughout the year. We retain lines of credit to facilitate our seasonal cash flow needs, since cash flow is generally lower during the first and fourth quarters of our fiscal year.

We have a $1,050.0 million senior credit facility which is comprised of a $200.0 million revolving credit facility (with a $150.0 million sublimit for letters of credit), a $600.0 million Term Loan A and a $250.0 million Term Loan B. The revolving credit facility and Term Loan A are currently priced at 2.00% over LIBOR and the Term Loan B portion is priced at 2.75% over LIBOR with a 0.75% floor. The senior credit facility also has a $25.0 million letter of credit facility, also known as our bi-lateral facility. The revolving credit facility and Term Loan A mature in March 2021 and Term Loan B matures in November 2023. This $1,050.0 million senior credit facility is secured by U.S. personal property, the capital stock of material U.S. subsidiaries and a pledge of 65% of the stock of our material first tier foreign subsidiaries.

As of December 31, 2017, total borrowings outstanding under our senior credit facility were $577.5 million under Term Loan A and $245.6 million under Term Loan B. There were no borrowings outstanding under the revolving credit facility.

In February 2017, we repriced the interest rate of our Term Loan B borrowing, resulting in a lower LIBOR spread (2.75% vs. 3.25%). The maturity date remained unchanged along with all other terms and conditions. In connection with the repricing we paid $0.6 million of bank, legal and other fees, the majority of which were capitalized.

Under our senior credit facility we are subject to year-end leverage tests that may trigger mandatory prepayments. If our ratio of consolidated funded indebtedness minus AWI and domestic subsidiary unrestricted cash and cash equivalents up to $100 million to consolidated earnings before interest, taxes, depreciation and amortization ("EBITDA") ("Consolidated Net Leverage Ratio") is greater than 3.5 to 1.0, the prepayment amount would be based on a computation of 50% of Consolidated Excess Cash Flow, as defined by the credit agreement. These annual payments would be made in the first quarter of the following year. No payment was made in 2017 or will be required in 2018.

The senior credit facility includes two financial covenants that require the ratio of consolidated EBITDA to consolidated cash interest expense minus cash consolidated interest income to be greater than or equal to 3.0 to 1.0 and requires the Consolidated Net Leverage Ratio to be less than or equal to 3.75 to 1.0. As of December 31, 2017, we were in compliance with all covenants of the senior credit facility.

The Term Loan A and Term Loan B were both fully drawn and are currently priced on a variable interest rate basis. The following table summarizes our interest rate swaps (dollar amounts in millions):

Trade Date	Notional Amount	Coverage Period	Risk Coverage
November 13, 2016	$ 250.0	November 2016 to March 2018	Term Loan A
November 13, 2016	$ 200.0	November 2016 to March 2021	Term Loan A
April 1, 2016	$ 100.0	April 2016 to March 2023	Term Loan B

These swaps are designated as cash flow hedges against changes in LIBOR for a portion of our variable rate debt. The unpaid balances of Term Loan A, the Revolving Credit Facility and Term Loan B may be prepaid without penalty at the maturity of their respective interest reset periods. Any amounts prepaid on the Term Loan A or Term Loan B may not be re-borrowed.

In connection with the refinancing of our credit facilities in April 2016, $450.0 million of notional amount Term Loan B swaps with a trade date of March 27, 2012 were settled and $10.7 million of losses previously recorded as a component of accumulated other comprehensive income were reclassified to interest expense in 2016.

As of December 31, 2017, we had $450.0 million notional Term A swaps (the "Term Loan A Swaps"), in which we received 1-month LIBOR and paid a fixed rate over the hedged period.

During the fourth quarter of 2016, we elected to change the basis for interest payments due under our Term Loan A Swaps from 3-month LIBOR to 1-month LIBOR. In connection with the change in our underlying interest payments, in November 2016 we entered into $450.0 million forward-starting notional amount basis rate swaps to convert the floating rate risk under our Term Loan A Swaps from 3-month LIBOR to 1-month LIBOR and jointly designated the basis swaps with our Term Loan A Swaps in cash flow hedging relationships. As a result of this transaction, $2.4 million of gains previously recorded as a component of accumulated other comprehensive income were reclassified as a reduction to interest expense during the fourth quarter of 2016. Since the basis rate swaps had a non-zero fair value upon designation as cash flow hedges, mark-to-market gains or losses on ineffective portions of these hedges are recorded as a component of interest expense.

As of December 31, 2017, we had a $100.0 million notional Term Loan B swap in which we receive the greater of 3-month LIBOR or a 0.75% LIBOR Floor and pay a fixed rate over the hedged period.

As of December 31, 2017 our outstanding long-term debt included a $35.0 million variable rate, tax-exempt industrial development bond that financed the construction of a plant in prior years. This bond has a scheduled final maturity of 2041 and is remarketed by an agent on a regular basis at a market-clearing interest rate. Any portion of the bond that is not successfully remarketed by the agent is required to be repurchased. This bond is backed by letters of credit which will be drawn if a portion of the bond is not successfully remarketed. We have not had to repurchase the bond.

As of December 31, 2017, we had $159.6 million of cash and cash equivalents, $81.0 million in the U.S and $78.6 million in various foreign jurisdictions. Upon completion of the sale of our EMEA and Pacific Rim businesses, it is our intention to repatriate a significant majority of the $78.6 million of cash held in various foreign jurisdictions; however our Purchase Agreement with Knauf allows AWI to transfer any cash balances held in our EMEA and Pacific Rim businesses to Knauf up to $10.0 million. See Note 4 to the Consolidated Financial Statements for additional information.

We have a $40.0 million Accounts Receivable Securitization Facility (the "funding entity") that matures in March 2019. Under our Accounts Receivable Securitization Facility we sell accounts receivables to Armstrong Receivables Company, LLC ("ARC"), a Delaware entity that is consolidated in these financial statements. ARC is a 100% wholly owned single member LLC special purpose entity created specifically for this transaction; therefore, any receivables sold to ARC are not available to the general creditors of AWI. ARC then sells an undivided interest in the purchased accounts receivables to the funding entity. This undivided interest acts as collateral for drawings on the facility. Any borrowings under this facility are obligations of ARC and not AWI. ARC contracts with and pays a servicing fee to AWI to manage, collect and service the purchased accounts receivables. All new receivables under the program are continuously purchased by ARC with the proceeds from collections of receivables previously purchased. As of December 31, 2017 we had no borrowings under this facility.

We utilize lines of credit and other commercial commitments in order to ensure that adequate funds are available to meet operating requirements. Letters of credit are currently arranged through our revolving credit facility, our bi-lateral facility and our securitization facility. Letters of credit may be issued to third party suppliers, insurance and financial institutions and typically can only be drawn upon in the event of AWI's failure to pay its obligations to the beneficiary. The following table presents details related to our letters of credit (dollar amounts in millions):

	As of December 31, 2017		
Financing Arrangement	Limit	Used	Available
Revolving credit facility	$150.0	$-	$ 150.0
Bi-lateral facility	25.0	17.1	7.9
Accounts receivable securitization facility	29.6	36.2	(6.6)
Total	$204.6	$53.3	$ 151.3

As of December 31, 2017 and 2016, $6.6 million and $4.0 million, respectively, of letters of credit issued under our accounts receivable securitization facility in excess of our maximum limit were classified as restricted cash and reported as a component of Cash and cash equivalents on our Consolidated Balance Sheets. This restriction will lapse upon replacement of collateral with accounts receivables and/or upon a change in the letter of credit limit as a result of higher securitized accounts receivable balances.

We believe that cash on hand and cash generated from operations, together with lines of credit, availability under our revolving credit facility, will be adequate to address our foreseeable liquidity needs based on current expectations of our business operations, capital expenditures and scheduled payments of debt obligations.

2016 COMPARED TO 2015

CONSOLIDATED RESULTS FROM CONTINUING OPERATIONS

(dollar amounts in millions)

	2016	2015	Change is Favorable
Total consolidated net sales	$837.3	$805.1	4.0 %
Operating income	$188.9	$157.0	20.3 %

Consolidated net sales for 2016 increased due to higher volumes of $20 million and favorable AUV of $15 million.

Cost of goods sold was 63.5% of net sales in 2016, compared to 62.0% in 2015. Compared to the prior year, the increase was due to higher manufacturing and input costs.

SG&A expenses in 2016 were $155.5 million, or 18.6% of net sales, compared to $180.8 million, or 22.5% of net sales in 2015. The decrease was the result of the AFI separation and a decrease in RIP expense.

Separation costs of $34.5 million in 2016 and $34.3 million in 2015 were primarily related to outside professional services and employee retention and severance accruals incurred in conjunction with our initiative to separate our flooring business from our ceilings business.

Equity earnings from our WAVE joint venture were $73.1 million in 2016, compared to $66.1 million in 2015. The increase was due to higher sales volumes, favorable AUV and lower manufacturing input costs, partially offset by higher SG&A expenses for go-to-market investments.

Interest expense was $49.5 million in 2016, compared to $44.6 million in 2015. The increase in interest expense was due to $10.7 million of losses that were reclassified from accumulated other comprehensive income to interest expense during 2016 as a result of the settlement of $450.0 million of notional amount interest rate swaps which occurred in connection with the refinancing of our credit facilities, partially offset by lower costs due to a reduction in total debt outstanding and a lower interest rate spread and $2.4 million of gains that were reclassified from accumulated other comprehensive income to interest expense during 2016 in connection with our entering into $450.0 million of notional amount of basis rate swaps.

Other non-operating income was $11.2 million in 2016, compared to other non-operating expense of $17.8 million in 2015. The changes in other non-operating income were primarily due to foreign exchange rate gains on the translation of unhedged cross-currency intercompany loans. Expenses in 2015 were primarily due to foreign exchange rate losses on the translation of unhedged cross-currency intercompany loans denominated in Russian rubles, related to the construction of our Russian mineral fiber ceiling plant that was completed in the first quarter of 2015. During the fourth quarter of 2016, all Russian ruble denominated intercompany loans were settled with intercompany capital contributions.

Income tax expense was $51.3 million and $36.7 million in 2016 and 2015, respectively. The effective tax rate for 2016 was 34.1% as compared to a rate of 38.8% for 2015. The effective tax rate for 2016 was lower than 2015 primarily due to income tax benefits recorded during the second half of 2016 resulting from the reversal of reserves for uncertain tax positions as a result of an expiration of the federal statute of limitations to review previously filed income tax returns.

REPORTABLE SEGMENT RESULTS

Mineral Fiber

(dollar amounts in millions)

	2016	2015	Change is Favorable/ (Unfavorable)
Total segment net sales	$736.6	$723.7	1.8 %
Operating income	$223.9	$270.3	(17.2)%

Net sales increased due to favorable AUV of $15 million, while volume was flat.

Operating income decreased due to higher SG&A expenses of $50 million, the margin impact of lower volumes of $5 million and an increase manufacturing and input costs of $4 million, partially offset by the margin impact of favorable AUV of $8 million and higher earnings from WAVE of $7 million. The increase in SG&A expenses in 2016 was primarily a result of the inclusion of costs formally assigned to our Unallocated Corporate segment prior to the separation of AFI, partially offset by a reduction in costs primarily due to the separation of AFI.

Architectural Specialties

(dollar amounts in millions)

	2016	2015	Change is Favorable
Total segment net sales	$100.7	$81.4	23.7 %
Operating income	$19.2	$16.5	16.4 %

Net sales and operating income both increased due to higher volumes. The increase in operating income was partially offset by a $4 million increase in SG&A expenses, due to investments in selling and design capabilities.

Unallocated Corporate

Unallocated Corporate expense of $54.2 million decreased from $129.8 million in the prior year. The decrease was due to the inclusion of most of the Corporate functions within the Mineral Fiber and Architectural Specialties segments starting in 2016 as a result of the AFI separation.

Cash Flow

The discussion that follows includes cash flows related to discontinued operations.

Operating activities for 2016 provided $49.3 million of cash, compared to $203.7 million of cash provided in 2015. The decrease was primarily due to change in working capital, most notably a decrease in accounts payable and accrued expenses related to the separation of AFI. The decrease due to the change in working capital was partially offset by higher cash earnings partially offset by a reduction in depreciation and amortization.

Net cash used for investing activities was $17.0 million in 2016, compared to $101.5 million in 2015. The change in investing activities cash flows was primarily due to decreased purchases of property, plant and equipment, partially offset by higher dividends from our WAVE joint venture.

Net cash used by financing activities was $128.9 million in 2016, compared to $32.3 million in 2015. The unfavorable use of cash was primarily the result of higher payments of debt and repurchase of outstanding common stock.

OFF-BALANCE SHEET ARRANGEMENTS

No disclosures are required pursuant to Item 303(a)(4) of Regulation S-K.

CONTRACTUAL OBLIGATIONS

As part of our normal operations, we enter into numerous contractual obligations that require specific payments during the term of the various agreements. The following table includes amounts ongoing under contractual obligations existing as of December 31, 2017. Only known payments that are dependent solely on the passage of time are included. Obligations under contracts that contain minimum payment amounts are shown at the minimum payment amount. Contracts that contain variable payment structures without minimum payments are excluded. Purchase orders that are entered into in the normal course of business are also excluded because they are generally cancelable and not legally binding. Amounts are presented below based upon the currently scheduled payment terms. Actual future payments may differ from the amounts presented below due to changes in payment terms or events affecting the payments.

(dollar amounts in millions)	2018	2019	2020	2021	2022	Thereafter	Total
Long-term debt (1)	$32.5	$55.0	$62.5	$437.5	$2.5	$ 268.1	$858.1
Scheduled interest payments (2)	33.1	34.7	32.2	21.8	12.9	19.6	154.3
Operating lease obligations, net of sublease income (3)	2.4	2.2	1.8	1.5	1.1	4.3	13.3
Unconditional purchase obligations (4)	49.8	5.7	1.6	1.4	1.2	1.7	61.4
Pension contributions (5)	4.0	-	-	-	-	-	4.0
Other obligations (6), (7)	4.7	-	-	-	-	-	4.7
Total contractual obligations	$126.5	$97.6	$98.1	$462.2	$17.7	$ 293.7	$1,095.8

(1) Excludes $7.9 million of unamortized debt financing costs as of December 31, 2017.

(2) For debt with variable interest rates and interest rate swaps, we projected future interest payments based on market-based interest rate swap curves.

(3) Lease obligations include the minimum payments due under existing agreements with non-cancelable lease terms in excess of one year.

(4) Unconditional purchase obligations include (a) purchase contracts whereby we must make guaranteed minimum payments of a specified amount regardless of how little material is actually purchased ("take or pay" contracts) and (b) service agreements. Unconditional purchase obligations exclude contracts entered into during the normal course of business that are non-cancelable and have fixed per unit fees, but where the monthly commitment varies based upon usage. Cellular phone contracts are an example.

(5) Pension contributions include estimated contributions for our defined benefit pension plans. We are not presenting estimated payments in the table above beyond 2018 as funding can vary significantly from year to year based upon changes in the fair value of plan assets, funding regulations and actuarial assumptions.

(6) Other obligations include payments under severance agreements.

(7) Other obligations excludes $53.4 million of unrecognized tax benefit liabilities under ASC 740 "Income Taxes." Due to the uncertainty relating to these positions, we are unable to reasonably estimate the ultimate amount or timing of the settlement of these issues. Other obligations also excludes $10.3 million of one-time deemed repatriation tax liabilities on undistributed foreign earnings and profits, gross of foreign tax credit utilization, as a result of the enactment of the 2017 Tax Act as such amounts were recorded on a provisional basis and estimated based on information available as of December 31, 2017. See Note 14 to the Consolidated Financial Statements for more information.

This table excludes obligations related to postretirement benefits (retiree health care and life insurance) since we voluntarily provide these benefits. The amount of benefit payments we made in 2017 was $10.3 million. See Note 16 to the Consolidated Financial Statements for additional information regarding future expected cash payments for postretirement benefits.

We are party to supply agreements, some of which require the purchase of inventory remaining at the supplier upon termination of the agreement. Had these agreements terminated at December 31, 2017, we would have been obligated to purchase approximately $0.6 million of inventory. Historically, due to production planning, we have not had to purchase material amounts of product at the end of similar contracts. Accordingly, no liability has been recorded for these guarantees.

Letters of credit are currently arranged through our revolving credit facility, our bi-lateral facility and our securitization facility. Letters of credit may be issued to third party suppliers, insurance and financial institutions and typically can only be drawn upon in the event of AWI's failure to pay its obligations to the beneficiary. The following table summarizes the commitments we have available for use as of December 31, 2017.

Other Commercial Commitments (dollar amounts in millions)	Total Amounts Committed	Less Than 1 Year	1 – 3 Years	4 – 5 Years	Over 5 Years
Letters of credit	$ 53.3	$53.3	$ -	$ -	$ -

In connection with our disposition of certain assets through a variety of unrelated transactions, we have entered into contracts that included various indemnity provisions, some of which are customary for such transactions, while others hold the acquirer of the assets harmless with respect to liabilities relating to such matters as taxes, environmental and other litigation. Some of these provisions include exposure limits, but many do not. Due to the nature of the indemnities, it is not possible to estimate the potential maximum exposure under these contractual provisions. As of December 31, 2017, we had no liabilities recorded for which an indemnity claim had been received.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK
Market Risk

We are exposed to market risk from changes in foreign currency exchange rates, interest rates and commodity prices that could impact our results of operations, cash flows and financial condition. We use forward swaps and option contracts to hedge these exposures, which are entered into for periods consistent with underlying exposure and do not constitute positions independent of those exposures. We use derivative financial instruments as risk management tools and not for speculative trading purposes. In addition, derivative financial instruments are entered into with a diversified group of major financial institutions in order to manage our exposure to potential nonperformance on such instruments. We regularly monitor developments in the capital markets.

Counterparty Risk

We only enter into derivative transactions with established counterparties having an investment grade or better. We monitor counterparty credit default swap levels and credit ratings on a regular basis. All of our derivative transactions with counterparties are governed by master International Swap and Derivatives Association agreements (“ISDAs”) with netting arrangements. These agreements can limit our exposure in situations where we have gain and loss positions outstanding with a single counterparty. We do not post nor receive cash collateral with any counterparty for our derivative transactions. These ISDAs do not contain any credit contingent features other than those contained in our bank credit facility. Exposure to individual counterparties is controlled, and thus we consider the risk of counterparty default to be negligible.

Interest Rate Sensitivity

We are subject to interest rate variability on our Term Loan A, Term Loan B, revolving credit facility and other borrowings. A hypothetical increase of one-quarter percentage point in LIBOR interest rates from December 31, 2017 levels would increase 2018 interest expense by approximately $1.4 million. As of December 31, 2017, $245.6 million of our debt has a 0.75% LIBOR floor, which would not be affected by a one-quarter percentage point move in LIBOR given the current interest rate environment. We also have $550.0 million of interest rate swaps outstanding, which fix the interest rates for a portion of our debt. The current portion of the interest rate swaps is included in this calculation.

As of December 31, 2017, we had interest rate swaps outstanding on Term Loan A and on Term Loan B, with notional amounts of $450.0 million and $100.0 million, respectively. We utilize interest rate swaps to minimize the fluctuations in earnings caused by interest rate volatility. Under the terms of the Term Loan A swaps we receive 1-month LIBOR and pay a fixed rate over the hedged period. Under the terms of our Term Loan B, we receive the greater of 3-month LIBOR or a 0.75% LIBOR Floor and pay a fixed rate over the hedged period. The following table summarizes our interest rate swaps as of December 31, 2017 (dollar amounts in millions):

Trade Date	Notional Amount	Coverage Period	Risk Coverage
November 13, 2016	$ 250.0	November 2016 to March 2018	Term Loan A
November 13, 2016	$ 200.0	November 2016 to March 2021	Term Loan A
April 1, 2016	$ 100.0	April 2016 to March 2023	Term Loan B

These swaps are designated as cash flow hedges against changes in LIBOR for a portion of our variable rate debt. The net asset measured at fair value was $8.9 million at December 31, 2017.

The table below provides information about our long-term debt obligations as of December 31, 2017, including payment requirements and related weighted-average interest rates by scheduled maturity dates. Weighted average variable rates are based on implied forward rates in the yield curve and are exclusive of our interest rate swaps.

Scheduled maturity date (dollar amounts in millions)	2018	2019	2020	2021	2022	After 2022	Total
Variable rate principal payments	$32.5	$55.0	$62.5	$437.5	$2.5	$268.1	$858.1
Average interest rate	3.90%	4.30%	4.37%	4.41 %	5.26%	4.91 %	4.54 %

Variable rate principle payments reflected in the preceding table exclude $7.9 million of unamortized debt financing costs as of December 31, 2017.

Exchange Rate Sensitivity

We manufacture and sell our products in a number of countries throughout the world and, as a result, are exposed to movements in foreign currency exchange rates. To a large extent, our global manufacturing and sales provide a natural hedge of foreign currency exchange rate movement. Upon completion of the sale of our EMEA and Pacific Rim businesses, and on a continuing operations basis as of December 31, 2017, our only major foreign currency exposure is to the Canadian dollar. A 10% strengthening of the Canadian dollar against the U.S. dollar compared to December 31, 2017 levels would increase our 2018 earnings before income taxes by approximately $0.5 million, including the impact of current foreign currency forward exchange contracts.

The table below details our outstanding currency instruments as of December 31, 2017.

On balance sheet foreign exchange related derivatives

(dollar amounts in millions)	Maturing in 2018	Maturing in 2019	Total
Notional amounts	$ 15.7	$ 3.2	$ 18.9
Assets at fair value	(0.7)	(0.1)	(0.8)

Natural Gas Price Sensitivity

We purchase natural gas for use in the manufacturing process and to heat many of our facilities. As a result, we are exposed to fluctuations in the price of natural gas. We have a policy of reducing North American natural gas volatility through derivative instruments, including forward contracts and swaps, purchased call options, and zero-cost collars up to 24 months forward. As of December 31, 2017, we had contracts to hedge approximately $9.2 million (notional amounts) of natural gas. All of these contracts mature by November 2019. A 10% increase in North American natural gas prices compared to December 31, 2017 prices would increase our 2018 expenses by approximately $0.5 million including the impact of current hedging contracts. As of December 31, 2017 we had recorded net liabilities of $0.6 million related to these contracts.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

SUPPLEMENTARY DATA

Quarterly Financial Information for the Years Ended December 31, 2017 and 2016 (Unaudited)

The following consolidated financial statements are filed as part of this Annual Report on Form 10-K:

Reports of Independent Registered Public Accounting Firm.

Consolidated Statements of Earnings and Comprehensive Income for the Years Ended December 31, 2017, 2016 and 2015.

Consolidated Balance Sheets as of December 31, 2017 and 2016.

Consolidated Statements of Equity for the Years Ended December 31, 2017, 2016 and 2015.

Consolidated Statements of Cash Flows for the Years Ended December 31, 2017, 2016 and 2015.

Notes to Consolidated Financial Statements.

Schedule II for the Years Ended December 31, 2017, 2016 and 2015.

Armstrong World Industries, Inc., and Subsidiaries

Quarterly Financial Information (unaudited)

(dollar amounts in millions, except for per share data)

	First	Second	Third	Fourth
2017				
Net sales	$219.8	$225.6	$233.9	$214.3
Gross profit	83.4	90.3	83.6	66.5
Earnings from continuing operations	35.5	43.7	37.3	104.1
Per share of common stock:				
Basic	$0.65	$0.82	$0.70	$1.96
Diluted	$0.65	$0.81	$0.70	$1.92
Price range of common stock - high	$48.00	$47.95	$51.98	$61.50
Price range of common stock - low	$38.45	$41.20	$43.77	$49.25
2016				
Net sales	$200.1	$214.8	$226.0	$196.4
Gross profit	70.7	79.5	87.3	68.3
(Loss) earnings from continuing operations	(0.2)	26.8	54.5	18.2
Per share of common stock:				
Basic	$-	$0.48	$0.97	$0.33
Diluted	$-	$0.48	$0.97	$0.33
Price range of common stock - high	$48.66	$48.39	$45.75	$45.00
Price range of common stock - low	$35.92	$36.33	$37.49	$36.38

Note: The net sales and gross profit amounts above are reported on a continuing operations basis. The sum of the quarterly earnings per share data may not equal the total year amounts due to changes in the average shares outstanding and, for diluted data, the exclusion of the anti-dilutive effect in certain quarters. Historical stock prices above have not been restated as a result of the separation of AFI.

Armstrong World Industries, Inc., and Subsidiaries

Quarterly Financial Information (unaudited)

(dollar amounts in millions, except for per share data)

Fourth Quarter 2017 Compared With Fourth Quarter 2016 – Continuing Operations

Consolidated net sales of $214.3 million in the fourth quarter of 2017 increased 9.1% due to higher volumes of $14 million and favorable AUV of $4 million.

Mineral Fiber net sales increased 3.4% due to favorable AUV of $4 million and higher volumes of $1 million. Architectural Specialties net sales increased 49.0% due to higher volumes due to the acquisition of Tectum and increased new construction activity.

For the fourth quarter of 2017, cost of goods sold was 69.0% of net sales, compared to 65.2% in 2016. The increase in cost of goods sold as a percentage of sales was impacted by $6 million of accelerated depreciation charges primarily due to management's decision to permanently close a plant in China that will be retained by AWI after the sale of our Pacific Rim business and management's decision to close our St. Helens, Oregon plant. Cost of goods sold for 2017 was also impacted by an increase in manufacturing and input costs and $3 million of severance and other charges associated with the announced closure of our St. Helens, Oregon plant. Partially offsetting these increases was a $6 million reduction in RIP expense and a $2 million reduction of cost of goods sold related to environmental insurance settlements, net of charges, recorded in 2017.

SG&A expenses for the fourth quarter of 2017 were $29.9 million, or 14.0% of net sales compared to $42.6 million, or 21.7% of net sales, for the fourth quarter of 2015. The decrease in SG&A expenses was primarily due to a reduction of $6 million related to environmental insurance settlements, net of charges, a $4 million decrease in the RIP expense and a $2 million reduction in expenses resulting from an increase in certain selling, promotional and administrative processing service reimbursements from WAVE. These decreases in SG&A expenses were partially offset by $2 million of severance related to cost control measures in the U.S. as a result of the announced future sale of our EMEA and Pacific Rim businesses.

Equity earnings in the fourth quarters of 2017 and 2016 were $15.1 million and $16.1 million, respectively. The decrease in WAVE earnings was primarily driven by higher input costs, particularly steel, and an increase in selling and administrative processing charges from AWI and Worthington Industries, Inc.

Operating income was $51.7 million in the fourth quarter of 2017 compared to $40.3 million in the fourth quarter of 2016, with the increase due primarily to a decrease in SG&A expenses as described above.

Interest expense in the fourth quarter of 2017 decreased to $8.8 million compared to $11.2 million in the fourth quarter of 2016 primarily due to a reduction in total debt outstanding and a lower interest rate spread, partially offset by $2.4 million of gains on interest rate swaps recorded as a reduction to interest expense in the fourth quarter of 2016.

Fourth quarter income tax benefit was $60.7 million on pre-tax earnings from continuing operations of $43.4 million in 2017 compared to income tax expense of $12.7 million on a pre-tax earnings from continuing operations of $30.9 million in 2016. The effective tax rate for 2017 was lower than 2016 primarily due to the income tax benefits of the 2017 Tax Act. Effective January 1, 2018, the 2017 Tax Act reduces the federal corporate income tax rate from 35% to 21%. As a result, we recorded a net $82.5 million income tax benefit in the fourth quarter of 2017. Excluding the impact of the 2017 Tax Act, income tax expense for the fourth quarter of 2017 increased in comparison to 2016 due to an increase in pre-tax income and an increase to the valuation allowance on foreign tax credits in 2017 due to the anticipated sale of our EMEA and Pacific Rim businesses.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. Our internal control over financial reporting was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external purposes in accordance with generally accepted accounting principles.

Because of inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation and the criteria in the COSO framework, our management concluded that our internal control over financial reporting was effective as of December 31, 2017.

KPMG LLP, an independent registered public accounting firm, audited our internal control over financial reporting as of December 31, 2017, as stated in their report included herein.

/s/ Victor D. Grizzle

Victor D. Grizzle
Director, President and Chief Executive Officer

/s/ Brian L. MacNeal

Brian L. MacNeal
Senior Vice President and Chief Financial Officer

/s/ Stephen F. McNamara

Stephen F. McNamara
Vice President and Corporate Controller
February 26, 2018

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Armstrong World Industries, Inc.:

Opinion on Internal Control Over Financial Reporting

We have audited Armstrong World Industries, Inc. and subsidiaries (the "Company") internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, the related consolidated statements of earnings and comprehensive income, equity, and cash flows for each of the years in the three-year period ended December 31, 2017, and the related notes and financial statement schedule of valuation and qualifying reserves (collectively, the "consolidated financial statements"), and our report dated February 26, 2018 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Philadelphia, Pennsylvania
February 26, 2018

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Armstrong World Industries, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Armstrong World Industries, Inc. and subsidiaries (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of earnings and comprehensive income, equity, and cash flows for each of the years in the three year period ended December 31, 2017, and the related notes and financial statement schedule of valuation and qualifying reserves (collectively, the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 26, 2018 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 1929.

Philadelphia, Pennsylvania

February 26, 2018

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Armstrong World Industries, Inc., and Subsidiaries

Consolidated Statements of Earnings and Comprehensive Income

(amounts in millions, except per share data)

	Years Ended December 31,		
	2017	2016	2015
Net sales	$893.6	$837.3	$805.1
Cost of goods sold	569.8	531.5	499.1
Gross profit	323.8	305.8	306.0
Selling, general and administrative expenses	135.7	155.5	180.8
Separation costs	-	34.5	34.3
Equity earnings from joint venture	(67.0)	(73.1)	(66.1)
Operating income	255.1	188.9	157.0
Interest expense	35.4	49.5	44.6
Other non-operating (income) expense, net	(2.4)	(11.2)	17.8
Earnings from continuing operations before income taxes	222.1	150.6	94.6
Income tax expense	1.5	51.3	36.7
Earnings from continuing operations	220.6	99.3	57.9
Net gain (loss) from discontinued operations, net of tax expense (benefit) of $3.6, ($0.8) and $34.6	4.2	(9.9)	(5.3)
(Loss) gain on disposal of discontinued business, net of tax (benefit) of ($4.1), ($15.2) and ($41.8)	(70.0)	15.3	41.6
Net (loss) gain from discontinued operations	(65.8)	5.4	36.3
Net earnings	$154.8	$104.7	$94.2
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	24.5	(33.2)	(25.5)
Derivative (loss) gain	(0.3)	7.5	0.7
Pension and postretirement adjustments	33.7	49.3	32.9
Total other comprehensive income	57.9	23.6	8.1
Total comprehensive income	$212.7	$128.3	$102.3
Earnings per share of common stock, continuing operations:			
Basic	$4.12	$1.79	$1.04
Diluted	$4.08	$1.78	$1.03
(Loss) earnings per share of common stock, discontinued operations:			
Basic	$(1.23)	$0.09	$0.65
Diluted	$(1.22)	$0.09	$0.65
Net earnings per share of common stock:			
Basic	$2.89	$1.88	$1.69
Diluted	$2.86	$1.87	$1.68
Average number of common shares outstanding:			
Basic	53.3	55.4	55.5
Diluted	53.9	55.7	55.9

See accompanying notes to consolidated financial statements beginning on page 44.

Armstrong World Industries, Inc., and Subsidiaries

Consolidated Balance Sheets

(amounts in millions, except share data)

	December 31, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	$ 159.6	$ 141.9
Accounts and notes receivable, net	90.8	58.8
Inventories, net	53.8	46.9
Current assets of discontinued operations	306.1	125.2
Income tax receivable	30.7	22.2
Other current assets	7.9	11.2
Total current assets	648.9	406.2
Property, plant, and equipment, less accumulated depreciation and amortization of $361.4 and $323.8, respectively	499.9	465.2
Prepaid pension costs	88.3	48.7
Investment in joint venture	107.3	106.2
Goodwill and intangible assets, net	441.1	427.7
Noncurrent assets of discontinued operations	-	221.1
Deferred income taxes	19.6	14.4
Income tax receivable	4.1	5.7
Other noncurrent assets	64.3	62.8
Total assets	$ 1,873.5	$ 1,758.0
Liabilities and Shareholders' Equity		
Current liabilities:		
Current installments of long-term debt	$ 32.5	$ 25.0
Accounts payable and accrued expenses	108.4	117.0
Liabilities of discontinued operations	128.5	80.8
Income tax payable	0.5	1.3
Deferred income taxes	-	-
Total current liabilities	269.9	224.1
Long-term debt, less current installments	817.7	848.6
Postretirement benefit liabilities	79.2	84.8
Pension benefit liabilities	57.2	56.8
Other long-term liabilities	35.5	27.0
Noncurrent liabilities of discontinued operations	-	34.0
Income tax payable	53.0	62.2
Deferred income taxes	141.7	154.1
Total noncurrent liabilities	1,184.3	1,267.5
Shareholders' equity:		
Common stock, $0.01 par value per share, authorized 200 million shares; issued 60,782,736 shares, outstanding 52,772,139 shares in 2017 and 60,597,140 shares issued, 54,428,233 outstanding shares in 2016	0.6	0.6

Capital in excess of par value	516.8	504.9
Retained earnings	633.4	469.9
Treasury stock, at cost, 8,010,597 shares as of December 31, 2017 and 6,168,907 shares as of December 31, 2016	(385.6)	(305.2)
Accumulated other comprehensive (loss)	(345.9)	(403.8)
Total shareholders' equity	419.3	266.4
Total liabilities and shareholders' equity	$ 1,873.5	$ 1,758.0

See accompanying notes to consolidated financial statements beginning on page 44.

Armstrong World Industries, Inc., and Subsidiaries

Consolidated Statements of Equity

(amounts in millions, except share data)

	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Treasury Stock Amount	Accumulated Other Comprehensive Income (Loss)	Total
December 31, 2014	55,126,153	$ 0.6	$ 1,134.4	$ 271.0	5,057,382	$ (261.4)	$ (495.5)	$ 649.1
Stock issuance, net	232,911							
Share-based employee compensation			17.4					17.4
Net earnings				94.2				94.2
Other comprehensive income							8.1	8.1
December 31, 2015	55,359,064	$ 0.6	$ 1,151.8	$ 365.2	5,057,382	$ (261.4)	$ (487.4)	$ 768.8
Stock issuance, net	180,694							
Share-based employee compensation			9.2					9.2
Net earnings				104.7				104.7
Other comprehensive income							23.6	23.6
Separation of Armstrong Flooring, Inc.			(656.1)				60.0	(596.1)
Acquisition of treasury stock	(1,111,525)				1,111,525	(43.8)		(43.8)
December 31, 2016	54,428,233	$ 0.6	$ 504.9	$ 469.9	6,168,907	$ (305.2)	$ (403.8)	$ 266.4
Cumulative effect impact of ASU 2016-09 adoption				8.7				8.7
Stock issuance, net	185,596							
Share-based employee compensation			11.4					11.4
Net earnings				154.8				154.8
Other comprehensive income							57.9	57.9
Separation of Armstrong			0.5					0.5

Flooring, Inc.								
Acquisition of treasury stock	(1,841,690)				1,841,690	(80.4)		(80.4)
December 31, 2017	52,772,139	$ 0.6	$ 516.8	$ 633.4	8,010,597	$ (385.6)	$ (345.9)	$ 419.3

See accompanying notes to consolidated financial statements beginning on page 44.

Armstrong World Industries, Inc., and Subsidiaries

Consolidated Statements of Cash Flows

(amounts in millions)

	Years Ended December 31,		
	2017	2016	2015
Cash flows from operating activities:			
Net earnings	$154.8	$104.7	$94.2
Adjustments to reconcile earnings to net cash provided by operating activities:			
Depreciation and amortization	89.2	89.2	118.3
Write off of debt financing costs	-	1.1	-
Loss (gain) on disposal of discontinued operations	74.1	(0.1)	0.2
Deferred income taxes	(12.3)	51.0	(48.5)
Share-based compensation	10.2	12.4	13.4
Equity earnings from joint venture	(67.0)	(73.1)	(66.1)
Separation costs	-	34.5	34.3
Loss on interest rate swap	-	10.7	-
U.S. pension (credit) expense	(4.5)	15.0	25.2
Non-cash foreign currency translation on intercompany loans	(2.6)	(3.6)	19.8
Other, non-cash adjustments, net	2.2	(0.3)	0.3
Changes in operating assets and liabilities:			
Receivables	(37.1)	(23.9)	2.7
Inventories	3.6	(7.0)	(15.7)
Other current assets	2.2	7.1	(7.3)
Other noncurrent assets	(1.6)	(9.9)	7.9
Accounts payable and accrued expenses	(20.0)	(82.1)	15.0
Income taxes payable	(18.8)	(49.3)	33.6
Other long-term liabilities	(1.2)	(22.0)	(22.2)
Other, net	(0.8)	(5.1)	(1.4)
Net cash provided by operating activities	170.4	49.3	203.7
Cash flows from investing activities:			
Purchases of property, plant and equipment	(89.7)	(104.2)	(170.7)
Return of investment from joint venture	69.1	86.9	64.2
Cash paid for acquisition	(31.2)	-	-
Payment of company-owned life insurance, net	(2.4)	-	2.2
Other investing activities	-	0.3	2.8
Net cash (used for) investing activities	(54.2)	(17.0)	(101.5)
Cash flows from financing activities:			
Proceeds from revolving credit facility and other short-term debt	103.0	90.0	-
Payments of revolving credit facility and other short-term debt	(103.0)	(90.0)	-
Proceeds from long-term debt	-	363.5	-
Payments of long-term debt	(25.0)	(434.1)	(39.5)
Financing costs	(0.6)	(8.1)	-
Special dividends paid	-	-	(1.2)
Proceeds from exercised stock options	3.3	0.7	6.4
Cash transferred to Armstrong Flooring, Inc.	-	(9.1)	-
Proceeds from company-owned life insurance loans, net	-	2.0	2.0

Payment for treasury stock acquired	(80.4)	(43.8)	-
Net cash (used for) financing activities	(102.7)	(128.9)	(32.3)
Effect of exchange rate changes on cash and cash equivalents	4.2	(6.3)	(10.4)
Net increase (decrease) in cash and cash equivalents	17.7	(102.9)	59.5
Cash and cash equivalents at beginning of year	141.9	244.8	185.3
Cash and cash equivalents at end of year	159.6	141.9	244.8
Cash and cash equivalents at end of year of discontinued operations	-	-	35.5
Cash and cash equivalents at end of year of continuing operations	$159.6	$141.9	$209.3
Supplemental Cash Flow Disclosures:			
Interest paid	$30.7	$33.4	$39.4
Income taxes paid, net	$32.1	$33.7	$44.4
Amounts in accounts payable for capital expenditures	$2.6	$4.4	$14.3

See accompanying notes to consolidated financial statements beginning on page 44.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Consolidated Financial Statements

(dollar amounts in millions, except share data)

NOTE 1. BUSINESS

Armstrong World Industries, Inc. ("AWI") is a Pennsylvania corporation incorporated in 1891. When we refer to "AWI," the "Company," "we," "our" and "us" in these notes, we are referring to AWI and its subsidiaries.

On November 17, 2017, we entered into a Share Purchase Agreement (the "Purchase Agreement") with Knauf International GmbH ("Knauf"), to sell certain subsidiaries comprising our business in Europe, the Middle East and Africa (including Russia) ("EMEA") and the Pacific Rim, including the corresponding businesses and operations conducted by Worthington Armstrong Venture ("WAVE"), our joint venture with Worthington Industries, Inc., in which AWI holds a 50% interest. The total consideration to be paid by Knauf in connection with the sale is $330.0 million in cash, inclusive of amounts due to WAVE, subject to certain adjustments as provided in the Purchase Agreement, including adjustments based on the economic impact of any required regulatory remedies and a working capital adjustment. The transaction, which is subject to regulatory approvals and other customary conditions, is currently anticipated to close in mid-2018. EMEA and Pacific Rim's historical financial results have been reflected in AWI's Consolidated Financial Statements as discontinued operations for all periods presented. See Note 4 for additional information.

In January 2017, we acquired the business and assets of Tectum, Inc. ("Tectum"), based in Newark, Ohio. Tectum is a manufacturer of acoustical ceiling, wall and structural solutions for commercial building applications with two manufacturing facilities. Tectum's operations and its assets and liabilities have been included as a component of our Architectural Specialties segment. See Note 4 for additional information.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Consolidation Policy. The consolidated financial statements and accompanying data in this report include the accounts of AWI and its majority-owned subsidiaries. All significant intercompany transactions have been eliminated from the consolidated financial statements.

Use of Estimates. We prepare our financial statements in conformity with U.S. Generally Accepted Accounting Principles ("U.S. GAAP"), which requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets, liabilities, revenues and expenses. When preparing an estimate, management determines the amount based upon the consideration of relevant internal and external information. Actual results may differ from these estimates.

Reclassifications. Certain amounts in the prior year's Consolidated Financial Statements and related notes and schedule thereto have been recast to conform to the 2017 presentation.

Revenue Recognition. We recognize revenue from the sale of products when persuasive evidence of an arrangement exists, title and risk of loss transfers to the customers, prices are fixed and determinable, and it is reasonably assured the related accounts receivable is collectible. Our standard sales terms are Free On Board ("FOB") shipping point. We have some sales terms that are FOB destination. Our products are sold with normal and customary return provisions. Sales discounts are deducted immediately from the sales invoice. Provisions, which are recorded as a reduction of revenue, are made for the estimated cost of rebates, promotional programs and warranties.

Sales Incentives. Sales incentives are reflected as a reduction of net sales.

Shipping and Handling Costs. Shipping and handling costs are reflected in cost of goods sold.

Advertising Costs. We recognize advertising expenses as they are incurred.

Research and Development Costs. We expense research and development costs as they are incurred.

Pension and Postretirement Benefits. We have benefit plans that provide for pension, medical and life insurance benefits to certain eligible employees when they retire from active service. See Note 16 to the Consolidated Financial Statements for disclosures on pension and postretirement benefits.

Taxes. The provision for income taxes has been determined using the asset and liability approach of accounting for income taxes to reflect the expected future tax consequences of events recognized in the financial statements. Deferred income tax assets and liabilities are recognized by applying enacted tax rates to temporary differences that exist as of the balance sheet date, which result from differences in the timing of reported taxable income between tax and financial reporting.

We reduce the carrying amounts of deferred tax assets by a valuation allowance 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 quarterly. 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 and foreign source income, the duration of statutory carryforward periods, and our experience with operating loss and tax credit carryforward expirations. A history of cumulative losses is a significant piece of negative evidence used in our assessment. If a history of cumulative losses is incurred for a tax jurisdiction, forecasts of future profitability are generally not used as positive evidence related to the realization of the deferred tax assets in the assessment.

We recognize the tax benefits of an uncertain tax position if those benefits are more likely than not to be sustained based on existing tax law. Additionally, we establish a reserve for tax positions that are more likely than not to be sustained based on existing tax law, but uncertain in the ultimate benefit 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.

Taxes collected from customers and remitted to governmental authorities are reported on a net basis.

Earnings per Share. Basic earnings per share is computed by dividing the earnings attributable to common shares by the weighted average number of shares of common stock outstanding during the period. Diluted earnings per share reflects the potential dilution of securities that could share in the earnings.

Cash and Cash Equivalents. Cash and cash equivalents include cash on hand, short-term investments that have maturities of three months or less when purchased and restricted cash.

Concentration of Credit. We principally sell products to customers in building products industries in various geographic regions. Revenues from three commercial distributors, included within our Mineral Fiber and Architectural Specialties segments, individually exceeded 10% of our revenues in 2017. Net sales in 2017 to these three customers totaled $426.1 million. Net sales of $372.9 million and $305.6 million to these three customers also exceeded 10% of our revenues in 2016 and 2015, respectively. We monitor the creditworthiness of our customers and generally do not require collateral.

Receivables. We sell our products to select, pre-approved customers using customary trade terms that allow for payment in the future. Customer trade receivables, customer notes receivable and miscellaneous receivables (which include supply related rebates and other), net of allowances for doubtful accounts, customer credits and warranties are reported in accounts and notes receivable, net. Cash flows from the collection of receivables are classified as operating cash flows on the consolidated statements of cash flows.

We establish credit-worthiness prior to extending credit. We estimate the recoverability of receivables each period. This estimate is based upon new information in the period, which can include the review of any available financial statements and forecasts, as well as discussions with legal counsel and the management of the debtor company. As events occur, which impact the collectability of the receivable, all or a portion of the receivable is reserved. Account balances are charged off against the allowance when the potential for recovery is considered remote. We do not have any off-balance sheet credit exposure related to our customers.

Inventories. Inventories are valued at the lower of cost and net realizable value. See Note 6 to the Consolidated Financial Statements for further information on our accounting for inventories.

Property Plant and Equipment. Property plant and equipment is recorded at cost reduced by accumulated depreciation. Depreciation expense is recognized on a straight-line basis over the assets' estimated useful lives. Machinery and equipment includes manufacturing equipment (depreciated over 3 to 15 years), computer equipment (depreciated over 3 to 5 years) and office furniture and equipment (depreciated over 5 to 7 years). Within manufacturing equipment, assets that are subject to accelerated obsolescence or wear out quickly, such as dryer components, are depreciated over shorter periods (3 to 7 years). Heavy production equipment, such as conveyors and production presses, are depreciated over longer periods (10 to 15 years). Buildings are depreciated over 15 to 30 years, depending on factors such as type of construction and use. Computer software is depreciated over 3 to 7 years.

Property, plant and equipment is tested for impairment by asset group when indicators of impairment are present, such as operating losses and/or negative cash flows. If an indication of impairment exists, we compare the carrying amount of the asset group to the estimated undiscounted future cash flows expected to be generated by the asset group. The estimate of an asset group's fair value is based on discounted future cash flows expected to be generated by the asset group, or based on management's estimated exit price assuming the assets could be sold in an orderly transaction between market participants, or estimated salvage value if no sale is assumed. If the fair value is less than the carrying value of the asset group, we record an impairment charge equal to the difference between the fair value and carrying value of the asset group. Impairments of assets related to our manufacturing operations are recorded in cost of goods sold.

When assets are disposed of or retired, their costs and related depreciation are removed from the financial statements, and any resulting gains or losses normally are reflected in cost of goods sold or selling, general and administrative ("SG&A") expenses depending on the nature of the asset.

Asset Retirement Obligations. We recognize the fair value of obligations associated with the retirement of tangible long-lived assets in the period in which they are incurred. Upon initial recognition of a liability, the discounted cost is capitalized as part of the related long-lived asset and depreciated over the corresponding asset's useful life. Over time, accretion of the liability is recognized as an operating expense to reflect the change in the liability's present value.

Intangible Assets. Our definite-lived intangible assets are primarily customer relationships (amortized over 20 years) and developed technology (amortized over 15 years). We review significant definite-lived intangible assets for impairment when indicators of impairment exist. We review our businesses for indicators of impairment such as operating losses and/or negative cash flows. If an indication of impairment exists, we compare the carrying amount of the asset group to the estimated undiscounted future cash flows expected to be generated by the asset group. The estimate of an asset group's fair value is based on discounted future cash flows expected to be generated by the asset group, or based on management's estimated exit price assuming the assets could be sold in an orderly transaction between market participants. If the fair value is less than the carrying value of the asset group, we record an impairment charge equal to the difference between the fair value and carrying value of the asset group.

Our indefinite-lived intangibles are primarily goodwill, trademarks and brand names, with Armstrong representing our primary trademark, which are integral to our corporate identity and expected to contribute indefinitely to our cash flows. Accordingly, they have been assigned an indefinite life. We perform annual impairment tests during the fourth quarter on these indefinite-lived intangibles. These assets undergo more frequent tests if an indication of possible impairment exists.

The principal assumption used in our impairment tests for definite-lived intangible assets is future operating profit adjusted for depreciation and amortization. The principal assumptions used in our impairment tests for indefinite-lived intangible assets include revenue growth rate, discount rate and royalty rate. Revenue growth rate and future operating profit assumptions are derived from those utilized in our operating plan and strategic planning processes. The discount rate assumption is calculated based upon an estimated weighted average cost of equity which reflects the overall level of inherent risk and the rate of return a market participant would expect to achieve. The royalty rate assumption represents the estimated contribution of the intangible asset to the overall profits of the reporting unit. Methodologies used for valuing our intangible assets did not change from prior periods.

See Note 10 to the Consolidated Financial Statements for disclosure on intangible assets.

Foreign Currency Transactions. Assets and liabilities of our subsidiaries operating outside the United States which account in a functional currency other than U.S. dollars are translated using the period end exchange rate. Revenues and expenses are translated at exchange rates effective during each month. Foreign currency translation gains or losses are included as a component of accumulated other comprehensive income (loss) within shareholders' equity. Gains or losses on foreign currency transactions are recognized through earnings.

Financial Instruments and Derivatives. From time to time, we use derivatives and other financial instruments to offset the effect of currency, interest rate and commodity price variability. See Notes 17 and 18 to the Consolidated Financial Statements for further discussion.

Share-based Employee Compensation. We recognize share-based compensation expense on a straight-line basis over the vesting period for the entire award. Compensation expense for performance based awards with non-market based conditions are also recognized over the vesting period for the entire award, however, compensation expense may vary based on the expectations for actual performance relative to defined performance measures. See Note 21 to the Consolidated Financial Statements for additional information on share-based employee compensation.

Subsequent Events. We have evaluated subsequent events for potential recognition and disclosure through the date the consolidated financial statements included in the Annual Report on Form 10-K were issued.

Recently Adopted Accounting Standards

In July 2015, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2015-11, "Simplifying the Measurement of Inventory," which requires inventory that is measured on a first-in, first-out or average cost basis to be measured at lower of cost and net realizable value, as opposed to the lower of cost or market. For inventory that is measured under the last-in, first-out ("LIFO") basis or the retail recovery method, there is no change to current measurement requirements. The adoption of this standard on January 1, 2017 did not have an impact on our financial condition, results of operations or cash flows.

In March 2016, the FASB issued ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting." This new guidance simplifies accounting for share-based payments, most notably by requiring all excess tax benefits and tax deficiencies to be recorded as income tax benefits or expense in the income statement and by allowing entities to recognize forfeitures of awards when they occur. Effective January 1, 2017, we adopted the provisions of ASU 2016-09 and elected to continue to estimate the impact of forfeitures when determining share-based compensation cost. We prospectively adopted the provisions of this new guidance related to the recognition of excess tax benefits and deficiencies through income tax expense, the presentation of excess tax benefits from share-based compensation as operating cash outflows, and changes to diluted earnings per share computations, the impact of which were not material to our Consolidated Statements of Earnings and Comprehensive Income or Consolidated Statements of Cash Flows. Finally, as required by ASU 2016-09, effective January 1, 2017, we recorded an $8.7 million cumulative-effect increase to Retained earnings and Deferred income taxes (assets), representing prior years' tax benefits that were not previously recognized because the related tax deductions had not reduced income taxes payable.

Recently Issued Accounting Standards

In May 2014, the FASB issued ASU 2014-09, "Revenue from Contracts with Customers." The guidance requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to a customer. The ASU will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective. In March 2016, the FASB issued ASU 2016-08, "Principal versus Agent Considerations (Reporting Gross versus Net)," which clarifies the implementation guidance relating to principle versus agent considerations. In April 2016, the FASB issued ASU 2016-10, "Identifying Performance Obligations and Licensing," which clarifies the implementation guidance relating to the identification of performance obligations in a contract, including how entities should account for shipping and handling services provided after control of goods transfers to a customer. In May 2016, the FASB issued ASU 2016-12, "Narrow-Scope Improvements and Practical Expedients," which clarifies the guidance related to the presentation of sales taxes, noncash consideration, and completed contracts and contract modifications. In December 2016, the FASB issued ASU 2016-20, "Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers," which clarifies the scope and application of the adoption of the new revenue recognition standard.

Collectively, the revenue recognition updates are effective for annual reporting periods beginning after December 15, 2017, but early adoption is permitted. We have adopted these standards effective January 1, 2018 using the modified retrospective transition method and have applied all practical expedients related to completed contracts upon adoption. Substantially all of our revenues from contracts with customers are recognized from the sale of products with standard shipping terms, sales discounts and warranties. Based on our evaluation, adoption will not have a material impact to our financial condition, results of operations or cash flows as the amount and timing of substantially all of our revenues will continue to be recognized at a point in time. We will be impacted by the expanded disclosure requirements of the revenue recognition updates, most notably the disclosure of revenues from contracts with customers into disaggregated categories.

In January 2016, the FASB issued ASU 2016-01, “Recognition and Measurement of Financial Assets and Financial Liabilities,” which addresses certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. Most notably, this new guidance requires equity investments (except those accounted for under the equity method of accounting or those that result in consolidation of the investee) to be measured at fair value with changes in fair value recognized in net income. This new guidance is effective for annual reporting periods beginning after December 15, 2017. We do not believe the adoption of this standard will have a material impact on our financial condition, results of operations and cash flows.

In February 2016, the FASB issued ASU 2016-02, "Leases," which amends accounting for leases, most notably by requiring a lessee to recognize the assets and liabilities that arise from a lease agreement. Specifically, this new guidance will require lessees to recognize a liability to make lease payments and a right-of-use asset representing its right to use the underlying asset for the lease term, with limited exceptions. The accounting applied by a lessor is largely unchanged from that applied under existing U.S. GAAP. This new guidance is effective for annual reporting periods beginning after December 15, 2018 and must be adopted under a modified retrospective basis. We are currently evaluating the impact the adoption of this standard will have on our financial condition, results of operations and cash flows.

In August 2016, the FASB issued ASU 2016-15, "Classification of Certain Cash Receipts and Cash Payments." This guidance clarifies how entities should classify certain cash receipts and cash payments on the statement of cash flows. This new guidance is effective for annual reporting periods beginning after December 15, 2017. We do not believe the impact the adoption of this standard will have a material impact on our cash flows.

In March 2017, the FASB issued ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost," which requires companies to report the service cost component of net benefit cost in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components of net benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. This new guidance is effective for annual periods beginning after December 15, 2017 and will have an impact on the classification of net benefit costs, which are currently included as a component of Costs of goods sold and Selling, general and administrative ("SG&A") expenses, on our Consolidated Statements of Earnings and Comprehensive Income. See Note 16 for details related to our components of net benefit costs.

In August 2017, the FASB issued ASU 2017-12, "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities," which amends the financial reporting of hedging relationships in order to better portray the economic results of an entity's risk management activities in its financial statements. In addition, this new guidance simplifies the application of current hedge accounting guidance. This new guidance is effective for annual periods beginning after December 15, 2018. We are currently evaluating the impact the adoption of this standard will have on our financial condition, results of operations and cash flows.

In February 2018, the FASB issued ASU 2018-02, "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income." On December 22, 2017, the U.S. federal government enacted the Tax Cuts and Jobs Act of 2017 (the "Tax Act of 2017"), which, in addition to numerous other provisions, lowered the Corporate statutory tax rate from 35% to 21%. Under U.S. GAAP, all deferred tax assets and liabilities are required to be adjusted for the effect of a change in tax laws or rates, with the effect included in income from continuing operations in the reporting period that includes the enactment date. As a result of this guidance, the tax effects of items recorded within Accumulated Other Comprehensive Income ("AOCI") do not reflect the appropriate tax rate. This standard would require entities to record a reclassification from AOCI to retained earnings for the purpose of appropriately including the tax effect of items within AOCI at the newly enacted 21% U.S. federal tax rate. This new guidance is effective for annual periods beginning after December 15, 2018. Upon adoption, we will record an approximately $54 million reduction to AOCI with a corresponding increase to retained earnings.

NOTE 3. NATURE OF OPERATIONS

Effective December 31, 2017 and in connection with the announced sale of our EMEA and Pacific Rim businesses, our former EMEA and Pacific Rim segments have been excluded from our results of continuing operations. As a result, effective December 31, 2017 and for all periods presented, our operating segments are as follows: Mineral Fiber, Architectural Specialties and Unallocated Corporate.

Mineral Fiber – produces suspended mineral fiber and soft fiber ceiling systems for use in commercial and residential settings. Products offer various performance attributes such as acoustical control, rated fire protection and aesthetic appeal. Commercial ceiling products are sold to resale distributors and to ceiling systems contractors. Residential ceiling products are sold primarily to wholesalers and retailers (including large home centers). The Mineral Fiber segment also includes the results of our Worthington Armstrong Venture ("WAVE") joint venture with Worthington Industries, Inc., which manufactures suspension system (grid) products and ceiling component products that are invoiced by both us and WAVE. Segment results relating to WAVE consist primarily of equity earnings and reflect our 50% equity interest in the joint venture. Ceiling component products consist of ceiling perimeters and trim, in addition to grid products that support drywall ceiling systems. To a lesser extent, however, in some markets, WAVE sells its suspension systems products to us for resale to customers. Our segment results reflect those sales transactions. The Mineral Fiber segment also includes all assets and liabilities not specifically allocated to our Architectural Specialties or Unallocated

Armstrong World Industries, Inc., and Subsidiaries

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(dollar amounts in millions, except share data)

Corporate segment, including all property and related depreciation associated with our Lancaster, PA headquarters. Operating results for the Mineral Fiber segment include a significant majority of allocated Corporate administrative expenses that represent a reasonable allocation of general services to support its operations.

Architectural Specialties – produces and sources ceilings and walls for use in commercial settings. Products are available in numerous materials, such as metal and wood, in addition to various colors, shapes and designs. Products offer various performance attributes such as acoustical control, rated fire protection and aesthetic appeal. We produce standard and customized products, with the majority of Architectural Specialties revenues derived from sourced products. Architectural Specialties products are sold to resale distributors and ceiling systems contractors. The majority of revenues are project driven, which can lead to more volatile sales patterns due to project scheduling. Operating results for the Architectural Specialties segment include a minor portion of allocated Corporate administrative expenses that represent a reasonable allocation of general services to support its operations.

Unallocated Corporate – includes assets, liabilities, income and expenses that have not been allocated to our other business segments and consist of: cash and cash equivalents, the net funded status of our U.S. Retirement Income Plan ("RIP"), the estimated fair value of interest rate swap contracts, outstanding borrowings under our senior credit facilities and income tax balances. Effective December 31, 2017 and for all periods presented, our Unallocated Corporate segment also includes all assets, liabilities, income and expenses formerly reported in our EMEA and Pacific Rim segments that are not included in the pending sale to Knauf.

Segment results below have been restated for all periods presented as a result of the disaggregation of our former Americas segment and the reclassification of Unallocated Corporate assets.

	Mineral Fiber	Architectural Specialties	Unallocated Corporate	Total
For the year ended 2017				
Net sales to external customers	$756.4	$ 137.2	$ -	$893.6
Equity (earnings) from joint venture	(67.0)	-	-	(67.0)
Segment operating income (loss)	231.9	27.7	(4.5)	255.1
Segment assets	1,193.5	53.2	320.7	1,567.4
Depreciation and amortization [1]	59.2	1.8	6.0	67.0
Investment in joint venture	107.3	-	-	107.3
Purchases of property, plant and equipment [1]	76.1	1.6	-	77.7

Unallocated Total

	Mineral Fiber	Architectural Specialties	Corporate	
For the year ended 2016				
Net sales to external customers	$736.6	$ 100.7	$ -	$837.3
Equity (earnings) from joint venture	(73.1)	-	-	(73.1)
Segment operating income (loss)	223.9	19.2	(54.2)	188.9
Segment assets	1,145.1	17.3	249.3	1,411.7
Depreciation and amortization [1]	53.6	0.8	0.4	54.8
Investment in joint venture	106.2	-	-	106.2
Purchases of property, plant and equipment [1]	66.1	0.2	-	66.3

Armstrong World Industries, Inc., and Subsidiaries

Notes to Consolidated Financial Statements

(dollar amounts in millions, except share data)

	Mineral Fiber	Architectural Specialties	Unallocated Corporate	Total
For the year ended 2015				
Net sales to external customers	$723.7	$ 81.4	$ -	$805.1
Equity (earnings) from joint venture	(66.1)	-	-	(66.1)
Segment operating income (loss)	270.3	16.5	(129.8)	157.0
Segment assets	1,132.8	17.2	271.0	1,421.0
Depreciation and amortization [1]	43.9	0.8	11.9	56.6
Investment in joint venture	130.8	-	-	130.8
Purchases of property, plant and equipment [1]	51.5	0.6	22.4	74.5

[1] Totals will differ from the totals on our Consolidated Statement of Cash Flows by the amounts that have been classified as discontinued operations. See Note 4 for additional details.

Segment operating income (loss) is the measure of segment profit or loss reviewed by the chief operating decision maker. The sum of the segments' operating income (loss) equals the total consolidated operating income as reported on our Consolidated Statements of Earnings and Comprehensive Income. The following reconciles our total consolidated operating income to earnings from continuing operations before income taxes. These items are only measured and managed on a consolidated basis:

	2017	2016	2015
Segment operating income	$255.1	$188.9	$157.0
Interest expense	35.4	49.5	44.6
Other non-operating (income)/expense, net	(2.4)	(11.2)	17.8
Earnings from continuing operations before income taxes	$222.1	$150.6	$94.6

Accounting policies of the segments are the same as those described in the summary of significant accounting policies.

The sales in the table below are allocated to geographic areas based on the location of our selling entities.

	2017	2016	2015
Geographic Areas			
Net trade sales			
Mineral Fiber:			

United States	$699.8	$680.8