

ARMSTRONG WORLD INDUSTRIES INC
Form 10-Q
April 29, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended March 31, 2019

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
(State or other jurisdiction of
incorporation or organization)

23-0366390
(I.R.S. Employer
Identification No.)

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

17603
(Zip Code)

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

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Indicate by check mark whether the registrant; (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

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

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

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

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

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

Number of shares of Armstrong World Industries, Inc.’s common stock outstanding as of April 24, 2019 – 48,959,255.

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

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this Quarterly Report on Form 10-Q and the documents incorporated by reference herein 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 such terms are defined by documents incorporated by reference herein). Words such as “anticipate,” “expect,” “intend,” “plan,” “target,” “project,” “predict,” “believe,” “may,” “will,” “would,” “could,” “should,” “seek,” “estimate” and similar expressions 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;
- competition;
- key customers;
- customer consolidation;
- availability and costs of raw materials and energy;
- Worthington Armstrong Venture (“WAVE”), our joint venture with Worthington Industries, Inc;
- negative tax consequences;
- 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;
- environmental matters;
- strategic transactions;
- covenants in our debt agreements;
- our indebtedness;
- our liquidity;
- claims, litigation and cybersecurity breaches;
- international operations;
- defined benefit plan obligations;
- the tax consequences of the separation of our flooring business from our ceilings business;
- intellectual property rights;
- costs savings and productivity initiatives;
- labor; 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 in our Annual Report on Form 10-K for the year ended December 31, 2018, as amended, and in the documents incorporated by reference herein and therein.

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 forward-looking statement is based.

PART I - FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Armstrong World Industries, Inc., and Subsidiaries

Condensed Consolidated Statements of Earnings and Comprehensive Income

(amounts in millions, except per share data)

Unaudited

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018
Net sales	\$ 242.1	\$ 227.3
Cost of goods sold	150.7	156.5
Gross profit	91.4	70.8
Selling, general and administrative expenses	55.6	37.5
Equity earnings from joint venture	(18.9)	(16.3)
Operating income	54.7	49.6
Interest expense	10.4	9.2
Other non-operating (income), net	(5.5)	(9.0)
Earnings from continuing operations before income taxes	49.8	49.4
Income tax expense	13.4	8.2
Earnings from continuing operations	36.4	41.2
Net earnings from discontinued operations, net of tax (benefit) expense of (\$0.1) and \$1.5	0.5	3.9
Gain (loss) from disposal of discontinued businesses, net of tax (benefit) of \$- and (\$0.4)	2.2	(17.3)
Net gain (loss) from discontinued operations	2.7	(13.4)
Net earnings	\$ 39.1	\$ 27.8
Other comprehensive income (loss), net of tax:		
Foreign currency translation adjustments	5.3	5.9
Derivative (loss) gain, net	(5.1)	3.8
Pension and postretirement adjustments	2.8	1.8
Total other comprehensive income	3.0	11.5
Total comprehensive income	\$ 42.1	\$ 39.3
Earnings per share of common stock, continuing operations:		
Basic	\$ 0.75	\$ 0.78
Diluted	\$ 0.73	\$ 0.76
Earnings (loss) per share of common stock, discontinued operations:		
Basic	\$ 0.05	\$ (0.25)
Diluted	\$ 0.05	\$ (0.25)
Net earnings per share of common stock:		
Basic	\$ 0.80	\$ 0.53

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Diluted	\$ 0.78	\$ 0.51
Average number of common shares outstanding:		
Basic	48.7	53.0
Diluted	49.5	53.8

See accompanying notes to Condensed Consolidated Financial Statements beginning on page 8.

Armstrong World Industries, Inc., and Subsidiaries

Condensed Consolidated Balance Sheets

(amounts in millions, except share and per share data)

	Unaudited	
	March 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 273.8	\$ 325.7
Accounts and notes receivable, net	85.3	79.9
Inventories, net	72.1	61.2
Assets of discontinued operations	308.9	279.5
Income tax receivable	0.7	1.7
Other current assets	8.2	4.8
Total current assets	749.0	752.8
Property, plant, and equipment, less accumulated depreciation and amortization of		
\$421.8 and \$412.9, respectively	510.5	501.0
Lease right-of-use assets	28.8	-
Prepaid pension costs	59.5	52.8
Investment in joint venture	38.7	40.8
Goodwill and intangible assets, net	472.3	442.0
Deferred income taxes	19.0	14.8
Income taxes receivable	0.8	0.8
Other non-current assets	64.0	68.5
Total assets	\$ 1,942.6	\$ 1,873.5
Liabilities and Shareholders' Equity		
Current liabilities:		
Current installments of long-term debt	\$ 62.5	\$ 55.0
Accounts payable and accrued expenses	390.9	383.3
Liabilities of discontinued operations	129.3	110.3
Income tax payable	7.2	0.9
Total current liabilities	589.9	549.5
Long-term debt, less current installments	749.7	764.8
Lease non-current liabilities	23.6	-
Postretirement benefit liabilities	57.6	58.8
Pension benefit liabilities	49.7	50.3
Other long-term liabilities	33.0	38.0
Income taxes payable	26.9	26.5
Deferred income taxes	131.9	124.4
Total non-current liabilities	1,072.4	1,062.8
Shareholders' equity:		
Common stock, \$0.01 par value per share, 200 million shares authorized, 61,717,806	0.6	0.6

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shares issued and 48,640,635 shares outstanding as of March 31, 2019 and		
61,553,724, shares issued and 48,808,239 shares outstanding as of December 31, 2018		
Capital in excess of par value	553.3	547.4
Retained earnings	895.1	865.0
Treasury stock, at cost, 13,077,171 shares as of March 31, 2019 and 12,745,485		
shares as of December 31, 2018	(712.2)	(692.2)
Accumulated other comprehensive (loss)	(456.5)	(459.6)
Total shareholders' equity	280.3	261.2
Total liabilities and shareholders' equity	\$ 1,942.6	\$ 1,873.5

See accompanying notes to Condensed Consolidated Financial Statements beginning on page 8.

Armstrong World Industries, Inc., and Subsidiaries

Condensed Consolidated Statements of Shareholders' Equity

(amounts in millions, except share data)

Unaudited

Three Months Ended March 31, 2019

	Common Stock Shares	Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Stock Amount	Accumulated Other Comprehensive (Loss)	Total
Balance at beginning of period	48,808,239	\$ 0.6	\$ 547.4	\$ 865.0	12,745,485	\$(692.2)	\$(459.6)	\$261.2
Cumulative effect impact of ASU 2017-12 adoption				(0.1)			0.1	-
Stock issuance, net	164,082							
Cash dividends - \$0.175 per common share				(8.9)				(8.9)
Share-based employee compensation			5.9					5.9
Net earnings				39.1				39.1
Other comprehensive income							3.0	3.0
Acquisition of treasury stock	(331,686)				331,686	(20.0)		(20.0)
Balance at end of period	48,640,635	\$ 0.6	\$ 553.3	\$ 895.1	13,077,171	\$(712.2)	\$(456.5)	\$280.3

Three Months Ended March 31, 2018

	Common Stock Shares	Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Stock Amount	Accumulated Other Comprehensive (Loss)	Total
Balance at beginning of period	52,772,139	\$ 0.6	\$ 516.8	\$ 633.4	8,010,597	\$(385.6)	\$(345.9)	\$419.3
Cumulative effect impact of ASU 2018-02 adoption				54.3			(54.3)	-
Stock issuance, net	591,584							
Share-based employee compensation			15.2					15.2
Net earnings				27.8			11.5	27.8
								11.5

Other comprehensive
income

Acquisition of treasury stock	(1,165,247)				1,165,247	(70.0)		(70.0)
Balance at end of period	52,198,476	\$ 0.6	\$ 532.0	\$ 715.5	9,175,844	\$(455.6)	\$(388.7)	\$403.8

See accompanying notes to Condensed Consolidated Financial Statements beginning on page 8.

Armstrong World Industries, Inc., and Subsidiaries

Condensed Consolidated Statements of Cash Flows

(amounts in millions)

Unaudited

	Three Months Ended March 31,	
	2019	2018
Cash flows from operating activities:		
Net earnings	\$39.1	\$27.8
Adjustments to reconcile net earnings to net cash provided by operating activities:		
Depreciation and amortization	15.1	22.8
(Gain) loss on disposal of discontinued operations	(2.2)	17.7
Deferred income taxes	5.0	1.5
Share-based compensation	1.8	2.6
Equity earnings from joint venture	(18.9)	(16.3)
U.S. pension (credit)	(1.9)	(6.6)
Other non-cash adjustments, net	0.2	(0.8)
Changes in operating assets and liabilities:		
Receivables	3.5	22.5
Inventories	(11.4)	(17.3)
Other current assets	(1.1)	(0.9)
Lease right-of-use assets	3.2	-
Other non-current assets	(3.0)	(0.6)
Accounts payable and accrued expenses	(5.0)	(26.4)
Income taxes payable	5.3	5.9
Non-current lease liabilities	(3.6)	-
Other long-term liabilities	(11.7)	(4.6)
Other, net	0.3	(1.3)
Net cash provided by operating activities	14.7	26.0
Cash flows from investing activities:		
Purchases of property, plant and equipment	(14.8)	(10.2)
Return of investment from joint venture	19.7	16.0
Cash paid for acquisitions	(43.1)	-
Other investing activities	0.2	-
Net cash (used for) provided by investing activities	(38.0)	5.8
Cash flows from financing activities:		
Payments of long-term debt	(8.1)	(8.1)
Dividend paid	(8.5)	-
Proceeds from exercised stock options	4.8	13.9
Payment for treasury stock acquired	(20.0)	(70.0)
Other financing activities	1.9	-
Net cash (used for) financing activities	(29.9)	(64.2)

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Effect of exchange rate changes on cash and cash equivalents	1.3	(0.3)
Net (decrease) in cash and cash equivalents	(51.9)	(32.7)
Cash and cash equivalents at beginning of year	335.7	159.6
Cash and cash equivalents at end of period	283.8	126.9
Cash and cash equivalents at end of period of discontinued operations	10.0	10.0
Cash and cash equivalents at end of period of continuing operations	\$273.8	\$116.9
Supplemental Cash Flow Disclosures:		
Interest paid	\$10.8	\$7.7
Income tax payments, net	3.0	1.8
Amounts in accounts payable for capital expenditures	0.9	2.3

See accompanying notes to Condensed Consolidated Financial Statements beginning on page 8.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

NOTE 1. BUSINESS AND BASIS OF PRESENTATION

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

The accounting policies used in preparing the Condensed Consolidated Financial Statements in this Form 10-Q are the same as those used in preparing the Consolidated Financial Statements for the year ended December 31, 2018. These statements should therefore be read in conjunction with the Consolidated Financial Statements and notes that are included in the Form 10-K for the fiscal year ended December 31, 2018. In the opinion of management, all adjustments of a normal recurring nature have been included to provide a fair statement of the results for the reporting periods presented. Operating results for the first quarter of 2019 and 2018 included in this report are unaudited. Quarterly results are not necessarily indicative of annual earnings, primarily due to the different level of sales in each quarter of the year and the possibility of changes in general economic conditions.

On March 4, 2019, we acquired the business and assets of Architectural Components Group, Inc. (“ACGI”), based in Marshfield, Missouri. ACGI is a manufacturer of custom wood ceilings and walls with one manufacturing facility. ACGI’s operations, and its assets and liabilities, are included as a component of our Architectural Specialties segment. See Note 4 for further information.

On August 16, 2018, we acquired the business and assets of Steel Ceilings, Inc. (“Steel Ceilings”), based in Johnstown, Ohio. Steel Ceilings is a manufacturer of aluminum and stainless metal ceilings that include architectural, radiant and security solutions with one manufacturing facility. Steel Ceilings’ operations, and its assets and liabilities, are included as a component of our Architectural Specialties segment. See Note 4 for further information.

On May 31, 2018, we acquired the business and assets of Plasterform, Inc. (“Plasterform”), based in Mississauga, Ontario, Canada. Plasterform is a manufacturer of architectural cast ceilings, walls, facades, columns and moldings with one manufacturing facility. Plasterform’s operations, and its assets and liabilities, are included as a component of our Architectural Specialties segment. See Note 4 for further information.

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. (“Worthington”) in which AWI holds a 50% interest. The Purchase Agreement provides that 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.

On July 18, 2018, we entered into an amendment to the Purchase Agreement, pursuant to which Knauf agreed to irrevocably and unconditionally pay AWI (i) \$250 million on August 1, 2018, and (ii) \$80 million on September 15, 2018, if, prior to such date (A) any competition condition has not been satisfied, or (B) the closing has not yet occurred. The amendment also provided for the reduction (from a maximum of \$35 million to a maximum of \$20 million) of potential adjustments to the purchase price consideration for the transaction based on the impact of

remedies required to satisfy competition conditions. We received both the \$250 million payment and the \$80 million payment from Knauf in the third quarter of 2018. Following receipt of these payments, we remitted \$70 million to WAVE in partial consideration of the purchase price payable in respect of the business and operations of WAVE under the transaction. WAVE subsequently paid each of AWI and Worthington a dividend of \$35 million. We also recorded a \$22.4 million payable to WAVE, which is reflected within Accounts Payable and Accrued Expenses. The total consideration payable by AWI to WAVE will be determined following closing in connection with the calculation of the adjustments contemplated by the Purchase Agreement.

The transaction was notified for merger control clearance in the European Union (“EU”), Bosnia and Herzegovina, Macedonia, Montenegro, Russia and Serbia, and was cleared unconditionally in Montenegro (February 2018), Serbia (February 2018), Russia (March 2018), Macedonia (July 2018) and Bosnia and Herzegovina (August 2018). On December 7, 2018, the European Commission granted conditional clearance of the transaction, subject to certain commitments intended to address concerns regarding the overlap between the activities of AWI and Knauf, including the divestment by Knauf to a third party of certain mineral fiber and grid businesses and operations in Austria, Estonia, Germany, Ireland, Italy, Latvia, Lithuania, Portugal, Spain, Turkey and the United Kingdom (“UK”). This includes our sales operations in each of the relevant countries, as well as our production facilities, and those of WAVE, located in Team Valley, UK. The terms of the sale of the divestment business by Knauf and the identity of the purchaser are subject to the approval of the European Commission.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

Upon or prior to closing, we expect to enter into (i) a Transition Services Agreement with Knauf for its benefit and the benefit of the buyer of the divestment business under which we will provide certain transition technology and information technology services for a limited period of time following closing, (ii) an intellectual property License Agreement with Knauf for its benefit and the benefit of the buyer of the divestment business under which we will license certain patents, trademarks and know-how for their use in certain licensed territories, and (iii) a Supply Agreement with each of Knauf and the buyer of the divestment business under which the parties may continue to purchase certain products from each other following closing. WAVE will enter into similar agreements with Knauf and/or the buyer of the divestment business for such purposes.

We continue to work closely with Knauf towards closing and expect the transaction to close during the second quarter of 2019. The EMEA and Pacific Rim segment historical financial results have been reflected in AWI's Condensed Consolidated Financial Statements as discontinued operations for all periods presented.

These Condensed Consolidated Financial Statements are prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP"). The statements include management estimates and judgments, where appropriate. Management utilizes estimates to record many items including certain asset values, allowances for bad debts, inventory obsolescence and lower of cost and net realizable value charges, warranty reserves, workers' compensation, general liability and environmental claims, and income taxes. When preparing an estimate, management determines the amount based upon the consideration of relevant information. Management may confer with outside parties, including outside counsel. Actual results may differ from these estimates.

Recently Adopted Accounting Standards

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("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 requires lessees to recognize a liability to make lease payments and a right-of-use ("ROU") asset representing its right to use the underlying asset for the lease term, with limited exceptions.

In January 2018, FASB issued ASU 2018-01, "Land Easement Practical Expedient for Transition to Topic 842," which permits an entity to elect an optional transition practical expedient to not evaluate under Topic 842 land easements that exist at transition or expired before the adoption of Topic 842 and that were not previously accounted for as leases under Topic 840. In July 2018, FASB issued ASU 2018-10, "Codification improvements to Topic 842, Leases," which affects narrow aspects of the guidance issued in the amendments in Update 2016-02. In July 2018, FASB also issued ASU 2018-11, "Targeted Improvements," which allows companies to adopt ASC Topic 842 without revising comparative period reporting or disclosures and provides an optional practical expedient for lessors to not separate lease and non-lease components of a contract when certain criteria are met.

Effective January 1, 2019, we adopted these standards using the modified retrospective transition method and have applied all practical expedients related to leases existing at the date of initial application. Upon adoption, the most significant change was to the Condensed Consolidated Balance Sheet related to the recognition of new ROU assets and lease liabilities on a continuing operations basis. We have recognized ROU assets and lease liabilities of \$28.8 million, based on the present value of the future minimum rental payments for existing operating leases. We have no

leases that classify as financing arrangements. As required by the lease ASC updates, we have expanded our disclosure of leases. See Note 9 for additional information.

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, the guidance simplifies the application of current hedge accounting guidance. Effective January 1, 2019, we adopted the guidance, which had no material impact on our financial condition, results of operations or cash flows.

In June 2018, the FASB issued ASU 2018-07, “Improvements to Nonemployee Share-Based Payment Accounting,” which simplifies the aspects of accounting for non–employee share-based payment transactions resulting from expanding the scope of ASC Topic 718, Compensation – Stock Compensation, to include share-based payment transactions for acquiring goods and services from non-employees. Effective January 1, 2019, we adopted this standard using the modified retrospective transition method. Our adoption of this standard had no material impact on our financial condition, results of operations or cash flows.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

Recently Issued Accounting Standards

In August 2018, the FASB issued ASU 2018-14, “Disclosure Framework – Changes to the Disclosure Requirements for Defined Benefit Plans” which amends ASC 715-20, Compensation – Retirement Benefits – Defined Benefit Plans. The ASU modifies the disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. The disclosure requirements to be removed include the amounts in accumulated other comprehensive income expected to be recognized in net periodic benefit costs over the next fiscal year, the amount and timing of plan assets expected to be returned to the employer and the effect of a one percentage point change in assumed health care cost trend rates on the aggregate service cost and benefit obligation for postretirement health care benefits. The new disclosure requirements include the interest crediting rates for cash balance plans, and an explanation of significant gains and losses related to changes in benefit obligations. This guidance is effective for fiscal years ending after December 15, 2020. 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 2018, the FASB issued ASU 2018-15, “Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract” which amends ASC 350-40 Intangibles – Goodwill and Other – Internal-Use Software. The ASU requires implementation costs incurred by customers in cloud computing arrangements to be deferred and recognized over the term of the arrangement, if these costs were capitalized by the customer in a software licensing arrangement. This guidance is effective for fiscal years beginning after December 15, 2019. We are currently evaluating the impact the adoption of this standard will have on our financial condition, results of operations and cash flows.

NOTE 2. SEGMENT RESULTS

	Three Months Ended March 31, 2019 2018	
Net sales		
Mineral Fiber	\$ 196.7	\$ 190.7
Architectural Specialties	45.4	36.6
Total net sales	\$ 242.1	\$ 227.3

Three
Months
Ended
March 31,
2019 2018

Segment operating income (loss)		
Mineral Fiber	\$47.6	\$43.7
Architectural Specialties	9.2	8.3
Unallocated Corporate	(2.1)	(2.4)
Total consolidated operating income	\$54.7	\$49.6

	Three Months Ended March 31, 2019 2018	
Total consolidated operating income	\$54.7	\$49.6
Interest expense	10.4	9.2
Other non-operating (income), net	(5.5)	(9.0)
Earnings from continuing operations before income taxes	\$49.8	\$49.4

	March 31, 2019 December 31, 2018	
Segment assets		
Mineral Fiber	\$1,118.0	\$ 1,096.1
Architectural Specialties	147.2	84.7
Unallocated Corporate	368.5	413.2
Total consolidated assets	\$1,633.7	\$ 1,594.0

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

In connection with the closing of our St. Helens, Oregon Mineral Fiber manufacturing facility in the second quarter of 2018, we recorded \$7.7 million in cost of goods sold related to accelerated depreciation of property, plant and equipment in the first quarter of 2018.

NOTE 3. REVENUE

Revenue Recognition

We recognize revenue upon transfer of control of our products to the customer, which typically occurs upon shipment. Our main performance obligation to our customers is the delivery of products in accordance with purchase orders. Each purchase order defines the transaction price for the products purchased under the arrangement. Direct sales to building materials distributors, home centers, direct customers, and retailers represent the majority of our sales. Our standard sales terms are Free On Board (“FOB”) shipping point. We have some sales terms that are FOB destination. At the point of shipment, the customer is required to pay under normal sales terms. Our normal payment terms in most cases are 45 days or less and our sales arrangements do not have any material financing components. In addition, our customer arrangements do not produce contract assets or liabilities that are material to our consolidated financial statements. Within our Architectural Specialties segment, the majority of revenues are project driven, which includes a minority of revenues derived from the sale of customer specified customized products that have no alternative use to us. The manufacturing cycle for these custom products is short.

Incremental costs to fulfill our customer arrangements are expensed as incurred, as the amortization period is less than one year.

Our products are sold with normal and customary return provisions. We provide limited warranties for defects in materials or factory workmanship, sagging and warping, and certain other manufacturing defects. Warranties are not sold separately to customers. Our product warranties place certain requirements on the purchaser, including installation and maintenance in accordance with our written instructions. In addition to our warranty program, under certain limited circumstances, we will occasionally and at our sole discretion, provide a customer accommodation repair or replacement. Warranty repairs and replacements are most commonly made by professional installers employed by or affiliated with our independent distributors. Reimbursement for costs associated with warranty repairs are provided to our independent distributors through a credit against accounts receivable from the distributor to us. Sales returns and warranty claims have historically not been material and do not constitute separate performance obligations.

We often enter into agreements with our customers to offer incentive programs, primarily volume rebates and promotions. The majority of our rebates are designated as a percentage of annual customer purchases. We estimate the amount of rebate based on actual sales for the period and accrue for the projected incentive programs costs. We record the costs of the rebate accruals as a reduction to our revenue. In addition, other sales discounts, including early pay promotions, are deducted immediately from the sales invoice.

Shipping and Handling

We account for product shipping and handling costs as fulfillment activities and present the associated costs in costs of goods sold in the period in which we sell our product.

Disaggregation of Revenues

Our Mineral Fiber and Architectural Specialties operating segments both manufacture and sell ceiling systems (primarily mineral fiber, fiberglass wool, metal, and wood) throughout the Americas. We disaggregate revenue based on our product based segments and major customer grouping as these categories represent the most appropriate depiction of how the nature, amount, and timing of revenues and cash flows are affected by economic factors. Net sales by major customer group are as follows:

Distributors – represents net sales to building materials distributors, who re-sell our products to contractors, subcontractors’ alliances, large architect and design firms, and major facility owners. Geographically, this category includes sales throughout the U.S., Canada, and Latin America.

Home centers – represents net sales to home centers such as Lowe’s Companies, Inc. and The Home Depot, Inc.

Direct customers – represents net sales sold directly to contractors, subcontractors’ alliances, large architect and design firms, and major facility owners. Only sales to U.S. customers are reported within this customer group.

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(dollar amounts in millions, except share data)

Retailers and other – represents net sales to independent retailers and certain national account customers, including wholesalers who re-sell our products to dealers who service builders, contractors and consumers. Geographically, this category includes sales throughout the U.S., Canada, and Latin America.

The following tables provide net sales by major customer group within the Mineral Fiber and Architectural Specialties segments for the three months ended March 31, 2019 and 2018:

	Three months ended	
	March 31,	
Mineral Fiber	2019	2018
Distributors	\$144.6	\$137.7
Home centers	23.1	24.0
Direct customers	14.1	13.7
Retailers and other	14.9	15.3
Total	\$196.7	\$190.7

	Three months ended	
	March 31,	
Architectural Specialties	2019	2018
Distributors	\$31.5	\$28.4
Direct customers	13.1	7.9
Retailers and other	0.8	0.3
Total	\$45.4	\$36.6

NOTE 4. ACQUISITION AND DISCONTINUED OPERATIONS

ACQUISITION OF ACGI

On March 4, 2019, we acquired the business and assets of ACGI. The \$43.1 million purchase price, which is subject to customary working capital adjustments, was allocated to the tangible and intangible assets acquired and the liabilities assumed based on their estimated fair values, with the remaining unallocated amount recorded as

goodwill. The total fair value of tangible assets acquired, less liabilities assumed, was \$9.9 million. The total fair value of identifiable intangible assets acquired was \$12.0 million, mostly comprised of amortizable customer relationships of \$7.4 million and amortizable tradenames of \$2.8 million, resulting in \$21.2 million of goodwill. All of the acquired goodwill is deductible for tax purposes. These amounts are subject to adjustment as our purchase accounting analysis is completed.

ACQUISITION OF STEEL CEILINGS

On August 16, 2018, we acquired the business and assets of Steel Ceilings. The \$12.3 million purchase price was allocated to the assets acquired and the liabilities assumed based on their estimated fair values, with the remaining amount recorded as goodwill. In October 2018, we sold certain assets related to an acquired product line to WAVE for \$2.0 million. The total fair value of tangible assets acquired, less liabilities assumed, was \$4.4 million. The total fair value of identifiable intangible assets acquired was mostly comprised of amortizable customer relationships of \$1.4 million and tradenames of \$1.3 million, resulting in \$3.2 million of goodwill. All of the acquired goodwill is deductible for tax purposes.

ACQUISITION OF PLASTERFORM

On May 31, 2018, we acquired the business and assets of Plasterform. The \$11.9 million purchase price was allocated to the assets acquired and the liabilities assumed based on their estimated fair values, with the remaining amount recorded as goodwill. The total fair value of tangible assets acquired, less liabilities assumed, was \$2.2 million. The total fair value of identifiable intangible assets acquired, comprised of amortizable customer relationships, was \$4.8 million, resulting in \$4.9 million of goodwill. All of the acquired goodwill is deductible for tax purposes.

EMEA AND PACIFIC RIM BUSINESSES

On November 17, 2017, we agreed to sell certain subsidiaries comprising our businesses in EMEA and the Pacific Rim to Knauf.

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(dollar amounts in millions, except share data)

Each quarter we compare the anticipated sales proceeds from Knauf to the carrying value of EMEA and Pacific Rim net assets. We record an estimated loss if the carrying value exceeds the anticipated sales proceeds. Net gains can only be recorded to the extent of previous estimated losses. In 2017, we recorded an estimated loss of \$74.0 million, which included \$51.4 million of unfavorable Accumulated Other Comprehensive Income (“AOCI”) adjustments. In 2018, we recorded an estimated loss of \$19.3 million, which included \$25.5 million of unfavorable AOCI adjustments. During the three months ended March 31, 2019, we recorded a net gain of \$2.2 million, which included \$9.1 million of favorable AOCI adjustments. These AOCI adjustments related primarily to accumulated foreign currency translation amounts that will be subsequently reclassified to earnings from discontinued operations upon sale of our EMEA and Pacific Rim businesses.

See Note 1 for further discussion of the divestiture status.

FLOORING BUSINESSES

Separation and Distribution of AFI

On April 1, 2016, we completed our separation of Armstrong Flooring, Inc. (“AFI”) by allocating the assets and liabilities related primarily to our Resilient 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 separation and distribution of AFI, we entered into several agreements with AFI that, together with a plan of division, provide for the separation and allocation between AWI and AFI of the flooring assets, employees, liabilities and obligations of AWI and its subsidiaries attributable to periods prior to, at and after AFI’s separation from AWI, and govern the relationship between AWI and AFI subsequent to the completion of the separation and distribution. These agreements include a Tax Matters Agreement, an Employee Matters Agreement, a Trademark License Agreement, a Transition Trademark License Agreement and a Campus Lease Agreement.

European Resilient Flooring

On December 4, 2014, our Board of Directors approved the cessation of funding to our DLW subsidiary, which at that time was our European flooring business.

Summarized Financial Information of Discontinued Operations

The following tables detail the businesses and line items that comprise discontinued operations on the Condensed Consolidated Statements of Earnings and Comprehensive Income.

EMEA and
Pacific

Rim
Businesses

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Three months ended March 31, 2019:	
Net sales	\$ 96.9
Cost of goods sold	75.7
Gross profit	21.2
Selling, general and administrative expenses	20.8
Operating income	0.4
Earnings from discontinued operations before income tax	0.4
Income tax (benefit)	(0.1)
Net earnings from discontinued operations, net of tax	\$ 0.5
Gain from disposal of discontinued businesses, before income tax	\$ 2.2
Income tax expense	-
Gain from disposal of discontinued businesses, net of tax	\$ 2.2
Net earnings from discontinued operations	\$ 2.7

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(dollar amounts in millions, except share data)

	EMEA and Pacific Rim Businesses	Flooring Businesses	Total
Three months ended March 31, 2018:			
Net sales	\$ 104.4	\$ -	\$104.4
Cost of goods sold	77.8	-	77.8
Gross profit	26.6	-	26.6
Selling, general and administrative expenses	22.0	-	22.0
Operating income	4.6	-	4.6
Interest expense	0.4	-	0.4
Other non-operating (income), net	(1.2)	-	(1.2)
Earnings from discontinued operations before income tax	5.4	-	5.4
Income tax expense	1.5	-	1.5
Net earnings from discontinued operations, net of tax	\$ 3.9	\$ -	\$3.9
Loss from disposal of discontinued businesses, before income tax	\$ (17.7)	\$ -	\$(17.7)
Income tax (benefit)	-	(0.4)	(0.4)
Loss from disposal of discontinued business, net of tax	\$ (17.7)	\$ 0.4	\$(17.3)
Net loss from discontinued operations	\$ (13.8)	\$ 0.4	\$(13.4)

The following is a summary of the carrying amount of major classes of assets and liabilities classified as assets and liabilities of discontinued operations as of March 31, 2019 and December 31, 2018 related to our EMEA and Pacific Rim businesses.

	March 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$10.0	\$ 10.0
Accounts and notes receivable, net	47.3	56.2
Inventories, net	65.3	59.8
Income tax receivable	4.2	1.8
Other current assets	10.3	8.2
Total current assets discontinued operations	137.1	136.0
Property, plant, and equipment, less accumulated depreciation and amortization ^{(1) (2)}	109.3	103.8
Prepaid pension costs ⁽¹⁾	29.9	28.9
Goodwill and intangible assets, net ⁽¹⁾	7.0	6.8

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Deferred income taxes ⁽¹⁾	3.1	3.0
Lease ROU assets ⁽¹⁾	21.8	-
Other non-current assets ⁽¹⁾	0.7	1.0
Total non-current assets of discontinued operations ⁽¹⁾	171.8	143.5
Total assets of discontinued operations ⁽¹⁾	\$308.9	\$ 279.5
Liabilities		
Current liabilities:		
Accounts payable and accrued expenses	\$73.2	\$ 67.1
Income tax payable	1.2	1.1
Total current liabilities	74.4	68.2
Pension benefit liabilities ⁽³⁾	33.6	33.8
Lease non-current liabilities ⁽³⁾	12.7	-
Other long-term liabilities ⁽³⁾	1.8	1.8
Income taxes payable ⁽³⁾	0.2	-
Deferred income taxes ⁽³⁾	6.6	6.5
Total non-current liabilities of discontinued operations ⁽³⁾	54.9	42.1
Total liabilities of discontinued operations ⁽³⁾	\$129.3	\$ 110.3

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Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

- (1) Presented as Assets of discontinued operations on the Condensed Consolidated Balance Sheets.
 (2) Includes reversal of previous pre-tax estimated losses of \$2.2 million recorded in the first three months of 2019. As of December 31, 2018, cumulative pre-tax estimated losses were \$93.3 million.
 (3) Presented as Liabilities of discontinued operations on the Condensed Consolidated Balance Sheets.

The following is a summary of total estimated gains and losses, capital expenditures, and operating lease information related to our EMEA and Pacific Rim businesses which are presented as discontinued operations and included as components of operating and investing cash flows on our Condensed Consolidated Statements of Cash Flows:

	Three Months Ended	
	March 31, 2019	2018
Reversal of previous estimated loss on sale to Knauf ⁽¹⁾	(2.2)	-
Estimated loss on sale to Knauf ⁽¹⁾	-	17.7
Purchases of property, plant and equipment	(0.4)	(1.2)
Operating lease cost ⁽²⁾	2.3	-
ROU assets obtained in exchange for lease obligations ⁽²⁾	24.6	-

- (1) Represents comparison of the EMEA and Pacific Rim net assets to the expected sales proceeds to be received upon closure of the transaction.
 (2) Operating lease cost and non-cash activity relating to ASC Topic 842 – Leases. We do not believe the amount of cash paid for amounts included in the measurement of lease liabilities to be materially different from our operating lease cost for the three months ended March 31, 2019.

NOTE 5. ACCOUNTS AND NOTES RECEIVABLE

	March 31, 2019	December 31, 2018
Customer receivables	\$ 85.4	\$ 70.4
Miscellaneous receivables	3.1	11.5
Less allowance for warranties, discounts and losses	(3.2)	(2.0)
Accounts and notes receivable, net	\$ 85.3	\$ 79.9

We sell our products to select, pre-approved customers whose businesses are affected by changes in economic and market conditions. We consider these factors and the financial condition of each customer when establishing our allowance for losses from doubtful accounts.

Miscellaneous receivables as of March 31, 2019 included \$1.7 million of insurance recoveries related to environmental matters that we expect to collect during the second quarter of 2019. Miscellaneous receivables as of December 31, 2018 included \$6.5 million of insurance recoveries related to environmental matters, which were collected during the first quarter of 2019. See Note 20 for additional information.

NOTE 6. INVENTORIES

	March 31, 2019	December 31, 2018
Finished goods	\$ 40.1	\$ 38.8
Goods in process	4.9	4.4
Raw materials and supplies	37.2	27.8
Less LIFO reserves	(10.1)	(9.8)
Total inventories, net	\$ 72.1	\$ 61.2

NOTE 7. OTHER CURRENT ASSETS

	March 31, 2019	December 31, 2018
Prepaid expenses	\$ 7.3	\$ 4.1
Other	0.9	0.7
Total other current assets	\$ 8.2	\$ 4.8

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(dollar amounts in millions, except share data)

NOTE 8. EQUITY INVESTMENT

Investment in joint venture reflects our 50% equity interest in WAVE. The WAVE joint venture is reflected within the Mineral Fiber segment in our consolidated financial statements using the equity method of accounting. On November 17, 2017, in connection with the Purchase Agreement we entered into with Knauf, the corresponding European and Pacific Rim businesses of WAVE will also be subject to sale to Knauf. Accordingly, WAVE's European and Pacific Rim historical financial statement results have been reflected in WAVE's consolidated financial statements as a discontinued operation for all periods presented. Condensed income statement data for WAVE is summarized below.

	Three Months Ended March 31,	
	2019	2018
Net sales	\$96.9	\$87.7
Gross profit	52.6	47.8
Net earnings	40.2	35.6

NOTE 9. LEASES

We enter into operating leases for certain real estate, equipment and automobiles. Our leases have remaining lease terms of 1 to 15 years, with several leases including options for us to purchase leased items at fair value or renew for up to 5 years, or multiple 5-year renewal periods, and some of which include options to terminate the lease within 1 year. We have lease agreements with lease and non-lease components, which are accounted for separately. For purposes of calculating operating lease liabilities, lease terms may be deemed to include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Short-term leases with an initial term of 12 months or less are not recorded on the balance sheet. We recognize lease expense for these leases on a straight line basis over the lease term. Short-term lease expense was not material for the three months ended March 31, 2019. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments. We used the incremental borrowing rate on January 1, 2019 for operating leases that commenced prior to that date. Our lease agreements do not contain any residual value guarantees or material restrictive covenants. As of March 31, 2019, we do not have any financing leases and we have no additional operating leases that have not yet commenced.

As noted in Note 1, effective January 1, 2019, we adopted ASC Topic 842 using the modified retrospective transition method. As such, we did not restate financial statement and lease disclosure data for all periods prior to January 1, 2019, which was prepared in accordance with ASC Topic 840 – Leases.

The following table presents our operating lease cost and supplemental cash flow information related to our operating leases:

	Three Months Ended
	March 31, 2019
Operating lease cost	\$ 1.6
Non-cash activity:	
ROU assets obtained in exchange for lease obligations	29.2

We do not believe the amount of cash paid for amounts included in the measurement of lease liabilities to be materially different from our operating lease cost for the three months ended March 31, 2019.

The following table presents weighted average assumptions used to compute our ROU assets and lease liabilities:

	March 31, 2019
Weighted average remaining lease term (in years)	7.9
Weighted average discount rate	5.0 %

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Undiscounted future minimum lease payments as of March 31, 2019, by year and in the aggregate, having non-cancelable lease terms in excess of one year are as follows:

	Maturities of
	Lease Liabilities
2019 ⁽¹⁾	\$ 4.9
2020	6.1
2021	5.0
2022	4.0
2023	3.5
Thereafter	12.0
Total lease payments	35.5
Less interest	(6.7)
Present value of lease liabilities	\$ 28.8

(1) Scheduled maturities of lease liabilities represents the time period of April 1, 2019 to December 31, 2019.

Future minimum lease payments as of December 31, 2018, by year and in the aggregate, having non-cancelable lease terms in excess of one year were expected to be as follows:

	Total Minimum
	Lease payments
2019	5.3
2020	4.7
2021	4.2
2022	3.7
2023	2.2
Thereafter	4.7
Total	24.8

Rent expense was \$6.1 million in 2018.

NOTE 10. GOODWILL AND INTANGIBLE ASSETS

The following table details amounts related to our goodwill and intangible assets as of March 31, 2019 and December 31, 2018.

		March 31, 2019		December 31, 2018	
		Gross		Gross	
	Estimated	Carrying	Accumulated	Carrying	Accumulated
	Useful Life	Amount	Amortization	Amount	Amortization
Amortizing intangible assets					
Customer relationships	3-20 years	\$ 188.9	\$ 105.5	\$ 181.4	\$ 103.0
Developed technology	15 years	84.6	67.9	84.3	66.5
Trademarks and brand names	5-20 years	3.9	0.1	1.1	0.2
Other	Various	7.8	1.4	5.6	1.2
Total		\$ 285.2	\$ 174.9	\$ 272.4	\$ 170.9
Goodwill and non-amortizing intangible assets					
Trademarks and brand names	Indefinite	321.4		321.3	
Goodwill	Indefinite	40.6		19.2	
Total goodwill and intangible assets		\$ 647.2		\$ 612.9	

	Three Months Ended March 31, 2019 2018	
Amortization expense	\$ 3.9	\$ 3.6

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NOTE 11. ACCOUNTS PAYABLE AND ACCRUED EXPENSES

	March 31, 2019	December 31, 2018
Payables, trade and other	\$ 76.0	\$ 82.2
Current portion of lease liabilities	5.2	-
Employment costs	6.6	18.6
Current portion of pension and postretirement liabilities	11.1	10.9
Advance receipt of Knauf proceeds	237.6	237.6
Payable to WAVE for advance receipt of Knauf proceeds	22.4	22.4
Current portion of environmental liabilities	9.6	0.7
Other	22.4	10.9
Total accounts payable and accrued expenses	\$ 390.9	\$ 383.3

NOTE 12. INCOME TAX EXPENSE

	Three Months Ended March 31,	
	2019	2018
Earnings from continuing operations before income taxes	\$49.8	\$49.4
Income tax expense	13.4	8.2
Effective tax rate	26.8%	16.6%

The effective tax rate for the first quarter was higher compared to the same period in 2018 primarily due to the favorable impact of share-based compensation deductions in the first quarter of 2018 that did not recur as extensively in the first quarter of 2019.

It is reasonably possible that the amount of unrecognized tax benefits could significantly increase or decrease within the next twelve months. However, an estimate of the range of reasonably possible outcomes cannot be made. Changes to unrecognized tax benefits could result from the completion of ongoing examinations, the expiration of the statute of limitations or other unforeseen circumstances.

NOTE 13. DEBT

As of March 31, 2019 and December 31, 2018, our long-term debt included borrowings outstanding under our \$1,050.0 million variable rate 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. As of March 31, 2019 and December 31, 2018, there were no borrowings outstanding on our revolving credit facility. As of March 31, 2019 and December 31, 2018, our outstanding long-term debt included a \$35.0 million variable rate, tax-exempt industrial development bond that financed the construction of a U.S. plant in prior years. We also have a \$25.0 million letter of credit facility, also known as our bi-lateral 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 are issued to third party suppliers, insurance institutions 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 facilities:

Financing Arrangements	As of March 31, 2019		
	Limit	Used	Available
Accounts receivable securitization facility	\$31.9	\$36.2	\$ (4.3)
Bi-lateral facility	25.0	13.4	11.6
Revolving credit facility	150.0	-	150.0
Total	\$206.9	\$49.6	\$ 157.3

As of March 31, 2019 and December 31, 2018, \$4.3 million and \$6.0 million 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 Condensed Consolidated Balance Sheets.

As of March 31, 2019, we had a \$36.2 million Accounts Receivable Securitization Facility with the Bank of Nova Scotia (the "funding entity") that matures in March 2020. Under our Accounts Receivable Securitization Facility we sell accounts receivables to

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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 March 31, 2019, we had no borrowings under this facility.

NOTE 14. PENSIONS AND OTHER BENEFIT PROGRAMS

Following are the components of net periodic benefit costs (credits):

	Three Months Ended March 31, 2019 2018	
U.S. defined benefit plans:		
Pension benefits		
Service cost of benefits earned during the period	\$ 1.2	\$ 1.4
Interest cost on projected benefit obligation	12.6	11.5
Expected return on plan assets	(20.1)	(24.0)
Amortization of net actuarial loss	4.8	5.0
Net periodic pension (credit)	\$(1.5)	\$(6.1)
Retiree health and life insurance benefits		
Interest cost on projected benefit obligation	\$0.6	\$0.6
Amortization of net actuarial gain	(2.2)	(1.4)
Net periodic postretirement (credit)	\$(1.6)	\$(0.8)

We also have an unfunded non-U.S. defined benefit pension plan in Germany, which will not be acquired by Knauf in connection with the announced sale of our EMEA and Pacific Rim segments that is reported as a component of our Unallocated Corporate segment. Net periodic pension cost for this plan was immaterial for the three months ended March 31, 2019 and 2018.

NOTE 15. FINANCIAL INSTRUMENTS

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We do not hold or issue financial instruments for trading purposes. The estimated fair values of our financial instruments are as follows:

	March 31, 2019		December 31, 2018	
	Carrying	Estimated	Carrying	Estimated
	amount	fair value	amount	fair value
Assets/(Liabilities), net:				
Total long-term debt, including current portion	\$(812.2)	\$ (812.8)	\$(819.8)	\$ (811.3)
Interest rate swap contracts	(3.3)	(3.3)	3.5	3.5

The carrying amounts of cash and cash equivalents, receivables, accounts payable, and accrued expenses approximate fair value because of the short-term maturity of these instruments. The fair value estimates of long-term debt were primarily based on quotes from a major financial institution based on recently observed trading levels of our Term Loan A and Term Loan B debt. The fair value estimates for interest rate swap contracts are estimated by obtaining quotes from major financial institutions with verification by internal valuation models.

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. Three levels of inputs may be used to measure fair value:

Level 1 — Quoted prices in active markets for identical assets or liabilities;

Level 2 — Observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data; or

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Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This includes certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

The fair value measurement of interest rate swap contracts measured at fair value on a recurring basis and reported on the Condensed Consolidated Balance Sheets were valued using Level 2 (other observable) inputs as of March 31, 2019 and December 31, 2018. We do not have any financial assets or liabilities that are valued using Level 1 (quoted, active market) or Level 3 (unobservable) inputs as of March 31, 2019 and December 31, 2018.

NOTE 16. DERIVATIVE FINANCIAL INSTRUMENTS

We are exposed to market risk from changes in foreign exchange rates, interest rates and commodity prices that could impact our results of operations, cash flows and financial condition. We use swaps to hedge interest rate exposures. At inception, derivatives that we designate as hedging instruments are formally documented as either (1) a hedge of a forecasted transaction or “cash flow” hedge, or (2) a hedge of the fair value of a recognized liability or asset or “fair value” hedge. We also formally assess, both at inception and at least quarterly thereafter, whether the derivatives that are used in hedging transactions are highly effective in offsetting changes in either the fair value or cash flows of the hedged item. If it is determined that a derivative ceases to be a highly effective hedge, or if the anticipated transaction is no longer probable of occurring, we discontinue hedge accounting and any future mark-to-market adjustments are recognized in earnings. We use derivative financial instruments as risk management tools and not for speculative trading purposes.

Counterparty Risk

We only enter into derivative transactions with established financial institution counterparties having an investment-grade credit rating. 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 do we receive cash collateral with any counterparty for our derivative transactions. These ISDAs do not have any credit contingent features; however, a default under our bank credit facility would trigger a default under these agreements. Exposure to individual counterparties is controlled, and thus we consider the risk of counterparty default to be negligible.

Commodity Price Risk

We purchase natural gas and other various commodities for use in the manufacturing process. Although we are exposed to fluctuations in commodity pricing, we currently have no outstanding derivative hedge positions.

Currency Rate Risk – Sales and Purchases

Upon completion of the sale of our EMEA and Pacific Rim businesses, and on a continuing operations basis as of March 31, 2019, our only major foreign currency exposure is to the Canadian dollar. We manage our Canadian cash flow exposures on a net basis. We currently do not expect to enter into any foreign exchange derivative products.

Interest Rate Risk

We utilize interest rate swaps to minimize the fluctuations in earnings caused by interest rate volatility. These swaps are designated as cash flow hedges against changes in LIBOR for a portion of our variable rate debt. The following table summarizes our interest rate swaps as of March 31, 2019:

	Notional			
Trade Date	Amount	Coverage Period		Risk Coverage
November 13, 2016	\$ 200.0	November 2016 to March 2021		USD-LIBOR
April 1, 2016	\$ 100.0	April 2016 to March 2023		USD-LIBOR
November 28, 2018	\$ 200.0	November 2018 to November 2023		USD-LIBOR
November 28, 2018	\$ 100.0	March 2021 to March 2025		USD-LIBOR

Armstrong World Industries, Inc., and Subsidiaries

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(dollar amounts in millions, except share data)

Under the terms of the November 2016 swap maturing in 2021, we receive 3-month LIBOR and pay a fixed rate over the hedged period, in addition to a basis rate swap to convert the floating rate risk under our November 2016 Swap from 3-month LIBOR to 1-month LIBOR. As a result, we receive 1-month LIBOR and pay a fixed rate over the hedged period.

Under the terms of the April 2016 swap maturing in 2023, we receive the greater of 3-month LIBOR or a 0.75% LIBOR Floor and pay a fixed rate over the hedged period.

Under the terms of the November 2018 swap maturing in 2023, we pay a fixed rate over the hedged amount and receive 1-month LIBOR. This is inclusive of a 0% floor.

Under the terms of the November 2018 swap maturing in 2025, we will pay a fixed rate monthly and receive 1-month LIBOR. This is inclusive of a 0% floor.

Financial Statement Impacts

The following tables detail amounts related to our derivatives as of March 31, 2019 and December 31, 2018. We had no derivative assets or liabilities not designated as hedging instruments as of March 31, 2019 or December 31, 2018. The derivative asset and liability amounts below are shown in gross amounts; we have not netted assets with liabilities.

	Derivative Assets		Derivative Liabilities			
	Fair Value		Fair Value			
	March 31,	December 31,	March 31,	December 31,		
	Balance Sheet	31,	31,	Balance Sheet	31,	31,
	Location	2019	2018	Location	2019	2018
Derivatives designated as hedging instruments						
Interest rate swap contracts	Other non-current assets	\$6.7	\$ 9.6	Other long-term liabilities	\$10.0	\$ 6.1

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	Amount of Gain (Loss)		Location of (Loss) Reclassified from	(Loss) Reclassified	
	Recognized in AOCI		AOCI into Income	from AOCI into Income	
	Three Months Ended			Three Months Ended	
	March 31,			March 31,	
	2019	2018		2019	2018
Derivatives in cash flow hedging relationships					
Natural gas commodity contracts	\$-	\$-	Cost of goods sold	\$-	\$(0.4)
Foreign exchange contracts – purchases	-	0.1	Cost of goods sold	-	-
Foreign exchange contracts – sales	-	0.3	Net sales	-	(0.2)
Interest rate swap contracts	(7.4)	3.3	Interest expense	(0.6)	(0.5)
Total	\$(7.4)	\$3.7	Total (loss) from continuing operations	\$(0.6)	\$(1.1)
			Total (loss) from discontinued operations	-	(0.1)
			Total (loss)	\$(0.6)	\$(1.2)

As of March 31, 2019, the amount of existing losses in AOCI expected to be recognized in earnings over the next twelve months is \$0.8 million.

NOTE 17. OTHER LONG-TERM LIABILITIES

	March 31, 2019	December 31, 2018
Long-term deferred compensation arrangements	\$ 14.0	\$ 14.0
Environmental liabilities	2.8	11.7
Fair value of derivative liabilities	10.0	6.1
Other	6.2	6.2
Total other long-term liabilities	\$ 33.0	\$ 38.0

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

NOTE 18. SHAREHOLDERS' EQUITY

Common Stock Repurchase Plan

On July 29, 2016, we announced that our Board of Directors had approved a share repurchase program pursuant to which we were authorized to repurchase up to \$150.0 million of our outstanding shares of common stock through July 31, 2018 (the "Program"). On October 30, 2017, we announced that our Board of Directors had approved an additional \$250.0 million authorization to repurchase shares under the Program. The Program was also extended through October 31, 2020. On July 31, 2018, we announced that our Board of Directors had approved an additional \$300.0 million authorization to repurchase shares, increasing the total authorized amount under the Program to \$700.0 million.

Repurchases under the Program may be made through open market, block and privately-negotiated transactions, including Rule 10b5-1 plans, at such 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 AWI to repurchase any particular amount of common stock and may be suspended or discontinued at any time without notice.

On August 2, 2018, we entered into an accelerated share repurchase ("ASR") agreement with Deutsche Bank AG under the Program. The ASR included a pre-payment of \$150.0 million to Deutsche Bank, at which time we received 1,766,004 shares. The ASR terminated on October 8, 2018, with an additional 389,825 shares returned on that day to complete the ASR.

During the three months ended March 31, 2019, we repurchased 0.3 million shares under the Program for a total cost of \$20.0 million, or an average price of \$60.30 per share. Since inception of the Program, through March 31, 2019, including the ASR, we have repurchased 8.0 million shares under the Program for a total cost of \$450.6 million, or an average price of \$56.19 per share.

Dividends

In February 2019, our Board of Directors declared a \$0.175 per share quarterly dividend, which was paid to shareholders in March 2019.

NOTE 19. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

Foreign Currency	Derivative	Pension and Postretirement Adjustments	Total Accumulated
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	Translation Adjustments	Gain (Loss) ⁽¹⁾	⁽¹⁾	Other Comprehensive (Loss) ⁽¹⁾
Balance, December 31, 2018	\$ (74.7)	\$ 5.3	\$ (390.2)	\$ (459.6)
Impact of ASU 2017-12 adoption	-	0.1	-	0.1
Other comprehensive income (loss) before reclassifications,				
net of tax expense (benefit) of \$ -, \$1.9, (\$0.2) and \$1.7	5.3	(5.6)	0.7	0.4
Amounts reclassified from accumulated other comprehensive (loss)	-	0.5	2.1	2.6
Net current period other comprehensive income (loss)	5.3	(5.1)	2.8	3.0
Balance, March 31, 2019	\$ (69.4)	\$ 0.3	\$ (387.4)	\$ (456.5)

	Foreign			Total Accumulated Other Comprehensive (Loss) ⁽¹⁾
	Currency Translation Adjustments	Derivative Gain (Loss) ⁽¹⁾	Pension and Postretirement Adjustments ⁽¹⁾	
Balance, December 31, 2017	\$ (47.1)	\$ 3.5	\$ (302.3)	\$ (345.9)
Impact of ASU 2018-02 adoption	-	0.7	(55.0)	(54.3)
Other comprehensive income (loss) before reclassifications,				
net of tax expense of \$ -, \$1.2, \$0.6 and \$1.8	5.9	2.9	(1.0)	7.8
Amounts reclassified from accumulated other comprehensive (loss)	-	0.9	2.8	3.7
Net current period other comprehensive income	5.9	3.8	1.8	11.5
Balance, March 31, 2018	\$ (41.2)	\$ 8.0	\$ (355.5)	\$ (388.7)

(1) Amounts are net of tax

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

	Amounts		Affected Line Item in the
	Reclassified from		Condensed Consolidated
	Accumulated		Statement of Earnings
	Other		and Comprehensive
	Comprehensive		Income
	(Loss) ⁽¹⁾		
	Three Months		
	Ended March 31,		
	2019	2018	
Derivative Adjustments:			
Natural gas commodity contracts	\$ -	\$ 0.4	Cost of goods sold
Foreign exchange contracts - purchases	-	0.1	Cost of goods sold
Foreign exchange contracts - sales	-	0.2	Net sales
Interest rate swap contracts	0.6	0.5	Interest expense
Total loss, before tax	0.6	1.2	
Tax impact	(0.1)	(0.3)	Income tax expense
Total loss, net of tax	0.5	0.9	
Pension and Postretirement Adjustments:			
Amortization of net actuarial loss	2.7	3.6	Other non-operating (income), net
Total expense, before tax	2.7	3.6	
Tax impact	(0.6)	(0.8)	Income tax expense
Total expense, net of tax	2.1	2.8	
Total reclassifications for the period	\$ 2.6	\$ 3.7	

(1) Includes activity from discontinued operations.

NOTE 20. LITIGATION AND RELATED MATTERS

ENVIRONMENTAL MATTERS

Environmental Compliance

Our manufacturing and research facilities are affected by various federal, state and local requirements relating to the discharge of materials and the protection of the environment. We make expenditures necessary for compliance with applicable environmental requirements at each of our operating facilities. These regulatory requirements continually

change, therefore we cannot predict with certainty future expenditures associated with compliance with environmental requirements.

Environmental Sites

Summary

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 environmental laws at three domestically owned locations allegedly resulting from past industrial activity.

In each location, we are one of multiple potentially responsible parties and have agreed to jointly fund the required investigation and remediation, 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 are currently pursuing coverage and recoveries under those policies with respect to certain of the sites, including the St. Helens, OR site, the Macon, GA site and the Elizabeth City, NC site, each of which is summarized below. These efforts include two active and independent litigation matters against legacy primary and excess policy insurance carriers for recovery of fees and costs incurred by us in connection with our investigation and remediation activities for such sites. Other than disclosed below, we are unable to predict the outcome of these matters or the timing of any recoveries, whether through settlement or otherwise. We are also unable to predict the extent to which any recoveries might cover our final share of investigation and remediation 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.

In 2017 and 2018, we entered settlement agreements totaling \$37.5 million with certain legacy insurance carriers to resolve ongoing litigation and recover fees and costs previously incurred by us in connection with certain environmental sites. These settlements were recorded as a \$9.2 million reduction to cost of goods sold and a \$28.3 million reduction to SG&A expenses reflecting the same income

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

statement categories where environmental expenditures were historically recorded. All of these cash settlements have been released to us from escrow, including \$6.5 million received in the first quarter of 2019. In the first quarter of 2019, we entered into one new settlement agreement for \$1.7 million and received an additional \$0.2 million payment related to a previous settlement with a different carrier. These settlements were recorded as a \$1.9 million reduction to SG&A expenses. We anticipate that we may enter into additional settlement agreements in the future, which may or may not be material, with other legacy insurers to obtain reimbursement or contribution for environmental site expenses.

Estimates of our future liability at the environmental sites are based on evaluations of currently available facts regarding each individual site. We consider factors such as our activities associated with the site, existing technology, presently enacted laws and regulations and prior company experience in remediating contaminated sites. Although current law imposes joint and several liability on all parties at Superfund sites, our contribution to the remediation of these sites is expected to be limited by the number of other companies potentially liable for site remediation. As a result, our estimated liability reflects only our expected share. 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, if any.

Specific Material Events

St Helens, OR

In August 2010, we entered into a Consent Order (the “Consent Order”) with the Oregon Department of Environmental Quality (“ODEQ”), along with Kaiser Gypsum Company, Inc. (“Kaiser”), and Owens Corning Sales LLC (“OC”), with respect to our St. Helens, OR facility, which was previously owned by Kaiser and then OC. The Consent Order required that we and Kaiser complete a remedial investigation and feasibility study (“RI/FS”) on the portion of the site owned by us (“Owned Property”), which is comprised of Upland and Lowland areas. The Consent Order further required us, Kaiser and OC to conduct an RI/FS in the in-water area of the adjacent Scappoose Bay. Costs and responsibilities for investigation, including the current RI/FS, for the Owned Property have been shared with Kaiser pursuant to a cost sharing agreement with Kaiser. Costs and responsibilities for the investigation with respect to the in-water area that we do not own have been shared with Kaiser and OC pursuant to a cost sharing agreement with Kaiser and OC.

On September 14, 2016, the parties submitted a Feasibility Study to the ODEQ proposing remedial action options for the Upland area. We have participated in the investigation phase for the Lowland area of the Owned Property and the Scappoose Bay and worked with the ODEQ, Kaiser and OC to finalize the reports to move to the feasibility study phase.

On September 30, 2016, Kaiser filed a voluntary petition for relief under Chapter 11 of the Bankruptcy Code in the U.S. Bankruptcy Court for the Western District of North Carolina (Case No. 16-31602) (the “Bankruptcy Court”). AWI, OC and the ODEQ have all been included on the master list of potential creditors filed with the Bankruptcy Court for notice purposes. By order dated October 14, 2016, the Bankruptcy Court formed a statutory committee of unsecured creditors, to which we were appointed to serve, along with OC and The Boeing Company.

The Committee is charged with, among other things, maximizing recovery of all unsecured creditor claims, including claims of AWI and ODEQ. Noticed parties submitted claims to the Bankruptcy Court on September 13, 2017. The Chapter 11 case impacts Kaiser's ongoing participation in the RI/FS process, as well as the ODEQ consent order and cost sharing agreements.

In November 2017, we participated in voluntary mediation with ODEQ, OC and Kaiser to negotiate a resolution that would discharge Potentially Responsible Parties ("PRPs") liability for the site. As a result of the mediation, on February 1, 2018, ODEQ issued a Public Notice and a proposed consent judgment ("Consent Judgment") recommending that, in exchange for a release from ODEQ for all contamination claims against AWI, we would pay \$8.6 million to the State of Oregon and perform a previously scoped remedial action for the Upland area. During the fourth quarter of 2017, we increased our reserve for environmental liabilities by \$8.6 million as a result of this pending settlement with the State of Oregon.

On April 5, 2018, ODEQ issued Public Notice of the Remedial Action for the Upland area and subsequently responded to public comments. On June 26, 2018 ODEQ published its Record of Decision confirming the selected remedial action required for the Upland area. AWI will be responsible for performing the remedial action upon ODEQ's filing of the Consent Judgment with the court, pending appeal. The Consent Judgment remains subject to entry and approval by the Columbia County Circuit Court. Kaiser continues to assert that the Consent Judgment violates the stay imposed by its bankruptcy case. The Bankruptcy Court, however, ruled in favor of ODEQ's position that the Consent Judgment does not violate the stay. In response to that ruling, on October 3, 2018, Kaiser filed a motion for stay pending appeal. A decision on that motion remains pending.

Armstrong World Industries, Inc., and Subsidiaries

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(dollar amounts in millions, except share data)

Kaiser filed objections to the ODEQ proof of claim and AWI's proof of claim and sought discovery related to the determination of costs incurred by the parties at the site. On November 26, 2018, Kaiser filed a complaint against AWI seeking monetary damages and declaratory relief including cost recovery and/or contributions from AWI in connection with the environmental costs incurred by Kaiser at St. Helens. On March 1, 2019, we entered into a settlement agreement with Kaiser resolving all claims between us. In exchange for a payment of \$1.0 million, Kaiser agreed to withdraw its appeal of the automatic stay imposed by the bankruptcy as it applies to the Consent Judgment, dismiss its complaint against AWI, and refrain from filing any objections to the Consent Judgment once filed with the Columbia County Circuit Court. Our settlement with Kaiser is conditioned on the effectiveness of a pending settlement between ODEQ and Kaiser, which we expect to occur in the second quarter of 2019. The Bankruptcy Court approved our settlement with Kaiser on March 14, 2019.

Macon, GA

The U.S. Environmental Protection Agency (the "EPA") has listed two landfills located on a portion of our facility in Macon, GA, along with the former Macon Naval Ordnance Plant landfill adjacent to our property, portions of Rocky Creek, and certain tributaries leading to Rocky Creek (collectively, the "Macon Site") as a Superfund site on the National Priorities List due to the presence of contaminants, most notably polychlorinated biphenyls ("PCBs").

In September 2010, we entered into an Administrative Order on Consent for a Removal Action with the EPA to investigate PCB contamination in one of the landfills on our property, the Wastewater Treatment Plant Landfill (the "WWTP Landfill," also known as "Operable Unit 1"). After completing an investigation of the WWTP Landfill and submitting our final Engineering Evaluation/Cost Analysis, the EPA issued an Action Memorandum in July 2013 selecting our recommended remedy for the Removal Action. The Operable Unit 1 response action for the WWTP Landfill is complete and the final report was submitted to the EPA on October 11, 2016. The EPA approved the final report on November 28, 2016, and a Post-Removal Control Plan (the "Plan") was submitted to the EPA on March 28, 2017. That Plan will monitor the effectiveness of the WWTP Landfill response action and our estimate of future liabilities includes these tasks.

It is probable that we will incur field investigation, engineering and oversight costs associated with a RI/FS with respect to the remainder of the Superfund site, which includes the other landfill on our property, as well as areas on and adjacent to AWI's property and Rocky Creek (the "Remaining Site," also known as "Operable Unit 2"). On September 25, 2015, AWI and other PRPs received a Special Notice Letter from the EPA under CERCLA inviting AWI and the PRPs to enter into the negotiation of an agreement to conduct an RI/FS of Operable Unit 2. We and the other PRPs entered into a settlement agreement with the EPA effective September 18, 2018, in response to the Special Notice Letter to conduct the RI/FS. The PRPs are required to submit a complete RI/FS work plan in April 2019. While the investigative work on this portion of the site has not yet commenced, we anticipate that the EPA will require significant investigative work for Operable Unit 2 and that we may ultimately incur costs in remediating any contamination discovered during the RI/FS. The current estimate of future liability at this site includes only our estimated share of the costs of the investigative work that, at this time, we anticipate the EPA will require the PRPs to perform. We are unable to reasonably estimate AWI's final share of the costs or the total costs associated with the investigation work or any resulting remediation therefrom, although such amounts may be material.

Elizabeth City, NC

This site is a former cabinet manufacturing facility that was operated by Triangle Pacific Corporation, now known as Armstrong Wood Products, Inc. (“Triangle Pacific”), from 1977 until 1996. The site was formerly owned by the U.S. Navy (“Navy”) and Westinghouse, now CBS Corporation (“CBS”). We assumed ownership of the site when we acquired the stock of Triangle Pacific in 1998. Prior to our acquisition, the NC Department of Environment and Natural Resources listed the site as a hazardous waste site. In 1997, Triangle Pacific entered into a cost sharing agreement with Westinghouse whereby the parties agreed to share equally in costs associated with investigation and potential remediation. In 2000, Triangle Pacific and CBS entered into an Administrative Order on Consent to conduct an RI/FS with the EPA for the site. In 2007, we and CBS entered into an agreement with the Navy whereby the Navy agreed to pay one third of defined past and future investigative costs up to a certain amount, which has now been exhausted. The EPA approved the RI/FS work plan in August 2011. In January 2014, we submitted the draft Remedial Investigation and Risk Assessment reports and conducted supplemental investigative work based upon agency comments to those reports. The EPA published an Interim Action Proposed Plan for the site in April 2018 seeking public comment through June 7, 2018. The EPA has evaluated comments, including ours, and has published its Interim Record Of Decision selecting an interim cleanup approach. On September 25, 2018, AWI and CBS received a Special Notice Letter from the EPA under CERCLA inviting AWI and CBS to enter into the negotiation of a settlement agreement to conduct or finance the response action at the site. During the third quarter of 2018, we increased our reserve for the cost of the interim cleanup, which we expect to be shared with CBS and the Navy.

Armstrong World Industries, Inc., and Subsidiaries

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(dollar amounts in millions, except share data)

Summary of Financial Position

Total liabilities of \$12.4 million as of March 31, 2019 and December 31, 2018 were recorded for environmental liabilities that we consider probable and for which a reasonable estimate of the probable liability could be made. As of March 31, 2019 and December 31, 2018, \$9.6 million and \$0.7 million were reflected within Accounts payable and accrued expenses with respect to environmental liabilities. During the three months ended March 31, 2019, we recorded \$1.0 million of additional reserves. During the three months ended March 31, 2018, we did not record any additional reserves for environmental liabilities. Where existing data is sufficient to estimate the liability, that estimate has been used; where only a range of probable liabilities is available and no amount within that range is more likely than any other, the lower end of the range has been used. As assessments and remediation activities progress at each site, these liabilities are reviewed to reflect new information as it becomes available, and adjusted to reflect amounts actually incurred and paid. These liabilities are undiscounted.

The estimated liabilities above do not take into account any claims for recoveries from insurance or third parties. It is our policy to record insurance recoveries when probable. For insurance recoveries that are reimbursements of prior environmental expenditures, the income statement impact is recorded within cost of goods sold and SG&A expenses, which are the same income statement categories where environmental expenditures were historically recorded. Insurance recoveries in excess of historical environmental spending, are recorded on the balance sheet as a part of other long-term liabilities and released as future environmental spending occurs or the liability is settled.

The estimated liabilities above do not take into account any claims for recoveries from insurance or third parties. It is our policy to record recoveries as assets in the Condensed Consolidated Balance Sheets. As of March 31, 2019, we have \$1.7 million of receivables for insurance recoveries reflected within Accounts and notes receivable, net.

Actual costs to be incurred at identified sites may vary from our estimates. Based on our knowledge of the identified sites, it is not possible to reasonably estimate future costs in excess of amounts already recognized.

OTHER CLAIMS

On September 8, 2017, Roxul USA, Inc. (d/b/a Rockfon) (“Rockfon”) filed litigation against us in the United States District Court for the District of Delaware (the “Court”) 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. On April 3, 2019, we entered into a confidential settlement agreement with Rockfon to fully resolve the litigation between us, and Rockfon filed a Stipulation of Dismissal with Prejudice (“Dismissal”) with the Court. Pursuant to the Dismissal, Rockfon formally dismissed all claims it had against AWI with prejudice. All claims in the litigation have been fully and finally dismissed and released with AWI making a payment to Rockfon for its costs, expenses and attorneys’ fees. Pursuant to the settlement, both parties acknowledged that (a) AWI denies all claims of wrongdoing and makes no admission of wrongdoing or of the truth of any of the claims or allegations contained in Rockfon’s complaint or otherwise alleged in the litigation; (b) all AWI exclusive distribution locations (i.e., any location where a reseller has agreed to sell only AWI ceiling system products) will remain exclusive to AWI under their respective distribution agreements, and (c) in all other non-exclusive or “open” distribution locations, resellers are free to purchase and resell ceiling systems products of any manufacturer at their discretion. During the first quarter of 2019, we incurred \$19.7 million of expenses in connection

with the matter, primarily relating to legal and professional fees incurred by us in connection with the litigation, including expenses and attorney's fees paid under the settlement agreement. As a result of the settlement and Dismissal, we do not expect to incur additional future costs or expenses relating to the matter.

We are involved in other various 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 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.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

NOTE 21. EARNINGS PER SHARE

Earnings per share (“EPS”) components may not add due to rounding.

The following table is a reconciliation of earnings to earnings attributable to common shares used in our basic and diluted EPS calculations for the three months ended March 31, 2019 and 2018:

	Three Months Ended March 31,	
	2019	2018
Earnings from continuing operations	\$36.4	\$41.2
Earnings allocated to participating non-vested share awards	(0.1)	(0.1)
Earnings from continuing operations attributable to common shares	\$36.3	\$41.1

The following table is a reconciliation of basic shares outstanding to diluted shares outstanding for the three months ended March 31, 2019 and 2018 (shares in millions):

	Three Months Ended March 31,	
	2019	2018
Basic shares outstanding	48.7	53.0
Dilutive effect of common stock equivalents	0.8	0.8
Diluted shares outstanding	49.5	53.8

Anti-dilutive stock awards excluded from the computation of diluted EPS for the three months ended March 31, 2019 were 30,371. There were no anti-dilutive stock awards excluded from the computation of diluted EPS for the three months ended March 31, 2018.

Management's Discussion and Analysis of Financial Condition and Results of Operations

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

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 report and our Annual Report on Form 10-K for the year ended December 31, 2018.

OVERVIEW

We are a leading global producer of ceiling systems for use primarily in the construction and renovation of commercial, institutional and residential buildings. We design, manufacture and sell ceiling systems (primarily mineral fiber, fiberglass wool, metal and wood) throughout the Americas.

On March 4, 2019, we acquired the business and assets of Architectural Components Group, Inc. ("ACGI"), based in Marshfield, Missouri. ACGI is a manufacturer of custom wood ceilings and walls with one manufacturing facility. ACGI's operations, and its assets and liabilities, are included as a component of our Architectural Specialties segment.

In August 2018, we acquired the business and assets of Steel Ceilings, Inc. ("Steel Ceilings"), based in Johnstown, Ohio. Steel Ceilings is a manufacturer of aluminum and stainless metal ceilings that include architectural, radiant and security solutions with one manufacturing facility. Steel Ceilings' operations, and its assets and liabilities, are included as a component of our Architectural Specialties segment.

In May 2018, we acquired the business and assets of Plasterform, Inc. ("Plasterform"), based in Mississauga, Ontario, Canada. Plasterform is a manufacturer of architectural cast ceilings, walls, facades, columns and moldings with one manufacturing facility. Plasterform's operations, and its assets and liabilities, are included as a component of our Architectural Specialties segment.

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. ("Worthington") in which AWI holds a 50% interest. The Purchase Agreement provides that 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.

On July 18, 2018, we entered into an amendment to the Purchase Agreement, pursuant to which Knauf agreed to irrevocably and unconditionally pay AWI (i) \$250 million on August 1, 2018, and (ii) \$80 million on September 15, 2018, if, prior to such date (A) any competition condition has not been satisfied, or (B) the closing has not yet occurred. The amendment also provided for the reduction (from a maximum of \$35 million to a maximum of \$20 million) of potential adjustments to the purchase price consideration for the transaction based on the impact of remedies required to satisfy competition conditions. We received both the \$250 million payment and the \$80 million payment from Knauf in the third quarter of 2018. Following receipt of these payments, we remitted \$70 million to WAVE in partial consideration of the purchase price payable in respect of the business and operations of WAVE under the transaction. WAVE subsequently paid each of AWI and Worthington a dividend of \$35 million. We also

recorded a \$22.4 million payable to WAVE, which is reflected within Accounts Payable and Accrued Expenses. The total consideration payable by AWI to WAVE will be determined following closing in connection with the calculation of the adjustments contemplated by the Purchase Agreement.

The transaction was notified for merger control clearance in the European Union (“EU”), Bosnia and Herzegovina, Macedonia, Montenegro, Russia and Serbia, and was cleared unconditionally in Montenegro (February 2018), Serbia (February 2018), Russia (March 2018), Macedonia (July 2018) and Bosnia and Herzegovina (August 2018). On December 7, 2018, the European Commission granted conditional clearance of the transaction, subject to certain commitments intended to address concerns regarding the overlap between the activities of AWI and Knauf, including the divestment by Knauf to a third party of certain mineral fiber and grid businesses and operations in Austria, Estonia, Germany, Ireland, Italy, Latvia, Lithuania, Portugal, Spain, Turkey and the United Kingdom (“UK”). This includes our sales operations in each of the relevant countries, as well as our production facilities, and those of WAVE, located in Team Valley, UK. The terms of the sale of the divestment business by Knauf and the identity of the purchaser are subject to the approval of the European Commission.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Upon or prior to closing, we expect to enter into (i) a Transition Services Agreement with Knauf for its benefit and the benefit of the buyer of the divestment business under which we will provide certain transition technology and information technology services for a limited period of time following closing, (ii) an intellectual property License Agreement with Knauf for its benefit and the benefit of the buyer of the divestment business under which we will license certain patents, trademarks and know-how for their use in certain licensed territories, and (iii) a Supply Agreement with each of Knauf and the buyer of the divestment business under which the parties may continue to purchase certain products from each other following closing.

We continue to work closely with Knauf towards closing and expect the transaction to close during the second quarter of 2019. The EMEA and Pacific Rim segment historical financial results have been reflected in AWI's Condensed Consolidated Financial Statements as discontinued operations for all periods presented.

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

As of March 31, 2019, we had 19 manufacturing plants in eight countries, including ten plants located within the U.S, which included our St. Helens, Oregon mineral fiber manufacturing facility, which closed in the second quarter of 2018. During the first quarter of 2019, as part of our acquisition of ACGI, we acquired one additional plant located in Missouri. We have one idle mineral fiber plant in China, reported as a component of our Unallocated Corporate segment as it is not included in the pending sale to Knauf. Upon closure of the sale of our EMEA and Pacific Rim businesses, we will have 13 plants, including ten plants in the U.S, two plants in Canada and the idle plant in China.

WAVE operates nine 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

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 AWI 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 AWI 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 sell 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. 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.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Factors Affecting Revenues

For information on our segments' 2019 net sales, see Notes 2 and 3 to the Condensed Consolidated Financial Statements included in this Form 10-Q.

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 the first quarter of 2019 compared to the first quarter of 2018.

In our Mineral Fiber segment, we experienced lower volume activity, most notably due to softer demand for lower end products. In our Architectural Specialties segment, we experienced strong growth due to the impact of recent acquisitions and increased market penetration and new construction activity.

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. Within our Mineral Fiber segment, 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 impacting our revenues. We estimate that favorable AUV increased our Mineral Fiber and total consolidated net sales for the three months ended March 31, 2019 by approximately \$19 million compared to the same period in 2018. Our Architectural Specialties segment generates revenues that 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 quarter of 2019, we implemented price increases on Mineral Fiber ceiling tile and grid products in the U.S. We also announced and implemented price increases on certain Architectural Specialties products in the first quarter of 2019. We may implement additional pricing actions based on numerous factors, most notably upon future movements in raw material prices and sourced product costs.

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

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, steel, 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 the first three months of 2019, costs for raw materials, sourced products and energy negatively impacted operating income by \$1 million compared to the same period of 2018.

Employees

As of March 31, 2019 and December 31, 2018 we had approximately 4,200 and 4,000 full-time and part-time employees, respectively. The increase is primarily due to the ACGI acquisition in March 2019. Excluding our EMEA and Pacific Rim businesses, we had approximately 2,400 and 2,200 employees as of March 31, 2019 and December 31, 2018, respectively.

Management's Discussion and Analysis of Financial Condition and Results of Operations

RESULTS OF CONTINUING OPERATIONS

Unless otherwise indicated, net sales in these results of continuing operations are reported based upon the AWI location where the sale was made. Please refer to Notes 2 and 4 to the Condensed Consolidated Financial Statements for a reconciliation of operating income to consolidated earnings from continuing operations before income taxes and additional financial information related to discontinued operations.

CONSOLIDATED RESULTS FROM CONTINUING OPERATIONS

(dollar amounts in millions)

	Three Months Ended March 31,			
	2019	2018	Change is Favorable	
Total consolidated net sales	\$ 242.1	\$ 227.3	6.5	%
Operating income	\$ 54.7	\$ 49.6	10.2	%

Consolidated net sales for the first quarter of 2019 increased 6.5% over the same period in 2018 due to favorable AUV of \$19 million, partially offset by lower volumes of \$3 million. Mineral Fiber net sales increased by \$6 million and Architectural Specialties net sales increased by \$9 million.

Cost of goods sold in the first quarter of 2019 was 62.3% of net sales, compared to 68.9% for the same period in 2018. The decrease in cost of goods sold as a percent of net sales for the first quarter of 2019 as compared to the same period in 2018 was primarily due to \$8 million of accelerated depreciation recorded in the first quarter of 2018 related to management's decision to permanently close the St. Helens, Oregon plant in addition to 2019 savings from the closure of the plant.

SG&A expenses in the first quarter of 2019 were \$55.6 million, or 23.0% of net sales, compared to \$37.5 million, or 16.5% of net sales, for the same period in 2018. The increase in SG&A expenses for the three months ended March 31, 2019 was primarily due to a \$20 million increase in legal and professional fees, including expenses and attorney's fees paid under the settlement agreement of a lawsuit filed against us alleging anticompetitive conduct by Roxul USA, Inc. ("Rockfon"). Also impacting the increase in SG&A expenses was an increase in selling expenses, partially offset by a \$2 million increase in environmental insurance settlements, net of expenses

Equity earnings from our WAVE joint venture were \$18.9 million for the first quarter of 2019, compared to \$16.3 million in the first quarter of 2018. The increase in WAVE earnings was primarily related to increases in AUV, partially offset by lower volumes. See Note 8 to the Condensed Consolidated Financial Statements for further information.

Interest expense was \$10.4 million for the first quarter of 2019 compared to \$9.2 million in the first quarter of 2018. The increase in the first quarter of 2019 was due to higher floating interest rates.

Other non-operating income, net was \$5.5 million for the first quarter of 2019 compared to \$9.0 million in the first quarter of 2018. The decrease in other non-operating income, net was primarily related to lower credits from non-service cost components of pension and postretirement net periodic benefit costs. See Note 14 to the Condensed Consolidated Financial Statements for further information.

Income tax expense was \$13.4 million for the first quarter of 2019 compared to \$8.2 million in the first quarter of 2018. The effective tax rate for the first quarter of 2019 was 26.8% as compared to a rate of 16.6% for the same period of 2018. The effective tax rate was higher primarily due to the favorable impact of share-based compensation deductions resulting from exercise of options in the first quarter of 2018 versus 2019.

Total Other Comprehensive Income (“OCI”) was \$3.0 million in the first quarter of 2019 compared to \$11.5 million for the first quarter of 2018. The change in OCI was primarily due to derivative gains/losses. 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. Partially impacting the change in OCI was foreign currency translation adjustments and pension and postretirement adjustments. Foreign currency translation adjustments represent the change in the U.S. dollar value of assets and liabilities denominated in foreign currencies. Amounts in the first quarter of 2019 and 2018 were driven primarily by changes in the exchange rates of the Russian ruble and the British pound. Pension and postretirement adjustments represent the amortization of actuarial gains and losses related to our defined benefit pension and postretirement plans.

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REPORTABLE SEGMENT RESULTS

Mineral Fiber

(dollar amounts in millions)

	Three Months Ended March 31,			
	2019	2018	Change is Favorable	
Total segment net sales	\$ 196.7	\$ 190.7	3.1	%
Operating income	\$ 47.6	\$ 43.7	8.9	%

Net sales increased in the first quarter of 2019 due to favorable AUV of \$19 million, partially offset by lower volumes of \$12 million. Favorable AUV for the three months ended March 31, 2019 as compared to 2018 was primarily due to favorable price, while the decrease in volume was primarily in lower end ceiling tile products.

Operating income increased in the first quarter of 2019 due to \$15 million of favorable AUV and an \$11 million benefit due to 2019 savings from the closure of our St. Helens manufacturing plant during the second quarter of 2018 combined with the absence of accelerated depreciation attributable to the plant that was recorded in the first quarter of 2018. Also contributing to the increase in operating income was a \$3 million increase in WAVE equity earnings and a \$2 million increase in environmental insurance settlements, net of expenses. Partially offsetting these decreases was a \$20 million increase in costs associated with the aforementioned Rockfon lawsuit and a \$7 million negative impact from lower volumes.

Architectural Specialties

(dollar amounts in millions)

	Three Months Ended March 31,			
	2019	2018	Change is Favorable	
Total segment net sales	\$ 45.4	\$ 36.6	24.0	%
Operating income	\$ 9.2	\$ 8.3	10.8	%

Net sales for the first quarter of 2019 increased due to the acquisitions of Plasterform, Steel Ceilings and ACGI and higher volumes from increased market penetration and new construction activity.

Operating income for the first quarter of 2019 increased due to the positive impact of higher sales volume, partially offset by an increase in expenses from recent acquisitions and additional investments in selling and design capacities.

Unallocated Corporate

Unallocated corporate expenses were \$2.1 million for the first quarter of 2019 compared to \$2.4 million in the first quarter of 2018. The decline was primarily due to lower service cost associated with our RIP.

FINANCIAL CONDITION AND LIQUIDITY

Cash Flow

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

Operating activities in the first three months of 2019 provided \$14.7 million of cash, compared to \$26.0 million in the first three months of 2018. The decrease was primarily due to changes in working capital, most notably a decrease in receipts of environmental insurance settlements in the first quarter of 2019 as compared to the same period in 2018.

Net cash used for investing activities was \$38.0 million for the first three months of 2019, compared to \$5.8 million provided by investing activities for the first three months of 2018. The decrease resulted primarily from the acquisition of ACGI.

Net cash used for financing activities was \$29.9 million for the first three months of 2019, compared to \$64.2 million used during the first three months of 2018. The favorable change in use of cash was primarily due to lower repurchases of outstanding common stock, offset by the payment of dividends and lower proceeds from exercised employee stock awards.

Management's Discussion and Analysis of Financial Condition and Results of Operations

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 variable rate 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 \$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. 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. As of March 31, 2019, total borrowings outstanding under our senior credit facility were \$540.0 million under Term Loan A and \$242.5 million under Term Loan B. There were no borrowings outstanding under the revolving credit facility as of March 31, 2019.

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 the first quarter of 2019.

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 March 31, 2019, 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):

Notional			
Trade Date	Amount	Coverage Period	Risk Coverage
November 13, 2016	\$ 200.0	November 2016 to March 2021	USD-LIBOR
April 1, 2016	\$ 100.0	April 2016 to March 2023	USD-LIBOR
November 28, 2018	\$ 200.0	November 2018 to November 2023	USD-LIBOR
November 28, 2018	\$ 100.0	March 2021 to March 2025	USD-LIBOR

Under the terms of the November 2016 swap maturing in 2021, we receive 3-month LIBOR and pay a fixed rate over the hedged period, in addition to a basis rate swap to convert the floating rate risk under our November 2016 swap from 3-month LIBOR to 1-month LIBOR. As a result, we receive 1-month LIBOR and pay a fixed rate over the hedged period.

Under the terms of the April 2016 swap maturing in 2023, we receive the greater of 3-month LIBOR or a 0.75% LIBOR Floor and pay a fixed rate over the hedged period.

Under the terms of the November 2018 swap maturing in 2023, we pay a fixed rate over the hedged amount and receive a 1-month LIBOR. This is inclusive of a 0% floor.

Under the terms of the November 2018 swap maturing in 2025, we will pay a fixed rate monthly and receive 1-month LIBOR. This is inclusive of a 0% floor.

These swaps are designated as cash flow hedges against changes in LIBOR for a portion of our variable rate debt.

As of March 31, 2019 our outstanding long-term debt also 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 any portion of the bond.

As of March 31, 2019, we had \$273.8 million of cash and cash equivalents, \$226.3 million in the U.S and \$47.5 million in various foreign jurisdictions. In connection with the sale of our EMEA and Pacific Rim businesses, we intend to repatriate, or receive consideration from Knauf for, substantially all cash held in the divested entities. Pursuant to our agreement with Knauf, Knauf will

Management's Discussion and Analysis of Financial Condition and Results of Operations

reimburse us for any cash balances in the divested entities, subject only to a cumulative \$10 million limit for certain specific countries. See Note 1 to the Condensed Consolidated Financial Statements for additional information.

As of March 31, 2019, we had a \$36.2 million Accounts Receivable Securitization Facility with the Bank of Nova Scotia (the "funding entity") that matures in March 2020. 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 March 31, 2019, 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):

Financing Arrangements	As of March 31, 2019		
	Limit	Used	Available
Accounts receivable securitization facility	\$31.9	\$36.2	\$ (4.3)
Bi-lateral facility	25.0	13.4	11.6
Revolving credit facility	150.0	-	150.0
Total	\$206.9	\$49.6	\$ 157.3

We believe that cash on hand and cash generated from operations, together with lines of credit, availability under our securitization facility and the 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.

CONTRACTUAL OBLIGATIONS

Information related to our contractual obligations at December 31, 2018 can be found in our 2018 Annual Report on Form 10-K, Part II, Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

For information regarding our exposure to certain market risks, see Item 7A, “Quantitative and Qualitative Disclosures About Market Risk,” in our 2018 Annual Report on Form 10-K.

ITEM 4. CONTROLS AND PROCEDURES

- (a) Evaluation of Disclosure Controls and Procedures. The Securities and Exchange Commission defines the term “disclosure controls and procedures” to mean a company’s controls and other procedures that are designed to ensure that information required to be disclosed in the reports that it files or submits under the Securities Exchange Act of 1934, as amended (the “Act”), is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission’s rules and forms. Based on the evaluation of the effectiveness of our disclosure controls and procedures by our management, with the participation of our principal executive officer and our chief financial officer, as of March 31, 2019, our principal executive officer and our chief financial officer have concluded that our disclosure controls and procedures were effective to ensure that information required to be disclosed in the reports that we file or submit under the Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission’s rules and forms.
- (b) Changes in Internal Control Over Financial Reporting. There have been no material changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Act) during the fiscal quarter ended March 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. We implemented internal controls to ensure we adequately evaluated our leases and properly assessed the impact of the new accounting standard related to leases on our financial statements to facilitate adoption of the standard on January 1, 2019. There were no significant changes to our internal control over financial reporting due to the adoption of the new standard.

PART II – OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

See Note 20 to the Condensed Consolidated Financial Statements, which is incorporated herein by reference.

ITEM 1A. RISK FACTORS

There have been no other material changes to the risk factors disclosed in our 2018 Annual Report on Form 10-K.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

(c) 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
January 1 – 31, 2019	331,686	\$ 60.30	331,686	\$ 280,008,080
February 1 – 28, 2019	-	\$ -	-	\$ 280,008,080
March 1 – 31, 2019	4,978	\$ 73.22	-	\$ 280,008,080
Total	336,664		331,686	

(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 our long term incentive plans.

On July 29, 2016, we announced that our Board of Directors had approved a share repurchase program pursuant to which we were authorized to repurchase up to \$150.0 million of our outstanding shares of common stock through July 31, 2018 (the “Program”). On October 30, 2017, we announced that our Board of Directors had approved an additional \$250.0 million authorization to repurchase shares under the Program. The Program was also extended through October 31, 2020. On July 31, 2018, we announced that our Board of Directors had approved an additional \$300.0 million authorization to repurchase shares, increasing the total authorized amount under the Program to \$700.0

million.

Repurchases under the Program may be made through open market, block and privately-negotiated transactions, including Rule 10b5-1 plans, at such 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 AWI to repurchase any particular amount of common stock and may be suspended or discontinued at any time without notice.

On August 2, 2018, we entered into an accelerated share repurchase agreement (“ASR”) with Deutsche Bank AG under the Program. The ASR included a pre-payment of \$150.0 million to Deutsche Bank, at which time we received 1,766,004 shares. The ASR terminated on October 8, 2018, with approximately 389,825 shares returned on that day to complete the ASR.

During the three months ended March 31, 2019, we repurchased 0.3 million shares under the Program for a total cost of \$20.0 million, or an average price of \$60.30 per share. Since inception of the Program, through March 31, 2019, including the ASR, we have repurchased 8.0 million shares under the Program for a total cost of \$450.6 million, or an average price of \$56.19 per share.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

ITEM 5. OTHER INFORMATION

None.

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ITEM 6. EXHIBITS

The following exhibits are filed as part of this Quarterly Report on Form 10-Q:

Exhibit No. Description

- 10.1 Eighth Amendment to Receivables Purchase Agreement, dated February 15, 2019, by and among Armstrong Receivables Company, LLC, Armstrong World Industries, Inc., The Bank of Nova Scotia, and Liberty Street Funding LLC, is incorporated by reference from the Annual Report on Form 10-K filed on February 25, 2019, wherein it appeared as Exhibit 10.13.
- 10.2 Armstrong World Industries, Inc. 2016 Long-Term Incentive Plan, effective as of July 8, 2016 and amended and restated effective February 20, 2019, is incorporated by reference from the Annual Report on Form 10-K filed on February 25, 2019, wherein it appeared as Exhibit 10.42.
- 31.1 Certification of Chief Executive Officer required by Rule 13a-15(e) or 15d-15(e) of the Securities Exchange Act. †
- 31.2 Certification of Chief Financial Officer required by Rule 13a-15(e) or 15d-15(e) of the Securities Exchange Act. †
- 32.1 Certification of Chief Executive Officer required by Rule 13a and 18 U.S.C. Section 1350. †
- 32.2 Certification of Chief Financial Officer required by Rule 13a and 18 U.S.C. Section 1350. †
- 101.INS XBRL Instance Document. †
- 101.SCH XBRL Taxonomy Extension Schema. †
- 101.CAL XBRL Taxonomy Extension Calculation Linkbase. †
- 101.DEF XBRL Taxonomy Extension Definition Linkbase. †
- 101.LAB XBRL Taxonomy Extension Label Linkbase. †
- 101.PRE XBRL Taxonomy Extension Presentation Linkbase. †

Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Armstrong World Industries, Inc.

By: /s/ Brian L. MacNeal
Brian L. MacNeal, Senior Vice President and
Chief Financial Officer (Principal Financial Officer)

By: /s/ Stephen F. McNamara
Stephen F. McNamara, Vice President and
Controller (Principal Accounting Officer)

Date: April 29, 2019