

ARMSTRONG WORLD INDUSTRIES INC  
Form 10-Q  
July 31, 2017

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 June 30, 2017

OR

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

For the transition period from                      to

Commission File Number 1-2116

ARMSTRONG WORLD INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Pennsylvania  
(State or other jurisdiction of

incorporation or organization)

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

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

23-0366390  
(I.R.S. Employer

Identification No.)

17603  
(Zip Code)

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

Indicate by check mark 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 July 24, 2017 – 52,888,793.

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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:

- global and domestic economic conditions;
- construction activity;
- the tax consequences of the separation of the flooring business from our ceilings (building products) business;
- competition;
- key customers;
- availability and costs of raw materials and energy;
- international operations;
- Worthington Armstrong Venture (“WAVE”), our joint venture with Worthington Industries, Inc.;
- environmental matters;
- covenants in our debt agreements;
- our indebtedness;
- our liquidity;
- strategic transactions;
- negative tax consequences;
- defined benefit plan obligations;
- claims and litigation;
- labor;
- intellectual property rights;
- cost savings and productivity initiatives; and
- other risks detailed from time to time in our filings with the Securities and Exchange Commission (the “SEC”), press releases and other communications, including those set forth under “Risk Factors” included in our Annual Report on Form 10-K and in the documents incorporated by reference.

Such forward-looking statements speak only as of the date they are made. We expressly disclaim any obligation to release publicly any updates or revisions to any forward-looking statements to reflect any change in our expectations with regard thereto or change in events, conditions or circumstances on which any 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 June 30, 2017	Three Months Ended June 30, 2016	Six Months Ended June 30, 2017	Six Months Ended June 30, 2016
Net sales	\$ 330.8	\$ 314.3	\$ 646.2	\$ 601.7
Cost of goods sold	219.7	222.8	435.8	425.9
Gross profit	111.1	91.5	210.4	175.8
Selling, general and administrative expenses	52.4	55.8	107.0	109.5
Separation costs	-	3.9	-	31.0
Equity earnings from joint venture	(19.7 )	(19.9 )	(38.0 )	(38.0 )
Operating income	78.4	51.7	141.4	73.3
Interest expense	9.2	12.5	18.4	34.4
Other non-operating expense	0.1	-	1.9	-
Other non-operating (income)	(1.0 )	(2.1 )	(4.4 )	(7.3 )
Earnings from continuing operations before income taxes	70.1	41.3	125.5	46.2
Income tax expense	28.6	24.7	53.2	36.7
Earnings from continuing operations	41.5	16.6	72.3	9.5
Net (loss) from discontinued operations, net of tax expense				
of \$ -, \$-, \$- and \$ 0.1	-	-	-	(4.5 )
(Loss) gain from disposal of discontinued business, net of tax				
expense (benefit) of \$0.2, (\$0.1), \$0.5 and (\$1.9)	(0.2 )	0.3	(0.6 )	2.0
Net (loss) gain from discontinued operations	(0.2 )	0.3	(0.6 )	(2.5 )
Net earnings	\$ 41.3	\$ 16.9	\$ 71.7	\$ 7.0
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments	2.8	(13.2 )	13.9	(11.8 )
Derivative (loss)	(1.8 )	(2.1 )	(1.7 )	(0.5 )
Pension and postretirement adjustments	2.0	9.2	4.5	17.0
Total other comprehensive income (loss)	3.0	(6.1 )	16.7	4.7
Total comprehensive income	\$ 44.3	\$ 10.8	\$ 88.4	\$ 11.7
Earnings per share of common stock, continuing operations:				
Basic	\$ 0.78	\$ 0.30	\$ 1.34	\$ 0.17
Diluted	\$ 0.77	\$ 0.29	\$ 1.33	\$ 0.17

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Earnings (loss) per share of common stock, discontinued operations:				
Basic	\$ -	\$ 0.01	\$ (0.01 )	\$ (0.04 )
Diluted	\$ -	\$ 0.01	\$ (0.01 )	\$ (0.04 )
Net earnings per share of common stock:				
Basic	\$ 0.77	\$ 0.30	\$ 1.33	\$ 0.13
Diluted	\$ 0.77	\$ 0.30	\$ 1.32	\$ 0.13
Average number of common shares outstanding:				
Basic	53.3	55.6	53.7	55.6
Diluted	53.7	56.0	54.1	55.9

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	
	June 30, 2017	December 31, 2016
<b>Assets</b>		
Current assets:		
Cash and cash equivalents	\$ 79.7	\$ 141.9
Accounts and notes receivable, net	140.2	108.3
Inventories, net	116.9	109.0
Income tax receivable	7.6	26.2
Other current assets	17.6	20.8
Total current assets	362.0	406.2
Property, plant, and equipment, less accumulated depreciation and amortization of		
\$489.4 and \$445.5, respectively	696.0	669.6
Prepaid pension costs	79.6	56.6
Investment in joint venture	109.2	106.2
Goodwill and intangible assets, net	453.6	434.5
Deferred income taxes	12.2	15.4
Income taxes receivable	7.4	5.7
Other non-current assets	64.3	63.8
Total assets	\$ 1,784.3	\$ 1,758.0
<b>Liabilities and Shareholders' Equity</b>		
Current liabilities:		
Short-term debt	\$ 15.0	\$ -
Current installments of long-term debt	32.5	25.0
Accounts payable and accrued expenses	163.9	197.1
Income tax payable	4.5	2.0
Total current liabilities	215.9	224.1
Long-term debt, less current installments	832.9	848.6
Postretirement benefit liabilities	82.1	84.8
Pension benefit liabilities	89.3	86.3
Other long-term liabilities	28.3	29.1
Income taxes payable	61.4	62.2
Deferred income taxes	177.1	156.5
Total non-current liabilities	1,271.1	1,267.5
Shareholders' equity:		
Common stock, \$0.01 par value per share, 200 million shares authorized, 60,709,316	0.6	0.6

shares issued and 52,880,957 shares outstanding as of June 30, 2017 and

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60,597,140 shares issued and 54,428,233 shares outstanding as of December 31, 2016

Additional paid-in capital	509.6	504.9
Retained earnings	550.3	469.9
Treasury stock, at cost, 7,828,359 shares as of June 30, 2017 and 6,168,907 shares as of December 31, 2016	(376.1 )	(305.2 )
Accumulated other comprehensive (loss)	(387.1 )	(403.8 )
Total shareholders' equity	297.3	266.4
Total liabilities and shareholders' equity	\$ 1,784.3	\$ 1,758.0

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

## Six Months Ended June 30, 2017

	Common Stock Shares	Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Shares	Stock Amount	Accumulated Other Comprehensive (Loss)	Total
Balance at beginning of period	54,428,233	\$ 0.6	\$ 504.9	\$ 469.9	6,168,907	\$(305.2)	\$ (403.8)	\$ 266.4
Cumulative effect impact of ASU 2016-09 adoption				8.7				8.7
Stock issuance	112,176							
Share-based employee compensation			3.8					3.8
Net earnings				71.7				71.7
Separation of Armstrong Flooring, Inc.			0.9					0.9
Other comprehensive income							16.7	16.7
Acquisition of treasury stock	(1,659,452)				1,659,452	(70.9)		(70.9)
Balance at end of period	52,880,957	\$ 0.6	\$ 509.6	\$ 550.3	7,828,359	\$(376.1)	\$ (387.1)	\$ 297.3

## Six Months Ended June 30, 2016

	Common Stock Shares	Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Shares	Stock Amount	Accumulated Other Comprehensive (Loss)	Total
Balance at beginning of period	55,359,064	\$ 0.6	\$ 1,151.8	\$ 365.2	5,057,382	\$(261.4)	\$ (487.4)	\$ 768.8
Stock issuance	125,919							
Share-based employee compensation			7.0					7.0
Net earnings				7.0				7.0
Separation of Armstrong Flooring, Inc.			(641.9)				56.8	(585.1)
Other comprehensive income							4.7	4.7
Balance at end of period	55,484,983	\$ 0.6	\$ 516.9	\$ 372.2	5,057,382	\$(261.4)	\$ (425.9)	\$ 202.4

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

	Six Months Ended June 30,	
	2017	2016
Cash flows from operating activities:		
Net earnings	\$71.7	\$7.0
Adjustments to reconcile net earnings to net cash provided by (used for) operating activities:		
Depreciation and amortization	38.6	50.2
Write off of debt financing costs	-	1.1
Deferred income taxes	36.4	3.5
Share-based compensation	5.1	6.7
Equity earnings from joint venture	(38.0 )	(38.0 )
Separation costs	-	31.0
Loss on interest rate swap	-	10.7
U.S. pension (credit) expense	(12.4 )	8.6
Other non-cash adjustments, net	(0.4 )	(3.9 )
Changes in operating assets and liabilities:		
Receivables	(26.5 )	(39.7 )
Inventories	(1.8 )	0.6
Other current assets	2.2	9.6
Other non-current assets	(2.8 )	(8.9 )
Accounts payable and accrued expenses	(39.6 )	(90.0 )
Income taxes payable	15.2	18.9
Other long-term liabilities	(5.5 )	(18.7 )
Other, net	0.2	(4.1 )
Net cash provided by (used for) operating activities	42.4	(55.4 )
Cash flows from investing activities:		
Purchases of property, plant and equipment	(44.8 )	(53.4 )
Return of investment from joint venture	35.0	49.2
Cash paid for acquisition	(31.4 )	-
Other investing activities	0.5	0.3
Net cash (used for) investing activities	(40.7 )	(3.9 )
Cash flows from financing activities:		
Proceeds from revolving credit facility and other short-term debt	93.0	90.0
Payments of revolving credit facility and other short-term debt	(78.0 )	(90.0 )
Proceeds from long-term debt	-	363.5
Payments of long-term debt	(8.7 )	(432.1 )
Financing costs	(0.6 )	(8.1 )
Proceeds from exercised stock options	0.6	0.1

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Cash transferred to Armstrong Flooring, Inc.	-	(9.1 )
Excess tax benefit from share-based awards	-	2.8
Payment for treasury stock acquired	(70.9 )	-
Net cash (used for) financing activities	(64.6 )	(82.9 )
Effect of exchange rate changes on cash and cash equivalents	0.7	(3.2 )
Net (decrease) in cash and cash equivalents	(62.2 )	(145.4)
Cash and cash equivalents at beginning of year	141.9	244.8
Cash and cash equivalents at end of period	\$79.7	\$99.4
Supplemental Cash Flow Disclosures:		
Interest paid	\$15.4	\$17.6
Income tax payments, net	2.2	9.7
Amounts in accounts payable for capital expenditures	2.8	7.4

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, 2016. 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, 2016. 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 second quarter and first six months of 2017 and 2016 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 April 1, 2016, we completed our separation of Armstrong Flooring, Inc. (“AFI”). AFI’s historical financial results have been reflected in AWI’s Consolidated Financial Statements as a discontinued operation for all periods presented. Separation costs for the three and six months ended June 30, 2016 were \$3.9 million and \$31.0 million, respectively. Separation costs were recorded within the Unallocated Corporate segment. Separation costs primarily related to outside professional services and employee compensation, retention and severance accruals.

On January 13, 2017, we acquired the business and assets of Tectum, Inc. (“Tectum”), based in Newark, Ohio. Tectum is a manufacturer of acoustical ceiling, wall and structural solutions for commercial building applications with two manufacturing facilities. Tectum’s operations from the date of acquisition, and its assets and liabilities as of June 30, 2017, have been included as a component of our Americas segment. See Note 3 for additional information.

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.

Certain amounts in the prior year’s Condensed Consolidated Financial Statements have been recast to conform to the 2017 presentation.

Recently Adopted Accounting Standards

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

our financial condition, results of operations or cash flows.

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

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

Collectively, the revenue recognition ASC updates are effective for annual reporting periods beginning after December 15, 2017, but early adoption is permitted. We intend to adopt these standards effective January 1, 2018 using the modified retrospective transition method and also intend to apply all practical expedients related to completed contracts upon adoption. We are still evaluating the impact the adoption of these ASC updates will have on our financial condition, results of operations, cash flows and disclosures. Substantially all of our revenues are recognized from the sale of products with standard shipping terms, sales discounts and warranties. As such, and based on our evaluation to date, we do not believe adoption will have a material impact to us as we expect to continue to recognize substantially all of our revenues at a point in time. Our final evaluation of the impact of adopting these ASC updates is expected to be completed during the third quarter of 2017.

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

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

In August 2016, the FASB issued ASU 2016-15, "Classification of Certain Cash Receipts and Cash Payments." This guidance clarifies how entities should classify certain cash receipts and cash payments on the statement of cash flows. This new guidance is effective for annual periods beginning after December 15, 2017. We are currently evaluating the impact the adoption of this standard would have on our cash flows.

In March 2017, the FASB issued ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost," which requires companies to report the service cost component of net benefit cost in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components of net benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. This new guidance is effective for annual periods beginning after December 15, 2018 and will have an impact on the classification of net benefit costs, which are currently included as a component of Costs of goods sold and Selling, general and administrative ("SG&A") expenses, on our Condensed Consolidated Statements of Earnings. See Note 13 for details related to our components of net benefit costs.

## NOTE 2. SEGMENT RESULTS

Our reportable operating segments consist of the following three distinct geographical segments: Americas (including Canada); Europe, Middle East and Africa (including Russia) ("EMEA"); and Pacific Rim. Balance sheet items classified as Unallocated



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Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

Corporate primarily include cash and cash equivalents and outstanding borrowings under our senior credit facilities. The majority of expenses for our corporate support functions are allocated to our Americas segment.

	Three Months Ended June 30, 2017		Six Months Ended June 30, 2016	
Net sales to external customers				
Americas	\$225.6	\$214.8	\$445.4	\$414.9
EMEA	68.7	65.6	135.3	125.2
Pacific Rim	36.5	33.9	65.5	61.6
Total net sales to external customers	\$330.8	\$314.3	\$646.2	\$601.7

	Three Months Ended June 30, 2017		Six Months Ended June 30, 2016	
Segment operating income (loss)				
Americas	\$79.9	\$64.3	\$147.1	\$120.4
EMEA	(1.8 )	(5.3 )	(4.9 )	(9.3 )
Pacific Rim	0.3	(2.1 )	(0.8 )	(3.4 )
Unallocated Corporate	-	(5.2 )	-	(34.4 )
Total consolidated operating income	\$78.4	\$51.7	\$141.4	\$73.3

	Three Months Ended June 30, 2017		Six Months Ended June 30, 2016	
Total consolidated operating income	\$78.4	\$51.7	\$141.4	\$73.3
Interest expense	9.2	12.5	18.4	34.4
Other non-operating expense	0.1	-	1.9	-
Other non-operating (income)	(1.0 )	(2.1 )	(4.4 )	(7.3 )
Earnings from continuing operations before income taxes	\$70.1	\$41.3	\$125.5	\$46.2

	June 30, 2017	December 31, 2016
Segment assets		
Americas	\$1,249.0	\$ 1,186.7
EMEA	299.2	275.5
Pacific Rim	147.8	145.0
Unallocated Corporate	88.3	150.8
Total consolidated assets	\$1,784.3	\$ 1,758.0

Impairment testing of our tangible assets occurs whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable.

### NOTE 3. ACQUISITION AND DISCONTINUED OPERATIONS

#### Acquisition of Tectum

On January 13, 2017, in connection with the acquisition of Tectum, the \$31.4 million purchase price for Tectum 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, in connection with the Tectum acquisition was \$5.9 million. The total fair value of intangible assets acquired, comprised of amortizable customer relationships and non-amortizing brand names, was \$16.5 million, resulting in \$9.0 million of goodwill. All of the acquired goodwill is deductible for tax purposes.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

Separation and Distribution of AFI

On April 1, 2016, 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 Transition Services Agreement, a Tax Matters Agreement, an Employee Matters Agreement, a Trademark License Agreement, a Transition Trademark License Agreement and a Campus Lease Agreement. Under the Transition Services Agreement, AWI and AFI will provide various services to each other during a transition period expiring no later than December 31, 2017. We do not expect to extend the Transition Services Agreement beyond December 31, 2017.

The following is a summary of the results of operations related to AFI, our former Resilient Flooring and Wood Flooring segments, which are presented as discontinued operations.

	Six Months Ended June 30, 2016
Net sales	\$ 284.4
Cost of goods sold	237.2
Gross profit	47.2
Selling, general and administrative expenses	50.5
Operating (loss)	(3.3 )
Other non-operating expense, net	1.1
(Loss) from discontinued operations before income taxes	(4.4 )
Income tax expense	0.1
(Loss) from discontinued operations	\$ (4.5 )

The following is a summary of total depreciation and amortization and capital expenditures related to AFI which are presented as discontinued operations and included as components of operating and investing cash flows on our consolidated statements of cash flows:

Six  
Months  
Ended  
June 30,

	2016
Depreciation and amortization	\$ 11.4
Purchases of property, plant and equipment	(12.1 )

#### 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. As a result, DLW management filed for insolvency in Germany on December 11, 2014. The German insolvency court subsequently appointed an administrator (the “Administrator”) to oversee DLW operations.

As of December 4, 2014, DLW had a net liability of \$12.9 million, representing assets of \$151.9 million and liabilities of \$164.8 million, which were removed from our balance sheet. This net liability was recognized as a contingent liability on our consolidated balance sheet pending the closure of the insolvency proceeding. The net liability, included within Accounts payable and accrued expenses on our Condensed Consolidated Balance Sheets, was \$11.9 million as of March 31, 2017. In April 2017, we entered into a settlement agreement and mutual release with the Administrator on behalf of the DLW estate to settle all claims of the Administrator related to the insolvency for a cash payment of \$11.8 million. DLW was previously shown within our Resilient Flooring reporting segment.

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The following is a summary of the results related to the flooring businesses which are included in discontinued operations.

	Three Months Ended June 30, 2017 2016		Six Months Ended June 30, 2017 2016	
Gain (loss) on disposal of discontinued business before				
income tax	\$-	\$0.2	\$(0.1)	\$0.1
Income tax expense (benefit)	0.2	(0.1)	0.5	(1.9)
Net (loss) gain on disposal of discontinued business	\$(0.2)	\$0.3	\$(0.6)	\$2.0

NOTE 4. ACCOUNTS AND NOTES RECEIVABLE

	June 30, 2017	December 31, 2016
Customer receivables	\$135.2	\$ 106.9
Customer notes	0.8	1.5
Miscellaneous receivables	9.9	6.0
Less allowance for warranties, discounts and losses	(5.7 )	(6.1 )
Accounts and notes receivable, net	\$140.2	\$ 108.3

Generally, 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.

NOTE 5. INVENTORIES

	June 30, 2017	December 31, 2016
Finished goods	\$85.6	\$ 80.5
Goods in process	4.3	3.3
Raw materials and supplies	35.0	32.4
Less LIFO reserves	(8.0 )	(7.2 )
Total inventories, net	\$ 116.9	\$ 109.0

#### NOTE 6. OTHER CURRENT ASSETS

	June 30, 2017	December 31, 2016
Prepaid expenses	\$15.7	\$ 15.0
Fair value of derivative assets	0.4	2.4
Other	1.5	3.4
Total other current assets	\$ 17.6	\$ 20.8

#### NOTE 7. EQUITY INVESTMENT

Investment in joint venture as of June 30, 2017 reflected our 50% equity interest in WAVE. Condensed income statement data for WAVE is summarized below. Segment results relating to WAVE, however, consist primarily of equity earnings, as we do not consolidate the sales, profit or earnings of WAVE in our results.

	Three Months Ended June 30, 2017		Six Months Ended June 30, 2017	
	2017	2016	2017	2016
Net sales	\$ 107.7	\$ 104.0	\$ 209.5	\$ 197.9
Gross profit	55.6	56.6	107.8	106.9
Net earnings	43.2	43.0	82.8	82.2

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NOTE 8. GOODWILL AND INTANGIBLE ASSETS

The following table details amounts related to our intangible assets as of June 30, 2017 and December 31, 2016.

		June 30, 2017		December 31, 2016	
		Gross		Gross	
	Estimated	Carrying	Accumulated	Carrying	Accumulated
	Useful Life	Amount	Amortization	Amount	Amortization
Amortizing intangible assets					
Customer relationships	20 years	\$ 176.8	\$ 89.4	\$ 165.3	\$ 84.9
Developed technology	15 years	83.2	58.2	82.8	55.4
Other	Various	13.7	2.2	13.2	2.0
Total		\$ 273.7	\$ 149.8	\$ 261.3	\$ 142.3
Goodwill and non-amortizing intangible assets					
Trademarks and brand names	Indefinite	319.5		314.4	
Goodwill	Indefinite	10.2		1.1	
Total goodwill and intangible assets		\$ 603.4		\$ 576.8	

	Six Months	
	Ended	
	June 30,	
	2017	2016
Amortization expense	\$ 7.3	\$ 7.0

NOTE 9. ACCOUNTS PAYABLE AND ACCRUED EXPENSES

	June 30, 2017	December 31, 2016
Payables, trade and other	\$ 101.6	\$ 108.6
Employment costs	23.4	33.7

Current portion of pension and postretirement liabilities	13.0	12.7
Contingent liability related to discontinued operations	-	11.9
Other	25.9	30.2
Total accounts payable and accrued expenses	\$163.9	\$ 197.1

#### NOTE 10. SEVERANCE AND RELATED COSTS

During the first quarter of 2016, we recorded \$2.4 million in Unallocated Corporate for severance and related costs (including for our former Chief Executive Officer) as a result of the separation of AFI. These costs are reflected within Separation costs on the Condensed Consolidated Statements of Earnings.

#### NOTE 11. INCOME TAX EXPENSE

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
Earnings from continuing operations before income taxes	\$70.1	\$41.3	\$125.5	\$46.2
Income tax expense	28.6	24.7	53.2	36.7
Effective tax rate	40.8%	59.8%	42.4 %	79.4 %

Excluding the impact of the increase in pre-tax income, the effective rate for the second quarter and first six months of 2017 was lower in comparison to the same periods in 2016 as income tax expense in 2016 was negatively impacted by the separation of AFI.

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



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could result from the completion of ongoing examinations, the expiration of the statute of limitations or other unforeseen circumstances.

As of June 30, 2017, we consider foreign unremitted earnings to be permanently reinvested.

NOTE 12. DEBT

As of June 30, 2017 and December 31, 2016, our long-term debt included borrowings outstanding under our \$1,050.0 million 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. We also have a \$25.0 million letter of credit facility, also known as our bi-lateral facility.

As of June 30, 2017, the outstanding balance on our revolving credit facility, classified as Short-term debt on our Condensed Consolidated Balance Sheets, was \$15.0 million. As of December 31, 2016, there were no borrowings outstanding on our revolving credit facility.

As of June 30, 2017 and December 31, 2016, 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 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. In addition, our foreign subsidiaries' available lines of credit are available for letters of credit and guarantees. 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:

Financing Arrangements	As of June 30, 2017		
	Limit	Used	Available
Revolving credit facility	\$150.0	\$-	\$ 150.0
Bi-lateral facility	25.0	19.2	5.8
Accounts receivable securitization facility	40.0	36.2	3.8
Foreign lines of credit	0.2	-	0.2
Total	\$215.2	\$55.4	\$ 159.8

As of December 31, 2016, \$4.0 million of letters of credits 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 June 30, 2017, no amounts were classified as restricted cash.

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

## Armstrong World Industries, Inc., and Subsidiaries

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## NOTE 13. PENSIONS AND OTHER BENEFIT PROGRAMS

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

	Three Months Ended June 30, 2017		Six Months Ended June 30, 2016	
U.S. defined-benefit plans:				
Pension benefits				
Service cost of benefits earned during the period	\$2.1	\$2.2	\$4.2	\$5.8
Interest cost on projected benefit obligation	12.4	16.5	24.9	36.9
Expected return on plan assets	(24.8)	(26.2)	(49.6)	(58.2)
Amortization of prior service cost	0.3	0.4	0.7	0.9
Amortization of net actuarial loss	4.3	11.4	8.5	25.4
Net periodic pension (credit) cost	\$(5.7 )	\$4.3	\$(11.3)	\$10.8
Less: Discontinued operations	-	-	-	2.2
Net periodic pension (credit) cost, continuing operations	\$(5.7 )	\$4.3	\$(11.3)	\$8.6
Retiree health and life insurance benefits				
Service cost of benefits earned during the period	\$0.1	\$0.1	\$0.2	\$0.2
Interest cost on projected benefit obligation	0.8	1.0	1.5	2.8
Amortization of prior service credit	-	(0.1 )	-	(0.2 )
Amortization of net actuarial gain	(0.9 )	(1.3 )	(1.8 )	(3.6 )
Net periodic postretirement (credit)	\$-	\$(0.3 )	\$(0.1 )	\$(0.8 )
Less: Discontinued operations	-	-	-	(0.2 )
Net periodic postretirement (credit), continuing operations	\$-	\$(0.3 )	\$(0.1 )	\$(0.6 )
Non-U.S. defined-benefit pension plans:				
Service cost of benefits earned during the period	\$0.5	\$0.6	\$1.0	\$1.1
Interest cost on projected benefit obligation	1.3	1.8	2.6	3.5
Expected return on plan assets	(1.7 )	(2.0 )	(3.3 )	(4.0 )
Amortization of net actuarial loss	0.3	0.3	0.6	0.6
Net periodic pension cost	\$0.4	\$0.7	\$0.9	\$1.2

The change in net periodic pension (credit) cost for the three and six months ended June 30, 2017 in comparison to the same periods in 2016 was primarily due to a decrease in amortization of net actuarial losses resulting from a reduction in active plan participants due to the separation of AFI. During 2016, actuarial gains and losses were amortized into future earnings over the expected remaining service period of plan participants, which was approximately eight years for our U.S. defined-benefit pension plans. For 2017, actuarial gains and losses are amortized over the remaining life expectancy of plan participants, which are approximately 20 years for our U.S. defined-benefit pension plans.

Our U.S. defined benefit Retirement Income Plan (“RIP”) was amended to freeze accruals for salaried non-production employees, effective December 31, 2017. The impact of this amendment resulted in a reduction to our December 31, 2016 projected benefit obligation with a corresponding increase to unrecognized loss, resulting in no curtailment gain or loss. The impact of this amendment has been reflected in the net periodic pension credit for 2017.

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## NOTE 14. FINANCIAL INSTRUMENTS

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

	June 30, 2017		December 31, 2016	
	Carrying	Estimated	Carrying	Estimated
	amount	fair value	amount	fair value
Assets/(Liabilities), net:				
Total long-term debt, including current portion	\$(865.4)	\$ (865.6 )	\$(873.6 )	\$ (873.7 )
Foreign currency contracts	(0.4 )	(0.4 )	1.6	1.6
Natural gas contracts	(0.3 )	(0.3 )	1.0	1.0
Interest rate swap contracts	6.8	6.8	6.9	6.9

The carrying amounts of cash and cash equivalents, receivables, accounts payable, accrued expenses, and short-term debt approximate fair value because of the short-term maturity of these instruments. The fair value estimates of long-term debt were based upon quotes from a major financial institution of recently observed trading levels of our Term Loan A and Term Loan B debt, respectively. The fair value estimates of foreign currency contract obligations are estimated from market quotes provided by a well-recognized national market data provider. The fair value estimates of natural gas contracts are estimated using internal valuation models with verification by obtaining quotes from major financial institutions. For natural gas swap transactions, fair value is calculated using NYMEX market quotes provided by a well-recognized national market data provider. For natural gas option based strategies, fair value is calculated using an industry standard Black-Scholes model with market based inputs, including but not limited to, underlying asset price, strike price, implied volatility, discounted risk free rate, and time to expiration, and is provided by a well-recognized national market data provider. 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

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 assets and liabilities measured at fair value on a recurring basis and reported on the consolidated balance sheets is summarized below:

	June 30, 2017		December 31, 2016	
	Fair value based on		Fair value based on	
	Quoted, Other		Quoted, Other	
	active	observable	active	observable
	markets	inputs	markets	inputs
	Level			
	1	Level 2	Level 1	Level 2
Assets, net:				
Foreign currency contracts	\$ (0.4 )	\$ -	\$ 1.6	\$ -
Natural gas contracts	-	(0.3 )	-	1.0
Interest rate swap contracts	-	6.8	-	6.9

We do not have any financial assets or liabilities that are valued using Level 3 (unobservable) inputs.

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NOTE 15. 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 forward swaps and option contracts to hedge these exposures. Exposure to individual counterparties is controlled and derivative financial instruments are entered into with a diversified group of major financial institutions. Forward swaps and option contracts are entered into for periods consistent with underlying exposure and do not constitute positions independent of those exposures. At inception, hedges 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 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 for use in the manufacturing process and to heat many of our facilities. As a result, we are exposed to fluctuations in the price of natural gas. We have a policy to reduce cost volatility for North American natural gas purchases by purchasing natural gas forward contracts and swaps, purchased call options, and zero-cost collars up to 24 months forward. The contracts are based on forecasted usage of natural gas measured in mmBtu's. There is a high correlation between the hedged item and the hedge instrument. The gains and losses on these instruments offset gains and losses on the transactions being hedged. These instruments are designated as cash flow hedges. As of June 30, 2017 and December 31, 2016, the notional amount of these hedges was \$12.3 million and \$7.4 million, respectively. The mark-to-market gain or loss on qualifying hedges is included in other comprehensive income to the extent effective, and reclassified into cost of goods sold in the period during which the underlying gas is consumed. The mark-to-market gains or losses on ineffective portions of hedges are recognized in cost of goods sold immediately. The earnings impact of the ineffective portion of these hedges was not material for the three and six months ended June 30, 2017 and 2016.

Currency Rate Risk – Sales and Purchases

We manufacture and sell our products in a number of countries throughout the world and, as a result, we are exposed to movements in foreign currency exchange rates. To a large extent, our global manufacturing and sales provide a natural hedge of foreign currency exchange rate movement, as foreign currency expenses generally offset foreign currency revenues. We manage our cash flow exposures on a net basis and use derivatives to hedge the majority of our unmatched foreign currency cash inflows and outflows. Our major foreign currency exposures as of June 30, 2017, based on operating profits by currency, are to the Russian ruble, Canadian dollar and Chinese renminbi.

We use foreign currency forward exchange contracts to reduce our exposure to the risk that the eventual net cash inflows and outflows resulting from the sale of products to foreign customers and purchases from foreign suppliers will be adversely affected by changes in exchange rates. These derivative instruments are used for forecasted transactions and are classified as cash flow hedges. Cash flow hedges are executed quarterly, generally up to 15 months forward, and allow us to further reduce our overall exposure to exchange rate movements, since gains and losses on these contracts offset gains and losses on the transactions being hedged. The notional amount of these hedges was \$33.2 million as of June 30, 2017 and \$34.6 million as of December 31, 2016. Gains and losses on these instruments are recorded in other comprehensive income, to the extent effective, until the underlying transaction is recognized in earnings. The earnings impact of the ineffective portion of these hedges was not material for the three and six months ended June 30, 2017 and 2016.



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Interest Rate Risk

We utilize interest rate swaps to minimize the fluctuations in earnings caused by interest rate volatility. Interest expense on variable-rate liabilities increases or decreases as a result of interest rate fluctuations. The following table summarizes our interest rate swaps as of June 30, 2017:

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

In connection with the refinancing of our credit facilities in April 2016, \$450.0 million of notional amount Term Loan B swaps with a trade date of March 27, 2012 were settled and \$10.7 million of losses recorded as a component of accumulated other comprehensive income were reclassified to interest expense during the three months ended March 31, 2016, with the cash payment for the settlement of this swap occurring during the second quarter of 2016.

Under the terms of the Term Loan A swap with trade dates of November 13, 2016, we receive 1-month LIBOR and pay a fixed rate over the hedged period. Under the terms of our Term Loan B swap with a trade date of April 1, 2016, we receive the greater of 3-month LIBOR or a 0.75% LIBOR Floor and pay a fixed rate over the hedged period. These swaps are designated as cash flow hedges against changes in LIBOR for a portion of our variable rate debt. Gains and losses on these instruments are recorded in other comprehensive income, to the extent effective, until the underlying transaction is recognized in earnings. The mark-to-market gains or losses on the ineffective portion of hedges are recognized in interest expense. There was no earnings impact of the ineffective portion of these hedges for the three and six months ended June 30, 2017 and 2016.

Financial Statement Impacts

The following tables detail amounts related to our derivatives as of June 30, 2017 and December 31, 2016. We had no derivative assets or liabilities not designated as hedging instruments as of June 30, 2017 or December 31, 2016. 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
Balance Sheet		Balance Sheet	

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Location		June 30, 2017	December 31, 2016	Location		June 30, 2017	December 31, 2016
Derivatives designated as hedging instruments							
Natural gas commodity contracts	Other current assets	\$-	\$ 1.0	Accounts payable and accrued expenses		\$0.2	\$ -
Foreign exchange contracts	Other current assets	0.2	1.4	Accounts payable and accrued expenses		0.4	-
Interest rate swap contracts	Other current assets	0.2	-	Accounts payable and accrued expenses		-	-
Natural gas commodity contracts	Other non-current assets	-	-	Other long-term liabilities		0.1	-
Foreign exchange contracts	Other non-current assets	-	0.2	Other long-term liabilities		0.2	-
Interest rate swap contracts	Other non-current assets	6.6	7.4	Other long-term liabilities		-	0.5
Total derivatives designated as hedging instruments		\$7.0	\$ 10.0			\$0.9	\$ 0.5

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	Amount of (Loss) Gain		Recognized in Accumulated		Other Comprehensive		Location of (Loss)	
	Income (“AOCI”)		Gain Reclassified from		Gain (Loss) Reclassified			
	(Effective		AOCI into Income		from AOCI into Income			
	Portion)		(Effective Portion)		(Effective Portion)			
	Six Months				Three		Six Months	
	Ended				Months		Ended	
	June 30,				June 30,		June 30,	
	2017	2016			2017	2016	2017	2016
Derivatives in cash flow hedging relationships								
Natural gas commodity contracts	\$ (1.0 )	\$ 0.3	Cost of goods sold		\$0.2	\$(0.5)	\$0.3	\$(1.3 )
Foreign exchange contracts – purchases	(0.4 )	(0.2 )	Cost of goods sold		-	0.1	-	0.6
Foreign exchange contracts – sales	(0.8 )	0.6	Net sales		0.2	0.3	0.4	1.1
Interest rate swap contracts	0.1	(7.6 )	Interest expense		-	-	-	(10.7)
Total	\$ (2.1 )	\$ (6.9 )			\$0.4	\$(0.1)	\$0.7	\$(10.3)

As of June 30, 2017, the amount of existing gains in AOCI expected to be recognized in earnings over the next twelve months is \$0.5 million.

There was no pre-tax gain or loss recognized in income for derivative instruments not designated as hedging instruments for the three months ended June 30, 2017 and 2016.

NOTE 16. 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 are authorized to repurchase up to \$150.0 million of our outstanding shares of common stock through July 31, 2018 (the "Program"). 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 us to repurchase any particular amount of common stock and may be suspended or discontinued at any time without notice. During the six months ended June 30, 2017, we repurchased 1.7 million shares under the Program for a total cost of \$70.9 million, or an average price of \$42.60 per share. Since inception of the Program, we have repurchased 2.8 million shares under the Program for a total cost of \$114.7 million, or an average price of \$41.34 per share.

# NOTE 17. ACCUMULATED OTHER COMPREHENSIVE (LOSS)

	Foreign			Total
	Currency	Derivative	Pension and Postretirement	Accumulated
	Translation Adjustments	Gain (Loss) <sup>(1)</sup>	Adjustments <sup>(1)</sup>	Other Comprehensive (Loss) <sup>(1)</sup>
Balance, December 31, 2016	\$ (71.6 )	\$ 3.8	\$ (336.0 )	\$ (403.8 )
Other comprehensive income (loss) income before				
reclassifications, net of tax expense of \$ -, \$0.9, \$-,				
and \$0.9	13.9	(1.2 )	(0.8 )	11.9
Amounts reclassified from accumulated other				
comprehensive (loss)	-	(0.5 )	5.3	4.8
Net current period other comprehensive income (loss)	13.9	(1.7 )	4.5	16.7
Balance at June 30, 2017	\$ (57.7 )	\$ 2.1	\$ (331.5 )	\$ (387.1 )

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	Foreign			Total
	Accumulated			
	Currency	Derivative	Pension and	Other
	Translation	Gain	Postretirement	Comprehensive
	Adjustments	(Loss) <sup>(1)</sup>	Adjustments <sup>(1)</sup>	(Loss) <sup>(1)</sup>
Balance, December 31, 2015	\$ (33.8 )	\$ (3.3 )	\$ (450.3 )	\$ (487.4 )
Separation of AFI, net of tax (benefit) of \$-, \$-, (\$37.8) and (\$37.8)	(4.6 )	(0.4 )	61.8	56.8
Other comprehensive income (loss) before reclassifications,				
net of tax expense of \$ -, \$3.9, \$0.2, and \$4.1	(11.8 )	(6.6 )	3.1	(15.3 )
Amounts reclassified from accumulated other				
comprehensive (loss)	-	6.1	13.9	20.0
Net current period other comprehensive (loss) income	(11.8 )	(0.5 )	17.0	4.7
Balance at June 30, 2016	\$ (50.2 )	\$ (4.2 )	\$ (371.5 )	\$ (425.9 )

<sup>(1)</sup> Amounts are net of tax

	Amounts	
	Reclassified from	Affected Line Item in the
	Accumulated Other	Condensed Consolidated Statement of Earnings
	Comprehensive	and Comprehensive
	(Loss)	Income
	Six Months Ended June 30,	
	2017	2016
Derivative Adjustments:		
Natural gas commodity contracts	\$ (0.3 )	\$ 1.3 Cost of goods sold
Foreign exchange contracts - purchases	-	(0.6 ) Cost of goods sold
Foreign exchange contracts - sales	(0.4 )	(1.1 ) Net sales

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Interest rate swap contracts	-	10.7	Interest expense
Total (income) loss from continuing operations, before tax	(0.7 )	10.3	
Tax impact	0.2	(3.6 )	Income tax expense
Total (income) loss from continuing operations, net of tax	(0.5 )	6.7	
Total (income) from discontinued operations, net of tax benefit			
of \$ - and (\$0.3)	-	(0.6 )	
Total (income) loss, net of tax	(0.5 )	6.1	
Pension and Postretirement Adjustments:			
Prior service cost amortization	0.4	0.3	Cost of goods sold
Prior service cost amortization	0.3	0.2	SG&A expense
Amortization of net actuarial loss	3.6	8.9	Cost of goods sold
Amortization of net actuarial loss	3.7	9.2	SG&A expense
Total expense from continuing operations, before tax	8.0	18.6	
Tax impact	(2.7 )	(7.6 )	Income tax expense
Total expense from continuing operations, net of tax	5.3	11.0	
Total expense from discontinued operations, net of tax expense			
of \$ - and \$1.5	-	2.9	
Total expense, net of tax	5.3	13.9	
Total reclassifications for the period	\$ 4.8	\$ 20.0	

## NOTE 18. 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.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

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 several domestically owned, formerly owned and non-owned locations allegedly resulting from past industrial activity.

In a few cases, we are one of several potentially responsible parties and have agreed to jointly fund the required investigation 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. During the second quarter of 2017, we entered into settlement agreements with two 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 not material to our financial statements. We anticipate that we may enter into additional settlement agreements that may or may not be material in 2017 with other, but not all, legacy insurers to obtain reimbursement 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.

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

requires 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 requires 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 areas 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 have been working with the ODEQ, Kaiser and OC to finalize the reports to move to the Feasibility Study phase. We have determined that it is probable that remedial action for certain portions of the Lowland area of the Owned Property will be required. The current estimate of our future liability at the site includes any remaining known investigation work required by the Consent Order and the current projected cost of remedial actions in the Upland area. At this time, we are unable to reasonably estimate any remediation costs that we may ultimately incur with respect to the Lowland portion of the Owned Property or the Scappoose Bay or whether the projected costs for the areas we have included in our current estimate will increase. Additional investigative or remedial action required by the ODEQ could result in additional costs greater than the amounts currently estimated. As discussed above, we are currently unable to predict the outcome or the timing of our insurance recovery proceedings. Accordingly, additional estimated costs for this matter may be incurred without regard for, and prior to, the resolution of our insurance recovery proceedings.



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(dollar amounts in millions, except share data)

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). 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 Kaiser and ODEQ. 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. It may also delay implementation of remedial actions for the Upland area, as well as completion of the investigation phase for the Lowland area of the Owned Property and the Scappoose Bay. At this time, we are unable to predict whether and to what extent Kaiser intends to satisfy its environmental remediation obligations and liability to ODEQ. Specifically, we are unable to predict whether Kaiser will negotiate a settlement that would discharge its liability for the site, or whether it has sufficient insurance or other assets to cover its anticipated share of any site liability. Kaiser's shares under cost sharing agreements were being funded by certain insurance policies, which comprised substantially all of Kaiser's assets. If Kaiser, whether as a result of bankruptcy or otherwise, or OC are unwilling or unable to fulfill their obligations under the cost sharing agreements, or seek to contest or challenge the allocations, or if Kaiser's insurance policies are unable to fund Kaiser's share of environmental liability, it could result in additional cost to us greater than the amounts currently estimated and those costs may be material.

Macon, GA

The U.S. Environmental Protection Agency ("EPA") has listed two landfills located on a portion of our Building Products 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"). We concluded the investigative phase of the Removal Action for the WWTP Landfill and submitted our final Engineering Evaluation/Cost Analysis ("EE/CA") to the EPA in 2013. The EPA subsequently approved the EE/CA and issued an Action Memorandum in July 2013 selecting our recommended remedy for the Removal Action. In July 2014, we entered into an Administrative Order on Consent for Removal Action with the EPA for the WWTP Landfill. The EPA approved the Removal Action Work Plan on March 30, 2015 and the removal work commenced in the third quarter of 2015. 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. We will implement the Plan once it is approved. 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 six other Potentially Responsible Parties ("PRPs") received a Special Notice Letter from the EPA

under CERCLA inviting AWI and the PRPs to enter into the negotiation of a Settlement Agreement (formerly known as an Administrative Order on Consent) to conduct an RI/FS of Operable Unit 2. We, along with the other PRPs, submitted a good faith offer to the EPA in response to the Special Notice Letter to conduct RI/FS. We have not received a response to our good faith offer and have not yet entered into an Order with the EPA for Operable Unit 2. We have not yet commenced an investigation of this portion of the site. 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

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Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

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 has requested a schedule for next steps (e.g. feasibility study) working toward a Proposed Plan and Record Of Decision in 2018. If remediation is required, the related costs may be material, although we expect these costs to be shared with CBS and the Navy.

Summary of Financial Position

Liabilities of \$5.5 million as of June 30, 2017 and \$4.7 million as of December 31, 2016 were recorded for potential environmental liabilities that we consider probable and for which a reasonable estimate of the probable liability could be made. During the three and six months ended June 30, 2017, we recorded reserves for potential environmental liabilities of \$0.7 million and \$1.3 million, respectively. During the three and six months ended June 30, 2016, we recorded reserves for potential environmental liabilities of \$0.1 million and \$0.8 million, respectively. 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, SG&A expenses and/or discontinued operations, which are the same income statement categories where environmental expenditures were historically recorded. Insurance recoveries in excess of historical environmental spending, if any, would be recorded on the balance sheet as a part of other long-term liabilities and released as future environmental spending occurs.

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

We are involved in 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.

#### NOTE 19. 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 and six months ended June 30, 2017 and 2016:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
Earnings from continuing operations	\$41.5	\$16.6	\$72.3	\$9.5
Earnings allocated to participating non-vested share awards	(0.1 )	(0.1 )	(0.2 )	-
Earnings from continuing operations attributable to common shares	\$41.4	\$16.5	\$72.1	\$9.5

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

The following table is a reconciliation of basic shares outstanding to diluted shares outstanding for the three and six months ended June 30, 2017 and 2016 (shares in millions):

	Three Months Ended June 30, 2017		Six Months Ended June 30, 2017	
	2017	2016	2017	2016
Basic shares outstanding	53.3	55.6	53.7	55.6
Dilutive effect of common stock equivalents	0.4	0.4	0.4	0.3
Diluted shares outstanding	53.7	56.0	54.1	55.9

Anti-dilutive stock options excluded from the computation of diluted EPS for the three and six months ended June 30, 2017 were 445,921 and 516,381, respectively. Anti-dilutive stock options excluded from the computation of diluted EPS for the three and six months ended June 30, 2016 were 478,428 and 708,010.

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, 2016.

OVERVIEW

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

On April 1, 2016, we completed our previously announced separation of Armstrong Flooring, Inc. ("AFI"). Beginning in the second quarter of 2016, AFI's historical financial results for periods prior to April 1, 2016 are reflected in our Condensed Consolidated Financial Statements as a discontinued operation.

On January 13, 2017, we acquired the business and assets of Tectum, Inc. ("Tectum") for a total cash purchase price of \$31.4 million. Tectum is a manufacturer of acoustical ceiling, wall and structural solutions for commercial building applications with two manufacturing facilities. Tectum's operations from the date of acquisition, and its assets and liabilities as of June 30, 2017, have been included as a component of our Americas segment.

We are focused on driving sustainable shareholder value creation. Our strategic priorities are to accelerate profitable volume growth globally and to improve the returns in our international business. Our primary goal is to expand into new, and grow in existing, markets by selling a broad array of products and solutions into those markets.

As of June 30, 2017, we operated 16 manufacturing plants in eight countries, including eight plants located throughout the U.S. Three of our plants are leased and the remaining 13 are owned.

Worthington Armstrong Venture ("WAVE"), our joint venture with Worthington Industries, Inc. in which we hold a 50% equity interest, operates 9 additional plants in five countries to produce suspension system (grid) products used in our ceiling systems.

Reportable Segments

Our reportable operating segments consist of the following three distinct geographical segments: Americas (including Canada); Europe, Middle East and Africa (including Russia) ("EMEA"); and Pacific Rim.

Each of our geographical segments produce suspended fiber and metal ceilings for use in commercial and institutional settings in addition to sourcing complimentary ceiling products. Commercial ceiling materials and accessories are sold to resale distributors and to ceiling systems contractors. Residential ceiling products are sold in the Americas primarily to wholesalers and retailers (including large home centers). Each segment also includes our WAVE joint venture, which manufactures suspension system (grid) products that are invoiced by both us and WAVE. In each of our segments, WAVE primarily sells its suspension system products directly to customers, for which we provide sales and administrative support. To a lesser extent, however, in some markets, WAVE sells its suspension systems

products to us for resale to customers. Our segment results reflect those sales transactions.

Balance sheet items classified as Unallocated Corporate primarily include cash and cash equivalents and outstanding borrowings under our senior credit facilities. The majority of expenses for our corporate support functions are allocated to our Americas segment.

See Note 2 to the Condensed Consolidated Financial Statements for additional financial information on our consolidated company and our reportable segments.

#### Factors Affecting Revenues

**Markets.** We compete in building material markets around the world, with the majority of our sales in the Americas. We closely monitor publicly available macroeconomic trends that provide insight into commercial and residential market activity including Gross Domestic Product, office vacancy rates, the Architecture Billings Index, new commercial construction starts, state and local

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

government spending, and corporate profits and retail sales. In addition, we noted several factors and trends within our markets that we believe directly affected our business performance during the second quarter of 2017, including:

Americas

We believe we experienced growth from new construction and, to a lesser extent, renovation activity. We experienced modest growth in the second quarter of 2017 over a strong 2016 second quarter, however, the pace of activity moderated slightly in comparison to the first quarter of 2017.

EMEA

Market opportunities continue to be hindered by low global oil prices particularly in economies closely linked to oil, such as Russia and the Middle East. Activity improved in the second quarter from a soft second quarter of 2016, particularly in the Middle East, Russia and the United Kingdom.

Pacific Rim

Commercial office markets in China began to improve and markets in India improved in comparison to the second quarter of 2016.

**Average Unit Value.** We periodically modify prices in each of our business segments 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 competitive reactions and changing market conditions. Additionally, we offer a wide assortment of products that are differentiated by style, design and performance attributes. Pricing and margins for products within the assortment vary. In addition, changes in the relative quantity of products purchased at different price points can impact year-to-year comparisons of net sales and operating income. We focus on improving sales dollars per unit sold, or average unit value ("AUV"), as a measure that accounts for the varying assortment of products and geographic mix impacting our revenues. We estimate that favorable AUV increased our total consolidated net sales in the second quarter and first six months of 2017 by approximately \$9 million and \$17 million, respectively, compared to the same periods of 2016.

In the first quarter of 2017, we implemented ceiling tile and grid price increases in the Americas, EMEA and Pacific Rim. We also implemented a pricing increase for grid products in the Americas effective in the second quarter of 2017 and announced a pricing increase for ceiling tile products in the Americas and EMEA effective in the third quarter of 2017. We may implement additional pricing actions based upon future movements in raw material prices or foreign currency valuations.

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, mineral wool, perlite, starch and waste paper. 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 second quarter and first six months of 2017, costs for raw materials, sourced products and energy negatively impacted operating income by \$1



million and \$2 million, respectively, compared to the same periods of 2016.

#### Employees

As of June 30, 2017, we had approximately 3,900 full-time and part-time employees worldwide compared to 3,700 full-time and part-time employees worldwide as of December 31, 2016. The increase compared to December 31, 2016 was primarily due to the addition of Tectum employees in January 2017, partially offset by a reduction of employees related to the idling of one of our China plants.

#### 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 3 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.

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

## CONSOLIDATED RESULTS FROM CONTINUING OPERATIONS

(dollar amounts in millions)

	2017	2016	Change is Favorable	
Three Months Ended June 30,				
Total consolidated net sales	\$330.8	\$314.3	5.2	%
Operating income	\$78.4	\$51.7	51.6	%
Six Months Ended June 30,				
Total consolidated net sales	\$646.2	\$601.7	7.4	%
Operating income	\$141.4	\$73.3	92.9	%

Excluding the unfavorable impact of foreign exchange of \$3 million, consolidated net sales for the second quarter of 2017 increased 6.1% due to higher volumes of \$10 million and favorable AUV of \$9 million. Excluding the unfavorable impact of foreign exchange of \$5 million, consolidated net sales for the first six months of 2017 increased 8.2% due to higher volumes of \$32 million and favorable AUV of \$17 million.

Cost of goods sold in the second quarter of 2017 was 66.4% of net sales, compared to 70.9% for the same period in 2016, due primarily to a \$5 million reduction in expense related to our U.S. pension plan. Cost of goods sold in the first six months of 2017 was 67.4% of net sales, compared to 70.8% for the same period in 2016, due primarily to an \$11 million reduction in expense related to our U.S. pension plan.

SG&A expenses in the second quarter of 2017 were \$52.4 million, or 15.8% of net sales, compared to \$55.8 million, or 17.8% of net sales, for the same period in 2016. SG&A expenses in the first six months of 2017 were \$107.0 million, or 16.6% of net sales, compared to \$109.5 million, or 18.2% of net sales, for the same period in 2016. The decreases in SG&A expenses were primarily due to a \$4 million and \$8 million reduction in expense related to our U.S. pension plan for the second quarter and first six months of 2017 compared to the same periods in 2016. These decreases in SG&A expenses were partially offset by increased expenses in the second quarter in our international markets and in the first six months of 2017 in the Americas as a result of the Tectum acquisition and modest investments to enhance our total solutions selling capabilities.

Equity earnings from our WAVE joint venture were \$19.7 million for the second quarter of 2017, compared to \$19.9 million in the second quarter of 2016. Equity earnings from our WAVE joint venture were \$38.0 million for the first six months of 2017 and 2016. Earnings were essentially flat for both periods as sales increases, primarily related to increased AUV, were offset by higher input costs, particularly steel, and increased investments in selling expenses. See Note 7 to the Condensed Consolidated Financial Statements for further information.

Interest expense was \$9.2 million for the second quarter of 2017 compared to \$12.5 million in the second quarter of 2016. Interest expense was \$18.4 million for the first six months of 2017 compared to \$34.4 million in the first six months of 2016. Interest expense for the second quarter and first six months of 2016 included higher debt financing costs as a result of the refinancing of our credit facilities in April 2016. Interest expense for the first six months of 2016 also included \$10.7 million of losses that were reclassified from accumulated other comprehensive income as a

result of the settlement of \$450.0 million of notional amount interest rate swaps which occurred in connection with the April 2016 refinancing of our credit facilities.

Other non-operating expense was \$0.1 million and \$1.9 million in the second quarter and first six months of 2017, respectively. Other non-operating income was \$1.0 million and \$4.4 million in the second quarter and first six months of 2017, respectively. Other non-operating income was \$2.1 million and \$7.3 million in the second quarter and first six months of 2016, respectively. The changes in other non-operating income and expense were primarily due to foreign exchange gains and losses on the translation of unhedged cross-currency intercompany loans.

Income tax expense was \$28.6 million for the second quarter of 2017 compared to \$24.7 million in the second quarter of 2016. The effective tax rate for the second quarter of 2017 was 40.8% as compared to a rate of 59.8% for the same period of 2016. Income tax expense was \$53.2 million for the first six months of 2017 compared to \$36.7 million in the first six months of 2016. The effective tax rate for the first six months of 2017 was 42.4% as compared to a rate of 79.4% for the same period of 2016. Excluding the impact of the increase in pre-tax income, the effective rate for the second quarter of 2017 was lower in comparison to the same period in 2016 as income tax expense in the second quarter of 2016 was negatively impacted by the separation of AFI.

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

Total other comprehensive income ("OCI") was \$3.0 million in the second quarter of 2017 compared to a loss of \$6.1 million for the second quarter of 2016. Total OCI was \$16.7 million in the first six months of 2017 compared to \$4.7 million for the first six months of 2016. Foreign currency translation adjustments represent the change in the U.S. dollar value of assets and liabilities denominated in foreign currencies. Amounts in the second quarter of 2017 were driven primarily by changes in the exchange rates of the British pound, the Euro and the Australian dollar. Amounts in the first six months of 2017 were driven primarily by changes in the exchange rates of the British pound and the Russian ruble. Amounts in the second quarter and first six months of 2016 were driven primarily by changes in the exchange rates of the British pound, the Chinese renminbi and the Australian dollar. Derivative gain/loss represents the mark-to-market value adjustments of our derivative assets and liabilities and the recognition of gains and losses previously deferred in OCI. Pension and postretirement adjustments represent the amortization of actuarial gains and losses related to our defined benefit pension and postretirement plans. The amounts in all periods primarily related to the amortization of losses on the U.S. pension plans.

## REPORTABLE SEGMENT RESULTS

## Americas

(dollar amounts in millions)

	2017	2016	Change is Favorable	
Three Months Ended June 30,				
Total segment net sales	\$225.6	\$214.8	5.0	%
Operating income	\$79.9	\$64.3	24.3	%
Six Months Ended June 30,				
Total segment net sales	\$445.4	\$414.9	7.4	%
Operating income	\$147.1	\$120.4	22.2	%

Excluding the unfavorable impact of foreign exchange of \$1 million, net sales in the Americas for the second quarter of 2017 increased 5.4% driven by favorable AUV of \$10 million and higher volumes of \$2 million. Net sales in the Americas for the first six months of 2017 increased 7.4% and were driven by favorable AUV of \$17 million and higher volumes of \$14 million.

Operating income increased in the second quarter of 2017, due to the impact of favorable AUV of \$6 million, higher volumes of \$1 million, a \$6 million decrease in manufacturing and input costs and lower SG&A expenses of \$4 million. The decrease in manufacturing and input costs was primarily due to a \$5 million decrease in pension expense. SG&A expenses were flat excluding the impact of a \$4 million decrease in pension expense. Operating income increased in the first six months of 2017 due to the impact of higher volumes of \$10 million, favorable AUV of \$9 million, an \$8 million decrease in manufacturing and input costs and lower SG&A expenses of \$1 million. The decrease in manufacturing and input costs was primarily due to an \$11 million decrease in pension expense, partially offset by input cost inflation. SG&A expense increases as a result of the Tectum acquisition and modest investments to enhance our total solutions selling capabilities were offset by \$8 million in lower pension expense.

## EMEA

(dollar amounts in millions)

	2017	2016	Change is Favorable	
Three Months Ended June 30,				
Total segment net sales	\$68.7	\$65.6	4.7	%
Operating (loss)	\$(1.8 )	\$(5.3 )	66.0	%
Six Months Ended June 30,				
Total segment net sales	\$135.3	\$125.2	8.1	%
Operating (loss)	\$(4.9 )	\$(9.3 )	47.3	%

Excluding the unfavorable impact of foreign exchange of \$2 million, net sales in EMEA for the second quarter of 2017 increased 7.5% due to higher volumes of \$3 million and favorable AUV of \$2 million. Excluding the unfavorable impact of foreign exchange of \$4 million, net sales in EMEA for the first six months of 2017 increased 11.6% due to higher volumes of \$12 million and favorable AUV of \$2 million.

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

Operating (loss) for the second quarter of 2017 decreased as higher volumes of \$2 million, favorable AUV of \$1 million and lower manufacturing and input costs of \$2 million more than offset higher SG&A expenses of \$2 million. Operating (loss) for the first six months of 2017 decreased as higher volumes of \$5 million and favorable AUV of \$2 million more than offset higher SG&A expenses of \$3 million and higher manufacturing and input costs of \$1 million.

## Pacific Rim

(dollar amounts in millions)

	2017	2016	Change is Favorable	
Three Months Ended June 30,				
Total segment net sales	\$36.5	\$33.9	7.7	%
Operating income (loss)	\$0.3	\$(2.1 )	Favorable	
Six Months Ended June 30,				
Total segment net sales	\$65.5	\$61.6	6.3	%
Operating (loss)	\$(0.8 )	\$(3.4 )	76.5	%

Net sales in the Pacific Rim for the second quarter of 2017 increased 7.7% due to higher volumes of \$5 million, partially offset by unfavorable AUV of \$2 million. Net sales in China and India improved, partially offset by lower net sales in Australia. Net sales in the Pacific Rim for the first six months of 2017 increased 6.3% due to higher volumes of \$6 million, partially offset by lower AUV of \$2 million.

Operating income improved for the second quarter due to the impact of higher volumes of \$2 million and operating (loss) improved due to higher volumes of \$2 million for the first six months of 2017 compared to the same periods in the prior year.

## Unallocated Corporate

Unallocated corporate expenses were \$5.2 million and \$34.4 million for the second quarter and first six months of 2016, respectively, due to charges incurred in connection with our separation of AFI.

## FINANCIAL CONDITION AND LIQUIDITY

## Cash Flow

Operating activities in the first six months of 2017 provided \$42.4 million of cash, compared to \$55.4 million used in the first six months of 2016. The increase in cash resulted primarily from higher cash earnings and changes in working capital, primarily accounts receivable and accounts payable and accrued expenses. The change in accounts payable and accrued expenses were primarily a result of the separation of AFI.

Net cash used for investing activities was \$40.7 million for the first six months of 2017, compared to \$3.9 million used for the first six months of 2016. The increase in cash used resulted primarily from the Tectum acquisition and lower dividends from our WAVE joint venture.

Net cash used for financing activities was \$64.6 million for the first six months of 2017, compared to \$82.9 million used during the first six months of 2016. The cash use during the first six months of 2017 was primarily from the repurchase of outstanding common stock. The cash use during the first six months of 2016 was primarily the result of the refinance of our credit facilities in April 2016.

#### 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 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. We also have a \$25.0 million letter of credit facility, also known as our bi-lateral facility. As of June 30, 2017, we had \$15.0 million of borrowings outstanding on the revolving credit facility. This \$1,050.0 million senior credit facility is secured by U.S. personal property, the capital stock of material U.S. subsidiaries and a pledge of 65% of the stock of our material first tier foreign subsidiaries.

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

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 50% of fiscal year Consolidated Excess Cash Flow. These annual payments would be made in the first quarter of the following year. No payment was required during the first quarter of 2017 under the senior credit facility.

The refinanced senior credit facilities include 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 April 1st each year. As of June 30, 2017, we were in compliance with all covenants of the senior credit facility.

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

The following table summarizes our interest rate swaps as of June 30, 2017 (dollar amounts in millions):

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

In connection with our credit facility refinancing, \$450.0 million of notional amount Term Loan B swaps with a trade date of March 27, 2012 were settled and \$10.7 million of losses recorded as a component of accumulated other comprehensive income were reclassified to interest expense during the first quarter of 2016, with the cash payment for the settlement of this swap occurring during the second quarter of 2016.

Under the terms of the Term Loan A swaps with a trade dates of November 13, 2016, we receive 1-month LIBOR and pay a fixed rate over the hedged period. Under the terms of our Term Loan B swap with a trade date of April 1, 2016, we receive the greater of 3-month LIBOR or a 0.75% LIBOR Floor and pay a fixed rate over the hedged period.

These swaps are designated as cash flow hedges against changes in LIBOR for a portion of our variable rate debt. The unpaid balances of the Term Loan A, the revolving credit facility and the Term Loan B of the credit facility 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.

Our foreign subsidiaries had available lines of credit totaling \$4.7 million as of June 30, 2017. These lines of credit are uncommitted, and poor operating results or credit concerns at the related foreign subsidiaries could result in the lines being withdrawn by the lenders. We have historically been able to maintain and, as needed, replace credit facilities to support our non-U.S. operations. As of June 30, 2017, we had no borrowings under these lines of credit.



As of June 30, 2017, we had \$79.7 million of cash and cash equivalents, \$67.4 million in various foreign jurisdictions and \$12.3 million in the U.S.

In March 2016, we amended and decreased our \$100.0 million Accounts Receivable Securitization Facility to \$40.0 million to reflect a lower anticipated receivables balance in connection with the separation of AFI, and we extended the maturity date to March 2019. As of June 30, 2017, there were no outstanding borrowings on the accounts receivable securitization facility.

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

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. In addition, our foreign subsidiaries' available lines of credit are available for letters of credit and guarantees. Letters of credit are 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 June 30, 2017		
	Limit	Used	Available
Revolving credit facility	\$ 150.0	\$-	\$ 150.0
Bi-lateral facility	25.0	19.2	5.8
Accounts receivable securitization facility	40.0	36.2	3.8
Foreign lines of credit	0.2	-	0.2
Total	\$ 215.2	\$ 55.4	\$ 159.8

We believe that cash on hand and cash generated from operations, together with lines of credit, availability under our securitization facility and the remaining 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, 2016 can be found in our 2016 Annual Report, 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 2016 Annual Report on Form 10-K. There have been no material changes in our use of financial instruments to hedge against market risks or market risk exposures since December 31, 2016.

### 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 June 30, 2017, 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 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 June 30, 2017 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

## PART II – OTHER INFORMATION

## ITEM 1. LEGAL PROCEEDINGS

See Note 18 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 2016 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 <sup>1</sup>	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
April 1 – 30, 2017	147,860	\$ 45.36	138,503	\$ 49,927,661
May 1 – 31, 2017	105,097	\$ 43.42	104,799	\$ 45,378,532
June 1 – 30, 2017	226,199	\$ 44.25	226,129	\$ 35,371,877
Total	479,156		469,431	

<sup>1</sup> 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 are authorized to repurchase up to \$150.0 million of our outstanding shares of common stock through July 31, 2018 (the “Program”). 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 us to repurchase any particular amount of common stock and may be suspended or discontinued at

any time without notice. During the first six months of 2017, we repurchased 1.7 million shares under the Program for a total cost of \$70.9 million, or an average price of \$42.60 per share.

### ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

### ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

### ITEM 5. OTHER INFORMATION

#### 5.07 Submission of Matters to a Vote of Security Holders

At the Annual Meeting of Shareholders of the Company held on July 13, 2017, the Company's shareholders approved, on an advisory basis, an annual frequency for which shareholders will be presented with a non-binding proposal to approve the compensation of our named executive officers, as previously reported in our Current Report on Form 8-K filed on July 17, 2017. Based on these results, the Company's Board of Directors has determined that the Company will hold an annual advisory vote on named executive officer compensation until changed as a result of a subsequent vote on the frequency of the advisory vote.

## ITEM 6. EXHIBITS

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

### Exhibit No. Description

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: July 31, 2017