

ARMSTRONG WORLD INDUSTRIES INC  
Form 10-Q  
October 31, 2016

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 September 30, 2016

OR

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

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission File Number 1-2116

ARMSTRONG WORLD INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Pennsylvania  
(State or other jurisdiction of  
incorporation or organization)

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

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

17603  
(Zip Code)

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

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

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

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

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 October 24, 2016 – 55,186,093.

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

#### CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this Quarterly Report on Form 10-Q and the documents incorporated by reference may constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Those forward-looking statements are subject to various risks and uncertainties and include all statements that are not historical statements of fact and those regarding our intent, belief or expectations, including, but not limited to, our expectations concerning our residential and commercial markets and their effect on our operating results; our expectations regarding the payment of dividends, and our ability to increase revenues, earnings and EBITDA (as 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 economic conditions;
- construction activity;
- the separation of the flooring business;
- competition;
- key customers;
- availability and costs of raw materials and energy;
- international operations;
- covenants in our debt agreements;
- our indebtedness;
- our liquidity;
- our WAVE joint venture;
- environmental matters;
- strategic transactions;
- plant construction projects;
- negative tax consequences;
- defined benefit plan obligations;
- claims and litigation;
- labor;
- our 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 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 September 30, 2016	Three Months Ended September 30, 2015	Nine Months Ended September 30, 2016	Nine Months Ended September 30, 2015
Net sales	\$ 334.9	\$ 335.9	\$ 936.6	\$ 934.0
Cost of goods sold	225.2	224.8	651.1	642.3
Gross profit	109.7	111.1	285.5	291.7
Selling, general and administrative expenses	55.7	64.0	165.2	189.9
Separation costs	2.0	7.4	33.0	16.8
Equity earnings from joint venture	(19.0 )	(19.6 )	(57.0 )	(49.6 )
Operating income	71.0	59.3	144.3	134.6
Interest expense	9.0	11.3	43.4	33.9
Other non-operating expense	-	10.8	-	13.5
Other non-operating (income)	(1.6 )	-	(8.9 )	(5.4 )
Earnings from continuing operations before income taxes	63.6	37.2	109.8	92.6
Income tax expense	7.7	17.5	44.4	52.1
Earnings from continuing operations	55.9	19.7	65.4	40.5
Net earnings (loss) from discontinued operations, net of tax expense				
of \$-, \$7.4, \$0.1 and \$18.1	-	10.6	(4.5 )	23.5
Gain from disposal of discontinued business, net of tax				
(benefit) of (\$14.7), (\$0.7), (\$16.6) and (\$44.1)	14.7	1.5	16.7	44.0
Net earnings from discontinued operations	14.7	12.1	12.2	67.5
Net earnings	\$ 70.6	\$ 31.8	\$ 77.6	\$ 108.0
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments	(2.0 )	(13.4 )	(13.8 )	(21.3 )
Derivative gain (loss)	1.7	0.9	1.2	(0.2 )
Pension and postretirement adjustments	6.9	11.1	23.9	32.2
Total other comprehensive income (loss)	6.6	(1.4 )	11.3	10.7
Total comprehensive income	\$ 77.2	\$ 30.4	\$ 88.9	\$ 118.7
Earnings per share of common stock, continuing operations:				
Basic	\$ 1.00	\$ 0.35	\$ 1.17	\$ 0.72

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Diluted	\$ 0.99	\$ 0.35	\$ 1.16	\$ 0.72
Earnings per share of common stock, discontinued operations:				
Basic	\$ 0.26	\$ 0.22	\$ 0.22	\$ 1.21
Diluted	\$ 0.26	\$ 0.21	\$ 0.22	\$ 1.20
Net earnings per share of common stock:				
Basic	\$ 1.27	\$ 0.57	\$ 1.39	\$ 1.93
Diluted	\$ 1.26	\$ 0.56	\$ 1.38	\$ 1.92
Average number of common shares outstanding:				
Basic	55.5	55.5	55.6	55.4
Diluted	56.0	55.9	56.0	55.8

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

## Armstrong World Industries, Inc., and Subsidiaries

## Condensed Consolidated Balance Sheets

(amounts in millions, except share data)

	Unaudited	
	September	December 31, 2015
	30, 2016	December 31, 2015
<b>Assets</b>		
Current assets:		
Cash and cash equivalents	\$ 142.5	\$ 209.3
Accounts and notes receivable, net	128.3	114.3
Inventories, net	109.5	101.4
Current assets of discontinued operations	-	381.3
Deferred income taxes	26.2	29.7
Income tax receivable	4.9	11.1
Other current assets	17.2	33.7
Total current assets	428.6	880.8
Property, plant, and equipment, less accumulated depreciation and amortization of		
\$444.7 and \$403.8, respectively	664.8	648.1
Prepaid pension costs	8.3	8.3
Investment in joint venture	119.3	130.8
Intangible assets, net	437.3	447.2
Non-current assets of discontinued operations	-	499.3
Deferred income taxes	9.0	19.7
Income taxes receivable	4.9	2.4
Other non-current assets	60.5	57.0
Total assets	\$ 1,732.7	\$ 2,693.6
<b>Liabilities and Shareholders' Equity</b>		
Current liabilities:		
Current installments of long-term debt	\$ 17.5	\$ 52.1
Accounts payable and accrued expenses	201.3	231.1
Current liabilities of discontinued operations	-	149.6
Income tax payable	11.1	3.2
Deferred income taxes	0.6	0.3
Total current liabilities	230.5	436.3
Long-term debt, less current installments	856.2	936.2
Postretirement benefit liabilities	91.3	87.2
Pension benefit liabilities	79.6	62.1
Other long-term liabilities	34.7	43.3
Non-current liabilities of discontinued operations	-	149.1
Income taxes payable	55.9	92.3
Deferred income taxes	125.4	118.3
Total non-current liabilities	1,243.1	1,488.5

Shareholders' equity:

Common stock, \$0.01 par value per share, 200 million shares authorized, 60,563,934		
shares issued, and 55,319,221 shares outstanding as of September 30, 2016 and		
60,416,446 shares issued and 55,359,064 shares outstanding as of December 31, 2015	0.6	0.6
Additional paid-in capital	504.2	1,151.8
Retained earnings	442.8	365.2
Treasury stock, at cost, 5,244,713 shares as of September 30, 2016 and 5,057,382 as of December 31, 2015	(269.2 )	(261.4 )
Accumulated other comprehensive (loss)	(419.3 )	(487.4 )
Total shareholders' equity	259.1	768.8
Total liabilities and shareholders' equity	\$ 1,732.7	\$ 2,693.6

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

	Nine Months Ended September 30, 2016							
	Common Stock				Treasury Stock		Accumulated	
	Shares	Amount	Additional		Shares	Amount	Other	
			Paid-In	Retained			(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	147,488							
Share-based employee compensation			13.1					13.1
Net earnings				77.6				77.6
Other comprehensive income							11.3	11.3
Separation of Armstrong Flooring, Inc.			(660.7)				56.8	(603.9)
Acquisition of treasury stock	(187,331)				187,331	(7.8)		(7.8)
Balance at end of period	55,319,221	\$ 0.6	\$ 504.2	\$ 442.8	5,244,713	\$(269.2)	\$ (419.3)	\$ 259.1

	Nine Months Ended September 30, 2015							
	Common Stock				Treasury Stock		Accumulated	
	Shares	Amount	Additional		Shares	Amount	Other	
			Paid-In	Retained			(Loss)	Total
Balance at beginning of period	55,126,153	\$ 0.6	\$ 1,134.4	\$ 271.0	5,057,382	\$(261.4)	\$ (495.5)	\$ 649.1
Stock issuance	228,859							
Share-based employee compensation			15.4					15.4
Net earnings				108.0				108.0
							10.7	10.7

Other comprehensive  
income

Balance at end of period	55,355,012	\$ 0.6	\$ 1,149.8	\$ 379.0	5,057,382	\$(261.4)	\$ (484.8	) \$783.2
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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

	Nine Months Ended September 30,	
	2016	2015
<b>Cash flows from operating activities:</b>		
Net earnings	\$77.6	\$108.0
<b>Adjustments to reconcile net earnings to net cash (used for) provided by operating activities:</b>		
Depreciation and amortization	70.1	86.9
Write off of debt financing costs	1.1	-
Deferred income taxes	28.0	(38.7)
Share-based compensation	9.6	11.2
Excess tax benefit from share-based awards	(5.8 )	(0.2 )
Equity earnings from joint venture	(57.0 )	(49.6 )
Separation costs	33.0	16.8
Loss on interest rate swap	10.7	-
U.S. pension expense	11.8	18.9
Non-cash foreign currency translation on intercompany loans	(5.8 )	12.5
Other non-cash adjustments, net	1.6	-
<b>Changes in operating assets and liabilities:</b>		
Receivables	(41.3 )	(19.0 )
Inventories	(4.4 )	(10.4 )
Other current assets	11.5	(12.0 )
Other non-current assets	(7.0 )	(5.8 )
Accounts payable and accrued expenses	(88.2 )	7.1
Income taxes payable	(24.1 )	26.9
Other long-term liabilities	(19.4 )	(12.0 )
Other, net	(4.6 )	3.4
Net cash (used for) provided by operating activities	(2.6 )	144.0
<b>Cash flows from investing activities:</b>		
Purchases of property, plant and equipment	(75.7 )	(96.7 )
Return of investment from joint venture	68.5	47.6
Other investing activities	0.3	3.8
Net cash (used for) investing activities	(6.9 )	(45.3 )
<b>Cash flows from financing activities:</b>		
Proceeds from revolving credit facility and other short-term debt	90.0	-
Payments of revolving credit facility and other short-term debt	(90.0 )	-
Proceeds from long-term debt	363.5	-
Payments of long-term debt	(432.8 )	(28.8 )
Financing costs	(8.1 )	-
Special dividends paid	-	(1.2 )
Proceeds from exercised stock options	0.3	6.3

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Cash transferred to Armstrong Flooring, Inc.	(9.1 )	-
Excess tax benefit from share-based awards	5.8	0.2
Payment for treasury stock acquired	(7.8 )	-
Payment of company owned life insurance loans, net	-	(0.1 )
Net cash (used for) financing activities	(88.2 )	(23.6 )
Effect of exchange rate changes on cash and cash equivalents	(4.6 )	(10.4 )
Net (decrease) increase in cash and cash equivalents	(102.3)	64.7
Cash and cash equivalents at beginning of year	244.8	185.3
Cash and cash equivalents at end of period	142.5	250.0
Cash and cash equivalents at end of period of discontinued operations	-	29.9
Cash and cash equivalents at end of period of continuing operations	\$142.5	\$220.1
Supplemental Cash Flow Disclosures:		
Interest paid	\$25.2	\$29.8
Income taxes paid, net	23.9	37.9
Amounts in accounts payable for capital expenditures	4.7	21.2

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” and “us” in these notes, we are referring to AWI and its subsidiaries.

On April 1, 2016, we completed our previously announced separation of Armstrong Flooring, Inc. (“AFI”) by allocating the assets and liabilities related primarily to the Resilient Flooring and Wood Flooring segments to AFI and then distributing the common stock of AFI to our shareholders at a ratio of one share of AFI common stock for every two shares of AWI common stock. Subsequent to the separation and distribution, AWI and AFI operate as two independent, publicly-traded companies, with AFI owning and operating the Resilient Flooring and Wood Flooring segments and AWI continuing to own and operate the Building Products (Ceilings) segment. 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 nine months ended September 30, 2016 were \$2.0 million and \$33.0 million, respectively. Separation costs for the three and nine months ended September 30, 2015 were \$7.4 million and \$16.8 million, respectively. Separation costs for all periods primarily related to outside professional services and employee compensation and retention and severance accruals which were recorded within the Unallocated Corporate segment in conjunction with this initiative. 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. See Note 3 for additional information.

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, 2015. 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, 2015. 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 third quarter and first nine months of 2016 and 2015 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.

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 or market 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 2016 presentation.

Recently Adopted Accounting Standards

In June 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2014-12 “Accounting for Share-Based Payments When the Terms of an Award Provide That a Performance Target Could Be Achieved after the Requisite Service Period,” which amends Accounting Standards Codification (“ASC”) Topic 718: Compensation-Stock Compensation. This new guidance requires that a performance target that affects vesting and that could be achieved after the requisite service period be treated as a performance condition and should not be reflected in the estimate of the grant-date fair value of the award. The guidance was effective for annual periods beginning after December 15, 2015. There was no impact on our financial condition, results of operations or cash flows as a result of the adoption of this guidance.

In April 2015, the FASB issued ASU 2015-03, “Simplifying the Presentation of Debt Issuance Costs.” This standards update amends existing guidance to require the presentation of debt issuance costs in the balance sheet as a deduction from the carrying amount of the related debt liability instead of a deferred charge. In August 2015, the FASB issued ASU 2015-15, “Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Arrangements,” which was issued to address the presentation and subsequent measurement of debt issuance costs related to line-of-credit arrangements. ASU 2015-03 and 2015-15 were effective for annual reporting periods beginning after December 15, 2015. We adopted ASU 2015-03 and 2015-15 retrospectively, resulting in a \$4.1 million reduction to other non-current assets and a corresponding decrease to long-term debt as of March 31, 2016. As of December 31, 2015, our adoption of these ASC updates resulted in a \$4.7 million reduction to other non-current assets and a corresponding decrease to long-term debt. There was no impact on results of operations as a result of the adoption of this guidance.

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

In April 2015, the FASB issued ASU 2015-05, "Customer's Accounting for Fees Paid in a Cloud Computing Arrangement," which provides guidance to determine when a customer's fees paid in a cloud computing arrangement include a software license. If a cloud computing arrangement includes a software license, the customer should account for the software license element of the arrangement consistent with the acquisition of other software licenses. If the arrangement does not include a software license, the customer should account for a cloud computing arrangement as a service contract. This new guidance was effective for annual reporting periods beginning after December 15, 2015. There was no impact on our financial condition, results of operations or cash flows as a result of the adoption of this guidance.

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 August 2015, the FASB issued ASU 2015-14, "Revenue from Contracts with Customers: Deferral of the Effective Date," which defers the effective date for ASU 2014-09 by one year. In March 2016, the FASB issued ASU 2016-08, "Principal versus Agent Considerations (Reporting Gross versus Net)," which clarifies the implementation guidance in ASU 2014-09 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 in ASU 2014-09 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. ASU 2016-10 also clarifies guidance on the timing and pattern of revenue recognition for intellectual property licenses. These ASC updates are effective for annual reporting periods beginning after December 15, 2017, but early adoption is permitted. We have not selected a transition method and are currently evaluating the impact these ASC updates would have on our financial condition, results of operations and cash flows.

In July 2015, the FASB issued 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. This new guidance must be applied prospectively and is effective for annual reporting periods beginning after December 15, 2016, but early adoption is permitted. Based on our preliminary evaluation, 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 November 2015, the FASB issued ASU 2015-17, "Balance Sheet Classification of Deferred Taxes," which requires entities with a classified balance sheet to present all deferred tax assets and liabilities as non-current. This new guidance is effective for annual reporting periods beginning after December 15, 2016. Upon adoption, this standard will result in decreases to current assets and liabilities and corresponding increases to non-current assets and liabilities, but will have no impact on our results of operations or cash flows.

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 are currently evaluating the impact the adoption of this standard would have 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 March 2016, the FASB issued ASU 2016-05, "Effect of Derivative Contract Novations on Existing Hedge Accounting Relationships," which amends ASC Topic 815: Derivatives and Hedging. This new guidance clarifies that a novation, or a change in the counterparty to a derivative instrument, by itself would not cause a hedge accounting relationship to be discontinued. This new guidance is effective for annual reporting periods beginning after December 15, 2016 and may be adopted prospectively or



Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

retroactively. Based on our preliminary evaluation, we do not believe the adoption of this standard will have an impact on our financial condition, results of operations and cash flows.

In March 2016, the FASB issued ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting," which amends ASC Topic 718: Compensation-Stock Compensation. 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. This new guidance is effective for annual reporting periods beginning after December 15, 2016 and may be adopted prospectively or retroactively. 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," which amends the guidance in ASC 230: Statement of Cash Flows. 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.

## NOTE 2. SEGMENT RESULTS

Effective April 1, 2016 and in connection with our separation of AFI, our former Resilient Flooring and Wood Flooring segments have been excluded from our results of continuing operations. In addition, effective April 1, 2016, we disaggregated our former Building Products operating segment into the following three distinct geographical segments: Americas; Europe, Middle East and Africa ("EMEA"); and Pacific Rim.

Each of our geographical segments produces 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 the results of our Worthington Armstrong Venture ("WAVE") joint venture with Worthington Industries, Inc., which manufactures suspension system (grid) products that are invoiced by both us and WAVE. Segment results relating to WAVE consist primarily of equity earnings and reflect our 50% equity interest in the joint venture. 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, which are not typically material.

Effective April 1, 2016, we reclassified the majority of the assets and liabilities formally reported in our Unallocated Corporate segment to our Americas segment. The assets and liabilities reclassified to our Americas segment most notably included the Armstrong trade name intangible asset, property, plant and equipment comprised primarily of Corporate campus facilities, the cash surrender value of life insurance supporting deferred compensation liabilities,

income tax assets and liabilities, and pension and postretirement assets and liabilities.

Balance sheet items classified as Unallocated Corporate for all periods presented primarily include cash and cash equivalents and outstanding borrowings under our senior credit facilities.

Segment results below have been restated for all periods presented as a result of the disaggregation of our former Building Products segment and the reclassification of Unallocated Corporate assets. These revisions did not impact any previously reported consolidated revenues, gross profit, results of continuing operations, or asset or liability balances.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Net sales to external customers				
Americas	\$226.0	\$221.5	\$640.9	\$615.5
EMEA	74.2	78.2	199.4	217.3
Pacific Rim	34.7	36.2	96.3	101.2
Total net sales to external customers	\$334.9	\$335.9	\$936.6	\$934.0

Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
Segment operating income (loss)				
Americas	\$68.6	\$88.7	\$189.0	\$225.0
EMEA	4.1	1.3	(5.2 )	(7.0 )
Pacific Rim	1.0	(0.2 )	(2.4 )	(4.2 )
Unallocated Corporate	(2.7 )	(30.5 )	(37.1 )	(79.2 )
Total consolidated operating income	\$71.0	\$59.3	\$144.3	\$134.6

	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
Total consolidated operating income	\$71.0	\$59.3	\$144.3	\$134.6
Interest expense		9.0	11.3	43.4
Other non-operating expense		-	10.8	-
Other non-operating (income)		(1.6 )	-	(8.9 )
Earnings from continuing operations before income taxes	\$63.6	\$37.2	\$109.8	\$92.6

	September 30, 2016	December 31, 2015
Segment assets		
Americas	\$ 1,144.4	\$ 1,137.4
EMEA	296.1	283.3
Pacific Rim	146.6	154.5
Unallocated Corporate	145.6	237.8
Total consolidated assets	\$ 1,732.7	\$ 1,813.0

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.

Effective January 1, 2016, in anticipation of the April 1, 2016 AFI separation, the majority of our historical corporate support functions, representing costs of approximately \$22.0 million and \$58.0 million for the three and nine months ended September 30, 2016, respectively, were incorporated into our Americas segment. As a result, Unallocated

Corporate support expenses have decreased significantly during the three and nine months ended September 30, 2016 in comparison to the same periods in 2015.

For the three and nine months ended September 30, 2016 and 2015, Unallocated Corporate segment operating (loss) was comprised of the following:

	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
Corporate expenses	\$(0.7)	\$(23.1)	\$(4.1 )	\$(62.4)
Separation costs	(2.0)	(7.4 )	(33.0)	(16.8)
Total Unallocated Corporate segment operating (loss)	\$(2.7)	\$(30.5)	\$(37.1)	\$(79.2)

### NOTE 3. DISCONTINUED OPERATIONS

#### 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.

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(dollar amounts in millions, except share data)

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, including information technology, accounts payable, payroll, and other financial functions and administrative services. We do not anticipate the Transition Services Agreement will need to be extended beyond December 31, 2017.

The Tax Matters Agreement generally governs AWI's and AFI's respective rights, responsibilities and obligations after the separation and distribution with respect to tax liabilities and benefits, tax attributes, the preparation and filing of tax returns, the control of audits and other tax proceedings, and other matters regarding taxes for any tax period ending on or before the distribution date, as well as tax periods beginning after the distribution date. In addition, the Tax Matters Agreement provides that AFI is liable for taxes incurred by AWI that may arise if AFI takes, or fails to take, certain actions that may result in the separation, the distribution or certain related transactions failing to qualify as tax-free for U.S. federal income tax purposes. Upon distribution, AWI received an opinion from its tax counsel that the separation and distribution qualified as a tax-free transaction for AWI and its shareholders.

The Employee Matters Agreement governs certain compensation and employee benefit obligations with respect to the current and former employees and non-employee directors of AWI and AFI. Pursuant to this agreement and in connection with the distribution, AWI transferred assets and liabilities from the AWI defined benefit pension and postretirement plans to AFI that relate to active AFI employees and certain former AFI employees to mirror plans established by AFI. Based on preliminary analyses provided by our actuaries, approximately \$28.0 million and approximately \$90.0 million of U.S. defined benefit pension and U.S. postretirement benefit plan net liabilities under AWI's plans as of April 1, 2016, respectively, were transferred to mirror plans established by AFI during the second quarter of 2016. During the third quarter of 2016, we reduced the total U.S. defined benefit pension and U.S. postretirement benefit plan net liabilities transferred to AFI by approximately \$26.0 million and \$4.0 million, respectively, based on updated actuarial analyses. The reduction was due to an increase in estimated plan assets transferred to AFI in comparison to our original estimate. The total net U.S. defined benefit plan liability transferred to AFI of \$2.0 million consisted of an approximately \$364.0 million projected benefit obligation, partially offset by the fair value of approximately \$362.0 million of plan assets.

Pursuant to the Trademark License Agreement, AWI provided AFI with a perpetual, royalty-free license to utilize the "Armstrong" trade name and logo. Pursuant to the Transition Trademark License Agreement, AFI provided us with a five-year royalty-free license to utilize the "Inspiring Great Spaces" tagline, logo and related color scheme.

Under the Campus Lease Agreement, certain portions of the AWI headquarters are being leased to AFI to use as its corporate headquarters for an initial term of five years, subject to certain renewal rights.

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.

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	Three Months Ended September 30, 2015	Nine Months Ended September 30, 2016	2015
Net sales	\$ 322.6	\$284.4	\$908.6
Cost of goods sold	255.8	237.2	735.0
Gross profit	66.8	47.2	173.6
Selling, general and administrative expenses	46.4	50.5	129.6
Operating income (loss)	20.4	(3.3 )	44.0
Other non-operating expense	2.4	1.1	2.4
Earnings (loss) from discontinued operations before income taxes	18.0	(4.4 )	41.6
Income tax expense	7.4	0.1	18.1
Earnings (loss) from discontinued operations	\$ 10.6	\$(4.5 )	\$23.5

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(dollar amounts in millions, except share data)

The following is a summary of the carrying amount of the major classes of assets and liabilities classified as assets and liabilities of discontinued operations as of December 31, 2015 related to AFI.

	December 31, 2015
<b>Assets</b>	
Current assets:	
Cash and cash equivalents	\$ 35.5
Accounts and notes receivable, net	70.0
Inventories, net	242.8
Deferred income taxes	5.8
Other current assets	27.2
Total current assets discontinued operations	381.3
Property, plant, and equipment, less accumulated depreciation and amortization	448.2
Intangible assets, net	42.5
Deferred income taxes	1.3
Other non-current assets	7.3
Total non-current assets of discontinued operations	499.3
Total assets of discontinued operations	\$ 880.6
<b>Liabilities</b>	
Current liabilities:	
Accounts payable and accrued expenses	\$ 149.3
Deferred income taxes	0.3
Total current liabilities	149.6
Long-term debt, less current installments	14.7
Postretirement benefit liabilities	85.2
Pension benefit liabilities	45.5
Other long-term liabilities	3.7
Total non-current liabilities of discontinued operations	149.1
Total liabilities of discontinued operations	\$ 298.7

In connection with the separation and distribution of AFI, on April 1, 2016 we received a \$50.0 million dividend from AFI. In addition, \$56.8 million of accumulated other comprehensive losses, net of tax, were transferred to AFI, consisting of amounts related to transferred pension and postretirement liabilities, net derivatives assets and a cumulative translation adjustment. The impact of these items, in addition to the net effect of all assets and liabilities transferred to AFI upon separation resulted in a \$660.7 million reduction to additional paid-in capital as of September 30, 2016.

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:

	Nine Months Ended September 30,	
	2016	2015
Depreciation and amortization	\$11.4	\$29.0
Purchases of property, plant and equipment	(8.4)	(37.5)

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 DLW insolvency filing in December 2014 resulted in our disposal and presentation of DLW for all historical periods as a discontinued operation. However, the insolvency filing did not meet the U.S. tax criteria to be considered disposed of until the first quarter of 2015. In determining the U.S. tax impact of the disposition, the liabilities, including an unfunded pension liability of approximately \$115.0 million, were considered proceeds. However, pension deductions for tax purposes result only when the benefit



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payments are made. Accordingly, a deferred tax asset and non-cash income tax benefit of \$43.4 million were recorded in the first quarter of 2015 within discontinued operations for the tax benefit of the future pension deductions.

At deconsolidation, 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 and results of the insolvency proceedings. Any shortfall will be recognized immediately when identified and any excess will be reflected when insolvency proceedings are finalized, all through discontinued operations. The amount of the net liability was \$12.0 million as of September 30, 2016. DLW was previously shown within our Resilient Flooring reporting segment.

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

	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
Gain (loss) on disposal of discontinued business before				
income tax	\$-	\$0.2	\$0.1	\$(0.7)
Income tax (benefit)	(14.7)	(0.7)	(16.6)	(44.1)
Net gain on disposal of discontinued business	\$14.7	\$0.9	\$16.7	\$43.4

During the third quarter of 2016, a non-cash income tax benefit of \$14.7 million was recorded within discontinued operations due to the reversal of reserves for uncertain tax positions as a result of an expiration of the federal statute of limitations to review previously filed income tax returns.

Cabinets

In September 2012, we entered into a definitive agreement to sell our cabinets business to American Industrial Partners. The sale was completed in October 2012. The following is a summary of the results related to the cabinets business, which are included in discontinued operations.

Three and  
Nine  
Months  
Ended

	September 30, 2015
Gain on disposal of discontinued business before income tax	\$ 0.6
Income tax (benefit)	-
Net gain on disposal of discontinued business	\$ 0.6

## NOTE 4. ACCOUNTS AND NOTES RECEIVABLE

	September 30, 2016	December 31, 2015
Customer receivables	\$ 129.1	\$ 114.0
Customer notes	0.7	0.7
Miscellaneous receivables	5.9	6.4
Less allowance for warranties, discounts and losses	(7.4 )	(6.8 )
Accounts and notes receivable, net	\$ 128.3	\$ 114.3

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.

## Armstrong World Industries, Inc., and Subsidiaries

## Notes to Condensed Consolidated Financial Statements (unaudited)

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## NOTE 5. INVENTORIES

	September	
	30, 2016	December 31, 2015
Finished goods	\$ 81.3	\$ 74.2
Goods in process	3.1	4.2
Raw materials and supplies	33.2	32.0
Less LIFO and other reserves	(8.1 )	(9.0 )
Total inventories, net	\$ 109.5	\$ 101.4

## NOTE 6. OTHER CURRENT ASSETS

	September	
	30, 2016	December 31, 2015
Prepaid expenses	\$ 13.9	\$ 18.2
Fair value of derivative assets	0.6	3.4
Other	2.7	12.1
Total other current assets	\$ 17.2	\$ 33.7

## NOTE 7. EQUITY INVESTMENT

Investment in joint venture as of September 30, 2016 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		Nine Months Ended	
	September 30,		September 30,	
	2016	2015	2016	2015
Net sales	\$ 102.6	\$ 103.5	\$ 300.5	\$ 284.2
Gross profit	54.0	53.4	160.9	140.9

Net earnings	41.8	42.3	124.0	108.4
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## NOTE 8. INTANGIBLE ASSETS

The following table details amounts related to our intangible assets as of September 30, 2016 and December 31, 2015.

	Estimated Useful Life	September 30, 2016		December 31, 2015	
		Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
<b>Amortizing intangible assets</b>					
Customer relationships	20 years	\$ 165.4	\$ 82.9	\$ 165.4	\$ 76.7
Developed technology	15 years	82.7	54.0	82.2	49.9
Other	Various	13.8	2.0	14.8	1.9
<b>Total</b>		<b>\$ 261.9</b>	<b>\$ 138.9</b>	<b>\$ 262.4</b>	<b>\$ 128.5</b>
<b>Non-amortizing intangible assets</b>					
Trademarks and brand names	Indefinite	314.3		313.3	
<b>Total intangible assets</b>		<b>\$ 576.2</b>		<b>\$ 575.7</b>	

	Nine Months Ended September 30,	
	2016	2015
Amortization expense	\$10.5	\$10.6

## Armstrong World Industries, Inc., and Subsidiaries

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## NOTE 9. OTHER NON-CURRENT ASSETS

	September 30, 2016	December 31, 2015
Cash surrender value of Company owned life insurance policies	\$ 54.9	\$ 51.6
Other	5.6	5.4
<b>Total other non-current assets</b>	<b>\$ 60.5</b>	<b>\$ 57.0</b>

## NOTE 10. ACCOUNTS PAYABLE AND ACCRUED EXPENSES

	September 30, 2016	December 31, 2015
Payables, trade and other	\$ 115.1	\$ 127.5
Employment costs	25.1	41.8
Current portion of pension and postretirement liabilities	14.2	14.3
Contingent liability related to discontinued operations	12.0	12.1
Other	34.9	35.4
<b>Total accounts payable and accrued expenses</b>	<b>\$ 201.3</b>	<b>\$ 231.1</b>

## NOTE 11. SEVERANCE AND RELATED COSTS

During the first quarter of 2016, we recorded \$2.4 million in Unallocated Corporate for severance and related costs as a result of our initiative to separate our flooring business from our ceiling business. These costs, along with costs incurred in the fourth quarter of 2015, reflect approximately 30 position eliminations (including our former Chief Executive Officer) and are reflected within Separation costs on the statement of earnings.

In response to China market conditions, during the fourth quarter of 2015, we recorded \$2.0 million in cost of goods sold and \$0.9 million in selling, general and administrative ("SG&A") for severance and related costs related to the idling one of our plants in China effective during the fourth quarter of 2016. During the second and third quarters of 2016, we recorded an additional \$3.0 million and \$0.5 million, respectively, in cost of goods sold for severance and related costs related to the plant idling.

## NOTE 12. INCOME TAX EXPENSE

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Earnings from continuing operations before income taxes	\$63.6	\$37.2	\$109.8	\$92.6
Income tax expense	7.7	17.5	44.4	52.1
Effective tax rate	12.1%	47.0%	40.4%	56.3%

The effective tax rate for the third quarter of 2016 and the first nine months of 2016 was lower than the comparable periods of 2015 primarily due to income tax benefits recorded during the third quarter of 2016 resulting from the reversal of reserves for uncertain tax positions as a result of an expiration of the federal statute of limitations to review previously filed income tax returns.

We do not expect to record any further material changes during 2016 to unrecognized tax benefits that were claimed on tax returns covering tax years ended on or before December 31, 2015.

As of September 30, 2016, we consider foreign unremitted earnings to be permanently reinvested.

## NOTE 13. DEBT

On April 1, 2016, we refinanced our \$1,275.0 million senior credit facility, utilizing a \$50.0 million cash dividend from AFI and cash on hand to pay down a portion of the debt outstanding. The \$1,050.0 million new credit facility is composed of a \$200.0 million revolving credit facility (with a \$150.0 million sublimit for letters of credit), a \$600.0 million Term Loan A and a \$250.0 million Term Loan B. The terms of the credit facility resulted in a lower interest rate spread for both the revolving credit facility and Term Loan A (2.00% vs. 2.50%) and a higher spread for Term Loan B (3.25% vs. 2.50%). In addition, we lowered the interest rate floor on the

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Term Loan B from 1.00% to 0.75%. We also extended the maturity of both the revolving credit facility and Term Loan A from March 2018 to April 2021 and of Term Loan B from November 2020 to April 2023. In connection with the refinancing, we paid \$9.3 million of bank, legal and other fees, of which \$8.1 million were capitalized and recorded as a component of long-term debt and are being amortized into interest expense over the lives of the underlying loans. Additionally, we wrote off \$1.1 million of unamortized debt financing costs, included as a component of interest expense, during second quarter of 2016 related to our previous credit facility. Finally, in connection with the refinancing, we executed new interest rate swaps. See Note 16 for additional details.

In March 2016, we amended and decreased our \$100.0 million Accounts Receivable Securitization Facility with the Bank of Nova Scotia 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 September 30, 2016, there were no outstanding borrowings on the accounts receivable securitization facility.

NOTE 14. PENSIONS AND OTHER BENEFIT PROGRAMS

Following are the components of net periodic benefit costs:

	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
<b>U.S. defined-benefit plans:</b>				
<b>Pension benefits</b>				
Service cost of benefits earned during the period	\$2.2	\$2.5	\$6.6	\$7.5
Interest cost on projected benefit obligation	16.5	12.6	49.5	37.8
Expected return on plan assets	(26.2)	(21.6)	(78.6)	(64.9)
Amortization of prior service cost	0.4	0.4	1.2	0.9
Amortization of net actuarial loss	11.4	11.4	34.2	34.2
Net periodic pension cost	\$4.3	\$5.3	\$12.9	\$15.5
<b>Retiree health and life insurance benefits</b>				
Service cost of benefits earned during the period	\$0.1	\$(0.2)	\$0.3	\$(0.6)
Interest cost on projected benefit obligation	0.9	(1.4)	2.9	(4.2)
Amortization of prior service credit	(0.1)	0.1	(0.3)	0.3
Amortization of net actuarial gain	(1.1)	1.6	(3.7)	4.6
Net periodic postretirement (credit) cost	\$(0.2)	\$0.1	\$(0.8)	\$0.1
<b>Non-U.S. defined-benefit pension plans:</b>				

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Service cost of benefits earned during the period	\$0.5	\$0.6	\$1.6	\$1.7
Interest cost on projected benefit obligation	1.6	2.0	5.1	5.7
Expected return on plan assets	(1.9 )	(2.1 )	(5.9 )	(5.9 )
Amortization of prior service cost	0.1	-	0.1	0.1
Amortization of net actuarial loss	0.3	0.7	0.9	1.9
Net periodic pension cost	\$0.6	\$1.2	\$1.8	\$3.5

Prior to our separation of AFI, we expected to contribute \$17.9 million to our U.S. postretirement benefit plans in 2016. For the nine months ended September 30, 2016, we have contributed \$9.7 million to our U.S. postretirement benefit plans and we expect to contribute an additional \$2.9 million to our U.S. postretirement benefit plans during the remainder of 2016. The reduction in our expected 2016 U.S. postretirement benefit plans contributions was a result of the transfer of U.S. postretirement benefit plan liabilities to AFI. See Note 3 for additional details.



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## NOTE 15. FINANCIAL INSTRUMENTS

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

	September 30, 2016		December 31, 2015	
	Carrying	Estimated	Carrying	Estimated
	amount	fair value	amount	fair value
<b>Assets (Liabilities), net:</b>				
Total long-term debt, including current portion	\$ (873.7 )	\$ (867.4 )	\$ (988.3 )	\$ (989.4 )
Foreign currency contracts	0.3	0.3	3.3	3.3
Natural gas contracts	0.1	0.1	(0.8 )	(0.8 )
Interest rate swap contracts	(4.2 )	(4.2 )	(10.6 )	(10.6 )

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 B debt. 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, 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.

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:

	September 30, 2016		December 31, 2015	
	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
<b>Assets (Liabilities), net:</b>				
Foreign currency contracts	\$ 0.3	-	\$ 3.3	-
Natural gas contracts	-	\$ 0.1	-	\$ (0.8 )
Interest rate swap contracts	-	(4.2 )	-	(10.6 )

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

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## NOTE 16. DERIVATIVE FINANCIAL INSTRUMENTS

We are exposed to market risk from changes in foreign exchange rates, interest rates and commodity prices that could impact our results of operations, cash flows and financial condition. We use 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 a credit rating of BBB or better. We monitor counterparty credit default swap levels and credit ratings on a regular basis. All of our derivative transactions with counterparties are governed by master International Swap and Derivatives Association agreements (“ISDAs”) with netting arrangements. These agreements can limit our exposure in situations where we have gain and loss positions outstanding with a single counterparty. We do not post nor 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 September 30, 2016 and December 31, 2015, the notional amount of these hedges was \$7.9 million and \$9.2 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 nine months ended September 30, 2016 and 2015.

### 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 September 30, 2016, based on operating profits by currency, are to the Chinese renminbi, Russian ruble, Canadian dollar and the Euro.

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 \$30.6 million and \$38.4 million as of September 30, 2016 and December 31, 2015, respectively. 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 nine months ended September 30, 2016 and 2015.

## Armstrong World Industries, Inc., and Subsidiaries

## Notes to Condensed Consolidated Financial Statements (unaudited)

(dollar amounts in millions, except share data)

## Currency Rate Risk - Intercompany Loans and Dividends

Where efficient, reliable and liquid markets exist we may utilize foreign currency forward exchange contracts to hedge exposures created by cross-currency intercompany loans and dividends. The translation adjustments related to these loans and any offsetting gains or losses on the related derivative contracts are recorded in other non-operating income or expense. The notional amount of these hedges was \$6.1 million as of December 31, 2015. We did not have any open hedges related to intercompany loans and dividends as of September 30, 2016.

## 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 September 30, 2016:

		Interest		
Trade Date	Notional Amount	Rate Paid	Coverage Period	Risk Coverage
April 16, 2013	\$ 250.0	1.398 %	November 2015 to March 2018	Term Loan A
April 1, 2016	\$ 200.0	1.231 %	April 2016 to March 2021	Term Loan A
April 1, 2016	\$ 100.0	1.756 %	April 2016 to March 2023	Term Loan B

In connection with the refinancing of our credit facilities, \$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 April 16, 2013 and April 1, 2016 we receive 3-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 nine months ended September 30, 2016 and 2015.

See Note 13 for additional details related to our April 1, 2016 credit facility refinancing.

## Financial Statement Impacts

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The following tables detail amounts related to our derivatives as of September 30, 2016 and December 31, 2015. We had no derivative liabilities not designated as hedging instruments as of September 30, 2016 or December 31, 2015. 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		September 30, 2016	December 31, 2015	Balance Sheet	
Location		2016	2015	Location	2016 2015
<b>Derivatives designated as hedging instruments</b>					
Natural gas commodity contracts	Other current assets	\$0.1	\$ -	Accounts payable and accrued expenses	\$- \$ 0.8
Foreign exchange contracts	Other current assets	0.5	3.4	Accounts payable and accrued expenses	0.2 0.1
Interest rate swap contracts	Other non-current assets	-	-	Other long-term liabilities	4.2 10.6
<b>Total derivatives designated as hedging instruments</b>		<b>\$0.6</b>	<b>\$ 3.4</b>		<b>\$4.4 \$ 11.5</b>

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(dollar amounts in millions, except share data)

	Amount of Gain (Loss)		Recognized in Accumulated	Other Comprehensive	Location of (Loss)	Income ("AOCI") Gain Reclassified from		Gain (Loss) Reclassified	
	(Effective Portion)	AOCI into Income (Effective Portion)				from AOCI into Income (Effective Portion)	from AOCI into Income (Effective Portion)		
	Nine Months Ended					Three Months Ended		Nine Months Ended	
	September 30, 2016 2015					September 30, 2016 2015		September 30, 2016 2015	
Derivatives in cash flow hedging relationships									
Natural gas commodity contracts	\$ 0.1	\$(1.2 )	Cost of goods sold			\$0.1	\$(0.9)	\$(1.2 )	\$(3.5)
Foreign exchange contracts – purchases	(0.2 )	2.6	Cost of goods sold			(0.2)	0.4	0.3	0.6
Foreign exchange contracts – sales	0.5	6.3	Net sales			0.1	2.5	2.2	6.5
Interest rate swap contracts	(4.2 )	(15.0 )	Interest expense			-	-	(10.7)	-
Total	\$(3.8 )	\$(7.3 )				\$-	\$2.0	\$(9.4 )	\$3.6

As of September 30, 2016 the amount of existing gains in AOCI expected to be recognized in earnings over the next twelve months is \$0.3 million.

There was no pre-tax gain or loss recognized in income for derivative instruments not designated as hedging instruments for the three and nine months ended September 30, 2016 or 2015.

NOTE 17. PRODUCT WARRANTIES

We provide limited warranties on certain products which may cover defects in materials or factory workmanship, sagging and warping, and certain manufacturing defects. Our product warranties place certain requirements on the purchaser, including installation and maintenance in accordance with our written instructions. Warranty claims are most commonly experienced in the periods immediately following purchase and decline with the passage of time. In addition to our warranty program, under certain limited circumstances, we will occasionally and at our sole discretion, provide a customer accommodation repair or replacement. Warranty repairs and replacements are most commonly made by professional installers employed by or affiliated with our independent distributors. Reimbursement for cost associated with warranty repairs are provided to our independent distributors through a credit against accounts receivable from the distributor to us.

The following table summarizes the activity for the accrual of product warranties for the nine months ended September 30, 2016 and 2015:

	2016	2015
Balance at January 1,	\$0.4	\$0.2
Reductions for payments	(7.4)	(1.2)
Current year warranty accruals	8.0	1.2
Balance at September 30,	\$1.0	\$0.2

#### NOTE 18. OTHER LONG-TERM LIABILITIES

	September 30, 2016	December 31, 2015
Long-term deferred compensation arrangements	\$ 17.6	\$ 18.7
Environmental liabilities	4.8	6.0
Long-term portion of derivative liabilities	4.2	10.6
Other	8.1	8.0
Total other long-term liabilities	\$ 34.7	\$ 43.3



Armstrong World Industries, Inc., and Subsidiaries

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NOTE 19. COMMON STOCK REPURCHASE PLAN

On July 29, 2016, the Company announced that its Board of Directors had approved a share repurchase program pursuant to which the Company is authorized to repurchase up to \$150.0 million of its outstanding shares of common stock through July 31, 2018 (the "Program"). Repurchases under the Program may be made through open market, block and privately-negotiated transactions, including Rule 10b5-1 plans, at times and in such amounts as management deems appropriate, subject to market and business conditions, regulatory requirements and other factors. The Program does not obligate the Company to repurchase any particular amount of common stock and may be suspended or discontinued at any time without notice. During the third quarter of 2016, 187,331 shares were repurchased under the Program for a total cost of \$7.8 million, or an average price of \$41.78 per share.

NOTE 20. ACCUMULATED OTHER COMPREHENSIVE (LOSS)

	Foreign	Derivative	Pension and	Total
	Currency	Translation	Postretirement	Accumulated
	Adjustments	(Loss)	Adjustments	Other
	(1)	Gain (1)	(1)	Comprehensive
				(Loss) (1)
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 (loss) income before reclassifications,				
net of tax expense (benefit) of \$ -, \$2.5, (\$1.5), and \$1.0	(13.8 )	(4.9 )	2.8	(15.9 )
Amounts reclassified from accumulated other				
comprehensive (loss)	-	6.1	21.1	27.2
Net current period other comprehensive (loss) income	(13.8 )	1.2	23.9	11.3
Balance at September 30, 2016	\$ (52.2 )	\$ (2.5 )	\$ (364.6 )	\$ (419.3 )

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	Currency	(Loss)	Adjustments	Accumulated
		Gain <sup>(1)</sup>	<sup>(1)</sup>	Other
	Translation			Comprehensive
	Adjustments			(Loss) <sup>(1)</sup>
	<sup>(1)</sup>			
Balance, December 31, 2014	\$ (8.3 )	\$ (4.0 )	\$ (483.2 )	\$ (495.5 )
Other comprehensive (loss) income before reclassifications,				
net of tax expense (benefit) of \$ -, (\$0.7), \$2.0, and \$1.3	(21.3 )	2.1	4.9	(14.3 )
Amounts reclassified from accumulated other comprehensive (loss)	-	(2.3 )	27.3	25.0
Net current period other comprehensive (loss) income	(21.3 )	(0.2 )	32.2	10.7
Balance at September 30, 2015	\$ (29.6 )	\$ (4.2 )	\$ (451.0 )	\$ (484.8 )

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

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Armstrong World Industries, Inc., and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

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	(Gain)/Loss		
	Reclassified from		Affected Line Item in the Condensed Consolidated Statement of Earnings and Comprehensive Income
	Accumulated Other		
	Comprehensive		
	Loss	Income	
	Nine Months Ended		
	September 30, 2016	2015	
<b>Derivative Adjustments:</b>			
Natural gas commodity contracts	\$1.2	\$3.5	Cost of goods sold
Foreign exchange contracts - purchases	(0.3 )	(0.6 )	Cost of goods sold
Foreign exchange contracts - sales	(2.2 )	(6.5 )	Net sales
Interest rate swap contracts	10.7	-	Interest expense
Total (income) loss before tax	9.4	(3.6 )	
Tax impact	(3.3 )	1.3	Income tax expense
Total (income) loss, net of tax	6.1	(2.3 )	
<b>Pension and Postretirement Adjustments:</b>			
Prior service cost amortization	0.5	0.8	Cost of goods sold
Prior service cost amortization	0.5	0.5	SG&A expense
Amortization of net actuarial loss	16.9	23.5	Cost of goods sold
Amortization of net actuarial loss	14.5	17.2	SG&A expense
Total expense before tax	32.4	42.0	
Tax impact	(11.3 )	(14.7 )	Income tax expense
Total expense, net of tax	21.1	27.3	
Total reclassifications for the period	\$27.2	\$25.0	

NOTE 21. LITIGATION AND RELATED MATTERS

ENVIRONMENTAL MATTERS

## Environmental Compliance

Our manufacturing and research facilities are affected by various federal, state and local requirements relating to the discharge of materials and the protection of the environment. We make expenditures necessary for compliance with applicable environmental requirements at each of our operating facilities. These regulatory requirements continually change, therefore we cannot predict with certainty future expenditures associated with compliance with environmental requirements.

## Environmental Sites

### Summary

We are actively involved in the investigation, closure and/or remediation of existing or potential environmental contamination under the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”), and state or international Superfund and similar type environmental laws at several domestically- and internationally-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 in respect of 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. These proceedings are currently in early stages and 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.

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Notes to Condensed Consolidated Financial Statements (unaudited)

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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 Building Products 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 been continuing 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.

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 Chapter 11 case may impact Kaiser's ongoing participation in the RI/FS process, as well as, the ODEQ consent order and cost sharing agreements. At this time, we are unable to predict whether Kaiser intends to 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 shares, it could result in additional cost to us greater than the amounts currently estimated and those costs may be material.

The principal contaminants at the St. Helens site are arsenic and dioxin compounds from historic operations by prior owners of the plant. As part of the investigation on the site pursuant to the Consent Order, we conducted an analysis of the raw materials used in our manufacturing processes at the St. Helens facility to identify possible sources of these same contaminants. Although there are several possible sources of dioxin associated with historic operations predating our ownership of the site, one possible source is the use of ball clay. Ball clay, mined from the earth, contains naturally occurring dioxin. Ball clay was used by AWI's predecessors at a time when wastewater was discharged to the Lowland and Scappoose Bay without treatment, which may be a source of dioxin at the site. We use ball clay in the production of some of our fire-retardant products. However, since we have owned and operated the plant, all wastewater has been treated and directed to a municipal wastewater treatment system and has not been discharged at the site. Accordingly, we do not believe that the presence of dioxin in our raw material will have a material impact on our liability at the site.

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#### 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 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”). 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. Within 120 days after the EPA approves the final report, we will be required to submit a Post-Removal Control Plan, to be implemented once the Plan 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”). 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, which is the Remaining Site. We along with the 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 the Remaining Site. We have not yet commenced an investigation of this portion of the site. We anticipate that the EPA will require significant investigative work for the Remaining Site 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 our estimated share of the costs of the investigative work that, at this time, we anticipate the EPA will require the PRP team to perform. We are unable to reasonably estimate AWI’s final share of the costs or the total costs associated with the investigation work or any resulting remediation therefrom, although such amounts may be material.

#### Elizabeth City, NC

This site is a former cabinet manufacturing facility that was operated by Triangle Pacific Corporation, now known as Armstrong Wood Products, Inc. (“Triangle Pacific”), from 1977 until 1996. The site was formerly owned by the U.S. Navy (“Navy”) and Westinghouse, now CBS Corporation (“CBS”). We assumed ownership of the site when we acquired the stock of Triangle Pacific in 1998. Prior to our acquisition, the NC Department of Environment and Natural Resources listed the site as a hazardous waste site. In 1997, Triangle Pacific entered into a cost sharing agreement with Westinghouse whereby the parties agreed to share equally in costs associated with investigation and potential

remediation. In 2000, Triangle Pacific and CBS entered into an Administrative Order on Consent to conduct an RI/FS with the EPA for the site. In 2007, we and CBS entered into an agreement with the Navy whereby the Navy agreed to pay one third of defined past and future investigative costs up to a certain amount, which has now been exhausted. Although the parties initially submitted the RI/FS work plan to the EPA in 2004, the EPA did not approve the RI/FS work plan until 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 supplemental reports were submitted to the agency in January 2015; in July 2015, the agency issued comments on those reports. We responded to the comments in August 2015 and have heard nothing from the agency since. We are unable to reasonably estimate any additional investigative costs or determine whether remediation will be required. 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 \$4.8 million as of September 30, 2016 and \$6.0 million as of December 31, 2015 were recorded for potential environmental liabilities, on a global basis, that we consider probable and for which a reasonable estimate of the probable liability could be made. During the three and nine months ended September 30, 2016, we recorded reserves for potential environmental liabilities, on a global basis, of \$2.0 million and \$2.5 million, respectively. During the nine months ended September 30, 2015, we recorded reserves for potential environmental liabilities, on a global basis, of \$1.4 million. Where existing data is sufficient to



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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 probable recoveries that are either available through settlement or anticipated to be recovered through negotiation or litigation as assets in the Condensed Consolidated Balance Sheets. No material amounts were recorded for probable recoveries as of September 30, 2016 or December 31, 2015.

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 22. 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 nine month periods ended September 30, 2016 and 2015:

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	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
Earnings from continuing operations	\$55.9	\$19.7	\$65.4	\$40.5
Earnings allocated to participating non-vested share awards	(0.2)	(0.2)	(0.2)	(0.4)
Earnings from continuing operations attributable to common shares	\$55.7	\$19.5	\$65.2	\$40.1

The following table is a reconciliation of basic shares outstanding to diluted shares outstanding for the three and nine months ended September 30, 2016 and 2015 (shares in millions):

	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
Basic shares outstanding	55.5	55.5	55.6	55.4
Dilutive effect of common stock equivalents	0.5	0.4	0.4	0.4
Diluted shares outstanding	56.0	55.9	56.0	55.8

Anti-dilutive stock options excluded from the computation of diluted EPS for the three and nine months ended September 30, 2016 were 468,281 and 690,715, respectively. Anti-dilutive stock options excluded from the computation of diluted EPS for the three and nine months ended September 30, 2015 were 8,175 and 73,169, respectively.

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, 2015.

OVERVIEW

We are a leading global producer of ceiling systems and, prior to April 1, 2016, flooring products 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) and, prior to April 1, 2016, flooring products (primarily resilient and wood) around the world.

On April 1, 2016, we completed our previously announced separation of Armstrong Flooring, Inc. ("AFI") by allocating the assets and liabilities related primarily to the Resilient Flooring and Wood Flooring segments to AFI and then distributing the common stock of AFI to our shareholders at a ratio of one share of AFI common stock for every two shares of AWI common stock. Subsequent to the separation and distribution, AWI and AFI operated as two independent, publicly-traded companies, with AFI owning and operating the Resilient Flooring and Wood Flooring segments and AWI continuing to own and operate the Building Products (Ceilings) segment. 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. See Note 3 to the Condensed Consolidated Financial Statements for additional information.

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 existing markets and by selling a broader array of products and solutions into those markets.

As of September 30, 2016, we operated 15 manufacturing plants in eight countries, including six plants located throughout the U.S. Three of our plants are leased and the remaining 12 are owned. During the fourth quarter of 2015, we decided to idle one of our facilities in China, effective in the fourth quarter of 2016.

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 which we use in our ceiling systems.

Reportable Segments

Effective April 1, 2016 and in connection with our separation of AFI, our former Resilient Flooring and Wood Flooring segments have been excluded from our results of continuing operations. In addition, effective April 1, 2016, we disaggregated our former Building Products operating segment into the following three distinct geographical segments: Americas; Europe, Middle East and Africa ("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, which are not typically material.

In addition, effective April 1, 2016, we reclassified the majority of the assets and liabilities formally allocated to our Unallocated Corporate segment to our Americas segment for all periods presented. The assets and liabilities reclassified to our Americas segment most notably included the Armstrong trade name intangible asset, property, plant and equipment comprised primarily of Corporate campus facilities, the cash surrender value of life insurance supporting deferred compensation liabilities and income tax assets and liabilities and pension and postretirement assets and liabilities.

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

Balance sheet items classified as Unallocated Corporate primarily include cash and cash equivalents and outstanding borrowings under our senior credit facilities.

Effective January 1, 2016, in anticipation of the April 1, 2016 AFI separation, the majority of our historical corporate support functions, representing costs of approximately \$22.0 million and \$58.0 million for the three and nine months ended September 30, 2016, respectively, were incorporated into our Americas segment. As a result, unallocated corporate support expenses have decreased significantly during the three and nine months ended September 30, 2016 in comparison to the same periods in 2015. For the three and nine months ended September 30, 2016 and 2015 Unallocated Corporate segment operating (loss) was comprised of the following (dollar amounts in millions):

	Three Months Ended September 30, 2016		Nine Months Ended September 30, 2015	
Corporate expenses	\$(0.7)	\$(23.1)	\$(4.1)	\$(62.4)
Separation costs	(2.0)	(7.4)	(33.0)	(16.8)
Total Unallocated Corporate segment operating (loss)	\$(2.7)	\$(30.5)	\$(37.1)	\$(79.2)

In addition to AFI, the financial results of our formerly owned European Resilient Flooring business are classified as discontinued operations for all periods presented.

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 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 third quarter of 2016, including:

#### Americas

Americas activity was flat, however, we continued to experience improvement from new construction. We believe we experienced growth from new construction while renovation activity moderated based on the mix of products sold.

#### EMEA

We experienced continued softness in commercial sectors, such as office, education and healthcare. 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. However, recent improvements in oil prices have begun to positively impact market opportunities in Russia, but building activity in the Middle East continues to be negatively impacted by lower project

funding.

#### Pacific Rim

Commercial office markets in China continued to experience challenging conditions while India markets were impacted by tight project financing.

**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 third quarter and first nine months of 2016 by approximately \$7 million and \$13 million, respectively, compared to the same periods of 2015.

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

In the first quarter of 2016, we implemented ceiling tile price increases in the Americas, EMEA and Pacific Rim. In the second quarter of 2016, we implemented price increases on grid products in the Americas. In the third quarter of 2016, we implemented price increases on ceiling tiles in the Americas and grid products in EMEA. 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 third quarter and first nine months of 2016, costs for raw materials, sourced products and energy positively impacted operating income by \$2 million and \$8 million when compared to the same periods of 2015.

## Employees

As of September 30, 2016 we had approximately 3,700 full-time and part-time employees worldwide compared to 3,800 as of December 31, 2015. As a result of the separation, approximately 3,900 of our former employees were employed by AFI effective April 1, 2016.

## RESULTS OF CONTINUING OPERATIONS

Unless otherwise indicated, net sales in these results of continuing operations are reported based upon the 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.

## CONSOLIDATED RESULTS FROM CONTINUING OPERATIONS

(dollar amounts in millions)

	2016	2015	Change is Favorable/ (Unfavorable)	
<b>Three Months Ended September 30,</b>				
Total consolidated net sales	\$334.9	\$335.9	(0.3	)%
Operating income	\$71.0	\$59.3	19.7	%
<b>Nine Months Ended September 30,</b>				
Total consolidated net sales	\$936.6	\$934.0	0.3	%
Operating income	\$144.3	\$134.6	7.2	%

Excluding the unfavorable impact of foreign exchange of \$7 million, consolidated net sales for the third quarter of 2016 increased 1.7% due to favorable AUV of \$7 million, partially offset by lower volumes of \$2 million. Excluding the unfavorable impact of foreign exchange of \$18 million, consolidated net sales for the first nine months of 2016 increased 2.2% due to favorable AUV of \$13 million and higher volumes of \$7 million.

Cost of goods sold in the third quarter of 2016 was 67.2% of net sales, compared to 66.9% for the same period in 2015. Cost of goods sold in the first nine months of 2016 was 69.5% of net sales, compared to 68.8% for the same period of 2015.

SG&A expenses in the third quarter of 2016 were \$55.7 million, or 16.6% of net sales, compared to \$64.0 million, or 19.1% of net sales, for the same period in 2015. SG&A expenses in the first nine months of 2016 were \$165.2 million, or 17.6% of net sales, compared to \$189.9 million, or 20.3% of net sales, for the same period of 2015. The decreases in SG&A expenses in the third quarter and first nine months of 2016 were primarily the result of cost control measures, particularly in international markets to offset soft market demand, plus the net impact of the separation.

Separation costs in the third quarter and first nine months of 2016 were \$2.0 million and \$33.0 million, respectively. Separation costs in the third quarter and first nine months of 2015 were \$7.4 million and \$16.8 million, respectively. Separation costs primarily related



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

to outside professional services and employee retention and severance accruals incurred to separate the flooring business from our ceilings business.

Equity earnings from our WAVE joint venture were \$19.0 million for the third quarter of 2016, compared to \$19.6 million in the third quarter of 2015 and \$57.0 million for the first nine months of 2016 compared to \$49.6 million for the same period in 2015. When compared to the prior year periods, earnings decreased in the third quarter due to lower sales volumes, but increased for the first nine months of 2016 due to the impact of higher sales. See Note 7 to the Condensed Consolidated Financial Statements for further information.

Interest expense was \$9.0 million for the third quarter of 2016 compared to \$11.3 million in the third quarter of 2015. Interest expense was \$43.4 million for first nine months of 2016 compared to \$33.9 million for the same period of 2015. The decrease in interest expense in the third quarter was as result of the refinancing of our credit facilities in April 2016, which resulted in a reduction in total debt outstanding and a lower interest rate spread. The increase in interest expense for the first nine months of 2016 was due to \$10.7 million of losses that were reclassified from accumulated other comprehensive income to interest expense during the first quarter of 2016 as a result of the settlement of \$450.0 million of notional amount interest rate swaps which occurred in connection with the refinancing of our credit facilities.

Other non-operating income was \$1.6 million and \$8.9 million for the third quarter and first nine months of 2016, respectively. Other non-operating income was \$5.4 million for the first nine months of 2015. The changes in other non-operating income were primarily due to foreign exchange gains on the translation of unhedged cross-currency intercompany loans.

Other non-operating expenses were \$10.8 million for the third quarter of 2015 and \$13.5 million for the first nine months of 2015. Other non-operating expenses for the third quarter and first nine months of 2015 were primarily due to foreign exchange rate losses on the translation of unhedged cross-currency intercompany loans denominated in Russian rubles, related to the construction of a Russian mineral fiber ceiling plant that was completed in the first quarter of 2015. Where efficient, reliable and liquid markets exist we may utilize foreign currency forward exchange contracts to hedge exposures created by cross-currency intercompany loans and dividends. Our largest unhedged foreign currency exposures are in Russian rubles and Chinese renminbi. As September 30, 2016, total unhedged foreign currency-denominated intercompany loan exposures in Russian rubles and Chinese renminbi were \$47.1 million and \$38.0 million, respectively.

Income tax expense was \$7.7 million for the third quarter of 2016 compared to \$17.5 million in the third quarter of 2015. The effective tax rate for the third quarter of 2016 was 12.1% as compared to a rate of 47.0% for the same period of 2015. Income tax expense was \$44.4 million for the first nine months of 2016 compared to \$52.1 million in the same period of 2015. The effective tax rate for the first nine months of 2016 was 40.4% as compared to a rate of 56.3% for the same period of 2015. The effective tax rate for the third quarter and the first nine months of 2016 was lower than the comparable periods of 2015 primarily due to income tax benefits recorded during the third quarter of 2016 resulting from the reversal of reserves for uncertain tax positions as a result of an expiration of the federal statute of limitations to review previously filed income tax returns.

Total other comprehensive income ("OCI") was \$6.6 million in the third quarter of 2016 compared to a loss of \$1.4 million for the third quarter of 2015. Total OCI was \$11.3 million in the first nine months of 2016 compared to \$10.7 million for the first nine months of 2015. Foreign currency translation adjustments represent the change in the U.S. dollar value of assets and liabilities denominated in foreign currencies. Amounts in the third quarter and first nine months of 2016 were driven primarily by changes in the exchange rates of the British pound, Chinese renminbi,

Australian dollar and the Euro. Amounts in the third quarter and first nine months of 2015 were driven primarily by changes in the exchange rates of the Australian dollar and British pound. 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. The period changes are primarily due to the mark to market changes related to our interest rate swap derivatives, including \$10.7 million of losses recorded during the first quarter of 2016, as a result of the settlement of an interest swap. 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.

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

## REPORTABLE SEGMENT RESULTS

## Americas

(dollar amounts in millions)

	2016	2015	Change is Favorable/ (Unfavorable)	
<b>Three Months Ended September 30,</b>				
Total segment net sales	\$226.0	\$221.5	2.0	%
Operating income	\$68.6	\$88.7	(22.7)	)%
<b>Nine Months Ended September 30,</b>				
Total segment net sales	\$640.9	\$615.5	4.1	%
Operating income	\$189.0	\$225.0	(16.0)	)%

Net sales in the Americas for the third quarter of 2016 increased driven by favorable AUV of \$6 million partially offset by lower volumes of \$2 million. Excluding the unfavorable impact of foreign exchange of \$2 million, net sales in the Americas for the first nine months of 2016 increased 4.5% due to higher volumes of \$20 million and favorable AUV of \$7 million.

Operating income decreased in the third quarter of 2016, as favorable AUV of \$3 million was more than offset by higher SG&A expenses of \$16 million, higher manufacturing and input costs of \$4 million, the margin impact of lower volumes of \$3 million, and lower earnings from WAVE of \$1 million. Operating income decreased in the first nine months of 2016, as higher earnings from WAVE of \$7 million, the margin impact of higher volumes of \$6 million and favorable AUV of \$1 million were more than offset by higher manufacturing and input costs of \$9 million and higher SG&A expenses of \$40 million. The increase in SG&A in the third quarter and first nine months of 2016 was primarily a result of the separation.

## EMEA

(dollar amounts in millions)

	2016	2015	Change is Favorable/ (Unfavorable)	
<b>Three Months Ended September 30,</b>				
Total segment net sales	\$74.2	\$78.2	(5.1)	)%
Operating income	\$4.1	\$1.3	Favorable	
<b>Nine Months Ended September 30,</b>				
Total segment net sales	\$199.4	\$217.3	(8.2)	)%
Operating (loss)	\$(5.2 )	\$(7.0 )	25.7	%

Excluding the unfavorable impact of foreign exchange of \$6 million, net sales in the EMEA markets increased 1.9% in the third quarter of 2016 due to higher volumes of \$2 million which were partially offset by weakness in the Middle East. Excluding the unfavorable impact of foreign exchange of \$12 million, net sales in the EMEA markets decreased 2.9% in the first nine months of 2016 due to lower volumes of \$7 million, which was almost entirely due to lower sales in the Middle East.

Operating income increased in the third quarter of 2016 due to savings in SG&A expenses of \$1 million and lower manufacturing and input costs of \$1 million. Operating loss decreased in the first nine months of 2016, driven by lower SG&A expenses of \$5 million and lower manufacturing and input costs of \$2 million, which was mostly offset by the margin impact of lower volumes of \$3 million and the margin impact of unfavorable AUV of \$2 million.

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

## Pacific Rim

(dollar amounts in millions)

	2016	2015	Change is Favorable/ (Unfavorable)			
<b>Three Months Ended September 30,</b>						
Total segment net sales	\$34.7	\$36.2	(4.1	)%		
Operating income (loss)	\$1.0	\$(0.2	)	Favorable		
<b>Nine Months Ended September 30,</b>						
Total segment net sales	\$96.3	\$101.2	(4.8	)%		
Operating (loss)	\$(2.4	)	\$(4.2	)	42.9	%

Excluding the unfavorable impact of foreign exchange of \$1 million, net sales in the Pacific Rim for the third quarter of 2016 decreased 1.7% due to lower volumes of \$2 million partially offset by favorable AUV of \$1 million. Third quarter of 2016 sales in India decreased, partially offset by an increase in Australia. Net sales in China were flat. Excluding the unfavorable impact of foreign exchange of \$4 million, net sales in the Pacific Rim for the first nine months of 2016 decreased 0.9% due to lower volumes of \$7 million partially offset by favorable AUV of \$6 million. Sales for the first nine months of 2016 in India and China were essentially flat in comparison to the prior year.

Operating income increased in the third quarter of 2016 due to the favorable impact from AUV of \$1 million and lower manufacturing and input costs of \$1 million, partially offset by lower volumes of \$1 million. Operating loss decreased in the first nine months of 2016 as the favorable impact from AUV of \$5 million, lower manufacturing and input costs of \$2 million and lower SG&A of \$1 million were mostly offset by \$3 million of severance charges associated with the idling of a plant in China and the margin impact of lower sales volumes of \$2 million.

## Unallocated Corporate

Unallocated corporate expense of \$2.7 million in the third quarter of 2016 and \$37.1 million for the first nine months of 2016 decreased from \$30.5 million and \$79.2 million, respectively, in the prior year. The decreases were due to the inclusion of most of the Corporate functions within the Americas segment as a result of the separation, partially offset by lower separation costs of \$5 million in the third quarter of 2016 and higher separation costs of \$16 million for the first nine months of 2016 when compared to the prior year periods.

## FINANCIAL CONDITION AND LIQUIDITY

## Cash Flow

Operating activities in the first nine months of 2016 used \$2.6 million of cash, compared to \$144.0 million provided by operating activities in the first nine months of 2015. The decrease was primarily due to changes in working capital (primarily separation payments and accounts payable).

Net cash used for investing activities was \$6.9 million for the first nine months of 2016, compared to \$45.3 million used for the first nine months of 2015. The decrease in cash used was primarily due to higher return of investment from our WAVE joint venture and lower purchases of fixed assets.

Net cash used for financing activities was \$88.2 million for the first nine months of 2016, compared to \$23.6 million used during the first nine months of 2015. The unfavorable cash use was primarily the result of higher payments of debt associated with the separation of AFI and our new credit facility.

#### 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.

On April 1, 2016, we refinanced our \$1,275.0 million senior credit facility, utilizing a \$50.0 million cash dividend from AFI and cash on hand to pay down a portion of the debt outstanding. The \$1,050.0 million new credit facility is composed of a \$200.0 million revolving credit facility (with a \$150.0 million sublimit for letters of credit), a \$600.0 million Term Loan A and a \$250.0 million Term Loan B. The terms of the credit facility resulted in a lower interest rate spread for both the revolving credit facility and Term Loan A

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

(2.00% vs. 2.50%) and a higher spread for the Term Loan B (3.25% vs. 2.50%). In addition, we lowered the floor on the Term Loan B from 1.0% to 0.75%. We also extended the maturity of both the revolving credit facility and Term Loan A from March 2018 to April 2021 and of the Term Loan B from November 2020 to April 2023. In addition, in April 2016, we established a \$25.0 million letter of credit facility with the Bank of Nova Scotia, also known as our bi-lateral facility. As of September 30, 2016, there were no outstanding borrowings on the bi-lateral facility.

Under our refinanced 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 nine months of 2016 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 September 30, 2016, we were in compliance with all covenants of the senior credit facility.

The following table summarizes our interest rate swaps as of September 30, 2016 (dollar amounts in millions):

		Interest			
	Notional	Rate			
Trade Date	Amount	Paid	Coverage Period		Risk Coverage
April 16, 2013	\$ 250.0	1.398 %	November 2015 to March 2018		Term Loan A
April 1, 2016	\$ 200.0	1.231 %	April 2016 to March 2021		Term Loan A
April 1, 2016	\$ 100.0	1.756 %	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 April 16, 2013 and April 1, 2016, we receive 3-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. As of September 30, 2016, there was no outstanding balance on the revolving credit facility.

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As of September 30, 2016, we had \$142.5 million of cash and cash equivalents, \$88.5 million in various foreign jurisdictions and \$54.0 million in the U.S.

In March 2016, we amended and decreased our \$100.0 million Accounts Receivable Securitization Facility with the Bank of Nova Scotia 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 September 30, 2016, there were no outstanding borrowings on the accounts receivable securitization facility.



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

As of September 30, 2016, we had outstanding letters of credit totaling \$55.5 million, of which \$36.2 million was issued under the accounts receivable securitization facility, \$19.2 million was issued under the bi-lateral facility and \$0.1 million was issued by other banks of international subsidiaries. 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.

Foreign Financing Arrangements (dollar amounts in millions)	As of September 30, 2016		
	Limit Used	Available	
Lines of Credit Available for Borrowing	\$4.4	-	\$ 4.4
Lines of Credit Available for Letters of Credit	0.2	\$0.1	0.1
<b>Total</b>	<b>\$4.6</b>	<b>\$0.1</b>	<b>\$ 4.5</b>

These lines of credit are uncommitted, and poor operating results or credit concerns at the related non-U.S. 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.

We believe that cash on hand and cash generated from operations, together with lines of credit, availability under our securitization facility and the availability under our \$200 million 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, 2015 can be found in our 2015 Annual Report, Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations. Our long-term debt obligations as of September 30, 2016 decreased by \$80.0 million in comparison to December 31, 2015 primarily due to the refinancing of our senior credit facility on April 1, 2016. See Note 13 for additional details.

### 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 2015 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, 2015.

### 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 September 30, 2016, 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. On April 1, 2016, in connection with the separation and distribution of Armstrong Flooring, Inc. (“AFI”), we entered into several agreements with AFI, including a Transition Services Agreement.

Under the Transition Services Agreement, AFI will provide various services to us during a transition period expiring no later than December 31, 2017. In addition and as a result of the separation of AFI, planned staffing changes resulted in the transition of responsibilities among certain individuals responsible for executing internal controls. No material change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Act) occurred during the fiscal quarter ended September 30, 2016 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 21 to the Condensed Consolidated Financial Statements, which is incorporated herein by reference.

### ITEM 1A. RISK FACTORS

The following risk factors supplement and modify the discussion of the risk factors “If the separation and distribution fails to qualify as a tax-free transaction for U.S. federal income tax purposes, then AFI, AWI and AWI’s shareholders could be subject to significant tax liability or tax indemnity obligations” and “The separation may not be beneficial” as set forth in our 2015 Annual Report on Form 10-K. There have been no other material changes to the risk factors disclosed in our 2015 Annual Report on Form 10-K except for modifications to the following risk factors.

If the separation and distribution, together with certain related transactions, fail to qualify as a tax-free transaction for U.S. federal income tax purposes, then the Company and the Company’s shareholders could be subject to significant tax liabilities.

The Company received an opinion from Skadden, Arps, Slate, Meagher & Flom LLP, special tax counsel to the Company, on the basis of certain facts, representations, covenants and assumptions set forth in such opinion, substantially to the effect that, for U.S. federal income tax purposes, the separation and distribution, together with certain related transactions, should qualify as a transaction that generally is tax-free to the Company and the Company’s shareholders, for U.S. federal income tax purposes, under Sections 355 and 368(a)(1)(D) of the Code. The opinion of Skadden, Arps, Slate, Meagher & Flom LLP is not binding on the Internal Revenue Service (“IRS”) or any courts.

Notwithstanding the tax opinion, the IRS could determine on audit that the distribution should be treated as a taxable transaction if it determines that any of the facts, assumptions, representations or covenants set forth in the tax opinion is not correct or has been violated, or that the distribution should be taxable for other reasons, including as a result of a significant change in stock or asset ownership after the distribution, or if the IRS were to disagree with the conclusions of the tax opinion.

If the distribution is ultimately determined to be taxable, the distribution could be treated as a taxable dividend to the Company’s shareholders who received AFI common shares in the distribution, and such shareholders could incur significant U.S. federal income tax liability. In addition, the Company could incur significant U.S. federal income tax liabilities if it is ultimately determined that the distribution or certain related transactions undertaken in anticipation of the distribution are taxable.

The Company may not achieve some or all of the expected benefits of the separation and the separation may materially and adversely affect our business, financial condition and results of operations.

The Company may not be able to achieve the full strategic and financial benefits expected to result from the separation, or such benefits may be delayed due to a variety of circumstances, not all of which may be under the Company’s control.

The Company may not achieve these benefits for a variety of reasons, including, among others: (i) the Company may be more susceptible to market fluctuations and other adverse events than if AFI were still a part of the Company; and (ii) the Company's business after separation is less diversified than the Company's business prior to the separation. The delay or failure to achieve some or all of the benefits expected to result from the separation, could materially and adversely affect our business, financial conditions and results of operations.

## 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
July 1 – 31, 2016	119	\$ 39.14	-	\$ 150,000,000
August 1 – 31, 2016	37,389	\$ 43.78	37,389	\$ 148,362,991
September 1 – 30, 2016	159,334	\$ 41.31	149,942	\$ 142,168,396
Total	196,842			

<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 the 2011 Long Term Incentive Plan.

On July 29, 2016, the Company announced that its Board of Directors had approved a share repurchase program pursuant to which the Company is authorized to repurchase up to \$150.0 million of its outstanding shares of common stock through July 31, 2018 (the “Program”). Repurchases under the Program may be made through open market, block and privately-negotiated transactions, including Rule 10b5-1 plans, at times and in such amounts as management deems appropriate, subject to market and business conditions, regulatory requirements and other factors. The Program does not obligate the Company to repurchase any particular amount of common stock and may be suspended or discontinued at any time without notice. During the third quarter of 2016, 187,331 shares had been repurchased under the Program for a total cost of \$7.8 million, or an average price of \$41.78 per share.

## ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

## ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

ITEM 5. OTHER INFORMATION

None.

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ITEM 6. EXHIBITS

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

Exhibit No. Description

- |      |   |
|------|---|
| 10.1 | Armstrong World Industries, Inc. 2016 Directors Stock Unit Plan (previously filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).   |
| 10.2 | Armstrong World Industries, Inc. 2016 Long-Term Incentive Plan (previously filed as Exhibit 10.2 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).*   |
| 10.3 | Form of Stock Unit Grant Agreement under the Armstrong World Industries, Inc. 2016 Directors Stock Unit Plan (previously filed as Exhibit 10.3 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).  |
| 10.4 | Form of Long-Term Time-Based Restricted Stock Unit Grant under the 2011 Long-Term Incentive Plan (previously filed as Exhibit 10.4 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).*   |
| 10.5 | Form of Long-Term Performance-Based Restricted Stock Unit Grant (Performance Goals Based on Absolute TSR) for Senior Executives under the 2011 Long-Term Incentive Plan (previously filed as Exhibit 10.5 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).*              |
| 10.6 | Form of Long-Term Performance-Based Restricted Stock Unit Grant (Performance Goals Based on Absolute TSR) under the 2011 Long-Term Incentive Plan (previously filed as Exhibit 10.6 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).*                                    |
| 10.7 | Form of Long-Term Performance-Based Restricted Stock Unit Grant (Performance Goals Based on Cumulative Free Cash Flow) under the 2011 Long-Term Incentive Plan (previously filed as Exhibit 10.7 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).*                       |
| 10.8 | Form of Long-Term Performance-Based Restricted Stock Unit Grant (Performance Goals Based on Cumulative Free Cash Flow) for Senior Executives under the 2011 Long-Term Incentive Plan (previously filed as Exhibit 10.8 to the Company's Current Report on Form 8-K filed on July 11, 2016 and incorporated herein by reference).* |
| 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. †   |

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- 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.

\*Management Contract or Compensatory Plan.



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: October 31, 2016