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

# FORM 10-K

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

**For the fiscal year ended December 31, 2019**

**or**

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

**For the transition period from _____ to _____**

**Commission File Number: 001-38000**

# JELD-WEN Holding, Inc.
**(Exact name of registrant as specified in its charter)**

| Delaware | 93-1273278 |
|---|---|
| (State or other jurisdiction of incorporation or organization) | (I.R.S. Employer Identification No.) |

**2645 Silver Crescent Drive**
**Charlotte, North Carolina 28273**
**(Address of principal executive offices, zip code)**

**(704) 378-5700**
**(Registrant's telephone number, including area code)**

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

| Title of each class | Trading Symbol(s) | Name of each exchange on which registered |
|---|---|---|
| Common Stock (par value $0.01 per share) | JELD | New York Stock Exchange |

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

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

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

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

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

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| Large accelerated filer | ☒ | Accelerated filer | ☐ |
| Non-accelerated filer | ☐ | Smaller reporting company | ☐ |
| Emerging growth company | ☐ | | |

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

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

The aggregate market value of the common stock held by non-affiliates of the registrant was $1.4 billion as of the end of the registrant's second fiscal quarter (based on the closing sale price for the common stock on the New York Stock Exchange on June 28, 2019). Shares of the registrant's voting stock held by each executive officer and director and by each entity or person that, to the registrant's knowledge, owned 10% or more of the registrant's outstanding common stock as of June 29, 2019 have been excluded from this number in that these persons may be deemed affiliates of the registrant.

The registrant had 100,753,067 shares of common stock, par value $0.01 per share, issued and outstanding as of February 21, 2020.

**DOCUMENTS INCORPORATED BY REFERENCE**

Part III of this Form 10-K incorporates by reference certain information from the registrant's Definitive Proxy Statement for its 2020 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission within 120 days after December 31, 2019.

**JELD-WEN HOLDING, Inc.**
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**Glossary of Terms**

When the following terms and abbreviations appear in the text of this report, they have the meanings indicated below:

| | |
|---|---|
| A&L | A&L Windows Pty. Ltd. |
| ABL Facility | Our $400 million asset-based loan revolving credit facility, dated as of October 15, 2014 and as amended from time to time, with JWI (as hereinafter defined) and JELD-WEN of Canada, Ltd., as borrowers, the guarantors party thereto, a syndicate of lenders, and Wells Fargo Bank, N.A., as administrative agent |
| ABS | American Building Supply, Inc. |
| Adjusted EBITDA | A supplemental non-GAAP financial measure of operating performance not based on any standardized methodology prescribed by GAAP that we define as net income (loss), adjusted for the following items: loss from discontinued operations, net of tax; equity earnings of non-consolidated entities; income tax (benefit) expense; depreciation and amortization; interest expense, net; impairment and restructuring charges; gain on previously held shares of equity investment; (gain) loss on sale of property and equipment; share-based compensation expense; non-cash foreign exchange transaction/translation (income) loss; other non-cash items; other items; and costs related to debt restructuring and debt refinancing |
| ASC | Accounting Standards Codification |
| ASU | Accounting Standards Update |
| AUD | Australian Dollar |
| Australia Senior Secured Credit Facility | Our senior secured credit facility, dated as of October 6, 2015 and as amended from time to time, with certain of our Australian subsidiaries, as borrowers, and Australia and New Zealand Banking Group Limited, as lender |
| BBSY | Bank Bill Swap Bid Rate |
| Bylaws | Amended and Restated Bylaws of JELD-WEN Holding, Inc. |
| CAP | Cleanup Action Plan |
| Charter | Restated Certificate of Incorporation of JELD-WEN Holding, Inc. |
| Class B-1 Common Stock | Shares of our Class B-1 common stock, par value $0.01 per share, all of which were converted into shares of our Common Stock on February 1, 2017 |
| CMI | CraftMaster Manufacturing, Inc. |
| COA | Consent Order and Agreement |
| CODM | Chief Operating Decision Maker |
| Common Stock | The 900,000,000 shares of common stock, par value $0.01 per share, authorized under our Charter |
| Corporate Credit Facilities | Collectively, our ABL Facility and our Term Loan Facility |
| Credit Facilities | Collectively, our Corporate Credit Facilities and our Australia Senior Secured Credit Facility as well as other acquired term loans and revolving credit facilities |
| D&K | D&K Home Security Pty. Ltd. |
| DKK | Danish Krone |
| Domoferm | The Domoferm Group of companies |
| Dooria | Dooria AS |
| EPA | The U.S. Environmental Protection Agency |
| ERP | Enterprise Resource Planning |
| ESOP | JELD-WEN, Inc. Employee Stock Ownership and Retirement Plan |
| E.U. | European Union |
| Euro Revolving Facility | Our €39 million revolving credit facility, dated as of January 30, 2015 and as amended from time to time, with JELD-WEN ApS, as borrower, Danske Bank A/S and Nordea Bank Danmark A/S as lenders, which expired in February 2019 |
| Exchange Act | Securities Exchange Act of 1934, as amended |
| FASB | Financial Accounting Standards Board |
| 10-K | Annual Report on Form 10-K for the fiscal year ended December 31, 2019 |
| GAAP | Generally Accepted Accounting Principles in the United States |
| GHGs | Greenhouse Gases |

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| GILTI | Global Intangible Low-Taxed Income |
| IPO | The initial public offering of shares of our common stock, as further described in this report on Form 10-K |
| JELD-WEN | JELD-WEN Holding, Inc., together with its consolidated subsidiaries where the context requires |
| JEM | JELD-WEN Excellence Model |
| JWA | JELD-WEN of Australia Pty. Ltd. |
| JWH | JELD-WEN Holding, Inc., a Delaware corporation |
| JWI | JELD-WEN, Inc., a Delaware corporation |
| Karona | Karona, Inc. |
| Kolder | Kolder Group |
| LIBOR | London Interbank Offered Rate |
| M&A | Mergers and acquisitions |
| MD&A | Management's Discussion and Analysis of Financial Condition and Results of Operations |
| NYSE | New York Stock Exchange |
| Onex | Onex Partners III LP and certain affiliates |
| PaDEP | Pennsylvania Department of Environmental Protection |
| Preferred Stock | 90,000,000 shares of Preferred Stock, par value $0.01 per share, authorized under our Charter |
| PSU | Performance stock unit |
| R&R | Repair and remodel |
| RSU | Restricted stock unit |
| Sarbanes-Oxley | Sarbanes-Oxley Act of 2002, as amended |
| SEC | Securities and Exchange Commission |
| Securities Act | Securities Act of 1933, as amended |
| Senior Notes | $800.0 million of unsecured notes issued in December 2017 in a private placement in two tranches: $400.0 million bearing interest at 4.625% and maturing in December 2025 and $400.0 million bearing interest at 4.875% and maturing in December 2027 |
| Series A Convertible Preferred Stock | Our Series A-1 Convertible Preferred Stock, par value $0.01 per share, Series A-2 Convertible Preferred Stock, par value $0.01 per share, Series A-3 Convertible Preferred Stock, par value $0.01 per share, and Series A-4 Convertible Preferred Stock, par value $0.01 per share, all of which were converted into shares of our common stock on February 1, 2017 |
| SG&A | Selling, general, and administrative expenses |
| Tax Act | Tax Cuts and Jobs Act |
| Term Loan Facility | Our term loan facility, dated as of October 15, 2014, and as amended from time to time with JWI, as borrower, the guarantors party thereto, a syndicate of lenders, and Bank of America, N.A., as administrative agent |
| Trend | Trend Windows & Doors Pty. Ltd. |
| U.K. | United Kingdom |
| U.S. | United States of America |
| VPI | VPI Quality Windows, Inc. |
| WADOE | Washington State Department of Ecology |

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## CERTAIN TRADEMARKS, TRADE NAMES AND SERVICE MARKS

This 10-K includes trademarks, trade names, and service marks owned by us. Our U.S. window and door trademarks include JELD-WEN®, AuraLast®, MiraTEC®, Extira®, LaCANTINA™, MMI Door™, Karona™, ImpactGard®, JW®, Aurora®, IWP®, True BLU™, ABS™, and VPI™. Our trademarks are either registered or have been used as common law trademarks by us. The trademarks we use outside the U.S. include the Stegbar®, Regency®, William Russell Doors®, Airlite®, Trend®, The Perfect Fit™, Aneeta®, Breezway®, Kolder™, Corinthian® and A&L™ marks in Australia, and Swedoor®, Dooria®, DANA®, Mattiovi™, Alupan® and Domoferm® marks in Europe. ENERGY STAR® is a registered trademark of the U.S. Environmental Protection Agency. This 10-K contains additional trademarks, trade names, and service marks of others, which are, to our knowledge, the property of their respective owners. Solely for convenience, trademarks, trade names, and service marks referred to in this 10-K appear without the ®, ™ or SM symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to these trademarks, trade names, and service marks. We do not intend our use of other parties' trademarks, trade names, or service marks to imply, and such use or display should not be construed to imply, a relationship with, or endorsement or sponsorship of us by, these other parties.

**PART I - FINANCIAL INFORMATION**

## FORWARD-LOOKING STATEMENTS

In addition to historical information, this Form 10-K contains “forward-looking statements” within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, which are subject to the “safe harbor” created by those sections. All statements, other than statements of historical facts, included in this Form 10-K are forward-looking statements. You can generally identify forward-looking statements by our use of forward-looking terminology such as “anticipate”, “believe”, “continue”, “could”, “estimate”, “expect”, “intend”, “may”, “might”, “plan”, “potential”, “predict”, “seek”, or “should”, or the negative thereof or other variations thereon or comparable terminology. In particular, statements about the markets in which we operate, including growth of our various markets, and our expectations, beliefs, plans, strategies, objectives, prospects, assumptions, or future events or performance under Item 7- *Management’s Discussion and Analysis of Financial Condition and Results of Operations* and Item 1- *Business* are forward-looking statements. In addition, statements regarding the potential outcome and impact of pending litigation are forward-looking statements.

We have based these forward-looking statements on our current expectations, assumptions, estimates, and projections. While we believe these expectations, assumptions, estimates, and projections are reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which are beyond our control. These and other important factors may cause our actual results, performance or achievements to differ materially from any future results, performance or achievements expressed or implied by these forward-looking statements. Some of the factors that could cause actual results to differ materially from those expressed or implied by the forward-looking statements include:

- negative trends in overall business, financial market and economic conditions, and/or activity levels in our end markets;
- our highly competitive business environment;
- failure to timely identify or effectively respond to consumer needs, expectations or trends;
- failure to maintain the performance, reliability, quality, and service standards required by our customers;
- failure to implement our strategic initiatives, including JEM;
- acquisitions or investments in other businesses that may not be successful;
- declines in our relationships with and/or consolidation of our key customers;
- increases in interest rates and reduced availability of financing for the purchase of new homes and home construction and improvements;
- fluctuations in the prices of raw materials used to manufacture our products;
- delays or interruptions in the delivery of raw materials or finished goods;
- seasonal business and varying revenue and profit;
- changes in weather patterns;
- political, economic, and other risks that arise from operating a multinational business;
- exchange rate fluctuations;
- disruptions in our operations;
- manufacturing realignments and cost savings programs resulting in a decrease in short-term earnings;
- our new Enterprise Resource Planning system that we are currently implementing proving ineffective;
- security breaches and other cybersecurity incidents;
- increases in labor costs, potential labor disputes, and work stoppages at our facilities;
- changes in building codes that could increase the cost of our products or lower the demand for our windows and doors;
- compliance costs and liabilities under environmental, health, and safety laws and regulations;
- compliance costs with respect to legislative and regulatory proposals to restrict emission of GHGs;
- lack of transparency, threat of fraud, public sector corruption, and other forms of criminal activity involving government officials;

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- product liability claims, product recalls, or warranty claims;
- inability to protect our intellectual property;
- loss of key officers or employees;
- pension plan obligations;
- our current level of indebtedness;
- risks associated with any material weaknesses in our internal controls;
- the extent of Onex' control of us; and
- other risks and uncertainties, including those listed under Item 1A- *Risk Factors*.

Given these risks and uncertainties, you are cautioned not to place undue reliance on such forward-looking statements. The forward-looking statements contained in this Form 10-K are not guarantees of future performance and our actual results of operations, financial condition, and liquidity, and the development of the industry in which we operate may differ materially from the forward-looking statements contained in herein. In addition, even if our results are consistent with the forward-looking statements contained in this Form 10-K, they may not be predictive of results or developments in future periods.

Any forward-looking statement in this Form 10-K speaks only as of the date of this Form 10-K. We do not undertake any obligation to update or revise, or to publicly announce any update or revision to, any of the forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

Unless the context requires otherwise, references in this Form 10-K to "we," "us," "our," "the Company," or "JELD-WEN" mean JELD-WEN Holding, Inc., together with our consolidated subsidiaries where the context requires.

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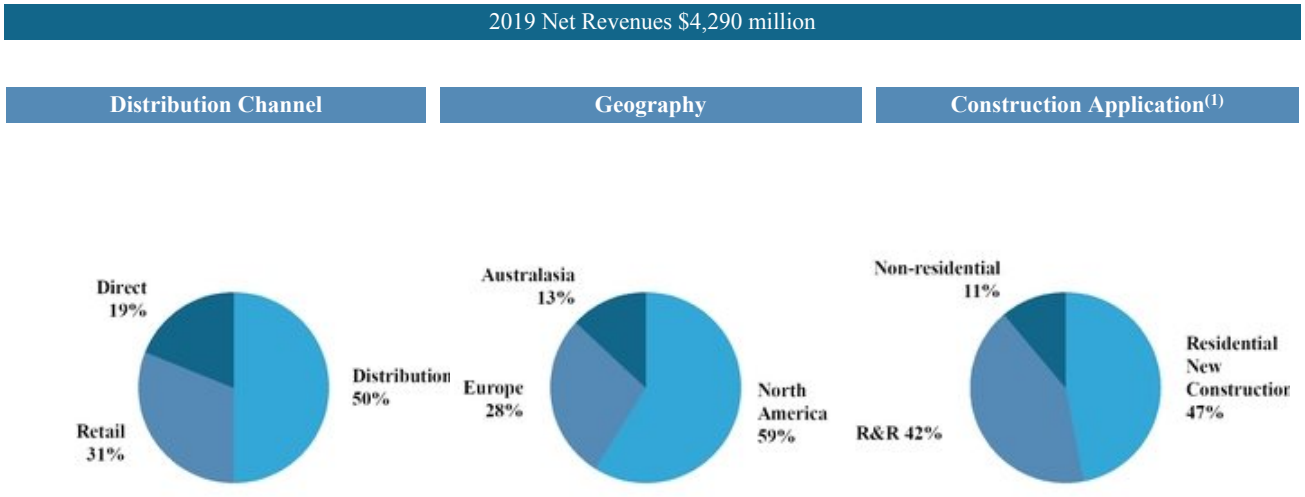
**Item 1 - Business.**

**Our Company**

We are one of the world's largest door and window manufacturers. We design, produce, and distribute an extensive range of interior and exterior doors, windows, and related products for use in the new construction and R&R of residential single and multi-family homes and, to a lesser extent, non-residential buildings.

We market our products globally under the JELD-WEN brand along with several market-leading regional brands, such as Swedoor and DANA in Europe and Corinthian, Stegbar, and Trend in Australia. Our customers include wholesale distributors and retailers as well as individual contractors and consumers. As a result, our business is highly diversified by distribution channel, geography, and construction application as illustrated below:




(1) Percentage of net revenues by construction application is management's estimate based on the end markets into which our customers sell.

As one of the largest door and window companies in the world, we have invested significant capital to build a business platform that we believe is unique among our competitors. We operate 142 manufacturing and distribution facilities in 20 countries, located primarily in North America, Europe, and Australia. Our global manufacturing footprint is strategically sized and located to meet the delivery requirements of our customers. For many product lines, our manufacturing processes are vertically integrated, enhancing our range of capabilities, our ability to innovate, and our quality control, as well as providing us with supply chain, transportation, and working capital savings. We believe that our manufacturing network allows us to deliver our broad portfolio of products to a wide range of customers across the globe, while improving our customer service and strengthening our market positions.

**Our History**

We were founded in 1960 by Richard L. Wendt, when he, together with four business partners, bought a millwork plant in Oregon. The subsequent decades were a time of successful expansion and growth as we added different businesses and product categories such as interior doors, exterior steel doors, and vinyl windows. Our first overseas acquisition was Norma Doors in Spain in 1992 and since then we have acquired or established numerous businesses in Europe, Australia, Asia, Canada, Mexico, and Chile, making us a truly global company.

In October 2011, certain funds managed by affiliates of Onex acquired a majority of the combined voting power in the Company through the acquisition of convertible debt and convertible preferred equity. After the Onex investment, we began the transformation of our business from a family-run operation to a global organization with independent, professional management. The transformation accelerated after 2013 with the hiring of a new senior management team strategically recruited from a number of world-class industrial companies. Our current management team has extensive experience driving operational improvement, innovation, and growth, both organically and through acquisitions.

On February 1, 2017, we closed an IPO of 28.75 million shares of our Common Stock at a public offering price of $23.00 per share. We sold 22.27 million shares and Onex sold 6.48 million shares from which we did not receive any proceeds. We received $472.4 million after deducting underwriters' discounts and commissions and other offering expenses. We used a portion of the net

proceeds from the IPO to repay $375.0 million of indebtedness outstanding under our Term Loan Facility and used the remaining net proceeds for working capital and other general corporate purposes, including sales and marketing activities, general and administrative matters, capital expenditures, and to invest in or acquire complementary businesses, products, services, technologies, or other assets.

In May and November 2017, we completed secondary public offerings of 16.1 million and 14.4 million shares, respectively, of our Common Stock, substantially all of which were owned by Onex.

As of December 31, 2019, Onex owned approximately 32.6% of our outstanding shares of Common Stock.

**Our Business Strategy and Operating Model**

We strive to achieve best-in-industry financial performance through the disciplined execution of:

- initiatives to drive profitable organic revenue growth, including new product development, investments in our brands and marketing, channel management, and pricing optimization;
- operational excellence programs to improve our profit margins and free cash flow, including deployment of our business operating system, the JELD-WEN Excellence Model, or JEM, and our facility rationalization and modernization initiative; and
- disciplined and balanced capital allocation with a focus on maximizing returns.

The execution of our strategy is supported and enabled by a relentless focus on talent management. Over the long term, we believe that the implementation of our strategy is largely within our control and is less dependent on external factors. The key elements of our strategy are described further below.

***Drive Profitable Organic Growth***

We seek to deliver profitable organic revenue growth through several strategic initiatives, including new product development, brand and marketing investment, channel management, and continued pricing optimization. These strategic initiatives will drive our mix to include more value-added, higher margin products.

- **New Product Development**: Our management team has renewed our focus on innovation and new product development. We believe that leading the market in innovation will enhance demand for our products, increase the rate at which our products are specified into home and non-residential designs, and allow us to sell a higher margin product mix. Our new product innovations include material substitution opportunities (Auraline composite windows), solutions to meet changing building codes (Alumiere thermally broken windows), and the use of new technologies (fiberglass door systems and Finishield for vinyl windows).
- **Brand and Marketing Investment**: We continue to make meaningful investments in new marketing initiatives designed to enhance the positioning of the JELD-WEN family of brands. Our new initiatives include marketing campaigns focused on the distributor, builder, architect, and consumer communities.
- **Channel Management**: We are implementing initiatives and investing in tools and technology to enhance our relationships with key customers, make it easier for them to source from JELD-WEN, and support their ability to sell our products in the marketplace. These incentives help our customers grow their businesses in a profitable manner while also improving our sales volumes and the margin of our product mix.
- **Pricing Optimization**: We are focused on profitable growth and will continue to employ a strategic approach to pricing our products. Pricing discipline is an important element of our effort to improve our profit margins and earn an appropriate return on our invested capital.

***Expand Our Margins and Free Cash Flow Through Operational Excellence***

With 142 manufacturing and distribution facilities around the world and over 23,300 dedicated employees, we have a global manufacturing footprint that is unique in the door and window industry. We believe we have identified a substantial opportunity to improve our profitability by building a culture of operational excellence and continuous improvement across all aspects of our business through our JEM initiative. Due to our history of growth through acquisitions, historically, we were not centrally managed and had a limited focus on standard work, cost reduction, operational improvement, and strategic material sourcing. This resulted in profit margins that were lower than our building products peers and far lower than what would typically be expected of a world-class industrial company.

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Our senior management team has a proven track record of implementing operational excellence programs at some of the world's leading industrial manufacturing businesses, and we believe the same successes can be realized at JELD-WEN. Key areas of focus for JEM deployment include:

- reducing labor costs, overtime, and waste by optimizing planning and manufacturing processes;
- reducing or minimizing increases in material costs through strategic global sourcing and value-added re-engineering of components, in part by leveraging our significant spend and the global nature of our purchases;
- reducing warranty costs by improving quality; and
- a JEM-enabled facility rationalization and modernization initiative that will reduce overhead costs and complexity, while increasing our overall capacity and improving our service levels.

***Disciplined and Balanced Capital Allocation***

We believe there is a significant opportunity to increase shareholder value by deploying our free cash flow in a balanced manner between strategic M&A, balance sheet management, and share repurchases. Our approach to capital allocation includes a disciplined, returns-focused evaluation of opportunities for both internal and external investments.

We have developed a disciplined governance process for identifying, evaluating, and integrating acquisitions. Since 2015, we have completed 14 acquisitions across North America, Europe, and Australasia. Our M&A focuses on three types of opportunities:

- **Expansion in Existing Markets**: The competitive landscape in several of our key markets remains highly fragmented, which creates an opportunity for us to acquire businesses that will enhance our market-leading positions and realize synergies through the elimination of duplicate costs. Our acquisitions of Mattiovi (Finland), Dooria (Norway), Kolder (Australia), Trend (Australia), and A&L (Australia) are examples of this strategy.
- **Enhancing Our Portfolio of Products and Service Offerings**: We strive to provide the broadest range of doors and windows to our customers so that we can enhance our share of their overall spend. Along with our organic new product development pipeline, we seek to expand our door and window product and service portfolio by acquiring companies that have developed unique products, technologies, or value-added services. Our acquisitions of Karona (stile and rail doors), LaCantina (folding and sliding wall systems), Aneeta (sashless windows), Breezway (louver windows), MMI Door (value-added supplier of customized door systems), Domoferm (steel frames and doors), ABS (value-added supplier of millwork to both residential and commercial channels), and VPI (vinyl windows for mid-rise multi-family, institutional, hospitality, and commercial properties) are examples of this strategy.
- **Product Adjacencies and New Geographies**: Opportunities also exist to expand our company through the acquisition of complementary door and window manufacturers in new geographies as well as providers of product adjacencies. While this has not been a major focus in recent years, we expect it to be a key element in our long-term growth.

In addition to M&A and optimizing our financial leverage, we seek opportunities to create value by opportunistically repurchasing our Common Stock. In 2018, our Board of Directors approved a $250.0 million share repurchase authorization, under which we repurchased $20.0 million and $125.0 million of our Common Stock during 2019 and 2018, respectively. In November 2019, the Board of Directors authorized an increase to the remaining authorization under the share repurchase program to a total of $175.0 million of our Common Stock with no expiration date. We will continue to balance the growth, strategic fit, and returns potential of internal and external investments against optimizing our balance sheet and the return potential of purchasing our own shares.

**Our Products**

We provide a broad portfolio of interior and exterior doors, windows, and related products manufactured from a variety of wood, metal, and composite materials offered across a full spectrum of price points. In the year ended December 31, 2019, our door sales accounted for 67% of net revenues, our window sales accounted for 20% of net revenues, and our other ancillary products and services accounted for 13% of net revenues.

***Doors***

We are a leading global manufacturer of residential doors. We offer a full line of residential interior and exterior door products, including patio doors and folding or sliding wall systems. Our non-residential door product offering is concentrated in

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Europe, where we are a leading non-residential door provider by net revenues in Germany, Austria, Switzerland, and Scandinavia. In order to meet the design, durability, and energy efficiency requirements of our customers, our product portfolio encompasses many types of materials, including wood veneer, composite wood, steel, glass, and fiberglass that satisfy a range of price points from mid-level to high-end. Our highest volume products include molded interior doors, which are made from two composite molded door skins joined by a wooden frame and filled with a hollow honey-cell core or other solid core materials. These low-cost doors are the most popular choice for interior residential applications in North America and are also prevalent in France and the U.K. In the U.S., we manufacture exterior doors primarily made from fiberglass and steel. Fiberglass has grown in popularity due to its attractive thermal properties, aesthetics, and durability. We have dedicated additional resources to our exterior fiberglass door business, which includes door slabs and door systems, and believe we have a leading product offering based on quality, breadth of design options, and range of price points. In Europe, we also sell highly engineered non-residential doors, with features such as soundproofing, fire resistance, radiation resistance, and added security. We also manufacture stile and rail doors in our Southeast Asia and U.S. manufacturing facilities. In the U.S., we also manufacture folding and sliding wall systems. Additionally, we offer profitable value-added distribution services in all of our markets, including customizable configuration services, specialized component options, and multiple finishing options. These services are valued by labor constrained customers and allow us to capture more profit from the sale of our door products. In the U.S., our acquisitions of ABS and MMI Door are examples of our increased focus on value-added services.

***Windows***

We are a leading global manufacturer of residential windows. We manufacture wood, vinyl, aluminum, and wood composite windows in North America, wood and aluminum windows in Australia, and wood windows in the U.K. Our window product lines comprise a full range of styles, features, and energy-saving options in order to meet the varied needs of our customers in each of our regional end markets. For example, our high-performance wood and vinyl windows with multi-pane glazing and superior energy efficiency properties are in greater demand in Canada and the northern U.S. By contrast, our lower-cost aluminum framed windows are popular in some regions of the southern U.S., while in coastal Florida certain local building codes require windows that can withstand the impact of debris propelled by hurricane-force winds. Wood windows are prevalent as a high-end option in all of our markets because they possess both insulating qualities and the beauty of natural wood. In North America, our wood windows and patio doors include our proprietary AuraLast treatment, which is a unique water-based wood protection process that provides protection against wood rot and decay. We believe AuraLast is unique in its ability to penetrate and protect the wood through to the core, as opposed to being a shallow or surface-only treatment. Our most recent windows product introductions showcase our differentiated capability utilizing alternative materials including our Auraline wood composite window and patio doors. Additionally, with the acquisition of VPI, we added vinyl windows for mid-rise, multi-family, institutional, hospitality, and commercial properties to our product lineup. Our windows typically retail at prices ranging from $100 to $200 for a basic vinyl window to over $1,000 for a custom energy-efficient wood window. We believe that our innovative energy-efficient windows position us to benefit from increasing environmental awareness among consumers and from changes in local building codes. In recognition of our expansive energy-efficient product line, we have been an ENERGY STAR partner since 1998.

***Other Ancillary Products and Services***

In certain regions, we sell a variety of other products that are ancillary to our door and window offerings, which we do not classify as door or window sales. These products include shower enclosures and wardrobes, moldings, trim board, lumber, cutstock, glass, staircases, hardware and locks, cabinets, and screens. We also sell molded door skins to certain customers pursuant to long-term contracts, and these customers in turn use the molded door skins to manufacture interior doors and compete directly against us in the marketplace. Miscellaneous installation and other services are also included in this category.

**Our Segments**

We operate within the global market for residential and non-residential doors and windows with sales spanning approximately 100 countries. While we operate globally, the markets for doors and windows are regionally distinct with suppliers manufacturing finished goods in proximity to their customers. Finished doors and windows are generally bulky, expensive to ship, and, in the case of windows, fragile. Designs and specifications of doors and windows also vary from country to country due to differing construction methods, building codes, certification requirements, and consumer preferences. Customers also demand short delivery times and can require special order customizations. We believe that we are well-positioned to meet the global demands of our customers due to our market leadership, strong brands, broad product line, and strategically located manufacturing and distribution facilities.

Our operations are managed and reported in three reportable segments, organized and managed principally by geographic region. Our reportable segments are North America, Europe, and Australasia. We report all other business activities in Corporate and unallocated costs. Factors considered in determining the three reportable segments include the nature of business activities, the management structure accountable directly to the CODM for operating and administrative activities, the discrete financial information available and the information regularly presented to the CODM.

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***North America***

In our North America segment, we compete primarily in the market for residential doors and windows in the U.S. and Canada. We are the only manufacturer that offers a full line of interior and exterior door and window products, allowing us to offer a more complete solution to our customer base. We believe that our leading position in the North American market will enable us to benefit from continued growth in residential construction activity over the next several years. We believe that our total market opportunity in North America also includes non-residential applications, other related building products, and value-added services.

***Europe***

The European market for doors is highly fragmented and we have the only platform in the industry capable of serving nearly all European countries. In our Europe segment, we compete primarily in the market for residential and non-residential doors in Germany, the U.K., France, Austria, Switzerland, and Scandinavia. We believe that our total market opportunity in Europe also includes other European countries, other door product lines, related building products, and value-added services. While economic activity has slowed modestly in Europe, new construction and R&R activity is expected to remain stable over the next several years.

***Australasia***

In our Australasia segment, we compete primarily in the market for residential doors and windows in Australia, where we hold a leading position by net revenues. We believe that our total market opportunity in the Australasia region includes other countries in the region, as well as non-residential applications, other related building products, and value-added services. For example, we also sell a full line of shower enclosures and closet systems throughout Australia. The market for residential new construction in Australia contracted in 2019, primarily due to government-imposed rules that restricted credit availability for homebuyers. While the Australian government has taken accommodative actions to increase credit availability and spur demand growth, the market for new home construction is expected to remain soft during early 2020 before accelerating modestly.

Financial information regarding our segments is included in Note 18 - *Segment Information* to our financial statements included in this Form 10-K.

**Materials**

Historically our sourcing function operated primarily in a regional, decentralized model. Over the past several years we have turned global sourcing into a competitive advantage by building a centralized global sourcing team focused on minimizing material costs through strategic global sourcing and value-added re-engineering of components. We believe leveraging our significant spending and the global nature of our purchases will allow us to achieve these goals.

We generally maintain a diversified supply base for the materials used in our manufacturing operations. The primary materials used for our door business include wood, wood veneers, wood composites, steel, glass, internally produced door skins, fiberglass compound, and hardware, as well as petroleum-based products such as resin and binders. The primary materials for our window business include wood, wood components, glass, hardware, as well as aluminum and vinyl extrusions. Wood components for our window operations are sourced primarily from our own manufacturing plants, which allow us to improve margins and take advantage of our proprietary technologies such as our AuraLast wood treatment process.

We track commodities in order to understand our vendors' costs, realizing that our costs are determined by the broader competitive market as well as by increases in the inputs to our vendors. In order to manage the risk in material costs, we develop strategic relationships with suppliers, routinely evaluate substitute components, develop new products, vertically integrate, where applicable, and seek alternative sources of supply from multiple vendors and often from multiple geographies.

**Seasonality**

In a typical year, our operating results are impacted by seasonality. Historically, peak season for home construction and remodeling in our North America and Europe segments, which represent the substantial majority of our revenues, generally corresponds with the second and third calendar quarters, and therefore our sales volume is usually higher during those quarters. Seasonal variations in operating results may be impacted by inclement weather conditions, such as cold or wet weather, which can delay construction projects.

**Sales and Marketing**

We actively market and sell our products directly to our customers around the world through our global sales force and indirectly through our marketing and branding initiatives, which includes our enhanced social media presence. Our global sales force, which is organized and managed regionally, focuses on building and maintaining relationships with key customers as well as

managing customer supply needs and arranging in-store promotional initiatives. In North America, we also have a dedicated team that focuses on our large home center customers. We have recently made significant investments in tools and technologies to enhance the effectiveness of our sales force and improve ease of doing business. For example, we are in the process of deploying Salesforce.com on a global basis, which will provide us with a common global customer relationship management platform. In addition, we are in the process of simplifying our order entry process by implementing online configuration tools. We have introduced an electronic ordering system for easy order placement, and we intend to expand our online retail sales.

We have restructured the commission and incentive plans of our sales team to drive focus on achieving profitable growth. We have also invested significantly in our architectural sales force by adding staff and tools to increase the frequency with which our products are specified by architects and, more recently, have restructured the North America sales team focused on our traditional distribution channel, from a single team to product focused teams. We believe these investments will increase sales force effectiveness, create pull-through demand, and optimize sales force productivity.

We believe that our broad product portfolio of both doors and windows in North America and Australasia is a competitive advantage as it allows us to cross-sell our door and window products to our end customers, many of whom find it more efficient to choose one supplier for their door and window needs on a given project. None of our primary competitors in these regions offers a similarly complete range of windows as well as interior and exterior doors.

**Research and Development**

A core aspect of our business strategy is the investment and innovation of new products and technologies. We believe that leading the market in innovation will enhance demand for our products and allow us to sell a higher margin product mix. Our research and development efforts encompass new product development, derivative product development, as well as value added re-engineering of components in our existing products leading to reduced costs and manufacturing efficiencies. We have also designed a new governance process that prioritizes the most impactful projects, which is expected to improve the efficiency and quality of our research and development efforts. The governance process is currently being deployed globally, such that we can leverage best practices from region to region. Additionally, a substantial driver of our acquisition activity has been increasing access to new and innovative products, including the transfer and integration of acquired technology.

Although product specifications and certifications vary from country to country, the global nature of our operations allows us to leverage our global innovation capabilities and share new product designs across our markets. We believe that the global nature of our research and development capabilities is unique among our door and window competition. An example of global sharing of innovation is the “soft close” door system, which is based on hardware originally designed and manufactured by our European operations that is now being offered in North America and Australia. Additionally, we have successfully launched new door designs into our North American market, including our Moda Door Collection that was originally developed for the Australian market.

**Customers**

We sell our products worldwide and have well-established relationships with numerous customers throughout the door and window distribution chain in each of our end markets, including retail home centers, wholesale distributors, and building product dealers that supply homebuilders, contractors, and consumers. Our wholesale customers include such industry leaders as BMC/Stock Building Supply, ProBuild/Builders First Source, Saint-Gobain, and the Holzring group. Our home center customers include, among others, The Home Depot, Lowe’s, and Menards in North America; B&Q, Howdens, and Bauhaus in Europe; and Bunnings Warehouse in Australia. We have maintained relationships with the majority of our top ten customers for over 20 years and believe that the strength and tenure of our customer relationships is based on the total value we provide, including the quality and breadth of our product offering, our customer service, innovation, and delivery capabilities. Our top ten customers together accounted for 35% of our net revenues in the year ended December 31, 2019, and our largest customer, The Home Depot, accounted for approximately 15% of our net revenues in the year ended December 31, 2019.

**Competition**

The door and window industry is highly competitive and includes a number of regional and international competitors. Competition is largely based on the functional and aesthetic quality of products, service quality, distribution capability and price. We believe that we are well-positioned in our industry due to our leading brands, our broad product lines, our consistently high product quality and service, our global manufacturing and distribution capabilities, and our extensive multi-channel distribution. For North American interior doors, our major competitors include Masonite and several smaller independent door manufacturers. For North American exterior doors, competitors include Masonite, Therma-Tru (a division of Fortune Brands), and Plastpro. The North American window market is highly fragmented, with sizable competitors including Andersen, Pella, Marvin, Ply-Gem (a division of Cornerstone Building Brands, formerly NCI Building Systems), and Milgard (a division of MI Windows and Doors). The door manufacturers that we primarily compete with in our European markets include Huga, Prüm/Garant (a division of Arbonia Group), Viljandi, Masonite, Keyor, and Herholz. The competitive landscape in Australia is varied across the door and window markets. In the

Australian door market, Hume Doors is our primary competitor, while in the window, shower screen, and wardrobe markets we largely compete against a fragmented set of smaller companies.

**Intellectual Property**

We rely primarily on patent, trademark, copyright, and trade secret laws and contractual commitments to protect our intellectual property and other proprietary rights. Generally, registered trademarks have a perpetual life, provided that they are renewed on a timely basis and continue to be used properly as trademarks. We intend to maintain the trademark registrations listed below so long as they remain valuable to our business.

Our U.S. window and door trademarks include JELD-WEN, AuraLast, VPI™, MiraTEC, Extira, LaCANTINA, Karona, ImpactGard, JW, Aurora, MMI Door®, IWP, and ABS. Our trademarks are either registered or have long been used as a common law trademark by the Company. The trademarks we use outside the U.S. include the Stegbar, Regency, William Russell Doors, Airlite, Trend, The Perfect Fit, Aneeta, Breezway, Kolder, Corinthian and A&L marks in Australia, and Swedoor, Dooria, DANA, Mattiovi, Alupan and Domoferm in Europe.

**Employees**

As of December 31, 2019, we employed approximately 23,300 people. Of our total number of employees, approximately 11,600 are employed in operations included in our North America segment and corporate operations, approximately 7,300 are employed in operations included in our Europe segment, and approximately 4,400 are employed in operations included in our Australasia segment.

In total, approximately 1,110, or 10%, of our employees in the U.S. and Canada are unionized. Two facilities in the U.S., representing approximately 330 employees, are covered by collective bargaining agreements. In Canada, approximately 71% of our employees work at facilities covered by collective bargaining agreements. As is common in Europe and Australia, the majority of our facilities are covered by work councils and/or labor agreements. We believe we have satisfactory relationships with our employees and our organized labor unions.

**Environmental Matters**

The geographic breadth of our facilities and the nature of our operations subject us to extensive environmental, health, and safety laws and regulations in jurisdictions throughout the world. Such laws and regulations relate to, among other things, air emissions, the treatment and discharge of wastewater, the discharge of hazardous materials into the environment, the handling, storage, use and disposal of solid, hazardous and other wastes, worker health and safety, or otherwise relate to health, safety, and protection of the environment. Many of our products are also subject to various laws and regulations, such as building and construction codes, product safety regulations, and regulations and mandates related to energy efficiency.

The nature of our operations, which involve the handling, storage, use, and disposal of hazardous wastes, exposes us to the risk of liability and claims associated with contamination at our current and former facilities or sites where we have disposed of or arranged for the disposal of waste, or with the impact of our products on human health and safety and the environment. Laws and regulations with respect to the investigation and remediation of contaminated sites can impose joint and several liability for releases or threatened releases of hazardous materials upon statutorily defined parties, including us, regardless of fault or the lawfulness of the original activity or disposal. We have been subject to claims, including having been named as a potentially responsible party, in certain proceedings initiated pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA, and similar state and foreign laws, regulations, and statutes, and may be named a potentially responsible party in other similar proceedings in the future. Unforeseen expenditures or liabilities may arise in connection with such matters.

We have also been the subject of certain environmental regulatory actions by the EPA and state regulatory agencies in the U.S. and foreign governmental authorities in jurisdictions in which we operate and are obligated to make certain expenditures in settlement of those actions. We do not expect expenditures for compliance with environmental laws and regulations to have a material adverse effect on our results of operations or competitive position. However, the discovery of a presently unknown environmental condition, changes in environmental requirements or their enforcement, or other unanticipated events, may give rise to unforeseen expenditures and liabilities which could be material.

For more information, see Item 1A - *Risk Factors* - We may be subject to significant compliance costs as well as liabilities under environmental, health, and safety laws and regulations, Item 1A - *Risk Factors* - Risks Relating to Our Business and Industry, Item 1A - *Risk Factors* -We may be subject to significant compliance costs with respect to legislative and regulatory proposals to restrict emissions of GHGs.

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***Environmental Sustainability***

We strive to conduct our business in a manner that is environmentally sustainable and demonstrates environmental stewardship. Toward that end, we pursue processes that are designed to minimize waste, maximize efficient utilization of materials, and conserve resources, including using recycled and reused materials to produce portions of our products. We continue to evaluate and modify our manufacturing and other processes on an ongoing basis to further reduce our impact on the environment. We believe it is important for our employees to share our commitment and we strive to recruit, educate, and train our employees in these values on an ongoing basis throughout their careers with us.

***Environmental Regulatory Actions***

In 2008, we entered into an Agreed Order with the WADOE, to assess historic environmental contamination and remediation feasibility at our former manufacturing site in Everett, Washington. As part of this agreement, we also agreed to develop a CAP, arising from the feasibility assessment. We are currently working with WADOE to finalize our RI/FS (Remedial Investigation and Feasibility Study), and, once final, we will develop the CAP. We estimate the remaining cost to complete our RI/FS and develop the CAP at $0.5 million, which we have fully accrued. However, because we cannot at this time reasonably estimate the cost associated with any remedial action we would be required to undertake, we have not provided accruals for any remedial actions in our consolidated financial statements.

In 2015, we entered into a COA with the PaDEP to remove a pile of wood fiber waste from our site in Towanda, Pennsylvania, which we acquired in connection with our acquisition of CMI in 2013, by using it as fuel for a boiler at that site. The COA replaced a 1995 Consent Decree between CMI's predecessor Masonite, Inc. and PaDEP. Under the COA, we are required to achieve certain periodic removal objectives and ultimately remove the entire pile by August 31, 2022. There are currently $2.3 million in bonds posted in connection with these obligations. If we are unable to remove this pile by August 31, 2022, then the bonds will be forfeited, and we may be subject to penalties by PaDEP. We currently anticipate meeting all applicable removal deadlines; however, if our operations at this site decrease and we burn less fuel than currently anticipated, we may not be able to meet such deadlines.

**Available Information**

Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the Exchange Act, are filed with the SEC. We are subject to the informational requirements of the Exchange Act and file or furnish reports, proxy statements and other information with the SEC. Such reports and other information filed by us with the SEC are available free of charge on our website at investors.jeld-wen.com when such reports are made available and on the SEC's website at www.sec.gov. The contents of these websites are not incorporated into this filing. Further, our references to the URLs for these websites are intended to be inactive textual references only.

**Item 1A - Risk Factors**

*Investing in our Common Stock involves a high degree of risk. You should carefully consider the following factors, as well as other information contained or incorporated by reference in this 10-K, before deciding to invest in shares of our Common Stock. The trading price of our Common Stock could decline due to any of these risks, and you may lose all or part of your investment in our Common Stock.*

**Risks Relating to Our Business and Industry**

***Negative trends in overall business, financial market and economic conditions, and activity levels in our end markets may reduce demand for our products, which could have a material adverse effect on our business, financial condition, and results of operations.***

Negative trends in overall business, financial market, and economic conditions globally or in the regions where we operate may reduce demand for our doors and windows, which is tied to activity levels in the R&R and new residential and non-residential construction end markets. In particular, the following factors may have a direct impact on our business in the regions where our products are marketed and sold:

- the strength of the economy;
- employment rates and consumer confidence and spending rates;
- the availability and cost of credit;
- the amount and type of residential and non-residential construction;
- housing sales and home values;

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- the age of existing home stock, home vacancy rates, and foreclosures;
- interest rate fluctuations for our customers and consumers;
- volatility in both debt and equity capital markets;
- increases in the cost of raw materials or any shortage in supplies or labor, including as a result of tariffs or other trade restrictions;
- the effects of governmental regulation and initiatives to manage economic conditions;
- geographical shifts in population and other changes in demographics; and
- changes in weather patterns.

Toward the end of the last decade, the global economy endured a significant recession followed by a prolonged period of moderate recovery that had a substantial negative effect on sales across our end markets. In particular, beginning in mid-2006 and continuing through late 2011, the U.S. residential and non-residential construction industry experienced one of the most severe downturns of the last 40 years. While cyclicality in our new residential and non-residential construction end markets is moderated to a certain extent by R&R activity, much R&R spending is discretionary and can be deferred or postponed entirely when economic conditions are poor. We experienced sales declines in all of our end markets during the most recent economic downturn.

Although conditions in the U.S. have improved in recent years, there can be no assurance that this improvement will be sustained in the near or long-term. Uncertain economic and political conditions may make it difficult for us and our customers or suppliers to accurately forecast and plan future business activities. For example, recent changes to U.S. policies related to global trade and tariffs have resulted in uncertainty surrounding the future of the global economy as well as retaliatory trade measures implemented by other countries. Increasing costs of steel and aluminum may impact customer spending as well as our raw materials costs.

Moreover, uncertain economic conditions continue in our Australasia segment, which entered a housing recession in 2019, and certain countries in our Europe segment. Negative business, financial market, and economic conditions globally within the industries or regions we compete in may materially and adversely affect demand for our products, and our business, financial condition, and results of operations could be materially negatively impacted as a result.

***We operate in a highly competitive business environment. Failure to compete effectively could cause us to lose market share and/or force us to reduce the prices we charge for our products. This competition could have a material adverse effect on our business, financial condition, and results of operations.***

We operate in a highly competitive business environment. Some of our competitors may have greater financial, marketing, and distribution resources and may develop stronger relationships with customers in the markets where we sell our products. Some of our competitors may be less leveraged than we are, providing them with more flexibility to invest in new facilities and processes and also making them better able to withstand adverse economic or industry conditions.

In addition, some of our competitors, regardless of their size or resources, may choose to compete in the marketplace by adopting more aggressive sales policies, including price cuts, or by devoting greater resources to the development, promotion, and sale of their products. This could result in our loss of customers and/or market share to these competitors or being forced to reduce the prices at which we sell our products to remain competitive.

As a result of competitive bidding processes, we may have to provide pricing concessions to our significant customers in order for us to keep their business. Reduced pricing would result in lower product margins on sales to those customers. There is no guarantee that a reduction in prices would be offset by sufficient gains in market share and sales volume to those customers.

The loss of, or a reduction in orders from, any significant customers, or decreases in the prices of our products, could have a material adverse effect on our business, financial condition, and results of operations.

***We may not identify or effectively respond to consumer needs, expectations, or trends in a timely fashion, which could adversely affect our relationship with customers, our reputation, the demand for our brands, products, and services, and our market share.***

The quantity, type, and prices of products demanded by consumers and our customers have shifted over time. For example, demand has increased for multi-family housing units such as apartments and condominiums, which typically require fewer of our products, and we are experiencing growth in certain channels for products with lower price points. In certain cases, these shifts have negatively impacted our sales and/or our profitability. Also, we must continually anticipate and adapt to the increasing use of technology by our customers. Recent years have seen shifts in consumer preferences and purchasing practices and changes in the business models and strategies of our customers. Consumers are increasingly using the internet and mobile technology to research home improvement products and to inform and provide feedback on their purchasing and ownership

experience for these products. Trends towards online purchases could impact our ability to compete as we currently sell a significant portion of our products through retail home centers, wholesale distributors, and building products dealers.

Accordingly, the success of our business depends in part on our ability to maintain strong brands and identify and respond promptly to evolving trends in demographics, consumer preferences, and expectations and needs, while also managing inventory levels. It is difficult to successfully predict the products and services our customers will demand. Even if we are successful in anticipating consumer preferences, our ability to adequately react to and address those preferences will in part depend upon our continued ability to develop and introduce innovative, high-quality products and acquire or develop the intellectual property necessary to develop new products or improve our existing products. There can be no assurance that the products we develop, even those to which we devote substantial resources, will be successful. While we continue to invest in innovation, brand building, and brand awareness, and intend to increase our investments in these areas in the future, these initiatives may not be successful. Failure to anticipate and successfully react to changing consumer preferences could have a material adverse effect on our business, financial condition, and results of operations.

In addition, our competitors could introduce new or improved products that would replace or reduce demand for our products or create new proprietary designs and/or changes in manufacturing technologies that may render our products obsolete or too expensive for efficient competition in the marketplace. Our failure to competitively respond to changing consumer and customer trends, demands, and preferences could cause us to lose market share, which could have a material adverse effect on our business, financial condition, and results of operations.

***Failure to maintain the performance, reliability, quality, and service standards required by our customers, or to timely deliver our products, could have a material adverse effect on our business, financial condition, and results of operations.***

If our products have performance, reliability, or quality problems, our reputation and brand equity, which we believe is a substantial competitive advantage, could be materially adversely affected. We may also experience increased and unanticipated warranty and service expenses. Furthermore, we manufacture a significant portion of our products based on the specific requirements of our customers, and delays in providing our customers the products and services they specify on a timely basis could result in reduced or canceled orders and delays in the collection of accounts receivable. Additionally, claims from our customers, with or without merit, could result in costly and time-consuming litigation that could require significant time and attention of management and involve significant monetary damages that could have a material adverse effect on our business, financial condition, and results of operations.

***We continue to implement strategic initiatives, including JEM and our global footprint rationalization initiatives. If we fail to implement these initiatives as expected, our business, financial condition, and results of operations could be adversely affected.***

Our future financial performance depends in part on our management's ability to successfully implement our strategic initiatives, including JEM and our global footprint rationalization initiatives. We cannot assure you that we will be able to continue to successfully implement these initiatives and related strategies throughout the geographic regions in which we operate or be able to continue improving our operating results. Similarly, these initiatives, even if implemented in all of our geographic regions, may not produce similar results. Any failure to successfully implement these initiatives and related strategies could adversely affect our business, financial condition, and results of operations, including increases in our severance and impairment charges. We may, in addition, decide to alter or discontinue certain aspects of our business strategy at any time.

***We may make acquisitions or investments in other businesses, which may involve risks or may not be successful.***

Generally, we seek to acquire businesses that broaden our existing product lines and service offerings or expand our geographic reach. There can be no assurance that we will be able to identify suitable acquisition candidates or that our acquisitions or investments in other businesses will be successful. These acquisitions or investments in other businesses may also involve risks, many of which may be unpredictable and beyond our control, and which may have a material adverse effect on our business, financial condition, and results of operations, including risks related to:

- the nature of the acquired company's business;
- any acquired business not performing as well as anticipated;
- the potential loss of key employees of the acquired company;
- any damage to our reputation as a result of performance or customer satisfaction problems relating to an acquired business;
- the failure of our due diligence procedures to detect material issues related to the acquired business, including exposure to legal claims for activities of the acquired business prior to the acquisition;
- unexpected liabilities resulting from the acquisition for which we may not be adequately indemnified;

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- our inability to enforce indemnification and non-compete agreements;
- the integration of the personnel, operations, technologies, and products of the acquired business, and establishment of internal controls, including the implementation of our enterprise resource planning system, into the acquired company's operations;
- our failure to achieve projected synergies or cost savings;
- our inability to establish uniform standards, controls, procedures, and policies;
- any requirement that we make divestitures of operations or properties in order to comply with applicable antitrust laws in connection with future acquisitions;
- the diversion of management attention and financial resources; and
- any unforeseen management and operational difficulties, particularly if we acquire assets or businesses in new foreign jurisdictions where we have little or no operational experience.

In furtherance of our strategy of growth through acquisitions, we routinely review and conduct investigations of potential acquisitions, some of which may be material. When we believe a favorable opportunity exists, we seek to enter into discussions with targets or sellers regarding the possibility of such acquisitions. At any given time, we may be in discussions with one or more counterparties. There can be no assurances that any such negotiations will lead to definitive agreements, or if such agreements are reached, that any transactions would be consummated.

Our inability to achieve the anticipated benefits of acquisitions and other investments could materially and adversely affect our business, financial condition, and results of operations.

In addition, the means by which we finance an acquisition may have a material adverse effect on our business, financial condition, and results of operations, including changes to our equity, debt, and liquidity position. If we issue Convertible Preferred or Common Stock to pay for an acquisition, the ownership percentage of our existing shareholders may be diluted. Using our existing cash may reduce our liquidity. Incurring additional debt to fund an acquisition may result in higher debt service and a requirement to comply with additional financial and other covenants, including potential restrictions on future acquisitions and distributions.

***A decline in our relationships with our key customers, the amount of products they purchase from us, or a decline in our key customers' financial condition, could have a material adverse effect on our business, financial condition, and results of operations.***

Our business depends on our relationships with our key customers, which consist mainly of wholesale distributors and retail home centers. Our top ten customers together accounted for approximately 35% of our net revenues in the year ended December 31, 2019, and our largest customer, The Home Depot, accounted for approximately 14.6% of our net revenues in the year ended December 31, 2019. Although we have established and maintain significant long-term relationships with our key customers, we cannot assure you that all of these relationships will continue or will not diminish. We generally do not enter into long-term contracts with our customers and they generally do not have an obligation to purchase products from us. Accordingly, sales from customers that have accounted for a significant portion of our sales in past periods, individually or as a group, may not continue in future periods, or if continued, may not reach or exceed historical levels in any period. For example, certain of our large customers perform periodic line reviews to assess their product offering, which have in the past and may in the future lead to loss of business and pricing pressures. Some of our large customers may also experience economic difficulties or otherwise default on their obligations to us. Furthermore, our pricing optimization strategy, which requires maintaining pricing discipline in order to improve profit margins, has in the past and may in the future lead to the loss of certain customers, including key customers, who do not agree to our pricing terms. The loss of, or a diminution in our relationship with, any of our largest customers could lower our sales volumes, which could increase our costs and lower our profitability. This could have a material adverse effect on our business, financial condition, and results of operations.

***Certain of our customers may expand through consolidation and internal growth, which may increase their buying power. The increased size of our customers could have a material adverse effect on our business, financial condition, and results of operations.***

Certain of our significant customers are large companies with strong buying power, and our customers may expand through consolidation or internal growth. Consolidation could decrease the number of potential significant customers for our products and increase our reliance on key customers. Further, the increased size of our customers could result in our customers seeking more favorable terms, including pricing, for the products that they purchase from us. Accordingly, the increased size of our customers may further limit our ability to maintain or raise prices in the future. This could have a material adverse effect our business, financial condition, and results of operations.

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***We are subject to the credit risk of our customers.***

We are subject to the credit risk of our customers, because we provide credit to our customers in the normal course of business. All of our customers are sensitive to economic changes and to the cyclical nature of the building industry. Especially during protracted or severe economic declines and cyclical downturns in the building industry, our customers may be unable to perform on their payment obligations, including their debts to us. Any failure by our customers to meet their obligations to us may have a material adverse effect on our business, financial condition, and results of operations. In addition, we may incur increased expenses related to collections in the future if we find it necessary to take legal action to enforce the contractual obligations of a significant number of our customers.

***Increases in interest rates used to finance home construction and improvements, such as mortgage and credit card interest rates, and the reduced availability of financing for the purchase of new homes and home construction and improvements, could have a material adverse impact on our business, financial condition, and results of operations.***

Our performance depends in part upon consumers having the ability to access third-party financing for the purchase of new homes and buildings and R&R of existing homes and other buildings. The ability of consumers to finance these purchases is affected by the interest rates available for home mortgages, credit card debt, home equity or other lines of credit, and other sources of third-party financing. While interest rates in the many of the regions where we market and sell our products have generally decreased during 2019, these decreases followed periods of increase by such key central banks as the U.S. Federal Reserve and European Central Bank during 2018. If interest rates were to increase and, consequently, the ability of prospective buyers to finance purchases of new homes or home improvement products is adversely affected, our business, financial condition, and results of operations may be materially and adversely affected.

In addition to increased interest rates, the ability of consumers to procure third-party financing is impacted by such factors as new and existing home prices, unemployment levels, high mortgage delinquency and foreclosure rates, and lower housing turnover. Adverse developments affecting any of these factors could result in the imposition of more restrictive lending standards by financial institutions and reduce the ability of some consumers to finance home purchases or R&R expenditures.

***Prices and availability of the raw materials we use to manufacture our products are subject to fluctuations, and we may be unable to pass along to our customers the effects of any price increases.***

We use wood, glass, vinyl and other plastics, fiberglass and other composites, aluminum, steel and other metals, as well as hardware and other components to manufacture our products. Prices and availability of our materials fluctuate for a variety of reasons beyond our control, many of which cannot be anticipated with any degree of reliability. Our most significant raw materials include logs and lumber, vinyl extrusions, glass, steel, and aluminum, each of which has been subject to periods of rapid and significant fluctuations in price. The reasons for these fluctuations include, among other things, variable worldwide supply and demand across different industries, speculation in commodities futures, general economic or environmental conditions, labor costs, competition, import duties, tariffs, worldwide currency fluctuations, freight, regulatory costs, and product and process evolutions that impact demand for the same materials.

The U.S. has imposed tariffs on certain products imported into the U.S. from China, as well as tariffs on certain steel and aluminum products imported from certain countries, and could impose additional tariffs or trade restrictions. The imposition of tariffs may impact the prices of materials purchased outside of the U.S. and include goods in transit as well as increasing the price of domestically sourced materials, including, in particular, steel and aluminum. Impositions of tariffs by other countries could also impact pricing and availability of raw materials. As another example, as global demand for key chemicals increases, the limited number of suppliers and investment in greater supply capacity drives increased global pricing.

We have short-term supply contracts with certain of our largest suppliers that limit our exposure to short term fluctuations in prices and availability of our materials, but we are susceptible to longer-term fluctuations in prices. We generally do not hedge against commodity price fluctuations. Significant increases in the prices of raw materials for finished goods, including as a result of significant or protracted material shortages, may be difficult to pass through to customers and may negatively impact our profitability and net revenues. We may attempt to modify products that use certain raw materials, but these changes may not be successful.

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***Our business may be affected by delays or interruptions in the delivery of raw materials, finished goods, and certain component parts. A supply shortage or delivery chain interruption could have a material adverse effect on our business, financial condition, and results of operations.***

We rely upon regular deliveries of raw materials, finished goods, and certain component parts. For certain raw materials that are used in our products, we depend on a single or limited number of suppliers for our materials, and we typically do not have long-term contracts with our suppliers. If we are not able to accurately forecast our supply needs, our limited number of suppliers may make it difficult to quickly obtain additional raw materials to respond to shifting or increased demand. In addition, a supply shortage could occur as a result of unanticipated increases in market demand, including as a result of accelerated demand in reaction to the threat of tariffs or trade restrictions; difficulties in production or delivery; financial difficulties; or catastrophic events in the supply chain. Furthermore, because our products and the components of some of our products are subject to regulation, changes to these regulations could cause delays in delivery of raw materials, finished goods, and certain component parts.

Until we can make acceptable arrangements with alternate suppliers, any interruption or disruption could impact our ability to ship orders on time and could idle some of our manufacturing capability for those products. This could result in a loss of revenues, reduced margins, and damage to our relationships with customers, which could have a material adverse effect on our business, financial condition, and results of operations.

***Our business is seasonal, and revenue and profit can vary significantly throughout the year, which may adversely impact the timing of our cash flows and limit our liquidity at certain times of the year.***

Our business is seasonal, and our net revenues and operating results vary significantly from quarter to quarter based upon the timing of the building season in our markets. Our sales typically follow seasonal new construction and R&R industry patterns. The peak season for home construction and R&R activity in the majority of the geographies where we market and sell our products generally corresponds with the second and third calendar quarters, and therefore our sales volume is typically higher during those quarters. Our first and fourth quarter sales volumes are generally lower due to reduced R&R and new construction activity as a result of less favorable climate conditions in the majority of our geographic end markets. Failure to effectively manage our inventory in anticipation of or in response to seasonal fluctuations could negatively impact our liquidity profile during certain seasonal periods.

***Changes in weather patterns, including as a result of global climate change, could significantly affect our financial results or financial condition.***

Weather patterns may affect our operating results and our ability to maintain our sales volume throughout the year. Because our customers depend on suitable weather to engage in construction projects, increased frequency or duration of extreme weather conditions could have a material adverse effect on our financial results or financial condition. For example, unseasonably cool weather or extraordinary amounts of rainfall may decrease construction activity, thereby decreasing our sales. Also, we cannot predict the effects that global climate change may have on our business. In addition to changes in weather patterns, it might, for example, reduce the demand for construction, destroy forests (increasing the cost and reducing the availability of wood products used in construction), and increase the cost and reduce the availability of raw materials and energy. New laws and regulations related to global climate change may also increase our expenses or reduce our sales.

***We are exposed to political, economic, and other risks that arise from operating a multinational business.***

We have operations in North America, Europe, Australia, Asia, and South America. In the year ended December 31, 2019, our North America segment accounted for approximately 59% of net revenues, our Europe segment accounted for approximately 28% of net revenues, and our Australasia segment accounted for approximately 13% of our net revenues. Further, certain of our businesses obtain raw materials and finished goods from foreign suppliers. Accordingly, our business is subject to political, economic, and other risks that are inherent in operating in numerous countries.

These risks include:

- the difficulty of enforcing agreements and collecting receivables through foreign legal systems;
- trade protection measures and import or export licensing requirements;
- the imposition of, or increases in, tariffs or other trade restrictions;
- required compliance with a variety of foreign laws and regulations, including the application of foreign labor regulations;
- tax rates in foreign countries and the imposition of withholding requirements on foreign earnings;

- difficulty in staffing and managing widespread operations;
- the imposition of, or increases in, currency exchange controls;
- potential inflation in applicable non-U.S. economies; and
- changes in general economic and political conditions in countries where we operate, including as a result of the impact of the withdrawal of the U.K. from the E.U.

The success of our business depends in part on our ability to anticipate and effectively manage these and other risks. We cannot assure you that these and other factors will not have a material adverse effect on our international operations or ultimately on our global business, financial condition, and results of operations.

***The U.K.'s withdrawal from the E.U. could have a material adverse effect on our business, financial condition, and results of operations.***

In June 2016, the U.K. electorate voted in a referendum to voluntarily depart from the E.U., known as "Brexit". Following the formation of a majority Conservative government in December 2019, the U.K. approved the withdrawal agreement and left the European Union on January 31, 2020.

The ongoing negotiations around Brexit have created volatility in the global financial markets. The terms of the U.K.'s final withdrawal remain subject to ongoing negotiations until the end of 2020 (with an extension option of one to two years possible), during which period current E.U. regulations will continue to apply in the U.K. Trade negotiations are expected to begin in early March 2020, but the nature of the economic relationship between the E.U. and U.K. remains uncertain, and there is no guarantee that both parties will be able to reach an agreement before the transition period expires. If the U.K. and the E.U. are unable to negotiate acceptable final withdrawal terms or if other E.U. member states pursue withdrawal, barrier-free access between the U.K. and other E.U. member states or among the European Economic Area overall could be diminished or eliminated. The effects of the U.K.'s withdrawal from the E.U. on the global economy, and on our business in particular, will depend on agreements the U.K. makes to retain access to E.U. markets both during the transitional period and more permanently. The final outcome of Brexit negotiations could impair the ability of our operations in the E.U. to transact business in the future in the U.K., as well as the ability of our U.K. operations to transact business in the future in the E.U., including through the imposition of tariffs between the U.K. and other E.U. countries.

Volatility associated with Brexit could continue to adversely affect European and worldwide economic conditions and may contribute to greater instability in the global financial markets. Among other things, Brexit could reduce consumer spending in the U.K. and the E.U., which could result in decreased demand for our products within these regions. Similarly, housing sales and home values in the U.K. and in the E.U. could be negatively impacted and Brexit could also influence foreign currency exchange rates. For the year ended December 31, 2019, we derived 4% of our net revenues from the U.K., and our Europe headquarters is located in the U.K. As a result, the ultimate effects of Brexit could inhibit the growth of our business and have a material adverse effect on our business, financial condition, and results of operations.

***Exchange rate fluctuations may impact our business, financial condition, and results of operations.***

Our operations expose us to both transaction and translation exchange rate risks. In the year ended December 31, 2019, 46% of our net revenues came from sales outside of the U.S., and we anticipate that our operations outside of the U.S. will continue to represent a significant portion of our net revenues for the foreseeable future. In addition, the nature of our operations often requires that we incur expenses in currencies other than those in which we earn revenue. Because of the mismatch between revenues and expenses, we are exposed to significant currency exchange rate risk and we may not be successful in achieving balances in currencies throughout our operations. In addition, if the effective price of our products were to increase as a result of fluctuations in foreign currency exchange rates, demand for our products could decline, which could adversely affect our business, financial condition, and results of operations. Also, because our financial statements are presented in U.S. dollars, we must translate the financial statements of our foreign subsidiaries and affiliates into U.S. dollars at exchange rates in effect during or at the end of each reporting period, and increases or decreases in the value of the U.S. dollar against other major currencies will affect our reported financial results, including the amount of our outstanding indebtedness. Exchange rates, net, had a negative impact of 3% on our consolidated net revenues in the year ended December 31, 2019 as compared to a less than 1% impact in the year ended December 31, 2018. We cannot assure you that fluctuations in foreign currency exchange rates, particularly the strengthening of the U.S. dollar against major currencies, such as the Euro, the Australian dollar, the Canadian dollar, the British pound, or the currencies of large developing countries, would not materially adversely affect our business, financial condition, and results of operations.

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***A disruption in our operations due to natural disasters or acts of war could have a material adverse effect on our business, financial condition, and results of operations.***

We operate facilities worldwide. Many of our facilities are located in areas that are vulnerable to hurricanes, earthquakes, and other natural disasters. In the event that a hurricane, earthquake, natural disaster, fire, pandemic, or other catastrophic event were to interrupt our operations for any extended period of time, it could delay shipment of merchandise to our customers, damage our reputation, or otherwise have a material adverse effect on our business, financial condition, and results of operations.

In addition, our operations may be interrupted by terrorist attacks or other acts of violence or war. These attacks may directly impact our suppliers' or customers' physical facilities. Furthermore, these attacks may make travel and the transportation of our supplies and products more difficult and more expensive and ultimately have a material adverse effect on our business, financial condition, and results of operations. The U.S. has entered into armed conflicts, which could have an impact on our sales and our ability to deliver product to our customers. Political and economic instability in some regions of the world may also negatively impact the global economy and, therefore, our business. The consequences of any of these armed conflicts are unpredictable, and we may not be able to foresee events that could have an adverse effect on our business or your investment. More generally, any of these events could cause consumer confidence and spending to decrease or result in increased volatility in the worldwide financial markets. They could also result in economic recessions. Any of these occurrences could have a material adverse effect on our business, financial condition, and results of operations.

***Manufacturing realignments and cost savings programs may result in a decrease in our short-term earnings and operating efficiency.***

We continually review our manufacturing operations to address market changes and to implement efficiencies presented by acquisitions. Effects of periodic manufacturing integrations, realignments and cost savings programs have in the past and could in the future result in a decrease in our short-term earnings and operating efficiency until the expected results are achieved. Such programs may include the consolidation, integration, and upgrading of facilities, functions, systems, and procedures. Such programs involve substantial planning, often require capital investments, and may result in charges for fixed asset impairments or obsolescence and substantial severance costs. We also cannot assure you that we will achieve all of our cost savings. Our ability to achieve cost savings and other benefits within expected time frames is subject to many estimates and assumptions. These estimates and assumptions are subject to significant economic, competitive, and other uncertainties, some of which are beyond our control. If these estimates and assumptions are incorrect, if we experience delays, or if other unforeseen events occur, our operations could experience disruption, and our business, financial condition, and results of operations could be materially and adversely affected.

***We are highly dependent on information technology, the disruption of which could significantly impede our ability to do business.***

Our operations depend on our network of information technology systems, which are vulnerable to damage from hardware failure, fire, power loss, telecommunications failure, and impacts of terrorism, natural disasters, or other disasters. We rely on our information technology systems to accurately maintain books and records, record transactions, provide information to management and prepare our financial statements. We may not have sufficient redundant operations to cover a loss or failure in a timely manner. Any damage to our information technology systems could cause interruptions to our operations that materially adversely affect our ability to meet customers' requirements, resulting in an adverse impact to our business, financial condition, and results of operations. Periodically, these systems need to be expanded, updated, or upgraded as our business needs change. We may not be able to successfully implement changes in our information technology systems without experiencing difficulties, which could require significant financial and human resources. Moreover, our increasing dependence on technology may exacerbate this risk.

***We are implementing new systems, including a new Enterprise Resource Planning system, as part of our ongoing technology and process improvements. If these new systems prove ineffective, we may be unable to timely or accurately prepare financial reports, make payments to our suppliers and employees, or invoice and collect from our customers.***

We are implementing new systems, including our continued implementation of a new ERP system, as part of our ongoing technology and process improvements. This ERP system will provide a standardized method of accounting for, among other things, order entry and inventory and should enhance our ability to implement our strategic initiatives. Failure to properly plan and design the ERP system could result in future impairments relating to a portion or all associated capitalized costs. Any delay in the implementation, or disruption in the upgrade, of these systems could adversely affect our ability to timely and accurately report financial information, including the filing of our quarterly or annual reports with the SEC and delay our ability to resolve current material weaknesses within our control environment. Such delay or disruption could also impact our ability to timely or accurately make payments to our suppliers and employees and could also inhibit our ability to invoice and collect from our customers. Data integrity problems or other issues may be discovered which could impact our business or financial results. In addition, we may experience periodic or prolonged disruption of our financial functions arising out of this conversion, general use of such systems,

other periodic upgrades or updates, or other external factors that are outside of our control. If we encounter unforeseen problems with our financial system or related systems and infrastructure, our business, operations, and financial systems could be adversely affected. We may also need to implement additional systems or transition to other new systems that require further expenditures in order to function effectively as a public company. There can be no assurance that our implementation of additional systems or transition to new systems will be successful, or that such implementation or transition will not present unforeseen costs or demands on our management.

***Our systems and IT infrastructure may be subject to security breaches and other cybersecurity incidents.***

We rely on the accuracy, capacity, and security of our IT systems, some of which are managed or hosted by third parties, and the sale of our products may involve the transmission and/or storage of data, including in certain instances customers' and employees' business and personally identifiable information. Maintaining the security of computers, computer networks, and data storage resources is a critical issue for us and our customers, as security breaches, including computer viruses and malware, denial of service actions, misappropriation of data and similar events through the interest (including via devices and applications connected to the internet), and through email attachments and persons with access to these information systems could result in vulnerabilities and loss of and/or unauthorized access to confidential information. We have experienced and may in the future face attempts by experienced hackers, cybercriminals, or others with authorized access to our systems to misappropriate our proprietary information and technology, interrupt our business, and/or gain unauthorized access to confidential information. The reliability and security of our information technology infrastructure and software, and our ability to expand and continually update technologies in response to our changing needs is critical to our business. To the extent that any disruptions or security breaches result in a loss or damage to our data, it could cause harm to our reputation or brand and could potentially cause production downtimes, operational delays, and other detrimental impacts on our operations. This could lead some customers to stop purchasing our products and reduce or delay future purchases of our products or use competing products. In addition, we could face enforcement actions by U.S. states, the U.S. federal government, or foreign governments, which could result in fines, penalties, and/or other liabilities, which may cause us to incur legal fees and costs, and/or additional costs associated with responding to the cyberattack. Increased regulation regarding cybersecurity may increase our costs of compliance, including fines and penalties, as well as costs of cybersecurity audits and associated repairs or updates to infrastructure, physical systems or data processing systems. Any of these actions could have a material adverse impact on our business and results of operations. Although we maintain insurance coverage to protect us against some of the risks, those policies may be insufficient to cover all losses or all types of claims that may arise in the event we experience a cybersecurity incident, data breach or disruption, unauthorized access or failure of systems.

In addition, we are subject to state, foreign, and international laws and regulations, as well as contractual obligations, that apply to the collection, use, retention, protection, disclosure, transfer and other processing of personal data. These privacy and data-protection related laws and regulations are evolving, with new or modified laws and regulations proposed and implemented frequently and existing laws and regulations subject to new or different interpretations. In particular, the E.U. General Data Protection Regulation ("GDPR"), which became effective in 2018, poses increased compliance challenges both for companies operating within the E.U. and non-E.U. companies that administer or process certain personal data of E.U. residents. It is not possible to predict the ultimate content, and therefore effect, of data protection regulation over time, and efforts to comply with evolving regulation may result in additional costs.

We believe we have invested in industry-appropriate protections and monitoring practices for our data and information technology to reduce these risks and continue to monitor our systems on an ongoing basis for compliance with applicable privacy regulations and any current or potential threats. While we have not experienced any material breaches in security in our recent history, there can be no assurance that our efforts will prevent breakdowns or breaches to databases or systems that could have a material adverse effect on our business, financial condition, and results of operations, or that we will be subject to enforcement actions or penalties in connection with a failure or alleged failure to comply with applicable laws.

***Increases in labor costs, potential labor disputes, and work stoppages at our facilities or the facilities of our suppliers could have a material adverse effect on our business, financial condition, and results of operations.***

Our financial performance is affected by the availability of qualified personnel and the cost of labor. As of December 31, 2019, we had approximately 23,300 employees worldwide, including approximately 11,200 employees in the U.S. and Canada. Approximately 1,110, or 10%, of our employees in the U.S. and Canada are unionized workers, and the majority of our workforce in other countries belong to work councils or are otherwise subject to labor agreements. U.S. and Canada employees represented by these unions are subject to collective bargaining agreements that are subject to periodic negotiation and renewal. If we are unable to enter into new, satisfactory labor agreements with our unionized employees upon expiration of their agreements, we could experience a significant disruption of our operations, which could cause us to be unable to deliver products to customers on a timely basis. Such disruptions could result in a loss of business and an increase in our operating expenses, which could reduce our net revenues and profit margins. In addition, our non-unionized labor force may become subject to labor union organizing efforts, which could cause us to incur additional labor costs and increase the related risks that we now face.

We believe many of our direct and indirect suppliers also have unionized workforces. Strikes, work stoppages, or slowdowns experienced by suppliers could result in slowdowns or closures of facilities where components of our products are manufactured or delivered. Any interruption in the production or delivery of these components could reduce sales, increase costs, and have a material adverse effect on us.

***Changes in building codes and standards (including ENERGY STAR standards) could increase the cost of our products, lower the demand for our windows and doors, or otherwise adversely affect our business.***

Our products and markets are subject to extensive and complex local, state, federal and foreign statutes, ordinances, rules, and regulations. These mandates, including building design and safety and construction standards and zoning requirements, affect the cost, selection, and quality requirements of building components like windows and doors.

These regulations often provide broad discretion to governmental authorities as to the types and quality specifications of products used in new residential and non-residential construction and home renovations and improvement projects, and different governmental authorities can impose different standards. Compliance with these standards and changes in such regulations may increase the costs of manufacturing our products or may reduce the demand for certain of our products in the affected geographical areas or product markets. Conversely, a decrease in product safety standards could reduce demand for our more modern products if less expensive alternatives that did not meet higher standards became available for use in that market. All or any of these changes could have a material adverse effect on our business, financial condition, and results of operations.

In addition, in order for our products to obtain the “ENERGY STAR” certification, they must meet certain requirements set by the EPA. Changes in the energy efficiency requirements established by the EPA for the ENERGY STAR label could increase our costs, and a lapse in our ability to label our products as such or to comply with the new standards, may have a material adverse effect on our business, financial condition, and results of operations.

***The elimination of the ENERGY STAR program could lower the demand for our products or otherwise adversely affect our business.***

Many of our products comply with the federal government’s ENERGY STAR program. We believe that marketing our products with the ENERGY STAR label gives us a competitive advantage as compared to competing products that are not labeled as ENERGY STAR products. The EPA has proposed that the ENERGY STAR program become self-funding through the collection of fees from participating entities during fiscal year 2020. These proposed changes to the ENERGY STAR program could diminish any competitive advantage for ENERGY STAR compliant products and result in a material adverse effect on our business, financial condition, and results of operations.

***Domestic and foreign governmental regulations applicable to general business operations could increase the costs of operating our business and adversely affect our business.***

We are subject to a variety of regulations from U.S. and foreign governmental authorities relating to wage requirements, employee benefits, and other workplace matters. Changes in local minimum or living wage requirements, rights of employees to unionize, healthcare regulations, and other requirements relating to employee benefits could increase our labor costs, which would in turn increase our cost of doing business. In addition, our international operations are subject to laws applicable to foreign operations, trade protection measures, foreign labor relations, differing intellectual property rights, privacy regulations, other legal and regulatory constraints, and currency regulations of the countries or regions in which we currently operate or where we may operate in the future. These factors may restrict the sales of, or increase costs of, manufacturing and selling our products.

***We may be subject to significant compliance costs, as well as liabilities under environmental, health, and safety laws and regulations.***

Our past and present operations, assets, and products are subject to extensive environmental laws and regulations at the federal, state, and local level worldwide. These laws regulate, among other things, air emissions, the discharge or release of materials into the environment, the handling and disposal of wastes, remediation of contaminated sites, worker health and safety, and the impact of products on human health and safety and the environment. Under certain of these laws, liability for contaminated property may be imposed on current or former owners or operators of the property or on parties that generated or arranged for waste sent to the property for disposal. Liability under these laws may be joint and several and may be imposed without regard to fault or the legality of the activity giving rise to the contamination. Notwithstanding our compliance efforts, we may still face material liability, limitations on our operations, fines, or penalties for violations of environmental, health, and safety laws and regulations, including releases of regulated materials and contamination by us or previous occupants at our current or former properties or at offsite disposal locations we use.

The applicable environmental, health, and safety laws and regulations, and any changes to them or in their enforcement, may require us to make material expenditures with respect to ongoing compliance with or remediation under these laws and

regulations or require that we modify our products or processes in a manner that increases our costs and/or reduces our profitability. For example, additional pollution control equipment, process changes, or other environmental control measures may be needed at some of our facilities to meet future requirements. In addition, discovery of currently unknown or unanticipated soil or groundwater conditions at our properties could result in significant liabilities and costs. Accordingly, we are unable to predict the exact future costs of compliance with or liability under environmental, health, and safety laws and regulations.

***We may be subject to significant compliance costs with respect to legislative and regulatory proposals to restrict emissions of greenhouse gasses, or "GHGs."***

Various legislative, regulatory, and inter-governmental proposals to restrict emissions of GHGs, such as carbon dioxide ("$CO_2$"), are under consideration by governmental legislative bodies and regulators in the jurisdictions where we operate. In the U.S., the EPA recently adopted the Affordable Clean Energy Rule, or "ACE", which repealed the previously adopted Clean Power Plan. The requirements of ACE are expected to be significantly less burdensome for producers of energy than the requirements of the Clean Power Plan, but certain states have adopted or may adopt more stringent regulations governing emissions of GHGs, and legislators at the federal level have proposed legislation that, if enacted, would reverse the trend of deregulation. In addition, many other jurisdictions in which we operate have continued to commit to limiting emissions of GHGs, most prominently through an agreement reached in Paris in December 2015 at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change. The Paris Agreement sets out a new process for achieving global GHG reductions. On November 4, 2019, the Trump administration formally notified the United Nations of its withdrawal from the Paris Agreement, to be effective in November 2020; however, because some of our manufacturing facilities operate boilers or other process equipment that emit GHGs, such regulatory and global initiatives may require us to modify our operating procedures or production levels, incur capital expenditures, change fuel sources, or take other actions that may adversely affect our financial results.

Given the high degree of uncertainty about the ultimate parameters of any such regulatory or global initiatives, and the degree to which the U.S. will participate in initiatives at the federal or global level, we cannot predict at this time the ultimate impact of such initiatives on our operations or financial results.

Increasing regulations to reduce GHG emissions, as proposed throughout many of our operating regions, would be expected to increase energy costs, increase price volatility for fossil fuels and petroleum, and reduce petroleum production levels, which in turn could impact the prices of those raw materials. In addition, laws and regulations relating to forestry practices limit the volume and manner of harvesting timber to mitigate environmental impacts, such as deforestation, soil erosion, damage to riparian areas, and GHG levels. The extent of these regulations and related compliance costs has grown in recent years and will increase our materials costs and may increase other aspects of our production costs.

***Changes to legislative and regulatory policies that currently promote home ownership may have a material adverse effect on our business, financial condition, and results of operations.***

Our markets are also affected by legislative and regulatory policies, such as U.S. tax rules, allowing for deductions of mortgage interest and the mandate of government-sponsored entities like Freddie Mac and Fannie Mae to promote home ownership through mortgage guarantees on certain types of home loans. The Tax Act passed in the U.S. in December 2017 made significant changes to some of these historical benefits of home ownership. The specific changes which could affect our markets are, among others, a reduction of the maximum amount of home mortgage indebtedness for which a tax deduction for interest paid may be claimed, an elimination of the deduction for interest paid on home equity indebtedness, and a limitation on the amount of state and local taxes allowed to be deducted annually as itemized deductions. These changes to the tax code and any future policy changes may adversely impact demand for our products and have a material adverse effect on our business, financial condition, and results of operations.

***Changes in legislation, regulation and government policy, including as a result of U.S. presidential and congressional elections, may have a material adverse effect on our business in the future.***

The upcoming 2020 presidential and congressional elections in the U.S. and the impact of recent midterm congressional elections in the U.S. could result in significant changes in, and uncertainty with respect to, legislation, regulation and government policy. While it is not possible to predict whether and when any such changes will occur, changes at the local, state and federal level could significantly impact our business. Specific legislative and regulatory proposals that could have a material impact on us include, but are not limited to: infrastructure renewal programs, changes to immigration policy, modifications to international trade policy, including renegotiation of or withdrawal from trade agreements, the imposition of tariffs or trade restrictions, and changes to financial legislation and public company reporting requirements.

In addition, U.S. lawmakers have made substantial changes to U.S. fiscal and tax policies, including the adoption of the Tax Act, which introduced a variety of tax reforms that significantly impact U.S. taxation of multi-national corporations. These include, among others, reductions in the U.S. corporate tax rate, repeal of the corporate alternative minimum tax, introduction of immediate cost recovery for capital investments, the limitation of the interest deduction, the limitation of certain deductions for

executive compensation, and changes to the international tax system, including the adoption of a territorial tax system and taxation of the accumulated foreign earnings of U.S. multinational corporations. The specific provisions of the Tax Act, while generally favorable to our U.S. operations, may have certain negative implications, such as the GILTI provisions, which could materially impact our financial performance. Certain aspects of the Tax Act took effect or material additional guidance was issued during fiscal year 2019 including, among other things, certain regulations relating to Internal Revenue Code ("IRC") §965 and foreign tax credits proposed in December 2018. Final guidance, once issued, may materially affect the Company's conclusions regarding the net related effects of the Tax Act on its financial statements. These provisions will continue to have a significant impact on our future performance.

***Lack of transparency, threat of fraud, public sector corruption, and other forms of criminal activity involving government officials increases the risk of potential liability under anti-bribery/anti-corruption or anti-fraud legislation, including the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and similar laws and regulations.***

We operate manufacturing and distribution facilities in 20 countries and sell our products in approximately 100 countries around the world. As a result of the international nature of our operations, we may enter from time to time into negotiations and contractual arrangements with parties affiliated with foreign governments and their officials in the ordinary course of business. In connection with these activities, we may be subject to anti-corruption laws in various jurisdictions, including the U.S. Foreign Corrupt Practices Act, or the "FCPA", the U.K. Bribery Act and other anti-bribery laws applicable to jurisdictions where we do business that prohibit improper payments or offers of payments to foreign government officials and political parties and others for the purpose of obtaining or retaining business, or otherwise receiving discretionary favorable treatment of any kind, and require the maintenance of internal controls to prevent such payments. In particular, we may be held liable for actions taken by agents in foreign countries where we operate, even though such parties are not always subject to our control. We have established anti-bribery/anti-corruption policies and procedures and offer several channels for raising concerns in an effort to comply with the laws and regulations applicable to us. However, there can be no assurance that our policies and procedures will effectively prevent us from violating these laws and regulations in every transaction in which we may engage. Allegations of violations of the FCPA or other anti-bribery or anti-corruption laws may result in internal, independent, or government investigations. Any determination that we have violated the FCPA or other anti-bribery/anti-corruption laws (whether directly or through acts of others, intentionally or through inadvertence) could result in severe criminal and civil sanctions and other liabilities that could have a material adverse effect on our business, reputation, financial condition, and results of operations.

As we continue to expand our business globally, including through foreign acquisitions, we may have difficulty anticipating and effectively managing these and other risks that our international operations may face, which may adversely impact our business outside of the U.S. and our financial condition and results of operations. In addition, any acquisition of businesses with operations outside of the U.S. may exacerbate this risk.

***We may be the subject of product liability claims or product recalls and we may not accurately estimate costs related to warranty claims. Expenses associated with product liability claims and lawsuits and related negative publicity or warranty claims in excess of our reserves could have a material adverse effect on our business, financial condition, and results of operations.***

Our products are used in a wide variety of residential, non-residential, and architectural applications. We face the risk of exposure to product liability or other claims, including class action lawsuits, in the event our products are alleged to be defective or have resulted in harm to others or to property. We may in the future incur liability if product liability lawsuits against us are successful. Moreover, any such lawsuits, whether or not successful, could result in adverse publicity to us, which could cause our sales to decline materially. In addition, it may be necessary for us to recall defective products, which would also result in adverse publicity, as well as resulting in costs connected to the recall and loss of sales. We maintain insurance coverage to protect us against product liability claims, but that coverage may not be adequate to cover all claims that may arise, or we may not be able to maintain adequate insurance coverage in the future at an acceptable cost. Any liability not covered by insurance could have a material adverse effect on our business, financial condition, and results of operations.

In addition, consistent with industry practice, we provide warranties on many of our products and we may experience costs associated with warranty claims if our products have defects in manufacture or design or they do not meet contractual specifications. We estimate our future warranty costs based on historical trends and product sales, but we may fail to accurately estimate those costs and thereby fail to establish adequate warranty reserves for them. If warranty claims exceed our estimates, it may have a material adverse effect on our business, financial condition, and results of operations.

***We may be unable to protect our intellectual property, and we may face claims of intellectual property infringement.***

We rely on a combination of patent, copyright, trademark, and trade secret laws, as well as confidentiality agreements, nondisclosure agreements, and other contractual commitments, to protect our intellectual property rights. However, these measures may not be adequate or sufficient, and third parties may not always respect these legal protections even if they are aware of them. In addition, our competitors may develop similar technologies and know-how without violating our intellectual property rights.

Furthermore, the laws of foreign countries may not protect our intellectual property rights to the same extent as the laws of the U.S. The failure to obtain worldwide patent and trademark protection may result in other companies copying and marketing products based on our technologies or under brand or trade names similar to ours outside the jurisdictions in which we are protected. This could impede our growth in existing regions, create confusion among consumers, and result in a greater supply of similar products that could erode prices for our protected products.

Litigation may be necessary to protect our intellectual property rights. Intellectual property litigation can result in substantial costs, could distract our management, and could impinge upon other resources. Our failure to enforce and protect our intellectual property rights may cause us to lose brand recognition and result in a decrease in sales of our products.

Moreover, while we are not aware that any of our products or brands infringes upon the proprietary rights of others, third parties may make such claims in the future. From time to time, third parties may claim that we have infringed upon their intellectual property rights and we may receive notices from such third parties asserting such claims. Any such infringement claims are thoroughly investigated and, regardless of merit, could be time-consuming and result in costly litigation or damages, undermine the exclusivity and value of our brands, decrease sales, or require us to enter into royalty or licensing agreements that may not be on acceptable terms and that could have a material adverse effect on our business, financial condition, and results of operations.

***Our business will suffer if certain key officers or employees discontinue employment with us or if we are unable to recruit and retain highly skilled staff at a competitive cost.***

The success of our business depends upon the skills, experience, and efforts of our key officers and employees. In recent years, we have hired key executives who have and will continue to be integral in the continuing transformation of our business. The loss of key personnel could have a material adverse effect on our business, financial condition, and results of operations. We do not maintain key-man life insurance policies on any members of management. Our business also depends on our ability to continue to recruit, train, and retain skilled employees, particularly skilled sales personnel. The loss of the services of certain key personnel, or our inability to hire new personnel with the requisite skills, could impair our ability to develop new products or enhance existing products, sell products to our customers, or manage our business effectively. Should we lose the services of any member of our senior management team, our Board of Directors would have to conduct a search for a qualified replacement. This search may be prolonged, and we may not be able to locate and hire a qualified replacement. A significant increase in the wages paid by competing employers could result in a reduction of our qualified labor force, increases in the wage rates that we must pay, or both.

***Our pension plan obligations are currently not fully funded, and we may have to make significant cash payments to these plans, which would reduce the cash available for our businesses.***

Although we have closed our U.S. pension plan to new participants and have frozen future benefit accruals for current participants, we continue to have unfunded obligations under that plan. The funded levels of our pension plan depend upon many factors, including returns on invested assets, certain market interest rates, and the discount rate used to determine pension obligations. The projected benefit obligation and unfunded liability included in our consolidated financial statements as of December 31, 2019 for our U.S. pension plan were approximately $433.4 million and $74.8 million, respectively. Unfavorable returns on the plan assets or unfavorable changes in applicable laws or regulations could materially change the timing and amount of required plan funding, which would reduce the cash available for our operations. In addition, a decrease in the discount rate used to determine pension obligations could increase the estimated value of our pension obligations, which would affect the reported funding status of our pension plans and would require us to increase the amounts of future contributions. Additionally, we have foreign defined benefit plans, some of which continue to be open to new participants. As of December 31, 2019, our foreign defined benefit plans had unfunded pension liabilities of approximately $38.7 million and overfunded pension assets of approximately $1.9 million.

Under the Employee Retirement Income Security Act of 1974, as amended, or “ERISA”, the U.S. Pension Benefit Guaranty Corporation, or the “PBGC”, also has the authority to terminate an underfunded tax-qualified U.S. pension plan under certain circumstances. In the event our tax-qualified U.S. pension plans were terminated by the PBGC, we could be liable to the PBGC for an amount that exceeds the underfunding disclosed in our consolidated financial statements. In addition, because our U.S. pension plan has unfunded obligations, if we have a substantial cessation of operations at a U.S. facility and, as a result of such cessation of operations an event under ERISA Section 4062(e) is triggered, additional liabilities that exceed the amounts disclosed in our consolidated financial statements could arise, including an obligation for us to provide additional contributions or alternative security for a period of time after such an event occurs. Any such action could have a material adverse effect on our business, financial condition, and results of operations.

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***Changes in accounting standards, new interpretations of existing standards and subjective assumptions, estimates, and judgments by management related to complex accounting matters could significantly affect our financial results or financial condition.***

Generally accepted accounting principles and related accounting pronouncements, implementation guidelines and interpretations with regard to a wide range of matters that are relevant to our business, such as revenue recognition, asset impairment, impairment of goodwill and other intangible assets, inventories, lease obligations, self-insurance, tax matters, and litigation, are highly complex and involve many subjective assumptions, estimates, and judgments. Changes in these rules or their interpretation or changes in underlying assumptions, estimates, or judgments could significantly change our reported results.

**Risks Relating to our Indebtedness**

***Our indebtedness could adversely affect our financial flexibility and our competitive position.***

Financial information regarding our indebtedness is included in Note 15 - *Notes Payable and Long-Term Debt* to our financial statements included in this 10-K.

Our level of indebtedness increases the risk that we may be unable to generate cash sufficient to pay amounts due in respect of our indebtedness and could have other material consequences, including:

- limiting our ability to obtain financing in the future for working capital, capital expenditures, acquisitions, debt service, or other general corporate purposes;
- requiring us to use a substantial portion of our available cash flow to service our debt, which will reduce the amount of cash flow available for working capital, capital expenditures, acquisitions, and other general corporate purposes;
- increasing our vulnerability to general economic downturns and adverse industry conditions;
- limiting our flexibility in planning for, or reacting to, changes in our business and in our industry in general;
- limiting our ability to invest in and develop new products;
- placing us at a competitive disadvantage compared to our competitors that are not as highly leveraged, as we may be less capable of responding to adverse economic conditions, general economic downturns, and adverse industry conditions;
- restricting the way we conduct our business because of financial and operating covenants in the agreements governing our existing and future indebtedness;
- increasing the risk of our failing to satisfy our obligations with respect to borrowings outstanding under our Credit Facilities and Senior Notes and/or being able to comply with the financial and operating covenants contained in our debt instruments, which could result in an event of default under the credit agreements governing our Credit Facilities and the agreements governing our other debt, including the indenture governing the Senior Notes, that, if not cured or waived, could have a material adverse effect on our business, financial condition, and results of operations; and
- increasing our cost of borrowing.

***The credit agreements governing our Credit Facilities and the indenture governing the Senior Notes impose significant operating and financial restrictions on us that may prevent us from capitalizing on business opportunities.***

The credit agreements governing our Credit Facilities and the indenture governing the Senior Notes impose significant operating and financial restrictions on us. These restrictions limit our ability, among other things, to:

- incur or guarantee additional indebtedness;
- make certain loans, investments, or restricted payments, including dividends to our shareholders;
- repurchase or redeem capital stock;
- engage in certain transactions with affiliates;
- sell certain assets (including stock of subsidiaries) or merge with or into other companies; and
- create or incur liens.

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Under the terms of the ABL Facility, we will at times be required to comply with a specified fixed charge coverage ratio when the amount of certain unrestricted cash balances of the U.S. and Canadian loan parties plus the amount available for borrowing by the U.S. borrowers and Canadian borrowers is less than a specified amount. The Australia Senior Secured Credit Facility also contains financial maintenance covenants. Our ability to meet the specified covenants could be affected by events beyond our control, and our failure to meet these covenants will result in an event of default as defined in the applicable facility.

In addition, our ability to borrow under the ABL Facility is limited by the amount of the borrowing base applicable to U.S. dollar and Canadian dollar borrowings. Any negative impact on the elements of our borrowing base, such as eligible accounts receivable and inventory, will reduce our borrowing capacity under the ABL Facility. Moreover, the ABL Facility provides discretion to the agent bank acting on behalf of the lenders to impose additional requirements on what accounts receivable and inventory may be counted toward the borrowing base availability and to impose other reserves, which could materially impair the amount of borrowings that would otherwise be available to us. There can be no assurance that the agent bank will not impose such reserves or, were it to do so, that the resulting impact of this action would not materially and adversely impair our liquidity.

As a result of these covenants and restrictions, we are limited in how we conduct our business, and we may be unable to raise additional debt or equity financing to compete effectively or to take advantage of new business opportunities or engage in other activities that may be in our long-term best interests. The terms of any future indebtedness we may incur could include more restrictive covenants. We cannot assure you that we will be able to maintain compliance with these covenants in the future and, if we fail to do so, we may be unable to obtain waivers from the lenders or amend the covenants.

***Our failure to comply with the credit agreements governing our Credit Facilities and indenture governing the Senior Notes, including as a result of events beyond our control, could trigger events of default and acceleration of our indebtedness. Defaults under our debt agreements could have a material adverse effect on our business, financial condition, and results of operations.***

If there were an event of default under the credit agreements governing our Credit Facilities, the indenture governing the Senior Notes, or other indebtedness that we may incur, the holders of the defaulted indebtedness could cause all amounts outstanding with respect to that indebtedness to be immediately due and payable. It is likely that our cash flows would not be sufficient to fully repay borrowings under our Credit Facilities and principal amount of the Senior Notes, if accelerated upon an event of default. If we are unable to repay, refinance, or restructure our secured debt, the holders of such indebtedness may proceed against the collateral securing that indebtedness.

Furthermore, any event of default or declaration of acceleration under one debt instrument may also result in an event of default under one or more of our other debt instruments. In exacerbated or prolonged circumstances, one or more of these events could result in our bankruptcy or liquidation. Accordingly, any default by us on our debt could have a material adverse effect on our business, financial condition, and results of operations.

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

Our liquidity needs vary throughout the year. If our business experiences materially negative unforeseen events, we may be unable to generate sufficient cash flow from operations to fund our needs or maintain sufficient liquidity to operate and remain in compliance with our debt covenants, which could result in reduced or delayed purchases of raw materials, planned capital expenditures and other investments and adversely affect our financial condition or results of operations. Our ability to borrow under the ABL Facility may be limited due to decreases in the borrowing base as described above.

***Despite our current debt levels, we may incur substantially more indebtedness. This could further exacerbate the risks associated with our substantial leverage.***

We may incur substantial additional indebtedness in the future. Although the covenants under the credit agreements governing our Credit Facilities and indenture governing the Senior Notes provide certain restrictions on our ability to incur additional debt, the terms of such agreements permit us to incur significant additional indebtedness. To the extent that we incur additional indebtedness, the risk associated with our substantial indebtedness described above, including our possible inability to service our indebtedness, will increase.

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**Risks Relating to Ownership of Our Common Stock**

***The market price of our Common Stock may be highly volatile.***

Our Common Stock has only been listed for public trading since January 27, 2017. As of December 31, 2019, the price of our Common Stock since the date of our IPO, as reported by the NYSE, has ranged from an intraday high of $42.27 to an intraday low of $13.28. The trading price of our Common Stock may continue to be volatile. Securities markets worldwide experience significant price and volume fluctuations. This market volatility, as well as other general economic, market or political conditions, could reduce the market price of our shares in spite of our operating performance. The following factors may have a significant impact on the market price of our Common Stock:

- negative trends in global economic conditions or activity levels in our end markets;
- increases in interest rates used to finance home construction and improvements;
- our ability to compete effectively against our competitors;
- changes in consumer needs, expectations, or trends;
- our ability to maintain our relationships with key customers;
- our ability to implement our business strategy;
- our ability to complete and integrate new acquisitions;
- variations in the prices of raw materials used to manufacture our products;
- adverse changes in building codes and standards or governmental regulations applicable to general business operations;
- product liability claims or product recalls;
- any legal actions in which we may become involved, including disputes relating to our intellectual property;
- our ability to recruit and retain highly skilled staff;
- actual or anticipated fluctuations in our quarterly or annual operating results;
- trading volume of our Common Stock;
- sales of our Common Stock by us, our executive officers and directors, or our shareholders (including certain affiliates of Onex) in the future; and
- general economic and market conditions and overall fluctuations in the U.S. equity markets.

In addition, broad market and industry factors, including the trading prices of the securities of our publicly traded competitors, may negatively affect the market price of our Common Stock, regardless of our actual operating performance, and factors beyond our control may cause our stock price to decline rapidly and unexpectedly. Furthermore, the stock market has experienced extreme volatility that, in some cases, has been unrelated or disproportionate to the operating performance of particular companies.

***Publishing earnings guidance subjects us to risks, including increased stock volatility, that could lead to potential lawsuits by investors.***

Because we publish earnings guidance, we are subject to a number of risks. Actual results may vary significantly from the guidance we provide investors from time to time, such that our stock price may decline following, among other things, any earnings release or guidance that does not meet market expectations. It has become increasingly commonplace for investors to file lawsuits against companies following a rapid decrease in market capitalization. In the future, we may be named in these types of lawsuits. These types of lawsuits can be costly and divert management attention and other resources away from our business, regardless of their merits, and could result in adverse settlements or judgments.

***We may be subject to securities litigation, which is expensive and could divert management attention.***

Our share price may be volatile and, in the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Litigation of this type could result in substantial costs and diversion of management’s attention and resources, which could have a material adverse effect on our business, financial condition, and results of operations. Any adverse determination in litigation could also subject us to significant liabilities.

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***Because Onex owns a substantial portion of our Common Stock, it may influence major corporate decisions and its interests may conflict with the interests of other holders of our Common Stock.***

Onex beneficially owns approximately 32.9 million shares of our Common Stock representing approximately 32.6% of our outstanding shares. As a result, Onex continues to be able to influence matters requiring approval by our shareholders or our board of directors, including the election of directors and the approval of business combinations or dispositions and other extraordinary transactions. They also may have interests that differ from other shareholders and may vote in a way with which other shareholders disagree and which may be adverse to their interests. The concentration of ownership may have the effect of delaying, preventing, or deterring a change of control of our company, could deprive our shareholders of an opportunity to receive a premium for their Common Stock as part of a sale of our company and may materially and adversely affect the market price of our Common Stock. In addition, Onex may in the future own businesses that directly compete with ours. Further, for so long as Onex owns at least 5% of our outstanding shares, Onex has the right to purchase its pro rata portion of the primary shares offered in any future public offering. This right could result in Onex continuing to maintain a substantial ownership of our Common Stock. Onex also has the right to nominate one or two directors to our board of directors for as long as Onex maintains at least 12.5% or 20%, respectively, of our outstanding Common Stock.

***Our directors who have relationships with Onex may have conflicts of interest with respect to matters involving our Company.***

Two of our ten directors are affiliated with Onex. These persons have fiduciary duties to both us and Onex. As a result, they may have real or apparent conflicts of interest on matters affecting both us and Onex, which in some circumstances may have interests adverse to ours. Onex is in the business of making or advising on investments in companies and may hold, and may from time to time in the future acquire, interests in, or provide advice to, businesses that directly or indirectly compete with certain portions of our business or that are suppliers or customers of ours. In addition, as a result of Onex's ownership interest, conflicts of interest could arise with respect to transactions involving business dealings between us and Onex, including potential acquisitions of businesses or properties, the issuance of additional securities, the payment of dividends, and other matters.

In addition, our restated certificate of incorporation provides that the doctrine of "corporate opportunity" will not apply with respect to us, to Onex or certain related parties, or any of our directors who are employees of Onex or its affiliates in a manner that would prohibit them from investing in competing businesses or doing business with our customers. To the extent they invest in such other businesses, Onex may have differing interests than our other shareholders.

***The requirements of being a public company, including compliance with the reporting requirements of the Exchange Act and the requirements of the Sarbanes-Oxley Act, and the NYSE, may strain our resources, increase our costs and distract management, and we may be unable to comply with these requirements in a timely or cost-effective manner.***

As a public company, we are subject to the reporting requirements of the Exchange Act and the corporate governance standards of the Sarbanes-Oxley Act and the NYSE and SEC rules and requirements. As a result, we have incurred and will continue to incur significant legal, regulatory, accounting, investor relations, and other costs. These requirements may also place a strain on our management, systems, and resources. The Exchange Act requires us to file annual, quarterly, and current reports with respect to our business and financial condition within specified time periods and to prepare proxy statements with respect to our annual meeting of shareholders. The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal controls over financial reporting. The NYSE requires that we comply with various corporate governance requirements. To maintain and improve the effectiveness of our disclosure controls and procedures and internal controls over financial reporting and comply with the Exchange Act and NYSE requirements, significant resources and management oversight are required.

Complying with these requirements may divert management's attention from revenue producing activities to management and administrative oversight. Any of the foregoing could have a material adverse effect on us and the price of our Common Stock. In addition, failure to comply with any laws or regulations applicable to us may result in legal proceedings or regulatory investigations.

***Material weaknesses in our internal control over financial reporting or our failure to remediate such material weaknesses could result in a violation of Section 404 of the Sarbanes-Oxley Act, or in a material misstatement in our financial statements not being prevented or detected, and could affect investor confidence in the accuracy and completeness of our financial statements, as well as our Common Stock price.***

As a public company, we are required to comply with Section 404 of the Sarbanes-Oxley Act. If we fail to abide by the applicable requirements of Section 404, regulatory authorities, such as the SEC, might subject us to sanctions or investigation, and our independent registered public accounting firm may not be able to certify as to the effectiveness of our internal control over financial reporting pursuant to an audit of our controls. Even effective internal controls can provide only reasonable assurance with respect to the preparation and fair presentation of financial statements. Accordingly, our internal control over financial reporting may not prevent or detect misstatements because of their inherent limitations, including the possibility of human error, the circumvention or overriding of controls, or fraud.

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During the preparation of our financial statements for the year ended December 31, 2018, our first annual Internal Control Over Financial Reporting "ICFR" assessment, we concluded that we did not maintain a sufficient complement of personnel in our Europe operations with the appropriate level of knowledge, experience and training in internal control over financial reporting commensurate with our financial reporting requirements to allow for the consistent execution of control activities. Further, monitoring controls maintained at the Europe operations and corporate levels did not operate with a sufficient degree of precision to provide for the appropriate level of oversight of activities related to our internal control over financial reporting. These material weaknesses contributed to the following additional material weaknesses in that we did not design and maintain effective controls within certain of our Europe operations related to the review and approval of customer pricing, the review and approval of manual journal entries, and the reconciliation of subsidiary ledger financial information used in the consolidated financial statements. Specifically, we did not design and maintain controls to ensure (i) the review and approval of the initial set-up, and subsequent changes/modifications, of customer pricing related to revenue arrangements; (ii) that journal entries were properly prepared with sufficient supporting documentation, were reviewed and approved to ensure accuracy and completeness of the journal entries, and were reviewed by an appropriate individual separate from the preparer of such journal entry; and (iii) the subsidiary financial information used in the preparation of the consolidated financial statements agreed to the financial information recorded in the subsidiary ledger, and to the extent there were differences, that they were appropriately validated.

During the period ended December 31, 2019, we continued executing our remediation plan. We hired additional personnel in Europe with knowledge and experience in internal control over financial reporting and we continue actively recruiting additional experienced resources to supplement our Europe team. We conducted training on internal controls over financial reporting, monitoring controls, complex accounting topics, account reconciliations, and journal entry controls. We implemented enhancements to closing processes that included the centralization of certain tasks, development of manuals and standardized templates to enhance the evidence supporting the local teams' execution of internal control over financial reporting. Based on the actions taken to date, while management believes that it now has the requisite personnel to consistently operate the controls as designed, additional controls may need to be designed and implemented as part of the remediation plan, especially with respect to pricing. Additionally, for controls that were newly designed and implemented in 2019, management determined that a sustained period of operating effectiveness is required to conclude that the controls are operating effectively. Accordingly, the material weaknesses described have not been remediated as of December 31, 2019.

While we continue to address these material weaknesses and to strengthen our overall internal control over financial reporting, we may discover other material weaknesses going forward that could result in inaccurate reporting of our financial condition or results of operations. Inadequate internal control over financial reporting may cause investors to lose confidence in our reported financial information. Any loss of confidence in the reliability of our financial statements or other negative reaction to our failure to develop timely or adequate disclosure controls and procedures or internal controls could result in a decline in the price of our Common Stock and may restrict access to the capital markets and may adversely affect the price of our Common Stock.

***Future sales, or the perception of future sales, of shares of our Common Stock in the public market by us or our existing shareholders could cause our stock price to fall.***

The sales of a substantial number of shares of our Common Stock in the public market, or the perception that such sales could occur, including sales by Onex, could materially adversely affect the prevailing market price of our Common Stock. As of December 31, 2019, we had 100,668,003 shares of Common Stock outstanding.

Shares held by Onex and certain of our directors, officers and shareholders are eligible for resale, subject to volume, manner of sale and other limitations under Rule 144. In addition, pursuant to the Registration Rights Agreement (as defined below), each have the right, subject to certain conditions, to require us to register the sale of shares owned by such persons under the federal securities laws. By exercising their registration rights and selling a large number of shares, these holders could cause the prevailing market price of our Common Stock to decline. In addition, shares issued or issuable upon exercise of options and vested RSUs and PSUs will be eligible for sale from time to time.

In addition, as of December 31, 2019 we had 1,629,398 shares reserved for issuance pursuant to equity awards outstanding under our 2011 Stock Incentive Plan and 4,198,034 shares reserved for issuance pursuant to equity awards under our 2017 Omnibus Equity Plan. These shares, upon exercise of options and vesting of RSUs and PSUs, will be eligible for sale from time to time or will be eligible for sale immediately following exercise of such options.

Our employees, officers, and directors may elect to sell shares of our Common Stock in the public market. Sales of a substantial number of shares of our Common Stock in the public market could depress the market price of our Common Stock and impair our ability to raise capital through the sale of additional equity securities.

The ESOP and the JELD-WEN, Inc. KSOP ("KSOP"), are designed as a tax-qualified retirement plans and employee stock ownership plans under the Code. Participants whose employment with us or our subsidiaries is terminated are entitled to receive distributions of accounts held under the ESOP and KSOP at specified times and in specified forms. In addition, each plan permits diversification of our Common Stock held in participants' accounts. The ESOP and KSOP may sell shares in the open

market to fund hardship distributions and diversifications or participants may sell shares received as part of their distributions. In the year ended December 31, 2019, 361,202 shares were either sold by the plans to cover cash distributions and diversifications or distributed to participants.

In the future, we may issue securities to raise cash for acquisitions or otherwise. We may also acquire interests in other companies by using a combination of cash and our Common Stock or just our Common Stock.

We may also issue securities convertible into our Common Stock. Any of these events may dilute your ownership interest in our company and have an adverse impact on the price of our Common Stock.

***If securities or industry analysts cease publishing research or reports about us, our business, or our market, or if they adversely change their recommendations or publish negative reports regarding our business or our stock, our stock price and trading volume could decline.***

The trading market for our Common Stock can be influenced by the research and reports that industry or securities analysts may publish about us, our business, our market, or our competitors. We do not have any control over these analysts, and we cannot provide any assurance that analysts will cover us or provide favorable coverage. If any of the analysts who may cover us adversely change their recommendation regarding our stock, or provide more favorable relative recommendations about our competitors, our stock price could decline. If any analyst who may cover us were to cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

***Because we have no current plans to pay cash dividends on our shares of Common Stock, shareholders must rely on appreciation of the value of our Common Stock for any return on their investment.***

We currently anticipate that we will retain future earnings for the development, operation, and expansion of our business and have no current plans to declare or pay any cash dividends in the foreseeable future. In addition, the terms of our Credit Facilities, Senior Notes and any future debt agreements may preclude us from paying dividends. As a result, we expect that only appreciation of the price of our Common Stock, if any, will provide a return to shareholders for the foreseeable future.

***Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our shareholders and may prevent attempts by our shareholders to replace or remove our current management.***

Provisions in our restated certificate of incorporation and our amended and restated bylaws, as well as provisions of the Delaware General Corporation Law, or the “DGCL”, could make it more difficult for a third party to acquire us or increase the cost of acquiring us, even if doing so would benefit our shareholders, including transactions in which shareholders might otherwise receive a premium for their shares. Subject to any amendments approved by our shareholders at the 2020 Annual Meeting of Stockholders, our restated certificate of incorporation and amended and restated bylaws currently:

- divide our board of directors into three classes with staggered three-year terms;
- limit the ability of shareholders to remove directors only “for cause”;
- provide that our board of directors is expressly authorized to adopt, alter, or repeal our bylaws;
- authorize the issuance of blank check preferred stock that our board of directors could issue to increase the number of outstanding shares and to discourage a takeover attempt;
- prohibit shareholder action by written consent, which requires all shareholder actions to be taken at a meeting of our shareholders;
- prohibit our shareholders from calling a special meeting of shareholders;
- establish advance notice requirements for nominations for election to our board of directors or for proposing matters that can be acted upon by shareholders at shareholder meetings; and
- require the approval of holders of at least two-thirds of the outstanding shares of Common Stock to amend our bylaws and certain provisions of our certificate of incorporation.

We have also opted out of Section 203 of the DGCL, which, subject to some exceptions, prohibits business combinations between a Delaware corporation and an interested shareholder, which is generally defined as a shareholder who becomes a beneficial owner of 15% or more of a Delaware corporation’s voting stock for a three-year period following the date that the shareholder became an interested shareholder. At some time in the future, we may again be governed by Section 203. Section 203 could have the effect of delaying, deferring or preventing a change in control that our shareholders might consider to be in their

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best interests. In addition, our largest shareholder, Onex, has the ability to nominate one or two directors to our board of directors to the extent Onex maintains at least 12.5% or 20%, respectively, of our outstanding Common Stock.

These anti-takeover defenses could discourage, delay or prevent a transaction involving a change in control of our company. These provisions could also discourage proxy contests and make it more difficult for you and other shareholders to elect directors of your choosing and cause us to take corporate actions other than those you desire.

***Our restated certificate of incorporation provides, subject to limited exceptions, that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our shareholders, which could limit our shareholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.***

Our restated certificate of incorporation provides, unless we consent to an alternative forum, that the Court of Chancery of the State of Delaware (or, if such court does not have jurisdiction, the Superior Court of the State of Delaware, or if such other court does not have jurisdiction, the U.S. District Court for the District of Delaware) shall be the exclusive forum for any claims, including claims on behalf of JWH, brought by a shareholder (i) that are based upon a violation of a duty by a current or former director or officer or shareholder in such capacity or (ii) as to which the DGCL confers jurisdiction upon the Court of Chancery of the State of Delaware. This provision may limit a shareholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers, and other employees. Alternatively, if a court were to find the provision contained in our restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

***Because we are a holding company with no operations of our own, we rely on dividends, distributions, and transfers of funds from our subsidiaries and we could be harmed if such distributions were not made in the future.***

We are a holding company that conducts all of our operations through subsidiaries and the majority of our operating income is derived from JWI, our main operating subsidiary. Consequently, we rely on dividends or advances from our subsidiaries. We have no current plans to declare or pay dividends on our Common Stock for the foreseeable future; however, to the extent that we determine in the future to pay dividends on our Common Stock, none of our subsidiaries will be obligated to make funds available to us for the payment of dividends. The ability of such subsidiaries to pay dividends to us is subject to applicable local law and may be limited due to terms of other contractual arrangements, including our indebtedness. Such laws and restrictions would restrict our ability to continue operations. In addition, Delaware law may impose requirements that may restrict our ability to pay dividends to holders of our Common Stock.

**Item 1B - Unresolved Staff Comments.**

None.

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**Item 2 - Properties**

Our principal executive office is located in Charlotte, North Carolina. We also own other properties, including sales offices, closed facilities, and administrative office space in Klamath Falls, Oregon, which we own, and lease properties in Charlotte, North Carolina; Birmingham, U.K.; and Sydney, Australia.

| | Manufacturing | Distribution |
|---|---|---|
| **North America** | | |
| United States | 45 | 9 |
| Canada | 4 | 2 |
| St. Kitts | — | 1 |
| Chile | 1 | — |
| Mexico | 1 | — |
| | **51** | **12** |
| **Europe** | | |
| United Kingdom | 5 | 1 |
| France | 2 | — |
| Austria | 3 | — |
| Czech Republic | 1 | |
| Switzerland | 1 | — |
| Hungary | 1 | — |
| Germany | 4 | 1 |
| Sweden | 3 | — |
| Denmark | 3 | — |
| Latvia | 3 | — |
| Estonia | 3 | — |
| Finland | 3 | — |
| | **32** | **2** |
| **Australasia** | | |
| Australia | 37 | 4 |
| Indonesia | 2 | — |
| Malaysia | 2 | — |
| | **41** | **4** |
| **Total JELD-WEN** | **124** | **18** |

**Item 3 - Legal Proceedings**

We are involved in various legal proceedings, claims, and government audits arising in the ordinary course of business. We record our best estimate of a loss when the loss is considered probable and the amount of such loss can be reasonably estimated. Legal judgments and estimated settlements have been included in accrued expenses in our consolidated balance sheets included in this report. When a loss is probable and there is a range of estimated loss with no best estimate within the range, we record the minimum estimated liability related to the lawsuit or claim. As additional information becomes available, we assess the potential liability related to pending litigation and claims and revise our accruals if necessary. Because of uncertainties related to the resolution of lawsuits and claims, the ultimate outcome may differ materially from our estimates. In the opinion of management, other than as described below, as of December 31, 2019, there are no current proceedings or litigation matters involving the Company or its property that we believe would have a material adverse effect on our consolidated financial position or cash flows, although they could have a material adverse effect on our operating results for a particular reporting period.

*Steves & Sons Litigation*

We sell molded door skins to certain customers pursuant to long-term contracts, and these customers in turn use the molded door skins to manufacture interior doors and compete directly against us in the marketplace. We gave notice of termination of one of these contracts and, on June 29, 2016, the counterparty to the agreement, Steves and Sons, Inc. (“Steves”) filed a claim against JWI in the U.S. District Court for the Eastern District of Virginia, Richmond Division (“Eastern District of Virginia”). The complaint alleged

that our acquisition of CMI, a competitor in the molded door skins market, together with subsequent price increases and other alleged acts and omissions, violated antitrust laws, and constituted a breach of contract and breach of warranty. Specifically, the complaint alleged that our acquisition of CMI substantially lessened competition in the molded door skins market. The complaint sought declaratory relief, ordinary and treble damages, and injunctive relief, including divestiture of certain assets acquired in the CMI acquisition.

In February 2018, a jury in the Eastern District of Virginia returned a verdict that was unfavorable to JWI with respect to Steves' claims that our acquisition of CMI violated Section 7 of the Clayton Act and found that JWI had breached the supply agreement between the parties. The verdict awarded Steves $12.2 million for past damages under both the Clayton Act and breach of contract claims and $46.5 million in future lost profits under the Clayton Act claim.

On March 13, 2019, the presiding judge entered an Amended Final Judgment Order awarding $36.5 million in past damages under the Clayton Act (representing a trebling of the jury's verdict) and granting divestiture of CMI, subject to appeal. The judgment also conditionally awarded damages in the event the judgment is overturned on appeal. Specifically, the court awarded $139.4 million as future antitrust damages in the event the divestiture order is overturned on appeal and $9.9 million as past contract damages in the event both the divestiture and antitrust claims are overturned on appeal.

JELD-WEN filed a supersedeas bond and notice of appeal of the judgment, which is scheduled for hearing by the Fourth Circuit Court of Appeals in May 2020.

On April 12, 2019, the plaintiffs filed a petition requesting an award of their fees and a bill of costs seeking $28.4 million in attorneys' fees and $1.7 million in costs. That petition remains pending and subject to further appeal. On November 19, 2019, the presiding judge entered an order for further relief awarding Steves an additional $7.1 million in damages for pricing differences from the date of the underlying jury verdict through May 31, 2019. We have also appealed that ruling.

We continue to believe that Steves' claims lack merit, Steves' damages calculations are speculative and excessive, and Steves is not entitled in any event to the extraordinary remedy of divestiture of CMI. We believe that multiple pretrial and trial rulings were erroneous and improperly limited the Company's defenses, and that the judgment in accordance with the verdict was improper for several reasons under applicable law. However, based upon the rulings described above, the Company has recorded charges of $78.6 million associated with these matters. The judgment, if ultimately upheld after exhaustion of our appellate remedies, could have a material adverse effect on our financial position, operating results, or cash flows, particularly for the reporting period in which a loss is recorded. Because the operations acquired from CMI have been fully integrated into the Company's operations, divestiture of those operations would be difficult if not impossible and, therefore, it is not possible to estimate the cost of any final divestiture order or the extent to which such an order would have a material adverse effect on our financial position, operating results or cash flows.

During the course of the proceedings in the Eastern District of Virginia, we discovered certain facts that led us to conclude that Steves, its principals and certain former employees of the Company had misappropriated Company trade secrets, violated the terms of various agreements between the Company and those parties, and violated other laws. On May 11, 2018, a jury in the Eastern District of Virginia returned a verdict on our trade secrets claims against Steves and awarded damages in the amount of $1.2 million. The presiding judge entered a judgment in our favor for those damages and the entire amount has been paid by Steves. On August 16, 2019, the presiding judge granted Steves' request for an injunction, prohibiting us from pursuing certain claims against individual defendants pending in Bexar County, Texas. These claims have been stayed pending appeal.

*Cambridge Retirement System v. JELD-WEN Holding, Inc., et al.*

On February 19, 2020, Cambridge Retirement System filed a putative class action lawsuit in the U.S. District Court for the Eastern District of Virginia against the Company, current and former Company executives and various Onex-related entities alleging violations of Section 10(b) and Rule 10b-5 of the Exchange Act, as well as violations of Section 20(a) of the Exchange Act against the individual defendants and Onex-related entities. The lawsuit seeks compensatory damages, equitable relief and an award of attorneys' fees and costs. The Company has not yet been served with the complaint but has reviewed the allegations. The Company believes the claims lack merit and intends to vigorously defend against the action. Because the lawsuit is in the very initial stages, no assessment as to the likelihood or range of any potential adverse outcome can be made at this time.

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*In Re: Interior Molded Doors Antitrust Litigation*

On October 19, 2018, Grubb Lumber Company, on behalf of itself and others similarly situated, filed a putative class action lawsuit against us and one of our competitors in the doors market, Masonite Corporation ("Masonite"), in the Eastern District of Virginia. We subsequently received additional complaints from and on behalf of direct and indirect purchasers of interior molded doors. The suits have been consolidated into two separate actions, a Direct Purchaser Action and an Indirect Purchaser Action. The suits allege that Masonite and we violated Section 1 of the Sherman Act, and, in the Indirect Purchaser Action, related state law antitrust and consumer protection laws, by engaging in a scheme to artificially raise, fix, maintain or stabilize the prices of interior molded doors in the United States. The complaints seek unquantified ordinary and treble damages, declaratory relief, interest, costs and attorneys' fees. The Company believes the claims lack merit and intends to vigorously defend against the actions. On September 18, 2019, the court denied the defendants' motions to dismiss the lawsuits in their entirety and granted the defendants' motions to dismiss various state law claims and to limit all claims to a four-year statute of limitations. As a result, the plaintiffs' damages period is limited to the four-year period between 2014 and 2018. At this early stage of the proceedings, we are unable to conclude that a loss is probable or to estimate the potential magnitude of any loss in the matters, although a loss could have a material adverse effect on our operating results, consolidated financial position or cash flows.

**Item 4 - Mine Safety Disclosures.**

Not applicable.

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**Executive Officers of the Registrant**

Set forth below is certain information about our executive officers. Ages are as of February 1, 2019. There are no family relationships among the following executive officers.

***Gary S. Michel,*** *President and Chief Executive Officer.* Mr. Michel, age 57, joined the Company as President and Chief Executive Officer and our Board of Directors in June 2018. Mr. Michel joined the Company from Honeywell International, Inc., where he served as the president and chief executive officer of the Home and Building Technologies strategic business group since October 2017. Prior to that, he spent 32 years at Ingersoll Rand, most recently as senior vice president and president of its residential heating, ventilation and air conditioning business and as a member of Ingersoll Rand's enterprise leadership team from 2011 to 2017 and co-chair of its sustainability efforts. He began his career there in 1985 as an application engineer and held various product, sales and business management roles before moving into a series of leadership positions across various geographic and market segments. Mr. Michel holds a B.S. in mechanical engineering from Virginia Tech and an M.B.A. from the University of Phoenix. He has served as a member of the board of directors of Cooper Tire & Rubber Company since 2015.

***John Linker,*** *Executive Vice President and Chief Financial Officer.* Mr. Linker, age 44, joined the Company in December 2012 and has held the position of Executive Vice President and Chief Financial Officer since November 2018. Previously, he served as the Company's Senior Vice President, Corporate Development and Investor Relations from 2015 to 2018, and as Treasurer from 2012 to 2014. Prior to joining the Company, Mr. Linker held leadership positions in corporate development and finance with United Technologies Corporation's Aerospace Systems Division, and its predecessor, Goodrich Corporation, from 2008 to 2012. Mr. Linker began his career in investment banking for Wells Fargo and consulting for Accenture PLC. Mr. Linker holds a B.A. in Economics and International Studies from Duke University and a M.B.A. from The Fuqua School of Business at Duke University.

***Laura W. Doerre***, *Executive Vice President, General Counsel and Chief Compliance Officer*. Ms. Doerre, age 52, joined the Company in September 2016 and is responsible for the Company's global legal affairs and global risk and compliance functions. Prior to joining the Company, Ms. Doerre served as Vice President and General Counsel for Nabors Industries Ltd. from 2008 to August 2016. From 1996 to 2008, she held positions of increasing responsibility with Nabors. Prior to joining Nabors in 1996, Ms. Doerre practiced commercial litigation with the law firm Mayor, Day, Caldwell & Keeton LLP. Ms. Doerre received her B.S. with distinction in Accounting from the University of North Carolina at Chapel Hill and graduated with honors from the University of Texas School of Law. She is admitted to practice law in the state of Texas.

***Timothy Craven,*** *Executive Vice President, Human Resources.* Mr. Craven, age 51, was appointed Vice President, Employee Relations of the Company in July 2015 and was promoted to his current role as Executive Vice President, Human Resources in February 2016. Mr. Craven is responsible for global human resources and employee relation activities. His duties include talent acquisition, training and development, wage and benefit reviews, and employee engagement. Previously, Mr. Craven was employed at Eaton Corporation (formerly Cooper Industries) where he held a number of senior-level human resources roles since 2007. Immediately prior to joining the Company, Mr. Craven served as Vice President, Human Resources at the Crouse-Hinds Division of Eaton Corporation in Syracuse, New York. Earlier in his career, Mr. Craven served in a number of human resources positions of increasing responsibility at both corporate and operating locations with Xerox's Affiliated Computer Services Business and Honeywell, Inc. Mr. Craven earned a B.S. in human resource management from Western Illinois University.

***Peter Farmakis****, Executive Vice President and President, Australasia.* Mr. Farmakis, age 52, joined the Company as Chief Operating Officer, Australia in September 2013 and was promoted to Executive Vice President and President, Australasia in June 2014. Prior to joining the Company, Mr. Farmakis served as Chief Executive Officer of Dexion Limited (which was acquired by GUD Holdings Limited in 2012) from 2007 until August 2013. Mr. Farmakis also served in a variety of key leadership roles with numerous companies, including as Executive General Manager of Smorgon Steel Group Limited, Distribution Business; Global Vice President of Huntsman Corporation, Advanced Materials division; Americas Regional President of Vantico Inc.; and Strategy & Corporate Planning Manager for Ciba-Geigy AG in Switzerland. He began his career in research and development with ICI (Dulux) and Bayer AG. Mr. Farmakis earned a B.S. from the University of Wollongong and a postgraduate degree in Marketing and Finance from the University of Technology, Sydney in Australia.

**PART II - OTHER INFORMATION**

**Item 5 - Market for Registrant's Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities.**

**Market Information and Holders**

Our Common Stock has been listed and traded on the NYSE under the symbol "JELD" since January 27, 2017. Prior to that time, there was no public trading market for our stock. As of February 21, 2020, there were approximately 1,223 shareholders of

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record of our Common Stock. The number of record holders does not include a substantially greater number of holders whose shares are held of record in nominee or “street name” accounts through banks, brokers, and other financial institutions.

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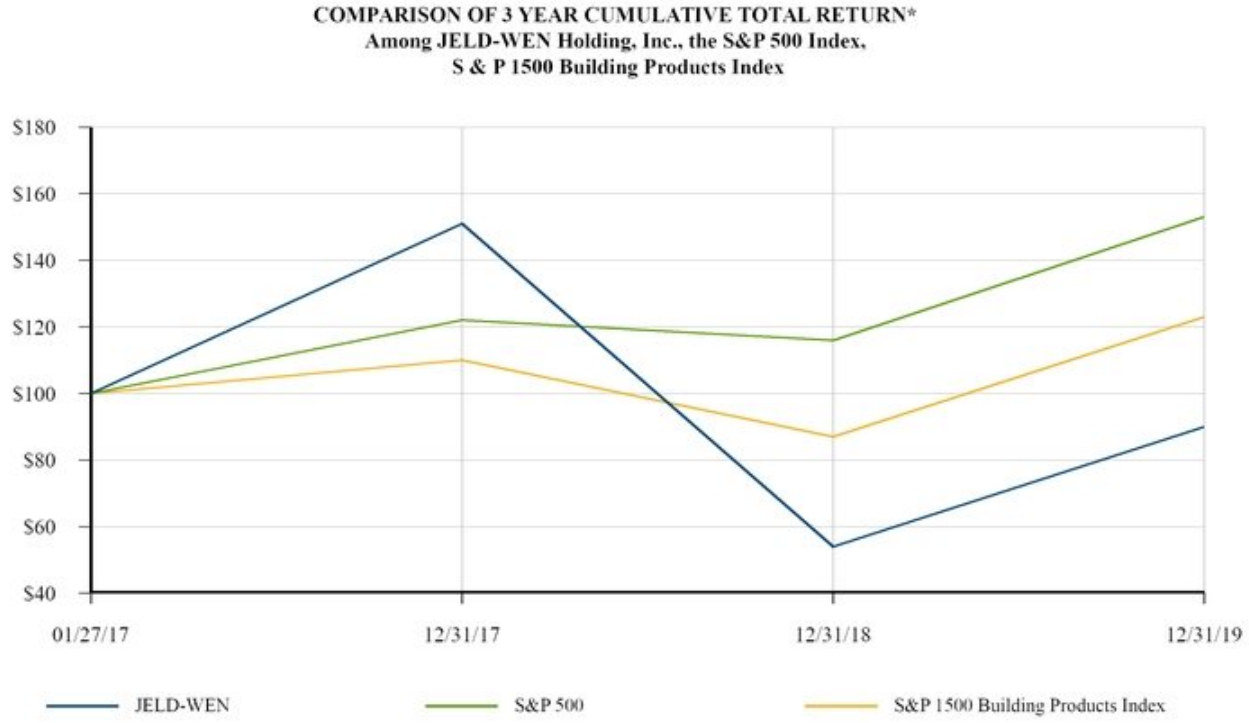
**Stock Performance Graph**

The following graph depicts the total return to shareholders from January 27, 2017, the date our Common Shares became listed on the NYSE, through December 31, 2019, relative to the performance of the Standard & Poor's 500 Index and the Standard & Poor's 1500 Building Products Index. The graph assumes an investment of $100 in our Common Stock and each index on January 27, 2017, and the reinvestment of dividends paid since that date. The stock performance shown in the graph is not necessarily indicative of future price performance.




*$100 invested on 1/27/17 in stock or 12/31/16 in index, including reinvestment of dividends.
Fiscal year ended December 31.

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| | 1/27/2017 | 12/31/2017 | 12/31/2018 | 12/31/2019 |
|---|---|---|---|---|
| JELD-WEN Holding, Inc. | $100.00 | $150.73 | $54.40 | $89.62 |
| S&P 500 | $100.00 | $121.83 | $116.49 | $153.17 |
| S&P 1500 Building Products Index | $100.00 | $110.00 | $86.71 | $123.14 |

**Equity Compensation Plans**

See “Item 12- *Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters”* for the information required by Item 201(d) of Regulation S-K regarding equity compensation plans.

**Dividends**

We do not currently expect to pay any cash dividends on our Common Stock for the foreseeable future. Instead, we intend to retain future earnings, if any, for the future operation and expansion of our business and the repayment of debt. Any determination to pay dividends in the future will be at the discretion of our Board of Directors and will depend upon our results of operations, cash requirements, financial condition, contractual restrictions, restrictions imposed by applicable laws, and other factors that our Board of Directors may deem relevant.

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The terms of the agreements governing our existing or future indebtedness may limit our ability to further pay dividends and make distributions to our shareholders. Our business is conducted through our subsidiaries and dividends from, and cash generated by, our subsidiaries will be our principal sources of cash to repay indebtedness, fund operations, and pay any dividends. Accordingly, our ability to pay dividends to our shareholders is dependent on the earnings and distributions of funds from our subsidiaries (which distributions may be restricted by the terms of our Corporate Credit Facilities and Senior Notes).

**Item 6 - Selected Financial Data**

Our historical results are not necessarily indicative of the results expected for any future period. Since the year ended December 31, 2015, we have completed several acquisitions. See *Acquisitions*, included in our "Management's Discussion and Analysis of Financial Condition and Results of Operations" below. The results of these acquired entities are included in our consolidated statements of operations for the periods subsequent to the respective acquisition date. During 2016, we released a valuation allowance in the U.S. totaling $278.4 million resulting in an increase in tax benefit and net income for the period. During 2017, the Tax Act lowered our U.S. federal tax rate which reduced the valuation of our net deferred tax assets, resulting in an additional tax expense of approximately $21.1 million and we provisionally recorded an additional foreign repatriation tax charge of $11.3 million. During 2018, we finalized our accounting for all of the enactment-date income tax effects of the Tax Act and recognized a tax benefit of $40.2 million due to changes in the provisional amounts recorded at December 31, 2017 and included these adjustments as a component of income tax expense from continuing operations. See Note 17 - *Income Taxes* for further detail.

The selected historical consolidated financial data set forth below should be read in conjunction with, and are qualified by reference to, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes thereto included elsewhere in this Form 10-K. The results have been revised to reflect the correction of certain errors and other accumulated misstatements as described in Note 32 - *Revision of Prior Period Financial Statements.*

| | Year Ended December 31, | | | | |
|---|---|---|---|---|---|
| | 2019 | 2018 | 2017 | 2016 | 2015 |
| | (dollars in thousands, except per share data) | | | | |
| Net revenues | $ 4,289,761 | 4,346,847 | $ 3,763,749 | $ 3,666,930 | $ 3,381,060 |
| Income from continuing operations, net of tax | 62,971 | 141,169 | 4,483 | 375,628 | 91,390 |
| Income (loss) per common share from continuing operations: | | | | | |
| Basic | $ 0.63 | $ 1.36 | $ (0.02) | $ (0.96) | $ (15.72) |
| Diluted | 0.62 | 1.33 | (0.02) | $ (1.14) | (15.72) |
| Cash dividends per common share | $ 0.00 | $ 0.00 | $ 0.00 | $ 4.09 | $ 4.73 |
| **Other financial data:** | | | | | |
| Capital expenditures | $ 136,192 | $ 118,700 | $ 63,049 | $ 79,497 | $ 77,687 |
| Depreciation and amortization | 133,969 | 125,100 | 111,273 | 107,995 | 95,196 |
| Adjusted EBITDA[1] | 415,038 | 459,218 | 435,162 | 392,227 | 310,986 |
| **Consolidated balance sheet data**: | | | | | |
| Total assets[2] | $ 3,381,332 | $ 3,047,525 | $ 2,860,077 | $ 2,535,117 | $ 2,182,373 |
| Total debt | 1,517,372 | 1,477,892 | 1,273,703 | 1,620,035 | 1,260,320 |
| Redeemable convertible preferred stock | — | — | — | 150,957 | 481,937 |

(1) In addition to our consolidated financial statements presented in accordance with GAAP, we use Adjusted EBITDA to measure our financial performance. Adjusted EBITDA is a supplemental non-GAAP financial measure of operating performance and is not based on any standardized methodology prescribed by GAAP. Adjusted EBITDA should not be considered in isolation or as an alternative to net income (loss), cash flows from operating activities, or other measures determined in accordance with GAAP. Also, Adjusted EBITDA is not necessarily comparable to similarly titled measures presented by other companies. Adjusted EBITDA margin is defined as Adjusted EBITDA divided by net revenues.

We define Adjusted EBITDA as net income (loss), adjusted for the following items: loss from discontinued operations, net of tax; equity earnings of non-consolidated entities; income tax (benefit) expense; depreciation and amortization; interest expense, net; impairment and restructuring charges; gain on previously held shares of equity investment; (gain) loss on sale of property and equipment; share-based compensation expense; non-cash foreign exchange transaction/translation (income) loss; other non-cash items; other items; and costs related to debt restructuring and debt refinancing.

We use this non-GAAP measure in assessing our performance in addition to net income (loss) determined in accordance with GAAP. We believe Adjusted EBITDA is an important measure to be used in evaluating operating performance because it allows management and investors to better evaluate and compare our core operating results from period to period by removing the impact of our capital structure (net interest income or expense from our outstanding debt), asset base (depreciation and amortization), tax consequences, other non-operating items, and

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share-based compensation. Furthermore, the instruments governing our indebtedness use Adjusted EBITDA to measure our compliance with certain limitations and covenants. We reference this non-GAAP financial measure frequently in our decision-making because it provides supplemental information that facilitates internal comparisons to the historical operating performance of prior periods. In addition, executive incentive compensation is based in part on Adjusted EBITDA, and we base certain of our forward-looking estimates and budgets on Adjusted EBITDA.

We also believe Adjusted EBITDA is a measure widely used by securities analysts and investors to evaluate the financial performance of our company and other companies. Adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation, or as a substitute for analysis of our results as reported under GAAP. Adjusted EBITDA eliminates the effect of certain items on net income and thus has certain limitations. Some of these limitations are: Adjusted EBITDA does not reflect the interest expense or the cash requirements necessary to service interest or principal payments on our debt; Adjusted EBITDA does not reflect any income tax payments we are required to make and although depreciation and amortization are non-cash charges, the assets being depreciated and amortized will often have to be replaced in the future; and Adjusted EBITDA does not reflect any cash requirements for such replacement. Other companies may calculate Adjusted EBITDA differently, and, therefore, our Adjusted EBITDA may not be comparable to similarly titled measures of other companies.

(2) In 2019, we adopted ASC 842 - *Leases*, resulting in an additional $202.1 million in total assets at December 31, 2019.

The following is a reconciliation of our net income, the most directly comparable GAAP financial measure, to Adjusted EBITDA:

| | Year Ended December 31, | | | | |
|---|---|---|---|---|---|
| | 2019 | 2018 | 2017 | 2016 | 2015 |
| | (dollars in thousands) | | | | |
| Net income | $ 62,971 | $ 141,907 | $ 8,122 | $ 376,095 | $ 90,918 |
| Adjustments: | | | | | |
| Loss from discontinued operations, net of tax | — | — | — | 3,324 | 2,856 |
| Equity earnings of non-consolidated entities | — | (738) | (3,639) | (3,791) | (2,384) |
| Income tax expense (benefit) | 57,074 | (10,058) | 137,818 | (246,763) | (5,435) |
| Depreciation and amortization | 133,969 | 125,100 | 111,273 | 107,995 | 95,196 |
| Interest expense, net[(a)] | 71,778 | 70,818 | 79,034 | 77,590 | 60,632 |
| Impairment and restructuring charges[(b)] | 22,748 | 17,328 | 13,057 | 18,353 | 31,031 |
| Gain on previously held shares of equity investment | — | (20,767) | — | — | — |
| Loss (gain) on sale of property and equipment | 1,959 | 144 | (299) | (3,275) | (416) |
| Share-based compensation expense | 13,315 | 15,052 | 19,785 | 22,464 | 15,620 |
| Non-cash foreign exchange transaction/translation loss (income) | 3,438 | (1,267) | (1,178) | 5,734 | 2,697 |
| Other non-cash items[(c)] | 304 | 3,859 | 526 | 2,843 | 1,141 |
| Other items[(d)] | 47,482 | 117,546 | 47,000 | 30,585 | 18,893 |
| Costs relating to debt restructuring, debt refinancing, and the Onex investment[(e)] | — | 294 | 23,663 | 1,073 | 237 |
| Adjusted EBITDA | $ 415,038 | $ 459,218 | $ 435,162 | $ 392,227 | $ 310,986 |

(a) Interest expense for the year ended December 31, 2017 includes $6,097 related to the write-off of a portion of the unamortized debt issuance costs and original issue discount associated with the Term Loan Facility.

(b) Impairment and restructuring charges consist of (i) impairment and restructuring charges that are included in our consolidated statements of operations plus (ii) additional charges of $1,197, $0, $1, $4,506, and $9,687, for the years ended December 31, 2019, 2018, 2017, 2016, and 2015, respectively. These additional charges are primarily comprised of non-cash changes in inventory valuation reserves, such as excess and obsolete reserves.

(c) Other non-cash items include, among other things, charges of $235, $3,740, $439, $357, and $893, for the years ended December 31, 2019, 2018, 2017, 2016, and 2015, respectively, relating to (1) derivative losses of $235 in the year ended December 31, 2019; (2) the fair value adjustment for inventory acquired in the year ended December 31, 2018 and December 31, 2017 as part of the acquisitions referred to in “Management’s Discussion and Analysis of Financial Condition and Results of Operations-Acquisitions” and (3) charges of $2,153 for the out-of-period European warranty liability adjustment for the year ended December 31, 2016.

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(d) Other non-recurring items not core to ongoing business activity include: (i) in the year ended December 31, 2019 (1) $19,147 in facility closure and consolidation costs related to our facility footprint rationalization program, (2) $14,963 in acquisition and integration costs including $7,077 related to purchase price structured by the former owners as retention payments for key employees of a recent acquisition, (3) $12,860 in legal cost and professional fees relating primarily to litigation, (4) $(3,053) of realized gains on hedges of intercompany notes, (5) $1,998 in other miscellaneous costs, (6) $731 in equity compensation to employees in our Australasia region, and (7) $725 in costs related to the departure of former executives; (ii) in the year ended December 31, 2018, (1) $76,500 in litigation contingency accruals, (2) $26,529 in legal and professional fees relating primarily to litigation, (3) $10,324 in acquisition and integration costs, (4) $(5,396) of realized gains on hedges of intercompany notes, (4) $3,856 in costs related to the departure of former executives, (5) $2,901 in entity consolidation and reorganization costs, (6) $2,347 in miscellaneous costs (7) $485 in stock compensation payroll taxes (iii) in the year ended December 31, 2017, (1) $34,178 in legal costs, (2) $4,176 in realized loss on hedges relating to intercompany notes, (3) $3,484 in acquisition and integration costs, (4) $(2,247) gain on settlement of contract escrow (5) $2,202 in secondary offering costs, (6) $754 in tax consulting fee, (7) $678 in legal entity consolidation costs, (8) $649 in stock compensation payroll taxes, and (9) $578 in facility ramp down cost; (iv) in the year ended December 31, 2016, (1) $20,695 in payments to holders of vested options and restricted shares in connection with the November 2016 dividend, (2) $3,721 of professional fees related to the IPO of our common stock, (3) $1,626 of acquisition costs, (4) $584 in legal costs associated with disposition of non-core properties, (5) $507 of dividend-related costs, (6) $500 of costs related to the recruitment of executive management employees, (7) $450 in legal costs, and (8) $346 in Dooria plant closure costs; (v) in the year ended December 31, 2015, (1) $11,446 payment to holders of vested options and restricted shares in connection with the July 2015 dividend, (2) $5,510 related to a U.K. legal settlement, (3) $1,825 in acquisition costs, (4) $1,833 of recruitment costs related to the recruitment of executive management employees, (5) $1,082 of legal costs related to non-core property disposal, and partially offset by (6) ($5,678) of realized gain on foreign exchange hedges related to an intercompany loan.

(e) Included in the year ended December 31, 2017 is a loss on debt extinguishment of $23,262 associated with the refinancing of our term loan.

**Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations**

This MD&A contains forward-looking statements that involve risks and uncertainties. Please see "Forward-Looking Statements" in Item 1- *Business* and Item 1A- *Risk Factors* in this Form 10-K for a discussion of the uncertainties, risks and assumptions associated with these statements. This discussion should be read in conjunction with our historical financial statements and related notes thereto and the other disclosures contained elsewhere in this Form 10-K. The results of operations for the periods reflected herein are not necessarily indicative of results that may be expected for future periods, and our actual results may differ materially from those discussed in the forward-looking statements as a result of various factors, including but not limited to those listed under Item 1A- *Risk Factors* and included elsewhere in this Form 10-K.

This MD&A is a supplement to our financial statements and notes thereto included elsewhere in this 10-K and is provided to enhance your understanding of our results of operations and financial condition. Our discussion of results of operations is presented in millions throughout the MD&A and due to rounding may not sum or calculate precisely to the totals and percentages provided in the tables. Our MD&A is organized as follows:

- Overview and Background. This section provides a general description of our Company and reportable segments, business and industry trends, our key business strategies and background information on other matters discussed in this MD&A.

- Consolidated Results of Operations and Operating Results by Business Segment. This section provides our analysis and outlook for the significant line items on our consolidated statements of operations, as well as other information that we deem meaningful to an understanding of our results of operations on both a consolidated basis and a business segment basis.

- Liquidity and Capital Resources. This section contains an overview of our financing arrangements and provides an analysis of trends and uncertainties affecting liquidity, cash requirements for our business and sources and uses of our cash.

- Critical Accounting Policies and Estimates. This section discusses the accounting policies that we consider important to the evaluation and reporting of our financial condition and results of operations, and whose application requires significant judgments or a complex estimation process.

**Overview and Background**

We are one of the world's largest door and window manufacturers, and we hold a leading position by net revenues in the majority of the countries and markets we serve. We design, produce and distribute an extensive range of interior and exterior doors, wood, vinyl and aluminum windows, and related products for use in the new construction, R&R of residential homes and, to a lesser extent, non-residential buildings.

We operate manufacturing and distribution facilities in approximately 20 countries, located primarily in North America, Europe, and Australia. For many product lines, our manufacturing processes are vertically integrated, enhancing our range of

capabilities, our ability to innovate, and our quality control as well as providing supply chain, transportation, and working capital savings.

In October 2011, certain funds managed by affiliates of Onex acquired a majority of the combined voting power in the Company through the acquisition of convertible debt and convertible preferred equity.

In February 2017, we closed on the IPO of 28.75 million shares of our common stock at a public offering price of $23.00, resulting in net proceeds to us of $472.4 million after deducting underwriters' discounts and commissions and other offering expenses. We used a portion of the net proceeds from the IPO to repay $375.0 million of indebtedness outstanding under our Term Loan Facility and used the remaining net proceeds for working capital and other general corporate purposes, including sales and marketing activities, general and administrative matters, capital expenditures, and to invest in or acquire complementary businesses, products, services, technologies, or other assets.

In May and November 2017, we completed secondary public offerings of 16.1 million and 14.4 million shares, respectively, of our Common Stock, substantially all of which were owned by Onex.

As of December 31, 2019, Onex owned approximately 32.6% of our outstanding shares of Common Stock.

**Business Segments**

Our business is organized in geographic regions to ensure integration across operations serving common end markets and customers. We have three reportable segments: North America (which includes limited activity in Chile), Europe, and Australasia. Financial information related to our business segments can be found in Note 18 - *Segment Information* of our financial statements included elsewhere in this 10-K.

**Acquisitions**

In March 2019, we acquired VPI Quality Windows, Inc., a leading manufacturer of vinyl windows, specializing in customized solutions for mid-rise multi-family, industrial, hospitality and commercial projects, primarily in the western U.S. VPI is located in Spokane, Washington. VPI is now part of our North America segment. We paid approximately $57.8 million in cash (net of cash acquired) for the acquisition of VPI.

In April 2018, we acquired the assets of D&K, a long-standing supplier of cavity sliders to our Corinthian Doors business. D&K is part of our Australasia segment.

In March 2018, we acquired the remaining issued and outstanding shares and membership interests of ABS, headquartered in Sacramento, California. ABS is a premier supplier of value-added services for the millwork industry. ABS is part of our North America segment.

In February 2018, we acquired A&L, a leading Australian manufacturer of residential aluminum windows and patio doors. A&L has a network of manufacturing facilities across the eastern seaboard of Australia, which we expect will deliver synergies through operational savings from the implementation of JEM and by leveraging the benefits of our combined supply chain. A&L is part of our Australasia segment.

In February 2018, we acquired Domoferm, headquartered in Gänserndorf, Austria. Domoferm is a leading European provider of steel doors, steel door frames, and fire doors for commercial and residential markets with four manufacturing sites in Austria, Germany, and the Czech Republic. Domoferm is part of our Europe segment.

In August 2017, we acquired the Kolder Group, headquartered in Smithfield, Australia. Kolder is a leading Australian provider of shower enclosures, closet systems, and related building products, with leading positions in both the commercial and residential markets. Kolder is part of our Australasia segment. The acquisition significantly enhances our existing Australian capabilities in glass shower enclosures and built-in closet systems and supports our strategy to build leadership positions in attractive markets.

In August 2017, we acquired MMI Door, headquartered in Sterling Heights, Michigan. MMI Door is a leading provider of doors and related value-added services in the Midwest region of the U.S. and is part of our North America segment. The acquisition complements our North America door business and allows us to improve service offerings and lead times to our channel partners.

In June 2017, we acquired Mattiovi, headquartered in Finland. Mattiovi is a leading manufacturer of interior doors and door frames in Finland and is part of our Europe segment. The acquisition enhances our market position in the Nordic region, increases our product offering, and also provides us with additional door frame capacity to support growth in the region.

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We paid an aggregate of approximately $356.8 million in cash (net of cash acquired) for the 2017, 2018, and 2019 acquisitions. In addition, we assumed debt of approximately $70.6 million associated with our 2018 acquired companies. We assumed no debt in our 2017 or 2019 acquisitions.

For additional information on our acquisition activity, see Note 2 - *Acquisitions* to our consolidated financial statements.

**Factors and Trends Affecting Our Business**

*Components of Net Revenues*

The key components of our net revenues include core net revenues (which we define to include the impact of pricing and volume/mix, as discussed further under the heading, "Product Pricing and Volume/Mix" below), contribution from acquisitions made within the prior twelve months, and the impact of foreign exchange. Core net revenues reported in our financial statements are impacted by the fluctuating currency values in the geographies in which we operate, which we refer to as the impact of foreign exchange. Throughout this "Management's Discussion and Analysis of Financial Condition and Results of Operations", percentage changes in pricing are based on management schedules and are not derived directly from our accounting records.

*Product Demand*

General business, financial market, and economic conditions globally and in the regions where we operate influence overall demand in our end markets and for our products. In particular, the following factors may have a direct impact on demand for our products in the countries and regions where our products are marketed and sold:

- the strength of the economy;
- employment rates and consumer confidence and spending rates;
- the availability and cost of credit;
- the amount and type of residential and non-residential construction;
- housing sales and home values;
- the age of existing home stock, home vacancy rates, and foreclosures;
- interest rate fluctuations for our customers and consumers;
- increases in the cost of raw materials or any shortage in supplies or labor;
- the effects of governmental regulation and initiatives to manage economic conditions;
- geographical shifts in population and other changes in demographics; and
- changes in weather patterns.

In addition, we seek to drive demand for our products through the implementation of various strategies and initiatives. We believe we can enhance demand for our new and existing products by:

- innovating and developing new products and technologies;
- investing in branding and marketing strategies, including marketing campaigns in both print and social media, as well as our investments in new training centers and mobile training facilities; and
- implementing channel initiatives to enhance our relationships with key channel partners and customers, including the True BLU dealer management program in North America.

*Product Pricing and Volume/Mix*

The price and mix of products that we sell are important drivers of our net revenues and net income. Under the heading "Results of Operations," references to (i) "pricing" refer to the impact of price increases or decreases, as applicable, for particular products between periods and (ii) "volume/mix" refer to the combined impact of both the number of products we sell in a particular period and the types of products sold, in each case, on net revenues. While we operate in competitive markets, pricing discipline is an important element of our strategy to achieve profitable growth through improved margins. Our strategies also include incentivizing our channel partners to sell our higher margin products, and we believe a renewed focus on innovation and the development of new technologies will increase our sales volumes and the overall profitability of our product mix.

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*Cost Reduction Initiatives*

Prior to the ongoing operational transformation being executed by our senior executive team, our operations were managed in a decentralized manner with varying degrees of emphasis on cost efficiency and limited focus on continuous improvement or strategic sourcing. Our senior management team has a proven track record of implementing operational excellence programs at some of the world's leading industrial manufacturing businesses, and we believe the same successes can be realized at JELD-WEN. Key areas of focus of our operational excellence and footprint rationalization programs include:

- reducing labor, overtime, and waste costs by reducing facility count while optimizing manufacturing capacity and improving planning and manufacturing processes;
- reducing or minimizing increases in material costs through strategic global sourcing and value-added re-engineering of components, in part by leveraging our significant spend and the global nature of our purchases;
- reducing warranty costs by improving quality; and
- a JEM-enabled facility rationalization and modernization initiative that will reduce overhead costs and complexity, while increasing our overall capacity and improving our service levels.

We continue to implement our strategic initiatives under JEM to develop the culture and processes of operational excellence and continuous improvement. These cost reduction initiatives, which include plant closures and consolidations, headcount reductions, and various initiatives aimed at lowering production and overhead costs, may not produce the intended results within the intended timeframe.

*Raw Material Costs*

Commodities such as vinyl extrusions, glass, aluminum, wood, steel, plastics, fiberglass, and other composites are major components in the production of our products. Changes in the underlying prices of these commodities have a direct impact on the cost of products sold. While we attempt to pass on a substantial portion of such cost increases to our customers, we may not be successful in doing so. In addition, our results of operations for individual quarters may be negatively impacted by a delay between the time of raw material cost increases and a corresponding price increase. Conversely, our results of operations for individual quarters may be positively impacted by a delay between the time of a raw material price decrease and a corresponding competitive pricing decrease.

*Freight Costs*

We incur substantial freight costs to third party logistics providers to transport raw materials and work-in-process inventory to our manufacturing facilities and to deliver finished goods to our customers. Changes in freight rates and the availability of freight services can have a significant impact on our cost of goods sold. Freight costs have risen significantly due to a number of factors that have affected the supply and demand of trucking services including increased regulation, such as data logging of miles, increases in general economic activity, and an aging workforce. We attempt to mitigate some of these cost increases through various internal initiatives and to pass a substantial portion of these increases to our customers; however, we may not realize the intended results within the intended timeframe.

*Working Capital and Seasonality*

Working capital, which is defined as accounts receivable plus inventory less accounts payable, fluctuates throughout the year and is affected by seasonality of sales of our products and of customer payment patterns. The peak season for home construction and remodeling in our North America and Europe segments, which represent the substantial majority of our revenues, generally corresponds with the second and third calendar quarters, and therefore our sales volume is usually higher during those quarters. Typically, working capital increases at the end of the first quarter and beginning of the second quarter in conjunction with, and in preparation for, our peak season, and working capital decreases starting in the third quarter as inventory levels and accounts receivable decline. Inventories fluctuate for some raw materials with long delivery lead times, such as steel, as we work through prior shipments and take delivery of new orders.

*Foreign Currency Exchange Rates*

We report our consolidated financial results in U.S. dollars. Due to our international operations, the weakening or strengthening of foreign currencies against the U.S. dollar can affect our reported operating results and our cash flows as we translate our foreign subsidiaries' financial statements from their reporting currencies into U.S. dollars. In the year ended December 31, 2019 compared to the year ended December 31, 2018, the depreciation or appreciation of the U.S. dollar relative to the reporting currencies of our foreign subsidiaries resulted in higher or lower reported results in such foreign reporting entities. In particular, the exchange rates used to translate our foreign subsidiaries' financial results for the year ended December 31, 2019 compared to the year ended December 31, 2018 reflected, on average, the U.S. dollar strengthened against the Euro, Australian dollar, and Canadian dollar by 6%, 8%, and 3%, respectively. See Item 1A- *Risk Factors*- Risks Relating to Our Business and Industry, Item 1A- *Risk Factors*- Exchange

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rate fluctuations may impact our business, financial condition, and results of operations, and Item 7A- *Quantitative and Qualitative Disclosures About Market Risk*- Exchange Rate Risk.

*Public Company Costs*

As a public company, we incur additional legal, accounting, board compensation, and other expenses that we did not previously incur, including costs associated with SEC reporting and corporate governance requirements, and other requirements associated with operating as a public company. These requirements include compliance with the Sarbanes-Oxley Act as well as other rules implemented by the SEC and the national securities exchanges. Our financial statements following our IPO reflect the impact of these expenses.

**Components of our Operating Results**

***Net Revenues***

Our net revenues are a function of sales volumes and selling prices, each of which is a function of product mix, and consist primarily of:

- sales of a wide variety of interior and exterior doors, including patio doors, for use in residential and non-residential applications, with and without frames, to a broad group of wholesale and retail customers in all of our geographic markets;
- sales of a wide variety of windows for both residential and certain non-residential uses, to a broad group of wholesale and retail customers primarily in North America, Australia, and the U.K.; and
- other sales, including sales of moldings, trim board, cut-stock, glass, stairs, hardware and locks, door skins, shower enclosures, wardrobes, window screens, and miscellaneous installation and other services revenue.

Net revenues do not include internal transfers of products between our component manufacturing, product manufacturing and assembly, and distribution facilities.

***Cost of Sales***

Cost of sales consists primarily of material costs, direct labor and benefit costs, including payroll taxes, repair and maintenance, depreciation, utility, rent and warranty expenses, outbound freight, and insurance and benefits, supervision and tax expenses. Detail for each of these items is provided below.

- *Material Costs.* The single largest component of cost of sales is material costs, which include raw materials, components and finished goods purchased for use in manufacturing our products or for resale. Our most significant material costs include glass, wood, wood components, doors, door facings, door parts, hardware, vinyl extrusions, steel, fiberglass, packaging materials, adhesives, resins and other chemicals, core material, and aluminum extrusions. The cost of each of these items is impacted by global supply and demand trends, both within and outside our industry, as well as commodity price fluctuations, conversion costs, energy costs, and transportation costs. The imposition of new tariffs on imports, new trade restrictions, or changes in tariff rates or trade restrictions may further impact material costs. See Item 7A- *Quantitative and Qualitative Disclosures About Market Risk*- Raw Materials Risk.
- *Direct Labor and Benefit Costs.* Direct labor and benefit costs reflect a combination of production hours, average headcount, general wage levels, payroll taxes, and benefits provided to employees. Direct labor and benefit costs include wages, overtime, payroll taxes, and benefits paid to hourly employees at our facilities that are involved in the production and/or distribution of our products. These costs are generally managed by each facility and headcount is adjusted according to overall and seasonal production demand. We run multi-shift operations in many of our facilities to maximize return on assets and utilization. Direct labor and benefit costs fluctuate with headcount, but generally tend to increase with inflation due to increases in wages and health benefit costs.
- *Repair and Maintenance, Depreciation, Utility, Rent, and Warranty Expenses.*
    - Repairs and maintenance costs consist of equipment and facility maintenance expenses, purchases of maintenance supplies, and the labor costs involved in performing maintenance on our equipment and facilities.
    - Depreciation includes depreciation expense associated with our production assets and plants.
    - Rent is predominantly comprised of lease costs for facilities we do not own as well as vehicle fleet and equipment lease costs. Facility leases are typically multi-year and may include increases tied to certain measures of inflation.

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- Warranty expenses represent all costs related to servicing warranty claims and product issues and are mostly related to our window and door products sold in the U.S. and Canada.

- *Outbound Freight.* Outbound freight includes payments to third-party carriers for shipments of orders to our customers, as well as driver, vehicle, and fuel expenses when we deliver orders to customers. The majority of our products are shipped by third-party carriers.

- *Insurance and Benefits, Supervision, and Tax Expenses.*

  - Insurance and benefit costs are the expenses relating to our insurance programs, health benefits, retirement benefit programs (including the pension plan), and other benefits that are not included in direct labor and benefits costs.

  - Supervision costs are the wages and bonus expenses related to plant managers. Both insurance and benefits and supervision expenses tend to be influenced by headcount and wage levels.

  - Tax costs are mostly payroll taxes for employees not included in direct labor and benefit costs, and property taxes. Tax expenses are impacted by changes in tax rates, headcount and wage levels, and the number and value of properties owned.

    In addition, an appropriate portion of each of the insurance and benefits, supervision and tax expenses are allocated to SG&A expenses.

***Selling, general, and administrative expenses***

SG&A expenses consist primarily of research and development, sales and marketing, and general and administrative expenses.

*Research and Development*. Research and development expenses consist primarily of personnel expenses related to research and development, consulting and contractor expenses, tooling and prototype materials, and overhead costs allocated to such expenses. Substantially all of our research and development expenses are related to developing new products and services and improving our existing products and services. To date, research and development expenses have been expensed as incurred, because the period between achieving technological feasibility and the release of products and services for sale has been short and development costs qualifying for capitalization have been insignificant.

We expect our research and development expenses to increase in absolute dollars as we continue to make significant investments in developing new products and enhancing existing products.

*Sales and Marketing.* Sales and marketing expenses consist primarily of advertising and marketing promotions of our products and services and related personnel expenses, as well as sales incentives, trade show and event costs, sponsorship costs, consulting and contractor expenses, travel, display expenses, and related amortization. Sales and marketing expenses are generally variable expenses and not fixed expenses. We expect our sales and marketing expenses to increase in absolute dollars as we continue to actively promote our products and services.

*General and Administrative*. General and administrative expenses consist of personnel expenses for our finance, legal, human resources, and administrative personnel, as well as the costs of professional services, any allocated overhead, information technology, amortization of intangible assets acquired, and other administrative expenses. We expect our general and administrative expenses to increase in absolute dollars due to the anticipated growth of our business and related infrastructure as well as legal, accounting, insurance, investor relations, and other costs associated with being a public company.

***Impairment and Restructuring Costs***

Impairment and restructuring costs consist primarily of all salary-related severance benefits that are accrued and expensed when a restructuring plan has been put into place, the plan has received approval from the appropriate level of management and the benefit is probable and reasonably estimable. In addition to salary-related costs, we incur other restructuring costs when facilities are closed or capacity is realigned within the organization. Upon termination of an employment or commercial contract we record liabilities and expenses pursuant to the terms of the relevant agreement. For non-contractual restructuring activities, liabilities and expenses are measured and recorded at fair value in the period in which they are incurred.

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***Interest Expense, Net***

Interest expense, net relates primarily to interest payments on our then-outstanding credit facilities (and debt securities) as well as amortization of any original issue discount or debt issuance costs. Debt issuance costs are included as an offset to long-term debt in the accompanying consolidated balance sheets and are amortized to interest expense over the life of the applicable facility using the effective interest method. For additional details, see Note 15 - *Long-Term Debt* in our financial statements for the year ended December 31, 2019 included elsewhere in this 10-K.

***Other Income (Expense), Net***

Other income (expense), net includes profit and losses related to various miscellaneous non-operating expenses primarily relating to pension benefit expenses, gain on previously held shares of an equity investment, loss on extinguishment of debt, and certain foreign currency related gains and losses.

***Income Taxes***

Income taxes are recorded using the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are recognized for the deferred tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities due to a change in tax rates is recognized in income in the period that includes the date of enactment. We recognize the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. We record interest related to unrecognized tax benefits in income tax expense. As of December 31, 2019, our U.S. federal, state, and foreign net operating loss (“NOL”) carryforwards were $1,300.8 million in the aggregate and $87.0 million of such NOL carryforwards do not expire.

The Tax Act passed in December 2017 had significant effects on our financial statements. In accordance with Staff Accounting Bulletin #118 issued by the SEC in December 2017 immediately following the passage of the Tax Act, we made provisional estimates for certain direct and indirect effects of the Tax Act for the year ended December 31, 2017. In the fourth quarter of 2018, we completed our accounting for all of the enactment-date income tax effects of the Tax Act and included any adjustments as a component of income tax expense from continuing operations. The Tax Act subjects a U.S. shareholder to current tax on GILTI earned by certain foreign subsidiaries. We have elected to account for the impact of GILTI in the period in which it is incurred. For additional details, see Note 17 - *Income Taxes* in our financial statements for the year ended December 31, 2019 included elsewhere in this 10-K.

**Results of Operations**

The tables in this section summarize key components of our results of operations for the periods indicated, both in U.S. dollars and as a percentage of our net revenues. Certain percentages presented in this section have been rounded to the nearest whole number. Accordingly, totals may not equal the sum of the line items in the tables below. The results have been revised to reflect the correction of certain errors and other accumulated misstatements as described in Note 32 - *Revision of Prior Period Financial Statements.*

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**Comparison of the Year Ended December 31, 2019 to the Year Ended December 31, 2018**

| | Year Ended | | | |
|---|---|---|---|---|
| | December 31, 2019 | | December 31, 2018 | |
| (amounts in thousands) | | % of Net Revenues | | % of Net Revenues |
| Net revenues | $ 4,289,761 | 100.0 % | $ 4,346,847 | 100.0 % |
| Cost of sales | 3,417,222 | 79.7 % | 3,428,311 | 78.9 % |
| Gross margin | 872,539 | 20.3 % | 918,536 | 21.1 % |
| Selling, general and administrative | 660,574 | 15.4 % | 734,166 | 16.9 % |
| Impairment and restructuring charges | 21,551 | 0.5 % | 17,328 | 0.4 % |
| Operating income | 190,414 | 4.4 % | 167,042 | 3.8 % |
| Interest expense, net | 71,778 | 1.7 % | 70,818 | 1.6 % |
| Other income | (1,409) | — % | (34,887) | (0.8)% |
| Income before taxes and equity earnings | 120,045 | 2.8 % | 131,111 | 3.0 % |
| Income tax expense (benefit) | 57,074 | 1.3 % | (10,058) | (0.2)% |
| Income from continuing operations, net of tax | 62,971 | 1.5 % | 141,169 | 3.2 % |
| Equity earnings of non-consolidated entities | — | — % | 738 | — % |
| Net income | $ 62,971 | 1.5 % | $ 141,907 | 3.3 % |

***Consolidated Results***

*Net Revenues* – Net revenues decreased $57.1 million, or 1.3%, to $4,289.8 million in the year ended December 31, 2019 from $4,346.8 million in the year ended December 31, 2018. The decrease was due to unfavorable foreign exchange impact of 3% and a decline in core revenue of 2%, partially offset by a 4% contribution from acquisitions. Core revenue decline consisted of a 4% decrease in volume/mix, offset by a 2% increase in price.

*Gross Margin* – Gross margin decreased $46.0 million, or 5.0%, to $872.5 million in the year ended December 31, 2019 from $918.5 million in the year ended December 31, 2018. Gross margin as a percentage of net revenues was 20.3% in the year ended December 31, 2019 and 21.1% in the year ended December 31, 2018. The decrease in gross margin and gross margin percentage was due to increased costs related to manufacturing inefficiencies in North America and unfavorable volume/mix within North America and Australasia, partially offset by favorable pricing.

*SG&A Expense* – SG&A expense decreased $73.6 million, or 10.0%, to $660.6 million in the year ended December 31, 2019 from $734.2 million in the year ended December 31, 2018. SG&A expense as a percentage of net revenues was 15.4% for the year ended December 31, 2019 and 16.9% for the year ended December 31, 2018. The decrease in SG&A expense was primarily due to a decrease of litigation contingency accruals of $76.5 million and reduction of acquisition and integration costs.

*Impairment and Restructuring Charges* – Impairment and restructuring charges increased $4.2 million, or 24.4%, to $21.6 million in the year ended December 31, 2019 from $17.3 million in the year ended December 31, 2018. The 2019 charges consisted primarily of plant consolidations in our North America and Australasia segments as well as severance costs across all segments and corporate. The 2018 charges consisted primarily of personnel restructuring costs in our North America, Europe, and Australasia segments, as well as plant consolidations in our North America and Australasia segments. For more information, refer to Note 23 - *Impairment and Restructuring Charges*.

*Interest Expense, Net* – Interest expense, net, increased $1.0 million, or 1.4%, to $71.8 million in the year ended December 31, 2019 from $70.8 million in the year ended December 31, 2018. The increase was primarily due to increased borrowings during 2019.

*Other Income* – Other income decreased $33.5 million, to income of $1.4 million in the year ended December 31, 2019 from income of $34.9 million in the year ended December 31, 2018. The other income in the year ended December 31, 2019 was primarily due to foreign currency gains of $7.4 million, a gain on sale of business of $2.8 million and legal settlement income of $1.2 million, partially offset by pension expense of $10.7 million. Other income in the year ended December 31, 2018 was primarily due to a fair value adjustment of $20.8 million associated with our acquisition of the remaining shares outstanding of an equity investment, legal settlement income of $7.5 million and foreign currency gains of $11.3 million, partially offset by pension expense of $7.0 million.

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*Income Taxes* – Income tax expense in the year ended December 31, 2019 was $57.1 million, compared to tax benefit of $10.1 million in the year ended December 31, 2018. The effective tax rate in the year ended December 31, 2019 was an expense of 47.5% compared to a benefit of 7.7% in the year ended December 31, 2018. The 2019 tax expense was primarily due to the increases in valuation allowances associated with net operating losses and certain credits of $10.1 million and $4.5 million for the reclassification of an other comprehensive income balance as income tax expense to relieve the disproportionate tax effects associated with the termination of hedge accounting. The 2018 tax benefit was primarily due to the $40.2 million of deferred tax benefit related to finalizing our provisional estimates connected to the Tax Act, $19.6 million of deferred tax benefit related to the Steves litigation, and $10.2 million of benefit related to our investment in ABS, offset by tax expense of $5.4M million for a net increase to uncertain positions including interest, as well as tax expense associated with strong business results of our foreign subsidiaries such as Australia, Canada, and UK. The effective tax rate for both periods includes the impact of the GILTI tax.

**Comparison of the Year Ended December 31, 2018 to the Year Ended December 31, 2017**

| | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|
| (dollars in thousands) | | % of Net Revenues | | % of Net Revenues |
| Net revenues | $ 4,346,847 | 100.0 % | $ 3,763,749 | 100.0% |
| Cost of sales | 3,428,311 | 78.9 % | 2,916,232 | 77.5% |
| Gross margin | 918,536 | 21.1 % | 847,517 | 22.5% |
| Selling, general and administrative | 734,166 | 16.9 % | 573,004 | 15.2% |
| Impairment and restructuring charges | 17,328 | 0.4 % | 13,056 | 0.3% |
| Operating income | 167,042 | 3.8 % | 261,457 | 6.9% |
| Interest expense, net | 70,818 | 1.6 % | 79,034 | 2.1% |
| Other (income) expense | (34,887) | (0.8)% | 40,122 | 1.1% |
| Income before taxes, equity earnings and discontinued operations | 131,111 | 3.0 % | 142,301 | 3.8% |
| Income tax (benefit) expense | (10,058) | (0.2)% | 137,818 | 3.7% |
| Income from continuing operations, net of tax | 141,169 | 3.2 % | 4,483 | 0.1% |
| Equity earnings of non-consolidated entities | 738 | — % | 3,639 | 0.1% |
| Net income | $ 141,907 | 3.3 % | $ 8,122 | 0.2% |

***Consolidated Results***

*Net Revenues*—Net revenues increased $583.1 million, or 15.5%, to $4,346.8 million in the year ended December 31, 2018 from $3,763.7 million in the year ended December 31, 2017. The increase was due to a 15% contribution from recent acquisitions and a 1% increase in core revenue growth. Core growth included a 2% increase in price, partially offset by a 1% decrease in volume.

*Gross Margin*—Gross margin increased $71.0 million, or 8.4%, to $918.5 million in the year ended December 31, 2018 from $847.5 million in the year ended December 31, 2017. Gross margin as a percentage of net revenues was 21.1% in the year ended December 31, 2018 and 22.5% in the year ended December 31, 2017. The increase in gross margin was due to favorable pricing and contribution from our recent acquisitions, partially offset by material and freight inflation. The decrease in gross margin as a percentage of sales was due primarily to the dilutive impact of our acquisitions, material and freight inflation, and operational inefficiencies due to lower volumes and favorable mix, partially offset by price.

*SG&A Expense*—SG&A expense increased $161.2 million, or 28.1%, to $734.2 million in the year ended December 31, 2018 from $573.0 million in the year ended December 31, 2017. SG&A expense as a percentage of net revenues was 16.9% for the year ended December 31, 2018 and 15.2% for the year ended December 31, 2017. The increase in SG&A expense was primarily due to a litigation contingency accrual of $76.5 million, SG&A associated with our acquisitions, and increased professional fees. Excluding the impact of the litigation contingency accrual and SGA associated with our acquisitions, SG&A would have been $589.7 million or 15.3% of net revenues on a comparative basis to 2017.

*Impairment and Restructuring Charges*—Impairment and restructuring charges increased $4.3 million, or 32.7%, to $17.3 million in the year ended December 31, 2018 from $13.1 million in the year ended December 31, 2017. The 2018 charges consisted primarily of personnel restructuring costs in our North America, Europe and Australasia segments as well as plant consolidations in our North America and Australasia segments. The 2017 charges consisted primarily of a reduction in workforce in our North American segment as well as ongoing restructuring costs in our Europe segment.

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*Interest Expense, Net*—Interest expense, net decreased $8.2 million, or 10.4%, to an expense of $70.8 million in the year ended December 31, 2018 from an expense of $79.0 million in the year ended December 31, 2017. The decrease was primarily due to additional interest expense incurred in 2017 resulting from the write-offs of a portion of the unamortized debt issuance costs and original issue discount totaling approximately $6.1 million in connection with the repayment of $375.0 million of outstanding term loans with proceeds from our IPO and higher pre-IPO debt levels.

*Other (Income) Expense* – Other (income) expense increased $75.0 million, to income of $34.9 million in the year ended December 31, 2018 from expense of $40.1 million in the year ended December 31, 2017. The Other income in the year ended December 31, 2018 was primarily due to a fair value adjustment of $20.8 million associated with our acquisition of the remaining shares outstanding of an equity investment, foreign currency gains of $11.3 million, and legal settlement income of $7.5 million, partially offset by pension expense of $7.0 million. Other expense in the year ended December 31, 2017 primarily consisted of a loss on extinguishment of debt of $23.3 million associated with our Term Loan, pension expense of $12.6 million, and foreign currency losses of $11.4 million, partially offset by a beneficial contract settlement of $2.2 million and legal settlement income of $2.5 million.

*Income Taxes* – Income tax benefit in the year ended December 31, 2018 was $10.1 million, compared to an expense of $137.8 million in the year ended December 31, 2017. The effective tax rate in the year ended December 31, 2018 was a benefit of 7.7% compared to an expense of 96.8% in the year ended December 31, 2017. The 2018 tax benefit of $10.1 million was primarily due to the $40.2 million of deferred tax benefit related to finalizing our provisional estimates connected to the Tax Act, $19.6 million of deferred tax benefit related to the Steves' litigation, and $10.2 million of benefit related to our investment in ABS, offset by tax expense of $5.4 million for a net increase to uncertain tax positions including interest, as well as tax expense associated with strong business results of our foreign subsidiaries such as Australia, Canada, and UK. The effective tax rate for the year ended December 31, 2018 includes the impact of the new GILTI tax. As discussed above, we have elected to account for the impact of GILTI in the period in which it is incurred.

Tax expense for the year ended December 31, 2017 included a provisional estimate of the change in the U.S. corporate income tax rate from 35% to 21% and the one-time deemed repatriation tax. As a result of the lowering of the U.S. federal tax rate, we revalued our net deferred tax assets in the U.S. reflecting the lower expected benefit in the U.S. in the future. This estimate of the revaluation resulted in additional non-cash tax expense totaling approximately $21.1 million. The provisional estimate of the one-time deemed repatriation tax, which effectively subjected the Company's net aggregate historic foreign earnings to taxation in the U.S., resulted in a further tax charge of $11.3 million. While this repatriation tax is measured as of December 31, 2017, taxpayers are permitted to pay the tax over an 8-year period which resulted in an increase to our non-current liabilities. During the fourth quarter of 2017, the Company undertook certain transactions which premised the repatriation of certain earnings from foreign subsidiaries. While these transactions were not undertaken as a direct result of tax reform, the U.S. tax implications were heavily impacted due to the timing of the transactions and the measurement dates as outlined in the Tax Act. We recorded a provisional estimate of the effects of these transactions resulting in a net increase to tax expense of $65.8 million related to these transactions and their impacts under the Tax Act.

***Segment Results***

We report our segment information in the same way management internally organizes the business in assessing performance and making decisions regarding allocation of resources in accordance with ASC 280-10- *Segment Reporting*. We have determined that we have three reportable segments, organized and managed principally by geographic region. Our reportable segments are North America, Europe and Australasia. We report all other business activities in Corporate and unallocated costs. We define Adjusted EBITDA as net income (loss), adjusted for the following items: loss from discontinued operations, net of tax; equity earnings of non-consolidated entities; income tax (benefit) expense; depreciation and amortization; interest expense, net; impairment and restructuring charges; gain on previously held shares of equity investment; (gain) loss on sale of property and equipment; share-based compensation expense; non-cash foreign exchange transaction/translation (income) loss; other non-cash items; other items; and costs related to debt restructuring and debt refinancing. For additional information on segment Adjusted EBITDA, see Note 18 - *Segment Information* to our consolidated financial statements included in this 10-K.

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**Comparison of the Year Ended December 31, 2019 to the Year Ended December 31, 2018**

| (amounts in thousands) | Year Ended December 31, 2019 | Year Ended December 31, 2018 | % Variance |
|---|---|---|---|
| **Net revenues from external customers** | | | |
| North America | $ 2,534,336 | $ 2,461,633 | 3.0 % |
| Europe | 1,178,441 | 1,215,299 | (3.0) % |
| Australasia | 576,984 | 669,915 | (13.9) % |
| Total Consolidated | $ 4,289,761 | $ 4,346,847 | (1.3) % |
| **Percentage of total consolidated net revenues** | | | |
| North America | 59.1% | 56.6% | |
| Europe | 27.5% | 28.0% | |
| Australasia | 13.4% | 15.4% | |
| Total Consolidated | 100.0% | 100.0% | |
| **Adjusted EBITDA[(1)]** | | | |
| North America | $ 267,335 | $ 279,526 | (4.4) % |
| Europe | 116,193 | 122,810 | (5.4) % |
| Australasia | 74,484 | 90,885 | (18.0) % |
| Corporate and unallocated costs | (42,974) | (34,003) | 26.4 % |
| Total Consolidated | $ 415,038 | $ 459,218 | (9.6) % |
| **Adjusted EBITDA as a percentage of segment net revenues** | | | |
| North America | 10.5% | 11.4% | |
| Europe | 9.9% | 10.1% | |
| Australasia | 12.9% | 13.6% | |
| Total Consolidated | 9.7% | 10.6% | |

(1) Adjusted EBITDA is a financial measure that is not calculated in accordance with GAAP. For a discussion of our presentation of Adjusted EBITDA, see Note 18 - *Segment Information* in our consolidated financial statements.

*North America*

Net revenues in North America increased $72.7 million, or 3.0%, to $2,534.3 million in the year ended December 31, 2019 from $2,461.6 million in the year ended December 31, 2018. The increase was primarily due to a 5% increase attributable to the acquisitions of ABS and VPI, partially offset by a 2% decrease in core revenues. Core revenue decline included a 5% decrease in volume/mix, offset by a 3% increase in price.

Adjusted EBITDA in North America decreased $12.2 million, or 4.4%, to $267.3 million in the year ended December 31, 2019 from $279.5 million in the year ended December 31, 2018. The decrease was primarily due to lower core volumes, the non-recurrence of proceeds of a 2018 legal settlement of $7.5 million, and increased costs related to operating inefficiencies, partially offset by favorable pricing and the contributions from our ABS and VPI acquisitions.

*Europe*

Net revenues in Europe decreased $36.9 million, or 3.0%, to $1,178.4 million in the year ended December 31, 2019 from $1,215.3 million in the year ended December 31, 2018. The decrease was primarily due to an unfavorable foreign exchange impact of 6%, partially offset by a 2% increase attributable to the acquisition of Domoferm and core revenue growth of 1%, which included a 2% increase in price offset by a decrease in volume/mix.

Adjusted EBITDA in Europe decreased $6.6 million, or 5.4%, to $116.2 million in the year ended December 31, 2019 from $122.8 million in the year ended December 31, 2018. The decrease was primarily due to the impact of unfavorable foreign exchange, unfavorable revenue mix, and higher SG&A costs, partially offset by improved productivity and favorable pricing.

*Australasia*

Net revenues in Australasia decreased $92.9 million, or 13.9%, to $577.0 million in the year ended December 31, 2019 from $669.9 million in the year ended December 31, 2018. The decrease was due primarily to a decrease in core revenues of 10% and unfavorable foreign exchange rates of 6%, partially offset by a 2% increase attributable to the acquisition of A&L.

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Adjusted EBITDA in Australasia decreased $16.4 million, or 18.0%, to $74.5 million in the year ended December 31, 2019 from $90.9 million in the year ended December 31, 2018. The decrease was primarily due to lower volumes from market headwinds and unfavorable mix, partially offset by improved productivity and reduced SG&A.

**Comparison of the Year Ended December 31, 2018 to the Year Ended December 31, 2017**

| (dollars in thousands) | Year Ended December 31, 2018 | Year Ended December 31, 2017 | % Variance |
|---|---|---|---|
| Net revenues from external customers | | | |
| North America | $ 2,461,633 | $ 2,157,898 | 14.1 % |
| Europe | 1,215,299 | 1,042,767 | 16.5 % |
| Australasia | 669,915 | 563,084 | 19.0 % |
| Total Consolidated | $ 4,346,847 | $ 3,763,749 | 15.5 % |
| Percentage of total consolidated net revenues | | | |
| North America | 56.6% | 57.3% | |
| Europe | 28.0% | 27.7% | |
| Australasia | 15.4% | 15.0% | |
| Total Consolidated | 100.0% | 100.0% | |
| Adjusted EBITDA[1] | | | |
| North America | $ 279,526 | $ 273,192 | 2.3 % |
| Europe | 122,810 | 131,200 | -6.4 % |
| Australasia | 90,885 | 74,386 | 22.2 % |
| Corporate and Unallocated costs | (34,003) | (43,616) | -22.0 % |
| Total Consolidated | $ 459,218 | $ 435,162 | 5.5 % |
| Adjusted EBITDA as a percentage of segment net revenues | | | |
| North America | 11.4% | 12.7% | |
| Europe | 10.1% | 12.6% | |
| Australasia | 13.6% | 13.2% | |
| Total Consolidated | 10.6% | 11.6% | |

(1) Adjusted EBITDA is a financial measure that is not calculated in accordance with GAAP. For a discussion of our presentation of Adjusted EBITDA, see Note 18 - *Segment Information* in our consolidated financial statements.

*North America*

Net revenues in North America increased $303.7 million, or 14.1%, to $2,461.6 million in the year ended December 31, 2018 from $2,157.9 million in the year ended December 31, 2017. The increase was primarily due to a 14% increase attributable to the acquisitions of MMI Door and ABS.

Adjusted EBITDA in North America increased $6.3 million, or 2.3%, to $279.5 million in the year ended December 31, 2018 from $273.2 million in the year ended December 31, 2017. The increase was primarily due to the MMI Door and ABS acquisitions partially offset by the impact of a lag in pricing to offset inflation in material and freight and lower core volumes and mix shift to lower margin products.

*Europe*

Net revenues in Europe increased $172.5 million, or 16.5%, to $1,215.3 million in the year ended December 31, 2018 from $1,042.8 million in the year ended December 31, 2017. The increase was primarily due to a 13% increase attributable to the acquisitions of Mattiovi and Domoferm, core revenue growth of 1%, and a favorable foreign exchange impact of 3%.

Adjusted EBITDA in Europe decreased $8.4 million, or 6.4%, to $122.8 million in the year ended December 31, 2018 from $131.2 million in the year ended December 31, 2017. The decrease was primarily due to inflation, unfavorable product mix, partially offset by favorable pricing and our acquisitions of Mattiovi and Domoferm.

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*Australasia*

Net revenues in Australasia increased $106.8 million, or 19.0%, to $669.9 million in the year ended December 31, 2018 from $563.1 million in the year ended December 31, 2017. The increase was due primarily to a 20% increase attributable to the acquisitions of Kolder and A&L, core revenue growth of 2%, consisting of an increase in volume/mix of 1% and favorable pricing of 1%, offset by unfavorable foreign exchange rates of 3%.

Adjusted EBITDA in Australasia increased $16.5 million, or 22.2%, to $90.9 million in the year ended December 31, 2018 from $74.4 million in the year ended December 31, 2017. The increase in Adjusted EBITDA was primarily due to the acquisitions of Kolder and A&L and pricing initiatives, partially offset by material inflation.

**Liquidity and Capital Resources**

***Overview***

We have historically funded our operations through a combination of cash from operations, draws on our revolving credit facilities, factoring agreements, and the issuance of non-revolving debt such as our Term Loan Facility and Senior Notes. Working capital, which we define as accounts receivable plus inventory less accounts payable, fluctuates throughout the year and is affected by the seasonality of sales of our products, customer payment patterns, and the translation of the balance sheets of our foreign operations into the U.S. dollar. Typically, working capital increases at the end of the first quarter and beginning of the second quarter in conjunction with, and in preparation for, the peak season for home construction and remodeling in our North America and Europe segments, which represent the substantial majority of our revenues, and decreases starting in the fourth quarter as inventory levels and accounts receivable decline. Inventories fluctuate for raw materials with long delivery lead times, such as steel, as we work through prior shipments and take delivery of new orders.

As of December 31, 2019, we had total liquidity (a non-GAAP measure) of $554.5 million, which included $226.0 million in unrestricted cash, $313.1 million available for borrowing under the ABL Facility, and AUD 21.9 million ($15.4 million USD) available for borrowing under the Australia Senior Secured Credit Facility. This compares to total liquidity of $380.2 million as of December 31, 2018. The increase was primarily due to higher unrestricted cash balances and increased revolving credit facility availability deriving from the repayment of ABL Facility borrowings with proceeds from an incremental Term Loan facility borrowing transacted in September 2019, partially offset by the expiration of the Euro Revolving Credit Facility.

As of December 31, 2019, our cash balances, including $3.9 million of restricted cash, consisted of $54.7 million in the U.S. and $175.2 million in non-U.S. subsidiaries. Based on our current level of operations, the seasonality of our business and anticipated growth, we believe that cash provided by operations and other sources of liquidity, including cash, cash equivalents and borrowings under our revolving credit facilities, will provide adequate liquidity for ongoing operations, planned capital expenditures and other investments, and debt service requirements for at least the next twelve months.

We may, from time to time, refinance, reprice, extend, retire or otherwise modify our outstanding debt to lower our interest payments, reduce our debt or otherwise improve our financial position. These actions may include repricing amendments, extensions, and/or opportunistic refinancing of debt. The amount of debt that may be refinanced, repriced, extended, retired or otherwise modified, if any, will depend on market conditions, trading levels of our debt, our cash position, compliance with debt covenants and other considerations. Our affiliates may also purchase our debt from time to time, through open market purchases or other transactions. In such cases, our debt may not be retired, in which case we would continue to pay interest in accordance with the terms of the debt, and we would continue to reflect the debt as outstanding in our consolidated balance sheets.

Based on hypothetical variable rate debt that would have resulted from drawing each revolving credit facility up to the full commitment amount, a 1.0% decrease in interest rates would have reduced our interest expense by $10.7 million for the year ended December 31, 2019. A 1.0% increase in interest rates would have increased our interest expense by $11.0 million for the same period. The impact of these hypothetical changes would have been partially mitigated by interest rate caps and the floors that apply to certain of our debt agreements.

***Borrowings and Refinancings***

In December 2017, we issued $800.0 million of unsecured Senior Notes, repriced and amended the Term Loan Facility, and repaid $787.4 million of outstanding term loan borrowings with the net proceeds from the Senior Notes. The December 2017 refinancing transactions reduced our overall interest rates and modified other terms and provisions, including providing for additional covenant flexibility and additional capacity under the Term Loan Facility. In December 2018, we amended the ABL Facility, providing for a $100.0 million increase in the U.S. revolving credit commitments. In December 2019, we amended our ABL facility to reflect current banking regulatory requirements, which do not have a financial impact.

In September 2019, we amended the Term Loan Facility to provide for an incremental aggregate principal amount of $125.0 million and used the proceeds to repay $115.0 million of outstanding borrowings under the ABL Facility.

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In February 2018, we amended the Australia Senior Secured Credit Facility to include an additional AUD 55.0 million floating rate term loan facility. In June 2019, we reallocated AUD 5.0 million from the term loan commitment to the interchangeable commitment of the Australia Senior Secured Credit Facility.

As of December 31, 2019, we were in compliance with the terms of all of our Credit Facilities.

Our results have been and will continue to be impacted by substantial changes in our net interest expense throughout the periods presented and in the future. See Note 15 - *Long-Term Debt* in our consolidated financial statements for additional details.

***Factoring arrangements***

Our ABS subsidiary, acquired in March 2018, has entered into factoring agreements with a U.S.-based financial institution under which it can elect to sell certain of its accounts receivable under non-recourse agreements. These transactions are treated as a sale and are accounted for as a reduction in accounts receivable because the agreements transfer effective control over and risk of non-collection to the factor. Thus, cash proceeds from these arrangements are reflected as operating activities, including the change of accounts receivable on our statement of cash flows each period. We do not service any factored accounts after the factoring has occurred and do not have any servicing assets or liabilities. We utilize factoring arrangements as part of our financing to manage working capital. The aggregate gross amount factored under these arrangements was $74.5 million and $56.3 million for the year ended December 31, 2019 and December 31, 2018, respectively. The cost of factoring is reflected in the accompanying consolidated statements of operations as interest expense with other financing costs and was $0.5 million and $0.4 million for the year ended December 31, 2019 and December 31, 2018, respectively.

***Cash Flows***

The following table summarizes the changes to our cash flows for the periods presented:

| | Year Ended | | |
|---|---|---|---|
| **(amounts in thousands)** | **December 31, 2019** | **December 31, 2018** | **December 31, 2017** |
| Cash provided by (used in): | | | |
| Operating activities | $ 302,709 | $ 219,653 | $ 265,793 |
| Investing activities | (184,948) | (284,141) | (189,793) |
| Financing activities | (6,411) | (67,475) | 64,090 |
| Effect of changes in exchange rates on cash and cash equivalents | 903 | (6,648) | 12,692 |
| Net change in cash and cash equivalents | $ 112,253 | $ (138,611) | $ 152,782 |

*Cash Flow from Operations*

Net cash provided by operating activities increased $83.1 million to $302.7 million in the year ended December 31, 2019 from $219.7 million in net cash provided by operating activities in the year ended December 31, 2018. The increase in cash provided by operating activities was due primarily to improvement in working capital as a result of optimization of vendor payment terms, lower inventory balances due to reduced core revenue volumes, and reduced cash taxes.

Net cash provided by operating activities decreased $46.1 million to $219.7 million in the year ended December 31, 2018 from $265.8 million in the year ended December 31, 2017. The decrease in cash provided by operating activities resulted primarily from increased accounts receivable due to increased sales volume and changes in terms with customers, increases in inventory associated with our recent acquisitions and stock build program and to ensure adequate raw material availability, and a decrease in accounts payable.

*Cash Flow from Investing Activities*

Net cash used in investing activities decreased $99.2 million to $184.9 million in the year ended December 31, 2019 from $284.1 million in the year ended December 31, 2018. The decrease was primarily due to a decrease in the cash used for acquisitions.

Net cash used in investing activities increased $94.3 million to $284.1 million in the year ended December 31, 2018 from $189.8 million in the year ended December 31, 2017. The increase was primarily due to cash used for acquisitions and capital expenditures compared to the prior year.

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*Cash Flow from Financing Activities*

Net cash used in financing activities was $6.4 million in the year ended December 31, 2019 and was comprised primarily of repurchases of our Common Stock of $20.0 million, offset by increased borrowings of $13.1 million.

Net cash used in financing activities was $67.5 million in the year ended December 31, 2018 and comprised primarily of repurchases of our Common Stock of $125.0 million and payments to tax authorities of $9.5 million, offset by increased borrowings of $70.5 million.

Net cash provided by financing activities was $64.1 million in the year ended December 31, 2017 and was comprised primarily of proceeds from the IPO of $480.3 million, of which $375.0 million of proceeds were used to partially repay outstanding debt.

**Holding Company Status**

We are a holding company that conducts all of our operations through subsidiaries. The majority of our operating income is derived from JWI, our main operating subsidiary. Consequently, we rely on dividends or advances from our subsidiaries. The ability of our subsidiaries to pay dividends to us is subject to applicable local law and may be limited due to the terms of other contractual arrangements, including our Credit Facilities and the Senior Notes.

The Australia Senior Secured Credit Facility also contain restrictions on dividends that limit the amount of cash that the obligors under these facilities can distribute to JWI. Obligors under the Australia Senior Secured Credit Facility may pay dividends only to the extent they do not exceed 80% of after tax net profits (with a one-year carryforward of unused amounts) and only while no default is continuing under such agreement. For further information regarding the Australia Senior Secured Credit Facility, see Note 15 - *Long-Term Debt* in our consolidated financial statements.

The amount of our consolidated net assets that were available to be distributed under our credit facilities as of December 31, 2019 was $551.3 million.

**Off-Balance Sheet Arrangements**

We do not have any off-balance sheet arrangements that have or are reasonably likely to have a current or future material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources.

**Contractual Obligations**

The following table summarizes our significant contractual obligations at December 31, 2019:

| | Payments Due By Period | | | | |
|---|---|---|---|---|---|
| | Total | Less Than 1 Year | 1-3 Years | 3-5 Years | More Than 5 Years |
| | (dollars in thousands) | | | | |
| **Contractual Obligations[1]** | | | | | |
| Long-term debt obligations | $ 1,513,272 | $ 64,562 | $ 42,864 | $ 587,754 | $ 818,092 |
| Finance lease obligations | 4,504 | 1,451 | 1,926 | 1,127 | — |
| Operating lease obligations | 246,581 | 53,894 | 79,799 | 53,644 | 59,244 |
| Purchase obligations[2] | 12,949 | 8,977 | 2,964 | 950 | 58 |
| Interest on long-term debt obligations[3] | 386,086 | 63,171 | 123,946 | 119,582 | 79,387 |
| Totals: | $ 2,163,392 | $ 192,055 | $ 251,499 | $ 763,057 | $ 956,781 |

(1) Not included in the table above are our unfunded pension liabilities totaling $113.5 million and uncertain tax position liabilities of $20.2 million as of December 31, 2019, for which the timing of payment is unknown.

(2) Purchase obligations are defined as purchase agreements that are enforceable and legally binding and that specify all significant terms, including quantity, price, and the approximate timing of the transaction. The obligations reflected in the table relates primarily to raw materials purchase agreements, costs associated with enterprise solutions implementations, sales and marketing, and software hosting services.

(3) Interest on long-term debt obligations is calculated based on debt outstanding and interest rates in effect on December 31, 2019, taking into account scheduled maturities and amortization payments.

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**Critical Accounting Policies and Estimates**

Our MD&A is based upon our consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which may differ from these estimates. Our significant accounting policies are fully disclosed in our annual consolidated financial statements included elsewhere in this Form 10-K. The following discussion highlights the estimates we believe are critical and should be read in conjunction with the consolidated financial statements included in Part II, Item 8 of this Form 10-K.

***Revenue Recognition***

Revenue is recognized when obligations under the terms of a contract with our customer are satisfied. Generally, this occurs with the transfer of control of our products or services. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. The taxes we collect concurrent with revenue-producing activities (e.g., sales tax, value added tax, and other taxes) are excluded from revenue. Incentive payments to customers that directly relate to future business are recorded as a reduction of net revenues over the periods benefited.

Shipping and handling costs and the related expenses are reported as fulfillment revenues and expenses for all customers. Therefore all shipping and handling costs associated with outbound freight are accounted for as fulfillment costs and are included in cost of sales. The expected costs associated with our base warranties and field service actions continue to be recognized as expense when the products are sold (see Note 14 - *Warranty Liabilities*). Since payment is due at or shortly after the point of sale, the contract asset is classified as a receivable.

We do not adjust the promised amount of consideration for the effects of a significant financing component when we expect, at contract inception, that the period between our transfer of a promised product or service to a customer and when the customer pays for that product or service will be one year or less. We do not typically include extended payment terms in our contracts with customers. Incidental items that are immaterial in the context of the contract are recognized as expense.

***Acquisitions***

We allocate the fair value of purchase consideration to the tangible assets acquired, liabilities assumed, and intangible assets acquired based on their acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred over the net of the acquisition date fair values of the assets acquired and the liabilities assumed. If the fair value of the acquired assets exceeds the purchase price the difference is recorded as a bargain purchase in other income (expense). Such valuations require us to make significant estimates and assumptions, especially with respect to intangible assets. As a result, during the measurement period, which may be up to one year from the acquisition date, material adjustments must be reflected in the comparative consolidated financial statements in the period in which the adjustment amount will be determined. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations. Newly acquired entities are included in our results from the date of their respective acquisitions.

***Allowance for Doubtful Accounts***

Substantially all accounts receivable arise from sales to customers in our manufacturing and distribution businesses and are recognized net of offered cash discounts. Credit is extended in the normal course of business under standard industry terms that normally reflect 60 day or less payment terms and do not require collateral. An allowance is recorded based on a variety of factors, including the length of time receivables are past due, the financial health of our customers, unusual macroeconomic conditions and historical experience. If the customer’s financial conditions were to deteriorate resulting in the inability to make payments, additional allowances may need to be recorded which would result in additional expenses being recorded for the period in which such determination was made.

***Inventories***

Inventories are valued at the lower of cost or market or net realizable value and are determined by the FIFO or average cost methods. We record provisions to write-down obsolete and excess inventory to estimated net realizable value. The process for evaluating obsolete and excess inventory requires us to evaluate historical inventory usage and future production needs. Accelerating the disposal process or incorrect estimates may cause actual results to differ from the estimates at the time such inventory is disposed or sold.

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***Intangible Assets***

Definite lived intangible assets are amortized on a straight-line basis over their estimated useful lives that typically range from 1 to 40 years. The lives of definite lived intangible assets are reviewed and reduced if necessary, whenever changes in their planned use occur. Legal and registration costs related to internally developed patents and trademarks are capitalized and amortized over the lesser of their expected useful life or the legal patent life. We review the carrying value of intangible assets to assess their recoverability when facts and circumstances indicate that the carrying value may not be recoverable.

***Long-Lived Assets***

Long-lived assets, other than goodwill, are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. Such events or circumstances include, but are not limited to, a significant decrease in the fair value of the underlying business or a change in utilization of property and equipment.

We group assets to test for impairment at the lowest level for which identifiable cash flows are largely independent of the cash flows of other groups of assets and liabilities. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the assets.

When evaluating long-lived assets and definite lived intangible assets for potential impairment, the first step to review for impairment is to forecast the expected undiscounted cash flows generated from the anticipated use and eventual disposition of the asset. If the expected undiscounted cash flows are less than the carrying value of the asset, then an impairment charge is required to reduce the carrying value of the asset to fair value. If we recognize an impairment loss, the carrying amount of the asset is adjusted to fair value based on the discounted estimated future net cash flows. For a depreciable long-lived asset, the new cost basis will be depreciated over the remaining useful life of that asset. For an amortizable intangible asset, the new cost basis will be amortized over the remaining useful life of the asset. Our impairment loss calculations require management to apply judgments in estimating future cash flows to determine asset fair values, including forecasting useful lives of the assets and selecting the discount rate that represents the risk inherent in future cash flows.

***Goodwill***

Goodwill is tested for impairment on an annual basis during the fourth quarter and between annual tests if indicators of potential impairment exist, using a fair-value-based approach. Current accounting guidance provides an entity the option to perform a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount prior to performing the two-step goodwill impairment test. If this is the case, the two-step goodwill impairment test is required. If it is more likely than not that the fair value of a reporting unit is greater than its carrying amount, the two-step goodwill impairment test is not required.

If the two-step goodwill impairment test is required, first, the fair value of the reporting unit is compared with its carrying amount (including attributable goodwill). If the fair value of the reporting unit exceeds its carrying amount, step two does not need to be performed. If the fair value of the reporting unit is less than its carrying amount, an indication of goodwill impairment exists for the reporting unit and the entity must perform step two of the impairment test (measurement). Under step two, an impairment loss is recognized for any excess of the carrying amount of the reporting unit's goodwill over the implied fair value of that goodwill. The implied fair value of goodwill is determined by allocating the fair value of the reporting unit in a manner similar to a purchase price allocation and the residual fair value after this allocation is the implied fair value of the reporting unit goodwill. Fair value of the reporting unit is determined using a discounted cash flow analysis.

We estimated the fair value of our reporting units using a discounted cash flow model (implied fair value measured on a non-recurring basis using level 3 inputs). Inherent in the development of the discounted cash flow projections are assumptions and estimates of our future revenue and terminal growth rates, profit margins, and cost of capital. Our judgments with respect to these metrics are based on historical experience, current trends, consultations with external specialists, and other information. Changes in assumptions or estimates used in our goodwill impairment testing could materially affect the determination of the fair value of a reporting unit, and therefore, could eliminate the excess of fair value over carrying value of a reporting unit and, in some cases, could result in impairment. Such changes in assumptions could be caused by items such as a loss of one or more significant customers, decline in the demand for our products due to changing economic conditions or failure to control cost increases above what can be recouped in sale price increases. These types of changes would negatively affect our profits, revenues and growth over the long term and such a decline could significantly affect the fair value assessment of our reporting units and cause our goodwill to become impaired.

As of December 31, 2019, the fair value of our North America, Europe and Australasia reporting units would have to decline by approximately 42%, 33% and 40%, respectively, to be considered for potential impairment.

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***Warranty Accrual***

Warranty terms range primarily from one year to lifetime on certain window and door components. Warranties are normally limited to replacement or service of defective components for the original customer. Some warranties are transferable to subsequent owners and are generally limited to ten years from the date of manufacture or require pro-rata payments from the customer. A provision for estimated warranty costs is recorded at the time of sale based on historical experience and we periodically adjust these provisions to reflect actual experience.

***Income Taxes***

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on the deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. We evaluate both the positive and negative evidence that is relevant in assessing whether we will realize the deferred tax assets. A valuation allowance is recorded when it is more likely than not that some of the deferred tax assets will not be realized. This projected realization is directly related to our future projections of the performance of our business and management's planning initiatives at any point in time. As a result, valuation allowances are subject to change as proven business trends and planning initiatives develop.

The Tax Act passed in December 2017 had significant effects on our financial statements. In accordance with Staff Accounting Bulletin No.118 issued by the SEC in December 2017 immediately following the passage of the Tax Act, we made provisional estimates for certain direct and indirect effects of the Tax Act based on information available to us for the year ended December 31, 2017. In the fourth quarter of 2018, we completed our accounting for all the enactment-date income tax effects of the Tax Act and recorded any adjustments as a component of income tax expense from continuing operations. The Tax Act subjects a U.S. shareholder to current tax on GILTI earned by certain foreign subsidiaries. We have elected to account for the impact of GILTI in the period in which it is incurred.

The tax effects from an uncertain tax position can be recognized in the consolidated financial statements only if the position is more likely than not to be sustained, based on the technical merits of the position and the jurisdiction. We recognize the financial statement benefit of a tax position only after determining that the relevant tax authority would more likely than not sustain the position following an audit and the tax related to the position would be due to the entity and not the owners. For tax positions meeting the more likely than not threshold, the amount recognized in the consolidated financial statements is the largest benefit that has a greater than 50 percent likelihood of being realized, upon ultimate settlement with the relevant tax authority. We apply this accounting standard to all tax positions for which the statute of limitations remains open. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

We file a consolidated federal income tax return in the U.S. and various states. For financial statement purposes, we calculate the provision for federal income taxes using the separate return method. Certain subsidiaries file separate tax returns in certain countries and states. Any U.S. federal, state and foreign income taxes refundable and payable are reported in other current assets and other current liabilities in the consolidated balance sheets as of December 31, 2019 and December 31, 2018. We recorded a non-current U.S. receivable of $0.8 million at December 31, 2018 related to the one-time deemed repatriation tax liability, which is included in other assets in the accompanying consolidated balance sheet. We do not have any non-current taxes receivable or payable at December 31, 2019. We record interest and penalties on amounts due to tax authorities as a component of income tax expense in the consolidated statements of operations.

***Derivative Financial Instruments***

We utilize derivative financial instruments to manage foreign currency exposures related to subsidiaries that operate outside the U.S. and use their local currency as the functional currency. We record all derivative instruments in the consolidated balance sheets at fair value. Changes in a derivative's fair value are recognized in earnings unless specific hedge criteria are met, and we elect hedge accounting prior to entering into the derivative. If a derivative is designated as a fair value hedge, the changes in fair value of both the derivative and the hedged item attributable to the hedged risk are recognized in the results of operations. If the derivative is designated as a cash flow hedge, changes in the fair value of the derivative are recorded in consolidated other comprehensive income (loss) and subsequently classified to the consolidated statements of operations when the hedged item impacts earnings. At the inception of a fair value or cash flow hedge transaction, we formally document the hedge relationship and the risk management objective for undertaking the hedge. In addition, we assess both at inception of the hedge and on an ongoing basis, whether the derivative in the hedging transaction has been highly effective in offsetting changes in fair value or cash flows of the hedged item and whether the derivative is expected to continue to be highly effective. The impact of any ineffectiveness is recognized in our consolidated statements of operations.

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***Contingent Liabilities***

Contingent liabilities require significant judgment in estimating potential losses for legal claims. Each quarter, we review significant new claims and litigation for the probability of an adverse outcome. Estimates are recorded as liabilities when it is probable that a liability has been incurred and the amount of the loss is reasonably estimable. Disclosure is required when there is a reasonable possibility that the ultimate loss will materially exceed the recorded provision. Contingent liabilities are often resolved over long time periods. Estimating probable losses requires analysis of multiple forecasts that often depend on judgments about potential actions by third parties such as regulators, and the estimated loss can change materially as individual claims develop.

***Share-based Compensation Plan***

We have share-based compensation plans that provide for compensation to employees through various grants of share-based instruments. We apply the fair value method of accounting using the Black-Scholes option pricing model to determine the compensation expense for stock appreciation rights. The compensation expense for RSU awarded is based on the fair value of the RSU at the date of grant. Compensation expense is recorded in the consolidated statements of operations and is recognized over the requisite service period. The determination of obligations and compensation expense requires the use of several mathematical and judgmental factors, including stock price, expected volatility, the anticipated life of the option, estimated risk-free rate, and the number of shares or share options expected to vest. Any difference in the number of shares or share options that actually vest can affect future compensation expense. Other assumptions are not revised after the original estimate. For stock options granted, we prepare the valuations with the assistance of a third-party valuation firm, utilizing approaches and methodologies consistent with the AICPA Practice Aid.

The Black-Scholes option-pricing model requires the use of weighted average assumptions for estimated expected volatility, estimated expected term of stock options, risk-free rate, estimated expected dividend yield, and the fair value of the underlying common stock at the date of grant. We estimate the expected term of all stock options based on previous history of exercises. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant for the expected term of the stock option. The expected dividend yield rate is 0.00% which is consistent with the expected dividends to be paid on common stock. We estimate forfeitures based on our historical analysis of actual stock option forfeitures. Actual forfeitures are recorded when incurred and estimated forfeitures are reviewed and adjusted at least annually.

***Employee Retirement and Pension Benefits***

The obligations under our defined benefit pension plans are calculated using actuarial models and methods. The most critical assumption and estimate used in the actuarial calculations is the discount rate for determining the current value of benefit obligations. Other assumptions and estimates used in determining benefit obligations and plan expenses include expected return on plan assets, inflation rates, and demographic factors such as retirement age, mortality, and turnover. These assumptions and estimates are evaluated periodically and are updated accordingly to reflect our actual experience and expectations.

The discount rate used to determine the benefit obligations was computed through a projected benefit cash flow model. This approach determines the discount rate as the rate that equates the present value of the cash flows (determined using that single rate) to the present value of the cash flows where each cash flows' present value is determined using the spot rates from the Willis Towers Watson RATE: Link 10:90 Yield Curve.

The discount rate utilized to calculate the projected benefit obligation at the measurement date for our U.S. pension plan decreased to 3.31% at December 31, 2019 from 4.27% at December 31, 2018. As the discount rate is reduced or increased, the pension and post retirement obligation would increase or decrease, respectively, and future pension and post-retirement expense would increase or decrease, respectively. Lowering the discount rate by 0.25% would increase the U.S. pension and post-retirement obligation at December 31, 2019 by approximately $14.6 million and would increase estimated fiscal year 2019 expense by approximately $1.5 million. Increasing the discount rate by 0.25% would decrease the U.S. pension and post-retirement obligation at December 31, 2019 by approximately $13.8 million and would decrease estimated fiscal year 2019 expense by approximately $1.3 million.

We determine the expected long-term rate of return on plan assets based on the plan assets' historical long-term investment performance, current asset allocation, and estimates of future long-term returns by asset class. Holding all other assumptions constant, a 1% increase or decrease in the assumed rate of return on plan assets would have decreased or increased, respectively, 2019 net periodic pension expense by approximately $3.5 million.

The actuarial assumptions we use in determining our pension benefits may differ materially from actual results because of changing market and economic conditions, higher or lower withdrawal rates, or longer or shorter life spans of participants. While we believe that the assumptions used are appropriate, differences in actual experience or changes in assumptions might materially affect our financial position or results of operations.

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**Capital Expenditures**

We expect that the majority of our capital expenditures will be focused on supporting our cost reduction and efficiency improvement projects, certain growth initiatives, and to a lesser extent, on sustaining our current manufacturing operations. We are subject to health, safety, and environmental regulations that may require us to make capital expenditures to ensure our facilities are compliant with those various regulations.

**Item 7A - Quantitative and Qualitative Disclosures About Market Risk**

We are exposed to various types of market risks, including the effects of adverse fluctuations in foreign currency exchange rates, adverse changes in interest rates, and adverse movements in commodity prices for products we use in our manufacturing. To reduce our exposure to these risks, we maintain risk management controls and policies to monitor these risks and take appropriate actions to attempt to mitigate such forms of market risk.

***Exchange Rate Risk***

We have global operations and therefore enter into transactions denominated in various foreign currencies. To mitigate cross-currency transaction risk, we analyze significant forecast exposures where we expect receipts or payments in a currency other than the functional currency of our operations, and from time to time we may strategically enter into short-term foreign currency forward contracts to lock in some or all of the cash flows associated with these transactions. We also are subject to currency translation risk associated with converting our foreign operations' financial statements into U.S. dollars. We use short-term foreign currency forward contracts and hedges to mitigate the impact of foreign exchange fluctuations on consolidated earnings. We use foreign currency derivative contracts, with a total notional amount of $91.6 million as of December 31, 2019, in order to manage the effect of exchange fluctuations on forecasted sales, purchases, acquisitions, inventory and capital expenditures and certain intercompany transactions that are denominated in foreign currencies. We use foreign currency derivative contracts, with a total notional amount of $29.5 million, to hedge the effects of translation gains and losses on intercompany loans and interest. We also use foreign currency derivative contracts, with a total notional amount of $116.5 million, to mitigate the impact to the consolidated earnings of the Company from the effect of the translation of certain subsidiaries' local currency results into U.S. dollars. We do not use derivative financial instruments for trading or speculative purposes.

By using derivative financial instruments to hedge exposures to foreign currency fluctuations, we are exposed to credit risk and market risk. Credit risk is the failure of the counterparty to perform under the terms of the derivative contract. When the fair value of a derivative contract is positive, the counterparty owes us, which creates credit risk for us. When the fair value of a derivative contract is negative, we owe the counterparty and, therefore, we are not exposed to the counterparty's credit risk in those circumstances. We attempt to minimize counterparty credit risk in derivative instruments by entering into transactions with high-quality counterparties whose credit rating is at least upper-medium investment grade. Our derivative instruments do not contain credit risk related contingent features.

***Interest Rate Risk***

We are subject to interest rate market risk in connection with our long-term debt, some of which is based upon floating interest rates. To manage our interest rate risk, we may enter into interest rate derivatives, such as interest rate swaps or caps when we deem it to be appropriate. We do not use financial instruments for trading or other speculative purposes and are not a party to any leveraged derivative instruments. Our net exposure to interest rate risk would primarily be based on the difference between outstanding variable rate debt and the notional amount of any interest rate derivatives that are in-the-money. We assess interest rate risk by continually identifying and monitoring changes in interest rate exposures that may adversely impact expected future cash flows and by evaluating hedging opportunities. We maintain risk management control systems to monitor interest rate risk attributable to both our outstanding and forecasted debt obligations as well as any offsetting hedge positions. The risk management control systems involve the use of analytical techniques, including cash flow sensitivity analysis, to estimate the expected impact of changes in interest rates on our future cash flows.

The U.K's Financial Conduct Authority has announced the intent to phase out the use of LIBOR by the end of 2021. Prior to LIBOR being discontinued, we will need to renegotiate the terms of certain of our credit agreements which reference LIBOR as a benchmark in determining the interest rate. As a result, we may incur incremental interest expense depending on the new standard determined. The potential effect of any such event on our cost of capital cannot yet be determined and we are still assessing the impact on our consolidated financial condition, results of operations, and cash flows.

***Raw Materials Risk***

Our major raw materials include glass, vinyl extrusions, aluminum, steel, wood, hardware, adhesives, and packaging. Prices of these commodities can fluctuate significantly in response to, among other things, variable worldwide supply and demand across different industries, speculation in commodities futures, general economic or environmental conditions, labor costs, competition,

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import duties, tariffs, worldwide currency fluctuations, freight, regulatory costs, and product and process evolutions that impact demand for the same materials. Increasing raw material prices directly impact our cost of sales and our ability to maintain margins depends on implementing price increases in response to increasing raw material costs. The market for our products may or may not accept price increases, and as such, there is no assurance that we can maintain margins in an environment of rising commodity prices. See Item 1A- *Risk Factors* - Prices and availability of the raw materials we use to manufacture our products are subject to fluctuations and we may be unable to pass along to our customers the effects of any price increases.

We have not historically used derivatives or similar instruments to hedge commodity price fluctuations. We purchase from multiple geographically diverse companies to mitigate the adverse impact of higher prices for our raw materials. We also maintain other strategies to mitigate the impact of higher raw material, energy, and commodity costs, which typically offset only a portion of the adverse impact.

**Item 8 - Financial Statements**

See Index to Consolidated Financial Statement beginning on page F-1 of the Form 10-K.

**Item 9 - Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.**

None.

**Item 9A - Controls and Procedures**

**Disclosure Controls and Procedures**

The Company maintains disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”)), which are designed to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act, including this Report, are recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms. These disclosure controls and procedures include controls and procedures designed to ensure that information required to be disclosed by the Company under the Exchange Act is accumulated and communicated to the Company’s management, including its principal executive officer (“CEO”) and principal financial officer (“CFO”), as appropriate to allow timely decisions regarding required disclosure. The Company’s management, including the Company’s CEO and CFO, conducted an evaluation of the effectiveness of the Company’s disclosure controls and procedures as of the end of the period covered by this Report and, based on that evaluation, the CEO and CFO concluded that the Company’s disclosure controls and procedures were not effective as of December 31, 2019 because of the material weaknesses in our internal control over financial reporting described below.

**Management’s Report on Internal Control over Financial Reporting**

The Company’s management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f).

The Company carried out an evaluation under the supervision and with the participation of the Company’s management, including the Company’s Chief Executive Officer and Chief Financial Officer, of the effectiveness of the Company’s internal control over financial reporting. The Company’s management used the framework in *Internal Control-Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations (COSO) to perform this evaluation. Based on this evaluation, management has concluded that we did not maintain effective internal control over financial reporting as of December 31, 2019, due to the material weaknesses identified below.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company’s annual or interim financial statements will not be prevented or detected on a timely basis. As previously reported in our Annual Report on Form 10-K for the year ended December 31, 2018, management determined that we did not maintain a sufficient complement of personnel in our Europe operations with the appropriate level of knowledge, experience and training in internal control over financial reporting commensurate with our financial reporting requirements to allow for the consistent execution of control activities. Further, monitoring controls maintained at the Europe operations and corporate levels did not operate with a sufficient degree of precision to provide for the appropriate level of oversight of activities related to our internal control over financial reporting. These material weaknesses contributed to the following additional material weaknesses in that we did not design and maintain effective controls within certain of our Europe operations related to the review and approval of customer pricing, the review and approval of manual journal entries, and the reconciliation of subsidiary ledger financial information used in the consolidated financial statements. Specifically, we did not design and maintain controls to ensure (i) the review and approval of the initial set-up, and subsequent changes/modifications, of customer pricing related

to revenue arrangements; (ii) that journal entries were properly prepared with sufficient supporting documentation, were reviewed and approved to ensure accuracy and completeness of the journal entries, and were reviewed by an appropriate individual separate from the preparer of such journal entry; and (iii) the subsidiary financial information used in the preparation of the consolidated financial statements agreed to the financial information recorded in the subsidiary ledger, and to the extent there were differences, that they were appropriately validated.

These material weaknesses resulted in the revision of the Company's consolidated financial statements for the years ended December 31, 2016, 2017 and 2018 and each of the interim periods of 2018 and the first quarter of 2019. Additionally, these material weaknesses could result in a misstatement of substantially all account balances or disclosures within the European operations that would result in a material misstatement to the annual or interim consolidated financial statements that would not be prevented or detected.

Management has excluded from its assessment of the Company's internal control over financial reporting as of December 31, 2019 certain elements of the internal control over financial reporting of VPI Quality Windows, Inc., which is a wholly-owned subsidiary of the Company that was acquired by the Company in 2019. Subsequent to the acquisition of each entity, certain elements of the acquired business's internal control over financial reporting and related functions, processes and systems were integrated into the Company's existing internal control over financial reporting and related functions, processes and systems. Those elements of the acquired business's internal control over financial reporting that were not integrated have been excluded from management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2019. The excluded elements represent approximately 0.6% of consolidated total assets and 1.1% of consolidated net revenues as of and for the year ended December 31, 2019.

The effectiveness of our internal control over financial reporting as of December 31, 2019 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report appearing under "Item 8. Financial Statements and Supplementary Data".

**Remediation Plan for Previously Identified Material Weaknesses as of December 31, 2019**

In order to address the material weaknesses described in the Company's 2018 Annual Report on Form 10-K, the Company's management implemented a remediation plan to address the control deficiencies that led to the material weaknesses identified above. The remediation plan includes the following:

- Enhance and supplement the finance team in Europe by increasing the number of roles, reassigning responsibilities, and adding additional resources with an appropriate level of knowledge and experience in internal control over financial reporting commensurate with the financial reporting complexities of the organization;
- Enhance the tone, communication and overall awareness of the importance of internal control over financial reporting from executive management;
- Evaluate corporate and segment monitoring controls to ensure they are designed and operating at the appropriate level of precision required to support risk mitigation;
- Implement enhancements to the design of our customer pricing controls in Europe;
- Implement enhancements to the design of our journal entry controls in Europe;
- Implement enhancements to the design of our controls related to the reconciliation of subsidiary ledger financial information used in the consolidated financial statements;
- Strengthen procedures and set guidelines for documentation of controls throughout our domestic and international locations for consistency of application;
- Institute additional training programs that occur on a regular basis related to internal control over financial reporting for our world-wide finance and accounting personnel.

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During the period ended December 31, 2019, we executed the remediation plan above by:

- hiring additional personnel in Europe with knowledge and experience in internal control over financial reporting; however, due to contractual notice periods within Europe (typically three to six months), many of the individuals retained were not available until the fourth quarter of 2019;
- conducted quarterly in-person training sessions on internal controls over financial reporting, monitoring controls, complex accounting topics, account reconciliations and journal entry controls in Europe;
- implemented enhancements to closing processes that included the centralization of certain tasks, development of manuals and standardized templates to enhance the evidence supporting the local teams' execution of internal control over financial reporting; and
- developed a global accounting manual to provide guidance on critical accounting policies and procedural outlines for their implementation.

Based on the actions taken to date, while management believes that it now has the requisite personnel to consistently operate the controls as designed, additional controls may need to be designed and implemented as part of the remediation plan, especially with respect to pricing. Additionally, for controls that were newly designed and implemented in 2019, management determined that a sustained period of operating effectiveness is required to conclude that the controls are operating effectively. Accordingly, the material weaknesses described have not been remediated as of December 31, 2019.

Changes in Internal Control over Financial Reporting

Except for the remediation efforts described above under the caption "Remediation Plan for Previously Identified Material Weaknesses," there were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the Company's most recently completed quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

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**Item 9B - Other Information**

The Company is committed to effective corporate governance that is informed by our stockholders and promotes the long-term interests of our stockholders. In response to the feedback we have received in connection with our ongoing stockholder engagement efforts and after careful consideration, our Board of Directors has approved certain corporate governance enhancements and is recommending to our stockholders for approval at our 2020 Annual Meeting of Stockholders certain amendments to our Restated Certificate of Incorporation and Amended and Restated Bylaws. The enhancements include amendments to declassify our Board of Directors, which will result in one-year terms for all directors and will be phased in over the next two years, and to eliminate all supermajority voting provisions. In addition, the Board of Directors is recommending amendments to our stockholders that would establish new stockholder rights to call a special meeting and to take action by written consent. These items will be discussed in more detail under the section “Proposals to be Voted on at the Annual Meeting” in our Proxy Statement.

In connection with the proposed corporate governance enhancements to be voted on at the 2020 Annual Meeting of Stockholders, the Company entered into a Letter Agreement with Onex Partners Management LP (“Onex Partners”) on February 19, 2020. Under the Letter Agreement, Onex Partners has agreed to vote all shares of our Common Stock beneficially owned by any of the Onex Entities (as defined in the Letter Agreement) in favor of our proposed corporate governance enhancements at the 2020 Annual Meeting of Stockholders and, if necessary, at the Company’s 2021 Annual Meeting of Stockholders. In exchange, the Company will nominate for election to the Board of Directors at any annual or special meeting at which the election of directors is an item of business (i) two qualified persons designated by Onex Partners for so long as Onex Entities beneficially own and have a pecuniary interest in at least twenty percent (20%) of our Common Stock and (ii) one qualified person designated by Onex Partners for so long as the Onex Entities beneficially own and have a pecuniary interest in less than twenty percent (20%) but greater than twelve and a half percent (12.5%) of our Common Stock. Onex Partners and its affiliates owned approximately 32.6% of our outstanding shares of Common Stock as of December 31, 2019, and two of our current directors are affiliates of Onex Partners, fulfilling the terms of the Letter Agreement, and neither are subject to election at the 2020 Annual Meeting of Stockholders.

The foregoing description of the Letter Agreement does not purport to be complete and is qualified in its entirety by the full text of the Letter Agreement, the form of which is filed as Exhibit 10.38 to this 10-K and is incorporated by reference herein.

On February 20, 2020, Laura W. Doerre notified the Company that she intends to resign as Executive Vice President, General Counsel and Chief Compliance Officer, effective March 4, 2020. Ms. Doerre’s resignation is not the result of any disagreement with the Company regarding its operations, policies or practices.

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**Item 10 - Directors, Executive Officers and Corporate Governance**

The information required by this item with respect to our executive officers appears in Part I of this Form 10-K under the heading, “Executive Officers”. The other information required by this item is incorporated by reference to the Company’s definitive Proxy Statement for its 2020 Annual Meeting of Stockholders to be held on May 7, 2020, which will be filed with the SEC within 120 days of the Company’s fiscal year end covered by this Form 10-K (“Proxy Statement”).

**Item 11 - Executive Compensation.**

The information required by this item is incorporated by reference to the Proxy Statement.

**Item 12 - Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters.**

**Equity Compensation Plan Information**

The following table sets forth information with respect to shares of our common stock that may be issued under our existing equity compensation plans, as of December 31, 2019:

| | (a) | (b) | (c) |
|---|---|---|---|
| **Plan Category** | **Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants, and Rights** | **Weighted Average Exercise Price of Outstanding Options, Warrants, and Rights[1]** | **Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))** |
| Equity compensation plans approved by security holders | 4,583,077[2] | $19.55 | 4,198,034[3] |
| Equity compensation plans not approved by security holders | — | — | — |
| Total | 4,583,077 | $19.55 | 4,198,034 |

(1) Excludes RSUs and PSUs, which have no exercise price.

(2) Consists of shares underlying 2,832,799 stock options, 1,239,505 RSUs, and 510,773 PSUs outstanding under the 2011 Stock Incentive Plan and 2017 Omnibus Equity Plan.

(3) Number of securities remaining for future issuances includes only shares available under the 2017 Omnibus Equity Plan.

The other information required by this item is incorporated by reference to the Proxy Statement.

**Item 13 - Certain Relationships and Related Transactions, and Director Independence.**

The information required by this item is incorporated by reference to the Proxy Statement.

**Item 14 - Principal Accounting Fees and Services.**

The information required by this item is incorporated by reference to the Proxy Statement.

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**Item 15 - Exhibits and Financial Statement Schedules.**

**1. Financial Statements**

The financial statements are set forth under Item 8- *Financial Statements and Supplementary Data* of this Form 10-K.

**2. Financial Statement Schedules**

The following financial statement schedules are attached to this report.

Schedule I - Condensed Financial Information of the Registrant

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

**3. Exhibits**

The exhibits listed on the accompanying Exhibit Index are filed or incorporated by reference as part of this 10-K and such Exhibit Index is incorporated herein by reference.

| Exhibit No. | Exhibit Description | Form | File No. | Exhibit | Filing Date |
|---|---|---|---|---|---|
| 3.1 | Restated Certificate of Incorporation of JELD-WEN Holding, Inc., filed February 1, 2017. | 8-K | 001-38000 | 3.1 | February 3, 2017 |
| 3.2 | Amended and Restated Bylaws of JELD-WEN Holding, Inc. | S-1/A | 333-211761 | 3.4 | January 5, 2017 |
| 4.1* | Description of Securities. | | | | |
| 4.2 | Specimen Common Stock Certificate of JELD-WEN Holding Inc. | S-1/A | 333-211761 | 4.1 | January 5, 2017 |
| 4.3 | Amended and Restated Registration Rights Agreement, among JELD-WEN Holding, Inc., Onex Partners III LP, Onex Advisor III LLC, Onex Partners III GP LP, Onex Partners III PV LP, Onex Partners III Select LP, Onex US Principals LP, Onex Corporation, Onex American Holdings II LLC, BP EI LLC, 1597257 Ontario Inc. and the other parties thereto, dated January 24, 2017. | 10-K | 001-38000 | 4.2 | March 3, 2017 |
| 4.4 | Amendment No. 1 to Amended and Restated Registration Rights Agreement, among JELD-WEN Holding, Inc., Onex Partners III LP, Onex Advisor III LLC, Onex Partners III GP LP, Onex Partners III PV LP, Onex Partners III Select LP, Onex US Principals LP, Onex Corporation, Onex American Holdings II LLC, BP EI LLC, 1597257 Ontario Inc. and the other parties thereto, dated May 12, 2017. | S-1 | 333-221538 | 4.3 | May 15, 2017 |
| 4.5 | Amendment No. 2 to Amended and Restated Registration Rights Agreement, among JELD-WEN Holding, Inc., Onex Partners III LP, Onex Advisor III LLC, Onex Partners III GP LP, Onex Partners III PV LP, Onex Partners III Select LP, Onex US Principals LP, Onex Corporation, Onex American Holdings II LLC, BP EI LLC, 1597257 Ontario Inc. and the other parties thereto, dated November 12, 2017. | S-1 | 333-221538 | 4.4 | November 13, 2017 |
| 4.6 | Indenture, dated as of December 14, 2017, among JELD-WEN, Inc., the guarantors party thereto and Wilmington Trust, National Association, as Trustee (including for of Note). | 8-K | 001-38000 | 4.1 | December 14, 2017 |
| 4.7 | First Supplemental Indenture, dated as of December 21, 2018, among American Building Supply, Inc., J B L Hawaii, Limited and Wilmington Trust, National Association, as Trustee. | 8-K | 001-38000 | 4.1 | December 27, 2018 |
| 10.1 | Credit Agreement, among JELD-WEN Holding, Inc., JELD-WEN, Inc., JELD-WEN of Canada, Ltd., the other guarantors party thereto, Wells Fargo Bank, National Association, and the lenders party thereto, dated October 15, 2014. | S-1 | 333-211761 | 10.1 | June 1, 2016 |
| 10.2 | Amendment No. 1 to Credit Agreement, among JELD-WEN Holding, Inc., JELD-WEN, Inc., JELD-WEN of Canada, Ltd., the subsidiary guarantors party thereto, Wells Fargo Bank, National Association, and the lenders party thereto, dated July 1, 2015. | S-1 | 333-211761 | 10.1.1 | June 1, 2016 |
| 10.3 | Amendment No. 2 to Credit Agreement, among JELD-WEN Holding, Inc., JELD-WEN, Inc., JELD-WEN of Canada, Ltd., Karona, Inc., the subsidiary guarantors party thereto, Wells Fargo Bank, National Association, and the lenders party thereto, dated November 1, 2016. | S-1/A | 333-211761 | 10.1.2 | November 17, 2016 |

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| Exhibit No. | Exhibit Description | Form | File No. | Exhibit | Filing Date |
|---|---|---|---|---|---|
| 10.4 | Amendment No. 3 to Credit Agreement, among JELD-WEN, Inc., JELD-WEN Holding, Inc., JELD-WEN of Canada, Ltd., the other borrowers party thereto, the subsidiary guarantors party thereto, the lenders party thereto, Wells Fargo Bank, National Association, as administrative agent, issuing bank and swingline lender and the other parties thereto, dated as of December 14, 2017. | 8-K | 001-38000 | 10.1 | December 15, 2017 |
| 10.5 | Amendment No. 4, dated as of December 21, 2018, among JELD-WEN, Inc., American Building Supply, Inc., J B L Hawaii, Limited, the other borrowers party thereto, the subsidiary guarantors party thereto, the lenders party thereto and Wells Fargo Bank, National Association, as administrative agent. | 8-K | 001-38000 | 10.1 | December 27, 2018 |
| 10.6 | Amendment No. 5, dated as of December 31, 2019, among JELD-WEN Holding, Inc., JELD-WEN, Inc., JELD-WEN of Canada, Ltd., the other borrowers and subsidiary guarantors party thereto, Wells Fargo Bank, National Association, as administrative agent, and the lenders party thereto. | 8-K | 001-38000 | 10.1 | January 6, 2020 |
| 10.7 | Term Loan Credit Agreement, among JELD-WEN Holding, Inc., JELD-WEN, Inc., Onex BP Finance LP, the other guarantors party thereto, Bank of America, N.A. and the lenders party thereto, dated October 15, 2014. | S-1 | 333-211761 | 10.2 | June 1, 2016 |
| 10.8 | Amendment No. 1 to Term Loan Credit Agreement, among JELD-WEN Holding, Inc., JELD-WEN, Inc., Onex BP Finance LP, the subsidiary guarantors party thereto, Bank of America, N.A., and the lenders party thereto, dated July 1, 2015. | S-1 | 333-211761 | 10.2.1 | June 1, 2016 |
| 10.9 | Amendment No. 2 to Term Loan Credit Agreement, among JELD-WEN Holding, Inc., JELD-WEN, Inc. the subsidiary guarantors party thereto, Onex BP Finance LP, Bank of America, N.A., and the lenders party thereto, dated November 1, 2016. | S-1/A | 333-211761 | 10.2.2 | November 17, 2016 |
| 10.10 | Amendment No. 3 to Term Loan Credit Agreement, among JELD-WEN Holding, Inc., JELD-WEN, Inc. the subsidiary guarantors party thereto, Onex BP Finance LP, Bank of America, N.A., and the lenders party thereto, dated March 7, 2017. | 8-K | 001-38000 | 10.1 | March 8, 2017 |
| 10.11 | Amendment No. 4, by and among JELD-WEN, Inc., JELD-WEN Holding, Inc., the subsidiary guarantors party thereto, the lenders party thereto, Bank of America, N.A., as administrative agent and the other parties thereto, dated as of December 14, 2017. | 8-K | 001-38000 | 10.2 | December 15, 2017 |
| 10.12 | Amendment No. 5, dated as of September 20, 2019, among JELD-WEN Holding, Inc., JELD-WEN, Inc., the subsidiary guarantors party thereto, the lenders party thereto and Bank of America, N.A., as administrative agent. | 8-K | 001-38000 | 10.1 | September 20, 2019 |
| 10.13 | Stock Purchase Agreement, among JELD-WEN Holding, Inc., Onex Partners III LP and the other investors party thereto, dated August 30, 2012. | S-1/A | 333-211761 | 10.3 | December 16, 2016 |
| 10.14 | Amendment to Stock Purchase Agreements, among JELD-WEN Holding, Inc. and Onex Partners III LP, dated April 3, 2013. | S-1/A | 333-211761 | 10.3.1 | December 16, 2016 |
| 10.15 | Amendment to Stock Purchase Agreement, among JELD-WEN Holding, Inc. and Onex Partners III LP, dated May 31, 2016. | S-1/A | 333-211761 | 10.3.2 | December 16, 2016 |
| 10.16 | Form of Joinder to Stock Purchase Agreement, among JELD-WEN Holding, Inc., Onex Partners III LP and the other investors party thereto. | S-1/A | 333-211761 | 10.3.3 | December 16, 2016 |
| 10.17 | Amended and Restated Stock Purchase Agreement, among JELD-WEN Holding, Inc., Onex Partners III LP, Onex Advisor III LLC, Onex Partners III GP LP, Onex Partners III PV LP, Onex Partners III Select LP, Onex US Principals LP, Onex Corporation, Onex American Holdings II LLC, BP EI LLC and 1597257 Ontario Inc., dated July 29, 2011. | S-1/A | 333-211761 | 10.4 | December 16, 2016 |
| 10.18 | Amendment No. 1 to Amended and Restated Stock Purchase Agreement, among JELD-WEN Holding, Inc. and Onex Partners III LP, dated September 1, 2011. | S-1/A | 333-211761 | 10.4.1 | December 16, 2016 |
| 10.19 | Amendment to Amended and Restated Stock Purchase Agreement, among JELD-WEN Holding, Inc. and Onex Partners III LP, dated May 31, 2016. | S-1/A | 333-211761 | 10.4.2 | December 16, 2016 |
| 10.20+ | JELD-WEN Holding, Inc. Amended and Restated Stock Incentive Plan, dated January 30, 2017. | 10-Q | 001-38000 | 10.14 | May 12, 2017 |
| 10.21+ | Form of Nonstatutory Common Stock Option Agreement under JELD-WEN Holding, Inc. Amended and Restated Stock Incentive Plan. | S-1/A | 333-211761 | 10.7 | December 16, 2016 |

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| Exhibit No. | Exhibit Description | Form | File No. | Exhibit | Filing Date |
|---|---|---|---|---|---|
| 10.22+ | Form of Nonstatutory Class B-1 Common Stock Option Agreement under JELD-WEN Holding, Inc. Amended and Restated Stock Incentive Plan. | S-1/A | 333-211761 | 10.8 | December 16, 2016 |
| 10.23+ | Form of Restricted Stock Unit Award Agreement under JELD-WEN Holding, Inc. Amended and Restated Stock Incentive Plan. | S-1/A | 333-211761 | 10.9 | December 16, 2016 |
| 10.24+ | Management Employment Agreement, by and between JELD-WEN Holding, Inc., JELD-WEN, Inc. and Laura Doerre, dated September 6, 2016. | S-1/A | 333-211761 | 10.15 | January 5, 2017 |
| 10.25+ | Letter Agreement, by and between JELD-WEN, Inc. and Laura Doerre, dated July 25, 2016. | S-1/A | 333-211761 | 10.15.1 | January 5, 2017 |
| 10.26+ | JELD-WEN Holding, Inc. 2017 Omnibus Equity Plan. | S-1/A | 333-211761 | 10.17 | January 5, 2017 |
| 10.27+ | Form of Nonqualified Stock Option Agreement under JELD-WEN Holding, Inc. 2017 Omnibus Equity Plan. | S-1/A | 333-211761 | 10.18 | January 5, 2017 |
| 10.28+ | Amendment to Form of Nonqualified Stock Option Agreement under JELD-WEN Holding, Inc. 2017 Omnibus Equity Plan. | 10-K | 001-38000 | 10.37 | March 6, 2018 |
| 10.29+ | Form of Restricted Stock Unit Award Agreement under JELD-WEN Holding, Inc. 2017 Omnibus Plan. | S-1/A | 333-211761 | 10.19 | January 5, 2017 |
| 10.30+ | Amendment to Form of Restricted Stock Unit Award Agreement under JELD-WEN Holding, Inc. 2017 Omnibus Plan. | 10-K | 001-38000 | 10.38 | March 6, 2018 |
| 10.31+ | Form of Performance Share Unit Award Agreement under JELD-WEN Holding, Inc. 2017 Omnibus Plan. | 10-K | 001-38000 | 10.39 | March 6, 2018 |
| 10.32+ | JELD-WEN Holding, Inc. 2017 Management Incentive Plan. | S-1/A | 333-211761 | 10.20 | January 5, 2017 |
| 10.33+ | Letter Agreement, by and between JELD-WEN Holding, Inc. and the shareholders party thereto, dated January 24, 2017. | 10-K | 001-38000 | 10.36 | March 6, 2018 |
| 10.34+ | Form of Indemnification Agreement. | S-1 | 333-211761 | 10.25 | June 1, 2016 |
| 10.35+ | Form of Executive Employment Agreement between JELD-WEN Holding, Inc. and each of John Linker, Laura W. Doerre, Mark A. Beck, and L. Brooks Mallard, effective August 7, 2017 and October 1, 2018. | 10-K | 001-38000 | 10.38 | March 1, 2019 |
| 10.36+ | Executive Employment Agreement, by and between JELD-WEN UK Limited and Peter Maxwell, dated February 1, 2018. | 10-K | 001-38000 | 10.39 | March 1, 2019 |
| 10.37+ | Executive Employment Agreement between JELD-WEN Australia Pty Ltd and Perter Farmakis, dated March 1, 2018. | 10-K | 001-38000 | 10.40 | March 1, 2019 |
| 10.38* | Letter Agreement, by and between JELD-WEN Holding, Inc. and the shareholder party thereto, dated February 19, 2020. | | | | |
| 21.1* | List of subsidiaries of JELD-WEN Holding, Inc. | | | | |
| 23.1* | Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm. | | | | |
| 24.1* | Power of Attorney (included on the signature page of this Annual Report on Form 10-K). | | | | |
| 31.1* | Certification of Periodic Report by Chief Executive Officer under Section 302 of the Sarbanes-Oxley Act of 2002. | | | | |
| 31.2* | Certification of Periodic Report by Chief Financial Officer under Section 302 of the Sarbanes-Oxley Act of 2002. | | | | |
| 32.1* | Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. | | | | |
| 101.INS* | Inline XBRL Instance Document. | | | | |
| 101.SCH* | Inline XBRL Taxonomy Extension Schema Document. | | | | |
| 101.CAL* | Inline XBRL Taxonomy Extension Calculation Linkbase Document. | | | | |
| 101.DEF* | Inline XBRL Taxonomy Extension Definition Linkbase Document. | | | | |
| 101.LAB* | Inline XBRL Taxonomy Extension Label Linkbase Document. | | | | |
| 101.PRE* | Inline XBRL Taxonomy Extension Presentation Linkbase Document. | | | | |
| 104 | Cover Page Interactive Data File (formatted in Inline XBRL and contained in Exhibit 101). | | | | |

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|---|---|
| * | Filed herewith. |
| + | Indicates management contract or compensatory plan. |

**Item 16 - Form 10-K Summary.**

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None.

**SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

**JELD-WEN HOLDING, INC.**
(Registrant)

By: /s/ John Linker
John Linker
Chief Financial Officer

Date: February 24, 2020

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints John Linker and Laura W. Doerre, jointly and severally, his attorney-in-fact, with the power of substitution, for him in any and all capacities, to sign any amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities and Exchange Act of 1934, this 10-K has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

| Signature | Title | Date |
|---|---|---|
| /s/ Gary S. Michel<br>Gary S. Michel | President, Chief Executive Officer and Director (Principal Executive Officer) | February 24, 2020 |
| /s/ John Linker<br>John Linker | Chief Financial Officer (Principal Financial Officer) | February 24, 2020 |
| /s/ Scott Vining<br>Scott Vining | Chief Accounting Officer (Principal Accounting Officer) | February 24, 2020 |
| /s/ Matthew Ross<br>Matthew Ross | Chairman | February 24, 2020 |
| /s/ Roderick C. Wendt<br>Roderick C. Wendt | Vice Chairman | February 24, 2020 |
| /s/ William Banholzer<br>William Banholzer | Director | February 24, 2020 |
| /s/ Martha Byorum<br>Martha (Stormy) Byorum | Director | February 24, 2020 |
| /s/ Greg G. Maxwell<br>Greg G. Maxwell | Director | February 24, 2020 |

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| Signature | Title | Date |
|---|---|---|
| /s/ Anthony Munk<br>Anthony Munk | Director | February 24, 2020 |
| /s/ Suzanne Stefany<br>Suzanne Stefany | Director | February 24, 2020 |
| /s/ Bruce Taten<br>Bruce Taten | Director | February 24, 2020 |
| /s/ Steven E. Wynne<br>Steven E. Wynne | Director | February 24, 2020 |

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## Index to Consolidated Financial Statements



## Index to Financial Statement Schedules

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**Report of Independent Registered Public Accounting Firm**

To the Board of Directors and Shareholders of JELD-WEN Holding, Inc.

***Opinions on the Financial Statements and Internal Control over Financial Reporting***

We have audited the accompanying consolidated balance sheets of JELD-WEN Holding, Inc. and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for each of the three years in the period ended December 31, 2019, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO because material weaknesses in internal control over financial reporting existed as of that date related to (1) the ineffective control environment in its Europe operations due to a lack of a sufficient complement of personnel with the appropriate level of knowledge, experience and training, (2) ineffective monitoring controls at the Europe operations and corporate levels as they did not operate with a sufficient degree of precision to provide for the appropriate level of oversight of activities, (3) a lack of controls designed and maintained at certain European locations to ensure the review and approval of the initial set-up, and subsequent changes/modifications, of customer pricing related to revenue arrangements, (4) a lack of controls designed and maintained at certain European locations to ensure journal entries were properly prepared with sufficient supporting documentation, were reviewed and approved to ensure accuracy and completeness of the journal entries, and were reviewed by an appropriate individual separate from the preparer of such journal entry, and (5) a lack of controls designed and maintained at certain European locations to ensure the subsidiary financial information used in the preparation of the consolidated financial statements agreed to the financial information recorded in the subsidiary ledger, and to the extent there were differences, that they were appropriately validated.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. The material weaknesses referred to above are described in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. We considered these material weaknesses in determining the nature, timing, and extent of audit tests applied in our audit of the 2019 consolidated financial statements, and our opinion regarding the effectiveness of the Company's internal control over financial reporting does not affect our opinion on those consolidated financial statements.

*Change in Accounting Principle*

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

***Basis for Opinions***

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in management's report referred to above. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial

statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded certain elements of the internal control over financial reporting of VPI Quality Windows, Inc. from its assessment of the Company's internal control over financial reporting as of December 31, 2019 because it was acquired by the Company in a purchase business combination during 2019. Subsequent to the acquisition, certain elements of VPI Quality Windows, Inc.'s internal control over financial reporting and related processes were integrated into the Company's existing systems and internal control over financial reporting. Those controls that were not integrated have been excluded from management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2019. We have also excluded these elements of the internal control over financial reporting of VPI Quality Windows, Inc. from our audit of the Company's internal control over financial reporting. The excluded elements represent controls over approximately 0.6% of consolidated total assets and 1.1% of the consolidated net revenues as of and for the year ended December 31, 2019.

***Definition and Limitations of Internal Control over Financial Reporting***

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

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

***Critical Audit Matters***

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

*Goodwill Impairment Assessment*

As described in Notes 1 and 7 to the consolidated financial statements, the Company's consolidated goodwill balance was $602.5 million as of December 31, 2019. Management tests goodwill for impairment on an annual basis during the fourth quarter and between annual tests if indicators of potential impairment exist, using a fair-value-based approach. Fair value of the reporting units is determined by management using a discounted cash flow model. Management's cash flow projections included significant judgments and assumptions relating to future revenue and terminal growth rates, profit margins, and the cost of capital.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment is a critical audit matter are there was significant judgment by management when developing the fair value estimate of the reporting units. This in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures to evaluate management's cash flow projections and significant assumptions, including future revenue and terminal growth rates, profit margins, and the cost of capital. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained from these procedures.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's

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goodwill impairment assessment, including controls over the valuation of the Company's reporting units. These procedures also included, among others, testing management's process for developing the fair value estimates, evaluating the appropriateness of the discounted cash flow model, testing the completeness, accuracy, and relevance of underlying data used in the model, and evaluating the reasonableness of significant assumptions used by management, including future revenue and terminal growth rates, profit margins, and the cost of capital. Evaluating management's assumptions related to future revenue and terminal growth rates and profit margins involved evaluating whether the assumptions used by management were reasonable considering (i) the current and past performance of the reporting units, (ii) the consistency with external market and industry data, and (iii) whether these assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in the evaluation of the Company's discounted cash flow model and certain significant assumptions, including the cost of capital.

/s/ PricewaterhouseCoopers LLP

Charlotte, North Carolina
February 24, 2020

We have served as the Company's auditor since 2000.

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**Item 1 - Financial Statements**

# JELD-WEN HOLDING, INC.
# CONSOLIDATED STATEMENTS OF OPERATIONS

| (amounts in thousands, except share and per share data) | For the Years Ended December 31, 2019 | 2018 | 2017 |
|---|---|---|---|
| Net revenues | $ 4,289,761 | $ 4,346,847 | $ 3,763,749 |
| Cost of sales | 3,417,222 | 3,428,311 | 2,916,232 |
| Gross margin | 872,539 | 918,536 | 847,517 |
| Selling, general and administrative | 660,574 | 734,166 | 573,004 |
| Impairment and restructuring charges | 21,551 | 17,328 | 13,056 |
| Operating income | 190,414 | 167,042 | 261,457 |
| Interest expense, net | 71,778 | 70,818 | 79,034 |
| Other (income) expense | (1,409) | (34,887) | 40,122 |
| Income before taxes and equity earnings | 120,045 | 131,111 | 142,301 |
| Income tax expense (benefit) | 57,074 | (10,058) | 137,818 |
| Income from continuing operations, net of tax | 62,971 | 141,169 | 4,483 |
| Equity earnings of non-consolidated entities | — | 738 | 3,639 |
| Net income | $ 62,971 | $ 141,907 | $ 8,122 |
| Convertible preferred stock dividends | — | — | 10,462 |
| Net income (loss) attributable to common shareholders | $ 62,971 | $ 141,907 | $ (2,340) |
| | | | |
| Weighted average common shares outstanding: | | | |
| Basic | 100,618,105 | 104,530,572 | 97,460,676 |
| Diluted | 101,464,325 | 106,360,657 | 97,460,676 |
| Net income per share | | | |
| Basic | $ 0.63 | $ 1.36 | $ (0.02) |
| Diluted | $ 0.62 | $ 1.33 | $ (0.02) |

The accompanying notes are an integral part of these Consolidated Financial Statements.

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# JELD-WEN HOLDING, INC.
## CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

| (amounts in thousands) | For the Years Ended December 31, 2019 | 2018 | 2017 |
|---|---|---|---|
| Net income | $ 62,971 | $ 141,907 | $ 8,122 |
| **Other comprehensive income (loss), net of tax:** | | | |
| Foreign currency translation adjustments, net of tax benefit of $0, ($1,892), and $0, respectively | (15,335) | (65,185) | 88,788 |
| Interest rate hedge adjustments, net of tax (benefit) expense of ($4,831), ($538), and $5,001, respectively | 6,173 | 2,636 | 4,486 |
| Defined benefit pension plans, net of tax (benefit) expense of $1,152, $4,214, and $5,357, respectively | 2,692 | 12,237 | 9,415 |
| | (6,470) | (50,312) | 102,689 |
| Comprehensive income | $ 56,501 | $ 91,595 | $ 110,811 |

The accompanying notes are an integral part of these Consolidated Financial Statements.

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# JELD-WEN HOLDING, INC.
## CONSOLIDATED BALANCE SHEETS

| (amounts in thousands, except share and per share data) | December 31, 2019 | December 31, 2018 |
|---|---|---|
| **ASSETS** | | |
| Current assets | | |
| Cash and cash equivalents | $ 225,962 | $ 116,991 |
| Restricted cash | 3,914 | 632 |
| Accounts receivable, net | 469,762 | 471,843 |
| Inventories | 505,078 | 508,499 |
| Other current assets | 38,562 | 48,674 |
| Total current assets | 1,243,278 | 1,146,639 |
| Property and equipment, net | 864,375 | 843,403 |
| Deferred tax assets | 183,837 | 209,062 |
| Goodwill | 602,500 | 585,942 |
| Intangible assets, net | 250,327 | 225,553 |
| Operating lease assets, net | 202,053 | — |
| Other assets | 34,962 | 36,926 |
| Total assets | $ 3,381,332 | $ 3,047,525 |
| **LIABILITIES AND EQUITY** | | |
| Current liabilities | | |
| Accounts payable | $ 294,951 | $ 249,978 |
| Accrued payroll and benefits | 109,386 | 115,018 |
| Accrued expenses and other current liabilities | 298,603 | 252,310 |
| Current maturities of long-term debt | 65,846 | 54,930 |
| Total current liabilities | 768,786 | 672,236 |
| Long-term debt | 1,451,526 | 1,422,962 |
| Unfunded pension liability | 107,937 | 107,522 |
| Operating lease liability | 164,026 | — |
| Deferred credits and other liabilities | 67,682 | 72,693 |
| Deferred tax liabilities | 9,288 | 10,478 |
| Total liabilities | 2,569,245 | 2,285,891 |
| Commitments and contingencies *(Note 28)* | | |
| **Shareholders' equity** | | |
| Preferred Stock, par value $0.01 per share, 90,000,000 shares authorized; no shares issued and outstanding | — | — |
| Common Stock: 900,000,000 shares authorized, par value $0.01 per share, 100,668,003 shares outstanding as of December 31, 2019; 900,000,000 shares authorized, par value $0.01 per share, 101,310,862 shares outstanding as of December 31, 2018 | 1,007 | 1,013 |
| Additional paid-in capital | 671,772 | 658,593 |
| Retained earnings | 290,583 | 246,833 |
| Accumulated other comprehensive loss | (151,275) | (144,805) |
| Total shareholders' equity | 812,087 | 761,634 |
| Total liabilities and shareholders' equity | $ 3,381,332 | $ 3,047,525 |

The accompanying notes are an integral part of these Consolidated Financial Statements.

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# JELD-WEN HOLDING, INC.
# CONSOLIDATED STATEMENTS OF EQUITY

| (amounts in thousands, except share and per share amounts) | December 31, 2019 | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|---|
| | Shares | Amount | Shares | Amount | Shares | Amount |
| **Preferred stock, $0.01 par value per share** | — | $ — | — | $ — | — | $ — |
| **Common stock, $0.01 par value per share** | | | | | | |
| Balance at beginning of period | 101,310,862 | $ 1,013 | 105,990,483 | $ 1,060 | 17,894,393 | $ 178 |
| Shares issued for exercise/vesting of share-based compensation awards | 645,957 | 7 | 907,068 | 9 | 2,047,668 | 21 |
| Shares repurchased | (1,192,419) | (12) | (5,287,964) | (53) | (2,266) | — |
| Shares issued upon conversion of Class B-1 Common Stock | — | — | — | — | 309,404 | 3 |
| Shares issued upon conversion of convertible preferred stock to Common Stock | — | — | — | — | 64,211,172 | 642 |
| Shares surrendered for tax obligations for employee share-based transactions | (96,397) | (1) | (298,725) | (3) | (742,615) | (7) |
| Shares issued in initial public offering | — | — | — | — | 22,272,727 | 223 |
| Balance at period end | 100,668,003 | $ 1,007 | 101,310,862 | $ 1,013 | 105,990,483 | $ 1,060 |
| **Class B-1 Common Stock** | | | | | | |
| Balance as of January 1 | — | — | — | — | 177,221 | 2 |
| Class B-1 Common Stock converted to common | — | — | — | — | (177,221) | (2) |
| Balance at period end | — | — | — | — | — | — |
| Balance at period end | | $ 1,007 | | $ 1,013 | | $ 1,060 |
| **Additional paid-in capital** | | | | | | |
| Balance at beginning of period | | $ 659,241 | | $ 653,327 | | $ 37,205 |
| Shares issued for exercise/vesting of share-based compensation awards | | 1,970 | | 192 | | 1,008 |
| Shares repurchased | | — | | — | | (183) |
| Shares surrendered for tax obligations for employee share-based transactions | | (1,956) | | (8,887) | | (25,897) |
| Conversion of convertible preferred stock | | — | | — | | 150,901 |
| Initial public offering proceeds, net of underwriting fees and commissions | | — | | — | | 480,306 |
| Costs associated with initial public offering | | — | | — | | (7,923) |
| Amortization of share-based compensation | | 13,190 | | 14,609 | | 17,910 |
| Balance at period end | | 672,445 | | 659,241 | | 653,327 |
| **Employee stock notes** | | | | | | |
| Balance at beginning of period | | (648) | | (661) | | (843) |
| Net issuances, payments and accrued interest on notes | | (25) | | 13 | | 182 |
| Balance at period end | | (673) | | (648) | | (661) |
| Balance at period end | | $ 671,772 | | $ 658,593 | | $ 652,666 |

(continued on next page)

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# JELD-WEN HOLDING, INC.
## CONSOLIDATED STATEMENTS OF EQUITY
**(continued)**

| | | | |
|---|---|---|---|
| **Retained earnings** | | | |
| Balance at beginning of period | $ 246,833 | $ 229,903 | $ 221,146 |
| Share repurchased | (19,982) | (124,977) | — |
| Adoption of new accounting standard ASU No. 2016-02 | 761 | — | — |
| Adoption of new accounting standard ASU 2016-09 | — | — | 635 |
| Net income | 62,971 | 141,907 | 8,122 |
| Balance at period end | $ 290,583 | $ 246,833 | $ 229,903 |
| **Accumulated other comprehensive income (loss)** | | | |
| Balance at beginning of period | $ (144,805) | $ (94,493) | $ (197,182) |
| Foreign currency adjustments | (15,335) | (65,185) | 88,788 |
| Unrealized gain on interest rate hedges | 6,173 | 2,636 | 4,486 |
| Net actuarial pension gain | 2,692 | 12,237 | 9,415 |
| Balance at period end | $ (151,275) | $ (144,805) | $ (94,493) |
| | | | |
| Total shareholders' equity at period end | $ 812,087 | $ 761,634 | $ 789,136 |

The accompanying notes are an integral part of these Consolidated Financial Statements.

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# JELD-WEN HOLDING, INC.
# CONSOLIDATED STATEMENTS OF CASH FLOWS

| (amounts in thousands) | For the Years Ended December 31, 2019 | 2018 | 2017 |
|---|---|---|---|
| **OPERATING ACTIVITIES** | | | |
| Net income | $ 62,971 | $ 141,907 | $ 8,122 |
| Adjustments to reconcile net income to cash used in operating activities: | | | |
| Depreciation and amortization | 133,969 | 125,100 | 111,273 |
| Deferred income taxes | 21,838 | (35,804) | 96,224 |
| (Gain) loss on sale of business units, property and equipment | (1,377) | 845 | 206 |
| Adjustment to carrying value of assets | 6,625 | 1,230 | 1,479 |
| Equity earnings in non-consolidated entities | — | (738) | (3,639) |
| Amortization of deferred financing costs | 1,971 | 2,107 | 9,422 |
| Loss on extinguishment of debt | — | — | 23,262 |
| Non-cash gain on previously held shares of an equity investment | — | (20,767) | — |
| Stock-based compensation | 13,315 | 15,052 | 19,785 |
| Contributions to U.S. pension plan | (7,760) | (4,125) | (10,000) |
| Amortization of U.S. pension expense | 8,919 | 9,314 | 12,680 |
| Other items, net | (3,320) | 2,263 | (6,873) |
| Net change in operating assets and liabilities, net of effect of acquisitions: | | | |
| Accounts receivable | 8,426 | 16,507 | 1,295 |
| Inventories | 4,190 | (33,092) | (30,518) |
| Other assets | 6,938 | (18,966) | (5,673) |
| Accounts payable and accrued expenses | 37,611 | 39,540 | 26,740 |
| Change in short term and long-term tax liabilities | 8,393 | (20,720) | 12,008 |
| Net cash provided by operating activities | 302,709 | 219,653 | 265,793 |
| **INVESTING ACTIVITIES** | | | |
| Purchases of property and equipment | (101,506) | (97,399) | (59,599) |
| Proceeds from sale of business units, property and equipment | 8,632 | 1,973 | 2,713 |
| Purchase of intangible assets | (34,686) | (21,301) | (3,450) |
| Purchases of businesses, net of cash acquired | (57,799) | (167,688) | (131,448) |
| Cash received for notes receivable | 411 | 274 | 1,991 |
| Net cash used in investing activities | (184,948) | (284,141) | (189,793) |
| **FINANCING ACTIVITIES** | | | |
| Change in long-term debt | 13,101 | 70,468 | (389,665) |
| Payments of notes payable | — | — | (205) |
| Employee note repayments | — | 39 | 26 |
| Contingent consideration for acquisitions | — | (3,701) | — |
| Common stock issued for exercise of options | 1,977 | 201 | 1,029 |
| Common stock repurchased | (19,994) | (125,030) | — |
| Payments to tax authorities for employee share-based compensation | (1,495) | (9,452) | (25,335) |
| Proceeds from sale of common stock, net of underwriting fees and commissions | — | — | 480,306 |
| Payments associated with initial public offering | — | — | (2,066) |
| Net cash (used in) provided by financing activities | (6,411) | (67,475) | 64,090 |
| Effect of foreign currency exchange rates on cash | 903 | (6,648) | 12,692 |
| Net increase (decrease) in cash and cash equivalents | 112,253 | (138,611) | 152,782 |
| Cash, cash equivalents and restricted cash, beginning | 117,623 | 256,234 | 103,452 |
| Cash, cash equivalents and restricted cash, ending | $ 229,876 | $ 117,623 | $ 256,234 |

For further information see Note 30 - *Supplemental Cash Flow.*

The accompanying notes are an integral part of these Consolidated Financial Statements.

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# JELD-WEN HOLDING, INC.
# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

## Note 1. Description of Company and Summary of Significant Accounting Policies

**Nature of Business** – JELD-WEN Holding, Inc., along with its subsidiaries, is a vertically integrated global manufacturer and distributor of windows and doors that derives substantially all of its revenues from the sale of its door and window products. Unless otherwise specified or the context otherwise requires, all references in these notes to “JELD-WEN,” “we,” “us,” “our,” or the “Company” are to JELD-WEN Holding, Inc. and its subsidiaries.

We have facilities located in the U.S., Canada, Europe, Australia, Asia, Mexico, and South America. Our products are marketed primarily under the JELD-WEN brand name in the U.S. and Canada and under JELD-WEN and a variety of acquired brand names in Europe, Australia and Asia.

Our revenues are affected by the level of new housing starts and remodeling activity in each of our markets. Our sales typically follow seasonal new construction and repair and remodeling industry patterns. The peak season for home construction and remodeling in many of our markets generally corresponds with the second and third calendar quarters, and therefore, sales volume is typically higher during those quarters. Our first and fourth quarter sales volumes are generally lower due to reduced repair and remodeling activity and reduced activity in the building and construction industry as a result of colder and more inclement weather in certain of our geographic end markets.

**Basis of Presentation** – Certain prior year amounts have been reclassified to conform to current year presentation. The consolidated balance sheets, statements of operations and statements of cash flows have been revised to reflect the correction of certain errors and other accumulated misstatements as described in Note 32 - *Revision of Prior Period Financial Statements*. We do not believe the errors corrected were material to our previously issued financial statements.

All U.S. dollar and other currency amounts, except per share amounts, are presented in thousands unless otherwise noted.

**Ownership** – On October 3, 2011, Onex invested $700.0 million in return for shares of our Series A Convertible Preferred Stock. Concurrent with the investment, Onex provided $171.0 million in the form of a convertible bridge loan due in April 2013. In October 2012, Onex invested an additional $49.8 million in return for additional shares of our Series A Convertible Preferred Stock to fund an acquisition. In April 2013, the $71.6 million outstanding balance of the convertible bridge loan was converted into additional shares of our Series A Convertible Preferred Stock. In March 2014, Onex purchased $65.8 million in common stock from another investor. As part of the IPO, Onex sold 6,477,273 shares of our Common Stock. In May 2017 and November 2017, Onex sold a total of 15,693,139 and 14,211,736 shares of our Common Stock, respectively, in secondary offerings. We did not receive any proceeds from the shares of Common Stock sold by Onex, in any offering. As of December 31, 2019, Onex owned approximately 32.6% of the outstanding shares of our Common Stock.

**Stock Split** – On January 3, 2017, our shareholders approved amendments to our then-existing certificate of incorporation increasing the authorized number of shares and effecting an 11-for-1 stock split of our then-outstanding common stock and Class B-1 Common Stock. Accordingly, all share and per share amounts for all periods presented in these consolidated financial statements and notes thereto have been adjusted to reflect this stock split.

**Stock Conversion and Initial Public Offering** – Prior to the IPO, we had the authority to issue up to 8,750,000 shares of preferred stock, par value of $0.01, of which 8,749,999 shares were designated as Series A Convertible Preferred Stock and one share was designated as Series B Preferred Stock. Series A Convertible Preferred Stock consisted of 2,922,634 shares of Series A-1 Stock, 208,760 shares of Series A-2 Stock, 843,132 shares of Series A-3 Stock, and 4,775,473 shares of Series A-4 Stock.

On February 1, 2017, immediately prior to the closing of our IPO, the outstanding shares of our Series A Convertible Preferred Stock and all accumulated and unpaid dividends converted into 64,211,172 shares of our Common Stock, and all of the outstanding shares of our Class B-1 Common Stock converted into 309,404 shares of our Common Stock. In addition, the one outstanding share of our Series B Preferred Stock was canceled. We filed our Charter with the Secretary of State of the State of Delaware, and our Bylaws became effective, each as contemplated by the registration statement we filed as part of our IPO. The Charter, among other things, provided that our authorized capital stock consists of 900,000,000 shares of Common Stock, par value $0.01 per share and 90,000,000 shares of preferred stock, par value $0.01 per share.

On February 1, 2017, we closed our IPO and received $472.4 million in proceeds, net of underwriting discounts, fees and commissions and $7.9 million of offering expenses from the issuance of 22,272,727 shares of our Common Stock.

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**Share Repurchases** – In April 2018, our Board of Directors authorized the repurchase of up to $250.0 million of our Common Stock through December 2019. Share repurchases are recorded on their trade date and reduce shareholders' equity and increase accounts payable. Repurchased shares are retired, and the excess of the repurchase price over the par value of the shares is charged to retained earnings. During the years ended December 31, 2019 and December 31,
2018, we repurchased 1,192,419 and 5,287,964 shares, respectively, of our common stock for aggregate consideration of $20.0 million and $125.0 million, respectively.

On November 4, 2019, the Board of Directors authorized an increase to the remaining authorization under the share repurchase program to a total of $175.0 million with no expiration date. As of December 31, 2019, $175.0 million was remaining under the repurchase authorization.

**Fiscal Year** – We operate on a fiscal calendar year, and each interim quarter is comprised of two 4-week periods and one 5-week period, with each week ending on a Saturday. Our fiscal year always begins on January 1 and ends on December 31. As a result, our first and fourth quarters may have more or fewer days included than a traditional 91-day fiscal quarter.

**Use of Estimates** – The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect amounts reported in the consolidated financial statements and related notes. Significant items that are subject to such estimates and assumptions include, but are not limited to, long-lived assets including goodwill and other intangible assets, employee benefit obligations, income tax uncertainties, contingent assets and liabilities, provisions for bad debt, inventory, warranty liabilities, legal claims, valuation of derivatives, environmental remediation and claims relating to self-insurance. Actual results could differ due to the uncertainty inherent in the nature of these estimates.

**Segment Reporting** – Our reportable segments are organized and managed principally by geographic region: North America, Europe and Australasia. We report all other business activities in Corporate and unallocated costs. In addition to similar economic characteristics, we also consider the following factors in determining the reportable segments: the nature of business activities, the management structure directly accountable to our chief operating decision maker for operating and administrative activities, the discrete financial information regularly reviewed by the chief operating decision maker, and information presented to the Board of Directors and investors. No segments have been aggregated for our presentation.

**Acquisitions** – We apply the provisions of FASB ASC Topic 805, *Business Combinations*, in the accounting for our acquisitions. It requires us to recognize separately from goodwill the assets acquired and the liabilities assumed, at their acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred and the net of the acquisition date fair values of the assets acquired and the liabilities assumed. While we use our best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date as well as contingent consideration, where applicable, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, material adjustments must be reflected in the reporting period in which the adjustment amount is determined. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded in the current period in our consolidated statements of operations.

For a given acquisition, we may identify certain pre-acquisition contingencies as of the acquisition date and may extend our review and evaluation of these pre-acquisition contingencies throughout the measurement period in order to obtain sufficient information to assess whether we include these contingencies as a part of the fair value estimates of assets acquired and liabilities assumed and, if so, to determine their estimated amounts.

If we cannot reasonably determine the fair value of a pre-acquisition contingency (non-income tax related) by the end of the measurement period, we will recognize an asset or a liability for such pre-acquisition contingency if: (a) it is probable that an asset existed or a liability had been incurred at the acquisition date and (b) the amount of the asset or liability can be reasonably estimated. Subsequent to the measurement period, changes in our estimates of such contingencies will affect earnings and could have a material effect on our results of operations and financial position.

In addition, uncertain tax positions and tax related valuation allowances assumed in connection with a business combination are initially estimated as of the acquisition date. We re-evaluate these items quarterly based upon facts and circumstances that existed as of the acquisition date. Subsequent to the measurement period or our final determination of the tax allowance's or contingency's estimated value, whichever comes first, changes to these uncertain tax positions and tax related valuation allowances will affect our provision for income taxes in our consolidated statements of operations and could have a material impact on our results of operations and financial position.

**Cash and Cash Equivalents** – We consider all highly-liquid investments purchased with an original or remaining maturity at the date of purchase of three months or less to be cash equivalents. Our cash management system is designed to maintain zero bank balances at certain banks. Checks written and not presented to these banks for payment are reflected as book overdrafts and are a component of accounts payable.

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**Restricted Cash** – Restricted cash consists primarily cash held in escrow due to timing and cash required to meet certain bank guarantees and projected self-insurance obligations. New funding is generated from employees' portion of contributions and is added to the deposit account weekly as claims are paid.

**Accounts Receivable** – Accounts receivable are recorded at their net realizable value. Our customers are primarily retailers, distributors and contractors. As of December 31, 2019, one customer accounted for 17.6% of the consolidated accounts receivable balance. As of December 31, 2018, one customer accounted for 16.0% of the consolidated accounts receivable balance. We maintain allowances for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. We estimate the allowance for doubtful accounts based on a variety of factors including the length of time receivables are past due, the financial health of our customers, unusual macroeconomic conditions and historical experience. If the financial condition of a customer deteriorates or other circumstances occur that result in an impairment of a customer's ability to make payments, we record additional allowances as needed. We write off uncollectible trade accounts receivable against the allowance for doubtful accounts when collection efforts have been exhausted and/or any legal action taken by us has concluded.

**Inventories** – Inventories in the accompanying consolidated balance sheets are valued at the lower of cost or net realizable value and are determined by the first-in, first-out ("FIFO") or average cost methods. We record provisions to write-down obsolete and excess inventory to its estimated net realizable value. The process for evaluating obsolete and excess inventory requires us to evaluate historical inventory usage and expected future production needs. Accelerating the disposal process or incorrect estimates may cause actual results to differ from the estimates at the time such inventory is disposed or sold. We classify certain inventories that are available for sale directly to external customers or used in the manufacturing of a finished good within raw materials.

**Notes Receivable** – Notes receivable are recorded at their net realizable value. The balance consists primarily of installment notes and affiliate notes. The allowance for doubtful notes is based upon historical loss trends and specific reviews of delinquent notes. We write off uncollectible note receivables against the allowance for doubtful accounts when collection efforts have been exhausted and/or any legal action taken by us has been concluded. Current maturities and interest, net of short-term allowance are reported as other current assets.

**Customer Displays** – Customer displays include all costs to manufacture, ship and install the displays of our products in retail store locations. Capitalized display costs are included in other assets and are amortized over the life of the product lines, typically 3 to 4 years. Related amortization is included in SG&A expense in the accompanying consolidated statements of operations and was $8.7 million in 2019, $9.0 million in 2018, and $8.6 million in 2017.

**Cloud Computing Arrangements** –We capitalize qualified cloud computing implementation costs associated with the application development stage and subsequently amortize these costs over the term of the hosting agreement and stated renewal period, if it is reasonably certain we will renew. Capitalized costs are included in other assets on the consolidated balance sheet and amortization is included in SG&A expense in the accompanying consolidated statement of operations.

**Property and Equipment** – Property and equipment are recorded at cost. The cost of major additions and betterments are capitalized and depreciated using the straight-line method over their estimated useful lives. Replacements, maintenance and repairs that do not improve or extend the useful lives of the related assets or adapt the property to a new or different use are expensed as incurred. Interest over the construction period is capitalized as a component of cost of constructed assets. Upon sale or retirement of property or equipment, cost and related accumulated depreciation are removed from the accounts and any gain or loss is charged to income.

Leasehold improvements are amortized over the shorter of the useful life of the improvement, the lease term, or the life of the building. Depreciation is generally provided over the following estimated useful service lives:

| | |
|---|---|
| Land improvements | 10 - 20 years |
| Buildings | 15 - 45 years |
| Machinery and equipment | 3 - 20 years |

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**Intangible Assets** –Intangible assets are accounted for in accordance with ASC 350, *Intangibles – Goodwill and Other*. Definite lived intangible assets are amortized based on the pattern of economic benefit over the following estimated useful lives:

| | |
|---|---|
| Trademarks and trade names | 3 - 40 years |
| Software | 1 - 15 years |
| Licenses and rights | 2 - 14 years |
| Customer relationships | 1 - 16 years |
| Patents | 3 - 25 years |

The lives of definite lived intangible assets are reviewed and reduced if necessary, whenever changes in their planned use occur. Legal and registration costs related to internally-developed patents and trademarks are capitalized and amortized over the lesser of their expected useful life or the legal patent life. Cost and accumulated amortization are removed from the accounts in the period that an intangible asset becomes fully amortized. The carrying value of intangible assets is reviewed by management to assess the recoverability of the assets when facts and circumstances indicate that the carrying value may not be recoverable. The recoverability test requires us to first compare undiscounted cash flows expected to be generated by that definite lived intangible asset or asset group to its carrying amount. If the carrying amounts of the definite lived intangible assets are not recoverable on an undiscounted cash flow basis, an impairment charge is recognized to the extent that the carrying amount exceeds its fair value. Fair value is determined through various valuation techniques.

Our valuation of identifiable intangible assets acquired is based on information and assumptions available to us at the time of acquisition, using income and market approaches to determine fair value. We do not amortize our indefinite-lived intangible assets, but test for impairment annually, or when indications of potential impairment exist. For intangible assets other than goodwill, if the carrying value exceeds the fair value, we recognize an impairment loss in an amount equal to the excess. No material impairments were identified during fiscal years 2019, 2018 and 2017.

We capitalize certain qualified internal use software costs during the application development stage and subsequently amortize these costs over the estimated useful life of the asset. Costs incurred during the preliminary project stage and post-implementation operation stage are expensed as incurred.

**Long-Lived Assets** – Long-lived assets, other than goodwill, are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. The first step in an impairment review is to forecast the expected undiscounted cash flows generated from the anticipated use and eventual disposition of the asset. If the expected undiscounted cash flows are less than the carrying value of the asset, then an impairment charge is required to reduce the carrying value of the asset to fair value. Long-lived assets currently available for sale and expected to be sold within one year are classified as held for sale in other current assets.

**Leases** – We lease certain warehouses, distribution centers, office space, land, vehicles and equipment. We determine if an arrangement is a lease at inception. A contract is or contains a lease if the contract conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration. Amounts associated with operating leases are included in operating lease assets (“ROU assets”), net, accrued expense and other current liabilities and noncurrent operating lease liability in our consolidated balance sheet. Amounts associated with finance leases are included in property and equipment, net, current maturities of long-term debt and long-term debt in our consolidated balance sheet.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. ROU assets and liabilities are recognized at the lease commencement date based on the estimated present value of lease payments over the lease term.

If the leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments. The incremental borrowing rate for operating leases that commenced in the period is determined by using the prior quarter end’s incremental borrowing rates.

Leases with an initial term of 12 months or less are not recorded on the balance sheet, and we recognize lease expense for these leases on a straight-line basis over the lease term. For lease agreements entered into or reassessed after the adoption of Topic 842, we combine lease and nonlease components.

Certain leases include one or more options to renew, with renewal terms that can extend the lease term from one to 20 years or more, and the exercise of lease renewal options under these leases is at our sole discretion. The depreciable life of assets and leasehold improvements are limited by the expected lease term. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants.

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**Goodwill** – Goodwill is tested for impairment on an annual basis and between annual tests if indicators of potential impairment exist, using a fair-value-based approach. Current accounting guidance provides an entity the option to perform a qualitative assessment to determine whether it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount prior to performing the two-step goodwill impairment test. If this is the case, the two-step goodwill impairment test is required. If it is more-likely-than-not that the fair value of a reporting unit is greater than its carrying amount, the two-step goodwill impairment test is not required.

If the two-step goodwill impairment test is required, first, the fair value of the reporting unit is compared with its carrying amount (including attributable goodwill). If the fair value of the reporting unit is less than its carrying amount, an indication of goodwill impairment exists for the reporting unit and the entity must perform step two of the impairment test (measurement). Under step two, an impairment loss is recognized for any excess of the carrying amount of the reporting unit's goodwill over the implied fair value of that goodwill. The implied fair value of goodwill is determined by allocating the fair value of the reporting unit in a manner similar to a purchase price allocation and the residual fair value after this allocation is the implied fair value of the reporting unit goodwill. Fair value of the reporting unit is determined using a discounted cash flow analysis. If the fair value of the reporting unit exceeds its carrying amount, step two does not need to be performed.

We estimated the fair value of our reporting units using a discounted cash flow model (implied fair value measured on a non-recurring basis using level 3 inputs). Inherent in the development of the discounted cash flow projections are assumptions and estimates derived from a review of our expected revenue and terminal growth rates, profit margins, and cost of capital. Changes in assumptions or estimates used in our goodwill impairment testing could materially affect the determination of the fair value of a reporting unit, and therefore, could eliminate the excess of fair value over carrying value of a reporting unit and, in some cases, could result in impairment. Such changes in assumptions could be caused by items such as a loss of one or more significant customers, decline in the demand for our products due to changing economic conditions or failure to control cost increases above what can be recouped in sale price increases. These types of changes would negatively affect our profits, revenues and growth over the long term and such a decline could significantly affect the fair value assessment of our reporting units and cause our goodwill to become impaired.

We have completed the required annual testing of goodwill for impairment for all reporting units and have determined that goodwill was not impaired in any years presented.

**Deferred Revenue** – We record deferred revenue when we collect pre-payments from customers for performance obligations we expect to fulfill through future performance of a service or delivery of a product. We classify our deferred revenue based on our estimate as to when we expect to satisfy the related performance obligations. Current deferred revenues are typically included in accrued expenses and other current liabilities in the accompanying consolidated balance sheets.

**Warranty Accrual** – Warranty terms range primarily from one year to lifetime on certain window and door components. Warranties are normally limited to replacement or service of defective components for the original customer. Some warranties are transferable to subsequent owners and are generally limited to ten years from the date of manufacture or require pro-rata payments from the customer. A provision for estimated warranty costs is recorded at the time of sale based on historical experience and we periodically adjust these provisions to reflect actual experience.

**Restructuring** – Costs to exit or restructure certain activities of an acquired company or our internal operations are accounted for as one-time termination and exit costs as required by the provisions of FASB ASC 420, *Exit or Disposal Cost Obligations*, and are accounted for separately from any business combination. A liability for costs associated with an exit or disposal activity is recognized and measured at its fair value in our consolidated statements of operations in the period in which the liability is incurred. When estimating the fair value of restructuring activities, assumptions are applied, which can differ materially from actual results. This may require us to revise our initial estimates which may materially affect our results of operations and financial position in the period the revision is made.

**Derivative Financial Instruments** – Derivative financial instruments are used to manage interest rate risk associated with our borrowings and foreign currency exposures related to transactions denominated in currencies other than the U.S. dollar, or in the case of our non-U.S. companies, transactions denominated in a currency other than their functional currency. We record all derivative instruments in the consolidated balance sheets at fair value. Changes in a derivative's fair value are recognized in earnings unless specific hedge criteria are met, and we elect hedge accounting prior to entering into the derivative. If a derivative is designated as a fair value hedge, the changes in fair value of both the derivative and the hedged item attributable to the hedged risk are recognized in the results of operations. If the derivative is designated as a cash flow hedge, changes in the fair value of the derivative are recorded in consolidated other comprehensive income (loss) and subsequently classified to the consolidated statements of operations when the hedged item impacts earnings. At the inception of a fair value or cash flow hedge transaction, we formally document the hedge relationship and the risk management objective for undertaking the hedge. In addition, we assess both at inception of the fair value or cash flow

hedge and on an ongoing basis, whether the derivative in the hedging transaction has been highly effective in offsetting changes in fair value or cash flows of the hedged item and whether the derivative is expected to continue to be highly effective. The impact of any ineffectiveness is recognized in our consolidated statements of operations.

**Revenue Recognition** – Revenue is recognized when obligations under the terms of a contract with our customer are satisfied. Generally, this occurs with the transfer of control of our products or services. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. The taxes we collect concurrent with revenue-producing activities (e.g., sales tax, value added tax, and other taxes) are excluded from revenue. Incentive payments to customers that directly relate to future business are recorded as a reduction of net revenues over the periods benefited.

Shipping and handling costs and the related expenses are reported as fulfillment revenues and expenses for all customers. Therefore, all shipping and handling costs associated with outbound freight are accounted for as fulfillment costs and are included in cost of sales. The expected costs associated with our base warranties and field service actions continue to be recognized as expense when the products are sold (see Note 14 - *Warranty Liability*). Since payment is due at or shortly after the point of sale, the contract asset is classified as a receivable.

We do not adjust the promised amount of consideration for the effects of a significant financing component when we expect, at contract inception, that the period between our transfer of a promised product or service to a customer and when the customer pays for that product or service will be one year or less. We do not typically include extended payment terms in our contracts with customers. Incidental items that are immaterial in the context of the contract are recognized as expense.

We disaggregate revenues based on geographical location. See Note 18 - *Segment Information* for further information on disaggregated revenue.

**Shipping Costs** – Shipping costs charged to customers are included in net revenues. The cost of shipping is included in cost of sales.

**Advertising Costs** – All costs of advertising our products and services are charged to expense as incurred. Advertising and promotion expenses included in SG&A expenses were $40.0 million in 2019, $43.4 million in 2018 and $48.5 million in 2017.

**Interest Expense and Extinguishment of Debt Costs** – We record debt extinguishment costs separately from interest expense within other (income) expense in the consolidated statements of operations.

**Foreign Currency Translation and Adjustments** – Typically, our foreign subsidiaries maintain their accounting records in their local currency. All of the assets and liabilities of these subsidiaries (including long-term assets, such as goodwill) are converted to U.S. dollars at the exchange rate in effect at the balance sheet date, income and expense accounts are translated at average rates for the period, and shareholder's equity accounts are translated at historical rates. The effects of translating financial statements of foreign operations into our reporting currency are recognized as a cumulative translation adjustment in consolidated other comprehensive income (loss). This balance is net of tax, where applicable.

The effects of translating financial statements of foreign operations in which the U.S. dollar is their functional currency are included in the consolidated statements of operations. The effects of translating intercompany debt are recorded in the consolidated statements of operations unless the debt is of a long-term investment nature in which case gains and losses are recorded in consolidated other comprehensive income (loss).

Foreign currency transaction gains or losses are credited or charged to income as incurred.

**Income Taxes** – Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on the deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. We evaluate both the positive and negative evidence that is relevant in assessing whether we will realize the deferred tax assets. A valuation allowance is recorded when it is more likely than not that some of the deferred tax assets will not be realized. The tax effects from an uncertain tax position can be recognized in the consolidated financial statements, only if the position is more likely than not to be sustained, based on the technical merits of the position and the jurisdiction taxes of the Company. We recognize the financial statement benefit of a tax position only after determining that the relevant tax authority would more likely than not sustain the position following an audit and the tax related to the position would be due to the entity and not the owners. For tax positions meeting the more likely than not threshold, the amount recognized in the consolidated financial statements is the largest benefit that has a greater than 50 percent likelihood of being realized, upon ultimate settlement

with the relevant tax authority. We apply this accounting standard to all tax positions for which the statute of limitations remains open. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

The Tax Act passed in December 2017 had significant effects on our financial statements. In accordance with Staff Accounting Bulletin No. 118 issued by the SEC in December 2017 immediately following the passage of the Tax Act, we made provisional estimates for certain direct and indirect effects of the Tax Act based on information available to us at that time. In the fourth quarter of 2018, we completed our accounting for all of the enactment-date income tax effects of the Tax Act and recorded adjustments as a component of income tax expense from continuing operations. The Tax Act subjects a U.S. shareholder to current tax on GILTI earned by certain foreign subsidiaries. We have elected to account for the impact of GILTI in the period in which it is incurred.

We file a consolidated federal income tax return in the U.S. and various states. For financial statement purposes, we calculate the provision for federal income taxes using the separate return method. Certain subsidiaries file separate tax returns in certain countries and states. Any U.S. federal, state and foreign income taxes refundable and payable are reported in other current assets and accrued income taxes payable in the consolidated balance sheets. We recorded a non-current U.S. receivable of $0.8 million at December 31, 2018 related to the one-time deemed repatriation tax liability, which is included in other assets in the accompanying consolidated balance sheet. We do not have any non-current taxes receivable or payable at December 31, 2019.

We record interest and penalties on amounts due to tax authorities as a component of income tax expense (benefit) in the consolidated statements of operations.

**Contingent Liabilities** – Contingent liabilities arising from claims, assessments, litigation, fines, penalties, and other sources require significant judgment in determining the probability of loss and the amount of the potential loss. Each quarter, we review significant new claims and litigation for the probability of an adverse outcome. Estimates are recorded as liabilities when it is probable that a liability has been incurred and the amount of the loss is reasonably estimable. Disclosure is required when there is a reasonable possibility that the ultimate loss will materially exceed the recorded provision. Contingent liabilities are often resolved over long time periods. Estimating probable losses requires analysis of multiple forecasts that often depend on judgments about potential actions by third parties such as regulators, and the estimated loss can change materially as individual claims develop. Legal costs incurred in connection with loss contingencies are expensed as incurred.

**Employee Retirement and Pension Benefits** – We have a defined benefit plan available to certain U.S. hourly employees and several other defined benefit plans located outside of the U.S. that are country specific. The most significant of these plans is in the U.S. which is no longer open to new employees. Amounts relating to these plans are recorded based on actuarial calculations, which use various assumptions, such as discount rates and expected return on assets. See Note 29 - *Employee Retirement and Pension Benefits*.

**Factoring Arrangements** – Our ABS subsidiary, acquired in March 2018, has entered into factoring agreements with a U.S.-based financial institution under which it can elect to sell certain of its accounts receivable under non-recourse agreements. These transactions are treated as a sale and are accounted for as a reduction in accounts receivable because the agreements transfer effective control over and risk of non-collection to the factor. Thus, cash proceeds from these arrangements are reflected as operating activities, including the change of accounts receivable on our statement of cash flows each period. We do not service any factored accounts after the factoring has occurred and do not have any servicing assets or liabilities. We utilize factoring arrangements as part of our financing to manage working capital. The aggregate gross amount factored under these arrangements was $74.5 million and $56.3 million for the year ended December 31, 2019 and December 31, 2018, respectively. The cost of factoring is reflected in the accompanying consolidated statements of operations as interest expense with other financing costs and was $0.5 million and $0.4 million for the year ended December 31, 2019 and December 31, 2018, respectively.

**Recently Adopted Accounting Standards** – In August 2018, the FASB issued ASU No. 2018-15, *Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract,* which clarifies the accounting treatment for implementation costs for cloud computing arrangements (hosting arrangements) that are service contracts with the requirement for capitalizing implementation costs incurred to develop or acquire internal-use-software. We early adopted this standard in the first quarter of 2019 on a prospective basis. The adoption did not have a material impact to the consolidated financial statements or related disclosures.

In June 2018, the FASB issued ASU No. 2018-07 - *Compensation - Stock Compensation (Topic 718) Improvements to Non-employee Share-Based Payment Accounting,* which simplifies the accounting for share-based payments granted to nonemployees for goods and services. Under ASU No. 2018-07, most of the guidance on such payments to nonemployees would be aligned with the requirements for share-based payments granted to employees. We adopted this standard in the

first quarter of 2019, and the adoption did not have an impact on our consolidated financial statements or related disclosures.

In February 2018, the FASB issued ASU No. 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,* which allows a reclassification from accumulated other comprehensive income (loss) to retained earnings for stranded tax effects resulting from the Tax Act. We have chosen not to make any reclassifications under this standard.

In August 2017, the FASB issued ASU No. 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*. The targeted amendments help simplify certain aspects of hedge accounting and result in a more accurate portrayal of the economics of an entity's risk management activities in its financial statements. For cash flow and net investment hedges as of the adoption date, the guidance requires a modified retrospective approach. In October 2018, the FASB issued ASU No. 2018-16, *ASU 2018-16, Derivatives and Hedging (Topic 815): Inclusion of the Secured Overnight Financing Rate (SOFR) Overnight Index Swap (OIS) Rate as a Benchmark Interest Rate for Hedge Accounting Purposes,* which adds the overnight index swap rate (OIS) based on the secured overnight financing rate as a fifth U.S. benchmark interest rate. We adopted this standard in the first quarter of 2019, and it did not have an impact on our consolidated financial statements or related disclosures.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842) Section A - Leases: Amendments to the FASB Accounting Standards Codification*. The standard requires lessees to recognize the assets and liabilities arising from leases on the balance sheet and retains a distinction between finance leases and operating leases. The classification criteria for distinguishing between finance leases and operating leases are substantially similar to the classification criteria for distinguishing between capital leases and operating leases in the previous lease guidance. We adopted this standard in the first quarter of 2019 including the practical expedients outlined in ASU No. 2018-01, *Leases (Topic 842) Land Easement Practical Expedient for transition to ASC 842*, the additional transition method and election to combine lease and nonlease components for real estate leases outlined in ASU No. 2018-11, *Leases (Topic 842) Targeted Improvements,* and the accounting policy election outlined in ASU No. 2018-20, *Leases (Topic 842) Narrow-scope Improvements for Lessors*. The adoption of the standard has had a significant impact on our consolidated balance sheet due to the recognition of approximately $200 million of lease liabilities with corresponding right-of-use assets for operating leases. Additionally, we recognized a $0.8 million cumulative effect adjustment credit, net of tax, to retained earnings. The adjustment to retained earnings was driven by a build-to-suit capital lease that transitioned to an operating lease under the new standard. The deferred tax impact on adoption was immaterial.

**Recent Accounting Standards Not Yet Adopted** – In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, which removes certain exceptions to the general principles of ASC 740, including, but not limited to, accounting relating to intraperiod tax allocations, deferred tax liabilities related to outside basis differences, and year to date losses in interim periods. This guidance is effective for fiscal years beginning after December 15, 2020. Early adoption is permitted. We are currently assessing the impact of this ASU on our consolidated financial statements and disclosures.

In August 2018, the FASB issued ASU No. 2018-14, *Compensation - Retirement Benefits - Defined Benefit Plans - General (Subtopic 715-20): Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans,* which adds, modifies and clarifies several disclosure requirements for employers that sponsor defined benefit pension or other post retirement plans. This guidance is effective for fiscal years ending after December 15, 2020. Early adoption is permitted. We are currently assessing the effect that this ASU will have on our disclosures.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. To simplify the measurement of goodwill impairments, this ASU eliminates Step 2 from the goodwill impairment test, which required the calculation of the implied fair value of goodwill. Instead, under the amendments in this ASU, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. The guidance will be effective for annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The adoption of this guidance is not expected to have a material impact on our consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments.* The standard requires the measurement and recognition of expected credit losses for financial assets held at amortized cost and adds an impairment model that is based on expected losses rather than incurred losses. In April 2019, the FASB issued ASU No. 2019-04, *Codification Improvements to (Topic 326), Financial Instruments-Credit Losses, (Topic 815), Derivatives and Hedging, and (Topic 825), Financial Instruments*, to clarify and address certain items related to the amendments of ASU No. 2016-13. This guidance is effective for fiscal years beginning after December 15, 2019. Early adoption is permitted. We have evaluated the impact of this ASU, which will primarily

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impact our allowance for doubtful accounts, and based on our analysis of customer historical credit and collections data and determined the impact is not expected to be material to our consolidated financial statements or disclosures.

**Note 2. Acquisitions**

In March 2019, we acquired VPI Quality Windows, Inc ("VPI"). VPI is a leading manufacturer of vinyl windows, specializing in customized solutions for mid-rise multi-family, industrial, hospitality and commercial projects, primarily in the western U.S. VPI is located in Spokane, Washington and is a part of our North America segment.

The preliminary fair values of the assets and liabilities acquired of this acquisition are summarized below:

| (amounts in thousands) | Preliminary Allocation | Measurement Period Adjustment | Revised Preliminary Allocation |
|---|---|---|---|
| **Fair value of identifiable assets and liabilities:** | | | |
| Accounts receivable | $ 11,417 | $ (420) | $ 10,997 |
| Inventories | 2,555 | (141) | 2,414 |
| Other current assets | 261 | 40 | 301 |
| Property and equipment | 3,166 | 176 | 3,342 |
| Identifiable intangible assets | 17,702 | 5,735 | 23,437 |
| Operating lease assets | 3,739 | — | 3,739 |
| Goodwill | 26,553 | (3,053) | 23,500 |
| Other assets | 10 | — | 10 |
| Total assets | $ 65,403 | $ 2,337 | $ 67,740 |
| Accounts payable | 2,629 | — | 2,629 |
| Other current liabilities | 1,875 | 522 | 2,397 |
| Operating lease liability | 3,413 | — | 3,413 |
| Other liabilities | — | 1,502 | 1,502 |
| Total liabilities | $ 7,917 | $ 2,024 | $ 9,941 |
| **Purchase price:** | | | |
| Cash consideration, net of cash acquired | $ 57,486 | $ 313 | $ 57,799 |

The revised preliminary goodwill of $23.5 million, calculated as the excess of the purchase price over the fair value of net assets, represents operational efficiencies and sales synergies, and the full amount is expected to be tax-deductible. The intangible assets include customer relationships and tradenames and will be amortized over an estimated weighted average amortization period of 8 years. Total 2019 net revenues and net loss, excluding retention bonuses disclosed below, relating to VPI since the date of acquisition were $46.6 million and $0.8 million, respectively.

Acquisition-related costs are expensed as incurred and are included in selling, general and administrative expense in our accompanying consolidated statements of operations. We incurred acquisition-related costs of $0.4 million during the year ended December 31, 2019. Prior to our purchase of VPI, certain employees held employment agreements including retention bonuses with service requirements extending into the post-acquisition period. As agreed with the former owners, the retention bonuses were prepaid at the acquisition date and any repayments of the retention bonuses under the terms of the employment agreements will accrue to the benefit of the former owners. The cash used to pay the retention bonuses was excluded from our determination of purchase price. In 2019, we expensed the post-acquisition value of these retention bonuses as acquisition-related cost totaling $7.1 million, which are included in SG&A expense in our consolidated statements of operations for the year ended December 31, 2019.

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During 2018, we completed four acquisitions. The fair values of the assets and liabilities acquired of the completed acquisitions are summarized below:

| (amounts in thousands) | Preliminary Allocation | Measurement Period Adjustment | Final Allocation |
|---|---|---|---|
| **Fair value of identifiable assets and liabilities:** | | | |
| Accounts receivable | $ 58,714 | $ (2,079) | $ 56,635 |
| Inventories | 97,305 | (8,069) | 89,236 |
| Other current assets | 14,910 | (6,137) | 8,773 |
| Property and equipment | 53,128 | 26,170 | 79,298 |
| Identifiable intangible assets | 70,057 | (1,363) | 68,694 |
| Goodwill | 64,950 | (4,330) | 60,620 |
| Other assets | 7,283 | (3,528) | 3,755 |
| Total assets | $ 366,347 | $ 664 | $ 367,011 |
| Accounts payable | 29,512 | (6,097) | 23,415 |
| Current maturities of long-term debt | 17,278 | 803 | 18,081 |
| Other current liabilities | 27,595 | 4,496 | 32,091 |
| Long-term debt | 47,369 | 5,129 | 52,498 |
| Other liabilities | 17,551 | (2,353) | 15,198 |
| Total liabilities | $ 139,305 | $ 1,978 | $ 141,283 |
| **Purchase price:** | | | |
| Cash consideration, net of cash acquired | $ 169,002 | $ (1,314) | $ 167,688 |
| Contingent consideration | 3,898 | — | 3,898 |
| Gain on previously held shares | 20,767 | — | 20,767 |
| Existing investment in acquired entity | 33,483 | — | 33,483 |
| Non-cash consideration related to acquired intercompany balances | (108) | — | (108) |
| Total consideration, net of cash acquired | $ 227,042 | $ (1,314) | $ 225,728 |

Goodwill of $60.6 million, calculated as the excess of the purchase price over the fair value of net assets, represents operational efficiencies and sales synergies, and no amount is expected to be tax-deductible. The intangible assets include customer relationships, tradenames, patents and software and will be amortized over a weighted average amortization period of 16 years. Acquisition-related costs of $8.1 million were expensed as incurred and are included in SG&A expense in our accompanying consolidated statements of operations for the year ended December 31, 2018. The purchase price allocation was considered complete for the Domoferm, A&L, ABS and D&K acquisitions as of March 30, 2019.

The contingent consideration relating to the A&L acquisition was based on underlying business performance through June 2018 and was paid in the third quarter of 2018 in the amount of $3.7 million. The gain on previously held shares relates to the remeasurement of our existing 50% ownership interest to fair value for one of the recent acquisitions.

During the second and third quarters of 2017, we completed three acquisitions for total consideration of approximately $131.7 million, net of cash acquired, with $46.7 million of the purchase price allocated to intangible assets. The intangible assets included tradenames, software, and customer relationships and are being amortized over an estimated weighted average amortization period of 18 years. Goodwill is the excess of the purchase price over the fair value of net assets acquired in business combinations and was $25.1 million for these acquisitions with $14.2 million expected to be tax-deductible. There were $1.8 million of acquisition-related costs included in SG&A expense in the accompanying consolidated statements of operations for the year ended December 31, 2017. In 2017, the measurement period adjustment reduced the preliminary allocation of goodwill by $23.6 million and increased the preliminary allocation of property and equipment, intangible assets, and cash consideration, net of cash acquired by $16.7 million, $16.3 million and $7.7 million, respectively, with the remaining preliminary allocation changes related to other working capital accounts. In 2018, the measurement period adjustment increased the preliminary allocation of goodwill by $0.9 million with the offset primarily to working capital accounts. The purchase price allocation was considered completed within the appropriate remeasurement period for all three acquisitions.

We evaluated these acquisitions quantitatively and qualitatively and determined them to be insignificant both individually and in the aggregate. Therefore, certain pro forma disclosures under ASC 805-10-50 have been omitted.

The results of the acquisitions are included in our consolidated financial statements from the date of their acquisition.

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**Note 3. Accounts Receivable**

We sell our manufactured products to a large number of customers, primarily in the residential housing construction and remodel sectors, broadly dispersed across many domestic and foreign geographic regions. We perform ongoing credit evaluations of our customers to minimize credit risk. We do not usually require collateral for accounts receivable but will require advance payment, guarantees, a security interest in the products sold to a customer, and/or letters of credit in certain situations. Customer accounts receivable converted to notes receivable are primarily collateralized by inventory or other collateral. One window and door customer from our North America segment represents 14.6%, 14.2% , and 16.8% of net revenues in 2019, 2018, and 2017, respectively.

The following is a roll forward of our allowance for doubtful accounts as of December 31:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Balance as of January 1, | $ (6,227) | $ (4,468) | $ (3,763) |
| Acquisitions *(Note 2)* | (235) | (1,668) | (268) |
| Additions charged to expense | (961) | (2,769) | (1,731) |
| Deductions | 1,407 | 2,301 | 1,662 |
| Currency translation | 49 | 377 | (368) |
| Balance at period end | $ (5,967) | $ (6,227) | $ (4,468) |

The prior period information has been revised. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

**Note 4. Inventories**

Inventories are stated at the lower of cost or net realizable value. Finished goods and work-in-process inventories include material, labor and manufacturing overhead costs.

| (amounts in thousands) | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Raw materials | $ 372,289 | $ 370,124 |
| Work in process | 38,432 | 39,127 |
| Finished goods | 94,357 | 99,248 |
| Total inventories | $ 505,078 | $ 508,499 |

The prior period information has been revised. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

**Note 5. Other Current Assets**

| (amounts in thousands) | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Prepaid assets | $ 27,992 | $ 29,840 |
| Refundable income taxes | 9,034 | 10,524 |
| Fair value of derivative instruments (*Note 26*) | 1,372 | 8,234 |
| Other | 164 | 76 |
| Total other current assets | $ 38,562 | $ 48,674 |

The prior period information has been revised. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

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**Note 6. Property and Equipment, Net**

| (amounts in thousands) | 2019 | 2018 |
|---|---|---|
| Land improvements | $ 34,211 | $ 34,060 |
| Buildings | 502,315 | 501,659 |
| Machinery and equipment | 1,369,174 | 1,306,555 |
| Total depreciable assets | 1,905,700 | 1,842,274 |
| Accumulated depreciation | (1,188,209) | (1,138,898) |
| | 717,491 | 703,376 |
| Land | 69,262 | 69,188 |
| Construction in progress | 77,622 | 70,839 |
| Total property and equipment, net | $ 864,375 | $ 843,403 |

In the fourth quarter of 2019, we placed in service a newly constructed plant and corresponding machinery and equipment located within our Australasia segment.

In November 2016, we entered into a 17-year, non-cancelable build-to-suit arrangement for a corporate headquarters facility in Charlotte, North Carolina that was accounted for under the previously effective build-to-suit guidance contained in ASC840, *Leases*. Since we were involved in the construction of structural improvements prior to the commencement of the lease and took some level of construction risk, we were considered the accounting owner of the assets and land during the construction period. Further, since certain terms of the lease did not meet normal sale-leaseback criteria under ASC 840, *Leases*, we were considered the accounting owner after the construction period. In 2018, we recorded $20.0 million of build-to-suit assets included in property and equipment, net, and set up a corresponding financial obligation of $20.4 million included within long-term debt. In addition, in 2018, we received a tenant improvement allowance, increasing long-term debt by $4.2 million. Under current recently adopted guidance, ASC 842, *Leases*, this lease was reclassified as an operating lease and is now reflected within our operating lease balances included within Note 9 - *Leases* and is no longer reflected in our 2019 property and equipment, net, or long-term debt on the accompanying consolidated balance sheet.

We monitor all property and equipment for any indicators of potential impairment. We recorded impairment charges of $3.7 million, $1.1 million, and $1.5 million during the years ended December 31, 2019, 2018, and 2017 respectively.

The effect on our carrying value of property and equipment due to currency translations for foreign assets was a decrease of $2.0 million and $23.1 million for the years ended December 31, 2019 and 2018, respectively.

Depreciation expense was recorded as follows:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Cost of sales | $ 84,449 | $ 85,357 | $ 78,975 |
| Selling, general and administrative | 9,882 | 8,699 | 7,835 |
| Total depreciation expense | $ 94,331 | $ 94,056 | $ 86,810 |

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**Note 7. Goodwill**

The following table summarizes the changes in goodwill by reportable segment:

| (amounts in thousands) | North America | Europe | Australasia | Total Reportable Segments |
|---|---|---|---|---|
| Balance as of December 31, 2017 | $ 201,560 | $ 268,162 | $ 79,341 | $ 549,063 |
| Acquisitions | 17,645 | 30,167 | 17,138 | 64,950 |
| Acquisition remeasurements | 4,881 | (3,317) | (5,227) | (3,663) |
| Currency translation | (524) | (15,324) | (8,560) | (24,408) |
| Balance as of December 31, 2018 | $ 223,562 | $ 279,688 | $ 82,692 | $ 585,942 |
| Acquisitions - preliminary allocation | 26,553 | — | — | 26,553 |
| Acquisition remeasurements | (1,535) | — | (1,248) | (2,783) |
| Sale of business unit | (1,343) | — | — | (1,343) |
| Currency translation | 265 | (5,776) | (358) | (5,869) |
| Balance as of December 31, 2019 | $ 247,502 | $ 273,912 | $ 81,086 | $ 602,500 |

We have recorded impairments in prior periods related to the divestiture of certain operations. Cumulative impairments of goodwill totaled $1.6 million at December 31, 2019, 2018 and 2017.

In accordance with current accounting guidance, we identified three reporting units for the purpose of conducting our goodwill impairment review. In determining our reportable units, we considered (i) whether an operating segment or a component of an operating segment was a business, (ii) whether discrete financial information was available, and (iii) whether the financial information is regularly reviewed by management of the operating segment. We performed our annual impairment assessment during the beginning of the December fiscal month of 2019. The excess of the fair value of our reporting units over their respective carrying values for the three reporting units exceeded 33%. No impairment loss was recorded in 2019, 2018 or 2017.

**Note 8. Intangible Assets, Net**

Changes in the carrying amount of intangible assets were as follows for the periods indicated:

| (amounts in thousands) | |
|---|---|
| Balance as of December 31, 2017 | $ 166,313 |
| Acquisitions | 70,057 |
| Acquisition remeasurements | (1,363) |
| Additions, (net of $172 write-offs) | 24,553 |
| Amortization | (22,208) |
| Currency translation | (11,799) |
| Balance as of December 31, 2018 | $ 225,553 |
| Acquisitions | 17,702 |
| Acquisition remeasurements | 5,735 |
| Additions, (net of $112 write-offs) | 33,796 |
| Amortization | (30,956) |
| Currency translation | (1,503) |
| Balance as of December 31, 2019 | $ 250,327 |

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The cost and accumulated amortization values of our intangible assets were as follows as of December 31:

| (amounts in thousands) | 2019 Cost | 2019 Accumulated Amortization | 2019 Net Book Value |
|---|---|---|---|
| Customer relationships and agreements | $ 151,540 | $ (57,326) | $ 94,214 |
| Software | 92,821 | (18,222) | 74,599 |
| Trademarks and trade names | 58,088 | (7,512) | 50,576 |
| Patents, licenses and rights | 45,392 | (14,454) | 30,938 |
| Total amortizable intangibles | $ 347,841 | $ (97,514) | $ 250,327 |

| (amounts in thousands) | 2018 Cost | 2018 Accumulated Amortization | 2018 Net Book Value |
|---|---|---|---|
| Customer relationships and agreements | $ 134,999 | $ (45,418) | $ 89,581 |
| Software | 62,147 | (14,053) | 48,094 |
| Trademarks and trade names | 57,513 | (5,050) | 52,463 |
| Patents, licenses and rights | 47,804 | (12,389) | 35,415 |
| Total amortizable intangibles | $ 302,463 | $ (76,910) | $ 225,553 |

We have capitalized a total of $60.2 million related to the application development stage of our global ERP system implementation, including $31.8 million during the year ended December 31, 2019. As of December 31, 2019, we have placed $52.0 million in service and began amortizing the cost of our global ERP system over its estimated useful life of 15 years.

Intangible assets are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. Intangible assets that become fully amortized are removed from the accounts in the period that they become fully amortized. Amortization expense was recorded as follows:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Amortization expense | $ 30,956 | $ 22,208 | $ 15,896 |

Estimated future amortization expense:

| (amounts in thousands) | |
|---|---|
| 2020 | $ 28,054 |
| 2021 | 27,406 |
| 2022 | 26,393 |
| 2023 | 23,246 |
| 2024 | 22,220 |
| Thereafter | 123,008 |
| | $ 250,327 |

**Note 9. Leases**

We lease certain warehouses, distribution centers, office space, land, vehicles and equipment. We determine if an arrangement is a lease at inception. A contract is or contains a lease if the contract conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration. Amounts associated with operating leases are included in operating lease assets (“ROU assets”), net, accrued expense and other current liabilities and noncurrent operating lease liability in our consolidated balance sheet. Amounts associated with finance leases are included in property and equipment, net, current maturities of long-term debt and long-term debt in our consolidated balance sheet.

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ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. ROU assets and liabilities are recognized at the lease commencement date based on the estimated present value of lease payments over the lease term.

If the leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments. The incremental borrowing rate for operating leases that commenced in the period is determined by using the prior quarter end's incremental borrowing rates.

Leases with an initial term of 12 months or less are not recorded on the balance sheet, and we recognize lease expense for these leases on a straight-line basis over the lease term. For lease agreements entered into or reassessed after the adoption of Topic 842, we combine lease and nonlease components.

Certain leases include one or more options to renew, with renewal terms that can extend the lease term from one to 20 years or more, and the exercise of lease renewal options under these leases is at our sole discretion. The depreciable life of assets and leasehold improvements are limited by the expected lease term. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Lease ROU assets and liabilities at December 31, 2019 were as follows:

| (amounts in thousands) | Balance Sheet Location | December 31, 2019 |
|---|---|---|
| Assets: | | |
| Operating | Operating lease assets, net | $ 202,053 |
| Finance | Property and equipment, net [1] | 4,045 |
| Total lease assets | | $ 206,098 |
| Liabilities: | | |
| Current: | | |
| Operating | Accrued expense and other current liabilities | $ 45,254 |
| Finance | Current maturities of long-term debt | 1,280 |
| Noncurrent: | | |
| Operating | Operating lease liability | 164,026 |
| Finance | Long-term debt | 2,820 |
| Total lease liability | | $ 213,380 |

(1) Finance lease assets are recorded net of accumulated depreciation of $1.5 million as of December 31, 2019.

During the year ended December 31, 2019, we obtained $28.6 million in right-of-use assets in exchange for operating lease liabilities, primarily relating to manufacturing equipment. In December 2019, we entered into a 10 year operating lease for a replacement corporate airplane with an ROU asset of $11.7 million.

The components of lease expense for the year ended December 31, 2019 were as follows:

| (amounts in thousands) | |
|---|---|
| Operating | $ 54,535 |
| Short term | 11,543 |
| Variable | 3,806 |
| Low value | 1,738 |
| Finance | 90 |
| Total lease costs | $ 71,712 |

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| | December 31, 2019 |
|---|---|
| Weighted average remaining lease terms (years): | |
| Operating | 6.7 |
| Finance | 3.7 |
| Weighted average discount rate: | |
| Operating | 4.7% |
| Finance | 4.4% |

Future minimum lease payment obligations under operating and capital leases are as follows:

| | December 31, 2019 | | |
|---|---|---|---|
| (amounts in thousands) | Operating Leases (1) | Finance Leases | Total |
| 2020 | $ 53,894 | $ 1,451 | $ 55,345 |
| 2021 | 43,854 | 1,143 | 44,997 |
| 2022 | 35,945 | 783 | 36,728 |
| 2023 | 30,014 | 699 | 30,713 |
| 2024 | 23,630 | 428 | 24,058 |
| Thereafter | 59,244 | — | 59,244 |
| Total lease payments | 246,581 | 4,504 | 251,085 |
| Less: Interest | 37,301 | 404 | 37,705 |
| Present value of lease liability | $ 209,280 | $ 4,100 | $ 213,380 |

(1) Operating lease payments include $15.4 million related to options to extend lease terms that are reasonably certain of being exercised.

Disclosures related to period prior to adoption of the Standard

Operating lease rent expense was $63.7 million and $50 million during the years ended December 31, 2018 and 2017 respectively.

Future minimum lease payment obligations under operating and capital leases are as follows:

| | December 31, 2018 | | |
|---|---|---|---|
| (amounts in thousands) | Operating Leases | Capital Leases (1) | Total |
| 2019 | $ 49,128 | $ 862 | $ 49,990 |
| 2020 | 43,794 | 826 | 44,620 |
| 2021 | 30,885 | 561 | 31,446 |
| 2022 | 24,020 | 237 | 24,257 |
| 2023 | 19,352 | 225 | 19,577 |
| Thereafter | 33,943 | 23,968 | 57,911 |
| Total future minimum lease payment obligations | $ 201,122 | $ 26,679 | $ 227,801 |

(1) As of December 31, 2018, capital leases included maturities of approximately $24.5 million related to a build-to-suit lease that transitioned to an operating lease under the new leasing standard.

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**Note 10. Other Assets**

| (amounts in thousands) | 2019 | 2018 |
|---|---|---|
| Customer displays | $ 11,213 | $ 15,069 |
| Deposits | 6,440 | 6,627 |
| Cloud computing arrangements | 6,374 | — |
| Long-term notes receivable | 4,614 | 4,902 |
| Overfunded pension benefit obligation | 2,015 | 1,517 |
| Other prepaid expenses | 1,896 | 5,331 |
| Debt issuance costs on unused portion of revolver facility | 1,472 | 1,552 |
| Other long-term accounts receivable | 563 | 762 |
| Other long-term assets | 375 | 366 |
| Long-term taxes receivable | — | 800 |
| Total other assets | $ 34,962 | $ 36,926 |

Domestic debt issuance costs associated with revolving credit facilities are capitalized and amortized according to the effective interest rate method over the life of the new debt agreements. Non-cash additions are disclosed in Note 30 - *Supplemental Cash Flow Information*.

Customer displays are amortized over the life of the product line and $8.7 million, $9.0 million and $8.6 million of amortization is included in total depreciation and amortization in SG&A expense for the years ended December 31, 2019, 2018 and 2017, respectively.

In 2019, we adopted ASU 2018-15, as outlined in Note 1- *Summary of Significant Accounting Policies,* and began capitalizing qualified cloud computing costs. Cloud computing arrangements are expensed over the term of the hosting arrangement plus the renewal period, if reasonably certain. We have capitalized a total of $7.0 million relating to cloud computing arrangements.

The prior period information has been revised. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

**Note 11. Investments**

As of December 31, 2019 and December 31, 2018, our investments consist of six investments accounted for under the cost method.

As of December 31, 2017, our equity investments consisted of a 50% owned investment. During the first quarter of 2018, we purchased the remaining outstanding shares of that entity, and we recognized a gain of $20.8 million on the previously held shares. This investment is now eliminated in consolidation.

A summary of our equity and cost method investments, which are included in other assets in the accompanying consolidated balance sheets, is as follows:

| (amounts in thousands) | Equity | Cost | Total |
|---|---|---|---|
| Ending balance, December 31, 2017 | $ 32,745 | $ 442 | $ 33,187 |
| Equity earnings | 738 | — | 738 |
| Acquired equity method investment | (33,483) | — | (33,483) |
| Other | — | (76) | (76) |
| Ending balance, December 31, 2018 | $ — | $ 366 | $ 366 |
| Additions | — | 16 | 16 |
| Other | — | (13) | (13) |
| Ending balance, December 31, 2019 | $ — | $ 369 | $ 369 |

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Loans or advances to affiliates were fully impaired as of December 31, 2019 and December 31, 2018.

The combined results of operations for the equity method investment as of December 31 is summarized below:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Net sales | $ — | $ 91,234 | $ 354,964 |
| Gross profit | — | 18,261 | 74,399 |
| Net income | — | 1,752 | 6,870 |
| Adjustment for profit (loss) in inventory | — | (138) | 204 |
| Net income attributable to Company | — | 738 | 3,639 |

Sales to affiliates totaled $16.5 million and $59.3 million in 2018 and 2017, respectively, and purchases from affiliates totaled $1.0 million and $4.0 million for 2018 and 2017, respectively.

No impairments were recorded during fiscal years 2019, 2018, or 2017.

**Note 12. Accrued Payroll and Benefits**

| (amounts in thousands) | 2019 | 2018 |
|---|---|---|
| Accrued vacation | $ 46,746 | $ 48,976 |
| Accrued payroll and commissions | 23,854 | 23,746 |
| Accrued bonuses | 11,101 | 11,035 |
| Accrued payroll taxes | 11,372 | 11,214 |
| Other accrued benefits | 8,633 | 10,325 |
| Non-U.S. defined contributions and other accrued benefits | 7,680 | 9,722 |
| Total accrued payroll and benefits | $ 109,386 | $ 115,018 |

The prior period information has been revised. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

**Note 13. Accrued Expenses and Other Current Liabilities**

| (amounts in thousands) | 2019 | 2018 |
|---|---|---|
| Current portion of legal claims provision | $ 79,332 | $ 79,356 |
| Accrued sales and advertising rebates | 67,250 | 68,755 |
| Current portion of operating lease liability *(Note 9)* | 45,254 | — |
| Accrued expenses | 27,993 | 28,261 |
| Non-income related taxes | 23,178 | 21,643 |
| Current portion of warranty liability *(Note 14)* | 21,054 | 20,529 |
| Current portion of accrued claim costs relating to self-insurance programs | 12,312 | 12,319 |
| Current portion of deferred revenue | 7,986 | 9,896 |
| Current portion of restructuring accrual *(Note 23)* | 6,051 | 6,635 |
| Current portion of derivative liability *(Note 26)* | 4,068 | 1,161 |
| Accrued interest payable | 2,126 | 2,016 |
| Current portion of accrued income taxes payable | 1,999 | 1,739 |
| Total accrued expenses and other current liabilities | $ 298,603 | $ 252,310 |

In the table above, the legal claims provision balances relate primarily to the $76.5 million litigation contingency associated with the ongoing antitrust litigation with Steves & Sons, Inc. For further information regarding this litigation, see Note 28 - *Commitments and Contingencies*.

The accrued sales and advertising rebates, accrued interest payable, and non-income related taxes can fluctuate significantly period over period due to timing of payments.

The prior period information has been revised. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

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**Note 14. Warranty Liability**

Warranty terms vary from one year to lifetime on certain window and door components. Warranties are normally limited to servicing or replacing defective components for the original customer. Product defects arising within six months of sale are classified as manufacturing defects and are not included in the current period expense below. Some warranties are transferable to subsequent owners and are either limited to 10 years from the date of manufacture or require pro-rata payments from the customer. A provision for estimated warranty costs is recorded at the time of sale based on historical experience and is periodically adjusted to reflect actual experience.

An analysis of our warranty liability is as follows:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Balance as of January 1 | $ 46,468 | $ 46,256 | $ 45,398 |
| Current period expense | 20,853 | 21,822 | 17,674 |
| Liabilities assumed due to acquisition | 2,104 | 1,550 | 95 |
| Experience adjustments | 1,890 | 1,227 | (614) |
| Payments | (21,818) | (23,410) | (17,255) |
| Currency translation | 219 | (977) | 958 |
| Balance at period end | 49,716 | 46,468 | 46,256 |
| Current portion | (21,054) | (20,529) | (19,547) |
| Long-term portion | $ 28,662 | $ 25,939 | $ 26,709 |

The most significant component of our warranty liability is in the North America segment, which totaled $44.3 million at December 31, 2019, after discounting future estimated cash flows at rates between 0.76% and 4.75%. Without discounting, the liability would have been higher by approximately $3.0 million.

**Note 15. Long-Term Debt**

Our long-term debt, net of original issue discount and unamortized debt issuance costs, consisted of the following:

| (amounts in thousands) | December 31, 2019 Interest Rate | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Senior notes | 4.63% - 4.88% | $ 800,000 | $ 800,000 |
| Term loans | 1.30% - 3.94% | 591,153 | 474,058 |
| Finance leases and other financing arrangements | 1.90% - 6.00% | 108,613 | 98,914 |
| Mortgage notes | 1.65% | 28,175 | 30,375 |
| Revolving credit facilities | —% | — | 85,000 |
| Installment notes for stock | 4.75% | 205 | 962 |
| Unamortized debt issuance costs and original issue discount | | (10,774) | (11,417) |
| | | 1,517,372 | 1,477,892 |
| Current maturities of long-term debt | | (65,846) | (54,930) |
| Long-term debt | | $ 1,451,526 | $ 1,422,962 |

| Maturities by year: | |
|---|---|
| 2020 | $ 65,846 |
| 2021 | 27,085 |
| 2022 | 17,461 |
| 2023 | 15,067 |
| 2024 | 573,822 |
| Thereafter | 818,091 |
| | $ 1,517,372 |

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Summaries of our significant changes to outstanding debt agreements as of December 31, 2019 are as follows:

**Senior Notes**

In December 2017, we issued $800.0 million of unsecured Senior Notes in two tranches: $400.0 million bearing interest at 4.63% and maturing in December 2025, and $400.0 million bearing interest at 4.88% and maturing in December 2027 in a private placement for resale to qualified institutional buyers pursuant to Rule 144A under the Securities Act. Each tranche was issued at par. Interest is payable semiannually in arrears each June and December through maturity. Debt issuance costs incurred in 2017 of $11.7 million are being amortized to interest expense over the life of the notes using the effective interest method.

**Term Loans**

*U.S. Facility* - In February 2017, we prepaid $375.0 million of outstanding principal with a portion of the proceeds from our IPO. As a result, we recorded a proportional write-off of $5.2 million of unamortized debt issuance costs and $0.9 million of original issue discount to interest expense.

In March 2017, we amended the facility to reduce the interest rate and remove the cap on the amount of cash used in the calculation of net debt. The offering price of the amended term loans was par. Pursuant to this amendment, certain lenders converted their aggregate commitments, along with an additional commitment advanced by a replacement lender. We incurred $1.1 million of debt issuance costs in 2017 related to this amendment, which are being amortized to interest expense over the life of the notes using the effective interest method.

In December 2017, along with the issuance of the Senior Notes, we re-priced and amended the facility and repaid $787.4 million of outstanding borrowings with the net proceeds from the Senior Notes, which resulted in a principal balance of $440.0 million. In connection with the debt extinguishment, we expensed the related unamortized original discount of $5.9 million, unamortized debt issuance costs of $15.4 million, and bank fees of $1.7 million as a loss on extinguishment of debt within other (income) expense in our consolidated statements of operations. These re-priced term loans were offered at par and bear interest at the further reduced rate of LIBOR (subject to a floor of 0.00%) plus a margin of 1.75% to 2.00%, determined by our corporate credit ratings. This compares favorably to the previous rate of LIBOR (subject to a floor of 1.00%) plus a margin of 2.75% to 3.00%, determined by our net leverage ratio, under the prior amendment. This amendment also modified other terms and provisions, including providing for additional covenant flexibility and additional capacity under the facility, removing the quarterly required repayments of 0.25% of the aggregate principal balance, and conforming to certain terms and provisions of the Senior Notes. The facility is essentially secured by the same collateral and guaranteed by the same guarantors as it was under each of the prior amendments, and we incurred $0.7 million of debt issuance costs related to this amendment, which are being amortized to interest expense over the life of the facility using the effective interest method.

In February 2019, we purchased interest rate caps in order to effectively fix a 3.0% per annum ceiling on the LIBOR component of an aggregate $150 million of our term loans. The caps became effective March 29, 2019 and expire December 31, 2021.

In September 2019, we amended the Term Loan Facility to provide for an incremental aggregate principal amount of $125.0 million and used the proceeds primarily to repay $115.0 million of outstanding borrowings under the ABL Facility. The proceeds were net of the original issue discount of 0.5%, or $0.6 million, as well as $0.6 million in fees and expenses associated with the debt issuance. This amendment requires that approximately $1.4 million of the aggregate principal amount be repaid quarterly until the maturity date. There were no other changes to key terms and the facility maintains its original maturity date in December 2024. At December 31, 2019, the outstanding principal balance, net of original issue discount, was $555.0 million.

*Australia Facility* - In February 2018, we amended the Australia Senior Secured Credit Facility to include an additional AUD 55 million floating rate term loan facility with a base rate of BBSY plus a margin ranging from 1.00% to 1.10%. We paid a quarterly line fee of 1.25% per annum on the facility commitment. The facility is secured by guarantees of JWA.

In June 2019, we reallocated AUD 5.0 million from the term loan commitment to the interchangeable commitment of the Australia Senior Secured Credit Facility. The amended AUD 50.0 million floating rate term loan facility bears interest at a base rate of BBSY plus a margin ranging from 1.00% to 1.10%, includes a line fee of 1.25% on the commitment amount, and matures in February 2023. This facility had an outstanding principal balance of $35.0 million as of December 31, 2019.

Both the term loan and non-term loan portions of the Australia Senior Secured Credit Facility are secured by guarantees of JWA and its subsidiaries, fixed and floating charges on the assets of JWA group, and mortgages on certain real properties owned by the JWA group. The agreement requires that JWA maintain certain financial ratios, including a minimum

consolidated interest coverage ratio and a maximum consolidated debt to EBITDA ratio. The agreement limits dividends and repayments of intercompany loans where the JWA group is the borrower and limits acquisitions without the bank's consent.

*Other Acquired Facilities* - In 2018, we acquired a $11.6 million term loan facility associated with our ABS acquisition, as well as $9.6 million in various term loan facilities associated with our Domoferm acquisition. In December 2018, we terminated the ABS facility having repaid all outstanding borrowings. As of December 31, 2019, we had $0.6 million outstanding under the remaining Domoferm term loan facilities.

**Revolving Credit Facilities**

*ABL Facility* - In December 2017, along with the offering of the Senior Notes and repricing of the Term Loan Facility, we amended our ABL Facility, which had a total of $300 million in U.S. and Canadian revolving credit commitments. The facility will mature in December 2022, extended from October 2019, and bears interest primarily at LIBOR (subject to a floor of 0.00%) plus a margin of 1.25% to 1.75%, determined by availability. This compares favorably to the rate of LIBOR (subject to a floor of 0.00%) plus a margin of 1.50% to 2.00% under the previous amendment. Extensions of credit are limited by a borrowing base calculated based on specified percentages of the value of eligible accounts receivable and inventory, subject to certain reserves and other adjustments. We pay a fee of 0.25% on the unused portion of the commitments. The ABL Facility has a minimum fixed charge coverage ratio that we are obligated to comply with under certain circumstances. The ABL Facility has various non-financial covenants, including restrictions on liens, indebtedness, and dividends, customary representations and warranties, and customary events of defaults and remedies. This amendment also made certain adjustments to the borrowing base and modified other terms and provisions, including providing for additional covenant flexibility, and conforming to certain terms and provisions of the Senior Notes and Term Loan Facility. In connection with the amendment to the ABL Facility, we expensed $0.2 million of unamortized loan fees as a loss on extinguishment of debt within other (income) expense in our consolidated statements of operations.

In December 2018, we amended the ABL Facility, providing for an increase of $100 million to a total of $400 million in U.S. and Canadian revolving credit commitments. The maturity date remains unchanged. In December 2019, we amended our ABL facility to reflect current banking regulatory requirements, which do not have a financial impact. As of December 31, 2019, we had no outstanding borrowings, $35.5 million in letters of credit and $313.1 million available under the ABL Facility.

*Australia Senior Secured Credit Facility* - In February 2018, we amended the Australia Senior Secured Credit Facility to provide for an AUD 15.0 million floating rate revolving loan facility, an AUD 12.0 million interchangeable facility for guarantees and letters of credit, an AUD 7.0 million electronic payaway facility, an AUD 2.5 million asset finance facility, an AUD 1.0 million commercial card facility and an AUD 5.0 million.

In June 2019, we further amended the Australia Senior Secured Credit Facility, reallocating availability from the Australia Term Loan Facility and collapsing the floating rate revolving loan facility into a AUD 35.0 million interchangable facility to be used for guarantees, asset financing, and loans of 12 months or less bearing interest at BBSY plus a margin of 1.10% and a line fee of 0.50%, compared to BBSY plus a margin of 0.75% and a line fee of 1.15% on the revolving facility limit under the previous amendment. The non-term loan portion of the Australia Senior Secured Credit Facility no longer has a set maturity date but is instead subject to an annual review. As of December 31, 2019, we had AUD 21.9 million ($15.4 million) available under this facility. Overdraft balances bear interest at the bank's reference rate minus a margin of 1.00%, and a line fee of 1.15% is paid on the overdraft facility limit.

*Euro Revolving Facility* - In January 2019, we allowed our €39 million Euro Revolving Facility to expire due to operating cash generation in Europe as well as expenses and restrictions associated with the facility.

At December 31, 2019, we had combined borrowing availability of $328.5 million under our revolving credit facilities.

**Mortgage Notes** – In December 2007, we entered into thirty-year mortgage notes secured by land and buildings with principal payments which began in 2018. At December 31, 2019, we had DKK 187.8 million (or $28.2 million) outstanding under these notes.

**Finance leases and other financing arrangements** – In addition to finance leases, we include insurance premium financing arrangements and loans secured by equipment in this category. At December 31, 2019, we had $108.6 million outstanding in this category, with maturities ranging from 2020 to 2026. At December 31, 2018, this category included a $24.5 million build-to-suit capital lease that was reclassified as an operating lease under the recently issued leasing standards and is no longer reflected in long-term debt as of January 1, 2019 (Note 9 - *Leases*). Increases in this category during 2019 were primarily due to additional equipment financing.

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**Installment Notes for Stock** – We entered into installment notes for stock representing amounts due to former or retired employees for repurchases of our stock that are payable over 10 years depending on the amount, with payments through 2020. As of December 31, 2019, we had $0.2 million outstanding under these notes.

As of December 31, 2019, we were in compliance with the terms of all of our credit facilities.

**Note 16. Deferred Credits and Other Liabilities**

Included in deferred credits and other liabilities is the long-term portion of the following liabilities as of December 31:

| (amounts in thousands) | 2019 | 2018 |
|---|---|---|
| Warranty liability *(Note 14)* | $ 28,662 | $ 25,939 |
| Uncertain tax positions *(Note 17)* | 20,234 | 18,951 |
| Workers' compensation claims accrual | 14,604 | 14,977 |
| Other liabilities | 3,190 | 9,626 |
| Restructuring accrual *(Note 23)* | 992 | 2,005 |
| Over-market lease liabilities | — | 1,126 |
| Deferred income | — | 69 |
| Total deferred credits and other liabilities | $ 67,682 | $ 72,693 |

At December 31, 2018, the over-market lease liabilities related to our Melton operations in the U.K. Under recently adopted guidance, ASC 842, *Leases*, this lease is now reflected within our operating lease asset, net balance included within Note 9 - *Leases.*

**Note 17. Income Taxes**

Income (loss) before taxes, equity earnings was comprised of the following for the years ended December 31:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Domestic (loss) income | $ (784) | $ 192 | $ (7,346) |
| Foreign income | 120,829 | 130,919 | 149,647 |
| Total income before taxes, equity earnings | $ 120,045 | $ 131,111 | $ 142,301 |

Our foreign income is primarily driven by our subsidiaries in Australia, Canada and the U.K. The statutory tax rates are 30%, 27% and 19% respectively.

Significant components of the provision for income taxes are as follows for the years ended December 31:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Federal | $ 5,037 | $ (9,760) | $ 11,699 |
| State | 935 | 764 | 667 |
| Foreign | 29,264 | 34,742 | 29,228 |
| Current taxes | 35,236 | 25,746 | 41,594 |
| | | | |
| Federal | 11,771 | (24,445) | 60,618 |
| State | 6,620 | (12,760) | 27,241 |
| Foreign | 3,447 | 1,401 | 8,365 |
| Deferred taxes | 21,838 | (35,804) | 96,224 |
| Total provision (benefit) for income taxes | $ 57,074 | $ (10,058) | $ 137,818 |

On December 22, 2017, the Tax Act was enacted in the U.S. The specific provisions of the Tax Act had both direct and indirect impacts on our 2017 and 2018 results and may continue to materially affect our financial results in the future as regulations continue to be finalized. The direct impacts recorded as provisional estimates in 2017 were due primarily to the change in the U.S. corporate income tax rate from 35% to 21% for tax years beginning after December 31, 2017 and the one-time deemed repatriation tax. As a result of the lowering of the U.S. federal tax rate, we revalued our net deferred tax

assets in the U.S. reflecting the lower expected benefit in the U.S. in the future. This revaluation resulted in an estimated additional tax expense of approximately $21.1 million. Our provisional estimate of the one-time deemed repatriation tax, which effectively subjected the Company's net aggregate historic foreign earnings to taxation in the U.S., resulted in a further tax charge of $11.3 million. During the fourth quarter of 2017, the Company undertook certain transactions which premised the repatriation of certain earnings from foreign subsidiaries. While these transactions were not undertaken as a direct result of tax reform, the U.S. tax implications were heavily impacted due to the timing of the transactions and the measurement dates as outlined in the Tax Act. We recorded a provisional estimate of the effects of certain steps completed in 2017 as well as further steps premised to be completed in 2018 which would have retroactive effect into 2017 resulting in a net increase to tax expense of $65.8 million related to these transactions and their impacts under the Tax Act.

As of December 31, 2018, we completed our accounting for the income tax effects of the Tax Act as of the enactment date. As further discussed below, we recognized a tax benefit of $40.2 million in 2018 which effectively reduced the net charges recorded at December 31, 2017. These adjustments were accounted for as a component of income tax expense from continuing operations. The specific adjustments recorded were (i) an increase to the tax expense recorded related to the revaluation of our net deferred tax assets from $21.1 million to $55.3 million resulting in an additional charge to 2018 earnings of $34.2 million, (ii) a reduction of the estimate of the one-time deemed repatriation tax from $11.3 million to zero resulting in a tax benefit recorded in 2018 earnings of $11.3 million, (iii) a reduction of the additional tax expense recorded related to the premised repatriation of funds from foreign subsidiaries from $65.8 million to $2.7 million resulting in a tax benefit recorded in 2018 earnings of $63.1 million.

The completion of the Company's accounting for the enactment of the Tax Act reflects, among other things, (i) the issuance of guidance by the U.S. Treasury regarding provisions of the Tax Act, (ii) certain elections and accounting policy decisions pursuant to the Tax Act, (iii) adjustments to historic foreign earnings and profits or the associated tax credit pools which are significant factors in the calculation of the repatriation tax, and (iv) changes in interpretations and assumptions that we have made. We note that final guidance and regulations surrounding the implementation of all provisions in the Tax Act have not been issued to date. This guidance, once issued, may materially affect our conclusions regarding the net related effects of the Tax Act on our financial statements.

The Tax Act subjects a U.S. shareholder to current U.S. tax on GILTI earned by certain foreign subsidiaries. GILTI had a material effect on our effective tax rate in 2019 and 2018 and will likely continue to have such an effect in future periods. The FASB Staff Q&A, Topic 740, No. 5, Accounting for Global Intangible Low-Taxed Income, states that we are permitted to make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years or provide for the tax expense related to such income in the year the tax is incurred. We have elected to account for the impact of GILTI in the period in which it is incurred.

The significant components of deferred income tax expense attributed to income from continuing operations for the year ended December 31, 2019, were increases to the valuation allowances for deferred tax assets, primarily in the U.S. The significant components of the deferred income tax benefit attributed to income from continuing operations for the year ended December 31, 2018, were the adjustments related to the provisional amounts of the income tax effects of the Tax Act and the additional release of valuation allowances, primarily in the U.S. The significant components of the deferred income tax expense attributed to income from continuing operations for the year ended December 31, 2017, were the revaluation of our U.S. deferred tax assets under the Tax Act and the increases in valuation allowances for deferred tax assets, primarily in the U.S.

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Reconciliation of the U.S. federal statutory income tax rate to our effective tax rate is as follows for the years ended December 31:

| | 2019 | | 2018 | | 2017 | |
|---|---|---|---|---|---|---|
| (amounts in thousands) | Amount | % | Amount | % | Amount | % |
| Statutory rate | $ 25,209 | 21.0 | $ 27,515 | 21.0 | $ 49,805 | 35.0 |
| State income tax, net of federal benefit | 3,180 | 2.6 | (1,207) | (0.9) | (4,784) | (3.4) |
| Foreign source dividends and deemed inclusions | 10,797 | 9.0 | 16,295 | 12.4 | 86,119 | 60.5 |
| Valuation allowance | 10,144 | 8.4 | (85,876) | (65.5) | 98,156 | 69.0 |
| Nondeductible expenses | 1,276 | 1.1 | 1,097 | 0.8 | 1,950 | 1.4 |
| Acquisition of ABS | — | — | (10,189) | (7.8) | — | — |
| Equity based compensation | 2,526 | 2.1 | 54 | — | (12,718) | (8.9) |
| Deferred benefit on acquisitions | — | — | — | — | (6,201) | (4.4) |
| Foreign tax rate differential | 1,964 | 1.6 | 3,557 | 2.7 | (17,536) | (12.3) |
| Tax rate differences and credits | (1,867) | (1.5) | 96,231 | 73.4 | (91,109) | (64.0) |
| Uncertain tax positions | 1,604 | 1.3 | 5,443 | 4.2 | 736 | 0.5 |
| IRS audit adjustments | — | — | — | — | (699) | (0.5) |
| Termination of hedge accounting | 4,533 | 3.8 | — | — | — | — |
| U.S. Tax Reform | — | — | (62,836) | (47.9) | 32,414 | 22.8 |
| Disposition of subsidiary | (2,384) | (2.0) | — | — | — | — |
| Other | 92 | 0.1 | (142) | (0.1) | 1,685 | 1.1 |
| Effective rate for continuing operations | $ 57,074 | 47.5% | $ (10,058) | (7.7)% | $ 137,818 | 96.8% |

In 2019, we recorded tax expense of $4.5 million upon the termination of hedge accounting to relieve the disproportionate tax effect previously in Accumulated Other Comprehensive Income. The tax benefit arising from the disposition of our subsidiary, CMD, is $2.4 million and included in the “Disposition of subsidiary” line in the reconciliation of tax expense table above.

In 2018, we recorded a tax benefit of $40.2 million to revise the provisional estimates recorded under the Tax Act. The “U.S. Tax Reform” line in the reconciliation of tax expense above totals $62.8 million and is comprised of tax benefit of $11.3 million for the reduction of the estimated one-time deemed repatriation tax, tax benefit of $85.7 million attributed to the restoration of the Company’s net operating losses, offset by tax expense of $34.2 million for the revaluation of our deferred tax assets. The remaining tax expense is comprised of: additional tax expense of $97.6 million for the reduction of foreign tax credits included in “Tax rate differences and credits”, offset by tax benefit of $75.0 million included above as “Valuation allowance”.

In 2018, we recorded a benefit of $10.2 million related to certain tax effects of ABS transitioning to a wholly-owned subsidiary and the tax effects of the gain recognized on the acquisition.

For the year ended December 31, 2017, we recorded provisional estimates of the items directly impacted by the Tax Act within the “U.S. Tax Reform” line in the reconciliation of tax expense above. The tax charge of $32.4 million is comprised of (i) the repricing our U.S. deferred tax balances of $21.1 million from 35% to 21%, and (ii) one-time deemed repatriation tax of $11.3 million. As previously, discussed, certain other transactions undertaken by the Company in the fourth quarter of 2017 were indirectly impacted by the Tax Act and the measurement periods as outlined therein. The provisional estimates of the following amounts are included in the Company’s tax expense for 2018: additional tax expense of $85.5 million included as “Foreign Source Dividends”, a tax benefit of $90.8 million included as “Tax rate differences and credits”, and additional tax expense of $71.1 million included as “Valuation allowance” above.

In 2017, we recorded a benefit of $0.7 million as a result of favorable audit settlements in the U.S., which allowed the use of tax attributes that previously had a valuation allowance reserve.

We recorded a tax benefit of $6.2 million primarily relating to the change in disposition for certain intellectual property in the “Deferred benefit on acquisitions” line and a corresponding tax charge in the same amount in the “Valuation allowance” line, resulting in no impact to the effective rate for continuing operations in 2017. We did not incur or recognize tax expense or benefit associated with these categories in 2019 or 2018.

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Deferred income taxes are provided for the temporary differences between the financial reporting basis and tax basis of our assets, liabilities and operating loss carryforwards. Significant deferred tax assets and liabilities are as follows as of December 31:

| (amounts in thousands) | 2019 | 2018 |
|---|---|---|
| Net operating loss and tax credit carryforwards | $ 199,889 | $ 216,563 |
| Operating lease liabilities | 54,448 | — |
| Employee benefits and compensation | 47,760 | 50,665 |
| Accrued liabilities and other | 38,300 | 38,764 |
| Inventory | 5,842 | 5,923 |
| Investments and marketable securities | 2,768 | 473 |
| Allowance for doubtful accounts and notes receivable | 1,641 | 1,573 |
| Deferred credits | 194 | 635 |
| Gross deferred tax assets | 350,842 | 314,596 |
| Valuation allowance | (67,664) | (57,571) |
| Deferred tax assets | 283,178 | 257,025 |
| Depreciation and amortization | (55,994) | (58,441) |
| Operating lease assets | (52,635) | — |
| Deferred tax liabilities | (108,629) | (58,441) |
| Net deferred tax assets | $ 174,549 | $ 198,584 |
| Balance sheet presentation: | | |
| Long-term assets | $ 183,837 | $ 209,062 |
| Long-term liabilities | (9,288) | (10,478) |
| Net deferred tax assets | $ 174,549 | $ 198,584 |

**Valuation Allowance** – The realization of deferred tax assets is based on historical tax positions and estimates of future taxable income. We evaluate both the positive and negative evidence that we believe is relevant in assessing whether we will realize the deferred tax assets. A valuation allowance is recorded when it is more likely than not that some portion of the deferred tax assets will not be realized.

The ultimate realization of deferred tax assets depends on the generation of future taxable income during the periods in which those temporary differences are deductible. We consider the scheduled reversal of deferred tax liabilities (including the effect of available carryback and carryforward periods), and projected taxable income in making this assessment. To fully utilize the NOL and tax credits carryforwards, we will need to generate sufficient future taxable income in each respective jurisdiction before the expiration of the deferred tax assets governed by the applicable tax code.

Our valuation allowance was $67.7 million as of December 31, 2019, which represents an increase of $10.1 million from December 31, 2018 and was allocated to continuing operations. The increase in the valuation allowance primarily relates to the following: (i) an increase of $3.9 million due to expiring foreign tax credits, (ii) an increase of $3.6 million for state net operating losses ("NOL") and credits due to the impact of forecasted taxable income in the carry-forward period, (iii) an increase of $1.8 million for our Chilean subsidiary, and (iv) other changes to existing valuation allowances totaling approximately $0.8 million for changes in current year earnings for certain other subsidiaries and foreign exchange.

Our valuation allowance was $57.6 million as of December 31, 2018, which represents a decrease of $87.1 million from December 31, 2017 and was allocated to continuing operations. The decrease in the valuation allowance primarily related to the following: (i) a decrease of $75.0 million relating to the Company’s finalization of the accounting for the effects of the Tax Act, (ii) a decrease of $2.2 million due to expiring foreign tax credits, (iii) a decrease of $8.3 million for state NOL and credits due to the impact of increases in forecasted taxable income in the carry-forward period, and (iv) and other changes to existing valuation allowances totaling approximately $1.6 million for changes in the current year earnings for certain other subsidiaries and foreign exchange.

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The following is the activity in our valuation allowance:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Balance as of January 1, | $ (57,571) | $ (144,701) | $ (40,118) |
| Valuation allowances established | (2,001) | (260) | — |
| Changes to existing valuation allowances | (8,043) | 85,828 | (105,453) |
| Release of valuation allowances | — | — | 2,006 |
| Currency translation | (49) | 1,562 | (1,136) |
| Balance as of December 31, | $ (67,664) | $ (57,571) | $ (144,701) |

**Loss Carryforwards** – We reduced our income tax payments by utilizing NOL carryforwards of $208.0 million in 2019, $163.7 million in 2018 and $18.6 million in 2017. At December 31, 2019, our federal, state and foreign NOL carryforwards totaled $1,300.8 million, of which $87.0 million does not expire and the remainder expires as follows:

| (amounts in thousands) | |
|---|---|
| 2020 | $ 3,517 |
| 2021 | 14,079 |
| 2022 | 16,074 |
| 2023 | 26,845 |
| Thereafter | 1,153,300 |
| Total loss carryforwards | $ 1,213,815 |

We utilized approximately $146.2 million of NOL carryforwards in the US in 2018; however, the deferred tax asset related to these NOLs actually increased due to the restoration of certain loss carryforwards upon the finalization of the accounting for effects of the Tax Act. We have previously revised the total amount of NOLs utilized in 2017 to reflect the reduced income recognized under the Tax Act. At December 31, 2019, our capital loss carryforwards totaled $20.4 million, which are all foreign and do not expire.

**Section 382 Net Operating Loss Limitation** – On November 20, 2017 and October 3, 2011, we had a change in ownership pursuant to Section 382 of the Internal Revenue Code of 1986 as amended ("Code"). Under this provision of the Code, the utilization of any of our NOL or tax credit carryforwards, incurred prior to the date of ownership change, may be limited. Analyses of the respective limits for each ownership change indicated no reason to believe the annual limitation would impair our ability to utilize our NOL carryforward or net tax credit carryforwards as provided. We have concluded the limitation under Section 382 should not prevent us from fully utilizing these historical NOLs.

**Tax Credit Carryforwards** – Our tax credit carryforwards expire as follows:

| (amounts in thousands) | EZ Credit | R & E credit | Foreign Tax Credit | Work Opportunity & Welfare to Work Credit | State Investment Tax Credits | Tip Credit | TOTAL |
|---|---|---|---|---|---|---|---|
| 2020 | $ — | $ — | $ 12,975 | $ — | $ 2 | $ — | $ 12,977 |
| 2021 | — | — | 14,990 | — | 26 | — | 15,016 |
| 2022 | — | — | 1,061 | — | 11 | — | 1,072 |
| 2023 | — | — | 5,735 | — | 1,656 | — | 7,391 |
| 2024 | — | — | 3,514 | — | 84 | — | 3,598 |
| Thereafter | 68 | 9,047 | 8,801 | 6,696 | 86 | 102 | 24,800 |
| | $ 68 | $ 9,047 | $ 47,076 | $ 6,696 | $ 1,865 | $ 102 | $ 64,854 |

**Earnings of Foreign Subsidiaries** – Historically, the Company has not provided for US tax impacts of any unremitted earnings of its foreign subsidiaries. The Tax Act made significant changes to the taxation of undistributed foreign earnings, including that all previously untaxed earnings and profits of our controlled foreign corporations be subjected to a one-time deemed repatriation tax in 2017. In its final analysis of the effects of the Tax Act, the Company provided for US income taxes on approximately $121.0 million of earnings of our foreign subsidiaries deemed to be repatriated. Beginning in 2018, the Tax Act provides for a 100% dividends received deduction for untaxed earnings received from most foreign corporations. The repatriation tax substantially eliminated the basis difference that existed previously for purposes of ASC

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Topic 740. Although dividend income is now generally exempt from U.S. federal income tax in the hands of U.S. corporate shareholders, the guidance of ASC 740-30 still applies to account for the tax consequences of outside basis differences and other tax impacts of investments in non-U.S. subsidiaries. Although likely not subject to U.S. federal taxation, there are limited other taxes that could continue to apply such as foreign income and withholding as well as certain state taxes.

The Company routinely evaluates its indefinite reversal assertion on the outside basis difference in non-U.S. subsidiaries that allows the nonrecognition of associated deferred taxes. As of December 31, 2019, the Company has not recorded deferred tax liabilities or assets for the outside basis difference in any foreign subsidiary. We have concluded that a majority of the unremitted earnings of our foreign subsidiaries are indefinitely reinvested, with certain minor exceptions that do not have an associated tax cost. We hold a combined book-over-tax outside basis difference of $217.5 million in our investment in foreign subsidiaries and may incur up to $7.6 million of local country income and withholding taxes in case of distribution of unremitted earnings.

**Dual-Rate Jurisdiction** – Estonia taxes the corporate profits of resident corporations at different rates depending upon whether the profits are distributed. The undistributed profits of resident corporations are exempt from taxation while any distributed profits are subject to a 20% corporate income tax rate. The liability for the tax on distributed profits is recorded as an income tax expense in the period in which a dividend is declared. The amount of retained earnings at December 31, 2019 and 2018 for our Estonia subsidiary, which, if distributed, would be subject to this tax was $69.2 million and $68.1 million, respectively. During 2017, Latvia enacted a similar system in which an entity's local earnings are not subject to tax until distributed. The amount of retained earnings at December 31, 2019 and 2018 for our Latvian subsidiary which, if distributed, would be subject to a 20% corporate income tax rate is $21.4 million and $19.9 million, respectively.

**Tax Payments and Balances** – We made tax payments of $32.1 million in 2019, $49.7 million in 2018 and $29.0 million in 2017 primarily for foreign liabilities. We received tax refunds of $5.6 million in 2019, $3.3 million in 2018, and $6.5 million in 2017 and the primary jurisdictions for which refunds were received in the current year are Australia, Austria and the U.S. We recorded global receivables for refunds of $9.0 million at December 31, 2019 and $10.5 million at December 31, 2018, which is included in other current assets on the accompanying consolidated balance sheets. We recorded foreign payables for taxes of $2.0 million at December 31, 2019 and $1.7 million at December 31, 2018, which is included in accrued income taxes payable in the accompanying consolidated balance sheets. We recorded a non-current U.S. receivable of $0.8 million at December 31, 2018, which is included in other assets in the accompanying consolidated balance sheets. We do not have any non-current taxes receivable or payable as of December 31, 2019.

**Accounting for Uncertain Tax Positions** – A reconciliation of the beginning and ending amounts of unrecognized tax benefits excluding interest and penalties is as follows:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Balance as of January 1, | $ 18,951 | $ 14,519 | $ 12,054 |
| Increase for tax positions taken during the prior period | 197 | 2,620 | 252 |
| Decrease for settlements with taxing authorities | (126) | (157) | (788) |
| (Decrease) increase for tax positions taken during the current period | (96) | 300 | 107 |
| Currency translation | (318) | (707) | 1,626 |
| Balance at period end - unrecognized tax benefit | 18,607 | 16,575 | 13,251 |
| Accrued interest and penalties | 1,627 | 2,376 | 1,268 |
| | $ 20,234 | $ 18,951 | $ 14,519 |

Unrecognized tax benefits were $18.6 million, $16.6 million and $13.3 million at December 31, 2019, 2018 and 2017, respectively. The changes during the current period relate to the establishment of an uncertain tax positions for certain tax examinations offset by currency translation during the period. Interest and penalties related to uncertain tax positions are reported as a component of tax expense and included in the total uncertain tax position balance within deferred credits and other liabilities in the accompanying consolidated balance sheets.

A significant portion of our uncertain tax positions relates to the implementation of the Capacity Management Agreements within the European business ("CMA") which took place in January 1, 2015. The CMA changed the manner in which we manage our manufacturing capacity and the distribution and sale of our products in Europe. The reorganization of our Europe segment was part of our review of our operations structure and management that began in 2014 and resulted in changes in taxable income for certain of our subsidiaries within that reportable segment. Effective January 1, 2015, our subsidiary JELD-WEN U.K. Limited (the "Managing Subsidiary") entered into an agreement (the "Managing Agreement") with several of our other subsidiaries in Europe (collectively, the "Operating Subsidiaries"). The Managing Agreement provides that the Managing Subsidiary will receive a fee from the Operating Subsidiaries in exchange for performing

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various management and decision-making services for the Operating Subsidiaries. As a result, the Managing Agreement shifts certain risks (and correlated benefits) from the Operating Subsidiaries to the Managing Subsidiary. In exchange, the Managing Subsidiary guarantees a specific return to each Operating Subsidiary on a before interest and taxes basis, commensurate with such Operating Subsidiary's functions and risk profile. While there is no impact on the consolidated reporting of the Europe segment due to the Managing Agreement, there may be changes in taxable income of the Operating Subsidiaries. Therefore, we have reserved for a potential loss resulting from such uncertainty.

Included in the balance of unrecognized tax benefits as of December 31, 2019, 2018, and 2017, are $18.6 million, $16.6 million, and $13.3 million respectively, of tax benefits that, if recognized, would affect the effective tax rate. We cannot reasonably estimate the conclusion of certain non-US income tax examinations and its outcome at this time.

We operate in multiple foreign tax jurisdictions and are generally open to examination for tax years 2015 and forward. In the U.S., we are open to examination at the federal level for tax years 2013 and forward and at state and local jurisdictions for tax years 2014 and forward. We are under examination in Austria, the Czech Republic, Denmark, Germany, Indonesia, Latvia, Switzerland, and the United Kingdom for tax years 2011 through 2017, and generally remain open to examination for other non-US jurisdictions for tax years 2013 forward.

**Note 18. Segment Information**

We report our segment information in the same way management internally organizes the business in assessing performance and making decisions regarding allocation of resources in accordance with ASC 280-10- *Segment Reporting*. We determined that we have three reportable segments, organized and managed principally by geographic region. Our reportable segments are North America, Europe and Australasia. We report all other business activities in Corporate and unallocated costs. Factors considered in determining the three reportable segments include the nature of business activities, the management structure accountable directly to the CODM, the discrete financial information available and the information regularly reviewed by the CODM. Management reviews net revenues and Adjusted EBITDA to evaluate segment performance and allocate resources. We define Adjusted EBITDA as net income (loss), adjusted for the following items: loss from discontinued operations, net of tax; equity earnings of non-consolidated entities; income tax (benefit) expense; depreciation and amortization; interest expense, net; impairment and restructuring charges; gain on previously held shares of equity investment; (gain) loss on sale of property and equipment; share-based compensation expense; non-cash foreign exchange transaction/translation (income) loss; other non-cash items; other items; and costs related to debt restructuring and debt refinancing.

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The following tables set forth certain information relating to our segments' operations:

| (amounts in thousands) | North America | Europe | Australasia | Total Operating Segments | Corporate and Unallocated Costs | Total Consolidated |
|---|---|---|---|---|---|---|
| **Year Ended December 31, 2019** | | | | | | |
| Total net revenues | $ 2,535,810 | $ 1,178,589 | $ 585,341 | $ 4,299,740 | $ — | $ 4,299,740 |
| Intersegment net revenues | (1,474) | (148) | (8,357) | (9,979) | — | (9,979) |
| Net revenues from external customers | $ 2,534,336 | $ 1,178,441 | $ 576,984 | $ 4,289,761 | $ — | $ 4,289,761 |
| Depreciation and amortization | $ 81,905 | $ 28,944 | $ 17,787 | $ 128,636 | $ 5,333 | $ 133,969 |
| Impairment and restructuring charges | 7,301 | 6,182 | 7,111 | 20,594 | 957 | 21,551 |
| Adjusted EBITDA | 267,335 | 116,193 | 74,484 | 458,012 | (42,974) | 415,038 |
| Capital expenditures | 46,799 | 23,611 | 32,619 | 103,029 | 33,163 | 136,192 |
| Segment assets | $ 1,530,135 | $ 974,076 | $ 510,845 | $ 3,015,056 | $ 366,276 | $ 3,381,332 |
| **Year Ended December 31, 2018** | | | | | | |
| Total net revenues | $ 2,462,914 | $ 1,216,204 | $ 681,160 | $ 4,360,278 | $ — | $ 4,360,278 |
| Intersegment net revenues | (1,281) | (905) | (11,245) | (13,431) | — | (13,431) |
| Net revenues from external customers | $ 2,461,633 | $ 1,215,299 | $ 669,915 | $ 4,346,847 | $ — | $ 4,346,847 |
| Depreciation and amortization | $ 71,945 | $ 31,132 | $ 17,730 | $ 120,807 | $ 4,293 | $ 125,100 |
| Impairment and restructuring charges | 4,933 | 6,111 | 7,170 | 18,214 | (886) | 17,328 |
| Adjusted EBITDA | 279,526 | 122,810 | 90,885 | 493,221 | (34,003) | 459,218 |
| Capital expenditures | 57,805 | 25,369 | 12,146 | 95,320 | 23,380 | 118,700 |
| Segment assets | $ 1,355,101 | $ 898,901 | $ 482,493 | $ 2,736,495 | $ 311,030 | $ 3,047,525 |
| **Year Ended December 31, 2017** | | | | | | |
| Total net revenues | $ 2,159,919 | $ 1,045,036 | $ 572,518 | $ 3,777,473 | $ — | $ 3,777,473 |
| Intersegment net revenues | (2,021) | (2,269) | (9,434) | (13,724) | — | (13,724) |
| Net revenues from external customers | $ 2,157,898 | $ 1,042,767 | $ 563,084 | $ 3,763,749 | $ — | $ 3,763,749 |
| Depreciation and amortization | $ 66,990 | $ 27,979 | $ 13,248 | $ 108,217 | $ 3,056 | $ 111,273 |
| Impairment and restructuring charges | 8,471 | 3,592 | (49) | 12,014 | 1,042 | 13,056 |
| Adjusted EBITDA | 273,192 | 131,200 | 74,386 | 478,778 | (43,616) | 435,162 |
| Capital expenditures | 34,769 | 14,889 | 6,019 | 55,677 | 7,372 | 63,049 |
| Segment assets | $ 1,206,849 | $ 918,048 | $ 447,734 | $ 2,572,631 | $ 287,446 | $ 2,860,077 |

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Reconciliations of net income to Adjusted EBITDA are as follows:

| (amounts in thousands) | Years Ended December 31, 2019 | 2018 | 2017 |
|---|---|---|---|
| Net income | $ 62,971 | $ 141,907 | $ 8,122 |
| Equity earnings of non-consolidated entities | — | (738) | (3,639) |
| Income tax expense | 57,074 | (10,058) | 137,818 |
| Depreciation and amortization | 133,969 | 125,100 | 111,273 |
| Interest expense, net [1] | 71,778 | 70,818 | 79,034 |
| Impairment and restructuring charges[2] | 22,748 | 17,328 | 13,057 |
| Gain on previously held shares of equity investment | — | (20,767) | — |
| Loss (gain) on sale of property and equipment | 1,959 | 144 | (299) |
| Share-based compensation expense | 13,315 | 15,052 | 19,785 |
| Non-cash foreign exchange transaction/translation (income) loss | 3,438 | (1,267) | (1,178) |
| Other items [3] | 47,482 | 117,546 | 47,000 |
| Other non-cash items [4] | 304 | 3,859 | 526 |
| Costs relating to debt restructuring and debt refinancing [5] | — | 294 | 23,663 |
| Adjusted EBITDA | $ 415,038 | $ 459,218 | $ 435,162 |

(1) Interest expense for the year ended December 31, 2017 includes $6,097 related to the write-off of a portion of the unamortized debt issuance costs and original issue discount associated with the Term Loan Facility.

(2) Impairment and restructuring charges consist of (i) impairment and restructuring charges that are included in our consolidated statements of operations plus (ii) additional charges relating to inventory and/or manufacturing of our products that are included in cost of sales in the accompanying consolidated statements of operations in the amount of $1,197, $0, and $1 for the years ended December 31, 2019, 2018, and 2017, respectively. For further explanation of impairment and restructuring charges that are included in our consolidated statements of operations, see Note 24 - *Impairment and Restructuring Charges* in our financial statements.

(3) Other non-recurring items not core to ongoing business activity include: (i) in the year ended December 31, 2019 (1) $19,147 in facility closure and consolidation costs related to our facility footprint rationalization program, (2) $14,963 in acquisition and integration costs including $7,077 related to purchase price structured by the former owners as retention payments for key employees of a recent acquisition, (3) $12,860 in legal cost and professional fees relating primarily to litigation, (4) $(3,053) of realized gains on hedges of intercompany notes, (5) $1,998 in other miscellaneous costs, (6) $731 in equity compensation to employees in our Australasia region, and (7) $725 in costs related to the departure of former executives.; (ii) in the year ended December 31, 2018, (1) $76,500 in litigation contingency accruals, (2) $26,529 in legal and professional fees relating primarily to litigation, (3) $10,324 in acquisition and integration costs, (4) $(5,396) of realized gains on hedges of intercompany notes, (4) $3,856 in costs related to the departure of former executives, (5) $2,901 in entity consolidation and reorganization costs, (6) $2,347 in miscellaneous costs, and (7) $485 in stock compensation payroll taxes; (iii) in the year ended December 31, 2017, (1) $34,178 in legal costs, (2) $4,176 in realized loss on hedges relating to intercompany notes, (3) $3,484 in acquisition and integration costs, (4) $(2,247) gain on settlement of contract escrow, (5) $2,202 in secondary offering costs, (6) $754 in tax consulting fee, (7) $678 in legal entity consolidation costs, (8) $649 in stock compensation payroll taxes, and (9) $578 in facility ramp down cost.

(4) Other non-cash items include: (i) derivative losses of $235 in the year ended December 31, 2019; (ii) charges of $3,740 for the fair value of inventory acquired as part of our Domoferm acquisitions in the year ended December 31, 2018; and (iii) charges of $439 for the fair value adjustment to the inventory acquired as part of our Mattiovi acquisition in the year ended December 31, 2017.

(5) Included in the year ended December 31, 2017 is a loss on debt extinguishment of $23,262 associated with the refinancing of our term loan.

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Net revenues by locality are as follows for the years ended December 31,:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Net revenues by location of external customer** | | | |
| Canada | $ 187,095 | $ 201,134 | $ 219,877 |
| U.S. | 2,327,186 | 2,228,748 | 1,904,754 |
| South America (including Mexico) | 29,637 | 34,422 | 35,280 |
| Europe | 1,195,207 | 1,239,732 | 1,063,344 |
| Australia | 544,140 | 634,976 | 530,521 |
| Africa and other | 6,496 | 7,835 | 9,973 |
| Total | $ 4,289,761 | $ 4,346,847 | $ 3,763,749 |

Geographic information regarding property, plant, and equipment which exceed 10% of consolidated property, plant, and equipment used in continuing operations is as follows for the years ended December 31,

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| North America: | | | |
| U.S. | $ 485,278 | $ 459,506 | $ 402,338 |
| Other | 28,096 | 24,911 | 25,876 |
| | 513,374 | 484,417 | 428,214 |
| Europe | 181,390 | 181,038 | 153,492 |
| Australasia: | | | |
| Australia | 115,335 | 113,922 | 118,568 |
| Other | 28,786 | 10,297 | 7,818 |
| | 144,121 | 124,219 | 126,386 |
| Corporate: | | | |
| U.S. | 25,490 | 53,729 | 48,619 |
| Total property and equipment, net | $ 864,375 | $ 843,403 | $ 756,711 |

The prior period information has been revised and reclassified to conform with current period presentation. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

**Note 19. Series A Convertible Preferred Shares**

Prior to the IPO, we had the authority to issue up to 8,750,000 shares of preferred stock, par value of $0.01, of which 8,749,999 shares were designated as Series A Convertible Preferred Stock and one share was designated as Series B Preferred Stock. Series A Convertible Preferred Stock consisted of 2,922,634 shares of Series A-1 Stock, 208,760 shares of Series A-2 Stock, 843,132 shares of Series A-3 Stock, and 4,775,473 shares of Series A-4 Stock. At December 31, 2016, all of the authorized shares of Series A-1, Series A-2, and Series A-3 Stock and one Series B Stock were issued and outstanding.

Immediately prior to the closing of our IPO, the outstanding shares and accumulated and unpaid dividends of the Series A Convertible Preferred Stock converted into 64,211,172 common shares by applying the applicable conversion rates as prescribed in our then-existing certificate of incorporation.

**Dividend** - Prior to converting to common stock, the Series A Stock had a preferred annual dividend of 10% per annum on the Equity Constant, with the Equity Constant being $21.77 for dividends accruing prior to April 30, 2013. The cumulative dividends accrued continually and compounded annually at the rate of 10% whether or not they had been declared and whether or not there were funds available for the payment.

In October of 2016, the Board of Directors authorized $256.3 million in distributions to the holders of the 3,974,525 shares of Series A Stock (62,645,538 as-converted common shares) through participation in the $4.09 per share of Common Stock

distribution (see Note 20 - *Capital Stock*). The Board of Directors authorized an additional distribution of $51.0 million to holders of Series A Stock representing dividends accruing between May 31, 2016 and November 3, 2016. Total distributions paid to holders of our Series A Stock were $306.7 million and were paid on or about November 3, 2016. Cumulative unpaid dividends were approximately $390.6 million at December 31, 2016. The Series A Stock and cumulative unpaid dividends converted into 64,211,172 shares of our common stock on February 1, 2017.

**Note 20. Capital Stock**

On February 1, 2017, immediately prior to the closing of the IPO, the Company filed its Charter with the Secretary of State of the State of Delaware, and the Company's Bylaws became effective, each as contemplated by the registration statement we filed in connection with our IPO. The Charter, among other things, provides that the Company's authorized capital stock consists of 900,000,000 shares of Common Stock, par value $0.01 per share and 90,000,000 shares of preferred stock, par value $0.01 per share.

*Preferred Stock* - Our Board of Directors is authorized to issue Preferred Stock from time to time in one or more series and with such rights, privileges, and preferences as the Board of Directors shall from time to time determine. We have not issued any shares of preferred stock.

*Common Stock* - On January 3, 2017, our pre-IPO charter was amended authorizing us to issue 904,732,200 shares of Common Stock, with a par value of $0.01 per share, of which 900,000,000 shares were designated Common Stock and 4,732,200 shares were designated as Class B-1 Common Stock. Each share of Common Stock (whether Common Stock or Class B-1 Common Stock) had the same rights, privileges, interest and attributes and was subject to the same limitations as every other share treating the Class B-1 Common Stock on an as-converted basis. Each share of Class B-1 Common Stock was convertible at the option of the holder into shares of Common Stock at the same ratio on the date of conversion as a share of Series A-1 Stock would have been convertible on such date of conversion, assuming that no cash dividends had been paid on the Series A-1 Stock (or its predecessor security) since the date of initial issuance. Immediately prior to the closing of our IPO, all of the outstanding shares of Class B-1 Common Stock were converted into 309,404 shares of Common Stock.

Common Stock includes the basis of shares outstanding plus amounts recorded as additional paid-in capital. Shares outstanding exclude the shares issued to the Employee Benefit Trust that are considered similar to treasury shares and total 193,941 shares at both December 31, 2019 and December 31, 2018 with a total original issuance value of $12.4 million.

On February 1, 2017, we closed our IPO and received $480.3 million in proceeds, net of underwriting discounts and commissions. Costs associated with our initial public offering of $7.9 million, including $5.9 million of capitalized costs were charged to equity upon completion of the IPO.

In April 2018, our Board of Directors authorized the repurchase of up to $250.0 million of our Common Stock through December 2019. Share repurchases are recorded on their trade date and reduce shareholders' equity and increase accounts payable. Repurchased shares are retired, and the excess of the repurchase price over the par value of the shares is charged to retained earnings. During the years ended December 31, 2019 and December 31, 2018, we repurchased 1,192,419 and 5,287,964 shares, respectively, of our Common Stock for aggregate consideration of $20.0 million and $125.0 million, respectively.

On November 4, 2019, the Board of Directors authorized an increase to the remaining authorization under the share repurchase program to a total of $175.0 million with no expiration date. As of December 31, 2019, $175.0 million was remaining under the repurchase authorization.

**Note 21. Earnings Per Share**

Basic earnings per share is calculated by dividing net earnings by the weighted average shares outstanding during the period, without consideration for Common Stock equivalents. Diluted net earnings per share is calculated by adjusting weighted average shares outstanding for the dilutive effect of common share equivalents outstanding for the period, determined using the treasury-stock method. Common Stock options, unvested Common Restricted Stock Units and unvested Common Performance Share Units are considered to be Common Stock equivalents included in the calculation of diluted net income (loss) per share.

The basic and diluted income (loss) per share calculations are presented below:

| (amounts in thousands, except share and per share amounts) | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Earnings per share basic:** | | | |
| Income from continuing operations | $ 62,971 | $ 141,169 | $ 4,483 |
| Equity earnings of non-consolidated entities | — | 738 | 3,639 |
| Net Income | $ 62,971 | $ 141,907 | 8,122 |
| Undeclared Series A Convertible Preferred Stock dividends | — | — | (10,462) |
| Net income (loss) attributable to common shareholders | $ 62,971 | $ 141,907 | $ (2,340) |
| Weighted average outstanding shares of Common Stock basic | 100,618,105 | 104,530,572 | 97,460,676 |
| Net income (loss) per share - basic | $ 0.63 | $ 1.36 | $ (0.02) |

| (amounts in thousands, except share and per share amounts) | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Earnings per share diluted:** | | | |
| Net income (loss) - attributable to common shareholders | $ 62,971 | $ 141,907 | $ (2,340) |
| Weighted average outstanding shares of Common Stock basic | 100,618,105 | 104,530,572 | 97,460,676 |
| Restricted stock units, performance share units and options to purchase Common Stock | 846,220 | 1,830,085 | — |
| Weighted average outstanding shares of Common Stock diluted | 101,464,325 | 106,360,657 | 97,460,676 |
| Net income (loss) per share - diluted | $ 0.62 | $ 1.33 | $ (0.02) |

The following table provides the securities that could potentially dilute basic earnings per share in the future, but were not included in the computation of diluted earnings per share because to do so would have been anti-dilutive:

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| Common Stock options | 1,657,437 | 1,019,930 | 545,693 |
| Restricted stock units | 50,113 | 87,720 | 537 |
| Performance share units | 9,704 | 84,809 | — |

The prior period information has been revised. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

**Note 22. Stock Compensation**

Prior to the IPO, our Amended and Restated Stock Incentive Plan, (the "Stock Incentive Plan"), allowed us to offer common options, B-1 common options and common RSUs for the benefit of our employees, affiliate employees and key non-employees. Under the Stock Incentive Plan, we could award up to an aggregate of 2,761,000 common shares and 4,732,200 B-1 common shares. The Stock Incentive Plan provided for accelerated vesting of awards upon the occurrence of certain events. Through December 31, 2016, we issued 5,156,976 options and 385,220 RSUs under the Stock Incentive Plan.

In connection with our IPO, the Board adopted, and our shareholders approved, the JELD-WEN Holding, Inc. 2017 Omnibus Equity Plan, (the "Omnibus Equity Plan"). Under the Omnibus Equity Plan, equity awards may be made in respect of 7,500,000 shares of our Common Stock and may be granted in the form of options, restricted stock, RSUs, stock appreciation rights, dividend equivalent rights, share awards and performance-based awards (including performance share units and performance-based restricted stock).

Share-based compensation expense included in SG&A expenses totaled $13.3 million, $15.1 million, and $19.8 million in 2019, 2018, and 2017, respectively. We recognized a windfall tax benefit of $12.7 million in 2017, which included a benefit of $14.1 million in the U.S., offset by disallowances in our foreign subsidiaries of $1.4 million. There were no material related tax benefits for the years 2019 or 2018. As of December 31, 2019, there was $24.2 million of total

unrecognized compensation expense related to non-vested share-based compensation arrangements. This cost is expected to be recognized over the remaining weighted-average vesting period of 2.0 years.

**Stock Options** – Generally, stock option awards vest ratably each year on the anniversary date over a 3 to 5-year period, have an exercise term of 10 years, and any vested options must be exercised within 90 days of the employee leaving the Company. The compensation cost of option awards is charged to expense based upon the graded-vesting method over the vesting periods applicable to the option awards. The graded-vesting method provides for vesting of portions of the overall awards at interim dates and results in greater expense in earlier years than the straight-line method.

When options are granted, we calculate the fair value of common and Class B-1 Common Stock options using multiple Black-Scholes option valuation models. Expected volatilities are based upon a selection of public guideline companies. The risk-free rate was based upon U.S. Treasury rates.

Key assumptions used in the valuation models were as follows for the years ended December 31:

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| Expected volatility | 37.90% - 40.02% | 34.81% - 39.68% | 37.36% - 42.83% |
| Expected dividend yield rate | 0.00% | 0.00% | 0.00% |
| Weighted average term (in years) | 5.50 - 6.50 | 5.50 - 6.50 | 5.50 - 6.50 |
| Weighted average grant date fair value | $8.32 | $12.98 | $11.51 |
| Risk free rate | 1.79% - 2.50% | 2.04% - 2.96% | 1.83% - 2.19% |

The following table represents stock option activity:

| | Shares | Weighted Average Exercise Price Per Share | Aggregate Intrinsic Value (millions) | Weighted Average Remaining Contract Term in Years |
|---|---|---|---|---|
| **Outstanding as of January 1, 2017** | 5,156,976 | $ 20.40 | | |
| Issued upon conversion of class B-1 Common Stock | 2,494,553 | 11.13 | | |
| Granted | 505,122 | 27.78 | | |
| Exercised | (2,781,055) | 11.67 | | |
| Forfeited | (448,928) | 15.01 | | |
| **Balance as of December 31, 2017** | 4,926,668 | $ 14.56 | | |
| Granted | 838,912 | 32.16 | | |
| Exercised | (1,548,484) | 13.79 | | |
| Forfeited | (884,391) | 18.8 | | |
| **Balance as of December 31, 2018** | 3,332,705 | $ 18.22 | | |
| Granted | 443,170 | 20.94 | | |
| Exercised | (641,706) | 10.56 | | |
| Forfeited | (301,370) | 26.07 | | |
| **Balance as of December 31, 2019** | 2,832,799 | $ 19.55 | $ 17.0 | 5.9 |
| | | | | |
| **Exercisable as of December 31, 2019** | 1,755,821 | $ 16.47 | $ 14.6 | 4.6 |

**RSUs** – RSUs are subject to the continued service of the recipient through the vesting date, which is generally 12 to 60 months from issuance. Once vested, the recipient will receive one share of Common Stock for each restricted stock unit. Prior to the IPO, the grant-date fair value per share used for RSUs was determined using the aggregate value of our common equity, as determined by a third-party valuation firm, as of the most recent calendar quarter-end and applying a 10% discount based upon reflecting the differential economic rights and preferences of the Preferred or the ESOP common shares relative to the common shares, with that amount rounded down to the nearest whole percent. After the IPO, the grant-date fair value per share used for RSUs was determined using the closing price of our Common Stock on the NYSE on the date of the grant. We apply this grant-date fair value per share to the total number of shares that we anticipate will fully vest and amortize the fair value to compensation expense over the vesting period using the straight-line method. In February 2018, we granted 314,267 RSUs to our then Chairman of the Board and interim CEO which vested daily through

the first anniversary of the date of grant, subject to continuous employment. On June 30, 2018, 208,364 RSUs were forfeited at the end of his interim service.

The following table represents RSU activity:

| | Shares | Weighted Average Grant-Date Fair Value Per Share |
|---|---|---|
| **Outstanding as of January 1, 2017** | 385,220 | $ 22.00 |
| Granted | 365,972 | 28.89 |
| Vested | (175,110) | 18.40 |
| Forfeited | (13,714) | 26.02 |
| **Balance as of December 31, 2017** | 562,368 | $ 27.51 |
| Granted | 766,927 | 29.14 |
| Vested | (124,560) | 25.21 |
| Forfeited | (530,867) | 29.69 |
| **Balance as of December 31, 2018** | 673,868 | $ 28.07 |
| Granted | 952,801 | 20.07 |
| Vested | (232,666) | 30.08 |
| Forfeited | (154,498) | 23.38 |
| **Balance as of December 31, 2019** | 1,239,505 | $ 22.13 |

**PSUs** – In 2018 and 2019, we issued PSUs pursuant to the Omnibus Equity Plan. The PSUs are subject to continued employment of the recipient through the vesting date, which is on the third anniversary of the grant. Once vested, the recipient will receive one share of Common Stock for each vested PSU.

The number of PSUs that vest is determined by a payout factor consisting of equally weighted performance measures of Adjusted EBITDA and free cash flow and is adjusted based upon a market condition measured by our relative total shareholder return ("TSR") as compared to the TSR of the Russell 3000 index. The fair value of the award is estimated using a Monte Carlo simulation approach in a risk-neutral framework to model future stock price movements based on historical volatility, risk free rates of return and correlation matrix.

The following table represents PSU activity for the awarded shares at target performance measures:

| | Shares | Weighted Average Grant-Date Fair Value Per Share |
|---|---|---|
| **Outstanding as of January 1, 2018** | — | $ — |
| Granted | 193,763 | 31.60 |
| Forfeited | (19,093) | 33.31 |
| **Balance as of December 31, 2018** | 174,670 | $ 31.41 |
| Granted | 401,935 | 22.21 |
| Forfeited | (65,832) | 25.24 |
| **Balance as of December 31, 2019** | 510,773 | $ 24.97 |

**Note 23. Impairment and Restructuring Charges**

During 2019, 2018 and 2017, we engaged in restructuring activities intended to improve productivity, operating margins, and working capital levels. Restructuring costs primarily relate to workforce reductions, repositioning of management structure and costs associated with plant consolidations and closures.

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Asset impairment charges were recorded in addition to our restructuring costs. In 2019, the asset impairment charges were primarily related to ROU assets held by operations impacted by restructuring. During 2018 and 2017, lease costs were recorded within other exit costs in the tables below in accordance with effective restructuring and leasing guidance during those time periods.

The following table summarizes the restructuring charges for the periods indicated:

| (amounts in thousands) | North America | Europe | Australasia | Corporate and Unallocated Costs | Total Consolidated |
|---|---|---|---|---|---|
| **Year Ended December 31, 2019** | | | | | |
| Severance costs | $ 3,595 | $ 5,391 | $ 3,542 | $ 1,012 | $ 13,540 |
| Other exit costs | (220) | 634 | 1,027 | (55) | 1,386 |
| Total restructuring costs | 3,375 | 6,025 | 4,569 | 957 | 14,926 |
| Impairments | 3,926 | 157 | 2,542 | — | 6,625 |
| Total impairment and restructuring charges | $ 7,301 | $ 6,182 | $ 7,111 | $ 957 | $ 21,551 |
| **Year Ended December 31, 2018** | | | | | |
| Severance costs | $ 2,779 | $ 5,877 | $ 2,884 | $ 226 | $ 11,766 |
| Other exit costs | 1,460 | 256 | 4,286 | (1,670) | 4,332 |
| Total restructuring costs | 4,239 | 6,133 | 7,170 | (1,444) | 16,098 |
| Impairments | 694 | (22) | — | 558 | 1,230 |
| Total impairment and restructuring charges | $ 4,933 | $ 6,111 | $ 7,170 | $ (886) | $ 17,328 |
| **Year Ended December 31, 2017** | | | | | |
| Severance costs | $ 6,829 | $ 1,915 | $ 91 | $ 657 | $ 9,492 |
| Other exit costs | 1,634 | 206 | (140) | 385 | 2,085 |
| Total restructuring costs | 8,463 | 2,121 | (49) | 1,042 | 11,577 |
| Impairments | 8 | 1,471 | — | — | 1,479 |
| Total impairment and restructuring charges | $ 8,471 | $ 3,592 | $ (49) | $ 1,042 | $ 13,056 |

Short-term restructuring accruals are recorded in accrued expenses and totaled $6.1 million and $6.6 million as of December 31, 2019 and December 31, 2018, respectively. Long-term restructuring accruals are recorded in deferred credits and other liabilities and totaled $1.0 million and $2.0 million as of December 31, 2019 and December 31, 2018, respectively.

The following is a summary of the restructuring accruals recorded and charges incurred:

| (amounts in thousands) | Beginning Accrual Balance | Additions Charged to Expense | Payments or Utilization | Ending Accrual Balance |
|---|---|---|---|---|
| **December 31, 2019** | | | | |
| Severance costs | $ 5,352 | $ 13,540 | $ (13,578) | $ 5,314 |
| Other exit costs | 3,287 | 1,386 | (2,944) | 1,729 |
| Total | $ 8,639 | $ 14,926 | $ (16,522) | $ 7,043 |
| **December 31, 2018** | | | | |
| Severance costs | $ 7,232 | $ 11,766 | $ (13,646) | $ 5,352 |
| Other exit costs | 3,807 | 4,332 | (4,852) | 3,287 |
| Total | $ 11,039 | $ 16,098 | $ (18,498) | $ 8,639 |
| **December 31, 2017** | | | | |
| Severance costs | $ 836 | $ 9,492 | $ (3,096) | $ 7,232 |
| Other exit costs | 4,183 | 2,085 | (2,461) | 3,807 |
| Total | $ 5,019 | $ 11,577 | $ (5,557) | $ 11,039 |

The prior period information has been reclassified to conform to current period presentation.

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**Note 24. Interest Expense**

Interest expense is net of capitalized interest. Capitalized interest incurred during the construction phase of significant property and equipment additions totaled $2.5 million, $1.8 million, and $0.9 million in 2019, 2018, and 2017, respectively. We made interest payments of $71.2 million, $68.9 million, and $66.1 million in 2019, 2018 and 2017, respectively. Interest expense also includes amortization of debt issuance costs that are amortized using the effective interest method and amortization of original issue discounts.

**Note 25. Other (Income) Expense**

The table below summarizes the amounts included in other (income) expense in the accompanying consolidated statements of operations:

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Pension benefit expense | $ 10,738 | $ 6,975 | $ 12,616 |
| Foreign currency (gain) loss | (7,361) | (11,258) | 11,429 |
| Legal settlement income | (1,247) | (7,541) | (2,456) |
| Gain on sale of business | (2,814) | — | — |
| Other items | (725) | (2,296) | (2,482) |
| Gain on previously held shares of an equity investment | — | (20,767) | — |
| Loss on debt extinguishment | — | — | 23,262 |
| Settlement of contract escrow | — | — | (2,247) |
| Total other (income) expense | $ (1,409) | $ (34,887) | $ 40,122 |

The gain on previously held shares of an equity investment relates to an equity method investment that was remeasured on the date we acquired the company in 2018.

The prior period information has been revised and reclassified to conform to current period presentation. Please refer to Note 32 - *Revision of Prior Period Financial Statements*.

**Note 26. Derivative Financial Instruments**

All derivatives are recorded as assets or liabilities in the consolidated balance sheets at their respective fair values. For derivatives that qualify for hedge accounting, changes in the fair value related to the effective portion of the hedge are recognized in earnings at the same time as either the change in fair value of the underlying hedged item or the effect of the hedged item's exposure to the variability of cash flows. Changes in fair value related to the ineffective portion of the hedge are recognized immediately in earnings. Changes in the fair value of derivatives that do not qualify for hedge accounting, or fail to meet the criteria, thereafter, are also recognized in the consolidated statements of operations. See Note 27 - *Fair Value of Financial Instruments* for additional information on the fair value of our derivative assets and liabilities.

**Foreign currency derivatives** – We are exposed to the impact of foreign currency fluctuations in certain countries in which we operate. In most of these countries, the exposure to foreign currency movements is limited because the operating revenues and expenses of our business units are substantially denominated in the local currency. To the extent borrowings, sales, purchases or other transactions are not executed in the local currency of the operating unit, we are exposed to foreign currency risk. To mitigate the exposure, we enter into a variety of foreign currency derivative contracts, such as forward contracts, option collars, and cross-currency hedges. We use foreign currency derivative contracts, with a total notional amount of $91.6 million, to manage the effect of exchange fluctuations on forecasted sales, purchases, acquisitions, inventory and capital expenditures and certain intercompany transactions that are denominated in foreign currencies. We use foreign currency derivative contracts, with a total notional amount of $29.5 million, to hedge the effects of translation gains and losses on intercompany loans and interest. We also use foreign currency derivative contracts, with a total notional amount of $116.5 million, to mitigate the impact to the consolidated earnings of the Company from the effect of the translation of certain subsidiaries' local currency results into U.S. dollars. We do not use derivative financial instruments for trading or speculative purposes. We have not elected hedge accounting for any foreign currency derivative contracts. We record mark-to-market changes in the values of these derivatives in other (income) expense. We recorded mark-to-market losses of $9.8 million in the year ended December 31, 2019, gains of $7.8 million in the year ended December 31, 2018, and losses of $6.3 million in the year ended December 31, 2017.

**Interest rate derivatives** – We are exposed to interest rate risk in connection with our variable rate long-term debt and partially mitigate this risk through interest rate derivatives such as swaps and caps. In conjunction with the December 2017

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refinancing of the Term Loan Facility (see Note 15 - *Long-Term Debt*), we terminated all of the interest rate swaps which had outstanding notional amounts aggregating to $914.3 million and recorded a loss on termination of $3.6 million in consolidated other comprehensive income (loss), which was being amortized as interest expense over the pre-termination life of the interest rate swaps. As of December 31, 2019, the loss on termination has been fully amortized. The unamortized, pre-tax balance of this loss recorded in consolidated other comprehensive income (loss) was $1.3 million and $3.4 million at December 31, 2018 and 2017, respectively.

The interest rate swap agreements were designated as cash flow hedges and, prior to their termination in December 2017, effectively changed the LIBOR-based portion of the interest rate (or "base rate") on a portion of the debt outstanding under our Term Loan Facility to the weighted average fixed rates. For the period of December 2016 to December 2017, the weighted average rate was 2.188%, on a notional value of $914,250.

We recorded interest expense deriving from the amortization of the loss on termination of interest rate swaps of $1.3 million, $2.1 million and $8.9 million during the years ended December 31, 2019, 2018 and 2017, respectively.

During the first quarter of 2019, we entered into two interest rate cap contracts against three-month U.S.-dollar LIBOR, each with a cap rate of 3.00%. These caps have a combined notional amount of $150.0 million, were effective as of March 2019, and terminate in December 2021. We have not elected hedge accounting and have recorded insignificant mark-to-market adjustments in the year ended December 31, 2019.

The fair values of derivative instruments held are as follows:

| | Derivative assets | | |
|---|---|---|---|
| (amounts in thousands) | Balance Sheet Location | December 31, 2019 | December 31, 2018 |
| Derivatives not designated as hedging instruments: | | | |
| Foreign currency forward contracts | Other current assets | $ 1,372 | $ 8,234 |
| Interest rate cap contracts | Other assets | 6 | — |

| | Derivatives liabilities | | |
|---|---|---|---|
| (amounts in thousands) | Balance Sheet Location | December 31, 2019 | December 31, 2018 |
| Derivatives not designated as hedging instruments: | | | |
| Foreign currency forward contracts | Accrued expenses and other current liabilities | $ 4,068 | $ 1,161 |

**Note 27. Fair Value of Financial Instruments**

We record financial assets and liabilities at fair value based on FASB guidance related to fair value measurements. The guidance requires fair value to be determined based on 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 – Quoted market-based inputs or unobservable inputs that are corroborated by market data.

Level 3 – Unobservable inputs that are not corroborated by market data.

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The recorded carrying amounts and fair values of these instruments were as follows:

| (amounts in thousands) | December 31, 2019 | | | | | |
|---|---|---|---|---|---|---|
| | Carrying Amount | Total Fair Value | Level 1 | Level 2 | Level 3 | Assets measured at NAV (1) |
| **Assets:** | | | | | | |
| Cash equivalents | $ — | $ — | $ — | $ — | $ — | $ — |
| Derivative assets, recorded in other current assets | 1,372 | 1,372 | — | 1,372 | — | — |
| Derivative assets, recorded in other assets | 6 | 6 | — | 6 | — | — |
| Pension plan assets: | | | | | | |
| Cash and short-term investments | 8,787 | 8,787 | — | 8,787 | — | — |
| U.S. Government and agency obligations | 25,206 | 25,206 | 25,206 | — | — | — |
| Corporate and foreign bonds | 104,430 | 104,430 | — | 104,430 | — | — |
| Equity securities | 28,249 | 28,249 | 28,249 | — | — | — |
| Mutual funds | 70,230 | 70,230 | — | 70,230 | — | — |
| Common and collective funds | 132,600 | 132,600 | — | — | — | 132,600 |
| **Liabilities:** | | | | | | |
| Senior notes | $ 800,000 | $ 823,500 | $ — | $ 823,500 | $ — | $ — |
| Term loans | 591,153 | 593,932 | — | 593,932 | — | — |
| Derivative liabilities, recorded in accrued expenses and deferred credits | 4,068 | 4,068 | — | 4,068 | — | — |

| (amounts in thousands) | December 31, 2018 | | | | | |
|---|---|---|---|---|---|---|
| | Carrying Amount | Total Fair Value | Level 1 | Level 2 | Level 3 | Assets measured at NAV (1) |
| **Assets:** | | | | | | |
| Cash equivalents | $ 30 | $ 30 | $ — | $ 30 | $ — | $ — |
| Derivative assets, recorded in other current assets | 8,234 | 8,234 | — | 8,234 | — | — |
| Pension plan assets: | | | | | | |
| Cash and short-term investments | 7,254 | 7,254 | — | 7,254 | — | — |
| U.S. Government and agency obligations | 24,622 | 24,622 | 24,622 | — | — | — |
| Corporate and foreign bonds | 90,490 | 90,490 | — | 90,490 | — | — |
| Equity securities | 22,378 | 22,378 | 22,378 | — | — | — |
| Mutual funds | 60,099 | 60,099 | — | 60,099 | — | — |
| Common and collective funds | 110,596 | 110,596 | — | — | — | 110,596 |
| **Liabilities:** | | | | | | |
| Senior notes, recorded in long-term debt | $ 800,000 | $ 692,000 | $ — | $ 692,000 | $ — | $ — |
| Term loans, recorded in long-term debt and current maturities of long-term debt | 474,058 | 455,545 | — | 455,545 | — | — |
| Derivative liabilities, recorded in accrued expenses and deferred credits | 1,161 | 1,161 | — | 1,161 | — | — |

(1) Certain pension assets that are measured at fair value using the NAV per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. These include investments in large cap equity and commingled real estate funds. Redemption of these funds is not subject to restriction.

Derivative assets and liabilities reported in level 2 include foreign currency and interest rate cap contracts. See Note 26- *Derivative Financial Instruments* for additional information about our derivative assets and liabilities.

The non-financial assets that are measured at fair value on a non-recurring basis are presented below:

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| (amounts in thousands) | December 31, 2019 | | | | | |
|---|---|---|---|---|---|---|
| | Carrying Value | Total Fair Value | Level 1 | Level 2 | Level 3 | Total Losses |
| Closed operations | $ 988 | $ 988 | $ — | $ — | $ 988 | $ 1,586 |
| Total | $ 988 | $ 988 | $ — | $ — | $ 988 | $ 1,586 |

| (amounts in thousands) | December 31, 2018 | | | | | |
|---|---|---|---|---|---|---|
| | Carrying Value | Total Fair Value | Level 1 | Level 2 | Level 3 | Total Losses |
| Continuing operations | $ 48 | $ 48 | $ — | $ — | $ 48 | $ 175 |
| Total | $ 48 | $ 48 | $ — | $ — | $ 48 | $ 175 |

**Note 28. Commitments and Contingencies**

**Litigation** – We are involved in various legal proceedings, claims, and government audits arising in the ordinary course of business. We record our best estimate of a loss when the loss is considered probable and the amount of such loss can be reasonably estimated. Legal judgments and estimated settlements have been included in accrued expenses in the accompanying consolidated balance sheets. When a loss is probable and there is a range of estimated loss with no best estimate within the range, we record the minimum estimated liability related to the lawsuit or claim. As additional information becomes available, we assess the potential liability related to pending litigation and claims and revise our accruals, if necessary. Because of uncertainties related to the resolution of lawsuits and claims, the ultimate outcome may differ materially from our estimates.

In the opinion of management and based on the liability accruals provided, other than as described below, as of December 31, 2019, there are no current proceedings or litigation matters involving the Company or its property that we believe would have a material adverse effect on our consolidated financial position or cash flows, although they could have a material adverse effect on our operating results for a particular reporting period.

*Steves & Sons, Inc. vs JELD-WEN* – We sell molded door skins to certain customers pursuant to long-term contracts, and these customers in turn use the molded door skins to manufacture interior doors and compete directly against us in the marketplace. We gave notice of termination of one of these contracts and, on June 29, 2016, the counterparty to the agreement, Steves and Sons, Inc. (“Steves”) filed a claim against JWI in the U.S. District Court for the Eastern District of Virginia, Richmond Division (“Eastern District of Virginia”). The complaint alleged that our acquisition of CMI, a competitor in the molded door skins market, together with subsequent price increases and other alleged acts and omissions, violated antitrust laws, and constituted a breach of contract and breach of warranty. Specifically, the complaint alleged that our acquisition of CMI substantially lessened competition in the molded door skins market. The complaint sought declaratory relief, ordinary and treble damages, and injunctive relief, including divestiture of certain assets acquired in the CMI acquisition.

In February 2018, a jury in the Eastern District of Virginia returned a verdict that was unfavorable to JWI with respect to Steves’ claims that our acquisition of CMI violated Section 7 of the Clayton Act and found that JWI breached the supply agreement between the parties. The verdict awarded Steves $12.2 million for past damages under both the Clayton Act and breach of contract claims and $46.5 million in future lost profits under the Clayton Act claim.

On March 13, 2019, the presiding judge entered an Amended Final Judgment Order awarding $36.5 million in past damages under the Clayton Act (representing a trebling of the jury’s verdict) and granting divestiture of CMI, subject to appeal. The judgment also conditionally awarded damages in the event the judgment is overturned on appeal. Specifically, the court awarded $139.4 million as future antitrust damages in the event the divestiture order is overturned on appeal and $9.9 million as past contract damages in the event both the divestiture and antitrust claims are overturned on appeal.

JELD-WEN filed a supersedeas bond and notice of appeal of the judgment, which is scheduled for hearing by the Fourth Circuit Court of Appeals in May 2020.

On April 12, 2019, the plaintiffs filed a petition requesting an award of their fees and a bill of costs seeking $28.4 million in attorneys’ fees and $1.7 million in costs. That petition remains pending and subject to further appeal. On November 19, 2019, the presiding judge entered an order for further relief awarding Steves an additional $7.1 million in damages for pricing differences from the date of the underlying jury verdict through May 31, 2019. We have also appealed that ruling.

We continue to believe that Steves’ claims lack merit, Steves’ damages calculations are speculative and excessive, and Steves is not entitled in any event to the extraordinary remedy of divestiture of CMI. We believe that multiple pretrial and

trial rulings were erroneous and improperly limited the Company's defenses, and that the judgment in accordance with the verdict was improper for several reasons under applicable law. However, based upon the rulings described above, the Company has recorded charges of $78.6 million associated with these matters. The judgment, if ultimately upheld after exhaustion of our appellate remedies, could have a material adverse effect on our financial position, operating results, or cash flows, particularly for the reporting period in which a loss is recorded. Because the operations acquired from CMI have been fully integrated into the Company's operations, divestiture of those operations would be difficult if not impossible and, therefore, it is not possible to estimate the cost of any final divestiture order or the extent to which such an order would have a material adverse effect on our financial position, operating results or cash flows.

During the course of the proceedings in the Eastern District of Virginia, we discovered certain facts that led us to conclude that Steves, its principals and certain former employees of the Company had misappropriated Company trade secrets, violated the terms of various agreements between the Company and those parties, and violated other laws. On May 11, 2018, a jury in the Eastern District of Virginia returned a verdict on our trade secrets claims against Steves and awarded damages in the amount of $1.2 million. The presiding judge entered a judgment in our favor for those damages and the entire amount has been paid by Steves. On August 16, 2019, the presiding judge granted Steves' request for an injunction, prohibiting us from pursuing certain claims against individual defendants pending in Bexar County, Texas. These claims have been stayed pending appeal.

*Cambridge Retirement System v. JELD-WEN Holding, Inc., et al.* – On February 19, 2020, Cambridge Retirement System filed a putative class action lawsuit in the U.S. District Court for the Eastern District of Virginia against the Company, current and former Company executives and various Onex-related entities alleging violations of Section 10(b) and Rule 10b-5 of the Exchange Act, as well as violations of Section 20(a) of the Exchange Act against the individual defendants and Onex-related entities. The lawsuit seeks compensatory damages, equitable relief and an award of attorneys' fees and costs. The Company has not yet been served with the complaint but has reviewed the allegations. The Company believes the claims lack merit and intends to vigorously defend against the action. Because the lawsuit is in the very initial stages, no assessment as to the likelihood or range of any potential adverse outcome can be made at this time.

*In Re: Interior Molded Doors Antitrust Litigation* – On October 19, 2018, Grubb Lumber Company, on behalf of itself and others similarly situated, filed a putative class action lawsuit against us and one of our competitors in the doors market, Masonite Corporation ("Masonite"), in the Eastern District of Virginia. We subsequently received additional complaints from and on behalf of direct and indirect purchasers of interior molded doors. The suits have been consolidated into two separate actions, a Direct Purchaser Action and an Indirect Purchaser Action. The suits allege that Masonite and we violated Section 1 of the Sherman Act, and in the Indirect Purchaser Action, related state law antitrust and consumer protection laws, by engaging in a scheme to artificially raise, fix, maintain or stabilize the prices of interior molded doors in the United States. The complaints seek unquantified ordinary and treble damages, declaratory relief, interest, costs and attorneys' fees. The Company believes the claims lack merit and intends to vigorously defend against the actions. On September 18, 2019, the court denied the defendants' motions to dismiss the lawsuits in their entirety and granted the defendants' motions to dismiss various state law claims and to limit all claims to a four-year statute of limitations. As a result, the plaintiffs' damages period is limited to the four-year period between 2014 and 2018. At this early stage of the proceedings, we are unable to conclude that a loss is probable or to estimate the potential magnitude of any loss in the matters, although a loss could have a material adverse effect on our operating results, consolidated financial position or cash flows.

**Self-Insured Risk** – We self-insure substantially all of our domestic business liability risks including general liability, product liability, warranty, personal injury, auto liability, workers' compensation and employee medical benefits. Excess insurance policies from independent insurance companies generally cover exposures between $3.0 million and $250.0 million for domestic product liability risk and exposures between $0.5 million and $250.0 million for auto, general liability, personal injury and workers' compensation. We have no stop-gap coverage on claims covered by our self-insured domestic employee medical plan and are responsible for all claims thereunder. We estimate our provision for self-insured losses based upon an evaluation of current claim exposure and historical loss experience. Actual self-insurance losses may vary significantly from these estimates. At December 31, 2019 and December 31, 2018, our accrued liability for self-insured risks was $76.6 million and $73.8 million, respectively.

**Indemnifications** – At December 31, 2019, we had commitments related to certain representations made in contracts for the purchase or sale of businesses or property. These representations primarily relate to past actions such as responsibility for transfer taxes if they should be claimed, and the adequacy of recorded liabilities, warranty matters, employment benefit plans, income tax matters or environmental exposures. These guarantees or indemnification responsibilities typically expire within one to three years. We are not aware of any material amounts claimed or expected to be claimed under these indemnities. From time to time and in limited geographic areas, we have entered into agreements for the sale of our products to certain customers that provide additional indemnifications for liabilities arising from construction or product defects. We cannot estimate the potential magnitude of such exposures, but to the extent specific liabilities have been

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identified related to product sales, liabilities have been provided in the warranty accrual in the accompanying consolidated balance sheets.

**Performance Bonds and Letters of Credit** – At times, we are required to provide letters of credit, surety bonds or guarantees to customers, vendors and others. Stand-by letters of credit are provided to certain customers and counterparties in the ordinary course of business as credit support for contractual performance guarantees, advanced payments received from customers and future funding commitments. During 2019, we filed bonds in the amount of $47.7 million related to the Steves and Sons legal proceeding. The outstanding performance bonds and stand-by letters of credit were as follows:

| (amounts in thousands) | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Self-insurance workers' compensation | $ 23,638 | $ 22,312 |
| Legal | 48,561 | 861 |
| Liability and other insurance | 16,678 | 18,988 |
| Environmental | 8,186 | 14,552 |
| Other | 5,864 | 10,009 |
| Total outstanding performance bonds and stand-by letters of credit | $ 102,927 | $ 66,722 |

Prior period balances in the table above have been reclassified to conform to current period presentation.

**Environmental Contingencies** – We periodically incur environmental liabilities associated with remediating our current and former manufacturing sites as well as penalties for not complying with environmental rules and regulations. We record a liability for remediation costs when it is probable that we will be responsible for such costs and the costs can be reasonably estimated. These environmental liabilities are estimated based on current available facts and current laws and regulations. Accordingly, it is likely that adjustments to the estimated liabilities will be necessary as additional information becomes available. Short-term environmental liabilities and settlements are recorded in accrued expenses in the accompanying consolidated balance sheets and totaled $0.7 million and $0.5 million as of December 31, 2019 and December 31, 2018, respectively. Long-term environmental liabilities are recorded in deferred credits and other liabilities in the accompanying consolidated balance sheets. No long-term environmental liabilities were recorded at either December 31, 2019 or December 31, 2018.

*Everett, Washington WADOE Action* – In 2008, we entered into an Agreed Order with the WADOE to assess historic environmental contamination and remediation feasibility at our former manufacturing site in Everett, Washington. As part of this agreement, we also agreed to develop a CAP, arising from the feasibility assessment. We are currently working with WADOE to finalize our RI/FS (Remedial Investigation and Feasibility Study), and, once final, we will develop the CAP. We estimate the remaining cost to complete our RI/FS and develop the CAP at $0.5 million, which we have fully accrued. However, because we cannot at this time reasonably estimate the cost associated with any remedial actions we would be required to undertake, we have not provided accruals for any remedial action in our accompanying consolidated financial statements.

*Towanda, Pennsylvania Consent Order* – In 2015, we entered into a COA with the PaDEP to remove a pile of wood fiber waste from our site in Towanda, Pennsylvania, which we acquired in connection with our acquisition of CMI in 2013, by using it as fuel for a boiler at that site. The COA replaced a 1995 Consent Decree between CMI's predecessor Masonite, Inc. and PaDEP. Under the COA, we are required to achieve certain periodic removal objectives and ultimately remove the entire pile by August 31, 2022. There are currently $2.3 million in bonds posted in connection with these obligations. If we are unable to remove this pile by August 31, 2022, then the bonds will be forfeited, and we may be subject to penalties by PaDEP. We currently anticipate meeting all applicable removal deadlines; however, if our operations at this site decrease and we burn less fuel than currently anticipated, we may not be able to meet such deadlines.

**Employee Stock Ownership Plan** – We have historically provided cash to our U.S. ESOP in order to fund required distributions to participants through the repurchase of shares of our Common Stock. Following our February 2017 IPO, the value of a share of Common Stock held through the ESOP is now based on our public share price. We do not anticipate that we will fund future distributions.

**Purchase Obligations** - As of December 31, 2019, we have purchase obligations of $9.0 million due in 2020 and $3.9 million due in 2021-2024. These purchase obligations are primarily relating to raw materials purchase agreements and software hosting services. Purchase obligations are defined as purchase agreements that are enforceable and legally binding and that specify all significant terms, including quantity, price, and the approximate timing of the transaction.

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**Note 29. Employee Retirement and Pension Benefits**

**U.S. Defined Benefit Pension Plan**

Certain U.S. hourly employees participate in our defined benefit pension plan. The plan is not open to new employees.

Beginning in 2017, we moved from utilizing a weighted average discount rate, which was derived from the yield curve used to measure the pension benefit obligation at the beginning of the period, to a spot rate yield curve to estimate the pension benefit obligation and net periodic benefits costs. The change in estimate provides a more accurate measurement of service and interest cost by applying the spot rate that could be used to settle each projected cash flow individually.

The components of net periodic benefit cost are summarized as follows for the years ended December 31:

**(amounts in thousands)**

| **Components of pension benefit expense - U.S. benefit plan** | **2019** | **2018** | **2017** |
|---|---|---|---|
| Service cost | $ 4,890 | $ 4,170 | $ 3,870 |
| Interest cost | 14,861 | 13,180 | 13,371 |
| Expected return on plan assets | (18,622) | (20,769) | (17,940) |
| Amortization of net actuarial pension loss | 8,919 | 9,314 | 12,680 |
| Pension benefit expense | $ 10,048 | $ 5,895 | $ 11,981 |

| | | | |
|---|---|---|---|
| Discount rate used to determine benefit costs | 4.27% | 3.47% | 3.94% |
| Expected long-term rate of return on assets | 6.25% | 6.25% | 6.25% |
| Compensation increase rate | N/A | N/A | N/A |

In October 2019, the Society of Actuaries released the PRI-2012 Mortality Tables (update to RP-2014 mortality tables), which were adopted in 2019 and represent our best estimate of future experience for the base mortality table. The Society of Actuaries has released annual updates to the mortality improvement projection scale that was first released in 2014, with the most recent annual update being Scale MP-2019. We adopted the use of Scale MP-2019 as of December 31, 2019 as it represents our best estimate of future mortality improvement projection experience as of the measurement date.

We developed the discount rate based on the plan's expected benefit payments using the Willis Towers Watson RATE:Link 10:90 Yield Curve. Based on this analysis, we selected a 3.31% discount rate for our projected benefit obligation. As the discount rate is reduced or increased, the pension obligation would increase or decrease, respectively, and future pension expense would increase or decrease, respectively.

Pension benefit expense from amortization of net actuarial pension loss is estimated to be $7.2 million in 2020.

We maintain policies for investment of pension plan assets. The policies set forth stated objectives and a structure for managing assets, which includes various asset classes and investment management styles that, in the aggregate, are expected to produce a sufficient level of diversification and investment return over time and provide for the availability of funds for benefits as they become due. The policies also provide guidelines for each investment portfolio that control the level of risk assumed in the portfolio and ensure that assets are managed in accordance with stated objectives. The plan invests primarily in publicly traded equity and debt securities as directed by the plan's investment committee. The pension plan's expected return assumption is based on the weighted average aggregate long-term expected returns of various actively managed asset classes corresponding to the plan's asset allocation. We have selected an expected return on plan assets based on a historical analysis of rates of return, our investment mix, market conditions and other factors. The fair value of plan assets increased in 2019 due primarily to investment returns and contributions in excess of our benefit payments and decreased in 2018 due primarily to investment losses and benefit payments in excess of our discretionary contributions.

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(amounts in thousands)

| Change in fair value of plan assets - U.S. benefit plan | 2019 | 2018 |
|---|---|---|
| Balance as of January 1, | $ 302,763 | $ 339,751 |
| Actual return on plan assets | 69,767 | (20,466) |
| Company contribution | 7,760 | 4,125 |
| Benefits paid | (16,751) | (15,965) |
| Administrative expenses paid | (4,962) | (4,682) |
| Balance at period end | $ 358,577 | $ 302,763 |

The plan's investments as of December 31 are summarized below:

| | % of Plan Assets | |
|---|---|---|
| Summary of plan investments - U.S. benefit plan | 2019 | 2018 |
| Equity securities | 7.9 | 7.4 |
| Debt securities | 36.1 | 38.0 |
| Other | 56.0 | 54.6 |
| | 100.0 | 100.0 |

The plan's projected benefit obligation is determined by using weighted-average assumptions made on December 31, of each year as summarized below:

(amounts in thousands)

| Change in projected benefit obligation - U.S. benefit plan | 2019 | 2018 |
|---|---|---|
| Balance as of January 1, | $ 383,936 | $ 435,696 |
| Service cost | 4,890 | 4,170 |
| Interest cost | 14,861 | 13,180 |
| Actuarial loss | 51,434 | (48,463) |
| Benefits paid | (16,751) | (15,965) |
| Administrative expenses paid | (4,962) | (4,682) |
| Balance at period end | $ 433,408 | $ 383,936 |
| Discount rate | 3.31% | 4.27% |
| Compensation increase rate | N/A | N/A |

As of December 31, 2019, the plan's estimated benefit payments for the next ten years are as follows (amounts in thousands):

| | |
|---|---|
| 2020 | $ 19,444 |
| 2021 | 19,284 |
| 2022 | 20,040 |
| 2023 | 20,687 |
| 2024 | 21,329 |
| 2025-2029 | 112,907 |

The company made cash contributions to the plan of $7.8 million and $4.1 million for the year ended December 31, 2019 and 2018, respectively. During fiscal year 2020, we expect to make cash contributions to the plan of approximately $8.1 million.

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The plan's accumulated benefit obligation of $433.4 million is determined by taking the projected benefit obligation and removing the impact of the assumed compensation increases. The plan's funded status as of December 31 is as follows:

**(amounts in thousands)**

| **Unfunded pension liability - U.S. benefit plan** | **2019** | **2018** |
|---|---|---|
| Projected benefit obligation at end of period | $ 433,408 | $ 383,936 |
| Fair value of plan assets at end of period | (358,577) | (302,763) |
| Unfunded pension liability | $ 74,831 | $ 81,173 |

Net actuarial pension losses are recorded in consolidated other comprehensive income (loss) for the years ended December 31 are as follows:

**(amounts in thousands)**

| **Accumulated other comprehensive (income) loss - U.S. benefit plan** | **2019** | **2018** | **2017** |
|---|---|---|---|
| Net actuarial pension loss beginning of period | $ 96,090 | $ 112,632 | $ 127,982 |
| Amortization of net actuarial loss | (8,919) | (9,314) | (12,680) |
| Net loss (gain) occurring during year | 288 | (7,228) | (2,670) |
| Net actuarial pension loss at end of period | 87,459 | 96,090 | 112,632 |
| Tax benefit | (3,145) | (5,344) | (9,583) |
| Net actuarial pension loss at end of period, net of tax | $ 84,314 | $ 90,746 | $ 103,049 |

**Non-U.S. Defined Benefit Plans** – We have several other defined benefit plans located outside the U.S. that are country specific. Some of these plans remain open to participants and others are closed. The expenses related to these plans are recorded in the consolidated statements of operations and are determined by using weighted-average assumptions made on January 1 of each year as summarized below for the years ended December 31.

**(amounts in thousands)**

| **Components of pension benefit expense - Non-U.S. benefit plans** | **2019** | **2018** | **2017** |
|---|---|---|---|
| Service cost | $ 2,386 | $ 2,070 | $ 1,668 |
| Interest cost | 1,398 | 1,417 | 1,272 |
| Expected return on plan assets | (589) | (833) | (700) |
| Amortization of net actuarial pension loss | 225 | 189 | 145 |
| Pension benefit expense | $ 3,420 | $ 2,843 | $ 2,385 |
| | | | |
| Discount rate | 0.6% - 8.5% | 0.2% - 9.0% | 0.8% - 7.2% |
| Expected long-term rate of return on assets | 0.0% - 5.8% | 0.0% - 5.3% | 0.0% - 5.7% |
| Compensation increase rate | 0.5% - 7.0% | 0.5% - 7.0% | 0.5% - 7.0% |

Non-U.S. pension benefit expenses from amortization of net actuarial pension losses are estimated to be $0.4 million in 2020.

**(amounts in thousands)**

| **Change in fair value of plan assets - Non-U.S. benefit plans** | **2019** | **2018** |
|---|---|---|
| Balance as of January 1, | $ 12,676 | $ 15,994 |
| Actual return on plan assets | 1,398 | (33) |
| Company contribution | 236 | 250 |
| Benefits paid | (3,272) | (2,046) |
| Administrative expenses paid | (21) | (25) |
| Cumulative translation adjustment | (93) | (1,464) |
| Balance at period end | $ 10,924 | $ 12,676 |

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The investments of the non-U.S. plans as of December 31 are summarized below:

| Summary of plan investments - Non-U.S. benefit plans | % of Plan Assets 2019 | 2018 |
|---|---|---|
| Equity securities | 45.8 | 48.4 |
| Debt securities | 20.7 | 20.8 |
| Other | 33.5 | 30.8 |
| | 100.0 | 100.0 |

The projected benefit obligation for the non-U.S. plans is determined by using weighted-average assumptions made on December 31, of each year as summarized below:

(amounts in thousands)

| Change in projected benefit obligation - Non-U.S. benefit plans | 2019 | 2018 |
|---|---|---|
| Balance as of January 1, | $ 42,803 | $ 41,406 |
| Pension obligation acquired | — | 4,891 |
| Service cost | 2,655 | 2,242 |
| Interest cost | 1,405 | 956 |
| Actuarial loss | 6,084 | 776 |
| Benefits paid | (5,240) | (4,481) |
| Administrative expenses paid | (21) | (25) |
| Cumulative translation adjustment | 21 | (2,962) |
| Balance at period end | $ 47,707 | $ 42,803 |
| | | |
| Discount rate | 0.6% - 8.5% | 0.2% - 9.0% |
| Compensation increase rate | 0.5% - 7.0% | 0.5% - 7.0% |

As of December 31, 2019, the estimated benefit payments for the non-U.S. plans over the next ten years are as follows (amounts in thousands):

| | |
|---|---|
| 2020 | $ 3,012 |
| 2021 | 2,696 |
| 2022 | 2,540 |
| 2023 | 2,789 |
| 2024 | 3,694 |
| 2025-2029 | 14,437 |

The accumulated benefit obligations of $39.5 million for the non-U.S. plans are determined by taking the projected benefit obligation and removing the impact of the assumed compensation increases. We expect to contribute $13.7 million to the non-U.S. plans in 2020.

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The funded status of these plans as of December 31 are as follows:

| (amounts in thousands)<br>**Unfunded pension liability - Non-U.S. benefit plans** | 2019 | 2018 |
|---|---|---|
| Projected benefit obligation at end of period | $ 47,707 | $ 42,803 |
| Fair value of plan assets at end of period | (10,924) | (12,676) |
| Net pension liability | $ 36,783 | $ 30,127 |
| | | |
| Long-term unfunded pension liability | $ 33,106 | $ 26,349 |
| Current portion | 5,605 | 5,295 |
| Total unfunded pension liability | $ 38,711 | $ 31,644 |
| | | |
| Total overfunded pension liability | $ 1,928 | $ 1,517 |

The current portion of the unfunded pension liability is recorded in accrued payroll and benefits in the accompanying consolidated balance sheets and is equal to the expected employer contributions in the following year. The overfunded pension liability is recorded in long-term other assets in the accompanying consolidated balance sheets.

Net actuarial pension losses are recorded in consolidated other comprehensive income (loss) for the years ended December 31 are as follows:

| (amounts in thousands)<br>**Accumulated other comprehensive income (loss) - Non-U.S. benefit plans** | 2019 | 2018 | 2017 |
|---|---|---|---|
| Net actuarial pension loss beginning of period | $ 7,450 | $ 7,359 | $ 6,781 |
| Amortization of net actuarial loss | (553) | (1,442) | (149) |
| Net gain occurring during year | 5,232 | 1,462 | 742 |
| Cumulative translation adjustment | 108 | 71 | (15) |
| Net actuarial pension loss at end of period | 12,237 | 7,450 | 7,359 |
| Tax benefit | (2,958) | (1,911) | (1,886) |
| Net actuarial pension loss at end of period, net of tax | $ 9,279 | $ 5,539 | $ 5,473 |

**Other Defined Contribution Plans** –We have several other defined contribution plans located outside the U.S. that are country specific. Other plans that are characteristically defined contribution plans have accrued liabilities of $1.3 million and $2.6 million, respectively, at December 31, 2019 and December 31, 2018. The total compensation expense for non-U.S. defined contribution plans was $24.6 million in 2019, $27.0 million in 2018, and $23.8 million in 2017.

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**Note 30. Supplemental Cash Flow Information**

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Cash Operating Activities:** | | | |
| Operating leases | $ 55,141 | $ — | $ — |
| Finance leases | 131 | — | — |
| Cash paid for amounts included in the measurement of lease liabilities | $ 55,272 | $ — | $ — |
| | | | |
| **Cash Investing Activities:** | | | |
| Issuances of notes receivable | $ (58) | $ (77) | $ (61) |
| Cash received on notes receivable | 469 | 351 | 2,052 |
| Change in notes receivable | $ 411 | $ 274 | $ 1,991 |
| | | | |
| **Non-cash Investing Activities:** | | | |
| Property, equipment and intangibles purchased in accounts payable | $ 10,439 | $ 6,961 | $ 15,099 |
| Property, equipment and intangibles purchased for debt | 40,323 | 32,262 | 791 |
| Notes receivable and accrued interest from employees and directors settled with return of JWH stock | — | — | 183 |
| Customer accounts receivable converted to notes receivable | 565 | 110 | 393 |
| | | | |
| **Cash Financing Activities:** | | | |
| Proceeds from issuance of new debt, net of discount | $ 124,375 | $ 38,823 | $ 1,240,000 |
| Borrowings on long-term debt | 3,249 | 104,419 | 5,334 |
| Payments of long-term debt | (113,859) | (72,422) | (1,618,641) |
| Payments of debt issuance and extinguishment costs, including underwriting fees | (664) | (352) | (16,358) |
| Change in long-term debt | $ 13,101 | $ 70,468 | $ (389,665) |
| | | | |
| Cash paid for amounts included in the measurement of finance lease liabilities | $ 917 | $ — | $ — |
| | | | |
| **Non-cash Financing Activities:** | | | |
| Prepaid insurance funded through short-term debt borrowings | $ 4,948 | $ 2,757 | $ 2,662 |
| Prepaid ERP costs funded through short-term debt borrowings | 3,919 | — | — |
| Shares surrendered for tax obligations for employee share-based transactions in accrued liabilities | 469 | 7 | 569 |
| Accounts payable converted to installment notes | 757 | 12,886 | — |
| | | | |
| **Other Supplemental Cash Flow Information:** | | | |
| Cash taxes paid, net of refunds | $ 26,656 | $ 46,295 | $ 22,532 |
| Cash interest paid | 71,181 | 68,892 | 66,060 |

**Note 31. Related Party Transactions**

**Sale of subsidiary** – In May 2019, we sold Creative Media Development, Inc. “CMD”, a subsidiary, which was part of our North America segment, for $6.5 million. A minority shareholder of the buying group also serves on our Board of Directors. The impact of this sale was a gain of $2.8 million in the year ended December 31, 2019 included within other expense (income) in the consolidated statement of operations. Included in the Stock Purchase Agreement for CMD, we agreed to use CMD for certain advertising services totaling $7.0 million between 2019 and 2023. As of December 31, 2019, the remaining balance is $4.1 million, which is included within our disclosures regarding purchase obligations. At December 31, 2019, there is no amount due from the related party. This sale did not have a material impact on our results of operations.

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**Acquired lease** – As part our acquisition of VPI, we assumed operating leases on two buildings. The leases are with a former shareholder of VPI, are at market rates and resulted in an operating lease asset of $3.6 million as of the opening balance sheet. One of the leases was modified in August 2019, which increased the value to $3.9 million at December 31, 2019.

**Note 32. Revision of Prior Period Financial Statements**

During the quarter ended June 29, 2019, we identified errors relating to accounting for fulfillment costs associated with our installation contracts at one of our European business units. This resulted in errors in accounts receivable, net, other current assets, and accrued expenses and other current liabilities. The effect of these errors was to overstate accounts receivable, net, other current assets and understate accrued expenses and other current liabilities, cost of sales and SG&A expense for the years ended December 31, 2016, 2017 and 2018, including the related quarterly periods contained therein, and the three-months ended March 30, 2019.

Using the guidance in ASC Topic 250, Accounting Changes and Error Corrections, ASC Topic 250-S99-1, Assessing Materiality, and ASC Topic 250-S99-2, Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements, we evaluated whether our previously issued consolidated financial statements were materially misstated due to these errors and other accumulated misstatements. Based upon our evaluation of both quantitative and qualitative factors, we believe that the effects of these errors and other accumulated misstatements were not material individually or in the aggregate to any previously reported quarterly or annual period.

We have revised the prior period financial statements included in this filing to reflect the correction of these errors and other accumulated misstatements.

| | Twelve months ended December 31, 2017 | | |
|---|---|---|---|
| (amounts in thousands, except per share data) | As Reported | Correction | As Revised |
| *Consolidated Statement of Operations:* | | | |
| Cost of sales | $ 2,914,327 | $ 1,905 | $ 2,916,232 |
| Gross margin | $ 849,422 | $ (1,905) | $ 847,517 |
| Selling, general and administrative | $ 572,458 | $ 546 | $ 573,004 |
| Operating income (loss) | $ 263,908 | $ (2,451) | $ 261,457 |
| Other (income) expense | $ 15,857 | $ 1,003 | $ 16,860 |
| Income before taxes, equity earnings and discontinued operations | $ 145,755 | $ (3,454) | $ 142,301 |
| Income tax expense (benefit) | $ 138,603 | $ (785) | $ 137,818 |
| Income from continuing operations, net of tax | $ 7,152 | $ (2,669) | $ 4,483 |
| Net income | $ 10,791 | $ (2,669) | $ 8,122 |
| Net income (loss) attributable to common shareholders | $ 329 | $ (2,669) | $ (2,340) |
| | | | |
| Weighted Average Common Shares: | | | |
| Basic | 97,460,676 | — | 97,460,676 |
| Diluted | 101,462,135 | (4,001,459) | 97,460,676 |
| Income (loss) per share from continuing operations: | | | |
| Basic | $ — | $ (0.02) | $ (0.02) |
| Diluted | $ — | $ (0.02) | $ (0.02) |
| Net income (loss) per share: | | | |
| Basic | $ — | $ (0.02) | $ (0.02) |
| Diluted | $ — | $ (0.02) | $ (0.02) |

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| (amounts in thousands) | December 31, 2018 | | |
|---|---|---|---|
| | As Reported | Correction | As Revised |
| *Consolidated Balance Sheet:* | | | |
| Accounts receivable, net | $ 471,655 | $ 188 | $ 471,843 |
| Inventories | $ 513,238 | $ (4,739) | $ 508,499 |
| Other current assets | $ 48,961 | $ (287) | $ 48,674 |
| Total current assets | $ 1,151,477 | $ (4,838) | $ 1,146,639 |
| Deferred tax assets | $ 207,065 | $ 1,997 | $ 209,062 |
| Other assets | $ 37,615 | $ (689) | $ 36,926 |
| Total assets | $ 3,051,055 | $ (3,530) | $ 3,047,525 |
| Accounts payable | $ 250,281 | $ (303) | $ 249,978 |
| Accrued payroll and benefits | $ 114,784 | $ 234 | $ 115,018 |
| Accrued expenses and other current liabilities | $ 250,274 | $ 2,036 | $ 252,310 |
| Total current liabilities | $ 670,269 | $ 1,967 | $ 672,236 |
| Deferred credits and other liabilities[(1)] | $ 72,038 | $ 672 | $ 72,710 |
| Deferred tax liabilities | $ 10,457 | $ 21 | $ 10,478 |
| Total liabilities | $ 2,283,248 | $ 2,660 | $ 2,285,908 |
| Retained earnings | $ 253,041 | $ (6,208) | $ 246,833 |
| Accumulated other comprehensive loss | $ (144,823) | $ 18 | $ (144,805) |
| Total shareholders' equity attributable to common shareholders | $ 767,824 | $ (6,190) | $ 761,634 |
| Total shareholders' equity[(1)] | $ 767,807 | $ (6,190) | $ 761,617 |
| Total liabilities and shareholders' equity | $ 3,051,055 | $ (3,530) | $ 3,047,525 |

(1) Non-controlling interest of $17 at December 31, 2018 has been reclassified to Deferred credits and other liabilities to conform to the current year's presentation.

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| (amounts in thousands, except per share data) | Twelve months ended December 31, 2018 | | |
|---|---|---|---|
| | As Reported | Correction | As Revised |
| *Consolidated Statement of Operations:* | | | |
| Net revenues | $ 4,346,703 | $ 144 | $ 4,346,847 |
| Cost of sales | $ 3,422,969 | $ 5,342 | $ 3,428,311 |
| Gross margin | $ 923,734 | $ (5,198) | $ 918,536 |
| Selling, general and administrative | $ 733,748 | $ 418 | $ 734,166 |
| Operating income (loss) | $ 172,658 | $ (5,616) | $ 167,042 |
| Other (income) expense[1] | $ (12,970) | $ (1,063) | $ (14,033) |
| Income before taxes and equity earnings | $ 135,577 | $ (4,553) | $ 131,024 |
| Income tax expense (benefit) | $ (7,958) | $ (2,100) | $ (10,058) |
| Income from continuing operations, net of tax | $ 143,535 | $ (2,453) | $ 141,082 |
| Net income | $ 144,273 | $ (2,453) | $ 141,820 |
| Net income (loss) attributable to common shareholders[1] | $ 144,360 | $ (2,453) | $ 141,907 |
| | | | |
| Weighted Average Common Shares: | | | |
| Basic | 104,530,572 | — | 104,530,572 |
| Diluted | 106,360,657 | — | 106,360,657 |
| Income (loss) per share from continuing operations: | | | |
| Basic | $ 1.38 | $ (0.02) | $ 1.36 |
| Diluted | $ 1.36 | $ (0.03) | $ 1.33 |
| Net income (loss) per share: | | | |
| Basic | $ 1.38 | $ (0.02) | $ 1.36 |
| Diluted | $ 1.36 | $ (0.03) | $ 1.33 |

(1) Non-controlling interest of $87 for the twelve months ended December 31, 2018 has been reclassified to Other (income) expense to conform to the current year's presentation.

*Consolidated Statement of Cash Flow*

The errors did not impact the subtotals for cash flows from operating activities, investing activities, or financing activities for any of the periods affected.

*Reconciliation of pre-tax net income (loss) to Note 18 - Segment Information, Adjusted EBITDA*

| (amounts in thousands) | Twelve months ended December 31, 2017 | | |
|---|---|---|---|
| | As Reported | Correction | As Revised |
| Net income | $ 10,791 | $ (2,669) | $ 8,122 |
| Income tax (benefit) expense | $ 138,603 | $ (785) | $ 137,818 |
| Non-cash foreign exchange transaction/translation (income) loss | $ (2,181) | $ 1,003 | $ (1,178) |
| Adjusted EBITDA | $ 437,613 | $ (2,451) | $ 435,162 |

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| (amounts in thousands) | Twelve months ended December 31, 2018 | | |
|---|---|---|---|
| | As Reported | Correction | As Revised |
| Net income | $ 144,273 | $ (2,453) | $ 141,820 |
| Income tax (benefit) expense | $ (7,958) | $ (2,100) | $ (10,058) |
| Non-cash foreign exchange transaction/translation (income) loss | $ 8 | $ (1,275) | $ (1,267) |
| Other items | $ 117,933 | $ (300) | $ 117,633 |
| Adjusted EBITDA | $ 465,346 | $ (6,128) | $ 459,218 |

*Segment Information: Adjusted EBITDA*

| (amounts in thousands) | Twelve months ended December 31, 2017 | | | | | |
|---|---|---|---|---|---|---|
| | North America | Europe | Australasia | Total Operating Segments | Corporate and Unallocated Costs | Total Consolidated |
| As Reported | $ 273,594 | $ 132,929 | $ 74,706 | $ 481,229 | $ (43,616) | $ 437,613 |
| Correction | (402) | (1,729) | (320) | (2,451) | — | (2,451) |
| As Revised | $ 273,192 | $ 131,200 | $ 74,386 | $ 478,778 | $ (43,616) | $ 435,162 |

| (amounts in thousands) | Twelve months ended December 31, 2018 | | | | | |
|---|---|---|---|---|---|---|
| | North America | Europe | Australasia | Total Operating Segments | Corporate and Unallocated Costs | Total Consolidated |
| As Reported | $ 278,975 | $ 129,202 | $ 91,172 | $ 499,349 | $ (34,003) | $ 465,346 |
| Correction | 551 | (6,392) | (287) | (6,128) | — | (6,128) |
| As Revised | $ 279,526 | $ 122,810 | $ 90,885 | $ 493,221 | $ (34,003) | $ 459,218 |

**Note 33. Quarterly Financial Data (unaudited)**

Summarized quarterly financial data for the years ended December 31, 2019 and 2018 are as follows:

| | Three Months Ended | | | |
|---|---|---|---|---|
| | Mar. 30, 2019[1][2] | Jun. 29, 2019[2] | Sep. 28, 2019 | Dec. 31, 2019 |
| | (dollars in thousands) | | | |
| **Statements of Operations Data:** | | | | |
| Net revenues | $ 1,010,260 | $ 1,118,987 | $ 1,091,953 | $ 1,068,561 |
| Gross margin | 208,129 | 240,219 | 223,785 | 200,406 |
| Operating income | 40,310 | 57,900 | 54,426 | 37,778 |
| Income before taxes and equity earnings | 26,126 | 34,537 | 39,542 | 19,840 |
| Net income | 15,777 | 22,356 | 17,042 | 7,796 |
| | | | | |
| Net income per share basic | $ 0.16 | $ 0.22 | $ 0.17 | $ 0.08 |
| Net income per share diluted | $ 0.16 | $ 0.22 | $ 0.17 | $ 0.08 |

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(1) We plan to revise the three months ended March 30, 2019 in connection with future filings. Refer to Note 32 - *Revision of Prior Period Financial Statements.*

(2) The prior period information has been reclassified to conform to current period presentation.

| | Three Months Ended[1][2] | | | |
|---|---|---|---|---|
| | **Mar. 31, 2018** | **Jun. 30, 2018** | **Sep. 29, 2018** | **Dec. 31, 2018** |
| | (dollars in thousands) | | | |
| **Statements of Operations Data:** | | | | |
| Net revenues | $ 946,165 | $ 1,172,465 | $ 1,136,478 | $ 1,091,739 |
| Gross margin | 204,586 | 248,102 | 241,475 | 224,373 |
| Operating income | 36,730 | 70,264 | 7,293 | 52,755 |
| Income before taxes and equity earnings | 35,538 | 57,449 | (3,049) | 41,173 |
| Net income | 40,404 | 34,776 | 28,637 | 38,090 |
| | | | | |
| Net income per share basic | $ 0.38 | $ 0.33 | $ 0.27 | $ 0.37 |
| Net income per share diluted | $ 0.37 | $ 0.32 | $ 0.27 | $ 0.37 |

(1) We have revised the prior period information for the three months ended March 31, 2018, June 30, 2018, September 29, 2018 and December 31, 2018 to reflect the correction of errors and other accumulated misstatements disclosed in Note 32 - *Revision of Prior Period Financial Statements*.

(2) The prior period information has been reclassified to conform to current period presentation.

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**SCHEDULE I - CONDENSED FINANCIAL INFORMATION OF JELD-WEN HOLDING, INC.**
**Parent Company Information**

**CONDENSED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)**

| | For the Years Ended December 31, | | |
|---|---|---|---|
| **(amounts in thousands, except share and per share data)** | **2019** | **2018** | **2017** |
| Selling, general and administrative | $ 15,397 | $ 15,924 | $ 23,457 |
| Equity in earnings of subsidiaries | 77,950 | 157,429 | 31,191 |
| Other (income) expense | | | |
| Interest income | (32) | (36) | (35) |
| Interest expense | 12 | 45 | 73 |
| Other | (398) | (411) | (426) |
| Income before taxes | 62,971 | 141,907 | 8,122 |
| Income tax (benefit) expense | — | — | — |
| Net income | $ 62,971 | $ 141,907 | $ 8,122 |
| | | | |
| Comprehensive income (loss): | | | |
| Net income | $ 62,971 | $ 141,907 | $ 8,122 |
| Other comprehensive (loss) income, net of tax | | | |
| Equity in comprehensive (loss) income of subsidiaries | (6,470) | (50,312) | 102,689 |
| Total other comprehensive (loss) income, net of tax | (6,470) | (50,312) | 102,689 |
| Total comprehensive income | $ 56,501 | $ 91,595 | $ 110,811 |

See accompanying notes to the Condensed Financial Information

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**SCHEDULE I - CONDENSED FINANCIAL INFORMATION OF JELD-WEN HOLDING, INC.**
**Parent Company Information**
**CONDENSED BALANCE SHEETS**

| (amounts in thousands, except share and per share data) | December 31, 2019 | December 31, 2018 |
|---|---|---|
| **ASSETS** | | |
| Current assets | | |
| Cash and cash equivalents | $ 4,818 | $ 2,289 |
| Receivable from subsidiaries | — | 1,000 |
| Other current assets | 10 | 20 |
| Total current assets | 4,828 | 3,309 |
| Property and equipment, net | 3,074 | 3,202 |
| Investment in subsidiaries | 959,001 | 903,504 |
| Long-term notes receivable | 35 | 147 |
| Total assets | $ 966,938 | $ 910,162 |
| **LIABILITIES AND EQUITY** | | |
| Current liabilities | | |
| Accounts payable | $ 510 | $ 37 |
| Current payable to subsidiaries | 2,431 | 2,649 |
| Accrued expenses and other current liabilities | 430 | 75 |
| Notes payable and current maturities of long-term debt | 205 | 757 |
| Total current liabilities | 3,576 | 3,518 |
| Long-term debt | — | 205 |
| Total liabilities | 3,576 | 3,723 |
| Commitments and contingencies *(Note 5)* | | |
| Shareholders' equity | | |
| Common Stock: 900,000,000 shares authorized, par value $0.01 per share, 100,668,003 shares outstanding as of December 31, 2019; 900,000,000 shares authorized, par value $0.01 per share, 101,310,862 shares outstanding as of December 31, 2018 | 1,007 | 1,013 |
| Additional paid-in capital | 671,772 | 658,593 |
| Retained earnings | 290,583 | 246,833 |
| Total shareholders' equity | 963,362 | 906,439 |
| Total liabilities, convertible preferred shares, and shareholders' equity | $ 966,938 | $ 910,162 |

See accompanying notes to the Condensed Financial Information

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**SCHEDULE I - CONDENSED FINANCIAL INFORMATION OF JELD-WEN HOLDING, INC.**
**Parent Company Information**
**CONDENSED STATEMENTS OF CASH FLOWS**

| | For the Years Ended December 31, | | |
|---|---|---|---|
| (amounts in thousands) | **2019** | **2018** | **2017** |
| OPERATING ACTIVITIES | | | |
| Net income | $ 62,971 | $ 141,907 | $ 8,122 |
| Adjustments to reconcile net income to cash used in operating activities: | | | |
| Depreciation | 128 | 161 | 139 |
| Income from subsidiaries investment | (77,950) | (157,429) | (31,191) |
| Other items, net | 436 | 538 | 191 |
| Stock-based compensation | 13,315 | 15,052 | 19,785 |
| Net change in operating assets and liabilities, net of effect of acquisitions: | | | |
| Receivables and payables from subsidiaries | 19,564 | 123,366 | (24,020) |
| Other assets | 10 | (5) | (15) |
| Accounts payable and accrued expenses | 829 | (859) | (882) |
| Net cash (used in) provided by operating activities | 19,303 | 122,731 | (27,871) |
| INVESTING ACTIVITIES | | | |
| Additional Investment in subsidiaries | — | — | (480,306) |
| Cash received on notes receivable | — | — | 17 |
| Proceeds from sales of subsidiaries' shares | — | — | 30,181 |
| Distribution received from subsidiaries | 2,000 | 1,500 | 1,000 |
| Net cash provided by (used in) investing activities | 2,000 | 1,500 | (449,108) |
| FINANCING ACTIVITIES | | | |
| Payments of long-term debt | (757) | (982) | (861) |
| Employee note repayments | — | 39 | 26 |
| Common stock issued for exercise of options | 1,977 | 201 | 1,029 |
| Common stock repurchased | (19,994) | (125,030) | — |
| Proceeds from sale of common stock, net of underwriting fees and commissions | — | — | 480,306 |
| Payments associated with initial public offering | — | — | (2,066) |
| Net cash (used in) provided by financing activities | (18,774) | (125,772) | 478,434 |
| | | | |
| Net increase (decrease) in cash and cash equivalents | 2,529 | (1,541) | 1,455 |
| Cash, cash equivalents and restricted cash, beginning | 2,289 | 3,830 | 2,375 |
| Cash, cash equivalents and restricted cash, ending | $ 4,818 | $ 2,289 | $ 3,830 |

See accompanying notes to the Condensed Financial Information

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**SCHEDULE I - CONDENSED FINANCIAL INFORMATION OF JELD-WEN HOLDING, INC.**
**Parent Company Information**
**NOTES TO CONDENSED FINANCIAL INFORMATION**

**Note 1. Description of Company and Summary of Significant Accounting Policies**

Accounting policies adopted in the preparation of this condensed parent company only financial information are the same as those adopted in the consolidated financial statements and described in Note 1 - *Description of Company and Summary of Significant Accounting Policies,* of the consolidated financial statements included in this Form 10-K.

**Nature of Business** – JELD-WEN Holding, Inc., (the "Parent Company") (a Delaware corporation) was formed by Onex Partners III LP to effect the acquisition of JELD-WEN, Inc. and had no activities prior to the acquisition of JELD-WEN, Inc. on October 3, 2011. The Parent Company is a holding company with no material operations of its own that conducts substantially all of its activities through its direct subsidiary, JELD-WEN Inc. and its subsidiaries.

The accompanying condensed parent-only financial information includes the accounts of the Parent Company and, on an equity basis, its direct and indirect subsidiaries and affiliates. Accordingly, these condensed financial statements have been presented on a "parent-only" basis. Under a parent-only presentation, the Parent Company's investments in subsidiaries are presented under the equity method of accounting. These parent-only financial statements should be read in conjunction with the JELD-WEN Holding, Inc. and subsidiaries consolidated financial statements included elsewhere herein.

The condensed parent-only financial statements have been prepared in accordance with Rule 12-04, Schedule I of Regulation S-X as the restricted net assets of the subsidiaries of the Company exceed 25% of the consolidated net assets of the Company. The ability of the Company's operating subsidiaries to pay dividends may be restricted due to the terms of the subsidiaries' financing arrangements (see Note 15 - *Long-Term Debt* to the consolidated financial statements).

**Property and Equipment** – Property and equipment is recorded at cost. The cost of major additions and betterments are capitalized and depreciated using the straight-line method over their estimated useful lives while replacements, maintenance and repairs that do not improve or extend the useful lives of the related assets or adapt the property to a new or different use are expensed as incurred.

Depreciation is generally provided over the following estimated useful service lives:

| | |
|---|---|
| Buildings | 15 - 45 years |

**Note 2. Property and Equipment, Net**

| (amounts in thousands) | 2019 | 2018 |
|---|---|---|
| Buildings | $ 3,632 | $ 3,632 |
| Total depreciable assets | 3,632 | 3,632 |
| Accumulated depreciation | (558) | (430) |
| Total property and equipment, net | $ 3,074 | $ 3,202 |

Depreciation expense was $0.1 million in the years ended December 31, 2019, $0.2 million in the year ended 2018, and $0.1 million in the year ended 2017.

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**Note 3. Long-Term Debt**

| (amounts in thousands) | 2019 Year-end Effective Interest Rate | 2019 | 2018 |
|---|---|---|---|
| Installment notes for stock | 4.75% | $ 205 | $ 962 |
| Current maturities of long-term debt | | (205) | (757) |
| Long-term debt | | $ — | $ 205 |

| Maturities by year: | |
|---|---|
| 2020 | $ 205 |
| 2021 | — |
| 2022 | — |
| 2023 | — |
| 2024 | — |
| Thereafter | — |
| | $ 205 |

**Installment Notes for Stock** - We entered into installment notes for stock representing amounts due to former or retired employees for repurchases of our stock that are payable over 10 years depending on the amount with payments through 2020. As of December 31, 2019, we had $0.2 million outstanding under these notes.

**Note 4. Stock Compensation**

For discussion of stock compensation expense of the Parent Company and its subsidiaries, see Note 22 - *Stock Compensation*, to the consolidated financial statements.

**Note 5. Commitments and Contingencies**

For discussion of the commitments and contingencies of the subsidiaries of the Parent Company see Note 28 - *Commitments and Contingencies*, to the consolidated financial statements.

**Note 6. Supplemental Cash Flow**

| (amounts in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Non-cash Investing Activities:** | | | |
| Notes receivable and accrued interest from employees and directors settled with return of JWH stock | $ — | $ — | $ 183 |
| Dividend from subsidiary settled with payable to subsidiary | 22,090 | 132,295 | — |
| | | | |
| **Non-cash Financing Activities:** | | | |
| Shares surrendered for tax obligations for employee share-based transactions in accrued liabilities | $ 469 | $ 7 | $ 569 |
| Costs associated with initial public offering formerly capitalized in prepaid expenses | — | — | 5,857 |

**Exhibit 4.1**

**DESCRIPTION OF THE REGISTRANT'S SECURITIES**
**REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934**

Our common stock, par value $0.01 per share, is registered under Section 12 of the Securities Exchange Act of 1934, as amended, and listed on the New York Stock Exchange under the symbol "JELD".

*The following is a description of our capital stock and the material provisions of our restated certificate of incorporation and amended and restated bylaws. The following is only a summary and is qualified by applicable law and by the provisions of the restated certificate of incorporation and amended and restated bylaws.*

**General**

Our authorized capital stock consists of 900,000,000 shares of common stock, par value $0.01 per share and 90,000,000 shares of undesignated preferred stock, the rights, preferences, and privileges of which may be designated from time to time by our board of directors. The rights and privileges of holders of our common stock are subject to any series of preferred stock that we may issue in the future.

As of December 31, 2019, there were 100,668,003 outstanding shares of common stock and no outstanding shares of preferred stock.

**Common Stock**

*Voting Rights.* Each outstanding share of common stock is entitled to one vote on all matters with respect to which the holders of our common stock are entitled to vote.

*Dividend Rights.* Subject to preferences that may apply to shares of preferred stock outstanding at the time, holders of our outstanding common stock are entitled to any dividend declared by the board of directors out of funds legally available for this purpose. However, provisions of the agreements governing our indebtedness from time to time may impose restrictions on our ability to declare dividends on our common stock. Dividends paid in shares of our common stock must be paid, with respect to a particular class of common stock, in shares of that class.

*Conversion Rights.* Our common stock is not convertible.

*Other Rights*. The holders of our common stock will not have any preemptive or other similar rights to purchase any of our securities, cumulative voting, subscription, redemption or sinking fund rights.

*Contractual Rights.* Onex Corporation and its affiliates ("Onex") were granted certain subscription rights pursuant to the Registration Rights Agreement dated October 3, 2011, as amended and restated from time to time.

*Right to Receive Liquidation Distributions.* Upon our voluntary or involuntary liquidation, dissolution or winding up, the holders of our common stock are entitled to receive, on a pro rata basis, our assets which are legally available for distribution, after payment of all debts and other liabilities and subject to the rights of any holders of preferred stock then outstanding, to the holders of common stock.

*Assessability.* All shares of common stock outstanding are fully paid and nonassessable.

*Board of Directors Classification*. Our board of directors is divided into three classes with staggered three-year terms. Cumulative voting is not permitted or required for the election of any class of directors.

**Preferred Stock**

The preferred stock, if issued, would have priority over the common stock with respect to dividends and other distributions, including the distribution of our assets upon liquidation. Unless required by law or by the rules of the New York Stock Exchange, our board of directors will have the authority without further shareholder authorization to issue from time to time shares of preferred stock in one or more series and to fix the terms, limitations, relative rights, and preferences and variations of each series. Although we have no present plans to issue any shares of preferred stock, the issuance of shares of preferred stock, or the issuance of rights to purchase such shares, could decrease the amount of earnings and assets available for distribution to the holders of common stock, could adversely affect the rights and powers, including voting rights, of the common stock, and could have the effect of delaying, deterring or preventing a change in control of us or an unsolicited acquisition proposal.

**Provisions of Our Restated Certificate of Incorporation, Amended and Restated Bylaws and Delaware Law that May Have an Anti-Takeover Effect**

Delaware law, our restated certificate of incorporation, and our amended and restated bylaws contain provisions that could have the effect of delaying, deferring, or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors.

***Restated Certificate of Incorporation and Amended and Restated Bylaws***

Certain provisions in our restated certificate of incorporation and amended and restated bylaws summarized below may be deemed to have an anti-takeover effect and may delay, deter or prevent a tender offer or takeover attempt that a shareholder might consider to be in its best interests, including attempts that might result in a premium being paid over the market price for the shares held by shareholders.

Among other things, our restated certificate of incorporation and amended and restated bylaws:

- authorize the issuance of blank check preferred stock that our board of directors could issue to increase the number of outstanding shares and to discourage a takeover attempt;
- divide our board of directors into three classes with staggered three-year terms;
- provide that shareholders may remove directors only “for cause”;
- prohibit our shareholders from calling a special meeting of shareholders;
- prohibit shareholder action by written consent, which requires all shareholder actions to be taken at a meeting of our shareholders;
- provide that the board of directors is expressly authorized to adopt, alter, or repeal our bylaws;
- establish advance notice requirements for nominations for election to our board of directors or for proposing matters that can be acted upon by shareholders at shareholder meetings; and
- require the approval of holders of at least two-thirds of the outstanding shares of common stock to amend our amended and restated bylaws and certain provisions of our restated certificate of incorporation.

***Delaware Takeover Statute***

Subject to certain exceptions, Section 203 of the Delaware General Corporation Law ("DGCL") prohibits a Delaware corporation from engaging in any "business combination" (as defined below) with any "interested stockholder" (as defined below) for a period of three years following the date that such stockholder became an interested stockholder, unless: (i) prior to such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder; (ii) on consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding those shares owned (x) by persons who are directors and also officers and (y) by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or (iii) on or subsequent to such date, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 of the DGCL defines "business combination" to include: (i) any merger or consolidation involving the corporation and the interested stockholder; (ii) any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder; (iii) subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; (iv) any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or (v) the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation. In general, Section 203 defines an "interested stockholder" as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by such entity or person.

We have elected not to be governed by Section 203 of the DGCL, as permitted under and pursuant to subsection (b)(3) of Section 203.

***Corporate Opportunity***

Delaware law permits corporations to adopt provisions renouncing any interest or expectancy in certain opportunities that are presented to a corporation or its officers, directors, or shareholders. In our restated certificate of incorporation, to the fullest extent permitted by applicable law, we renounce any interest or expectancy that we have in any business opportunity, transaction, or other matter in which Onex, any officer, director, partner, or employee of any entity comprising an Onex entity, and any portfolio company in which such entities or persons have an equity interest (other than us) (each, an "Excluded Party") participates or desires or seeks to participate in, even if the opportunity is one that we might reasonably be deemed to have pursued or had the ability or desire to pursue if granted the opportunity to do so. Each such Excluded Party has no duty to communicate or offer such business opportunity to us and, to the fullest extent permitted by applicable law, is not liable to us or any of our shareholders for breach of any fiduciary or other duty, as a director or officer or controlling shareholder, or otherwise, by reason of the fact that such Excluded Party pursues or acquires such business opportunity, directs such business opportunity to another person, or fails to present such business opportunity, or information regarding such business opportunity, to us. Notwithstanding the foregoing, our restated certificate of incorporation does not renounce any interest or expectancy we may have in any business opportunity, transaction or other matter that is (1) offered in writing solely to one of our directors or officers who is not also an Excluded Party, (2) offered to an Excluded Party who is one of our directors, officers or employees and who is offered such opportunity solely in his or her capacity as one of our directors, officers or employees, or (3) identified by an Excluded Party solely through the disclosure of information by or on our behalf.

***Choice of Forum***

Our restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for any derivative action or proceeding brought on our behalf, any action or proceeding asserting a breach of fiduciary duty owed by any director or officer to us or our shareholders, any action or proceeding asserting a claim against us arising pursuant to the DGCL or our restated certificate of incorporation or amended and restated bylaws, or any action or proceeding asserting a claim against us that is governed by the internal affairs doctrine. Although we believe this provision benefits us by providing increased consistency in the application of Delaware law in the types of claims to which it applies, the provision may have the effect of discouraging lawsuits against our directors and officers and may limit our shareholders' ability to obtain a favorable judicial forum for disputes with us.

**Exhibit 10.38**

February 19, 2020

JELD-WEN Holding, Inc.
2645 Silver Crescent Drive.
Charlotte, NC 28273
United States of America
Attention: General Counsel

Re: Corporate Governance and Director Nominations

Ladies and Gentlemen,

This letter agreement is delivered in connection with and reflects our recent discussions regarding proposed changes to JELD-WEN Holding, Inc.'s (the "Company") corporate governance and the nomination by Onex Partners Manager LP ("Onex", "we" or "us", and each of the Company and Onex a "party") of up to two (2) qualified candidates for election to the Company's board of directors (the "Board"). As previously discussed, we and the Company hereby agree that:

1. Unless otherwise requested by the Company in writing, at the Company's 2020 annual meeting of stockholders (the "2020 Annual Meeting"), and if necessary at the Company's 2021 annual meeting of stockholders (the "2021 Annual Meeting"), we agree to vote, and to cause to be voted, all shares of the Company's common stock ("Common Stock") beneficially owned by any Onex Entities in favor of the Company's proposals to amend the Company's certificate of incorporation and bylaws, as applicable, to (i) declassify the Board during a transition period beginning as of the 2020 Annual Meeting (or, if not approved until the 2021 Annual Meeting, a transition period beginning as of the 2021 Annual Meeting), (ii) eliminate the supermajority approval requirements for removal of directors or amendments to the Company's certificate of incorporation and bylaws, (iii) permit stockholders holding, in the aggregate, at least twenty five percent (25%) (whether by legal or beneficial ownership) of the Common Stock to call special meetings of the stockholders, and (iv) permit stockholders to act by written consent. The proposed amendment to the Company's certificate of incorporation shall be substantially in the form attached as Exhibit I to this letter agreement and the proposed amendment to the Company's bylaws shall be substantially in the form attached as Exhibit II to this letter agreement.

2.

a. Subject to the other provisions of this letter agreement, at any annual or special meeting of the Company's stockholders at which the election of directors is an item of business to be conducted, the Company shall nominate each Onex Nominee (as defined below) for election to the Board.

b. The "Onex Nominees" shall mean (a) for so long as the Onex Entities beneficially own and have a pecuniary interest in, in the aggregate, at least twenty percent (20%) of the Common Stock, two (2) qualified persons designated by Onex for nomination for election to the Board at the annual or special meeting and (b) for so long as the Onex Entities beneficially own and have a pecuniary interest in, in the aggregate, less than twenty percent (20%) but greater than twelve and a half percent (12.5%) of the Common Stock, one (1) qualified person designated by Onex for nomination for election to the Board at the annual or special meeting. In order for each Onex Nominee to be qualified to serve as a director, such Onex Nominee must be qualified in accordance with all relevant standards and requirements of applicable law and stock exchange rules, in each case, as determined by the Governance and Nominating Committee of the Board, acting reasonably and in good faith, and such Onex Nominee must otherwise be acceptable to the Governance and Nominating Committee of the Board, acting reasonably and in good faith.

c. As used herein the "Onex Entities" means Onex and any affiliated fund that is managed, advised or controlled by Onex, directly or indirectly, but, for the avoidance of doubt, does not include any portfolio company of any such fund.

d. Subject to the other provisions of this letter agreement, the Company shall, to the fullest extent permitted by law, include each Onex Nominee in the slate of nominees recommended by the Board for election at each meeting of stockholders called for the purpose of electing directors, and shall use its reasonable best efforts to cause the election of such Onex Nominee to the Board, including nominating such Onex Nominee to be elected as a director, recommending such Onex Nominee for election as a director and soliciting proxies in favor thereof. Subject to the other provisions of this letter agreement, if a vacancy is created at any time by virtue of the death, disability, retirement, removal or resignation of any Onex Nominee, we shall have the right to designate a new Onex Nominee to fill such vacancy on the Board

and, in such case, the Company shall use its reasonable best efforts to cause such vacancy to be filled by such new Onex Nominee as promptly as practicable; provided, that, notwithstanding anything to the contrary contained in this letter agreement, without limiting the rights of Onex under this paragraph 2 with respect to subsequent annual or special meetings of the stockholders of the Company at which directors are to be elected to the Board, neither the Company nor the Board shall be under any obligation to appoint an Onex Nominee to the Board to fill a vacancy in the Board resulting from the failure of an Onex Nominee to be elected to the Board at any annual or special meeting of the stockholders of the Company at which such Onex Nominee stood for election but was nevertheless not elected.

e. The Company and Onex acknowledge and agree that (i) Matthew Ross and Anthony Munk, who are currently serving on the Board, shall be the initial Onex Nominees and as of the date of this letter agreement are qualified for all purposes under this letter agreement and (ii) the Board's obligation to nominate an Onex Nominee pursuant to this paragraph 2 shall be deemed satisfied for any annual or special meeting of the Company's stockholders, as applicable, at which the then-current term of such Onex Nominee would not otherwise expire and, accordingly, the director position held by such Onex Nominee is not the subject of the business to be conducted at such annual or special meeting.

3. Upon executing and delivering a joinder to that certain Confidentiality Letter Agreement, dated as of October 31, 2018 (the "Confidentiality Agreement"), by and among the Company, Onex, Mr. Ross and Mr. Munk, each new Onex Nominee shall be deemed to be an "Onex Director" for all purposes under the Confidentiality Agreement.

4. No party may assign (which shall include by operation of law, merger, consolidation or similar transaction) this letter agreement, or any of its rights or obligations hereunder, without the prior written consent of the other party hereto; provided, however, that Onex may assign this letter agreement and any of its rights and obligations hereunder to any Onex Entity that beneficially owns and has a pecuniary interest in shares of Common Stock without the prior written consent of the Company.

5. This letter agreement and the Confidentiality Agreement contain the entire agreement of the parties with respect to the subject matter hereof. This letter agreement may be amended only by an agreement in writing executed by the parties hereto. Nothing in this letter agreement shall confer any rights upon any person or individual other

than the parties hereto. The parties agree that irreparable damage would occur in the event any of the provisions of this letter agreement were not performed in accordance with the terms hereof and that such damage would not be adequately compensable in monetary damages. Accordingly, the parties shall be entitled to equitable relief (including injunctive relief and/or specific performance), in addition to any other rights or remedies available at law or in equity, to prevent breaches of this letter agreement, or to enforce specifically the terms of this letter agreement. Notwithstanding anything in this letter agreement to the contrary, if at any time Onex has not fully performed its obligations under paragraph 1 of this letter agreement then in addition to any remedies that the Company may have at law or in equity (i) the Company shall cease to have any obligation to nominate any Onex Nominee for election to the Board (or otherwise include any Onex Nominee in the slate of nominees recommended by the Board) or to use its reasonable best efforts to cause the election of any Onex Nominee to the Board and (ii) Onex shall cease to have any right to designate an Onex Nominee for nomination for election to the Board pursuant to this letter agreement (provided, for the avoidance of doubt, that this clause (ii) shall not require any Onex Nominee then sitting on the Board to resign from the Board). This letter agreement shall be governed by the laws of the State of Delaware applicable to contracts executed and to be performed wholly within the State of Delaware without giving effect to the choice of law principles of the State of Delaware and both parties irrevocably submit to the jurisdiction of the Court of Chancery or other federal or state courts of the State of Delaware and agree not to bring any action relating to the letter agreement in any other courts. If any provision of this letter agreement shall be held by a court of competent jurisdiction to be illegal, void or unenforceable, such provision shall be of no force and effect, but the illegality or unenforceability of such provision shall have no effect upon the legality or enforceability of any other provision of this letter agreement. This letter agreement may be executed in one or more counterparts, either in manual or in electric copy, each of which shall be an original, with the same effect as if the signatures thereto were manually executed upon one instrument.

*[Signature Page Follows]*

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Please confirm your agreement with the foregoing by signing and returning one copy of this letter agreement to the undersigned, whereupon this letter agreement shall become a binding agreement between us and the Company.

Very truly yours,

**Onex Partners Manager LP**

By: /s/ Joshua Hausman
Name: Joshua Hausman
Title: Managing Director

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Accepted and agreed as of:

February 19, 2020

**JELD-WEN Holding, Inc.**

By: /s/ Gary S. Michel
Name: Gary S. Michel
Title: President and Chief Executive Officer

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**EXHIBIT I**

**AMENDMENT TO CERTIFICATE OF INCORPORATION**

*[See attached]*

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**AMENDED AND RESTATED**
**CERTIFICATE OF INCORPORATION**
**OF**
**JELD-WEN HOLDING, INC.**

(Originally incorporated on May 31, 2016)

**FIRST:** The name of the corporation is JELD-WEN Holding, Inc. (hereinafter referred to as the "**Corporation**").

**SECOND:** The address of the registered office of the Corporation in the State of Delaware is 1209 Orange Street, in the City of Wilmington, postal code 19801, in the County of New Castle. The name of the registered agent of the Corporation at that address is The Corporation Trust Company.

**THIRD:** The purpose of the Corporation is to engage in any lawful act or activity for which a corporation may be organized under the Delaware General Corporation Law (the "**DGCL**").

**FOURTH:** A. The total number of shares of all classes of stock which the Corporation shall have authority to issue is 990,000,000, consisting of 900,000,000 shares of Common Stock, par value $0.01 per share (the "**Common Stock**") and 90,000,000 shares of Preferred Stock, par value $0.01 per share (the "**Preferred Stock**").

B. The board of directors is authorized, subject to any limitations prescribed by law, to provide for the issuance of shares of Preferred Stock in series, and by filing a certificate pursuant to the applicable law of the State of Delaware (such certificate being hereinafter referred to as a "**Preferred Stock Designation**"), to establish from time to time the number of shares to be included in each such series, and to fix the designation, powers, preferences, and rights of the shares of each such series and any qualifications, limitations or restrictions thereof. The number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the voting power of all of the then-outstanding shares of capital stock of the Corporation entitled to vote thereon, without a vote of the holders of the Preferred Stock, or of any series thereof, unless a vote of any such holders is required pursuant to the terms of any Preferred Stock Designation.

C. Each outstanding share of Common Stock shall entitle the holder thereof to one vote on each matter properly submitted to the stockholders of the Corporation for their vote; *provided*, *however*, that, except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to this Amended and Restated Certificate of Incorporation (including any Preferred Stock Designation relating to any series of Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon pursuant to this Amended and Restated Certificate of Incorporation (including any Preferred Stock Designation relating to any series of Preferred Stock).

**FIFTH:** The following provisions are inserted for the management of the business and the conduct of the affairs of the Corporation, and for further definition, limitation and regulation of the powers of the Corporation and of its directors and stockholders:

A. The business and affairs of the Corporation shall be managed by or under the direction of the board of directors. In addition to the powers and authority expressly conferred upon them by statute or by this

Amended and Restated Certificate of Incorporation or the bylaws of the Corporation, the directors are hereby empowered to exercise all such powers and do all such acts and things as may be exercised or done by the Corporation.

B. The directors of the Corporation need not be elected by written ballot unless the bylaws so provide.

C. All actions required or permitted to be taken by stockholders at an annual or special meeting of stockholders of the Corporation may be effected by the written consent of the holders of capital stock of the Corporation entitled to vote as of the record date of the written consent; provided that no such action may be effected except in accordance with the provisions of Section C of this Article FIFTH and applicable law.

(i) Request for Record Date. The record date for determining stockholders entitled to consent to corporate action in writing without a meeting shall be as fixed by the board of directors or as otherwise established under Section C of this Article FIFTH. Any stockholder seeking to have the stockholders authorize or take corporate action by written consent without a meeting shall, by written notice addressed to the Secretary of the Corporation and delivered to the Corporation at its principal executive office and signed by stockholders of record at the time of the request with a combined Net Long Beneficial Ownership (as defined in the bylaws) of at least the Requisite Percentage (as defined in the bylaws) of voting power of the outstanding shares of capital stock of the Corporation entitled to vote on the matter and who have held a combined Net Long Beneficial Ownership of at least the Requisite Percentage of voting power of the outstanding shares of capital stock continuously for at least 12 months preceding the date of the request and through the record date (the "**Requisite Holding Period**"), request that a record date be fixed for such purpose. Such request must contain the information set forth in paragraph (ii) of Section C of this Article FIFTH. Following receipt of such request, the board of directors shall, by the later of (a) 20 days after the Corporation's receipt of such request and (b) 5 days after delivery of any information requested by the Corporation to determine the validity of any such request or whether the action to which such request relates may be effected by written consent of stockholders in lieu of a meeting, determine the validity of such request and whether such request relates to an action that may be taken by written consent of stockholders in lieu of a meeting pursuant to Section C of this Article FIFTH and applicable law and, if appropriate, adopt a resolution fixing the record date for such purpose. The record date for such purpose shall be no more than 10 days after the date upon which the resolution fixing the record date is adopted by the board of directors and shall not precede the date upon which such resolution is adopted. If (x) the request required by this paragraph (i) has been determined to be valid and to relate to an action that may be effected by written consent pursuant to Section C of this Article FIFTH and applicable law or (y) no such determination shall have been made by the date required by this paragraph (i), and in either event no record date has been fixed by the board of directors, the record date shall be the first date on which a signed written consent relating to the action taken or proposed to be taken by written consent is delivered to the Corporation in the manner described in paragraph (vi) of Section C of this Article FIFTH; provided that if prior action by the board of directors is required under the provisions of the Delaware General Corporation Law, the record date shall be at the close of business on the day on which the board of directors adopts the resolution taking such prior action.

(ii) Notice Requirements. The request required by paragraph (i) of Section C of this Article FIFTH must be delivered by stockholders of record with a combined Net Long Beneficial Ownership of at least the Requisite Percentage of voting power of the outstanding shares of capital stock of the Corporation entitled to vote on the matter as of the date of such delivery (with written evidence of such ownership included with the written notice making such request) and such stockholders must have held a combined Net Long Beneficial Ownership of at least the Requisite Percentage for at least the Requisite

Holding Period, must describe the action proposed to be taken by written consent of stockholders in lieu of a meeting and must contain such information and representations, to the extent applicable, required by the bylaws of the Corporation (relating to advance notice of stockholder nominations or business proposals to be submitted at a meeting of stockholders) as though such stockholder or stockholders were intending to make a nomination or to bring a business proposal before a meeting of stockholders (other than a proposal permitted to be included in the Corporation's proxy statement pursuant to applicable rules and regulations promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), including, without limitation, all such information regarding the stockholder or stockholder(s) making the request required by paragraph (i) of Section C of this Article FIFTH, the beneficial owner or beneficial owners, if any, on whose behalf the request is made, and the text of the proposal(s) (including the text of any resolutions to be adopted by written consent of stockholders and the language of any proposed amendment to the bylaws of the Corporation). The Corporation may require the stockholder(s) submitting such notice to furnish such other information as may be requested by the Corporation, including such information as may be requested to determine the validity of the request and to determine whether such request relates to an action that may be effected by written consent of stockholders in lieu of a meeting under Section C of this Article FIFTH and applicable law. In connection with an action or actions proposed to be taken by written consent in accordance with Section C of this Article FIFTH and applicable law, the stockholder(s) seeking such action or actions shall further update and supplement the information previously provided to the Corporation in connection therewith, if necessary, in the same manner required by the bylaws of the Corporation.

(iii) Actions Which May Be Taken by Written Consent. Stockholders are not entitled to act by written consent if (a) the request to act by written consent made pursuant to paragraph (i) of Section C of this Article FIFTH (x) does not comply with Section C of this Article FIFTH, (y) was made in a manner that involved a violation of Regulation 14A under the Exchange Act or other applicable law or (z) relates to an item of business that is not a proper subject for stockholder action under applicable law; (b) any such request is received by the Corporation during the period commencing 90 days prior to the first anniversary of the date of the immediately preceding annual meeting of stockholders; (c) an identical or substantially similar item (a "Similar Item") to that included in any such request was presented at any meeting of stockholders held within one year prior to the Corporation's receipt of such request; (d) a Similar Item is already included in the Corporation's notice as an item of business to be brought before a meeting of stockholders that has been called but not yet held, and the date of which is within 90 days of the Corporation's receipt of such request; or (e) the board of directors calls an annual or special meeting of stockholders for the purpose of presenting a Similar Item, or solicits action by written consent of stockholders for a Similar Item pursuant to paragraph (i) of Section C of this Article FIFTH.

(iv) Manner of Consent Solicitation. Stockholders may take action by written consent only if consents are solicited by the stockholder(s) seeking to take action by written consent of stockholders in accordance with Section C of this Article FIFTH and applicable law from all holders of capital stock of the Corporation entitled to vote on the matter.

(v) Date of Consent. Every written consent purporting to take or authorize the taking of corporate action (a "Consent") must bear the date of signature of each stockholder who signs the Consent, and no Consent shall be effective to take the corporate action referred to therein unless, within 60 days of the earliest dated Consent delivered in the manner required by paragraph (vi) of Section C of this Article FIFTH and applicable law, Consents signed by a sufficient number of stockholders to take such action are so delivered to the Corporation.

(vi) Delivery of Consents. No Consents may be dated or delivered to the Corporation until 90 days after the delivery of the related request required by paragraph (i) of Section C of this Article FIFTH. Consents must be delivered to the Corporation at its principal place of business. Delivery must be made by hand or by certified or registered mail, return receipt requested. In the event of the delivery to the Corporation of Consents, the Secretary or such other officer of the Corporation as the board of directors may designate shall provide for the safe-keeping of such Consents and any related revocations and shall promptly conduct such ministerial review of the sufficiency of all Consents and any related revocations and of the validity of the action to be taken by written consent as the Secretary or such other officer, as the case may be, deems necessary or appropriate, including, without limitation, whether the stockholders of a number of shares having the requisite voting power to authorize or take the action specified in Consents have given consent. If after such investigation the Secretary or such other officer of the Corporation as the board of directors may designate shall determine that the action purported to have been taken is duly authorized by the Consents, that fact shall be certified on the records of the Corporation kept for the purpose of recording the proceedings of meetings of stockholders and the Consents shall be filed in such records. In conducting the investigation required by this paragraph (vi), the Secretary or such other officer of the Corporation as the board of directors may designate may, at the expense of the Corporation, retain special legal counsel and any other necessary or appropriate professional advisors as such person or persons may deem necessary or appropriate and, to the fullest extent permitted by law, shall be fully protected in relying in good faith upon the opinion of such counsel or advisors.

(vii) Effectiveness of Consent. Notwithstanding anything in this Amended and Restated Certificate of Incorporation to the contrary, no action may be taken by the stockholders by written consent except in accordance with Section C of this Article FIFTH and applicable law. If the board of directors shall determine that any request to fix a record date or to take stockholder action by written consent was not properly made in accordance with, or relates to an action that may not be effected by written consent pursuant to, Section C of this Article FIFTH or applicable law, or the stockholder or stockholders seeking to take such action do not otherwise comply with Section C of this Article FIFTH or applicable law, then the board of directors shall not be required to fix a record date in respect of such proposed action, and any such purported action by written consent shall be null and void. No action by written consent without a meeting shall be effective until such date as

the Secretary or such other officer of the Corporation as the board of directors may designate certify to the Corporation that the Consents delivered to the Corporation in accordance with paragraph (vi) of Section C of this Article FIFTH represent at least the minimum number of votes that would be necessary to take the corporate action at a meeting at which all shares entitled to vote thereon were present and voted, in accordance with the Delaware General Corporation Law and this Amended and Restated Certificate of Incorporation.

(viii) Board-Solicited Stockholder Action by Written Consent. Notwithstanding anything to the contrary set forth above, (a) none of the foregoing provisions of Section C of this Article FIFTH shall apply to any solicitation of stockholder action by written consent in lieu of a meeting by or at the direction of the board of directors and (b) the board of directors shall be entitled to solicit stockholder action by written consent in accordance with applicable law.

(ix) Challenge to Validity of Consent. Nothing contained in Section C of this Article FIFTH shall in any way be construed to suggest or imply that the board of directors of the Corporation or any stockholder shall not be entitled to contest the validity of any Consent or related revocations, whether before or after such certification by the Secretary of the Corporation or such other officer of the Corporation as the board of directors may designate or to prosecute or defend any litigation with respect thereto.

D. Special meetings of stockholders of the Corporation may be called only (i) by the board of directors acting pursuant to a resolution adopted by a majority of the Whole Board, or (ii) by the Secretary upon the written request of one more or stockholders of record with a combined Net Long Beneficial Ownership, as of the date of the request, of at least the Requisite Percentage of the outstanding shares of capital stock of the Corporation who have held a combined Net Long Beneficial Ownership of at least the Requisite Percentage of voting power of the outstanding shares of capital stock of the Corporation continuously for at least 12 months preceding the date of the request and through the date of the special meeting and in accordance with the requirements of the bylaws. For purposes of this Amended and Restated Certificate of Incorporation, the term "**Whole Board**" shall mean the total number of authorized directors as fixed by resolution of the board of directors whether or not there exist any vacancies in previously authorized directorships.

E. An annual meeting of stockholders, for the election of directors to succeed those whose terms expire and for the transaction of such other business as may properly come before the meeting, shall be held at such place, on such date, and at such time as the board of directors shall fix.

**SIXTH:** A. Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, the number of authorized directors shall be fixed from time to time exclusively by the board of directors pursuant to a resolution adopted by a majority of the Whole Board. Beginning with the annual meeting of stockholders to be held in the year ending December 31, 2020, the directors, other than Class I directors and Class II directors (each as defined below), including those who may be elected by the holders of any series of Preferred Stock under specified circumstances, shall be elected for a term expiring at the Corporation's next annual meeting of stockholders. Each director who was elected at the 2018 annual meeting of stockholders for a three-year term expiring in 2021 (the "Class I directors"), and each director who was elected at the 2019 annual meeting of stockholders for a three-year term expiring in 2022 (the "Class II directors"), shall continue to hold office until the end of the term for which such director was elected or appointed, as applicable. Commencing with the annual meeting of stockholders to be held in the year ending December 31, 2021, all directors of the Corporation other than Class II directors will be elected for a term of one year; and commencing with the annual meeting of stockholders to be held in the year ending December 31, 2022, all directors of the Corporation will be elected for a term of one year. In all cases, each director shall hold office until his or her successor shall have been duly elected and qualified. If authorized by a resolution of the board of directors, directors may be elected to fill any vacancy on the board of directors, regardless of how such vacancy shall have been created.

B. A majority of the Whole Board shall constitute a quorum for all purposes at any meeting of the board of directors, and, except as otherwise expressly required by law or by this Amended and Restated Certificate of Incorporation, all matters shall be determined by the affirmative vote of a majority of the directors present at any meeting at which a quorum is present.

C. Subject to the rights of the holders of any series of Preferred Stock then outstanding, newly created directorships resulting from any increase in the authorized number of directors or any vacancies in the board of directors resulting from death, resignation, disqualification, removal from office or other cause shall, unless otherwise required by law or by resolution of the board of directors, be filled only by a majority vote of the directors then in office, though less than a quorum (and not by stockholders), and directors so chosen shall serve for a term expiring at the next annual meeting of stockholders , with each director to hold office until his or her successor shall have been duly elected and qualified. No decrease in the authorized number of directors shall shorten the term of any incumbent director.

D. Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of the Corporation shall be given in the manner provided in the bylaws of the Corporation.

E. Subject to the rights of the holders of any series of Preferred Stock then outstanding, any director, or the entire board of directors, may be removed from office at any time, with or without cause, by the affirmative vote of the holders of a majority of the voting power of the outstanding shares of capital stock of the Corporation entitled to vote thereon, voting together as a single class.

**SEVENTH:** The board of directors is expressly empowered to adopt, amend or repeal the bylaws of the Corporation. Any adoption, amendment or repeal of the bylaws of the Corporation by the board of directors shall require the approval of a majority of the Whole Board. The stockholders shall also have power to adopt, amend or repeal the bylaws of the Corporation by the affirmative vote of the holders of a

majority of the voting power of the outstanding shares of capital stock of the Corporation entitled to vote thereon, voting as a single class.

**EIGHTH:** A director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the Corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL, or (iv) for any transaction from which the director derived an improper personal benefit. If the DGCL is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended.

Any repeal or modification of the foregoing paragraph shall not adversely affect any right or protection of a director of the Corporation existing at the time of such repeal or modification.

**NINTH:** Unless the Corporation consents in writing to the selection of an alternative forum, to the fullest extent permitted by law, all Internal Corporate Claims shall be brought solely and exclusively in the Court of Chancery of the State of Delaware (or, if such court does not have jurisdiction, the Superior Court of the State of Delaware, or, if such other court does not have jurisdiction, the United States District Court for the District of Delaware). "**Internal Corporate Claims**" means claims, including claims in the right of the Corporation, brought by a stockholder (including a beneficial owner) (i) that are based upon a violation of a duty by a current or former director or officer or stockholder in such capacity or (ii) as to which the DGCL confers jurisdiction upon the Court of Chancery of the State of Delaware.

**TENTH:** The Corporation reserves the right to amend or repeal any provision contained in this Amended and Restated Certificate of Incorporation in the manner prescribed by the laws of the State of Delaware and all rights conferred upon stockholders are granted subject to this reservation.

**ELEVENTH:** To the fullest extent permitted by applicable law, the Corporation, on behalf of itself and its subsidiaries, renounces any interest or expectancy of the Corporation and its subsidiaries in any business opportunity, transaction or other matter in which the Onex Group (as defined below), any officer, director, partner or employee of any entity comprising the Onex Group, and any portfolio company in which such entities or persons have an equity interest (other than the Corporation and its subsidiaries) (each, a "**Specified Party**") participates or desires or seeks to participate in, even if the opportunity is one that the Corporation or its subsidiaries might reasonably be deemed to have pursued or had the ability or desire to pursue if granted the opportunity to do so and each such Specified Party shall have no duty to communicate or offer such business opportunity to the Corporation and, to the fullest extent permitted by applicable law, shall not be liable to the Corporation or any of its subsidiaries or any stockholder for breach of any fiduciary or other duty, as a director or officer or controlling stockholder or otherwise, by reason of the fact that such Specified Party pursues or acquires such business opportunity, directs such business opportunity to another person or fails to present such business opportunity, or information regarding such business opportunity, to the Corporation or its subsidiaries. For purposes of this Amended and Restated Certificate of Incorporation, the term "**Onex Group**" shall mean Onex Corporation and its affiliates, including funds managed by an affiliate of Onex Partners Manager LP and/or Onex Corporation, as appropriate. Notwithstanding the foregoing, the Corporation, on behalf of itself and its subsidiaries, does not hereby renounce any interest or expectancy it or its subsidiaries may have in any business opportunity, transaction or other matter that is (1) offered in writing solely to a director or officer of the Corporation or its subsidiaries who is not also a Specified Party, (2) offered to a Specified Party who is a director, officer or employee of the Corporation and who is offered such opportunity solely in his or her capacity as a director, officer or employee of the Corporation, or (3) identified by a Specified Party solely through the disclosure of information by or on behalf of the Company.

Neither the amendment nor repeal of this Article ELEVENTH, nor the adoption of any provision of this Amended and Restated Certificate of Incorporation or the bylaws of the Corporation, nor, to the fullest extent permitted by Delaware law, any modification of law, shall adversely affect any right or protection of any person granted pursuant hereto existing at, or arising out of or related to any event, act or omission that occurred prior to, the time of such amendment, repeal, adoption or modification.

If any provision or provisions of this Article ELEVENTH shall be held to be invalid, illegal or unenforceable as applied to any circumstance for any reason whatsoever: (a) the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article ELEVENTH (including, without limitation, each portion of any paragraph of this Article ELEVENTH containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and (b) to the fullest extent possible, the provisions of this Article ELEVENTH (including, without limitation, each such portion of any paragraph of this Article ELEVENTH containing any such provision held to be invalid, illegal or unenforceable) shall be construed so as to permit the Corporation to protect its directors, officers, employees and agents from personal liability in respect of their good faith service to or for the benefit of the Corporation to the fullest extent permitted by law.

This Article ELEVENTH shall not limit any protections or defenses available to, or indemnification rights of, any director or officer of the Corporation under this Amended and Restated Certificate of Incorporation, the bylaws or applicable law. Any person or entity purchasing or otherwise acquiring any interest in any securities of the Corporation shall be deemed to have notice of and to have consented to the provisions of this Article ELEVENTH.

**TWELFTH:** The Corporation expressly elects not to be governed by Section 203 of the DGCL.

[*Signature Page Follows*]

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of the Certificate of Incorporation of the Corporation and which has been duly adopted in accordance with Sections 212, 242 and 245 of the DGCL, has been executed by its duly authorized officer this [●] day of [●], 2020.

**JELD-WEN HOLDING, INC.**

By: _____

Name: Laura W. Doerre
Title: Executive Vice President, General Counsel and Chief Compliance Officer

[*Signature Page to Amended and Restated Certificate of Incorporation*]

**EXHIBIT II**

**AMENDMENT TO BYLAWS**

*[See attached]*

**SECOND AMENDED AND RESTATED**
**BYLAWS**
**OF**
**JELD-WEN HOLDING, INC.**

ARTICLE I – OFFICES

Section 1. Registered Office. The address of the registered office of JELD-WEN Holding, Inc. (the "**Corporation**") in the State of Delaware is 1209 Orange Street, in the City of Wilmington, postal code 19801, in the County of New Castle. The name of the registered agent of the Corporation at that address is The Corporation Trust Company.

Section 2. Other Offices. The Corporation may have such other offices, within or without the State of Delaware, as the Corporation shall, from time to time, determine or the business of the Corporation may require.

## ARTICLE II - STOCKHOLDERS

Section 1. Place of Meetings. Meetings of stockholders of the Corporation shall be held at such place, either within or without the State of Delaware, as may be designated from time to time by the board of directors of the Corporation (the "**Board of Directors**" or the "**Board**") and stated in the notice of the meeting or in a duly executed waiver thereof. The Board of Directors may, in its sole discretion, determine that a meeting shall not be held at any place, but may instead be held by means of remote communication as authorized by Section 211 of the Delaware General Corporation Law, as amended (the "**DGCL**").

Section 2. Annual Meeting. Each annual meeting of the stockholders of the Corporation for the purpose of election of directors and for the transaction of such other business as may properly come before the meeting, shall be held at such place, if any, on such date and at such time as may be designated from time to time by the Board of Directors.

Section 3. Special Meetings.

(1) Unless otherwise prescribed by law or by the Certificate of Incorporation, special meetings of the stockholders (i) may be called at any time by the Board of Directors acting pursuant to a resolution adopted by a majority of the Whole Board (as defined below) and (ii) in accordance with the requirements of this Section 3, shall be called by the Secretary upon the written request of one more or stockholders of record with a combined Net Long Beneficial Ownership (as defined below), as of the date of the request, of at least twenty-five percent (25%) of the voting power of the outstanding shares of capital stock of the Corporation (the "**Requisite Percentage**") and who have held a combined Net Long Beneficial Ownership of at least the Requisite Percentage of the voting power of the outstanding shares of capital stock of the Corporation continuously for at least 12 months preceding the date of the request and through the date of the special meeting (the "**Requisite Holding Period**"). For purposes of these Bylaws, the term "**Whole Board**" shall mean the total number of authorized directors as fixed by resolution of the Board of Directors whether or not there exist any vacancies in previously authorized directorships.

(A) In order for a special meeting to be called upon stockholder request ("**Stockholder Requested Special Meeting**"), one or more requests for a special meeting (each, a "**Special Meeting Request**" and, collectively, the "**Special Meeting Requests**"), in the form required by this section (A) of this Section 3, must be signed by Proposing Persons (as defined below) that have a combined Net Long Beneficial Ownership of at least the Requisite Percentage and for at least the Requisite Holding Period. Only Proposing Persons who are stockholders of record at the time the Special Meeting Requests representing the Requisite Percentage are validly delivered in accordance with this Section 3 shall be entitled to sign a Special Meeting Request. In determining whether a Stockholder Requested Special Meeting has been properly requested by Proposing Persons that have a combined Net Long Beneficial Ownership of at least the Requisite Percentage and for at least the Requisite Holding Period, multiple Special Meeting Requests delivered in accordance with this Section 3 will be considered together only if (i) each Special Meeting Request identifies the same purpose or purposes of the Stockholder Requested Special Meeting and the same matters proposed to be acted on at such meeting (in each case as determined in good faith by the Board), and (ii) such Special Meeting Requests have been dated and delivered to the Secretary within sixty (60) days of the earliest dated Special Meeting Request. To be in proper form, such Special Meeting Request(s) shall comply with, and shall include and set forth, the following:

(1) As to each Proposing Person, (a) the name and address of each Proposing Person (including, if applicable, the name and address as they appear on the Corporation's books), (b) the class and number of shares of the Corporation which are owned beneficially and of record by such Proposing Person (with evidence of such ownership attached), except that such Proposing Person shall be deemed for such purpose to beneficially own any shares of any class or series of capital stock of the Corporation as to which such Proposing Person has the right to acquire (whether such right is exercisable immediately or only after the passage of time or the fulfillment of a condition or both), (c) a representation that such Proposing Person intends to hold the shares of the Corporation described in the immediately preceding clause (b) through the date of the Stockholder Requested Special Meeting and (d) an acknowledgement by the Proposing Person that any reduction in such Proposing Person's Net Long Beneficial Ownership with respect to which a Special Meeting Request relates following the delivery of such Special Meeting Request to the Secretary shall constitute a revocation of such Special Meeting Request to the extent of such reduction;

(2) As to each Proposing Person, any Disclosable Interests (as defined below) of such Proposing Person;

(3) As to the purpose or purposes of the Stockholder Requested Special Meeting, a reasonably brief statement of the specific purpose or purposes of the Stockholder Requested Special Meeting, the matter(s) proposed to be acted on at the Stockholder Requested Special Meeting and the reasons for conducting such business at the Stockholder Requested Special Meeting, and the text of any proposal or business to be considered at the Stockholder Requested Special Meeting (including the text of any resolutions proposed to be considered and, in the event that such business includes a proposal to amend the Bylaws, the language of the proposed

amendment); and

(4) Such other information and representations as required by the Amended and Restated Certificate of Incorporation and these Bylaws if incorporated in this Section 3, including, without limitation, all such information regarding any material interest of the Proposing Person in the matter(s) proposed to be acted on at the Stockholder Requested Special Meeting, all agreements, arrangements or understandings between or among any Proposing Person and any other record holder or beneficial owner of shares of any class or series of capital stock of the Corporation in connection with the Special Meeting Record Date Request, the Special Meeting Request, or the matter(s) proposed to be brought before the Stockholder Requested Special Meeting.

(5) Definitions.

(a) "**Proposing Person**" shall mean (i) each stockholder of record that signs a Special Meeting Request pursuant section (A) of this Section 3, (ii) the beneficial owner or beneficial owners, if different, on whose behalf such Special Meeting Request is made, (iii) any participant (as defined in paragraphs (a)(ii)-(vi) of Instruction 3 to Item 4 of Schedule 14A) with such stockholder in such solicitation or associate (within the meaning of Rule 12b-2 under the Securities Exchange Act of 1934, as amended (the "Exchange Act") for purposes of these Bylaws) of such stockholder or beneficial owner, and (iv) any other person with whom such stockholder or such beneficial owner (or any of their respective associates or other participants in such solicitation) is Acting in Concert.

(b) A person shall be deemed to be "**Acting in Concert**" with another person for purposes of these Bylaws if such person knowingly acts (whether or not pursuant to an express agreement, arrangement or understanding) in concert or in parallel with, or towards a common goal with such other person, relating to changing or influencing the control of the Corporation or in connection with or as a participant in any transaction having that purpose or effect, where (i) each person is conscious of the other person's conduct and this awareness is an element in their decision-making processes and (ii) at least one additional factor suggests that such persons intend to act in concert or in parallel, which such additional factors may include, without limitation, exchanging information (whether publicly or privately), attending meetings, conducting discussions, or making or soliciting invitations to act in concert or in parallel; provided, that a person shall not be deemed to be Acting in Concert with any other person solely as a result of the solicitation or receipt of (x) revocable proxies or consents from such other person in response to a solicitation made pursuant to, and in accordance with, Section 14(a) of the Exchange Act by way of a proxy or consent solicitation statement filed on Schedule 14A or (y) tenders of securities from such other person in a public tender or exchange offer made pursuant to, and in accordance with, Section 14(d) of the Exchange Act by means of a tender offer statement filed on Schedule TO. A person Acting in Concert with another person shall be deemed to be Acting in Concert with any third party who is also Acting in Concert with such other person.

(c) "**Net Long Beneficial Ownership**" shall mean those shares of common stock of the Corporation as to which the stockholder or Proposing Person, as applicable, possesses (i) the sole power to vote or direct the voting, (ii) the sole economic incidents of ownership (including the sole right to profits and the sole risk of loss) and (iii) the sole power to dispose of or direct the disposition; provided that the number of shares calculated in accordance with clauses (i), (ii) and (iii) shall not include any Synthetic Equity Position.

(d) "**Disclosable Interests**" shall mean (i) the full notional amount of any securities that, directly or indirectly, underlie any "derivative security" (as such term is defined in Rule 16a-1(c) under the Exchange Act) that constitutes a "call equivalent position" (as such term is defined in Rule 16a-1(b) under the Exchange Act) ("**Synthetic Equity Position**") and that is, directly or indirectly, held or maintained by such Proposing Person with respect to any shares of any class or series of shares of the Corporation; provided that, for the purposes of the definition of "Synthetic Equity Position," the term "derivative security" shall also include any security or instrument that would not otherwise constitute a "derivative security" as a result of any feature that would make any conversion, exercise or similar right or privilege of such security or instrument becoming determinable only at some future date or upon the happening of a future occurrence, in which case the determination of the amount of securities into which such security or instrument would be convertible or exercisable shall be made assuming that such security or instrument is immediately convertible or exercisable at the time of such determination; and, provided, further, that any Proposing Person satisfying the requirements of Rule 13d-1(b)(1) under the Exchange Act (other than a Proposing Person that so satisfies Rule 13d-1(b)(1) under the Exchange Act solely by reason of Rule 13d-1(b)(1)(ii)(E)) shall not be deemed to hold or maintain the notional amount of any securities that underlie a Synthetic Equity Position held by such Proposing Person as a hedge with respect to a bona fide derivatives trade or position of such Proposing Person arising in the ordinary course of such Proposing Person's business as a derivatives dealer, (ii) any rights to dividends on the shares of any class or series of capital stock of the Corporation owned beneficially by such Proposing Person that are separated or separable from the underlying shares of the Corporation, (iii) any material pending or threatened action, suit or proceeding (whether civil, criminal, investigative, administrative or otherwise) in which such Proposing Person is, or is reasonably expected to be made, a party or material participant involving the Corporation or any of its officers, directors or employees, or any affiliate of the Corporation, or any officer, director or employee of such affiliate, (iv) any other material relationship between such Proposing Person, on the one hand, and the Corporation, any affiliate of the Corporation, any officer, director or employee of the Corporation or any affiliate thereof, or any principal competitor of the Corporation, on the other hand, (v) any direct or indirect material interest in any material contract or agreement of such Proposing Person with the Corporation, any affiliate of the Corporation or any principal competitor of the Corporation (including, in any such case, any employment agreement, collective bargaining agreement or consulting agreement) and (vi) any other information relating to such Proposing Person that would be required to be disclosed in a proxy statement or other filing required to be made in connection with solicitations of proxies or consents by such

Proposing Person in support of the business proposed to be brought before the meeting; provided, however, that Disclosable Interests shall not include any such disclosures with respect to the ordinary course business activities of any broker, dealer, commercial bank, trust company or other nominee who is a Proposing Person solely as a result of being the stockholder directed to prepare and submit the Special Meeting Record Date Request or Special Meeting Request required by these Bylaws on behalf of a beneficial owner.

(B) Notwithstanding anything to the contrary in this Section 3:

(1) The Secretary shall not accept, and shall consider ineffective, a Special Meeting Request if (a) such Special Meeting Request does not comply with the Amended and Restated Certificate of Incorporation, these Bylaws or relates to an item of business that is not a proper subject for stockholder action under applicable law, (b) the Special Meeting Request is received by the Corporation during the period commencing ninety (90) days prior to the first anniversary of the date of the immediately preceding annual meeting of stockholders and ending on the date of the final adjournment of the next annual meeting of stockholders, (c) an identical or substantially similar item (a "**Similar Item**") to that included in the Special Meeting Request was presented at any meeting of stockholders held within one year prior to receipt by the Corporation of such Special Meeting Request, (d) the Board calls an annual or special meeting of stockholders (in lieu of calling the Stockholder Requested Special Meeting) in accordance with section (B)(3) of this Section 3, (e) a Similar Item is already included in the Corporation's notice as an item of business to be brought before a meeting of the stockholders that has been called but not yet held, or (f) such Special Meeting Request was made in a manner that involved a violation of Regulation 14A under the Exchange Act, or other applicable law.

(2) Business transacted at any Stockholder Requested Special Meeting shall be limited to the purpose stated in the valid Special Meeting Request; provided, however, that nothing herein shall prohibit the Board from submitting matters to the stockholders at any Stockholder Requested Special Meeting. If none of the Proposing Persons who submitted the Special Meeting Request appears at or sends a qualified representative to the Stockholder Requested Special Meeting to present the matters to be presented for consideration that were specified in the Stockholder Meeting Request, the Corporation need not present such matters for a vote at such meeting. A "qualified representative" of a Proposing Person shall be, if such Proposing Person is (a) a general or limited partnership, any general partner or person who functions as a general partner of the general or limited partnership or who controls the general or limited partnership, (b) a corporation, a duly appointed officer of the corporation, (c) a limited liability company, any manager or officer (or person who functions as an officer) of the limited liability company or any officer, director, manager or person who functions as an officer, director or manager of any entity ultimately in control of the limited liability company or (d) a trust, any trustee of such trust.

(3) If a Special Meeting Request is made that complies with this Section 3 and the Amended and Restated Certificate of Incorporation, the Board may (in lieu of calling the Stockholder Requested Special Meeting) present a Similar Item for stockholder approval at any other meeting of stockholders that is held within one hundred twenty (120) days after the Corporation receives such Special Meeting Request.

(4) Any Proposing Person may revoke a Special Meeting Request by written revocation delivered to, or mailed and received by, the Secretary at any time prior to the date of the Stockholder Requested Special Meeting. In the event any revocation(s) are received by the Secretary after the Secretary's receipt of a valid Special Meeting Request(s) from the holders of the Requisite Percentage of stockholders or any Special Meeting Request is deemed to be revoked, and as a result of such revocation(s), there no longer are valid unrevoked Special Meeting Request(s) from the Requisite Percentage of stockholders to call a special meeting, the Board shall have the discretion to determine whether or not to proceed with the Stockholder Requested Special Meeting.

(5) Notwithstanding anything in these Bylaws to the contrary, the Secretary shall not be required to call a special meeting except in accordance with the Amended and Restated Certificate of Incorporation and this Section 3. If the Board shall determine that any Special Meeting Request was not properly made in accordance with the Amended and Restated Certificate of Incorporation or these Bylaws, or shall determine that the stockholder(s) submitting such Special Meeting Request have not otherwise complied with the Amended and Restated Certificate of Incorporation or these Bylaws, then the Board shall not be required to take any action in connection with the Stockholder Requested Special Meeting, and the Secretary shall not be required to call such meeting. In addition to the requirements of this Section 3, each Proposing Person shall comply with all requirements of applicable law, including all requirements of the Exchange Act, with respect to any request to fix a Special Meeting Request.

(C) In connection with a Stockholder Requested Special Meeting called in accordance with this Section 3, each Proposing Person that signed and delivered a Special Meeting Request shall further update and supplement the information previously provided to the Corporation in connection with such request, if necessary, so that the information provided or required to be provided in such request pursuant to this Section 3 shall be true and correct as of the record date for notice of the Stockholder Requested Special Meeting and as of the date that is ten (10) business days prior to the Stockholder Requested Special Meeting or any adjournment or postponement thereof, and such update and supplement shall be delivered to, or mailed and received by, the Secretary at the principal executive offices of the Corporation not later than five (5) business days after the record date for notice of the special meeting (in the case of the update and supplement required to be made as of such record date), and not later than eight (8) business days prior to the date for the special meeting or, if practicable, any adjournment or postponement thereof (and, if not practicable, on the first practicable date prior to the date to which the special meeting has been adjourned or postponed) (in the case of the update and supplement required to be made as of ten (10) business days prior to the Stockholder Requested Special Meeting or any adjournment or postponement thereof). As used herein, the term "business day" shall mean any day that is not a

Saturday or Sunday or a day on which banks in the city of the Corporation's principal place of business are required or permitted to close.

(D) Any special meeting of stockholders, including any Stockholder Requested Special Meeting, shall be held at such date and time within or without the State of Delaware as may be fixed by the Board in accordance with these Bylaws and in compliance with applicable law.

(2) Only such business shall be conducted at a special meeting of stockholders as shall have been brought before the meeting by or at the direction of the Board of Directors or as shall have been stated in the written request for such meeting by one or more stockholders in accordance with Section 3 of this Article II; provided, however, that for the avoidance of doubt, in the case of a special meeting called upon the written request of one or more stockholders in accordance with Section 3 of this Article II, nothing contained in these Bylaws shall prohibit the Board of Directors from bringing other business not so stated in such written request before such meeting. The notice of such special meeting shall include the purpose or purposes for which the meeting is called. Nominations of persons for election to the Board of Directors may be made at a special meeting of stockholders at which directors are to be elected (a) by or at the direction of the Board of Directors or (b) by any stockholder of record at the time of giving of notice provided for in this paragraph, who shall be entitled to vote at the meeting and who delivers a written notice to the Secretary setting forth the information set forth in Section 11(3)(a) and 11(3)(c) of this Article II. Nominations by stockholders of persons for election to the Board of Directors may be made at such a special meeting of stockholders only if such stockholder of record's notice required by the preceding sentence shall be received by the Secretary at the principal executive offices of the Corporation not later than the close of business on the later of (i) the 90th day prior to such special meeting or (ii) the 10th day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting. In no event shall an adjournment, or postponement of a special meeting for which notice has been given, commence a new time period for the giving of a stockholder of record's notice. A person shall not be eligible for election or reelection as a director at a special meeting unless the person is nominated (i) by or at the direction of the Board of Directors or (ii) by a stockholder of record in accordance with the notice procedures set forth in this Article II.

(3) Notwithstanding the foregoing provisions of this Section 3, a stockholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to matters set forth in this Section 3. Nothing in this Section 3 shall be deemed to affect any rights of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act.

Section 4. Notice of Meetings.

Notice of the place, if any, date, and time of all meetings of the stockholders, the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting, and the record date for determining the stockholders entitled to vote at the meeting, if such date is different from the record date for determining stockholders entitled to notice of the meeting, shall be given, not less than 10 nor more than 60 days before the date on which the meeting is to be held, to each stockholder entitled to vote at such meeting as of the record date for determining the stockholders entitled to notice of the meeting, except as otherwise provided herein or required by law (meaning, here and hereinafter, as required from time to time by the DGCL or the Amended and Restated Certificate of Incorporation of the Corporation).

When a meeting is adjourned to another time or place, notice need not be given of the adjourned meeting if the time and place, if any, thereof, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting are announced at the meeting at which the adjournment is taken; *provided, however*, that if the date of any adjourned meeting is more than 30 days after the date for which the meeting was originally noticed, notice of the place, if any, date, and time of the adjourned meeting and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting, shall be given to each stockholder in conformity herewith. If after the adjournment a new record date for stockholders entitled to vote is fixed for the adjourned meeting, the Board of Directors shall fix a new record date for notice of such adjourned meeting, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors and, except as otherwise required by law, shall not be more than 60 nor less than 10 days before the date of such adjourned meeting, and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at such adjourned meeting as of the record date fixed for notice of such adjourned meeting. At any adjourned meeting, any business may be transacted which might have been transacted at the original meeting.

Section 5. Quorum.

At any meeting of the stockholders, the holders of a majority of the voting power of all of the shares of the stock entitled to vote at the meeting, present in person or by proxy, shall constitute a quorum for all purposes, unless or except to the extent that the presence of a larger number may be required by law or by the rules of any stock exchange upon which the Corporation's securities are listed. Where a separate vote by a class or classes or series is required, a majority of the voting power of the shares of such class or classes or series present in person or represented by proxy shall constitute a quorum entitled to take action with respect to that vote on that matter.

If a quorum shall fail to attend any meeting, the chairman of the meeting may adjourn the meeting to another place, if any, date, or time.

Section 6. Organization.

Such person as the Board of Directors may have designated or, in the absence of such a person, the Chairman of the Board or, in his or her absence, the President of the Corporation or, in his or her absence, such person as may be chosen by the holders of a majority of the voting power of the shares entitled to vote who are present, in person or by proxy, shall call to order any meeting of the stockholders and act as chairman of the meeting. In the absence of the Secretary of the Corporation, the secretary of the meeting shall be such person as the chairman of the meeting appoints.

Section 7. Conduct of Business.

The chairman of any meeting of stockholders shall determine the order of business and the procedure at the meeting, including such regulation of the manner of voting and the conduct of discussion as seem to him or her in order. The chairman shall have the power to adjourn the meeting to another place, if any, date and time. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting.

Section 8. Proxies and Voting.

At any meeting of the stockholders, every stockholder entitled to vote may vote in person or by proxy authorized by an instrument in writing or by a transmission permitted by law filed in accordance with the procedure established for the meeting. Any copy, facsimile telecommunication or other reliable reproduction of the writing or transmission created pursuant to this paragraph may be substituted or used in lieu of the original writing or transmission for any and all purposes for which the original writing or transmission could be used, provided that such copy, facsimile telecommunication or other reproduction shall be a complete reproduction of the entire original writing or transmission.

In advance of any meeting of stockholders, the Board of Directors by resolution or the Chairman of the Board of Directors or Chief Executive Officer shall appoint one or more inspectors to act at the meeting and make a written report thereof. One or more other persons may be designated as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is present, ready and willing to act at a meeting of stockholders, the chairman of the meeting shall appoint one or more inspectors to act at the meeting. Each inspector, before entering upon the discharge of his or her duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of his or her ability. Every vote taken by ballots shall be counted by a duly appointed inspector or inspectors.

All elections shall be determined by a plurality of the votes cast, and except as otherwise required by law or the rules of any stock exchange upon which the Corporation's securities are listed, all other matters shall be determined by a majority of the votes cast affirmatively or negatively.

Section 9. Stock List.

The officer who has charge of the stock ledger of the Corporation shall, at least 10 days before every meeting of stockholders, prepare and make a complete list of stockholders entitled to vote at said meeting; provided, however, if the record date for determining the stockholders entitled to vote is less than 10 days before the meeting date, the list shall reflect the stockholders entitled to vote as of the 10th day before the meeting date, arranged in alphabetical order for each class of stock and showing the address and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder for a period of at least 10 days prior to the meeting in the manner provided by law.

The stock list shall also be open to the examination of any stockholder during the whole time of the meeting as provided by law. This list shall presumptively determine (a) the identity of the stockholders entitled to examine such stock list and to vote at the meeting and (b) the number of shares held by each of them.

Section 10. Stockholder Action Without Meeting.

Any action required or permitted to be taken at any annual or special meeting of stockholders may be taken without a meeting, if a consent or consents in writing, setting forth the action so taken are delivered to the Corporation in accordance with Article FIFTH of the Amended and Restated Certificate of Incorporation.

Section 11. Stockholder Business to be Brought Before the Annual Meeting.

(1) Nominations of persons for election to the Board of Directors and the proposal of business to be transacted by the stockholders may be made at an annual meeting of stockholders (a) pursuant to the Corporation's proxy materials with respect to such meeting, (b) by or at the direction of the Board of Directors, or (c) by any stockholder of record of the Corporation (the"**Record Stockholder**") at the time of the giving of the notice required in the following paragraph, who is entitled to vote at the meeting and who has complied with the notice procedures set forth in this section. For the avoidance of doubt, the foregoing clause (c) shall be the exclusive means for a stockholder to make nominations or propose business (other than business included in the Corporation's proxy materials pursuant to Rule 14a-8 under the Securities Exchange Act of 1934, as amended (such act, and the rules and regulations promulgated thereunder, the "**Exchange Act**")) at an annual meeting of stockholders.

(2) For nominations or business to be properly brought before an annual meeting by a Record Stockholder pursuant to clause (c) of the foregoing paragraph, (a) the Record Stockholder must have given timely notice thereof in writing to the Secretary of the Corporation, (b) any such business must be a proper matter for stockholder action under Delaware law and (c) the Record Stockholder and the beneficial owner, if any, on whose behalf any such proposal or nomination is made, must have acted in accordance with the representations set forth in the Solicitation Statement required by these Second Amended and Restated Bylaws (the "**Bylaws**"). To be timely, a Record Stockholder's notice shall be received by the Secretary at the principal executive offices of the Corporation not less than 45 or more than 75 days prior to the one-year anniversary of the date on which the Corporation first mailed its proxy materials for the preceding year's annual meeting of stockholders; *provided*, *however*, that, subject to the last sentence of this Section 11(2), if the meeting is convened more than 30 days prior to or delayed by more than 30 days after the anniversary of the preceding year's annual meeting, or if no annual meeting was held in the preceding year, notice by the Record Stockholder to be timely must be so received not later than the close of business on the later of (i) the 90th day before such annual meeting or (ii) the 10th day following the day on which public announcement of the date of such meeting is first made. Notwithstanding anything in the preceding sentence to the contrary, in the event that the number of directors to be elected to the Board of Directors is increased and there has been no public announcement naming all of the nominees for director or indicating the increase in the size of the Board of Directors made by the Corporation at least 10 days before the last day a Record Stockholder may deliver a notice of nomination in accordance with the preceding sentence, a Record Stockholder's notice required by this bylaw shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be received by the Secretary at the principal executive offices of the Corporation not later than the close of business on the 10th day following the day on which such public announcement is first made by the Corporation. In no event shall an adjournment, or postponement of an annual meeting for which notice has been given, commence a new time period for the giving of a Record Stockholder's notice.

(3) Such Record Stockholder's notice shall set forth:

(a) If such notice pertains to the nomination of directors, as to each person whom the Record Stockholder proposes to nominate for election or reelection as a director (i) the name, age, business address, residence address, and principal occupation or employment of such person, (ii) the class and number of shares of stock of the Corporation that are held of record or beneficially owned by (directly or indirectly) by such person, (iii) all information relating to such person as would be required to be disclosed in solicitations of proxies for the election of such nominees as directors pursuant to Regulation 14A under the Exchange Act, (iv) such person's written consent to serve as a director if elected, (v) a statement that such person is not a party to any agreement, arrangement or understanding with, or has given any commitment or assurance to, any person or entity as to how such person will act or vote as director on any issue or question (a "**Voting Commitment**") that has not been disclosed to the Corporation or any Voting Commitment that could limit or interfere with such person's ability to comply with such person's fiduciary duties as director under applicable law; and that such person, if elected or re-elected, intends to refrain in the future from entering into such a Voting Commitment that would not be disclosed to the Corporation or that could limit or interfere with such person's ability to comply with such person's fiduciary duties as director under applicable law, (vi) a statement that such person is not a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a nominee or as a director that has not been disclosed to the Corporation; and that such person, if elected or re-elected as a director, intends to refrain in the future from entering into any such non-disclosed agreement, arrangement or understanding, (vii) a statement that such person, if elected or re-elected as a director, intends to comply with all publicly disclosed policies, principles and guidelines of the Corporation with respect to codes of conduct, corporate governance, conflict of interest, confidentiality, stock ownership and trading applicable to directors of the Corporation, (viii) a description of all direct and indirect compensation and other material monetary agreements, arrangements and understandings during the past three years, and any other material relationships, between or among such stockholder and beneficial owner on whose behalf the nomination is made, if any, and their respective affiliates or associates or others acting in concert therewith, on the one hand, and each proposed nominee, and his or her respective affiliates and associates, or others acting in concert therewith, on the other hand, including, without limitation all information that would be required to be disclosed pursuant to Rule 404 promulgated under Regulation S-K of the Exchange Act if the stockholder making the nomination and any beneficial owner on whose behalf the nomination is made, if any, or any affiliate or associate thereof or person acting in concert therewith, were the "registrant" for purposes of such rule and the nominee were a director or executive officer of such registrant, and (ix) a completed questionnaire with respect to the background and qualification of such person and the background of any other person or entity on whose behalf the nomination is being made (which questionnaire shall be provided by the Secretary upon written request).

(b) As to any business that the Record Stockholder proposes to bring before the meeting, a brief description of such business, the reasons for conducting such business at the meeting and any material interest in such business of such Record Stockholder and the beneficial owner, if any, on whose behalf the proposal is made; and

(c) As to (1) the Record Stockholder giving the notice and (2) the beneficial owner, if any, on whose behalf the nomination or proposal is made (each, a "**party**"):

(i) the name and address of each such party;

(ii) (A) the class, series, and number of shares of the Corporation that are owned, directly or indirectly, beneficially and of record by each such party, (B) any Synthetic Equity Position directly or indirectly owned beneficially by each such party, and any other direct or indirect opportunity to profit or share in any profit derived from any increase or decrease in the value of shares of the Corporation, (C) any proxy, contract, arrangement, understanding, or relationship pursuant to which either party has a right to vote, directly or indirectly, any shares of any security of the Corporation, (D) any short interest in any security of the Corporation held by each such party (for purposes of this Section 11(3), a person shall be deemed to have a short interest in a security if such person directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has the opportunity to profit or share in any profit derived from any decrease in the value of the

subject security), (E) any rights to dividends on the shares of the Corporation owned beneficially directly or indirectly by each such party that are separated or separable from the underlying shares of the Corporation, (F) any proportionate interest in shares of the Corporation or Synthetic Equity Position held, directly or indirectly, by a general or limited partnership in which either party is a general partner or, directly or indirectly, beneficially owns an interest in a general partner and (G) any performance-related fees (other than an asset-based fee) that each such party is directly or indirectly entitled to based on any increase or decrease in the value of shares of the Corporation or Synthetic Equity Positions, if any, as of the date of such notice, including without limitation any such interests held by members of each such party's immediate family sharing the same household (which information set forth in this paragraph shall be supplemented by such stockholder or such beneficial owner, as the case may be, not later than 10 days after the record date for determining the stockholders entitled to notice of the meeting and/or to vote at the meeting to disclose such ownership as of such record date);

(iii) any other information relating to each such party that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for, as applicable, the proposal and/or the election of directors in a contested election pursuant to Section 14 of the Exchange Act; and

(iv) a statement whether or not each such party will deliver a proxy statement and form of proxy to holders of, in the case of a proposal, at least the percentage of voting power of all of the shares of capital stock of the Corporation required under applicable law to carry the proposal or, in the case of a nomination or nominations, at least the percentage of voting power of all of the shares of capital stock of the Corporation reasonably believed by the Record Stockholder or beneficial holder, as the case may be, to be sufficient to elect the nominee or nominees proposed to be nominated by the Record Stockholder (such statement, a "**Solicitation Statement**").

(4) A person shall not be eligible for election or re-election as a director at an annual meeting unless (i) the person is nominated by a Record Stockholder in accordance with Section 11(1)(c) or (ii) the person is nominated by or at the direction of the Board of Directors. Only such business shall be conducted at an annual meeting of stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this section. The chairman of the meeting shall have the power and the duty to determine whether a nomination or any business proposed to be brought before the meeting has been made in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, to declare that such defectively proposed business or nomination shall not be presented for stockholder action at the meeting and shall be disregarded.

(5) For purposes of these Bylaws, "**public announcement**" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or a comparable national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the Exchange Act.

(6) Notwithstanding the foregoing provisions of this Section 11, a stockholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to matters set forth in this Section 11. Nothing in this Section 11 shall be deemed to affect any rights of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act.

## ARTICLE III - BOARD OF DIRECTORS

Section 1. General Powers. The business of the Corporation shall be managed by or under the direction of the Board of Directors, which may exercise all of the powers of the Corporation and do all such lawful acts and things, except as such are by law or by the Amended and Restated Certificate of Incorporation or by these Bylaws expressly conferred upon or reserved to the stockholders.

Section 2. Number, Election and Term of Directors. Subject to the rights of the holders of any series of preferred stock to elect additional directors under specified circumstances, the number of authorized directors shall be fixed from time to time exclusively by the Board of Directors pursuant to a resolution adopted by a majority of the Whole Board. Beginning with the annual meeting of stockholders to be held in the year ending December 31, 2020, the directors, other than Class I directors and Class II directors (each as defined below), including those who may be elected by the holders of any series of preferred stock under specified circumstances, shall be elected for a term expiring at the Corporation's next annual meeting of stockholders. Each director who was elected at the 2018 annual meeting of stockholders for a three-year term expiring in 2021 (the "Class I directors"), and each director who was elected at the 2019 annual meeting of stockholders for a three-year term expiring in 2022 (the "Class II directors"), shall continue to hold office until the end of the term for which such director was elected or appointed, as applicable. Commencing with the annual meeting of stockholders to be held in the year ending December 31, 2021, all directors of the Corporation other than Class II directors will be elected for a term of one year, and commencing with the annual meeting of stockholders to be held in the year ending December 31, 2022, all directors of the Corporation will be elected for a term of one year. In all cases, each director shall hold office until his or her successor shall have been duly elected and qualified. If authorized by a resolution of the Board of Directors, directors may be elected to fill any vacancy on the Board of Directors, regardless of how such vacancy shall have been created.

Section 3. Newly Created Directorships and Vacancies.

Subject to the rights of the holders of any series of preferred stock then outstanding, newly created directorships resulting from any increase in the authorized number of directors or any vacancies in the Board of Directors resulting from death, resignation, retirement, disqualification, removal from office or other cause shall, unless otherwise required by law or by resolution of the Board of Directors, be filled only by a majority vote of the directors then in office, though less than a quorum (and not by stockholders), and directors so chosen

shall serve for a term expiring at the next annual meeting of stockholders , with each director to hold office until his or her successor shall have been duly elected and qualified. No decrease in the number of authorized directors shall shorten the term of any incumbent director.

Section 4. Regular Meetings.

Regular meetings of the Board of Directors shall be held at such place or places, on such date or dates, and at such time or times as shall have been established by the Board of Directors and publicized among all directors. A notice of each regular meeting shall not be required.

Section 5. Special Meetings.

Special meetings of the Board of Directors may be called by the Chairman of the Board, the President or by a majority of the Whole Board and shall be held at such place, on such date, and at such time as they or he or she shall fix. Notice of the place, date, and time of each such special meeting shall be given to each director by whom it is not waived by mailing written notice not less than five days before the meeting or by telephone, facsimile or electronic transmission of the same not less than 24 hours before the meeting. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.

Section 6. Quorum.

At any meeting of the Board of Directors, a majority of the Whole Board shall constitute a quorum for all purposes. If a quorum shall fail to attend any meeting, a majority of those present may adjourn the meeting to another place, date, or time, without further notice or waiver thereof.

Section 7. Participation in Meetings By Conference Telephone.

Members of the Board of Directors, or of any committee thereof, may participate in a meeting of such Board of Directors or committee by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other and such participation shall constitute presence in person at such meeting.

Section 8. Conduct of Business.

At any meeting of the Board of Directors, business shall be transacted in such order and manner as the Board of Directors may from time to time determine, and all matters shall be determined by the vote of a majority of the directors present, except as otherwise provided herein or required by law. Action may be taken by the Board of Directors without a meeting if all members thereof consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of proceedings of the Board of Directors. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 9. Compensation of Directors.

Unless otherwise restricted by the certificate of incorporation, the Board of Directors shall have the authority to fix the compensation of the directors. The directors may be paid their expenses, if any, of attendance at each meeting of the Board of Directors and may be paid a fixed sum for attendance at each meeting of the Board of Directors or paid a stated salary or paid other compensation as director. No such payment shall preclude any director from serving the Corporation in any other capacity and receiving compensation therefor. Members of special or standing committees may be allowed compensation for attending committee meetings.

Section 10. Chairman of the Board.

The Board of Directors shall elect a Chairman of the Board annually from among their own number. The Chairman of the Board shall preside at meetings of the Board of Directors. The Chairman of the Board shall also have such powers and duties as may from time to time be assigned by the Board of Directors.

## ARTICLE IV - COMMITTEES

Section 1. Committees of the Board of Directors.

The Board of Directors may from time to time designate committees of the Board of Directors, with such lawfully delegable powers and duties as it thereby confers, to serve at the pleasure of the Board of Directors and shall, for those committees and any others provided for herein, elect a director or directors to serve as the member or members, designating, if it desires, other directors as alternate members who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of any member of any committee and any alternate member in his or her place, the member or members of the committee present at the meeting and not disqualified from voting, whether or not he or she or they constitute a quorum, may by unanimous vote appoint another member of the Board of Directors to act at the meeting in the place of the absent or disqualified member.

Section 2. Conduct of Business.

Each committee may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith, except as otherwise provided herein or required by law. Adequate provision shall be made for notice to members of all meetings; one-half of the members shall constitute a quorum unless the committee shall consist of one member, in which event one member shall constitute a quorum; and all matters shall be determined by a majority vote of the members present. Action may be taken by any committee without a meeting if all members thereof consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of the proceedings of such committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

## ARTICLE V - OFFICERS

Section 1. Generally.

The officers of the Corporation shall consist of a Chief Executive Officer, a President, one or more Vice Presidents, a Secretary, a Treasurer and such other officers as may from time to time be appointed by the Board of Directors. Officers shall be elected annually by the Board of Directors. Each officer shall hold office until his or her successor is elected and qualified or until his or her earlier resignation or removal. Any number of offices may be held by the same person.

Section 2. Chief Executive Officer.

Unless provided otherwise by a resolution adopted by the Board of Directors, the chief executive officer of the Corporation shall have the responsibility for the general management and control of the business and affairs of the Corporation and shall perform all duties and have all powers which are commonly incident to the office of chief executive or which are delegated to him or her by the Board of Directors. He or she shall have power to sign all contracts and other instruments of the Corporation which are authorized and shall have general supervision and direction of all of the other officers, employees and agents of the Corporation.

Section 3. President.

The President shall have general executive powers and such powers which are delegated to him or her by the Board of Directors. Subject to the direction of the Board of Directors, the President shall have power to sign all stock certificates, contracts and other instruments of the Corporation which are authorized and shall have general supervision of all of the other officers (other than the Chief Executive Officer), employees and agents of the Corporation.

Section 4. Vice President.

Each Vice President shall have such powers and duties as may be delegated to him or her by the Board of Directors. One Vice President shall be designated by the Board of Directors to perform the duties and exercise the powers of the President in the event of the President's absence or disability.

Section 5. Treasurer.

The Treasurer shall have the responsibility for maintaining the financial records of the Corporation. He or she shall make such disbursements of the funds of the Corporation as are authorized and shall render from time to time an account of all such transactions and of the financial condition of the Corporation. The Treasurer shall also perform such other duties as the Board of Directors may from time to time prescribe.

Section 6. Secretary.

The Secretary shall issue all authorized notices for, and shall keep minutes of, all meetings of the stockholders and the Board of Directors. He or she shall have charge of the corporate books and shall perform such other duties as the Board of Directors may from time to time prescribe.

Section 7. Delegation of Authority.

The Board of Directors may from time to time delegate the powers or duties of any officer to any other officers or agents, notwithstanding any provision hereof.

Section 8. Removal.

Any officer of the Corporation may be removed at any time, with or without cause, by the Board of Directors.

Section 9. Action with Respect to Securities of Other Entities.

Unless otherwise directed by the Board of Directors, the President or any officer of the Corporation authorized by the President shall have

power to vote and otherwise act on behalf of the Corporation, in person or by proxy, at any meeting of stockholders (or comparable security holders) of or with respect to any action of stockholders (or comparable security holders) of any other entity in which this Corporation may hold securities and otherwise to exercise any and all rights and powers which this Corporation may possess by reason of its ownership of securities in such other entity.

## ARTICLE VI - STOCK

Section 1. Certificates of Stock.

Each holder of stock represented by certificates shall be entitled to a certificate signed by, or in the name of the Corporation by any two authorized officers of the Corporation, including, without limitation, the President, a Vice President, the Secretary, an Assistant Secretary, the Treasurer or an Assistant Treasurer, certifying the number of shares owned by him or her. Any or all of the signatures on the certificate may be by facsimile.

Section 2. Transfers of Stock.

Transfers of stock shall be made only upon the transfer books of the Corporation kept at an office of the Corporation or by transfer agents designated to transfer shares of the stock of the Corporation. Except where a certificate is issued in accordance with Section 4 of Article VI of these Bylaws, an outstanding certificate for the number of shares involved, if one has been issued, shall be surrendered for cancellation before a new certificate, if any, is issued therefor.

Section 3. Record Date.

In order that the Corporation may determine the stockholders entitled to notice of any meeting of stockholders or any adjournment thereof, the Board of Directors may, except as otherwise required by law, fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than 60 nor less than 10 days before the date of such meeting. If the Board of Directors so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board of Directors determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of and to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for determination of stockholders entitled to vote at the adjourned meeting, and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of stockholders entitled to vote in accordance with the foregoing provisions of this Section 3 at the adjourned meeting. The record date for determining stockholders entitled to consent to corporate action in writing without a meeting shall be fixed in the manner provided for in the Amended and Restated Certificate of Incorporation.

In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 4. Lost, Stolen or Destroyed Certificates.

In the event of the loss, theft or destruction of any certificate of stock, another may be issued in its place pursuant to such regulations as the Board of Directors may establish concerning proof of such loss, theft or destruction and concerning the giving of a satisfactory bond or bonds of indemnity.

Section 5. Regulations.

The issue, transfer, conversion and registration of certificates of stock shall be governed by such other regulations as the Board of Directors may establish.

## ARTICLE VII - NOTICES

Section 1. Notices.

If mailed, notice to stockholders shall be deemed given when deposited in the mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the Corporation. Without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders may be given by electronic transmission in the manner provided in Section 232 of the

DGCL.

Section 2. Waivers.

A written waiver of any notice, signed by a stockholder or director, or waiver by electronic transmission by such person, whether given before or after the time of the event for which notice is to be given, shall be deemed equivalent to the notice required to be given to such person. Neither the business nor the purpose of any meeting need be specified in such a waiver. Attendance at any meeting shall constitute waiver of notice except attendance for the express purpose of objecting at the beginning of the meeting to the transaction of business because the meeting is not lawfully called or convened.

## ARTICLE VIII- MISCELLANEOUS

Section 1. Facsimile Signatures.

In addition to the provisions for use of facsimile signatures elsewhere specifically authorized in these Bylaws, facsimile signatures of any officer or officers of the Corporation may be used whenever and as authorized by the Board of Directors or a committee thereof.

Section 2. Corporate Seal.

The Board of Directors may provide a suitable seal, containing the name of the Corporation, which seal shall be in the charge of the Secretary. If and when so directed by the Board of Directors or a committee thereof, duplicates of the seal may be kept and used by the Treasurer or by an Assistant Secretary or Assistant Treasurer.

Section 3. Reliance upon Books, Reports and Records.

Each director, each member of any committee designated by the Board of Directors, and each officer of the Corporation shall, in the performance of his or her duties, be fully protected in relying in good faith upon the books of account or other records of the Corporation and upon such information, opinions, reports or statements presented to the Corporation by any of its officers or employees, or committees of the Board of Directors so designated, or by any other person as to matters which such director, committee member or officer reasonably believes are within such other person's professional or expert competence and who has been selected with reasonable care by or on behalf of the Corporation.

Section 4. Fiscal Year.

The fiscal year of the Corporation shall be as fixed by the Board of Directors.

Section 5. Time Periods.

In applying any provision of these Bylaws which requires that an act be done or not be done a specified number of days prior to an event or that an act be done during a period of a specified number of days prior to an event, calendar days shall be used, the day of the doing of the act shall be excluded, and the day of the event shall be included.

## ARTICLE IX - INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 1. Right to Indemnification.

Each person who was or is made a party or is threatened to be made a party to or is otherwise involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (hereinafter a "**proceeding**"), by reason of the fact that he or she is or was a director or an officer of the Corporation or is or was serving at the request of the Corporation as a director, officer or trustee of another corporation or of a partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan (hereinafter an "**indemnitee**"), whether the basis of such proceeding is alleged action in an official capacity as a director, officer or trustee or in any other capacity while serving as a director, officer or trustee, shall be indemnified and held harmless by the Corporation to the fullest extent permitted by Delaware law, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than such law permitted the Corporation to provide prior to such amendment), against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered by such indemnitee in connection therewith; provided, however, that, except as provided in Section 3 of this Article IX with respect to proceedings to enforce rights to indemnification, the Corporation shall indemnify any such indemnitee in connection with a proceeding (or part thereof) initiated by such indemnitee only if such proceeding (or part thereof) was authorized by the Board of Directors.

Section 2. Right to Advancement of Expenses.

In addition to the right to indemnification conferred in Section 1 of this Article IX, an indemnitee shall also have the right to be paid by the Corporation the expenses (including attorney's fees) incurred in defending any such proceeding in advance of its final disposition (hereinafter an "**advancement of expenses**"); provided, however, that, if the DGCL requires, an advancement of expenses incurred by an indemnitee in his or her capacity as a director or officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the Corporation of an undertaking (hereinafter an "**undertaking**"), by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal (hereinafter a "**final adjudication**") that such indemnitee is not entitled to be indemnified for such expenses under this Section 2 or otherwise.

Section 3. Right of Indemnitee to Bring Suit.

If a claim under Section 1 or 2 of this Article IX is not paid in full by the Corporation within 60 days after a written claim has been received by the Corporation, except in the case of a claim for an advancement of expenses, in which case the applicable period shall be 20 days, the indemnitee may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim. To the fullest extent permitted by law, if successful in whole or in part in any such suit, or in a suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the indemnitee shall be entitled to be paid also the expense of prosecuting or defending such suit. In (i) any suit brought by the indemnitee to enforce a right to indemnification hereunder (but not in a suit brought by the indemnitee to enforce a right to an advancement of expenses) it shall be a defense that, and (ii) in any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that, the indemnitee has not met any applicable standard for indemnification set forth in the DGCL. Neither the failure of the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) to have made a determination prior to the commencement of such suit that indemnification of the indemnitee is proper in the circumstances because the indemnitee has met the applicable standard of conduct set forth in the DGCL, nor an actual determination by the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) that the indemnitee has not met such applicable standard of conduct, shall create a presumption that the indemnitee has not met the applicable standard of conduct or, in the case of such a suit brought by the indemnitee, be a defense to such suit. In any suit brought by the indemnitee to enforce a right to indemnification or to an advancement of expenses hereunder, or brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the burden of proving that the indemnitee is not entitled to be indemnified, or to such advancement of expenses, under this Article IX or otherwise shall be on the Corporation.

Section 4. Non-Exclusivity of Rights.

The rights to indemnification and to the advancement of expenses conferred in this Article IX shall not be exclusive of any other right which any person may have or hereafter acquire under any statute, the Corporation's Amended and Restated Certificate of Incorporation, Bylaws, agreement, vote of stockholders or directors or otherwise.

Section 5. Insurance.

The Corporation may maintain insurance, at its expense, to protect itself and any director, officer, employee or agent of the Corporation or another corporation, partnership, joint venture, trust or other enterprise against any expense, liability or loss, whether or not the Corporation would have the power to indemnify such person against such expense, liability or loss under the DGCL.

Section 6. Indemnification of Employees and Agents of the Corporation.

The Corporation may, to the extent authorized from time to time by the Board of Directors, grant rights to indemnification and to the advancement of expenses to any employee or agent of the Corporation to the fullest extent of the provisions of this Article with respect to the indemnification and advancement of expenses of directors and officers of the Corporation.

Section 7. Nature of Rights.

The rights conferred upon indemnitees in this Article IX shall be contract rights and such rights shall continue as to an indemnitee who has ceased to be a director, officer or trustee and shall inure to the benefit of the indemnitee's heirs, executors and administrators. Any amendment, alteration or repeal of this Article IX that adversely affects any right of an indemnitee or its successors shall be prospective only and shall not limit, eliminate, or impair any such right with respect to any proceeding involving any occurrence or alleged occurrence of any action or omission to act that took place prior to such amendment or repeal.

## ARTICLE X - AMENDMENTS

In furtherance and not in limitation of the powers conferred by law, the Board of Directors, upon the approval of a majority of the Whole Board, is expressly authorized to adopt, amend and repeal these Bylaws. The stockholders shall also have power to adopt, amend or repeal these Bylaws by the affirmative vote of the holders of a majority of the voting power of the outstanding shares of capital stock of the Corporation entitled to vote thereon, voting as a single class.

**Exhibit 21.1**

**SUBSIDIARIES OF JELD-WEN HOLDING, INC.***

| Legal Name | Jurisdiction of Incorporation or Organization |
|---|---|
| Pelican Insurance, Ltd. | Bermuda |
| J&W Risk Services, Inc. | Oregon |
| JELD-WEN, Inc. | Delaware |
| Harbor Isles, LLC | Oregon |
| Milliken Millwork, Inc. | Michigan |
| Milliken Enterprises - Michigan LLC | Michigan |
| Milliken Enterprises - Ohio LLC | Michigan |
| Milliken Enterprises – Pennsylvania LLC | Michigan |
| VPI Quality Windows, Inc. | Washington |
| American Building Supply, Inc. | California |
| J B L Hawaii, Limited | Hawaii |
| JELD-WEN Door Replacement Systems, Inc. | Oregon |
| West One Automotive Group, Inc. (1) | Oregon |
| Karona, Inc. | Michigan |
| JW International Holdings, Inc. | Nevada |
| Builders Paradise – Caymans | Grand Cayman |
| Builders Paradise (St. Kitts) Ltd. | St. Kitts |
| JELD-WEN of Canada, Ltd. | Canada |
| JELD-WEN de Mexico, S.A. de C.V. | Mexico |
| JW Real Estate, Inc. | Nevada |
| JELD-WEN Chile S.A. | Chile |
| JW Global Holdings, Ltd. | British Virgin Islands |
| JELD-WEN European Holdings, LLC | Delaware |
| JELD-WEN ApS | Denmark |
| JELD-WEN Europe Ltd. (f/k/a RJAC, Ltd.) | United Kingdom |
| JELD-WEN Danmark A/S | Denmark |
| JELD-WEN Deutschland Holding GmbH | Germany |
| JELD-WEN Deutschland GmbH & Co. KG | Germany |
| BOS GmbH | Germany |
| BBE Domoferm GmbH | Germany |
| JELD-WEN Magyarország Kft. | Hungary |
| JELD-WEN Österreich GmbH | Austria |
| JELD-WEN Türen GmbH | Austria |
| JELD-WEN Schweiz AG | Switzerland |
| ZARGAG Zargen + Türen AG | Switzerland |
| JELD-WEN Eesti AS | Estonia |
| JELD-WEN Sverige AB | Sweden |
| JELD-WEN Norge AS | Norway |
| Dooria AS | Norway |

| Legal Name | Jurisdiction of Incorporation or Organization |
| --- | --- |
| Vännäs Dörr AB | Sweden |
| JELD-WEN of Latvia, SIA | Latvia |
| JELD-WEN Suomi Oy | Finland |
| Mattiovi Oy | Finland |
| OOO JELD-WEN Russia LLC | Russia |
| JELD-WEN France, S.A.S. | France |
| JELD-WEN UK, Ltd. | United Kingdom |
| JELD-WEN Hong Kong Limited | Hong Kong |
| Domoferm Service, GmbH | Austria |
| Domoferm GmbH & Co. KG | Austria |
| HSE Spol s.r.o. | Czech Republic |
| Domoferm Export, GmbH | Austria |
| Domoferm Tschechia s.r.o. | Czech Republic |
| Domoferm Polska Sp. z.o.o. | Poland |
| Domoferm Hungaria Kft. | Hungary |
| Domoferm d.o.o. | Croatia |
| Drumetall Sp. z.o.o. | Poland |
| OOO Domoferm | Russia |
| Staalkozijn Nederland B.V. | Netherlands |
| Drumetall GmbH | Austria |
| JELD-WEN Australia Pty, Ltd. | Australia |
| Corinthian Industries (Holdings) Pty. Ltd. | Australia |
| Corinthian Industries (Australia) Pty. Ltd. | Australia |
| Baltic Doors Pty. Ltd. | Australia |
| JELD-WEN New Zealand Ltd. | New Zealand |
| Stegbar Pty. Ltd. | Australia |
| JELD-WEN Management Services Pty. Ltd. | Australia |
| Regency (Showerscreens & Wardrobes) Pty. Ltd. | Australia |
| Airlite Windows Pty. Ltd. | Australia |
| JELD-WEN Glass Australia Pty. Ltd. | Australia |
| Corinthian Industries (Asia) SDN BHD | Malaysia |
| Aneeta Window Systems (Vic) Pty Ltd | Australia |
| Trend Windows & Doors Pty Ltd | Australia |
| Trend Glass Pty Ltd | Australia |
| Fenestra Hardware Specialists Pty Ltd | Australia |
| ArcPac Building Products Limited | Australia |
| Breezway Bidco Pty Ltd | Australia |
| Breezway Australia (Holdings) Pty Ltd | Australia |
| Breezway Australia Pty Ltd | Australia |
| Breezway Malaysia SND BHD | Malaysia |
| Breezway North America Inc. | California |
| Kolder Pty Ltd | Australia |
| Kolder Installations Pty Ltd | Australia |
| Wollongong Glass Pty Ltd | Australia |

| Legal Name | Jurisdiction of Incorporation or Organization |
| --- | --- |
| A&L Windows Pty Ltd | Australia |
| A&L Windows (QLD) Pty Ltd | Australia |
| A&L Services, Pty Ltd | Australia |

(1) Owned 50% by JELD-WEN, Inc.

* Pursuant to Item 601(b)(21)(ii) of Regulation S-K, the names of other subsidiaries of JELD-WEN Holding, Inc. are omitted because, considered in the aggregate, they would not constitute a significant subsidiary as of the end of the Company's most recently completed fiscal year.

**Exhibit 23.1**

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statement on Form S-8 (No. 333-215892) of JELD-WEN Holding, Inc. of our report dated February 24, 2020, relating to the financial statements, financial statement schedule, and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Charlotte, North Carolina
February 24, 2020

**Exhibit 31.1**

# CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Gary S. Michel, certify that:

1. I have reviewed this Annual Report on Form 10-K for the fiscal period ended December 31, 2019 of JELD-WEN Holding, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2020

/s/ Gary S. Michel
Gary S. Michel
President and Chief Executive Officer
(Principal Executive Officer)

**Exhibit 31.2**

# CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, John Linker, certify that:

1. I have reviewed this Annual Report on Form 10-K for the fiscal period ended December 31, 2019 of JELD-WEN Holding, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles; and

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2020

/s/ John Linker
John Linker
Executive Vice President and Chief Financial Officer (Principal Financial Officer)

**Exhibit 32.1**

**CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350**
**AS ADOPTED PURSUANT TO SECTION 906**
**OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to 18 U.S.C. §1350, we, the undersigned officers of JELD-WEN Holding, Inc. (the "Company"), do hereby certify that the Company's Annual Report on Form 10-K for the fiscal period ended December 31, 2019 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 24, 2020

/s/ Gary S. Michel
Gary S. Michel
President and Chief Executive Officer
(Principal Executive Officer)

/s/ John Linker
John Linker
Executive Vice President and Chief Financial Officer (Principal Financial Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. §1350 and is not being filed as part of the Report or as a separate disclosure document.