

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2016

OR

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

For the transition period from _____ to _____

Commission File Number 1-6003



FEDERAL SIGNAL CORPORATION

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

**1415 West 22nd Street,
Oak Brook, Illinois**

(Address of principal executive offices)

36-1063330

(I.R.S. Employer Identification No.)

60523

(Zip Code)

Registrant's telephone number, including area code (630) 954-2000

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

<u>Title of Each Class</u>	<u>Name of Each Exchange on Which Registered</u>
Common Stock, par value \$1.00 per share	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 and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/> (Do not check if a smaller reporting company)

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

As of July 1, 2016, the aggregate market value of voting stock held by non-affiliates was \$760,415,597. For purposes of the foregoing calculation only, executive officers and directors of the registrant have been deemed to be affiliates.

As of January 31, 2017, the number of shares outstanding of the registrant's common stock was 59,721,376.

Documents Incorporated By Reference

Portions of the registrant's definitive proxy statement for the 2017 Annual Meeting of Stockholders to be held on April 21, 2017 are incorporated by reference in Part III.

FEDERAL SIGNAL CORPORATION

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K (“Form 10-K”) is being filed by Federal Signal Corporation and its subsidiaries (referred to collectively as the “Company,” “we,” “our” or “us” herein, unless the context otherwise indicates) with the United States (“U.S.”) Securities and Exchange Commission (the “SEC”), and includes comments made by management that may contain words such as “may,” “will,” “believe,” “expect,” “anticipate,” “intend,” “plan,” “project,” “estimate” and “objective” or similar terminology, or the negative thereof, concerning the Company’s future financial performance, business strategy, plans, goals and objectives. These expressions are intended to identify forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) and the Private Securities Litigation Reform Act of 1995. Forward-looking statements include information concerning the Company’s possible or assumed future performance or results of operations and are not guarantees. While these statements are based on assumptions and judgments that management has made in light of industry experience as well as perceptions of historical trends, current conditions, expected future developments and other factors believed to be appropriate under the circumstances, they are subject to risks, uncertainties and other factors that may cause the Company’s actual results, performance or achievements to be materially different.

These risks and uncertainties, some of which are beyond the Company’s control, include, but are not limited to, the risk factors described under Item 1A, *Risk Factors* as set forth in Part I, as well as those discussed elsewhere in this Form 10-K. These factors may not constitute all factors that could cause actual results to differ materially from those discussed in any forward-looking statement. The Company operates in a continually changing business environment and new factors emerge from time to time. The Company cannot predict such factors, nor can it assess the impact, if any, of such factors on its results of operations, financial condition or cash flow. Accordingly, forward-looking statements should not be relied upon as a predictor of actual results. The Company disclaims any responsibility to update any forward-looking statement provided in this Form 10-K.

ADDITIONAL INFORMATION

The Company is subject to the reporting and information requirements of the Exchange Act and, as a result, is obligated to file Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and other reports and information with the SEC, as well as amendments to those reports. The Company makes these filings available free of charge through our website at www.federsignal.com as soon as reasonably practicable after such materials are filed with, or furnished to, the SEC. Information on our website does not constitute part of this Form 10-K. In addition, the SEC maintains a website at www.sec.gov that contains reports, proxy and information statements and other information regarding issuers that file electronically. All materials that we file with, or furnish to, the SEC may also be read or copied at the SEC’s Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330.

PART I

Item 1. *Business.*

Federal Signal Corporation, founded in 1901, was reincorporated as a Delaware corporation in 1969. The Company designs, manufactures and supplies a suite of products and integrated solutions for municipal, governmental, industrial and commercial customers. The Company's portfolio of products that it manufactures includes sewer cleaners, vacuum trucks, street sweepers, waterblasters, and safety and security systems, including technology-based products and solutions for the public safety market. Following the acquisition of Joe Johnson Equipment, the Company also distributes and re-sells products manufactured by other companies, which include refuse and recycling collection vehicles, camera systems, ice resurfacing equipment and snow-removal equipment. In addition, we sell parts and provide service, repair, equipment rentals and training as part of a comprehensive offering to our customers. Federal Signal Corporation and its subsidiaries operate ten principal manufacturing facilities in five countries around the world and provide products and integrated solutions to customers in all regions of the world.

Narrative Description of Business

Products manufactured and supplied, and services rendered, by the Company are divided into two major operating segments: the Environmental Solutions Group and the Safety and Security Systems Group. The individual operating businesses are organized as such because they share certain characteristics, including technology, marketing, distribution and product application, which create long-term synergies. Corporate contains those items that are not included in our operating segments.

Financial information concerning the Company's two operating segments for each of the three years in the period ended December 31, 2016, is included in Note 15 – Segment Information to the accompanying consolidated financial statements and is incorporated herein by reference. Information regarding the Company's discontinued operations is included in Note 18 – Discontinued Operations to the accompanying consolidated financial statements and is incorporated herein by reference.

Environmental Solutions Group

Our Environmental Solutions Group is a leading manufacturer and supplier of a full range of street sweeper vehicles, sewer cleaner and vacuum loader trucks, hydro-excavation trucks and high-performance waterblasting equipment. Products are sold to both municipal and industrial customers under the Elgin[®], Vactor[®], Guzzler[®], Westech[™] and Jetstream[®] brand names. The Group manufactures vehicles and equipment in the U.S. and Canada.

Under the Elgin brand name, the Company sells a leading U.S. brand of street sweepers primarily designed for large-scale cleaning of curbed streets, parking lots and other paved surfaces utilizing mechanical sweeping, vacuum and recirculating air technology. Vactor is a leading manufacturer of vacuum trucks used to maintain sewer lines, catch basins and storm sewers, as well as hydro-excavation trucks to meet the need for safe and non-destructive excavation. Guzzler is a leader in industrial vacuum loaders used to manage industrial waste or recover and recycle valuable raw materials. Westech is a manufacturer of high-quality, rugged vacuum trucks. Jetstream manufactures high pressure waterblast equipment and accessories for commercial and industrial cleaning and maintenance operations.

In addition to equipment sales, the Group engages in the sale of parts, service and repair, equipment rentals and training as part of a complete offering to its customers under the FS SolutionsSM brand.

On June 3, 2016, the Company completed the acquisition of substantially all of the assets and operations of Joe Johnson Equipment, Inc. and Joe Johnson Equipment (USA), Inc. (collectively, "JJE"), a Canadian-based distributor of maintenance equipment for municipal and industrial markets. The acquisition of JJE extends the Group's existing sales channel and increases the number of service centers through which its parts, service and rental offerings can be provided to current and potential customers. The acquisition also broadens the Group's product offerings to include other products, such as refuse and recycling collection vehicles, camera systems, ice-resurfacing equipment and snow-removal equipment.

Safety and Security Systems Group

Our Safety and Security Systems Group is a leading manufacturer and supplier of comprehensive systems and products that law enforcement, fire rescue, emergency medical services, campuses, military facilities and industrial sites use to protect people and property. Offerings include systems for campus and community alerting, emergency vehicles, first responder interoperable communications and industrial communications, as well as municipal networked security. Specific products include vehicle lightbars and sirens, public warning sirens, general alarm systems, public address systems and public safety software. Products are sold under the Federal Signal[™], Federal Signal VAMA[®] and Victor[®] brand names. The Group operates manufacturing facilities in the U.S., Europe and South Africa.

Discontinued Fire Rescue Group

As discussed in the notes to the consolidated financial statements included under Item 8 of Part II of this Form 10-K, on January 29, 2016, the Company completed the sale of the Bronto Skylift[®] business (“Bronto”) that represented the Fire Rescue Group. The consolidated financial statements for all periods presented have been recast to present the operating results of previously divested or exited businesses, including the Fire Rescue Group, as discontinued operations. In addition, disclosures and historical financial information included in Parts I, II and IV of this Form 10-K have been adjusted to exclude information related to the Fire Rescue Group. See Note 18 – Discontinued Operations to the accompanying consolidated financial statements for further details.

Marketing and Distribution

Depending primarily on the type and geographic location of the end-customer, the Environmental Solutions Group uses either a dealer network, including JJE, or direct sales to serve customers. The dealer network focuses primarily on the municipal market. In conjunction with selling vehicles to end-customers, dealer representatives demonstrate vehicle functionality and capability and provide vehicle service. In addition to selling products manufactured by the Company, JJE is a distributor of products manufactured by other companies. The Company believes its national and global dealer networks for vehicles is a distinguishing factor from its competitors. The Environmental Solutions Group’s direct sales channel concentrates on the industrial, utility and construction market segments, and the FS Solutions centers provide post-sale service, ancillary parts and equipment rentals. The acquisition of JJE increases the number of service centers through which its parts, service and rental offerings can be provided to current and potential customers.

The Safety and Security Systems Group sells to industrial customers through wholesalers and distributors who are supported by Company sales personnel or independent manufacturer representatives. Products are also sold to municipal and governmental customers through active independent distributors, as well as through original equipment manufacturers and the direct sales force. The Company sells comprehensive integrated warning and interoperable communications through a combination of the direct sales force and independent distributors. International sales are made through independent foreign distributors or on a direct basis.

Customers and Backlog

No single customer accounted for 10% or more of the Company’s net sales in 2016. Of the \$674.4 million total orders received in 2016, approximately 45% were from U.S. municipal and governmental customers, 26% were from U.S. commercial and industrial customers and 29% were from non-U.S. customers.

During 2016, the Company’s U.S. municipal and governmental orders decreased by 6% compared to 2015 levels, driven by declines in orders of street sweepers and outdoor warning systems. During 2015, the Company’s U.S. municipal and governmental orders decreased by 11% compared to 2014, primarily attributable to fewer large fleet orders for street sweepers and sewer cleaners.

During 2016, the Company’s U.S. commercial and industrial orders were essentially unchanged in comparison to 2015 levels, with orders as a result of new product offerings, such as rental equipment and refuse and recycling vehicles, resulting from the JJE acquisition, being largely offset by reduced orders of waterblasting equipment, vacuum trucks and used equipment within the Environmental Solutions Group, as well as lower orders from U.S. industrial markets within the Safety and Security Systems Group. During 2015, the Company’s U.S. commercial and industrial orders decreased by 30% compared to 2014 levels, in large part due to lower vacuum truck orders, which were adversely impacted, directly and indirectly, by a severe downturn in oil and gas markets and, to a lesser extent, by softness in other industrial markets.

During 2016, the Company’s non-U.S. orders increased by 4% from 2015, largely due to a substantial increase in Canadian orders, which was reflective of orders acquired in, and received subsequent to, the JJE acquisition, partially offset by declines in orders of vacuum trucks and sewer cleaners and a \$8.5 million decrease in orders for street sweepers and waterblasting equipment in the Middle East. Within the Safety and Security Systems Group, there was a decrease in orders from overseas industrial markets, including international oil, gas and coal markets, as well as reduced orders from international public safety markets. This compared to a decrease of 3% in non-U.S. orders in 2015 versus 2014, primarily due to lower demand for industrial products used in oil, gas and coal markets and unfavorable foreign currency effects within the Safety and Security Systems Group. This was partially offset by an increase in orders from European and international public safety markets linked to higher demand, as well as increased orders from Canada within our Environmental Solutions Group.

Of the Company’s non-U.S. orders received in 2016, approximately 58% were from Canada, 21% were from Europe and less than 10% were from any other particular region. Non-U.S. municipal and governmental markets are similar to the

U.S. municipal and governmental markets in that they are largely dependent on tax revenues to support spending and orders may be subject to budgetary cycles and public-entity bid procedures.

The Company's backlog totaled \$137.0 million at December 31, 2016 compared to \$171.3 million at December 31, 2015. Backlogs vary by Group due to the nature of the Company's products and the buying patterns of its customers. The Environmental Solutions Group has experienced an average backlog that can range from four to five months of shipments and the Safety and Security Systems Group typically experiences an average backlog of approximately two months of shipments. Production of the Company's December 31, 2016 backlog is expected to be substantially completed during 2017.

Suppliers

The Company purchases a wide variety of raw materials from around the world for use in the manufacture of its products, although the majority of current purchases are from North American sources. To minimize risks relating to availability, price and quality of key products and components, the Company is party to numerous strategic supplier arrangements. Although certain materials are obtained from either a single-source supplier or a limited number of suppliers, the Company has generally identified alternative sources to minimize the interruption of its business in the event of supply disruptions.

Components critical to the production of the Company's vehicles, such as engines, are purchased from a select number of suppliers. The Company also purchases raw and fabricated steel, as well as commercial chassis, from multiple sources. As a distributor of equipment manufactured by other companies, JJE relies on the availability of equipment supplied by others to meet customer demand.

While there are risks and uncertainties with respect to the supply of certain raw materials and components that could impact price, quality and availability in sufficient quantities, the Company believes it has adequate supplies and sources of availability of the raw materials and components necessary to meet its needs.

Competition

Within the Environmental Solutions Group, Elgin is recognized as a market leader among domestic sweeper competitors and differentiates itself primarily on product performance. The Vactor and Guzzler brands each maintain a leading domestic position in their respective marketplaces by enhancing product performance with leading technology and application flexibility. Jetstream is a market leader in the in-plant cleaning segment of the U.S. waterblast industry, competing on product performance, rapid delivery and solutions services. JJE is a leading Canadian-based distributor of maintenance equipment for municipal and industrial markets.

Within specific product categories and domestic markets, the businesses within the Safety and Security Systems Group are among the market leaders. The Group's international market position varies from leader to ancillary participant depending on the geographic region and product line. Generally, competition is intense within all of the Group's product lines and purchase decisions are made based on price, features, reputation, performance and service, often within competitive bidding situations.

Research and Development

The Company invests in research to support the development of new products and the enhancement of existing products and services. The Company believes this investment is important to maintain or enhance its leadership position in key markets. Expenditures for research and development by the Company were \$13.4 million in 2016, \$14.0 million in 2015 and \$13.1 million in 2014, and were reported within Selling, engineering, general and administrative ("SEG&A") expenses on the Consolidated Statement of Operations.

Patents and Trademarks

The Company owns a number of patents and possesses rights under others to which it attaches importance, but it does not believe that its business as a whole is materially dependent upon any such patents or rights. The Company also owns a number of trademarks, including those listed within the "Narrative Description of Business" section above. We believe these trademarks are important in connection with the identification of our products and associated goodwill with customers, but no material part of the Company's business is dependent on our trademarks.

Employees

The Company employed approximately 2,200 people in its businesses at December 31, 2016, with the Company's U.S. hourly workers accounting for approximately 42% of its total workforce. Approximately 23% of the Company's U.S. hourly workers were represented by unions at December 31, 2016. We believe that our labor relations with our employees are good.

Governmental Regulation of the Environment

The Company believes it complies with federal, state and local provisions that have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment. The Company endeavors to establish environmentally-friendly policies and objectives, and believes that these actions are also consistent with cost-effective operating practices. Capital expenditures in 2016 attributable to compliance with such laws were not material. The Company believes that the overall impact of compliance with environmental regulations will not have a material adverse effect on our financial position, results of operations or cash flow.

In May 2012, the Company sold a facility in Pearland, Texas. The facility was previously used by the Company's discontinued Pauluhn business, which manufactured marine, offshore and industrial lighting products. It is probable that the site will require remediation and as such, as of December 31, 2016 and 2015, \$0.6 million and \$0.9 million, respectively, of reserves related to the environmental remediation of the Pearland facility have been included in liabilities of discontinued operations on the Consolidated Balance Sheets. The Company's estimate may change as more information becomes available; however, the costs are not expected to have a material adverse effect on the Company's results of operations, financial position or cash flow.

Seasonality

Certain of the Company businesses are susceptible to the influences of seasonal buying or delivery patterns. The Company tends to have lower sales in the first quarter compared to other quarters as a result of these influences.

Executive Officers of the Registrant

The following is a list of the Company's executive officers, their ages, business experience and positions as of February 15, 2017:

Jennifer L. Sherman, age 52, was appointed President and Chief Executive Officer effective January 1, 2016. Ms. Sherman was also appointed to the Board of Directors effective January 1, 2016. Since joining the Company in 1994, Ms. Sherman has served in various roles of increasing responsibility, most recently as Senior Vice President and Chief Operating Officer from April 2014 to December 31, 2015. Ms. Sherman also previously served as Senior Vice President, Chief Administrative Officer, General Counsel and Secretary from 2010 to April 2014, Senior Vice President, Human Resources, General Counsel and Secretary from 2008 to 2010, and Vice President, General Counsel and Secretary from 2004 to 2008.

Matthew B. Brady, age 49, was appointed Senior Vice President of the Safety and Security Systems Group in February 2016. Mr. Brady joined the Company in 2006, serving most recently as the Vice President and General Manager of the Integrated Systems Division within the Safety and Security Systems Group. Prior to joining the Company, Mr. Brady served as a Sales Director at Motorola Solutions, Inc.

Julie A. Cook, age 55, was appointed Vice President, Human Resources in September 2012. Ms. Cook served as Johnson Controls, Inc.'s Director of Human Resources, Building Efficiency Programs and then Vice President of Human Resources, Global Manufacturing, Supply Chain and Communications, from 2010 through 2012. Ms. Cook previously served as the Company's Environmental Solutions Group Vice President of Human Resources with responsibility for Corporate Human Resources from 2008 through 2010. Ms. Cook was Group Vice President of Human Resources for the Environmental Solutions Group from 2001 to 2007.

Brian S. Cooper, age 60, was appointed Senior Vice President and Chief Financial Officer in May 2013. Prior to joining the Company, Mr. Cooper served as Chief Financial Officer of Westell Technologies, Inc. from 2009 to 2013. Prior to Westell, Mr. Cooper served as Chief Financial Officer of Fellowes, Inc. from 2007 to 2009 and as Senior Vice President and Treasurer of United Stationers Inc. from 2001 to 2007.

Daniel A. DuPré, age 60, was appointed Vice President, General Counsel and Secretary in November 2015. Mr. DuPré joined the Company in 2006, most recently serving as its Deputy General Counsel. Mr. DuPré previously held senior legal positions at Sears Holdings Corporation, Bank One Corporation, and Brunswick Corporation and served as an Assistant United States Attorney for the Northern District of Illinois.

Ian A. Hudson, age 40, was appointed Vice President and Corporate Controller in August 2013. Prior to joining the Company, Mr. Hudson served as Director of Accounting – Latin America and Asia Pacific at Groupon, Inc. from June 2012 to August 2013. Prior to that role, Mr. Hudson worked at Ernst & Young, LLP from 1998 to 2012, most recently as Senior Audit Manager.

Samuel E. Miceli, age 50, was appointed Senior Vice President of the Environmental Solutions Group in November 2015. Mr. Miceli joined the Company in 1993, serving most recently as the Vice President and General Manager of Vactor/Guzzler, with previous responsibility for the operations of Elgin Sweeper.

Svetlana Vinokur, age 37, was appointed Vice President, Treasurer and Corporate Development in April 2015. Prior to joining the Company, Ms. Vinokur worked as Assistant Treasurer at Illinois Tool Works Inc. Prior to that role, Ms. Vinokur served as Finance Head of M&A Strategy at Mead Johnson Nutrition Company and as a senior associate for Robert W. Baird & Company's Consumer and Industrial Investment Banking group. Ms. Vinokur started her career at Ford Motor Company, serving in various finance roles.

These officers hold office until the next annual meeting of the Board of Directors following their election and until their successors have been elected and qualified.

There are no family relationships among any of the foregoing executive officers.

Item 1A. Risk Factors.

We may occasionally make forward-looking statements and estimates such as forecasts and projections of our future performance or statements of our plans and objectives. These forward-looking statements may be contained in, but are not limited to, filings with the SEC, including this Form 10-K, press releases made by us and oral statements made by our officers. Actual results could differ materially from those contained in such forward-looking statements. Important factors that could cause our actual results to differ from those contained in such forward-looking statements include, but are not limited to, the risks described below.

Our financial results are subject to U.S. economic uncertainty.

In 2016, we generated approximately 72% of our net sales in the U.S. Our ability to be profitable depends heavily on varying conditions in the U.S. governmental and municipal markets, as well as the overall U.S. economy. The industrial markets in which we compete are subject to considerable cyclicity, and move in response to cycles in the overall business environment. Many of our customers are municipal government agencies, and as a result, we are dependent on municipal government spending. Spending by our municipal customers can be affected by federal, state and local political circumstances, budgetary constraints and other factors. The U.S. government and municipalities depend heavily on tax revenues as a source of spending and accordingly, there is a historical correlation that suggests a lag of one or two years between the condition of the U.S. economy and our sales to the U.S. government and municipalities. Therefore, downturns in the U.S. economy are likely to result in decreases in demand for our products. During previous economic downturns, we experienced decreases in sales and profitability, and we expect our business to remain subject to similar economic fluctuations in the future.

We have international operations that are subject to compliance with domestic and foreign laws and regulations, economic and political uncertainties and foreign currency rate fluctuations.

Our business is subject to fluctuations in demand and changing international economic, legal and political conditions that are beyond our control. In 2016, approximately 28% of our net sales were to customers outside the U.S. and we expect a significant portion of our revenues to come from international sales in the foreseeable future. Operating in the international marketplace exposes us to a number of risks, including the need to comply with U.S. and foreign laws and regulations applicable to our foreign operations, such as the Foreign Corrupt Practices Act, the United Kingdom ("U.K.") Bribery Act and their counterparts in other foreign jurisdictions in which we operate, restrictive domestic and international trade regulations, including the imposition of tariffs and trade barriers on our products, changes in these laws, regulations and policies by the U.S. and foreign governments, political and economic instability in the jurisdictions in which we operate, foreign receivables collection risk, local labor market conditions, and, in some cases, international hostilities. The costs of compliance with these various laws, regulations and policies can be significant and penalties for non-compliance could significantly impact our business.

To the extent that our international operations are affected by adverse foreign economic or political conditions, we may experience disruptions and losses which could have a material impact on our financial position, results of operations or cash flow. To mitigate the risk of foreign receivables collection, we may obtain letters of credit from international customers to satisfy concerns regarding the collectability of amounts billed to customers.

Some of our contracts are denominated in foreign currencies, which may expose us to risks of fluctuating currency values and exchange rates, hard currency shortages and controls on currency exchange. Changes in the value of foreign currencies over the long term could increase our U.S. dollar costs for, or reduce our U.S. dollar revenues from, our foreign operations. Any increased costs or reduced revenues as a result of foreign currency fluctuations could adversely affect our results of operations.

We are subject to a number of restrictive debt covenants.

In January 2016, we entered into a new five-year credit facility. The credit facility contains certain restrictive debt covenants and customary events of default. Our ability to comply with these restrictive covenants may be affected by the other factors

described in this “*Risk Factors*” section, as well as other factors “outside of our control. Failure to comply with one or more of these restrictive covenants may result in an event of default which, if not cured by us or waived by our lenders, allows our lenders to declare all amounts outstanding as due and payable. Such an acceleration of the maturity of our indebtedness may cause us to incur substantial costs and may prevent or limit us from engaging in transactions that benefit us, including responding to changing business and economic conditions and taking advantage of attractive business opportunities.

The execution of our growth strategy is dependent upon the continued availability of credit and third-party financing arrangements for our customers.

Economic downturns result in tighter credit markets, which could adversely affect our customers’ ability to secure financing or to secure financing at favorable terms or interest rates necessary to proceed or continue with purchases of our products and services. Our customers’ or potential customers’ inability to secure financing for projects could result in the delay, cancellation or downsizing of new purchases or the suspension of purchases already under contract, which could cause a decline in the demand for our products and services and negatively impact our financial position, results of operations or cash flow.

Our efforts to develop new products and services or enhance existing products and services involve substantial research, development and marketing expenses, and the resulting new or enhanced products or services may not generate sufficient revenues to justify the expense.

We place a high priority on developing new products and services, as well as enhancing our existing products and services. As a result of these efforts, we may be required to expend substantial research, development and marketing resources, and the time and expense required to develop a new product or service or enhance an existing product or service are difficult to predict. We may not succeed in developing, introducing or marketing new products or services or product or service enhancements. In addition, we cannot be certain that any new or enhanced product or service will generate sufficient revenue to justify the expense and resources devoted to the related product diversification effort.

We could incur restructuring and impairment charges as we continue to evaluate opportunities to restructure our business and rationalize our manufacturing operations in an effort to optimize our cost structure.

We continue to evaluate opportunities to restructure our business and rationalize our manufacturing operations in an effort to optimize our cost structure. These actions could result in significant charges that could adversely affect our financial condition and results of operations. Future actions could result in restructuring and related charges, including but not limited to impairments, employee termination costs and charges for pension and other postretirement contractual benefits and pension curtailments that could be significant and could have an adverse effect on our financial condition, results of operations or cash flow.

We operate in highly competitive markets.

The markets in which we operate are highly competitive. Many of our competitors have significantly greater financial resources than we do. The intensity of this competition, which is expected to continue, can result in price discounting and margin pressures throughout the industry and may adversely affect our ability to increase or maintain prices for our products. In addition, certain of our competitors may have lower overall labor or material costs. In some cases, our contracts with municipal and other governmental customers are awarded and renewed through competitive bidding. We may not be successful in obtaining or renewing these contracts, which could have an adverse effect on our financial condition, results of operations or cash flow.

We may incur material losses and costs as a result of lawsuits or claims that may be brought against us which are related to product liability, warranty, product recalls, client service interruptions or other matters.

We are exposed to product liability and warranty claims in the normal course of business in the event that our products actually or allegedly fail to perform as expected, or the use of our products results, or is alleged to result, in bodily injury and/or property damage. For example, we have been sued by firefighters seeking damages claiming that exposure to our sirens has impaired their hearing and that the sirens are, therefore, defective. In addition, we are subject to other claims and litigation from time to time as further described in the accompanying notes to our consolidated financial statements. We could experience material warranty or product liability costs in the future and incur significant costs to defend ourselves against these claims. While we carry insurance and maintain reserves for product liability claims, our insurance coverage may be inadequate if such claims do arise, and any defense costs and liability not covered by insurance could have a material adverse impact on our financial condition, results of operations or cash flow. A future claim could involve the imposition of punitive damages, the award of which, pursuant to state laws, may not be covered by insurance. In addition, warranty and certain other claims are not typically covered by insurance. Any product liability or warranty issues may adversely impact our reputation as a manufacturer of high quality, safe products and may have a material adverse effect on our business.

Failure to keep pace with technological developments may adversely affect our operations.

We are engaged in an industry that will be affected by future technological developments. The introduction of products or processes utilizing new technologies could render our existing products or processes obsolete or unmarketable. Our success will depend upon our ability to develop and introduce on a timely and cost-effective basis new products, applications and processes that keep pace with technological developments and address increasingly sophisticated customer requirements. We may not be successful in identifying, developing and marketing new products, applications and processes and product or process enhancements. We may experience difficulties that could delay or prevent the successful development, introduction and marketing of product or process enhancements or new products, applications or processes. Our products, applications or processes may not adequately meet the requirements of the marketplace and achieve market acceptance. Our financial condition, results of operations or cash flow could be materially and adversely affected if we were to incur delays in developing new products, applications or processes or product or process enhancements, or if our products do not gain market acceptance.

Increased information technology security threats and more sophisticated cyber-attacks pose a risk to our systems, networks, products and operations.

We have observed a global increase in information technology security threats and more sophisticated cyber-attacks. Our business could be impacted by such disruptions, which in turn could pose a risk to the security of our systems and networks and the confidentiality, accessibility and integrity of information stored and transmitted on those systems and networks. We have adopted measures to address cyber-attacks and mitigate potential risks to our systems from these information technology-related disruptions. However, given the unpredictability of the timing, nature and scope of such disruptions, our systems and networks remain potentially vulnerable to attacks. Depending on their nature and scope, such attacks could potentially lead to the compromising of confidential information, misuse of our systems and networks, manipulation and destruction of data, misappropriation of assets, production stoppages and supply shortages, which in turn could adversely affect our reputation, financial condition, results of operations or cash flow.

Infringement of, or an inability to protect, our intellectual property rights could adversely affect our business.

We rely on a combination of patents, trademarks, copyrights, nondisclosure agreements, information technology security systems, physical security and other measures to protect our proprietary intellectual property and the intellectual property of certain customers and suppliers. However, we cannot be certain that our efforts to protect these intellectual property rights will be sufficient. Intellectual property protection is subject to applicable laws in various jurisdictions where interpretations and protections differ or can be unpredictable and costly to enforce. Further, our ability to protect our intellectual property rights may be limited in certain foreign jurisdictions that do not have, or do not enforce, strong intellectual property rights. Any failure to protect or enforce our intellectual property rights could have a material adverse effect on our competitive position, financial condition, results of operations or cash flow.

The inability to obtain raw materials, component parts and/or finished goods in a timely and cost-effective manner from suppliers would adversely affect our ability to manufacture and market our products.

We purchase from suppliers raw materials and component parts to be used in the manufacturing of our products. In addition, we purchase certain finished goods from suppliers. Changes in our relationships with suppliers, shortages, production delays, regulatory restrictions or work stoppages by the employees of such suppliers could have a material adverse effect on our ability to timely manufacture and market products. In addition, increases in the costs of purchased raw materials, component parts or finished goods could result in manufacturing interruptions, delays, inefficiencies or our inability to market products. In addition, our profit margins would decrease if prices of purchased raw materials, component parts or finished goods increase and we are unable to pass on those increases to our customers.

Our ability to operate effectively could be impaired if we fail to attract and retain key personnel.

Our ability to operate our businesses and implement our strategies depends in part on the efforts of our executive officers and other key employees. In addition, our future success will depend on, among other factors, our ability to attract and retain qualified personnel. The loss of the services of any key employee or the failure to attract or retain other qualified personnel could have a material adverse effect on our business or business prospects.

Disruptions within our dealer network or the inability of our dealers to secure adequate access to capital could adversely affect our business.

We rely on national and global dealer networks to market certain of our products and services. A disruption in our dealer network, or with a significant dealer, or within a specific market, could have an adverse impact on our business within the affected market. In addition, our dealers require adequate liquidity to finance their operations, including purchases of our

products. Dealers are subject to numerous risks and uncertainties that could unfavorably affect their liquidity positions, including, among other things, continued access to adequate financing sources on a timely basis on reasonable terms. These sources of financing are vital to our ability to sell products through our dealer network. Deterioration in the liquidity or credit worthiness of our dealers could have a significant adverse effect on our business. The loss or termination of a significant dealer, or a significant number of dealers, could cause difficulties in marketing and distributing our products and have an adverse effect on our business, financial condition, results of operations or cash flow.

Our business may be adversely impacted by work stoppages and other labor relations matters.

As a portion of our workforce is unionized, we are subject to risk of work stoppages and other labor relations matters. As of December 31, 2016, approximately 23% of our U.S. hourly workers were represented by labor unions and were covered by collective bargaining agreements. Many of these agreements include provisions that limit our ability to realize cost savings. Our current collective bargaining agreement with the International Brotherhood of Electrical Workers is due to expire in April 2017. Any strikes, threats of strikes or other organized disruptions in connection with the negotiation of new labor agreements or other negotiations could materially adversely affect our business as well as impair our ability to implement further measures to reduce costs and improve production efficiencies.

Our pension funding requirements and expenses are affected by certain factors outside of our control, including the performance of plan assets, the discount rate used to value liabilities, actuarial assumptions and experience and legal and regulatory changes.

Our funding obligations and pension expense for our defined benefit pension plans are driven by the performance of assets set aside in trusts for these plans, the discount rate used to value the plans' liabilities, actuarial assumptions and experience and legal and regulatory funding requirements. Changes in these factors could have an adverse impact on our financial condition, results of operations or cash flow. In addition, a portion of our pension plan assets are invested in equity securities, which can experience significant declines if financial markets weaken. The level of the funding of our defined benefit pension plan liabilities was approximately 77% as of December 31, 2016. Funding of the Company's U.S. defined benefit pension plan is determined in accordance with guidelines set forth in the Employee Retirement Income Security Act ("ERISA"). The current year funding status was impacted by a lower discount rate than in the prior year. Our future pension expenses and funding requirements could increase significantly due to the effect of adverse changes in the discount rate, asset values or the estimated expected return on plan assets. In addition, we could become legally required to make increased cash contributions to the pension plans, and these contributions could be material and negatively affect our cash flow.

The costs associated with complying with environmental and safety regulations could lower our margins.

We, like other manufacturers, continue to face heavy governmental regulation of our products, especially in the areas of the environment and employee health and safety. Complying with environmental and safety requirements has added and will continue to add to the cost of our products, and could increase the capital required to support our business. While we believe that we are in compliance in all material respects with these laws and regulations, we may be adversely impacted by costs, liabilities or claims with respect to our operations under existing laws or those that may be adopted. These requirements are complex, change frequently and have tended to become more stringent over time. Therefore, we could incur substantial costs, including cleanup costs, fines and civil or criminal sanctions as a result of violation of, or liabilities under, environmental laws and safety regulations. These requirements may increase the cost of our products, which may diminish demand for those products. In addition, uneven application of environmental or safety regulations could place our products at a cost or features disadvantage, which could reduce our revenues and profitability.

An impairment in the carrying value of goodwill could negatively affect our financial position and results of operations.

We have a substantial amount of goodwill, which is recorded at fair value at the time of acquisition and is not amortized, but is reviewed for impairment at least annually or more frequently if impairment indicators arise. In evaluating the potential for impairment of goodwill, we make assumptions regarding future operating performance, business trends, competition and market and general economic conditions. Such analyses further require us to make certain assumptions about our sales, operating margins, growth rates and discount rates. There are inherent uncertainties related to these factors and in applying these factors to the assessment of goodwill recoverability. Goodwill reviews are prepared using estimates of the fair value of reporting units, which incorporate estimates of the present value of future discounted cash flow. We could be required to evaluate the recoverability of goodwill prior to the annual assessment if we experience disruptions to the business, unexpected significant declines in operating results, a divestiture of a significant component of our business or a decline in our market capitalization.

If the future operating performance of our reporting units is not consistent with our assumptions, we could be required to record non-cash impairment charges. Impairment charges could substantially affect our total consolidated assets and results of

operations in the periods such charges are recorded. As of December 31, 2016, total consolidated goodwill was approximately 37% of total consolidated assets.

We may be unsuccessful in our future acquisitions, if any, which may have an adverse effect on our business.

Our long-term strategy includes exploring acquisition of companies or businesses to facilitate our growth, enhance our global market position and broaden our product offerings. Such acquisitions may help us expand into adjacent markets, add complementary products and services or allow us to leverage our distribution channels. In connection with this strategy, we could face certain risks and uncertainties in addition to those we face in the day-to-day operations of our business. We also may be unable to identify suitable targets for acquisition or to make acquisitions at favorable prices. If we identify a suitable acquisition candidate, our ability to successfully implement the acquisition would depend on a variety of factors, including our ability to obtain financing on acceptable terms. In addition, our acquisition activities could be disrupted by overtures from competitors for the targeted companies, governmental regulation and rapid developments in our industry that decrease the value of a potential target's products or services.

Acquisitions involve risks, including those associated with the following:

- integrating the operations, financial reporting, disparate systems and processes and personnel of acquired companies;
- managing geographically dispersed operations;
- diverting management's attention from other business concerns;
- changing the competitive landscape, including disrupting existing sales channels or markets;
- entering markets or lines of business in which we have either limited or no direct experience; and
- losing key employees, customers and strategic partners of acquired companies.

We also may not achieve anticipated revenue and cost benefits associated with our acquisitions. Acquisitions may not be accretive to our earnings and may negatively impact our results of operations as a result of, among other things, the incurrence of debt, acquisition costs, impairment of goodwill and amortization of other intangible assets. In addition, future acquisitions could result in dilutive issuances of equity securities.

Businesses acquired by us may have liabilities that are not known to us.

We may assume liabilities in connection with the acquisition of businesses. There may be liabilities that we fail or are unable to discover in the course of performing due diligence investigations on the acquired businesses, or that may be more material than we discovered. In these circumstances, we cannot assure that our rights to indemnification from the sellers of the acquired businesses to us will be sufficient in amount, scope or duration to fully offset the possible liabilities associated with the businesses or property acquired. Further, these liabilities could result in unexpected legal or regulatory exposure, unexpected increases in taxes or other adverse effects on our business. Any such liabilities, individually or in the aggregate, could have a material adverse effect on our financial condition, results of operations or cash flow.

Item 1B. *Unresolved Staff Comments.*

None.

Item 2. *Properties.*

As of December 31, 2016, the Company utilized six principal manufacturing plants located throughout the U.S., as well as two in Europe, one in Canada and one in South Africa. The Company also leases facilities within the U.S., Europe and Canada from which we provide sales, service and/or equipment rentals. As of December 31, 2016, the Company devoted approximately 0.9 million square feet to manufacturing and 0.7 million square feet to sales, service, warehousing and office space. Of the total square footage, approximately 60% is devoted to the Environmental Solutions Group and 40% to the Safety and Security Systems Group. Approximately 17% of the total square footage is owned by the Company with the remaining 83% being leased. Owned facilities are subject to lien under the Company's Amended and Restated Credit Agreement dated January 27, 2016 (the "2016 Credit Agreement").

The Company believes its properties, and related machinery and equipment, are well-maintained, suitable and adequate for their intended purposes. In the aggregate, these facilities are of sufficient capacity for the Company's current business needs.

Item 3. *Legal Proceedings.*

The information concerning the Company's legal proceedings included in Note 11 – Legal Proceedings to the accompanying consolidated financial statements is incorporated herein by reference.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.**Market Information**

The Company’s common stock is listed and traded on the New York Stock Exchange (“NYSE”) under the symbol “FSS”. The following table presents a summary of the high and low market price per share of our common stock for each quarter of 2016 and 2015:

	2016		2015	
	High	Low	High	Low
1 st Quarter	\$ 15.64	\$ 11.16	\$ 17.44	\$ 14.44
2 nd Quarter	14.11	12.07	17.22	14.76
3 rd Quarter	13.99	12.29	15.49	12.42
4 th Quarter	16.65	11.68	17.23	13.27

Holders

As of January 31, 2017, there were 1,655 holders of record of the Company’s common stock.

Dividends

In 2014, the Company’s Board of Directors (the “Board”) reinstated the Company’s quarterly cash dividend. During 2016, 2015 and 2014, the Company declared and paid dividends totaling \$16.9 million, \$15.6 million and \$5.6 million, respectively. On February 17, 2017, the Board declared a quarterly cash dividend of \$0.07 per common share payable on March 31, 2017 to holders of record at the close of business on March 10, 2017.

The payment of future dividends is at the discretion of the Board and will depend, among other things, upon future earnings and cash flow, capital requirements, the Company’s general financial condition, general business conditions and other factors, including compliance with restrictive debt covenants as described below.

Under the terms of the Company’s 2016 Credit Agreement, restricted payments, including dividends and stock repurchases, shall be permitted if (i) the Company’s leverage ratio is less than or equal to 2.50, (ii) the Company is in compliance with all other financial covenants and (iii) there are no existing defaults under the 2016 Credit Agreement. If the leverage ratio is more than 2.50, the Company is still permitted to fund (i) up to \$30.0 million of dividend payments, (ii) stock repurchases sufficient to offset dilution created by the issuance of equity as compensation to its officers, directors, employees and consultants and (iii) an incremental \$30.0 million of other cash payments. For further discussion, see Note 7 – Debt to the accompanying consolidated financial statements.

The Company is able to declare dividends at current levels under the restricted payment guidelines set forth above.

Securities Authorized for Issuance under Equity Compensation

Information concerning the Company’s equity compensation plans is included under Item 12 of Part III of this Form 10-K.

Recent Sales of Unregistered Securities

There were no sales of unregistered securities by the Company during the year ended December 31, 2016.

Purchases of Equity Securities

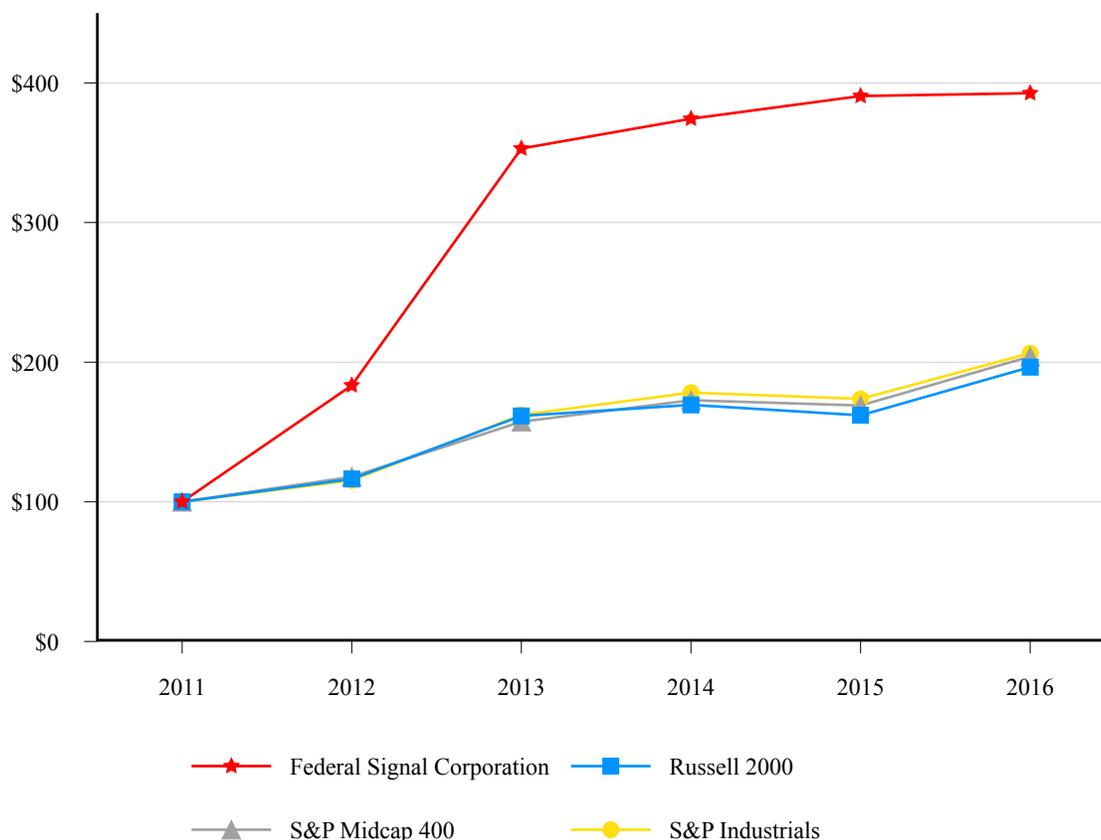
The following table provides a summary of the Company's repurchase activity for its common stock during the three months ended December 31, 2016:

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs ^{(a)(b)}
October 2016 (10/2/16 - 11/5/16)	231,300	\$ 12.2218	231,300	\$ 32,584,784
November 2016 (11/6/16 - 12/3/16)	98,100	12.1201	98,100	31,395,802
December 2016 (12/4/16 - 12/31/16)	—	—	—	31,395,802

- (a) On April 22, 2014, the Board authorized a stock repurchase program of up to \$15 million of the Company's common stock. During the second quarter of 2015, cumulative stock repurchases under the April 2014 program reached the maximum authorized level of \$15.0 million. No additional stock repurchases will be made under that program.
- (b) On November 4, 2014, the Board authorized an additional stock repurchase program of up to \$75 million of the Company's common stock.

Performance Graph

The following graph compares the cumulative five-year total return to stockholders of the Company's common stock relative to the cumulative total returns of the Russell 2000 index, the S&P Midcap 400 index and the S&P Industrials index. The graph assumes that the value of the investment in the Company's common stock, and in each index, was \$100 on December 31, 2011 and assumes reinvestment of all dividends through December 31, 2016.



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	As of December 31,					
	2011	2012	2013	2014	2015	2016
Federal Signal Corporation	\$ 100.00	\$ 183.37	\$ 353.01	\$ 374.33	\$ 390.59	\$ 392.62
Russell 2000	100.00	116.35	161.52	169.43	161.95	196.45
S&P Midcap 400	100.00	117.88	157.37	172.74	168.98	204.03
S&P Industrials	100.00	115.35	162.27	178.21	173.70	206.46

The stock price performance included in this graph is not necessarily indicative of future stock price performance. Notwithstanding anything set forth in any of our previous filings under the Securities Act or the Exchange Act, which might be incorporated into future filings in whole or part, including this Form 10-K, the preceding performance graph shall not be deemed incorporated by reference into any such filings.

Item 6. Selected Financial Data.

The following table summarizes selected financial information of the Company as of, and for each of the five years in the period ended, December 31, 2016:

(\$ in millions, except per share data)	For the Years Ended December 31,				
	2016	2015	2014	2013	2012
Results of Operations:					
Net sales	\$ 707.9	\$ 768.0	\$ 779.1	\$ 712.9	\$ 668.1
Operating income ^{(a) (b) (d) (e)}	57.7	103.2	88.7	61.6	42.6
Income from continuing operations ^{(a) (b) (c) (d) (e)}	39.4	65.8	59.7	152.5	15.5
Gain (loss) from discontinued operations and disposal, net of tax	4.4	(2.3)	4.0	7.5	(43.0)
Net income (loss) ^{(a) (b) (c) (d) (e)}	<u>\$ 43.8</u>	<u>\$ 63.5</u>	<u>\$ 63.7</u>	<u>\$ 160.0</u>	<u>\$ (27.5)</u>
Financial Position:					
Capital expenditures	\$ 6.1	\$ 9.6	\$ 13.7	\$ 11.6	\$ 9.9
Depreciation and amortization	19.1	12.3	11.5	11.0	10.6
Total assets	643.2	666.5	658.7	644.8	613.2
Total debt ^(f)	64.0	44.1	50.2	92.1	157.8
Common Stock Data:					
Diluted earnings per share — continuing operations	\$ 0.64	\$ 1.04	\$ 0.94	\$ 2.41	\$ 0.25
Cash dividends per common share	0.28	0.25	0.09	—	—
Weighted average shares outstanding — diluted (in millions) ...	61.2	63.4	63.6	63.2	62.7
Performance Measures:					
Operating margin	8.2%	13.4%	11.4%	8.6%	6.4%
Debt to adjusted EBITDA ratio ^(g)	0.8	0.4	0.5	1.3	2.9
Other Data:					
Total orders	\$ 674.4	\$ 686.1	\$ 807.4	\$ 706.0	\$ 689.8
Backlog	137.0	171.3	254.7	226.5	234.8

- (a) 2016 operating income includes acquisition and integration-related expenses and restructuring charges of \$1.4 million and \$1.7 million, respectively. 2016 income from continuing operations includes the effects of the acquisition and integration-related expenses and restructuring charges and also \$0.3 million of debt settlement charges, and a \$2.2 million net benefit resulting from changes in deferred tax valuation allowances in Canada and the U.K.
- (b) 2015 operating income includes restructuring charges of \$0.4 million. 2015 income from continuing operations includes the effects of the restructuring charges, as well as a \$1.4 million net benefit from special tax items, comprised of a \$4.2 million net tax benefit associated with tax planning strategies, offset by a \$2.4 million adjustment of deferred tax assets and \$0.4 million of expense associated with a change in the enacted tax rate in the U.K.
- (c) 2014 income from continuing operations includes the effects of a \$3.5 million release of valuation allowance that was previously recorded against the Company's foreign deferred tax assets.
- (d) 2013 operating income includes restructuring charges of \$0.7 million. 2013 income from continuing operations includes the effects of the restructuring charges, as well as \$8.7 million of debt settlement charges and a \$116.2 million release of valuation allowance previously recorded against net deferred tax assets in the U.S. In 2013, the Company also executed a tax planning strategy that resulted in the release of an additional \$6.7 million of valuation allowance that was previously recorded against the Company's foreign tax credits, which would have begun to expire in 2015.
- (e) 2012 operating income includes restructuring charges of \$1.4 million. 2012 income from continuing operations includes the effects of the restructuring charges, as well as \$3.5 million of debt settlement charges.
- (f) Includes short-term borrowings, the current portion of long-term borrowings and capital lease obligations of \$0.5 million, \$0.4 million, \$6.2 million, \$7.4 million and \$5.0 million, respectively.

(g) The ratio of debt to adjusted EBITDA is a non-GAAP measure that represents total debt divided by the trailing 12-month total of income from continuing operations before interest expense, debt settlement charges, acquisition and integration-related expenses, restructuring charges, purchase accounting effects, other (income) expense, income tax expense (or benefit) and depreciation and amortization expense. In calculating the ratio, the Company believes that adjusted EBITDA is representative of the Company's underlying performance and further improves the comparability of results between reporting periods. The Company uses the ratio to calibrate the magnitude of its debt and its debt capacity against adjusted EBITDA, which is used as an operating performance measure. We believe that investors use a version of this ratio in a similar manner. In addition, financial institutions (including the Company's lenders) use the ratio in connection with debt agreements to set pricing and covenant limitations. For these reasons, the Company believes that the ratio is a meaningful metric to investors in evaluating the Company's long-term financial performance and stability. Other companies may use different methods to calculate total debt to EBITDA. The following table summarizes the Company's ratio of total debt to adjusted EBITDA and reconciles income from continuing operations to adjusted EBITDA as of and for each of the five years in the period ended December 31, 2016:

(\$ in millions)	Trailing Twelve Months Ending December 31,				
	2016	2015	2014	2013	2012
Total debt	\$ 64.0	\$ 44.1	\$ 50.2	\$ 92.1	\$ 157.8
Income from continuing operations	39.4	65.8	59.7	152.5	15.5
Add:					
Interest expense	1.9	2.3	3.6	8.9	21.3
Debt settlement charges	0.3	—	—	8.7	3.5
Acquisition and integration-related expenses	1.4	—	—	—	—
Restructuring	1.7	0.4	—	0.7	1.4
Purchase accounting effects	3.9	—	—	—	—
Other (income) expense, net	(1.3)	1.0	1.7	0.1	0.9
Income tax expense (benefit)	17.4	34.1	23.7	(108.6)	1.4
Depreciation and amortization	19.1	12.3	11.5	11.0	10.6
Adjusted EBITDA	\$ 83.8	\$ 115.9	\$ 100.2	\$ 73.3	\$ 54.6
Total debt to adjusted EBITDA ratio	0.8	0.4	0.5	1.3	2.9

The selected financial data set forth above should be read in conjunction with the Company's consolidated financial statements, including the notes thereto, and management's discussion and analysis of financial condition and results of operations, included under Item 8 of Part II of this Form 10-K and Item 7 of Part II of this Form 10-K, respectively.

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

Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is designed to provide information that is supplemental to, and shall be read together with, the consolidated financial statements and the accompanying notes contained in this Form 10-K. Information in MD&A is intended to assist the reader in obtaining an understanding of (i) the consolidated financial statements, (ii) the Company's business segments and how the results of those segments impact the Company's results of operations and financial condition as a whole and (iii) how certain accounting principles affect the Company's consolidated financial statements.

Executive Summary

The Company is a leading global manufacturer and supplier of (i) sewer cleaners, vacuum trucks, street sweepers and other environmental vehicles and equipment and (ii) safety, security and communication equipment. We also are a designer and supplier of technology-based products and services for the public safety market. Following the acquisition of JJE, the Company distributes and re-sells products manufactured by other companies, which include refuse and recycling collection vehicles, camera systems, ice resurfacing equipment and snow-removal equipment. In addition, we sell parts and provide service, repair, equipment rentals and training as part of a comprehensive offering to our customer base. We operate ten manufacturing facilities in five countries around the world and provide products and integrated solutions to municipal, governmental, industrial and commercial customers in all regions of the world.

As described in Note 15 – Segment Information to the accompanying condensed consolidated financial statements, the Company's business units are organized and managed in two operating segments: the Environmental Solutions Group and the Safety and Security Systems Group.

Although conditions in industrial markets remained challenging throughout 2016, the Company continued to focus on executing against a number of key long-term objectives, including the following:

- Creating disciplined growth;
- Improving manufacturing efficiencies and costs;
- Leveraging invested capital; and
- Diversifying our customer base.

Some of the Company's highlights of its achievement against these objectives in 2016 include the following:

- In January 2016, we completed the sale of our Bronto Skylift business, receiving proceeds of approximately \$88 million. The sale of our Bronto Skylift business removed a low-margin operation that required a disproportionate amount of invested capital and facilitates our focus on more profitable growth opportunities.
- In addition, in January 2016, we executed a new five-year \$325 million revolving credit facility, to replace our previous \$225 million credit facility.
- We continued to apply a disciplined approach in considering potential acquisitions. In January 2016, we completed the acquisition of Westech Vac Systems, Ltd., a Canadian manufacturer of high-quality, rugged vacuum trucks. Although not significant in size, the acquisition provides access to new product offerings and new markets.
- On June 3, 2016, the Company completed the acquisition of JJE. The Company expects that JJE will facilitate sales of its existing products into new markets, expand the Company's product and service offerings and increase the Company's footprint across North America. With the acquisition of JJE, the Company's product offerings have expanded to include other products, including those not manufactured by the Company, such as refuse and recycling collection vehicles, camera systems, ice-resurfacing equipment and snow-removal equipment.
- We demonstrated our commitment to returning value to stockholders by paying increased cash dividends of \$16.9 million during 2016, up from \$15.6 million in 2015.
- We also significantly increased the amount of opportunistic share repurchases under our authorized share repurchase programs, repurchasing approximately 3.0 million shares at an average purchase price of \$12.75. Total repurchases during 2016 totaled \$37.8 million, compared to \$10.6 million in 2015. The remaining aggregate authorization under these programs of \$31.4 million at December 31, 2016 represents approximately 4% of our market capitalization.
- Cash flow during 2016 remained healthy, with \$26.7 million of cash being generated from continuing operations, facilitating the increased cash returns to shareholders, as well as investments in long-term growth initiatives, including new product development.
- We have also continued to focus on new product development in 2016 and are encouraged that these efforts will provide additional opportunities to further diversify our customer base. Specific examples for industrial markets include investments in new excavator designs to better target utility markets and in internationally certified safety products to expand our global reach.
- We continue to focus on reducing product costs and improving manufacturing efficiencies across all of our businesses. We started our "80/20" efficiency initiatives in 2010, and they have been a critical part of our culture.

- At December 31, 2016, total debt exceeded total cash and cash equivalents by \$13.3 million, and we had \$244 million of availability under the 2016 Credit Agreement. With our current capital structure, strong balance sheet, availability under our Credit Facility and positive operating cash flow, we are well positioned to navigate short-term market headwinds and invest in internal growth initiatives, pursue strategic acquisitions and consider ways to return value to stockholders.
- Our debt leverage remained low, at 0.8 times adjusted EBITDA as of December 31, 2016.

Our financial results in 2016 reflected challenging conditions in industrial markets that affected many companies.

Net sales decreased by \$60.1 million, or 8%, for the year ended December 31, 2016 compared to the prior year, largely due to a \$43.4 million net sales decrease within the Environmental Solutions Group, resulting from lower sales of vacuum trucks and street sweepers in the U.S, as well as fewer international shipments of street sweepers and sewer cleaners. Partially offsetting these reductions were \$65.5 million of incremental net sales resulting from the JJE acquisition. In the Safety and Security Systems Group, net sales decreased by \$16.7 million, primarily due to lower sales into global industrial markets, partially offset by improved global sales of outdoor warning systems and higher sales into domestic public safety markets.

Operating income for the year ended December 31, 2016 decreased by \$45.5 million, or 44%, to \$57.7 million, primarily driven by a \$42.8 million reduction within the Environmental Solutions Group, associated with negative operating leverage resulting from lower sales volumes, unfavorable sales mix effects, with fewer sales into industrial markets and a higher percentage of sales of products manufactured by other companies, which tend to carry a lower margin, as well as additional operating expenses incurred in support of current-year acquisitions, the inclusion of \$3.9 million of expense relating to purchase accounting effects of current-year acquisitions and \$0.5 million of acquisition-related expenses. Also contributing to the lower operating income in the current year was a \$5.3 million decrease in operating income within the Safety and Security Systems Group, inclusive of a \$1.3 million increase in restructuring expenses. Partially offsetting the operating income reductions in each of our groups was a \$2.6 million reduction in Corporate operating expenses, in spite of a \$0.9 million increase in expenses associated with acquisition and integration-related activity. Consolidated operating margin for the year ended December 31, 2016, inclusive of the aforementioned purchase accounting effects, restructuring charges and acquisition costs, was 8.2%, down from 13.4% in the prior year.

Income before income taxes for the year ended December 31, 2016 decreased by \$43.1 million as compared to the prior year. The decrease resulted from the reduced operating income, as well as a \$0.3 million write-off of deferred financing fees resulting from the debt refinancing completed in January 2016, partially offset by a \$2.3 million favorable change in other (income) expense, net and a \$0.4 million reduction in interest expense.

Net income from continuing operations for the year ended December 31, 2016 also benefited from a \$16.7 million reduction in income tax expense, largely due to lower pre-tax income levels and an aggregate net benefit of \$2.2 million resulting from valuation allowance changes. The effective tax rate for the year ended December 31, 2016 was 30.6%, compared to 34.1% in the prior year.

Total orders for the year ended December 31, 2016 decreased by \$11.7 million compared to the prior year, largely due to a \$25.6 million improvement in orders within our Environmental Solutions Group that was more than offset by a \$37.3 million order reduction in the Safety and Security Systems Group. Within our Environmental Solutions Group, increased orders from Canada, inclusive of orders acquired in, and received subsequent to, the JJE acquisition, were largely offset by reduced domestic orders for vacuum trucks, sewer cleaners, street sweepers and waterblasting equipment. The decrease in orders within our Safety and Security Systems Group was primarily due to lower orders from global industrial markets, reflective of reduced demand from oil and gas markets.

Our consolidated backlog at December 31, 2016 was \$137.0 million, down \$34.3 million, from \$171.3 million at December 31, 2015.

Results of Operations

The following table summarizes our Consolidated Statements of Operations and illustrates the key financial indicators used to assess our consolidated financial results:

(\$ in millions, except per share data)	For the Years Ended December 31,			Change	
	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Net sales	\$ 707.9	\$ 768.0	\$ 779.1	\$ (60.1)	\$ (11.1)
Cost of sales	524.8	542.4	570.4	(17.6)	(28.0)
Gross profit	183.1	225.6	208.7	(42.5)	16.9
Selling, engineering, general and administrative expenses	122.3	122.0	120.0	0.3	2.0
Acquisition and integration-related expenses	1.4	—	—	1.4	—
Restructuring	1.7	0.4	—	1.3	0.4
Operating income	57.7	103.2	88.7	(45.5)	14.5
Interest expense	1.9	2.3	3.6	(0.4)	(1.3)
Debt settlement charges	0.3	—	—	0.3	—
Other (income) expense, net	(1.3)	1.0	1.7	(2.3)	(0.7)
Income before income taxes	56.8	99.9	83.4	(43.1)	16.5
Income tax expense	17.4	34.1	23.7	(16.7)	10.4
Income from continuing operations	39.4	65.8	59.7	(26.4)	6.1
Gain (loss) from discontinued operations and disposal, net of tax	4.4	(2.3)	4.0	6.7	(6.3)
Net income	\$ 43.8	\$ 63.5	\$ 63.7	\$ (19.7)	\$ (0.2)
Other data:					
Operating margin	8.2%	13.4%	11.4%	(5.2)%	2.0%
Diluted earnings per share — Continuing operations	\$ 0.64	\$ 1.04	\$ 0.94	\$ (0.40)	\$ 0.10
Total orders	674.4	686.1	807.4	(11.7)	(121.3)
Backlog	137.0	171.3	254.7	(34.3)	(83.4)
Depreciation & amortization	19.1	12.3	11.5	6.8	0.8

Year ended December 31, 2016 vs. year ended December 31, 2015

Net sales

Net sales decreased by \$60.1 million, or 8%, for the year ended December 31, 2016 compared to the prior year, largely due to a \$43.4 million net sales decrease within the Environmental Solutions Group, resulting from lower sales of vacuum trucks and street sweepers in the U.S, as well as fewer international shipments of street sweepers and sewer cleaners. Partially offsetting these reductions were \$65.5 million of incremental net sales resulting from the JJE acquisition. In the Safety and Security Systems Group, net sales decreased by \$16.7 million, primarily due to lower sales into global industrial markets, partially offset by improved global sales of outdoor warning systems and higher sales into domestic public safety markets.

Cost of sales

For the year ended December 31, 2016, cost of sales decreased by \$17.6 million, or 3%, compared to the prior year, largely due to a decrease of \$7.0 million, or 2%, within the Environmental Solutions Group. The reduction was primarily driven by lower sales of vacuum trucks and street sweepers in the U.S, as well as fewer international shipments of street sweepers and sewer cleaners, partially offset by unfavorable mix effects, a \$6.9 million increase in depreciation expense, largely associated with the acquisition of the JJE rental fleet, and the recognition of approximately \$3.9 million of expense associated with purchase accounting effects resulting from current-year acquisitions. Within the Safety and Security Systems Group, cost of sales decreased by \$10.6 million, or 7%, largely driven by lower sales volume.

Gross profit

For the year ended December 31, 2016, gross profit decreased by \$42.5 million, or 19%, consisting of reductions within the Environmental Solutions Group and the Safety and Security Systems Group of \$36.4 million and \$6.1 million, respectively.

Gross margin for the year ended December 31, 2016 decreased to 25.9%, from 29.4% in the prior year, largely due to reduced operating leverage due to lower sales volumes, unfavorable sales mix, with fewer sales into industrial markets and a higher concentration of sales of products manufactured by other companies, which tend to carry lower margins, as well as purchase accounting expense effects, within the Environmental Solutions Group.

Selling, engineering, general and administrative expenses

SEG&A expenses increased by \$0.3 million for the year ended December 31, 2016 compared to the prior year. The addition of expenses of businesses acquired in the current year contributed to a \$5.9 million increase within the Environmental Solutions Group. This increase was partially offset by reductions in SEG&A expenses of \$3.5 million and \$2.1 million within Corporate and the Safety and Security Systems Group, respectively. The decrease within the Safety and Security Systems Group was largely due to lower employee costs, inclusive of the effects of previously implemented restructuring activities and cost reduction initiatives, whereas the reduction in Corporate SEG&A expenses was primarily due to lower employee incentive and stock compensation costs.

Operating income

Operating income for the year ended December 31, 2016 decreased by \$45.5 million, or 44%, to \$57.7 million, primarily driven by a \$42.8 million reduction within the Environmental Solutions Group, associated with negative operating leverage resulting from lower sales volumes, unfavorable sales mix effects, with fewer sales into industrial markets and a higher percentage of sales of products manufactured by other companies, which tend to carry a lower margin, as well as additional operating expenses incurred in support of current-year acquisitions, the inclusion of \$3.9 million of expense relating to purchase accounting effects of current-year acquisitions and \$0.5 million of acquisition-related expenses. Also contributing to the lower operating income in the current-year quarter was a \$5.3 million decrease in operating income within the Safety and Security Systems Group, inclusive of a \$1.3 million increase in restructuring expenses. Partially offsetting the operating income reductions in each of our groups was a \$2.6 million reduction in Corporate operating expenses, in spite of a \$0.9 million increase in expenses associated with acquisition and integration-related activity. Consolidated operating margin for the year ended December 31, 2016, inclusive of the aforementioned purchase accounting effects, restructuring charges and acquisition costs, was 8.2%, down from 13.4% in the prior year.

Interest expense

Interest expense for the year ended December 31, 2016 decreased by \$0.4 million, or 17%, compared to the prior year, largely due to reductions in the average debt levels in the respective periods. For further discussion, see Note 7 – Debt to the accompanying consolidated financial statements.

Other (income) expense, net

For the year ended December 31, 2016, other (income) expense, net, totaled \$1.3 million of income, largely related to a gain on the settlement of a foreign currency forward contract and interest income on a loan provided to a customer, whereas for the year ended December 31, 2015, \$1.0 million of expense was reported, represented primarily by realized losses from foreign currency transactions.

Income tax expense

The Company recognized income tax expense of \$17.4 million for the year ended December 31, 2016, compared to \$34.1 million for the year ended December 31, 2015. The decrease in tax expense in the current year was primarily due to lower pre-tax income levels and an aggregate net benefit of \$2.2 million resulting from changes in deferred tax valuation allowances. The Company's effective tax rate for the year ended December 31, 2016 was 30.6%, compared to 34.1% in 2015. The effective tax rate for 2016 included the \$2.2 million net benefit from the valuation allowance changes, whereas the prior-year rate included certain tax benefits that did not recur in 2016. For further discussion, see Note 8 – Income Taxes to the accompanying consolidated financial statements.

Income from continuing operations

Income from continuing operations was \$39.4 million for the year ended December 31, 2016, compared with \$65.8 million in the prior year. The \$26.4 million decrease was largely due to the reduced operating income, as well as a \$0.3 million write-off of deferred financing fees, partially offset by decreases in income tax and interest expense of \$16.7 million and \$0.4 million, respectively, as well as the \$2.3 million favorable change in other (income) expense, net, described above.

Gain (loss) from discontinued operations and disposal, net of tax

For the year ended December 31, 2016, the Company recorded a net gain from discontinued operations and disposal of \$4.4 million, primarily driven by the \$4.2 million net gain on disposal of the Fire Rescue Group, which was discontinued in 2015, partially offset by the \$0.6 million net loss that the Fire Rescue Group realized in its 2016 operations up to the January 29, 2016 sale completion date. The net gain on disposal includes a \$1.3 million charge to recognize a liability in connection with a Latvian commercial dispute. Also contributing to the net gain in 2016 was a reduction in uncertain tax position reserves of approximately \$1.0 million, as well as adjustments of estimated product liability obligations of previously discontinued businesses, resulting from updated actuarial valuations.

For the year ended December 31, 2015, the Company recorded a net loss from discontinued operations and disposal of \$2.3 million, which was primarily driven by tax expense associated with recording a net deferred tax liability of \$6.3 million associated with recognizing the outside basis differences of entities being sold in connection with the sale of Bronto. Partially offsetting this tax expense was \$1.2 million of net income generated by the Fire Rescue Group. The Company also received \$4.0 million from the general escrow funds originally established in connection with the Company's 2012 sale of the former Federal Signal Technologies Group ("FSTech"), and recorded this income as a component of Gain (loss) from discontinued operations and disposal, net of tax of \$1.5 million.

For further discussion of the loss from discontinued operations and disposals, see Note 18 – Discontinued Operations to the accompanying consolidated financial statements.

Year ended December 31, 2015 vs. year ended December 31, 2014

Net sales

Net sales decreased by \$11.1 million, or 1%, for the year ended December 31, 2015 compared to the prior year. Net sales in the Environmental Solutions Group decreased by \$2.5 million, with lower sales of vacuum trucks and sewer cleaners being partially offset by improved sales of street sweepers. In the Safety and Security Systems Group, net sales were down \$8.6 million, largely due to an \$11.4 million reduction in sales of industrial products associated with lower demand within oil and gas markets, as well as an unfavorable foreign currency impact of \$8.2 million, partially offset by a \$10.9 million improvement in sales into European public safety markets.

Cost of sales

For the year ended December 31, 2015, cost of sales decreased by \$28.0 million, or 5%, compared to the prior year, largely driven by a decrease of \$18.0 million within the Environmental Solutions Group, principally associated with favorable product mix, as well as productivity and capacity improvements at our manufacturing facilities. The Safety and Security Systems Group also reported a \$10.0 million cost of sales reduction, primarily due to a favorable foreign currency impact of \$6.2 million, as well as favorable sales mix effects.

Gross profit

For the year ended December 31, 2015, gross profit increased by \$16.9 million, or 8%, compared to the prior year. Gross margin for the year ended December 31, 2015 was 29.4%, up from 26.8% in the prior year. The improvement in gross margin was primarily the result of productivity and facilities utilization improvements and improved pricing within the Environmental Solutions Group, as well as favorable product mix and lower costs in the Safety and Security Systems Group.

Selling, engineering, general and administrative expenses

SEG&A expenses increased by \$2.0 million for the year ended December 31, 2015 compared to the prior year, largely due to increases of \$0.8 million within the Safety and Security Systems Group, associated with higher engineering expenses for new product development, and \$0.7 million within Corporate, primarily due to increased employee costs. The Environmental Solutions Group also reported a \$0.5 million increase, primarily due to higher employee compensation costs, partially offset by decreased product liability and workers' compensation expenses.

Operating income

Operating income for the year ended December 31, 2015 increased by \$14.5 million, or 16%, to \$103.2 million, reflecting an operating margin of 13.4% compared to 11.4% in the prior year. The increase was primarily attributable to improved operating leverage and favorable pricing within the Environmental Solutions Group, which contributed to a \$15.5 million improvement in gross profit, and improved performance in the Safety and Security Systems Group, resulting in a \$1.4 million increase in gross profit. These increases were partially offset by higher SEG&A expenses and \$0.4 million of restructuring expenses in the

Safety and Security Systems Group associated with severance costs incurred in connection with the completion of a voluntary reduction-in-force at our U.K. coal-mining business.

Interest expense

Interest expense for the year ended December 31, 2015 decreased by \$1.3 million, or 36%, compared to the prior year, primarily due to significant reductions in debt levels.

Other expense, net

Other expense, net totaled \$1.0 million for the year ended December 31, 2015, as compared to \$1.7 million in the prior year. The decrease was largely driven by a \$0.6 million gain on a foreign currency forward contract entered into in connection with the sale of the Fire Rescue Group.

Income tax expense

The Company recognized income tax expense of \$34.1 million in the year ended December 31, 2015, compared to \$23.7 million in the prior year. The Company's effective tax rate for the year ended December 31, 2015 was 34.1%, compared to 28.4% in 2014. The increase in tax expense in the current year was primarily due to higher pre-tax income levels and the absence of certain tax benefits in the prior year that did not recur, described further below. The Company's effective tax rate for the year ended December 31, 2015 was favorably impacted by a \$4.2 million net tax benefit associated with tax planning strategies, partially offset by a \$2.4 million adjustment of deferred tax assets and \$0.4 million of expense associated with a change in the enacted tax rate in the U.K.

The Company's effective tax rate for the year ended December 31, 2014 was favorably impacted by a \$1.0 million net reduction in unrecognized tax benefits, primarily related to the completion of an IRS audit, a \$3.5 million release of valuation allowance that was previously recorded against the Company's Spanish deferred tax assets and a \$0.4 million benefit attributable to a change in the enacted tax rate in Spain.

Income from continuing operations

Income from continuing operations was \$65.8 million for the year ended December 31, 2015, compared with \$59.7 million in the prior year. The \$6.1 million increase was largely due to increased operating income and reductions in interest expense and other expense, net, as explained above, partially offset by an increase in income tax expense.

(Loss) gain from discontinued operations and disposal, net of tax

For the year ended December 31, 2015, the Company recorded a net loss from discontinued operations and disposal of \$2.3 million, which was primarily driven by tax expense associated with recording a net deferred tax liability of \$6.3 million associated with recognizing the outside basis differences of entities being sold in connection with the sale of Bronto. Partially offsetting this tax expense was \$1.2 million of net income generated by the Fire Rescue Group, which was discontinued in 2015. The Company also received \$4.0 million from the general escrow funds originally established in connection with the Company's 2012 sale of FSTech, and recorded this income as a component of (Loss) gain from discontinued operations and disposal, net of tax of \$1.5 million. There were no amounts remaining in escrow as of December 31, 2015.

For the year ended December 31, 2014, the Company recorded a net gain from discontinued operations and disposal of \$4.0 million, which included \$3.3 million of net income generated by the Fire Rescue Group, which was discontinued in 2015, as well as adjustments of estimated product liability obligations of previously discontinued businesses, resulting from updated actuarial valuations.

Orders & Backlog

(\$ in millions)	<u>2016</u>	<u>2015</u>	<u>2014</u>
Total orders	\$ 674.4	\$ 686.1	\$ 807.4
Change in orders year-over-year	(1.7)%	(15.0)%	14.4%
Change in U.S. municipal and government orders year-over-year	(5.8)%	(10.9)%	20.7%
Change in U.S. industrial and commercial orders year-over-year	0.3 %	(30.2)%	13.7%
Change in non-U.S. orders year-over-year	3.5 %	(3.0)%	4.8%
Backlog	\$ 137.0	\$ 171.3	\$ 254.7
Change in backlog year-over-year	(20.0)%	(32.7)%	12.5%

The Company's historical order information presented herein includes orders received from JJE. Subsequent to the completion of the acquisition of JJE, orders from JJE are no longer included in the Company's total orders. Instead, subsequent to the completion of the acquisition of JJE, total orders will include orders that JJE receives from end customers. These orders may include orders for products manufactured or supplied by the Company's Environmental Solutions Group, as well as for products manufactured or supplied by third-party vendors.

For the years ended December 31, 2016 and 2015, orders that were received from JJE prior to the acquisition date, which were included in total orders reported in each of those periods, totaled \$3.7 million and \$53.7 million, respectively.

As of the June 3, 2016 acquisition date, the Company's backlog included \$6.9 million of orders from JJE. These orders are no longer reported in the Company's backlog as of December 31, 2016 and have been presented as a reduction of total orders for the year ended December 31, 2016.

On the date of acquisition, JJE had a backlog of orders from its end customers of \$43.3 million. These acquired orders were included in total orders reported for the year ended December 31, 2016. Any orders included in the acquired backlog that had not shipped prior to December 31, 2016 are included in reported backlog as of that date.

Year ended December 31, 2016 vs. year ended December 31, 2015

For the year ended December 31, 2016, total orders of \$674.4 million decreased by \$11.7 million, or 2%, compared to the prior year, largely due to a \$37.3 million decrease in orders within the Safety and Security Systems Group, primarily driven by a \$26.7 million reduction in orders from global industrial markets, reflective of reduced demand from oil and gas markets. The decrease in orders within the Safety and Security Systems Group was offset by a \$25.6 million improvement within the Environmental Solutions Group, which reported a significant increase in orders from Canada, largely due to the acquisition of \$36.4 million of net orders in connection with the JJE acquisition, as well as orders received by JJE subsequent to the acquisition. That improvement was partially offset by lower domestic orders for street sweepers, waterblasting equipment and vacuum trucks, as well as reduced international orders for street sweepers and waterblasting equipment.

U.S. municipal and governmental orders decreased by 6%, primarily due to a decline in orders of street sweepers and outdoor warning systems of \$16.2 million and \$4.2 million, respectively. Street sweeper orders from our municipal markets decreased largely due to fewer fleet orders as compared with the prior year.

U.S. industrial and commercial orders were essentially flat, with a \$4.9 million increase within the Environmental Solutions Group being largely offset by a \$4.4 million decrease within the Safety and Security Systems Group. Improved domestic industrial orders within the Environmental Solutions Group, reflective of the addition of new product offerings acquired in connection with the JJE acquisition, including orders for rental equipment and refuse and recycling vehicles, were partially offset by lower orders of waterblasting equipment, vacuum trucks and used equipment. The decrease in orders within the Safety and Security Systems Group was primarily due to lower orders from U.S. industrial markets.

Non-U.S. orders increased by 4%, primarily due to a \$31.9 million improvement within the Environmental Solutions Group that was largely offset by a \$25.5 million decline in orders within the Safety and Security Systems Group. Within the Environmental Solutions Group, a substantial increase in Canadian orders was reflective of orders acquired in, and received subsequent to, the JJE acquisition, largely offset by declines in orders of vacuum trucks and sewer cleaners and a \$8.5 million decrease in orders for street sweepers and waterblasting equipment in the Middle East. Within the Safety and Security Systems Group, the decrease was primarily due to lower orders from industrial markets, including international oil, gas and coal markets, as well as reduced orders from international public safety markets.

Year ended December 31, 2015 vs. year ended December 31, 2014

For the year ended December 31, 2015, total orders of \$686.1 million decreased by \$121.3 million, or 15%, compared to the prior year, largely due to lower demand for vacuum trucks, street sweepers and sewer cleaners, which led to an \$106.4 million decrease in orders within our Environmental Solutions Group. Our Safety and Security Systems Group also reported decreased orders of \$14.9 million.

U.S. municipal and governmental orders decreased by 11%, primarily due to a decline in orders of street sweepers and sewer cleaners of \$26.3 million and \$12.9 million, respectively. Street sweeper and sewer cleaner orders from our municipal markets decreased largely due to fewer fleet orders as compared with the prior year.

U.S. industrial and commercial orders decreased by 30%, primarily as a result of lower orders within our Environmental Solutions Group, including decreased orders of \$66.1 million for vacuum trucks, which were adversely impacted, directly and indirectly, by softness in oil and gas markets and, to a lesser extent, other industrial markets.

Non-U.S. orders decreased by 3%, primarily due to lower demand for industrial products used in oil and gas markets and coal markets and unfavorable foreign currency effects within our Safety and Security Systems Group. This was partially offset by an increase in orders from European and international public safety markets linked to higher demand, as well as increased orders from Canada within our Environmental Solutions Group.

Backlog

Backlog was \$137.0 million at December 31, 2016 as compared to \$171.3 million at December 31, 2015. The decrease of \$34.3 million, or 20%, was due to reductions in backlog of \$17.5 million and \$16.8 million within the Safety and Security Systems Group and the Environmental Solutions Group, respectively. Within the Safety and Security Systems Group, the reduced backlog was primarily due to lower orders of industrial products, as well as reduced orders from overseas public safety markets. Within the Environmental Solutions Group, the lower backlog is largely driven by reduced demand for street sweepers, as a result of higher levels of fleet orders in the prior year, and vacuum trucks, reflective of the direct effects of soft oil and gas markets and the impact of used equipment reducing demand for new equipment in adjacent industrial markets. These decreases were largely offset by the acquisition of \$36.4 million of net orders in connection with the JJE acquisition, as well as orders received by JJE subsequent to the acquisition. While total orders within the Environmental Solutions Group have improved, mostly due to the effects of the JJE acquisition, a higher percentage of the recent order intake is represented by orders of products manufactured by other companies, which tend to carry a lower gross margin. As such, backlog within the Environmental Solutions Group as of December 31, 2016 includes a less favorable mix of orders than the prior year, from a gross margin perspective.

Environmental Solutions

The following table summarizes the Environmental Solutions Group's operating results as of and for the years ended December 31, 2016, 2015 and 2014:

(\$ in millions)	For the Years Ended December 31,			Change	
	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Net sales	\$ 490.7	\$ 534.1	\$ 536.6	\$ (43.4)	\$ (2.5)
Operating income	54.1	96.9	81.9	(42.8)	15.0
Other data:					
Operating margin	11.0%	18.1%	15.3%	(7.1)%	2.8%
Total orders	\$ 474.8	\$ 449.2	\$ 555.6	\$ 25.6	\$ (106.4)
Backlog	116.6	133.4	218.3	(16.8)	(84.9)
Depreciation and amortization	14.5	7.3	6.8	7.2	0.5

Year ended December 31, 2016 vs. year ended December 31, 2015

Total orders increased by \$25.6 million, or 6%, for the year ended December 31, 2016. U.S. orders decreased by \$6.3 million, largely due to decreased orders for street sweepers, waterblasting equipment and vacuum trucks of \$18.4 million, \$3.8 million and \$3.0 million, respectively. Partially offsetting these decreases were improvements in orders of rental equipment, refuse trucks and sewer cleaners of \$7.7 million, \$7.0 million and \$4.6 million, respectively, which largely resulted from the JJE acquisition. Street sweeper orders from our municipal markets decreased primarily due to fewer fleet orders when compared with the prior year, while the reduction in orders for waterblasting equipment and vacuum trucks is reflective of softness in oil and gas markets. Non-U.S. orders increased by \$31.9 million for the year ended December 31, 2016, driven by a \$40.4 million net increase in orders from Canada, largely resulting from the orders acquired in connection with the JJE acquisition and the receipt of post-acquisition orders of new product lines, including refuse trucks, snow removal and rental equipment. This improvement was net of a combined \$20.4 million decrease in Canadian orders for vacuum trucks and sewer cleaners. Orders in the Middle East also declined by \$8.5 million, due to lower orders for street sweepers and waterblasting equipment.

Net sales decreased by \$43.4 million, or 8%, for the year ended December 31, 2016. U.S. sales decreased by \$64.8 million, or 15%, primarily due to reductions in sales of vacuum trucks, street sweepers and waterblasting equipment of \$47.0 million, \$25.3 million and \$5.8 million, respectively. Partially offsetting these reductions was a \$6.2 million increase in sales of refuse and recycling vehicles and a \$4.6 million improvement in equipment rental revenue, largely resulting from the JJE acquisition, as well as a \$4.5 million increase in sewer cleaner sales. Non-U.S. sales increased by \$21.4 million, or 22%, for the year ended December 31, 2016 primarily due to a \$35.0 million increase in Canadian sales, largely resulting from the effects of the JJE acquisition, which included incremental sales of newly-acquired product lines and a \$6.0 million increase in equipment rental revenue. Partially offsetting the sales improvement in Canada were reductions in sales of street sweepers and sewer cleaners in the Middle East and Mexico of \$7.9 million and \$1.9 million, respectively.

Cost of sales decreased by \$7.0 million, or 2%, for the year ended December 31, 2016, primarily driven by lower sales of vacuum trucks and street sweepers in the U.S, as well as fewer international shipments of street sweepers and sewer cleaners, partially offset by unfavorable mix effects, a \$6.9 million increase in depreciation expense, largely associated with the acquisition of the JJE rental fleet, and the recognition of approximately \$3.9 million of expense associated with purchase accounting effects resulting from current-year acquisitions. The additional expense reflects the recognition of higher cost of sales associated with sales of acquired equipment, which were increased to fair value in connection with the JJE acquisition. Gross margin decreased to 21.2% from 26.3% in the prior year, largely due to reduced operating leverage due to lower sales volumes, unfavorable sales mix, with fewer sales into industrial markets and a higher concentration of sales of products manufactured by other companies, which tend to carry lower margins, as well as purchase accounting expense effects.

SEG&A expenses increased by \$5.9 million, or 14%, for the year ended December 31, 2016, largely due the addition of \$6.8 million of SEG&A expenses from current-year acquisitions, as well as a \$1.8 million increase in product liability and workers' compensation expenses. Partially offsetting these increases were decreased sales commissions on lower volumes, and benefits associated with cost reduction initiatives.

Operating income decreased by \$42.8 million, or 44%, for the year ended December 31, 2016, largely due to a \$36.4 million decrease in gross profit, inclusive of the aforementioned purchase accounting expense effects, the \$5.9 million increase in SEG&A expenses and the inclusion of \$0.5 million of acquisition and integration related expenses.

Backlog was \$116.6 million at December 31, 2016 compared to \$133.4 million at December 31, 2015. The reduction reflects lower backlog for street sweepers, as a result of higher levels of fleet orders in the prior year, and vacuum trucks. The lower backlog for vacuum trucks reflects the direct effects of soft oil and gas markets and the impact of used equipment reducing demand for new equipment in adjacent industrial markets. These decreases were partially offset by the addition of the backlog acquired in connection with the JJE acquisition, as well as post-acquisition order activity at JJE.

Year ended December 31, 2015 vs. year ended December 31, 2014

Total orders decreased by \$106.4 million, or 19%, for the year ended December 31, 2015. U.S. orders decreased by \$111.2 million, or 24%, largely due to reductions in orders for vacuum trucks, street sweepers, and sewer cleaners of \$66.1 million, \$22.7 million and \$13.8 million, respectively. Vacuum truck orders were adversely impacted by softness in oil and gas markets, while the decreases in street sweeper and sewer cleaner orders from our municipal markets was primarily due to fewer large fleet orders when compared with the prior year. Non-U.S. orders increased by \$4.8 million, or 6%, for the year ended December 31, 2015. Orders from Canada were up \$15.9 million, primarily driven by improved sewer cleaner orders. Partially offsetting the improvement in Canadian orders were decreases in orders from the Middle East, South America and Mexico of \$8.7 million, \$2.6 million, and \$2.2 million, respectively. The prior year included a large fleet order for street sweepers from the Middle East.

Net sales decreased by \$2.5 million for the year ended December 31, 2015. U.S. sales decreased by \$0.4 million, primarily due to decreases in sales of vacuum trucks and sewer cleaners of \$19.9 million and \$11.8 million, respectively, that was largely offset by a \$33.6 million increase in shipments of street sweepers. The improvement in street sweeper sales is reflective of strong municipal order intake in prior periods. The decline in the demand for sewer cleaners and vacuum trucks is reflective of softness in oil and gas markets, which has also contributed to lower demand for additional rental units in the vacuum truck market. Non-U.S. sales decreased by \$2.1 million, largely driven a \$9.2 million decline in street sweeper shipments to the Middle East, partially offset by increased sales of vacuum trucks and sewer cleaners into Canada. The prior year was inclusive of a significant street sweeper fleet order to the Middle East that did not repeat.

Cost of sales decreased by \$18.0 million for the year ended December 31, 2015. Favorable product mix effects of \$19.8 million were partly offset by a \$1.8 million increase associated with higher unit volumes. Gross margin for the year ended December 31, 2015 improved to 26.3% from 23.3% in the prior year, largely due to favorable pricing, coupled with productivity and capacity improvements at our manufacturing facilities.

SEG&A expenses increased by \$0.5 million for the year ended December 31, 2015, largely due to a \$1.9 million increase in employee compensation costs, partially offset by a \$1.1 million decrease in product liability and workers' compensation expenses.

Operating income increased by \$15.0 million, or 18%, for the year ended December 31, 2015. The increase in operating income was the result of a \$15.5 million improvement in gross profit, offset by the \$0.5 million increase in SEG&A expenses.

Backlog was \$133.4 million at December 31, 2015 compared to \$218.3 million at December 31, 2014. The decrease was largely due to a lower backlog for vacuum trucks, street sweepers and sewer cleaners, which declined by \$83.2 million in the aggregate, resulting from reduced demand from oil and gas markets and the absence of certain large fleet orders received in the

prior year. The reduction in orders also includes the effects of receiving fewer advance orders from customers associated with shorter lead times for our products that were facilitated by our recent capacity improvements.

Safety and Security Systems

The following table summarizes the Safety and Security Systems Group's operating results as of and for the years ended December 31, 2016, 2015 and 2014:

(\$ in millions)	For the Years Ended December 31,			Change	
	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Net sales	\$ 217.2	\$ 233.9	\$ 242.5	\$ (16.7)	\$ (8.6)
Operating income	27.0	32.3	32.1	(5.3)	0.2
Other data:					
Operating margin	12.4%	13.8%	13.2%	(1.4)%	0.6%
Total orders	\$ 199.6	\$ 236.9	\$ 251.8	\$ (37.3)	\$ (14.9)
Backlog	20.4	37.9	36.4	(17.5)	1.5
Depreciation and amortization	4.4	4.8	4.5	(0.4)	0.3

Year ended December 31, 2016 vs. year ended December 31, 2015

Total orders decreased by \$37.3 million or 16%, for the year ended December 31, 2016. In the aggregate, U.S. orders were down \$11.8 million compared to the prior year, driven by decreases in orders of industrial products and outdoor warning systems of \$7.4 million and \$4.2 million, respectively. The decrease in industrial orders is largely reflective of lower demand from domestic oil and gas markets. Non-U.S. orders decreased by \$25.5 million, or 27%, primarily due to a \$19.3 million decrease in orders from industrial markets, including international oil, gas and coal markets, as well as a \$9.4 million reduction in orders from international public safety markets in comparison to the prior year, which included significant orders from customers in Europe and Asia that did not repeat in the current year. Partially offsetting these decreases was a \$3.4 million improvement in international orders for outdoor warning systems, largely due to significant orders received from the Middle East.

Net sales decreased by \$16.7 million, or 7%, for the year ended December 31, 2016. U.S. sales increased by \$2.0 million, driven by an \$8.1 million improvement in sales into public safety markets, inclusive of a number of large sales to major municipalities, combined with a \$2.0 million increase in sales of domestic outdoor warning systems. Partially offsetting these increases was an \$8.2 million reduction in sales into industrial markets. Non-U.S. sales decreased by \$18.7 million, or 20%, primarily due to a \$17.8 million reduction in sales into international industrial markets, primarily associated with ongoing softness in global oil and gas markets, as well as the absence of a \$1.8 million order cancellation fee received in the prior year. In addition, sales into international public safety markets decreased by \$4.6 million, largely due to lower sales into Central and South America. Partially offsetting these decreases was a \$3.7 million improvement in international sales of outdoor warning products, driven by increased sales into the Middle East.

Cost of sales decreased by \$10.6 million, or 7%, for the year ended December 31, 2016, largely due to an \$8.7 million decrease associated with lower sales volumes, and the effects of cost reduction initiatives. Partially offsetting these decreases was an unfavorable sales mix impact of \$1.1 million associated with lower sales of products into industrial markets. Gross margin for the year ended December 31, 2016 of 36.3% remained unchanged from the prior year. The unfavorable sales mix effects and the inclusion of the aforementioned order cancellation fee in the prior year were fully offset by the savings associated with previously implemented restructuring activities and cost reduction initiatives.

SEG&A expenses for the year ended December 31, 2016 were \$2.1 million lower than the prior year, largely due to lower employee costs, inclusive of the effects of previously implemented restructuring activities and cost reduction initiatives.

Operating income decreased by \$5.3 million for the year ended December 31, 2016, largely due to a \$6.1 million decrease in gross profit. The \$2.1 million reduction in SEG&A expenses was partially offset by a \$1.3 million increase in restructuring charges, which represented higher severance costs incurred in connection with the execution of a cost reduction plan in the U.S. during the year.

Backlog was \$20.4 million at December 31, 2016 compared to \$37.9 million at December 31, 2015. The decrease was driven by increased shipments of outdoor warning systems that exceeded incoming orders, lower domestic and international orders of industrial products, as well as reduced orders from overseas public safety markets.

Year ended December 31, 2015 vs. year ended December 31, 2014

Total orders decreased by \$14.9 million, or 6%, for the year ended December 31, 2015. U.S. orders decreased by \$4.4 million, primarily due to a \$5.4 million decrease in orders for outdoor warning systems when compared to the prior year that included two large orders that did not repeat, and a \$6.8 million decrease in industrial orders attributable to lower demand in oil and gas markets and domestic coal markets. These decreases were partially offset by a \$7.8 million improvement in orders from public safety markets, largely driven by improved police orders. Non-U.S. orders decreased by \$10.5 million, or 10%, primarily due to an \$8.3 million unfavorable foreign currency effect. Excluding the unfavorable foreign currency effect, non-U.S. orders were adversely impacted by a \$6.5 million decline in industrial orders, primarily due to softness in the international oil and gas markets, a \$3.5 million reduction in orders for products sold into international coal markets and a \$2.8 million decrease in orders for outdoor warning systems. These reductions were offset by a \$10.6 million increase in orders from European and other international public safety markets associated with improved demand, as well as the effects of several large orders received during the year.

Net sales decreased by \$8.6 million for the year ended December 31, 2015. U.S. sales decreased by \$3.4 million, largely due to a \$6.0 million decrease in sales of industrial products, attributable to lower demand in oil and gas markets and domestic coal markets, which was partially offset by a \$2.7 million improvement in sales into public safety markets. Non-U.S. sales decreased by \$5.2 million, principally due to an unfavorable foreign currency impact of \$8.2 million. Excluding unfavorable foreign currency effects, non-U.S. sales increased by \$3.0 million, largely due to a \$10.9 million improvement in sales into European public safety markets and a \$1.2 million increase in other international public safety markets. These increases were partially offset by a \$5.4 million reduction in sales of industrial products into international oil and gas and coal markets, and a \$3.7 million decrease in sales of outdoor warning systems.

Cost of sales decreased by \$10.0 million for the year ended December 31, 2015. The decrease largely resulted from a favorable foreign currency impact of \$6.2 million, coupled with favorable customer and product mix effects, as well as reductions in manufacturing, freight and product costs. Gross margin for the year ended December 31, 2015 improved to 36.3% from 34.5% in the prior year, largely as a result of reduced costs and a favorable change in the mix of products sold to customers.

SEG&A expenses increased by \$0.8 million for the year ended December 31, 2015, largely due to higher engineering expenses for new product development and increased employee costs.

Operating income increased by \$0.2 million for the year ended December 31, 2015, largely due to a \$1.4 million improvement in gross profit, offset by the \$0.8 million increase in SEG&A expenses and \$0.4 million of expense associated with restructuring activities, primarily associated with severance costs incurred in connection with a voluntary reduction-in-force that was completed at our U.K. coal-mining business.

Backlog was \$37.9 million at December 31, 2015 compared to \$36.4 million at December 31, 2014. The increase was primarily due to improved orders within the public safety market, largely driven by higher police orders, partially offset by decreased industrial orders attributable to lower demand in oil and gas markets.

Corporate Expense

Corporate operating expenses were \$23.4 million, \$26.0 million and \$25.3 million for the years ended December 31, 2016, 2015 and 2014, respectively.

For the year ended December 31, 2016, corporate operating expenses decreased by \$2.6 million, largely due to lower employee incentive and stock compensation costs, partially offset by a \$0.9 million increase in professional service and legal fees incurred in connection with acquisition and integration-related activity.

For the year ended December 31, 2015, corporate operating expenses increased by \$0.7 million, primarily due to higher employee costs.

The Company's hearing loss litigation has historically been managed by the Company's legal staff resident at the corporate office and not by management at either segment. In accordance with Accounting Standards Codification ("ASC") 280, *Segment Reporting*, which provides that segment reporting should follow the management of the item and that certain expenses may be corporate expenses, these legal expenses (which are not part of the normal operating activities of any of our operating segments) are reported and managed as corporate expenses.

Financial Condition, Liquidity and Capital Resources

The Company used its cash flow from operations to fund growth and to make capital investments that sustain its operations, reduce costs, or both. Beyond these uses, remaining cash is used to pay down debt, repurchase shares, fund dividend payments

and make pension contributions. The Company may also choose to invest in the acquisition of businesses. In the absence of significant unanticipated cash demands, we believe that the Company's existing cash balances, cash flow from operations and borrowings available under the 2016 Credit Agreement will provide funds sufficient for these purposes. The net cash flows associated with the Company's rental equipment transactions are included in cash flow from operating activities. Subsequent to the acquisition of JJE, net cash flows from rental equipment transactions may become more significant, and as such, cash flow from operating activities may not be directly comparable with amounts reported in periods prior to the acquisition.

The Company's cash and cash equivalents totaled \$50.7 million, \$76.0 million and \$24.1 million as of December 31, 2016, 2015 and 2014, respectively. As of December 31, 2016, \$20.2 million of cash and cash equivalents was held by foreign subsidiaries. Cash and cash equivalents held by subsidiaries outside the U.S. typically are held in the currency of the country in which it is located. This cash is used to fund the operating activities of our foreign subsidiaries and for further investment in foreign operations. Generally, we consider such cash to be permanently reinvested in our foreign operations and our current plans do not demonstrate a need to repatriate such cash to fund U.S. operations. However, in the event that these funds were needed to fund U.S. operations or to satisfy U.S. obligations, they generally could be repatriated. The repatriation of these funds may then cause us to incur additional U.S. income tax expense, which would be dependent on income tax laws and other circumstances at the time any such amounts were repatriated.

As discussed further in Note 18 – Discontinued Operations to the accompanying consolidated financial statements, the Company recorded a net deferred tax liability of \$6.3 million at December 31, 2015 associated with recognizing the outside basis differences of entities being sold in connection with the sale of Bronto. The deferred tax liability recorded at December 31, 2015 included a liability for U.S. income tax effects associated with the repatriation of the related sales proceeds. The initial sales proceeds of €76 million (approximately \$82.3 million) were received on January 29, 2016, with an additional €5.1 million in cash (approximately \$5.7 million) being received in connection with the payment of the final working capital and net debt adjustments in the second quarter of 2016.

Net cash provided by continuing operating activities totaled \$26.7 million, \$91.1 million and \$81.1 million in 2016, 2015 and 2014, respectively. The reduction in cash generated by continuing operating activities in 2016 compared to 2015 was largely the result of lower earnings, a \$23.5 million increase in year-end primary working capital (defined as accounts receivable and inventories, net, less accounts payable and customer deposits, excluding primary working capital acquired during the year), a \$6.9 million net cash outflow from rental equipment transactions and a \$3.7 million increase in income tax payments. The operating cash flow in 2016 was also lower by approximately \$11 million as a result of the non-cash settlement, in connection with the acquisition, of accounts receivable due from JJE. The increase in cash generated by continuing operating activities in 2015 compared to 2014 was largely the result of higher earnings and a \$1.2 million reduction in pension contributions, offset by increases in year-end primary working capital and tax payments of \$4.0 million and \$2.4 million, respectively.

Net cash used for continuing investing activities totaled \$103.0 million, \$11.5 million and \$5.8 million in 2016, 2015 and 2014, respectively. In each of the years presented, cash was used to fund the purchase of properties and equipment, with \$6.1 million, \$9.6 million and \$13.7 million of capital expenditures in 2016, 2015 and 2014, respectively. As discussed in Note 2 – Acquisitions, in 2016, the Company paid \$96.6 million to acquire substantially all the assets and operations of JJE, and also used \$6.0 million to acquire Westech. In addition, during 2016, the Company received \$6.0 million from a customer as full repayment of a loan that was originally provided in the fourth quarter of 2015. During 2015, the Company also received \$4.0 million from the escrow associated with the FSTech divestiture. Proceeds from the sale of properties and equipment amounted to \$0.3 million, \$0.1 million and \$0.5 million in 2016, 2015 and 2014, respectively. Net cash provided by discontinued investing activities totaled \$86.2 million in 2016, which represents the net proceeds from the sale of Bronto.

Net cash used for continuing financing activities totaled \$37.1 million, \$33.0 million and \$53.7 million in 2016, 2015 and 2014, respectively. In 2016, the Company borrowed \$64.8 million against its revolving credit facility, funded cash dividends of \$16.9 million, repurchased \$37.8 million of treasury stock, and redeemed \$2.7 million of stock in order to remit funds to tax authorities to satisfy employees' minimum tax withholdings following the vesting of stock-based compensation. The Company also paid the remaining \$43.4 million of term loan debt outstanding under the Company's March 13, 2013 Credit Agreement (the "2013 Credit Agreement") and spent \$1.1 million on fees in connection with its debt refinancing. In 2015, the Company funded cash dividends of \$15.6 million, repurchased \$10.6 million of treasury stock, and redeemed \$3.2 million of stock in order to remit funds to tax authorities to satisfy employees' minimum tax withholdings following the vesting of stock-based compensation. The Company also paid \$5.8 million in scheduled term loan repayments. Offsetting these financing cash outflows were \$1.0 million of proceeds from stock option exercises and a \$1.6 million excess tax benefit, representing the difference between stock-based compensation expense deductible for income tax and recognized for financial reporting purposes. In 2014, the Company used cash to pay down a net \$20.0 million on its revolving credit facility and \$21.6 million on its term loan. The Company also repurchased \$10.3 million of treasury stock and funded cash dividends of \$5.6 million. These financing cash outflows were offset by \$2.6 million of proceeds from stock option exercises and a \$2.2 million excess tax benefit.

On January 27, 2016, the Company entered into an Amended and Restated Credit Agreement (the “2016 Credit Agreement”), by and among the Company and certain of its foreign subsidiaries (collectively, the “Borrowers”), Wells Fargo Bank, National Association, as administrative agent, swingline lender and issuing lender, JPMorgan Chase Bank, N.A. as syndication agent, KeyBank National Association, as documentation agent, Wells Fargo Securities, LLC and J.P. Morgan Securities LLC, as joint lead arrangers and joint bookrunners, and the other lenders and parties signatory thereto.

The 2016 Credit Agreement is a \$325.0 million revolving credit facility, maturing on January 27, 2021, that provides for borrowings in the form of loans or letters of credit up to the aggregate availability under the facility, with a sub-limit of \$50.0 million for letters of credit. The 2016 Credit Agreement allows for the Borrowers to borrow in denominations of U.S. Dollars, Canadian Dollars (up to a maximum of C\$85.0 million) or Euros (up to a maximum of €20.0 million). In addition, the Company may cause the commitments to increase by up to an additional \$75.0 million, subject to the approval of the applicable lenders providing such additional financing. Borrowings under the 2016 Credit Agreement may be used for working capital and general corporate purposes, including permitted acquisitions.

The Company’s domestic subsidiaries provide guarantees for all obligations of the Borrowers under the 2016 Credit Agreement, which is secured by a first priority security interest in all now or hereafter acquired domestic property and assets and the stock or other equity interests in each of the domestic subsidiaries and 65% of the outstanding voting capital stock of certain first-tier foreign subsidiaries, subject to certain exclusions.

Borrowings under the 2016 Credit Agreement bear interest, at the Company’s option, at a base rate or a LIBOR rate, plus, in each case, an applicable margin. The applicable margin ranges from 0.00% to 1.25% for base rate borrowings and 1.00% to 2.25% for LIBOR borrowings. The Company must also pay a commitment fee to the lenders ranging between 0.15% to 0.30% per annum on the unused portion of the \$325.0 million revolving credit facility along with other standard fees. Letter of credit fees are payable on outstanding letters of credit in an amount equal to the applicable LIBOR margin plus other customary fees.

The Company is subject to certain leverage ratio and interest coverage ratio financial covenants under the 2016 Credit Agreement that are to be measured at each fiscal quarter-end. The Company was in compliance with all such covenants as of December 31, 2016. The 2016 Credit Agreement also includes a “covenant holiday” period, which allows for the temporary increase of the minimum leverage ratio following the completion of a permitted acquisition, or a series of permitted acquisitions, when the total consideration exceeds a specified threshold. In addition, the 2016 Credit Agreement includes customary negative covenants, subject to certain exceptions, restricting or limiting the Company’s and its subsidiaries’ ability to, among other things: (i) make non-ordinary course dispositions of assets, (ii) make certain fundamental business changes, such as merge, consolidate or enter into any similar combination, (iii) make restricted payments, including dividends and stock repurchases, (iv) incur indebtedness, (v) make certain loans and investments, (vi) create liens, (vii) transact with affiliates, (viii) enter into sale/leaseback transactions, (ix) make negative pledges and (x) modify subordinated debt documents.

Under the 2016 Credit Agreement, restricted payments, including dividends and stock repurchases, shall be permitted if (i) the Company’s leverage ratio is less than or equal to 2.50, (ii) the Company is in compliance with all other financial covenants and (iii) there are no existing defaults under the 2016 Credit Agreement. If its leverage ratio is more than 2.50, the Company is still permitted to fund (i) up to \$30.0 million of dividend payments, (ii) stock repurchases sufficient to offset dilution created by the issuance of equity as compensation to its officer, directors, employees and consultants and (iii) an incremental \$30.0 million of other cash payments.

The 2016 Credit Agreement contains customary events of default. If an event of default occurs and is continuing, the Borrowers may be required immediately to repay all amounts outstanding under the 2016 Credit Agreement and the commitments from the lenders may be terminated.

The 2016 Credit Agreement amended and restated the 2013 Credit Agreement, which provided the Company with a \$225.0 million senior secured credit facility comprised of a five-year fully funded term loan of \$75.0 million and a five-year \$150.0 million revolving credit facility.

Under the terms of the 2013 Credit Agreement, the Company was required to make quarterly installment payments against the \$75.0 million term loan, with any remaining balance due on the maturity date of March 13, 2018. As a result of executing the 2016 Credit Agreement subsequent to December 31, 2015, but prior to the issuance of the financial statements for the year then ended, the \$6.9 million current portion of term loan debt outstanding as of December 31, 2015 was reflected as a component of long-term borrowings and capital lease obligations on the Consolidated Balance Sheets. Under the 2013 Credit Agreement, the Company was allowed to prepay the term loan in whole or in part prior to maturity without premium or penalty. In 2014, the Company made a voluntary term loan prepayment of \$15.0 million. In the first quarter of 2016, the Company repaid the remaining \$43.4 million of principal outstanding under the 2013 Credit Agreement.

In the first quarter of 2016, approximately \$0.3 million of unamortized deferred financing fees associated with the 2013 Credit Agreement were written off in connection with executing the 2016 Credit Agreement. The Company incurred \$1.1 million of debt issuance costs in connection with the execution of the 2016 Credit Agreement. Such fees have been deferred and are being amortized over the five-year term.

As of December 31, 2016, there was \$63.2 million of cash drawn and \$18.0 million of undrawn letters of credit under the 2016 Credit Agreement, with \$243.8 million of net availability for borrowings. As of December 31, 2016, there was no cash drawn against the Company's non-U.S. lines of credit which provide for borrowings up to \$0.1 million.

For the year ended December 31, 2016, gross borrowings and gross payments under the 2016 Credit Agreement were \$69.8 million and \$5.0 million, respectively. For the year ended December 31, 2015, there were no gross borrowings or gross payments under the Company's domestic revolving credit facility portion of the 2013 Credit Agreement. For the year ended December 31, 2014, gross borrowings and gross payments under the Company's domestic revolving credit facility portion of the 2013 Credit Agreement were \$6.5 million and \$26.5 million, respectively.

Aggregate maturities of total borrowings amount to approximately \$0.5 million in 2017, \$0.2 million in 2018, \$0.1 million in 2019, less than \$0.1 million in 2020 and \$63.2 million in 2020 and thereafter. The weighted average interest rate on long-term borrowings was 1.9% at December 31, 2016.

The Company paid interest of \$1.1 million in 2016, \$1.9 million in 2015 and \$3.0 million in 2014.

The Company paid income taxes of \$13.3 million in 2016, \$9.6 million in 2015 and \$7.2 million in 2014.

Cash dividends of \$16.9 million, \$15.6 million and \$5.6 million were declared and paid to stockholders in 2016, 2015 and 2014, respectively.

The Company anticipates that capital expenditures for 2017 will be in the range of \$10 million to \$15 million. The Company believes that its financial resources and major sources of liquidity, including cash flow from operations and borrowing capacity, will be adequate to meet its operating needs, capital needs and financial commitments.

Contractual Obligations and Off-Balance Sheet Arrangements

The following table summarizes the Company's contractual obligations and payments due by period as of December 31, 2016:

(in millions)	Payments Due by Period				
	Total	Less than 1 Year	2-3 Years	4-5 Years	More than 5 Years
Long-term debt	\$ 63.2	\$ —	\$ —	\$ 63.2	\$ —
Interest payments on long-term debt ^(a)	5.0	1.2	2.4	1.4	—
Operating lease obligations	40.8	8.2	13.5	10.7	8.4
Capital lease obligations	0.8	0.5	0.3	—	—
Purchase obligations ^(b)	71.9	65.5	6.4	—	—
Pension contributions ^(c)	6.3	6.3	—	—	—
Contingent earn-out payment and deferred payment ^(d)	10.5	—	10.5	—	—
Total contractual obligations ^(e)	<u>\$ 198.5</u>	<u>\$ 81.7</u>	<u>\$ 33.1</u>	<u>\$ 75.3</u>	<u>\$ 8.4</u>

(a) Amounts represent estimated contractual interest payments on outstanding long-term debt.

(b) Purchase obligations primarily relate to commercial chassis and other contracts in the ordinary course of business.

(c) The Company expects to contribute up to \$5.0 million to the U.S. benefit plans and up to \$1.3 million to the non-U.S. benefit plans in 2017, which represents the minimum required contribution. Future contributions to the plans will be based on such factors as (i) annual service cost, (ii) the financial return on plan assets, (iii) interest rate movements that affect discount rates applied to plan liabilities and (iv) the value of benefit payments made. Due to the high degree of uncertainty regarding the potential future cash outflows associated with these plans, the Company is unable to provide a reasonably reliable estimate of the amounts and periods in which any additional liabilities might be paid.

(d) Represents the fair value of the contingent earn-out payment and deferred payment associated with the acquisition of JJE. For further discussion, see Note 2 – Acquisitions to the accompanying consolidated financial statements.

(e) As of December 31, 2016, the Company had a liability of approximately \$1.8 million for unrecognized tax benefits. For further discussion, see Note 8 – Income Taxes to the accompanying consolidated financial statements. Due to the uncertainties related to these tax matters, the Company generally cannot make a reasonably reliable estimate of the period of cash settlement for this liability. As such, the potential future cash outflows are not included in the table above. We do not expect any significant change to our unrecognized tax benefits as a result of potential expiration of statute of limitations and settlements with tax authorities.

The following table summarizes the Company's off-balance sheet arrangements and the notional amount by expiration period as of December 31, 2016:

(in millions)	Notional Amount by Expiration Period			
	Total	Less than 1 Year	2-3 Years	4-5 Years
Financial standby letters of credit ^(a)	\$ 17.1	\$ 17.1	\$ —	\$ —
Performance standby letters of credit ^(a)	1.0	0.9	0.1	—
Performance and bid bonds ^(b)	3.4	3.3	0.1	—
Repurchase obligations ^(c)	5.8	2.1	2.3	1.4
Total off-balance sheet arrangements	<u>\$ 27.3</u>	<u>\$ 23.4</u>	<u>\$ 2.5</u>	<u>\$ 1.4</u>

- (a) Financial standby letters of credit largely relate to casualty insurance policies for the Company's workers' compensation, automobile, general liability and product liability policies. Performance standby letters of credit primarily represent guarantees of performance of certain subsidiaries that engage in transactions with foreign customers.
- (b) Performance and bid bonds primarily relate to guarantees of performance of certain subsidiaries that engage in transactions with domestic and foreign customers.
- (c) Primarily relates to certain transactions that JJE entered into, prior to the June 3, 2016 acquisition date, involving the sale of equipment to certain of its customers which included (i) guarantees to repurchase the equipment for a fixed price at a future date and (ii) guarantees to repurchase the equipment from the third-party lender in the event of default by the customer. For further discussion, see Note 10 – Commitments and Contingencies to the accompanying consolidated financial statements.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect (i) the reported amounts of assets and liabilities, (ii) disclosure of contingent assets and liabilities at the date of the consolidated financial statements and (iii) the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. The Company considers the following policies to be the most critical in understanding the judgments that are involved in the preparation of the Company's consolidated financial statements and the uncertainties that could impact the Company's financial condition, results of operations or cash flow.

Goodwill

Goodwill represents the excess of the cost of an acquired business over the amounts assigned to its net assets. Goodwill is not amortized but is tested for impairment at a reporting unit level on an annual basis or when an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. The Company performed its annual goodwill impairment test as of October 31, 2016.

In testing the goodwill of its reporting units for potential impairment, the Company applies either a qualitative test, or a two-step quantitative test, in accordance with ASC 350, *Intangibles — Goodwill and Other*. Management used a combination of the qualitative and quantitative approaches to assess the goodwill of its reporting units for potential impairment in 2016.

A qualitative approach is applied when the Company concludes that it is not "more likely than not" that the fair value of a reporting unit is less than its carrying value. In this situation, the Company would not be required to perform the two-step impairment test described below.

The first step in the quantitative two-step approach is used to identify potential impairment, by comparing the fair value of a reporting unit with its carrying amount, including goodwill. If the fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired and the second step of the impairment test is unnecessary. If the carrying amount of a reporting unit exceeds its fair value, the second step of the goodwill impairment test is performed to measure the amount of impairment loss, if any. The second step compares the implied fair value of reporting unit goodwill with the carrying amount of that goodwill. If the carrying amount of reporting unit goodwill exceeds the implied fair value of that goodwill, an impairment loss is recognized in an amount equal to that excess. The Company generally determines the fair value of its reporting units using two valuation methods: the "Income Approach — Discounted Cash Flow Analysis" method, and the "Market Approach — Guideline Public Company Method."

Under the "Income Approach — Discounted Cash Flow Analysis" method, the key assumptions consider projected sales, cost of sales and operating expenses. These assumptions were determined by management utilizing our internal operating plan, including growth rates for revenues and operating expenses and margin assumptions. An additional key assumption under this approach is the discount rate, which is determined by reviewing current risk-free rates of capital and current market interest

rates and by evaluating the risk premium relevant to the business segment. If our assumptions relative to growth rates were to change, our fair value calculation may change, which could result in impairment.

Under the “Market Approach — Guideline Public Company Method,” the Company identified several publicly traded companies, which we believe have sufficiently relevant similarities to our businesses. For these companies, the Company used market values to calculate the mean ratio of invested capital to revenues and invested capital to EBITDA. Similar to the income approach discussed above, sales, cost of sales, operating expenses and their respective growth rates are key assumptions utilized. The market prices of the Company’s common stock and other guideline companies are additional key inputs. If these market prices increase, the estimated market value would increase. Conversely, if market prices decrease, the estimated market value would decrease.

The results of these two methods are weighted based upon management’s evaluation of the relevance of the two approaches. Management used a combination of the income and market approaches to determine the fair value of certain reporting units in 2016.

Although the Company believes its estimates of fair value are reasonable, actual financial results could differ from estimated financial results due to the inherent uncertainty involved in making such estimates. Changes in assumptions concerning future financial results or other underlying assumptions could have a significant impact on either the fair value of the reporting units, the amount of any goodwill impairment charge, or both. Future declines in the overall market value of the Company may also result in a conclusion that the fair value of one or more reporting units has declined below its carrying value.

One measure of the sensitivity of assumptions used in the impairment analysis is the amount by which each reporting unit “passed” (fair value exceeds the carrying value) the first-step of the two-step goodwill impairment test. The fair value of the reporting units that were tested for impairment under the two-step approach in the 2016 analysis significantly exceeded their carrying values. Relatively small changes in the Company’s key assumptions would not have resulted in any of the reporting units failing the first step of the two-step test.

The Company had no goodwill impairments for its continuing operations in 2016, 2015 or 2014. Adverse changes to the Company’s business environment and future cash flow could cause us to record impairment charges in future periods, which could be material. See Note 6 – Goodwill and Other Intangible Assets to the accompanying consolidated financial statements for a summary of the Company’s goodwill by segment.

Workers’ Compensation and Product Liability Reserves

Due to the nature of the Company’s manufacturing and products, the Company is subject to workers’ compensation and product liability claims in the ordinary course of business. The Company carries insurance against such claims but is self-funded for a portion thereof, with various retention and excess coverage thresholds. After a claim is filed, an initial liability is estimated, if any is expected, to resolve the claim. This liability is periodically updated as more claim facts become known. The establishment and update of liabilities for unpaid claims, including claims incurred but not reported, is based on the assessment by the Company’s claim administrator of each claim and an independent actuarial valuation of the nature and severity of total claims, as well as management’s estimate. The Company utilizes a third-party claims administrator to pay claims, track and evaluate actual claims experience and ensure consistency in the data used in the actuarial valuation. The amount and timing of cash payments relating to these claims are considered to be reliably determinable given the nature of the claims and historical claim volumes to support the actuarial assumptions and judgments used to derive the expected loss payment patterns. As such, the reserves recorded are discounted using a risk-free rate that matches the average duration of the claims. Management believes that the reserve established at December 31, 2016 appropriately reflects the Company’s risk exposure. The Company has not established a reserve for potential losses resulting from firefighter hearing loss litigation (see Note 11 – Legal Proceedings to the accompanying consolidated financial statements). If the Company is not successful in its defense after exhausting all appellate options, it will record a charge for such claims, to the extent they exceed insurance recoveries, at the appropriate time.

Pensions

The Company sponsors domestic and foreign defined benefit pension plans. Key assumptions used in the accounting for these employee benefit plans in each of the three years in the period ended December 31, 2016 included the discount rate, expected long-term rate of return on plan assets, estimates of future mortality of plan participants and the rate of increase in employee compensation levels. A change in any of these assumptions would have had an effect on net periodic pension expense.

The following table summarizes the impact that a 25 basis point change in the discount rate on the Company's projected benefit obligation and net periodic pension expense:

(in millions)	Assumption Change:	
	25 Basis Point Increase	25 Basis Point Decrease
Projected benefit obligation	\$ (7.1)	\$ 7.4
Net periodic pension expense	(0.3)	0.3

The weighted-average discount rate used to measure pension liabilities and costs is selected using a hypothetical portfolio of high quality bonds that would provide the necessary cash flow to match the projected benefit payments of the plans. The discount rate represents the rate at which our benefit obligations could effectively be settled as of the year-end measurement date. The weighted-average discount rate used to measure pension liabilities decreased from 2015 to 2016. For further discussion, see Note 9 – Pensions to the accompanying consolidated financial statements.

The Company's net periodic pension expense is also sensitive to changes in the expected long-term rate of return on plan assets. The expected long-term rate of return on plan assets is based on historical and expected returns for the asset classes in which the plans are invested. The expected asset return assumption is based upon a long-term view; therefore, we do not expect to see significant changes from year to year based on positive or negative actual performance in a single year. A 25 basis point decrease or increase in the expected long-term rate of return on plan assets would have increased or decreased the net periodic pension expense recognized in 2016 by \$0.5 million.

The Company references the most recent mortality tables and scales published by the Society of Actuaries in determining its estimate of future mortality.

A decrease or increase of 25 basis points in the rate of increase in employee compensation levels would have an insignificant impact on the net periodic pension expense recognized in 2016. As discussed further in Note 9 – Pensions to the accompanying consolidated financial statements, benefits associated with salary increases within the U.S. benefit plan ceased at the end of 2016, at which point all existing defined benefit plans became fully frozen. As a result, effective in 2017, salary increases will not impact net periodic pension expense.

With the U.S. benefit plan becoming fully frozen as of December 31, 2016, all participants within the plan are now considered to be inactive. As a result, effective in 2017, the actuarial loss associated with the U.S. benefit plan, which is included in Accumulated other comprehensive loss, will be amortized into net periodic benefit cost over the remaining average life expectancy of plan participants, as opposed to over the remaining average service period. The same methodology has previously been applied to the U.K. benefit plan, which has been fully frozen for a number of years. The Company expects that this will reduce net periodic benefit cost recognized in 2017.

Revenue Recognition

Net sales consist primarily of revenue from the sale of equipment, environmental vehicles, parts, service and maintenance contracts.

The Company recognizes revenue for products when (i) persuasive evidence of an arrangement exists, (ii) delivery has occurred, (iii) the sales price is fixed or determinable and (iv) collection is reasonably assured. A product is considered delivered to the customer once it has been shipped and title and risk of loss have been transferred. For most of the Company's product sales, these criteria are met at the time the product is shipped; however, occasionally title passes later or earlier than shipment due to customer contracts or letter of credit terms. If, at the outset of an arrangement, the Company determines the arrangement fee is not, or is presumed not to be, fixed or determinable, revenue is deferred and subsequently recognized as amounts become due and payable and all other criteria for revenue recognition have been met.

The Company enters into sales arrangements that may provide for multiple deliverables to a customer. These arrangements may include software and non-software components that function together to deliver the products' essential functionality. The Company identifies all goods and/or services that are to be delivered separately under the sales arrangement and allocates revenue to each deliverable based on relative fair values. Fair values are generally established using reliable third-party objective evidence, or management's best estimate of selling price, including prices charged when sold separately by the Company. In general, revenues are separated between hardware, integration and installation services. The allocated revenue for each deliverable is then recognized using appropriate revenue recognition methods.

Income Taxes

Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying values of existing assets and liabilities and their respective tax bases. Deferred tax assets are also recorded with respect to net operating losses and other tax attribute carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the years in which temporary differences are expected to be recovered or settled. Valuation allowances are established when it is more likely than not that deferred tax assets will not be realized. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the income of the period that includes the enactment date.

The guidance on accounting for income taxes provides important factors in determining whether a deferred tax asset will be realized, including whether there has been sufficient taxable income in recent years and whether sufficient income can reasonably be expected in future years in order to utilize the deferred tax asset. A high degree of judgment is required to determine if, and the extent that, valuation allowances should be recorded against deferred tax assets. A valuation allowance is required to be established or maintained when, based on currently available information and other factors, it is more likely than not that all or a portion of a deferred tax asset will not be realized.

We continually evaluate the need to maintain a valuation allowance for deferred tax assets based on our assessment of whether it is more likely than not that deferred tax benefits will be realized through the generation of future taxable income. Appropriate consideration is given to all available evidence, both positive and negative, in assessing the need for a valuation allowance.

During the year ended December 31, 2016, that evaluation resulted in the Company releasing a valuation allowance of \$3.5 million that had previously been recorded in Canada. In addition, the Company recorded a valuation allowance of \$1.3 million against net deferred tax assets in the United Kingdom (“U.K.”), which include deferred tax assets on the actuarial losses of our U.K. pension plan. For further discussion, see Note 8 – Income Taxes to the accompanying consolidated financial statements.

In addition to a \$1.9 million valuation allowance recorded against foreign net deferred tax assets, inclusive of the \$1.3 million valuation allowance recorded in the U.K. during the year ended December 31, 2016, we continue to maintain a valuation allowance on certain state deferred tax assets that we believe, on a more likely than not basis, will not be realized. At December 31, 2016, the valuation allowance recorded against state net operating loss carryforwards totaled \$5.8 million.

We believe that our approach to the associated estimates and judgments applied to our tax positions as described herein is reasonable; however, actual results could differ and we may be exposed to increases or decreases in income taxes that could be material.

Accounting for uncertainty in income taxes addresses the determination of whether tax benefits claimed or expected to be claimed on a tax return should be recorded in the consolidated financial statements. We recognize the tax benefit from an uncertain tax position if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

The guidance on accounting for uncertainty in income taxes also outlines de-recognition and classification, and requires companies to elect and disclose their method of reporting interest and penalties on income taxes. We recognize interest and penalties related to uncertain tax positions as part of income tax expense.

Item 7A. *Quantitative and Qualitative Disclosures about Market Risk.*

The Company is subject to market risk associated with changes in interest rates and foreign exchange rates. To mitigate this risk, the Company may utilize derivative financial instruments, including interest rate swaps and foreign currency forward contracts. The Company does not hold or issue derivative financial instruments for trading or speculative purposes and is not party to leveraged derivatives contracts.

Interest Rate Risk

Our debt instruments subject us to market risk associated with movements in interest rates. The fair value of the Company’s total debt obligations held at December 31, 2016 was \$64.0 million. See Note 7 – Debt to the accompanying consolidated financial statements for a description of our debt agreements. A hypothetical 100 basis point increase or decrease in variable interest rates in 2016 would increase or decrease annual interest expense by approximately \$0.6 million, based on current debt levels.

Foreign Exchange Rate Risk

Although the majority of the Company's sales, expenses and cash flow are transacted in U.S. dollars, the Company has exposure to changes in foreign exchange rates, primarily the Canadian Dollar, Euro and British pound. The impact of currency movements on our financial results is largely mitigated by natural hedges in our operations. As discussed in Note 2 – Acquisitions to the accompanying condensed consolidated financial statements, the Company completed the acquisition of substantially all of the assets and operations of JJE during the year ended December 31, 2016. The Canadian operations of JJE primarily conduct business in Canadian dollars. Almost all other sales of product from the U.S. to other parts of the world are denominated in U.S. dollars. Sales from and within other currency zones are predominantly transacted in the currency of the country sourcing the product or service. Approximately 72% of our total sales are conducted within the U.S. and are transacted in U.S. dollars. Management estimates that a 10% appreciation of the U.S. dollar against other currencies would reduce full-year net sales and operating income by approximately 2%.

The Company may also have foreign currency exposures related to buying and selling in currencies other than the local currency in which it operates and to certain balance sheet positions. If such transactional or balance sheet exposures are material, the Company may enter into matching foreign currency forward contracts from time to time to protect against variability in exchange rates.

Item 8. Financial Statements and Supplementary Data.

**FEDERAL SIGNAL CORPORATION
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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Federal Signal Corporation

Oak Brook, Illinois

We have audited the accompanying consolidated balance sheets of Federal Signal Corporation and subsidiaries (the “Company”) as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive income, stockholders’ equity, and cash flows for each of the three years in the period ended December 31, 2016. Our audits also included the financial statement schedule as of December 31, 2016 listed in the Index at Item 15. These consolidated financial statements and financial statement schedule are the responsibility of the Company’s management. Our responsibility is to express an opinion on these consolidated financial statements and financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of Federal Signal Corporation and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, such financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company’s internal control over financial reporting as of December 31, 2016, based on the criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 28, 2017 expressed an unqualified opinion on the Company’s internal control over financial reporting.

/s/ Deloitte & Touche LLP
Chicago, Illinois
February 28, 2017

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Federal Signal Corporation

Oak Brook, Illinois

We have audited the internal control over financial reporting of Federal Signal Corporation and subsidiaries (the “Company”) as of December 31, 2016, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. As described in Management’s Annual Report on Internal Control Over Financial Reporting, management excluded from its assessment the internal control over financial reporting at Joe Johnson Equipment Inc. and Joe Johnson Equipment (USA), Inc. (collectively, “Joe Johnson Equipment”), which were acquired on June 3, 2016, and whose total assets and net sales represent approximately 21% and 12%, respectively, of the consolidated financial statement amounts as of and for the year ended December 31, 2016. Accordingly, our audit did not include the internal control over financial reporting at Joe Johnson Equipment. The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit.

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

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

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on the criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements and financial statement schedule as of and for the year ended December 31, 2016, of the Company and our report dated February 28, 2017 expressed an unqualified opinion on those consolidated financial statements and financial statement schedule.

/s/ Deloitte & Touche LLP
Chicago, Illinois
February 28, 2017

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

(in millions, except per share data)	For the Years Ended December 31,		
	2016	2015	2014
Net sales	\$ 707.9	\$ 768.0	\$ 779.1
Cost of sales	524.8	542.4	570.4
Gross profit	183.1	225.6	208.7
Selling, engineering, general and administrative expenses	122.3	122.0	120.0
Acquisition and integration-related expenses	1.4	—	—
Restructuring	1.7	0.4	—
Operating income	57.7	103.2	88.7
Interest expense	1.9	2.3	3.6
Debt settlement charges	0.3	—	—
Other (income) expense, net	(1.3)	1.0	1.7
Income before income taxes	56.8	99.9	83.4
Income tax expense	17.4	34.1	23.7
Income from continuing operations	39.4	65.8	59.7
Gain (loss) from discontinued operations and disposal, net of income tax expense of \$3.4, \$8.3 and \$1.0, respectively	4.4	(2.3)	4.0
Net income	\$ 43.8	\$ 63.5	\$ 63.7
Basic earnings per share:			
Earnings from continuing operations	\$ 0.65	\$ 1.06	\$ 0.95
Earnings (loss) from discontinued operations and disposal, net of tax	0.07	(0.04)	0.06
Net earnings per share	\$ 0.72	\$ 1.02	\$ 1.01
Diluted earnings per share:			
Earnings from continuing operations	\$ 0.64	\$ 1.04	\$ 0.94
Earnings (loss) from discontinued operations and disposal, net of tax	0.07	(0.04)	0.06
Net earnings per share	\$ 0.71	\$ 1.00	\$ 1.00
Weighted average shares outstanding:			
Basic	60.4	62.2	62.7
Diluted	61.2	63.4	63.6
Cash dividends declared per common share	\$ 0.28	\$ 0.25	\$ 0.09

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in millions)	For the Years Ended December 31,		
	2016	2015	2014
Net income	\$ 43.8	\$ 63.5	\$ 63.7
Other comprehensive income (loss):			
Change in foreign currency translation adjustment	0.3	(13.5)	(15.8)
Change in unrecognized net actuarial losses related to pension benefit plans, net of income tax (benefit) expense of \$(2.1), \$1.6 and \$(11.6), respectively	(3.4)	4.2	(21.7)
Change in unrealized net gain on derivatives, net of income tax (benefit) expense of \$(0.1), \$0.0 and \$(0.1), respectively	(0.1)	—	(0.1)
Total other comprehensive loss	(3.2)	(9.3)	(37.6)
Comprehensive income	\$ 40.6	\$ 54.2	\$ 26.1

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(in millions, except per share data)	As of December 31,	
	2016	2015
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 50.7	\$ 76.0
Accounts receivable, net of allowances for doubtful accounts of \$0.8 and \$0.8, respectively	81.3	73.0
Inventories	120.1	87.2
Prepaid expenses and other current assets	7.5	15.1
Current assets of discontinued operations	—	63.8
Total current assets	259.6	315.1
Properties and equipment, net	42.9	45.0
Rental equipment, net	80.8	7.9
Goodwill	236.5	231.6
Intangible assets, net	10.2	0.2
Deferred tax assets	8.2	20.1
Deferred charges and other long-term assets	3.9	3.3
Long-term assets of discontinued operations	1.1	43.3
Total assets	\$ 643.2	\$ 666.5
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current portion of long-term borrowings and capital lease obligations	\$ 0.5	\$ 0.4
Accounts payable	35.3	38.0
Customer deposits	4.5	3.7
Accrued liabilities:		
Compensation and withholding taxes	13.8	18.6
Other current liabilities	28.7	27.9
Current liabilities of discontinued operations	2.1	28.6
Total current liabilities	84.9	117.2
Long-term borrowings and capital lease obligations	63.5	43.7
Long-term pension and other post-retirement benefit liabilities	61.1	55.2
Deferred gain	10.7	12.6
Other long-term liabilities	26.9	16.9
Long-term liabilities of discontinued operations	2.0	15.3
Total liabilities	249.1	260.9
Stockholders' equity:		
Common stock, \$1 par value per share, 90.0 shares authorized, 65.4 and 64.8 shares issued, respectively	65.4	64.8
Capital in excess of par value	200.3	195.6
Retained earnings	301.8	274.9
Treasury stock, at cost, 5.8 million and 2.6 million shares, respectively	(81.4)	(40.9)
Accumulated other comprehensive loss	(92.0)	(88.8)
Total stockholders' equity	394.1	405.6
Total liabilities and stockholders' equity	\$ 643.2	\$ 666.5

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in millions)	For the Years Ended December 31,		
	2016	2015	2014
Operating activities:			
Net income	\$ 43.8	\$ 63.5	\$ 63.7
Adjustments to reconcile net income to net cash provided by operating activities:			
Net (gain) loss on discontinued operations and disposal	(4.4)	2.3	(4.0)
Depreciation and amortization	19.1	12.3	11.5
Deferred financing costs	0.6	0.4	0.5
Deferred gain	(1.9)	(1.9)	(1.9)
Stock-based compensation expense	4.8	6.8	6.1
Excess tax benefit from stock-based compensation	—	(1.6)	(2.2)
Pension expense, net of funding	(3.7)	(3.8)	(5.9)
Deferred income taxes, including change in valuation allowance	7.9	25.9	18.9
Changes in operating assets and liabilities, net of effects of discontinued operations:			
Accounts receivable	(8.0)	(0.3)	1.5
Inventories	(2.3)	(3.3)	(15.5)
Rental equipment	(6.9)	—	—
Prepaid expenses and other current assets	1.6	1.0	(0.1)
Accounts payable	(13.9)	(3.1)	0.4
Accrued liabilities	(7.4)	(7.2)	6.8
Income taxes	(4.4)	(1.5)	(0.9)
Other	1.8	1.6	2.2
Net cash provided by continuing operating activities	26.7	91.1	81.1
Net cash (used for) provided by discontinued operating activities	(2.0)	6.1	(8.8)
Net cash provided by operating activities	24.7	97.2	72.3
Investing activities:			
Purchases of properties and equipment	(6.1)	(9.6)	(13.7)
Payments for acquisitions, net of cash acquired	(102.6)	—	—
Proceeds from sale of properties and equipment	0.3	0.1	0.5
Proceeds from escrow receivable	—	4.0	7.4
Cash collected from (provided to) customer	6.0	(6.0)	—
Other, net	(0.6)	—	—
Net cash used for continuing investing activities	(103.0)	(11.5)	(5.8)
Net cash provided by (used for) discontinued investing activities	86.2	(1.3)	(5.8)
Net cash used for investing activities	(16.8)	(12.8)	(11.6)
Financing activities:			
Increase (decrease) in revolving lines of credit, net	64.8	—	(20.0)
Payments on long-term borrowings	(43.4)	(5.8)	(21.6)
Payments of debt financing fees	(1.1)	—	—
Purchases of treasury stock	(37.8)	(10.6)	(10.3)
Redemptions of common stock to satisfy withholding taxes related to stock-based compensation	(2.7)	(3.2)	—
Cash dividends paid to stockholders	(16.9)	(15.6)	(5.6)
Proceeds from stock compensation activity	0.5	1.0	2.6
Excess tax benefit from stock-based compensation	—	1.6	2.2
Other, net	(0.5)	(0.4)	(1.0)
Net cash used for continuing financing activities	(37.1)	(33.0)	(53.7)
Net cash provided by discontinued financing activities	0.7	—	—
Net cash used for financing activities	(36.4)	(33.0)	(53.7)
Effects of foreign exchange rate changes on cash and cash equivalents	(1.8)	(0.8)	(0.4)
(Decrease) increase in cash and cash equivalents	(30.3)	50.6	6.6
Cash and cash equivalents at beginning of year	81.0	30.4	23.8
Cash and cash equivalents at end of year	50.7	81.0	30.4
Less: Cash and cash equivalents of discontinued operations at end of year	—	(5.0)	(6.3)
Cash and cash equivalents of continuing operations at end of year	\$ 50.7	\$ 76.0	\$ 24.1

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(in millions)	Common Stock Par Value	Capital in Excess of Par Value	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total
Balance at January 1, 2014	\$ 63.8	\$ 177.0	\$ 168.9	\$ (16.8)	\$ (41.9)	\$ 351.0
Net income			63.7			63.7
Total other comprehensive loss					(37.6)	(37.6)
Cash dividends declared (\$0.09 per share)			(5.6)			(5.6)
Stock-based payments:						
Stock-based compensation		5.5				5.5
Stock option exercises and other	0.4	2.3				2.7
Excess tax benefit from stock-based compensation		2.2				2.2
Stock repurchase program				(10.3)		(10.3)
Balance at December 31, 2014	64.2	187.0	227.0	(27.1)	(79.5)	371.6
Net income			63.5			63.5
Total other comprehensive loss					(9.3)	(9.3)
Cash dividends declared (\$0.25 per share)			(15.6)			(15.6)
Stock-based payments:						
Stock-based compensation		6.3				6.3
Stock option exercises and other	0.1	1.2		(0.5)		0.8
Performance share unit transactions	0.5	(0.5)		(2.7)		(2.7)
Excess tax benefit from stock-based compensation		1.6				1.6
Stock repurchase program				(10.6)		(10.6)
Balance at December 31, 2015	64.8	195.6	274.9	(40.9)	(88.8)	405.6
Net income			43.8			43.8
Total other comprehensive loss					(3.2)	(3.2)
Cash dividends declared (\$0.28 per share)			(16.9)			(16.9)
Stock-based payments:						
Stock-based compensation		4.3				4.3
Stock option exercises and other	0.2	0.8		(0.3)		0.7
Performance share unit transactions	0.4	(0.4)		(2.4)		(2.4)
Stock repurchase program				(37.8)		(37.8)
Balance at December 31, 2016	<u>\$ 65.4</u>	<u>\$ 200.3</u>	<u>\$ 301.8</u>	<u>\$ (81.4)</u>	<u>\$ (92.0)</u>	<u>\$ 394.1</u>

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 — SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Organization and Description of the Business

Federal Signal Corporation was founded in 1901 and was reincorporated as a Delaware corporation in 1969. References herein to the “Company,” “we,” “our” or “us” refer collectively to Federal Signal Corporation and its subsidiaries.

Products manufactured and services rendered by the Company are divided into two major operating segments: Environmental Solutions Group and Safety and Security Systems Group. The individual operating businesses are organized as such because they share certain characteristics, including technology, marketing, distribution and product application, which create long-term synergies. As discussed in Note 15 – Segment Information, the Company’s reportable segments are consistent with its operating segments.

Our fiscal year ends on December 31. All references to 2016, 2015 and 2014 relate to the fiscal year unless otherwise indicated.

Basis of Presentation and Consolidation

The accompanying consolidated financial statements represent the consolidation of Federal Signal Corporation and its subsidiaries and have been prepared by the Company pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”) and in accordance with United States (“U.S.”) generally accepted accounting principles (“GAAP”).

As discussed in Note 18 – Discontinued Operations, on January 29, 2016, the Company completed the sale of its Bronto Skylift® business (“Bronto”) that represented its Fire Rescue Group. The consolidated financial statements for all periods presented have been recast to present the operating results of previously divested or exited businesses as discontinued operations, including the Fire Rescue Group. See Note 18 – Discontinued Operations for further details.

In addition, as discussed in Note 2 – Acquisitions, on June 3, 2016, the Company completed the acquisition of substantially all of the assets and operations of Joe Johnson Equipment, Inc. and Joe Johnson Equipment (USA), Inc. (collectively, “JJE”), a Canadian-based distributor of maintenance equipment for municipal and industrial markets. The Consolidated Balance Sheet as of December 31, 2016 includes fair values assigned to the assets acquired and liabilities assumed in connection with the acquisition, whereas the Consolidated Statements of Operations and Cash Flows for the year ended December 31, 2016 include the post-acquisition operating results of JJE.

Intercompany balances and transactions have been eliminated in consolidation. In addition, certain prior year amounts have been reclassified to conform to the current year presentation. These include adjustments to present the Fire Rescue Group as a discontinued operation, as well as certain reclassifications made to prior-year balance sheet information to conform to the current-year presentation, after giving effect to the JJE acquisition.

New Accounting Standards Adopted in 2016

In April 2015, the Financial Accounting Standards Board (the “FASB”) issued Accounting Standards Update (“ASU”) No. 2015-03, *Interest – Imputation of Interest (Subtopic 835-30), Simplifying the Presentation of Debt Issuance Costs*, which requires that debt issuance costs be presented in the balance sheets as a direct deduction from the carrying amount of the related debt liability. The new requirement is effective for fiscal years beginning on or after December 15, 2015, and for interim periods within those fiscal years. Retrospective presentation is required for all comparable periods presented. The Company’s adoption of this guidance on January 1, 2016 did not have a material impact on its consolidated financial statements.

In July 2015, the FASB issued ASU No. 2015-15, *Interest – Imputation of Interest (Subtopic 855-30), Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Arrangements*, which presents the SEC staff’s opinion, in response to ASU No. 2015-03, that debt issuance costs associated with line-of-credit arrangements may be deferred, presented as an asset, and subsequently amortized ratably over the respective term, regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. The effective date of this guidance, and the expected impact upon adoption, is consistent with that discussed above with respect to ASU No. 2015-03. The Company’s adoption of this guidance on January 1, 2016 did not have a material impact on its consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation – Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting* (“ASU 2016-09”). The updated guidance simplifies and changes how companies account for certain aspects of share-based payment awards to employees, including accounting for income taxes, forfeitures,

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

and statutory tax withholding requirements, as well as classification of certain items in the statement of cash flows. Adoption of ASU 2016-09 is required for fiscal reporting periods beginning after December 15, 2016, including interim reporting periods within those fiscal years with early adoption being permitted. During 2016, the Company elected to early adopt ASU 2016-09, with an effective date of January 1, 2016. The impact of adoption was not material to the consolidated financial statements for the year ended December 31, 2016, nor to any quarterly period within the year ended December 31, 2016.

Non-U.S. Operations

Assets and liabilities of non-U.S. subsidiaries, other than those whose functional currency is the U.S. dollar, are translated at current exchange rates with the related translation adjustments reported in stockholders' equity as a component of Accumulated other comprehensive loss. Accounts within the Consolidated Statements of Operations are translated at the average exchange rate during the period. Non-monetary assets and liabilities are translated at historical exchange rates.

Relating to transactions that are denominated in a currency other than the functional currency, the Company incurs foreign currency transaction gains or losses, which are recognized in the Consolidated Statement of Operations as incurred. For the years ended December 31, 2016, 2015 and 2014, the Company incurred foreign currency transaction losses, included in other (income) expense, net in the Consolidated Statements of Operations, of \$0.1 million, \$1.5 million and \$1.7 million, respectively.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect (i) the reported amounts of assets and liabilities, (ii) the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and (iii) the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less, when purchased, to be cash equivalents. The carrying amount of cash and cash equivalents approximates fair value because of the short-term maturity and highly liquid nature of these instruments.

Accounts Receivable

The Company carries accounts receivable at the face amount less an allowance for doubtful accounts for estimated losses as a result of a customer's inability to make required payments. Management evaluates the aging of the accounts receivable balances, the financial condition of its customers, historical trends and the time outstanding of specific balances to estimate the amount of accounts receivables that may not be collected in the future and records the appropriate provision.

Inventories

The Company's inventories are valued at the lower of cost or market. Cost is determined using the first-in, first-out method. Included in the cost of inventories are raw materials, direct wages and associated production costs.

Properties and Equipment

Properties and equipment are stated at cost, net of depreciation. Depreciation is recorded using the straight-line method over the estimated useful lives of the assets. Useful lives generally range from eight to 40 years for buildings and three to 15 years for machinery and equipment. Leasehold improvements are depreciated over the shorter of the remaining life of the lease or the useful life of the improvement. Depreciation expense is primarily included as a component of Cost of sales on the Consolidated Statements of Operations, with depreciation expense associated with certain assets used for administrative purposes being presented within Selling, engineering, general and administrative ("SEG&A") expenses. Depreciation expense, which includes depreciation on rental equipment, was \$18.9 million, \$12.0 million and \$11.4 million in the years ended December 31, 2016, 2015 and 2014, respectively.

Properties and equipment are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

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Rental Equipment

The Company enters into lease agreements with customers related to the rental of certain equipment. All of these leasing agreements are classified as operating leases and are for periods generally not to exceed five years. In accounting for these leases, the cost of the equipment purchased or manufactured by the Company is recorded as an asset and is depreciated over its estimated useful life. Rental income is recognized ratably over the term of the underlying leases.

Rental equipment is depreciated to an estimated residual value on a straight-line basis over the estimated useful lives of the assets and is reviewed for potential impairment whenever an event occurs or circumstances change that indicate the carrying amount of an asset may not be recoverable. If circumstances require a long-lived asset or asset group to be tested for possible impairment, the Company first compares non-discounted cash flows expected to be generated by that asset group to its carrying amount. If the carrying amount of the long-lived asset or asset group is not recoverable on a non-discounted cash flow basis, an impairment is recognized to the extent that the carrying amount exceeds fair value. Fair value is determined through various valuation techniques including discounted cash flow models, quoted market values and third-party independent appraisals, as considered necessary.

Rental equipment includes certain equipment that is manufactured by the Company and subsequently transferred to the rental fleet, as well as equipment purchased from third-party manufacturers, for the purpose of renting to end-customers. The related cash flow activity associated with these transactions is reflected within operating activities on the Consolidated Statements of Cash Flows.

Goodwill

Goodwill represents the excess of the cost of an acquired business over the amounts assigned to its net assets. Goodwill is not amortized but is tested for impairment at a reporting unit level on an annual basis or when an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. The Company performed its annual goodwill impairment test as of October 31, 2016.

In testing the goodwill of its reporting units for potential impairment, the Company applies either a qualitative test, or a two-step quantitative test, in accordance with Accounting Standards Codification (“ASC”) 350, *Intangibles — Goodwill and Other*. Management used a combination of the qualitative and quantitative approaches to assess the goodwill of its reporting units for potential impairment in 2016.

A qualitative approach is applied when the Company concludes that it is not “more likely than not” that the fair value of a reporting unit is less than its carrying value. In this situation, the Company would not be required to perform the two-step impairment test described below.

The first step in the quantitative two-step approach is used to identify potential impairment, by comparing the fair value of a reporting unit with its carrying amount, including goodwill. If the fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired and the second step of the impairment test is unnecessary. If the carrying amount of a reporting unit exceeds its fair value, the second step of the goodwill impairment test is performed to measure the amount of impairment loss, if any. The second step compares the implied fair value of reporting unit goodwill with the carrying amount of that goodwill. If the carrying amount of reporting unit goodwill exceeds the implied fair value of that goodwill, an impairment loss is recognized in an amount equal to that excess. The Company generally determines the fair value of its reporting units using two valuation methods: the “Income Approach — Discounted Cash Flow Analysis” method, and the “Market Approach — Guideline Public Company Method.”

Under the “Income Approach — Discounted Cash Flow Analysis” method, the key assumptions consider projected sales, cost of sales and operating expenses. These assumptions were determined by management utilizing our internal operating plan, including growth rates for revenues and operating expenses and margin assumptions. An additional key assumption under this approach is the discount rate, which is determined by reviewing current risk-free rates of capital and current market interest rates and by evaluating the risk premium relevant to the business segment. If our assumptions relative to growth rates were to change, our fair value calculation may change, which could result in impairment.

Under the “Market Approach — Guideline Public Company Method,” the Company identified several publicly traded companies, which we believe have sufficiently relevant similarities to our businesses. For these companies, the Company used market values to calculate the mean ratio of invested capital to revenues and invested capital to EBITDA. Similar to the income approach discussed above, sales, cost of sales, operating expenses and their respective growth rates are key assumptions utilized. The market prices of the Company’s common stock and other guideline companies are additional key inputs. If these

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market prices increase, the estimated market value would increase. Conversely, if market prices decrease, the estimated market value would decrease.

The results of these two methods are weighted based upon management's evaluation of the relevance of the two approaches. Management used a combination of the income and market approaches to determine the fair value of certain reporting units in 2016. The fair value of the reporting units that were tested for impairment under the two-step approach in the 2016 analysis exceeded their carrying values.

The Company had no goodwill impairments for its continuing operations in 2016, 2015 or 2014. See Note 6 – Goodwill and Other Intangible Assets for a summary of the Company's goodwill by segment.

Intangible Assets

Definite-lived intangible assets are amortized on a straight-line basis over the estimated useful lives and are tested for impairment if indicators exist in a manner similar to that described above for *Rental Equipment*.

Indefinite-lived intangible assets are tested for impairment on an annual basis at year-end, or more frequently if an event occurs or circumstances change that indicate the fair value of an indefinite-lived intangible asset could be below its carrying amount. The impairment test consists of comparing the fair value of the indefinite-lived intangible asset with its carrying amount. An impairment loss would be recognized for the carrying amount in excess of its fair value.

Warranty

Sales of many of the Company's products carry express warranties based on terms that are generally accepted in the Company's marketplaces. The Company records provisions for estimated warranty, which are included within Cost of sales, at the time of sale based on historical experience. The Company periodically adjusts these provisions to reflect actual experience. Infrequently, a material warranty issue can arise which is beyond the scope of the Company's historical experience. The Company records costs related to these issues as they become probable and estimable.

The Company also sells optional extended warranty contracts that extend coverage beyond the initial term of the express warranty period. At the time of sale, revenue related to the extended warranty contract is deferred and recognized as income over the life of the contract. As of December 31, 2016 and 2015, deferred revenue associated with extended warranty contracts was \$2.6 million and \$2.6 million, respectively, and was included within Other current liabilities and Other long-term liabilities on the Consolidated Balance Sheets. Costs under extended warranty contracts are expensed as incurred.

Workers' Compensation and Product Liability Reserves

Due to the nature of the Company's manufacturing and products, the Company is subject to claims for workers' compensation and product liability in the normal course of business. The Company is self-funded for a portion of these claims. The Company establishes a reserve using a third-party actuary for any known outstanding matters, including a reserve for claims incurred but not yet reported. The amount and timing of cash payments relating to these claims are considered to be reliably determinable given the nature of the claims and historical claim volumes to support the actuarial assumptions and judgments used to derive the expected loss payment patterns. As such, the reserves recorded are discounted using a risk-free rate that matches the average duration of the claims.

The Company has not established a reserve for potential losses resulting from the firefighter hearing loss litigation (see Note 11 – Legal Proceedings). If the Company is not successful in its defense after exhausting all appellate options, it would record a charge for such claims, to the extent they exceed insurance recoveries, when the related losses become probable and estimable.

Pensions

The Company sponsors domestic and foreign defined benefit pension plans. Key assumptions used in the accounting for these employee benefit plans include the discount rate, expected long-term rate of return on plan assets and estimates of future mortality of plan participants.

The weighted-average discount rate used to measure pension liabilities and costs is selected using a hypothetical portfolio of high-quality bonds that would provide the necessary cash flow to match the projected benefit payments of the plans. The discount rate represents the rate at which our benefit obligations could effectively be settled as of the year-end measurement date. The weighted-average discount rate used to measure pension liabilities decreased from 2015 to 2016. See Note 9 – Pensions for further discussion.

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The expected long-term rate of return on plan assets is based on historical and expected returns for the asset classes in which the plans are invested.

The Company references the most recent mortality tables and scales published by the Society of Actuaries in determining its estimate of future mortality.

Revenue Recognition

Net sales consist primarily of revenue from the sale of equipment, environmental vehicles, parts, service and maintenance contracts.

The Company recognizes revenue for products when (i) persuasive evidence of an arrangement exists, (ii) delivery has occurred, (iii) the sales price is fixed or determinable and (iv) collection is reasonably assured. A product is considered delivered to the customer once it has been shipped, and title and risk of loss have been transferred. For most of the Company's product sales, these criteria are met at the time the product is shipped; however, occasionally title passes later or earlier than shipment due to customer contracts or letter of credit terms. If at the outset of an arrangement the Company determines the arrangement fee is not, or is presumed not to be, fixed or determinable, revenue is deferred and subsequently recognized as amounts become due and payable and all other criteria for revenue recognition have been met. Taxes collected from customers and remitted to governmental authorities are recorded on a net basis and are excluded from revenue.

The Company enters into sales arrangements that may provide for multiple deliverables to a customer. These arrangements may include software and non-software components that function together to deliver the products' essential functionality. The Company identifies all goods and/or services that are to be delivered separately under the sales arrangement and allocates revenue to each deliverable based on relative fair values. Fair values are generally established using reliable third-party objective evidence, or management's best estimate of selling price, including prices charged when sold separately by the Company. In general, revenues are separated between hardware, integration and installation services. The allocated revenue for each deliverable is then recognized using appropriate revenue recognition methods.

Net sales are presented net of returns and allowances. Returns and allowances are calculated and recorded as a percentage of revenue based upon historical returns. Net sales include sales of products and billed freight related to product sales. Freight has not historically comprised a material component of Net sales.

Product Shipping Costs

Product shipping costs are expensed as incurred and are included within Cost of sales.

Research and Development

The Company invests in research to support development of new products and the enhancement of existing products and services. Expenditures for research and development by the Company were \$13.4 million in 2016, \$14.0 million in 2015 and \$13.1 million in 2014, and are included within SEG&A expenses.

Stock-Based Compensation Plans

The Company has various stock-based compensation plans, described more fully in Note 13 – Stock-Based Compensation. Stock-based compensation expense is recorded net of estimated forfeitures in the Company's Consolidated Statements of Operations. The Company estimates the forfeiture rate based on historical forfeitures of equity awards and adjusts the rate to reflect changes in facts and circumstances, if any. The Company revises its estimated forfeiture rate if actual forfeitures differ from its initial estimates. The adoption of ASU 2016-09 did not change the Company's historical practice of estimating forfeitures.

Income Taxes

We file a consolidated U.S. federal income tax return for Federal Signal Corporation and its eligible domestic subsidiaries. Our non-U.S. subsidiaries file income tax returns in their respective local jurisdictions. We account for income taxes under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and tax benefit carryforwards. Deferred tax assets and liabilities at the end of each period are determined using enacted tax rates expected to apply to taxable income in the period in which the deferred tax liability or asset is expected to be settled or realized. A valuation allowance is established or maintained when, based on currently available information and other factors, it is more likely than not that all or a portion of a deferred tax asset will not be realized.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Accounting standards on accounting for uncertainty in income taxes address the determination of whether tax benefits claimed or expected to be claimed on a tax return should be recorded in the consolidated financial statements. Under the guidance on accounting for uncertainty in income taxes, we may recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. The guidance on accounting for uncertainty in income taxes also outlines de-recognition and classification, as well as interest and penalties on income taxes.

Litigation Contingencies

The Company is subject to various claims, including pending and possible legal actions for product liability and other damages, and other matters arising in the ordinary course of the Company's business. The Company believes, based on current knowledge and after consultation with counsel, that the outcome of such claims and actions in the aggregate will not have an adverse effect on the Company's financial position or results of operations. However, in the event of unexpected future developments, it is possible that the ultimate resolution of such matters, if unfavorable, could have a material adverse effect on the Company's results of operations. Professional legal fees are expensed when incurred. We accrue for contingent losses when such losses are probable and reasonably estimable. In the event that estimates or assumptions of contingent losses are different from actual results, adjustments are made in subsequent periods to reflect more current information.

NOTE 2 — ACQUISITIONS

Acquisition of Westech Vac Systems Ltd.

On January 5, 2016, the Company completed the acquisition of 100% of the stock of Westech Vac Systems, Ltd. ("Westech"), a Canadian manufacturer of high-quality, rugged vacuum trucks, from Advance Engineered Products Ltd. The Company expects that Westech will provide an efficient entry into a new line of product offerings and access to new markets. The acquisition closed on January 5, 2016, and the assets and liabilities of Westech have been consolidated into the Consolidated Balance Sheet since that date, while the post-acquisition results of operations have been included in the Consolidated Statements of Operations, within the Environmental Solutions Group.

Cash consideration paid by the Company to acquire Westech was approximately \$6.0 million. The assets acquired and liabilities assumed in the Westech acquisition have been measured at their fair values at the acquisition date, resulting in an assignment of \$1.9 million to goodwill, which is deductible for tax purposes, and \$1.4 million to intangible assets. As of December 31, 2016, the Company's purchase price allocation is considered to be final.

The acquisition was not, and would not have been, material to the Company's results of operations, financial condition or cash flow during any period presented. Accordingly, the Company's consolidated results from operations do not differ materially from historical performance as a result of the acquisition, and therefore, pro-forma results are not presented.

Acquisition of JJE

On June 3, 2016, the Company completed the acquisition of substantially all of the assets and operations of JJE, a Canadian-based distributor of maintenance equipment for municipal and industrial markets. The Company expects that JJE will facilitate sales of its existing products into new markets, expand the Company's product and service offerings and increase the Company's footprint across North America. The acquisition closed on June 3, 2016, and the assets and liabilities of JJE have been consolidated into the Consolidated Balance Sheet since that date, while the post-acquisition results of operations have been included in the Consolidated Statements of Operations, within the Environmental Solutions Group.

The initial cash consideration paid by the Company to acquire JJE was approximately \$96.6 million, inclusive of a payment of a working capital adjustment. In addition, there is a deferred payment of C\$8.0 million (approximately \$6.0 million) and a contingent earn-out payment of up to C\$10.0 million (approximately \$7.4 million). The earn-out payment is contingent upon the achievement of certain financial targets and objectives. The deferred payment, and any contingent earn-out payment, are due to be paid after the third anniversary of the closing date.

The acquisition is being accounted for in accordance with ASC 805, *Business Combinations*. Accordingly, the total purchase price has been allocated to assets acquired and liabilities assumed in connection with the acquisition based on their estimated fair values as of the completion of the acquisition. A single estimate of fair value results from a complex series of judgments about future events and uncertainties and relies heavily on estimates and assumptions. The Company's judgments used to determine the estimated fair value assigned to each class of assets acquired and liabilities assumed, as well as asset lives, can

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

materially impact the Company's results of operations. As of December 31, 2016, the Company's purchase price allocation is considered to be final.

The following table summarizes the fair value of assets acquired and liabilities assumed as of the acquisition date:

(in millions)	
Purchase price, inclusive of working capital adjustment ^(a)	\$ 96.6
Estimated fair value of additional consideration ^(b)	10.3
Settlement of pre-existing contractual relationship ^(c)	11.4
Total consideration	118.3
Accounts receivable	12.1
Inventories	28.7
Prepaid expenses and other current assets	0.8
Rental equipment ^(d)	75.9
Properties and equipment	2.0
Intangible assets ^(e)	8.4
Capital lease obligations	(0.5)
Accounts payable ^(c)	(11.5)
Customer deposits	(0.8)
Accrued liabilities	(2.0)
Net assets acquired	113.1
Goodwill ^(f)	\$ 5.2

- (a) The initial purchase price was funded with existing cash on hand and borrowings under the Company's revolving credit facility.
- (b) Includes estimated fair value of contingent earn-out payment (\$4.9 million) and the deferred payment (\$5.4 million) as of the acquisition date. Included as a component of Other long-term liabilities on the Consolidated Balance Sheet. See Note 17 – Fair Value Measurements for discussion of the methodology used to determine the fair value of the contingent earn-out payment.
- (c) Represents the non-cash settlement of accounts receivable due from JJE to the Company as of the acquisition date. Corresponding amount payable by JJE to the Company is not included in accounts payable assumed in the table above, and the amount was settled at fair value with no impact on the Consolidated Statement of Operations.
- (d) Consists primarily of street sweepers, sewer cleaners, vacuum trucks and other maintenance equipment. Fair value was determined using a combination of a market-based approach and a cost-based approach. The specific valuation technique depended upon the nature of the asset or availability of relevant information. Under the market-based approach, an analysis of market conditions and transactions comparable to the subject asset being valued was performed, and fair value was determined where reliable and available data on comparable sales could be found. In this context, fair value was determined by comparing recent sales of similar assets and adjusting these comparable sales based on factors such as age, condition and type of sale. Under the cost-based approach, the current replacement cost for the assets was calculated, using the direct method of the cost approach. In determining fair value under the cost approach, adjustments were made for physical, functional and economic factors affecting utility and value as they might apply.
- (e) Represents the fair value assigned to the JJE trade name, which is considered to be an indefinite-lived intangible asset.
- (f) The majority of goodwill, which is primarily attributable to synergies expected to result from combining JJE's operations with the Company's operations, is expected to be deductible for tax purposes.

Under ASC 805-10, acquisition-related costs (i.e., advisory, legal, valuation and other professional fees) are not included as a component of consideration transferred, but are accounted for as expenses in the periods in which the costs are incurred. The Company incurred \$0.9 million of acquisition-related costs in the year ended December 31, 2016, which have been recorded in Acquisition and integration-related expenses on the Consolidated Statement of Operations.

As further explained in Note 17 – Fair Value Measurements, in the year ended December 31, 2016, the Company recognized expenses of \$0.4 million associated with the change in the fair value of the contingent consideration liability. In addition, in the year ended December 31, 2016, the Company recognized expenses of \$0.1 million in relation to the accretion of the discount on the deferred payment obligation. These expenses have been included as a component of Acquisition and integration-related expenses on the Consolidated Statement of Operations.

In the period between the June 3, 2016 closing date and December 31, 2016, on a stand-alone basis, JJE generated \$87.2 million of net sales and \$1.9 million of operating income, after recognizing expenses of \$3.8 million and \$0.5 million relating to purchase accounting and acquisition-related effects, respectively. The Company has included the operating results of JJE within the Environmental Solutions Group in its condensed consolidated financial statements since the closing date.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

In connection with the acquisition of JJE, the Company entered into lease agreements for two facilities owned by affiliates of the sellers of JJE. Both agreements include an annual rent that is considered to be market-based, and are for an initial lease term of five years, with options to renew. In the year ended December 31, 2016, total rent paid under these agreements to the former shareholders of JJE, some of whom are now employees of the Company, was approximately \$0.2 million. In addition, during the period between the June 3, 2016 closing date and December 31, 2016, the Company's Environmental Solutions Group recorded net sales of \$1.7 million relating to products sold to Ingenieria Y Servicios Orbitec SPA, an entity which is majority-owned by affiliates of the sellers of JJE.

The Company's net sales to JJE prior to the acquisition were \$21.6 million and \$54.8 million for the years ended December 31, 2016 and 2015, respectively.

The Company has not presented unaudited pro forma combined results of operations of the Company and JJE for the year ended December 31, 2016 and 2015, because it is considered impracticable to do so, primarily because of the revenue and profit deferral impacts associated with the Company's historical sales to JJE. Under common ownership, the timing of revenue and profit recognition will change, in that revenue and profit will no longer be recognized on sales from the Company to JJE when delivery has occurred, and all other revenue recognition criteria have been satisfied, as was the case prior to the acquisition. Quantification of the revenue and profit deferral impacts of such historical sales and reflecting pro forma combined results assuming the transaction occurred on January 1, 2016 and 2015 with any reasonable level of accuracy is considered impracticable as it would require significant estimates, including estimating the mix of such historical sales (i.e. sales of units to JJE that were subsequently sold to end customers, sales of units to JJE that were not yet sold through to end customers or sales of units to JJE that were placed in the rental fleet), as well as estimating the timing and amounts of any of JJE's subsequent sale or rental activity.

NOTE 3 — INVENTORIES

The following table summarizes the components of inventories:

(in millions)	2016	2015
Finished goods	\$ 77.6	\$ 45.2
Raw materials	35.3	35.3
Work in process	7.2	6.7
Total inventories	\$ 120.1	\$ 87.2

NOTE 4 — PROPERTIES AND EQUIPMENT, NET

The following table summarizes the components of properties and equipment, net:

(in millions)	2016	2015
Land	\$ 0.2	\$ 0.2
Buildings and improvements	26.0	24.7
Machinery and equipment	118.0	120.3
Total property and equipment, at cost	144.2	145.2
Less: Accumulated depreciation	101.3	100.2
Properties and equipment, net	\$ 42.9	\$ 45.0

In July 2008, the Company entered into sale-leaseback transactions for its Elgin and University Park, Illinois plant locations. Net proceeds received were \$35.8 million, resulting in a deferred gain of \$29.0 million. The deferred gain is being amortized over the 15-year life of the respective leases. The deferred gain balance was \$12.6 million and \$14.5 million at December 31, 2016 and 2015, respectively. Of these amounts, \$1.9 million and \$1.9 million, was included within Other current liabilities on the Consolidated Balance Sheets at December 31, 2016 and 2015, respectively.

The Company leases certain facilities and equipment under operating leases, some of which contain options to renew. Total rental expense on all operating leases was \$8.3 million in 2016, \$7.2 million in 2015 and \$6.6 million in 2014. Sublease income and contingent rentals relating to operating leases were insignificant. At December 31, 2016, minimum future rental commitments under operating leases having non-cancelable lease terms in excess of one year aggregated \$40.8 million and were payable as follows: \$8.2 million in 2017, \$7.4 million in 2018, \$6.1 million in 2019, \$5.6 million in 2020, \$5.1 million in 2021 and \$8.4 million thereafter.

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NOTE 5 — RENTAL EQUIPMENT, NET

The following table summarizes the components of rental equipment, net:

(in millions)	2016	2015
Rental equipment	90.5	10.5
Less: Accumulated depreciation	9.7	2.6
Rental equipment, net	<u>\$ 80.8</u>	<u>\$ 7.9</u>

Rental income associated with the Company's equipment rental activity, which is included as a component of Net sales on the Consolidated Statements of Operations, totaled \$18.4 million and \$8.2 million for the year ended December 31, 2016 and 2015, respectively.

NOTE 6 — GOODWILL AND OTHER INTANGIBLE ASSETS

The following table summarizes the carrying amount of goodwill by segment:

(in millions)	Environmental Solutions	Safety & Security Systems	Total
Balance at December 31, 2014	\$ 120.4	\$ 114.8	\$ 235.2
Translation adjustments	—	(3.6)	(3.6)
Balance at December 31, 2015	120.4	111.2	231.6
Acquisitions	7.1	—	7.1
Translation adjustments	(0.3)	(1.9)	(2.2)
Balance at December 31, 2016	<u>\$ 127.2</u>	<u>\$ 109.3</u>	<u>\$ 236.5</u>

The following table summarizes the gross carrying amount and accumulated amortization of intangible assets for each major class of intangible assets:

(in millions)	December 31, 2016			December 31, 2015		
	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Definite-lived intangible assets:						
Customer relationships ^(a)	\$ 0.8	\$ (0.1)	\$ 0.7	\$ —	\$ —	\$ —
Other ^(a)	1.1	(0.4)	0.7	0.6	(0.4)	0.2
Total definite-lived intangible assets	1.9	(0.5)	1.4	0.6	(0.4)	0.2
Indefinite-lived intangible assets:						
Trade names	8.8	—	8.8	—	—	—
Total indefinite-lived intangible assets	8.8	—	8.8	—	—	—
Total intangible assets	<u>\$ 10.7</u>	<u>\$ (0.5)</u>	<u>\$ 10.2</u>	<u>\$ 0.6</u>	<u>\$ (0.4)</u>	<u>\$ 0.2</u>

(a) Average useful life of customer relationships and other definite-lived intangible assets is estimated at 10 years.

Amortization expense for the years ended December 31, 2016, 2015 and 2014 was immaterial. The Company currently estimates that aggregate amortization expense will not exceed \$0.2 million in any future year.

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NOTE 7 — DEBT

The following table summarizes the components of long-term debt and capital lease obligations:

(in millions)	2016	2015
2016 Credit Agreement:		
Revolving Credit Facility	\$ 63.2	\$ —
2013 Credit Agreement:		
Term Loan	—	43.4
Capital lease obligations	0.8	0.7
Total long-term borrowings and capital lease obligations, including current portion	64.0	44.1
Less: Current capital lease obligations	0.5	0.4
Total long-term borrowings and capital lease obligations	<u>\$ 63.5</u>	<u>\$ 43.7</u>

As more fully described within Note 17 – Fair Value Measurements, the Company uses a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. The fair value of long-term debt is based on interest rates that we believe are currently available to us for issuance of debt with similar terms and remaining maturities (Level 2 input).

The following table summarizes the carrying amounts and fair values of the Company’s financial instruments:

(in millions)	2016		2015	
	Notional Amount	Fair Value	Notional Amount	Fair Value
Long-term debt ^(a)	\$ 64.0	\$ 64.0	\$ 44.1	\$ 44.1

(a) Long-term debt includes current portions of long-term debt and current portions of capital lease obligations of \$0.5 million and \$0.4 million as of December 31, 2016 and 2015, respectively.

On January 27, 2016, the Company entered into an Amended and Restated Credit Agreement (the “2016 Credit Agreement”), by and among the Company and certain of its foreign subsidiaries (collectively, the “Borrowers”), Wells Fargo Bank, National Association, as administrative agent, swingline lender and issuing lender, JPMorgan Chase Bank, N.A. as syndication agent, KeyBank National Association, as documentation agent, Wells Fargo Securities, LLC and J.P. Morgan Securities LLC, as joint lead arrangers and joint bookrunners, and the other lenders and parties signatory thereto.

The 2016 Credit Agreement is a \$325.0 million revolving credit facility, maturing on January 27, 2021, that provides for borrowings in the form of loans or letters of credit up to the aggregate availability under the facility, with a sub-limit of \$50.0 million for letters of credit. The 2016 Credit Agreement allows for the Borrowers to borrow in denominations of U.S. Dollars, Canadian Dollars (up to a maximum of C\$85.0 million) or Euros (up to a maximum of €20.0 million). In addition, the Company may cause the commitments to increase by up to an additional \$75.0 million, subject to the approval of the applicable lenders providing such additional financing. Borrowings under the 2016 Credit Agreement may be used for working capital and general corporate purposes, including permitted acquisitions.

The Company’s domestic subsidiaries provide guarantees for all obligations of the Borrowers under the 2016 Credit Agreement, which is secured by a first priority security interest in all now or hereafter acquired domestic property and assets and the stock or other equity interests in each of the domestic subsidiaries and 65% of the outstanding voting capital stock of certain first-tier foreign subsidiaries, subject to certain exclusions.

Borrowings under the 2016 Credit Agreement bear interest, at the Company’s option, at a base rate or a LIBOR rate, plus, in each case, an applicable margin. The applicable margin ranges from 0.00% to 1.25% for base rate borrowings and 1.00% to 2.25% for LIBOR borrowings. The Company must also pay a commitment fee to the lenders ranging between 0.15% to 0.30% per annum on the unused portion of the \$325.0 million revolving credit facility along with other standard fees. Letter of credit fees are payable on outstanding letters of credit in an amount equal to the applicable LIBOR margin plus other customary fees.

The Company is subject to certain leverage ratio and interest coverage ratio financial covenants under the 2016 Credit Agreement that are to be measured at each fiscal quarter-end. The Company was in compliance with all such covenants as of December 31, 2016. The 2016 Credit Agreement also includes a “covenant holiday” period, which allows for the temporary increase of the minimum leverage ratio following the completion of a permitted acquisition, or a series of permitted acquisitions, when the total consideration exceeds a specified threshold. In addition, the 2016 Credit Agreement includes customary negative covenants, subject to certain exceptions, restricting or limiting the Company’s and its subsidiaries’ ability

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

to, among other things: (i) make non-ordinary course dispositions of assets, (ii) make certain fundamental business changes, such as merge, consolidate or enter into any similar combination, (iii) make restricted payments, including dividends and stock repurchases, (iv) incur indebtedness, (v) make certain loans and investments, (vi) create liens, (vii) transact with affiliates, (viii) enter into sale/leaseback transactions, (ix) make negative pledges and (x) modify subordinated debt documents.

Under the 2016 Credit Agreement, restricted payments, including dividends and stock repurchases, shall be permitted if (i) the Company's leverage ratio is less than or equal to 2.50, (ii) the Company is in compliance with all other financial covenants and (iii) there are no existing defaults under the 2016 Credit Agreement. If its leverage ratio is more than 2.50, the Company is still permitted to fund (i) up to \$30.0 million of dividend payments, (ii) stock repurchases sufficient to offset dilution created by the issuance of equity as compensation to its officer, directors, employees and consultants and (iii) an incremental \$30.0 million of other cash payments.

The 2016 Credit Agreement contains customary events of default. If an event of default occurs and is continuing, the Borrowers may be required immediately to repay all amounts outstanding under the 2016 Credit Agreement and the commitments from the lenders may be terminated.

The 2016 Credit Agreement amended and restated the Company's March 13, 2013 Credit Agreement (the "2013 Credit Agreement"), which provided the Company with a \$225.0 million senior secured credit facility comprised of a five-year fully funded term loan of \$75.0 million and a five-year \$150.0 million revolving credit facility.

Under the terms of the 2013 Credit Agreement, the Company was required to make quarterly installment payments against the \$75.0 million term loan, with any remaining balance due on the maturity date of March 13, 2018. As a result of executing the 2016 Credit Agreement subsequent to December 31, 2015, but prior to the issuance of the financial statements for the year then ended, the \$6.9 million current portion of term loan debt outstanding as of December 31, 2015 was reflected as a component of long-term borrowings and capital lease obligations on the Consolidated Balance Sheets. Under the 2013 Credit Agreement, the Company was allowed to prepay the term loan in whole or in part prior to maturity without premium or penalty. In 2014, the Company made a voluntary term loan prepayment of \$15.0 million. In the first quarter of 2016, the Company repaid the remaining \$43.4 million of principal outstanding under the 2013 Credit Agreement.

In the first quarter of 2016, approximately \$0.3 million of unamortized deferred financing fees associated with the 2013 Credit Agreement were written off in connection with executing the 2016 Credit Agreement. The Company incurred \$1.1 million of debt issuance costs in connection with the execution of the 2016 Credit Agreement. Such fees have been deferred and are being amortized over the five-year term.

As of December 31, 2016, there was \$63.2 million of cash drawn and \$18.0 million of undrawn letters of credit under the 2016 Credit Agreement, with \$243.8 million of net availability for borrowings. As of December 31, 2016, there was no cash drawn against the Company's non-U.S. lines of credit which provide for borrowings up to \$0.1 million.

For the year ended December 31, 2016, gross borrowings and gross payments under the 2016 Credit Agreement were \$69.8 million and \$5.0 million, respectively. For the year ended December 31, 2015, there were no gross borrowings or gross payments under the Company's domestic revolving credit facility portion of the 2013 Credit Agreement. For the year ended December 31, 2014, gross borrowings and gross payments under the Company's domestic revolving credit facility portion of the 2013 Credit Agreement were \$6.5 million and \$26.5 million, respectively.

Aggregate maturities of total borrowings amount to approximately \$0.5 million in 2017, \$0.2 million in 2018, \$0.1 million in 2019, less than \$0.1 million in 2020 and \$63.2 million in 2021. The weighted average interest rate on long-term borrowings was 1.9% at December 31, 2016.

The Company paid interest of \$1.1 million in 2016, \$1.9 million in 2015 and \$3.0 million in 2014.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

NOTE 8 — INCOME TAXES

The following table summarizes the income tax expense (benefit) from continuing operations:

(in millions)	2016	2015	2014
Current:			
Federal.....	\$ 7.0	\$ 6.6	\$ 3.0
Foreign.....	0.6	—	0.3
State and local.....	2.0	1.8	1.3
Total current tax expense.....	<u>9.6</u>	<u>8.4</u>	<u>4.6</u>
Deferred:			
Federal.....	8.4	25.4	17.8
Foreign.....	(0.7)	(2.0)	(3.0)
State and local.....	0.1	2.3	4.3
Total deferred tax expense.....	<u>7.8</u>	<u>25.7</u>	<u>19.1</u>
Total income tax expense.....	<u>\$ 17.4</u>	<u>\$ 34.1</u>	<u>\$ 23.7</u>

The following table summarizes the differences between the statutory federal income tax rate and the effective income tax rate from continuing operations:

	2016	2015	2014
Statutory federal income tax rate.....	35.0%	35.0%	35.0%
State income taxes, net of federal tax benefit.....	3.6	3.3	3.7
Valuation allowance.....	(3.7)	1.7	(4.5)
Domestic production deduction.....	(2.4)	(2.2)	(2.1)
Tax planning benefits, excluding valuation allowance effects.....	—	(6.0)	—
Tax reserves.....	(1.0)	0.2	(1.2)
Tax credits.....	(0.8)	1.9	(0.6)
Foreign tax rate effects.....	0.8	0.5	(2.0)
Other, net.....	(0.9)	(0.3)	0.1
Effective income tax rate.....	<u>30.6%</u>	<u>34.1%</u>	<u>28.4%</u>

The following table summarizes income from continuing operations before taxes:

(in millions)	2016	2015	2014
U.S.....	\$ 57.7	\$ 96.4	\$ 78.2
Non-U.S.....	(0.9)	3.5	5.2
Income from continuing operations before taxes.....	<u>\$ 56.8</u>	<u>\$ 99.9</u>	<u>\$ 83.4</u>

ASC Topic 740, *Income Taxes*, requires that the future realization of deferred tax assets depends on the existence of sufficient taxable income in future periods. Possible sources of taxable income include taxable income in carryback periods, the future reversal of existing taxable temporary differences recorded as a deferred tax liability, tax-planning strategies that generate future income or gains in excess of anticipated losses in the carryforward period and projected future taxable income. If, based upon all available evidence, both positive and negative, it is more likely than not such deferred tax assets will not be realized, a valuation allowance is recorded. Significant weight is given to positive and negative evidence that is objectively verifiable. A company's three-year cumulative loss position is significant negative evidence in considering whether deferred tax assets are realizable and the accounting guidance restricts the amount of reliance the Company can place on projected taxable income to support the recovery of the deferred tax assets.

We continually evaluate the need to maintain a valuation allowance for deferred tax assets based on our assessment of whether it is more likely than not that deferred tax benefits will be realized through the generation of future taxable income. Appropriate consideration is given to all available evidence, both positive and negative, in assessing the need for a valuation allowance.

During the fourth quarter of 2016, the Company determined that \$3.5 million of valuation allowance, previously recorded against deferred tax assets in Canada, could be released. These assets primarily relate to Canadian net operating loss carryforwards that were largely generated by the Company's former North American refuse truck body business, which was

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

discontinued in 2005. As of December 31, 2015, these deferred tax assets, and the corresponding full valuation allowance, were included within Long-term assets of discontinued operations on the Consolidated Balance Sheet.

The Company has not had any material operations in Canada for a number of years. The current-year acquisitions of JJE and, to a lesser extent, Westech, expand the Company's footprint in Canada, and the Company now has operations in that jurisdiction. The Company was in a three-year cumulative loss position in Canada as of December 31, 2016, primarily because of the aggregate year-to-date operating losses of the current-year acquisitions. The current-year operating losses largely result from the recognition of higher cost of sales associated with sales of acquired equipment, which were increased to fair value in connection with purchase accounting for the acquisition of JJE. While these purchase accounting expense effects are expected to continue for several quarters, the impact on future quarterly operating results is expected to be less significant than during 2016. Absent these expenses, which are not considered indicative of the Company's ongoing operations in Canada, the Company would have been in a cumulative three-year income position. Furthermore, management believes that future projections support the realization of the deferred tax assets before the net operating loss carryforwards begin to expire in 2025. Based on its evaluation, management concluded that there was sufficient positive evidence to support the future realization of the Canadian deferred tax assets, such that the valuation allowance could be released in the fourth quarter of 2016.

In addition, during the fourth quarter of 2016, the Company determined that a valuation allowance of \$1.3 million should be recorded against its net deferred tax assets in the United Kingdom ("U.K."), which include deferred tax assets on the actuarial losses of its U.K. defined benefit plan. The Company's U.K. operations have been adversely impacted in recent years by ongoing softness in global coal markets. The Company reached its conclusion after considering current market conditions, as well as the cumulative three-year loss position as of December 31, 2016.

The Company recognized income tax expense of \$17.4 million for the year ended December 31, 2016, compared to \$34.1 million for the year ended December 31, 2015. The decrease in tax expense in the current year was primarily due to lower pre-tax income levels and an aggregate net benefit of \$2.2 million resulting from the aforementioned valuation allowance changes. The Company's effective tax rate for the year ended December 31, 2016 was 30.6%, compared to 34.1% in 2015. The effective tax rate for 2016 included the \$2.2 million net benefit from the valuation allowance changes, whereas the prior-year rate included certain tax benefits, described further below, that did not recur in 2016.

The Company recognized income tax expense of \$34.1 million for the year ended December 31, 2015, compared to \$23.7 million for the year ended December 31, 2014. The Company's effective tax rate for the year ended December 31, 2015 was 34.1%, compared to 28.4% in 2014. The increase in tax expense in 2015 compared to 2014 was primarily due to higher pre-tax income levels and the absence of certain tax benefits in 2014 that did not recur in 2015, described further below. The Company's effective tax rate for the year ended December 31, 2015 was favorably impacted by a \$4.2 million net tax benefit associated with tax planning strategies, partially offset by a \$2.4 million adjustment of deferred tax assets and \$0.4 million of expense associated with a change in the enacted tax rate in the U.K. The Company's effective tax rate for the year ended December 31, 2014 was favorably impacted by a \$3.5 million release of valuation allowance previously recorded against deferred tax assets in Spain, a \$1.0 million net reduction in unrecognized tax benefits and a benefit of \$0.4 million related to the decrease in foreign deferred tax liabilities resulting from a change in the enacted Spanish tax rate.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes deferred income tax assets and liabilities of the Company's continuing operations:

(in millions)	2016	2015
Deferred tax assets:		
Depreciation and amortization	\$ 11.2	\$ 10.9
Accrued expenses	25.9	27.6
Net operating loss, alternative minimum tax, research and development and foreign tax credit carryforwards	22.6	29.1
Definite lived intangibles	1.2	1.4
Pension benefits	32.9	33.5
Other	0.1	—
Gross deferred tax assets	93.9	102.5
Valuation allowance	(7.7)	(5.9)
Total deferred tax assets	86.2	96.6
Deferred tax liabilities:		
Depreciation and amortization	(10.5)	(6.6)
Expenses capitalized for book	(1.4)	(2.0)
Pension benefits	(14.5)	(14.7)
Indefinite lived intangibles	(51.1)	(52.6)
Other	(0.2)	(0.1)
Gross deferred tax liabilities	(77.7)	(76.0)
Net deferred tax assets	\$ 8.5	\$ 20.6

The deferred tax asset for tax loss and tax credit carryforwards at December 31, 2016 includes federal net operating loss carryforwards of \$3.0 million, which begin to expire in 2027, state net operating loss carryforwards of \$6.8 million, which will begin to expire in 2017, and foreign net operating loss carryforwards of \$9.2 million, which will begin to expire in 2025. The deferred tax asset for tax credit carryforwards includes U.S. research tax credit carryforwards of \$1.1 million, which will begin to expire in 2019, U.S. foreign tax credits of \$1.5 million, which will begin to expire in 2023, and U.S. alternative minimum tax credit carryforwards of \$1.0 million with no expiration.

The deferred tax asset for tax loss and tax credit carryforwards at December 31, 2015, included federal net operating loss carryforwards of \$4.0 million, state net operating loss carryforwards of \$6.8 million, foreign net operating loss carryforwards of \$5.2 million, U.S. research tax credit carryforwards of \$1.5 million, U.S. foreign tax credits of \$8.3 million, and U.S. alternative minimum tax credit carryforwards of \$3.3 million.

In addition to a \$1.9 million valuation allowance recorded against foreign net deferred tax assets, inclusive of the \$1.3 million valuation allowance recorded in the U.K. during the year ended December 31, 2016, we continue to maintain a valuation allowance on certain state deferred tax assets that we believe, on a more likely than not basis, will not be realized. At December 31, 2016, the valuation allowance recorded against state net operating loss carryforwards totaled \$5.8 million.

The \$86.2 million of deferred tax assets at December 31, 2016, for which no valuation allowance is recorded, is anticipated to be realized through future taxable income or the future reversal of existing taxable temporary differences recorded as deferred tax liabilities at December 31, 2016. Should the Company determine that it would not be able to realize its remaining deferred tax assets in the future, an adjustment to the valuation allowance would be recorded in the period such determination is made.

Federal and state income taxes have not been provided on accumulated undistributed earnings of certain foreign subsidiaries aggregating approximately \$28.9 million and \$28.0 million at December 31, 2016 and 2015, respectively, as such undistributed earnings are considered to be indefinitely reinvested in the business. The determination of the amount of the unrecognized deferred tax liability related to the undistributed earnings is not practicable.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes the activity related to the Company's unrecognized tax benefits:

(in millions)	2016	2015	2014
Balance at January 1	\$ 2.2	\$ 2.0	\$ 3.9
Increases related to current year tax	0.1	0.3	0.4
Increases from prior period positions	—	—	0.3
Decreases from prior period positions	—	—	(0.1)
Decreases due to lapse of statute of limitations	(0.5)	(0.1)	(2.4)
Foreign currency translation	—	—	(0.1)
Balance at December 31	<u>\$ 1.8</u>	<u>\$ 2.2</u>	<u>\$ 2.0</u>

The Company's continuing practice is to recognize interest and penalties related to income tax matters in income tax expense. At December 31, 2016 and 2015, accruals for interest and penalties amounting to \$0.6 million and \$0.8 million, respectively, are included in the Consolidated Balance Sheets but are not included in the table above. At December 31, 2016 and 2015, reserves for unrecognized tax benefits, including interest and penalties, of \$2.1 million and \$2.5 million, respectively, were included within Other long-term liabilities on the Consolidated Balance Sheets. At December 31, 2016 and 2015, unrecognized tax benefits of \$0.3 million and \$0.5 million, respectively, were included as a reduction of Deferred tax assets on the Consolidated Balance Sheets.

All of the unrecognized tax benefits of \$1.8 million at December 31, 2016 would impact our annual effective tax rate, if recognized. We do not expect any significant change to our unrecognized tax benefits as a result of potential expiration of statute of limitations and settlements with tax authorities.

We file U.S., state and foreign income tax returns in jurisdictions with varying statutes of limitations. The 2014 through 2015 tax years generally remain subject to examination by federal tax authorities, whereas the 2012 through 2015 tax years generally remain subject to examination by most state tax authorities. In significant foreign jurisdictions, the tax years from 2012 through 2015 generally remain subject to examination by their respective tax authorities.

The Company paid income taxes of \$13.3 million in 2016, \$9.6 million in 2015 and \$7.2 million in 2014.

NOTE 9 — PENSIONS

The Company and its subsidiaries sponsor two defined benefit pension plans covering certain salaried and hourly employees. These plans have been closed to new participants for a number of years. Benefits under these plans are primarily based on final average compensation and years of service as defined within the provisions of the individual plans. As a result of plan amendments, the latest of which was in 2008, the only new benefits that were being accrued through the end of 2016 were salary increases for a limited group of participants. Those benefits ceased at the end of 2016, at which point all existing plans became fully frozen.

The Company also participates in multi-employer pension plans that provide defined benefits to employees under U.S. collective bargaining agreements. None of these plans are considered individually significant to the Company. Contributions to these plans totaled \$0.1 million, \$0.2 million and \$0.2 million for 2016, 2015 and 2014, respectively.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes net periodic pension expense for U.S. and non-U.S. benefit plans:

(in millions)	U.S. Benefit Plan			Non-U.S. Benefit Plan		
	2016	2015	2014	2016	2015	2014
Company-sponsored plans:						
Service cost	\$ —	\$ —	\$ —	\$ 0.2	\$ 0.2	\$ 0.2
Interest cost	7.8	7.6	7.9	1.8	2.1	2.6
Expected return on plan assets	(10.3)	(10.3)	(9.1)	(2.4)	(2.7)	(3.6)
Amortization of actuarial loss	5.6	6.8	5.1	0.6	0.7	0.4
Total Company-sponsored plans	3.1	4.1	3.9	0.2	0.3	(0.4)
Multi-employer plans	0.1	0.2	0.2	—	—	—
Net periodic pension expense	<u>\$ 3.2</u>	<u>\$ 4.3</u>	<u>\$ 4.1</u>	<u>\$ 0.2</u>	<u>\$ 0.3</u>	<u>\$ (0.4)</u>

The following table summarizes the weighted-average assumptions used in determining pension costs:

	U.S. Benefit Plan			Non-U.S. Benefit Plan		
	2016	2015	2014	2016	2015	2014
Discount rate	4.6%	4.2%	5.1%	3.7%	3.5%	4.5%
Rate of increase in compensation levels	—	3.5%	3.5%	—	—	—
Expected long-term rate of return on plan assets	7.5%	7.8%	7.6%	4.9%	4.7%	5.9%

The following table summarizes the changes in the projected benefit obligation and plan assets:

(in millions)	U.S. Benefit Plan		Non-U.S. Benefit Plan	
	2016	2015	2016	2015
Benefit obligation, beginning of year	\$ 174.3	\$ 186.3	\$ 55.7	\$ 62.7
Service cost	—	—	0.2	0.2
Interest cost	7.8	7.6	1.8	2.1
Actuarial loss (gain)	7.7	(10.0)	7.8	(2.5)
Benefits and expenses paid	(9.2)	(9.6)	(4.2)	(3.5)
Foreign currency translation	—	—	(9.6)	(3.3)
Benefit obligation, end of year	<u>\$ 180.6</u>	<u>\$ 174.3</u>	<u>\$ 51.7</u>	<u>\$ 55.7</u>
Accumulated benefit obligation, end of year	<u>\$ 180.6</u>	<u>\$ 173.5</u>	<u>\$ 51.7</u>	<u>\$ 55.7</u>

The following table summarizes the weighted-average assumptions used in determining benefit obligations:

	U.S. Benefit Plan		Non-U.S. Benefit Plan	
	2016	2015	2016	2015
Discount rate	4.3%	4.6%	2.6%	3.7%
Rate of increase in compensation levels	—	3.5%	—	—

The following summarizes the changes in the fair value of plan assets:

(in millions)	U.S. Benefit Plan		Non-U.S. Benefit Plan	
	2016	2015	2016	2015
Fair value of plan assets, beginning of year	\$ 128.1	\$ 134.0	\$ 54.3	\$ 59.0
Actual return on plan assets ^(a)	6.6	(3.3)	6.2	0.8
Company contribution	5.6	7.0	1.3	1.1
Benefits and expenses paid	(9.2)	(9.6)	(4.2)	(3.5)
Foreign currency translation	—	—	(9.1)	(3.1)
Fair value of plan assets, end of year	<u>\$ 131.1</u>	<u>\$ 128.1</u>	<u>\$ 48.5</u>	<u>\$ 54.3</u>

(a) Actual return on plan assets of the U.S. benefit plan for the years ended December 31, 2016 and 2015, was net of fees, commissions and other expenses paid from plan assets of \$1.9 million and \$1.5 million, respectively.

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As more fully described within Note 17 – Fair Value Measurements, the Company uses a three-level fair value hierarchy that prioritizes the inputs used to measure fair value.

Following is a description of the valuation methodologies used for assets measured at fair value for the U.S. benefit plan:

- Cash and cash equivalents are comprised of cash on deposit and a money market fund, that invests principally in short-term instruments. The money-market fund is valued at the net asset value (“NAV”) of the shares in the fund.
- Equity investments represent domestic and foreign securities, including common stock, which are publicly traded on active exchanges and are valued based on quoted market prices. Certain equity securities, which are valued using a model that takes the underlying security’s “best” price, divides it by the applicable exchange rate and multiplies the result by a depository receipt factor, are categorized within Level 2 of the fair value hierarchy.
- Fixed income investments include corporate bonds, asset-backed securities and treasury bonds. Corporate bonds are valued using pricing models that include bids provided by brokers or dealers, benchmark yields, base spreads and reported trades. Asset-backed securities are valued using models with readily observable data as inputs. Treasury bonds are valued based on quoted market prices in active markets.
- Mutual funds are valued at the NAV, based on quoted market prices in active markets, of shares held by the plan at year end.
- Real estate investments include public real estate investment trusts (“REIT”) and exchange traded REIT funds, which are publicly traded on active exchanges and are valued based on quoted market prices.

Following is a description of the valuation methodologies used for assets measured at fair value for the non-U.S. benefit plan:

- Equity investments represent domestic and foreign securities, which are publicly traded on active exchanges and are valued based on quoted market prices. The inputs used to value certain other non-U.S. investments in equity securities both in the U.K. and other overseas markets are based on observable market information consistent with Level 2 of the fair value hierarchy inputs.
- Fixed income investments include treasury securities, which are valued based on quoted market prices in active markets, and corporate bonds which are either valued based on quoted market prices in active markets or other readily observable market data.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following summarizes the Company's pension assets in a three-tier fair value hierarchy for its benefit plans:

(in millions)	U. S. Benefit Plan							
	2016				2015			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	\$ 5.7	\$ —	\$ —	\$ 5.7	\$ 6.8	\$ —	\$ —	\$ 6.8
Equity securities:								
U.S. Large Cap	36.4	0.1	—	36.5	37.7	0.1	—	37.8
U.S. Small and Mid Cap	16.9	—	—	16.9	18.0	—	—	18.0
Developed international	8.6	7.7	—	16.3	12.8	6.9	—	19.7
Emerging markets	11.9	0.5	—	12.4	6.9	—	—	6.9
Fixed income:								
Government securities	7.1	—	—	7.1	2.7	0.3	—	3.0
Asset-backed securities	—	9.9	—	9.9	—	7.7	—	7.7
Corporate bonds	—	14.9	—	14.9	—	13.1	—	13.1
Mutual funds	—	—	—	—	0.7	—	—	0.7
Other investments:								
Mutual funds	5.6	—	—	5.6	10.5	—	—	10.5
Real estate	5.4	—	—	5.4	4.0	—	—	4.0
Total assets at fair value ^(a)	\$ 97.6	\$ 33.1	\$ —	\$ 130.7	\$ 100.1	\$ 28.1	\$ —	\$ 128.2

(a) Total assets at fair value in the table above exclude a net receivable of \$0.4 million and a net payable of \$0.1 million at December 31, 2016 and 2015, respectively.

(in millions)	Non-U. S. Benefit Plan							
	2016				2015			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash	\$ 0.4	\$ —	\$ —	\$ 0.4	\$ 9.2	\$ —	\$ —	\$ 9.2
Equity securities	—	41.9	—	41.9	5.3	34.8	—	40.1
Fixed income:								
Government securities	1.3	—	—	1.3	2.7	—	—	2.7
Corporate bonds	2.6	2.3	—	4.9	1.5	0.8	—	2.3
Total assets at fair value	\$ 4.3	\$ 44.2	\$ —	\$ 48.5	\$ 18.7	\$ 35.6	\$ —	\$ 54.3

The Company maintains a structured derisking investment strategy for the U.S. pension plan to improve alignment of assets and liabilities that includes: (i) maintaining a diversified portfolio that can provide a near-term weighted-average target return of approximately 7.1% or more, (ii) maintaining liquidity to meet obligations and (iii) prudently managing administrative and management costs. The target asset allocations for the U.S. pension plan are (i) between 45% and 75% equity securities, (ii) between 15% and 40% fixed income securities and (iii) between 0% and 20% in other investments, with the remainder represented by cash and cash equivalents. Other investments may include real estate investments and mutual funds investing in real estate, commodities or hedge funds.

Plan assets for the non-U.S. benefit plans consist principally of a diversified portfolio of equity securities, U.K. government securities, corporate bonds and debt securities. The target asset allocations for the non-U.S. benefit plan assets are between 70% and 80% equity securities and between 20% and 30% debt securities.

During the year ended December 31, 2015, the Company repurchased all of the remaining 0.2 million shares of its common stock from its U.S. benefit plan for a total cost of \$3.6 million. The repurchases were made under authorized stock repurchase programs further outlined in Note 14 – Stockholders' Equity. Dividends paid on the Company's common stock held in the U.S. benefit plan did not exceed \$0.1 million in each of the years ended December 31, 2015 and 2014.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following summarizes the funded status of the Company-sponsored plans:

(in millions)	U.S. Benefit Plan		Non-U.S. Benefit Plan	
	2016	2015	2016	2015
Fair value of plan assets, end of year	\$ 131.1	\$ 128.1	\$ 48.5	\$ 54.3
Benefit obligation, end of year	180.6	174.3	51.7	55.7
Funded status, end of year	\$ (49.5)	\$ (46.2)	\$ (3.2)	\$ (1.4)

The following summarizes the amounts recognized within our Consolidated Balance Sheets:

(in millions)	U.S. Benefit Plan		Non-U.S. Benefit Plan	
	2016	2015	2016	2015
Amounts recognized in Total liabilities include:				
Long-term pension and other post-retirement benefit liabilities	\$ 49.5	\$ 46.2	\$ 3.2	\$ 1.4
Net liability recorded	\$ 49.5	\$ 46.2	\$ 3.2	\$ 1.4
Amounts recognized in Accumulated other comprehensive loss include:				
Net actuarial loss	\$ 84.1	\$ 78.2	\$ 18.8	\$ 18.7
Net amount recognized, pre-tax	\$ 84.1	\$ 78.2	\$ 18.8	\$ 18.7

As a result of the U.S. benefit plan becoming fully frozen at the end of 2016, all plan participants are now considered to be inactive. Effective in 2017, the actuarial loss associated with the U.S. benefit plan that is included in Accumulated other comprehensive loss will be amortized into net periodic benefit cost over the remaining average life expectancy of plan participants, as opposed to over the remaining average service period. The same methodology has previously been applied to the U.K. benefit plan, which has been fully frozen for a number of years. The Company expects \$3.2 million of the net actuarial loss to be amortized from Accumulated other comprehensive loss into net periodic benefit cost in 2017.

The Company expects to contribute up to \$5.0 million to the U.S. benefit plan and up to \$1.3 million to the non-U.S. benefit plan in 2017. Future contributions to the plans will be based on such factors as annual service cost, the financial return on plan assets, interest rate movements that affect discount rates applied to plan liabilities and the value of benefit payments made.

The following summarizes the benefits expected to be paid under the Company's defined benefit plans in each of the next five years, and in aggregate for the five years thereafter:

(in millions)	U.S. Benefit Plan	Non-U.S. Benefit Plan
2017	\$ 9.0	\$ 2.4
2018	9.0	2.5
2019	9.1	2.6
2020	9.7	2.7
2021	10.1	2.8
2022-2026	55.4	15.7

The Company also sponsors a defined contribution retirement plan covering a majority of its employees. Participation is via automatic enrollment and employees may elect to opt out of the plan. Company contributions to the plan are based on employee age and years of service, as well as the percentage of employee contributions. The cost of these plans was \$6.9 million in 2016, \$7.5 million in 2015 and \$7.1 million in 2014.

Prior to September 30, 2003, the Company also provided medical benefits to certain eligible retired employees. These benefits are funded when the claims are incurred. Participants generally became eligible for these benefits at age 60 after completing at least 15 years of service. The plan provided for the payment of specified percentages of medical expenses reduced by any deductible and payments made by other primary group coverage and government programs. Effective September 30, 2003, the Company amended the retiree medical plan and effectively canceled coverage for all eligible active employees except for retirees and a limited group that qualified under a formula based on age and years of service. Accumulated post-retirement benefit liabilities of \$0.4 million and \$0.5 million at December 31, 2016 and 2015, respectively, were fully accrued. The net periodic post-retirement benefit costs have not been significant during the three-year period ended December 31, 2016.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

NOTE 10 — COMMITMENTS AND CONTINGENCIES

Financial Commitments

The Company provides indemnifications and other guarantees in the ordinary course of business, the terms of which range in duration and often are not explicitly defined. Specifically, the Company is occasionally required to provide letters of credit and bid and performance bonds to various customers, principally to act as security for retention levels related to casualty insurance policies and to guarantee the performance of subsidiaries that engage in export and domestic transactions. At December 31, 2016, the Company had outstanding performance and financial standby letters of credit, as well as outstanding bid and performance bonds, aggregating \$21.5 million. If any such letters of credit or bonds are called, the Company would be obligated to reimburse the issuer of the letter of credit or bond. The Company believes the likelihood of any currently outstanding letter of credit or bond being called is remote.

In addition, prior to the June 3, 2016 acquisition date, JJE entered into certain transactions involving the sale of equipment to certain of its customers which included (i) guarantees to repurchase the equipment for a fixed price at a future date and (ii) guarantees to repurchase the equipment from the third-party lender in the event of default by the customer. As of December 31, 2016, the single year and maximum potential cash payments the Company could be required to make to repurchase equipment under these agreements were \$1.6 million and \$3.4 million, respectively. The Company's risk under these repurchase arrangements would be partially mitigated by the value of the products repurchased as part of the transaction. In addition, the former owners of JJE have agreed to reimburse the Company for certain losses incurred resulting from the requirement to repurchase any such equipment. Any such reimbursement could be withheld from the CS\$8.0 million deferred payment to be made on the third anniversary of the acquisition date. In the preliminary purchase price allocation, described further in Note 2 – Acquisitions, the Company has included an immaterial accrual for potential losses related to the repurchase exposures associated with JJE's historical practices. The Company's repurchase accrual represents the expected losses that could result from obligations to repurchase products, after giving effect to proceeds anticipated to be received from the resale of those products to alternative customers, as well as to the reimbursement of any losses incurred. The Company has recorded its estimated net liability associated with losses from these guarantee and repurchase obligations on its Consolidated Balance Sheets based on historical experience and current facts and circumstances. Historical cash requirements and losses associated with these obligations have not been significant, but could increase if customer defaults exceed current expectations.

For certain independent Environmental Solutions Group dealers that purchase products financed by a third-party lender (the "Lender"), the Company had also previously provided a limited repurchase agreement to the Lender. In the event of a default by the applicable dealer and ultimate repossession of the underlying products by the Lender, the Company would have been obligated to repurchase those products from the Lender. The arrangement was subject to a maximum repurchase amount and the Company's repurchase obligation was generally limited to products purchased by the dealer, and financed by the Lender, for a period of one year. The Company's risk under the repurchase arrangement would be partially mitigated by the value of the products repurchased under the agreement. The Company and the Lender executed an amendment to the agreement which removed the Company's repurchase obligation effective January 1, 2016, such that, as of December 31, 2016, the Company no longer has any repurchase obligation under the agreement.

Product Warranties

The Company issues product performance warranties to customers with the sale of its products. The specific terms and conditions of these warranties vary depending upon the product sold and country in which the Company does business, with warranty periods generally ranging from one to five years. The Company estimates the costs that may be incurred under its basic limited warranty and records a liability in the amount of such costs at the time the sale of the related product is recognized. Factors that affect the Company's warranty liability include (i) the number of units under warranty from time to time, (ii) historical and anticipated rates of warranty claims and (iii) costs per claim. The Company periodically assesses the adequacy of its recorded warranty liabilities and adjusts the amounts as necessary.

The following table summarizes the changes in the Company's warranty liabilities:

(in millions)	2016	2015
Balance at January 1	\$ 7.4	\$ 7.7
Provisions to expense	5.5	5.9
Actual costs incurred	(6.5)	(6.2)
Balance at December 31	\$ 6.4	\$ 7.4

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Environmental Liabilities

Reserves of \$0.6 million and \$0.9 million related to the environmental remediation of the Pearland, Texas facility are included in liabilities of discontinued operations on the Consolidated Balance Sheets at December 31, 2016 and 2015, respectively. The facility was previously used by the Company's discontinued Pauluhn business and manufactured marine, offshore and industrial lighting products. The Company sold the facility in May 2012 and it is probable that the site will require remediation. The recorded reserves are based on an undiscounted estimate of the range of costs to remediate the site, depending upon the remediation approach and other factors. The Company's estimate may change in the near term as more information becomes available; however, the costs are not expected to have a material adverse effect on the Company's results of operations, financial position or cash flow.

NOTE 11 — LEGAL PROCEEDINGS

The Company is subject to various claims, including pending and possible legal actions for product liability and other damages, and other matters arising in the ordinary course of the Company's business. On a quarterly basis, the Company reviews uninsured material legal claims against the Company and accrues for the costs of such claims as appropriate in the exercise of management's best judgment and experience. However, due to a lack of factual information available to the Company about a claim, or the procedural stage of a claim, it may not be possible for the Company to reasonably assess either the probability of a favorable or unfavorable outcome of the claim or to reasonably estimate the amount of loss should there be an unfavorable outcome. Therefore, for many claims, the Company cannot reasonably estimate a range of loss.

The Company believes, based on current knowledge and after consultation with counsel, that the outcome of such claims and actions will not have a material adverse effect on the Company's results of operations or financial condition. However, in the event of unexpected future developments, it is possible that the ultimate resolution of such matters, if unfavorable, could have a material adverse effect on the Company's results of operations, financial condition or cash flow.

Hearing Loss Litigation

The Company has been sued for monetary damages by firefighters who claim that exposure to the Company's sirens has impaired their hearing and that the sirens are therefore defective. There were 33 cases filed during the period of 1999 through 2004, involving a total of 2,443 plaintiffs, in the Circuit Court of Cook County, Illinois. These cases involved more than 1,800 firefighter plaintiffs from locations outside of Chicago. In 2009, six additional cases were filed in Cook County, involving 299 Pennsylvania firefighter plaintiffs. During 2013, another case was filed in Cook County involving 74 Pennsylvania firefighter plaintiffs.

The trial of the first 27 of these plaintiffs' claims occurred in 2008, whereby a Cook County jury returned a unanimous verdict in favor of the Company.

An additional 40 Chicago firefighter plaintiffs were selected for trial in 2009. Plaintiffs' counsel later moved to reduce the number of plaintiffs from 40 to nine. The trial for these nine plaintiffs concluded with a verdict against the Company and for the plaintiffs in varying amounts totaling \$0.4 million. The Company appealed this verdict. On September 13, 2012, the Illinois Appellate Court rejected this appeal. The Company thereafter filed a petition for rehearing with the Illinois Appellate Court, which was denied on February 7, 2013. The Company sought further review by filing a petition for leave to appeal with the Illinois Supreme Court on March 14, 2013. On May 29, 2013, the Illinois Supreme Court issued a summary order declining to accept review of this case. On July 1, 2013, the Company satisfied the judgments entered for these plaintiffs, which has resulted in final dismissal of these cases.

A third consolidated trial involving eight Chicago firefighter plaintiffs occurred during November 2011. The jury returned a unanimous verdict in favor of the Company at the conclusion of this trial.

Following this trial, on March 12, 2012 the trial court entered an order certifying a class of the remaining Chicago Fire Department firefighter plaintiffs for trial on the sole issue of whether the Company's sirens were defective and unreasonably dangerous. The Company petitioned the Illinois Appellate Court for interlocutory appeal of this ruling. On May 17, 2012, the Illinois Appellate Court accepted the Company's petition. On June 8, 2012, plaintiffs moved to dismiss the appeal, agreeing with the Company that the trial court had erred in certifying a class action trial in this matter. Pursuant to plaintiffs' motion, the Illinois Appellate Court reversed the trial court's certification order.

Thereafter, the trial court scheduled a fourth consolidated trial involving three firefighter plaintiffs, which began in December 2012. Prior to the start of this trial, the claims of two of the three firefighter plaintiffs were dismissed. On December 17, 2012, the jury entered a complete defense verdict for the Company.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Following this defense verdict, plaintiffs again moved to certify a class of Chicago Fire Department plaintiffs for trial on the sole issue of whether the Company's sirens were defective and unreasonably dangerous. Over the Company's objection, the trial court granted plaintiffs' motion for class certification on March 11, 2013 and scheduled a class action trial to begin on June 10, 2013. The Company filed a petition for review with the Illinois Appellate Court on March 29, 2013 seeking reversal of the class certification order.

On June 25, 2014, a unanimous three-judge panel of the First District Illinois Appellate Court issued its opinion reversing the class certification order of the trial court. Specifically, the Appellate Court determined that the trial court's ruling failed to satisfy the class-action requirements that the common issues of the firefighters' claims predominate over the individual issues and that there is an adequate representative for the class. During a status hearing on October 8, 2014, plaintiffs represented to the Court that they would again seek to certify a class of firefighters on the issue of whether the Company's sirens were defective and unreasonably dangerous. On January 12, 2015, plaintiffs filed motions to amend their complaints to add class action allegations with respect to Chicago firefighter plaintiffs as well as the approximately 1,800 firefighter plaintiffs from locations outside of Chicago. On March 11, 2015, the trial court granted plaintiff's motions to amend their complaints. Plaintiffs have indicated that they will now file motions to certify classes in these cases. On April 24, 2015, the cases were transferred to Cook County chancery court, which will decide all class certification issues. The Company intends to continue its objections to any attempt at certification. The Company has also filed motions to dismiss cases involving firefighters who worked for fire departments located outside of the state of Illinois based on improper venue. On February 24, 2017, the Circuit Court of Cook County entered orders dismissing the cases of 1,770 such firefighter plaintiffs from the jurisdiction of the state of Illinois.

The Company has also been sued on this issue outside of the Cook County, Illinois venue. Many of these cases have involved lawsuits filed by a single attorney in the Court of Common Pleas, Philadelphia County, Pennsylvania. During 2007 and through 2009, this attorney filed a total of 71 lawsuits involving 71 plaintiffs in this jurisdiction. Three of these cases were dismissed pursuant to pretrial motions filed by the Company. Another case was voluntarily dismissed. Prior to trial in four cases, the Company paid nominal sums to obtain dismissals.

Three trials occurred in Philadelphia involving these cases filed in 2007 through 2009. The first trial involving one of these plaintiffs occurred in 2010, when the jury returned a verdict for the plaintiff. In particular, the jury found that the Company's siren was not defectively designed, but that the Company negligently constructed the siren. The jury awarded damages in the amount of \$0.1 million, which was subsequently reduced to \$0.08 million. The Company appealed this verdict. Another trial, involving nine Philadelphia firefighter plaintiffs, also occurred in 2010 when the jury returned a defense verdict for the Company as to all claims and all plaintiffs involved in that trial. The third trial, also involving nine Philadelphia firefighter plaintiffs, was completed during 2010 when the jury returned a defense verdict for the Company as to all claims and all plaintiffs involved in that trial.

Following defense verdicts in the last two Philadelphia trials, the Company negotiated settlements with respect to all remaining filed cases in Philadelphia at that time, as well as other firefighter claimants represented by the attorney who filed the Philadelphia cases. On January 4, 2011, the Company entered into a Global Settlement Agreement (the "Settlement Agreement") with the law firm of the attorney representing the Philadelphia claimants, on behalf of 1,125 claimants the firm represented (the "Claimants") and who had asserted product claims against the Company (the "Claims"). Three hundred eight of the Claimants had lawsuits pending against the Company in Cook County, Illinois.

The Settlement Agreement, as amended, provided that the Company pay a total amount of \$3.8 million (the "Settlement Payment") to settle the Claims (including the costs, fees and other expenses of the law firm in connection with its representation of the Claimants), subject to certain terms, conditions and procedures set forth in the Settlement Agreement. In order for the Company to be required to make the Settlement Payment: (i) each Claimant who agreed to settle his or her claims had to sign a release acceptable to the Company (a "Release"), (ii) each Claimant who agreed to the settlement and who was a plaintiff in a lawsuit, had to dismiss his or her lawsuit with prejudice, (iii) by April 29, 2011, at least 93% of the Claimants identified in the Settlement Agreement must have agreed to settle their claims and provide a signed Release to the Company and (iv) the law firm had to withdraw from representing any Claimants who did not agree to the settlement, including those who filed lawsuits. If the conditions to the settlement were met, but less than 100% of the Claimants agreed to settle their Claims and sign a Release, the Settlement Payment would be reduced by the percentage of Claimants who did not agree to the settlement.

On April 22, 2011, the Company confirmed that the terms and conditions of the Settlement Agreement had been met and made a payment of \$3.6 million to conclude the settlement. The amount was based upon the Company's receipt of 1,069 signed releases provided by Claimants, which was 95.02% of all Claimants identified in the Settlement Agreement.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The Company generally denies the allegations made in the claims and lawsuits by the Claimants and denies that its products caused any injuries to the Claimants. Nonetheless, the Company entered into the Settlement Agreement for the purpose of minimizing its expenses, including legal fees, and avoiding the inconvenience, uncertainty and distraction of the claims and lawsuits.

During April through October 2012, 20 new cases were filed in the Court of Common Pleas, Philadelphia County, Pennsylvania. These cases were filed on behalf of 20 Philadelphia firefighters and involve various defendants in addition to the Company. Five of these cases were subsequently dismissed. The first trial involving these 2012 Philadelphia cases occurred during December 2014 and involved three firefighter plaintiffs. The jury returned a verdict in favor of the Company. Following this trial, all of the parties agreed to settle cases involving seven firefighter plaintiffs set for trial during January 2015 for nominal amounts per plaintiff. In January 2015, plaintiffs' attorneys filed two new complaints in the Court of Common Pleas, Philadelphia, Pennsylvania on behalf of approximately 70 additional firefighter plaintiffs. The vast majority of the firefighters identified in these complaints are located outside of Pennsylvania. One of the complaints in these cases, which involves 11 firefighter plaintiffs from the District of Columbia, was removed to federal court in the Eastern District of Pennsylvania. Plaintiffs voluntarily dismissed all claims in this case on May 31, 2016. The Company has moved to recover various fees and costs in this case, asserting that plaintiffs' counsel failed to properly investigate these claims prior to filing suit. With respect to claims of other out-of-state firefighters involved in these two cases, the Company moved to dismiss these claims as improperly filed in Pennsylvania. The Court granted this motion and dismissed these claims on November 5, 2015. During August through December 2015, another nine new cases were filed in the Court of Common Pleas, Philadelphia County, Pennsylvania. These cases involve a total of 193 firefighters, most of whom are located outside of Pennsylvania. The Company again moved to dismiss all claims filed by out-of-state firefighters in these cases as improperly filed in Pennsylvania. On May 24, 2016, the Court granted this motion and dismissed these claims. Plaintiffs have filed a notice of appeal regarding this decision. On May 13, 2016, four new cases were filed in Philadelphia state court, involving a total of 55 Philadelphia firefighters who live in Pennsylvania. During August 2016, the Company settled a case involving four Philadelphia firefighters that had been set for trial in Philadelphia state court during September 2016.

During April through July 2013, additional cases were filed in Allegheny County, Pennsylvania. These cases involve 247 plaintiff firefighters from Pittsburgh and various defendants, including the Company. During May 2016, two additional cases were filed against the Company in Allegheny County involving 19 Pittsburgh firefighters. After the Company filed pretrial motions, the Court dismissed claims of 55 Pittsburgh firefighter plaintiffs. The Court scheduled the first trials of these Pittsburgh firefighters to occur in May, September and November 2016. On April 14, 2016, the Court granted the Company's motion for summary judgment regarding strict liability claims asserted by all plaintiff firefighters involved in the first trial scheduled for May 2016. Subsequently, the Court also dismissed all remaining negligence claims asserted by these firefighters. The next trial involving six Pittsburgh firefighters started on November 7, 2016. Shortly after this trial began, plaintiffs' counsel moved for a mistrial because a key witness suddenly became unavailable. The Court granted this motion and rescheduled this trial for March 6, 2017. During January 2017, plaintiffs also moved to consolidate and bifurcate trials involving Pittsburgh firefighters. In particular, plaintiffs seek one trial involving liability issues which will apply to all Pittsburgh firefighters who have filed suit against the Company. The Company intends to oppose this motion. During March 2014, an action also was brought in the Court of Common Pleas of Erie County, Pennsylvania on behalf of 61 firefighters. This case likewise involves various defendants in addition to the Company. After the Company filed pretrial motions, 33 Erie County firefighter plaintiffs voluntarily dismissed their claims.

On September 17, 2014, 20 lawsuits, involving a total of 193 Buffalo Fire Department firefighters, were filed in the Supreme Court of the State of New York, Erie County. Several product manufacturers, including the Company, have been named as defendants in these cases. All of the cases filed in Erie County, New York have been removed to federal court in the Western District of New York. During February 2015, a lawsuit involving one New York City firefighter plaintiff was filed in the Supreme Court of the State of New York, New York County. The plaintiff named the Company as well as several other parties as defendants. That case has been transferred to federal court in the Northern District of New York. Plaintiffs agreed to voluntarily dismiss this case during May 2016. The Company also is aware that a lawsuit involving eight New York City firefighters was filed in New York County, New York, on April 24, 2015. The Company has not yet been served in that case. During November 2015 through January 2016, 28 new cases involving a total of 227 firefighters were filed in various counties in the New York City area. During December 2016, an additional case, involved 11 New York firefighters, was filed in New York County state court. A total of 451 firefighters are currently involved in cases filed in the state of New York.

During November 2015, the Company was served with a complaint filed in Union County, New Jersey state court, involving 34 New Jersey firefighters. This case has been transferred to federal court in the District of New Jersey. During the period from January through May 2016, eight additional cases were filed in various New Jersey state courts. Most of the firefighters in these cases reside in New Jersey and work or worked at New Jersey fire departments. During December 2016, a case involving one

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

New Jersey firefighter was filed in the United States District Court of New Jersey. A total of 105 firefighters are currently involved in cases filed in New Jersey.

During May through October 2016, nine cases were filed in Suffolk County, Massachusetts state court, naming the Company as a defendant. These cases involve 194 firefighters who lived and worked in the Boston area.

From 2007 through 2009, firefighters also brought hearing loss claims against the Company in New Jersey, Missouri, Maryland and Kings County, New York. All of those cases, however, were dismissed prior to trial, including four cases in the Supreme Court of Kings County, New York that were dismissed upon the Company's motion in 2008. On appeal, the New York appellate court affirmed the trial court's dismissal of these cases. Plaintiffs' attorneys have threatened to file additional lawsuits. The Company intends to vigorously defend all of these lawsuits, if filed.

The Company's ongoing negotiations with its insurer, CNA, over insurance coverage on these claims have resulted in reimbursements of a portion of the Company's defense costs. These reimbursements are recorded as a reduction of corporate operating expenses. For the years ended December 31, 2016, 2015 and 2014, the Company recorded reimbursements from CNA of \$0.2 million, \$0.3 million, and \$0.3 million, respectively, related to legal costs, respectively.

Latvian Commercial Dispute

On June 12, 2014, a Latvian trial court issued a summary ruling against the Company's former Bronto subsidiary in a lawsuit relating to a commercial dispute. The dispute involves a transaction for the 2008 sale of three Bronto units that were purchased by a financing company for lease to a Latvian fire department. The lessor and the Latvian fire department sought to rescind the contract after delivery, despite the fact that an independent third party, selected by the lessor, had certified that the vehicles satisfied the terms of the contract. The adverse judgment required Bronto to refund the purchase price and pay interest and attorneys' fees. The trial court denied the lessor's claim against Bronto for alleged damages relating to lost lease income.

Believing that the claims against Bronto were invalid and that Bronto fully satisfied the terms of the subject contract, on July 10, 2014, the Company filed an appeal with the Civil Chamber of the Supreme Court of Latvia seeking a reversal of the trial court's ruling.

At December 31, 2015, the Company had not accrued any liability within its consolidated financial statements for this lawsuit. In evaluating whether a charge to record a reserve was previously necessary, the Company analyzed all of the available information, including the legal reasoning applied by the judge of the trial court in reaching its decision. Based on the Company's analysis, and consultations with external counsel, the Company assessed the likelihood of a successful appeal to be more likely than not and therefore did not believe that a probable loss had been incurred.

In connection with the sale of Bronto to Morita Holdings Corporation ("Morita"), discussed further in Note 18 – Discontinued Operations, the Company and Morita agreed that the Company would remain in control of negotiations and proceedings relating to the appeal and fund the legal costs associated therewith. The Company also agreed to compensate Morita for 50% of any liability resulting from a final and non-appealable decision of a court of competent jurisdiction, net of any actual income tax benefit to Bronto as a result of the judgment, and less 50% of legal fees incurred by the Company, relating to the defense of this matter, subsequent to the January 29, 2016 closing date of the sale.

In April 2016, the Civil Chamber of the Supreme Court of Latvia heard the Company's appeal and upheld the trial court's ruling against Bronto. As the Company's appeal of the trial judgment was unsuccessful, a charge of \$1.3 million was recorded as a component of Gain (loss) from discontinued operations and disposal, net of tax in the year ended December 31, 2016, to reflect the Company's share of the liability. The Company has decided not to further appeal the Supreme Court's ruling and expects to settle the aforementioned liability with Morita during the first quarter of 2017.

NOTE 12 — EARNINGS PER SHARE

The Company computes earnings per share ("EPS") in accordance with ASC 260, *Earnings per Share*, which requires that non-vested restricted stock containing non-forfeitable dividend rights should be treated as participating securities pursuant to the two-class method. Under the two-class method, net income is reduced by the amount of dividends declared in the period for common stock and participating securities. The remaining undistributed earnings are then allocated to common stock and participating securities as if all of the net income for the period had been distributed. The amounts of distributed and undistributed earnings allocated to participating securities for the years ended December 31, 2016, 2015 and 2014 were insignificant and did not materially impact the calculation of basic or diluted EPS.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Basic EPS is computed by dividing income or loss available to common stockholders by the weighted average number of shares of common stock outstanding for the year.

Diluted EPS is computed using the weighted average number of shares of common stock and non-vested restricted stock awards outstanding for the year, plus the effect of dilutive potential common shares outstanding during the year. The dilutive effect of common stock equivalents is determined using the more dilutive of the two-class method or alternative methods. We use the treasury stock method to determine the potentially dilutive impact of our employee stock options and restricted stock units, and the contingently issuable method for our performance-based restricted stock unit awards.

For the years ended December 31, 2016, 2015 and 2014, options to purchase 1.3 million, 0.8 million and 0.5 million shares of the Company's common stock, respectively, had an anti-dilutive effect on EPS, and accordingly, are excluded from the calculation of diluted EPS.

The following table reconciles net income to basic and diluted EPS:

(in millions, except per share data)	2016	2015	2014
Income from continuing operations	\$ 39.4	\$ 65.8	\$ 59.7
Gain (loss) from discontinued operations and disposal, net of tax	4.4	(2.3)	4.0
Net income	<u>\$ 43.8</u>	<u>\$ 63.5</u>	<u>\$ 63.7</u>
Weighted average shares outstanding — Basic	60.4	62.2	62.7
Dilutive effect of common stock equivalents	0.8	1.2	0.9
Weighted average shares outstanding — Diluted	<u>61.2</u>	<u>63.4</u>	<u>63.6</u>
Basic earnings per share:			
Earnings from continuing operations	\$ 0.65	\$ 1.06	\$ 0.95
Earnings (loss) from discontinued operations and disposal, net of tax	0.07	(0.04)	0.06
Net earnings per share	<u>\$ 0.72</u>	<u>\$ 1.02</u>	<u>\$ 1.01</u>
Diluted earnings per share:			
Earnings from continuing operations	\$ 0.64	\$ 1.04	\$ 0.94
Earnings (loss) from discontinued operations and disposal, net of tax	0.07	(0.04)	0.06
Net earnings per share	<u>\$ 0.71</u>	<u>\$ 1.00</u>	<u>\$ 1.00</u>

NOTE 13 — STOCK-BASED COMPENSATION

The Company's stock compensation plan, approved by the Company's stockholders and administered by the Compensation and Benefits Committee of the Board of Directors of the Company (the "CBC"), provides for the grant of incentive stock options, restricted stock and other stock-based awards or units to key employees and directors. The plan authorizes the grant of up to 7.8 million shares or units through April 2025. At December 31, 2016, approximately 5.6 million shares were available for future issuance under the plan.

The total compensation expense related to all grants awarded under the plan was \$4.8 million, \$6.7 million and \$6.1 million, for the years ended December 31, 2016, 2015 and 2014, respectively. The related income tax benefits recognized in earnings were \$2.2 million, \$2.2 million and \$1.6 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Stock Options

Stock options vest ratably (i.e. one-third annually) over the three years from the date of the grant. The cost of stock options, based on their fair value at the date of grant, is charged to expense over the respective vesting periods. Stock options normally become exercisable at a rate of one-third annually and in full on the third anniversary date. Under the plan, all options and rights must be exercised within ten years from date of grant. At the Company's discretion, vested stock option holders are permitted to elect an alternative settlement method in lieu of purchasing common stock at the option price. The alternative settlement method permits the employee to receive, without payment to the Company, cash, shares of common stock or a combination thereof equal to the excess of market value of common stock over the option purchase price. The Company has historically settled all such options in common stock and intends to continue to do so. Stock options do not have voting or dividend rights until such time that the options are exercised and shares have been issued.

The weighted average fair value of options granted during 2016, 2015 and 2014 was \$4.25, \$6.12 and \$7.16, respectively.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The fair value of each option grant was estimated using the Black-Scholes option pricing model with the following weighted average assumptions:

	2016	2015	2014
Dividend yield	2.2%	1.5%	0.8%
Expected volatility	43%	46%	57%
Risk free interest rate	1.3%	1.5%	1.9%
Weighted average expected option life in years	5.8	5.7	5.8

The expected life of options represents the weighted average period of time that options granted are expected to be outstanding giving consideration to vesting schedules and the Company's historical exercise patterns. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of the grant for periods corresponding with the expected life of the options. Expected volatility is based on historical volatility of the Company's common stock. Dividend yields are based on historical dividend payments.

The following summarizes stock option activity:

(in millions)	Option Shares			Weighted Average Exercise Price		
	2016	2015	2014	2016	2015	2014
Outstanding, at beginning of year	2.1	2.0	2.1	\$ 10.29	\$ 9.28	\$ 8.63
Granted	0.7	0.3	0.3	12.69	16.08	14.36
Exercised	(0.1)	(0.1)	(0.3)	8.39	7.34	7.49
Canceled or expired	(0.1)	(0.1)	(0.1)	15.77	14.69	14.33
Outstanding, at end of year	2.6	2.1	2.0	\$ 10.71	\$ 10.29	\$ 9.28
Exercisable, at end of year	1.6	1.4	1.2	\$ 8.96	\$ 8.47	\$ 8.64

At December 31, 2016, options that have vested and are expected to vest totaled 2.5 million shares, with a weighted average exercise price of \$10.54, and represent the sum of 1.6 million vested (or exercisable) options and 0.9 million options that are expected to vest. Options that are expected to vest are derived by applying the pre-vesting forfeiture rate assumption against outstanding, unvested options as of December 31, 2016.

The following table summarizes information for stock options outstanding as of December 31, 2016 under all plans:

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Shares	Weighted Average Remaining Life	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
	(in millions)	(in years)		(in millions)	
\$5.01 — \$10.00	1.1	5.0	\$ 6.70	1.1	\$ 6.70
10.01 — 15.00	1.1	7.8	12.88	0.3	12.89
15.01 — 20.00	0.4	7.0	16.09	0.2	16.10
	2.6	6.5	\$ 10.71	1.6	\$ 8.96

The aggregate intrinsic value of stock options outstanding and exercisable at December 31, 2016 was \$12.9 million and \$10.8 million, respectively. The total intrinsic value of stock options exercised was \$0.4 million, \$0.8 million and \$2.0 million for the years ended December 31, 2016, 2015 and 2014, respectively. The related tax benefits were \$0.1 million, \$0.2 million and \$0.8 million for the years ended December 31, 2016, 2015 and 2014, respectively. Cash received from the exercise of stock options was \$0.5 million, \$1.0 million and \$2.6 million for the years ended December 31, 2016, 2015 and 2014, respectively.

The total compensation expense related to all stock option compensation plans was \$2.1 million, \$2.0 million and \$1.7 million for the years ended December 31, 2016, 2015 and 2014, respectively. As of December 31, 2016, there was \$2.8 million of total unrecognized compensation cost related to stock options that is expected to be recognized over the weighted-average period of approximately 1.9 years.

Restricted Stock

Restricted stock awards and restricted stock units are granted to employees at no cost. Restricted stock primarily cliff vests at the third anniversary from the date of grant, provided the recipient is still employed by the Company on the vesting date. The cost of restricted stock, based on the fair market value of the underlying shares determined using the closing market price on the

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

date of grant, is charged to expense over the respective vesting periods. Shares associated with non-vested restricted stock awards have the same voting rights as the Company's common stock and have non-forfeitable rights to dividends. Shares associated with non-vested restricted stock units do not have voting or dividend rights.

The following table summarizes restricted stock activity for the year ended December 31, 2016:

	Number of Restricted Shares	Weighted Average Price per Share
	(in millions)	
Outstanding and non-vested, at December 31, 2015	0.2	\$ 12.70
Granted	0.1	13.16
Vested	(0.1)	11.10
Forfeited	—	13.87
Outstanding and non-vested, at December 31, 2016	<u>0.2</u>	<u>\$ 14.03</u>

The total grant-date fair value of restricted stock that vested in the years ended December 31, 2016, 2015 and 2014 was \$1.3 million, \$1.3 million and \$0.6 million, respectively.

The total compensation expense related to all restricted stock compensation plans was \$1.2 million, \$1.2 million and \$1.0 million for the years ended December 31, 2016, 2015 and 2014, respectively. As of December 31, 2016, there was \$0.8 million of total unrecognized compensation cost related to restricted stock that is expected to be recognized over the weighted-average period of approximately 1.9 years.

Performance Awards

In each of the three years in the period ended December 31, 2016, the Company granted performance-based restricted stock unit awards ("PSUs") to certain executives and other non-executive officers. Performance targets associated with PSUs are set annually and approved by the CBC. At the Company's discretion, actual payment of the awards earned shall be in cash or in common stock of the Company, or in a combination of both. The Company intends to settle all such awards by issuing shares of its common stock. The number of shares of common stock that the Company may issue in connection with these PSUs can range from 0% to 200% of target, depending upon achievement against the performance targets. Shares associated with non-vested PSUs do not have voting or dividend rights until issuance. The Company assesses the probability of vesting, based on expected achievement against these performance targets, on a quarterly basis.

The cost of PSUs, based on their fair market value determined using the closing market price on the date of grant, is charged to expense over the respective vesting periods, which is the three-year period ended December 31, 2016 for the 2014 grants, the three-year period ended December 31, 2017 for the 2015 grants and the three-year period ended December 31, 2018 for the 2016 grants.

The PSUs granted in 2016 have a three-year performance period ending December 31, 2018, in which the Company must achieve a certain cumulative EPS from continuing operations and a certain average return on invested capital ("ROIC"), which are performance conditions per ASC 718. If earned, these shares would vest on December 31, 2018.

The PSUs granted in 2015 have a three-year performance period ending December 31, 2017, in which the Company must achieve a certain cumulative EPS from continuing operations and a certain average ROIC. If earned, these shares would vest on December 31, 2017.

The PSUs granted in 2014 had a two-year performance period ending December 31, 2015, in which a certain cumulative EPS from continuing operations and a certain average ROIC was targeted, followed by a one-year service requirement. The EPS and ROIC thresholds during the two-year performance period were achieved at the maximum level, and 200% of the target shares were earned. The PSUs granted in 2014 became fully vested on December 31, 2016. The underlying shares were issued to participants in the first quarter of 2017.

The total grant-date fair value of PSUs that vested in the years ended December 31, 2016, 2015 and 2014 was \$3.7 million, \$3.7 million and \$2.5 million, respectively.

Compensation expense included in the Consolidated Statements of Operations for the PSUs in the years ended December 31, 2016, 2015 and 2014 was \$1.5 million, \$3.5 million and \$3.4 million, respectively. As of December 31, 2016, there was \$1.1 million of total unrecognized compensation cost related to PSUs that is expected to be recognized over the weighted-average period of approximately 2.0 years.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes PSU activity for the year ended December 31, 2016:

	Number of PSUs (in millions)	Weighted Average Price per Share
Outstanding and non-vested, at December 31, 2015	0.3	\$ 15.28
Granted ^(a)	0.4	13.33
Vested	(0.3)	14.46
Forfeited	—	15.47
Outstanding and non-vested, at December 31, 2016	<u>0.4</u>	<u>\$ 13.91</u>

(a) Includes 0.1 million PSUs, representing the effect of the PSUs granted in 2014 being earned at 200% of target. The PSUs granted in 2014 vested on December 31, 2016.

Excess Tax Benefits

For income tax purposes, stock-based compensation expense is deductible in the year of exercise or vesting based on the intrinsic value of the award on the date of exercise or vesting. For financial reporting purposes, stock-based compensation expense is based upon grant-date fair value and amortized over the vesting period. Excess tax benefits represent the excess tax deduction received by the Company resulting from the difference between the stock-based compensation expense deductible for income tax purposes and the stock-based compensation expense recognized for financial reporting purposes.

Prior to the adoption of ASU 2016-09 on January 1, 2016, excess tax benefits were recorded to Capital in excess of par value on the Consolidated Statements of Stockholders' Equity. Excess tax benefits for the years ended December 31, 2015 and 2014 were \$1.6 million and \$2.2 million, respectively. Subsequent to the adoption of ASU 2016-09, excess tax benefits are recorded as a component of Income tax expense on the Consolidated Statements of Operations.

Prior to the adoption of ASU 2016-09, excess tax benefits were presented as a cash outflow from operating activities and as a cash inflow from financing activities on the Consolidated Statements of Cash Flows. ASU 2016-09 requires excess tax benefits from share-based compensation to be included as a component of cash flow from operating activities on the Consolidated Statements of Cash Flow rather than as a component of cash flow from financing activities. As permitted by ASU 2016-09, the Company has applied this change prospectively during the year ended December 31, 2016 and prior periods have not been adjusted to conform to the current-year presentation.

NOTE 14 — STOCKHOLDERS' EQUITY

The Company's Board of Directors (the "Board") has the authority to issue 90.0 million shares of common stock at a par value of \$1 per share. The holders of common stock (i) may receive dividends subject to all of the rights of the holders of preference stock, (ii) shall be entitled to share ratably upon any liquidation of the Company in the assets of the Company, if any, remaining after payment in full to the holders of preference stock and (iii) receive one vote for each common share held and shall vote together share for share with the holders of voting shares of preference stock as one class for the election of directors and for all other purposes. The Company had 65.4 million and 64.8 million common shares issued as of December 31, 2016 and 2015, respectively. Of those amounts, 59.6 million and 62.2 million common shares were outstanding as of December 31, 2016 and 2015, respectively.

The Board is also authorized to provide for the issuance of 0.8 million shares of preference stock at a par value of \$1 per share. The authority of the Board includes, but is not limited to, the determination of the dividend rate, voting rights, conversion and redemption features and liquidation preferences. The Company has not designated or issued any preference stock as of December 31, 2016.

Dividends

In 2014, the Board reinstated the Company's quarterly cash dividend. In the aggregate, the Company declared and paid dividends totaling \$16.9 million, \$15.6 million and \$5.6 million during 2016, 2015 and 2014, respectively.

On February 17, 2017, the Board declared a quarterly cash dividend of \$0.07 per common share payable on March 31, 2017 to holders of record at the close of business on March 10, 2017.

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Stock Repurchase Program

In April 2014, the Board authorized a stock repurchase program (the “April 2014 program”) of up to \$15.0 million of the Company’s common stock. The April 2014 program was intended primarily to facilitate a reduction in the investment in Company stock within the Company’s U.S. defined benefit pension plan portfolio and to reduce dilution resulting from issuances of stock under the Company’s employee equity incentive programs. During the year ended December 31, 2014, the Company repurchased 696,263 shares for a total of \$10.3 million under the April 2014 program.

In November 2014, the Board authorized an additional stock repurchase program (the “November 2014 program”) of up to \$75.0 million of the Company’s common stock. The November 2014 program is intended primarily to facilitate opportunistic purchases of Company stock as a means to provide cash returns to stockholders, enhance stockholder returns and manage the Company’s capital structure.

During the year ended December 31, 2015, the Company repurchased 724,792 shares for a total of \$10.6 million under the authorized stock repurchase programs. During the second quarter of 2015, cumulative stock repurchases under the April 2014 program reached the maximum authorized level of \$15.0 million. No additional stock repurchases will be made under that program.

During the year ended December 31, 2016, the Company repurchased 2,961,007 shares for a total of \$37.8 million under the November 2014 program.

Under its stock repurchase programs, the Company is authorized to repurchase, from time to time, shares of its outstanding common stock in the open market or through privately negotiated transactions. Stock repurchases by the Company are subject to market conditions and other factors and may be commenced, suspended or discontinued at any time.

Accumulated Other Comprehensive Loss

The following tables summarize the changes in each component of Accumulated other comprehensive loss, net of tax:

(in millions) ^(a)	Actuarial Losses ^(b)	Foreign Currency Translation ^(c)	Unrealized Gain on Derivatives	Total
Balance at January 1, 2016	\$ (75.6)	\$ (13.3)	\$ 0.1	\$ (88.8)
Other comprehensive loss before reclassifications	(7.8)	(7.1)	—	(14.9)
Amounts reclassified from accumulated other comprehensive loss	4.4	7.4	(0.1)	11.7
Net current-period other comprehensive (loss) income	(3.4)	0.3	(0.1)	(3.2)
Balance at December 31, 2016	<u>\$ (79.0)</u>	<u>\$ (13.0)</u>	<u>\$ —</u>	<u>\$ (92.0)</u>

(in millions) ^(a)	Actuarial Losses	Foreign Currency Translation	Unrealized Gain on Derivatives	Total
Balance at January 1, 2015	\$ (79.8)	\$ 0.2	\$ 0.1	\$ (79.5)
Other comprehensive loss before reclassifications	(0.6)	(13.5)	—	(14.1)
Amounts reclassified from accumulated other comprehensive loss	4.8	—	—	4.8
Net current-period other comprehensive income (loss)	4.2	(13.5)	—	(9.3)
Balance at December 31, 2015	<u>\$ (75.6)</u>	<u>\$ (13.3)</u>	<u>\$ 0.1</u>	<u>\$ (88.8)</u>

(a) Amounts in parenthesis indicate debits.

(b) In connection with the sale of Bronto, the Company recognized an actuarial loss of \$0.4 million attributable to Bronto’s defined benefit plan. The loss was included in Gain (loss) from discontinued operations and disposal for the year ended December 31, 2016.

(c) The Company recognized a foreign currency translation loss of \$7.4 million in the year ended December 31, 2016, in connection with the sale of Bronto. The recognition of the translation loss, which represented the cumulative translation effects attributable to the Fire Rescue Group, was included in Gain (loss) from discontinued operations and disposal for the year ended December 31, 2016.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes the amount of actuarial losses reclassified from Accumulated other comprehensive loss, net of tax, and the affected line item in the Consolidated Statements of Operations:

Details about Accumulated Other Comprehensive Loss Components	Amount Reclassified from Accumulated Other Comprehensive Loss		Affected Line Item in Consolidated Statements of Operations ^(a)
	2016	2015	
	(in millions) ^(b)		
Amortization of actuarial losses of defined benefit pension plans	\$ (6.2)	\$ (7.5)	(c)
Amortization of actuarial gains of retiree medical plans	—	0.1	SEG&A expenses
Total before tax	(6.2)	(7.4)	
Income tax benefit	2.2	2.6	Income tax expense
Total reclassifications for the period, net of tax	<u>\$ (4.0)</u>	<u>\$ (4.8)</u>	

(a) Continuing operations only.

(b) Amount in parenthesis indicate debits to profit/loss.

(c) The actuarial loss components of Accumulated other comprehensive loss are included in the computation of net periodic pension cost for the period, as disclosed in Note 9 – Pensions.

NOTE 15 — SEGMENT INFORMATION

The Company has two operating segments, and the Company’s reportable segments are consistent with those operating segments. Business units are organized under each segment because they share certain characteristics, such as technology, marketing, distribution and product application, which create long-term synergies. The principal activities of the Company’s operating segments are as follows:

Environmental Solutions — Our Environmental Solutions Group is a leading manufacturer and supplier of a full range of street sweeper vehicles, sewer cleaner and vacuum loader trucks, hydro-excavation trucks and high-performance waterblasting equipment. The Group manufactures vehicles and equipment in the U.S. and Canada that are sold under the Elgin[®], Vactor[®], Guzzler[®], Westech[™] and Jetstream[®] brand names. Products are sold to both municipal and industrial customers either through a dealer network or direct sales to service customers generally depending on the type and geographic location of the customer. The acquisition of JJE extends the Environmental Solutions Group’s existing sales channel and increases the number of service centers through which its parts, service and rental offerings can be provided to current and potential customers. The acquisition also broadens the Environmental Solutions Group’s product offerings to include other products, such as refuse and recycling collection vehicles, camera systems, ice-making equipment and snow-removal equipment.

Safety and Security Systems — Our Safety and Security Systems Group is a leading manufacturer and supplier of comprehensive systems and products that law enforcement, fire rescue, emergency medical services, campuses, military facilities and industrial sites use to protect people and property. Offerings include systems for campus and community alerting, emergency vehicles, first responder interoperable communications and industrial communications, as well as command and municipal networked security. Specific products include vehicle lightbars and sirens, public warning sirens, general alarm systems, public address systems and public safety software. Products are sold under the Federal Signal[™], Federal Signal VAMA[®] and Victor[®] brand names. The Group operates manufacturing facilities in the U.S., Europe and South Africa.

Corporate contains those items that are not included in our operating segments.

Net sales by operating segment reflect sales of products and services to external customers, as reported in the Company’s Consolidated Statements of Operations. Intersegment sales are insignificant. The Company evaluates performance based on operating income of the respective segment. Operating income includes all revenues, costs and expenses directly related to the segment involved. In determining operating segment income, neither corporate nor interest expenses are included. Operating segment depreciation expense, identifiable assets and capital expenditures relate to those assets that are utilized by the respective operating segment. Corporate assets consist principally of cash and cash equivalents, deferred tax assets and fixed assets. The accounting policies of each operating segment are the same as those described in Note 1 – Summary of Significant Accounting Policies.

Revenues attributed to customers located outside of the U.S. aggregated \$197.7 million in 2016, \$191.2 million in 2015 and \$198.5 million in 2014, of which sales exported from the U.S. aggregated \$88.0 million, \$146.2 million and \$152.5 million, respectively.

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As discussed in Note 2 – Acquisitions, the assets and liabilities of JJE and Westech have been consolidated into the Consolidated Balance Sheet as of December 31, 2016, while the post-acquisition results of operations have been included in the Consolidated Statements of Operations subsequent to their respective closing dates in 2016. JJE and Westech are included within the Environmental Solutions Group.

The following tables summarize the Company’s continuing operations by segment, including net sales, operating income, depreciation and amortization, total assets and capital expenditures:

(in millions)	2016	2015	2014
Net sales:			
Environmental Solutions	\$ 490.7	\$ 534.1	\$ 536.6
Safety and Security Systems	217.2	233.9	242.5
Total net sales	<u>\$ 707.9</u>	<u>\$ 768.0</u>	<u>\$ 779.1</u>
Operating income:			
Environmental Solutions	\$ 54.1	\$ 96.9	\$ 81.9
Safety and Security Systems	27.0	32.3	32.1
Corporate and eliminations	(23.4)	(26.0)	(25.3)
Total operating income	<u>57.7</u>	<u>103.2</u>	<u>88.7</u>
Interest expense	1.9	2.3	3.6
Debt settlement charges	0.3	—	—
Other (income) expense, net	(1.3)	1.0	1.7
Income before income taxes	<u>\$ 56.8</u>	<u>\$ 99.9</u>	<u>\$ 83.4</u>
(in millions)	2016	2015	2014
Depreciation and amortization:			
Environmental Solutions	\$ 14.5	\$ 7.3	\$ 6.8
Safety and Security Systems	4.4	4.8	4.5
Corporate	0.2	0.2	0.2
Total depreciation and amortization	<u>\$ 19.1</u>	<u>\$ 12.3</u>	<u>\$ 11.5</u>
(in millions)	2016	2015	2014
Total assets:			
Environmental Solutions	\$ 393.3	\$ 250.6	\$ 254.2
Safety and Security Systems	200.1	209.6	208.3
Corporate and eliminations	48.7	99.2	69.0
Total assets of continuing operations	<u>642.1</u>	<u>559.4</u>	<u>531.5</u>
Total assets of discontinued operations	1.1	107.1	127.2
Total assets	<u>\$ 643.2</u>	<u>\$ 666.5</u>	<u>\$ 658.7</u>
(in millions)	2016	2015	2014
Capital expenditures:			
Environmental Solutions	\$ 3.7	\$ 4.5	\$ 6.2
Safety and Security Systems	1.8	3.9	6.3
Corporate	0.6	1.2	1.2
Total capital expenditures	<u>\$ 6.1</u>	<u>\$ 9.6</u>	<u>\$ 13.7</u>

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes net sales by geographic region based on the location of the end customer:

(in millions)	2016	2015	2014
Net sales:			
U.S.	\$ 510.2	\$ 576.8	\$ 580.6
Canada	111.5	75.9	67.1
Europe/Other	86.2	115.3	131.4
Total net sales	<u>\$ 707.9</u>	<u>\$ 768.0</u>	<u>\$ 779.1</u>

The following table summarizes long-lived assets (excluding deferred tax and intangible assets) by geographic region based on the location of the Company's subsidiaries:

(in millions)	2016	2015	2014
Long-lived assets (excluding deferred tax and intangible assets):			
U.S.	\$ 78.7	\$ 53.3	\$ 53.5
Canada	46.1	—	—
Europe	2.5	2.6	2.5
Other	0.3	0.3	0.4
Total long-lived assets	<u>\$ 127.6</u>	<u>\$ 56.2</u>	<u>\$ 56.4</u>

NOTE 16 — RESTRUCTURING

The Company continues to review its businesses for opportunities to reduce operating expenses and focus on executing its strategy based on core competencies and cost efficiencies.

During the year ended December 31, 2016, the Company recorded expenses of \$1.7 million related to severance costs incurred in connection with the completion of a cost reduction plan within the Safety and Security Systems Group.

During the year ended December 31, 2015, the Company recorded expenses of \$0.4 million related to severance costs incurred in connection with the completion of a voluntary reduction-in-force within the Safety and Security Systems Group.

The following tables summarize the changes in the Company's restructuring reserves, which are included within other current liabilities on the Company's Consolidated Balance Sheets:

	2016	2015
Balance at January 1	\$ —	\$ —
Charge to expense	1.7	0.4
Cash payments	(1.3)	(0.4)
Balance at December 31	<u>\$ 0.4</u>	<u>\$ —</u>

NOTE 17 — FAIR VALUE MEASUREMENTS

The Company uses a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. This hierarchy maximizes the use of observable inputs and minimizes the use of unobservable inputs. Observable inputs are developed based on market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions about valuation based on the best information available in the circumstances. The three levels of inputs are classified as follows:

- Level 1 — quoted prices in active markets for identical assets or liabilities;
- Level 2 — observable inputs, other than quoted prices included in Level 1, such as quoted prices for markets that are not active, or other inputs that are observable or can be corroborated by observable market data; and
- Level 3 — unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities, including certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

In determining fair value, the Company uses various valuation approaches within the fair value measurement framework. The valuation methodologies used for the Company's assets and liabilities measured at fair value and their classification in the valuation hierarchy are summarized below:

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Cash Equivalents

Cash equivalents primarily consist of time-based deposits and interest-bearing instruments with maturities of three months or less. The Company classified cash equivalents as Level 1 due to the short-term nature of these instruments and measured the fair value based on quoted prices in active markets for identical assets.

Contingent Consideration

The Company has a contingent obligation to transfer cash to the former owners of JJE if specified financial results are met over future reporting periods (i.e., an earn-out). Liabilities for contingent consideration are measured at fair value each reporting period, with the acquisition-date fair value included as part of the consideration transferred. Subsequent changes in fair value are recorded as a component of Acquisition and integration-related expenses on the Consolidated Statements of Operations.

The Company uses an income approach to value the contingent consideration obligation based on future financial performance, which is determined based on the present value of expected future cash flows. Due to the lack of relevant observable market data over fair value inputs, the Company has classified the contingent consideration liability within Level 3 of the fair value hierarchy outlined in ASC 820, *Fair Value Measurements*. Increases in the expected payout under a contingent consideration arrangement contribute to increases in the fair value of the related liability. Conversely, decreases in the expected payout under a contingent consideration arrangement contribute to decreases in the fair value of the related liability. Changes in assumptions could have an impact on the fair value of the contingent consideration, which has a maximum payout of C\$10.0 million (approximately \$7.4 million).

The following tables summarize the Company's assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2016:

(in millions)	Fair Value Measurement at Reporting Date Using			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents	\$ 30.6	\$ —	\$ —	\$ 30.6
Liabilities:				
Contingent consideration	—	—	5.1	5.1

The following table provides a roll-forward of the fair value of recurring Level 3 fair value measurements for the year ended December 31, 2016:

(in millions)	Year Ended December 31, 2016
Contingent consideration liability, at beginning of period	\$ —
Issuance of contingent consideration in connection with acquisitions	4.9
Settlements of contingent consideration liabilities	—
Foreign currency translation	(0.2)
Total losses (gains) included in earnings ^(a)	0.4
Contingent consideration liability, at end of period	\$ 5.1

(a) Changes in the fair value of contingent consideration liabilities are included as a component of Acquisition and integration-related expenses within the Consolidated Statements of Operations.

NOTE 18 — DISCONTINUED OPERATIONS

In the year ended December 31, 2016, the Company recorded a net gain from discontinued operations and disposal of \$4.4 million, primarily driven by the \$4.2 million net gain on disposal of the Fire Rescue Group, which was discontinued in 2015, partially offset by the \$0.6 million net loss that the Fire Rescue Group realized in its 2016 operations up to the January 29, 2016 sale completion date. The net gain on disposal includes a \$1.3 million charge to recognize a liability in connection with a Latvian commercial dispute. Also contributing to the net gain in 2016 was a reduction in uncertain tax position reserves of approximately \$1.0 million, as well as adjustments of estimated product liability obligations of previously discontinued businesses, resulting from updated actuarial valuations.

In the year ended December 31, 2015, the Company recorded a net loss from discontinued operations and disposal of \$2.3 million. The net loss was primarily driven by tax expense associated with recording a net deferred tax liability of \$6.3 million,

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

partially offset by net income generated by the Fire Rescue Group, and the receipt of \$4.0 million from the escrow associated with the 2012 sale of the Company's former Federal Signal Technologies Group ("FSTech").

In the year ended December 31, 2014, the Company recorded a net gain from discontinued operations and disposal of \$4.0 million. The net gain was primarily driven by net income generated by the Fire Rescue Group, as well as adjustments of estimated product liability obligations of previously discontinued businesses, resulting from updated actuarial valuations.

The activity of the Company's discontinued operations in each of the years ended December 31, 2016, 2015 and 2014 is described further below:

FSTech

In connection with the sale of FSTech in 2012, \$22.0 million was placed into escrow as security for indemnification obligations provided by the Company pursuant to the sale agreement. A significant portion of the escrow identified for general indemnification obligations was held for a period of 18 months following the sale date with the remaining general escrow funds to be held for 36 months following the sale date.

In 2014, the Company received \$7.4 million from the escrow identified for general indemnification obligations. In 2015, the Company received the remaining general escrow funds of \$4.0 million and recorded this income as a component of Gain (loss) from discontinued operations and disposal, net of tax expense of \$1.5 million, within its Consolidated Statement of Operations for the year ended December 31, 2015. There are no amounts remaining in escrow as of December 31, 2016.

Fire Rescue Group

On January 29, 2016, the Company completed the sale of Bronto to Morita, initially receiving proceeds of €76.0 million in cash at closing (approximately \$82.3 million), with an additional €5.1 million in cash (approximately \$5.7 million) being received in connection with the payment of the final working capital and net debt adjustments in the second quarter of 2016.

Prior to sale, Bronto was the only remaining operation in the Company's Fire Rescue Group, which was previously identified as an operating segment of the Company as defined under ASC 280. Upon completion of the transaction, the Company will no longer operate the Fire Rescue Group, which the Company considers a significant strategic shift in the Company's operations, and as such, the Fire Rescue Group is being presented as a discontinued operation in the Company's consolidated financial statements.

Under the terms of the sale, the Company and Morita agreed that the Company will remain in control of negotiations and proceedings relating to the appeal of the ruling issued in the Latvian commercial dispute, discussed further in Note 10 – Commitments and Contingencies, and also fund the legal costs associated therewith. The Company also agreed to compensate Morita for 50% of any liability resulting from a final and non-appealable decision of a court of competent jurisdiction, net of any actual income tax benefit to Bronto as a result of the judgment, and less 50% of legal fees incurred by the Company between the January 29, 2016 date of sale and the date of receiving such non-appealable decision. The Company's appeal of the initial judgment, heard in April 2016, was unsuccessful, and a charge of \$1.3 million was recorded as a component of Gain (loss) from discontinued operations and disposal, net of tax in the year ended December 31, 2016 to reflect the Company's share of the liability. The Company has decided not to further appeal the Supreme Court's ruling and expects to settle the aforementioned liability with Morita during the first quarter of 2017.

On December 16, 2015, the Company entered into a foreign currency forward contract with a notional contract value of €76.0 million to mitigate its foreign exchange exposure related to the receipt of the euro-denominated sales proceeds. Prior to its settlement on January 29, 2016, the derivative was being marked-to-market, with related gains or losses reported in the Company's Consolidated Statement of Operations. The forward contract had a fair value of \$0.9 million on settlement, and a gain of \$0.3 million was recorded as a component of Other (income) expense, net in the Consolidated Statement of Operations for the year ended December 31, 2016. The forward contract had a fair value of \$0.6 million at December 31, 2015. An asset of \$0.6 million was included as a component of Prepaid expenses and other current assets on the Consolidated Balance Sheet as of December 31, 2015. The fair value of the forward contract was determined using readily available pricing sources for comparable instruments (Level 2 input).

In accordance with ASC 740, a tax liability should be recognized for the excess of the financial reporting basis over the tax basis (or the tax benefit when the tax basis exceeds the financial reporting basis) of an investment in a subsidiary (outside basis difference) when it is apparent that the temporary differences will reverse in the foreseeable future. In connection with presenting the Fire Rescue Group as a discontinued operation as of December 31, 2015, the Company was required to re-evaluate its position related to the recognition of a deferred tax asset or liability for the outside basis differences of the Bronto

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

entities being sold to Morita. In prior years, deferred taxes for such outside basis differences had not been recognized, either because of the Company's assertion of permanent reinvestment, or because recognition was not required applying one of the exceptions provided for in ASC 740. Due to the pending sale, these exceptions no longer applied at December 31, 2015, as the outside basis differences were expected to reverse in the foreseeable future. As a result, a net deferred tax liability of \$6.3 million was recorded as a component of long-term liabilities of discontinued operations on the Condensed Consolidated Balance Sheets as of December 31, 2015. Upon completion of the sale in the first quarter of 2016, this net deferred tax liability was recognized as a component of the tax expense on the gain on disposal.

After recognition of the accumulated foreign currency translation loss attributable to the Fire Rescue Group, as described in Note 14 – Stockholders' Equity, the actuarial losses described in Note 9 – Pensions, the \$1.3 million liability recorded in connection with the Latvian commercial dispute, as well as \$4.6 million of net income tax expense, the Company recognized a net gain of \$4.2 million on disposal of the Fire Rescue Group upon completion of the sale in the year ended December 31, 2016.

The following table presents the operating results of the Company's discontinued Fire Rescue Group for each of the three years in the period ended December 31, 2016:

(in millions)	2016 ^(a)	2015	2014
Net sales	\$ 4.2	\$ 100.0	\$ 139.4
Cost of sales	3.9	80.8	114.8
Gross profit	0.3	19.2	24.6
Selling, engineering, general and administrative expenses	1.1	17.1	20.7
Restructuring	—	0.8	—
Operating (loss) income	(0.8)	1.3	3.9
Interest expense, net	—	—	0.2
Other income, net	—	(0.2)	(0.2)
(Loss) income before income taxes	(0.8)	1.5	3.9
Income tax (benefit) expense	(0.2)	0.3	0.6
Net (loss) income from operations	<u>\$ (0.6)</u>	<u>\$ 1.2</u>	<u>\$ 3.3</u>

(a) Only includes activity in the period up to the completion of the sale on January 29, 2016.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Assets and liabilities of discontinued operations

The following table presents the assets and liabilities of the Company's discontinued operations, which include the Fire Rescue Group, as well as other operations discontinued in prior periods, as of December 31, 2016 and 2015:

(in millions)	2016			2015		
	Fire Rescue	Other	Total	Fire Rescue	Other	Total
Cash and cash equivalents	\$ —	\$ —	\$ —	\$ 5.0	\$ —	\$ 5.0
Accounts receivable, net	—	—	—	15.5	—	15.5
Inventories	—	—	—	40.4	—	40.4
Prepaid expenses	—	—	—	2.7	—	2.7
Other current assets	—	—	—	0.2	—	0.2
Current assets of discontinued operations	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 63.8</u>	<u>\$ —</u>	<u>\$ 63.8</u>
Properties and equipment, net	\$ —	\$ —	\$ —	\$ 13.4	\$ —	\$ 13.4
Goodwill	—	—	—	28.3	—	28.3
Deferred tax assets	—	1.1	1.1	—	1.6	1.6
Long-term assets of discontinued operations	<u>\$ —</u>	<u>\$ 1.1</u>	<u>\$ 1.1</u>	<u>\$ 41.7</u>	<u>\$ 1.6</u>	<u>\$ 43.3</u>
Accounts payable	\$ —	\$ —	\$ —	\$ 7.3	\$ —	\$ 7.3
Customer deposits	—	—	—	10.6	—	10.6
Accrued liabilities:						
Compensation and withholding taxes	—	—	—	4.3	—	4.3
Other current liabilities	1.3	0.8	2.1	4.0	2.4	6.4
Current liabilities of discontinued operations	<u>\$ 1.3</u>	<u>\$ 0.8</u>	<u>\$ 2.1</u>	<u>\$ 26.2</u>	<u>\$ 2.4</u>	<u>\$ 28.6</u>
Long-term pension and other post-retirement benefit liabilities	\$ —	\$ —	\$ —	\$ 0.7	\$ —	\$ 0.7
Other long-term liabilities	—	2.0	2.0	5.5	9.1	14.6
Long-term liabilities of discontinued operations	<u>\$ —</u>	<u>\$ 2.0</u>	<u>\$ 2.0</u>	<u>\$ 6.2</u>	<u>\$ 9.1</u>	<u>\$ 15.3</u>

The Company retains certain liabilities for other operations discontinued in prior periods, primarily for environmental remediation and product liability. Included in liabilities of discontinued operations at December 31, 2016 and 2015 is \$0.6 million and \$0.9 million, respectively, related to environmental remediation at the Pearland, Texas facility, and \$1.8 million and \$2.3 million, respectively, relating to estimated product liability obligations of the discontinued North American refuse truck body business.

NOTE 19 — NEW ACCOUNTING PRONOUNCEMENTS (ISSUED BUT NOT YET ADOPTED)

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* (“ASU 2014-09”), which supersedes the revenue recognition requirements in ASC 605, *Revenue Recognition*. This ASU is based on the principle that revenue is recognized to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments, and assets recognized from costs incurred to obtain or fulfill a contract. The ASU allows either a “full retrospective” adoption, in which the standard is applied to all periods presented in the financial statements, or a “modified retrospective” adoption, in which the guidance is applied retrospectively only to the most current period presented in the financial statements, with the cumulative effect of initially applying the new standard being recognized as an adjustment to the opening balance of retained earnings at the date of initial application. As originally proposed, this guidance was effective for annual reporting periods beginning on or after December 15, 2016, including interim periods within that reporting period, and early adoption was not permitted. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date* (“ASU 2015-14”), which deferred the effective date of the new revenue recognition requirements to annual reporting periods beginning on or after December 15, 2017, including interim periods within that reporting period. Under ASU 2015-14, companies are permitted to adopt the guidance early, but no earlier than the original effective date outlined in ASU 2014-09. The FASB has issued a number of amendments to ASU 2014-09 that are intended to address implementation issues that were raised by stakeholders and provide additional practical

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

expedients to reduce the cost and complexity of applying the new revenue standard. These amendments have the same effective date as ASU 2014-09.

The new revenue standard will be effective for the Company beginning January 1, 2018 and we expect to apply the “modified retrospective” method of adoption. The Company is continuing to evaluate the impact that the adoption of this guidance will have on its consolidated financial statements. In preparation for the adoption of the new standard, the Company has established a project management team responsible for analyzing the impact of ASU 2014-09, and the related amendments, across all revenue streams. The project management team is currently reviewing current accounting policies and practices, including a representative sample of contracts with customers, to identify potential differences that would result from applying the requirements under the new standard.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)* (“ASU 2016-02”), which requires organizations that are lessees in operating leases to recognize right-of-use assets and lease liabilities on the balance sheet and requires disclosure of key qualitative and quantitative information about leasing agreements by both lessors and lessees. For a lease to meet the requirements for accounting under a sale-leaseback transaction, it must meet the criteria for a sale in ASC 606, *Revenue from Contracts with Customers*. Entities are required to recognize and measure operating leases at the beginning of the earliest period presented using a modified retrospective approach. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of this guidance will have on its consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230), Classification of Certain Cash Receipts and Payments*, which provides additional guidance on the financial statement presentation of certain activities in the statement of cash flows. The activities addressed by this guidance that may be relevant to the Company include cash payments for debt prepayment or debt extinguishment costs, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims and proceeds from the settlement of corporate-owned life insurance policies, and the application of the predominance principle. The amendments in this ASU are effective for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. If an entity early adopts the amendments in an interim period, any adjustments should be reflected as of the beginning of the fiscal year that includes that interim period. An entity that elects early adoption must adopt all of the amendments in the same period. The amendments should be applied using a retrospective transition method to each period presented. If this approach is impracticable, the amendments would be applied prospectively as of the earliest date practicable. The Company has concluded that the adoption of this guidance will not have a material impact on the Company’s historical cash flow presentation.

No other new accounting pronouncements issued or effective during 2016 have had or are expected to have a material impact on the Company’s results of operations, financial position or cash flow. For discussion of new accounting pronouncements adopted during 2016, see Note 1 – Summary of Significant Accounting Policies.

NOTE 20 — SELECTED QUARTERLY DATA (UNAUDITED)

The Company reports its interim quarterly periods on a 13-week basis ending on a Saturday with the fiscal year ending on December 31. The effects of this practice exist only within a reporting year. For ease of presentation, the Company uses “March 31,” “June 30,” “September 30” and “December 31” to refer to its results of operations for the quarterly periods then ended. In 2016, the Company’s interim quarterly periods ended April 2, July 2, October 1 and December 31. In 2015, the Company’s interim quarterly periods ended March 28, June 27, September 26 and December 31.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes the quarterly results of operations, including earnings per share:

(in millions, except per share data)	2016 ^(a)			
	March 31 ^(b)	June 30 ^(c)	September 30 ^(d)	December 31 ^(e)
Net sales	\$ 172.8	\$ 172.3	\$ 186.7	\$ 176.1
Gross profit	47.4	45.0	45.3	45.4
Income from continuing operations	10.4	9.4	7.5	12.1
Gain (loss) from discontinued operations and disposal, net	3.2	(0.3)	1.0	0.5
Net income	<u>\$ 13.6</u>	<u>\$ 9.1</u>	<u>\$ 8.5</u>	<u>\$ 12.6</u>
Diluted earnings per share:				
Earnings from continuing operations	\$ 0.17	\$ 0.15	\$ 0.12	\$ 0.20
Earnings (loss) from discontinued operations	0.05	(0.00)	0.02	0.01
Net earnings per share	<u>\$ 0.22</u>	<u>\$ 0.15</u>	<u>\$ 0.14</u>	<u>\$ 0.21</u>

- (a) The adoption of ASU 2016-09 in the fourth quarter of 2016 did not impact the previously-reported quarterly results for 2016.
- (b) Income from continuing operations includes acquisition and integration-related expenses, restructuring charges and debt settlement charges of \$0.5 million, \$1.2 million and \$0.3 million, respectively.
- (c) Income from continuing operations includes purchase accounting expenses and acquisition and integration-related expenses of \$0.5 million and \$0.4 million, respectively.
- (d) Income from continuing operations includes purchase accounting expenses, acquisition and integration-related expenses and restructuring charges of \$2.5 million, \$0.3 million and \$0.4 million, respectively.
- (e) Income from continuing operations includes purchase accounting expenses, acquisition and integration-related expenses and restructuring charges of \$0.9 million, \$0.2 million and \$0.1 million, respectively, as well as a \$2.2 million net benefit resulting from changes in deferred tax valuation allowances in Canada and the U.K.

(in millions, except per share data)	2015			
	March 31	June 30 ^(a)	September 30	December 31 ^(b)
Net sales	\$ 196.5	\$ 205.4	\$ 179.7	\$ 186.4
Gross profit	54.9	60.7	54.7	55.3
Income from continuing operations	14.4	18.2	15.8	17.4
Gain (loss) from discontinued operations and disposal, net	0.5	0.1	3.0	(5.9)
Net income	<u>\$ 14.9</u>	<u>\$ 18.3</u>	<u>\$ 18.8</u>	<u>\$ 11.5</u>
Diluted earnings per share:				
Earnings from continuing operations	\$ 0.22	\$ 0.29	\$ 0.25	\$ 0.27
Earnings (loss) from discontinued operations	0.01	0.00	0.05	(0.09)
Net earnings per share	<u>\$ 0.23</u>	<u>\$ 0.29</u>	<u>\$ 0.30</u>	<u>\$ 0.18</u>

- (a) Income from continuing operations includes restructuring charges of \$0.4 million.
- (b) Income from continuing operations includes a \$1.4 million net benefit from special tax items, comprised of a \$4.2 million net tax benefit associated with tax planning strategies, offset by a \$2.4 million adjustment of deferred tax assets and \$0.4 million of expense associated with a change in the enacted tax rate in the U.K. Gain (loss) from discontinued operations and disposal, net includes tax expense of \$6.3 million associated with recognizing a net deferred tax liability for the outside basis differences of entities being sold as part of the sale of Bronto.

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

None.

Item 9A. Controls and Procedures.

(a) Evaluation of Disclosure Controls and Procedures

The Company carried out an evaluation, under the supervision and with the participation of its management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company's "disclosure controls and procedures" (as defined in the Exchange Act Rule 13a-15(e)) as of December 31, 2016.

Based on that evaluation, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective as of December 31, 2016.

(b) Management's Annual Report on Internal Control over Financial Reporting and Attestation Report of the Registered Public Accounting Firm

The Company's management is responsible for establishing and maintaining an adequate system of internal control over financial reporting, as defined in Exchange Act Rule 13a-15(f). Management conducted an assessment of the Company's internal control over financial reporting based on the framework established by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control — Integrated Framework (2013)*. Based on the assessment, management concluded that, as of December 31, 2016, the Company's internal control over financial reporting is effective.

During 2016, the Company completed the acquisition of substantially all the assets and operations of JJE, as discussed in Note 2 – Acquisitions. Management has excluded JJE's internal controls over financial reporting from its assessment of the effectiveness of the Company's internal controls over financial reporting as of December 31, 2016. JJE had total assets of \$138.0 million and total net sales of \$87.2 million included in the consolidated financial statements of the Company as of, and for the year ended, December 31, 2016.

Deloitte & Touche LLP, an independent registered public accounting firm, has audited the consolidated financial statements included in this Annual Report on Form 10-K and, as part of their audit, has issued its report, included herein, on the effectiveness of the Company's internal control over financial reporting. See "Report of Independent Registered Public Accounting Firm" under Item 8 of Part II of this Form 10-K.

(c) Changes in Internal Control over Financial Reporting

From time to time, the Company may make changes aimed at enhancing the effectiveness of the controls and to ensure that the systems evolve with the business. There were no changes in the Company's internal control over financial reporting that occurred during the Company's most recently completed fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information.

On February 28, 2017, the Company issued a press release announcing its financial results for the three months and year ended December 31, 2016. The presentation slides for the 2016 fourth quarter earnings call were also posted on the Company's website at that time. The full text of the press release and earnings presentation is included as Exhibits 99.1 and 99.2, respectively, to this Form 10-K.

PART III

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

A list of our executive officers and biographical information appears in Item 1 of Part I of this Form 10-K. Information regarding directors and nominees for directors is set forth in the Company's definitive proxy statement for its 2017 Annual Meeting of Stockholders and is incorporated herein by reference.

Information regarding Compliance with Section 16(a) of the Exchange Act is set forth in the Company's 2017 definitive proxy statement under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" and is incorporated herein by reference. Information regarding the (i) Audit Committee, (ii) Nominating and Governance Committee and (iii) Compensation and Benefits Committee of the Company's Board of Directors is set forth in the Company's 2017 definitive proxy statement under the caption "Information Concerning the Board" and is incorporated herein by reference.

The Company has adopted a code of ethics that applies to its principal executive officer, principal financial officer and principal accounting officer. This code of ethics and the Company's corporate governance policies are posted on the Company's website at www.federal signal.com. The Company intends to satisfy its disclosure requirements regarding amendments to or waivers from its code of ethics by posting such information on this website. The charters of the (i) Audit Committee, (ii) Nominating and Governance Committee and (iii) Compensation and Benefits Committee of the Company's Board of Directors are available on the Company's website and are also available in print free of charge.

Item 11. *Executive Compensation.*

The information contained under the captions "Information Concerning the Board," "Compensation Committee Interlocks and Insider Participation," "Compensation Discussion and Analysis," "Compensation and Benefits Committee Report" and "Executive Compensation" of the Company's 2017 definitive proxy statement is incorporated herein by reference.

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

Information regarding security ownership of (i) certain beneficial owners, (ii) all directors and nominees, (iii) named executive officers and (iv) directors and executive officers as a group is set forth in the Company's 2017 definitive proxy statement under the caption "Ownership of Our Common Stock" and is incorporated herein by reference. Information regarding our equity compensation plans is set forth in the Company's 2017 definitive proxy statement under the caption "Equity Compensation Plan Information" and is incorporated herein by reference.

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

Information regarding certain relationships is hereby incorporated by reference from the Company's 2017 definitive proxy statement under the headings "Information Concerning the Board" and "Certain Relationships and Related Party Transactions."

Item 14. *Principal Accountant Fees and Services.*

Information regarding principal accountant fees and services is incorporated by reference from the Company's 2017 definitive proxy statement under the heading "Independent Registered Public Accounting Firm Fees and Services."

PART IV

Item 15. Exhibits, Financial Statement Schedules.

1. Financial Statements

The following consolidated financial statements of the Company and the “Report of the Independent Registered Public Accounting Firm” contained under Item 8 of Part II this Form 10-K are incorporated herein by reference:

- (a) Consolidated Statements of Operations for the Years Ended December 31, 2016, 2015 and 2014;
- (b) Consolidated Statements of Comprehensive Income for the Years Ended December 31, 2016, 2015 and 2014;
- (c) Consolidated Balance Sheets as of December 31, 2016 and 2015;
- (d) Consolidated Statements of Cash Flows for the Years Ended December 31, 2016, 2015 and 2014;
- (e) Consolidated Statements of Stockholders’ Equity for the Years Ended December 31, 2016, 2015 and 2014; and
- (f) Notes to Consolidated Financial Statements.

2. Financial Statement Schedules

Schedule II — Valuation and Qualifying Accounts of the Company for the three years ended December 31, 2016 is filed as a part of this Annual Report in response to Item 15(a)(2):

All other schedules for which provision is made in the applicable accounting regulations of the Securities and Exchange Commission are not required under the related instructions or are inapplicable, and therefore, have been omitted.

3. Exhibits

See Exhibit Index.

SCHEDULE II
FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
Valuation and Qualifying Accounts ^(a)
For the years ended December 31, 2016, 2015 and 2014

(in millions)	Balance at Beginning of Year	Additions		Deductions ^(c)	Balance at End of Year
		Charged to Costs and Expenses	Charged to Other Accounts ^(b)		
Allowance for doubtful accounts:					
Year Ended December 31, 2016	\$ 0.8	\$ 0.4	—	\$ (0.4)	\$ 0.8
Year Ended December 31, 2015	0.7	0.6	—	(0.5)	0.8
Year Ended December 31, 2014	1.4	0.3	—	(1.0)	0.7
Income tax valuation allowances:					
Year Ended December 31, 2016	\$ 5.9	\$ 1.4	\$ 0.5	\$ (0.1)	\$ 7.7
Year Ended December 31, 2015	3.8	2.1	—	—	5.9
Year Ended December 31, 2014	9.3	—	—	(5.5)	3.8

- (a) Relates to continuing operations only.
(b) Represents amounts reclassified from discontinued operations.
(c) Represents amounts written off, net of related recoveries.

EXHIBIT INDEX

The following exhibits, other than those incorporated by reference, have been included in the Company's Form 10-K filed with the Securities and Exchange Commission.

3. a. Restated Certificate of Incorporation of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed April 30, 2010.
- b. Amended and Restated By-Laws of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed February 9, 2016.
10. a. * Supplemental Pension Plan. Incorporated by reference to Exhibit 10.C to the Company's Form 10-K for the year ended December 31, 1995.
- b. * Executive Disability, Survivor and Retirement Plan. Incorporated by reference to Exhibit 10.D to the Company's Form 10-K for the year ended December 31, 1995.
- c. * Savings Restoration Plan, as amended and restated January 1, 2007. Incorporated by reference to Exhibit 10.FF to the Company's Form 10-K for the year ended December 31, 2008.
- d. * First Amendment of the Federal Signal Corporation Savings Restoration Plan. Incorporated by reference to Exhibit 10.MM to the Company's Form 10-K for the year ended December 31, 2008.
- e. * Second Amendment to Federal Signal Corporation Savings Restoration Plan. Incorporated by reference to Exhibit 10.NN to the Company's Form 10-K for the year ended December 31, 2008.
- f. * Third Amendment to Federal Signal Corporation Savings Restoration Plan. Incorporated by reference to Exhibit 10.OO to the Company's Form 10-K for the year ended December 31, 2008.
- g. * Executive General Severance Plan, as amended and restated August 2012. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended June 30, 2012.
- h. * Form of 2008 Executive Change-In-Control Severance Agreement (Tier 1) with certain executive officers. Incorporated by reference to Exhibit 10.HH to the Company's Form 10-K for the year ended December 31, 2008.
- i. * Form of 2008 Executive Change-In-Control Severance Agreement (Tier 2) with certain executive officers. Incorporated by reference to Exhibit 10.II to the Company's Form 10-K for the year ended December 31, 2008.
- j. * Form of 2010 Executive Change-In-Control Severance Agreement with certain executive officers (Tier 1). Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended March 31, 2010.
- k. * Form of 2010 Executive Change-In-Control Severance Agreement with certain executive officers (Tier 2). Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the quarter ended March 31, 2010.
- l. * Federal Signal Corporation Executive Incentive Performance Plan, as amended and restated. Incorporated by reference to Appendix C to the Company's Definitive Proxy Statement filed on Schedule 14A filed March 25, 2010.
- m. * Form of Equity Award Agreements. Incorporated by reference to Exhibits 10.1, 10.2, 10.3, 10.4 and 10.5 to the Company's Form 10-Q for the quarter ended June 30, 2014; Exhibits 10.1, 10.2, 10.3 and 10.4 to the Company's Form 10-Q for the quarter ended March 31, 2015; Exhibits 10.1 and 10.2 to the Company's Form 10-Q for the quarter ended June 30, 2015; and Exhibits 10.1, 10.2, 10.3, 10.4 and 10.5 to the Company's Form 10-Q for the quarter ended June 30, 2016.
- n. * Federal Signal Corporation 2015 Executive Incentive Compensation Plan. Incorporated by reference to Appendix B to the Company's Definitive Proxy Statement filed on Schedule 14A filed March 18, 2015.
- o. Share Sale and Purchase Agreement dated as of December 11, 2015, by and among Morita Holdings Corporation, the Company and certain of its subsidiaries identified on the signature pages thereto. Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated December 11, 2015.
- p. * Federal Signal Corporation Retirement Savings Plan, as amended and restated effective as of January 1, 2015. Incorporated by reference to Exhibit 10.r to the Company's Form 10-K for the year ended December 31, 2015.
- q. * Form of Director Distribution Election. Incorporated by reference to Exhibit 10.s to the Company's Form 10-K for the year ended December 31, 2015.
- r. * Separation Agreement and General Release, effective January 7, 2016, by and between Bryan L. Boettger and the Company. Incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K dated January 11, 2016.

- s. Amended and Restated Credit Agreement, dated as of January 27, 2016, by and among the Company and certain of its foreign subsidiaries, as Borrowers, the Lenders referred to therein, as Lenders, Wells Fargo Bank, National Association, as Administrative Agent, Swingline Lender and Issuing Lender, JPMorgan Chase Bank, N.A., as Syndication Agent, KeyBank National Association, as Documentation Agent, and Wells Fargo Securities, LLC and J.P. Morgan Securities LLC, as Joint Lead Arrangers and Joint Bookrunners. Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed February 2, 2016.
 - t. Asset and Share Purchase Agreement, dated as of February 29, 2016, by and among FST Canada Inc., the Company, Joe Johnson Equipment Inc. and the Shareholders of Seller named therein. Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed March 3, 2016.
 - u. Asset Purchase Agreement, dated as of February 29, 2016, by and among Vactor Manufacturing Inc., the Company, Joe Johnson Equipment (USA) Inc. and the Shareholders of Seller named therein. Incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed March 3, 2016.
 - v. * Short Term Incentive Bonus Plan. Incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q for the quarter ended March 31, 2016.
 - w. * Form of Restricted Stock Unit and Dividend Equivalent – Award Agreement (Directors). Incorporated by reference to Exhibit 10.4 to the Company's Form 10-Q for the quarter ended March 31, 2016.
 - x. Joint Issues and Reverse Earn Out Payment Agreement, dated as of June 3, 2016, by and among the Company, FST Canada Inc., Joe Johnson Equipment LLC, Vactor Manufacturing Inc., Joe Johnson Equipment Inc., JJE Limited Partnership, Joe Johnson Equipment (USA) Inc., and the Shareholders of Seller named therein. Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed June 3, 2016.
 - y. * Separation Agreement and General Release, effective January 8, 2017, by and among Dennis J. Martin and Federal Signal Corporation. Incorporated by reference to Exhibit 99.1 to the Company's Form 8-K filed January 11, 2017.
14. Code of Ethics for Chief Executive Officer and Senior Financial Officers, as amended. Incorporated by reference to Exhibit 14 to the Company's Form 10-K for the year ended December 31, 2003.
21. ** Subsidiaries of the Registrant.
23. ** Consent of Independent Registered Public Accounting Firm.
- 31.1 ** CEO Certification under Section 302 of the Sarbanes-Oxley Act.
- 31.2 ** CFO Certification under Section 302 of the Sarbanes-Oxley Act.
- 32.1 ** CEO Certification of Periodic Report under Section 906 of the Sarbanes-Oxley Act.
- 32.2 ** CFO Certification of Periodic Report under Section 906 of the Sarbanes-Oxley Act.
- 99.1 ** Fourth Quarter Financial Results Press Release dated February 28, 2017.
- 99.2 ** Fourth Quarter Earnings Call Presentation Slides.
- 101.INS ** XBRL Instance Document.
- 101.SCH ** XBRL Taxonomy Extension Schema Document.
- 101.CAL ** XBRL Taxonomy Calculation Linkbase Document.
- 101.DEF ** XBRL Taxonomy Extension Definition Linkbase Document.
- 101.LAB ** XBRL Taxonomy Label Linkbase Document.
- 101.PRE ** XBRL Taxonomy Presentation Linkbase Document.

* Management contract or compensatory plan or arrangement required to be filed as an exhibit pursuant to Item 15(a)(3) of Form 10-K.

** Indicates exhibits that were included within our Annual Report on Form 10-K for the year ended December 31, 2016, which was filed with the SEC on February 28, 2017, but excluded from this printed version.

Federal Signal Corporation Corporate and Stockholder Information

Management

Jennifer L. Sherman

President and Chief Executive Officer

Matthew B. Brady

Senior Vice President, Safety and Security Systems Group

Julie A. Cook

Vice President, Human Resources

Brian S. Cooper

Senior Vice President and Chief Financial Officer

Daniel A. DuPré

Vice President, General Counsel and Secretary

Ian A. Hudson

Vice President and Corporate Controller

Samuel E. Miceli

Senior Vice President, Environmental Solutions Group

Svetlana Vinokur

Vice President, Treasurer and Corporate Development

Independent Registered Public Accounting Firm

Deloitte & Touche LLP

Transfer Agent and Registrar

Computershare Investor Services

First Class/Registered/Certified Mail:

P.O. Box 30170

College Station, TX 77842-3170

Courier Services:

211 Quality Circle, Suite 210

College Station, TX 77845

www.computershare.com/investor

U.S. Toll Free: 800-622-6757

Non-U.S.: 781-575-4735

Form 10-K and Other Reports and Information

Filings with the U.S. Securities and Exchange Commission, including the Form 10-K and proxy statement, are available on our website at www.federal signal.com. **In addition, copies of such reports may be obtained free of charge by contacting:**

Federal Signal Corporation

Attn: Investor Relations

1415 West 22nd Street, Suite 1100

Oak Brook, IL 60523

Tel: 630-954-2000

Board of Directors

James E. Goodwin, 72

Lead Independent Director, Former Chairman of the Board, Interim President and Chief Executive Officer, Federal Signal Corporation

Former Chairman and Chief Executive Officer, United Airlines

Paul W. Jones, 68

Former Executive Chairman, A.O. Smith Corporation

Bonnie C. Lind, 58

Senior Vice President, Chief Financial Officer and Treasurer, Neenah Paper, Inc.

Dennis J. Martin, 66

Chairman of the Board, Former Executive Chairman of the Board, President and Chief Executive Officer, Federal Signal Corporation

Former Chairman, President and Chief Executive Officer, General Binding Corporation

Richard R. Mudge, 71

President, Compass Transportation and Technology, Inc.

William F. Owens, 66

Former Governor of Colorado

Brenda L. Reichelderfer, 58

Senior Vice President and Managing Director, TriVista Business Group

Former Senior Vice President, Group President and Chief Technology Officer, ITT Corporation

Jennifer L. Sherman, 52

President and Chief Executive Officer, Federal Signal Corporation

John L. Workman, 65

Former Chief Executive Officer, Omnicare, Inc.

Stock Trading Information

New York Stock Exchange

Symbol: FSS

2017 Annual Meeting of Stockholders

Friday, April 21, 2017, 8:30 a.m. local time

Regency Towers Conference Center

1515 West 22nd Street

Oak Brook, Illinois 60523
