

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

Form 10-K

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

For the fiscal year ended December 31, 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 001-11595

ASTEC INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Tennessee

(State or other jurisdiction of incorporation or organization)

62-0873631

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

1725 Shepherd Road, Chattanooga, Tennessee

(Address of principal executive offices)

37421

(Zip Code)

Registrant's telephone number, including area code:

(423) 899-5898

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

(Title of each class)

Common Stock, \$0.20 par value

(Name of each exchange on which registered)

NASDAQ National Market

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

None

(Title of class)

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 Exchange 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 Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter 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 the 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. (Check one):

Large Accelerated Filer

Accelerated Filer

Non-accelerated Filer (Do not check if a smaller reporting company)

Smaller Reporting Company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes

No

As of June 30, 2016, the aggregate market value of the registrant's voting and non-voting common stock held by non-affiliates of the registrant was approximately \$1,271,340,000 based upon the closing sales price as reported on the NASDAQ National Market System.

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date:

As of February 6, 2017, Common Stock, par value \$0.20 – 23,046,049 shares

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the following documents have been incorporated by reference into the Parts of this Annual Report on Form 10-K indicated:

Document	Form 10-K
Proxy Statement relating to Annual Meeting of Shareholders to be held on April 27, 2017	Part III

ASTEC INDUSTRIES, INC.
2016 FORM 10-K ANNUAL REPORT
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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Statements contained anywhere in this Annual Report on Form 10-K that are not limited to historical information are considered forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including, without limitation, statements regarding:

execution of the Company's growth and operation strategy;
plans for technological innovation;
compliance with covenants in our credit facility;
liquidity and capital expenditures;
sufficiency of working capital, cash flows and available capacity under the Company's credit facilities;
compliance with government regulations;
compliance with manufacturing and delivery timetables;
forecasting of results;
general economic trends and political uncertainty;
government funding and growth of highway construction and commercial projects;
taxes or usage fees;
interest rates;
integration of acquisitions;
industry trends;
pricing, demand and availability of steel, oil and liquid asphalt;
development of domestic oil and natural gas production;
condition of the economy;
strength of the dollar relative to foreign currencies;
the success of new product lines;
presence in the international marketplace;
suitability of our current facilities;
future payment of dividends;
competition in our business segments;
product liability and other claims;
protection of proprietary technology;
demand for products;
future filling of backlogs;
employees;
the seasonality of our business;
tax assets and reserves for uncertain tax positions;
critical accounting policies and the impact of accounting changes;
anticipated future operations in our Brazilian facility;
our backlog;
ability to satisfy contingencies;
contributions to retirement plans and plan expenses;
reserve levels for self-insured insurance plans and product warranties;
supply of raw materials; and
inventory.

These forward-looking statements are based largely on management's expectations, which are subject to a number of known and unknown risks, uncertainties and other factors discussed in this report and in other documents filed by us with the Securities and Exchange Commission, which may cause actual results, financial or otherwise, to be materially different from those anticipated, expressed or implied by the forward-looking statements. All forward-looking statements included in this document are based on information available to us on the date hereof, and we assume no obligation to update any such forward-looking statements to reflect future events or circumstances. You can identify these statements by forward-looking words such as "expect", "believe", "anticipate", "goal", "plan", "intend", "estimate", "may", "will", "should," "could" and similar expressions.

In addition to the risks and uncertainties identified elsewhere herein and in other documents filed by us with the Securities and Exchange Commission, the risk factors described in this document under the caption "Risk Factors" should be carefully considered when evaluating our business and future prospects.

PART I

Item 1. Business

All dollar amounts included in this section are in thousands.

General

Astec Industries, Inc. (the "Company") is a Tennessee corporation which was incorporated in 1972. The Company designs, engineers, manufactures and markets equipment and components used primarily in road building and related construction activities as well as other products discussed below. The Company's products are used in each phase of road building, from quarrying and crushing the aggregate to application of the road surface. The Company also manufactures certain equipment and components unrelated to road construction, including equipment for the mining, quarrying, construction and demolition industries and port and rail yard operators; gas and oil drilling rigs; water well and geothermal drilling rigs; industrial heat transfer equipment; whole-tree pulpwood chippers; horizontal grinders; blower trucks; concrete plants; wood pellet plants; commercial and industrial burners; and combustion control systems. The Company's subsidiaries hold 80 United States and 73 foreign patents and have an additional 58 United States and 69 foreign patent applications pending. The Company has been responsible for many technological and engineering innovations in the industries in which it operates. The Company's products are marketed both domestically and internationally. In addition to equipment sales, the Company manufactures and sells replacement parts for equipment in each of its product lines and replacement parts for some competitors' equipment. The distribution and sale of replacement parts is an integral part of the Company's business.

The Company's 16 manufacturing subsidiaries are:

- (i) Astec, Inc. (including its Dillman division), which designs, engineers, manufactures and markets asphalt plants, wood pellet plants and related components of each;
- (ii) Roadtec, Inc., which designs, engineers, manufactures and markets highway and commercial classes of asphalt pavers, material transfer vehicles, milling machines and a line of soil stabilizing-reclaiming machinery;
- (iii) Carlson Paving Products, Inc., which designs, engineers, manufactures and markets asphalt paver screeds and commercial pavers;
- (iv) Telsmith, Inc., which designs, engineers, manufactures and markets aggregate processing and mining equipment used in the aggregate, mineral mining, metallic mining and recycling industries;
- (v) Kolberg-Pioneer, Inc., which designs, engineers, manufactures and markets aggregate processing equipment for the crushed stone, gravel, manufactured sand, recycle, top soil and remediation markets;
- (vi) Johnson Crushers International, Inc., which designs, engineers, manufactures and markets portable and stationary aggregate and ore processing equipment for the crushed stone, gravel, manufactured sand, recycle, top soil and remediation markets;
- (vii) Astec Mobile Screens, Inc., which designs, engineers, manufactures and markets mobile screening plants, portable and stationary structures and vibrating screens for the aggregate, recycle and material processing industries;
- (viii) Breaker Technology Ltd/Inc., which designs, engineers, manufactures and markets rock breaking systems in addition to mobile processing equipment and utility vehicles for the mining and quarrying industries;
- (ix) Osborn Engineered Products SA (Pty) Ltd, which designs, engineers, manufactures and markets a complete line of bulk material handling and minerals processing plant and equipment used in the aggregate, mineral mining, metallic mining and recycling industries and also markets equipment produced by other Astec companies;
- (x) Astec do Brasil Fabricacao de Equipamentos Ltda., which manufactures and sells rock crushers, feeders, screens and asphalt plants and represents the brands of several other Astec companies in the South American construction and mining industries;
- (xi) Telestack Limited, acquired in April 2014 and located in Northern Ireland, which designs, manufactures and installs a complete line of material handling systems to serve the port handling, bulk material handling and aggregate markets;
- (xii) Heatec, Inc., which designs, engineers, manufactures and markets thermal fluid heaters, process heaters, waste heat recovery equipment, liquid storage systems and polymer and rubber blending systems;
- (xiii) CEI Enterprises, Inc., which designs, engineers, manufactures and markets thermal fluid heaters, storage tanks, concrete plants and rubberized asphalt and polymer blending systems;
- (xiv) GEFECO, Inc., which designs, engineers, manufactures and markets portable drilling rigs and related equipment for the water well, environmental, groundwater monitoring, construction, geothermal, mining and shallow oil and gas exploration and production industries. Additionally, during 2015 the Astec Underground, Inc. product lines were absorbed by GEFECO coincident with the closing of Astec Underground, including high pressure diesel powered pump trailers used for fracking and cleaning oil and gas wells and drilling rigs for the oil and gas industries;
- (xv) Peterson Pacific Corp., which designs, engineers, manufactures and markets whole-tree pulpwood chippers, horizontal grinders and blower trucks; and
- (xvi) Power Flame Incorporated, acquired on August 1, 2016, which designs, engineers and markets commercial and industrial burners and combustion control systems.

The Company also has subsidiaries in Australia (Astec Australia Pty Ltd) and Germany (Astec Mobile Machinery GmbH), that market, service and install equipment and provide parts in the regions in which they operate for many of the products produced by the Company's manufacturing subsidiaries.

The Company's strategy is to be the industry's most cost-efficient producer in each of its product lines while continuing to develop innovative new products and provide first class service for its customers. Management believes that the Company is the technological innovator in the markets in which it operates and is well positioned to capitalize on the need to rebuild and enhance roadway and utility infrastructure as well as in other areas in which it offers products and services, both in the United States and abroad.

Segment Reporting

The Company's business units have their own management teams and offer different products and services. The Company's business units are aggregated into three reportable business segments based upon the nature of the product or services produced, the type of customer for the products, the similarity of economic characteristics, the manner in which management reviews results and the nature of the production process, among other considerations. The Company's reportable business segments are (i) Infrastructure Group, (ii) Aggregate and Mining Group and (iii) Energy Group. The remaining business units not included in one of the reportable segments provide support and corporate oversight for all the Company's business units and include Astec Industries, Inc., the parent company, and Astec Insurance Company, a captive insurance company. We refer to these two companies as the "Corporate" category throughout this document. The Company records U.S. federal income tax expenses for all business segments on the parent company's books; therefore, these taxes are included in the Corporate category for segment reporting.

Financial information in connection with the Company's financial reporting for segments of a business and for geographic areas under FASB Accounting Standards Codification 280 is included in Note 17, Operations by Industry Segment and Geographic Area, in "Notes to Consolidated Financial Statements" presented in Appendix A of this report.

Infrastructure Group

The Infrastructure Group segment is made up of five business units. These business units include Astec, Inc. ("Astec"), Roadtec, Inc. ("Roadtec"), Carlson Paving Products, Inc. ("Carlson"), Astec Mobile Machinery GmbH ("AMM") and Astec Australia Pty Ltd ("Astec Australia"). Three of the business units (Astec, Roadtec and Carlson) design, engineer, manufacture and market a complete line of asphalt and wood pellet plants and their related components, asphalt pavers, screeds, milling machines, material transfer vehicles, stabilizers and related ancillary equipment. The other two business units (AMM and Astec Australia) primarily sell, service and install products produced by the manufacturing subsidiaries of the Company with a majority of their sales to customers in the infrastructure industry.

Products

Astec designs, engineers, manufactures and markets a complete line of asphalt and wood pellet plants and related components primarily for the asphalt paving and wood pellet industries. Certain component equipment supplied by Astec for asphalt and wood pellet plants is manufactured by other Company subsidiaries such as heating and storage equipment (manufactured by the Company's Energy Group) and material handling equipment (manufactured by the Company's Aggregate and Mining Group). A typical asphalt mixing plant consists of heating and storage equipment for liquid asphalt; cold feed bins for blending aggregates; a counter-flow continuous type unit (Astec Double Barrel) for drying, heating and mixing; a baghouse composed of air filters and other pollution control devices; hot storage bins or silos for temporary storage of hot-mix asphalt; and a control house. Astec introduced the concept of high plant portability for asphalt plants in 1979. Its current generation of portable asphalt plants is marketed as the Six Pack and consists of six or more portable components designed to be easily relocated from one construction site to another, thereby reducing relocation expenses. High plant portability represents an industry innovation developed and successfully marketed by Astec.

Astec developed the patented warm system, which allows the asphalt mix to be prepared and placed at lower temperatures than conventional systems and operates with a substantial reduction in emissions during paving and load-out. Previous technologies for warm mix production rely on expensive additives, procedures and/or special asphalt cement delivery systems that significantly increase the cost per ton of mix. The Company's new Astec multi-nozzle device eliminates the need for the expensive additives by mixing a small amount of water and asphalt cement together to create microscopic bubbles that reduce the viscosity of the asphalt mix coating on the rock, thereby allowing the mix to be handled and worked at lower temperatures.

Astec is focused on producing equipment with the most advanced mix recycling technology in the industry. More tons of asphalt are available for recycling than is currently being utilized due to restrictions in the amount of recycle allowed by various governmental agencies. Astec's recycle technology is continuously being enhanced and is providing the science to alleviate the concerns driving such restrictions and thereby improve recycling percentages in the asphalt industry. Astec's latest system improvement in this area, the RAP Pre-Dryer System, is expected to be introduced to customers in 2017.

The components in Astec's asphalt mixing plants are fully automated and use both microprocessor-based and programmable logic control systems for efficient operation. The plants are manufactured to meet or exceed federal and state clean air standards. Astec also builds batch type asphalt plants and has developed specialized asphalt recycling equipment for use with its hot-mix asphalt plants.

Astec's wood pellet plants have been in commercial production since 2013. Astec's modular design for its wood pellet plants includes replicated parallel production lines (for instance, a 60 ton-per-hour ("TPH") plant consists of three 20 TPH lines) resulting in very few points in the process where any individual equipment failure can shut the entire plant down. In most other pellet plant designs, one small equipment failure, such as a dryer outage, would result in a total plant shutdown. If a dryer outage were to occur in a 60 TPH Astec plant, the plant could continue to operate at 40 TPH. In fact, there are very few reasons why the plant would ever be completely shut down. Even major maintenance cycles may be performed line-by-line while the plant continues to operate on the other lines.

Roadtec manufactures asphalt pavers, material transfer vehicles, milling machines, soil stabilizing-reclaiming machinery and other equipment used in road building and resurfacing. Roadtec pavers have been designed to minimize maintenance costs while exceeding road surface smoothness requirements. The equipment offered by Roadtec can be used in tandem with each other or separately with equipment already owned by the customer.

Roadtec's Shuttle Buggy is a mobile, self-propelled material transfer vehicle which allows continuous paving by separating truck unloading from the paving process while remixing the asphalt. A typical asphalt paver must stop paving to permit truck unloading of asphalt mix. By permitting continuous paving, the Shuttle Buggy allows the asphalt paver to produce a smoother road surface while reducing the time required to pave the road surface and reducing the number of haul trucks required. As a result of the pavement smoothness achieved with this machine, certain states now require the use of the Shuttle Buggy. Studies using infrared technology have revealed problems caused by differential cooling of the hot-mix during hauling. The Shuttle Buggy remixes the material to a uniform temperature and gradation, thus eliminating these problems. Roadtec plans to introduce its newest version of its highly successful Shuttle Buggy to the market at ConExpo 2017 which includes the new Guardian System that is designed to anticipate maintenance needs resulting in more uptime reliability while also providing production and performance data as well as real time location information to the owner. Roadtec's Spray Paver model, which is recommended for use with the Shuttle Buggy, is also designed to carry and spray tack coat directly in front of the hot mix asphalt in a single process.

Roadtec manufactures milling machines designed to remove old asphalt from the road surface before new asphalt mix is applied. Roadtec's line of milling machines, which are designed for larger jobs, are manufactured with a simplified control system, wide conveyors, direct drives and a wide range of horsepower and cutting capabilities to provide versatility in product application. In addition to its half-lane and larger highway class milling machines, Roadtec also manufactures a smaller, utility class machine for two-to-four foot cutting widths and a utility class cold planer model mounted on steel wheels.

Roadtec currently produces soil stabilizers in configurations of 275HP, 440HP, 625HP and 755HP. These machines double as asphalt reclaiming machines for road rehabilitations, in addition to their primary purpose of stabilizing soil sub-grades with additives to provide an improved base on which to pave.

Carlson manufactures its patented screeds which attach to asphalt paving machines and place asphalt on the roadbed at a desired thickness and width while smoothing and compacting the surface. Carlson screeds can be configured to fit many types of asphalt paving machines, including machines manufactured by both the Company and its competitors. The Carlson screed uses a hydraulic powered generator to electrify elements that heat a screed plate so asphalt will not stick to it while paving. A generator is also available to power tools or lights for night paving. Carlson offers options to its screeds which allow extended paving widths and the addition of a curb on the road edge. Carlson also offers commercial class eight-foot pavers designed for parking lots, residential driveways and secondary road applications.

Astec Mobile Machinery functions primarily as a distributor of Roadtec products in the European market. Additionally, it designed and manufactures a small road widener attachment to meet the unique needs of the European market.

Astec Australia markets relocatable and portable asphalt plants and components produced by Astec, Heatec and CEI, asphalt paving equipment and components produced by Roadtec and Carlson, and aggregate equipment produced by the Company's Aggregate & Mining Group. A majority of its sales are to customers in the infrastructure industry. In addition to selling equipment, Astec Australia provides complete support for its customers' equipment with service, training and spare parts. Astec Australia also provides turnkey installation solutions for large asphalt plants, aggregate and mining plants and bitumen tank farms.

Marketing

The Company markets its hot-mix asphalt products domestically under the Astec and Astec Dillman trademarks and internationally under the Astec trademarks. Asphalt plants and related equipment are sold directly to asphalt producers or domestic and foreign government agencies through Astec's domestic and international sales departments and through a Company-owned dealership (Astec Australia), although independent agents are also used to market asphalt plants and their components in certain international markets. The Company markets wood pellet plants to individual plant operators supplying wood pellets to the utility and home-use industries.

The Company markets its asphalt paving equipment both domestically and internationally to highway and heavy equipment contractors, utility contractors and foreign and domestic governmental agencies both directly and through dealers (including Astec Australia in the Australian and New Zealand markets and AMM in the European market). Mobile construction equipment and factory authorized machine rebuild services are marketed both directly and through dealers.

This segment's products are marketed by 74 direct sales staff, 51 domestic independent distributors and 94 international independent distributors, including Astec's subsidiaries in Australia and Germany.

Raw Materials

Raw materials used in the manufacture of products in the Infrastructure Group include carbon steel, pipe and various types of alloy steel, which are normally purchased from distributors and other sources. Raw materials for manufacturing are normally readily available. Most steel is delivered on a "just-in-time" arrangement from the supplier to reduce inventory requirements at the manufacturing facilities, but steel is occasionally inventoried after purchase. Other components used in the manufacturing processes include engines, gearboxes, power transmissions and electronic systems.

Competition

This industry segment faces strong competition in price, service and product performance and competes with both large publicly-held companies and various smaller manufacturers. Domestic hot-mix asphalt plant competitors include Gencor Industries, Inc., ADM and Almix. In the international market, the hot-mix asphalt plant competitors include Ammann, Fayat/Marini, Benninghoven/Wirtgen and local manufacturers. Paving equipment and screed competitors include Weiler, Caterpillar Paving Products, Volvo Construction Equipment, Voegle America, a subsidiary of Wirtgen America, Dynapac, Bomag Fayat Group and Lee Boy. The segment's milling machine equipment competitors include Wirtgen, CMI, Caterpillar, Bomag, Dynapac and Volvo. The Company believes that it is the only company offering a single source for a complete pellet plant, as known competitors only sell individual plant components thereby requiring the customer to purchase the remaining plant components from other sources.

Employees

At December 31, 2016, the Infrastructure Group segment employed 1,681 individuals, of which 1,168 were engaged in manufacturing, 185 in engineering and 328 in selling, general and administrative functions. None of the employees of the Infrastructure Group are covered by collective bargaining agreements.

Backlog

The backlog for the Infrastructure Group at December 31, 2016 and 2015 was approximately \$232,224 and \$203,830, respectively. Approximately \$60,000 of the 2016 and 2015 backlogs relate to the Company's first three-line pellet plant order from a single customer. Substantially all of this order was manufactured and delivered to the customer prior to December 31, 2015, with continuing enhancements being developed and installed during 2016. As the Company is financing this sale, revenue recognition on the plant sale will not occur until customer payments are received. Management expects all the current backlog to be filled in 2017 except for the \$60,000 pellet plant order discussed above, which is expected to be recognized in 2018.

Aggregate and Mining Group

The Company's Aggregate and Mining Group is comprised of eight business units which are focused on designing and manufacturing heavy processing equipment, as well as servicing and supplying parts for the aggregate, metallic mining, recycling, ports and bulk handling markets. These business units are Telsmith, Inc. ("Telsmith"), Kolberg-Pioneer, Inc. ("KPI"), Astec Mobile Screens, Inc. ("AMS"), Johnson Crushers International, Inc. ("JCI"), Breaker Technology Ltd/Breaker Technology, Inc. ("BTI"), Osborn Engineered Products, SA (Pty) Ltd ("Osborn"), Astec do Brasil Fabricacao de Equipamentos Ltda. ("Astec Brazil") and Telestack Limited ("Telestack"), which was acquired in April 2014.

Products

Telsmith designs, engineers, manufactures and supports equipment servicing the construction, aggregate, metallic mining and recycling markets. Telsmith's core products are crushers, vibrating equipment, modular relocatable stationary plants, mobile portable plants and larger track-mounted systems. Telsmith also provides consulting and engineering services to provide complete "turnkey" processing systems. During 2016, Telsmith celebrated its 110th anniversary by hosting numerous customers, dealers and employees from around the world as part of its continuing commitment to offer complete solutions for customer needs and challenges.

Telsmith maintains an ISO 9001:2008 certification, an internationally recognized standard of quality assurance. In addition, Telsmith has achieved CE designation (a standard for quality assurance and safety) on its crushing and vibration equipment products marketed into European Union countries.

During 2016, Telsmith completed the design of the T500 Cone Crusher expanding the T-Series which also includes the T300, T400, T900. Telsmith's design engineers incorporated the unique patent pending technologies of hybrid thrust bearing, hydraulic anti-spin, thread scraper and the concave retaining system. Telsmith plans to officially launch the T500 in March 2017 at the ConExpo Show in Las Vegas, Nevada.

KPI, JCI and AMS design, engineer, manufacture and support a complete line of stationary and portable aggregate processing equipment for the aggregate metallic and nonmetallic, bulk handling, sand and gravel, mining, quarrying, concrete and asphalt recycling and industrial markets. This equipment is marketed through an extensive network of KPI/JCI/AMS dealers.

KPI/JCI/AMS products include a complete line of primary, secondary, tertiary and quaternary crushers, including jaw, horizontal shaft impactor, vertical shaft impactor and roll rock crushers as well as industry related washing and conveying equipment, mobile screening plants, portable and stationary screen structures and vibrating and high frequency screens. These rock crushers are used by mining, quarrying and sand and gravel producers to crush oversized aggregate to salable size, in addition to their use for recycled concrete and asphalt. This equipment can be purchased as individual components, as portable plants for flexibility or as completely engineered systems for both portable, stationary and RAP applications. They also offer the highly-portable Fast Pack System, featuring quick setup and teardown, thereby maximizing production time and minimizing downtime. KPI also offers portable fully self-contained and self-propelled Fast Trax track-mounted jaw and horizontal shaft crushers, which are ideal for either recycle or hard rock applications, allowing the producer to move the equipment to the material. KPI's expanded GT line of track-mounted crushing and screening plants focuses more specifically on the need for rental and global markets.

KPI/JCI/AMS portable plants combine various combinations of crushing, screening and conveying equipment mounted on tow away chassis and track chassis configurations. Due to high transportation costs of construction materials, many producers use portable equipment to process materials they need close to their job sites. Portable plants allow aggregate producers the ability to quickly and efficiently move equipment from one location to another as their jobs necessitate. The portable track plants are fully self-contained and allow operators to be producing materials within minutes of unloading equipment off of their transport trucks. The introduction of track-mounted crushing and screening plants has enabled contractors to perform jobs that in the past were not economically feasible and also allows our dealers to compete in the large track-mounted rental market.

KPI/JCI/AMS sand classifying and washing equipment is designed to clean, separate and re-blend material from sand deposits to meet the size specifications for critical applications. Products offered include fine and coarse material washers, log washers, blade mills, sand classifying tanks, cyclones, dewatering screens, density classifiers, sieve blend screens and attrition cells. Additional portable and stationary plants are also offered to handle the growing needs in construction sands, specialty sands and fines recovery. Screening plants are available in both stationary and highly portable models and are complemented by a full line of radial stacking and overland belt conveyors. Screening plants also serve the recycle, crushed stone, industrial and general construction industries.

KPI/JCI/AMS conveying equipment is designed to move or store aggregate and other bulk materials in radial cone-shaped or windrow stockpiles. The SuperStacker telescoping conveyor and Wizard Touch automated controls are designed to add efficiency and accuracy to whatever the stockpile specifications require. Additionally, high capacity rail and barge loading/unloading material handling systems are an important part of the KPI/JCI/AMS product lines.

BTI designs, engineers, manufactures and markets a complete line of industry leading rockbreaker systems for the mining, quarry and recycling markets, and provides large-scale stationary rockbreakers for open pit mining, as well as mid-sized stationary rock breakers for underground applications. In addition, BTI offers a full line of smaller rock breaker systems for mobile track and portable primary crushing plants. BTI also designs, engineers, manufactures and markets a complete line of four wheel drive articulated production and utility vehicles, scalars and rock breakers for underground mining.

In addition to supplying equipment for the mining and quarry industries, BTI also designs, manufactures and markets a complete line of hydraulic breakers, compactors and demolition attachments for the North American construction and demolition markets.

BTI maintains ISO9001:2008 and 14001:2004 certifications, internationally recognized standards of quality and environmental assurance. In addition, BTI has achieved certification for OHSAS 18001 Occupational Health & Safety standards. BTI offers an extensive aftermarket sales and service program through a highly qualified and trained dealer network.

During 2016, BTI completed the design and prototype testing of a new generation of mechanized scaler for ground control of underground hard rock mines. An addition to the stationary rockbreaker systems line was completed in 2016 with a low profile design for underground grizzly applications.

Osborn, which is located in South Africa, maintains an ISO:9001:2008 certification for quality assurance and designs, engineers, manufactures and markets a range of minerals processing equipment. This equipment is used in the aggregate, mining, metallurgical and recycling industries. Osborn has been a licensee of Telsmith's technology for over 60 years and recently became a licensee of KPI's vertical and horizontal shaft impact crushers. Osborn also offers the following equipment: mineral sizers; single and double-toggle jaw crushers; cone crushers; rotary breakers; roll crushers; rolling ring crushers; mills; out-of-balance or exciter-driven screens and feeders; modular "containerized" crusher and screening systems; and a full range of idlers. Osborn also markets equipment produced by other Astec companies in the sub-Saharan African market.

Osborn has recently added a number of new products to its product offerings, including a 300 HP gyratory crusher for secondary applications, horizontal shaft impactors, an extension to the range of out-of-balance exciter gearboxes and a low profile apron feeder, in addition to numerous modernization and updates to its existing product lines.

Assembly operations began in Astec Brazil's newly constructed 132,400 square foot facility in the fourth quarter of 2014, and complete production operations began in the first quarter of 2015. Manufacturing operations, sales, distribution and product support are all located within the new facility, which currently has 37 employees. The Company is expected to utilize 120 employees at the facility when it reaches full capacity. Products manufactured by Astec Brazil include crushing equipment, vibrating equipment, stationary plants, mobile portable systems and asphalt plants. Astec Brazil represents the brands of KPI/JCI/AMS, BTI and Telsmith in the aggregate and mining markets and Astec, Inc. in the asphalt market. Astec Brazil also markets products in the Brazilian market that are produced by the other Astec Aggregate and Mining companies and Astec asphalt plants.

Astec Brazil shipped its first asphalt plant in early 2016; however, sales in the South American market have been hampered by the recent economic downturn in South America and more specifically in Brazil. The Company plans to position itself to significantly increase the production and sales volumes by Astec Brazil and also plans to manufacture other product lines at the facility once the business environment improves in the region. In 2016, the Company increased its ownership in Astec Brazil from 78% to 92%.

Telestack, located in Omagh, Northern Ireland, designs, engineers, manufactures and markets mobile bulk material handling solutions that are designed to handle all free-flowing bulk materials, including but not limited to ores, coal, aggregates, fertilizers, grains, woodchips and pellets. Telestack's comprehensive suite of product offerings is sold on a global basis and operates within a significant number of working environments such as mines, quarries, ports, rail yards, power stations and steel mills.

Telestack maintains ISO9001:2008 (quality assurance), ISO 14001:2004 (environmental assurance) and ISO 18001:2007 (health and safety assurance) accreditations. Telestack is also an approved supplier of equipment that conforms to Western Australian Mining Standards (AS 4324:1).

Marketing

Aggregate processing and mining equipment is marketed by approximately 110 direct sales employees, 166 domestic independent distributors and 173 international independent distributors. The principal purchasers of aggregate processing equipment include highway and heavy equipment contractors, sand and gravel producers, recycle and crushing contractors, mine operators, quarry operators, port and inland terminal authorities, power stations and foreign and domestic governmental agencies.

Raw Materials

Raw materials used in the manufacture of products in the Aggregate and Mining Group include carbon steel and various types of alloy steel, which are normally purchased from distributors. Raw materials for manufacturing are normally readily available. BTI purchases hydraulic breakers under a purchasing arrangement with a South Korean supplier. The Company believes the South Korean supplier has sufficient capacity to meet the Company's anticipated demand; however, alternative suppliers exist for these components should any supply disruptions occur.

Competition

The Aggregate and Mining Group faces strong competition in price, service and product performance. Aggregate and Mining equipment competitors include Metso Minerals, Sandvik Mining and Construction, Terex MP and Powerscreen, Atlas Copco Mining, McCloskey, Superior Industries, Wirtgen (Klemmann), Deister, McLanahan, CDE Global, Weir Minerals (Trio) and other smaller manufacturers, both domestic and international.

Employees

At December 31, 2016, the Aggregate and Mining Group segment employed 1,563 individuals, of which 1,122 were engaged in manufacturing, 153 in engineering and engineering support functions and 288 in selling, general and administrative functions.

Telsmith has a labor agreement covering approximately 165 manufacturing employees which expires on September 17, 2017. Approximately 125 of Osborn's manufacturing employees fall within the scope of a collective labor union agreement that expires on June 30, 2017. None of the other employees of the Aggregate and Mining Group are covered by collective bargaining agreements.

Backlog

At December 31, 2016 and 2015, the backlog for the Aggregate and Mining Group was approximately \$88,951 and \$74,484, respectively. Approximately \$15,500 of the increase in backlogs between years relates to orders from domestic U.S. customers. Management expects the current backlog to be filled in 2017.

Energy Group

The Company's Energy Group is currently comprised of five business units focused on supplying heavy equipment such as heaters, drilling rigs, concrete plants, wood chippers and grinders, pump trailers, storage equipment and related parts to the oil and gas, construction, and water well industries, as well as commercial and industrial burners used primarily in commercial, industrial and process heating applications. The business units currently included in the Energy Group are Heatec, Inc. ("Heatec"), CEI Enterprises, Inc. ("CEI"), GEFCO, Inc. ("GEFCO"), Peterson Pacific Corp. ("Peterson") and Power Flame Incorporated ("Power Flame"). Power Flame, located in Parsons, Kansas, was acquired in August 2016. The Energy Group previously included the operations of Astec Underground, Inc. ("Astec Underground") located in Loudon, Tennessee. Astec Underground ceased operations in May 2015, the manufacturing facilities were sold later in 2015 and the responsibility for the sales and manufacturing responsibilities for the Astec Underground product lines were transferred to GEFCO during 2015.

Products

Heatec designs, engineers, manufactures and markets a variety of thermal fluid heaters, process heaters, waste heat recovery equipment, liquid storage systems and polymer and rubber blending systems under the HEATEC trademark. For the construction industry, Heatec designs and manufactures a complete line of asphalt heating and storage equipment to serve the hot-mix asphalt industry, including complete asphalt terminal facilities. In addition, Heatec builds a wide variety of heaters to fit a broad range of applications, including heating equipment for marine vessels, roofing material plants, refineries, oil sands, energy related processing, chemical processing, rubber plants and water heaters for many industrial applications. Heatec has the technical staff to custom design heating systems and has systems operating as large as 75 million BTU's per hour.

CEI designs, engineers, manufactures and markets thermal fluid heaters, portable and stationary storage tanks, rubberized asphalt and polymer blending systems for the asphalt and other industries. CEI recently added continuous and batch type concrete production plants to its product line. The Company believes the CEI concrete plants are the most innovative plant in the concrete industry and are designed to produce consistent high quality, low cost concrete due to its advanced process control.

GEFCO designs and manufactures portable drilling rigs and related equipment for the water well, environmental, groundwater monitoring, construction, mining and shallow oil and gas exploration and production industries. Portable drilling rigs are offered in a variety of designs with optional equipment, including truck, trailer or track mounted units, diesel engine on deck or Power Take Off powered units, hydraulic pump drives, transmission, hydraulic pumps and motors, hydraulic cylinders, gear boxes, plumbing and all related controls.

During 2015, GEFCO absorbed responsibility for the design, manufacture and sales of the product lines previously produced by Astec Underground, including large oil and gas well drilling equipment and a trailer-mounted double fluid pumper for use in the hydraulic fracturing and the oil and gas extraction industries.

GEFCO recently introduced a new, smaller drilling rig with improved functionality to serve the residential geothermal, environmental and geotechnical markets. The new rigs are offered in both truck-mounted and track-mounted options.

Peterson designs, engineers, manufactures and distributes large whole-tree pulpwood chippers, biomass chippers, horizontal grinders and blower trucks primarily for the construction, landscaping, recycling, and biomass energy markets. A deck screen model for the wood chipping and grinding market is produced for Peterson by JCI. Peterson has granted rights under a licensing agreement to Morbark, USA, whereby Morbark may produce and sell certain grinder equipment covered by a Peterson patent.

Power Flame, a market leader in its segment, designs engineers, manufactures and markets commercial and industrial burners and combustion control systems. Power Flame produces a broad range of natural gas, fuel oil, or combination-fueled models with outputs ranging from 400 thousand BTU's to 120 million BTU's per hour. Power Flame's burners are used primarily in commercial, industrial and process heating applications.

Marketing

The Energy Group markets its products domestically through a combination of employee sales agents, manufacturer representatives and distributors, while international sales efforts are typically conducted with the assistance of independent sales agents. The group's products are marketed by approximately 69 direct sales employees, 94 domestic independent distributors and 41 international independent distributors. Customers typically include oil and gas field operators, industrial product manufacturers, independent contractors, heating equipment distributors and government agencies. The market for the Company's heat transfer equipment is diverse because of the multiple applications for such equipment.

Raw Materials

Raw materials used in the manufacture of products in the Energy Group include carbon steel and various types of alloy steel, which are normally purchased from distributors and other sources. Raw materials for manufacturing are normally readily available. Most steel is delivered on a "just-in-time" arrangement from suppliers to reduce inventory requirements at the manufacturing facilities, but steel is occasionally inventoried after purchase. Components used in the manufacturing process include engines, hydraulic pumps and motors, gearboxes, burners, power transmissions and electronic systems.

Competition

The Energy Group faces strong competition in price, service and product performance and competes both with large companies that have resources significantly greater than those of the Company and with various smaller manufacturers. Major competitors include Gencor, Almix, Fulton, Sigma Thermal, Erie Strayer, Con-E-Co, Meeker, Versa Drill, Schramm, Atlas Copco, National Oil Well, Blohm & Vos, Oil Country, NOV/Rolligon, Stewart & Stevenson, Dragon, Morbark, CBI (Terex), Precision Doppstadt, Bandit, Jenz, Komptech, Fin and Webster Engineering.

Employees

At December 31, 2016, the Energy Group segment employed 930 individuals, of which 609 were engaged in manufacturing, 115 in engineering and 206 in selling, general and administrative functions. GEFCO is party to a collective bargaining agreement that applied to 64 manufacturing employees at December 31, 2016. The current GEFCO agreement expires on June 20, 2018. When Power Flame was acquired in August 2016, it was party to an existing collective bargaining agreement that applied to a majority of its manufacturing employees. Power Flame expects to enter into a replacement agreement that will apply to approximately 105 employees. None of the other employees of the Energy Group are covered by collective bargaining agreements.

Backlog

The backlog for the Energy Group at December 31, 2016 and 2015 was approximately \$36,192 and \$37,596, respectively. The 2015 backlog has been adjusted to include the backlog of Power Flame, which was acquired in August 2016. Management expects all of the current backlog to be filled in 2016.

Corporate (Other Business Units)

This category consists of the two business units that do not meet the requirements of separate disclosure as an operating segment or inclusion in one of the other reporting segments and includes Astec Industries, Inc., the parent company, and Astec Insurance Company, a captive insurance company. These two companies provide support and corporate oversight for all the other business units. The Company records U.S. federal income tax expenses for all business segments on the parent company's books; therefore, these taxes are included in the Corporate category for segment reporting.

Employees

At December 31, 2016, the Corporate category employed 44 individuals, all of which were engaged in selling, general and administrative functions.

Common to All Operating Segments

The following information applies to all operating segments of the Company.

Raw Materials

Steel is a major component in the Company's equipment. Steel prices rose significantly during the first half of 2016 but then began to decline due to slowing steel consumption and retreating energy prices in the third quarter of 2016. Steel prices began to moderately rise again in late 2016 due to improvements in energy costs and anticipated GDP growth. The Company expects this trend to continue through the first half of 2017. The Company continues to utilize forward-looking contracts (with no minimum or specified quantity guarantees) coupled with advanced steel purchases to minimize the impact of any price increases. The Company will review the trends in steel prices entering into the second half of 2017 and establish future contract pricing accordingly.

Government Regulations

The Company is subject to various laws and governmental regulations concerning environmental matters and employee safety and health in the United States and other countries. The Environmental Protection Agency, the Occupational Safety & Health Administration, other federal agencies and certain state agencies have the authority to promulgate regulations that have an effect on the Company's operations. Many of these federal and state agencies may seek fines and penalties for violations of these laws and regulations. The Company has been able to operate under these laws and regulations without any material adverse effect on its business.

None of the Company's operating segments operate within highly regulated industries. However, air pollution control equipment manufactured by the Company, principally for hot-mix asphalt plants, must comply with certain performance standards promulgated by the federal Environmental Protection Agency under the Clean Air Act applicable to "new sources" or new plants. Management believes the Company's products meet all material requirements of such regulations and applicable state pollution standards and environmental protection laws.

In addition, due to the size and weight of certain equipment the Company manufactures, the Company and its customers may encounter various state regulations on maximum weights transportable on highways. Also, some states have regulations governing the operation of asphalt mixing plants, and most states have regulations relating to the accuracy of weights and measures, which affect some of the control systems manufactured by the Company.

Compliance with these government regulations has no material effect on the Company's capital expenditures, earnings, or competitive position within the market.

Employees

At December 31, 2016, the Company and its subsidiaries employed 4,218 individuals, of which 2,899 were engaged in manufacturing, 453 in engineering, including support staff, and 866 in selling, administrative and management functions.

Other than the Telsmith and Osborn labor agreements described under the "Employee" subsection of the Aggregate and Mining Group above and the GEFCO and Power Flame labor agreements described under the "Employee" subsection of the Energy Group above, there are no collective bargaining agreements applicable to employees of the Company or its subsidiaries. The Company considers its employee relations to be good.

Manufacturing

The Company manufactures many of the component parts and related equipment for its products, while several large components of its products are purchased "ready-for-use". Such items include engines, axles, tires and hydraulics. In many cases, the Company designs, engineers and manufactures custom component parts and equipment to meet the particular needs of individual customers. Manufacturing operations during 2016 took place at 20 separate locations. The Company's manufacturing operations consist primarily of fabricating steel components and the assembly and testing of its products to ensure that the Company achieves quality control standards.

Seminars and Technical Bulletins

The Company periodically conducts technical and service seminars, which are primarily for dealer representatives, contractors, owners, employees and other users of equipment manufactured by the Company. In 2016, approximately 720 representatives of contractors and owners of hot-mix asphalt plants attended seminars held by the Company in Chattanooga, Tennessee. These seminars, which are led by Company management and employees, along with select outside speakers and discussion leaders, cover a range of subjects, including, but not limited to, technological innovations in the hot-mix asphalt, aggregate processing, paving, milling and recycling markets.

The Company also sponsors executive seminars for the management of the customers of Astec, Heatec, CEI and Roadtec. Primarily, members of the Company's management conduct the various seminars, but outside speakers and discussion leaders are also utilized.

During 2016, 10 service training seminars were held at the Roadtec facility for approximately 520 customer representatives, and 12 remote seminars were conducted at other locations for approximately 200 additional customer personnel. CEI conducted four service schools during 2016, with approximately 70 customer representatives attending. Telsmith conducted three technical seminars for approximately 85 customer and dealer representatives during 2016. KPI, JCI and AMS jointly conduct National Dealers Conference, an annual dealer event. The event offers the entire dealer network a preview of future products, marketing and promotional programs to help dealers operate successful businesses. In addition to this event, the companies also provide factory customer and dealer training and on-site local, regional and national sales training programs throughout the year.

In addition to seminars, the Company publishes a number of technical bulletins and information bulletins detailing various technological and business issues relating to the industries in which it operates.

Patents and Trademarks

The Company seeks to obtain patents to protect the novel features of its products and processes. The Company's subsidiaries hold 80 United States patents and 73 foreign patents. The Company's subsidiaries have 58 United States and 69 foreign patent applications pending.

The Company and its subsidiaries have 84 trademarks registered in the United States, including logos for Astec, Astec Dillman, Carlson Paving, CEI, GEFCO, Heatec, JCI, Peterson Pacific, Power Flame, Roadtec, and Telsmith, and the names ASTEC, CARLSON, HEATEC, JCI, KOLBERG, PETERSON, ROADTEC and TELSMITH, as well as a number of other product names. The Company also has 106 trademarks registered in foreign jurisdictions, including Australia, Brazil, Canada, China, France, Germany, Great Britain, India, Italy, Mexico, South Africa, South Korea, Thailand, Vietnam and the European Union. The Company and its subsidiaries have six United States and 10 foreign trademark registration applications pending.

Engineering and Product Development

The Company dedicates substantial resources to engineering and product development. At December 31, 2016, the Company and its subsidiaries had 453 full-time individuals employed in engineering and design capacities.

Seasonality and Backlog

Revenues for recent years, adjusted for acquisitions, have been strongest during the first half of the year, with the second half of the year consistently being weaker. We expect future operations in the near term to be typical of this historical trend.

As of December 31, 2016 and 2015, the Company had a backlog for delivery of products at certain dates in the future of approximately \$357,367 and \$315,910, respectively. The Company's contracts reflected in the backlog generally are not, by their terms, subject to termination. Management believes the Company is in substantial compliance with all manufacturing and delivery timetables.

Competition

Each business segment operates in domestic markets that are highly competitive with respect to price, service and product quality. While specific competitors are named within each business segment discussion above, imports do not generally constitute significant competition for the Company in the United States, except for milling machines and track-mounted crushers. In international sales, however, the Company often competes with foreign manufacturers that may have a local presence in the market the Company is attempting to penetrate.

In addition, asphalt and concrete are generally considered competitive products as a surface choice for new roads and highways. A portion of the interstate highway system is paved in concrete, but over 90% of all surfaced roads in the United States are paved with asphalt. Although concrete is used for some new road surfaces, asphalt is used for most resurfacing.

Available Information

The Company's internet website can be found at www.astecindustries.com. We make available, free of charge on or through our internet website, access to our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after such material is filed with, or furnished to, the Securities and Exchange Commission. Information contained in our website is not part of, and is not incorporated into, this Annual Report on Form 10-K.

Item 1A. Risk Factors

Downturns in the general economy or the commercial and residential construction industries may adversely affect our revenues and operating results.

General economic downturns, including downturns in the commercial and residential construction industries, could result in a material decrease in our revenues and operating results. Demand for many of our products, especially in the commercial construction industry, is cyclical. Sales of our products are sensitive to the states of the U.S., foreign and regional economies in general, and in particular, changes in commercial construction spending and government infrastructure spending. In addition, many of our costs are fixed and cannot be quickly reduced in response to decreased demand. The following factors could cause a downturn in the commercial and residential construction industries:

- a decrease in the availability of funds for construction;
- declining economy domestically and internationally;
- labor disputes in the construction industry causing work stoppages;
- rising gas and oil prices;
- rising steel prices and steel surcharges;
- rising interest rates;
- energy or building materials shortages;
- inclement weather; and
- availability of credit for customers.

Downturns in the general economy and restrictions in the credit markets may negatively impact our earnings, cash flows and/or financial position and access to financing sources by the Company and our customers.

Worldwide economic conditions and the international credit markets have significantly deteriorated in recent years and may remain depressed for the foreseeable future. Continued deterioration of economic conditions and credit markets could adversely impact our earnings as sales of our products are sensitive to general declines in U.S. and foreign economies and the ability of our customers to obtain credit. In addition, we rely on the capital markets and the banking markets to meet our financial commitments and short-term liquidity needs if internal funds are not available from our operations. Further disruptions in the capital and credit markets, or deterioration of our creditors' financial condition, could adversely affect the Company's ability to draw on its revolving credit facility. The Company's current credit facility expires in April 2017, and deterioration in the credit markets could make it more difficult or expensive for us to replace our current credit facility, enter into a new credit facility or obtain additional financing.

A decrease or delay in government funding of highway construction and maintenance may cause our revenues and profits to decrease.

Many of our customers depend on government funding of highway construction and maintenance and other infrastructure projects. Any decrease or delay in government funding of highway construction and maintenance and other infrastructure projects could cause our net sales and profits to decrease. Historically, federal government funding of infrastructure projects has typically been accomplished through bills that establish funding over a multi-year period, such as the Safe, Accountable, Flexible and Efficient Transportation Equity Act - A Legacy for Users ("SAFETEA-LU"), which provided \$286.5 billion to fund federal transit projects from 2004 to 2009. SAFETEA-LU funding expired on September 30, 2009, and federal transportation funding operated on a number of shorter term appropriations until December 4, 2015 when the Fixing America's Surface Transportation Act ("FAST Act") was enacted. Among other expenditures, the FAST Act approved funding for highways of approximately \$205 billion and funding for transit projects of approximately \$48 billion for the five-year period ending September 30, 2020.

Given the inherent uncertainty in the political process, the level of government funding for federal highway projects will similarly continue to be uncertain. Governmental funding that is committed or earmarked for federal highway projects is always subject to repeal or reduction. Although continued funding under the FAST Act is expected, it may be at lower levels than originally approved. In addition, Congress could pass legislation in future sessions that would allow for the diversion of previously appropriated highway funds for other national purposes, or it could restrict funding of infrastructure projects unless states comply with certain federal policies.

The cyclical nature of our industry and the customization of the equipment we sell may cause adverse fluctuations to our revenues and operating results.

We sell equipment primarily to contractors whose demand for equipment depends greatly upon the volume of road or utility construction projects underway or to be scheduled by both government and private entities. The volume and frequency of road and utility construction projects are cyclical; therefore, demand for many of our products is cyclical. The equipment we sell is durable and typically lasts for several years, which also contributes to the cyclical nature of the demand for our products. As a result, we may experience cyclical fluctuations to our revenues and operating results. Any difficulty in managing the Company's manufacturing workflow during downturns in demand could adversely affect our financial results.

A significant change in the price or availability of oil could reduce demand for our products. Significant increases in the purchase price of certain raw materials used to manufacture our equipment could have a negative impact on the cost of production and related gross margins.

A significant portion of our revenues relates to the sale of equipment involved in the production, handling, recycling or installation of asphalt mix. Liquid asphalt is a byproduct of the refining of oil, and asphalt prices correlate with the price and availability of oil. An increase in the price of oil or a decrease in the availability of oil would increase the cost of producing asphalt, which would likely decrease demand for asphalt, resulting in decreased demand for many of our products. This would likely cause our revenues and profits to decrease. Rising gasoline, diesel fuel and liquid asphalt prices will also adversely impact the operating and raw material costs of our contractor and aggregate producer customers, and if such customers do not properly adjust their pricing, they could experience reduced profits resulting in possible delays in purchasing capital equipment.

Contrary to the impact of increasing oil prices on many of the Company's products impacted by changes in the cost of asphalt mix as discussed above, the products manufactured by the Company's Energy Group, which are used in drilling for oil and natural gas, in heaters for refineries and oil sands, and in double fluid pump trailers for fracking and oil and gas extraction, would be negatively impacted by lower oil and natural gas prices, to the extent that such lower prices lead to decreased development in the oil and natural gas production industries.

Steel is a major component in the Company's equipment. Steel prices fluctuate routinely. Our reliance on third-party suppliers for steel and other raw materials exposes us to volatility in the prices and availability of these materials. Price increases or a decrease in the availability of these raw materials could increase our operating costs and adversely affect our financial results.

Acquisitions that we have made in the past and future acquisitions involve risks that could adversely affect our future financial results.

We have completed several acquisitions in the past, including the acquisition of Power Flame Incorporated in August 2016 and Telestack Limited in April 2014. We may acquire additional businesses in the future. We may be unable to achieve the benefits expected to be realized from our acquisitions. In addition, we may incur additional costs and our management's attention may be diverted because of unforeseen expenses, difficulties, complications, delays and other risks inherent in acquiring businesses, including the following:

- we may have difficulty integrating the financial and administrative functions of acquired businesses;
- acquisitions may divert management's attention from our existing operations;
- fluctuations in exchange rates and a weakening of the dollar may impact the competitiveness of acquired businesses;
- we may have difficulty in competing successfully for available acquisition candidates, completing future acquisitions or accurately estimating the financial effect of any businesses we acquire;
- we may have delays in realizing the benefits of our strategies for an acquired business;
- we may not be able to retain key employees necessary to continue the operations of the acquired business;
- acquisition costs may deplete significant cash amounts or may decrease our operating income;
- we may choose to acquire a company that is less profitable or has lower profit margins than our company;
- future acquired companies may have unknown liabilities that could require us to spend significant amounts of additional capital; and
- we may incur domestic or international economic declines that impact our acquired companies.

Competition could reduce revenue from our products and services and cause us to lose market share.

We currently face strong competition in product performance, price and service. Some of our domestic and international competitors have greater financial, product development and marketing resources than we have. If competition in our industry intensifies or if our current competitors enhance their products or lower their prices for competing products, we may lose sales or be required to lower the prices we charge for our products. This may reduce revenue from our products and services, lower our gross margins or cause us to lose market share.

Our success depends on key members of our management and other employees.

Certain members of our senior management team are of significant importance to our business and operations. The loss of their services may adversely affect our business. In addition, our ability to attract and retain qualified engineers, skilled manufacturing personnel and other professionals, either through direct hiring or acquisition of other businesses employing such professionals, will also be an important factor in determining our future success.

Difficulties in managing and expanding in international markets could divert management's attention from our existing operations.

In 2016, international sales represented approximately 18.0% of our total sales as compared to 26.5% in 2015. We plan to continue our significant sales and production efforts in international markets. In connection with any increase in international sales efforts, we will need to hire, train and retain qualified personnel in countries where language, cultural or regulatory barriers may exist. Any difficulties in expanding our international sales may divert management's attention from our existing operations. In addition, international revenues are subject to the following risks:

- fluctuating currency exchange rates, which can reduce the profitability of foreign sales;
- the burden of complying with a wide variety of foreign laws and regulations;
- dependence on foreign sales agents;
- political and economic instability of governments;
- the imposition of protective legislation such as import or export barriers; and
- fluctuating strengths or weakness of the dollar, which can impact net sales or the cost of purchased products.

We may be unsuccessful in complying with the financial ratio covenants or other provisions of our credit agreement.

As of December 31, 2016, we were in compliance with the financial covenants contained in our credit agreement with Wells Fargo Bank, N.A. However, in the future we may be unable to comply with the financial covenants in our credit facility or to obtain waivers with respect to such financial covenants. If such violations occur, the Company's creditors could elect to pursue their contractual remedies under the credit facility, including requiring immediate repayment in full of all amounts then outstanding. As of December 31, 2016, the Company had no outstanding borrowings under the Wells Fargo credit agreement but did have \$8,876 of letters of credit outstanding under the credit agreement. Additional amounts may be borrowed in the future. The Company's Osborn, Astec Brazil, Telestack and Astec Australia subsidiaries have entered into their own independent loan agreements.

Our quarterly operating results are likely to fluctuate, which may decrease our stock price.

Our quarterly revenues, expenses and operating results have varied significantly in the past and are likely to vary significantly from quarter to quarter in the future. As a result, our operating results in some quarters may fall below the expectations of securities analysts and investors, which could result in a decrease in the market price of our common stock. The reasons our quarterly results may fluctuate include:

- general competitive and economic conditions, domestically and internationally;
- delays in, or uneven timing in, the delivery of customer orders;
- the seasonal trend in our industry;
- the introduction of new products by us or our competitors;
- product supply shortages; and
- reduced demand due to adverse weather conditions.

Period-to-period comparisons of such items should not be relied on as indications of future performance.

We may face product liability claims or other liabilities due to the nature of our business. If we are unable to obtain or maintain insurance or if our insurance does not cover liabilities, we may incur significant costs which could reduce our profitability.

We manufacture heavy machinery, which is used by our customers at excavation and construction sites, ports and inland terminals and on high-traffic roads. Any defect in or improper operation of our equipment can result in personal injury and death, and damage to or destruction of property, any of which could cause product liability claims to be filed against us. The amount and scope of our insurance coverage may not be adequate to cover all losses or liabilities we may incur in the event of a product liability claim. We may not be able to maintain insurance of the types or at the levels we deem necessary or adequate or at rates we consider reasonable. Any liabilities not covered by insurance could reduce our profitability or have an adverse effect on our financial condition.

If we are unable to protect our proprietary technology from infringement or if our technology infringes technology owned by others, then the demand for our products may decrease or we may be forced to modify our products, which could increase our costs.

We hold numerous patents covering technology and applications related to many of our products and systems as well as numerous trademarks and trade names registered with the U.S. Patent and Trademark Office and in foreign countries. Our existing or future patents or trademarks may not adequately protect us against infringements, and pending patent or trademark applications may not result in issued patents or trademarks. Our patents, registered trademarks and patent applications, if any, may not be upheld if challenged, and competitors may develop similar or superior methods or products outside the protection of our patents. This could reduce demand for our products and materially decrease our revenues. If our products are deemed to infringe upon the patents or proprietary rights of others, we could be required to modify the design of our products, change the name of our products or obtain a license for the use of some of the technologies used in our products. We may be unable to do any of the foregoing in a timely manner, upon acceptable terms and conditions, or at all, and the failure to do so could cause us to incur additional costs or lose revenues.

If we become subject to increased governmental regulation, we may incur significant costs.

Our hot-mix asphalt plants contain air pollution control equipment and several of our other products contain engines that must comply with performance standards promulgated by the Environmental Protection Agency. These performance standards may increase in the future. Changes in these requirements could cause us to undertake costly measures to redesign or modify our equipment or otherwise adversely affect the manufacturing processes of our products. Such changes could have a material adverse effect on our operating results.

In addition, we may incur material costs or liabilities in connection with other regulatory requirements applicable to our business, including, for example, state regulation of our component equipment, the accuracy of weights and measures, and the maximum weight transportable on highways and roads.

As an innovative leader in the industries in which we operate, we occasionally undertake the engineering, design, manufacturing and construction of equipment systems that are new to the market. Estimating the cost of such innovative equipment can be difficult and could result in our realization of significantly reduced or negative margins on such projects.

In the past, we have experienced negative margins on certain large projects. These large projects have included both existing and innovative equipment designs, on-site construction and minimum production levels. Since it can be difficult to achieve the expected production results during the project design phase, field testing and redesign may be required during project installation, resulting in added cost. In addition, due to any number of unforeseen circumstances, which can include adverse weather conditions, projects can incur extended construction and testing delays which can cause significant cost overruns. We may not be able to sufficiently predict the extent of such unforeseen cost overruns and may experience significant losses on specialized projects. Additionally, the Company typically incurs substantial research and development costs each year and has historically received significant research and development tax credits due to these expenditures. Congress could reduce or eliminate such tax credits in future years, which could have a material adverse effect on our operating results.

Our Articles of Incorporation and Bylaws and Tennessee law may inhibit a takeover, which could delay or prevent a transaction in which shareholders might receive a premium over market price for their shares.

Our charter and bylaws and Tennessee law contain provisions that may delay, deter or inhibit a future acquisition or an attempt to obtain control of us. This could occur even if our shareholders are offered an attractive value for their shares or if a substantial number or even a majority of our shareholders believe the takeover is in their best interest. These provisions are intended to encourage any person interested in acquiring us or obtaining control of us to negotiate with and obtain the approval of our Board of Directors in connection with the transaction. Provisions that could delay, deter or inhibit a future acquisition or an attempt to obtain control of us include the following:

- having a staggered Board of Directors;
- requiring a two-thirds vote of the total number of shares issued and outstanding to remove directors other than for cause;
- requiring advance notice of actions proposed by shareholders for consideration at shareholder meetings;
- limiting the right of shareholders to call a special meeting of shareholders;
- requiring that all shareholders entitled to vote on an action provide written consent in order for shareholders to act without holding a shareholders' meeting; and
- being governed by the Tennessee Control Share Acquisition Act.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The location, approximate square footage, acreage occupied and principal function and use by the Company's reporting segments of the properties owned or leased by the Company are set forth below:

Location	Approximate Square Footage	Approximate Acreage	Principal Function (Use by Segment)
Chattanooga, Tennessee	543,200	65	Offices, manufacturing and training center – Astec (Infrastructure Group)
Chattanooga, Tennessee	--	4	Storage yard – Astec (Infrastructure Group)
Rossville, Georgia	40,500	3	Manufacturing – Astec (Infrastructure Group)
Prairie du Chien, Wisconsin	91,500	39	Manufacturing – Dillman division of Astec (Infrastructure Group)
Chattanooga, Tennessee	135,000	69	Offices, manufacturing and storage – Heatec (Energy Group)
Chattanooga, Tennessee	237,000	15	Offices, manufacturing and training center – Roadtec (Infrastructure Group)
Chattanooga, Tennessee	51,200	7	Manufacturing – Roadtec (Infrastructure Group)
Chattanooga, Tennessee	14,100	--	Leased Hanger and Offices – Astec Industries, Inc. (Corporate)
Chattanooga, Tennessee	10,000	2	Corporate offices – Astec Industries, Inc. (Corporate)
Mequon, Wisconsin	236,000	30	Offices and manufacturing – Telsmith (Aggregate and Mining Group)
Sterling, Illinois	60,000	8	Offices and manufacturing – AMS (Aggregate and Mining Group)
Orlando, Florida	9,000	--	Leased machine repair and service facility – Roadtec (Infrastructure Group)

Location	Approximate Square Footage	Approximate Acreage	Principal Function (Use by Segment)
Chattanooga, Tennessee	66,000	--	Leased warehouse – Roadtec (Infrastructure Group)
Eugene, Oregon	140,000	8	Offices and manufacturing – JCI (Aggregate and Mining Group)
Albuquerque, New Mexico	115,000	14	Offices and manufacturing – CEI (Energy Group)
Yankton, South Dakota	312,000	50	Offices and manufacturing – KPI (Aggregate and Mining Group)
Thornbury, Ontario, Canada	60,500	12	Offices and manufacturing – BTI (Aggregate and Mining Group)
Riverside, California	12,500	--	Leased offices, sales, assembly and warehouse – BTI (Aggregate and Mining Group)
Solon, Ohio	8,900	--	Leased offices, sales, assembly and warehouse – BTI (Aggregate and Mining Group)
Tacoma, Washington	55,850	8	Offices and manufacturing – Carlson (Infrastructure Group)
Tacoma, Washington	4,400	1	R&D/Services Offices-Carlson (Infrastructure Group)
Cape Town, South Africa	4,600	--	Leased sales office and warehouse – Osborn (Aggregate and Mining Group)
Durban, South Africa	9,700	--	Leased sales office and warehouse – Osborn (Aggregate and Mining Group)
Kathu, South Africa	--	61	Undeveloped land – Osborn (Aggregate and Mining Group)

Location	Approximate Square Footage	Approximate Acreage	Principal Function (Use by Segment)
Johannesburg, South Africa	229,000	21	Offices and manufacturing – Osborn (Aggregate and Mining Group)
Eugene, Oregon	135,000	15	Offices and manufacturing – Peterson Pacific Corp. (Energy Group)
Enid, Oklahoma	350,000	42	Offices and manufacturing – GEFCO, Inc. (Energy Group)
West Columbia, South Carolina	12,300	--	Leased distribution center – Peterson Pacific Corp. (Energy Group)
Acacia Ridge, Australia	31,000	5	Offices, warehousing, service, light fabrication and storage yard – Astec Australia Pty Ltd (Infrastructure Group)
Montgomery, Illinois	3,000	--	Leased warehouse - Roadtec (Infrastructure Group)
Canning Vale, Australia	9,000	--	Leased office, warehouse and storage yard - Astec Australia Pty Ltd (Infrastructure Group)
Hameln, Germany	35,300	3	Offices and light assembly – Asphalt Mobile Machinery GmbH (Infrastructure Group)
Vespasiano-MG Brazil	132,400	10	Offices and manufacturing - Astec Brazil (Aggregate and Mining Group)
Omagh, Northern Ireland	85,000	8	Offices and manufacturing-Telestack (Aggregate and Mining Group)
Joplin, Missouri	10,000	--	Leased parts warehouse/rebuild shop-Roadtec (Infrastructure Group)
Parsons, Kansas	88,000	7	Offices and manufacturing – Power Flame (Energy Group)

The properties above are owned by the Company unless they are indicated as being leased.

Item 3. Legal Proceedings

The Company is currently a party to various claims and legal proceedings that have arisen in the ordinary course of business. If management believes that a loss arising from such claims and legal proceedings is probable and can reasonably be estimated, the Company records the amount of the loss (excluding estimated legal costs), or the minimum estimated liability when the loss is estimated using a range and no point within the range is more probable than another. As management becomes aware of additional information concerning such contingencies, any potential liability related to these matters is assessed and the estimates are revised, if necessary. If management believes that a material loss arising from such claims and legal proceedings is either (i) probable but cannot be reasonably estimated or (ii) reasonably possible but not probable, the Company does not record the amount of the loss, but does make specific disclosure of such matter. Based upon currently available information and with the advice of counsel, management believes that the ultimate outcome of its current claims and legal proceedings, individually and in the aggregate, will not have a material adverse effect on the Company's financial position, cash flows or results of operations. However, claims and legal proceedings are subject to inherent uncertainties and rulings unfavorable to the Company could occur. If an unfavorable ruling were to occur, there exists the possibility of a material adverse effect on the Company's financial position, cash flows or results of operations.

During 2004, the Company received notice from the Environmental Protection Agency that it may be responsible for a portion of the costs incurred in connection with an environmental cleanup in Illinois. The discharge of hazardous materials and associated cleanup relate to activities occurring prior to the Company's acquisition of Barber Greene in 1986. The Company believes that over 300 other parties have received similar notice. At this time, the Company is unable to predict whether the EPA will seek to hold the Company liable for a portion of the cleanup costs or the amount of any such liability.

Item 4. Mine Safety Disclosures

None.

Executive Officers

The name, title, ages and business experience of the executive officers of the Company are listed below.

Benjamin G. Brock has served as the Company's Chief Executive Officer and President since January 2014. He previously served as the Vice President and President of the Company's Asphalt Group from August 2012 to December 2013 and as President of Astec, Inc. from 2006 to 2013. From 2003 until 2006 he held the position of Vice President - Sales of Astec, Inc. and Vice President/General Manager of CEI Enterprises, Inc. from 1997 until 2002. Mr. Brock's career with Astec began as a salesman in 1993. Mr. Brock has been a Director of the Company since 2013. He is 46.

David C. Silvious, a Certified Public Accountant, has served as the Vice President, Chief Financial Officer and Treasurer of the Company since August 2011. He previously served as Corporate Controller of the Company from 2005 to 2011 and as Corporate Financial Analyst from 1999 to 2005. Mr. Silvious also serves as Treasurer of each of the Company's U.S. operating subsidiaries and Vice President of Astec Insurance Company. He is 49.

W. Norman Smith has served as the Vice Chairman of the Company and also Vice Chairman of its Board of Directors since January 2014. He previously served as the President and Chief Operating Officer of the Company from August 2012 to December 2013, as Group President of the Company's Mobile Asphalt Paving Group from October 2013 until January 2014, as the Group Vice President – Asphalt of the Company from 1998 until August 2012, as the President of Astec, Inc., a subsidiary of the Company, from 1994 until 2006, and as the President of Heatec, Inc., a subsidiary of the Company, from 1977 until 1994. Mr. Smith is a registered professional engineer. Mr. Smith has been a Director of the Company since 1982. He is 77.

Richard J. Dorris has served as the Company's Chief Operating Officer and Executive Vice President since January 2014. He previously served as the Group Vice President and President of the Company's Energy Group from August 2012 to December 2013 and as President of Heatec, Inc. from 2004 to January 2014. From 1999 to 2004 he held the positions of National Accounts Manager, Project Manager and Director of Projects for Astec, Inc. Prior to joining Astec, Inc. he was President of Esstee Manufacturing Company from 1990 to 1999 and was Sales Engineer from 1984 to 1990. He is 56.

Richard A. Patek has served as the Group President of the Company's Aggregate & Mining Group since October 2013 after having served as the Group's Vice President since 2008. He has also served as President of Telsmith, Inc. from May 2001 until February 2013. He served as President of Kolberg-Pioneer, Inc. from 1997 until 2001. From 1995 to 1997, he served as Director of Materials of Telsmith, Inc. From 1992 to 1995, Mr. Patek was Director of Materials and Manufacturing of the former Milwaukee plant location. From 1978 to 1992, he held various manufacturing management positions at Telsmith. Mr. Patek also served as the 2014 Chairman for the Association of Equipment Manufacturers (AEM) and a corporate board member for the Milwaukee School of Engineering. Mr. Patek was elected to the E.D. Etnyre & Company board of directors in December 2014. He is 60.

Steven L. Claude has served as the Group President of the Company's Infrastructure Group since August 2015. From November 2007 to July 2015, he held the position of Vice President, International Sales, Sr. Vice President, Sales and Marketing, and Executive Vice President of Astec, Inc. He is 66.

Jeffery J. Elliott has served as the Group Vice President of the Company's Aggregate & Mining Group since July 2014. He served as the President of Johnson Crushers, Inc. from 2001 until July 2014. From 1999 to 2001, he served as Senior Vice President for Cedarapids, Inc. (a Terex company), and from 1996 to 1999, he served as Vice President of the Crushing and Screening Group. From 1978 to 1996, he held various domestic and international sales and marketing positions with Cedarapids, Inc. He is 63.

Stephen C. Anderson has served as Vice President of Administration since August 2011, as Secretary of the Company since January 2007 and as the Director of Investor Relations since January 2003. Mr. Anderson also serves as the Company's Compliance Officer and manages the corporate information technology and aviation departments. He has also been President of Astec Insurance Company since January 2007. He was Vice President of Astec Financial Services, Inc. from 1999 to 2002. Prior to his employment with the Company, Mr. Anderson spent a combined 14 years in commercial banking with AmSouth and SunTrust Banks. He is 53.

Robin A. Leffew has served as Corporate Controller since August 2011 and also serves as Secretary of Astec Insurance Company. She previously served as the Company's Director of Internal Audit from 2005 to 2011 and Controller of Astec, Inc. from 1990 to 2005. From 1987 to 1990, she served as Corporate Financial Analyst for the Company. She is 55.

Michael A. Bremmer has served as the President of CEI Enterprises, Inc. since 2006. From 2003 until 2006, he held the position of Vice President and General Manager of CEI Enterprises, Inc. From 2001 until 2003, he held the position of Director of Engineering of CEI Enterprises, Inc. He is 61.

Chris Colwell has served as President of Carlson Paving Products since May 2011. Prior to joining Astec, Mr. Colwell held the position of Regional Operations Manager for Alta Equipment Company from 2010 to 2011. From 2008 to 2010 he served as Vice President-Asphalt Division for Wolverine Tractor and Equipment Company. From 1999 to 2008 Mr. Colwell served as President of Colwell Equipment Company Incorporated where he previously served in various positions since 1985 including General Manager, Director of Management Information Systems, Assistant Controller and Product Support Manager. He is 51.

Larry R. Cumming has served as the President of Peterson Pacific Corp. since 2007. He joined the company in 2003, prior to which he held positions of General Manager and Chief Executive Officer of Peterson, Inc. Prior to joining Peterson, he held senior management positions in North America and Europe with Timberjack and John Deere (Deere acquired Timberjack in 2000). Mr. Cumming also held prior positions with Timberjack as Vice President Engineering and Senior Vice President Sales and Marketing, Chief Operating Officer and Executive Vice President Product Supply. He is a registered professional engineer in the Province of Ontario. He is 68.

Martin Dummigan has served as Managing Director of Telestack Limited since January 2016. He previously served as Global and Group Operations Director for Terex Material Processing, Business Line Director for Terex Environmental Equipment, Vice president of Terex Operations in China and General Manager for Terex NFLG also in China. Prior to his 10 years with Terex, Mr. Dummigan served in a number of overseas plant Manager positions in the USA, South Africa, Egypt and Northern Ireland. He has also worked in Japan with Hitachi Supercomputer Systems where he studied Lean Manufacturing. Mr. Dummigan holds a Master's Degree in Electrical and Electronic Engineering from Queens University Belfast. He is 48.

Timothy Gonigam has served as the President of Astec Mobile Screens, Inc. since 2000. From 1995 to 2000, Mr. Gonigam held the position of Sales Manager of Astec Mobile Screens, Inc. He is 54.

Matthew B. Haven has served as the President of Telsmith, Inc. since February 2013. He previously served as Executive Vice President and General Manager of Telsmith from January 2012 to February 2013 and as Vice President from 2008 to 2011. Mr. Haven joined Telsmith in January 1997 and served as Chief Engineer, Research and Development and Director of Engineering prior to his appointment as Vice President. Prior to joining Telsmith, Mr. Haven served as Chief Engineer, Product Design and Development of Cedarapids, Inc. He is 55.

John J. Irvine III has served as President of Roadtec, Inc. since April of 2016. He previously served as Executive Vice President of Astec, Inc. (August 2015 to April 2016) and Vice President of Sales & Marketing and Vice President of Operations of Roadtec, Inc. (February 2004 to August 2015). Prior to his tenure with the Company, Mr. Irvine served in various roles at Cedarapids, Inc., TEREX, and Wirtgen America. He is 59 years old.

Tom Kruger has served as the Managing Director of Osborn Engineered Products SA (Pty) Ltd since 2005. For the previous five years, Mr. Kruger was employed as Operations Director of Macsteel Tube and Pipe (Pty) Ltd, a manufacturer of carbon steel tubing in Johannesburg, South Africa. He served as Sales and Marketing Director of Macsteel prior to becoming Operations Director. From 1993 to 1998, Mr. Kruger was employed by Barloworld Ltd as Operations Director and Regional Managing Director responsible for a trading organization in steel, tube and water conveyance systems. Prior to that, he held the position of Works Director. He is 59.

Jeffrey L. May has served as the President of Kolberg-Pioneer, Inc. since September 2013. He previously served as the Vice President of Operations and Finance of Kolberg-Pioneer, Inc. from 2011 to 2013 and as Controller of Kolberg-Pioneer, Inc. from 1997 to 2010. He is 53.

Jaco van der Merwe has served as Group President of the Energy Group since August 2016. From 1998 until 2016, he held various positions at Atlas Copco, including Vice President Marketing for the Deephole Drilling group (2013-2016), President/General Manager for the Mining and Rock Excavation Customer Center (2010-2013), and various other division leadership positions. Mr. van der Merwe's career with Atlas Copco began as Quality Manager in 1998. Prior to joining Atlas Copco, he held various positions at Denel Aviation. He is 44.

Jeffrey M. Schwarz has served as President of Johnson Crushers, Inc. ("JCI") since July 2014. He joined JCI as General Manager of AggReCon West, a division of JCI responsible for direct selling to end users in the Pacific Northwest. Prior to joining JCI he was Aggregates Manager for Kerr Contractors and held several management positions with a construction materials supplier from 1995 to 2008. He is 50.

Donald J. Sissons has served as the President of Breaker Technology Ltd. and Breaker Technology Inc. since January 2014. He previously served as Vice President of Manufacturing Operations from 2012 to January 2014 and as Plant Operations Manager from December 2003 until January 2012. Mr. Sissons is registered as a Professional Engineer. He is 50.

David H. Smale has served as the General Manager of Astec Australia Pty Ltd since 2008. He served as the General Manager of Allen's Asphalt from 2006 to 2008 and as their Operations Manager from 2004 to 2006. He is 61.

Malcolm L. Swanson has served as the President of Astec, Inc. since January 2014. He previously served as Vice President – Engineering of Astec, Inc. from 1995 to 2013 and as Chief Engineer of Astec, Inc. from 1989 to 1995. Prior to joining Astec, Inc., Mr. Swanson worked as a design engineer and project manager for Combustion Engineering of Chattanooga, TN in both the Fossil and Nuclear Power divisions. Mr. Swanson is a Professional Engineer holding registration in eight states. He is 68.

William A. Wiener has served as the President of Power Flame Incorporated since August 2016. He previously served as President and primary owner of Power Flame from 1979 until its acquisition by the Company in August 2016. He is 80.

Thomas H. Wilkey has served as the President of Heatec, Inc. since January 2014. From 2004 to 2014, he served as its Executive Vice President and from 1987 to 2004, he held the positions of Sales coordinator, Sales Manager, and Vice-President of Sales. He is 63.

PART II

Item 5. Market for Registrant's Common Equity; Related Stockholder Matters and Issuer Purchases of Equity Securities

The Company's Common Stock is traded in the Nasdaq National Market under the symbol "ASTE." The Company paid a cash dividend of \$1.00 per share on its Common Stock in the fourth quarter of 2012 and paid quarterly cash dividends of \$0.10 per quarter from the second quarter of 2013 through the fourth quarter of 2016. Prior to 2012, the Company had not paid any cash dividends.

The high and low sales prices of the Company's Common Stock as reported on the Nasdaq National Market for each quarter during the last two fiscal years are as follows:

	2016	Price Per Share	
		High	Low
	1st Quarter	\$ 47.97	\$ 33.08
	2nd Quarter	\$ 57.51	\$ 44.21
	3rd Quarter	\$ 62.75	\$ 51.73
	4th Quarter	\$ 71.88	\$ 52.08
	2015	Price Per Share	
		High	Low
	1st Quarter	\$ 43.85	\$ 33.90
	2nd Quarter	\$ 45.48	\$ 40.64
	3rd Quarter	\$ 43.78	\$ 33.02
	4th Quarter	\$ 41.99	\$ 30.76

As of February 17, 2017, there were approximately 220 holders of record of the Company's Common Stock.

Item 6. Selected Financial Data

Selected financial data appears in Appendix "A" of this Report.

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 appears in Appendix "A" of this Report.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Information regarding the Company's market risk appears in Appendix "A" of this Report under the heading "Market Risk and Risk Management Policies."

Item 8. Financial Statements and Supplementary Data

Financial statements and supplementary financial information appear in Appendix "A" of this Report.

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures that are designed to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to the Company's management, including its principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

The Company's management, under the supervision and with the participation of the Company's principal executive officer and principal financial officer, has evaluated the effectiveness of the Company's disclosure controls and procedures as of the end of the period covered by this report. The scope of management's assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2016 excluded the business unit that the Company acquired on August 1, 2016 (Power Flame Incorporated). The total consolidated assets with respect to the excluded business were \$42,281,000 as of December 31, 2016, and the total consolidated revenues with respect to the excluded business were \$13,636,000 for the year ended December 31, 2016. Management will complete its assessment of the internal controls over financial reporting of these newly-acquired operations during 2017. Based upon that evaluation, the Company's principal executive officer and principal financial officer concluded that, as of the end of the period covered by this report, the Company's disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) were effective.

Management's Report on Internal Control over Financial Reporting

Management's report appears in Appendix A of this Report.

Changes in Internal Controls

There have been no changes in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during the quarter ended December 31, 2016 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

None

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information regarding the Company's directors, director nominating process, audit committee and audit committee financial expert is included under the captions "Certain Information Concerning Nominees and Directors" and "Corporate Governance" in the Company's Proxy Statement to be delivered to the shareholders of the Company in connection with the Annual Meeting of Shareholders to be held on April 27, 2017 (referred to herein as the Company's 2017 Proxy Statement), which is incorporated herein by reference. Information regarding compliance with Section 16(a) of the Exchange Act is also included under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" in the Company's 2017 Proxy Statement, which is incorporated herein by reference. Information with respect to our executive officers is set forth in Part I of this Report under the caption "Executive Officers."

The Company's Board of Directors has approved a Code of Conduct and Ethics that applies to the Company's employees, directors and officers (including the Company's principal executive officer, principal financial officer and principal accounting officer). The Code of Conduct and Ethics is available on the Company's website at www.astecindustries.com/investors/.

Item 11. Executive Compensation

Information included under the captions "Compensation Discussion and Analysis", "Executive Compensation", "Director Compensation", "Corporate Governance—Compensation Committee Interlocks and Insider Participation" and "Compensation Committee Report" in the Company's 2017 Proxy Statement is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters**Equity Compensation Plan Information**

The following table provides information as of December 31, 2016 regarding compensation plans under which the Company's equity securities are authorized for issuance.

Plan Category	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants, Rights and RSU's	(b) Weighted Average Exercise Price of Outstanding Options, Warrants and Rights ⁽³⁾	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Equity Compensation Plans Approved by Shareholders ⁽¹⁾	111,811 ⁽²⁾	N/A	602,786 ⁽⁴⁾
Equity Compensation Plans Not Approved by Shareholders ⁽⁵⁾	23,177 ⁽⁶⁾	N/A	80,027 ⁽⁷⁾
Total	<u>134,988</u>		<u>682,813</u>

(1) Our 2011 Incentive Plan.

(2) Represents unvested RSUs granted under our 2011 Incentive Plan.

(3) Restricted Stock Units do not have an exercise price.

(4) Represents shares available for issuance under our 2011 Incentive Plan.

(5) Our 1998 Amended and Restated Non-Employee Director Stock Incentive Plan.

(6) Represents 23,177 Deferred Stock Units granted under our 1998 Amended and Restated Non-Employee Director Stock Incentive Plan.

(7) Represents shares available for issuance under our 1998 Amended and Restated Non-Employee Director Stock Incentive Plan.

Equity Compensation Plans Not Approved by Shareholders

Our 1998 Amended and Restated Non-Employee Directors Stock Incentive Plan provides that annual retainers payable to our non-employee directors will be paid in the form of cash, unless the director elects to receive the annual retainer in the form of common stock, which may, at the director's option, be received on a deferred basis. If the director elects to receive Common Stock, whether on a current or deferred basis, the number of shares to be received is determined by dividing the dollar value of the annual retainer by the fair market value of the Common Stock on the date the retainer is payable.

In addition, our 1998 Amended and Restated Non-Employee Directors Stock Incentive Plan also provides that each non-employee director will receive an annual stock award in the form of restricted stock units (RSUs) that vest on the day preceding the Company's next annual shareholder's meeting. The RSUs have no rights to dividends prior to their conversion to shares of Common Stock. Individual directors can elect to defer the conversion to Common Stock if they so choose.

Information included under the caption "Stock Ownership of Certain Beneficial Owners and Management" in the Company's 2017 Proxy Statement is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions and Director Independence

Information included under the captions "Corporate Governance—Independent Directors" and "Transactions with Related Persons" in the Company's 2017 Proxy Statement is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

Information included under the caption "Audit Matters" in the Company's 2017 Proxy Statement is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a)(1) The following financial statements and other information appear in Appendix "A" to this Report and are filed as a part hereof:

Selected Consolidated Financial Data.
Management's Discussion and Analysis of Financial Condition and Results of Operations.
Management's Report on Internal Control over Financial Reporting.
Reports of Independent Registered Public Accounting Firm.
Consolidated Balance Sheets at December 31, 2016 and 2015.
Consolidated Statements of Income for the Years Ended December 31, 2016, 2015 and 2014.
Consolidated Statements of Comprehensive Income for the Years Ended December 31, 2016, 2015 and 2014.
Consolidated Statements of Cash Flows for the Years Ended December 31, 2016, 2015 and 2014.
Consolidated Statements of Equity for the Years Ended December 31, 2016, 2015 and 2014.
Notes to Consolidated Financial Statements.

(a)(2) Financial Statement Schedules are not filed with this Report because the Schedules are either inapplicable or the required information is presented in the Financial Statements or Notes thereto.

(a)(3) The following Exhibits are incorporated by reference into or are filed with this Report:

- | | |
|------|--|
| 3.1 | Amended and Restated Charter of the Company, adopted on April 28, 1986 and amended on September 7, 1988, May 31, 1989 and January 15, 1999 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2011). |
| 3.2 | Amended and Restated Bylaws of the Company, adopted on March 14, 1990 and amended on July 29, 1993, July 26, 2007 and July 23, 2008 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2011). |
| 10.1 | Trust under Astec Industries, Inc. Supplemental Retirement Plan, dated January 1, 1996 (incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 1995). * |
| 10.2 | Astec Industries, Inc. 1998 Long-Term Incentive Plan (incorporated by reference from Appendix A of the Company's Proxy Statement for the 1998 Annual Meeting of Shareholders). * |

- 10.3 Astec Industries, Inc. 2006 Incentive Plan (incorporated by reference from Appendix A of the Company's Proxy Statement for the 2006 Annual Meeting of Shareholders). *
- 10.4 Amendment Number 1 to Astec Industries, Inc. 2006 Incentive Plan (incorporated by reference from the Company's Annual Report on form 10-K for the year ended December 31, 2008).*
- 10.5 Astec Industries, Inc. Supplemental Executive Retirement Plan, as amended and restated through January 1, 2009 (incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2008). *
- 10.6 Amendment One to the Amended and Restated Astec Industries, Inc. Supplemental Executive Retirement Plan effective October 21, 2010 (incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2010). *
- 10.7 Astec Industries, Inc. 2011 Incentive Plan (incorporated by reference from Appendix A of the Company's Proxy Statement for the 2011 Annual Meeting of Shareholders). *
- 10.8 Amendment to Appendix A of the Astec Industries, Inc. Supplemental Executive Plan effective August 1, 2011 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2011). *
- 10.9 Amendment to Appendix A of the Astec Industries, Inc. Supplemental Executive Plan effective November 1, 2011 (incorporate by reference from the company's Annual Report on form 10-K for the year ended December 31, 2011). *
- 10.10 Amended and Restated Credit Agreement, dated as of April 12, 2012, between Astec Industries, Inc. and Certain of its Subsidiaries and Wells Fargo Bank, National Association (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending March 31, 2012).
- 10.11 Amendment to Appendix A of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective February 28, 2013 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending March 31, 2013). *
- 10.12 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective April 25, 2013 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2013). *
- 10.13 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective October 24, 2013 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending September 30, 2013). *
- 10.14 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective July 24, 2014 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2014). *
- 10.15 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective July 23, 2015 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2015). *
- 10.16 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective April 28, 2016 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending March 31, 2016). *
- 10.17 Astec Industries, Inc. Executive Change in Control Severance Plan, effective July 28, 2016 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2016). *
- 10.18 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective October 27, 2016 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending September 30, 2016). *
- 10.19 Astec Industries, Inc. Amended and Restated Non-Employee Directors Compensation Plan, original effective April 23, 1998 with amended and restated provisions effective April 29, 2016. *

21	Subsidiaries of the Registrant.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Independent Registered Public Accounting Firm.
31.1	Certification of Chief Executive Officer of Astec Industries, Inc. pursuant Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act Of 2002.
31.2	Certification of Chief Financial Officer of Astec Industries, Inc. pursuant Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act Of 2002.
32	Certification of Chief Executive Officer and Chief Financial Officer of Astec Industries, Inc. pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act Of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase
*	Management contract or compensatory plan or arrangement.

(b) The Exhibits to this Report are listed under Item 15(a)(3) above.

(c) The Financial Statement Schedules to this Report are listed under Item 15(a)(2) above.

The Exhibits are numbered in accordance with Item 601 of Regulation S-K. Inapplicable Exhibits are not included in the list.

Item 16. Form 10-K Summary

None

APPENDIX "A"
to
ANNUAL REPORT ON FORM 10-K
ITEMS 6, 7, 7A, 8, 9A and 15(a)(1), (2) and (3) and 15(b) and 15(c)

**INDEX TO FINANCIAL STATEMENTS AND
FINANCIAL STATEMENT SCHEDULES**

ASTEC INDUSTRIES, INC.

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**FINANCIAL
INFORMATION**

SELECTED CONSOLIDATED FINANCIAL DATA

(in thousands, except as noted*)

	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>
Consolidated Statement of Income Data					
Net sales	\$ 1,147,431	\$ 983,157	\$ 975,595	\$ 932,998	\$ 936,273
Gross profit	265,269	218,843	215,316	207,119	207,951
Gross profit %	23.1%	22.3%	22.1%	22.2%	22.2%
Selling, general and administrative expenses	153,145	145,180	141,490	133,337	136,323
Research and development	24,969	23,676	22,129	18,101	20,520
Income from operations	87,155	49,987	51,697	55,681	51,108
Interest expense	1,395	1,611	720	423	339
Other income (expense), net	529	3,055	1,207	1,937	1,783
Net income from continuing operations	54,988	31,966	34,206	39,214	34,210
Income from discontinued operations, net of tax	--	--	--	--	3,401
Gain on sale of subsidiary, net of tax	--	--	--	--	3,378
Net income	54,988	31,966	34,206	39,214	40,989
Net income attributable to controlling interest	55,159	32,797	34,458	39,042	40,828
Earnings per common share*:					
Net income attributable to controlling interest from continuing operations					
Basic	2.40	1.43	1.51	1.72	1.50
Diluted	2.38	1.42	1.49	1.69	1.48
Income from discontinued operations					
Basic	--	--	--	--	0.30
Diluted	--	--	--	--	0.29
Net income attributable to controlling interest					
Basic	2.40	1.43	1.51	1.72	1.80
Diluted	2.38	1.42	1.49	1.69	1.77
Consolidated Balance Sheet Data					
Working capital	\$ 407,972	\$ 399,785	\$ 388,862	\$ 385,680	\$ 355,336
Total assets	843,601	777,353	802,265	749,291	728,783
Short-term debt	4,632	--	2,814	--	--
Current maturities of long-term debt	2,538	4,528	1,027	34	--
Long-term debt, less current maturities	4,116	5,154	7,061	510	--
Total equity	648,841	609,858	596,152	577,311	547,534
Cash dividends declared per common share*	0.40	0.40	0.40	0.30	1.00
Book value per diluted common share at year-end*	27.99	26.30	25.62	24.85	23.68

SUPPLEMENTARY FINANCIAL DATA

(in thousands, except as noted*)

**Quarterly Financial Highlights
(Unaudited)**

		First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2016	Net sales	\$ 278,721	\$ 294,394	\$ 247,752	\$ 326,564
	Gross profit	71,956	73,452	55,389	64,472
	Net income	17,678	18,141	6,835	12,334
	Net income attributable to controlling interest	17,743	18,192	6,838	12,386
	Earnings per common share*				
	Net income attributable to controlling interest:				
	Basic	0.77	0.79	0.30	0.54
	Diluted	0.77	0.79	0.30	0.53
2015	Net sales	\$ 288,748	\$ 268,042	\$ 211,350	\$ 215,017
	Gross profit	66,045	62,233	45,138	45,427
	Net income	14,917	11,658	1,958	3,433
	Net income attributable to controlling interest	15,105	11,805	2,292	3,595
	Earnings per common share*				
	Net income attributable to controlling interest:				
	Basic	0.66	0.51	0.10	0.16
	Diluted	0.65	0.51	0.10	0.16
Common Stock Price*					
	2016 High	\$ 47.97	\$ 57.51	\$ 62.75	\$ 71.88
	2016 Low	33.08	44.21	51.73	52.08
	2015 High	\$ 43.85	\$ 45.48	\$ 43.78	\$ 41.99
	2015 Low	33.90	40.64	33.02	30.76

The Company's common stock is traded in the Nasdaq National Market under the symbol ASTE. Prices shown are the high and low sales prices as announced by the Nasdaq National Market. The Company paid quarterly dividends of \$0.10 per common share to shareholders in each quarter of 2015 and 2016. As determined by the proxy search on the record date for the Company's 2016 annual shareholders' meeting, the number of holders of record is approximately 220.

MANAGEMENT DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

(Dollar and shares amounts in thousands, except per share amounts, unless otherwise specified)

The following discussion contains forward-looking statements that involve inherent risks and uncertainties. Actual results may differ materially from those contained in these forward-looking statements. For additional information regarding forward-looking statements, see "Forward-looking Statements" on page A-20.

Overview

Astec Industries, Inc. (the "Company") is a leading manufacturer and seller of equipment for the road building, aggregate processing, geothermal, water, oil and gas, and wood processing industries. The Company's businesses:

design, engineer, manufacture and market equipment used in each phase of road building, including mining, quarrying and crushing the aggregate, mobile bulk and material handling solutions, producing asphalt or concrete, recycling old asphalt or concrete and applying the asphalt;

design, engineer, manufacture and market additional equipment and components, including equipment for geothermal drilling, oil and natural gas drilling, industrial heat transfer, wood chipping and grinding, wood pellet processing, commercial and industrial burners, combustion control systems; and

manufacture and sell replacement parts for equipment in each of its product lines.

Astec Industries, Inc. consists of 20 companies: 16 manufacturing companies, 2 companies that operate as dealers for the manufacturing companies, a captive insurance company and the parent company. The companies fall within three reportable operating segments: the Infrastructure Group, the Aggregate and Mining Group and the Energy Group. The Infrastructure Group is made up of five business units, three of which design, engineer, manufacture and market a complete line of asphalt plants, asphalt pavers, wood pellet plants and related components and ancillary equipment. The two remaining companies in the Infrastructure Group primarily sell, service and install equipment produced by the manufacturing subsidiaries of the Company with the majority of sales to the infrastructure industry. The Aggregate and Mining Group consists of eight business units that design, manufacture and market heavy equipment and parts in the aggregate, metallic mining, quarrying, recycling, ports and bulk handling industries. The Energy Group consists of five business units that design, manufacture and market heaters, gas, oil and combination gas/oil burners, combustion control systems, drilling rigs, concrete plants, wood chippers and grinders, pump trailers, storage equipment and related parts to the oil and gas, construction, and water well industries. The Company also has one other category, Corporate, that contains the business units that do not meet the requirements for separate disclosure as a separate operating segment or inclusion in one of the other reporting segments. The business units in the Corporate category are Astec Insurance Company ("Astec Insurance" or "the captive") and Astec Industries, Inc., the parent company. These two companies provide support and corporate oversight for all the companies that fall within the reportable operating segments.

The Company's financial performance is affected by a number of factors, including the cyclical nature and varying conditions of the markets it serves. Demand in these markets fluctuates in response to overall economic conditions and is particularly sensitive to the amount of public sector spending on infrastructure development, privately funded infrastructure development, changes in the price of crude oil, which affects the cost of fuel and liquid asphalt, and changes in the price of steel.

The Company believes that federal highway funding influences the purchasing decisions of the Company's customers, who are typically more comfortable making capital equipment purchases with long-term federal legislation in place. Federal funding provides for approximately 25% of all highway, street, roadway and parking construction in the United States.

In July 2012, the "Moving Ahead for Progress in the 21st Century Act" ("Map-21") was approved by the U.S. federal government, which authorized \$105 billion of federal spending on highway and public transportation programs through fiscal year 2014. In August 2014, the U.S. government approved short-term funding of \$10.8 billion through May 2015. Federal transportation funding operated on short-term appropriations until December 4, 2015 when the Fixing America's Surface Transportation Act ("FAST Act") was signed into law. The \$305 billion FAST Act approved funding for highways of approximately \$205 billion and transit projects of approximately \$48 billion for the five-year period ending September 30, 2020. The Company believes a multi-year highway program (such as the FAST Act) will have the greatest positive impact on the road construction industry and allow its customers to plan and execute longer-term projects, but given the inherent uncertainty in the political process, the level of governmental funding for federal highway projects will similarly continue to be uncertain. In late 2016, the newly-elected administration stated one of its priorities would be a new infrastructure bill including increased funding for roads, bridges, tunnels, airports, railroads, ports and waterways, pipelines, clean water infrastructure, energy infrastructure and telecommunication needs. The funding for the bill as proposed would rely in part on direct federal spending as well as increased private sector funding in exchange for federal tax credits. Governmental funding that is committed or earmarked for federal highway projects is always subject to repeal or reduction. Although continued funding under the FAST Act or funding of a bill passed by the new administration is expected, it may be at lower levels than originally approved or anticipated.

In addition, Congress could pass legislation in future sessions that would allow for the diversion of previously appropriated highway funds for other purposes, or it could restrict funding of infrastructure projects unless states comply with certain federal policies. The level of future federal highway construction is uncertain and any future funding may be at levels lower than those currently approved or that have been approved in the past.

The public sector spending described above is needed to fund road, bridge and mass transit improvements. The Company believes that increased funding is unquestionably needed to restore the nation's highways to a quality level required for safety, fuel efficiency and mitigation of congestion. In the Company's opinion, amounts needed for such improvements are significantly greater than amounts approved to date, and funding mechanisms such as the federal usage fee per gallon of gasoline, which is still at the 1993 level of 18.4 cents per gallon, would likely need to be increased along with other measures to generate the funds needed.

In addition to public sector funding, the economies in the markets the Company serves, the price of oil and its impact on customers' purchasing decisions and the price of steel may each affect the Company's financial performance. Economic downturns generally result in decreased purchasing by the Company's customers, which, in turn, causes reductions in sales and increased pricing pressure on the Company's products. Rising interest rates also typically negatively impact customers' attitudes toward purchasing equipment. The Federal Reserve has maintained historically low interest rates in response to the economic downturn which began in 2009; however, the Federal Reserve raised the Federal Funds Rate in late 2015 and again in 2016, and may implement additional increases in 2017.

Significant portions of the Company's revenues from the Infrastructure Group relate to the sale of equipment involved in the production, handling, recycling or installation of asphalt mix. Liquid asphalt is a by-product of oil production. An increase or decrease in the price of oil impacts the cost of asphalt, which is likely to alter demand for asphalt and therefore affect demand for certain Company products. While increasing oil prices may have a negative financial impact on many of the Company's customers, the Company's equipment can use a significant amount of recycled asphalt pavement, thereby partially mitigating the effect of increased oil prices on the final cost of asphalt for the customer. The Company continues to develop products and initiatives to reduce the amount of oil and related products required to produce asphalt mix. Oil price volatility makes it difficult to predict the costs of oil-based products used in road construction such as liquid asphalt and gasoline. Oil prices in 2016 were relatively stable throughout the first half of the year and began to rise near year end. Minor fluctuations in oil prices should not have a significant impact on customers' buying decisions. Other factors such as political uncertainty in oil producing countries, interruptions in oil production due to disasters, whether natural or man-made, or other economic factors could significantly impact oil prices which could negatively impact demand for the Company's products. However, the Company believes the continued funding of the FAST Act federal highway bill passed in December 2015 has a greater potential to impact the buying decisions of the Company's customers than does the fluctuation of oil prices in 2017.

Contrary to the impact of oil prices on many of the Company's Infrastructure Group products as discussed above, the products manufactured by the Energy Group, which are used in drilling for oil and natural gas, in heaters for refineries and oil sands, and in double fluid pump trailers for fracking and oil and gas extraction, would benefit from higher oil and natural gas prices, to the extent that such higher prices lead to increased development in the oil and natural gas production industries. The Company believes further development of domestic oil and natural gas production capabilities is needed and would positively impact the domestic economy and the Company's business.

Steel is a major component in the Company's equipment. Steel prices rose significantly during the first half of 2016 but then began to decline due to slowing steel consumption and retreating energy prices in the third quarter of 2016. Steel prices began to moderately rise again in late 2016 due to improvements in energy costs and anticipated GDP growth. The Company expects this trend to continue through the first half of 2017. The Company continues to utilize forward-looking contracts (with no minimum or specified quantity guarantees) coupled with advanced steel purchases to minimize the impact of any price increases. The Company will review the trends in steel prices entering into the second half of 2017 and establish future contract pricing accordingly.

In addition to the factors stated above, many of the Company's markets are highly competitive, and its products compete worldwide with a number of other manufacturers and dealers that produce and sell similar products. From 2010 through mid-2012, a weak U.S. dollar, combined with improving economic conditions in certain foreign economies, had a positive impact on the Company's international sales. The continued strengthening of the U.S. dollar from mid-2012 through 2016 has negatively impacted pricing in certain foreign markets the Company serves. The Company expects the U.S. dollar to remain strong in the near term relative to most foreign currencies. Increasing domestic interest rates or weakening economic conditions abroad could cause the U.S. dollar to continue to strengthen, which could negatively impact the Company's international sales.

In the United States and internationally, the Company's equipment is marketed directly to customers as well as through dealers. During 2016, approximately 75% to 80% of equipment sold by the Company was sold directly to the end user. The Company expects this ratio to remain relatively consistent through 2017.

The Company is operated on a decentralized basis with a complete management team for each operating subsidiary. Finance, insurance, legal, shareholder relations, corporate accounting and other corporate matters are primarily handled at the corporate level (i.e., Astec Industries, Inc., the parent company). The engineering, design, sales, manufacturing and basic accounting functions are handled at each individual subsidiary. Standard accounting procedures are prescribed and followed in all reporting.

During 2016, the Company implemented revised profit sharing plans whereby corporate officers, subsidiary presidents and other employees at each subsidiary have the opportunity to earn profit sharing incentives based upon the Company's and/or the individual groups or subsidiaries' return on capital employed, EBITDA margin and safety. Corporate officers' and subsidiary Presidents' awards calculated at targeted performance are between 35% and 100% of their base salary, depending upon their responsibilities and the plans allow for awards of up to 200% of the target. Each subsidiary has the opportunity to earn up to 10% of its after-tax profit as a profit sharing incentive award to be paid to its employees.

The Company also implemented revised long-term incentive plans during 2016 whereby corporate officers, subsidiary presidents and other corporate or subsidiary management employees will be awarded Restricted Stock Units ("RSUs") if certain goals based upon the Company's Total Shareholder's Return ("TSR") as compared to a peer group and pretax profit margin are met. The grant date value of Corporate officers and subsidiary Presidents' awards calculated at targeted performance are between 20% and 100% of their base salary, depending upon their responsibilities and the plans allow for awards of up to 200% of the target. Additional RSUs will be granted to other key subsidiary management employees based upon individual subsidiary pretax profit margins and Company TSR as compared to a peer group.

Results of Operations: 2016 vs. 2015

Net Sales

Net sales increased \$164,274 or 16.7% to \$1,147,431 in 2016 from \$983,157 in 2015. Sales are generated primarily from new equipment purchases made by customers for use in construction of privately funded infrastructure, public sector spending on infrastructure and sales of equipment for the aggregate, mining, wood pellet, quarrying and recycling markets, and for oil and gas and geothermal industries.

Domestic sales for 2016 were \$941,273 or 82.0% of net sales compared to \$722,287 or 73.5% of net sales for 2015, an increase of \$218,985 or 30.3%. The overall increase in domestic sales for 2016 compared to 2015 reflects the strengthening economic conditions for the Company's products in the domestic market and a \$135,187 increase in pellet plant sales between years.

International sales for 2016 were \$206,158 or 18.0% of net sales compared to \$260,870 or 26.5% of net sales for 2015, a decrease of \$54,711 or 21.0%. The Company continued to experience a challenging market for its products internationally in 2016 compared to 2015 caused by competitive pressures due to the strengthening of the U.S. dollar as we compete with local manufacturers that do not price their products based on the U.S. dollar and the continued sluggishness in the global mining industry. Sales reported by the Company for 2016 would have been \$10,148 higher had 2016 foreign exchange rates been the same as 2015 rates. The Company continues its efforts to grow its international business by increasing its presence in the markets it serves.

Parts sales as a percentage of net sales decreased 400 basis points to 23.0% in 2016 from 27.0% in 2015. In U.S. dollars, parts sales decreased 0.6% to \$263,457 in 2016 from \$265,092 in 2015.

Gross Profit

Gross profit as a percentage of sales increased to 23.1% in 2016 as compared to 22.3% in 2015. In U.S. dollars, gross profit increased 21.2% to \$265,269 in 2016 from \$218,843 in 2015. Gross margins increased in 2016 due to a release of pent-up demand from the lack of a long-term federal highway bill, which led to increased margins in the Infrastructure Group as well as margins recorded for pellet plant sales by the Company.

Selling, General and Administrative Expense

Selling, general and administrative expense for 2016 was \$153,145 or 13.3% of net sales compared to \$145,180 or 14.8% of net sales for 2015, an increase of \$7,965 or 5.5%. The increase in selling, general and administrative expense over 2015 was due to an increase in payroll and related expense of \$6,263 and an increase of \$7,640 in profit sharing and SERP expenses offset by a reduction in the cost of repairs and maintenance, primarily on Company airplanes of \$3,001, a decrease in consultant fees of \$789 and a decrease in computer expenses of \$874.

Research and Development

Research and development expenses increased \$1,293 or 5.5% to \$24,969 in 2016 from \$23,676 in 2015. During 2016, the Company continued its focus on research and development spending for new products as well as improvements to existing product lines and adaptation of those products to other markets. The Company will introduce many of its new products at the ConExpo Show to be held in March 2017.

Interest Expense

Interest expense in 2016 decreased \$216 or 13.4%, to \$1,395 from \$1,611 in 2015.

Interest Income

Interest income increased \$264 or 48.7% to \$806 in 2016 from \$542 in 2015.

Other Income (Expense), Net

Other income (expense), net was \$529 in 2016 compared to \$3,055 in 2015, a decrease of \$2,526 or 82.7% due to \$1,204 of income from key-man life insurance policies received in 2015 resulting from the death of the Company's Chairman (and former CEO) and the forfeiture of a customer deposit of \$1,002 in 2015 on a cancelled order.

Income Tax

Income tax expense for 2016 was \$32,107, compared to \$20,007 for 2015. The effective tax rates for 2016 and 2015 were 36.9% and 38.5%, respectively. The effective tax rate decreased in 2016 from the 2015 effective tax rate due to an increase in domestic tax credits for research and development expenditures, a decrease in the overall effective state rate caused by changes in apportionment and statutory state rates and a reduced impact of valuation allowances on deferred tax assets.

Net Income Attributable To Controlling Interest

The Company had net income attributable to controlling interest of \$55,159 in 2016 compared to \$32,797 in 2015, an increase of \$22,362, or 68.2%. Earnings per diluted share increased \$0.96 to \$2.38 in 2016 from \$1.42 in 2015. Weighted average diluted shares outstanding for the years ended December 31, 2016 and 2015 were 23,142 and 23,120, respectively.

Backlog

The backlog of orders at December 31, 2016 was \$357,367 compared to \$315,910 at December 31, 2015, an increase of \$41,457, or 13.1%. The increase in the backlog of orders was due to an increase in domestic backlog of \$33,006 or 12.6% and an increase in international backlog of \$8,451 or 15.6%. The Infrastructure Group backlog increased \$28,394 or 13.9% from 2015. The Infrastructure Group backlog includes \$60,249 in both 2016 and 2015 for the first three-line pellet plant order from a single customer under a Company financed arrangement whereby the Company expects to record the related revenues in 2018 when payment is due to be received. The Infrastructure Group believes the FAST Act federal highway funding bill passed in late 2015, continues to positively impact order backlogs of the group. The Aggregate and Mining Group backlog increased \$14,467 or 19.5% from 2015 while the backlog in the Energy Group decreased \$1,404 or 3.7% over the 2015 levels. Both the Aggregate and Mining Group and the Energy Group continue to be negatively impacted by competitive pricing issues in many foreign countries due to the strength of the U.S. dollar compared to foreign currencies, and reduced demand for equipment in the mining and oil and gas industries. The Company is unable to determine whether the changes in backlogs was experienced by the industry as a whole.

Net Sales by Segment

	<u>2016</u>	<u>2015</u>	<u>\$ Change</u>	<u>% Change</u>
Infrastructure Group	\$ 608,908	\$ 428,737	\$ 180,171	42.0%
Aggregate and Mining Group	359,760	370,813	(11,053)	(3.0%)
Energy Group	178,763	183,607	(4,844)	(2.6%)

Infrastructure Group: Sales in this group increased \$180,171 or 42.0%. Domestic sales for the Infrastructure Group increased 55.2% in 2016 compared to 2015 due to a release of some of the pent-up demand from the lack of a long-term federal highway bill for most of 2015 and increased pellet plant sales of \$135,187. International sales for the Infrastructure Group decreased 19.2% in 2016 compared to 2015. The decrease in international sales was due primarily to the strengthening of the U.S. dollar compared to the currencies in many of the countries in which the Company operates. The decrease in international sales for the Infrastructure Group occurred mainly in Canada, Europe, the Middle East, Post-Soviet States, South America and Asia, offset by an increase in sales in the Mexico, Japan, Australia, West Indies, China and Central America. Parts sales for the Infrastructure Group increased 5.7% in 2016 compared to 2015. The Company believes the increase in parts sales from 2015 to 2016 was due to the impact of the FAST Act federal highway bill passed in late 2015. The Company also believes a portion of the increase in parts sales was attributed to sales of replacement parts for our competitors' equipment.

Aggregate and Mining Group: Sales in this group decreased \$11,053 or 3.0%. Domestic sales for the Aggregate and Mining Group increased 6.3% in 2016 compared to 2015 primarily due to improved demand related to infrastructure projects. International sales for the Aggregate and Mining Group decreased 18.3% in 2016 compared to 2015. The decrease in international sales is due to the strength of the U.S. dollar compared to the currencies in many of the countries in which the Company operates and the continuing slowdown in the mining industry. The decrease in international sales for the Aggregate and Mining Group occurred primarily in Africa, the Middle East, Canada, Brazil, Russia and India, offset by increases in Mexico, Japan, Europe and Asia. Sales reported by the Company's foreign subsidiaries in this group would have been \$10,134 higher had foreign exchange rates for 2016 been the same as 2015 rates. Parts sales for the Aggregate and Mining Group decreased 6.4% in 2016 compared to 2015.

Energy Group: Sales in this group decreased \$4,844 or 2.6%. Sales in this group were positively affected by the purchase of Power Flame Incorporated (PFI), located in Parsons, Kansas in August 2016. PFI manufactures and sells gas, oil and combination gas/oil and low NOx burners as well as combustion control systems designed for commercial, industrial and process applications. Without the purchase of PFI, sales would have decreased 10% from 2015 to 2016. Domestic sales for the Energy Group increased 6.9% in 2016 compared to 2015. International sales for the Energy Group decreased 32.3% in 2016 compared to 2015. The decrease in international sales was due primarily to the continued strength of the U.S. dollar in 2016 and a continued reduction in oil production and exploration brought on by the low oil prices. The decrease in international sales occurred in Russia, the Middle East, Australia, Asia, Africa and Brazil, offset by increased sales in Japan and China. Parts sales for the Energy Group decreased 4.8% in 2016 compared to 2015.

Segment Profit (Loss)

	<u>2016</u>	<u>2015</u>	<u>\$ Change</u>	<u>% Change</u>
Infrastructure Group	\$ 71,482	\$ 33,890	\$ 37,592	110.9%
Aggregate and Mining Group	34,877	30,690	4,187	13.6%
Energy Group	4,145	3,609	536	14.9%
Corporate	(55,992)	(36,623)	(19,369)	(52.9%)

Infrastructure Group: Profit for this group increased \$37,592 or 110.9% from 2015. This group's profits were impacted by an increase in gross profit of \$42,884 or 60 basis points on increased sales of \$180,171 partially due to increased overhead absorption on a 20% increase in direct labor hours worked from 2015 to 2016, offset by an increase in payroll and related expenses of \$5,692.

Aggregate and Mining Group: Profit for this group increased \$4,187 or 13.6% from 2015. This group's profits were impacted by an increase in gross profit of \$1,851 on decreased sales of \$11,053 due to a 130 basis point increase in gross margin and decreases in payroll and related expense of \$1,329, decreased travel expense of \$786 and a \$528 decrease in repairs and maintenance expense, primarily on a company airplane.

Energy Group: Profit for this group increased \$536 or 14.9% from 2015. This group's profits were impacted by an increase in gross profit of \$2,077 on decreased sales of \$4,844 due to a 170 basis point increase in gross margin and decreased outside service expense of \$741, repairs and maintenance of \$346 and computer expense of \$235.

Corporate: Net corporate expenses increased \$19,369 from 2015 due to increases in profit sharing and SERP expense of \$7,640, stock option expense of \$1,376, and increased income taxes of \$9,826.

Results of Operations: 2015 vs. 2014*Net Sales*

Net sales increased \$7,562 or 0.8% to \$983,157 in 2015 from \$975,595 in 2014. Sales are generated primarily from new equipment purchases made by customers for use in construction of privately funded infrastructure, public sector spending on infrastructure and sales of equipment for the aggregate, mining, quarrying and recycling markets and for oil and gas and geothermal industries.

Domestic sales for 2015 were \$722,287 or 73.5% of net sales compared to \$654,231 or 67.1% of net sales for 2014, an increase of \$68,056 or 10.4%. The overall increase in domestic sales for 2015 compared to 2014 reflects the strengthening economic conditions for the Company's products in the domestic market.

International sales for 2015 were \$260,870 or 26.5% of net sales compared to \$321,364 or 32.9% of net sales for 2014, a decrease of \$60,494 or 18.8%. The Company experienced a challenging market for its products internationally in 2015 compared to 2014 caused by competitive pressures due to the strengthening of the U.S. dollar as we compete with local manufacturers that do not price their products based on the U.S. dollar, the decline in oil prices and the slowdown in the global mining industry. Sales reported by the Company would have been \$17,536 higher had 2015 foreign exchange rates been the same as 2014 rates.

Parts sales as a percentage of net sales increased 90 basis points to 27.0% in 2015 from 26.1% in 2014. In U.S. dollars, parts sales increased 4.1% to \$265,092 in 2015 from \$254,747 in 2014.

Gross Profit

Gross profit as a percentage of sales remained relatively flat at 22.3% in 2015 as compared to 22.1% in 2014. In U.S. dollars, gross profit increased 1.6% to \$218,843 in 2015 from \$215,316 in 2014.

Selling, General and Administrative Expense

Selling, general and administrative expense for 2015 was \$145,180 or 14.8% of net sales compared to \$141,490 or 14.5% of net sales for 2014, an increase of \$3,690 or 2.6%. The increase in selling, general and administrative expense over 2014 was due to an increase in payroll and related expense of \$2,148, an increase of \$2,873 in repairs and maintenance, primarily for repairs on Company airplanes, and an increase in computer expense of \$2,087, offset by a reduction in ConExpo expense of \$3,162.

Research and Development

Research and development expenses increased \$1,547 or 7.0% to \$23,676 in 2015 from \$22,129 in 2014. During 2015, the Company continued its focus on research and development spending for new products as well as improvements to existing product lines and adaptation of those products to other markets.

Interest Expense

Interest expense in 2015 increased \$891 or 123.8%, to \$1,611 from \$720 in 2014. The increase in interest expense was primarily due to the utilization of credit facilities in Brazil to finance equipment purchases and operations of the new manufacturing facility.

Interest Income

Interest income decreased \$880 or 61.9% to \$542 in 2015 from \$1,422 in 2014. The decrease was due to the Company agreeing to defer interest payments on a customer's purchase of the first wood pellet processing plant produced by the Company until amortization of the financing begins. Interest income received from pellet plant financing was \$622 in 2014.

Other Income (Expense), Net

Other income (expense), net was \$3,055 in 2015 compared to \$1,207 in 2014, an increase of \$1,848 or 153.1% due to \$1,204 of income from key-man life insurance policies in 2015 resulting from the death of the Company's Chairman (and former CEO).

Income Tax

Income tax expense for 2015 was \$20,007, compared to \$19,400 for 2014. The effective tax rates for 2015 and 2014 were 38.5% and 36.2%, respectively. The effective tax rate increased in 2015 over the 2014 effective tax rate due primarily to the tax effect of weakening foreign currencies and reductions in domestic tax credits for research and development. The tax benefit of the weakening foreign currency was recognized in other comprehensive income and not in income tax expense.

Net Income Attributable To Controlling Interest

The Company had net income attributable to controlling interest of \$32,797 in 2015 compared to \$34,458 in 2014, a decrease of \$1,661, or 4.8%. Earnings per diluted share decreased \$0.07 to \$1.42 in 2015 from \$1.49 in 2014. Weighted average diluted shares outstanding for the years ended December 31, 2015 and 2014 were 23,120 and 23,105, respectively.

Backlog

The backlog of orders at December 31, 2015 was \$313,291 compared to \$332,051 at December 31, 2014, a decrease of \$18,760, or 5.6%. The decrease in the backlog of orders was due to a decrease in international backlog of \$55,595 or 50.7% offset by an increase in domestic backlog of \$36,835 or 16.6%. The Infrastructure Group backlog increased \$56,640 or 38.5% from 2014. The Infrastructure Group backlog includes \$60,249 in 2015 and \$59,275 in 2014 for a three-line pellet plant order for one customer. An additional pellet plant order for \$29,273 for a second pellet plant customer is in the 2015 backlog with an estimated sale date in the first half of 2016. The Infrastructure Group experienced an increase in order activity for asphalt equipment in the latter part of 2015 which the Company believes to be due to the passage of the federal highway funding bill, the FAST Act, on December 4, 2015. The increased backlog for the Infrastructure Group was offset by a decrease in backlog for the Aggregate and Mining Group of \$15,305 and a decrease in the Energy Group backlog from 2014 of \$60,095. Both of these groups were negatively impacted by competitive pricing issues in many foreign countries due to the strength of the U.S. dollar compared to foreign currencies, and reduced demand for equipment in mining and oil and gas industries. The Company is unable to determine whether the decrease in backlogs was experienced by the industry as a whole.

Net Sales by Segment

	2015	2014	\$ Change	% Change
Infrastructure Group	\$ 428,737	\$ 386,356	\$ 42,381	11.0%
Aggregate and Mining Group	370,813	384,883	(14,070)	(3.7%)
Energy Group	183,607	204,356	(20,749)	(10.2%)

Infrastructure Group: Sales in this group increased \$42,381 or 11.0% from 2014. Domestic sales increased 24.2% due to a release of some of the pent-up demand from the lack of a long-term federal highway bill for most of 2015. International sales decreased 25.7%. The decrease in international sales was due primarily to the strengthening of the U.S. dollar compared to the currencies in many of the countries in which the Company operates. Sales reported by the Company's foreign subsidiaries in this group, would have been \$4,872 higher had 2015 foreign exchange rates been the same as 2014 rates. The decrease in international sales occurred mainly in Russia, Australia and South America, offset by an increase in sales in the Middle East, Canada and other European countries. Parts sales increased 16.7% in 2015 compared to 2014. The Company believes the increase in parts sales from 2014 to 2015 was due in part to customers' decisions to repair existing equipment instead of purchasing new equipment in response to the lack of a long-term federal highway bill for the majority of 2015. The Company also believes a portion of the increase in parts sales was attributed to sales of replacement parts for our competitors' equipment.

Aggregate and Mining Group: Sales in this group decreased \$14,070 or 3.7% from 2014. Domestic sales increased 7.4% primarily due to improved demand related to infrastructure projects. International sales decreased 17.6%. The decrease in international sales is due to the strength of the U.S. dollar compared to the currencies in many of the countries in which the Company operates and the continuing slowdown in the mining industry. The decrease in international sales occurred primarily in Canada, China, Brazil, South America, Central America, Russia and other Asian countries. Sales reported by the Company's foreign subsidiaries in this group would have been \$12,664 higher had 2015 foreign exchange rates been the same as 2014 rates. Parts sales decreased 1.1% in 2015 compared to 2014.

Energy Group: Sales in this group decreased \$20,749 or 10.2% from 2014. Domestic sales decreased 10.7% primarily due to a decline in product demand resulting from the decline in oil prices. International sales decreased 8.5%. The decrease in international sales was due primarily to the strengthening of the U.S. dollar in 2015 and a severe reduction in oil production and exploration brought on by the near collapse of the price of oil. The decrease in international sales occurred in South America, Canada and Africa, offset by increased sales in Australia and Russia. Parts sales decreased 12.7% in 2015 compared to 2014.

Segment Profit (Loss)

	<u>2015</u>	<u>2014</u>	<u>\$ Change</u>	<u>% Change</u>
Infrastructure Group	\$ 33,890	\$ 29,477	\$ 4,413	15.0%
Aggregate and Mining Group	30,690	32,900	(2,210)	(6.7%)
Energy Group	3,609	10,316	(6,707)	(65.0%)
Corporate	(36,623)	(35,270)	(1,353)	(3.8%)

Infrastructure Group: Profit for this group increased \$4,413 or 15.0%. This group's profits were impacted by an increase in gross profit of \$12,532 on a \$42,381 increase in sales offset by a \$2,045 increase in computer related expense and a \$3,117 increase in payroll and related expenses.

Aggregate and Mining Group: Profit for this group decreased \$2,210 or 6.7%. This group's profits were negatively impacted by a decrease in gross profit of \$2,477 on a reduction in sales of \$14,070 in 2015 compared to 2014.

Energy Group: Profit for this group decreased \$6,707 or 65.0%. This group's profits were negatively impacted by a reduction of \$7,226 in gross margins resulting from a \$20,749 reduction in sales.

Corporate: Net corporate expenses increased \$1,353, due to increases in U.S. federal income taxes and airplane repairs and maintenance costs offset by an increase in other income from key-man life insurance policies resulting from the death of the Company's Chairman (and former CEO).

Liquidity and Capital Resources

The Company's primary sources of liquidity and capital resources are its cash on hand, borrowing capacity under a \$100,000 revolving credit facility with Wells Fargo Bank, N.A. ("Wells Fargo") and cash flows from operations. The current credit facility expires in April, 2017. The Company intends to sign an amended and restated credit agreement with Wells Fargo similar to the current agreement prior to the expiration of the existing agreement. The Company had \$82,371 (of which \$20,950 was held by our foreign subsidiaries) of cash available for operating purposes at December 31, 2016. The Company had outstanding letters of credit of \$8,876 and borrowing availability of \$91,124 under the credit facility as of December 31, 2016. The Company had no outstanding borrowings during 2016 at any time under the facility. Borrowings under the agreement are subject to an interest rate equal to the daily one-month LIBOR rate plus a 0.75% margin, resulting in a rate of 1.53% at December 31, 2016. The credit agreement contains certain financial covenants, including provisions concerning required levels of annual net income, minimum tangible net worth and maximum allowed capital expenditures. The Company was in compliance with these covenants as of December 31, 2016.

The Company's South African subsidiary, Osborn Engineered Products SA (Pty) Ltd ("Osborn"), has a bank overdraft facility of \$6,913 to finance short-term working capital needs, as well as to cover performance letters of credit, advance payment and retention guarantees. As of December 31, 2016, Osborn had \$4,632 in short-term borrowings and \$904 in performance, advance payment and retention guarantees outstanding under the facility. The facility is guaranteed by Astec Industries, Inc. The overdraft's 0.75% unused facility fee is waived if 50% or more of the facility is utilized. As of December 31, 2016, Osborn had available credit under the facility of \$1,377. The interest rate is 0.25% less than the South Africa prime rate, resulting in a rate of 10.5% as of December 31, 2016.

The Company's Brazilian subsidiary, Astec do Brasil Fabricacao de Equipamentos Ltda. ("Astec Brazil"), has outstanding working capital loans totaling \$5,485 from a Brazilian bank with interest rates ranging from 10.4% to 11.0%. The loans have maturity dates ranging from November 2018 to April 2024 and are secured by letters of credit totaling \$6,200 issued by Astec Industries, Inc. Additionally, Astec Brazil has various 5-year equipment financing loans outstanding with other Brazilian banks in the aggregate of \$1,169 as of December 31, 2016 that have interest rates ranging from 3.5% to 16.3%. These equipment loans have maturity dates ranging from September 2018 to April 2020.

Cash Flows from Operating Activities

	2016	2015	Increase / Decrease
Net income	\$ 54,988	\$ 31,966	\$ 23,022
Depreciation and amortization	24,813	24,078	735
Provision for warranties	18,912	13,743	5,169
Deferred income tax benefits	(3,521)	(2,569)	(952)
SERP distributions	(532)	(2,986)	2,454
(Increase) decrease in receivables	(4,895)	3,163	(8,058)
(Increase) decrease in inventories	30,839	(6,499)	37,338
(Increase) decrease in prepaid expenses	4,846	(3,016)	7,862
Increase (decrease) in accounts payable	8,836	(11,409)	20,245
Increase (decrease) in income taxes payable	181	(4,093)	4,274
Decrease in customer deposits	(762)	(3,697)	2,935
Decrease in accrued product warranties	(15,125)	(14,177)	(948)
Other, net	16,226	6,362	9,864
Net cash provided by operating activities	<u>\$ 134,806</u>	<u>\$ 30,866</u>	<u>\$ 103,940</u>

Net cash provided by operating activities increased \$103,940 in 2016 compared to 2015. The primary reasons for the increase in operating cash flows relate to cash provided by net income, accounts payable, inventories and prepaid expenses offset by cash used by accounts receivables.

Cash Flows from Investing Activities

	2016	2015	Increase / Decrease
Expenditures for property and equipment	\$ (27,367)	\$ (21,202)	\$ (6,165)
Proceeds from sale of property and equipment	614	10,054	(9,440)
Business acquisition, net of cash acquired	(39,764)	178	(39,942)
Sale of investments	290	378	(88)
Net cash used by investing activities	<u>\$ (66,227)</u>	<u>\$ (10,592)</u>	<u>\$ (55,635)</u>

Net cash used by investing activities increased by \$55,635 in 2016 compared to 2015 due primarily to the acquisition of Power Flame Incorporated in August 2016 for \$39,764, increased investments in property and equipment and a decrease in the proceeds from sales of property and equipment as the Company sold its Astec Underground, Loudon, Tennessee facility in 2015.

Cash Flows from Financing Activities

	2016	2015	Increase / Decrease
Payment of dividends	\$ (9,217)	\$ (9,193)	\$ (24)
Borrowings under bank loans	5,973	106,034	(100,061)
Repayments of bank loans	(5,903)	(104,567)	98,664
Other, net	(1,873)	1,664	(3,537)
Net cash used by financing activities	<u>\$ (11,020)</u>	<u>\$ (6,062)</u>	<u>\$ (4,958)</u>

Financing activities used cash of \$11,020 in 2016 and \$6,062 in 2015 for an increase of \$4,958. The change is primarily due to increased long-term debt repayments by the Company's Brazilian subsidiary, offset by additional short-term borrowings by its South African subsidiary.

Approved capital expenditures for 2017 total \$29,941, including \$4,000 for manufacturing plant expansions in the Infrastructure and Aggregate and Mining Groups. The Company expects to finance these expenditures using currently available cash balances, internally generated funds and available credit under the Company's credit facility. The remaining approved capital expenditures are for various purchases of machinery and equipment, automobiles and technology related spending to meet the needs across all Company subsidiaries.

Financial Condition

The Company's current assets increased to \$576,833 at December 31, 2016 from \$541,797 at December 31, 2015, an increase of \$35,036. The increase is due to increases in cash and cash equivalents of \$57,309, accounts receivable of \$7,794, offset by decreases in inventories of \$24,372 and in prepaid expenses of \$4,524 and other current assets of \$1,538. The increase in cash and cash equivalents is due primarily to 2016 net earnings of \$55,159. Accounts receivable increased from 2015 due to increased sales volumes even though the Company improved days outstanding in accounts receivable from 43.1 in 2015 to 30.5 in 2016.

The Company's current liabilities increased to \$168,861 at December 31, 2016 from \$142,012 at December 31, 2015, an increase of \$26,849. The increase is primarily due to increases in accounts payable of \$8,912, accrued payroll and related expenses of \$8,318, short-term debt of \$4,632 at the Company's South African subsidiary and accrued warranty of \$4,056.

Market Risk and Risk Management Policies

The Company is exposed to changes in interest rates, primarily from its revolving credit agreements. A hypothetical 100 basis point adverse move (increase) in interest rates would not have materially affected interest expense for the years ended December 31, 2016 and 2015, due to minimal borrowings during the periods. The Company does not hedge variable interest.

The Company is subject to foreign exchange risk at its foreign operations. Foreign operations represent 15.8% and 17.1% of total assets at December 31, 2016 and 2015, respectively, and 9.5% and 10.4% of total revenue for the years ended December 31, 2016 and 2015, respectively. Each period the balance sheets and related results of operations of the Company's foreign subsidiaries are translated from their functional foreign currency into U.S. dollars for reporting purposes. As the U.S. dollar strengthens against those foreign currencies, the foreign denominated net assets and operating results become less valuable in the Company's reporting currency. When the U.S. dollar weakens against those currencies, the foreign denominated net assets and operating results become more valuable in the Company's reporting currency. At each reporting date, the fluctuation in the value of the net assets and operating results due to foreign exchange rate changes is recorded as an adjustment to other comprehensive income in equity. The Company views its investments in foreign subsidiaries as long-term and does not hedge the net investments in foreign subsidiaries.

From time to time the Company's foreign subsidiaries enter into transactions not denominated in their functional currency. In these situations, the Company evaluates the need to hedge those transactions against foreign currency rate fluctuations. When the Company determines a need to hedge a transaction, the subsidiary enters into a foreign currency exchange contract. The Company does not apply hedge accounting to these contracts and, therefore, recognizes the fair value of these contracts in the consolidated balance sheets and the change in the fair value of the contracts in current earnings.

Due to the limited exposure to foreign exchange rate risk, a 10% fluctuation in the foreign exchange rates at December 31, 2016 or 2015 would not have a material impact on the Company's consolidated financial statements.

Contractual Obligations

Contractual obligations and the period in which payments are due as of December 31, 2016 are as follows:

Contractual Obligations	Payments Due by Period				
	Total	Less Than 1 Year	1 to 3 Years	3 to 5 Years	More Than 5 Years
Operating lease obligations	\$ 3,647	\$ 1,337	\$ 1,647	\$ 642	\$ 21
Inventory purchase obligations	3,356	3,356	--	--	--
Debt obligations	12,384	7,683	3,512	593	596
Total	\$ 19,387	\$ 12,376	\$ 5,159	\$ 1,235	\$ 617

The above table excludes the Company's liability for unrecognized tax benefits, which totaled \$238 at December 31, 2016, since the timing of cash settlements to the respective taxing authorities cannot be reliably predicted.

In 2016, the Company made contributions of approximately \$415 to its pension plan, compared to \$284 in 2015. The Company has no planned contributions to the pension plan in 2017. The Company's funding policy is to make at least the minimum annual contributions required by applicable regulations.

Contingencies

Management has reviewed all claims and lawsuits and has made adequate provision for any losses that can be reasonably estimated. Based upon currently available information and with the advice of counsel, management believes that the ultimate outcome of its current claims and legal proceedings, individually and in the aggregate, will not have a material adverse effect on the Company's financial position, cash flows or results of operations. However, claims and legal proceedings are subject to inherent uncertainties and rulings unfavorable to the Company could occur. If an unfavorable ruling were to occur, there exists the possibility of a material adverse effect on the Company's financial position, cash flows or results of operations.

Certain customers have financed purchases of the Company's products through arrangements in which the Company is contingently liable for customer debt aggregating \$6,516 at December 31, 2016. These obligations have average remaining terms of 2.0 years. The Company has recorded a liability of \$332 related to these guarantees at December 31, 2016.

The Company is contingently liable under letters of credit of approximately \$9,977, primarily for performance guarantees to customers, banks or insurance carriers.

Off-balance Sheet Arrangements

As of December 31, 2016, the Company does not have off-balance sheet arrangements as defined by Item 303(a)(4) of Regulation S-K.

Environmental Matters

During 2004, the Company received notice from the Environmental Protection Agency ("EPA") that it may be responsible for a portion of the costs incurred in connection with an environmental cleanup in Illinois. The discharge of hazardous materials and associated cleanup relate to activities occurring prior to the Company's acquisition of Barber-Greene in 1986. The Company believes that over 300 other parties have received similar notice. At this time, the Company cannot predict whether the EPA will seek to hold the Company liable for a portion of the cleanup costs or the amount of any such liability. The Company has not recorded a liability with respect to this matter because no estimate of the amount of any such liability can be made at this time.

Critical Accounting Policies and Estimates

The Company's consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States. Application of these principles requires the Company to make estimates and judgments that affect the amounts as reported in the consolidated financial statements. Accounting policies that are critical to aid in understanding and evaluating the results of operations and financial position of the Company include the following:

Inventory Valuation: Inventories are valued at the lower of first-in first-out cost or net realizable value. The most significant component of the Company's inventories is steel. Open market prices, which are subject to volatility, determine the cost of steel for the Company. During periods when open market prices decline, the Company may need to reduce the carrying value of the inventory. In addition, certain items in inventory become obsolete over time, and the Company reduces the carrying value of these items to their net realizable value. These reductions are determined by the Company based on estimates, assumptions and judgments made from the information available at that time. See Note 1, Summary of Significant Accounting Policies, for a description of the process used by the Company to value inventories at the lower of first-in first-out cost or market. The Company does not believe it is reasonably likely that the inventory values will materially change in the near future.

Product Warranty Reserve: The Company accrues for the estimated cost of product warranties at the time revenue is recognized. Warranty obligations by product line or model are evaluated based on historical warranty claims experience. For machines, the Company's standard product warranty terms generally include post-sales support and repairs of products at no additional charge for periods ranging from three months to two years or up to a specified number of hours of operation. For parts from component suppliers, the Company relies on the original manufacturer's warranty that accompanies those parts. Generally, fabricated parts are not covered by specific warranty terms. Although failure of fabricated parts due to material or workmanship is rare, if it occurs, the Company's policy is to replace fabricated parts at no additional charge.

The Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of component suppliers. Estimated warranty obligations are based upon warranty terms, product failure rates, repair costs and current period machine shipments. If actual product failure rates, repair costs, service delivery costs or post-sales support costs differ from estimates, revisions to the estimated warranty liability would be required. The Company does not believe it is reasonably likely that the warranty reserve will materially change in the near future.

Revenue Recognition: Revenue is generally recognized on sales at the point in time when persuasive evidence of an arrangement exists, the price is fixed or determinable, the product has been delivered or services have been rendered and there is reasonable assurance of collection of the sales proceeds. The Company generally obtains purchase authorizations from its customers for a specified amount of product at a specified price with specified delivery terms. A significant portion of the Company's equipment sales represents equipment produced in the Company's plants under short-term contracts for a specific customer project or equipment designed to meet a customer's specific requirements. Most of the equipment sold by the Company is based on standard configurations, some of which are modified to meet customer needs or specifications. The Company provides customers with technical design and performance specifications and performs pre-shipment testing to ensure the equipment performs according to design specifications, regardless of whether the Company provides installation services in addition to selling the equipment.

Certain contracts include terms and conditions through which the Company recognizes revenues upon completion of equipment production, which is subsequently stored at the Company's plant at the customer's request. Revenue is recorded on such contracts upon the customer's assumption of title and risk of ownership and when collectability is reasonably assured. In addition, there must be a fixed schedule of delivery of the goods consistent with the customer's business practices, the Company must not have retained any specific performance obligations such that the earnings process is not complete and the goods must have been segregated from the Company's inventory prior to revenue recognition.

The Company has certain sales accounted for as multiple-element arrangements, whereby revenue attributable to the sale of a product is recognized when the product is shipped, and the revenue attributable to services provided with respect to the product (such as installation services) is recognized when the service is performed. Consideration is allocated to deliverables using the relative selling price method using vendor specific objective evidence, if it exists. Otherwise, the Company uses third-party evidence of selling price or the Company's best estimate of the selling price for the deliverables. The Company evaluates sales with multiple deliverable elements (such as an agreement to deliver equipment and related installation services) to determine whether revenue related to individual elements should be recognized separately, or as a combined unit. In addition to the previously mentioned general revenue recognition criteria, the Company only recognizes revenue on individual delivered elements when there is objective and reliable evidence that the delivered element has a determinable value to the customer on a standalone basis and there is no right of return.

The Company has certain sales accounted for under the percentage of completion method using the ratio of costs incurred to estimated total costs. Revenue, in an amount equal to cost incurred, is recognized until there is sufficient information to determine the estimated profit on the project with a reasonable level of certainty. The factors considered in this evaluation include the stage of design completion, the stage of equipment manufacturing completion, the state of construction completion, the status of outstanding subcontracts, certainty of quantities of labor and materials, certainty of schedule and the relationship with the customer.

Goodwill and Other Intangible Assets: Intangible assets are classified into two categories: (1) intangible assets with definite lives subject to amortization, and (2) goodwill. Intangible assets with definite lives are tested for impairment if conditions exist that indicate the carrying value may not be recoverable. Risk factors that may be considered include an economic downturn in the general economy, a geographic market or the commercial and residential construction industries, a change in the assessment of future operations as well as the cyclical nature of our industry and the customization of the equipment we sell, each of which may cause adverse fluctuations in operating results. Other risk factors considered would be an increase in the price or a decrease in the availability of oil that could reduce the demand for our products in addition to the significant fluctuations in the purchase price of raw materials that could have a negative impact on the cost of production and gross margins as well as others more fully described in the Risk Factors section of our Form 10-K. An impairment charge is recorded when the carrying value of the definite lived intangible asset is not recoverable by the cash flows generated from the use of the asset. Some of the inputs used in the impairment testing are highly subjective and are affected by changes in business factors and other conditions. Changes in any of the inputs could have an effect on future tests and result in impairment charges.

Goodwill is not amortized but is tested for impairment annually or more frequently if events or circumstances indicate that such intangible assets or goodwill might be impaired. See Note 1, Summary of Significant Accounting Policies, for a description of testing performed by the Company to determine if the recorded value of intangible assets or goodwill has been impaired.

The useful lives of identifiable intangible assets are determined after considering the specific facts and circumstances related to each intangible asset. Factors considered when determining useful lives include the contractual term of any agreement, the history of the asset, the Company's long-term strategy for the use of the asset, any laws or other local regulations which could impact the useful life of the asset, and other economic factors, including competition and specific market conditions. Intangible assets that are deemed to have definite lives are amortized, generally on a straight-line basis, over their useful lives, ranging from 3 to 19 years.

Income Taxes: The Company accounts for income taxes under the guidance of FASB Accounting Standards Codification Topic 740-10, "Income Taxes". Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. A valuation allowance, that represents a reserve on deferred tax assets for which utilization is not more likely than not, is recorded. Judgment is required in determining the provision for income taxes, deferred tax assets and liabilities and the valuation allowance recorded against net deferred tax assets. Income tax contingency accruals are determined and recorded under the guidance of ASC Topic 740-10. Liabilities for uncertain income tax positions are based on a two-step process. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step requires an estimate and measurement of the tax benefit as the largest amount that is more than 50% likely to be realized upon ultimate settlement. It is inherently difficult and subjective to estimate such amounts, as the Company must determine the probability of various possible outcomes. We reevaluate these uncertain tax positions on a quarterly basis or when new information becomes available. These reevaluations are based on factors including, but not limited to, changes in facts or circumstances, changes in tax law, successfully settled issues under audit, expirations due to statutes, and new audit activity. Such a change in recognition or measurement could result in the recognition of a tax benefit or an increase to accrued taxes.

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, "Revenue from Contracts with Customers", which supersedes existing revenue guidance under U.S. GAAP. The standard's core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The implementation of this new standard will require companies to use more judgment and to make more estimates than under current guidance. The standard, as amended, is effective for public companies for annual periods beginning after December 15, 2017. The Company plans to adopt the new standard effective January 1, 2018. Due to the decentralized structure of the Company, Corporate management requested documented revenue streams from its' 16 manufacturing subsidiaries to assist in its effort to determine the effect the new standard will have on its financial reporting. A meeting was also held in September 2016 with corporate management, controllers of the manufacturing subsidiaries, and an outside revenue expert to further review the Company's revenue streams and the change in timing of when revenue may be recognized under the new guidance. The Company is still in the process of finalizing this review. Therefore, the Company has not yet determined the extent of the impact adoption of this new standard will have on the Company's financial position or results of operation.

In July 2015, the FASB issued ASU No. 2015-11, "Inventory (Topic 330): Simplifying the Measurement of Inventory", which changes the measurement basis for inventory from the lower of cost or market to lower of cost and net realizable value and also eliminates the requirement for companies to consider replacement cost or net realizable value less an approximate normal profit margin when determining the recorded value of inventory. The standard is effective for public companies in fiscal years beginning after December 15, 2016. The Company early adopted the standard effective October 1, 2016.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments—Overall (Subtopic 825-10)", which requires, among other things, equity investments with readily determinable fair values, except those accounted for under the equity method of accounting or those that result in consolidation of the investee, to be measured at fair value with changes in fair value recognized in net income. The standard is effective for public companies in fiscal years beginning after December 15, 2017, and the Company expects to adopt the standard effective January 1, 2018. The Company has not yet determined what impact, if any, the adoption of this new standard will have on the Company's financial position or results of operations.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)", which significantly changes the accounting for operating leases by lessees. The accounting applied by lessors is largely unchanged from that applied under previous guidance. The new guidance requires lessees to recognize lease assets and lease liabilities in the balance sheet, initially measured at the present value of the lease payments, for leases which were classified as operating leases under previous guidance. Lease cost included in the statement of income will be calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. Lessees may make an accounting policy election to exclude leases with a term of 12 months or less from the requirement to record related assets and liabilities. The new standard is effective for public companies for fiscal years beginning after December 15, 2018. The Company plans to adopt the new standard effective January 1, 2019. The Company does not expect the adoption of this standard to have a material impact on its results of operations; however, the Company has not determined the impact the adoption of this new standard will have on its financial position.

In March 2016, the FASB issued ASU No. 2016-08, "Revenue from Contracts with Customers (Topic 606)", which does not change the core principles of ASU No. 2014-09 discussed above, but rather clarifies the implementation guidance in order to eliminate the potential for diversity in practice arising from inconsistent application of the principal versus agent guidance. Under the new guidance, when an entity determines it is a principal in a transaction, the entity recognizes revenue in the gross amount of consideration; however in transactions where an entity determines it is an agent, the entity recognizes revenue in the amount of any fee or commission to which it expects to be entitled. The standard is effective for public companies for annual periods beginning after December 15, 2017. The Company plans to adopt the new standard effective January 1, 2018. The Company has not yet determined what impact, if any, the adoption of this new standard will have on the Company's financial position or results of operations.

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments – Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments". The standard changes how credit losses are measured for most financial assets and certain other instruments that currently are not measured through net income. The standard will require an expected loss model for instruments measured at amortized cost as opposed to the current incurred loss approach. In valuing available for sale debt securities, allowances will be required to be recorded, rather than the current approach of reducing the carrying amount, for other than temporary impairments. A cumulative adjustment to retained earnings is to be recorded as of the beginning of the period of adoption to reflect the impact of applying the provisions of the standard. The standard is effective for public companies for periods beginning after December 15, 2019 and the Company expects to adopt the new standard as of January 1, 2020. The Company has not yet determined what impact, if any, the adoption of this new standard will have on the Company's financial position or results of operations.

In August 2016, the FASB issued ASU No. 2016-15, "Classification of Certain Cash Receipts and Cash Payments (a consensus of the Emerging Issues Task Force) which clarifies how certain cash receipts and cash payments should be presented on the statement of cash flows. The statement also addresses how the predominance principle should be applied when cash payments have aspects of more than one class of cash flows. The standard is effective for public companies in fiscal years beginning after December 15, 2017, and the Company expects to adopt the standard effective January 1, 2018. The Company has not determined the impact, if any, the adoption of this new standard will have on the Company's statement of cash flows.

In October 2016, the FASB issued ASU No. 2016-16, "Intra-Entity Transfers of Assets Other Than Inventory" which requires companies to account for the income tax effects of intercompany sales and transfers of assets other than inventory, such as intangible assets, when the transfer occurs. This is a change from current guidance, which requires companies to defer the income tax effects of intercompany transfers of assets until the asset has been sold to an outside party or otherwise recognized by being depreciated, amortized, or impaired. The new guidance will require companies to defer the income tax effects of only intercompany transfers of inventory. The standard is effective for public companies in fiscal years beginning after December 15, 2018. Early adoption is permitted as of the beginning of an annual period and requires companies to apply a modified retrospective approach. The Company plans to adopt the new standard effective January 1, 2019. The Company has not yet determined what impact the adoption of this new standard will have on the Company's financial position or results of operations.

Forward-Looking Statements

This annual report contains forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Statements contained anywhere in this Annual Report that are not limited to historical information are considered forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, including, without limitation, statements regarding:

- execution of the Company's growth and operation strategy;
- plans for technological innovation;
- compliance with covenants in our credit facility;
- liquidity and capital expenditures;
- sufficiency of working capital, cash flows and available capacity under the Company's credit facilities;
- compliance with government regulations;
- compliance with manufacturing and delivery timetables;
- forecasting of results;
- general economic trends and political uncertainty;
- government funding and growth of highway construction and commercial projects;
- taxes or usage fees;
- interest rates;
- integration of acquisitions;
- industry trends;
- pricing, demand and availability of steel, oil and liquid asphalt;
- development of domestic oil and natural gas production;
- condition of the economy;
- strength of the U.S. dollar relative to foreign currencies;
- the success of new product lines;
- presence in the international marketplace;
- suitability of our current facilities;
- future payment of dividends;
- competition in our business segments;
- product liability and other claims;
- protection of proprietary technology;
- demand for products;
- future fillings of backlogs;
- employees;
- the seasonality of our business;
- tax assets and reserves for uncertain tax positions;
- critical accounting policies and the impact of accounting changes;
- anticipated future operations in our Brazilian operations;
- our backlog;
- ability to satisfy contingencies;
- contributions to retirement plans and plan expenses;
- reserve levels for self-insured insurance plans and product warranties;
- construction of new manufacturing facilities;
- supply of raw materials; and
- inventory

These forward-looking statements are based largely on management's expectations, which are subject to a number of known and unknown risks, uncertainties and other factors discussed in this report and in other documents filed by the Company with the Securities and Exchange Commission, which may cause actual results, financial or otherwise, to be materially different from those anticipated, expressed or implied by the forward-looking statements. All forward-looking statements included in this document are based on information available to the Company on the date hereof, and the Company assumes no obligation to update any such forward-looking statements to reflect future events or circumstances. You can identify these statements by forward-looking words such as "expect", "believe", "anticipate", "goal", "plan", "intend", "estimate", "may", "will", "should", "could" and similar expressions.

In addition to the risks and uncertainties identified elsewhere herein and in other documents filed by us with the Securities and Exchange Commission, the risk factors described in this document under the caption "Risk Factors" should be carefully considered when evaluating our business and future prospects, including without limitation risks relating to: changes or delays in highway funding; rising interest rates; changes in oil prices; changes in steel prices; changes in the general economy; unexpected capital expenditures and decreases in liquidity; the timing of large contracts; production capacity; general business conditions in the industry; non-compliance with covenants in the Company's credit facilities; demand for the Company's products; and those other factors listed from time to time in the Company's reports filed with the Securities and Exchange Commission. Certain of the risks, uncertainties and other factors discussed above are more fully described in the section entitled "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2016.

ASTEC INDUSTRIES, INC.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

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

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

Management, under the supervision and with the participation of the Company's principal executive officer and principal financial officer, has evaluated the effectiveness of the Company's internal control over financial reporting as of December 31, 2016. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), *Internal Control - Integrated Framework (2013)*. The scope of management's assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2016 excluded the business unit that the Company acquired on August 1, 2016 (Power Flame Incorporated). The total consolidated assets with respect to the excluded business were \$42,281,000 as of December 31, 2016, and the total consolidated revenues with respect to the excluded business were \$13,636,000 for the year ended December 31, 2016. Management will complete its assessment of the internal controls over financial reporting of these newly-acquired operations during 2017. Based on its assessment, management concluded that, as of December 31, 2016, the Company's internal control over financial reporting was effective.

KPMG LLP, the Company's independent registered public accounting firm, has issued an attestation report on the Company's internal control over financial reporting as of December 31, 2016.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders
Astec Industries, Inc.:

We have audited Astec Industries, Inc.'s internal control over financial reporting 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 (COSO). Astec Industries, Inc.'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 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, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included 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 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 its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Astec Industries, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

Astec Industries, Inc. acquired Power Flame Incorporated during 2016, and management excluded from its assessment of the effectiveness of Astec Industries, Inc.'s internal control over financial reporting as of December 31, 2016, Power Flame Incorporated's internal control over financial reporting associated with total assets of \$42.3 million and total revenues of \$13.6 million included in the consolidated financial statements of Astec Industries, Inc. and subsidiaries as of and for the year ended December 31, 2016. Our audit of internal control over financial reporting of Astec Industries, Inc. also excluded an evaluation of the internal control over financial reporting of Power Flame Incorporated.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Astec Industries, Inc. and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income, equity, and cash flows for each of the years in the two-year period ended December 31, 2016, and our report dated March 1, 2017 expressed an unqualified opinion on those consolidated financial statements.

/s/ KPMG LLP

Knoxville, Tennessee
March 1, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders of
Astec Industries, Inc.

We have audited the accompanying consolidated statements of income, comprehensive income, equity and cash flows for the year ended December 31, 2014. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements 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 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 audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated results of Astec Industries, Inc.'s operations and its cash flows for the year ended December 31, 2014, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

Chattanooga, Tennessee
March 2, 2015

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders
Astec Industries, Inc.:

We have audited the accompanying consolidated balance sheets of Astec Industries, Inc. and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income, equity, and cash flows for each of the years in the two-year period ended December 31, 2016. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements 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, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Astec Industries, Inc. and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the two-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Astec Industries, Inc.'s internal control over financial reporting 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 (COSO), and our report dated March 1, 2017 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP

Knoxville, Tennessee
March 1, 2017

CONSOLIDATED BALANCE SHEETS

(Dollar and share amounts in thousands, except per share amounts unless otherwise specified)

	December 31	
	<u>2016</u>	<u>2015</u>
Assets		
Current assets:		
Cash and cash equivalents	\$ 82,371	\$ 25,062
Investments	1,024	1,539
Trade receivables, net	106,659	98,865
Notes and other receivables	4,014	3,132
Inventories	360,404	384,776
Prepaid expenses	21,997	26,521
Other current assets	364	1,902
Total current assets	<u>576,833</u>	<u>541,797</u>
Property and equipment, net	180,538	170,206
Investments	13,965	11,540
Goodwill	40,804	30,835
Intangible assets, net	26,643	13,577
Deferred income tax assets	2,676	6,195
Other long-term assets	2,142	3,203
Total assets	<u>\$ 843,601</u>	<u>\$ 777,353</u>
Liabilities and Equity		
Current liabilities:		
Short-term debt	\$ 4,632	\$ --
Current maturities of long-term debt	2,538	4,528
Accounts payable	57,297	48,385
Customer deposits	39,102	40,082
Accrued product warranty	13,156	9,100
Accrued payroll and related liabilities	25,693	17,375
Accrued loss reserves	2,852	2,838
Other accrued liabilities	23,591	19,704
Total current liabilities	<u>168,861</u>	<u>142,012</u>
Long-term debt	4,116	5,154
Deferred income tax liabilities	1,669	2,348
Other long-term liabilities	20,114	17,981
Total liabilities	<u>194,760</u>	<u>167,495</u>
Equity:		
Preferred stock - authorized 4,000 shares of \$1.00 par value; none issued	--	--
Common stock – authorized 40,000 shares of \$0.20 par value; issued and outstanding – 23,046 in 2016 and 22,988 in 2015	4,609	4,598
Additional paid-in capital	139,970	137,883
Accumulated other comprehensive loss	(31,562)	(23,564)
Company shares held by SERP, at cost	(1,958)	(1,778)
Retained earnings	536,771	490,933
Shareholders' equity	<u>647,830</u>	<u>608,072</u>
Non-controlling interest	1,011	1,786
Total equity	<u>648,841</u>	<u>609,858</u>
Total liabilities and equity	<u>\$ 843,601</u>	<u>\$ 777,353</u>

See Notes to Consolidated Financial Statements

CONSOLIDATED STATEMENTS OF INCOME

(in thousands, except per share data)

	Year Ended December 31		
	2016	2015	2014
Net sales	\$ 1,147,431	\$ 983,157	\$ 975,595
Cost of sales	882,162	764,314	760,279
Gross profit	265,269	218,843	215,316
Selling, general and administrative expenses	153,145	145,180	141,490
Research and development expenses	24,969	23,676	22,129
Income from operations	87,155	49,987	51,697
Other income:			
Interest expense	1,395	1,611	720
Interest income	806	542	1,422
Other income (expense), net	529	3,055	1,207
Income before income taxes	87,095	51,973	53,606
Income taxes	32,107	20,007	19,400
Net income	54,988	31,966	34,206
Net loss attributable to non-controlling interest	(171)	(831)	(252)
Net income attributable to controlling interest	<u>\$ 55,159</u>	<u>\$ 32,797</u>	<u>\$ 34,458</u>
Earnings per Common Share:			
Net income attributable to controlling interest:			
Basic	<u>\$ 2.40</u>	<u>\$ 1.43</u>	<u>\$ 1.51</u>
Diluted	<u>\$ 2.38</u>	<u>\$ 1.42</u>	<u>\$ 1.49</u>
Weighted average number of common shares outstanding:			
Basic	<u>22,992</u>	<u>22,934</u>	<u>22,819</u>
Diluted	<u>23,142</u>	<u>23,120</u>	<u>23,105</u>

See Notes to Consolidated Financial Statements

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in thousands)

	Year Ended December 31		
	2016	2015	2014
Net income	\$ 54,988	\$ 31,966	\$ 34,206
Other comprehensive loss:			
Change in unrecognized pension and post-retirement benefit costs	(80)	(178)	(1,820)
Tax benefit on change in unrecognized pension and post-retirement benefit costs	29	36	699
Foreign currency translation adjustments	(2,420)	(13,848)	(7,670)
Tax (expense) benefit on foreign currency translation adjustments	(5,527)	3,341	770
Other comprehensive loss	(7,998)	(10,649)	(8,021)
Comprehensive loss attributable to non-controlling interest	(137)	(1,603)	(565)
Comprehensive income attributable to controlling interest	\$ 47,127	\$ 22,920	\$ 26,750

See Notes to Consolidated Financial Statements

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year Ended December 31		
	2016	2015	2014
Cash Flows from Operating Activities			
Net income	\$ 54,988	\$ 31,966	\$ 34,206
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	20,818	20,744	21,343
Amortization	3,995	3,334	3,033
Provision for doubtful accounts	280	18	1,011
Provision for warranties	18,912	13,743	12,796
Deferred compensation provision	1,742	241	74
Deferred income tax benefit	(3,521)	(2,559)	(2,544)
Gain on disposition of fixed assets	(224)	(529)	(306)
Tax benefit from stock incentive plans	--	(345)	(586)
Stock-based compensation	2,936	1,250	1,200
Distributions to SERP participants	(532)	(2,986)	--
Change in operating assets and liabilities:			
Sale (purchase) of trading securities, net	(1,873)	(405)	118
Trade and other receivables	(4,895)	3,163	(6,924)
Inventories	30,839	(6,499)	(41,933)
Prepaid expenses	4,846	(3,016)	(3,989)
Other assets	2,069	(968)	(4,763)
Accounts payable	8,836	(11,409)	10,755
Customer deposits	(762)	(3,697)	5,483
Accrued product warranty	(15,125)	(14,177)	(15,563)
Income taxes payable	181	(4,093)	(1,136)
Accrued retirement benefit costs	(50)	24	(201)
Accrued loss reserves	229	103	305
Other accrued liabilities	11,142	3,576	3,289
Other	(25)	3,387	3,195
Net cash provided by operating activities	<u>134,806</u>	<u>30,866</u>	<u>18,863</u>
Cash Flows from Investing Activities			
Business acquisition, net of cash acquired	(39,764)	178	(34,965)
Proceeds from sale of property and equipment	614	10,054	743
Expenditures for property and equipment	(27,367)	(21,202)	(24,851)
Sale of investments	290	378	16,249
Net cash used by investing activities	<u>(66,227)</u>	<u>(10,592)</u>	<u>(42,824)</u>

See Notes to Consolidated Financial Statements

CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)

(in thousands)

	Year Ended December 31		
	2016	2015	2014
Cash Flows from Financing Activities			
Payment of dividends	\$ (9,217)	\$ (9,193)	\$ (9,167)
Borrowings under bank loans	5,973	106,034	113,547
Repayment of bank loans	(5,903)	(104,567)	(103,188)
Proceeds from issuance of common stock	--	72	282
Tax benefit from stock option exercise	--	345	586
Sale (purchase) of shares of subsidiaries, net	(696)	(653)	1,428
Sale (purchase) of Company shares by SERP, net	(153)	2,084	(95)
Withholding tax paid upon vesting of restricted stock units	(1,024)	(600)	(953)
Proceeds from cash surrender value of life insurance	--	416	--
Net cash provided (used) by financing activities	<u>(11,020)</u>	<u>(6,062)</u>	<u>2,440</u>
Effect of exchange rates on cash	(250)	(2,173)	(1,020)
Increase (decrease) in cash and cash equivalents	57,309	12,039	(22,541)
Cash and cash equivalents, beginning of year	25,062	13,023	35,564
Cash and cash equivalents, end of year	<u>\$ 82,371</u>	<u>\$ 25,062</u>	<u>\$ 13,023</u>
Supplemental Cash Flow Information			
Cash paid during the year for:			
Interest	\$ 1,407	\$ 1,651	\$ 476
Income taxes, net of refunds	<u>\$ 28,455</u>	<u>\$ 29,573</u>	<u>\$ 23,027</u>

See Notes to Consolidated Financial Statements

CONSOLIDATED STATEMENTS OF EQUITY

For the Years Ended December 31, 2016, 2015 and 2014 (in thousands)

	<u>Common Stock Shares</u>	<u>Common Stock Amount</u>	<u>Additional Paid-in Capital</u>	<u>Accumulated Other Comprehensive Loss</u>	<u>Company Shares Held by SERP</u>	<u>Retained Earnings</u>	<u>Non- Controlling Interest</u>	<u>Total Equity</u>
Balance December 31, 2013	22,859	\$ 4,572	\$ 134,730	\$ (4,894)	\$ (2,786)	\$ 442,054	\$ 3,635	\$ 577,311
Net income						34,458	(252)	34,206
Quarterly dividends (\$0.10 per share for 4 quarters)			8			(9,175)		(9,167)
Other comprehensive loss				(8,021)			565	(7,456)
Change in ownership percentage of subsidiary							(1,345)	(1,345)
Capital contributed by minority shareholder							1,583	1,583
Stock-based compensation	5	1	1,199					1,200
Exercise of stock options and RSU vesting, including tax benefit	66	13	855					868
Withholding tax on vested RSUs			(953)					(953)
Sale of Company stock held by SERP, net			48		(143)			(95)
Balance December 31, 2014	22,930	4,586	135,887	(12,915)	(2,929)	467,337	4,186	596,152
Net income						32,797	(831)	31,966
Quarterly dividends (\$0.10 per share for 4 quarters)			8			(9,201)		(9,193)
Other comprehensive loss				(10,649)			(772)	(11,421)
Change in ownership percentage of subsidiary							(663)	(663)
Stock-based compensation	4	1	1,249					1,250
RSU vesting, including tax benefit	54	11	406					417
Withholding tax on vested RSUs			(600)					(600)
Sale of Company stock held by SERP, net			933		1,151			2,084
Other							(134)	(134)
Balance December 31, 2015	22,988	4,598	137,883	(23,564)	(1,778)	490,933	1,786	609,858
Net income						55,159	(171)	54,988
Quarterly dividends (\$0.10 per share for 4 quarters)			9			(9,226)		(9,217)
Other comprehensive loss				(7,998)			34	(7,964)
Change in ownership percentage of subsidiary							(1,322)	(1,322)
Stock-based compensation	5	1	2,935					2,936
RSU vesting	53	10	(10)					--
Withholding tax on vested RSUs			(1,024)					(1,024)
Sale of Company stock held by SERP, net			27		(180)			(153)
Cumulative effect of adopting ASU No. 2016-09			150			(95)		55
Other							684	684
Balance December 31, 2016	23,046	\$ 4,609	\$ 139,970	\$ (31,562)	\$ (1,958)	\$ 536,771	\$ 1,011	\$ 648,841

See Notes to Consolidated Financial Statements

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(Dollar and share amounts in thousands, except per share amounts unless otherwise specified)

1. Summary of Significant Accounting Policies

Basis of Presentation - The consolidated financial statements include the accounts of Astec Industries, Inc. and its domestic and foreign subsidiaries (the "Company"). The Company's significant wholly-owned and consolidated subsidiaries at December 31, 2016 are as follows:

Astec Australia Pty Ltd	Astec do Brasil Fabricacao de Equipamentos Ltda. (92% owned)
Astec, Inc.	Astec Insurance Company
Astec Mobile Machinery GmbH	Astec Mobile Screens, Inc.
Breaker Technology, Inc.	Breaker Technology Ltd.
Carlson Paving Products, Inc.	CEI Enterprises, Inc.
GEFCO, Inc.	Heatec, Inc.
Johnson Crushers International, Inc.	Kolberg-Pioneer, Inc.
Osborn Engineered Products SA (Pty) Ltd (99% owned)	Peterson Pacific Corp. Power Flame Incorporated
Roadtec, Inc.	Telestack Limited
Telsmith, Inc.	

All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates - The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported and disclosed in the financial statements and accompanying notes. Actual results could differ from those estimates.

Foreign Currency Translation - Subsidiaries located in Australia, Brazil, Canada, Germany, Northern Ireland, and South Africa operate primarily using local functional currencies. Accordingly, assets and liabilities of these subsidiaries are translated using exchange rates in effect at the end of the period, and revenues and costs are translated using average exchange rates for the period. The resulting adjustments are presented as a separate component of accumulated other comprehensive loss. Foreign currency transaction gains and losses, net are included in cost of sales and amounted to losses of \$246, \$1,377 and \$1,971 in 2016, 2015 and 2014, respectively.

Fair Value of Financial Instruments - For cash and cash equivalents, trade receivables, other receivables, revolving debt and accounts payable, the carrying amount approximates the fair value because of the short-term nature of those instruments. Trading equity investments are valued at their estimated fair value based on their quoted market prices and debt securities are valued based upon a mix of observable market prices and model driven prices derived from a matrix of observable market prices for assets with similar characteristics obtained from a nationally recognized third party pricing service.

Financial assets and liabilities are categorized as of the end of each reporting period based upon the level of judgment associated with the inputs used to measure their fair value. The inputs used to measure the fair value are identified in the following hierarchy:

- Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2 - Unadjusted quoted prices in active markets for similar assets or liabilities; or unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active; or inputs other than quoted prices that are observable for the asset or liability.
- Level 3 - Inputs reflect management's best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration is given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

All financial assets and liabilities held by the Company at December 31, 2016 and 2015 are classified as Level 1 or Level 2, as summarized in Note 3, Fair Value Measurements.

Cash and Cash Equivalents - All highly liquid investments with an original maturity of three months or less when purchased are considered to be cash and cash equivalents.

Investments - Investments consist primarily of investment-grade marketable securities. Trading securities are carried at fair value, with unrealized holding gains and losses included in net income. Realized gains and losses are accounted for on the specific identification method. Purchases and sales are recorded on a trade date basis. Management determines the appropriate classification of its investments at the time of acquisition and reevaluates such determination at each balance sheet date.

Concentration of Credit Risk - The Company sells products to a wide variety of customers. Accounts receivable are carried at their outstanding principal amounts, less an allowance for doubtful accounts. The Company extends credit to its customers based on an evaluation of the customers' financial condition generally without requiring collateral, although the Company normally requires advance payments or letters of credit on large equipment orders. Credit risk is driven by conditions within the economy and the industry and is principally dependent on each customer's financial condition. To minimize credit risk, the Company monitors credit levels and financial conditions of customers on a continuing basis. After considering historical trends for uncollectible accounts, current economic conditions and specific customer recent payment history and financial stability, the Company records an allowance for doubtful accounts at a level which management believes is sufficient to cover probable credit losses. Amounts are deemed past due when they exceed the payment terms agreed to by the customer in the sales contract. Past due amounts are charged off when reasonable collection efforts have been exhausted and the amounts are deemed uncollectible by management. As of December 31, 2016, concentrations of credit risk with respect to receivables are limited due to the wide variety of customers.

Allowance for Doubtful Accounts - The following table represents a rollforward of the allowance for doubtful accounts for the years ended December 31, 2016, 2015 and 2014:

	Year Ended December 31		
	2016	2015	2014
Allowance balance, beginning of year	\$ 1,837	\$ 2,248	\$ 1,708
Provision	280	18	1,011
Write offs	(560)	(357)	(465)
Other	(46)	(72)	(6)
Allowance balance, end of year	<u>\$ 1,511</u>	<u>\$ 1,837</u>	<u>\$ 2,248</u>

Inventories - The Company's inventory is comprised of raw materials, work-in-process, finished goods and used equipment.

Raw material inventory is comprised of purchased steel and other purchased items for use in the manufacturing process or held for sale for the after-market parts business. The category also includes the manufacturing cost of completed equipment sub-assemblies produced for either integration into equipment manufactured at a later date or for sale in the Company's after-market parts business.

Work-in-process inventory consists of the value of materials, labor and overhead incurred to date in the manufacturing of incomplete equipment or incomplete equipment sub-assemblies being produced.

Finished goods inventory consists of completed equipment manufactured for sale to customers.

Used equipment inventory consists of equipment accepted in trade or purchased on the open market. The category also includes equipment rented to prospective customers on a short-term or month-to-month basis. Used equipment is valued at the lower of acquired or trade-in cost or net realizable value determined on each separate unit. Each unit of rental equipment is valued at its original manufacturing cost and is reduced by an appropriate reserve each month during the period of time the equipment is rented.

Inventories are valued at the lower of cost (first-in, first-out) or net realizable value, which requires the Company to make specific estimates, assumptions and judgments in determining the amount, if any, of reductions in the valuation of inventories to their net realizable values. The net realizable values of the Company's products are impacted by a number of factors, including changes in the price of steel, competitive sales pricing, quantities of inventories on hand, the age of the individual inventory items, market acceptance of the Company's products, the Company's normal gross margins, actions by our competitors, the condition of our used and rental inventory and general economic factors. Once an inventory item's value has been deemed to be less than cost, a net realizable value allowance is calculated and a new "cost basis" for that item is effectively established. This new cost is retained for that item until such time as the item is disposed of or the Company determines that an additional write-down is necessary. Additional write-downs may be required in the future based upon changes in assumptions due to general economic downturns in the markets in which the Company operates, changes in competitor pricing, new product design or other technological advances introduced by the Company or its competitors and other factors unique to individual inventory items.

The most significant component of the Company's inventory is steel. A significant decline in the market price of steel could result in a decline in the market value of the equipment or parts we sell. During periods of significant declining steel prices, the Company reviews the valuation of its inventories to determine if reductions are needed in the recorded value of inventory on hand to its net realizable value.

The Company reviews the individual items included in its finished goods, used equipment and rental equipment inventory on a model-by-model or unit-by-unit basis to determine if any item's net realizable value is below its carrying value. This analysis is expanded to include items in work-in-process and raw material inventory if factors indicate those items may also be impacted. In performing this review, judgments are made and, in addition to the factors discussed above, additional consideration is given to the age of the specific items of used or rental inventory, prior sales offers or lack thereof, the physical condition of the specific items and general market conditions for the specific items. Additionally, an analysis of raw material inventory is performed to calculate reserves needed for obsolete inventory based upon quantities of items on hand, the age of those items and their recent and expected future usage or sale.

When the Company determines that the value of inventory has become impaired through damage, deterioration, obsolescence, changes in price levels, excessive levels of inventory or other causes, the Company reduces the carrying value to the net realizable value based on estimates, assumptions and judgments made from the information available at that time. Abnormal amounts of idle facility expense, freight, handling cost and wasted materials are recognized as current period charges.

Property and Equipment - Property and equipment is stated at cost. Depreciation is calculated for financial reporting purposes using the straight-line method based on the estimated useful lives of the assets as follows: airplanes (20 years), buildings (40 years) and equipment (3 to 10 years). Both accelerated and straight-line methods are used for tax compliance purposes. Routine repair and maintenance costs and planned major maintenance are expensed when incurred.

Goodwill and Other Intangible Assets - The Company classifies intangible assets as either intangible assets with definite lives subject to amortization or goodwill.

The Company tests intangible assets with definite lives for impairment if conditions exist that indicate the carrying value may not be recoverable. Such conditions may include an economic downturn in a geographic market or a change in the assessment of future operations. An impairment charge is recorded when the carrying value of the definite lived intangible asset is not recoverable by the future undiscounted cash flows expected to be generated from the use of the asset.

The Company determines the useful lives of identifiable intangible assets after considering the specific facts and circumstances related to each intangible asset. Factors considered when determining useful lives include the contractual terms of agreements, the history of the asset, the Company's long-term strategy for the use of the asset, any laws or other local regulations which could impact the useful life of the asset, and other economic factors, including competition and specific market conditions. Intangible assets that are deemed to have definite lives are amortized over their useful lives as follows: dealer network and customer relationships: 8-19 years; trade names: 15 years; other: 6-19 years.

Goodwill is not amortized. The Company tests goodwill for impairment annually or more frequently if events or circumstances indicate that goodwill might be impaired. The tests utilize a two-step method at the reporting unit level. The Company's reporting units are typically defined as either subsidiaries or a combination of subsidiaries.

The first step of the goodwill impairment test compares book value of a reporting unit, including goodwill, with the unit's fair value. In this first step, the Company estimates the fair values of each of its reporting units that have goodwill using the income approach.

The income approach uses a reporting unit's projection of estimated future operating results and cash flows which are then discounted using a weighted average cost of capital determined based on current market conditions for the individual reporting unit. The projection uses management's best estimates of cash flows over the projection period based on estimates of annual and terminal growth rates in sales and costs, changes in operating margins, selling, general and administrative expenses, working capital requirements and capital expenditures.

The fair value of reporting units that do not have goodwill are estimated using either the income or market approaches, depending on which approach is to be the most appropriate for each reporting unit. The fair value of the reporting units that serve operating units in supporting roles, such as the captive insurance company and the corporate reporting unit are estimated using the cost approach. The sum of the fair values of all reporting units is compared to the fair value of the consolidated Company, calculated using the market approach, which is inferred from the market capitalization of the Company at the date of the valuation, to confirm that the Company's estimation of the fair value of its reporting units is reasonable.

If the book value of a reporting unit exceeds its fair value, an indication of possible goodwill impairment, the second step of the impairment test must be performed to determine the amount, if any, of goodwill impairment. In this second step, the total implied fair value of the reporting unit's goodwill is estimated by allocating the fair value of the reporting unit to all its assets, including any unrecognized intangible assets and liabilities other than goodwill. The difference between the total fair value of the reporting unit and the fair value of its assets and liabilities other than goodwill is the implied fair value of its goodwill. The amount of any impairment loss is equal to the excess, if any, of the book value of the goodwill over the implied fair value of its goodwill.

Determining the "step one" fair values of the Company's reporting units involves the use of significant estimates and assumptions. Due to the inherent uncertainty involved in making these estimates and assumptions, actual results could differ materially from those estimates.

Impairment of Long-lived Assets - In the event that facts and circumstances indicate the carrying amounts of long-lived assets may be impaired, an evaluation of recoverability is performed. If an evaluation is required, the estimated future undiscounted cash flows associated with the asset are compared to the carrying amount for each asset (or group of assets) to determine if a write-down is required. If this review indicates that the assets will not be recoverable, the carrying values of the impaired assets are reduced to their estimated fair value. Fair value is estimated using discounted cash flows, prices for similar assets or other valuation techniques.

Self-Insurance Reserves - The Company retains the risk for a portion of its workers' compensation claims and general liability claims by way of a captive insurance company, Astec Insurance Company ("Astec Insurance" or "the captive"). Astec Insurance is incorporated under the laws of the state of Vermont. The objectives of Astec Insurance are to improve control over and reduce the cost of claims; to improve focus on risk reduction with the development of a program structure which rewards proactive loss control; and to ensure management participation in the defense and settlement process for claims.

For general liability claims, the captive is liable for the first \$1,000 per occurrence and \$3,000 per year in the aggregate. The Company carries general liability, excess liability and umbrella policies for claims in excess of amounts covered by the captive.

For workers' compensation claims, the captive is liable for the first \$350 per occurrence and \$3,250 per year in the aggregate. The Company utilizes a large national insurance company as third party administrator for workers' compensation claims and carries insurance coverage for claims liabilities in excess of amounts covered by the captive.

The financial statements of the captive are consolidated into the financial statements of the Company. The short-term and long-term reserves for claims and potential claims related to general liability and workers' compensation under the captive are included in accrued loss reserves or other long-term liabilities, respectively, in the consolidated balance sheets depending on the expected timing of future payments. The undiscounted reserves are actuarially determined to cover the ultimate cost of each claim based on the Company's evaluation of the type and severity of individual claims and historical information, primarily its own claims experience, along with assumptions about future events. Changes in assumptions, as well as changes in actual experience, could cause these estimates to change in the future. However, the Company does not believe it is reasonably likely that the reserve level will materially change in the foreseeable future.

The Company is self-insured for health and prescription claims under its Group Health Insurance Plan at all but one of the Company's domestic manufacturing subsidiaries. The Company carries reinsurance coverage to limit its exposure for individual health claims above certain limits. Third parties administer health claims and prescription medication claims. The Company maintains a reserve for the self-insured health plan which is included in accrued loss reserves on the Company's consolidated balance sheets. This reserve includes both unpaid claims and an estimate of claims incurred but not reported, based on historical claims and payment experience. Historically the reserves have been sufficient to provide for claims payments. Changes in actual claims experience or payment patterns could cause the reserve to change, but the Company does not believe it is reasonably likely that the reserve level will materially change in the near future.

The remaining U.S. subsidiary is covered under a fully insured group health plan. Employees of the Company's foreign subsidiaries are insured under separate health plans. No reserves are necessary for these fully insured health plans.

Revenue Recognition - Revenue is generally recognized on sales at the point in time when persuasive evidence of an arrangement exists, the price is fixed or determinable, the product has been delivered or services have been rendered and there is a reasonable assurance of collection of the sales proceeds. The Company generally obtains purchase authorizations from its customers for a specified amount of products at a specified price with specified delivery terms. A significant portion of the Company's equipment sales represents equipment produced in the Company's plants under short-term contracts for a specific customer project or equipment designed to meet a customer's specific requirements. Most of the equipment sold by the Company is based on standard configurations, some of which are modified to meet customer needs or specifications. The Company provides customers with technical design and performance specifications and performs pre-shipment testing to ensure the equipment performs according to design specifications, regardless of whether the Company provides installation services in addition to selling the equipment.

Certain contracts include terms and conditions pursuant to which the Company recognizes revenues upon completion of equipment production, which is subsequently stored at the Company's plant at the customer's request. Revenue is recorded on such contracts upon the customer's assumption of title and risk of ownership and when collectability is reasonably assured. In addition, there must be a fixed schedule of delivery of the goods consistent with the customer's business practices, the Company must not have retained any specific performance obligations such that the earnings process is not complete and the goods must have been segregated from the Company's inventory prior to revenue recognition.

The Company has certain sales accounted for as multiple-element arrangements, whereby revenue attributable to the sale of a product is recognized when the product is shipped, and the revenue attributable to services provided with respect to the product (such as installation services) is recognized when the service is performed. Consideration is allocated to deliverables using the relative selling price method using vendor specific objective evidence, if it exists. Otherwise, the Company uses third-party evidence of selling price or the Company's best estimate of the selling price for the deliverables. The Company evaluates sales with multiple deliverable elements (such as an agreement to deliver equipment and related installation services) to determine whether revenue related to individual elements should be recognized separately, or as a combined unit. In addition to the previously mentioned general revenue recognition criteria, the Company only recognizes revenue on individual delivered elements when there is objective and reliable evidence that the delivered element has a determinable value to the customer on a standalone basis and there is no right of return.

The Company has certain sales accounted for under the percentage of completion method using the ratio of costs incurred to estimated total costs. Revenue, in an amount equal to cost incurred, is recognized until there is sufficient information to determine the estimated profit on the project with a reasonable level of certainty. The factors considered in this evaluation include the stage of design completion, the stage of equipment manufacturing completion, the state of construction completion, the status of outstanding subcontracts, certainty of quantities of labor and materials, certainty of schedule and the relationship with the customer.

The Company presents in the consolidated statements of income any taxes assessed by a governmental authority that are directly imposed on revenue-producing transactions between the Company and its customers, such as sales, use, value-added and some excise taxes, on a net (excluded from revenue) basis.

Advertising Expense - The cost of advertising is expensed as incurred. The Company incurred \$4,045, \$4,231, and \$3,657 in advertising costs during 2016, 2015 and 2014, respectively, which is included in selling, general and administrative expenses.

Income Taxes - Income taxes are based on pre-tax financial accounting income. Deferred tax assets and liabilities are recognized for the expected tax consequences of temporary differences between the tax bases of assets and liabilities and their reported amounts. The Company periodically assesses the need to establish valuation allowances against its deferred tax assets to the extent the Company no longer believes it is more likely than not that the tax assets will be fully utilized.

The Company evaluates a tax position to determine whether it is more likely than not that the tax position will be sustained upon examination, based upon the technical merits of the position. A tax position that meets the more-likely-than-not recognition threshold is subject to a measurement assessment to determine the amount of benefit to recognize and the appropriate reserve to establish, if any. If a tax position does not meet the more-likely-than-not recognition threshold, no benefit is recognized. The Company is periodically audited by U.S. federal and state as well as foreign tax authorities. While it is often difficult to predict final outcome or timing of resolution of any particular tax matter, the Company believes its reserve for uncertain tax positions is adequate to reduce the uncertain positions to the greatest amount of benefit that is more likely than not realizable.

Product Warranty Reserve - The Company accrues for the estimated cost of product warranties at the time revenue is recognized. Warranty obligations by product line or model are evaluated based on historical warranty claims experience. For equipment, the Company's standard product warranty terms generally include post-sales support and repairs of products at no additional charge for periods ranging from three months to two years or up to a specified number of hours of operation. For parts from component suppliers, the Company relies on the original manufacturer's warranty that accompanies those parts. Generally, Company fabricated parts are not covered by specific warranty terms. Although failure of fabricated parts due to material or workmanship is rare, if it occurs, the Company's policy is to replace fabricated parts at no additional charge.

The Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of our component suppliers. Estimated warranty obligations are based upon warranty terms, product failure rates, repair costs and current period machine shipments. If actual product failure rates, repair costs, service delivery costs or post-sales support costs differ from our estimates, revisions to the estimated warranty liability may be required.

Pension and Retirement Plans - The determination of obligations and expenses under the Company's pension plan is dependent on the Company's selection of certain assumptions used by independent actuaries in calculating such amounts. Those assumptions are described in Note 12, Pension and Retirement Plans and include among others, the discount rate, expected return on plan assets and the expected mortality rates. In accordance with U.S. generally accepted accounting principles, actual results that differ from assumptions are accumulated and amortized over future periods and, therefore, generally affect the recognized expense in such periods. Significant differences in actual experience or significant changes in the assumptions used may materially affect the pension obligations and future expenses.

The Company recognizes the overfunded or underfunded status of its pension plan as an asset or liability. Actuarial gains and losses, amortization of prior service cost (credit) and amortization of transition obligations are recognized through other comprehensive income in the year in which the changes occur. The Company measures the funded status of its pension plan as of the date of the Company's fiscal year-end.

Stock-based Compensation - The Company recognizes the cost of employee services received in exchange for equity awards in the financial statements based on the grant date calculated fair value of the awards. The Company recognizes stock-based compensation expense over the period during which an employee is required to provide service in exchange for the award (the vesting period). The Company's equity awards are further described in Note 16, Shareholders' Equity.

Earnings Per Share - Basic earnings per share is based on the weighted average number of common shares outstanding and diluted earnings per share includes potential dilutive effects of restricted stock units and shares held in the Company's supplemental executive retirement plan.

The following table sets forth a reconciliation of the number of shares used in the computation of basic and diluted earnings per share:

	Year Ended December 31		
	2016	2015	2014
Denominator:			
Denominator for basic earnings per share	22,992	22,934	22,819
Effect of dilutive securities:			
Employee stock options and restricted stock units	85	123	176
Supplemental executive retirement plan	65	63	110
Denominator for diluted earnings per share	<u>23,142</u>	<u>23,120</u>	<u>23,105</u>

Antidilutive options were not included in the diluted earnings per share computation for the years presented. The number of antidilutive options in each of the three years ended December 31, 2016 was not material.

Derivatives and Hedging Activities - The Company recognizes all derivatives in the consolidated balance sheets at their fair value. Derivatives that are not hedges are adjusted to fair value through income. If the derivative is a hedge, depending on the nature of the hedge, changes in the fair value of derivatives are either offset against the change in fair value of assets, liabilities, or firm commitments through income or recognized in other comprehensive income until the hedged item is recognized in income. The ineffective portion of a derivative's change in fair value is immediately recognized in income. From time to time the Company's foreign subsidiaries enter into foreign currency exchange contracts to mitigate exposure to fluctuation in currency exchange rates. See Note 13, Derivative Financial Instruments, regarding foreign exchange contracts outstanding at December 31, 2016 and 2015.

Shipping and Handling Fees and Cost - The Company records revenues earned for shipping and handling as revenue, while the cost of shipping and handling is classified as cost of goods sold.

Business Combinations - The Company accounts for business combinations using the acquisition method. Accordingly, intangible assets are recorded apart from goodwill if they arise from contractual or legal rights or if they are separable from goodwill. Related third party acquisition costs are expensed as incurred and contingent consideration is booked at its fair value as part of the purchase price.

Subsequent Events Review - Management has evaluated events occurring between December 31, 2016 and the date these consolidated financial statements were filed with the Securities and Exchange Commission for proper recording or disclosure therein.

Recent Accounting Pronouncements - In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, "Revenue from Contracts with Customers", which supersedes existing revenue guidance under U.S. GAAP. The standard's core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The implementation of this new standard will require companies to use more judgment and to make more estimates than under current guidance. The standard, as amended, is effective for public companies for annual periods beginning after December 15, 2017. The Company plans to adopt the new standard effective January 1, 2018. Due to the decentralized structure of the Company, Corporate management requested documented revenue streams from its' 16 manufacturing subsidiaries to assist in its effort to determine the effect the new standard will have on its financial reporting. A meeting was also held in September 2016 with corporate management, controllers of the manufacturing subsidiaries, and an outside revenue expert to further review the Company's various revenue streams and the change in timing of when revenue may be recognized under the new guidance. The Company is still in the process of finalizing this review. Therefore, the Company has not yet determined the extent of the impact adoption of this new standard will have on the Company's financial position or results of operations.

In July 2015, the FASB issued ASU No. 2015-11, "Inventory (Topic 330): Simplifying the Measurement of Inventory", which changes the measurement basis for inventory from the lower of cost or market to lower of cost and net realizable value and also eliminates the requirement for companies to consider replacement cost or net realizable value less an approximate normal profit margin when determining the recorded value of inventory. The standard is effective for public companies in fiscal years beginning after December 15, 2016. The Company early adopted the standard effective October 1, 2016.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10)", which requires, among other things, equity investments with readily determinable fair values, except those accounted for under the equity method of accounting or those that result in consolidation of the investee, to be measured at fair value with changes in fair value recognized in net income. The standard is effective for public companies in fiscal years beginning after December 15, 2017, and the Company expects to adopt the standard effective January 1, 2018. The Company has not yet determined what impact, if any, the adoption of this new standard will have on the Company's financial position or results of operations.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)", which significantly changes the accounting for operating leases by lessees. The accounting applied by lessors is largely unchanged from that applied under previous guidance. The new guidance requires lessees to recognize lease assets and lease liabilities in the balance sheet, initially measured at the present value of the lease payments, for leases which were classified as operating leases under previous guidance. Lease cost included in the statement of income will be calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. Lessees may make an accounting policy election to exclude leases with a term of 12 months or less from the requirement to record related assets and liabilities. The new standard is effective for public companies for fiscal years beginning after December 15, 2018. The Company plans to adopt the new standard effective January 1, 2019. The Company does not expect the adoption of this standard to have a material impact on its results of operations; however, the Company has not determined the impact the adoption of this new standard will have on its financial position.

In March 2016, the FASB issued ASU No. 2016-08, "Revenue from Contracts with Customers (Topic 606)", which does not change the core principles of ASU No. 2014-09 discussed above, but rather clarifies the implementation guidance in order to eliminate the potential for diversity in practice arising from inconsistent application of the principal versus agent guidance. Under the new guidance, when an entity determines it is a principal in a transaction, the entity recognizes revenue in the gross amount of consideration; however in transactions where an entity determines it is an agent, the entity recognizes revenue in the amount of any fee or commission to which it expects to be entitled. The standard is effective for public companies for annual periods beginning after December 15, 2017. The Company plans to adopt the new standard effective January 1, 2018. The Company has not yet determined what impact, if any, the adoption of this new standard will have on the Company's financial position or results of operations.

In March 2016, the FASB issued ASU No. 2016-09, "Compensation - Stock Compensation (Topic 718)", as part of its Simplification Initiative. The standard's provisions impact several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification in the statement of cash flows. The standard is effective for public companies for annual periods beginning after December 15, 2016, with early adoption permitted. The Company adopted the new standard effective January 1, 2016 and has recorded a cumulative effect adjustment in retained earnings as of January 1, 2016 of \$95, net of tax, related to the adoption of the new provisions allowing for restricted stock unit forfeitures to be accounted for at the time they occur as opposed to being estimated during the vesting period. Additionally, income tax benefits of \$220, which would have been recorded in additional paid-in capital under prior guidance, have been recorded in 2016 consolidated income related to excess tax benefits resulting from the vesting of restricted stock units in 2016. As allowed under the provision's guidelines, amounts for 2015 have not been restated in the accompanying financial statements.

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments – Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments". The standard changes how credit losses are measured for most financial assets and certain other instruments that currently are not measured through net income. The standard will require an expected loss model for instruments measured at amortized cost as opposed to the current incurred loss approach. In valuing available for sale debt securities, allowances will be required to be recorded, rather than the current approach of reducing the carrying amount, for other than temporary impairments. A cumulative adjustment to retained earnings is to be recorded as of the beginning of the period of adoption to reflect the impact of applying the provisions of the standard. The standard is effective for public companies for periods beginning after December 15, 2019 and the Company expects to adopt the new standard as of January 1, 2020. The Company has not yet determined what impact, if any, the adoption of this new standard will have on the Company's financial position or results of operations.

In August 2016, the FASB issued ASU No. 2016-15, "Classification of Certain Cash Receipts and Cash Payments (a consensus of the Emerging Issues Task Force)" which clarifies how certain cash receipts and cash payments should be presented on the statement of cash flows. The statement also addresses how the predominance principle should be applied when cash payments have aspects of more than one class of cash flows. The standard is effective for public companies in fiscal years beginning after December 15, 2017, and the Company expects to adopt the standard effective January 1, 2018. The Company has not determined the impact, if any, the adoption of this new standard will have on the Company's statement of cash flows.

In October 2016, the FASB issued ASU No. 2016-16, "Intra-Entity Transfers of Assets Other Than Inventory" which requires companies to account for the income tax effects of intercompany sales and transfers of assets other than inventory, such as intangible assets, when the transfer occurs. This is a change from current guidance, which requires companies to defer the income tax effects of intercompany transfers of assets until the asset has been sold to an outside party or otherwise recognized by being depreciated, amortized, or impaired. The new guidance will require companies to defer the income tax effects of only intercompany transfers of inventory. The standard is effective for public companies in fiscal years beginning after December 15, 2018. Early adoption is permitted as of the beginning of an annual period and requires companies to apply a modified retrospective approach. The Company plans to adopt the new standard effective January 1, 2019. The Company has not yet determined what impact the adoption of this new standard will have on the Company's financial position or results of operations.

2. Inventories

Inventories consist of the following:

	December 31	
	2016	2015
Raw materials and parts	\$ 137,763	\$ 141,967
Work-in-process	115,613	113,859
Finished goods	84,898	104,879
Used equipment	22,130	24,071
Total	\$ 360,404	\$ 384,776

3. Fair Value Measurements

The Company has various financial instruments that must be measured at fair value on a recurring basis, including marketable debt and equity securities held by Astec Insurance, and marketable equity securities held in an unqualified Supplemental Executive Retirement Plan ("SERP"). The financial assets held in the SERP also constitute a liability of the Company for financial reporting purposes. The Company's subsidiaries also occasionally enter into foreign currency exchange contracts to mitigate exposure to fluctuations in currency exchange rates.

For cash and cash equivalents, trade receivables, other receivables, revolving debt and accounts payable, the carrying amount approximates the fair value because of the short-term nature of these instruments. Investments are carried at their fair value based on quoted market prices for identical or similar assets or, where no quoted prices exist, other observable inputs for the asset. The fair values of foreign currency exchange contracts are based on quotations from various banks for similar instruments using models with market based inputs.

As indicated in the tables below, the Company has determined that its financial assets and liabilities at December 31, 2016 and 2015 are level 1 and level 2 in the fair value hierarchy:

	December 31, 2016			
	Level 1	Level 2	Level 3	Total
Financial Assets:				
Trading equity securities:				
SERP money market fund	\$ 92	\$ --	\$ --	\$ 92
SERP mutual funds	3,335	--	--	3,335
Preferred stocks	475	--	--	475
Trading debt securities:				
Corporate bonds	5,413	--	--	5,413
Municipal bonds	--	2,248	--	2,248
Floating rate notes	118	--	--	118
U.S. Treasury bills	388	--	--	388
Asset backed securities	--	637	--	637
Other	--	2,283	--	2,283
Derivative financial instruments	--	144	--	144
Total financial assets	<u>\$ 9,821</u>	<u>\$ 5,312</u>	<u>\$ --</u>	<u>\$ 15,133</u>
Financial Liabilities:				
SERP liabilities	\$ --	\$ 7,882	\$ --	\$ 7,882
Derivative financial instruments	--	89	--	89
Total financial liabilities	<u>\$ --</u>	<u>\$ 7,971</u>	<u>\$ --</u>	<u>\$ 7,971</u>

	December 31, 2015			
	Level 1	Level 2	Level 3	Total
Financial Assets:				
Trading equity securities:				
SERP money market fund	\$ 445	\$ --	\$ --	\$ 445
SERP mutual funds	2,864	--	--	2,864
Preferred stocks	742	--	--	742
Trading debt securities:				
Corporate bonds	3,756	141	--	3,897
Municipal bonds	--	1,811	--	1,811
Floating rate notes	84	--	--	84
U.S. Treasury bills	404	--	--	404
Savings bonds	77	--	--	77
Other	--	2,755	--	2,755
Derivative financial instruments	--	1,265	--	1,265
Total financial assets	<u>\$ 8,372</u>	<u>\$ 5,972</u>	<u>\$ --</u>	<u>\$ 14,344</u>
Financial Liabilities:				
SERP liabilities	\$ --	\$ 5,869	\$ --	\$ 5,869
Derivative financial instruments	--	22	--	22
Total financial liabilities	<u>\$ --</u>	<u>\$ 5,891</u>	<u>\$ --</u>	<u>\$ 5,891</u>

The Company reevaluates the volume of trading activity for each of its investments at the end of each reporting period and adjusts the level within the fair value hierarchy as needed.

4. Investments

The Company's trading securities consist of the following:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value (Net Carrying Amount)
December 31, 2016				
Trading equity securities	\$ 3,980	\$ 40	\$ 118	\$ 3,902
Trading debt securities	11,312	23	248	11,087
Total	\$ 15,292	\$ 63	\$ 366	\$ 14,989
December 31, 2015				
Trading equity securities	\$ 4,160	\$ 79	\$ 188	\$ 4,051
Trading debt securities	9,263	37	272	9,028
Total	\$ 13,423	\$ 116	\$ 460	\$ 13,079

Trading equity investments are valued at their estimated fair value based on their quoted market prices and trading debt securities are valued based upon a mix of observable market prices and model driven prices derived from a matrix of observable market prices for assets with similar characteristics obtained from a nationally recognized third party pricing service. Additionally, a significant portion of the trading equity securities are in equity money market and mutual funds and also comprise a portion of the Company's liability under its SERP. See Note 12, Pension and Retirement Plans, for additional information on these investments and the SERP.

Trading debt securities are comprised mainly of marketable debt securities held by Astec Insurance. Astec Insurance has an investment strategy that focuses on providing regular and predictable interest income from a diversified portfolio of high-quality fixed income securities.

Net unrealized gains or losses incurred on investments still held as of the end of each reporting period amounted to losses of \$107, \$429 and \$17 in 2016, 2015 and 2014, respectively.

5. Goodwill

Goodwill represents the excess of the purchase price over the fair value of identifiable net assets acquired in business combinations. Current U.S. accounting guidance provides that goodwill and indefinite-lived intangible assets be tested for impairment at least annually. The Company performs the required valuation procedures each year as of December 31 after the following year's forecasts are submitted and reviewed. The valuations performed in 2016, 2015 and 2014 indicated no impairment of goodwill.

The changes in the carrying amount of goodwill by reporting segment during the years ended December 31, 2016 and 2015 are as follows:

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Balance, December 31, 2014	\$ 8,584	\$ 23,411	\$ --	\$ --	\$ 31,995
Purchase price adjustment	--	(178)	--	--	(178)
Foreign currency translation	(103)	(879)	--	--	(982)
Balance, December 31, 2015	8,481	22,354	--	--	30,835
Acquisition	--	--	12,632	--	12,632
Foreign currency translation	(33)	(2,630)	--	--	(2,663)
Balance, December 31, 2016	\$ 8,448	\$ 19,724	\$ 12,632	\$ --	\$ 40,804

6. Intangible Assets

Intangible assets consisted of the following at December 31, 2016 and 2015:

	2016			2015		
	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Dealer network and customer relationships	\$ 26,035	\$ 7,584	\$ 18,451	\$ 13,111	\$ 5,552	\$ 7,559
Trade names	7,021	1,362	5,659	4,857	956	3,901
Other	5,764	3,231	2,533	4,966	2,849	2,117
Total	<u>\$ 38,820</u>	<u>\$ 12,177</u>	<u>\$ 26,643</u>	<u>\$ 22,934</u>	<u>\$ 9,357</u>	<u>\$ 13,577</u>

Amortization expense on intangible assets was \$3,562, \$2,953 and \$2,735 for 2016, 2015 and 2014, respectively. Intangible asset amortization expense is expected to be \$3,514, \$3,246, \$2,717, \$2,531 and \$2,329 in the years ending December 31, 2017, 2018, 2019, 2020 and 2021 respectively, and \$12,306 thereafter.

7. Property and Equipment

Property and equipment consist of the following:

	December 31	
	2016	2015
Land	\$ 14,768	\$ 12,628
Building and land improvements	140,229	132,353
Manufacturing and office equipment	231,816	214,545
Aviation equipment	14,169	14,151
Less accumulated depreciation	(220,444)	(203,471)
Total	<u>\$ 180,538</u>	<u>\$ 170,206</u>

Depreciation expense was \$20,818, \$20,744 and \$21,343 for the years ended December 31, 2016, 2015 and 2014, respectively.

In October 2015, the Company recorded the sale of its Astec Underground facility for a net sales price of \$9,599. The cost of closing the facility totaled \$1,500, with \$999 recorded in cost of sales and \$501 in selling, general and administrative expenses in the year ended December 31, 2015.

8. Leases

The Company leases certain land, buildings and equipment for use in its operations under various operating leases. Total rental expense charged to operations under operating leases was approximately \$2,792, \$2,786 and \$2,544 for the years ended December 31, 2016, 2015 and 2014, respectively.

Minimum rental commitments for all noncancelable operating leases at December 31, 2016 are as follows:

2017	\$ 1,337
2018	978
2019	669
2020	465
2021	177
Thereafter	21
	<u>\$ 3,647</u>

9. Debt

On April 12, 2012, the Company and certain of its subsidiaries entered into an amended and restated credit agreement with Wells Fargo whereby Wells Fargo extended to the Company an unsecured line of credit of up to \$100,000, including a sub-limit for letters of credit of up to \$25,000. There were no outstanding revolving or term loan borrowings under the credit facility at December 31, 2016 or 2015. Letters of credit totaling \$8,876 were outstanding under the credit facility as of December 31, 2016, resulting in additional borrowing ability of \$91,124 on the credit facility as of December 31, 2016. The amended and restated agreement has a five-year term expiring in April 2017. Borrowings under the agreement are subject to an interest rate equal to the daily one-month LIBOR rate plus a 0.75% margin, resulting in a rate of 1.53% at December 31, 2016. The unused facility fee is 0.175%. Interest only payments are due monthly. The credit agreement contains certain financial covenants, including provisions concerning required levels of annual net income, minimum tangible net worth and maximum allowed capital expenditures.

The Company's South African subsidiary, Osborn Engineered Products SA (Pty) Ltd ("Osborn"), has a bank overdraft facility of \$6,913 to finance short-term working capital needs, as well as to cover performance letters of credit, advance payment and retention guarantees. As of December 31, 2016, Osborn had \$4,632 in short-term borrowings and \$904 in performance, advance payment and retention guarantees outstanding under the facility. The facility is guaranteed by Astec Industries, Inc. The overdraft's 0.75% unused facility fee is waived if 50% or more of the facility is utilized. As of December 31, 2016, Osborn had available credit under the facility of \$1,377. The interest rate is 0.25% less than the South Africa prime rate, resulting in a rate of 10.50% as of December 31, 2016.

The Company's Brazilian subsidiary, Astec do Brasil Fabricacao de Equipamentos Ltda. ("Astec Brazil"), has outstanding working capital loans totaling \$5,485 from a Brazilian bank with interest rates ranging from 10.4% to 11.0%. The loans have maturity dates ranging from November 2018 to April 2024 and are secured by letters of credit totaling \$6,200 issued by Astec Industries, Inc. Additionally, Astec Brazil has various five-year equipment financing loans outstanding with other Brazilian banks in the aggregate of \$1,169 as of December 31, 2016 that have interest rates ranging from 3.5% to 16.3%. These equipment loans have maturity dates ranging from September 2018 to April 2020. Astec Brazil's loans are included in the accompanying balance sheets as current maturities of long-term debt of \$2,538 and long-term debt of \$4,116 as of December 31, 2016.

Long-term debt maturities are expected to be \$2,538, \$2,513, \$492, \$259 and \$256 in the years ending December 31, 2017, 2018, 2019, 2020 and 2021, respectively, and \$596 thereafter.

10. Product Warranty Reserves

The Company warrants its products against manufacturing defects and performance to specified standards. The warranty period and performance standards vary by product, but generally range from three months to two years or up to a specified number of hours of operation. The Company estimates the costs that may be incurred under its warranties and records a liability at the time product sales are recorded. The warranty liability is primarily based on historical claim rates, nature of claims and the associated costs.

Changes in the Company's product warranty liability during 2016, 2015 and 2014 are as follows:

	<u>2016</u>	<u>2015</u>	<u>2014</u>
Reserve balance, beginning of year	\$ 9,100	\$ 10,032	\$ 12,716
Warranty liabilities accrued	18,912	13,743	12,796
Warranty liabilities settled	(15,125)	(14,177)	(15,563)
Other	269	(498)	83
Reserve balance, end of year	<u>\$ 13,156</u>	<u>\$ 9,100</u>	<u>\$ 10,032</u>

11. Accrued Loss Reserves

The Company accrues reserves for losses related to known workers' compensation and general liability claims that have been incurred but not yet paid or are estimated to have been incurred but not yet reported to the Company. The undiscounted reserves are actuarially determined based on the Company's evaluation of the type and severity of individual claims and historical information, primarily its own claim experience, along with assumptions about future events. Changes in assumptions, as well as changes in actual experience, could cause these estimates to change in the future. Total accrued loss reserves at December 31, 2016 were \$7,892 and \$7,663 at December 31, 2015, of which \$5,040 and \$4,825 was included in other long-term liabilities at December 31, 2016 and 2015, respectively.

12. Pension and Retirement Plans

Prior to December 31, 2003, all employees of the Company's Kolberg-Pioneer, Inc. subsidiary were covered by a defined benefit pension plan. After December 31, 2003, all benefit accruals under the plan ceased and no new employees could become participants in the plan. Benefits paid under this plan are based on years of service multiplied by a monthly amount. The Company's funding policy for the plan is to make at least the minimum annual contributions required by applicable regulations.

The Company's investment strategy for the plan is to earn a rate of return sufficient to match or exceed the long-term growth of pension liabilities. The investment policy states that the Plan Committee in its sole discretion shall determine the allocation of plan assets among the following four asset classes: cash equivalents, fixed-income securities, domestic equities and international equities. The Plan Committee attempts to ensure adequate diversification of the invested assets through investment in an exchange traded mutual fund that invests in a diversified portfolio of stocks, bonds and money market securities.

The following provides information regarding benefit obligations, plan assets and the funded status of the plan:

	Pension Benefits	
	2016	2015
Change in benefit obligation		
Benefit obligation, beginning of year	\$ 15,565	\$ 15,986
Interest cost	650	596
Actuarial (gain)/loss	514	(417)
Benefits paid	(625)	(600)
Benefit obligation, end of year	<u>16,104</u>	<u>15,565</u>
Accumulated benefit obligation	<u>16,104</u>	<u>15,565</u>
Change in plan assets		
Fair value of plan assets, beginning of year	12,688	13,283
Actual gain/(loss) on plan assets	763	(279)
Employer contribution	415	284
Benefits paid	(625)	(600)
Fair value of plan assets, end of year	<u>13,241</u>	<u>12,688</u>
Funded status, end of year	<u>\$ (2,863)</u>	<u>\$ (2,877)</u>
Amounts recognized in the consolidated balance sheets		
Noncurrent liabilities	\$ (2,863)	\$ (2,877)
Net amount recognized	<u>\$ (2,863)</u>	<u>\$ (2,877)</u>
Amounts recognized in accumulated other comprehensive loss consist of		
Net loss	\$ 6,152	\$ 6,098
Net amount recognized	<u>\$ 6,152</u>	<u>\$ 6,098</u>
Weighted average assumptions used to determine benefit obligations as of December 31		
Discount rate	4.00%	4.28%
Expected return on plan assets	6.25%	7.00%
Rate of compensation increase	N/A	N/A

The measurement date used for the plan was December 31. In determining the expected return on plan assets, the historical experience of the plan assets, the current and expected allocation of the plan assets and the expected long-term rates of return were considered.

All assets in the plan are invested in an exchange traded mutual fund (level 1 in the fair value hierarchy). The allocation of assets within the mutual fund as of December 31 and the target asset allocation ranges by asset category are as follows:

Asset Category	Actual Allocation		2016 & 2015 Target Allocation Ranges
	2016	2015	
Equity securities	63.6%	66.0%	53 - 73%
Debt securities	33.5%	30.7%	21 - 41%
Money market funds	2.9%	3.3%	0 - 15%
Total	100.0%	100.0%	

Net periodic benefit cost for 2016, 2015 and 2014 included the following components:

Components of net periodic benefit cost	Pension Benefits		
	2016	2015	2014
Interest cost	\$ 650	\$ 596	\$ 620
Expected return on plan assets	(782)	(840)	(816)
Amortization of actuarial loss	480	500	295
Net periodic benefit cost	348	256	99
Other changes in plan assets and benefit obligations recognized in other comprehensive income			
Net actuarial loss for the year	533	702	2,115
Amortization of net loss	(480)	(500)	(295)
Total recognized in other comprehensive income	53	202	1,820
Total recognized in net periodic benefit cost and other comprehensive income	\$ 401	\$ 458	\$ 1,919
Weighted average assumptions used to determine net periodic benefit cost for years ended December 31			
Discount rate	4.28%	3.81%	4.60%
Expected return on plan assets	7.00%	7.00%	7.00%

No contributions are expected to be funded by the Company during 2017.

Amounts in accumulated other comprehensive loss expected to be recognized in net periodic benefit cost in 2017 for the amortization of a net loss is \$530.

The following estimated future benefit payments are expected in the years indicated:

	Pension Benefits
2017	\$ 730
2018	780
2019	840
2020	870
2021	900
2022 - 2025	4,780

The Company sponsors a 401(k) defined contribution plan to provide eligible employees with additional income upon retirement. The Company's contributions to the plan are based on employee contributions. The Company's contributions totaled \$5,943, \$5,292 and \$5,134 in 2016, 2015 and 2014, respectively.

The Company maintains a SERP for certain of its executive officers. The plan is a non-qualified deferred compensation plan administered by the Board of Directors of the Company, pursuant to which the Company makes quarterly cash contributions of a certain percentage of executive officers' compensation. Investments are self-directed by participants and can include Company stock. Upon retirement, participants receive their apportioned share of the plan assets in the form of cash.

Assets of the SERP consist of the following:

	December 31, 2016		December 31, 2015	
	Cost	Market	Cost	Market
Company stock	\$ 1,958	\$ 3,428	\$ 1,778	\$ 2,560
Equity securities	3,474	4,454	3,402	3,309
Total	\$ 5,432	\$ 7,882	\$ 5,180	\$ 5,869

The Company periodically adjusts the deferred compensation liability such that the balance of the liability equals the total fair market value of all assets held by the trust established under the SERP. Such liabilities are included in other long-term liabilities on the consolidated balance sheets. The equity securities are included in investments in the consolidated balance sheets and classified as trading equity securities. See Note 4, Investments, for additional information. The cost of the Company stock held by the plan is included as a reduction in shareholders' equity in the consolidated balance sheets.

The change in the fair market value of Company stock held in the SERP results in a charge or credit to selling, general and administrative expenses in the consolidated statements of income because the acquisition cost of the Company stock in the SERP is recorded as a reduction of shareholders' equity and is not adjusted to fair market value; however, the related liability is adjusted to the fair market value of the stock as of each period end. The Company recognized expense of \$1,742, \$241 and \$74 in 2016, 2015 and 2014, respectively, related to the change in the fair value of the Company stock held in the SERP.

13. Derivative Financial Instruments

The Company is exposed to certain risks relating to its ongoing business operations. The primary risk managed by using derivative instruments is foreign currency risk. From time to time the Company's foreign subsidiaries enter into foreign currency exchange contracts to mitigate exposure to fluctuations in currency exchange rates. The fair value of the derivative financial instrument is recorded on the Company's balance sheet and is adjusted to fair value at each measurement date. The changes in fair value are recognized in the consolidated statements of income in the current period. The Company does not engage in speculative transactions nor does it hold or issue derivative financial instruments for trading purposes. The average U.S. dollar equivalent notional amount of outstanding foreign currency exchange contracts was \$11,784 during 2016. At December 31, 2016, the Company reported \$144 of derivative assets in other current assets and \$89 of derivative liabilities in other current liabilities. The Company reported \$935 of derivative assets in other current assets, \$330 of derivative assets in other long-term assets and \$22 of derivative liabilities in other current liabilities at December 31, 2015. The Company recognized, as a component of cost of sales, a net loss on the change in fair value of derivative instruments of \$336 for the year ended December 31, 2016 and net gains on the change in fair value of derivative instruments of \$600 and \$438 for the years ended December 31, 2015 and 2014, respectively. There were no derivatives that were designated as hedges at December 31, 2016 or 2015.

14. Income Taxes

For financial reporting purposes, income before income taxes includes the following components:

	Year Ended December 31		
	2016	2015	2014
United States	\$ 87,326	\$ 57,846	\$ 57,651
Foreign	(231)	(5,873)	(4,045)
Income before income taxes	\$ 87,095	\$ 51,973	\$ 53,606

The provision for income taxes consists of the following:

	Year Ended December 31		
	2016	2015	2014
Current provision:			
Federal	\$ 30,623	\$ 19,758	\$ 18,713
State	4,098	2,553	2,992
Foreign	907	255	243
Total current provision	<u>35,628</u>	<u>22,566</u>	<u>21,948</u>
Deferred provision (benefit):			
Federal	(2,653)	(1,183)	(1,627)
State	(1,213)	(275)	(222)
Foreign	345	(1,101)	(699)
Total deferred benefit	<u>(3,521)</u>	<u>(2,559)</u>	<u>(2,548)</u>
Total provision (benefit):			
Federal	27,970	18,575	17,086
State	2,885	2,278	2,770
Foreign	1,252	(846)	(456)
Total tax provision	<u>\$ 32,107</u>	<u>\$ 20,007</u>	<u>\$ 19,400</u>

The Company's income tax provision is computed based on the domestic and foreign federal statutory rates and the average state statutory rates, net of related federal benefit.

The provision for income taxes differs from the amount computed by applying the statutory federal income tax rate to income before income taxes. A reconciliation of the provision for income taxes at the statutory federal income tax rate to the amount provided is as follows:

	Year Ended December 31		
	2016	2015	2014
Tax at the statutory federal income tax rate	\$ 30,483	\$ 18,191	\$ 18,762
Qualified production activity deduction	(1,641)	(1,174)	(1,360)
State income tax, net of federal income tax	1,876	1,386	1,727
Other permanent differences	673	393	840
Research and development tax credits	(785)	(291)	(1,323)
Change in valuation allowance	1,638	2,036	1,675
Other items	(137)	(534)	(921)
Total tax provision	<u>\$ 32,107</u>	<u>\$ 20,007</u>	<u>\$ 19,400</u>

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

Significant components of the Company's deferred tax assets and liabilities are as follows (certain amounts for 2015 have been reclassified from amounts previously reported to conform to 2016 presentation):

	December 31	
	2016	2015
Deferred tax assets:		
Inventory reserves	\$ 8,507	\$ 7,828
Warranty reserves	4,527	2,852
Bad debt reserves	456	436
State tax loss carryforwards	3,403	3,006
Accrued vacation	2,351	2,174
SERP	299	275
Deferred compensation	2,124	1,328
Restricted stock units	1,845	1,893
Pension and post-employment benefits	2,530	2,571
Foreign net operating losses	5,461	5,134
Other	2,516	9,315
Valuation allowances	(8,280)	(8,065)
Total deferred tax assets	25,739	28,747
Deferred tax liabilities:		
Property and equipment	20,167	19,799
Intangibles	1,244	1,961
Goodwill	1,605	1,835
Pension	1,205	1,305
Outside basis differences	511	--
Total deferred tax liabilities	24,732	24,900
Total net deferred assets	\$ 1,007	\$ 3,847

As of December 31, 2016, the Company has state net operating loss carryforwards of \$79,856, foreign net operating loss carryforwards of approximately \$17,339, and state tax credit carryforwards of \$65 for tax purposes, which will be available to offset future taxable income. If not used, these carryforwards will expire between 2017 and 2029. A significant portion of the valuation allowance for deferred tax assets relates to the future utilization of state and foreign net operating loss and state tax credit carryforwards. Future utilization of these net operating loss and state tax credit carryforwards is evaluated by the Company on a periodic basis and the valuation allowance is adjusted accordingly. In 2016, the valuation allowance on these carryforwards was increased by \$183 due to uncertainty about whether certain entities will realize their state and foreign net operating loss carryforwards. The Company has also determined that the recovery of certain other deferred tax assets is uncertain. The valuation allowance for these deferred tax assets was increased by \$32 during 2016.

Undistributed earnings of the Company's Canadian subsidiary, Breaker Technology Ltd., and Northern Ireland subsidiary, Telestack Limited, are considered to be indefinitely reinvested; accordingly, no provision for U.S. federal and state income taxes has been provided thereon. Upon any future repatriation of their earnings, in the form of dividends or otherwise, the Company would be subject to additional U.S. income taxes (subject to an adjustment for foreign tax credits) and withholding taxes due to the foreign jurisdictions may have to be paid. The cumulative amount of Breaker Technology, Ltd.'s unrecovered basis difference is \$10,500 as of December 31, 2016. The cumulative amount of Telestack Limited's unrecovered basis difference is \$2,100 as of December 31, 2016. The determination of the unrecognized deferred tax liability on the basis difference is not practical at this time.

The Company files income tax returns in the U.S. federal jurisdiction, and in various state and foreign jurisdictions. The Company is no longer subject to U.S. federal income tax examinations by authorities for years prior to 2014. With few exceptions, the Company is no longer subject to state and local or non-U.S. income tax examinations by authorities for years prior to 2012.

The Company has a liability for unrecognized tax benefits of \$238 and \$603 (excluding accrued interest and penalties) as of December 31, 2016 and 2015, respectively. The Company recognizes interest and penalties accrued related to unrecognized tax benefits in tax expense. The Company recognized tax benefits of \$16 and \$123 in 2016 and 2015, respectively, for penalties and interest related to amounts that were settled for less than previously accrued. The net total amount of unrecognized tax benefits that, if recognized, would affect the Company's effective tax rate is \$238 and \$618 at December 31, 2016 and 2015, respectively. The Company does not expect a significant increase or decrease to the total amount of unrecognized tax benefits within the next twelve months.

A reconciliation of the beginning and ending unrecognized tax benefits excluding interest and penalties is as follows:

	Year Ended December 31		
	2016	2015	2014
Balance, beginning of year	\$ 603	\$ 2,585	\$ 1,933
Additions for tax positions related to the current year	73	206	127
Additions for tax positions related to prior years	162	549	525
Reductions due to lapse of statutes of limitations	(16)	(162)	--
Decreases related to settlements with tax authorities	(584)	(2,575)	--
Balance, end of year	\$ 238	\$ 603	\$ 2,585

The December 31, 2016 balance of unrecognized tax benefits includes no tax positions for which the ultimate deductibility is highly certain but the timing of such deductibility is uncertain. Accordingly, there is no impact to the deferred tax accounting for certain tax benefits.

15. Contingent Matters

Certain customers have financed purchases of Company products through arrangements in which the Company is contingently liable for customer debt of \$6,516 at December 31, 2016. These arrangements expire at various dates through December 2020 and provide that the Company will receive the lender's full security interest in the equipment financed if the Company is required to fulfill its contingent liability under these arrangements. The Company has recorded a liability of \$332 related to these guarantees as of December 31, 2016.

In addition, the Company is contingently liable under letters of credit issued by Wells Fargo totaling \$8,876 as of December 31, 2016, including \$6,200 of letters of credit guaranteeing certain Astec Brazil bank debt. The outstanding letters of credit expire at various dates through October 2020. As of December 31, 2016, Osborn is contingently liable for a total of \$904 in retention guarantees. As of December 31, 2016, Telestack is contingently liable for a total of \$197 in performance bond, advance payment and performance guarantees. The maximum potential amount of future payments under these letters of credit and guarantees for which the Company could be liable is \$9,977 as of December 31, 2016.

The Company is currently a party to various claims and legal proceedings that have arisen in the ordinary course of business. If management believes that a loss arising from such claims and legal proceedings is probable and can reasonably be estimated, the Company records the amount of the loss (excluding estimated legal fees) or the minimum estimated liability when the loss is estimated using a range and no point within the range is more probable than another. As management becomes aware of additional information concerning such contingencies, any potential liability related to these matters is assessed and the estimates are revised, if necessary. If management believes that a loss arising from such claims and legal proceedings is either (i) probable but cannot be reasonably estimated or (ii) reasonably possible but not probable, the Company does not record the amount of the loss, but does make specific disclosure of such matter. Based upon currently available information and with the advice of counsel, management believes that the ultimate outcome of its current claims and legal proceedings, individually and in the aggregate, will not have a material adverse effect on the Company's financial position, cash flows or results of operations. However, claims and legal proceedings are subject to inherent uncertainties and rulings unfavorable to the Company could occur. If an unfavorable ruling were to occur, there exists the possibility of a material adverse effect on the Company's financial position, cash flows or results of operations.

During 2004, the Company received notice from the Environmental Protection Agency ("EPA") that it may be responsible for a portion of the costs incurred in connection with an environmental cleanup in Illinois. The discharge of hazardous materials and associated cleanup relate to activities occurring prior to the Company's acquisition of Barber-Greene in 1986. The Company believes that over 300 other parties have received similar notices. At this time, the Company cannot predict whether the EPA will seek to hold the Company liable for a portion of the cleanup costs or the amount of any such liability. The Company has not recorded a liability with respect to this matter because no estimate of the amount of any such liability can be made at this time.

16. Shareholders' Equity

The Company rewards key members of management with restricted stock units ("RSUs") each year based upon the financial performance of the Company and its subsidiaries. Under the terms of the Company's shareholder approved 2011 Incentive Plan, up to 700 shares of newly issued common stock is available for awards. Awards granted in 2016 and prior vest at the end of five years from the date of grant, or at the time a recipient retires after reaching age 65, if earlier, while awards to be granted after 2016 are scheduled to have a three-year vesting period. The fair value of the RSUs vesting during 2016, 2015 and 2014 was \$3,289, \$2,785 and \$3,045, respectively. The grant date tax benefit was increased by \$220, \$336 and \$470, respectively, upon the vesting of RSUs in 2016, 2015 and 2014.

Compensation expense of \$2,426, \$1,019 and \$961 was recorded in the years ended December 31, 2016, 2015 and 2014, respectively, to reflect the fair value of RSUs granted (or anticipated to be granted for 2016 performance) amortized over the portion of the vesting period occurring during the period. Related income tax benefits of \$934, \$362 and \$348 were recorded in 2016, 2015 and 2014, respectively. Based upon the grant date fair value of RSUs, it is anticipated that \$4,712 of additional compensation costs will be recognized in future periods through 2021 for RSUs earned through December 31, 2016. The weighted average period over which this additional compensation cost will be expensed is 3.2 years. RSUs do not participate in Company-paid dividends.

Changes in restricted stock units during the year ended December 31, 2016 are as follows:

	2016	Weighted Average Grant Date Fair Value
Unvested restricted stock units, beginning of year	147	\$ 36.83
Units granted	44	44.52
Units forfeited	(1)	39.10
Units vested	(78)	34.42
Unvested restricted stock units, end of year	<u>112</u>	<u>41.48</u>

The grant date fair value of the restricted stock units granted during 2016, 2015 and 2014 was \$1,946, \$937 and \$561, respectively.

17. Operations by Industry Segment and Geographic Area

The Company has three reportable segments, each of which is comprised of multiple business units that offer similar products and services and meet the requirements for aggregation. A brief description of each segment is as follows:

Infrastructure Group - This segment consists of five business units, three of which design, engineer, manufacture and market a complete line of portable, stationary and relocatable hot-mix asphalt plants, wood pellet plants, asphalt pavers, material transfer vehicles, stabilizers, milling machines, paver screeds and related ancillary equipment. The other two business units in this segment primarily operate as Company-owned dealers in the foreign countries in which they are domiciled. These two business units sell, service and install products produced by the manufacturing subsidiaries of the Company, and a majority of their sales are to customers in the infrastructure industry. The principal purchasers of the products produced by this group are asphalt producers, highway and heavy equipment contractors, wood pellet processors and foreign and domestic governmental agencies. During 2016, the Infrastructure Group had sales to one pellet plant customer totaling \$135,187, or 11.8% of total Company sales. Portions of the equipment sold to this customer were manufactured by each of the Company's segments.

Aggregate and Mining Group - This segment consists of eight business units that design, engineer, manufacture and market a complete line of jaw crushers, cone crushers, horizontal shaft impactors, vertical shaft impactors, material handling, roll rock crushers and stationary rockbreaker systems, vibrating feeders and high frequency vibrating screens, conveyors, inclined, vertical and horizontal screens and sand classifying and washing equipment. The principal purchasers of products produced by this group are distributors, open mine operators, quarry operators, port and inland terminal operators, highway and heavy equipment contractors and foreign and domestic governmental agencies. This group includes the operations of Telestack Limited, which was acquired in April 2014.

Energy Group - This segment consists of five business units that design, engineer, manufacture and market a complete line of drilling rigs for the oil and gas, geothermal and water well industries, high pressure diesel pump trailers for fracking and cleaning oil and gas wells, commercial and industrial burners, combustion control systems, a variety of industrial heaters to fit a broad range of applications including heating equipment for refineries, roofing material plants, chemical processing, rubber plants, oil sands and energy related processing, heat transfer processing equipment, thermal fluid storage tanks, waste heat recovery equipment, whole-tree pulpwood and biomass chippers and horizontal grinders. The principal purchasers of products produced by this group are oil, gas and water well drilling industry contractors, processors of oil, gas and biomass for energy production and contractors in the construction and demolition recycling markets. This group includes the operations of Power Flame Incorporated, which was acquired in August 2016.

Corporate - This category consists of business units that do not meet the requirements for separate disclosure as an operating segment or inclusion in one of the other reporting segments and includes the Company's parent company, Astec Industries, Inc., and Astec Insurance. The Company evaluates performance and allocates resources to its operating segments based on profit or loss from operations before U.S. federal income taxes and corporate overhead and thus these costs are included in the Corporate category.

The accounting policies of the reportable segments are the same as those described in the summary of significant accounting policies. Intersegment sales and transfers are valued at prices comparable to those for unrelated parties.

Segment information for 2016

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Revenues from external customers	\$ 608,908	\$ 359,760	\$ 178,763	\$ --	\$ 1,147,431
Intersegment revenues	16,957	35,031	24,946	--	76,934
Interest expense	31	948	4	412	1,395
Depreciation and amortization	7,205	10,033	6,655	920	24,813
Income taxes	3,033	664	437	27,973	32,107
Profit (loss)	71,482	34,877	4,145	(55,992)	54,512
Assets	657,225	518,351	271,121	417,351	1,864,048
Capital expenditures	14,451	7,437	5,018	178	27,084

Segment information for 2015

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Revenues from external customers	\$ 428,737	\$ 370,813	\$ 183,607	\$ --	\$ 983,157
Intersegment revenues	22,947	28,701	16,010	--	67,658
Interest expense	258	1,005	10	338	1,611
Depreciation and amortization	6,907	10,719	5,553	899	24,078
Income taxes	1,224	764	(129)	18,148	20,007
Profit (loss)	33,890	30,690	3,609	(36,623)	31,566
Assets	567,936	496,089	256,978	306,511	1,627,514
Capital expenditures	8,043	8,807	4,049	389	21,288

Segment information for 2014

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Revenues from external customers	\$ 386,356	\$ 384,883	\$ 204,356	\$ --	\$ 975,595
Intersegment revenues	26,661	33,009	17,548	--	77,218
Interest expense	31	463	11	215	720
Depreciation and amortization	7,045	10,120	6,358	853	24,376
Income taxes	1,365	1,235	348	16,452	19,400
Profit (loss)	29,477	32,900	10,316	(35,270)	37,423
Assets	539,794	494,428	244,003	302,082	1,580,307
Capital expenditures	5,375	16,169	2,875	413	24,832

The totals of segment information for all reportable segments reconciles to consolidated totals as follows:

	2016	2015	2014
Net income attributable to controlling interest			
Total profit for reportable segments	\$ 110,504	\$ 68,189	\$ 72,693
Corporate expenses, net	(55,992)	(36,623)	(35,270)
Net loss attributable to non-controlling interest	171	831	252
Recapture (elimination) of intersegment profit	476	400	(3,217)
Total consolidated net income attributable to controlling interest	<u>\$ 55,159</u>	<u>\$ 32,797</u>	<u>\$ 34,458</u>
Assets			
Total assets for reportable segments	\$ 1,446,697	\$ 1,321,003	\$ 1,278,225
Corporate assets	417,351	306,511	302,082
Elimination of intercompany profit in inventory	(7,020)	(7,496)	(7,896)
Elimination of intercompany receivables	(688,369)	(583,834)	(515,625)
Elimination of investment in subsidiaries	(272,766)	(223,500)	(227,051)
Other eliminations	(52,292)	(35,331)	(27,470)
Total consolidated assets	<u>\$ 843,601</u>	<u>\$ 777,353</u>	<u>\$ 802,265</u>

Sales into major geographic regions were as follows:

	Year Ended December 31		
	2016	2015	2014
United States	\$ 941,273	\$ 722,287	\$ 654,230
Canada	37,539	54,321	61,898
Africa	31,557	45,671	47,940
Australia and Oceania	29,948	29,995	34,772
South America (excluding Brazil)	28,204	32,454	49,797
Other European Countries	19,198	23,867	12,365
Mexico	13,489	6,990	9,993
Japan and Korea	10,825	3,574	4,377
Other Asian Countries	6,926	9,513	17,018
Central America (excluding Mexico)	5,904	4,404	9,275
China	4,595	1,330	7,451
Brazil	4,300	8,376	12,869
Middle East	3,403	18,995	13,327
Post-Soviet States (excluding Russia)	3,293	8,345	8,245
Russia	3,185	8,466	25,589
West Indies	2,994	1,532	4,478
India	318	2,706	1,743
Other	480	331	228
Total foreign	206,158	260,870	321,365
Total consolidated sales	\$ 1,147,431	\$ 983,157	\$ 975,595

Long-lived assets by major geographic region are as follows:

	December 31	
	2016	2015
United States	\$ 151,470	\$ 141,727
Brazil	11,288	9,780
South Africa	5,372	5,116
Northern Ireland	4,279	5,116
Australia	4,234	4,351
Canada	2,860	2,987
Germany	1,035	1,129
Total foreign	29,068	28,479
Total	\$ 180,538	\$ 170,206

18. Accumulated Other Comprehensive Loss

The balance of related after-tax components comprising accumulated other comprehensive loss is summarized below:

	December 31	
	2016	2015
Foreign currency translation adjustment	\$ (27,839)	\$ (19,891)
Unrecognized pension and post-retirement benefit cost, net of tax of \$2,261 and \$2,232, respectively	(3,723)	(3,673)
Accumulated other comprehensive loss	\$ (31,562)	\$ (23,564)

See Note 12, Pension and Retirement Plans, for discussion of the amounts recognized in accumulated other comprehensive income related to the Company's Kolberg-Pioneer, Inc. defined pension plan.

19. Other Income (Expense) - Net

Other income (expense), net consists of the following:

	Year Ended December 31		
	2016	2015	2014
Investment income (loss)	\$ (276)	\$ (381)	\$ 64
Licensing fees	546	641	831
Income from life insurance policies	--	1,204	--
Other	259	1,591	312
Total	\$ 529	\$ 3,055	\$ 1,207

20. Business Combinations

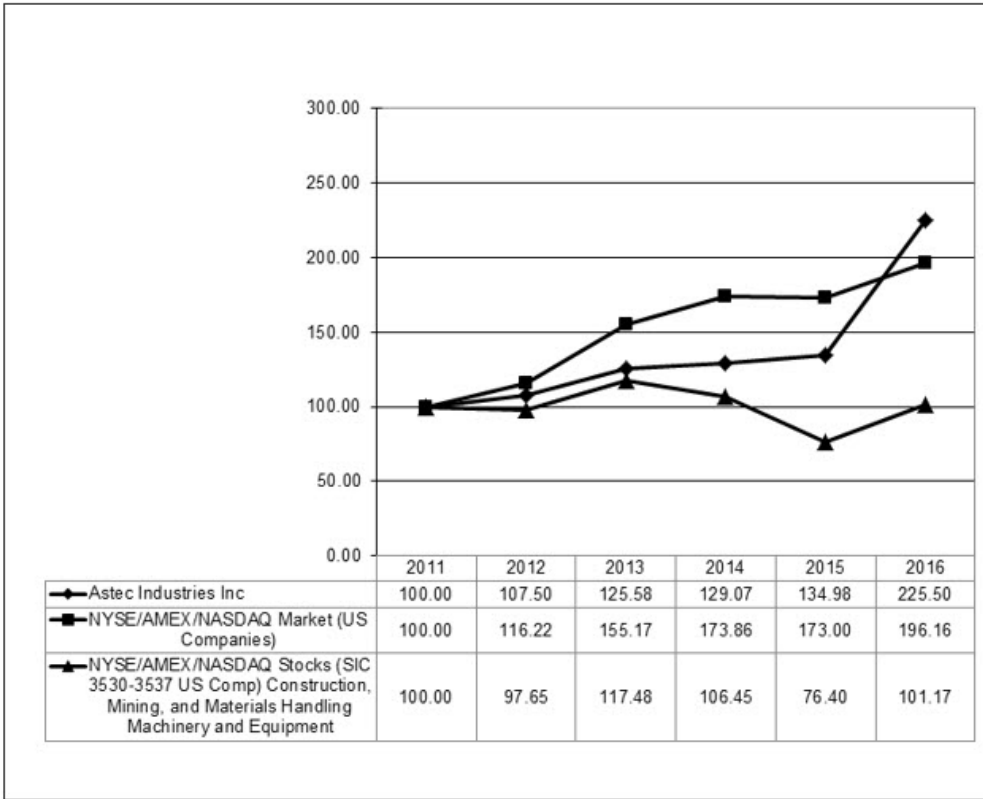
In August 2016, the Company acquired substantially all of the assets and certain liabilities of Power Flame Incorporated ("PFI") for a total purchase price of \$39,765. The purchase price was paid in cash with \$4,000 deposited into escrow for a period of time not to exceed two years pending final resolution of certain post-closing adjustments and any indemnification claims. The Company's allocation of the purchase price resulted in the recognition of \$12,632 of goodwill and \$17,990 of other intangible assets consisting of technology (19 year useful life), trade names (15 year useful life) and customer relationships (18 year useful life). The revenues and results of operations of PFI were not significant in relation to the Company's financial statements for the period ended December 31, 2016 and would not have been material on a proforma basis to any earlier period. PFI's operating results are included in the Energy Group beginning in the third quarter of 2016.

PFI, located in Parsons, Kansas, began operations in 1948 and manufactures and sells gas, oil and combination gas/oil and low NOx burners with outputs ranging from 400 thousand BTU's per hour to 120 million BTU's per hour as well as combustion control systems designed for commercial, industrial and process heating applications.

On April 1, 2014, the Company purchased 100% of the stock of Telestack Limited ("Telestack") for a total purchase price of \$36,183. The purchase price was paid in cash with \$2,500 deposited into escrow for a period of time not to exceed one year and was subject to certain post-closing adjustments. The post-closing adjustments were finalized during the first quarter of 2015 resulting in a decrease in the purchase price of \$178. The adjusted purchase price allocation includes the recognition of \$18,078 of goodwill and \$14,445 of other intangible assets based on the exchange rate as of the acquisition date, consisting of trade names (15 year useful life), patents (5 to 10 year useful lives), non-compete agreements (3 year useful life) and customer relationships (11 year useful life). Telestack's operating results are included in the Aggregate and Mining Group beginning in the second quarter of 2014.

Telestack, located in Omagh, Northern Ireland, began operations in 1999 and specializes in the complete in-house design, manufacture, installation and commissioning of a complete line of material handling systems used extensively in the port, aggregate and mining industries. Telestack markets its products throughout the world by a combination of direct sales and distribution through dealers.

**Comparison of 5 Year Cumulative Total Return
Assumes Initial Investment of \$100 Performance Graph
for Astec Industries, Inc.**



- Notes:**
- A. Data complete through last fiscal year.
 - B. Corporate Performance Graph with peer group uses peer group only performance (excludes only company).
 - C. Peer group indices use beginning of period market capitalization weighting
 - D. Prepared by Zacks Investment Research, Inc. Used with permission. All rights reserved Copyright 1980-2017.
 - E. Calculated (or Derived) based from CRSP NYSE/AMEX/NASDAQ Market (US Companies), Center for Research in Security Prices (CRSP®), Graduate School of Business, The University of Chicago. Copyright 2016. Used with permission. All rights reserved.
 - F. The graph assumes \$100 invested at the closing price of the Company's common stock on December 31, 2011 and assumes that all dividends were invested on the date paid.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, Astec Industries, Inc. has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ASTEC INDUSTRIES, INC.
(Registrant)

BY: /s/ Benjamin J. Brock
Benjamin J. Brock, Chief Executive
Officer and Director

Date: March 1, 2017

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated:

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
<u>/s/ Benjamin G. Brock</u> Benjamin G. Brock	Chief Executive Officer and President (Principal Executive Officer) and Director	March 1, 2017
<u>/s/ David C. Silvius</u> David C. Silvius	Chief Financial Officer, Vice President and Treasurer (Principal Financial and Accounting Officer)	March 1, 2017
<u>/s/ W. Norman Smith</u> W. Norman Smith	Director	February 23, 2017
<u>/s/ William B. Sansom</u> William B. Sansom	Director	February 23, 2017
<u>/s/ Charles F. Potts</u> Charles F. Potts	Director	February 23, 2017
<u>/s/ Glen E. Tellock</u> Glen E. Tellock	Director	February 23, 2017
<u>/s/ William D. Gehl</u> William D. Gehl	Director	February 23, 2017
<u>/s/ Daniel K. Frierson</u> Daniel K. Frierson	Director	February 23, 2017
<u>/s/ William G. Dorey</u> William G. Dorey	Director	February 23, 2017
<u>/s/ James B. Baker</u> James B. Baker	Director	February 23, 2017

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

EXHIBITS FILED WITH ANNUAL REPORT
ON FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2016

ASTEC INDUSTRIES, INC.
1725 Shepherd Road
Chattanooga, Tennessee 37421

ASTEC INDUSTRIES, INC.
FORM 10-K
INDEX TO EXHIBITS

Exhibit Number	Description
10.19	Astec Industries, Inc. Amended and Restated Non-Employee Directors Compensation Plan, original effective April 23, 1998 with amended and restated provisions effective April 29, 2016.
Exhibit 21	Subsidiaries of the Registrant.
Exhibit 23.1	Consent of Independent Registered Public Accounting Firm.
Exhibit 23.2	Consent of Independent Registered Public Accounting Firm.
Exhibit 31.1	Certification pursuant to Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
Exhibit 31.2	Certification pursuant to Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
Exhibit 32	Certification pursuant to Rule 13a-14(b)/15d-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase

ASTEC INDUSTRIES, INC.
AMENDED AND RESTATED
NON-EMPLOYEE DIRECTORS COMPENSATION PLAN

1. Purpose. The purpose of the Astec Industries, Inc. Amended and Restated Non-Employee Directors Stock Incentive Plan is to attract, retain and compensate highly-qualified individuals who are not employees of Astec Industries, Inc. or any of its subsidiaries or affiliates for service as members of the Board by providing them with competitive compensation and an equity interest in the Company. The Company intends that the Plan will benefit the Company and its shareholders by allowing Non-Employee Directors to have a personal financial stake in the Company through an ownership interest in the Common Stock and will closely associate the interests of Non-Employee Directors with that of the Company's shareholders.

2. Defined Terms. Unless the context clearly indicates otherwise, the following terms shall have the following meanings:

"Annual Retainer" means the regular annual retainer payable by the Company to a Participant for service as a director of the Company pursuant to Section 6 of the Plan, as such amount may be changed from time to time. Annual Retainers shall be paid in cash, unless a Participant elects instead to receive shares of Common Stock or deferred shares of Common pursuant to Article 6 hereof in payment of his or her Annual Retainer.

"Annual Stock Award" has the meaning set forth in Section 8(a) of the Plan.

"Board" means the Board of Directors of the Company.

"Company" means Astec Industries, Inc., a Tennessee corporation.

"Committee" has the meaning assigned such term in Section 3 of the Plan.

"Common Stock" means the common stock, par value \$0.20 per share, of the Company.

"Deferral Termination Date" has the meaning set forth in Section 6(b) of the Plan.

"Effective Date" means April 23, 1998, the date the Plan originally became effective. The Plan was subsequently amended as of March 15, 2005, February 21, 2006, October 23, 2008, and was amended and restated effective as of April 29, 2016.

"Election Form" means a form approved by the Committee pursuant to which a Non-Employee Director elects (i) a method of payment of Annual Retainer and whether payment will be deferred, and (ii) the timing of the conversion of Annual Stock Awards to Shares, in each case as provided herein.

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Fair Market Value," on any date, means (i) if the Common Stock is listed on a securities exchange or is traded over the Nasdaq National Market, the closing sales price on such exchange or over such system on such date or, in the absence of reported sales on such date, the closing sales price on the immediately preceding date on which sales were reported, or (ii) if the Common Stock is not listed on a securities exchange or traded over the Nasdaq National Market, the mean between the bid and offered prices as quoted by Nasdaq for such date, provided that if it is determined that the fair market value is not properly reflected by such Nasdaq quotations, Fair Market Value will be determined by such other method as the Committee determines in good faith to be reasonable.

"Grant Date" has the meaning set forth in Section 8(a) of the Plan.

"Incentive Plan" means the Astec Industries, Inc. 2011 Incentive Plan, and any subsequent equity compensation plan approved by the shareholders and designated by the Board as the Incentive Plan for purposes of this Plan.

"Lead Director" means a Non-Employee Director who has been designated by the Board as the Lead Director. The Lead Director shall have such duties as shall be assigned to him or her by the Board.

"Non-Employee Director" means a director of the Company who is not an employee of the Company or of any of its subsidiaries or affiliates.

"Non-Executive Chairman" means a Non-Employee Director who has been designated by the Board to serve as the Chairman of the Board.

"Participant" means any Non-Employee Director who is participating in the Plan.

"Payment Date" has the meaning set forth in Section 6(a) of the Plan.

"Plan" means this Astec Industries, Inc. Amended and Restated Non-Employee Directors Compensation Plan, as amended from time to time.

"Plan Year" means the approximate twelve-month periods between annual meetings of the shareholders of the Company, which for purposes of the Plan, is the period for which Annual Retainers and Supplemental Retainers are earned.

"Rule 16b-3" means Rule 16b-3, as amended from time to time, of the Securities and Exchange Commission as promulgated under the Exchange Act.

"RSU Deferral Termination Date" has the meaning set forth in Section 8(b) of the Plan.

"Securities Act" means the Securities Act of 1933, as amended.

"Shares" means shares of Common Stock.

"Supplemental Annual Retainer" means a supplemental annual retainer payable by the Company to a Participant pursuant to Section 7 hereof for service as the Non-Executive Chairman, Lead Director, or chair or member of a committee of the Board, as such amount may be changed from time to time.

3. Administration. The Plan shall be administered by the Compensation Committee of the Board of Directors (the "Committee"). Subject to the provisions of the Plan, the Committee shall be authorized to interpret the Plan, to establish, amend and rescind any rules and regulations relating to the Plan, and to make all other determinations necessary or advisable for the administration of the Plan; provided, however, that the Committee shall have no discretion with respect to the eligibility or selection of Non-Employee Directors to receive awards under the Plan, the number of Shares subject to any such awards or the time at which any such awards are to be granted. The Committee's interpretation of the Plan, and all actions taken and determinations made by the Committee pursuant to the powers vested in it hereunder, shall be conclusive and binding upon all parties concerned including the Company, its shareholders and persons granted awards under the Plan. The Committee may appoint a plan administrator to carry out the ministerial functions of the Plan, but the administrator shall have no other authority or powers of the Committee. Notwithstanding the foregoing, the Board shall exercise any and all rights, duties and powers of the Committee under the Plan to the extent required by the applicable exemptive conditions of Rule 16b-3, as determined by the Board its sole discretion.

4. Shares Subject to Plan.

(a) Shares Issued in Payment of Annual Retainer. From and after the Effective Date, subject to adjustment as provided in Section 9, the aggregate number of Shares reserved and available for issuance pursuant to awards granted in payment of Annual Retainers pursuant to Section 6 hereof (including deferred rights to receive Shares in the future) shall not exceed in the aggregate 200,000 Shares of Common Stock, which Shares may be authorized and unissued Shares or treasury Shares.

(b) Annual Stock Awards. Annual Stock Awards granted pursuant to Section 8 hereof shall be issued under the Incentive Plan, subject to all of the terms and conditions of the Incentive Plan. The terms contained in the Incentive Plan are incorporated into and made a part of this Plan with respect to Annual Stock Awards granted pursuant hereto, and such awards shall be governed by and construed in accordance with the Incentive Plan. In the event of any actual or alleged conflict between the provisions of the Incentive Plan and the provisions of this Plan with respect to Annual Stock Awards, the provisions of the Incentive Plan shall be controlling and determinative. This Plan does not constitute a separate source of shares for the grant of Annual Stock Awards.

5. Participants. All active Non-Employee Directors shall be eligible to participate in the Plan.

6. Annual Retainer.

(a) Payment of Annual Retainer. Each Participant shall be paid an Annual Retainer for service as a director during each Plan Year. The amount and form of payment of the Annual Retainer shall be established from time to time by the Committee. Until changed by the Committee, the Annual Retainer shall be \$50,000 per year, payable in cash; provided, however, that Participants may elect, pursuant to an irrevocable Election Form delivered to the Committee or the plan administrator prior to December 31 of the calendar year immediately preceding the applicable Plan Year, to receive the Annual Retainer for the applicable Plan Year wholly in Shares. Unless and until changed by the Committee, the Annual Retainer shall be paid in four quarterly installments on the following dates during each Plan Year for service during the preceding three months (each, a "Payment Date"): July 31, October 31, January 31, and the day following the annual shareholders meeting that coincides with the end of the applicable Plan Year. The number of Shares, if any, to be granted to a Participant on each Payment Date shall be determined by dividing \$12,500 by the Fair Market Value of one share of Common Stock as of the last business day preceding the Payment Date, and rounding up to the nearest whole Share. The Annual Retainer shall be payable beginning with the first quarter in which a Participant is a Non-Employee Director, and shall be paid on a pro rata basis for any partial quarter of service to reflect the actual number of days served in the quarter.

(b) Election to Defer Annual Retainer. A Participant who elects to receive Shares of Common Stock in payment of his or her Annual Retainer for a Plan Year may elect, pursuant to an irrevocable Election Form delivered to the Committee or the plan administrator on or prior to December 31 of the calendar year immediately preceding the applicable Plan Year, to defer the grant of such Shares until the earlier of (i) the Participant's termination of service as a director of the Company, or (ii) another designated date at least three years after the date of such deferral election (in either case, the "Deferral Termination Date"). Pursuant to this Election Form, the Participant will elect whether all of the deferred grant will be (a) granted within 30 days after the Deferral Termination Date or (b) granted in approximately equal annual installments of Shares over a period of two to ten years (as the Participant may elect) after the Deferral Termination Date, each such annual grant to be made within 30 days after the anniversary of the Deferral Termination Date. The Participant will have no rights as a shareholder with respect to the deferred Shares, and the rights to such Shares will be unsecured.

If any dividends or other distributions are paid with respect to the Common Stock while the deferred Shares are outstanding, the dollar amount or fair market value of such dividends or distributions with respect to the number of Shares then deferred shall be converted into additional deferred Shares and credited to the Participant's account, based on the Fair Market Value of the Common Stock as of the date such dividends or distributions were payable, and such additional deferred Shares shall be subject to the same deferral terms as apply to the deferred Shares with respect to which they relate.

7. Supplemental Annual Retainer. Any Participant who serves as the Non-Executive Chairman or as the Lead Director shall be paid a Supplemental Annual Retainer, payable in cash, as set forth below. In addition, any Participant who serves as the chair of a committee of the Board (other than the Executive Committee) or who serves as a member of a committee of the Board (other than the Executive Committee) shall be paid a Supplemental Annual Retainer, payable in cash, as set forth below (for avoidance of doubt, the chair of a committee will not receive a Supplemental Annual Retainer for serving as a member of the committee). Such Supplemental Annual Retainer shall be paid on or as soon as practicable after the day following each annual shareholders meeting (and in any event no later than 30 days following the applicable annual shareholders meeting) in arrears for service during the immediately preceding Plan Year (and shall be paid on a pro rata basis for any partial year of service to reflect the actual number of days served during the Plan Year). The amount of the Supplemental Retainer shall be established from time to time by the Committee. Until changed by the Committee, the Supplemental Retainer for a full Plan Year shall be as follows:

Service Description	Amount
Non-Executive Chairman	\$ 30,000
Lead Director	\$ 15,000
Audit Committee Chair	\$ 15,000
Compensation Committee Chair	\$ 10,000
Nominating and Governance Committee Chair	\$ 10,000
Audit Committee member	\$ 7,500
Compensation Committee member	\$ 5,000
Nominating and Governance Committee member	\$ 5,000

8. Annual Stock Award.

(a) Grant and Vesting of Annual Stock Award. Subject to share availability under the Incentive Plan, on the day following each annual shareholders meeting (the "Grant Date"), each Participant then in service as a Non-Employee Director (including any Participant who was elected to the Board at such annual shareholders meeting) will be granted an award of restricted stock units ("RSUs") under the Incentive Plan ("Annual Stock Award"). The Annual Stock Award shall consist of a number of RSUs determined by dividing \$65,000 by the Fair Market Value of one share of Common Stock as of the date of the annual shareholders meeting, and rounding up to the nearest whole Share. The Annual Stock Award shall vest and convert to Shares on the day preceding the date of the next annual shareholders meeting following the Grant Date, subject to the Participant's continued service on the Board. The RSUs will have no rights to dividends or distributions prior to their conversion to Shares. Notwithstanding the foregoing, the Grant Date for the Annual Stock Awards to be granted in 2016 shall be June 6, 2016.

(b) Election to Defer Conversion of Annual Stock Award. A Participant may elect, pursuant to an irrevocable Election Form delivered to the Committee or the plan administrator on or prior to December 31 of the calendar year immediately preceding the Grant Date of an Annual Stock Award, to defer the conversion of the RSUs to Shares until the earlier of (i) the Participant's termination of service as a director of the Company, or (ii) another designated date at least three years after the date of such deferral election (in either case, the "RSU Deferral Termination Date"). Pursuant to this Election Form, the Participant will elect whether all of the RSUs will be (a) converted to Shares within 30 days after the RSU Deferral Termination Date or (b) converted to Shares in approximately equal annual installments over a period of two to ten years (as the Participant may elect) after the RSU Deferral Termination Date, each such annual grant to be made within 30 days after the anniversary of the RSU Deferral Termination Date.

9. Adjustments.

(a) Subject to Section 9(c) but notwithstanding any other term of this Plan, in the event of a nonreciprocal transaction between the Company and its shareholders that causes the per-share value of the Common Stock to change (including, without limitation, any stock dividend, stock split, spin-off, rights offering, or large nonrecurring cash dividend), the share authorization limit under Section 4 shall be adjusted proportionately, and the Committee shall make such adjustments to the Plan and awards granted hereunder as it deems necessary, in its sole discretion, to prevent dilution or enlargement of rights immediately resulting from such transaction. Action by the Committee may include: (i) adjustment of the number and kind of shares that may be delivered under the Plan; (ii) adjustment of the number and kind of shares subject to outstanding awards granted hereunder; and (iii) any other adjustments that the Committee determines to be equitable.

(b) Subject to Section 9(c) but notwithstanding any other term of this Plan, in the event of any corporate transaction or event described in paragraph (a) which results in Shares being exchanged for or converted into cash, securities or other property (including securities of another corporation), all stock grants deferred under Section 6 shall become the right to receive such cash, securities or other property.

(c) The number of Shares finally granted under this Plan shall always be rounded to the next highest whole Share.

(d) Any decision of the Committee pursuant to the terms of this Section 9 shall be final, binding and conclusive upon the Participants, the Company and all other interested parties; provided, however, that to the extent required by the applicable exemptive conditions of Rule 16b-3, any such decision shall be subject to approval by the Board.

10. Internal Revenue Code Section 409A.

(a) It is intended that the payments and benefits provided under the Plan shall either be exempt from the application of, or comply with, the requirements of Section 409A of the Internal Revenue Code. The Plan shall be construed in a manner that effects such intent. Nevertheless, the tax treatment of the benefits provided under the Plan is not warranted or guaranteed. Neither the Company, its affiliates nor their respective directors, officers, employees or advisers shall be held liable for any taxes, interest, penalties or other monetary amounts owed by any Participant or other taxpayer as a result of the Plan.

(b) Notwithstanding anything in the Plan to the contrary, to the extent that any amount or benefit that would constitute non-exempt "deferred compensation" for purposes of Section 409A of the Internal Revenue Code would otherwise be payable or distributable, or a different form of payment (e.g., lump sum or installment) would be effected, under the Plan by reason of the occurrence the Participant's termination of service as a director, such amount or benefit will not be payable or distributable to the Participant, and/or such different form of payment will not be effected, by reason of such circumstance unless the circumstances giving rise to such termination of service meet any description or definition of "separation from service" in Section 409A of the Internal Revenue Code and applicable regulations (without giving effect to any elective provisions that may be available under such definition). If this provision prevents the payment or distribution of any amount or benefit, such payment or distribution shall be made on the next earliest payment or distribution date or event specified that is permissible under Section 409A of the Internal Revenue Code. If this provision prevents the application of a different form of payment of any amount or benefit, such payment shall be made in the same form as would have applied absent such designated event or circumstance.

11. Amendment. The Committee may terminate or suspend the Plan at any time, without shareholder approval. The Committee may amend the Plan at any time and for any reason without shareholder approval; provided, however, that the Committee may condition any amendment on the approval of shareholders of the Company if such approval is necessary or deemed advisable with respect to tax, securities or other applicable laws, policies or regulations. No termination, modification or amendment of the Plan may, without the consent of a Participant, adversely affect a Participant's rights under an award granted prior thereto.

12. Indemnification. Each person who is or has been a member of the Committee or who otherwise participates in the administration or operation of this Plan shall be indemnified by the Company against, and held harmless from, any loss, cost, liability or expense that may be imposed upon or incurred by him or her in connection with or resulting from any claim, action, suit or proceeding in which such person may be involved by reason of any action taken or failure to act under the Plan and shall be fully reimbursed by the Company for any and all amounts paid by such person in satisfaction of judgment against him or her in any such action, suit or proceeding, provided he or she will give the Company an opportunity, by written notice to the Committee, to defend the same at the Company's own expense before he or she undertakes to defend it on his or her own behalf. This right of indemnification shall not be exclusive of any other rights of indemnification.

The Committee and the Board may rely upon any information furnished by the Company, its public accountants and other experts. No individual will have personal liability by reason of anything done or omitted to be done by the Company, the Committee or the Board in connection with the Plan.

13. Duration of the Plan. The Plan shall remain in effect until terminated by the Committee.

14. Expenses of the Plan. The expenses of administering the Plan shall be borne by the Company.

ASTECH INDUSTRIES, INC.

By: /s/ Stephen C. Anderson

Its: Secretary

**LIST OF
SUBSIDIARIES**

Name	Percentage Owned	Jurisdiction of Incorporation
Astec Australia Pty Ltd	100	Australia
Astec do Brasil Fabricacao de Equipamentos Ltda.	92	Brazil
Astec, Inc.	100	Tennessee
Astec Insurance Company	100	Vermont
Astec Mobile Machinery GmbH	100	Germany
Astec Mobile Screens, Inc.	100	Nevada
Breaker Technology, Inc.	100	Tennessee
Breaker Technology Ltd	100	Ontario, Canada
Carlson Paving Products, Inc.	100	Washington
CEI Enterprises, Inc.	100	Tennessee
GEFCO, Inc.	100	Tennessee
Heatec, Inc.	100	Tennessee
Johnson Crushers International, Inc.	100	Tennessee
Kolberg-Pioneer, Inc.	100	Tennessee
Osborn Engineered Products SA (Pty) Ltd	99	South Africa
Peterson Pacific Corp.	100	Oregon
Power Flame Incorporated	100	Kansas
Roadtec, Inc.	100	Tennessee
Telestack, Limited	100	Northern Ireland
Telsmith, Inc.	100	Delaware

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Astec Industries, Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-123266, 333-124420, 033-61461, 333-133013, 333-134398, and 333-176177) on Form S-8 of Astec Industries, Inc. of our reports dated March 1, 2017, with respect to the consolidated balance sheets of Astec Industries, Inc. and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income, equity, and cash flows for each of the years in the two-year period ended December 31, 2016, and the effectiveness of internal control over financial reporting as of December 31, 2016, which excluded an evaluation of the internal control over financial reporting of Power Flame Incorporated, which reports appear in the December 31, 2016 annual report on Form 10-K of Astec Industries, Inc.

/s/ KPMG LLP

Knoxville, Tennessee
March 1, 2017

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statement (Form S-8 No. 333-123266) pertaining to the Astec Industries, Inc. 1998 Long-Term Incentive Plan, Astec Industries, Inc. 1998 Non-Employee Directors Stock Incentive Plan, and Astec Industries, Inc. Executive Officer Annual Bonus Equity Election Plan;
- (2) Registration Statement (Form S-8 No. 333-124420) pertaining to the Astec Industries, Inc. 1998 Non-Employee Directors Stock Incentive Plan;
- (3) Registration Statement (Form S-8 Nos. 033-61461 and 333-133013) pertaining to the Astec Industries, Inc. 401(k) Retirement Plan;
- (4) Registration Statement (Form S-8 No. 333-134398) pertaining to the Astec Industries, Inc. 2006 Incentive Plan; and
- (5) Registration Statement (Form S-8 No. 333-176177) pertaining to the Astec Industries, Inc. 2011 Incentive Plan;

of our report dated March 2, 2015, with respect to the consolidated financial statements of Astec Industries, Inc. included in this Annual Report on Form 10-K for the year ended December 31, 2016.

/s/ Ernst & Young LLP

Chattanooga, Tennessee
February 24, 2017

**Certification pursuant to Rule 13a-14(a)/15d-14(a),
as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, Benjamin G. Brock, certify that:

1. I have reviewed this annual report on Form 10-K of Astec Industries, Inc.;
 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
 4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
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5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2017

/s/ Benjamin G. Brock

Benjamin G. Brock
President and CEO
(Principal Executive Officer)

**Certification pursuant to Rule 13a-14(a)/15d-14(a),
as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, David C. Silvious, certify that:

1. I have reviewed this annual report on Form 10-K of Astec Industries, Inc.;
 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
 4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
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5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2017

/s/ David C. Silvious

David C. Silvious
CFO, Vice President and Treasurer
(Principal Financial Officer)

**Certification pursuant to Rule 13a-14(b)/15d-14(b) of the Securities
Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted
pursuant to Section 906 Of The Sarbanes-Oxley Act Of 2002**

In connection with the Annual Report of Astec Industries, Inc. (the "Company") on Form 10-K for the period ended December 31, 2016 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Benjamin G. Brock and David C. Silvius, certify, pursuant to Rule 13a-14(b)/15d-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Benjamin G. Brock

Benjamin G. Brock
President and Chief Executive Officer
(Principal Executive Officer)
March 1, 2017

/s/ David C. Silvius

David C. Silvius
Chief Financial Officer, Vice President and Treasurer
(Principal Financial Officer)
March 1, 2017