

ASTEC INDUSTRIES INC  
Form 10-K  
March 18, 2019

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, 2018

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 62-0873631  
(State or other jurisdiction of incorporation or organization) (I.R.S. Employer Identification No.)

1725 Shepherd Road, Chattanooga, Tennessee 37421  
(Address of principal executive offices) (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) (Name of each exchange on which registered)  
Common Stock, \$0.20 par value 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

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Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes  No

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Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes  No

Indicate by check mark 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, a smaller reporting company or emerging growth company. See the definitions of "large accelerated filer," "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

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

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

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

As of June 30, 2018, the aggregate market value of the registrant's voting and non-voting common stock held by non-affiliates of the registrant was approximately \$1,345,595,000 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 19, 2019, Common Stock, par value \$0.20 – 22,518,019 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 25, 2019	Part III

ASTEC INDUSTRIES, INC.  
2018 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 U.S. dollar relative to foreign currencies;
- the introduction of new products and 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;
- obligations with respect to pellet plants and other products;
- 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;
- 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;
- inventories;
- plans to reduce indebtedness; and
- the Company's effective tax rate and other impacts of the Tax Cuts and Jobs Act of 2017.

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”, “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; commercial whole-tree pulpwood chippers; horizontal grinders; blower trucks; concrete plants; commercial and industrial burners; and combustion control systems. The Company's subsidiaries hold 93 United States and 130 foreign patents and have an additional 62 United States and 86 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 17 manufacturing subsidiaries are:

- (i) Astec, Inc. (including its Astec-Prairie du Chien/Dillman division), which designs, engineers, manufactures and markets asphalt plants and related components;  
Roadtec, Inc., which designs, engineers, manufactures and markets highway class asphalt pavers, material transfer
- (ii) vehicles, milling machines, soil stabilizing-reclaiming machinery and other equipment used in road building and resurfacing;
- (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;  
Johnson Crushers International, Inc., which designs, engineers, manufactures and markets portable and stationary
- (vi) aggregate and ore processing equipment for the crushed stone, gravel, manufactured sand, recycle, top soil and remediation markets;  
Astec Mobile Screens, Inc., which designs, engineers, manufactures and markets mobile screening plants,
- (vii) 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;  
Osborn Engineered Products SA (Pty) Ltd, which designs, engineers, manufactures and markets a complete line of
- (ix) 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;  
Astec do Brasil Fabricacao de Equipamentos Ltda., which manufactures and sells rock crushers, feeders, screens
- (x) and asphalt plants and represents the brands of several other Astec companies in the South American construction and mining industries;
- (xi) Telestack Limited, 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;  
GEFCO, Inc., which designs and manufactures portable drilling rigs and related equipment for the water well,
- (xiv) environmental, geothermal, geotechnical, groundwater monitoring, construction, mining and shallow oil and gas exploration and production industries, as well as trailer-mounted, high-pressure, high-volume double fluid pumps for use in the oil and gas energy services industry;
- (xv) Peterson Pacific Corp., which designs, engineers, manufactures and markets whole-tree pulpwood chippers, horizontal grinders and blower trucks;
- (xvi) Power Flame Incorporated, acquired on August 1, 2016, which designs, engineers, manufactures and markets commercial and industrial burners and combustion control systems; and  
RexCon, Inc., formed to acquire substantially all the assets and liabilities of RexCon LLC on October 1, 2017,
- (xvii) which designs, engineers, manufactures and markets high-quality stationary and portable, central mix and ready mix concrete batch plants, concrete mixers and concrete paving equipment.

The Company also has subsidiaries in Australia (Astec Australia Pty Ltd) and Germany (Astec Mobile Machinery GmbH, which is in the process of being closed), and is in the start-up phase of a new subsidiary in Chile, 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 and state deferred taxes 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 18, 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 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. As mentioned above, AMM is in the process of being closed.

### Products

Astec designs, engineers, manufactures and markets a complete line of asphalt and related components primarily for the asphalt production and paving industries. Certain component equipment supplied by Astec for asphalt 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 transported from one construction site to another, thereby reducing relocation expenses and interruption of operations. High plant portability is an industry innovation developed and successfully marketed by Astec.



Astec developed the patented water injection warm mix asphalt 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 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 liquid asphalt 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 recyclable asphalt pavement ("RAP") are available than are currently being utilized due to restrictions in the amount of RAP 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 to improve RAP utilization percentages in the asphalt industry. Astec's latest system improvement, the RAP Pre-Dryer System, was successfully field prototyped in 2018 and is now available to the industry. It has produced mixes of up to 80% RAP and can consistently produce mixes with 70% RAP. Astec has also enhanced its Double Barrel equipment line by providing a system with increased drum length and an external mixer that provides the capability to use up to 65% RAP without pre-drying.

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.

Many of the Company's highly technical, sophisticated large asphalt plants, while ideally suited for the United States domestic market, are not as well suited in many foreign markets. Astec is nearing completion on two newly styled plants designed especially for foreign markets where Astec's current product offerings have not been well received.

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's newest versions of its highly successful Shuttle Buggy includes the Guardian System that is designed to anticipate equipment 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, thus eliminating the need for a separate tack truck.

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 five models of 8 to 15 foot commercial class pavers designed for parking lots, residential driveways and secondary road applications.

Astec Mobile Machinery, which historically functioned primarily as a distributor of Roadtec products in the European market, ceased its operations in early 2019, and its assets are currently being liquidated. While reviewing performance criteria against actual results of all Astec companies during a strategic planning meeting held by management in late 2018, it was determined that Astec Mobile Machinery did not meet the desired performance metrics. Documents were filed by the Company in the German court system in December 2018 to begin the process of liquidating Astec Mobile Machinery. The Company expects the liquidation of Astec Mobile Machinery to be completed in 2019. Roadtec expects to market its products directly to European customers that were previously serviced by Astec Mobile Machinery.

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 sales department and the International Sales Group of Astec Industries and through a Company-owned dealership (Astec Australia).

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). 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, 49 domestic independent distributors and 113 international independent distributors, including Astec's subsidiaries in Australia and Germany (the latter of which is

ceasing operations, as noted above).

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### 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. Section 232 and Section 301 Tariffs that went into effect in 2018 have negatively impacted raw materials pricing for the group. 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/Deere and local manufacturers. Paving equipment and screed competitors include Weiler, Caterpillar Paving Products, Volvo Construction Equipment, VogeLe America, Dynapac, Bomag Fayat Group and Lee Boy. The segment's milling machine equipment competitors include Wirtgen, CMI, Caterpillar, Bomag, Dynapac and Volvo.

### Employees

At December 31, 2018, the Infrastructure Group segment employed 1,626 individuals, of which 1,101 were engaged in manufacturing, 218 in engineering and 307 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, 2018 and 2017 was approximately \$149,436 and \$239,495, respectively. Included in the December 31, 2017 backlog was approximately \$60,000 for a three-line pellet plant from one customer under a Company-financed arrangement whereby the Company expected to record the related revenues when payment became assured. As the sale is not anticipated to be completed, the Company removed the order from its backlog in 2018. Management expects the entire current backlog to be filled in 2019.

### 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”).

## 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. These systems often include electrical control centers and plant automation products engineered and produced by Telsmith.

Telsmith maintains an ISO 9001:2015 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.

Telsmith is a world leader in the development of hydraulic relief jaw crushers having patented its first model in 2002. Hydraulic relief jaw crushers are a significant improvement in safety, adjustment and clearing of material in jaw crushers. Today's Hydra-Jaw® line includes four models: H2238, H2550, H3244 and H3450.

Telsmith's Vibro-King TL vibrating screen line features sizes from 4x10 single deck to 8x24 quadruple deck screens. The "TL" screen vibrator, with its many service minded features, was introduced to the marketplace in 2006 and has been well received by customers. The "Neverwear" sealing system is guaranteed to keep lubricants in and to never wear out. The "TL" includes wide 233 series bearings for added capacity, simple counterweight adjustments and Telsmith's unique J-beam tray design.

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 cone 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/JCI/AMS also offers portable fully self-contained and self-propelled Fast Trax track-mounted jaw, cone, VSI and horizontal shaft crushers, which are ideal for either recycle or hard rock applications, allowing the producer to move the equipment to the material. The KPI/JCI/AMS 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 in close proximity 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 bend 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 designs, engineers, manufactures and markets a complete line of four wheel drive articulated production and utility vehicles, scalers 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 currently maintains ISO 9001:2015 (quality assurance) and ISO 14001:2015 (environmental assurance) certifications, internationally recognized standards of quality and environmental assurance. In addition, BTI has achieved certification for OHSAS 18001 Occupational Health & Safety standards and expects to transition to ISO 45001 certificate during 2019. BTI offers an extensive aftermarket sales and service program through a highly qualified and trained dealer network.

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 is also a licensee of KPI's vertical and horizontal shaft impact crushers. Osborn also offers the following equipment: 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; and modular "containerized" crusher and screening systems. 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 57 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 delivered its first asphalt plant in early 2016; however, sales in the South American market have continued to be hampered by the 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. The Company currently has a 93% ownership interest in Astec Brazil.

Telestack 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 ISO 9001:2015 (quality assurance), ISO 14001:2015 (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 115 direct sales employees, 137 domestic independent distributors and 174 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; however, certain highly customized components may require longer than normal lead times. Section 232 and Section 301 Tariffs that went into effect in 2018 have negatively impacted raw materials pricing for the group. Purchased raw materials from China, in the form of carbon steel castings, ductile iron castings and other components are now being reviewed for sourcing from other global suppliers. 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, Epiroc (formerly Atlas Copco Mining), Thor, Masaba, Edge Innovate, McCloskey, Superior Industries, Wirtgen (Klemmann), Deister, McLanahan, CDE Global, Weir Minerals (Trio) and other smaller manufacturers, both domestic and international.

### Employees

At December 31, 2018, the Aggregate and Mining Group segment employed 1,666 individuals, of which 1,210 were engaged in manufacturing, 159 in engineering and engineering support functions and 297 in selling, general and administrative functions.

Telsmith has a labor agreement covering approximately 130 manufacturing employees which expires on March 9, 2022. Approximately 117 of Osborn's manufacturing employees fall within the scope of a collective labor union agreement that expires on June 30, 2020. Astec Brazil has an annual union agreement covering all its employees that expires on September 30, 2019. None of the other employees of the Aggregate and Mining Group are covered by collective bargaining agreements.

### Backlog

At December 31, 2018 and 2017, the backlog for the Aggregate and Mining Group was approximately \$130,691 and \$116,987, respectively. Approximately \$9,726 of the increase in backlogs between years relates to orders from domestic U.S. customers. Management expects the current backlog to be filled in 2019.

### Energy Group

The Company's Energy Group is currently comprised of six 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"), Power Flame Incorporated ("Power Flame") and RexCon, Inc. ("RexCon"). Power Flame, located in Parsons, Kansas, was acquired in August 2016. RexCon, located in Burlington, WI, was formed to acquire substantially all of the assets and liabilities of RexCon, LLC on October 1, 2017.

## 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, polymer plants and emulsion 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 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 has also produced one model of concrete production plant, which is now integrating with the RexCon product line.

GEFCO designs and manufactures portable drilling rigs and related equipment for the water well, environmental, geothermal, geotechnical, 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. GEFCO also designs and manufactures trailer-mounted, high-pressure, high-volume double fluid pumpers for use in the oil and gas energy services energy.

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.

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.

RexCon was formed to acquire substantially all of the assets and liabilities of RexCon LLC on October 1, 2017. RexCon is a leader in the design and production of high-quality stationary and portable, central mix and ready mix concrete batch plants, concrete mixers and concrete paving equipment for contractors and ready mix concrete producers.

## 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, 79 domestic independent distributors and 44 international independent distributors. Customers typically include oil and gas field operators, industrial product manufacturers, independent contractors, ready mix concrete producers, 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. Section 232 and Section 301 Tariffs that went into effect in 2018 have negatively impacted raw materials pricing for the group. Components used in the manufacturing process include engines, hydraulic pumps and motors, gearboxes, track clutches, 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, Forum Energy Tech, Oil Country, NOV/Rolligon, Stewart & Stevenson, Dragon, Morbark, CBI (Terex), Precision Doppstadt, Bandit, Jenz, Komptech, Finn Corp, Webster Engineering, Cleaver Brooks, Riello, Industrial Combustion, Limpsfield Combustion and Stephen’s Manufacturing.

### Employees

At December 31, 2018, the Energy Group segment employed 1,059 individuals, of which 705 were engaged in manufacturing, 128 in engineering and 226 in selling, general and administrative functions. Approximately 98 of GEFCO’s manufacturing employees fall within the scope of a collective bargaining agreement that expires on June 20, 2021. Power Flame is a party to a collective bargaining agreement that applies to approximately 105 of its manufacturing employees and expires on December 7, 2019. 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, 2018 and 2017 was approximately \$64,834 and \$54,987, respectively. Management expects the entire current backlog to be filled in 2019.

### Corporate (Other Business Units)

This category consists of the 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, Astec Insurance Company, a captive insurance company and a sales organization in its start-up phase in Chile. The parent company and the captive provide support and corporate oversight for all the other business units. The Company records U.S. federal income tax expenses and state deferred taxes 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, 2018, the Corporate category employed 50 individuals, all of which were engaged in executive management, corporate finance 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 2018 and were impacted by the Section 232 and 301 tariff actions. Steel prices have recently become stable at these elevated levels, and we anticipate prices to remain in this range for the first half of 2019. 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 2019 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, 2018, the Company and its subsidiaries employed 4,401 individuals, of which 3,016 were engaged in manufacturing, 505 in engineering, including support staff, and 880 in selling, administrative and management functions.

Other than the Telsmith, Osborn and Astec Brazil 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 2018 took place at 21 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. 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 operational and service processes, technological innovation, promotional programs, customer and dealer training and previews of future products.

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 93 United States patents and 130 foreign patents. The Company's subsidiaries have 62 United States and 86 foreign patent applications pending.

The Company and its subsidiaries have 86 trademarks registered in the United States, including logos for Astec, Astec Dillman, Carlson Paving, CEI, GEFCO, Heatec, KPI-JCI, Peterson Pacific, Power Flame, Roadtec, Telestack and Telsmith, and the names ASTEC, CARLSON, HEATEC, JCI, KOLBERG, PETERSON, POWER FLAME, ROADTEC, TELESTACK and TELSMITH, as well as a number of other product names. The Company also has 115 trademarks registered in foreign jurisdictions, including Australia, Argentina, Brazil, Canada, China, France, Great Britain, Germany, India, Italy, Kazakhstan, Mexico, Paraguay, New Zealand, Peru, Russia, South Africa, South Korea, Thailand, Uruguay, Vietnam and the European Union. The Company and its subsidiaries have five foreign trademark registration applications pending.

### Engineering and Product Development

The Company dedicates substantial resources to engineering and product development. At December 31, 2018, the Company and its subsidiaries had 505 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, second and fourth quarters with the third quarter consistently being weaker. We expect future operations in the near term to be typical of this historical trend.

As of December 31, 2018 and 2017, the Company had a backlog for delivery of products at certain dates in the future of approximately \$344,962 and \$411,469, 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](http://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 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, as amended in February 2019, expires in December 2023, 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 RexCon in October 2017 and Power Flame in August 2016. 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. On January 22, 2019, Ben Brock resigned as Chief Executive Officer and President of the Company and as a member of the Company's Board of Directors. We have named an interim Chief Executive Officer and President and are currently conducting a search for a new Chief Executive Officer and President. Such management changes could materially 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 2018, international sales represented approximately 21.8% of our total sales as compared to 21.3% in 2017. We plan to continue our significant sales and production efforts in international markets. In furtherance thereof, we recently filled a new company position of Group Managing Director-International and are in the start-up phase of a new sales/service subsidiary in Chile. 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, 2018, 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, 2018, the Company had \$58,778 of borrowings and \$11,044 of letters of credit outstanding under the under the Wells Fargo 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.

Goodwill and other intangible assets comprise a material portion of our total assets. We must test our goodwill and other intangible assets for impairment at least annually, which could result in a material, non-cash write-down of goodwill or intangible assets and could have a material adverse impact on our results of operations and shareholders' equity.

Goodwill and intangible assets are subject to impairment assessments at least annually (or more frequently when events or changes in circumstances indicate that an impairment may have occurred). During 2018, we recorded goodwill impairment charges totaling \$11,190 at two of our business units. A decrease in our market capitalization, profitability or negative or declining cash flows increases the risk of goodwill impairment. Future impairment charges could have a material adverse impact on our results of operations and shareholders' equity.

As an innovative leader in the industries in which we operate, we occasionally undertake the engineering, design, manufacturing, construction and installation of equipment systems that are new to the market. Estimating the costs of such innovative equipment can be difficult and could result in our realization of significantly reduced or negative margins on such projects. Additionally, if the newly designed equipment were not to function as expected, the Company could be responsible for reimbursing the customer for its financial losses, including, but not limited to, the possible refund of the purchase price.

At various times, we have experienced negative margins on certain large projects, including wood pellet plants that we have recently produced. These large projects have included both existing and innovative equipment designs, on-site construction and promised minimum production levels. Designing innovative equipment to function as expected is inherently difficult and significant additional design phase, field testing and redesign costs may be incurred. In addition, any number of unforeseen circumstances can impact actual project costs. Production delays, design changes and adverse weather conditions, and other factors can also result in construction and testing delays, which can cause significant cost overruns or failure to meet required completion dates. In certain circumstances, we may incur contractual penalties as a result of such delays or the failure to satisfy minimum production levels, and we may be liable to customers for other losses they incur in connection with such delays, including possible refund of the purchase price. We may not be able to sufficiently predict the extent of such unforeseen cost overruns and may experience significant losses on specialized projects in the future. 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.

We identified material weaknesses in our internal control which, if not remediated appropriately or timely, could result in loss of investor confidence and adversely impact our stock price.

As disclosed in Part II, Item 9A, during 2018, management identified certain material weaknesses in internal control that are relevant to the preparation of our consolidated financial statements. As a result, management concluded that our internal control over financial reporting was not effective as of December 31, 2018. We are implementing remedial measures and, while there can be no assurance that our efforts will be successful, we plan to remediate the material weaknesses prior to the end of 2019. These measures may result in additional technology and other expenses. If we are unable to remediate the material weaknesses, or are otherwise unable to maintain effective internal control over financial reporting or disclosure controls and procedures, our ability to record, process and report financial information accurately, and to prepare financial statements within required time periods, could be adversely affected, which could subject us to litigation or investigations requiring management resources and payment of legal and other expenses, negatively affect investor confidence in our financial statements and adversely impact our stock price.

Increased cybersecurity requirements, vulnerabilities, threats and more sophisticated and targeted computer crime could pose a risk to our systems, networks, products, solutions, services and data.

Increased global cybersecurity vulnerabilities, threats, computer viruses and more sophisticated and targeted cyber-related attacks, as well as cybersecurity failures resulting from human error and technological errors, pose a risk to the security of the Company's and its customers', partners', suppliers' and third-party service providers' products, systems and networks and the confidentiality, availability and integrity of the Company's and its customers' data. Despite our efforts to protect our systems and confidential information, we may be vulnerable to material security breaches, theft, misplaced, lost or corrupted data, programming errors, employee errors and/or misappropriation that could potentially lead to the compromising of confidential information, improper use of our systems, software solutions or networks, unauthorized access, use, disclosure, modification or destruction of information, defective products, production downtimes and operational disruptions, any of which could have a material effect on our business.

Item 1B. Unresolved Staff Comments

None.

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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 – Astec Prairie du Chien/Dillman division of Astec (Infrastructure Group)
Chattanooga, Tennessee	237,000	15	Offices, manufacturing and training center – Roadtec (Infrastructure Group)
Chattanooga, Tennessee	53,700	7	Manufacturing/Rebuild – Roadtec (Infrastructure Group)
Chattanooga, Tennessee	155,000	--	Leased warehouse – Roadtec (Infrastructure Group)
Orlando, Florida	9,000	--	Leased machine repair and service facility – Roadtec (Infrastructure Group)
Tacoma, Washington	55,850	8	Offices and manufacturing – Carlson (Infrastructure Group)
Tacoma, Washington	4,400	1	R&D/Services Offices-Carlson (Infrastructure Group)
Acacia Ridge, Queensland Australia	36,000	5	Offices, warehousing, service, light fabrication and storage yard – Astec Australia Pty Ltd (Infrastructure Group)
Canning Vale, WA Australia	9,000	--	Leased office, warehouse and workshop - Astec Australia Pty Ltd (Infrastructure Group)
Laverton North, Victoria Australia	6,500	--	Leased office, warehouse and workshop – Astec Australia Pty Ltd (Infrastructure Group)

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Location	Approximate Square Footage	Approximate Acreage	Principal Function (Use by Segment)
Hameln, Germany	35,300	3	Offices and light assembly – Asphalt Mobile Machinery GmbH (Infrastructure Group)
Mequon, Wisconsin	236,000	30	Offices and manufacturing – Telsmith (Aggregate and Mining Group)
Yankton, South Dakota	312,000	50	Offices and manufacturing – KPI (Aggregate and Mining Group)
Eugene, Oregon	140,300	33	Offices and manufacturing – JCI (Aggregate and Mining Group)
Sterling, Illinois	60,000	8	Offices and manufacturing – AMS (Aggregate and Mining Group)
Sterling, Illinois	7,500	--	Warehouse - AMS (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)
Johannesburg, South Africa	229,000	21	Offices and manufacturing – Osborn (Aggregate and Mining Group)
Cape Town, South Africa	1,100	--	Leased sales office and warehouse – Osborn (Aggregate and Mining Group)
Durban, South Africa	835	--	Leased sales office – Osborn (Aggregate and Mining Group)
Kathu, South Africa	--	61	Undeveloped land – Osborn (Aggregate and Mining Group)
Omagh, Northern Ireland	115,000	8	Offices and manufacturing-Telestack (Aggregate and Mining Group)
Vespasiano-MG, Brazil	132,400	10	Offices and manufacturing – Astec Brazil (Aggregate and Mining Group)
Chattanooga, Tennessee	135,100	73	Offices, manufacturing and storage – Heatec (Energy Group)

Location	Approximate Square Footage	Approximate Acreage	Principal function (use by Segment)
Eugene, Oregon	135,000	15	Offices and manufacturing – Peterson Pacific Corp. (Energy Group)
West Columbia, South Carolina	12,300	--	Leased distribution center – Peterson Pacific Corp. (Energy Group)
Albuquerque, New Mexico	115,000	14	Offices and manufacturing – CEI (Energy Group)
Enid, Oklahoma	350,000	42	Offices and manufacturing – GEFCO, Inc. (Energy Group)
Parsons, Kansas	88,000	7	Offices and manufacturing – Power Flame (Energy Group)
Burlington, Wisconsin	112,100	26	Offices and manufacturing – RexCon (Energy Group)
Chattanooga, Tennessee	10,000	2	Corporate offices – Astec Industries, Inc. (Corporate)
Chattanooga, Tennessee	14,100	--	Leased Hanger and Offices – Astec Industries, Inc. (Corporate)
Las Condes, Santiago, Chile	387	--	Leased sales office (Corporate)

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.

The Company and certain of its current and former executive officers have been named as defendants in a putative shareholder class action lawsuit filed on February 1, 2019, in the United States District Court for the Eastern District of Tennessee. The action is styled City of Taylor General Employees Retirement System v. Astec Industries, Inc., et al., Case No. 1:19-cv-00024-PLR-CHS. The complaint generally alleges that the defendants violated the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and Rule 10b-5 promulgated thereunder by making allegedly false and misleading statements and that the individual defendants are control persons under Section 20(a) of the Exchange Act. The complaint was filed on behalf of shareholders who purchased shares of the Company’s stock between July 26, 2016 and October 22, 2018 and seeks monetary damages on behalf of the purported class. We dispute these allegations and intend to defend this lawsuit vigorously.

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.

#### 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.

Richard J. Dorris has served as the Company's Interim Chief Executive Officer and President since January 22, 2019 and also continues to serve as the Company's Chief Operating Officer and Executive Vice President, positions he has held 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 58.

David C. Silvius, 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. Silvius also serves as Treasurer of each of the Company's U.S. operating subsidiaries and Vice President of Astec Insurance Company. He is 51.

Jaco van der Merwe has served as Group President-Infrastructure since January 2019 after having previously served as Group President-Energy 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 46.

Jeffrey M. Schwarz has served as Group President-Aggregate and Mining since August 2018. Prior to this role he 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 52.

J. Scott Barker has served as Group President-Energy since January 2019 after having served as President of GEFCO, Inc. since April 2017. Before joining GEFCO, he held several leadership roles with Ingersoll Rand and Atlas Copco during his 12 years there, including Vice President of Operations for the Drilling solutions division, President of the Rocktec division, and President of the Underground Rock Excavation division. He is 55.

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 manages the corporate information technology, vendor finance 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 55.

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 57.

## 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 second quarter of 2018. Beginning in the third quarter of 2018, the quarterly cash dividend was increased to \$0.11 per share. Prior to 2012, the Company had not paid any cash dividends.

The following information describes the Company's stock repurchases during the year ended December 31, 2018 under the share repurchase program approved by our Board of Directors which authorizes the Company to repurchase up to \$150 million of its common stock, as announced to the public in an 8-K filing on July 30, 2018:

Period	Number of Shares (in thousands)	Average Price Paid per Share	Number of Shares purchased as part of publically announced plan (in thousands)	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Plan (in thousands)
August 2018	297	\$ 46.91	297	\$ 136,080
September 2018	--	--	--	136,080
October 2018	238	35.10	238	127,711
November 2018	47	39.29	47	125,851
December 2018	--	--	--	125,851
Total	582	\$ 41.46	582	\$ 125,851

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:

2018	Price Per Share	
	High	Low
1 <sup>st</sup> Quarter	\$64.80	\$53.89
2 <sup>nd</sup> Quarter	\$61.61	\$52.84
3 <sup>rd</sup> Quarter	\$63.69	\$44.92
4 <sup>th</sup> Quarter	\$52.88	\$27.86

2017	Price Per Share	
	High	Low
1 <sup>st</sup> Quarter	\$73.37	\$59.02
2 <sup>nd</sup> Quarter	\$66.66	\$52.35
3 <sup>rd</sup> Quarter	\$58.06	\$45.70
4 <sup>th</sup> Quarter	\$59.22	\$48.44

As of February 19, 2019, there were approximately 210 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. 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 not effective as of December 31, 2018 due to the material weaknesses in internal control over financial reporting described in Management's Report on Internal Control Over Financial Reporting in Appendix A of this Report.

### Management's Report on Internal Control Over Financial Reporting

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

### Management's Remediation Plan

Management's remediation plan with respect to the material weaknesses in internal control over financial reporting described above appears in Appendix A of this Report.

### Changes in Internal Controls Over Financial Reporting

Except for the material weaknesses described in Management's Report on Internal Control Over Financial Reporting in Appendix A of this Report that have been identified during the quarter ended December 31, 2018, 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, 2018 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 25, 2019 (referred to herein as the Company's 2019 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 2019 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/](http://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 2019 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, 2018 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 <sup>(3)</sup>	(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 <sup>(1)</sup>	165,238 <sup>(2)</sup>	N/A	503,635 <sup>(4)</sup>
Equity Compensation Plans Not Approved by Shareholders <sup>(5)</sup>	27,546 <sup>(6)</sup>	N/A	71,736 <sup>(7)</sup>
Total	192,784		575,371

(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 Amended and Restated Non-Employee Director Stock Incentive Plan.

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

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

Equity Compensation Plans Not Approved by Shareholders

Our Amended and Restated Non-Employee Directors Compensation 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 Amended and Restated Non-Employee Directors Compensation 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 2019 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 2019 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 2019 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 as of December 31, 2018 and 2017.
- . Consolidated Statements of Operations for the Years Ended December 31, 2018, 2017 and 2016.
- . Consolidated Statements of Comprehensive Income (Loss) for the Years Ended December 31, 2018, 2017 and 2016.
- . Consolidated Statements of Cash Flows for the Years Ended December 31, 2018, 2017 and 2016.
- . Consolidated Statements of Equity for the Years Ended December 31, 2018, 2017 and 2016.
- . 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 period ending December 31, 2010). \*
- 10.7 Astec Industries, Inc. 2011 Incentive Plan (incorporated by reference from Appendix A of the Company's Definitive Proxy Statement for the 2011 Annual Meeting of Shareholders ). \*
- 10.8 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).
- 10.9 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). \*
- 10.10 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). \*
- 10.11 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). \*
- 10.12 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 (incorporated by reference from the Company's Annual Report on Form 10-K for the period ending December 31, 2016 filed on March 1, 2017). \*
- 10.13 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective April 27, 2017 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending March 31, 2017). \*

10.14

First Amendment to Amended and Restated Credit Agreement, dated as of April 12, 2017, 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, 2017)

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- 10.15 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective July 27, 2017 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2017). \*
- 10.16 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective October 26, 2017 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending September 30, 2017). \*
- 10.17 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective February 23, 2018 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending March 31, 2018). \*
- 10.18 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective August 2, 2018 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2018). \*
- 10.19 Pellet Plant Agreement between Astec, Inc., Astec Industries, Inc. Highlands Pellets, LLC, Highlands, LLC, Arkansas Teacher Retirement System and GIP CAPS Pine L.P. (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2018).
- 10.20 Separation Agreement and General Release, dated January 21, 2019, between Benjamin G. Brock and Astec Industries, Inc. (incorporated by reference from the Company's Current Report on Form 8-K filed on January 22, 2019).
- 10.21 Amendment to Exhibit A of the Astec Industries, Inc. Executive Change in Control Severance Plan, effective February 21, 2019 \*
- 10.22 Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective January 1, 2019. \*
- 10.23 Second Amendment to Amended and Restate Credit Agreement, effective February 26, 2019.
- 21 Subsidiaries of the Registrant.
- 23 Consent of Independent Registered Public Accounting Firm.
- 31.1 Certification of Interim 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 Interim 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)

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ASTEC INDUSTRIES, INC.

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FINANCIAL  
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## SELECTED CONSOLIDATED FINANCIAL DATA

(in thousands, except as noted\*)

	2018	2017	2016	2015	2014
Consolidated Statement of Operations Data					
Net sales	\$1,171,599	\$1,184,739	\$1,147,431	\$983,157	\$975,595
Gross profit	135,766	243,129	265,269	218,843	215,316
Gross profit %	11.6 %	20.5 %	23.1 %	22.3 %	22.1 %
Selling, general and administrative expenses	180,795	160,775	153,145	145,180	141,490
Research and development	28,332	26,817	24,969	23,676	22,129
Restructuring and asset impairment charges	13,060	--	--	--	--
Income (loss) from operations	(86,421 )	55,537	87,155	49,987	51,697
Interest expense	(1,045 )	(840 )	(1,395 )	(1,611 )	(720 )
Other income	536	1,218	529	3,055	1,207
Net income (loss)	(60,744 )	37,590	54,988	31,966	34,206
Net income (loss) attributable to controlling interest	(60,449 )	37,795	55,159	32,797	34,458
Earnings (loss) per common share*:					
Net income (loss) attributable to controlling interest					
Basic	(2.64 )	1.64	2.40	1.43	1.5