

# UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

## Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2019

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 001-11595

## ASTEC INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Tennessee

(State or other jurisdiction of incorporation or organization)

62-0873631

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

1725 Shepherd Road, Chattanooga, Tennessee

(Address of principal executive offices)

37421

(Zip Code)

Registrant's telephone number, including area code:

(423) 899-5898

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

Title of each Class  
**Common Stock**

Trading Symbol(s)  
**ASTE**

Name of each exchange on which registered  
**The Nasdaq Stock Market LLC**

Securities registered pursuant to Section 12(g) of the Act: **None**

(Title of class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☒

No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act.

Yes ☐

No ☒

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

Yes ☒

No ☐

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

Yes ☒

No ☐

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

Large Accelerated Filer ☒

Non-accelerated Filer ☐

Accelerated Filer ☐

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 28, 2019, the aggregate market value of the registrant's voting and non-voting common stock held by non-affiliates of the registrant was approximately \$730,414,000 based upon the closing sales price as reported on the NASDAQ National Market System.

As of February 21, 2020, there were 22,551,781 shares of Common Stock outstanding, par value \$0.20.

#### DOCUMENTS INCORPORATED BY REFERENCE

Portions of the following document(s) have been incorporated by reference into Parts of this Annual Report on Form 10-K as indicated below:

Document	Form 10-K
Proxy Statement relating to Annual Meeting of Shareholders to be held on April 30, 2020	Part III

**ASTEC INDUSTRIES, INC.**  
**2019 FORM 10-K ANNUAL REPORT**  
**TABLE OF CONTENTS**

<b>PART I</b>		<b>Page</b>
Item 1.	Business	2
Item 1A.	Risk Factors	14
Item 1B.	Unresolved Staff Comments	21
Item 2.	Properties	21
Item 3.	Legal Proceedings	23
Item 4.	Mine Safety Disclosures	24
	Executive Officers	24
 <b>PART II</b>		
Item 5.	Market for Registrant's Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities	25
Item 6.	Selected Financial Data	25
Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	26
Item 7A.	Quantitative and Qualitative Disclosures About Market Risk	26
Item 8.	Financial Statements and Supplementary Data	26
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	26
Item 9A.	Controls and Procedures	26
Item 9B.	Other Information	26
 <b>PART III</b>		
Item 10.	Directors, Executive Officers and Corporate Governance	27
Item 11.	Executive Compensation	27
Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters	27
Item 13.	Certain Relationships and Related Transactions, and Director Independence	28
Item 14.	Principal Accounting Fees and Services	28
 <b>PART IV</b>		
Item 15.	Exhibits and Financial Statement Schedules	28
Item 16.	Form 10-K Summary	30
Appendix A ITEMS 6, 7, 7A, 8, 9A, 15(a)(1), and 15(b)		A-1
Signatures	Signatures	

## GENERAL

*Unless otherwise indicated by the context, all references in this Annual Report on Form 10-K to “we,” “us,” “our,” or the “Company” refer to Astec Industries, Inc. and our subsidiaries. References to “Parent Company” in this Annual Report on Form 10-K refer to Astec Industries, Inc. only. All dollar amounts referenced in this section are in thousands.*

## TRADEMARKS AND TRADE NAMES

Except when discussing competitors and their products herein, the trademarks and trade names used in this Annual Report on Form 10-K are the property of Astec Industries, Inc. or its subsidiaries, as the case may be.

## CAUTIONARY STATEMENT REGARDING 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, and costs of, technological innovation;
- compliance with covenants in our credit facility;
- liquidity and capital expenditures;
- ability to access credit markets;
- ability to obtain advances from our credit markets;
- compliance with the Company’s credit facilities;
- compliance with and changes to government regulations;
- compliance with manufacturing and delivery timetables;
- forecasting of results;
- general economic trends, political uncertainty and the impact of the coronavirus on our business;
- government funding and growth of highway construction and commercial projects;
- changes in tax laws and tariffs;
- 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 economies in which we do business;
- fluctuations in foreign current exchange rates;
- the introduction of new products and the success of new product lines;
- presence in the international marketplace;
- suitability of our current facilities;
- fluctuations in our stock price;
- anti-takeover measures;
- future payment of dividends;
- competition in our business segments;
- product liability and other claims;
- legal proceedings and non-compliance;
- obligations with respect to pellet plants and other products;
- protection of proprietary technology and dependence on information technology systems;
- cybersecurity risks;
- demand for products and services;

- future fillings of backlogs;
- executive officers, management and employees;
- the seasonality of our business;
- tax assets and reserves for uncertain tax positions;
- changes in tax laws, effective rates, tariffs and trade policies;
- critical accounting policies and the impact of accounting changes;
- goodwill and intangible asset value;
- 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;
- demand, availability and cost of raw materials;
- inventories;
- plans to exit the GEFCO oil and gas product line; and
- material weaknesses identified in our internal controls.

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 Annual Report on Form 10-K (this "Report") and in other documents filed by us with the Securities and Exchange Commission, which may cause actual results, financial or otherwise, to be materially different from those anticipated, expressed or implied by the forward-looking statements. All forward-looking statements included in this document are based on information available to us on the date hereof, and we assume no obligation to update any such forward-looking statements to reflect future events or circumstances. You can identify these statements by forward-looking words such as "expect", "believe", "anticipate", "goal", "plan", "intend", "estimate", "may", "will", "should," "could" and similar expressions.

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

## **Part I**

### **Item 1. Business**

Astec Industries, Inc. 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; 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 is in the process of discontinuing its GEFCO oil and gas product line and disposing of all of GEFCO's oil and gas related inventories, with an expected completion date of mid-2020.

The Company's subsidiaries hold 103 United States and 119 foreign patents and have an additional 60 United States and 101 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 manufacturing business units are segmented for reporting purposes (see "Segment Reporting" below) as follows:

### **Infrastructure Group**

1. Astec, Inc. (including its Astec-Prairie du Chien/Dillman division) ("Astec"), which designs, engineers, manufactures and markets asphalt plants and related components;
2. Roadtec, Inc. ("Roadtec"), which designs, engineers, manufactures and markets highway class asphalt pavers, material transfer vehicles, milling machines, soil stabilizing-reclaiming machinery and other equipment used in road building and resurfacing;
3. Carlson Paving Products, Inc. ("Carlson"), which designs, engineers, manufactures and markets asphalt paver screeds and commercial pavers;
4. Astec Mobile Machinery GmbH ("AMM"), which ceased operations in 2019 and its real estate was sold in January 2020; and
5. Astec Australia Pty Ltd ("Astec Australia"), which is an Australian subsidiary that sells, services and installs products produced by the Company's manufacturing subsidiaries.

### **Aggregate and Mining Group**

1. Telsmith, Inc. ("Telsmith"), which designs, engineers, manufactures and markets aggregate processing and mining equipment used in the aggregate, mineral mining, metallic mining and recycling industries;
2. Kolberg-Pioneer, Inc. ("KPI"), which designs, engineers, manufactures and markets aggregate processing equipment for the crushed stone, gravel, manufactured sand, recycle, top soil and remediation markets;
3. Johnson Crushers International, Inc. ("JCI"), which designs, engineers, manufactures and markets portable and stationary aggregate and ore processing equipment for the crushed stone, gravel, manufactured sand, recycle, top soil and remediation markets;
4. Astec Mobile Screens, Inc. ("AMS"), which designs, engineers, manufactures and markets mobile screening plants, portable and stationary structures and vibrating screens for the aggregate, recycle and material processing industries;
5. Breaker Technology Ltd/Inc. ("BTI"), which designs, engineers, manufactures and markets rock breaking systems in addition to mobile processing equipment and utility vehicles for the mining and quarrying industries;
6. Osborn Engineered Products SA (Pty) Ltd ("Osborn"), which designs, engineers, manufactures and markets a complete line of bulk material handling and minerals processing plant and equipment used in the aggregate, mineral mining, metallic mining and recycling industries and also markets equipment produced by other Astec companies;
7. Astec do Brasil Fabricacao de Equipamentos Ltda. ("Astec Brazil"), which manufactures and sells rock crushers, feeders, screens and asphalt plants and represents the brands of several other Astec companies in the South American construction and mining industries; and
8. Telestack Limited ("Telestack"), which designs, manufactures and installs a complete line of material handling systems to serve the port handling, bulk material handling and aggregate markets.

### **Energy Group**

1. Heatec, Inc. ("Heatec"), which designs, engineers, manufactures and markets thermal fluid heaters, process heaters, waste heat recovery equipment, liquid storage systems and polymer and rubber blending systems;
2. CEI Enterprises, Inc. ("CEI"), which designs, engineers, manufactures and markets thermal fluid heaters, storage tanks, concrete plants and rubberized asphalt and polymer blending systems. The Company is in the process of closing this facility and transferring its product line operations, equipment and inventories to other Company subsidiaries, primarily RexCon and Heatec;
3. GEFCO, Inc. ("GEFCO"), which designs and manufactures portable drilling rigs and related equipment for the water well, environmental, geothermal, geotechnical, groundwater monitoring, and construction industries. The Company is in the process of discontinuing its GEFCO oil and gas product line and disposing of all of GEFCO's oil and gas related inventories, with an expected completion date of mid-2020.
4. Peterson Pacific Corp. ("Peterson"), which designs, engineers, manufactures and markets whole-tree pulpwood chippers, horizontal grinders and blower trucks;
5. Power Flame Incorporated ("Power Flame"), which designs, engineers, manufactures and markets commercial and industrial burners and combustion control systems; and
6. RexCon, Inc. ("RexCon"), 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 a business unit in Chile (Astec Industries, LatAm SpA (“Astec LatAm”)) and is in the start-up phase of new sales operations in India and Thailand 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 historically had 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 referred to as (i) the Infrastructure Group, (ii) the Aggregate and Mining Group and (iii) the 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, as well as Astec LatAm due to its limited operations to date. We refer to these 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, Roadtec, Carlson, AMM and 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 ceased operations in 2019.

### **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 international markets. In 2019, Astec completed testing of its new Voyager 140 portable asphalt plant designed specifically for the international market. The Voyager 140's design is based upon Astec's proven Double Barrel drum mixer and has production capacity of 140 tons per hour and RAP mixing capabilities of 50%; the Voyager 140 also provides full-size plant features in a compact highly-portable configuration.

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, but 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 also 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.

Additionally, Roadtec currently produces soil stabilizers in configurations of 513HP, 675HP 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 Australia is a dealer that 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. In prior years, a majority of its sales were to customers in the infrastructure industry; however, in 2019, Astec Australia's sales of the Company's Aggregate and Mining products increased, and now the split between infrastructure and aggregate and mining products is closer to 50/50. 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 76 direct sales staff, 51 domestic independent distributors and 59 international independent distributors, including Astec's subsidiary in Australia.

### Raw Materials

Raw materials used in the manufacture of products in the Infrastructure Group include carbon steel, pipe and various types of alloy steel, which are normally purchased from distributors and other sources. Raw materials for manufacturing are normally readily available. Most steel is delivered on a "just-in-time" arrangement from the supplier to reduce inventory requirements at the manufacturing facilities, but steel is occasionally inventoried after purchase. Other components used in the manufacturing processes include engines, gearboxes, power transmissions and electronic systems. During mid-2018 through mid-2019, the Company engaged an outside consultant to assist in the development of a procurement system designed to take advantage of Company-wide purchasing power and to improve on just-in-time purchasing procedures. These efforts are expected to reduce raw material inventory levels and raw material pricing in the future; however, Section 232 and Section 301 tariffs that went into effect in 2018 continue to negatively impact certain raw materials pricing for the group.

### 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, Vögele 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, 2019, the Infrastructure Group segment employed 1,437 individuals, of which 936 were engaged in manufacturing, 195 in engineering and 306 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, 2019 and 2018 was approximately \$139,081 and \$149,436, respectively. Management expects the entire current backlog to be filled in 2020.

## **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, KPI, AMS, JCI, BTI, Osborn, Astec Brazil and 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. The company's current Hydra-Jaw® line includes four models: H2238, H2550, H3244 and H3450.

Telsmith offers a range of cone crushers to meet critical aggregate or mining needs. Telsmith's Titan cone crushers range in sizes from a 200 HP machine to a 900 HP mine duty machine. Telsmith's cone crushers include technology features that deliver a distinct performance advantage, such as hydraulic overload protection, chamber clearing, push button adjustment and Telsmith's proprietary anti-spin system.

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. Track-mounted crushing and screening plants enable contractors to perform jobs that in the past were not economically feasible and also allow 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 also 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 transitioned to ISO Occupational Health & Safety standards during 2019. BTI offers an extensive aftermarket sales and service program through a highly qualified and trained dealer network.

In 2019, Osborn, which is located in South Africa and serves the global mining and aggregate market, celebrated its 100<sup>th</sup> year of being in business. Osborn maintains ISO 9001:2015 certification. Osborn designs, engineers, manufactures, sales and supports a range of mineral processing equipment in the aggregate and mining sectors. In addition to the products it licenses from TelSmith and KPI, Osborn also designs and manufactures the Double Toggle Crushers, screens and apron feeders. Osborn has a reputation for quality manufacture of modular and containerized crushing and screening solutions. Osborn also supports the marketing of other Astec brands in the sub-Saharan Africa market.

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 facility, which currently has 87 employees, up from 57 employees at the end of 2018. 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 45001:2018 (health and safety assurance) accreditations. Telestack is also an approved supplier of equipment that conforms to Australian Mining Standards (AS 4324:1 and AS 3000).

## Marketing

Aggregate processing and mining equipment is marketed by approximately 132 direct sales employees, 142 domestic independent distributors and 153 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. During mid-2018 through mid-2019, the Company engaged an outside consultant to assist in the development of a procurement system designed to take advantage of Company-wide purchasing power and to improve on just-in-time purchasing procedures. These efforts are expected to reduce raw material inventory levels and raw material pricing in the future; however, Section 232 and Section 301 tariffs that went into effect in 2018 continue to negatively impact certain raw materials pricing for the group. Purchased raw materials from China, in the form of carbon steel and manganese castings, ductile iron castings and other components are continuing to be 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, 2019, the Aggregate and Mining Group segment employed 1,454 individuals, of which 1,019 were engaged in manufacturing, 132 in engineering and engineering support functions and 303 in selling, general and administrative functions.

Telsmith has a labor agreement covering approximately 102 manufacturing employees; it expires on March 9, 2022. Additionally, approximately 113 of Osborn's manufacturing employees fall within the scope of a collective labor union agreement that expires on June 30, 2020. Finally, Astec Brazil is continuing negotiations with the union covering all its employees because the union agreement expired on September 30, 2019. Astec Brazil expects a new agreement will be ratified without any significant impact. None of the other employees of the Aggregate and Mining Group are covered by collective bargaining or similar labor agreements.

## Backlog

At December 31, 2019 and 2018, the backlog for the Aggregate and Mining Group was approximately \$74,127 and \$130,691, respectively. Approximately \$48,193 of the decrease in backlogs between years relates to orders from domestic U.S. customers. Management expects the current backlog to be filled in 2020.

## 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, 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, CEI, GEFCO, Peterson, Power Flame and RexCon. The Company is in the process of discontinuing its GEFCO oil and gas product line and disposing of all of GEFCO's oil and gas related inventories, with an expected completion date of mid-2020. The Company is also in the process of closing its CEI facility and moving its product line operations, equipment and inventories to other Company business units, primarily RexCon and Heatec.

## 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. During 2020, Heatec will absorb the design, manufacturing and marketing of thermal fluid heaters, portable and stationary storage tanks, rubberized asphalt and polymer blending systems for the asphalt and other industries previously produced by CEI. Heatec has the technical staff to custom design heating systems and has systems operating as large as 75 million BTU's per hour.

GEFCO designs and manufactures portable drilling rigs and related equipment for the water well, environmental, geothermal, geotechnical, groundwater monitoring, and construction 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. The Company is in the process of discontinuing its GEFCO oil and gas product line and disposing of all of GEFCO's oil and gas related inventories, with an expected completion date of mid-2020.

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. During 2020, RexCon will absorb the concrete plant product lines previously produced by CEI.

## 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 54 direct sales employees, 81 domestic independent distributors and 42 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. During mid-2018 through mid-2019, the Company engaged an outside consultant to assist in the development of a procurement system designed to take advantage of Company-wide purchasing power and to improve on just-in-time purchasing procedures. These efforts are expected to reduce raw material inventory levels and raw material pricing in the future; however, Section 232 and Section 301 tariffs that went into effect in 2018 continue to negatively impact certain 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, Epiroc, National Oilwell Varco, Forum Energy Tech, Oil Country, 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, 2019, the Energy Group segment employed 906 individuals, of which 599 were engaged in manufacturing, 112 in engineering and 195 in selling, general and administrative functions. Approximately 81 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 97 of its manufacturing employees and expires on December 8, 2022. 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, 2019 and 2018 was approximately \$50,497 and \$64,834, respectively. The majority of the decline in orders between years related to orders from domestic U.S. customers. Management expects the entire current backlog to be filled in 2020.

## **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 our sales organization in Chile, Astec LatAm. 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. Astec LatAm operated for most of 2019 as a start-up operation until late 2019, but it was fully functioning as an Astec international sales office by the end of 2019.

## Employees

At December 31, 2019, the Corporate category employed 69 individuals, of which 61 were engaged in executive management, corporate finance, and administrative functions, and of which 8 were located in the Astec LatAm sales office.

## **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 declined during the second half of 2019, returning to pricing prior to the Section 232 and 301 tariff programs instituted in 2018. Expected seasonal increases are occurring as we enter 2020 and service centers replenish inventories. Some additional moderate increases are anticipated in the near term as some supply has been temporarily constrained; however, we expect pricing to weaken in the latter part of 2020 due to seasonality and additional supply slated to come online in 2021. The Company continues to utilize forward-looking contracts 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 2020 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, 2019, the Company and its subsidiaries employed 3,866 individuals (down from 4,401 at the end of 2018), of which 2,554 were engaged in manufacturing, 439 in engineering, including support staff, and 873 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 2019 took place at 20 separate locations. The Company's manufacturing operations consist primarily of fabricating steel components and the assembly and testing of its products to ensure that the Company achieves quality 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 103 United States patents and 119 foreign patents. The Company's subsidiaries have 60 United States and 101 foreign patent applications pending.

The Company and its subsidiaries have 86 trademarks registered in the United States, including logos for Astec, Carlson Paving, GEFCO, Heatec, KPI-JCI, Peterson Pacific, Power Flame, Roadtec and TelSmith, and the names ASTEC, CARLSON, HEATEC, JCI, KOLBERG, PETERSON, POWER FLAME, ROADTEC and TELSMITH, as well as a number of other product names. The Company also has 113 trademarks registered in foreign jurisdictions, including Argentina, Australia, Brazil, Canada, China, European Union, France, Germany, India, Italy, Kazakhstan, Mexico, New Zealand, Paraguay, Peru, Russia, South Africa, South Korea, Taiwan, Thailand, United Kingdom, Ukraine, Uruguay and Vietnam. The Company and its subsidiaries have 12 United States and 12 foreign trademark registration applications pending.

## Engineering and Product Development

The Company dedicates substantial resources to engineering and product development. At December 31, 2019, the Company and its subsidiaries had 439 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, 2019 and 2018, the Company had a backlog for delivery of products at certain dates in the future of approximately \$263,705 and \$344,962, respectively. Approximately \$66,000 of the decline in backlog between periods relates to orders from domestic customers. 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 surfaced 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**

### **Economic and Industry Risks**

#### **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.

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 those industries. The Company is in the process of discontinuing its GEFCO oil and gas product line and disposing of all of GEFCO's oil and gas related inventories, with an expected completion date of mid-2020.

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.

For raw materials that we source internationally, any changes to international trade policies could result in additional tariffs, duties or other charges which could significantly increase the costs of such materials and negatively impact our costs and related gross margins.

**Fluctuations in foreign currency exchange rates could affect our operating results.**

We are exposed to risk as a result of fluctuations in foreign currency exchange rates from transactions involving foreign operations and currencies. Because we prepare our financial statements and projections using the U.S. dollar as our reporting currency, we have to convert international assets, liabilities and other financial statement components into U.S. dollars using applicable exchange rates. Fluctuations in currency exchange rates could negatively affect our financial results and cause such results to differ materially from those anticipated in our projections. Further, changes in foreign currency exchange rates that weaken the U.S. dollar's position vis-à-vis a foreign currency could affect our operating results and financial condition, and may also affect the demand for our products in international markets if our foreign competitors are able to offer products at a lower cost as a result of the current exchange rate in such jurisdiction.

## **Operational Risks**

### **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 due to the nature of our business. If we are unable to obtain or maintain insurance or if our insurance does not cover such 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.

### **The Company is subject to a variety of other legal proceedings.**

From time to time, the Company may be involved in various legal proceedings that arise in the ordinary course of our business. We are unable predict when claims or matters will arise and the extent to which they will affect our business, and the international nature of our business exposes us to legal and regulatory matters that arise in foreign jurisdictions as well. We could incur significant expenses to administer and defend such matters, and any judgments or fines imposed on the Company could significantly impact our financial condition. Developments in our ongoing legal matters could also affect our assessment and estimates of loss contingencies recorded as a reserve and require us to make payments in excess of our reserves, which could have an adverse effect on our results of operations and financial condition. These matters could also significantly divert the attention of our management.

### **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.

**We rely heavily on our information technology. If the information systems we use fail or are interrupted, it could negatively affect our business, reputation and operating results.**

The failure of our information technology systems or those of our business partners and suppliers to work properly and in a timely manner could disrupt our business operations and negatively affect operating results. We rely on both internal technology and systems managed or hosted by third parties to support a variety of business activities and processes, including communications with our personnel, suppliers and customers, and to comply with regulatory, legal and tax requirements. Disruption of those systems could significantly harm our ability to process orders and service our customers, procure materials from our suppliers, effectively communicate within the Company and perform daily operations that are critical to the success of our business, all of which could negatively affect our business, reputation and results of operations.

**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.

**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.

**Acquisitions that we have made in the past, future acquisitions and start-up operations 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 we have started new operations, including the start-up of Astec Brazil and Astec LatAm in recent years. We may acquire additional businesses or start up other operations in the future. We may be unable to achieve the benefits expected to be realized from our acquisitions or business start-ups. 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 new businesses;
- new or added operations 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 or new operation;
- 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, and our ability to compete in international jurisdictions is dependent upon trade policies, which are subject to change.**

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. In addition to the general competitive challenges we face, international trade policies could negatively affect the demand for our products and services and reduce our competitive position in such markets. The implementation of more restrictive trade policies, such as higher tariffs, duties or charges, in countries where we operate could negatively impact our business, results of operations and financial condition.

**Our ability to attract and retain members of our executive team, management and other key employees, as well as the success of initiatives implemented by such individuals within the Company, are critical to our Company achieving positive outcomes.**

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. During 2019, we experienced turnover in several key management positions, including our Chief Executive Officer and Chief Financial Officer positions. Similar management changes in the future 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.

Further, our success also depends on the decision and strategic initiatives implemented by our senior management and executive officers. Currently, our Chief Executive Officer has implemented a new management structure for the Company, whereby the Company is moving to a more centralized management model. If this revised management structure does not succeed or is not implemented in a timely manner, our results of operations could be significantly affected and we risk our ability to retain senior management.

**Our expansion into international markets could divert management's attention from our existing operations and expose us to increased risks with respect to violation of international anti-corruption laws.**

In 2019, international sales represented approximately 22.3% of our total sales as compared to 21.8% in 2018. We plan to continue increasing our already significant sales and production efforts in international markets. In furtherance thereof, we recently opened a new sales/service operation in Chile and are in process of opening similar operations in India and Thailand. 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.

Additionally, the Foreign Corrupt Practices Act ("FCPA") and similar international anti-corruption laws generally prohibit companies from making improper payments for the purpose of obtaining or retaining business. The continued expansion of our international operations could increase the risk of violations of these laws in the future. Significant violations of these laws, or allegations of such violations, could harm our reputation, disrupt our business, and result in significant fines and penalties that could have a material adverse effect on our results of operations or financial condition.

## **Financial Risks**

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

As of December 31, 2019, 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, 2019, the Company had no borrowings, but did have \$8,335 in letters of credit outstanding under the Wells Fargo credit agreement. We may borrow additional amounts under the credit agreement in the future. The Company's Osborn, Astec Brazil, Telestack and Astec Australia subsidiaries have entered into their own independent loan agreements with other lending institutions.

### **We are subject to income taxes in the United States and certain foreign jurisdictions, and changes to the tax codes, effective tax rates and accounting principles related thereto could negatively impact our results of operations.**

We are subject to income taxes in the United States and other jurisdictions. Our results of operations could be adversely affected by, among other things, changes in the effective tax rates in the U.S. and foreign jurisdictions, a change in the mix of earnings between U.S. and non-U.S. jurisdictions or among jurisdictions with differing tax rates, changes in tax laws or treaties, and related changes in generally accepted accounting principles. 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.

### **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 impairment may have occurred). During 2019, the Company's testing indicated no impairment had occurred; however, in 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 or other intangible asset impairments. 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 previously 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.

**The Coronavirus outbreak or similar other health related outbreaks in the future could impact our business operations and financial condition.**

The ongoing coronavirus outbreak emanating from China at the beginning of 2020 has resulted in increased travel restrictions and extended shutdown of certain businesses in the region and elsewhere, and could similarly impact additional regions of the world. These or any further political or governmental developments or health concerns in China or other countries could result in social, economic and labor instability. These uncertainties could have a material impact on our business operations and financial condition by restricting our ability to timely source certain raw materials needed in the production of our products or limit our ability to sustain or grow our revenues from sales to customers in the regions or elsewhere.

**Risks Related to Investing in our Common Stock**

**The trading price of our common stock fluctuates and it may be difficult to resell shares at desirable prices.**

The trading price of our common stock has and may continue to fluctuate. Our stock price may fluctuate in response to the risk factors set forth herein, and our stock price volatility and trading volume may make it difficult for our stockholders to resell their Company shares when desired and at a price acceptable to them.

**There is no assurance that the Company will continue to declare dividends or have the available cash to make dividend payments.**

Although the Company has routinely declared dividends since 2012, we cannot assure our stockholders that we will continue to declare dividends or that funds will continue to be available for this purpose in the future. The declaration and payment of dividends are subject to the discretion of our Board of Directors, and will depend upon the Company's profitability, financial condition, capital needs, future prospects, and other factors deemed relevant by our Board of Directors.

**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 controls 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 2019 and 2018, management identified certain material weaknesses in internal controls 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, 2019 and 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 2020. 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 consolidated 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 consolidated financial statements and adversely impact our stock price.

**Item 1B. Unresolved Staff Comments**

None.

**Item 2. Properties**

The location, approximate square footage, acreage occupied and principal function and use by the Company's reporting segments of the significant 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	95,300	5	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)



Location	Approximate Square Footage	Approximate Acreage	Principal Function (Use by Segment)
Mequon, Wisconsin	236,000	30	Offices and manufacturing – Telsmith (Aggregate and Mining Group)
Yankton, South Dakota	314,100	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	165,000	15	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	20,400	--	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	91,600	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)
Presidente Riesco (REGUS), Chile	538	--	Leased sales office – Astec LatAm (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, as amended on August 26, 2019, in the United States District Court for the Eastern District of Tennessee (the “Court”). 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 amended 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. The amended complaint further alleges that the individual defendants are liable for such violations as control persons under Section 20(a) of the Exchange Act. The putative class action was purportedly 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. The Company disputes the allegations and intends to defend this lawsuit vigorously. Defendants named in the action filed a motion to dismiss the lawsuit on October 25, 2019, which is fully briefed and pending before the Court. The Company is unable to determine whether or not a future loss will be incurred due to this litigation, or estimate a range of loss, if any, at this time.

The Company’s GEFCO subsidiary has been named a defendant in a lawsuit originally filed on August 16, 2018 with an amended complaint filed on January 25, 2019, in the United States District Court for the Western District of Oklahoma. The action is styled VenVer S.A. and Americas Coil Tubing LLP v. GEFCO, Inc., Case No. CIV-18-790-SLP. The complaint alleges breaches of warranty and other similar claims regarding equipment sold by GEFCO in 2013. In addition to seeking a rejection (rescission) of the purchase contract, the plaintiff is seeking special and consequential damages. The original purchase price of the equipment was approximately \$8,500. GEFCO disputes the plaintiff’s allegations and intends to defend this lawsuit vigorously. The Company is unable to estimate the possible loss or range of loss at this time.

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.

**Barry A. Ruffalo** has served as Chief Executive Officer and President of Astec Industries since August 2019. Prior to joining Astec Industries, he was employed by Valmont Industries, a publicly-traded global producer of highly-engineered fabricated metal products, where he had served from 2015 to 2016 as Executive Vice President, Operational Excellence, from 2016 to 2017 as Group President-Energy & Mining, during 2017 as Group President-North America Structures/Energy/Mining and from 2018 to July 2019 as Group President of Global Engineered Support Structures. Preceding his career at Valmont Industries, from 2007 to 2013, Mr. Ruffalo served as President-Irrigation and from 2013 to 2015, as President-Infrastructure of Lindsay Corporation, a global leader in proprietary water management and road infrastructure products and services. He is 50.

**Rebecca A. Weyenberg** has served as Chief Financial Officer since December 2019. Prior to joining Astec Industries, she served from 2017 to 2019 as Vice President of Global Finance Operations for Welbilt, Inc., a publicly-traded global manufacturer of commercial foodservice equipment. Prior to her work with Welbilt, she served from 2015 to 2017 as Chief Financial Officer and Assistant General Manager for Berkeley Hall Club, a premier golf club in Bluffton, South Carolina. Previously, she served from 2010 to 2015 as Vice President, Global Processes, Standards and Shared Services and Vice President Finance, North American Region with AGCO Corporation, a publicly-traded global leader in the design manufacture and distribution of agricultural machinery. She is 56.

**Timothy A. Averkamp** has served as Group President-Mobile since November 2019. Prior to joining Astec Industries, he worked for Deere & Company for 22 years in various leadership positions. His positions included President of the Transaxle Manufacturing of America Joint Venture (JV) business between Deere and Yanmar/Kanzaki, Director of Business Partner Integration (BPI) over Deere's JV businesses with Hitachi Construction Equipment Company, Director BPI over the partnership businesses with Bell Equipment, Engineering Manager Advanced R&D (Construction/Forestry Equipment), Product Marketing Manager, amongst other technical and commercial positions. He is 48.

**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 47.

**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 53.

**J. Scott Barker** has served as Senior VP, Innovation since November 2019. He previously served as Group President-Energy from January 2019 to November 2019 and as President of GEFCO, Inc. from April 2017 to January 2019. Before joining Astec Industries, he held several leadership roles with Ingersoll Rand and Atlas Copco during his 12 year tenure, 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 56.

**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 commercial insurance program and aviation department. 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 56.

**Matthew T. Litchfield Sr.** has served as the Chief Information Officer since September 30, 2019. Before joining Astec Industries, he was Vice President of Information Technology at JD Norman Industries from 2014 to 2019. Prior to joining JD Norman, he was Global IT Director at Methode Electronics, Inc. from 2010 to 2014. He is 45.

**Gregory G. Oswald** has served as Senior Vice President of Global Operational Excellence since October 2019. Before joining Astec Industries, he was Senior Vice President-Global Operations at Lindsay Corporation from 2017 to 2019; Vice President of North America Operations from 2009 to 2017 and Director of Lean manufacturing from 2008 to 2009. 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 58.

## **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.

As announced to the public in a Form 8-K filing on July 30, 2018, the Company approved a stock repurchase program, which authorizes the Company to repurchase up to \$150 million of its common stock. As of December 31, 2019, the maximum dollar value of shares available for repurchase under the plan is approximately \$126 million. No shares were repurchased under the plan during 2019.

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:

	2019	Price Per Share	
		High	Low
1 <sup>st</sup> Quarter		\$ 43.26	\$ 29.21
2 <sup>nd</sup> Quarter		\$ 42.78	\$ 28.76
3 <sup>rd</sup> Quarter		\$ 35.49	\$ 26.20
4 <sup>th</sup> Quarter		\$ 43.92	\$ 28.63

	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

As of February 21, 2020, there were approximately 200 holders of record of the Company's Common Stock. For information regarding the Company's securities authorized for issuance under its equity compensation plans, please see Part II, Item 12 below in this Report.

### **Item 6. Selected Financial Data**

The information required to be disclosed in this Item appears in Appendix A of this Report.

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

The information required to be disclosed in this Item appears in Appendix A of this Report.

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

The information required to be disclosed in this Item appears in Appendix A of this Report under the heading “Market Risk and Risk Management Policies.”

**Item 8. Financial Statements and Supplementary Data**

The information required to be disclosed in this Item appears 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, 2019 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 Control over Financial Reporting**

Except for remediation of the material weakness related to the existence of inventories that existed as of 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, 2019 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 required to be disclosed by this Item will be contained 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 30, 2020 (referred to herein as the "Company's 2020 Proxy Statement") under the headings "Certain Information Concerning Nominees and Directors," "Corporate Governance," "Executive Officers" and "Section 16(a) Beneficial Ownership Reporting Compliance", which information 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 required to be disclosed by this Item, including Items 402(b) and 407(e)(4) and (e)(5) of Regulation S-K, will be contained in the Company's 2020 Proxy Statement under the headings "Compensation Discussion and Analysis", "Executive Compensation", "Director Compensation", "Corporate Governance—Compensation Committee Interlocks and Insider Participation" and "Compensation Committee Report," which information 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, 2019 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 Relected in Column (a))
Equity Compensation Plans Approved by Shareholders <sup>(1)</sup>	187,646 <sup>(2)</sup>	N/A	445,969 <sup>(4)</sup>
Equity Compensation Plans Not Approved by Shareholders <sup>(5)</sup>	30,574 <sup>(6)</sup>	N/A	65,898 <sup>(7)</sup>
Total	218,220		511,867

(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 right 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.

#### **Security Ownership of Certain Beneficial Owners and Management**

Information included under the caption "Stock Ownership of Certain Beneficial Owners and Management" in the Company's 2020 Proxy Statement is incorporated herein by reference.

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

Information required by this Item is provided under the captions "Corporate Governance—Independent Directors" and "Transactions with Related Persons" in the Company's 2020 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 2020 Proxy Statement is incorporated herein by reference.

### **PART IV**

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

(a)(1) The following financial statements and the other information listed below 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, 2019 and 2018.
- Consolidated Statements of Operations for the Years Ended December 31, 2019, 2018 and 2017.
- Consolidated Statements of Comprehensive Income (Loss) for the Years Ended December 31, 2019, 2018 and 2017.
- Consolidated Statements of Cash Flows for the Years Ended December 31, 2019, 2018 and 2017.
- Consolidated Statements of Equity for the Years Ended December 31, 2019, 2018 and 2017.
- 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, July 23, 2008 and July 25, 2019 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2019).
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). *
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)
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 (incorporated by reference from the Company's Annual Report on Form 10-K for the period ending December 31, 2018). *
10.22	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective January 1, 2019 (incorporated by reference from the Company's Annual Report on Form 10-K for the period ending December 31, 2018). *
10.23	Second Amendment to Amended and Restate Credit Agreement, effective February 26, 2019 (incorporated by reference from the Company's Annual Report on Form 10-K for the period ending December 31, 2018).
10.24	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective April 25, 2019 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending March 31, 2019). *
10.25	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective July 25, 2019 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending June 30, 2019). *
10.26	Separation Agreement and General Release, dated as of September 18, 2019, by and between Astec Industries, Inc. and Richard J. Dorris (incorporated by reference from the Company's Current Report on Form 8-K filed on September 18, 2019). *
10.27	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective October 24, 2019 (incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ending September 30, 2019). *
10.28	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective December 5, 2019. *
10.29	Separation Agreement and General Release, dated as of December 31, 2019, by and between Astec Industries, Inc. and David C. Silvius.
10.30	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective February 28, 2020. *
21	Subsidiaries of the Registrant.
23	Consent of Independent Registered Public Accounting Firm.
31.1	Certification of Chief Executive Officer of Astec Industries, Inc. pursuant Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act Of 2002.
31.2	Certification of Chief Financial Officer of Astec Industries, Inc. pursuant Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act Of 2002.
32	Certification of Chief Executive Officer and Chief Financial Officer of Astec Industries, Inc. pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act Of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase

\* Management contract or compensatory plan or arrangement.

(b) The Exhibits filed with this Report are listed on Appendix A.

(c) The Financial Statement Schedules to this Report 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.

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, 15(a)(1) , and 15(b)**  
**AND**  
**INDEX TO FINANCIAL STATEMENTS AND**  
**FINANCIAL STATEMENT SCHEDULES**

**ASTEC INDUSTRIES, INC.**

Contents	Page
Items 6 and 15(a)(1): Selected Consolidated Financial Data	A-3
Items 6 and 15(a)(1): Supplementary Financial Data	A-4
Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations	A-5
Item 7A: Quantitative and Qualitative Disclosures about Market Risk	A-15
Item 9A: Management's Report on Internal Control over Financial Reporting	A-22
Reports of Independent Registered Public Accounting Firm	A-25
Items 8 and 15(a)(1): Financial Statements and Supplementary Data	
Consolidated Balance Sheets as of December 31, 2019 and 2018	A-29
Consolidated Statements of Operations for the Years Ended December 31, 2019, 2018 and 2017	A-30
Consolidated Statements of Comprehensive Income (Loss) for the Years Ended December 31, 2019, 2018 and 2017	A-31
Consolidated Statements of Cash Flows for the Years Ended December 31, 2019, 2018 and 2017	A-32
Consolidated Statements of Equity for the Years Ended December 31, 2019, 2018 and 2017	A-34
Notes to Consolidated Financial Statements	A-35
Comparison of 5-Year Cumulative Total Return	A-63
Item 15(b): Index of Exhibits Filed with this Form 10-K	A-64

**FINANCIAL  
INFORMATION**

# SELECTED CONSOLIDATED FINANCIAL DATA

(in thousands, except as noted\*)

	2019	2018	2017	2016	2015
<b>Consolidated Statement of Operations Data</b>					
Net sales	\$ 1,169,613	\$ 1,171,599	\$ 1,184,739	\$ 1,147,431	\$ 983,157
Gross profit	239,408	135,766	243,129	265,269	218,843
Gross profit %	20.5%	11.6%	20.5%	23.1%	22.3%
Selling, general and administrative expenses	183,934	180,795	160,775	153,145	145,180
Research and development	27,214	28,332	26,817	24,969	23,676
Restructuring and asset impairment charges	3,204	13,060	—	—	—
Income (loss) from operations	25,056	(86,421)	55,537	87,155	49,987
Interest expense	(1,367)	(1,045)	(840)	(1,395)	(1,611)
Other income	305	536	1,218	529	3,055
Net income (loss)	22,174	(60,744)	37,590	54,988	31,966
Net income (loss) attributable to controlling interest	22,306	(60,449)	37,795	55,159	32,797
<b>Earnings (loss) per common share*:</b>					
Net income (loss) attributable to controlling interest					
Basic	0.99	(2.64)	1.64	2.40	1.43
Diluted	0.98	(2.64)	1.63	2.38	1.42
<b>Consolidated Balance Sheet Data</b>					
Working capital	\$ 333,537	\$ 371,760	\$ 423,823	\$ 407,972	\$ 399,785
Total assets	800,498	855,457	889,579	843,601	777,353
Short-term debt	1,130	—	—	4,632	—
Current maturities of long-term debt	209	413	2,469	2,538	4,528
Long-term debt, less current maturities	690	59,709	1,575	4,116	5,154
Total equity	602,487	585,290	686,765	648,841	609,858
Cash dividends declared per common share*	0.44	0.42	0.40	0.40	0.40
Book value per share at year-end (shareholders' equity / diluted shares outstanding for the year)*	26.55	25.53	29.58	27.99	26.30

## SUPPLEMENTARY FINANCIAL DATA

(in thousands, except as noted\*)

### Quarterly Financial Highlights (Unaudited)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
<b>2019</b> Net sales	\$325,780	\$304,802	\$255,807	\$283,224
Gross profit <sup>(1)</sup>	76,850	83,317	51,860	27,381
Net income (loss)	14,217	23,361	2,955	(18,359)
Net income (loss) attributable to controlling interest	14,274	23,377	3,010	(18,355)
Earnings (loss) per common share*				
Net income (loss) attributable to controlling interest:				
Basic	0.63	1.04	0.13	(0.81)
Diluted	0.63	1.03	0.13	(0.81)
Dividends paid	0.11	0.11	0.11	0.11
<b>2018</b> Net sales	\$325,453	\$272,528	\$256,613	\$317,005
Gross profit (loss)	78,005	1,108	58,284	(1,631)
Net income (loss)	20,216	(40,768)	6,903	(47,095)
Net income (loss) attributable to controlling interest	20,267	(40,674)	6,995	(47,037)
Earnings (loss) per common share*				
Net income (loss) attributable to controlling interest:				
Basic	0.88	(1.76)	0.31	(2.08)
Diluted	0.87	(1.76)	0.30	(2.08)
Dividends paid	0.10	0.10	0.11	0.11
<b>Common Stock Price*</b>				
2019 High	\$43.26	\$42.78	\$35.49	\$43.92
2019 Low	\$29.21	\$28.76	\$26.20	\$28.63
2018 High	\$64.80	\$61.61	\$63.69	\$52.88
2018 Low	53.89	52.84	44.92	27.86

The Company's common stock is traded in the Nasdaq National Market under the symbol ASTE. Prices shown are the high and low sales prices as announced by the Nasdaq National Market. As determined by the proxy search on the record date for the Company's 2020 annual shareholders' meeting, the number of holders of record is approximately 200.

<sup>(1)</sup> Amounts for the first and second quarters have been revised from amounts reported in the respective Form 10-Q's to reflect separate restructuring charge presentation that began with the third quarter Form 10-Q reporting.

## MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

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

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

### Overview

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

- design, engineer, manufacture and market equipment used in each phase of road building, including mining, quarrying and crushing the aggregate, mobile bulk and material handling solutions, producing asphalt or concrete, recycling old asphalt or concrete and applying the asphalt;
- design, engineer, manufacture and market additional equipment and components, including equipment for geothermal drilling, oil and natural gas, industrial heat transfer, wood chipping and grinding, commercial and industrial burners, combustion control systems; and
- manufacture and sell replacement parts for equipment in each of its product lines.

The Company, as we refer to it herein, consists of a total of 22 companies that are consolidated in our financial statements, which include 17 manufacturing companies, three companies that operate as dealers for the manufacturing companies, a captive insurance company and the parent company. The companies fall within three reportable operating segments: the Infrastructure Group, the Aggregate and Mining Group and the Energy Group.

**Infrastructure Group** - This segment consists of five business units, three of which design, engineer, manufacture and market a complete line of asphalt plants, asphalt pavers and related components and ancillary equipment. The two remaining companies in the Infrastructure Group are Company-owned dealers which sell, service and install equipment produced by the manufacturing subsidiaries of the Company, with the majority of sales to the infrastructure industry. In late 2018, the Company announced the closing of its Company-owned dealer in Germany. All assets of the German Company-owned dealer have been liquidated or transferred to other Company subsidiaries, (with the sale of the land and buildings closing in January 2020). Minimal costs are expected to be incurred in 2020 associated with the final closing of the German Company-owned dealer.

**Aggregate and Mining Group** - This segment consists of eight business units that design, manufacture and market heavy equipment and parts in the aggregate, metallic mining, quarrying, recycling, ports and bulk handling industries.

**Energy Group** - This segment consists of six business units that design, manufacture and market heaters, gas, oil and combination gas/oil burners, combustion control systems, drilling rigs, concrete plants, wood chippers and grinders, pump trailers, commercial and industrial burners, combustion control systems, storage equipment and related parts to the oil and gas, construction, and water well industries. RexCon, Inc. was added to this Group effective October 1, 2017 as described below. The Company announced the pending closing of its CEI, Inc. business location in October 2019. The products manufactured by CEI will be transferred to other Astec companies for future production. The closing of CEI is expected to be completed in March 2020. The Company is in the process of discontinuing its GEFCO oil and gas product line and disposing of all of GEFCO's oil and gas related inventories, with an expected completion date of mid-2020.

Individual Company subsidiaries included in the composition of the Company's segments are as follows:

1. **Infrastructure Group** – Astec, Inc., Roadtec, Inc., Carlson Paving Products, Inc., Astec Australia, Pty Ltd and Astec Mobile Machinery GmbH (which is being dissolved).
2. **Aggregate and Mining Group** – Telsmith, Inc., Kolberg-Pioneer, Inc., Johnson Crushers International, Inc., Osborn Engineered Products SA (Pty) Ltd, Breaker Technology, Inc., Astec Mobile Screens, Inc., Astec do Brasil Fabricacao de Equipamentos LTDA and Telestack Limited.
3. **Energy Group** – Heatec, Inc., CEI, Inc. (which is being closed), GEFCO, Inc., Peterson Pacific Corp., Power Flame Incorporated and RexCon, Inc. RexCon, Inc. was added to the Group upon its formation and acquired substantially all of the assets and liabilities of RexCon LLC in October 2017.

The Company also has one other category, Corporate, that contains the business units that do not meet the requirements for separate disclosure as a separate operating segment or inclusion in one of the other reporting segments. The business units in the Corporate category are Astec Insurance Company ("Astec Insurance" or "the captive"), Astec Industries LatAm SpA, a Company-owned distributor in Chile in the start-up phase of operations and Astec Industries, Inc., the parent company.

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

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

In July 2012, the "Moving Ahead for Progress in the 21st Century Act" ("Map-21") was approved by the U.S. federal government, which authorized \$105 billion of federal spending on highway and public transportation programs through fiscal year 2014. In August 2014, the U.S. government approved short-term funding of \$10.8 billion through May 2015. Federal transportation funding operated on short-term appropriations until December 4, 2015, when the Fixing America's Surface Transportation Act ("FAST Act") was signed into law. The \$305 billion FAST Act approved funding for highways of approximately \$205 billion and transit projects of approximately \$48 billion for the five-year period ending September 30, 2020.

The Company believes a multi-year highway program (such as the FAST Act) will have the greatest positive impact on the road construction industry and allows its customers to plan and execute longer-term projects. Given the inherent uncertainty in the political process, the level of governmental funding for federal highway projects will similarly continue to be uncertain. Since elected in late 2016, the current executive branch of the federal government has stressed that one of its priorities is a new infrastructure bill including increased funding for roads, bridges, tunnels, airports, railroads, ports and waterways, pipelines, clean water infrastructure, energy infrastructure and telecommunication needs. Proposals being considered may rely in part on direct federal spending as well as increased private sector funding in exchange for federal tax credits. Governmental funding that is committed or earmarked for federal highway projects is always subject to repeal or reduction. Although continued funding under the FAST Act or funding of a bill passed by the current administration is expected, it may be at lower levels than originally approved or anticipated. In addition, Congress could pass legislation in future sessions that would allow for diversion of previously appropriated highway funds for other purposes, or it could restrict funding of infrastructure projects unless states comply with certain federal policies. The level of future federal highway construction is uncertain and any future funding may be at levels lower than those currently approved or that have been approved in the past.

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

In addition to public sector funding, the economies in the markets the Company serves, the price of liquid asphalt, the price of oil and natural gas, and the price of steel may each affect the Company's financial performance. Economic downturns generally result in decreased purchasing by the Company's customers, which, in turn, cause reductions in sales and increased pricing pressure on the Company's products. Rising interest rates also typically negatively impact customers' attitudes toward purchasing equipment. The Federal Reserve has maintained historically low interest rates in response to the economic downturn which began in 2009; however, the Federal Reserve increased the Federal Funds Rate beginning in December 2016 through 2018 but decreased rates by 0.25% in late July 2019 and again in September and October 2019. Future rate changes are expected; however, the current Federal Funds Rate is still considered in the historically low range.

Significant portions of the Company's revenues from the Infrastructure Group relate to the sale of equipment involved in the production, handling, recycling or application of asphalt mix. Liquid asphalt is a by-product of oil refining. An increase or decrease in the price of oil impacts the cost of asphalt, which is likely to alter demand for asphalt and therefore affect demand for certain Company products. While increasing oil prices may have a negative financial impact on many of the Company's customers, the Company's equipment can use a significant amount of recycled asphalt pavement, thereby partially mitigating the effect of increased oil prices on the final cost of asphalt for the customer. The Company continues to develop products and initiatives to reduce the amount of oil and related products required to produce asphalt. Oil price volatility makes it difficult to predict the costs of oil-based products used in road construction such as liquid asphalt and gasoline. Oil prices have routinely fluctuated in recent years and are expected to continue to fluctuate in the future. Minor fluctuations in oil prices should not have a significant impact on customers' buying decisions. Other factors such as political uncertainty in oil producing countries, interruptions in oil production due to disasters, whether natural or man-made, or other economic factors could significantly impact oil prices, which could negatively impact demand for the Company's products. The Company believes the continued funding of the FAST Act federal highway bill passed in December 2015, together with the prospect of potential replacement funding, have a greater potential to impact the buying decisions of the Company's customers than does the fluctuation of oil prices in 2020.

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

Steel is a major component of the Company's equipment. Steel prices declined during the second half of 2019, and by late 2019, returned to levels prior to Section 232 and 301 tariffs recently enacted. The Company expects seasonal strengthening to occur as it enters 2020 as service centers replenish inventories and anticipates some additional moderate strengthening as some supply has been temporarily constrained. The Company expects pricing to weaken in the latter part of 2020 due to seasonality and additional supply slated to come online in 2021. The Company continues to utilize forward-looking contracts 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 2020 and establish future contract pricing accordingly.

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

In the United States and internationally, the Company's equipment is marketed directly to customers as well as through dealers. During 2019, approximately 60% of the Company's sales were to the end user. The Company expects this ratio to be between 60% and 70% for 2020.

The Company operated in 2019 on a centrally led, but decentralized basis, with a complete operating management team for each operating subsidiary. Finance, insurance, legal, shareholder relations, corporate accounting and other corporate matters are primarily managed at the Corporate level (i.e., Astec Industries, Inc., the parent company). The engineering, design, sales, manufacturing and basic accounting functions are the responsibility of each individual subsidiary. Standard accounting procedures are prescribed and followed in all reporting.



In 2019, the Company operated under an interim CEO while the Astec Board of Directors searched for a new Chief Executive Officer. In August 2019, the Astec Board of Directors hired Barry A. Ruffalo as President and CEO of the Company. Mr. Ruffalo spent the remainder of 2019 visiting all Astec subsidiaries to familiarize himself with the Company's products, people, products and markets the Company serves. A new Chief Financial Officer, Rebecca A. Weyenberg, was also hired in late 2019.

In 2020, under leadership of the new CEO, new business strategies, as well as a new operating structure was implemented across the Company. The three pillars that frame the Company's business strategy going forward will be "Simplify, Focus and Grow". The Company will "Simplify" by leveraging its global footprint and scale while maintaining strong customer relationships, reducing the complexity of the organizational structure, consolidating and rationalizing its product portfolio and optimizing the supply chain by leveraging the size and scale of the Company. The Company's "Focus" will be to strengthen the customer-centric approach by providing a holistic set of solutions while driving commercial and operational excellence as well as enhanced accountability through a performance-based culture with key performance indicators and incentives. The Company will "Grow" by capitalizing on global growth opportunities, reinvigorating innovation with a new product development approach and leveraging technology and digital connectivity to enhance our customer experience and effectively allocate capital to drive increased shareholder value.

The new business strategy includes the change to a matrix organization from the previous individual decentralized company structure, which will improve the agility and speed of decision making and strategic focus. The new organizational structure is centered on product platforms and functional roles instead of the past independent subsidiary structure. The Company will migrate to operating under two core groups managed by Group Presidents who report directly to the CEO. Each Group President is responsible for multiple manufacturing sites based on the commonality of products and markets those sites serve. The Group Presidents have functional Vice Presidents as direct reports and include VP of Product Management, VP of Sales and Marketing, VP of Engineering, VP of Finance and VP of Operations. These Vice Presidents are responsible for their individual functional lines of the business at all sites within their Group. The position of Subsidiary President has been eliminated, with most of the previous subsidiary presidents assuming a role of Group vice president suited for their particular area of expertise. The Company believes the new leaner structure is more efficient and agile and will reduce duplicate processes and positions across all sites as well as improve communication and drive focus on the manufacture/sell/service of all products while maintaining the Company's core values.

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

The Company's current long-term incentive plans allow Corporate officers, subsidiary presidents and other corporate or subsidiary management employees to be awarded Restricted Stock Units ("RSUs") if certain goals are met based upon the Company's Total Shareholder's Return ("TSR") as compared to a peer group and the Company's pretax profit margin. The grant date value of Corporate officers' and subsidiary presidents' awards, when calculated at targeted performance, are between 20% and 150% of their base salary, depending upon their responsibilities, and the plans allow for awards of up to 200% of target incentive compensation. Additional RSUs may be granted to other key subsidiary management employees based upon individual subsidiary profits.

The Company's Board, with the assistance of management and an outside consultant, are in the process of redesigning the Company's annual incentive and long-term incentive plans to better fit the new management structure. Approval is expected in early 2020.

Beginning in 2018 and continuing through mid-2019, the Company retained the services of a specialized consulting firm to assist with the accumulation of Company-wide purchasing data and a system for maintaining similar data in the future for management to utilize in negotiations with suppliers or potential suppliers in order to obtain reduced prices on raw materials and purchased equipment components. The firm also assisted with the development of sales and operational planning procedures designed to achieve significant reductions in inventory levels maintained for normal production needs and to reduce existing excess inventories. The results of these efforts had a positive impact on the Company's gross profit and inventory levels in 2019, and the Company anticipates an increased impact in 2020 and forward as process improvements mature.

## Significant Items Impacting Operations 2019 and 2018

### *Georgia Pellet Plant Agreement (Q2 2019)*

The Company manufactured its first wood pellet plant for a customer under a Company-financed arrangement whereby the Company deferred the recognition of revenue as payment under the arrangement was not assured. After considering the uncertainty of completing the sale to the customer due to its inability to obtain financing; the lack of success in attempting to market the plant to other pellet plant operators; the cost of repossessioning the plant; and the Company's decision to exit the pellet plant business line, the pellet plant inventory's net realizable value was written down from \$59,522 to zero in the fourth quarter of 2018. The Company ultimately sold the pellet plant to the original customer at a discounted sales price of \$20,000 at the end of the second quarter of 2019. The sales agreement also included provisions to release the Company from any further financial obligations related to the plant. The \$20,000 sale of this pellet plant is included in the results of operations for the year ended December 31, 2019 and is non-recurring.

### *Arkansas Pellet Plant Agreement (Q2 2018)*

The Company's sales contract with the purchaser of a large wood pellet plant in Arkansas, on which \$143,300 of revenue (prior to the \$75,315 charge discussed below) was recorded through June 30, 2018 (2018 revenues were not material) based on the over-time method, contained certain production output and operational provisions, which if not timely met, could have resulted in the Company having to refund the purchase price to the customer. Additional contract provisions required the Company to compensate the customer for production shortfalls caused by the Company and other potential costs (depending on the market price of wood pellets). As the plant did not meet the production output and operational specifications by the deadline set forth in the contract (June 29, 2018), the Company entered into an agreement with the customer on July 20, 2018, whereby the Company paid its customer \$68,000 over 120 days following execution of the agreement and forgave \$7,315 in accounts receivables to obtain a full release of all the Company's contractual obligations under the sales contract. The terms of the pellet plant agreement resulted in the Company's Infrastructure Group recording non-recurring charges against sales of \$75,315 and gross profit of \$71,029 in the second quarter of 2018.

### *Restructuring Charges (2019)*

The Company has completed the plan it announced in 2018 to exit from the wood pellet plant line of business and is in the final stages of the closing of Astec Mobile Machinery ("AMM") in Germany. In the fourth quarter of 2019, the Company also announced the closing of CEI, Inc. ("CEI") in Albuquerque, New Mexico. The Company is in the process of discontinuing its GEFECO oil and gas product line and disposing of all of GEFECO's oil and gas related inventories, with an expected completion date of mid-2020. Costs totaling \$3,204 were incurred in 2019 related to its business closings and divestitures outlined above and are classified on the accompanying consolidated statements of operations as restructuring and asset impairment charges and are comprised of \$1,282 of costs related to the closing of AMM; \$530 of costs related to exiting the wood pellet plant line of business and \$247 of costs related to GEFECO discontinuing the oil and gas product line (primarily employee severance pay); \$895 related to the closing of CEI and an asset impairment charge of \$250 related to one of the Company's airplanes. Additional costs may be incurred in 2020 related to restructuring. Accrued costs at December 31, 2019 related to the restructuring activities are not significant.

### *Net Realizable Inventory Adjustment (2019)*

Inventories are valued at the lower of cost or net realizable value which requires the Company to make specific estimates, assumptions and professional judgement to determine if adjustments of inventory values to their net realizable value are necessary. In the fourth quarter of 2019, after considering new management's revised inventory control and working capital control objectives and the Company's assessment of the age, quantities on hand, market acceptance of the equipment, and other related factors, it was determined that various specific equipment models in each of the Company's business units required additions to their net realizable value reserves. An adjustment of \$12,122 was recorded by the Infrastructure group and was primarily due to new company strategies regarding the marketing of aged used mobile equipment primarily received in trade on new equipment sales and certain aged mobile equipment models not widely accepted in the industry. The Aggregate and Mining group recorded an adjustment of \$4,261, which was due primarily to the previous years' production of two units of a large crusher model which remain unsold with no viable prospects at year end 2019. An adjustment of \$16,247 was recorded in the Energy group, with \$11,907 of the adjustment due to GEFECO discontinuing its oil and gas product line and \$3,041 due to the announced closing of CEI.

#### *Net Realizable Value Inventory Adjustment (2018)*

In the fourth quarter of 2018, after an in-depth analysis of the age, quantities on hand, market acceptance of the equipment, management's inventory and working capital control objectives, and other related factors, it was determined that various specific equipment models of the Company's Energy Group inventories, primarily related to oil and gas equipment, required an adjustment of \$7,487 to cost of sales to reduce inventories to their net realizable values.

#### *Liquidation of Subsidiary (2018)*

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 GmbH ("AMM") 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 AMM. A restructuring charge of \$1,870 was recorded by the Infrastructure Group in December 2018 related to the liquidation of AMM.

#### *Goodwill Impairment (2018)*

The Company tests goodwill at least annually for impairment. Goodwill tests and valuation procedures were performed by the Company in the fourth quarter of 2018 using actual financial results and forecasts approved by the Company. The testing resulted in impairments at two of the businesses recently acquired by the Company, RexCon, Inc. and Power Flame Incorporated. As a result, the Energy Group recorded goodwill impairment of \$11,190 in the fourth quarter of 2018.

### **Results of Operations: 2019 vs. 2018**

#### *Net Sales*

Net sales decreased \$1,986 or 0.2% to \$1,169,613 in 2019 from \$1,171,599 in 2018. Sales are generated primarily from new equipment purchases made by customers for use in construction of privately funded infrastructure, public sector spending on infrastructure and sales of equipment for the aggregate, mining, wood pellet, quarrying and recycling markets, and for oil and gas and geothermal industries. Excluding the \$75,315 one-time pellet plant sales reduction in 2018 and the \$20,000 pellet plant sale recorded in the second quarter of 2019, total net sales decreased \$97,301 or 7.8% between the years.

Domestic sales for 2019 were \$908,466 or 77.7% of net sales compared to \$915,814 or 78.2% of net sales for 2018, a decrease of \$7,348 or 0.8%. Excluding pellet related sales, domestic sales for 2019 were \$888,466 or 77.3% of net sales compared to \$991,129 or 79.5% of net sales for 2018, a decrease of \$102,663 or 10.4%. The Company experienced improved domestic sales for its Infrastructure equipment during 2019 while sales of Aggregate and Mining and Energy related equipment decreased during 2019.

International sales for 2019 were \$261,147 or 22.3% of net sales compared to \$255,785 or 21.8% of net sales for 2018, an increase of \$5,362 or 2.1%. The Company experienced improved international sales in 2019 for its Energy related equipment, primarily heating and storage equipment. Sales of Infrastructure related equipment between periods decreased while equipment sold by the Aggregate and Mining Group remained relatively flat between 2018 and 2019. Sales reported by the Company for 2019 would have been \$8,641 higher had 2019 foreign exchange rates been the same as 2018 rates. The increase in international sales occurred primarily in Europe, Brazil, the West Indies, Canada, Post-Soviet States and Australia, offset by decreased sales in South America, the Middle East, Russia and Mexico. The Company continues its efforts to grow its international business by increasing its presence in the markets it serves including the opening of additional Company-owned distributors in select international countries.

Parts sales for 2019 were \$319,063 or 27.3% of net sales compared to \$308,703 or 26.3% of net sales for 2018, an increase of \$10,360 or 3.4%. All of the Company's segments experienced increased parts sales in 2019 as compared to 2018 as the Company continues to emphasize growth in this line of business.

#### *Gross Profit*

Gross profit for 2019 was \$239,408 or 20.5% of net sales as compared to \$135,766 or 11.6% of net sales in 2018, an increase of \$103,642 or 76.3%. Excluding pellet plant related transactions in each period, the 2019 gross profit would have been \$219,408 or 19.1% of net sales compared to \$285,082 or 22.9% of net sales for 2018, a decrease of \$65,674 or 23.0%. Overall gross margins were negatively impacted by reduced sales volumes impacting manufacturing overhead absorption, tariffs on incoming materials from certain foreign countries, competitive pricing pressures and additional inventory reserves booked in 2019.

### *Selling, General and Administrative Expense*

Selling, general and administrative expense for 2019 was \$183,935 or 15.7% of net sales compared to \$180,795 or 15.4% of net sales for 2018, an increase of \$3,140 or 1.7%, primarily due to increases in the market value of Company stock held in the SERP (\$2,172); employee annual incentive pay on higher company earnings (\$1,572); increased management recruitment and relocation costs associated with the hiring of the Company's new CEO, CFO and several other management positions associated with the transition from decentralized management to a matrix form of management (\$1,174); and increased costs for the upcoming Con Expo in March 2020 (which is held once every three years) and exhibit expense of (\$1,214); offset primarily by a decrease in airplane repairs and maintenance expense of \$2,159.

### *Research and Development*

Research and development expenses decreased \$1,118 or 3.9% to \$27,214 in 2019 from \$28,332 in 2018. During 2019, the Company presented various new and/or improved equipment models from the 2018 research and development spending while continuing its 2019 effort on research and development of new products and improvements to existing product lines as well as adaptation of those products to other markets. The Company will present its new products at the ConExpo trade show in March 2020.

### *Impairment and Restructuring Charges*

Impairment and restructuring charges total \$3,204 in 2019 and include charges of \$1,282 related to the closing of AMM, a Company-owned distributor in Germany; \$895 related to the closing of CEI; \$530 of costs related to exiting the wood pellet plant line of business; and \$247 of costs related to exiting GEFCO's oil and gas product line (primarily employee severance pay); and an asset impairment charge of \$250 related to one of the Company's airplanes. Impairment and restructuring charges totaled \$13,060 in 2018 and included a goodwill impairment charge of \$11,190 and a charge of \$1,870 related to the closing of AMM.

### *Interest Expense*

Interest expense in 2019 increased \$322 or 30.8% to \$1,367 from \$1,045 in 2018 due to a temporary increase in the Company's borrowings under its line of credit in the first nine months of 2019.

### *Interest Income*

Interest income increased \$240 or 25.2% to \$1,192 in 2019 from \$952 in 2018 due primarily to an increase in interest received in 2019 by one foreign subsidiary due to an increased level of cash on hand.

### *Other Income*

Other income decreased \$231 or 43.1% to \$305 in 2019 from \$536 in 2018.

### *Income Tax*

Income tax expense for 2019 was \$3,012 compared to income tax benefit of \$25,234 for 2018. The effective tax rates for 2019 and 2018 were 12.0% and 29.3%, respectively. The Company's tax rates are affected by recurring items which are generally consistent from period to period, as well as discrete items that may occur in any given period but are not consistent from period to period. In addition to the U.S. federal tax rate reduction from 35% to 21% for tax years beginning in 2018 and state income tax expense or benefit items, the items having the most significant impact on the effective tax rate for 2019 include a benefit of \$6,614 for research and development tax credits, a benefit of \$918 for the liquidation of a foreign subsidiary, expense of \$5,785 for domestic and foreign valuation allowance changes and expense of \$5,723 related to unrecognized tax benefits for tax positions taken in 2019.

### *Net Income Attributable To Controlling Interest*

The Company had a net income attributable to controlling interest of \$22,306 in 2019 compared to net loss of \$60,449 in 2018, an increase of \$82,755. Earnings per diluted share increased \$3.62 to income of \$0.98 in 2019 from a loss of \$2.64 in 2018. Weighted average diluted shares outstanding for the years ended December 31, 2019 decreased to 22,674 from 22,902 in 2018 due to the impact of the Company's stock buy-back program adopted in 2018.

### *Backlog*

The backlog of orders at December 31, 2019 was \$263,705 compared to \$344,962 at December 31, 2018, a decrease of \$81,257 or 23.6%. The decrease in the backlog of orders was due to a decrease in domestic backlog of \$66,243 or 25.4% and a decrease in international backlog of \$15,014 or 17.8%. The Aggregate Mining Group's backlog decreased \$56,564 or 43.3% from 2018; the Energy Group's backlog decreased \$14,337 or 22.1% from 2018; and the Infrastructure Group's backlogs decreased \$10,356 or 6.9% from 2018 levels. The Company is unable to determine whether the changes in backlogs were experienced by the industry as a whole.

## Net Sales by Segment

	<b>2019</b>	<b>2018</b>	<b>\$ Change</b>	<b>% Change</b>
Infrastructure Group	\$ 492,118	\$ 442,289	\$ 49,829	11.3%
Aggregate and Mining Group	404,971	453,164	(48,193)	(10.6)%
Energy Group	272,122	276,146	(4,024)	(1.5)%

Infrastructure Group: Sales in this group increased \$49,829 or 11.3%. Domestic sales for the Infrastructure Group increased \$50,925 or 13.6% in 2019 compared to 2018. The increase in domestic sales was due to the increase in pellet plant related sales of \$95,315 between the periods, which includes a one-time pellet plant recovery sale of \$20,000 in 2019, compared to the sales reversal of \$75,315 in 2018 for a pellet plant related settlement. The increase in pellet plant related sales was offset by a decrease in sales of mobile asphalt paving equipment of \$51,063 between the periods. A decrease in sales of highway class road pavers is due in part to overstocking of Company product at dealers in 2018 which resulted in higher levels of dealer inventories prevalent throughout much of 2019, thereby reducing reorders. International sales for the Infrastructure Group decreased \$1,096 or 1.6% in 2019 compared to 2018 and was due to increased asphalt plant sales offset by decreased mobile asphalt equipment sales. The decrease in international sales for the Infrastructure Group occurred mainly in Australia, Russia, and Mexico. In 2019, the Company introduced a new asphalt plant model specifically designed to meet the needs of the international market, which is expected to help drive increased sales internationally. Parts sales for the Infrastructure Group increased \$1,413 or 1.0% in 2019 compared to 2018.

Aggregate and Mining Group: Sales in this group decreased \$48,193 or 10.6%. Domestic sales for the Aggregate and Mining Group decreased \$48,383 or 16.0% in 2019 compared to 2018. A late start to the construction season, due to extremely wet weather domestically contributed to decreased inventory turns for dealers throughout 2019 resulting in an 18% increase in dealer inventory stocking levels between the periods. Many dealers indicated that their rental business increased during 2019 but that slower than normal rental to retail conversion rates also contributed to less equipment sales and a surplus of available equipment in the domestic market. International sales for the Aggregate and Mining Group remained relatively flat in 2019 compared to 2018. Parts sales for the Aggregate and Mining Group increased 4.3% in 2019 compared to 2018 due to an increase in wear parts sales between the periods.

Energy Group: Sales in this group decreased \$4,024 or 1.5%. Domestic sales for the Energy Group decreased \$9,890 or 4.1% in 2019 compared to 2018 due to decreased sales of whole tree chippers, debarkers, grinders and asphalt, thermal fluid and process heating equipment, offset by an increase in sales of concrete plants and direct and indirect fired and forced draft burners. International sales for the Energy Group increased \$5,866 or 16.0% in 2019 compared to 2018 and was primarily due to increased sales of industrial heaters and related equipment. The increase in international sales occurred in Canada, Africa and Europe and was offset by decreased sales in Australia and South America (excluding Brazil). Parts sales for the Energy Group increased 7.1% in 2019 compared to 2018 due to increased sales in all major product lines.

## Segment Profit (Loss)

	<b>2019</b>	<b>2018</b>	<b>\$ Change</b>	<b>% Change</b>
Infrastructure Group	\$ 36,106	\$ (112,954)	\$ 149,060	132.0%
Aggregate and Mining Group	22,790	45,464	(22,674)	(49.9)%
Energy Group	556	3,070	(2,514)	(81.9)%
Corporate	(38,440)	1,586	(40,026)	--%

Infrastructure Group: Profit for this group increased \$149,060 from 2018. This group's profits were impacted by an increase in gross profit of \$105,012 due primarily to profit for 2018 being negatively impacted by pellet plant related sales reversals and margin charges totaling \$136,735 and 2019 gross profits being favorably impacted by \$20,000 of pellet plant margins as discussed above. Restructuring charges totaling \$1,812 were recorded in 2019 due to the closing of AMM and severance related expense due to the Company's exit of pellet plant production and sales. Excluding pellet plant related charges in both periods, profit for 2019 would be \$16,106 compared to \$23,781 for 2018. The Infrastructure Group's profit in 2019 was also negatively impacted by a net realizable inventory adjustment of \$12,122 discussed above. Selling, general and administrative expenses for the Group for 2019 declined by \$5,601 as compared to 2018, due primarily to a \$4,329 decrease in selling expenses, primarily at Roadtec due to lower domestic sales and a \$1,915 reduction in the Group's international selling expenses.

Aggregate and Mining Group: Profit for this group decreased \$22,674 or 49.9% from 2018. This group's profits were impacted by a decrease in gross profit of \$28,055 on decreased sales of \$48,193 and by a 390 basis point decrease in gross margin due to higher raw materials costs in the first part of the year as well as lower plant operating levels in 2019. The Aggregate and Mining Group profit in 2019 was also negatively impacted by a net realizable inventory adjustment of \$4,261 discussed above. The lower gross profits were partially offset by reduced selling expenses of \$3,050 resulting from the lower sales volumes.

Energy Group: Profit for this group decreased \$2,514 or 81.9% from 2018. This group's profits were impacted by a 410 basis point decrease in gross margins which translates to a decrease of \$12,078 in gross profit dollars on decreased sales of \$4,024. The primary causes of the reduced margins were net realizable inventory adjustments of \$16,247, due primarily to the announced closing of CEI and GEFCO exiting its oil and gas product line as discussed above. Restructuring charges of \$1,142, primarily severance pay at CEI and at GEFCO due to exiting its oil and gas line of business, were also recorded in 2019. Restructuring charges of \$11,190 were recorded in 2018 due to goodwill impairment charges. The decreased gross profits were partially offset by a reduction in the group's selling expenses totaling \$1,707 (due primarily to a reduction in domestic selling expense of \$1,189).

Corporate: Net Corporate expenses increased \$40,026 from 2018, primarily due to increases in income taxes of \$30,412; SERP compensation expense of \$2,172; annual incentive pay of \$2,115; start-up operating costs of a Company-owned distributor in Latin America of \$1,765; recruitment and relocation expense of \$1,234; and procurement expenses of \$1,198 due the formation of a Corporate procurement department to take advantage of Company-wide purchasing strengths identified during a year-long consulting engagement concluded in mid-2019.

### **Results of Operations: 2018 vs. 2017**

A comparison of 2018 versus 2017 operations can be found in the Form 10-K filed for the year ended December 31, 2018.

### **Liquidity and Capital Resources**

The Company's primary sources of liquidity and capital resources are its cash on hand, borrowing capacity under a \$150,000 revolving credit facility and cash flows from operations. The Company had \$48,857 of cash available for operating purposes as of December 31, 2019, of which \$19,770 was held by the Company's foreign subsidiaries. The transition of U.S. international taxation from a worldwide tax system to a territorial system, as provided under the Tax Act passed in December 2017, should greatly reduce, or eliminate, any additional taxes on these funds should the Company decide to repatriate these funds to the United States. The Company's outstanding borrowings under its \$150,000 line of credit, which totaled \$58,778 at December 31, 2018, were reduced to zero during 2019. No borrowings were made under the line of credit during the fourth quarter of 2019. The Company's outstanding letters of credit totaling \$8,335 resulted in the Company having borrowing availability of \$141,665 under the revolving credit facility as of December 31, 2019. The revolving credit facility agreement contains certain financial covenants, including provisions concerning required levels of annual net income and minimum tangible net worth. The Company was in compliance with the financial covenants of the agreement at December 31, 2019.

The Company's South African subsidiary, Osborn Engineered Products SA (Pty) Ltd ("Osborn"), has a credit facility of \$6,760 with a South African bank to finance short-term working capital needs, as well as to cover performance letters of credit, advance payment and retention guarantees. As of December 31, 2019 and 2018, Osborn had no outstanding borrowings. Osborn had \$1,076 in performance, advance payment and retention guarantees outstanding under the facility as of December 31, 2019. The facility has been guaranteed by Astec Industries, Inc., but is otherwise unsecured. A 0.75% unused facility fee is charged if less than 50% of the facility is utilized. As of December 30, 2019, Osborn had available credit under the facility of \$5,684.

The Company's Brazilian subsidiary, Astec do Brasil Fabricacao de Equipamentos, Ltda. ("Astec Brazil"), reduced its outstanding working capital loans from \$1,207 at December 31, 2018 to \$897 at December 31, 2019. The loan's final monthly payment is due in April 2024, and the debt is secured by Astec Brazil's manufacturing facility and also by letters of credit totaling \$3,200 issued by Astec Industries, Inc. Additionally, Astec Brazil reduced its outstanding five-year equipment financing loans from \$137 at December 31, 2018 to \$2 at December 31, 2019. Additionally, Astec Brazil borrowed an additional \$1,130 during 2019 under order anticipation agreements with a local bank with maturity dates through September 2020.

## Cash Flows from Operating Activities

	2019	2018	Increase / Decrease
Net income (loss)	\$ 22,174	\$ (60,744)	\$ 82,918
Depreciation and amortization	26,200	27,913	(1,713)
Provision for warranties	9,762	13,219	(3,457)
Deferred income tax provision (benefit)	1,715	(25,385)	27,100
Asset impairment charges	250	13,060	(12,810)
(Increase) decrease in receivables and other contract assets	7,531	(16,189)	23,720
Decrease in inventories	61,297	30,757	30,540
Increase in prepaid expenses	(2,260)	(11,943)	9,683
Increase in (decrease) accounts payable	(12,968)	9,843	(22,811)
Decrease in customer deposits	(5,299)	(522)	(4,777)
Decrease in accrued product warranties	(10,473)	(17,539)	7,066
Income taxes payable / prepaid	12,192	3,683	8,509
Other, net	2,313	4,062	(1,749)
Net cash provided (used) by operating activities	<u>\$ 112,434</u>	<u>\$ (29,785)</u>	<u>\$ 142,219</u>

Net cash provided by operating activities increased \$142,219 in 2019 compared to 2018. The primary reasons for the increase in operating cash flows relates to improved net income of \$82,918, and the related deferred tax benefit in 2018, and increased reductions in inventories of \$30,540 due to a Company initiative.

## Cash Flows from Investing Activities

	2019	2018	Increase / Decrease
Expenditures for property and equipment	\$ (23,360)	\$ (27,440)	\$ 4,080
Other	1,820	15	1,805
Net cash used by investing activities	<u>\$ (21,540)</u>	<u>\$ (27,425)</u>	<u>\$ 5,885</u>

Net cash used by investing activities decreased by \$5,885 in 2019 compared to 2018 due primarily to the reductions in expenditures for property and equipment.

## Cash Flows from Financing Activities

	2019	2018	Increase / Decrease
Payment of dividends	\$ (9,916)	\$ (9,625)	\$ (291)
Borrowings/repayments under bank loans	(58,054)	56,540	(114,594)
Repurchase of Company stock	--	(24,138)	24,138
Other, net	(115)	(83)	(32)
Net cash provided (used) by financing activities	<u>\$ (68,085)</u>	<u>\$ 22,694</u>	<u>\$ (90,779)</u>

Financing activities used cash of \$68,085 in 2019 and provided cash of \$22,694 in 2018, resulting in a total decrease between periods of \$90,779. The change is primarily due to the borrowings under the Company's line of credit during 2018 being repaid during 2019, partially offset by the Company's non-recurring repurchase of the Company's stock under its buy-back program during 2018.

## Financial Condition

The Company's current assets decreased to \$506,304 at December 31, 2019 from \$560,991 at December 31, 2018, a decrease of \$54,687. The decrease is due primarily to decreases in inventories of \$61,408 and trade receivables and contract assets of \$10,298 offset by increases in cash and cash equivalents of \$23,036. Accounts receivable days outstanding increased from 38.2 in 2018 to 39.3 in 2019.

The Company's current liabilities decreased to \$172,767 at December 31, 2019 from \$189,231 at December 31, 2018, a decrease of \$16,464. The decrease is primarily due to decreases in accounts payable of \$13,452.

## Market Risk and Risk Management Policies

The Company is exposed to changes in interest rates, primarily from its revolving credit agreements. A hypothetical 100 basis point adverse move (increase) would not have materially affected interest expense for the year ended December 31, 2019 and 2018. The Company does not hedge variable interest.

The Company is subject to foreign exchange risk at its foreign operations. Foreign operations represent 18.4% and 16.1% of total assets at December 31, 2019 and 2018, respectively, and 11.9% and 11.6% of total net sales for the years ended December 31, 2019 and 2018, respectively. Each period, the balance sheets and related results of operations of the Company's foreign subsidiaries are translated from their functional foreign currency into U.S. dollars for reporting purposes. As the U.S. dollar strengthens against those foreign currencies, the foreign denominated net assets and operating results become less valuable in the Company's reporting currency. When the U.S. dollar weakens against those currencies, the foreign denominated net assets and operating results become more valuable in the Company's reporting currency. At each reporting date, the fluctuation in the value of the net assets and operating results due to foreign exchange rate changes is recorded as an adjustment to other comprehensive income (loss) in equity. The Company views its investments in foreign subsidiaries as long-term and does not hedge the net investments in foreign subsidiaries.

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

Due to the limited exposure to foreign exchange rate risk, a 10% fluctuation in the foreign exchange rates at December 31, 2019 or 2018 would not have a material impact on the Company's consolidated financial statements.

## Contractual Obligations

Contractual obligations and the period in which payments are due as of December 31, 2019 are as follows:

Contractual Obligations	Payments Due by Period				
	Total	Less Than 1 Year	Years 2 to 3	Years 4 to 5	More Than 5 Years
Operating lease obligations	\$ 4,269	\$ 1,960	\$ 1,135	\$ 398	\$ 776
Inventory purchase obligations	9,808	9,808	--	--	--
Debt obligations	899	209	621	69	--
Total	<u>\$ 14,976</u>	<u>\$ 11,977</u>	<u>\$ 1,756</u>	<u>\$ 467</u>	<u>\$ 776</u>

The above table excludes the Company's liability for unrecognized tax benefits, which totaled \$5,723 at December 31, 2019, since the timing of cash settlements to the respective taxing authorities cannot be reliably predicted.

In 2019 and 2018, the Company made contributions of approximately \$1,613 and \$1,376, respectively, to its KPI pension plan. Currently, the Company has not planned any contributions to the pension plan in 2020. The Company's funding policy is to make at least the minimum annual contributions required by applicable regulations.

## Contingencies

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

Certain customers have financed purchases of the Company's products through arrangements in which the Company is contingently liable for customer debt in the aggregate amount of \$1,466 at December 31, 2019. These arrangements expire at various dates through December 2023 and have an average remaining term of 1.9 years. Additionally, the Company is also potentially liable for 1.75% of the unpaid balance, determined as of December 31 of the prior year (or approximately \$932 for 2019), on certain past customer equipment purchases financed by an outside finance company. The agreements provide that the Company will receive the lender's full security interest in the equipment financed if the Company is required to fulfill its contingent liability under these arrangements. The Company has recorded a liability of \$1,666 related to these guarantees as of December 31, 2019.



The Company is contingently liable under domestic issued letters of credit of approximately \$8,335, primarily for performance guarantees to customers, banks or insurance carriers, including \$3,200 of letters of credit guaranteeing certain Astec Brazil bank debt. The outstanding letters of credit expire at various dates through January 2021. As of December 31, 2019, the Company's foreign subsidiaries are contingently liable for a total of \$2,623 in performance letters of credit, advance payments and retention guarantees. The maximum potential amount of future payments under these letters of credit and guarantees for which the Company could be liable is \$10,958 as of December 31, 2019.

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, as amended on August 26, 2019, in the United States District Court for the Eastern District of Tennessee (the "Court"). 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 amended 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. The amended complaint further alleges that the individual defendants are liable for such violations as control persons under Section 20(a) of the Exchange Act. The putative class action was purportedly 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. The Company disputes the allegations and intends to defend this lawsuit vigorously. Defendants named in the action filed a motion to dismiss the lawsuit on October 25, 2019, which is fully briefed and pending before the Court. The Company is unable to determine whether or not a future loss will be incurred due to this litigation, or estimate a range of loss, if any, at this time.

The Company's GEFCO subsidiary has been named a defendant in a lawsuit originally filed on August 16, 2018 with an amended complaint filed on January 25, 2019, in the United States District Court for the Western District of Oklahoma. The action is styled VenVer S.A. and Americas Coil Tubing LLP v. GEFCO, Inc., Case No. CIV-18-790-SLP. The complaint alleges breaches of warranty and other similar claims regarding equipment sold by GEFCO in 2013. In addition to seeking a rejection (rescission) of the purchase contract, the plaintiff is seeking special and consequential damages. The original purchase price of the equipment was approximately \$8,500. GEFCO disputes the plaintiff's allegations and intends to defend this lawsuit vigorously. The Company is unable to estimate the possible loss or range of loss at this time.

#### **Off-balance Sheet Arrangements**

As of December 31, 2019, the Company does not have off-balance sheet arrangements, as defined by Item 303(a)(4) of Regulation S-K.

#### **Critical Accounting Policies and Estimates**

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

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

*Revenue Recognition:* Revenue is generally recognized when the Company satisfies a performance obligation by transferring control of goods or providing services. Revenue is measured as the amount of consideration the Company expects to receive in exchange for transferring goods or providing services. The Company generally obtains purchase authorizations from its customers for a specified amount of product at a specified price with specified delivery terms. A significant portion of the Company's equipment sales represents equipment produced in the Company's plants under short-term contracts for a specific customer project or equipment designed to meet a customer's specific requirements. Most of the equipment sold by the Company is based on standard configurations, some of which are modified to meet customer needs or specifications. The Company provides customers with technical design and performance specifications and performs pre-shipment testing to ensure the equipment performs according to design specifications, regardless of whether the Company provides installation services in addition to selling the equipment. Significant down payments are required on many equipment orders with other terms allowing for payment shortly after shipment, typically 30 days. Taxes assessed by a governmental authority that are directly imposed on revenue-producing transactions between the Company and its customers, such as sales, use, value-added and some excise taxes, are excluded from revenue. Expected warranty costs for our standard warranties are expensed at the time the related revenue is recognized. Costs of obtaining sales contracts with an expected duration of one year or less are expensed as incurred. As contracts are typically fulfilled within one year from the date of the contract, revenue adjustments for a potential financing component or the costs to obtain the contract are not made. Other contract assets and liabilities are typically not material.

Depending on the terms of the arrangement with the customer, recognition of a portion of the consideration received may be deferred and recorded as a contract liability if we have to satisfy a future obligation, such as to provide installation assistance, service work to be performed in the future without charge, floor plan interest to be reimbursed to our dealer customers, payments for extended warranties, for annual rebates given to certain high volume customers or for obligations for future estimated returns to be allowed based upon historical trends.

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

The Company has certain sales containing multiple performance obligations, whereby revenue attributable to the sale of a product is recognized when the product is shipped, and the revenue attributable to services provided with respect to the product (such as installation services) is recognized when the service is performed. Consideration is allocated to deliverables using observable market prices from stand-alone performance obligations or a cost plus margin approach when one is not available. Otherwise, the Company uses third-party evidence of selling price or the Company's best estimate of the selling price for the deliverables. The Company evaluates sales with multiple performance obligations to determine whether revenue related to individual elements should be recognized separately, or as a combined unit. In addition to the previously mentioned general revenue recognition criteria, the Company only recognizes revenue on individual delivered elements when there is objective and reliable evidence that the delivered element has a determinable value to the customer on a standalone basis and there is no right of return.

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

Goodwill is not amortized but is tested for impairment annually or more frequently if events or circumstances indicate that such intangible assets or goodwill might be impaired. See Note 1, Summary of Significant Accounting Policies, of the Notes to Financial Statements included in this Annual Report, for a description of testing performed by the Company to determine if the recorded value of intangible assets or goodwill has been impaired. See Note 5, Goodwill, of the Notes to Consolidated Financial Statements included in this Annual Report, for a detail of goodwill by segment and impairment charges recorded in 2018.

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

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

*U.S. Tax Reform:* On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Tax Act") was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a federal corporate tax rate decrease from 35% to 21% for tax years beginning after December 31, 2017, the transition of U.S international taxation from a worldwide tax system to a territorial system and a one-time transition tax on the mandatory deemed repatriation of foreign earnings.

## Recent Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, “Leases (Topic 842)”, which significantly changes the accounting for operating leases by lessees. The accounting applied by lessors is largely unchanged from that applied under previous guidance. The new guidance establishes a right-of-use (“ROU”) model and requires lessees to recognize lease assets and lease liabilities in the balance sheet, initially measured at the present value of the lease payments, for leases which were classified as operating leases under previous guidance. Lease cost included in the statement of operations will be calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. Certain provisions of ASU No. 2016-02 were later modified or clarified by the issuance of ASU 2018-11, “Leases (Topic 842): Targeted Improvements”, ASU 2018-10, “Codification Improvements to Topic 842, Leases” and ASU 2019-01, “Leases (Topic 842), Codification Improvements”. A modified retrospective transition approach is required by the ASU and its provisions must be applied to all leases existing at the date of initial application. An entity may choose to use either (1) the standard’s effective date or (2) the beginning of the earliest comparative period presented in the financial statements as its date of initial application. The new standards were effective for public companies for fiscal years beginning after December 15, 2018 and the Company adopted the new standards effective January 1, 2019 using the effective date as the date of initial application. Consequently, financial information and the disclosures required under the new standards have not been provided for periods prior to January 1, 2019. As allowed under the ASU’s provisions, the Company made an accounting policy election to exclude leases with a term of 12 months or less from the requirement to record related assets and liabilities. The adoption of these standards did not have a material impact on the Company’s financial position, results of operations or cash flows. See Note 10, Leases, for additional information regarding the Company’s adoption of these standards.

In June 2016, the FASB issued ASU No. 2016-13, “Financial Instruments – Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments”. The standard changes how credit losses are measured for most financial assets and certain other instruments that currently are not measured through net income. The standard will require an expected loss model for instruments measured at amortized cost as opposed to the current incurred loss approach. In valuing available for sale debt securities, allowances will be required to be recorded, rather than the current approach of reducing the carrying amount, for other than temporary impairments. A cumulative adjustment to retained earnings is to be recorded as of the beginning of the period of adoption to reflect the impact of applying the provisions of the standard. Certain provisions of ASU No. 2016-13 were modified or amended by the issuance of ASU 2019-11, Codification Improvements to Topic 326, Financial Instruments – Credit Losses. The ASU makes several narrow-scope amendments to the new credit losses standard, including an amendment requiring entities to include certain expected recoveries of the amortized cost basis of previously written off, or expected to be written off, in the allowance for credit losses for purchase credit deteriorated assets. The amendment also provides transition relief related to troubled debt restructurings, allow entities to exclude accrued interest amounts from certain required disclosures and clarify the requirements for applying the collateral maintenance expedient. The standards are effective for public companies for periods beginning after December 15, 2019 and the Company expects to adopt the new standards as of January 1, 2020. As the Company’s credit losses are typically minimal, the Company does not expect the adoption of this new standard to have a material impact on the Company’s financial position, results of operations or cash flows.

In August 2017, the FASB issued ASU No. 2017-12, “Derivatives and Hedging (Topic 815), Targeted Improvements to Hedging Activities”, to improve the financial reporting of hedging relationships to better portray the economic results of an entity’s risk management activities in its financial statements. The new guidance is effective for public companies for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years with early adoption permitted in any interim period after its issuance. The Company adopted the new standard effective January 1, 2019. The application of this standard did not have a material impact on the Company’s financial position, results of operations or cash flows.

In February 2018, the FASB issued ASU No. 2018-02, “Income Statement – Reporting Comprehensive Income (Topic 220), Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income”, which permits companies to reclassify tax effects stranded in accumulated other comprehensive income (“OCI”) as a result of U.S. tax reform impacting tax rates or other items, such as changing from a worldwide tax system to a territorial system, from OCI to retained earnings. Other tax effects stranded in OCI due to other reasons, such as prior changes in tax laws or changes in valuation allowances, may not be reclassified. The new standard was effective for fiscal years beginning after December 15, 2018, and the Company adopted its provisions as of January 1, 2019. As a result of adopting this new standard, the Company reclassified \$721 of previously stranded tax effects from accumulated comprehensive loss to retained earnings as shown on the accompanying consolidated statement of equity for the year ended December 31, 2019.

In August 2018, the FASB issued ASU No. 2018-13, “Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement” which aims to improve the overall usefulness of disclosures to financial statement users and reduce unnecessary costs to companies when preparing fair value measurement disclosures. The standard is effective for annual and interim periods beginning after December 15, 2019 with early adoption permitted. The Company adopted this new standard effective January 1, 2020. The adoption of this new standard did not have a material impact on its financial position, results of operations or cash flows.

In December, 2019, the FASB issued ASU 2019-12, “Income Taxes (Topic 740), Simplifying the Accounting for Income Taxes”, which eliminates certain exceptions related to the approach for intra-period tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. The new guidance also simplifies aspects of the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. The new standard is effective for fiscal years beginning after December 15, 2020 and interim periods within those fiscal years with early adoption permitted in interim or annual periods if the Company has not yet issued financial statements. If the Company elects to early adopt the amendments in an interim period, it should reflect any adjustments as of the beginning of the annual period that includes the interim period and must adopt all amendments in the same period applying all guidance prospectively, except for certain amendments. The Company has not yet adopted this new standard and has not evaluated its impact, if any, on the Company’s financial position, results of operations or cash flows.

### **Cautionary Statement Regarding Forward-Looking Statements**

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

- execution of the Company’s growth and operation strategy;
- plans for, and costs of, technological innovation;
- compliance with covenants in our credit facility;
- liquidity and capital expenditures;
- ability to access credit markets;
- ability to obtain advances from our credit markets;
- compliance with the Company’s credit facilities;
- compliance with and changes to government regulations;
- compliance with manufacturing and delivery timetables;
- forecasting of results;
- general economic trends, political uncertainty and the impact of the coronavirus on our business;
- government funding and growth of highway construction and commercial projects;
- changes in tax laws and tariffs;
- 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 economies in which we do business;
- fluctuations in foreign current exchange rates;
- the introduction of new products and the success of new product lines;
- presence in the international marketplace;
- suitability of our current facilities;
- fluctuations in our stock price;
- anti-takeover measures;

- future payment of dividends;
- competition in our business segments;
- product liability and other claims;
- legal proceedings and non-compliance;
- obligations with respect to pellet plants and other products;
- protection of proprietary technology and dependence on information technology systems;
- cybersecurity risks;
- demand for products and services;
- future fillings of backlogs;
- executive officers, management and employees;
- the seasonality of our business;
- tax assets and reserves for uncertain tax positions;
- critical accounting policies and the impact of accounting changes;
- goodwill and intangible asset value;
- 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;
- demand, availability and cost of raw materials;
- inventories;
- plans to exit the GEFCO oil and gas product line; and
- material weaknesses identified in our internal controls.

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

In addition to the risks and uncertainties identified elsewhere herein and in other documents filed by us with the Securities and Exchange Commission, the risk factors described in this document under the caption "Risk Factors" should be carefully considered when evaluating our business and future prospects, including without limitation risks relating to: changes or delays in highway funding; rising interest rates; changes in oil prices; changes in steel prices; changes in the general economy; unexpected capital expenditures and decreases in liquidity; the timing of large contracts; production capacity; general business conditions in the industry; non-compliance with covenants in the Company's credit facilities; demand for the Company's products; and those other factors listed from time to time in the Company's reports filed with the Securities and Exchange Commission. Certain of the risks, uncertainties and other factors discussed above are more fully described in the section titled "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2019.

## **ASTEC INDUSTRIES, INC.**

### **MANAGEMENT’S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING**

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

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

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company’s annual or interim financial statements will not be prevented or detected on a timely basis.

Management, under the supervision and with the participation of the Company’s principal executive officer and principal financial officer, evaluated the effectiveness of the Company’s internal control over financial reporting as of December 31, 2019 using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control - Integrated Framework (2013)* (“COSO 2013 Framework”).

Based on this assessment, the following control deficiencies in internal control over financial reporting were identified as of December 31, 2019.

#### **Corporate**

We did not hold certain individuals accountable for their internal control responsibilities and did not have sufficient Corporate monitoring activities over certain business units. We did not have a sufficient number of trained resources at Corporate that were knowledgeable and experienced in the application of the COSO 2013 Framework for certain financial reporting processes and the related internal controls, which resulted in the following control deficiencies:

##### **Goodwill Impairment**

We did not design effective management review controls over the goodwill impairment process. Specifically, (i) we did not corroborate assumptions and inputs used in the third-party valuation analyses at a sufficient level of precision and (ii) we did not design effective management review controls over the methods and accuracy of calculations performed by a third-party valuation specialist retained by the Company.

These deficiencies were due to insufficient knowledge and experience of the Company’s personnel with a quantitative goodwill impairment assessment in accordance with FASB ASC Topic 350, Intangibles – Goodwill and Other, and the fact that the Company did not perform an effective risk assessment process to evaluate relevant risks of material misstatement associated with the valuation of goodwill.

##### **Income Taxes**

We did not design effective management review controls over the income tax calculations, including (i) the completeness and accuracy of the data used in the determination of the current and deferred income tax balances at a sufficient level of precision and (ii) the formulas embedded in the spreadsheets used in the income tax calculations.

These deficiencies were due to insufficient knowledge and experience of the Company’s personnel and the fact that the Company did not perform an effective risk assessment process to evaluate relevant risks of material misstatement associated with the income tax provision and related disclosures.

## **Business Units**

We did not have a sufficient number of trained resources that were knowledgeable and experienced in the application of the COSO 2013 Framework to our financial reporting processes and related internal controls at certain business units, which resulted in the following control deficiencies:

### **General Information Technology Controls**

We did not design effective general information technology controls (“GITCs”) related to the enterprise resource planning (“ERP”) systems at certain business units. Specifically, we did not design and implement effective:

- program change management controls over certain ERP systems; and
- user access controls over certain ERP systems to provide for appropriate segregation of duties and to adequately restrict user and privileged access to appropriate personnel.

These deficiencies were due to insufficient knowledge and experience of IT personnel at certain business units and an ineffective risk assessment process to evaluate relevant risks inherent in information technology. As a result of these GITC deficiencies, the automated controls across substantially all financial reporting processes of these business units that depend on the effective operation of the GITCs and manual controls that are dependent upon the completeness and accuracy of information derived from these ERP systems were also considered to be ineffective.

### **Revenue Recognition**

We did not design effective controls over the completeness, existence, accuracy and disclosure of revenue recognized from the Company’s contracts with customers at certain business units. These deficiencies were due to management of certain business units not sufficiently understanding the requirements of FASB ASC Topic 606, Revenue from Contracts with Customers (“ASC 606”), and insufficient knowledge and experience in the application of the COSO 2013 Framework to the revenue processes and related internal controls. Management at certain business units did not perform an effective risk assessment process to evaluate the relevant risks in the underlying revenue processes and design and implement controls within these processes to address the risks relating to the recognition, measurement and presentation of revenue in accordance with ASC 606.

### **Inventories**

We did not design and effectively operate controls over the accuracy and valuation of inventories at certain business units. These deficiencies were due to insufficient knowledge and experience of management at certain business units in the application of the COSO 2013 Framework to the inventories processes and related internal controls and the fact that management at certain business units did not perform an effective risk assessment process to evaluate relevant risks of material misstatement associated with the accuracy and valuation of inventories.

### **Journal Entries**

We did not design effective controls over manual journal entries at certain business units. Specifically, we did not design effective controls to provide reasonable assurance that all manual journal entries were reviewed. These deficiencies were due to insufficient knowledge and experience of management at certain business units in the functionality of their respective ERP systems and the application of the COSO 2013 Framework to the manual journal entries process and related internal controls and the fact that management at certain business units did not perform an effective risk assessment process to evaluate relevant risks of material misstatement associated with manual journal entries.

Additionally, we did not design effective controls over automated journal entries at the Company’s business units. Specifically, we did not design effective controls to provide reasonable assurance that changes to the configuration of automated journal entries in our ERP systems were reviewed and approved. These deficiencies were due to the fact that the Company did not perform an effective risk assessment process to evaluate relevant risks of material misstatement associated with automated journal entries.

The control deficiencies described above, certain aspects of which existed in the prior year but were identified in the current year, resulted in several misstatements to the Company’s preliminary consolidated financial statements that were corrected prior to the issuance of the annual consolidated financial statements. These control deficiencies create a reasonable possibility that a material misstatement to the consolidated financial statements will not be prevented or detected on a timely basis and, therefore, we concluded that the deficiencies represent material weaknesses in our internal control over financial reporting and, therefore, that our internal control over financial reporting was not effective as of December 31, 2019.



Our independent registered public accounting firm, KPMG LLP, who audited the consolidated financial statements included in this annual report on Form 10-K, has expressed an adverse opinion on the effectiveness of the Company's internal control over financial reporting. KPMG LLP's report appears on page A-25 of this annual report on Form 10-K.

### **Management's Remediation Plan**

Management has been implementing and continues to implement measures designed to remediate the control deficiencies contributing to the material weaknesses, such that these controls are designed, implemented and operating effectively. The remediation actions include:

1. designing and implementing enhanced controls for the goodwill impairment process, including control activities associated with the review of data provided to third-party valuation specialists and the appropriateness of the assumptions and methodology used to measure the fair value of reporting units and the reasonableness of the conclusions in the third-party valuation specialists' reports;
2. evaluating the assignment of responsibilities associated with the accounting for goodwill impairment, including considering hiring additional resources or providing additional training to existing resources;
3. implementing income tax software to automate the calculation of our income tax provision and the impact on the income tax related balance sheet accounts and disclosures;
4. evaluating the assignment of responsibilities associated with the calculation of the income tax provision, including considering hiring additional resources or providing additional training to existing resources;
5. educating and re-training resources at Corporate and certain business units on our business processes and the COSO 2013 Framework such that the resources are aware of the importance of designing, implementing and operating effective internal controls to mitigate the risks identified;
6. designing, implementing and assessing the structures, authorities and responsibilities needed to establish accountability for internal controls at all levels of the Company;
7. hiring additional resources, with the appropriate expertise and competence, to assume assigned responsibility for monitoring the financial reporting processes and internal controls at certain business units;
8. designing and implementing additional Corporate monitoring activities over internal controls at certain business units;
9. designing and implementing enhanced controls at certain business units related to program change management and user access, including appropriate segregation of duties, over systems impacting financial reporting;
10. designing and implementing enhanced controls to monitor the effectiveness of the underlying business process controls at certain business units that are dependent on the data and financial reports generated from our ERP systems;
11. developing a training program for management at certain business units to increase their knowledge of revenue recognition and the related disclosures in accordance with ASC 606;
12. designing and implementing enhanced controls over the completeness, existence, accuracy and disclosure of revenue at certain business units;
13. designing and implementing enhanced controls over the accuracy and valuation of inventories at certain business units;
14. designing and implementing enhanced controls over the completeness of manual journal entries subject to review at certain business units;
15. designing and implementing enhanced controls over the configuration of automated journal entries in our ERP systems; and
16. educating and re-training resources at certain business units on the functionalities in our ERP systems.

Management believes that these actions, and the improvements achieved as a result, will effectively remediate the material weaknesses. However, the material weaknesses in our internal control over financial reporting will not be considered remediated until the remediated controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively.

Management is committed to implementing the planned remediation actions as promptly as possible and will provide regular updates (at least on a quarterly basis) to the Audit Committee of the Board of Directors regarding the progress of its remediation efforts.

As a result of the material weaknesses noted above, the Company completed additional substantive procedures prior to filing this Form 10-K for the year ended December 31, 2019. Based on these procedures, management believes that the Company's consolidated financial statements included in this Form 10-K have been prepared in accordance with generally accepted accounting principles. In addition, these material weaknesses did not result in any restatement of prior-period consolidated financial statements. The Company's principal executive officer and principal financial officer have certified that, based on such officer's knowledge, the consolidated financial statements, and other financial information included in this Form 10-K, fairly present in all material respects the financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this Form 10-K. In addition, management developed a remediation plan for these material weaknesses, which is described above.

# Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors  
Astec Industries, Inc.:

## *Opinion on Internal Control Over Financial Reporting*

We have audited Astec Industries, Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, because of the effect of the material weaknesses, described below, on the achievement of the objectives of the control criteria, the Company has not maintained effective internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, the consolidated financial statements), and our report dated March 17, 2020 expressed an unqualified opinion on those consolidated financial statements.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis. The following material weaknesses have been identified and included in management's assessment:

- Lack of a sufficient number of trained resources at Corporate and certain business units that were knowledgeable and experienced in the application of Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission for certain financial reporting processes, insufficient accountability for internal control responsibilities, and insufficient Corporate monitoring activities of certain business units;
- Ineffective management review controls over the goodwill impairment assessment due to insufficient knowledge and experience of the Company's personnel with a quantitative goodwill impairment assessment and an ineffective risk assessment process;
- Ineffective management review controls over the income tax calculations, including the completeness and accuracy of data and formulas embedded in the spreadsheets used in the income tax calculations, due to insufficient knowledge and experience of the Company's personnel and an ineffective risk assessment process;
- Ineffective general information technology controls over the enterprise resource planning (ERP) systems at certain business units, the automated controls across substantially all financial reporting processes at those business units, and manual controls that are dependent upon the completeness and accuracy of information derived from those ERP systems, due to insufficient knowledge and experience of information technology personnel at those business units and an ineffective risk assessment process;
- Ineffective controls over the completeness, existence, accuracy, and disclosure of revenue at certain business units due to insufficient understanding of the requirements of revenue recognition and an ineffective risk assessment process;
- Ineffective controls over the accuracy and valuation of inventories at certain business units due to an ineffective risk assessment process; and
- Ineffective controls over manual journal entries at certain business units and automated journal entries due to insufficient knowledge and experience in the functionality of certain ERP systems and an ineffective risk assessment process.

The material weaknesses were considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2019 consolidated financial statements, and this report does not affect our report on those consolidated financial statements.

### *Basis for Opinion*

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

### *Definition and Limitations of Internal Control Over Financial Reporting*

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

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

/s/ KPMG LLP

Knoxville, Tennessee

March 17, 2020

# Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors  
Astec Industries, Inc.:

## *Opinion on the Consolidated Financial Statements*

We have audited the accompanying consolidated balance sheets of Astec Industries, Inc. and subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 17, 2020 expressed an adverse opinion on the effectiveness of the Company's internal control over financial reporting.

## *Basis for Opinion*

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

## *Critical Audit Matter*

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

### *Evaluation of the sufficiency of audit evidence over inventories and net sales*

As disclosed in Notes 2 and 17 to the Company's consolidated financial statements, and disclosed in the consolidated balance sheet and consolidated statement of operations, the Company recorded \$294,536 thousand in inventories and \$1,169,613 thousand in net sales as of December 31, 2019 and for the year then ended. Inventories are comprised of raw materials, work-in-process, finished goods, and used equipment that are physically located at each of the Company's business units. Net sales are recognized primarily from the sale of equipment and replacement parts from each of the Company's business units. The Company has also identified material weaknesses related to inventories and net sales at certain business units as of December 31, 2019.

We identified the evaluation of the sufficiency of audit evidence over inventories and net sales as a critical audit matter. Evaluating the sufficiency of the audit evidence obtained required especially subjective auditor judgment because of the decentralized structure and geographic dispersion of the Company's manufacturing locations, the different types of net sales and revenue recognition processes, and the material weaknesses noted above. This included determining the business units at which procedures were performed.

The primary procedures we performed to address this critical audit matter included the following. At certain business units, we tested certain internal controls over the Company's inventories and net sales processes, including controls over the amounts recorded in inventories and the amounts recorded in net sales. We used our judgment to determine the nature and extent of procedures to be performed over inventories and net sales, including the determination of the business units at which those procedures were performed. We assessed the recorded inventories at each business unit where procedures were performed by physically inspecting a sample of inventories on hand and comparing the cost recorded for a sample of inventories on hand to underlying documentation. We evaluated the method and assumptions used to estimate the net realizable value of inventories. We assessed recorded net sales at each business unit where procedures were performed by assessing the nature of the net sales generated by each business unit and selecting a sample of net sales transactions and comparing the amount recognized to underlying documentation, such as contracts with customers and shipping documentation. For those business units where controls were not designed and operating effectively, we increased the number of inventories and net sales transactions samples selected to perform certain procedures compared to those we would have selected if those business units' internal controls were designed and operating effectively during the year. We evaluated the overall sufficiency of audit evidence obtained over inventories and net sales.

/s/ KPMG LLP

We have served as the Company's auditor since 2015.

Knoxville, Tennessee  
March 17, 2020

# CONSOLIDATED BALANCE SHEETS

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

	December 31	
	2019	2018
<b>Assets</b>		
Current assets:		
Cash and cash equivalents	\$ 48,857	\$ 25,821
Investments	1,547	1,946
Trade receivables and contract assets	120,271	130,569
Other receivables	4,576	3,409
Inventories	294,536	355,944
Prepaid income taxes	15,234	24,459
Prepaid expenses and other assets	18,199	18,843
Assets held for sale	3,084	—
Total current assets	506,304	560,991
Property and equipment, net	190,363	192,448
Investments	16,104	14,890
Goodwill	33,176	32,748
Intangible assets, net	23,536	25,370
Deferred tax assets	24,696	27,490
Other long-term assets	6,319	1,520
Total assets	<u>\$ 800,498</u>	<u>\$ 855,457</u>
<b>Liabilities and Equity</b>		
Current liabilities:		
Current maturities of long-term debt	\$ 209	\$ 413
Short-term debt	1,130	—
Accounts payable	57,162	70,614
Customer deposits	42,874	48,069
Accrued product warranty	10,261	10,928
Accrued payroll and related liabilities	24,718	24,126
Accrued loss reserves	2,299	1,832
Other accrued liabilities	34,114	33,249
Total current liabilities	172,767	189,231
Long-term debt	690	59,709
Deferred tax liabilities	896	1,020
Other long-term liabilities	23,658	20,207
Total liabilities	<u>198,011</u>	<u>270,167</u>
Equity:		
Preferred stock - authorized 4,000 shares of \$1.00 par value; none issued	—	—
Common stock – authorized 40,000 shares of \$0.20 par value; issued and outstanding – 22,551 in 2019 and 22,513 in 2018	4,510	4,503
Additional paid-in capital	122,613	120,601
Accumulated other comprehensive loss	(31,803)	(33,883)
Company shares held by SERP, at cost	(1,714)	(1,886)
Retained earnings	508,343	495,245
Shareholders' equity	601,949	584,580
Non-controlling interest	538	710
Total equity	<u>602,487</u>	<u>585,290</u>
Total liabilities and equity	<u>\$ 800,498</u>	<u>\$ 855,457</u>

See Notes to Consolidated Financial Statements

# CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except per share data)

	Year Ended December 31		
	2019	2018	2017
Net sales	\$ 1,169,613	\$ 1,171,599	\$ 1,184,739
Cost of sales	930,205	1,035,833	941,610
Gross profit	239,408	135,766	243,129
Selling, general and administrative expenses	183,934	180,795	160,775
Research and development expenses	27,214	28,332	26,817
Restructuring and asset impairment charges	3,204	13,060	–
Income (loss) from operations	25,056	(86,421)	55,537
Other income:			
Interest expense	(1,367)	(1,045)	(840)
Interest income	1,192	952	1,302
Other income	305	536	1,218
Income (loss) before income taxes	25,186	(85,978)	57,217
Income tax provision (benefit)	3,012	(25,234)	19,627
Net income (loss)	22,174	(60,744)	37,590
Net loss attributable to non-controlling interest	132	295	205
Net income (loss) attributable to controlling interest	\$ 22,306	\$ (60,449)	\$ 37,795
<b>Earnings (loss) per Common Share:</b>			
Net income (loss) attributable to controlling interest:			
Basic	\$ 0.99	\$ (2.64)	\$ 1.64
Diluted	\$ 0.98	\$ (2.64)	\$ 1.63
Weighted average number of common shares outstanding:			
Basic	22,515	22,902	23,025
Diluted	22,674	22,902	23,184

See Notes to Consolidated Financial Statements

## CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(in thousands)

	Year Ended December 31		
	2019	2018	2017
Net income (loss)	\$ 22,174	\$ (60,744)	\$ 37,590
Other comprehensive income (loss):			
Change in unrecognized pension and post-retirement benefit costs	1,016	(162)	689
Tax (expense) benefit on change in unrecognized pension and post-retirement benefit costs	(244)	38	(69)
Foreign currency translation adjustments	2,014	(9,516)	6,699
Other comprehensive income (loss)	2,786	(9,640)	7,319
Comprehensive loss attributable to non-controlling interest	154	439	232
Comprehensive income (loss) attributable to controlling interest	\$ 25,114	\$ (69,945)	\$ 45,141

See Notes to Consolidated Financial Statements



# CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year Ended December 31		
	2019	2018	2017
<b>Cash Flows from Operating Activities</b>			
Net income (loss)	\$ 22,174	\$ (60,744)	\$ 37,590
Adjustments to reconcile net income (loss) to net cash provided (used) by operating activities:			
Depreciation	21,436	22,411	21,312
Amortization	4,764	5,502	4,490
Provision for doubtful accounts	1,249	223	482
Provision for warranties	9,762	13,219	16,725
Deferred compensation provision (benefit)	617	(1,554)	(574)
Deferred tax provision (benefit)	1,715	(25,385)	(291)
(Gain) loss on disposition of fixed assets	255	(71)	(388)
Stock-based compensation	2,637	2,182	3,142
Asset impairment charges	250	13,060	—
Distributions to SERP participants	(2,207)	(767)	(206)
Change in operating assets and liabilities, net of effects of acquisitions:			
Sale (purchase) of trading securities, net	(864)	(758)	473
Receivables and other contract assets	7,531	(16,189)	(7,749)
Inventories	61,297	30,757	(19,618)
Prepaid expenses	(2,260)	(11,943)	(5,181)
Other assets	216	(3,698)	(779)
Accounts payable	(12,968)	9,843	630
Customer deposits	(5,299)	(522)	9,379
Accrued product warranty	(10,473)	(17,539)	(14,642)
Income taxes payable/prepaid	12,192	3,683	(597)
Accrued retirement benefit costs	(1,276)	(1,100)	45
Accrued loss reserves	(1,073)	(125)	122
Other accrued liabilities	2,033	8,887	(1,118)
Other	726	843	(1,366)
Net cash provided (used) by operating activities	<u>112,434</u>	<u>(29,785)</u>	<u>41,881</u>
<b>Cash Flows from Investing Activities</b>			
Business acquisition, net of cash acquired	—	—	(26,443)
Proceeds from sale of property and equipment	483	375	480
Expenditures for property and equipment	(23,360)	(27,440)	(20,046)
Sale (purchase) of investments	1,337	(360)	(891)
Net cash used by investing activities	<u>(21,540)</u>	<u>(27,425)</u>	<u>(46,900)</u>

See Notes to Consolidated Financial Statements

## CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)

(in thousands)

	Year Ended December 31		
	2019	2018	2017
<b>Cash Flows from Financing Activities</b>			
Payment of dividends	\$ (9,916)	\$ (9,625)	\$ (9,226)
Borrowings under bank loans	165,980	148,504	—
Repayment of bank loans	(224,034)	(91,964)	(7,242)
Purchase of shares of subsidiaries	(16)	(28)	(106)
Sale (purchase) of Company shares by SERP, net	256	377	289
Withholding tax paid upon vesting of restricted stock units	(355)	(432)	(507)
Repurchase of Company stock	—	(24,138)	—
Net cash provided (used) by financing activities	(68,085)	22,694	(16,792)
Effect of exchange rates on cash	227	(1,943)	1,720
Increase (decrease) in cash and cash equivalents	23,036	(36,459)	(20,091)
Cash and cash equivalents, beginning of year	25,821	62,280	82,371
Cash and cash equivalents, end of year	<u>\$ 48,857</u>	<u>\$ 25,821</u>	<u>\$ 62,280</u>
<b>Supplemental Cash Flow Information</b>			
Cash paid during the year for:			
Interest, net of capitalized interest	<u>\$ 1,771</u>	<u>\$ 856</u>	<u>\$ 588</u>
Income taxes paid (refunded), net	<u>\$ (11,262)</u>	<u>\$ 8,523</u>	<u>\$ 26,917</u>

See Notes to Consolidated Financial Statements

# CONSOLIDATED STATEMENTS OF EQUITY

For the Years Ended December 31, 2019, 2018 and 2017 (in thousands)

	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Company Shares Held by SERP	Retained Earnings	Non- Controlling Interest	Total Equity
<b>Balance December 31, 2016</b>	23,046	\$ 4,609	\$ 139,970	\$ (31,562)	\$ (1,958)	\$ 536,771	\$ 1,011	\$ 648,841
Net income						37,795	(205)	37,590
Dividends (\$0.40 per share)			10			(9,236)		(9,226)
Other comprehensive income				7,319				7,319
Change in ownership percentage of subsidiary							(43)	(43)
Stock-based compensation	1		2,172					2,172
RSU vesting	23	5	(5)					—
Withholding tax on vested RSUs			(507)					(507)
Sale of Company stock held by SERP, net			291		(2)			289
Other							330	330
<b>Balance December 31, 2017</b>	23,070	4,614	141,931	(24,243)	(1,960)	565,330	1,093	686,765
Net loss						(60,449)	(295)	(60,744)
Dividends (\$0.42 per share)			11			(9,636)		(9,625)
Other comprehensive loss				(9,640)				(9,640)
Change in ownership percentage of subsidiary							(159)	(159)
Stock-based compensation	2		2,815					2,815
RSU vesting	23	5	(5)					—
Withholding tax on vested RSUs			(432)					(432)
Sale of Company stock held by SERP, net			303		74			377
Repurchase of Company stock	(582)	(116)	(24,022)					(24,138)
Other							71	71
<b>Balance December 31, 2018</b>	22,513	4,503	120,601	(33,883)	(1,886)	495,245	710	585,290
Net income						22,306	(132)	22,174
Dividends (\$0.44 per share)			13			(9,929)		(9,916)
Other comprehensive income				2,808			(22)	2,786
Change in ownership percentage of subsidiary							(15)	(15)
Stock-based compensation	3		2,277					2,277
RSU vesting	35	7	(7)					—
Withholding tax on vested RSUs			(355)					(355)
Cumulative impact of ASU No. 2018-02				(721)		721		—
Sale of Company stock held by SERP, net			84		172			256
Other				(7)			(3)	(10)
<b>Balance December 31, 2019</b>	<u>22,551</u>	<u>\$ 4,510</u>	<u>\$ 122,613</u>	<u>\$ (31,803)</u>	<u>\$ (1,714)</u>	<u>\$ 508,343</u>	<u>\$ 538</u>	<u>\$ 602,487</u>

See Notes to Consolidated Financial Statements

# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

## 1. Summary of Significant Accounting Policies

**Basis of Presentation** - The consolidated financial statements include the accounts of Astec Industries, Inc. and its domestic and foreign subsidiaries (the “Company”). The Company’s significant wholly-owned and consolidated subsidiaries at December 31, 2019 are as follows:

Astec Australia Pty Ltd	Astec do Brasil Fabricacao de Equipamentos Ltda. (93% owned)
Astec, Inc.	Astec Insurance Company
Astec Industries LatAm SpA	Astec Mobile Machinery GmbH
Astec Mobile Screens, Inc.	Breaker Technology, Inc.
Breaker Technology Ltd.	Carlson Paving Products, Inc.
CEI Enterprises, Inc.	GEFCO, Inc.
Heatec, Inc.	Johnson Crushers International, Inc.
Kolberg-Pioneer, Inc.	Osborn Engineered Products SA (Pty) Ltd
Peterson Pacific Corp.	Power Flame Incorporated
RexCon, Inc.	Roadtec, Inc.
Telestack Limited	Telsmith, Inc.

All intercompany accounts and transactions have been eliminated in consolidation.

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

**Foreign Currency Translation** - Subsidiaries located in Australia, Brazil, Canada, Chile, Germany, Northern Ireland, and South Africa operate primarily using local functional currencies. Accordingly, assets and liabilities of these subsidiaries are translated using exchange rates in effect at the end of the period, and revenues and costs are translated using average exchange rates for the period. The resulting adjustments are presented as a separate component of accumulated other comprehensive income (loss). Foreign currency transaction gains and losses, net are included in cost of sales and amounted to a loss of \$618 in 2019, and gains of \$539 and \$431 in 2018 and 2017, respectively.

**Fair Value of Financial Instruments** - For cash and cash equivalents, trade receivables and contract assets, other receivables and accounts payable, the carrying amount approximates the fair value because of the short-term nature of those instruments. Trading equity investments are valued at their estimated fair value based on their quoted market prices and debt securities are valued based upon a mix of observable market prices and model driven prices derived from a matrix of observable market prices for assets with similar characteristics obtained from a nationally recognized third-party pricing service. Financial assets and liabilities are categorized as of the end of each reporting period based upon the level of judgment associated with the inputs used to measure their fair value. The inputs used to measure the fair value are identified in the following hierarchy:

Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities

Level 2 - Unadjusted quoted prices in active markets for similar assets or liabilities; or unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active; or inputs other than quoted prices that are observable for the asset or liability.

Level 3 - Inputs reflect management’s best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration is given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

All financial assets and liabilities held by the Company at December 31, 2019 and 2018 are classified as Level 1 or Level 2, as summarized in Note 3, Fair Value Measurements.

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

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

**Accounts Receivable** - The Company sells products to a wide variety of customers. Accounts receivable are carried at their outstanding principal amounts, less an allowance for doubtful accounts. The Company extends credit to its customers based on an evaluation of the customers' financial condition generally without requiring collateral, although the Company normally requires advance payments or letters of credit on large equipment orders. Credit risk is driven by conditions within the economy and the industry and is principally dependent on each customer's financial condition. To minimize credit risk, the Company monitors credit levels and financial conditions of customers on a continuing basis. After considering historical trends for uncollectible accounts, current economic conditions and specific customer recent payment history and financial stability, the Company records an allowance for doubtful accounts at a level which management believes is sufficient to cover probable credit losses. Amounts are deemed past due when they exceed the payment terms agreed to by the customer in the sales contract. Past due amounts are charged off when reasonable collection efforts have been exhausted and the amounts are deemed uncollectible by management. As of December 31, 2019, concentrations of credit risk with respect to receivables are limited due to the wide variety of customers.

**Allowance for Doubtful Accounts** - The following table represents a rollforward of the allowance for doubtful accounts for the years ended December 31, 2019, 2018 and 2017:

	Year Ended December 31		
	2019	2018	2017
Allowance balance, beginning of year	\$ 1,184	\$ 1,716	\$ 1,511
Provision	1,249	223	482
Write offs	(1,016)	(696)	(308)
Other	(1)	(59)	31
Allowance balance, end of year	<u>\$ 1,416</u>	<u>\$ 1,184</u>	<u>\$ 1,716</u>

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

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

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

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

Used equipment inventory consists of equipment accepted in trade or purchased on the open market. This category also includes equipment rented to prospective customers on a short-term or month-to-month basis. Used equipment is valued at the lower of acquired or trade-in cost or net realizable value determined on each separate unit. Each unit of rental equipment is valued at the lower of original manufacturing, acquired or trade-in cost or net realizable value.

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

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

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

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

**Assets Held for Sale** – In connection with the closing of AMM-Germany and CEI, the Company has accounted for their land and buildings as assets held for sale as of December 31, 2019. The AMM-Germany land and buildings sale was completed in early 2020 and the sale of the CEI facilities is expected to be completed prior to the end of 2020.

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

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

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

The Company determines the useful lives of identifiable intangible assets after considering the specific facts and circumstances related to each intangible asset. Factors considered when determining useful lives include the contractual terms of agreements, the history of the asset, the Company's long-term strategy for the use of the asset, any laws or other local regulations which could impact the useful life of the asset, and other economic factors, including competition and specific market conditions. Intangible assets that are deemed to have definite lives are amortized over their useful lives as follows: dealer network and customer relationships: 8-19 years; trade names: 14-15 years; other: 3-19 years.

Goodwill is not amortized. The Company tests goodwill for impairment during the fourth quarter of each year or more frequently if events or circumstances indicate that goodwill might be impaired. Beginning in 2018, the Company changed its annual goodwill impairment testing date from December 31 to October 31 to better align the testing date with its financial planning process and alleviate resource constraints. The Company would not expect a materially different outcome in any given year as a result of testing on October 31 as compared to December 31. The Company uses qualitative factors to determine whether it is more likely than not (a likelihood of more than 50 percent) that the fair value of a reporting unit is less than its carrying value, including goodwill. The Company estimates the fair values of each of its reporting units with goodwill using a combination of the income and market approaches.

The income approach uses a reporting unit's projection of estimated future operating results and cash flows which are then discounted using a weighted average cost of capital determined based on current market conditions for the individual reporting unit. The projection uses management's best estimates of cash flows over the projection period based on estimates of annual and terminal growth rates in sales and costs, changes in operating margins, selling, general and administrative expenses, working capital requirements and capital expenditures. The market approach relies upon valuation multiples derived from stock prices and enterprise values of publicly traded companies comparable to the Company. The multiples under the market approach are used to develop estimates of the operating value of the reporting units. Other factors used in evaluating the fair value of a reporting unit could include deterioration in the general economy, fluctuations in foreign exchange, deterioration in the industry or markets in which the reporting unit operates, an increased competitive market, a regulatory or political development in the market, increases in raw materials, labor costs or other factors that have a negative effect on earnings and cash flows, a decline in actual or budgeted earnings and cash flows, or entity specific changes in management, key personnel, strategy or customer base. If the fair value of a reporting unit is found to be less than its book value, the Company will record an impairment loss equal to the excess, if any, of the book value over the fair value.

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

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

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

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

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

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

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

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

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

**Revenue Recognition** - Revenue is generally recognized when the Company satisfies a performance obligation by transferring control of goods or providing services. Revenue is measured as the amount of consideration the Company expects to receive in exchange for transferring goods or providing services. The Company generally obtains purchase authorizations from its customers for a specified amount of products at a specified price with specific delivery terms. A significant portion of the Company's equipment sales represents equipment produced in the Company's manufacturing facilities under short-term contracts for a customer's project or equipment designed to meet a customer's requirements. Most of the equipment sold by the Company is based on standard configurations, some of which are modified to meet customer's needs or specifications. The Company provides customers with technical design and performance specifications and typically performs pre-shipment testing, when feasible, to ensure the equipment performs according to the customer's need, regardless of whether the Company provides installation services in addition to selling the equipment. Significant down payments are required on many equipment orders with other terms allowing for payment shortly after shipment, typically 30 days. Taxes assessed by a governmental authority that are directly imposed on revenue-producing transactions between the Company and its customers, such as sales, use, value-added and some excise taxes, are excluded from revenue. Expected warranty costs for our standard warranties are expensed at the time the related revenue is recognized. The Company also offers extended warranties for sale on certain equipment sold to its customers. Total extended warranty sales were \$1,895 in 2019. Costs of obtaining sales contracts with an expected duration of one year or less are expensed as incurred. As contracts are typically fulfilled within one year from the date of the contract, revenue adjustments for a potential financing component or the costs to obtain the contract are not made. As of December 31, 2019, the Company had contract assets of \$4,660, primarily related to billings on one large (\$7,249) order in the Energy group, and contract liabilities of \$6,511, including \$3,536 of deferred revenue related to extended warranties. Contract assets and liabilities were not material as of December 31, 2018.

Depending on the terms of the arrangement with the customer, recognition of a portion of the consideration received may be deferred and recorded as a contract liability if we have to satisfy a future obligation, such as to provide installation assistance, service work to be performed in the future without charge, floor plan interest to be reimbursed to our dealer customers, payments for extended warranties, for annual rebates given to certain high volume customers or for obligations for future estimated returns to be allowed based upon historical trends.

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

The Company had one large wood pellet plant sale through 2018 and other smaller non-wood pellet plant orders in 2019 on which revenue was recorded over time based upon the ratio of costs incurred to estimated total costs. Penalties were accounted for as a reduction in sales.

**Service and Equipment Installation Revenue** – Purchasers of certain of the Company's equipment often contract with the Company to provide installation services. Installation is typically separately priced in the contract based upon observable market prices for stand-alone performance obligations or a cost plus margin approach when one is not available. The Company may also provide future services on equipment sold at the customer's request, which may be for equipment repairs after the warranty period expires. Service is billed on a cost plus margin approach or at a standard rate per hour.

**Used Equipment Sales** - Used equipment is obtained by trade-in on new equipment sales, as a separate purchase in the open market or from the Company's equipment rental business. Revenues from the sale of used equipment are recognized upon transfer of control to the customer at agreed upon pricing.

**Freight Revenue** – Under a practical expedient allowed under ASU 2014-09, the Company records revenues earned for shipping and handling as revenue at the time of shipment, regardless of whether or not it is identified as a separate performance obligation. The cost of shipping and handling is classified as cost of goods sold concurrently.

**Other Revenues** – Miscellaneous revenues and offsets not associated with one of the above classifications include rental revenues, extended warranty revenues, early pay discounts and floor plan interest reimbursements.

**Advertising Expense** - The cost of advertising is expensed as incurred. The Company incurred \$3,668, \$4,136 and \$3,793 in advertising costs during 2019, 2018 and 2017, respectively, which are included in selling, general and administrative expenses.



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

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

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

Estimated warranty obligations are based upon warranty terms, product failure rates, repair costs and current period machine shipments. If actual product failure rates, repair costs, service delivery costs or post-sales support costs differ from our estimates, revisions to the estimated warranty liability may be required.

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

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

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

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

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

	Year Ended December 31		
	2019	2018	2017
Denominator:			
Denominator for basic earnings (loss) per share	22,515	22,902	23,025
Effect of dilutive securities:			
Restricted stock units	111	–	96
Supplemental executive retirement plan	48	–	63
Denominator for diluted earnings (loss) per share	<u>22,674</u>	<u>22,902</u>	<u>23,184</u>

**Derivatives and Hedging Activities** - The Company recognizes all derivatives in the consolidated balance sheets at their fair value. Derivatives that are not hedges are adjusted to fair value through income. If the derivative is a hedge, depending on the nature of the hedge, changes in the fair value of derivatives are either offset against the change in fair value of assets, liabilities, or firm commitments through income or recognized in other comprehensive income (loss) until the hedged item is recognized in income. The ineffective portion of a derivative's change in fair value is immediately recognized in income. From time to time, the Company's foreign subsidiaries enter into foreign currency exchange contracts to mitigate exposure to fluctuation in currency exchange rates. See Note 13, Derivative Financial Instruments, regarding foreign exchange contracts outstanding at December 31, 2019 and 2018.

**Business Combinations and Divestitures** - The Company accounts for business combinations using the acquisition method. Accordingly, intangible assets are recorded apart from goodwill if they arise from contractual or legal rights or if they are separable from goodwill. Related third-party acquisition costs are expensed as incurred and contingent consideration is booked at its fair value as part of the purchase price. Business divestitures are accounted for using the exit and disposal method including the assets held for sale guidance. See Note 21, Business Combinations, regarding acquisitions and divestitures announced or completed by the Company in the years ended December 31, 2019, 2018 and 2017.

**Subsequent Events Review** - Management has evaluated events occurring between December 31, 2019 and the date these consolidated financial statements were filed with the Securities and Exchange Commission for proper recording or disclosure therein.

**Recent Accounting Pronouncements** - In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)", which significantly changed the accounting for operating leases by lessees beginning 2019. The accounting applied by lessors was largely unchanged from that applied under previous guidance. The new guidance establishes a right-of-use ("ROU") model and requires lessees to recognize lease assets and lease liabilities in the balance sheet, initially measured at the present value of the lease payments, for leases which were classified as operating leases under previous guidance. Lease cost included in the statements of operating income will be calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. Certain provisions of ASU No. 2016-02 were later modified or clarified by the issuance of ASU 2018-11, "Leases (Topic 842): Targeted Improvements", ASU 2018-10, "Codification Improvements to Topic 842, Leases" and ASU 2019-01, "Leases (Topic 842), Codification Improvements". A modified retrospective transition approach is required by the ASU and its provisions must be applied to all leases existing at the date of initial application. An entity may choose to use either (1) the standard's effective date or (2) the beginning of the earliest comparative period presented in the financial statements as its date of initial application. The new standards were effective for public companies for fiscal years beginning after December 15, 2018 and the Company adopted the new standards effective January 1, 2019 using the effective date as the date of initial application. Consequently, financial information and the disclosures required under the new standards have not been provided for periods prior to January 1, 2019. As allowed under the ASU's provisions, the Company made an accounting policy election to exclude leases with a term of 12 months or less from the requirement to record related assets and liabilities. The adoption of these standards did not have a material impact on the Company's financial position, results of operations or cash flows. See Note 8, Leases, for additional information regarding the Company's adoption of these standards.

In June 2016, the FASB issued ASU No. 2016-13, “Financial Instruments – Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments”. The standard changes how credit losses are measured for most financial assets and certain other instruments that currently are not measured through net income (loss). The standard will require an expected loss model for instruments measured at amortized cost as opposed to the current incurred loss approach. In valuing available for sale debt securities, allowances will be required to be recorded, rather than the current approach of reducing the carrying amount, for other than temporary impairments. A cumulative adjustment to retained earnings is to be recorded as of the beginning of the period of adoption to reflect the impact of applying the provisions of the standard. Certain provisions of ASU No. 2016-13 were modified or amended by the issuance of ASU 2019-11, Codification Improvements to Topic 326, Financial Instruments – Credit Losses. The ASU makes several narrow-scope amendments to the new credit losses standard, including an amendment requiring entities to include certain expected recoveries of the amortized cost basis of previously written off, or expected to be written off, in the allowance for credit losses for purchase credit deteriorated assets. The amendment also provides transition relief related to troubled debt restructurings, allow entities to exclude accrued interest amounts from certain required disclosures and clarify the requirements for applying the collateral maintenance expedient. The standards are effective for public companies for periods beginning after December 15, 2019 and the Company expects to adopt the new standards as of January 1, 2020. As the Company’s credit losses are typically minimal, the Company does not expect the adoption of the new standards to have a material impact on the Company’s financial position, results of operations or cash flows.

In August 2017, the FASB issued ASU No. 2017-12, “Derivatives and Hedging (Topic 815), Targeted Improvements to Hedging Activities”, to improve the financial reporting of hedging relationships to better portray the economic results of an entity’s risk management activities in its financial statements. The new guidance is effective for public companies for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years with early adoption permitted in any interim period after its issuance. The Company adopted the new standard effective January 1, 2019. The application of this standard did not have a material impact on the Company’s financial position, results of operations or cash flows.

In February 2018, the FASB issued ASU No. 2018-02, “Income Statement – Reporting Comprehensive Income (Topic 220), Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income”, which permits companies to reclassify tax effects stranded in accumulated other comprehensive income (“OCI”) as a result of U.S. tax reform impacting tax rates or other items, such as changing from a worldwide tax system to a territorial system, from OCI to retained earnings. Other tax effects stranded in OCI due to other reasons, such as prior changes in tax laws or changes in valuation allowances, may not be reclassified. The new standard was effective for fiscal years beginning after December 15, 2018, and the Company adopted its provisions as of January 1, 2019. As a result of adopting this new standard, the Company reclassified \$721 of previously stranded tax effects from accumulated comprehensive loss to retained earnings as shown on the accompanying consolidated statement of equity for the year ended December 31, 2019.

In August 2018, the FASB issued ASU No. 2018-13, “Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement” which aims to improve the overall usefulness of disclosures to financial statement users and reduce unnecessary costs to companies when preparing fair value measurement disclosures. The standard is effective for annual and interim periods beginning after December 15, 2019 with early adoption permitted. The Company has not yet adopted this new standard. The Company does not expect the adoption of this new standard to have a material impact on its financial position, results of operations or cash flows.

In December 2019, the FASB issued ASU 2019-12, “Income Taxes (Topic 740), Simplifying the Accounting for Income Taxes”, which eliminates certain exceptions related to the approach for intra-period tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. The new guidance also simplifies aspects of the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. The new standard is effective for fiscal years beginning after December 15, 2020 and interim periods within those fiscal years with early adoption permitted in interim or annual periods if the Company has not yet issued financial statements. If the Company elects to early adopt the amendments in an interim period, it should reflect any adjustments as of the beginning of the annual period that includes the interim period and must adopt all amendments in the same period applying all guidance prospectively, except for certain amendments. The Company has not determined the impact of the statement’s provision on its financial position, results of operations or cash flows.

## 2. Inventories

Inventories consist of the following:

	December 31	
	2019	2018
Raw materials and parts	\$ 160,872	\$ 173,919
Work-in-process	61,287	69,718
Finished goods	53,650	89,152
Used equipment	18,727	23,155
Total	<u>\$ 294,536</u>	<u>\$ 355,944</u>

## 3. Fair Value Measurements

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

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

As indicated in the tables below, the Company has determined that its financial assets and liabilities at December 31, 2019 and 2018 are level 1 and level 2 in the fair value hierarchy:

	December 31, 2019		
	Level 1	Level 2	Total
Financial Assets:			
Trading equity securities:			
SERP money market fund	\$ 208	\$ –	\$ 208
SERP mutual funds	4,419	–	4,419
Preferred stocks	282	–	282
Trading debt securities:			
Corporate bonds	5,117	–	5,117
Municipal bonds	–	1,154	1,154
Floating rate notes	535	–	535
U.S. Government Securities	2,035	–	2,035
Asset-backed securities	–	2,316	2,316
Other	473	1,112	1,585
Derivative financial instruments	–	4	4
Total financial assets	<u>\$ 13,069</u>	<u>\$ 4,586</u>	<u>\$ 17,655</u>
Financial Liabilities:			
Derivative financial instruments	\$ –	\$ 49	\$ 49
SERP liabilities	–	6,645	6,645
Total financial liabilities	<u>\$ –</u>	<u>\$ 6,694</u>	<u>\$ 6,694</u>

	December 31, 2018		
	Level 1	Level 2	Total
Financial Assets:			
Trading equity securities:			
SERP money market fund	\$ 229	\$ –	\$ 229
SERP mutual funds	4,755	–	4,755
Preferred stocks	248	–	248
Trading debt securities:			
Corporate bonds	5,398	–	5,398
Municipal bonds	–	1,546	1,546
Floating rate notes	1,300	–	1,300
U.S. Government Securities	2,210	–	2,210
Asset-backed securities	–	442	442
Other	–	708	708
Derivative financial instruments	–	333	333
Total financial assets	<u>\$ 14,140</u>	<u>\$ 3,029</u>	<u>\$ 17,169</u>
Financial Liabilities:			
SERP liabilities	\$ –	\$ 6,641	\$ 6,641
Total financial liabilities	<u>\$ –</u>	<u>\$ 6,641</u>	<u>\$ 6,641</u>

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

#### 4. Investments

The Company's trading securities consist of the following:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value (Net Carrying Amount)
December 31, 2019				
Trading equity securities	\$ 4,722	\$ 273	\$ 86	\$ 4,909
Trading debt securities	12,681	115	54	12,742
Total	<u>\$ 17,403</u>	<u>\$ 388</u>	<u>\$ 140</u>	<u>\$ 17,651</u>
December 31, 2018				
Trading equity securities	\$ 5,546	\$ 50	\$ 364	\$ 5,232
Trading debt securities	11,817	55	268	11,604
Total	<u>\$ 17,363</u>	<u>\$ 105</u>	<u>\$ 632</u>	<u>\$ 16,836</u>

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

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

#### 5. Goodwill

Goodwill represents the excess of the purchase price over the fair value of identifiable net assets acquired in business combinations. Current U.S. accounting guidance provides that goodwill and indefinite-lived intangible assets be tested for impairment at least annually. The Company performs the required valuation procedures each year as of October 31 after the following year's forecasts are submitted and reviewed.

Goodwill impairment is the excess of the carrying amount of a reporting unit (that includes goodwill) over its fair value. Impairment is limited to the carrying amount of goodwill allocated to the reporting unit. The Company estimated the fair value of its reporting units as of October 31, 2019 based upon a combination of discounted cash flows and market approaches. Weighted average cost of capital used in the discounted cash flow calculations was 13% and terminal growth rate of 2% was assumed. The sum of the reporting units valuations determined by the Company was reconciled to the Company's overall market capitalization. The valuations performed in the fourth quarter of 2019 indicated no impairment. The valuations performed in 2018 and 2017 indicated \$11,190 impairment in the Energy Group in 2018 and no impairment of goodwill in 2017. In addition, as part of a business unit restructuring, additional goodwill of \$955 was written off in 2018.

The changes in the carrying amount of goodwill and accumulated impairment losses by reporting segment during the years ended December 31, 2019 and 2018 are as follows:

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Total
Balance, December 31, 2017:				
Goodwill	\$ 10,883	\$ 33,235	\$ 22,857	\$ 66,975
Accumulated impairment	(2,310)	(12,196)	(6,737)	(21,243)
Net	<u>8,573</u>	<u>21,039</u>	<u>16,120</u>	<u>45,732</u>
2018 Activity:				
Restructuring write off	(955)	—	—	(955)
Foreign currency translation	(49)	(790)	—	(839)
Impairment	—	—	(11,190)	(11,190)
Total 2018 activity	<u>(1,004)</u>	<u>(790)</u>	<u>(11,190)</u>	<u>(12,984)</u>
Balance, December 31, 2018:				
Goodwill	9,879	32,445	22,857	65,181
Accumulated impairment losses	(2,310)	(12,196)	(17,927)	(32,433)
Net	<u>7,569</u>	<u>20,249</u>	<u>4,930</u>	<u>32,748</u>
2019 Activity:				
Foreign currency translation	—	428	—	428
Total 2019 activity	<u>—</u>	<u>428</u>	<u>—</u>	<u>428</u>
Balance, December 31, 2019:				
Goodwill	9,879	32,873	22,857	65,609
Accumulated impairment	(2,310)	(12,196)	(17,927)	(32,433)
Net	<u>\$ 7,569</u>	<u>\$ 20,677</u>	<u>\$ 4,930</u>	<u>\$ 33,176</u>

## 6. Intangible Assets

Intangible assets consisted of the following at December 31, 2019 and 2018:

	2019			2018		
	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Dealer network and customer relationships	\$ 31,086	\$ 17,656	\$ 13,430	\$ 30,909	\$ 14,472	\$ 16,437
Trade names	9,593	3,170	6,423	9,536	2,509	7,027
Other	8,737	5,054	3,683	6,618	4,712	1,906
Total	<u>\$ 49,416</u>	<u>\$ 25,880</u>	<u>\$ 23,536</u>	<u>\$ 47,063</u>	<u>\$ 21,693</u>	<u>\$ 25,370</u>

Amortization expense on intangible assets was \$4,409, \$5,125 and \$4,064 for 2019, 2018 and 2017, respectively. Intangible asset amortization expense is expected to be \$4,057, \$3,666, \$3,204, \$2,626 and \$1,910 in the years ending December 31, 2020, 2021, 2022, 2023 and 2024, respectively, and \$8,073 thereafter.

## 7. Property and Equipment

Property and equipment at cost, less accumulated depreciation, is as follows:

	December 31	
	2019	2018
Land	\$ 15,198	\$ 15,774
Building and land improvements	151,628	145,913
Construction in progress	10,167	10,410
Manufacturing and office equipment	266,650	260,420
Aviation equipment	14,439	14,424
Less accumulated depreciation	(267,719)	(254,493)
Total	<u>\$ 190,363</u>	<u>\$ 192,448</u>

Depreciation expense was \$21,436, \$22,411 and \$21,312 for the years ended December 31, 2019, 2018 and 2017, respectively.

## 8. Leases

The Company leases certain real estate, computer systems, material handling equipment, offices, automobiles and other equipment. The Company determines if a contract is a lease (or contains an embedded lease) at the inception of the agreement. The Company adopted ASU No. 2016-02, Leases, on January 1, 2019 using the effective date method. Upon adoption, right-of-use (“ROU”) assets totaling \$4,993 were recorded on the Company’s balance sheet. Incremental borrowing rates used in the calculation of the ROU asset, when not apparent in the lease agreements, were estimated based upon secured borrowing rates quoted by the Company’s banks for loans of various lengths ranging from one to 20 years. Operating leases with original maturities less than one year in duration were excluded. The calculation of the ROU asset considered lease agreement provisions concerning termination, extensions, end of lease purchase and whether or not those provisions were reasonably certain of being exercised. Certain agreements contain lease and non-lease components, which are accounted for separately. The financial results for periods prior to January 1, 2019 are unchanged from results previously reported. No cumulative effect adjustment was necessary at the time of adoption. Based upon a contract review and related calculations, none of the Company’s leases were deemed to be financing leases. Lease expense recorded in the twelve-month period ended December 31, 2019 under ASC 842 was not materially different from lease expense that would have been recorded under the previous lease accounting standard. Other transitional practical expedients allowed under ASU No. 2016-02 were adopted.

Other information concerning the Company’s operating leases accounted for under ASC 842 guidelines and the related expense, assets and liabilities follows:

	Year Ended December 31, 2019
Operating lease expense	\$ 2,629
Cash paid for operating leases included in operating cash flows	2,727

	As of December 31, 2019
Operating lease right-of-use asset	\$ 3,853
Operating lease short-term liability included in other current liabilities	1,846
Operating lease long-term liability included in other long-term liabilities	2,020
Weighted average remaining lease term (in years)	4.66
Weighted average discount rate used in calculating right-of-use asset	3.56%

Future annual minimum lease payments as of December 31, 2019 are as follows:

2020	\$ 1,960
2021	717
2022	418
2023	252
2024	146
2025 and thereafter	776
Total	<u>4,269</u>
Less interest	(403)
Present value of lease liabilities	<u>\$ 3,866</u>

Operating lease expense under prior guidance for 2018 and 2017 was \$3,618 and \$3,211, respectively.

The Company adopted ASU No. 2016-02 on January 1, 2019 as noted above. As required by the ASU, the following table discloses the minimum rental commitments for all non-cancelable operating leases at December 31, 2018 as reported in the Company's 2018 Form10-K under previous ASC 840 guidance:

2019	\$ 1,992
2020	1,100
2021	388
2022	144
2023	66
2024 and thereafter	12
Total	<u>\$ 3,702</u>

## 9. Debt

In February 2019, the Company and certain of its subsidiaries entered into an amended and restated credit agreement whereby the lender extended to the Company an unsecured line of credit of up to \$150,000, including a sub-limit for letters of credit of up to \$30,000, and extended the maturity date to December 29, 2023. Other significant terms were left unchanged. There were no borrowings outstanding under the agreement as of December 31, 2019. Outstanding borrowings under the agreement were \$58,778 as of December 31, 2018, which are included in long-term debt in the accompanying consolidated balance sheets. The highest borrowing amount outstanding at any time during the twelve months period ended December 31, 2019 was \$81,776. Letters of credit totaling \$8,335, including \$3,200 of letters of credit issued to banks in Brazil to secure the local debt of Astec do Brasil Fabricacao de Equipamentos Ltda. ("Astec Brazil"), were outstanding under the credit facility as of December 31, 2019. Additional borrowing available under the credit facility was \$141,665 as of December 31, 2019. Borrowings under the agreement are subject to an interest rate equal to the daily one-month LIBOR rate plus a 0.75% margin, resulting in a rate of 2.52% as of December 31, 2019. The unused facility fee is 0.125%. Interest only payments are due monthly. The amended and restated credit agreement contains certain financial covenants, including provisions concerning required levels of annual net income and minimum tangible net worth.

The Company's South African subsidiary, Osborn Engineered Products SA (Pty) Ltd ("Osborn"), has a credit facility of \$6,760 with a South African bank to finance short-term working capital needs, as well as to cover performance letters of credit, advance payment and retention guarantees. As of December 31, 2019 and 2018, Osborn had no outstanding borrowings but had \$1,076 in performance, advance payment and retention guarantees outstanding under the facility at December 31, 2019. The facility has been guaranteed by Astec Industries, Inc., but is otherwise unsecured. A 0.75% unused facility fee is charged if less than 50% of the facility is utilized. As of December 31, 2019, Osborn had available credit under the facility of \$5,684. The interest rate is 0.25% less than the South Africa prime rate, resulting in a rate of 9.75% as of December 31, 2019.



The Company's Brazilian subsidiary, Astec Brazil, has an \$897 working capital loan outstanding as of December 31, 2019 from a Brazilian bank with an interest rate of 10.4%. The loan's final monthly payment is due in April 2024. As of December 31, 2018, Astec Brazil had outstanding working capital loans totaling \$1,207 from Brazilian banks with interest rates ranging from 10.4% to 11.0% and maturity dates ranging from January 2019 to April 2024. The debt is secured by Astec Brazil's manufacturing facility and also by letters of credit totaling \$3,200 issued by Astec Industries, Inc. Additionally, Astec Brazil has two five-year equipment financing loans outstanding with Brazilian banks in the aggregate of \$2 as of December 31, 2019 that have interest rates of 9.5% to 16.3%. Each equipment loan has a maturity date in April 2020. As of December 31, 2018, Astec Brazil had various five-year equipment financing loans outstanding with Brazilian banks in the aggregate of \$137. Astec Brazil's loans are included in the accompanying consolidated balance sheets as current maturities of long-term debt of \$209 and long-term debt of \$690 as of December 31, 2019. Additionally, Astec Brazil borrowed an additional \$1,130 during 2019 under order anticipation agreements with a local bank with maturities date through September 2020, which are included as short-term debt in the accompanying consolidated balance sheet as of December 31, 2019.

Long-term debt maturities are expected to be \$209, \$414, \$207 and \$69 in the years ending December 31, 2020, 2021, 2022 and 2023, respectively.

## 10. Product Warranty Reserves

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

Changes in the Company's product warranty liability during 2019, 2018 and 2017 are as follows:

	2019	2018	2017
Reserve balance, beginning of year	\$ 10,928	\$ 15,410	\$ 13,156
Warranty liabilities accrued	9,762	13,219	16,725
Warranty liabilities settled	(10,473)	(17,539)	(14,642)
Other	44	(162)	171
Reserve balance, end of year	<u>\$ 10,261</u>	<u>\$ 10,928</u>	<u>\$ 15,410</u>

## 11. Accrued Loss Reserves

The Company accrues reserves for losses related to known workers' compensation and general liability claims that have been incurred but not yet paid or are estimated to have been incurred but not yet reported to the Company. The undiscounted reserves are actuarially determined based on the Company's evaluation of the type and severity of individual claims and historical information, primarily its own claim experience, along with assumptions about future events. Changes in assumptions, as well as changes in actual experience, could cause these estimates to change in the future. Total accrued loss reserves at December 31, 2019 were \$6,817 and \$7,889 at December 31, 2018, of which \$4,518 and \$6,057 were included in other long-term liabilities at December 31, 2019 and 2018, respectively.

## 12. Pension and Retirement Plans

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

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

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

	<b>Pension Benefits</b>	
	<b>2019</b>	<b>2018</b>
<b>Change in benefit obligation:</b>		
Benefit obligation, beginning of year	\$ 15,741	\$ 16,916
Interest cost	628	578
Actuarial (gain)/loss	1,577	(1,021)
Benefits paid	(789)	(732)
Benefit obligation, end of year	17,157	15,741
Accumulated benefit obligation	17,157	15,741
<b>Change in plan assets:</b>		
Fair value of plan assets, beginning of year	14,452	14,717
Actual gain/(loss) on plan assets	2,729	(909)
Employer contribution	1,613	1,376
Benefits paid	(789)	(732)
Fair value of plan assets, end of year	18,005	14,452
Funded status, end of year	\$ 848	\$ (1,289)

**Amounts recognized in the consolidated balance sheets:**

Noncurrent asset / (liability)	\$ 848	\$ (1,289)
Net amount recognized	\$ 848	\$ (1,289)

**Amounts recognized in accumulated other comprehensive loss consist of:**

Net loss	\$ 4,860	\$ 5,687
Net amount recognized	\$ 4,860	\$ 5,687

**Weighted average assumptions used to determine benefit obligations as of December 31:**

Discount rate	3.10%	4.10%
Expected return on plan assets	6.00%	6.00%
Rate of compensation increase	N/A	N/A

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

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

<b>Asset Category</b>	<b>Actual Allocation</b>		<b>2019 &amp; 2018 Target Allocation Ranges</b>
	<b>2019</b>	<b>2018</b>	
Equity securities	45.9%	46.9%	40 - 65%
Debt securities	42.2%	46.2%	30 - 50%
Cash and equivalents	11.9%	6.9%	0 - 15%
Total	100.0%	100.0%	

Net periodic benefit cost for 2019, 2018 and 2017 included the following components:

	<b>Pension Benefits</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
<b>Components of net periodic benefit cost:</b>			
Interest cost	\$ 628	\$ 578	\$ 630
Expected return on plan assets	(844)	(802)	(720)
Amortization of actuarial loss	520	465	530
Net periodic benefit cost	304	241	440
<b>Other changes in plan assets and benefit obligations recognized in other comprehensive income (loss):</b>			
Net actuarial (gain) loss for the year	(308)	690	(159)
Amortization of net loss	(520)	(465)	(530)
Total recognized in other comprehensive income (loss)	(828)	225	(689)
Total recognized in net periodic benefit cost and other comprehensive income (loss)	\$ (524)	\$ 466	\$ (249)
<b>Weighted average assumptions used to determine net periodic benefit cost for years ended December 31:</b>			
Discount rate	4.10%	3.50%	4.00%
Expected return on plan assets	6.00%	6.25%	6.25%

No contributions are expected to be funded by the Company during 2020. Amounts in accumulated other comprehensive loss expected to be recognized in net periodic benefit cost in 2020 for the amortization of a net loss is \$403.

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

	<b>Pension Benefits</b>
2020	\$ 870
2021	910
2022	910
2023	930
2024	960
2025 - 2029	4,860

The Company sponsors a 401(k) defined contribution plan to provide eligible employees with additional income upon retirement. The Company's contributions to the plan are based on employee contributions. The Company's contributions totaled \$6,977, \$7,451 and \$7,182 in 2019, 2018 and 2017, respectively.

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

Assets of the SERP consist of the following:

	<b>December 31, 2019</b>		<b>December 31, 2018</b>	
	<b>Cost</b>	<b>Market</b>	<b>Cost</b>	<b>Market</b>
Company stock	\$ 1,714	\$ 2,018	\$ 1,886	\$ 1,658
Equity securities	4,437	4,627	5,262	4,983
Total	\$ 6,151	\$ 6,645	\$ 7,148	\$ 6,641

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

The change in the fair market value of Company stock held in the SERP results in a charge or credit to selling, general and administrative expenses in the consolidated statements of operations because the acquisition cost of the Company stock in the SERP is recorded as a reduction of shareholders' equity and is not adjusted to fair market value; however, the related liability is adjusted to the fair market value of the stock as of each period end. The Company recognized income of \$616, \$1,556 and \$575 in 2019, 2018 and 2017, respectively, related to the change in the fair value of the Company stock held in the SERP.

### 13. Derivative Financial Instruments

The Company is exposed to certain risks relating to its ongoing business operations. The primary risk managed by using derivative instruments is foreign currency risk. From time to time, the Company's foreign subsidiaries enter into foreign currency exchange contracts to mitigate exposure to fluctuations in currency exchange rates. The fair value of the derivative financial instrument is recorded on the Company's consolidated balance sheet and is adjusted to fair value at each measurement date. The changes in fair value are recognized in the consolidated statements of operations in the current period. The Company does not engage in speculative transactions nor does it hold or issue derivative financial instruments for trading purposes. The average U.S. dollar equivalent notional amount of outstanding foreign currency exchange contracts was \$10,304 during 2019. At December 31, 2019, the Company reported \$4 of derivative assets in other current assets and \$49 of derivative liabilities in other current liabilities. The Company reported \$333 of derivative assets in other current assets at December 31, 2018. The Company recognized, as a component of cost of sales, a net loss on the change in fair value of derivative instruments of \$74 for the year ended December 31, 2019. The Company recognized a net gain on the change in fair value of derivative instruments of \$1,147 and a net loss of \$663 for the years ended December 31, 2018 and 2017, respectively. There were no derivatives that were designated as hedges at December 31, 2019 or 2018.

### 14. Income Taxes

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

	Year Ended December 31		
	2019	2018	2017
United States	\$ 26,675	\$ (86,874)	\$ 55,980
Foreign	(1,489)	896	1,237
Income (loss) before income taxes	<u>\$ 25,186</u>	<u>\$ (85,978)</u>	<u>\$ 57,217</u>

The provision (benefit) for income taxes consists of the following:

	Year Ended December 31		
	2019	2018	2017
Current provision (benefit):			
Federal	\$ (495)	\$ (3,995)	\$ 16,178
State	769	892	2,866
Foreign	1,023	3,254	874
Total current provision	<u>1,297</u>	<u>151</u>	<u>19,918</u>
Deferred provision (benefit):			
Federal	2,818	(19,142)	107
State	(1,052)	(5,788)	(455)
Foreign	(51)	(455)	57
Total deferred benefit	<u>1,715</u>	<u>(25,385)</u>	<u>(291)</u>
Total provision (benefit):			
Federal	2,323	(23,137)	16,285
State	(283)	(4,896)	2,411
Foreign	972	2,799	931
Total income tax provision (benefit)	<u>\$ 3,012</u>	<u>\$ (25,234)</u>	<u>\$ 19,627</u>

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

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

	Year Ended December 31		
	2019	2018	2017
Tax expense (benefit) at the statutory federal income tax rate	\$ 5,289	\$ (18,055)	\$ 20,026
Domestic production activity deduction	—	—	(1,661)
State income tax, net of federal income tax	(2,291)	(2,976)	1,520
Research and development tax credits	(6,614)	(4,660)	(922)
FIN 48 impact	3,215	1,856	124
Liquidation of subsidiary	(918)	(1,403)	—
True-up of foreign subsidiary net operation loss carryforward	(1,441)	—	—
Valuation allowance impact	5,785	978	1,585
Changes in tax rates	83	(193)	(505)
Other items	(96)	(781)	(540)
Total income tax provision (benefit)	<u>\$ 3,012</u>	<u>\$ (25,234)</u>	<u>\$ 19,627</u>

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

Significant components of the Company's deferred tax assets and liabilities are as follows:

	December 31	
	2019	2018
Deferred tax assets:		
Inventory reserves	\$ 5,798	\$ 4,513
Warranty reserves	2,198	2,275
Bad debt reserves	261	182
State tax loss carryforwards	9,762	7,265
Accrued vacation	1,412	1,612
SERP	—	364
Deferred compensation	1,063	881
Restricted stock units	1,539	1,728
Goodwill	1,981	2,157
Pension and post-employment benefits	1,309	1,536
Outside basis difference	4,017	4,496
Federal net operating loss	12,118	15,655
Foreign net operating losses	8,615	5,069
Lease obligation	849	—
Other	5,800	5,025
Valuation allowances	(14,586)	(8,540)
Total deferred tax assets	<u>42,136</u>	<u>44,218</u>
Deferred tax liabilities:		
Property and equipment	16,000	16,156
Intangibles	121	541
Right of use asset	843	—
Pension	1,372	1,051
Total deferred tax liabilities	<u>18,336</u>	<u>17,748</u>
Total net deferred assets	<u>\$ 23,800</u>	<u>\$ 26,470</u>

As of December 31, 2019, the Company has a federal net operating loss carryforward of \$57,705 from year 2018, which the Company expects to utilize against earnings in 2020 and in future years.

As of December 31, 2019, the Company has state net operating loss carryforwards of \$179,076 and foreign net operating loss carryforwards of approximately \$27,357, which will be available to offset future taxable income. If not used, these carryforwards will expire between 2020 and 2031. A significant portion of the valuation allowance for deferred tax assets relates to the future utilization of state and foreign net operating loss and state tax credit carryforwards. Future utilization of these net operating loss and state tax credit carryforwards is evaluated by the Company on a periodic basis and the valuation allowance is adjusted accordingly. The Company has also determined that the recovery of certain other deferred tax assets in foreign jurisdictions is unrealizable. In 2019, the valuation allowance on these carryforwards and deferred tax assets was increased by \$5,785 due to the unrealizable portion of certain entities' state and foreign net operating loss carryforwards and certain other deferred tax assets in foreign jurisdictions.

The following table represents a roll forward of the deferred tax asset valuation allowance for the years ended December 31, 2019, 2018 and 2017:

	Year Ended December 31		
	2019	2018	2017
Allowance balance, beginning of year	\$ 8,540	\$ 8,318	\$ 8,280
Provision	5,785	978	1,585
Write-offs	—	—	(1,862)
Other	261	(756)	315
Allowance balance, end of year	<u>\$ 14,586</u>	<u>\$ 8,540</u>	<u>\$ 8,318</u>

Undistributed earnings of the Company's Canadian subsidiary, Breaker Technology Ltd. ("BTL"), South African subsidiary, Osborn Engineered Products SA, (Pty), Ltd. ("Osborn"), and Northern Ireland subsidiary, Telestack Limited ("Telestack"), are considered to be indefinitely reinvested; accordingly, no provision for U.S. federal and state income taxes has been provided thereon. As of December 31, 2019, the cumulative amounts of undistributed GAAP earnings for BTL, Osborn and Telestack are \$10,124, \$30,908 and \$2,496, respectively. A portion of these amounts were subjected to taxation under the one-time transition tax included in the Tax Cuts and Jobs Act of 2017. Based upon the provisions in the Tax Cuts and Jobs Act of 2017, any future qualified dividends out of these amounts will not be subject to U.S. income taxes. However, upon any future inclusion as Subpart F income or capital gains, the Company would be subject to additional U.S. income taxes (subject to an adjustment for foreign tax credits). Upon any repatriation, withholding taxes due to the foreign jurisdictions may have to be paid. At this time, it is not practicable to determine the amount of the unrecognized deferred tax liability for temporary differences related to investments in foreign subsidiaries.

The Company files income tax returns in the U.S. federal jurisdiction, and in various state and foreign jurisdictions. The Company is no longer subject to U.S. federal income tax examinations by authorities for years prior to 2014. With few exceptions, the Company is no longer subject to state and local or non-U.S. income tax examinations by authorities for years prior to 2013.

The Company has a liability for unrecognized tax benefits of \$5,723 and \$2,048 (excluding accrued interest and penalties) as of December 31, 2019 and 2018, respectively. The Company recognizes interest and penalties accrued related to unrecognized tax benefits in tax expense. The Company recognized tax benefits of \$120 and \$66 in 2019 and 2018, respectively, for penalties and interest related to amounts that were settled for less than previously accrued. The net total amount of unrecognized tax benefits that, if recognized, would affect the Company's effective tax rate is \$6,148 and \$2,243 at December 31, 2019 and 2018, respectively. The Company does not expect a significant increase or decrease to the total amount of unrecognized tax benefits within the next twelve months.

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

	Year Ended December 31		
	2019	2018	2017
Balance, beginning of year	\$ 2,048	\$ 365	\$ 238
Additions for tax positions taken in current year	2,985	1,722	127
Additions for tax positions taken in prior period	719	—	—
Reductions due to lapse of statutes of limitations	—	(39)	—
Decreases related to settlements with tax authorities	(29)	—	—
Balance, end of year	<u>\$ 5,723</u>	<u>\$ 2,048</u>	<u>\$ 365</u>

The December 31, 2019 balance of unrecognized tax benefits includes no tax positions for which the ultimate deductibility is highly certain but the timing of such deductibility is uncertain. Accordingly, there is no impact to the deferred tax accounting for certain tax benefits.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the “Tax Act”) was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a federal corporate tax rate decrease from 35% to 21% for tax years beginning after December 31, 2017, the transition of U.S international taxation from a worldwide tax system to a territorial system and a one-time transition tax on the mandatory deemed repatriation of foreign earnings. The Company’s fourth quarter 2017 provision for income taxes was reduced by \$1,056, (comprised of a \$1,548 reduction in income tax expense recorded in connection with the remeasurement of deferred tax assets and liabilities and \$492 of additional income tax expense recorded in connection with the transition tax on the mandatory deemed repatriation of foreign earnings) due to applying the provisions of the Tax Act.

On December 22, 2017, Staff Accounting Bulletin No. 118 (“SAB 118”) was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Act. In accordance with SAB 118, the Company determined that the \$492 additional 2017 income tax expense was a provisional amount and constituted a reasonable estimate at December 31, 2017, based upon the best information then available. The final impact was \$1,727 and differed from the provisional amount due to, among other things, additional analysis, changes in interpretations and assumptions the Company made, additional regulatory guidance issued and actions the Company took as a result of the Tax Act. The subsequent adjustment, \$1,235, was included in 2018 income tax expense.

While the Tax Act provides for a territorial tax system beginning in 2018, it includes two new U.S. tax base erosion provisions, the global intangible low-taxed income (“GILTI”) provisions and the base-erosion and anti-abuse tax (“BEAT”) provisions.

The GILTI provisions require the Company to include, in its U.S. income tax return, foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary’s tangible assets. The Company has elected to account for GILTI tax in the period in which it is incurred. For 2019, the Company’s foreign subsidiaries are in an overall tested loss position, and therefore, have no GILTI inclusion for 2019.

The BEAT provisions in the Tax Act eliminates the deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax, if greater than regular tax. The Company does not expect to be subject to this tax, and therefore, has not included any tax impacts of BEAT in its consolidated financial statements for the year ended December 31, 2019.

The changes to existing U.S. tax laws as a result of the Tax Act, which we believe have the most significant impact on the Company’s federal income taxes are as follows:

*Reduction of the U.S. Corporate Income Tax Rate:* The Company measures deferred tax assets and liabilities using enacted tax rates that will apply in the years in which the temporary differences are expected to be recovered or paid. Accordingly, the Company recognized a deferred tax benefit and related increase in deferred tax assets of \$1,548 in its 2017 consolidated financial statements due to the remeasurement necessitated by the Tax Act’s provision reducing the reduction in the U.S. corporate income tax rate from 35% to 21%. This benefit is attributable to the Company being in a net deferred tax liability position when considering only U.S. federal deferred items. The Company has significant deferred tax assets related to foreign jurisdictions and U.S. state income taxes.

*Transition Tax on Foreign Earnings:* The Company recognized a provisional income tax expense of \$492 for the year ended December 31, 2017 related to the one-time transition tax on certain foreign earnings. The final determination of the transition tax of \$1,727 was completed in 2018.

*Repeal of Domestic Production Activities Deduction:* The Tax Act repealed the Domestic Production Activities Deduction (“DPAD”) previously provided under IRC §199. As such, there were no DPAD benefits in 2019 or 2018 to include in the effective tax rate reconciliations; however, the Company included \$1,661 of DPAD benefit in the effective tax rate reconciliation in 2017 under previous regulations.

## **15. Contingent Matters**

Certain customers have financed purchases of Company products through arrangements with a bank in which the Company is contingently liable for customer debt of \$1,466 at December 31, 2019. These arrangements expire at various dates through December 2023. Additionally, the Company is also potentially liable for 1.75% of the unpaid balance, determined as of December 31 of the prior year (or approximately \$932 for 2019), on certain past customer equipment purchases that were financed by an outside finance company. The agreements provide that the Company will receive the lender’s full security interest in the equipment financed if the Company is required to fulfill its contingent liability under these arrangements. The Company has recorded a liability of \$1,666 related to these guarantees as of December 31, 2019.



In addition, the Company is contingently liable under letters of credit issued by a lender totaling \$8,335 as of December 31, 2019, including \$3,200 of letters of credit guaranteeing certain Astec Brazil bank debt. The outstanding letters of credit expire at various dates through January 2021. As of December 31, 2019, the Company's foreign subsidiaries are contingently liable for a total of \$2,623 in performance letters of credit, advance payments and retention guarantees. The maximum potential amount of future payments under these letters of credit and guarantees for which the Company could be liable is \$10,958 as of December 31, 2019.

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, as amended on August 26, 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 person 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. The Company disputes these allegations and intends to defend this lawsuit vigorously and filed a motion to dismiss the lawsuit on October 25, 2019. The Company is unable to determine whether or not a future loss will be incurred due to this litigation, or estimate a range of loss, if any, at this time.

The Company's GEFCO subsidiary has been named a defendant in a lawsuit originally filed on August 16, 2018 with an amended complaint filed on January 25, 2019, in the United States District Court for the Western District of Oklahoma. The action is styled *VenVer S.A. and Americas Coil Tubing LLP v. GEFCO, Inc.*, Case No. CIV-18-790-SLP. The complaint alleges breaches of warranty and other similar claims regarding equipment sold by GEFCO in 2013. In addition to seeking a rejection (rescission) of the purchase contract, the plaintiff is seeking special and consequential damages. The original purchase price of the equipment was approximately \$8,500. GEFCO disputes the plaintiff's allegations and intends to defend this lawsuit vigorously. The Company is unable to estimate the possible loss or range of loss at this time.

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

## **16. Shareholders' Equity**

The Company rewards key members of management with restricted stock units ("RSUs") each year based upon the financial performance of the Company and its subsidiaries. Under the terms of the Company's shareholder-approved 2011 Incentive Plan, up to 700 shares of newly-issued Company stock is available for awards. Awards granted in 2016 and prior vest at the end of five years from the date of grant, or at the time a recipient retires after reaching age 65, if earlier, while awards granted in 2017 to February 2019 vest three years from the date of grant. RSUs granted in early 2020 for 2019 performance vest ratably, at the end of each 12 month period, over a three year period. Additional RSUs are granted to the Company's outside directors under the Company's Non-Employee Directors Compensation Plan with a one-year vesting period. During 2019, the Company granted a total of 34 RSUs to newly hired members of executive management as of their respective dates of hire which will vest ratably, at the end of each 12 month period from their date of hire, over a three-year period. The fair value of the RSUs vesting during 2019, 2018 and 2017 was \$1,577, \$1,869 and \$1,991, respectively. The tax impact upon the vesting of RSUs was tax expense of \$278 in 2019 and tax benefits of \$67 and \$290, respectively, in 2018 and 2017.



Compensation expense of \$2,567, \$2,032 and \$2,978 was recorded in the years ended December 31, 2019, 2018 and 2017, respectively, to reflect the fair value of RSUs granted (or anticipated to be granted for 2019 performance) amortized over the portion of the vesting period occurring during the period. Related income tax benefits of \$706, \$528 and \$1,132 were recorded in 2019, 2018 and 2017, respectively. Based upon the grant date fair value of RSUs, it is anticipated that \$3,869 of additional compensation costs will be recognized in future periods through 2023 for RSUs earned through December 31, 2019. The weighted average period over which this additional compensation cost will be expensed is 1.8 years. RSUs do not participate in Company-paid dividends.

Changes in restricted stock units during the year ended December 31, 2019 are as follows:

	2019	Weighted Average Grant Date Fair Value
Unvested restricted stock units, beginning of year	165	\$ 56.82
Units granted	92	34.57
Units forfeited	(23)	56.52
Units vested	(46)	57.65
Unvested restricted stock units, end of year	<u>188</u>	<u>45.78</u>

The grant date fair value of the restricted stock units granted during 2019, 2018 and 2017 was \$3,168, \$3,553 and \$5,399, respectively.

## 17. Revenue Recognition

The following tables disaggregates the Company's revenue by major source for the period ended December 31, 2019 and 2018 (excluding intercompany sales):

	For the Year Ended December 31, 2019				
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Other Group	Total
Net Sales – Domestic:					
Equipment sales	\$ 253,227	\$ 166,868	\$ 160,359	\$ –	\$ 580,454
Pellet plant revenue	20,000	–	–	–	20,000
Parts and component sales	121,354	74,503	47,622	–	243,479
Service and equipment installation revenue	13,389	8,039	5,837	–	27,265
Used equipment sales	5,569	1,244	5,874	–	12,687
Freight revenue	11,989	6,279	5,993	–	24,261
Other	(677)	(2,944)	3,941	–	320
Total domestic revenue	<u>424,851</u>	<u>253,989</u>	<u>229,626</u>	<u>–</u>	<u>908,466</u>
Net Sales – International:					
Equipment sales	39,477	95,514	30,725	206	165,922
Parts and component sales	19,097	46,984	9,344	159	75,584
Service and equipment installation revenue	5,606	1,977	617	39	8,239
Used equipment sales	1,180	3,272	1,059	–	5,511
Freight revenue	1,892	3,000	558	–	5,450
Other	15	235	193	(2)	441
Total international revenue	<u>67,267</u>	<u>150,982</u>	<u>42,496</u>	<u>402</u>	<u>261,147</u>
Total net sales	<u>\$ 492,118</u>	<u>\$ 404,971</u>	<u>\$ 272,122</u>	<u>\$ 402</u>	<u>\$ 1,169,613</u>

For the Year Ended December 31, 2018

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Other Group	Total
Net Sales – Domestic:					
Equipment sales	\$ 296,974	\$ 220,015	\$ 178,584	\$ –	\$ 695,573
Pellet plant agreement sale reduction	(75,315)	–	–	–	(75,315)
Parts and component sales	119,823	71,862	42,666	–	234,351
Service and equipment installation revenue	10,822	1,844	6,355	–	19,021
Used equipment sales	8,098	3,127	4,358	–	15,583
Freight revenue	12,502	6,265	5,896	–	24,663
Other	1,022	(741)	1,657	–	1,938
Total domestic revenue	<u>373,926</u>	<u>302,372</u>	<u>239,516</u>	<u>–</u>	<u>915,814</u>
Net Sales – International:					
Equipment sales	43,516	98,604	24,308	–	166,428
Parts and component sales	19,215	44,609	10,528	–	74,352
Service and equipment installation revenue	3,152	1,069	390	–	4,611
Used equipment sales	1,693	2,948	908	–	5,549
Freight revenue	1,043	3,266	417	–	4,726
Other	(256)	296	79	–	119
Total international revenue	<u>68,363</u>	<u>150,792</u>	<u>36,630</u>	<u>–</u>	<u>255,785</u>
Total net sales	<u>\$ 442,289</u>	<u>\$ 453,164</u>	<u>\$ 276,146</u>	<u>\$ –</u>	<u>\$ 1,171,599</u>

Revenue is recognized when obligations under the terms of a contract are satisfied and generally occurs with the transfer of control of the product or services at a point in time. Revenue is measured as the amount of consideration the Company expects to receive in exchange for transferring goods or providing services. The Company generally obtains purchase authorizations from its customers for a specified amount of products at a specified price with specific delivery terms. A significant portion of the Company's equipment sales represents equipment produced in the Company's manufacturing facilities under short-term contracts for a customer's project or equipment designed to meet a customer's requirements. Most of the equipment sold by the Company is based on standard configurations, some of which are modified to meet customer's needs or specifications. The Company provides customers with technical design and performance specifications and typically performs pre-shipment testing, when feasible, to ensure the equipment performs according to the customer's need, regardless of whether the Company provides installation services in addition to selling the equipment. Significant down payments are required on many equipment orders with other terms allowing for payment shortly after shipment, typically 30 days. Taxes assessed by a governmental authority that are directly imposed on revenue-producing transactions between the Company and its customers, such as sales, use, value-added and some excise taxes, are excluded from revenue. Expected warranty costs for our standard warranties are expensed at the time the related revenue is recognized. The Company also offers extended warranties for sale to customers. Total extended warranty sales were \$1,895 in 2019. Costs of obtaining sales contracts with an expected duration of one year or less are expensed as incurred. As contracts are typically fulfilled within one year from the date of the contract, revenue adjustments for a potential financing component or the costs to obtain the contract are not made.

Depending on the terms of the arrangement with the customer, recognition of a portion of the consideration received may be deferred and recorded as a contract liability if we have to satisfy a future obligation, such as to provide installation assistance, service work to be performed in the future without charge, floor plan interest to be reimbursed to our dealer customers, payments for extended warranties, annual rebates given to certain high volume customers or obligations for future estimated returns to be allowed based upon historical trends. As of December 31, 2019, the Company had contract assets of \$4,660, primarily related to billings on one large (\$7,249) order in the Energy group, and contract liabilities of \$6,511, including \$3,536 of deferred revenue related to extended warranties. Contract assets and liabilities were not material as of December 31, 2018.

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

**Service and Equipment Installation Revenue** – Purchasers of certain of the Company’s equipment often contract with the Company to provide installation services. Installation is typically separately priced in the contract based upon observable market prices for stand-alone performance obligations or a cost plus margin approach when one is not available. The Company may also provide future services on equipment sold at the customer’s request, which may be for equipment repairs after the warranty period expires. Service is billed on a cost plus margin approach or at a standard rate per hour.

**Used Equipment Sales** – Used equipment is obtained by trade-in on new equipment sales, as a separate purchase in the open market or from the Company’s equipment rental business. Revenues from the sale of used equipment are recognized upon transfer of control to the customer at agreed upon pricing.

**Freight Revenue** – Under a practical expedient allowed under ASU No. 2014-09, the Company records revenues earned for shipping and handling as revenue at the time of shipment, regardless of whether or not it is identified as a separate performance obligation. The cost of shipping and handling is classified as cost of goods sold concurrently.

**Other Revenues** – Miscellaneous revenues and offsets not associated with one of the above classifications include rental revenues, extended warranty revenues, early pay discounts and floor plan interest reimbursements.

## **18. Operations by Industry Segment and Geographic Area**

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

**Infrastructure Group** – 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 and a majority of their sales are to customers in the infrastructure industry. During late 2018, the Company decided to close AMM, located in Germany, in 2019, and its assets are being liquidated. The principal purchasers of the products produced by this group are asphalt producers, highway and heavy equipment contractors, and foreign and domestic governmental agencies.

**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”). The principal purchasers of products produced by this group are distributors, open mine operators, quarry operators, port and inland terminal operators, highway and heavy equipment contractors and foreign and domestic governmental agencies.

**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”). RexCon, located in Burlington, WI, was formed to acquire substantially all of the assets and liabilities of RexCon, LLC on October 1, 2017. In the fourth quarter of 2019, the Company announced it was closing its CEI manufacturing site in Albuquerque, NM (the CEI product lines will continue to be produced and marketed at other Company locations). The principal purchasers of products produced by this group are oil, gas and water well drilling industry contractors, processors of oil, gas and biomass for energy production, ready mix concrete producers and contractors in the construction and demolition recycling markets.

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

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

#### Segment information for 2019

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Revenues from external customers	\$ 492,118	\$ 404,971	\$ 272,122	\$ 402	\$ 1,169,613
Intersegment revenues	10,860	22,164	18,353	–	51,377
Restructuring and asset impairment charges	1,811	250	1,143	–	3,204
Interest expense	6	311	13	1,037	1,367
Interest income	1	574	47	570	1,192
Depreciation and amortization	8,484	8,211	8,371	1,134	26,200
Income taxes	349	624	397	1,642	3,012
Profit (loss)	36,106	22,790	556	(38,440)	21,012
Assets	564,808	608,369	301,014	420,931	1,895,122
Capital expenditures	11,097	7,442	3,096	985	22,620

#### Segment information for 2018

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Revenues from external customers	\$ 442,289	\$ 453,164	\$ 276,146	\$ –	\$ 1,171,599
Intersegment revenues	21,568	16,603	17,578	–	55,749
Restructuring and asset impairment charges	1,870	–	11,190	–	13,060
Interest expense	10	384	17	634	1,045
Interest income	49	372	29	502	952
Depreciation and amortization	8,424	9,383	9,149	957	27,913
Income taxes	880	2,349	306	(28,769)	(25,234)
Profit (loss)	(112,954)	45,464	3,070	1,586	(62,834)
Assets	536,744	590,512	309,397	367,211	1,803,864
Capital expenditures	14,823	8,731	4,580	769	28,903

#### Segment information for 2017

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Revenues from external customers	\$ 553,691	\$ 403,720	\$ 227,328	\$ –	\$ 1,184,739
Intersegment revenues	25,965	16,209	24,877	–	67,051
Interest expense	49	634	9	148	840
Interest income	509	276	8	509	1,302
Depreciation and amortization	7,581	9,363	7,904	954	25,802
Income taxes	1,318	462	491	17,356	19,627
Profit (loss)	26,641	35,748	16,219	(40,963)	37,645
Assets	666,651	558,684	304,158	390,300	1,919,793
Capital expenditures	7,424	9,194	3,540	604	20,762

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

	2019	2018	2017
<b>Net income attributable to controlling interest</b>			
Total profit (loss) for reportable segments	\$ 59,452	\$ (64,420)	\$ 78,608
Corporate expenses, net	(38,440)	1,586	(40,963)
Net loss attributable to non-controlling interest	132	295	205
Recapture (elimination) of intersegment profit	1,162	2,090	(55)
Total consolidated net income (loss) attributable to controlling interest	<u>\$ 22,306</u>	<u>\$ (60,449)</u>	<u>\$ 37,795</u>
<b>Assets</b>			
Total assets for reportable segments	\$ 1,474,191	\$ 1,436,653	\$ 1,529,493
Corporate assets	420,931	367,211	390,300
Elimination of intercompany profit in inventory	(3,823)	(4,986)	(7,075)
Elimination of intercompany receivables	(767,907)	(664,914)	(717,873)
Elimination of investment in subsidiaries	(296,650)	(300,709)	(303,209)
Other	(26,244)	22,202	(2,057)
Total consolidated assets	<u>\$ 800,498</u>	<u>\$ 855,457</u>	<u>\$ 889,579</u>

Sales into major geographic regions were as follows:

	Year Ended December 31		
	2019	2018	2017
United States	\$ 908,466	\$ 915,814	\$ 932,294
Canada	66,855	61,582	65,509
Africa	44,749	45,613	36,847
Australia and Oceania	42,304	38,645	40,201
Other European Countries	32,170	25,985	18,679
South America (excluding Brazil)	17,928	30,081	18,562
Brazil	11,582	6,292	10,478
Post-Soviet States (excluding Russia)	7,276	2,730	5,951
Other Asian Countries	6,520	5,472	10,286
West Indies	6,366	1,494	3,421
Mexico	5,280	9,632	8,508
Russia	5,097	9,571	13,609
Central America (excluding Mexico)	4,910	2,706	2,929
Japan and Korea	3,594	3,649	4,760
Middle East	2,584	7,877	4,881
China	2,231	2,765	6,113
India	1,003	957	1,026
Other	698	734	685
Total foreign	<u>261,147</u>	<u>255,785</u>	<u>252,445</u>
Total consolidated sales	<u>\$ 1,169,613</u>	<u>\$ 1,171,599</u>	<u>\$ 1,184,739</u>

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

	December 31	
	2019	2018
United States	\$ 157,872	\$ 162,775
Northern Ireland	10,790	7,641
Brazil	8,349	8,866
Australia	4,649	4,624
South Africa	4,512	4,682
Canada	4,007	3,480
Chile	184	35
Germany	—	345
Total foreign	<u>32,491</u>	<u>29,673</u>
Total	<u>\$ 190,363</u>	<u>\$ 192,448</u>

## 19. Accumulated Other Comprehensive Loss

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

	December 31	
	2019	2018
Foreign currency translation adjustment	\$ (28,627)	\$ (30,656)
Unrecognized pension and post-retirement benefit cost, net of tax of \$1,265 and \$2,230, respectively	(3,176)	(3,227)
Accumulated other comprehensive loss	<u>\$ (31,803)</u>	<u>\$ (33,883)</u>

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

## 20. Other Income

Other income consists of the following:

	Year Ended December 31		
	2019	2018	2017
Investment income (loss)	\$ 202	\$ (228)	\$ (96)
Licensing fees	—	—	651
Other	103	764	663
Total	<u>\$ 305</u>	<u>\$ 536</u>	<u>\$ 1,218</u>

## 21. Business Combinations and Divestitures

In October 2017, the Company acquired substantially all of the assets and liabilities of RexCon LLC ("RexCon") for a total cash purchase price of \$26,443. The Company's allocation of the purchase price includes the recognition of \$3,488 of goodwill and \$7,778 of other intangible assets consisting of non-compete agreements (5-year useful life), technology (19-year useful life), trade names (15-year useful life), and customer relationships (18-year useful life). The revenues and results of operations of RexCon were not significant in relation to the Company's consolidated financial statements for the period ended December 31, 2017 and would not have been material on a proforma basis to any earlier period. RexCon's operating results are included in the Company's Energy Group beginning in the fourth quarter of 2017. The Company determined that the full \$3,488 of goodwill recorded due to the acquisition was impaired in the fourth quarter of 2018.

RexCon, located in Burlington, Wisconsin was founded in 2003 through an asset acquisition with the original company founded over 100 years ago. RexCon is a manufacturer of high-quality stationary and portable, central mix and ready mix concrete batch plants, concrete mixers and concrete paving equipment. RexCon specializes in providing portable, high-production concrete equipment to contractors and producers worldwide in a totally integrated turnkey production system, including customized site layout and design engineering, batch plants, mixers, water heaters and chillers, ice production and delivery systems, material handling conveyors, gensets and power distribution, cement silos and screws, central dust collection, aggregate heating and cooling systems, batch automation controls and batch office trailers.

On October 21, 2019, the Company announced the closing of CEI Enterprises, Inc. ("CEI") located in Albuquerque, New Mexico. The decision to close the business was based in part on market conditions and manufacturing facilities underutilization. The marketing and manufacturing of products previously produced by CEI will be transferred to other Company facilities. The industrial and heat-related products and inventory of CEI will be transferred to the Company's Heatec, Inc. location, while the concrete-related products and inventory will be relocated to RexCon, Inc. CEI's land, building and leasehold improvements (which are included in assets held for sale and valued at \$2,749 in the accompanying consolidated balance sheet as of December 31, 2019) are expected to be sold "as-is". Selected equipment has been transferred to the Heatec, Inc. and RexCon, Inc. facilities. CEI is scheduled to close during the first quarter of 2020.

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 GmbH (“AMM”) 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 AMM. Essentially all of the assets were liquidated prior to December 31, 2019, with the exception of the sale of its land and building, which are included in assets held for sale and valued at \$335 in the accompanying consolidated balance sheet at December 31, 2019. Losses on the liquidation incurred in 2019 are included in restructuring and asset impairment charges in the accompanying statement of operations for the year ended December 31, 2019. The sale of AMM’s land and building was completed in January 2020, with no additional loss being incurred.

The Company had total assets held for sale of \$3,084 at December 31, 2019, including \$335 at AMM and \$2,749 at CEI.

## 22. Restructuring and Asset Impairment Charges

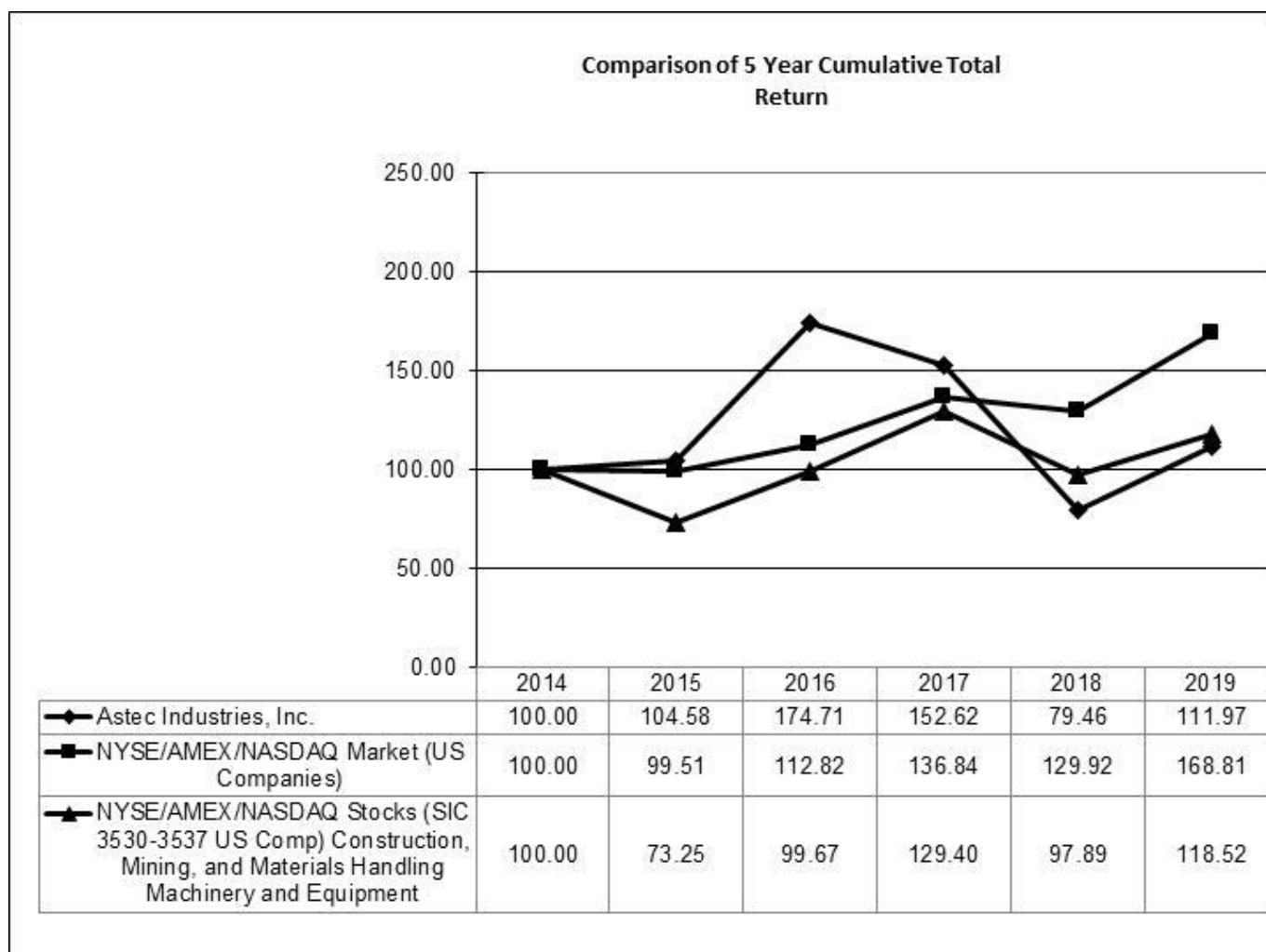
During 2018 and 2019, the Company made several strategic decisions to divest of non-performing product lines or manufacturing sites, including its plan to exit from the wood pellet plant line of business; the closing of its subsidiary in Germany (Astec Mobile Machinery (“AMM”)); its plan to close and sell its CEI, Inc. manufacturing site in Albuquerque, NM (the CEI product lines will continue to be produced and marketed at other Company locations); its plan to exit the GEFCO oil and gas product line; and its plan to sell a Company-owned airplane. Certain of the costs associated with these decisions are separately identified as restructuring and asset impairment charges of \$3,204 and \$13,060 in 2019 and 2018, respectively, in the accompanying consolidated statements of operations.

The restructuring and asset impairment charges incurred in 2019 and 2018 are as follows:

	2019	2018
Costs associated with exiting the wood pellet business	\$ 530	\$ —
Costs associated with closing AMM	1,282	1,870
Goodwill impairment charges	—	11,190
Energy Group severance and other costs	1,142	—
Airplane impairment charge	250	—
Total restructuring and asset impairment charges	<u>\$ 3,204</u>	<u>\$ 13,060</u>

Restructuring charges accrued, but not paid, as of December 31, 2019 and 2018 are not significant.

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



**Notes:**

- A. Data complete through last fiscal year.
- B. Corporate Performance Graph with peer group uses peer group only performance (excludes only company).
- C. Peer group indices use beginning of period market capitalization weighting.
- D. Prepared by Zacks Investment Research, Inc. Used with permission. All rights reserved Copyright 1980-2020.
- E. Calculated (or Derived) based from CRSP NYSE/AMEX/NASDAQ Market (US Companies), Center for Research in Security Prices (CRSP®), Graduate School of Business, The University of Chicago. Copyright 2020. Used with permission. All rights reserved.
- F. The graph assumes \$100 invested at the closing price of the Company's common stock on December 31, 2014 and assumes that all dividends were invested on the date paid.



ASTEC INDUSTRIES, INC.  
FORM 10-K  
INDEX OF EXHIBITS FILED HERewith

Exhibit Number	Description
Exhibit 10.28	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective December 5, 2019.
Exhibit 10.29	Separation Agreement and General Release, dated as of December 31, 2019, by and between Astec Industries, Inc. and David C. Silvius
Exhibit 10.30	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective February 28, 2020.
Exhibit 21	Subsidiaries of the Registrant.
Exhibit 23	Consent of Independent Registered Public Accounting Firm.
Exhibit 31.1	Certification pursuant to Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
Exhibit 31.2	Certification pursuant to Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
Exhibit 32	Certification pursuant to Rule 13a-14(b)/15d-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)

## SIGNATURES

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

ASTEC INDUSTRIES, INC.  
(Registrant)

BY: /s/ Barry A. Ruffalo  
Barry A. Ruffalo, Chief Executive Officer and  
President

Date: March 17, 2020

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

SIGNATURE	TITLE	DATE
<u>/s/ Barry A. Ruffalo</u> Barry A. Ruffalo	Chief Executive Officer and President (Principal Executive Officer) and Director	March 17, 2020
<u>/s/ Rebecca A. Weyenberg</u> Rebecca A. Weyenberg	Chief Financial Officer (Principal Financial and Accounting Officer)	March 17, 2020
<u>/s/ William D. Gehl</u> William D. Gehl	Director and Chairman of the Board	March 17, 2020
<u>/s/ James B. Baker</u> James B. Baker	Director	March 17, 2020
<u>/s/ Tracey H. Cook</u> Tracey H. Cook	Director	March 17, 2020
<u>/s/ William G. Dorey</u> William G. Dorey	Director	March 17, 2020
<u>/s/ Daniel K. Frierson</u> Daniel K. Frierson	Director	March 17, 2020
<u>/s/ Charles F. Potts</u> Charles F. Potts	Director	March 17, 2020
<u>/s/ Glen E. Tellock</u> Glen E. Tellock	Director	March 17, 2020
<u>/s/ William B. Sansom</u> William B. Sansom	Director	March 17, 2020
<u>/s/ William Bradley Southern</u> William Bradley Southern	Director	March 17, 2020
<u>/s/ Mary L. Howell</u> Mary L. Howell	Director	March 17, 2020

**AMENDMENT TO “APPENDIX A” OF THE  
ASTEC INDUSTRIES, INC.  
SUPPLEMENTAL EXECUTIVE RETIREMENT PLAN**

THIS AMENDMENT to “Appendix A” of the Astec Industries, Inc. Supplemental Executive Retirement Plan, as amended and restated as of January 1, 2008 (the “Plan”), is adopted by Astec Industries, Inc. (the “Company”), effective as of December 5, 2019.

**WHEREAS**, Article 2 of the Plan permits the Board of Directors of the Company (the “Board”) to designate participants in the Plan from time to time, whose names and effective dates of participation shall be set forth on Exhibit A to the Plan;

**NOW, THEREFORE**, the Company hereby amends “Appendix A” of the Plan in the form attached hereto, to update the same for changes in Plan participation approved by the Board, by action taken on December 5, 2019.

Except as amended herein, the Plan shall continue in full force and effect.

**ASTEC INDUSTRIES, INC.**

Date: December 5, 2019

By: /s/ Stephen C. Anderson  
Name: Stephen C. Anderson  
Title: Secretary

**“Appendix A”**  
**Each Participant’s Date of Participation**

<b>Name of Participant</b>	<b>Effective Dates of Participation</b>
Tim Gonigam	August 1, 2000
Stephen C. Anderson	January 1, 2003
David Silvious	July 1, 2005
Neil Peterson	January 1, 2008
Joe Cline	February 1, 2008
Chris Colwell	May 31, 2011
Robin Leffew	August 1, 2011
Matthew B. Haven	January 1, 2013
Jeff May	October 1, 2013
Tom Wilkey	January 1, 2014
Jeff Schwarz	July 1, 2014
Jaco Van Der Merwe	October 1, 2016
Scott Barker	April 3, 2017
Neil Whitworth	May 30, 2017
Michael G. Anderson	July 7, 2017
Jody Volner	November 1, 2017
Michael Norris	January 1, 2018
Greg Renegar	January 1, 2019
Vince Trotta	April 15, 2019
Barry Ruffalo	August 12, 2019
Matthew Litchfield	October 1, 2019
Greg Oswald	October 29, 2019
Tim Averkamp	November 4, 2019
Rebecca Weyenberg	December 4, 2019

---

**SEPARATION AGREEMENT AND GENERAL RELEASE**

This separation agreement and general release is between David Silvius, an individual ("Executive"), and Astec Industries, Inc., a Tennessee corporation ("Astec").

**BACKGROUND**

Executive has been employed by Astec, most recently as its Chief Financial Officer. Executive has informed Astec that he intends to voluntarily resign from his employment, and Astec and Executive therefore have agreed to end Executive's relationship with Astec. Executive and Astec desire to clarify and settle all matters relating to Executive's employment and the end of that employment. Astec has offered Executive the severance package described below in Section 2, which is expressly conditioned on and subject to Executive's acceptance of this agreement.

The parties therefore agree as follows:

1. **SEPARATION DATE.** Executive's employment with Astec will end effective December 31, 2019, which will be his last day of employment with Astec ("Separation Date"). Executive is not expected or required to perform any duties for, or report to work at, Astec after December 20, 2019, although Executive shall make himself available to perform any duties requested by Astec's President and CEO. On the Separation Date, Executive will also be removed from all of his positions and offices with Astec and any subsidiary of Astec, including officer, director, or board member, and Executive shall sign and promptly provide to Astec all required documents to effectuate Executive's removal.

2. **COVENANTS OF ASTEC.**

2.1 Astec will pay Executive's regular compensation through the Separation Date, and will also pay Executive for any accrued time off to which he is entitled under Astec's policies.

2.2 Astec will voluntarily pay to Executive a gross amount equal to 9 months of Executive's base salary, less required withholding deductions, as separation pay. The severance amount due under this Section 2.2 will be paid to Executive in three equal, quarterly installments beginning after the Effective Date, as follows:

- (a) Astec shall make the first quarterly payment on March 31, 2020.
- (b) Astec shall make the second quarterly payment on June 30, 2020.
- (c) Astec shall make the third and final quarterly payment on September 30, 2020.

The severance payments that Astec has agreed to make under this section are in excess of what Executive would otherwise be entitled to receive.

2.3 Astec shall transfer to Executive ownership of the company vehicle that Executive has been provided for business use (VIN# 1C4RJFCG2KC834935). After the Separation Date, Executive will be fully responsible for all costs and expenses, including insurance, gas, and maintenance, relating to the vehicle. Except as specifically provided above, Astec will not be obligated or liable to Executive for any compensation, salary, payment, bonus, commission, or benefit of any nature whatsoever by reason of Executive's employment, whether by express or implied agreement, arrangement, custom, or otherwise. Executive is accepting the payment described above in lieu of any other payment or benefit to which he might claim entitlement, and Executive expressly waives any claim or entitlement to any additional payment or benefit, whether of the type described above or otherwise. Executive likewise is waiving any right to any restricted stock unit or other similar benefit awarded or provided to him that is not fully vested as of the Separation Date.

3. **EMPLOYEE BENEFIT PLANS.** Executive's participation in Astec's employee benefit plans will cease on the later of the Separation Date or on the date provided under the terms of such plans.

4. **RELEASE.**

4.1 To induce Astec to enter into this agreement and to make the payment described above, Executive releases and discharges Astec and any owners, successors, assigns, affiliates, members, managers, subsidiary company, related company, and surviving company or companies by reason of any merger or acquisition of Astec, and all officers, trustees, shareholders, directors, members, managers, plan administrators, employees, agents, or attorneys of any of the foregoing entities (collectively referred to as "Releasees") from all charges, complaints, claims, liabilities, obligations, actions, promises, agreements, causes of action, suits, demands, costs, losses, damages, debts, and expenses, whether known, unknown, disclosed, or undisclosed, that Executive now has, owns, or holds, claims to have, own, or hold, at any time heretofore had, owned, or held, or that he claimed to have, own, or hold against Releasees. This general release of all claims includes, but is not limited to, any claim under Title VII (42 U.S.C. § 2000e et seq.), the Age Discrimination in Employment Act (29 U.S.C. § 621 et seq.), the Family and Medical Leave Act (29 U.S.C. § 2601 et seq.), the National Labor Relations Act (29 U.S.C. § 151 et seq.), the Worker Adjustment and Retraining Notification Act of 1988 (29 U.S.C. § 2101 et seq.), the Civil Rights Acts of 1866, 1871, 1964, and 1991, the Americans with Disabilities Act (42 U.S.C. § 12101 et seq.), the Rehabilitation Act of 1973 (29 U.S.C. § 701 et seq.), the Consolidated Omnibus Budget and Reconciliation Act of 1985 (29 U.S.C. § 1161 et seq.), the Employee Retirement Income and Security Act (29 U.S.C. § 1001 et seq.), the Older Workers Benefit Protection Act, the Genetic Information Nondiscrimination Act of 2008 (42 U.S.C. § 2000ff et seq.), the Tennessee Human Rights Act (Tenn. Code Ann. § 4-21-101 et seq.), the Tennessee Public Protection Act (Tenn. Code Ann. § 50-1-304), and the Tennessee Disability Act (Tenn. Code Ann. § 8-50-103 et seq.), and any claim under any statute, ordinance, regulation, or common law theory protecting whistleblowers or proscribing retaliation, discrimination, or harassment, regarding personal injury, regarding wrongful discharge, or relating to rights and obligations under contract, whether express, implied, or otherwise.

4.2 This is a **general release of all claims** except that Executive is not waiving (a) any right or entitlement that cannot be waived as a matter of law; (b) any right or entitlement to any vested benefits in Astec's employee benefit, retirement, or stock option plans; or (c) the right to file a charge or participate in an investigation with the Equal Employment Opportunity Commission or Tennessee Human Rights Commission, although he is waiving his right to recover a monetary award as a result of any and all such claims, charges, or investigations resulting from his employment. Nothing in this agreement limits Executive's ability to file a charge or complaint with the Occupational Safety and Health Administration or the Securities and Exchange Commission, or any similar federal or state agency. This agreement also does not limit Executive's ability to communicate with any such agency or otherwise participate in any investigation or proceeding that may be conducted by any such agency, including providing documents or other information, without notice to Astec.

5. **VALIDITY OF RELEASE LANGUAGE.** This agreement is in full compliance with the Age Discrimination in Employment Act and Older Workers Benefit Protection Act (specifically 29 U.S.C. § 626(f)). In particular:

5.1 This agreement is written in a manner understandable to Executive. Executive has read this agreement in its entirety, has had any questions about it fully answered to his satisfaction, and fully understands its terms. Executive has been advised to consult with his attorney before executing this agreement.

5.2 The consideration provided to Executive under this agreement is in addition to anything of value to which he is already entitled.

5.3 Astec has offered and agreed to allow Executive a period of at least twenty-one (21) days within which to consider this agreement. Executive is under no obligation whatsoever to sign this agreement before the expiration of the twenty-one (21) day period, but may voluntarily choose to do so.

5.4 Executive may revoke this agreement within seven (7) days from the date on which he signs it ("Revocation Period"), and this agreement will not become effective or enforceable until after the Revocation Period has expired, and as provided in section 19 of this agreement. To exercise his right to revoke this agreement, Executive must, within the Revocation Period, deliver written notice that he is revoking this agreement to Campbell Brooks, Director of Human Resources, 4101 Jerome Avenue, Chattanooga, TN 37407; email: cbrooks@astecindustries.com. Such written notice will be valid only if sent by U.S. registered or certified mail or email and received by Campbell Brooks no later than the expiration of the Revocation Period. If not so revoked within the Revocation Period, this agreement will be valid, binding, and enforceable in all respects, except as provided in section 19.

6. **ASTEC PROPERTY.** Executive shall promptly return to Astec all physical and electronic property, files, memoranda, records, equipment, documents, photographs, computer discs, audiotapes, videotapes, and other property of Astec or any Astec subsidiary, or copies or reproductions of the same, that he has received from Astec or any subsidiary or obtained through his employment with Astec. This includes, but is in no way limited to, handbooks, policies, day planners, key cards, access cards, trade secrets, Confidential Information (as defined below), personal data assistants, mobile telephones, smartphones, pagers, business records, computers, printouts of electronically stored information, and office equipment. Executive also shall immediately discontinue use of any Astec equipment, software programs, and intellectual property.



7. **COOPERATION WITH MANAGEMENT.** If requested by Astec or any Astec subsidiary, or any of their respective officers, directors, agents, representatives, employees, or attorneys, Executive shall fully cooperate with Astec or any Astec subsidiary (a) in responding to any questions or issues that may arise regarding his former duties; (b) in the defense of any claim against Astec or any Astec subsidiary, including, without limitation, any administrative or other charge, demand, lawsuit, arbitration, mediation, or other demand for legal or equitable relief, notwithstanding the forum, or (c) in Astec's or any Astec subsidiary's response to any compliance-related or other issue. This section is not intended to require anything of Executive other than providing, if requested, truthful and accurate assistance or testimony.

8. **CONFIDENTIALITY OF THIS AGREEMENT.** The terms of this agreement are STRICTLY CONFIDENTIAL. Executive shall not disclose, reveal, or disseminate, orally, electronically, in writing, or in any manner whatsoever, the settlement of this matter, the fact or amount of the severance payments set forth in Section 2, or the contents of this agreement, except that he may discuss this agreement with his spouse, attorney, financial advisor, and tax preparer.

9. **CONFIDENTIALITY AND NONDISCLOSURE OF INFORMATION LEARNED DURING EMPLOYMENT.**

9.1 During Executive's employment with Astec, he received and had access to Confidential Information, as that term is defined in section 9.5 below. Executive shall not at any time after the Separation Date, except as authorized in writing by Astec's CEO, directly or indirectly use for Executive's own benefit or for the benefit of any person or entity other than Astec, or directly or indirectly divulge, disclose, disseminate, distribute, or communicate to any person or entity, any Confidential Information.

9.2 Executive shall notify Astec before disclosing any Confidential Information to fulfill any legal obligation so that it may obtain a protective order or other similar relief from disclosure, if desired, and Executive shall cooperate with Astec in its efforts to preserve the confidentiality of any Confidential Information.

9.3 All Confidential Information, including any Confidential Information that Executive wholly or partially created or discovered during his employment with Astec, is to remain the sole property of Astec. Executive shall perform all actions reasonably requested by Astec or any Astec subsidiary to establish and confirm Astec's or any Astec subsidiary's ownership of Confidential Information (including, without limitation, assignments, consents, powers of attorney, and other instruments). Executive specifically waives and hereby assigns to Astec any and all rights to inventions, discoveries, and improvements made by him during his employment with Astec, whether made solely or jointly with others, whether patentable or unpatentable, as well as any and all rights in and to any patents, reissue patents, patent applications, divisional applications, continuing applications, substitute applications, renewal applications, and all other applications for Letters Patent which have been filed or shall be filed on any of said inventions, discoveries, and improvements, whether filed in the United States or any other country. Executive also specifically waives and hereby assigns to Astec any and all rights to the copyright in any works of authorship created by him, either solely or jointly with other co-authors, and all moral rights associated therewith, to which he might otherwise be entitled under applicable law. Executive also specifically waives and hereby assigns to Astec any and all rights to Astec's trademarks, service marks, and trade names as well as any and all good will associated therewith.

9.4 Executive shall take all necessary precautions, including the establishment of appropriate procedures and disciplines, to safeguard the confidential nature of the Confidential Information.

9.5 As used in this agreement, "Confidential Information" means all trade secrets and confidential and proprietary information or knowledge relating to Astec or any subsidiary of Astec, including, without limitation, business plans, marketing plans, business agreements, strategies, pricing, customers (including, without limitation, the names, addresses or telephone numbers of its customers or prospective customers), arrangements with customers, arrangements with other individuals or entities, memoranda, letters, reports, research, analyses, technologies, inventions, innovations, work product, computer programs, designs, drawings, sketches, blueprints, processes, information systems, web applications, financial information, training manuals, operations manuals, and other information conceived, generated, produced, developed, or made before or during Executive's employment with Astec, that Astec, or any subsidiary of Astec, consider to be confidential or proprietary in nature.

#### 10. **RESTRICTIONS ON COMPETITION AND SOLICITATION.**

10.1 Noncompetition with Astec Industries, Inc. or its subsidiaries. For the 12-month period after the Effective Date, Executive shall not, without first receiving the express written permission of the CEO of Astec,;

- (a) own any interest in, manage, operate, or control a Competing Business (as defined below); or
- (b) directly or indirectly render services, whether paid or unpaid, and whether personally or as an employee, agent, consultant, independent contractor, or otherwise, as or to a Competing Business.

10.2 Nonsolicitation of Employees. For the 12-month period after the Effective Date, Executive shall not, either on Executive's own account or for any individual or entity, directly or indirectly,:

- (a) solicit, interfere with, or endeavor to cause any employee of Astec or any subsidiary of Astec to leave his or her employment; or
- (b) induce or attempt to induce any employee of Astec or any subsidiary of Astec to terminate, breach, or violate his or her written or oral agreement with Astec or a subsidiary of Astec.

10.3 Nonsolicitation of Customers. For the 12-month period after the Effective Date, Executive shall not directly or indirectly solicit, induce, or attempt to induce any Customer:

- (a) to cease doing business in whole or in part with or through Astec or any subsidiary of Astec;
- (b) to refuse to do business with Astec or any subsidiary of Astec;
- (c) to do business with a Competing Business;
- (d) to reduce or lessen its business with Astec or any subsidiary of Astec; or
- (e) to do business with any individual (including Executive), business, or entity that manufactures, sells, or services any product that is similar to any product manufactured, sold, or serviced by any subsidiary of Astec.

10.4 Tolling of Time Periods. The ending date of the time periods set forth in section 10 of this agreement are to be tolled and suspended during any period in which Executive is in violation of this agreement so that the periods of noncompetition and nonsolicitation are extended by the number of days during which Executive was in violation of this agreement.

10.5 Definitions. As used in this section:

(a) “Competing Business” means any person, corporation, partnership, proprietorship, individual, limited liability company, firm, or other association or entity that either: (i) is engaged in the business of manufacturing, selling, or servicing any product that is similar to or competitive with any product manufactured, sold, or serviced by any subsidiary of Astec, or (ii) owns (whether wholly or partially) a corporation, partnership, proprietorship, individual, limited liability company, firm, or other association or entity that is engaged in the business of manufacturing, selling, or servicing any product that is similar to or competitive with any product manufactured, sold, or serviced by any subsidiary of Astec.

(b) “Customer” means any person, corporation, partnership, proprietorship, individual, limited liability company, firm, or other association, or entity that has at any time during the 24-month period preceding the Effective Date engaged any subsidiary of Astec to develop, design, customize, distribute, sell, purchase, or provide any product or service.

11. **NON-DISPARAGEMENT.** Unless required to do so by legal process, Executive shall not make any disparaging statements or representations, either directly or indirectly, whether orally or in writing, electronically, by word, or gesture, to any person whatsoever about Astec or its attorneys, representatives, affiliates, directors, affiliate companies, parent companies, officers, employees, volunteers, contractors, consultants, or agents, or about any product designed, manufactured, or sold by any subsidiary of Astec. For purposes of this Section, a disparaging statement or representation is any communication that, if publicized to another, would cause or tend to cause the recipient of the communication to question the business condition, integrity, competence, or quality of the person, product, or entity to whom the communication relates or that would in any way harm Astec's ability to continue its operations.

12. **NO CLAIMS.** Executive has not filed any notice, claim, complaint, charge, or lawsuit of any kind whatsoever against any of the Releasees (as defined in Section 4) with any court, governmental agency, regulatory body, or other third party with respect to any matter related to Astec, any subsidiary of Astec, or a Releasee, or arising out of his employment with Astec or the separation of that employment.

13. **NO KNOWLEDGE OF COMPLIANCE ISSUES.** Executive represents and confirms that he is presently unaware of any legal, regulatory, or compliance violation that occurred before or during his employment with Astec that would subject Astec or any Releasee to civil or criminal liability, damages, fines, sanctions, penalties, or other monetary payments.

14. **NO ADMISSION.** This agreement is not to be construed as an admission by Astec of any acts of discrimination, harassment, retaliation, misconduct, or any other illegal conduct against Executive or any other person, and Astec specifically disclaims any liability to, or discrimination, harassment, retaliation, misconduct, or any other illegal conduct against, Executive or any other person on the part of itself, its employees, or its agents.

15. **REMEDIES.** Damage in the event of a breach of this agreement would be difficult, if not impossible, to calculate, thus entitling Astec to injunctive relief in the event of a breach or threatened breach of this agreement, in addition to any entitlement to monetary damages. If Executive breaches, or threatens to breach, this agreement, Astec will be entitled to recover from Executive any and all costs and expenses, including attorneys' fees and litigation costs, that it may incur if Executive breaches or threatens to breach this agreement or in the defense of a claim against Astec or any of the Releasees that Executive has released in this agreement.

16. **ENTIRE AGREEMENT.** This agreement sets forth the entire agreement between the parties as to the separation of Executive's employment with Astec, and it fully supersedes any prior agreements or understandings between them pertaining to the separation of his employment. The parties agree that they may modify this agreement only by a subsequent, written agreement that is executed by both parties.

17. **VOLUNTARY AGREEMENT.** Executive voluntarily executes this agreement, and his execution of this agreement is not based upon any representation by any party as to the merits, legal liability, or value of any claims of the parties or any other matter related to this agreement.

18. **GOVERNING LAW; VENUE.** Astec's principal place of business is in Chattanooga, Tennessee, and this agreement will be signed and accepted by Astec in the State of Tennessee. This agreement, and all rights and obligations of the parties under this agreement, are to be governed by and construed in accordance with the laws of the State of Tennessee, without reference to any conflicts of laws principles. Any legal action, claim, or proceeding relating to this agreement or Executive's employment with Astec must be filed in a state or federal court of competent jurisdiction in or for Hamilton County, Tennessee.

19. **EFFECTIVE DATE.** Unless Executive exercises his right to revoke this agreement in accordance with section 5.4, this agreement will become effective on the date that the last party signs it or on the eighth (8th) day after Executive signs it, whichever is later.

20. **SEVERABILITY.** If any provision of this agreement is held to be unenforceable, then that provision is to be construed either by modifying it to the minimum extent necessary to make it enforceable (if permitted by law) or by disregarding it (if not permitted by law). If an unenforceable provision is modified or disregarded in accordance with this section, the rest of the agreement is to remain in effect as written, and the unenforceable provision is to remain as written in any circumstances other than those in which the provision is held to be unenforceable. But if modifying or disregarding the unenforceable provision would result in the failure of an essential purpose of this agreement, the entire agreement is to be held unenforceable.

**BY SIGNING BELOW, EXECUTIVE ACKNOWLEDGES THAT HE HAS READ THIS AGREEMENT IN ITS ENTIRETY AND FULLY UNDERSTANDS AND AGREES TO ALL OF ITS TERMS.**

December 20, 2019

Date Signed

/s/ David C. Silvius

Executive

Printed Name David C. Silvius

12-20-19

Astec Industries, Inc.

/s/ Campbell Brooks

Printed Name Campbell Brooks

Title Dir of H.R.

**AMENDMENT TO “APPENDIX A” OF THE  
ASTEC INDUSTRIES, INC.  
SUPPLEMENTAL EXECUTIVE RETIREMENT PLAN**

THIS AMENDMENT to “Appendix A” of the Astec Industries, Inc. Supplemental Executive Retirement Plan, as amended and restated as of January 1, 2008 (the “Plan”), is adopted by Astec Industries, Inc. (the “Company”), effective as of February 28, 2020.

**WHEREAS**, Article 2 of the Plan permits the Board of Directors of the Company (the “Board”) to designate participants in the Plan from time to time, whose names and effective dates of participation shall be set forth on Exhibit A to the Plan;

**NOW, THEREFORE**, the Company hereby amends “Appendix A” of the Plan in the form attached hereto, to update the same for changes in Plan participation approved by the Board, by action taken on February 28, 2020.

Except as amended herein, the Plan shall continue in full force and effect.

**ASTEC INDUSTRIES, INC.**

Date: February 28, 2020

By: /s/ Stephen C. Anderson  
Name: Stephen C. Anderson  
Title: Secretary

**“Appendix A”**  
**Each Participant’s Date of Participation**

<b>Name of Participant</b>	<b>Effective Dates of Participation</b>
Tim Gonigam	August 1, 2000
Stephen C. Anderson	January 1, 2003
Joe Cline	February 1, 2008
Chris Colwell	May 31, 2011
Robin Leffew	August 1, 2011
Matthew B. Haven	January 1, 2013
Jeff May	October 1, 2013
Tom Wilkey	January 1, 2014
Jeff Schwarz	July 1, 2014
Jaco Van Der Merwe	October 1, 2016
Scott Barker	April 3, 2017
Neil Whitworth	May 30, 2017
Michael G. Anderson	July 7, 2017
Jody Volner	November 1, 2017
Michael Norris	January 1, 2018
Greg Renegar	January 1, 2019
Vince Trotta	April 15, 2019
Barry Ruffalo	August 12, 2019
Matthew Litchfield	October 1, 2019
Greg Oswald	October 29, 2019
Tim Averkamp	November 4, 2019
Rebecca Weyenberg	December 4, 2019
Ron Earl	January 1, 2020
Chris Frost	January 1, 2020
Gerardo Goya	January 27, 2020
Basman Alias	February 1, 2020
Dena Fairley	February 1, 2020
Eric Baker	February 1, 2020
Brian Gray	February 1, 2020
Jeff Rowan	March 3, 2020
Aletheia Silcott	March 17, 2020

---



**LIST OF SUBSIDIARIES**

<u>Name</u>	<u>Percentage Owned</u>	<u>Jurisdiction of Incorporation</u>
AEG Trading and Manufacturing India LLP	100	Republic of India
Astec Australia Pty Ltd	100	Australia
Astec do Brasil Fabricacao de Equipamentos Ltda.	93	Brazil
Astec, Inc.	100	Tennessee
Astec Industries Holdings LLC	100	Delaware
Astec Industries LatAm SpA	100	Chile
Astec Insurance Company	100	Tennessee
Astec Mobile Machinery GmbH	100	Germany
Astec Mobile Screens, Inc.	100	Nevada
Breaker Technology, Inc.	100	Tennessee
Breaker Technology Ltd	100	Ontario, Canada
Carlson Paving Products, Inc.	100	Washington
CEI Enterprises, Inc.	100	Tennessee
GEFCO, Inc.	100	Tennessee
Heatec, Inc.	100	Tennessee
Johnson Crushers International, Inc.	100	Tennessee
Kolberg-Pioneer, Inc.	100	Tennessee
Osborn Engineered Products SA (Pty) Ltd	100	South Africa
Peterson Pacific Corp.	100	Oregon
Power Flame Incorporated	100	Tennessee
RexCon, Inc.	100	Tennessee
Roadtec, Inc.	100	Tennessee
Telestack, Limited	100	Northern Ireland
Telsmith, Inc.	100	Delaware

**Consent of Independent Registered Public Accounting Firm**

The Board of Directors  
Astec Industries, Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-123266, 333-124420, 033-61461, 333-133013, 333-134398, and 333-176177) on Form S-8 of Astec Industries, Inc. of our reports dated March 17, 2020, with respect to the consolidated balance sheets of Astec Industries, Inc. and subsidiaries as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes, and the effectiveness of internal control over financial reporting as of December 31, 2019, which reports appear in the December 31, 2019 annual report on Form 10-K of Astec Industries, Inc.

Our report dated March 17, 2020, on the effectiveness of internal control over financial reporting as of December 31, 2019, expresses our opinion that Astec Industries, Inc. did not maintain effective internal control over financial reporting as of December 31, 2019 because of the effect of material weaknesses on the achievement of the objectives of the control criteria and contains an explanatory paragraph that states that the following material weaknesses have been identified and included in management's assessment:

- Lack of a sufficient number of trained resources at Corporate and certain business units that were knowledgeable and experienced in the application of *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission for certain financial reporting processes, insufficient accountability for internal control responsibilities, and insufficient Corporate monitoring activities of certain business units;
- Ineffective management review controls over the goodwill impairment assessment due to insufficient knowledge and experience of the Company's personnel with a quantitative goodwill impairment assessment and an ineffective risk assessment process;
- Ineffective management review controls over the income tax calculations, including the completeness and accuracy of data and formulas embedded in the spreadsheets used in the income tax calculations, due to insufficient knowledge and experience of the Company's personnel and an ineffective risk assessment process;
- Ineffective general information technology controls over the enterprise resource planning (ERP) systems at certain business units, the automated controls across substantially all financial reporting processes at those business units, and manual controls that are dependent upon the completeness and accuracy of information derived from those ERP systems, due to insufficient knowledge and experience of information technology personnel and an ineffective risk assessment process;
- Ineffective controls over the completeness, existence, accuracy, and disclosure of revenue at certain business units due to insufficient understanding of the requirements of revenue recognition and an ineffective risk assessment process;
- Ineffective controls over the accuracy and valuation of inventories at certain business units due to an ineffective risk assessment process; and
- Ineffective controls over manual journal entries at certain business units and automated journal entries due to insufficient knowledge and experience in the functionality of certain ERP systems and an ineffective risk assessment process.

/s/ KPMG LLP

Knoxville, Tennessee  
March 17, 2020

---

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

I, Barry A. Ruffalo, certify that:

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

Date: March 17, 2020

/s/Barry A. Ruffalo  
Barry. A. Ruffalo  
Chief Executive Officer and President  
(Principal Executive Officer)

---

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

I, Rebecca A. Weyenberg, certify that:

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

Date: March 17, 2020

/s/ Rebecca A. Weyenberg  
Rebecca A. Weyenberg  
Chief Financial Officer  
(Principal Financial Officer)

---

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

In connection with the Annual Report of Astec Industries, Inc. (the “Company”) on Form 10-K for the period ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned, Barry A. Ruffalo and Rebecca A. Weyenberg, certify, pursuant to Rule 13a-14(b)/15d-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

/s/ Barry A. Ruffalo

Barry A. Ruffalo  
Chief Executive Officer and President  
(Principal Executive Officer)  
March 17, 2020

/s/ Rebecca A. Weyenberg

Rebecca A. Weyenberg  
Chief Financial Officer  
(Principal Financial Officer)  
March 17, 2020

---