

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

**FORM 10-Q**

(Mark One)

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

For the quarterly period ended June 30, 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)

**(423) 899-5898**

(Registrant's telephone number, including area code)

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

Title of each Class	Trading Symbol	Name of each exchange on which registered
<b>Common Stock</b>	<b>ASTE</b>	<b>The Nasdaq Stock Market LLC</b>

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:

Large Accelerated Filer

Accelerated Filer

Non-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

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

Class  
**Common Stock, par value \$0.20**

Outstanding at July 25, 2019  
**22,534,739**

ASTECH INDUSTRIES, INC.  
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**PART I – FINANCIAL INFORMATION**

**Item 1. Financial Statements**

**Astec Industries, Inc.**  
**Condensed Consolidated Balance Sheets**  
 (in thousands) (unaudited)

	June 30, 2019	December 31, 2018
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 24,905	\$ 25,821
Investments	1,211	1,946
Trade receivables	135,969	130,569
Other receivables	3,227	3,409
Inventories	360,883	355,944
Prepaid income taxes	16,339	24,459
Prepaid expenses and other	15,001	18,843
Total current assets	557,535	560,991
Property and equipment, net	191,854	192,448
Investments	16,080	14,890
Operating lease right-of-use assets	4,075	–
Goodwill	32,628	32,748
Deferred income tax assets	18,992	27,490
Other long-term assets	27,391	26,890
Total assets	\$ 848,555	\$ 855,457
<b>LIABILITIES AND EQUITY</b>		
Current liabilities:		
Current maturities of long-term debt	\$ 236	\$ 413
Accounts payable	70,338	70,614
Customer deposits	35,044	48,069
Accrued product warranty	10,117	10,928
Accrued payroll and related liabilities	21,319	24,126
Accrued loss reserves	1,925	1,832
Other current liabilities	34,957	33,249
Total current liabilities	173,936	189,231
Long-term debt	28,891	59,709
Deferred income tax liabilities	935	1,020
Other long-term liabilities	24,185	20,207
Total liabilities	227,947	270,167
Shareholders' equity	619,979	584,580
Non-controlling interest	629	710
Total equity	620,608	585,290
Total liabilities and equity	\$ 848,555	\$ 855,457

See Notes to Unaudited Condensed Consolidated Financial Statements

**Astec Industries, Inc.**  
**Condensed Consolidated Statements of Operations**  
 (in thousands, except per share data)  
 (unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net sales	\$ 304,802	\$ 272,528	\$ 630,582	\$ 597,981
Cost of sales	221,352	271,420	470,606	518,868
Gross profit	83,450	1,108	159,976	79,113
Selling, general, administrative and engineering expenses	52,969	51,263	111,316	103,341
Income (loss) from operations	30,481	(50,155)	48,660	(24,228)
Interest expense	(484)	(168)	(1,131)	(318)
Other income, net of expenses	372	1,052	839	1,513
Income (loss) from operations before income taxes	30,369	(49,271)	48,368	(23,033)
Income tax provision (benefit)	7,008	(8,503)	10,789	(2,481)
Net income (loss)	23,361	(40,768)	37,579	(20,552)
Net loss attributable to non-controlling interest	16	94	72	145
Net income (loss) attributable to controlling interest	\$ 23,377	\$ (40,674)	\$ 37,651	\$ (20,407)
Earnings (loss) per common share				
Net income (loss) attributable to controlling interest:				
Basic	\$ 1.04	\$ (1.76)	\$ 1.67	\$ (0.89)
Diluted	\$ 1.03	\$ (1.76)	\$ 1.66	\$ (0.89)
Weighted average number of common shares outstanding:				
Basic	22,509	23,061	22,503	23,053
Diluted	22,667	23,061	22,656	23,053
Dividends declared per common share	\$ 0.11	\$ 0.10	\$ 0.22	\$ 0.20

See Notes to Unaudited Condensed Consolidated Financial Statements

**Astec Industries, Inc.**  
**Condensed Consolidated Statements of Comprehensive Income (Loss)**  
 (in thousands)  
 (unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net income (loss)	\$ 23,361	\$ (40,768)	\$ 37,579	\$ (20,552)
Other comprehensive income (loss):				
Foreign currency translation adjustments	(110)	(8,021)	853	(6,309)
Change in unrecognized pension benefit cost	-	-	-	65
Other comprehensive income (loss)	(110)	(8,021)	853	(6,244)
Comprehensive income (loss)	23,251	(48,789)	38,432	(26,796)
Comprehensive loss attributable to non-controlling interest	3	237	62	285
Comprehensive income (loss) attributable to controlling interest	\$ 23,254	\$ (48,552)	\$ 38,494	\$ (26,511)

See Notes to Unaudited Condensed Consolidated Financial Statements

**Astec Industries, Inc.**  
**Condensed Consolidated Statements of Cash Flows**  
 (in thousands)  
 (unaudited)

	Six Months Ended June 30,	
	2019	2018
<b>Cash flows from operating activities:</b>		
Net income (loss)	\$ 37,579	\$ (20,552)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation and amortization	13,139	13,880
Provision for doubtful accounts	806	148
Provision for warranties	4,496	7,529
Deferred compensation expense	144	99
Stock-based compensation	1,739	1,321
Deferred income tax provision (benefit)	8,412	(121)
(Gain) loss on disposition of fixed assets	176	(183)
Distributions to SERP participants	(1,007)	(184)
Change in operating assets and liabilities:		
Sale (purchase) of trading securities, net	50	(336)
Trade and other receivables	(6,719)	(24,219)
Inventories	(5,240)	(3,410)
Prepaid expenses	911	2,278
Other assets	(347)	(3,639)
Accounts payable	(2,006)	4,181
Accrued pellet plant agreement costs	-	68,000
Accrued product warranty	(5,287)	(11,482)
Customer deposits	(13,025)	(4,163)
Prepaid and income taxes payable, net	7,669	(9,141)
Other	1,381	(1,585)
<b>Net cash provided by operating activities</b>	<b>42,871</b>	<b>18,421</b>
<b>Cash flows from investing activities:</b>		
Expenditures for property and equipment	(8,657)	(8,719)
Proceeds from sale of property and equipment	136	243
Other	433	95
<b>Net cash used by investing activities</b>	<b>(8,088)</b>	<b>(8,381)</b>
<b>Cash flows from financing activities:</b>		
Payment of dividends	(4,956)	(4,618)
Borrowings under bank loans	121,041	-
Repayments of bank loans	(152,055)	(1,105)
Sale of Company shares held by SERP	238	279
Withholding tax paid upon vesting of restricted stock units	(160)	(432)
Purchase of subsidiary shares	(16)	(27)
<b>Net cash used by financing activities</b>	<b>(35,908)</b>	<b>(5,903)</b>
<b>Effect of exchange rates on cash</b>	<b>209</b>	<b>(1,211)</b>
<b>Net change in cash and cash equivalents</b>	<b>(916)</b>	<b>2,926</b>
<b>Cash and cash equivalents, beginning of period</b>	<b>25,821</b>	<b>62,280</b>
<b>Cash and cash equivalents, end of period</b>	<b>\$ 24,905</b>	<b>\$ 65,206</b>

See Notes to Unaudited Condensed Consolidated Financial Statements

**Astec Industries, Inc.**  
**Condensed Consolidated Statements of Equity**  
**For the Three and Six Months Ended June 30, 2019**  
 (in thousands)  
 (unaudited)

For the Three Months Ended June 30, 2019

	Common Stock Shares	Common Stock Amount	Additional Paid-in- Capital	Accum- ulated Other Compre- hensive Loss	Company Shares Held by SERP	Retained Earnings	Non- controlling Interest	Total Equity
Balance, March 31, 2019	22,523	\$ 4,505	\$ 121,665	\$ (33,641)	\$ (1,669)	\$ 507,759	\$ 647	\$ 599,266
Net income (loss)	-	-	-	-	-	23,377	(16)	23,361
Other comprehensive loss	-	-	-	(110)	-	-	-	(110)
Change in ownership percentage of subsidiary	-	-	-	-	-	-	(9)	(9)
Dividends declared	-	-	3	-	-	(2,481)	-	(2,478)
Stock-based compensation	1	-	596	-	-	-	-	596
RSU vesting	7	1	(1)	-	-	-	-	-
SERP transactions, net	-	-	22	-	(47)	-	-	(25)
Other	-	-	-	-	-	-	7	7
Balance, June 30, 2019	<u>22,531</u>	<u>\$ 4,506</u>	<u>\$ 122,285</u>	<u>\$ (33,751)</u>	<u>\$ (1,716)</u>	<u>\$ 528,655</u>	<u>\$ 629</u>	<u>\$ 620,608</u>

For the Six Months Ended June 30, 2019

	Common Stock Shares	Common Stock Amount	Additional Paid-in- Capital	Accum- ulated Other Compre- hensive Loss	Company Shares Held by SERP	Retained Earnings	Non- controlling Interest	Total Equity
Balance, December 31, 2018	22,513	\$ 4,503	\$ 120,601	\$ (33,883)	\$ (1,886)	\$ 495,245	\$ 710	\$ 585,290
Net income (loss)	-	-	-	-	-	37,651	(72)	37,579
Other comprehensive income	-	-	-	853	-	-	-	853
Change in ownership percentage of subsidiary	-	-	-	-	-	-	(9)	(9)
Dividends declared	-	-	6	-	-	(4,962)	-	(4,956)
Stock-based compensation	2	-	1,773	-	-	-	-	1,773
RSU vesting	16	3	(3)	-	-	-	-	-
Withholding tax paid upon vesting of RSUs	-	-	(160)	-	-	-	-	(160)
Cumulative impact of ASU No. 2018-02	-	-	-	(721)	-	721	-	-
SERP transactions, net	-	-	68	-	170	-	-	238
Balance, June 30, 2019	<u>22,531</u>	<u>\$ 4,506</u>	<u>\$ 122,285</u>	<u>\$ (33,751)</u>	<u>\$ (1,716)</u>	<u>\$ 528,655</u>	<u>\$ 629</u>	<u>\$ 620,608</u>

See Notes to Unaudited Condensed Consolidated Financial Statements

**Astec Industries, Inc.**  
**Condensed Consolidated Statements of Equity**  
**For the Three and Six Months Ended June 30, 2018**  
(in thousands)  
(unaudited)

For the Three Months Ended June 30, 2018

	Common Stock Shares	Common Stock Amount	Additional Paid-in- Capital	Accum- ulated Other Compre- hensive Loss	Company Shares Held by SERP	Retained Earnings	Non- controlling Interest	Total Equity
Balance, March 31, 2018	23,087	\$ 4,617	\$ 143,355	\$ (22,466)	\$ (1,791)	\$ 583,286	\$ 1,075	\$ 708,076
Net loss	-	-	-	-	-	(40,674)	(94)	(40,768)
Other comprehensive loss	-	-	-	(8,021)	-	-	-	(8,021)
Change in ownership percentage of subsidiary	-	-	-	-	-	-	(66)	(66)
Dividends declared	-	-	2	-	-	(2,312)	-	(2,310)
Stock-based compensation	-	-	309	-	-	-	-	309
Stock issued under incentive plans	7	2	(2)	-	-	-	-	-
Withholding tax paid upon vesting of RSUs	-	-	(68)	-	-	-	-	(68)
SERP transactions, net	-	-	-	-	(97)	-	-	(97)
Other	-	-	-	-	-	-	(74)	(74)
Balance, June 30, 2018	<u>23,094</u>	<u>\$ 4,619</u>	<u>\$ 143,596</u>	<u>\$ (30,487)</u>	<u>\$ (1,888)</u>	<u>\$ 540,300</u>	<u>\$ 841</u>	<u>\$ 656,981</u>

For the Six Months Ended June 30, 2018

	Common Stock Shares	Common Stock Amount	Additional Paid-in- Capital	Accum- ulated Other Compre- hensive Loss	Company Shares Held by SERP	Retained Earnings	Non- controlling Interest	Total Equity
Balance, December 31, 2017	23,070	\$ 4,614	\$ 141,931	\$ (24,243)	\$ (1,960)	\$ 565,330	\$ 1,093	\$ 686,765
Net loss	-	-	-	-	-	(20,407)	(145)	(20,552)
Other comprehensive loss	-	-	-	(6,244)	-	-	-	(6,244)
Change in ownership percentage of subsidiary	-	-	-	-	-	-	(109)	(109)
Dividends declared	-	-	5	-	-	(4,623)	-	(4,618)
Stock-based compensation	-	-	1,890	-	-	-	-	1,890
Stock issued under incentive plans	24	5	(5)	-	-	-	-	-
Withholding tax paid upon vesting of RSUs	-	-	(432)	-	-	-	-	(432)
SERP transactions, net	-	-	207	-	72	-	-	279
Other	-	-	-	-	-	-	2	2
Balance, June 30, 2018	<u>23,094</u>	<u>\$ 4,619</u>	<u>\$ 143,596</u>	<u>\$ (30,487)</u>	<u>\$ (1,888)</u>	<u>\$ 540,300</u>	<u>\$ 841</u>	<u>\$ 656,981</u>

See Notes to Unaudited Condensed Consolidated Financial Statements

**ASTECH INDUSTRIES, INC.**

**NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS**

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

**Note 1. Significant Accounting Policies**

**Basis of Presentation**

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X promulgated under the Securities Exchange Act of 1934. Accordingly, they do not include all of the information and footnotes required by U.S. GAAP for complete financial statements. In the opinion of management, all adjustments (consisting of normal recurring accruals) considered necessary for a fair presentation have been included. Operating results for the three and six-month periods ended June 30, 2019 are not necessarily indicative of the results that may be expected for the year ending December 31, 2019. It is suggested that these unaudited condensed consolidated financial statements be read in conjunction with the consolidated financial statements and the notes thereto included in the Astec Industries, Inc. Annual Report on Form 10-K for the year ended December 31, 2018.

The unaudited condensed consolidated balance sheet as of December 31, 2018 has been derived from the audited consolidated financial statements at that date but does not include all of the information and footnotes required by U.S. GAAP for complete financial statements.

Certain reclassifications have been made in amounts previously reported to conform to current year presentation.

Dollar and share amounts shown are in thousands, except per share amounts, unless otherwise specified.

**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 statements of income will be calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. Lessees may make an accounting policy election to exclude leases with a term of 12 months or less from the requirement to record related assets and liabilities. Certain provisions of ASU No. 2016-02 were later modified or clarified by the issuance of ASU 2018-11, "Leases (Topic 842): Targeted Improvements" and ASU 2018-10, "Codification Improvements to Topic 842, Leases". 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. 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. The standard is effective for public companies for periods beginning after December 15, 2019 and the Company expects to adopt the new standard as of January 1, 2020. 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 unaudited condensed consolidated statement of equity for the six months ended June 30, 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.

**Note 2. Earnings per Share**

Basic earnings (loss) per share are determined by dividing earnings (loss) by the weighted average number of common shares outstanding during each period. Diluted earnings per share include the potential dilutive effect of restricted stock units and shares held in the Company’s Supplemental Executive Retirement Plan.

The following table sets forth net income (loss) attributable to controlling interest and the number of basic and diluted shares used in the computation of earnings per share:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Numerator:				
Net income (loss) attributable to controlling interest	\$ 23,377	\$ (40,674)	\$ 37,651	\$ (20,407)
Denominator:				
Denominator for basic earnings (loss) per share	22,509	23,061	22,503	23,053
Effect of dilutive securities:				
Restricted stock units	110	–	105	–
Supplemental Executive Retirement Plan	48	–	48	–
Denominator for diluted earnings (loss) per share	22,667	23,061	22,656	23,053

**Note 3. Receivables**

Receivables are net of allowances for doubtful accounts of \$1,927 and \$1,184 as of June 30, 2019 and December 31, 2018, respectively.

**Note 4. Inventories**

Inventories consist of the following:

	June 30, 2019	December 31, 2018
Raw materials and parts	\$ 176,938	\$ 173,919
Work-in-process	73,629	69,718
Finished goods	82,594	89,152
Used equipment	27,722	23,155
<b>Total</b>	<b>\$ 360,883</b>	<b>\$ 355,944</b>

Raw materials and parts are 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 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 consist of completed equipment manufactured for sale to customers.

Used equipment consists of equipment accepted in trade or purchased on the open market. The category also includes equipment rented to prospective customers on a short-term or month-to-month basis. Used equipment is valued at the lower of acquired or trade-in cost or net realizable value determined on each separate unit. Each unit of rental equipment is valued at 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, actions by our competitors, the condition of our used and rental inventory and general economic factors. Once an inventory item's value has been deemed to be less than cost, a net realizable value adjustment 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 Company's equipment or parts. During periods of significant declining steel prices, the Company reviews the valuation of its inventories to determine if reductions are needed in the recorded value of inventory on hand to its net realizable value.

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

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

**Note 5. Property and Equipment**

Property and equipment is stated at cost, less accumulated depreciation of \$262,001 and \$254,493 as of June 30, 2019 and December 31, 2018, respectively.

**Note 6. 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 Company (“Astec Insurance”), the Company’s captive insurance company, and marketable equity securities held in an unqualified Supplemental Executive Retirement Plan (“SERP”). The obligations of the Company associated with the financial assets held in the SERP also constitute a liability of the Company for financial reporting purposes and are included in other long-term liabilities in the accompanying unaudited consolidated balance sheets. The Company’s subsidiaries also occasionally enter into foreign currency exchange contracts to mitigate exposure to fluctuations in currency exchange rates.

The carrying amount of cash and cash equivalents, trade receivables, other receivables, accounts payable and long-term debt approximates their fair value because of their short-term nature and/or interest rates associated with the 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.

Financial assets and liabilities are categorized 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.

As indicated in the tables below (which excludes the Company’s pension assets), the Company has determined that all of its financial assets and liabilities as of June 30, 2019 and December 31, 2018 are Level 1 and Level 2 in the fair value hierarchy as defined above:

	June 30, 2019		
	Level 1	Level 2	Total
<b>Financial Assets:</b>			
Trading equity securities:			
SERP money market fund	\$ 298	\$ –	\$ 298
SERP mutual funds	4,946	–	4,946
Preferred stocks	272	–	272
Trading debt securities:			
Corporate bonds	5,235	–	5,235
Municipal bonds	–	1,361	1,361
Floating rate notes	1,331	–	1,331
U.S. government securities	2,435	–	2,435
Asset backed securities	–	409	409
Other	–	1,004	1,004
Derivative financial instruments	–	176	176
Total financial assets	<u>\$ 14,517</u>	<u>\$ 2,950</u>	<u>\$ 17,467</u>
<b>Financial Liabilities:</b>			
SERP liabilities	\$ –	\$ 6,807	\$ 6,807
Derivative financial instruments	–	42	42
Total financial liabilities	<u>\$ –</u>	<u>\$ 6,849</u>	<u>\$ 6,849</u>

	December 31, 2018		
	Level 1	Level 2	Total
<b>Financial Assets:</b>			
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>
<b>Financial Liabilities:</b>			
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 quarter and adjusts the level within the fair value hierarchy as needed. No investments changed hierarchy levels from December 31, 2018 to June 30, 2019.

The trading equity securities noted above are valued at their fair value based on their quoted market prices, and the 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 with the assistance of a nationally recognized third-party pricing service. Additionally, a significant portion of the SERP's investments in trading equity securities are in money market and mutual funds. As these money market and mutual funds are held in a SERP, they are also included in the Company's liability under its SERP.

Trading debt securities are comprised 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.

**Note 7. Debt**

On April 12, 2017, the Company and certain of its subsidiaries entered into an amended and restated credit agreement whereby Wells Fargo extended to the Company an unsecured line of credit of up to \$100,000, including a sub-limit for letters of credit of up to \$30,000. In February 2019, the agreement was again amended to increase the unsecured line of credit to a maximum of \$150,000 and to extend the maturity date to December 29, 2023. Other significant terms were left unchanged. Outstanding borrowings under the agreement totaled \$28,057 and \$58,778 as of June 30, 2019 and December 31, 2018, respectively, which are included in long-term debt in the accompanying unaudited condensed consolidated balance sheets. The highest borrowing amount outstanding at any time during the six-month period ended June 30, 2019 was \$81,776. Letters of credit totaling \$8,630, 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 June 30, 2019. Additional borrowing available under the credit facility was \$113,313 as of June 30, 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 3.15% as of June 30, 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 \$6,706 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 June 30, 2019, Osborn had no outstanding borrowings but had \$1,222 in performance, advance payment and retention guarantees outstanding under the facility. 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 June 30, 2019, Osborn had available credit under the facility of \$5,484. The interest rate is 0.25% less than the South Africa prime rate, resulting in a rate of 10.0% as of June 30, 2019.

The Company’s Brazilian subsidiary, Astec Brazil, has a \$1,052 working capital loan outstanding as of June 30, 2019 from Brazilian banks with an interest rate of 10.4%. 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 has various five-year equipment financing loans outstanding with Brazilian banks in the aggregate of \$18 as of June 30, 2019 that have interest rates ranging from 6.0% to 16.3%. These equipment loans have maturity dates ranging from July 2019 to April 2020. Astec Brazil’s loans are included in the accompanying unaudited condensed consolidated balance sheets as current maturities of long-term debt (\$236) and long-term debt (\$834) as of June 30, 2019.

**Note 8. Product Warranty Reserves**

The Company warrants its products against manufacturing defects and performance to specified standards. The warranty period and performance standards vary by market and uses of its products, 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 product warranty liability is primarily based on historical claim rates, nature of claims and the associated cost.

Changes in the Company’s product warranty liability for the three and six-month periods ended June 30, 2019 and 2018 are as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Reserve balance, beginning of the period	\$ 11,051	\$ 16,013	\$ 10,928	\$ 15,410
Warranty liabilities accrued	1,750	4,076	4,496	7,529
Warranty liabilities settled	(2,644)	(3,851)	(5,287)	(6,676)
Pellet plant agreement write-off	–	(4,806)	–	(4,806)
Other	(40)	112	(20)	87
Reserve balance, end of the period	<u>\$ 10,117</u>	<u>\$ 11,544</u>	<u>\$ 10,117</u>	<u>\$ 11,544</u>

**Note 9. Accrued Loss Reserves**

The Company records 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 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. Total accrued loss reserves were \$8,490 as of June 30, 2019 and \$7,889 as of December 31, 2018, of which \$6,565 and \$6,057 were included in other long-term liabilities in the accompanying unaudited condensed consolidated balance sheets as of June 30, 2019 and December 31, 2018, respectively.

**Note 10. 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 three and six-month periods ended June 30, 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 follow:

	Three Months Ended June 30, 2019
Operating lease expense	\$ 651
Cash paid for operating leases included in operating cash flows	696

  

	Six Months Ended June 30, 2019
Operating lease expense	\$ 1,252
Cash paid for operating leases included in operating cash flows	1,341

	As of June 30, 2019
Operating lease right-of-use asset	\$ 4,075
Operating lease short-term liability included in other current liabilities	1,742
Operating lease long-term liability included in other long-term liabilities	2,349
Weighted average remaining lease term (in years)	4.73
Weighted average discount rate used in calculating right-of-use asset	4.12%

Future annual minimum lease payments as of June 30, 2019 are as follows:

	Amount
2019 (six months remaining)	\$ 1,116
2020	1,321
2021	683
2022	382
2023	219
2024 and thereafter	911
<b>Total</b>	<b>4,632</b>
Less interest	(541)
<b>Present value of lease liabilities</b>	<b>\$ 4,091</b>

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 10-K under previous ASC 840 guidance:

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

**Note 11. Income Taxes**

The Company's combined effective income tax rates were 23.1% and 17.3% for the three-month periods ended June 30, 2019 and 2018, respectively. The Company's combined effective income tax rates were 22.3% and 10.8% for the six-month periods ended June 30, 2019 and 2018, respectively. The Company's effective tax rate for each period includes the effect of state income taxes and other discrete items as well as a benefit for research and development credits.

The Company's recorded liability for uncertain tax positions as of June 30, 2019 has increased by approximately \$101 as compared to December 31, 2018 due to exposure related to federal and state credits, plus additional taxes and interest on existing reserves.

**Note 12. Revenue Recognition:**

The following tables disaggregate our revenue by major source for the three and six-month periods ended June 30, 2019 and 2018 (excluding intercompany sales):

	Three Months Ended June 30, 2019			
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Total
<b>Net Sales-Domestic:</b>				
Equipment sales	\$ 65,514	\$ 46,887	\$ 40,818	\$ 153,219
Pellet plant sales	20,000	–	–	20,000
Parts and component sales	24,535	18,921	11,327	54,783
Service and equipment installation revenue	4,867	2,431	1,569	8,867
Used equipment sales	2,205	–	1,185	3,390
Freight revenue	3,146	1,801	1,561	6,508
Other	(288)	(700)	434	(554)
<b>Total domestic revenue</b>	<b>119,979</b>	<b>69,340</b>	<b>56,894</b>	<b>246,213</b>
<b>Net Sales-International:</b>				
Equipment sales	5,219	24,416	5,216	34,851
Parts and component sales	5,435	11,438	2,425	19,298
Service and equipment installation revenue	2,084	308	5	2,397
Used equipment sales	121	371	70	562
Freight revenue	391	762	105	1,258
Other	6	202	15	223
<b>Total international revenue</b>	<b>13,256</b>	<b>37,497</b>	<b>7,836</b>	<b>58,589</b>
<b>Total net sales</b>	<b>\$ 133,235</b>	<b>\$ 106,837</b>	<b>\$ 64,730</b>	<b>\$ 304,802</b>

	Six Months Ended June 30, 2019			
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Total
<b>Net Sales-Domestic:</b>				
Equipment sales	\$ 144,878	\$ 102,091	\$ 80,550	\$ 327,519
Pellet plant sales	20,000	–	–	20,000
Parts and component sales	66,726	38,080	23,634	128,440
Service and equipment installation revenue	8,098	3,056	3,112	14,266
Used equipment sales	3,698	413	2,455	6,566
Freight revenue	6,976	3,396	3,131	13,503
Other	148	(1,981)	581	(1,252)
<b>Total domestic revenue</b>	<b>250,524</b>	<b>145,055</b>	<b>113,463</b>	<b>509,042</b>
<b>Net Sales-International:</b>				
Equipment sales	21,671	43,465	10,178	75,314
Parts and component sales	11,708	21,616	4,918	38,242
Service and equipment installation revenue	3,448	700	37	4,185
Used equipment sales	231	837	70	1,138
Freight revenue	630	1,430	288	2,348
Other	17	265	31	313
<b>Total international revenue</b>	<b>37,705</b>	<b>68,313</b>	<b>15,522</b>	<b>121,540</b>
<b>Total net sales</b>	<b>\$ 288,229</b>	<b>\$ 213,368</b>	<b>\$ 128,985</b>	<b>\$ 630,582</b>

	Three Months Ended June 30, 2018			
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Total
Net Sales-Domestic:				
Equipment sales	\$ 102,724	\$ 57,989	\$ 41,911	\$ 202,624
Pellet plant agreement sale charge	(75,315)	–	–	(75,315)
Parts and component sales	29,269	18,311	11,479	59,059
Service and equipment installation revenue	3,283	564	1,332	5,179
Used equipment sales	1,384	652	768	2,804
Freight revenue	3,216	1,912	1,617	6,745
Other	511	(535)	2,314	2,290
Total domestic revenue	<u>65,072</u>	<u>78,893</u>	<u>59,421</u>	<u>203,386</u>
Net Sales-International:				
Equipment sales	12,040	23,385	9,075	44,500
Parts and component sales	4,310	12,070	3,280	19,660
Service and equipment installation revenue	644	328	229	1,201
Used equipment sales	661	630	583	1,874
Freight revenue	429	967	412	1,808
Other	46	24	29	99
Total international revenue	<u>18,130</u>	<u>37,404</u>	<u>13,608</u>	<u>69,142</u>
Total net sales	<u>\$ 83,202</u>	<u>\$ 116,297</u>	<u>\$ 73,029</u>	<u>\$ 272,528</u>

	Six Months Ended June 30, 2018			
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Total
Net Sales-Domestic:				
Equipment sales	\$ 188,242	\$ 121,483	\$ 78,643	\$ 388,368
Pellet plant agreement sale charge	(75,315)	–	–	(75,315)
Parts and component sales	70,382	36,145	22,794	129,321
Service and equipment installation revenue	5,211	890	3,428	9,529
Used equipment sales	3,009	2,063	935	6,007
Freight revenue	7,254	3,720	2,949	13,923
Other	775	(1,571)	2,427	1,631
Total domestic revenue	<u>199,558</u>	<u>162,730</u>	<u>111,176</u>	<u>473,464</u>
Net Sales-International:				
Equipment sales	17,955	45,712	13,837	77,504
Parts and component sales	9,372	22,359	5,752	37,483
Service and equipment installation revenue	1,457	640	229	2,326
Used equipment sales	1,164	1,486	583	3,233
Freight revenue	683	2,297	676	3,656
Other	107	140	68	315
Total international revenue	<u>30,738</u>	<u>72,634</u>	<u>21,145</u>	<u>124,517</u>
Total net sales	<u>\$ 230,296</u>	<u>\$ 235,364</u>	<u>\$ 132,321</u>	<u>\$ 597,981</u>

Sales into major geographic regions for the three and six-month periods ended June 30, 2019 and 2018 were as follows:

	Three Months Ended		Six Months Ended	
	June 30,		June 30,	
	2019	2018	2019	2018
United States	\$ 246,213	\$ 203,386	\$ 509,042	\$ 473,464
Africa	8,827	10,834	15,918	20,876
Asia (excl. China, Japan & Korea)	2,816	1,342	4,947	2,186
Australia	7,156	7,929	15,969	13,897
Canada	14,020	20,963	37,013	35,072
Central America	2,602	3,772	6,152	7,325
China, Japan & Korea	440	3,561	2,580	4,217
Europe	12,982	8,610	19,472	19,071
Middle East	925	2,280	1,776	2,910
South America	7,581	9,367	14,635	18,234
West Indies	188	551	1,566	660
Other	1,052	(67)	1,512	69
Total foreign	58,589	69,142	121,540	124,517
Total consolidated sales	\$ 304,802	\$ 272,528	\$ 630,582	\$ 597,981

Revenue is generally 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. 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, 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.

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.

### Note 13. Segment Information

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 comprised 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 currently 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 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 included in the Energy Group are Heatec, Inc. (“Heatec”), CEI Enterprises, Inc. (“CEI”), GEFECO, Inc. (“GEFECO”), Peterson Pacific Corp. (“Peterson”), Power Flame Incorporated (“Power Flame”) and RexCon, Inc. (“RexCon”). 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:**

Three Months Ended June 30, 2019					
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Net sales to external customers	\$ 133,235	\$ 106,837	\$ 64,730	\$ -	\$ 304,802
Intersegment sales	2,849	5,782	4,095	-	12,726
Gross profit	42,689	25,493	15,187	81	83,450
Gross profit percent	32.0%	23.9%	23.5%	-	27.4%
Segment profit (loss)	\$ 24,445	\$ 8,489	\$ 3,138	\$ (13,220)	\$ 22,852

Six Months Ended June 30, 2019					
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Net sales to external customers	\$ 288,229	\$ 213,368	\$ 128,985	\$ -	\$ 630,582
Intersegment sales	4,920	10,539	11,116	-	26,575
Gross profit	78,196	51,038	30,666	76	159,976
Gross profit percent	27.1%	23.9%	23.8%	-	25.4%
Segment profit (loss)	\$ 39,683	\$ 17,166	\$ 6,532	\$ (26,690)	\$ 36,691

Three Months Ended June 30, 2018					
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Net sales to external customers	\$ 83,202	\$ 116,297	\$ 73,029	\$ -	\$ 272,528
Intersegment sales	3,370	5,102	6,724	-	15,196
Gross profit (loss)	(47,817)	29,042	19,808	75	1,108
Gross profit (loss) percent	(57.5)%	25.0%	27.1%	-	0.4%
Segment profit (loss)	\$ (62,734)	\$ 12,548	\$ 8,477	\$ 596	\$ (41,113)

Six Months Ended June 30, 2018					
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Net sales to external customers	\$ 230,296	\$ 235,364	\$ 132,321	\$ -	\$ 597,981
Intersegment sales	11,641	9,008	11,863	-	32,512
Gross profit (loss)	(14,536)	58,331	35,095	223	79,113
Gross profit (loss) percent	(6.3)%	24.8%	26.5%	-	13.2%
Segment profit (loss)	\$ (47,882)	\$ 25,658	\$ 13,088	\$ (10,652)	\$ (19,788)

A reconciliation of total segment profit to the Company's consolidated totals is as follows:

	Three Months Ended		Six Months Ended	
	June 30,		June 30,	
	2019	2018	2019	2018
Total segment profit (loss)	\$ 22,852	\$ (41,113)	\$ 36,691	\$ (19,788)
Recapture (elimination) of intersegment profit	509	345	888	(764)
Net income (loss)	23,361	(40,768)	37,579	(20,552)
Net loss attributable to non-controlling interest in subsidiaries	16	94	72	145
Net income (loss) attributable to controlling interest	\$ 23,377	\$ (40,674)	\$ 37,651	\$ (20,407)

**Note 14. Contingent Matters**

Certain customers have financed purchases of Company products through arrangements in which the Company is contingently liable for customer debt of \$2,675 at June 30, 2019. These arrangements expire at various dates through December 2023 and provide that the Company will receive the lender's full security interest in the equipment financed if the Company is required to fulfill its contingent liability under these arrangements. The Company has recorded a liability of \$1,453 related to these guarantees as of June 30, 2019.

In addition, the Company is contingently liable under letters of credit issued by a domestic lender totaling \$8,630 as of June 30, 2019, including \$3,200 of letters of credit guaranteeing certain Astec Brazil bank debt. The outstanding letters of credit expire at various dates through December 2020. As of June 30, 2019, the Company's foreign subsidiaries are contingently liable for a total of \$3,358 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 \$11,988 as of June 30, 2019.

The Company manufactured its first wood pellet plant for a customer located in Georgia 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 existing customer due to their unsuccessful attempts to obtain financing; the lack of success in attempting to market the plant to other pellet plant operators; the cost of repossessing 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 to zero in the fourth quarter of 2018. The sale of the Georgia pellet plant was ultimately recognized at the end of the second quarter of 2019 upon the receipt of the discounted \$20,000 sales price.

The Company and certain of its current and former executive officers have been named as defendants in a putative shareholder class action lawsuit filed on February 1, 2019, in the United States District Court for the Eastern District of Tennessee. The action is styled City of Taylor General Employees Retirement System v. Astec Industries, Inc., et al., Case No. 1:19-cv-00024-PLR-CHS. The complaint generally alleges that the defendants violated the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Rule 10b-5 promulgated thereunder by making allegedly false and misleading statements and that the individual defendants are control 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. 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.

**Note 15. Shareholders' Equity**

Under the Company's long-term incentive plans, key members of management may be issued restricted stock units ("RSUs") each year based upon the financial performance of the Company and its subsidiaries. The number of RSUs granted to employees each year is determined based upon the performance of individual subsidiaries and consolidated financial performance. Generally, for RSUs granted through 2016, each award will 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. Awards granted in 2017 and thereafter will vest at the end of three years from the date of grant or at the time a recipient retires after reaching age 65, if earlier. 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.

A total of 22 and 32 RSUs vested during the six-month periods ended June 30, 2019 and 2018, respectively. The Company withheld 4 and 8 shares due to statutory payroll tax withholding requirements upon the vesting of the RSUs during each of the first six-month periods in 2019 and 2018, respectively, and used Company funds to remit the related required minimum withholding taxes to the various tax authorities. The vesting date fair value of the RSUs that vested during the first six months of 2019 and 2018 was \$777 and \$1,853, respectively. The grant date fair value of the RSUs granted during the first six months of 2019 and 2018 was \$2,098 and \$3,553, respectively. Compensation expense of \$1,380 and \$1,019 was recorded in the six-month periods ended June 30, 2019 and 2018, respectively, to reflect the fair value of RSUs granted (or anticipated to be granted for 2019 performance) to employees amortized over the portion of the vesting period occurring during the periods.

**Note 16. Other Income, Net of Expenses**

Other income, net of expenses for the three and six-month periods ended June 30, 2019 and 2018 is presented below:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Interest income	\$ 295	\$ 239	\$ 569	\$ 453
Gain (loss) on investments	49	34	198	(69)
Insurance recovery	-	635	-	635
Other	28	144	72	494
<b>Total</b>	<b>\$ 372</b>	<b>\$ 1,052</b>	<b>\$ 839</b>	<b>\$ 1,513</b>

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**Note 17. Derivative Financial Instruments**

The Company is exposed to certain risks related 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 instruments is recorded on the Company's unaudited condensed consolidated balance sheet and is adjusted to fair value at each measurement date. The changes in fair value are recognized in the accompanying unaudited condensed consolidated statements of operations in the current period. The Company does not engage in speculative transactions nor does it hold or issue financial instruments for trading purposes. The average U.S. dollar equivalent notional amount of outstanding foreign currency exchange contracts was \$9,621 during the six-month period ended June 30, 2019. The Company reported \$176 of derivative assets in other current assets and \$42 of derivative liabilities in other current liabilities at June 30, 2019. At December 31, 2018, the Company reported \$333 of derivative assets in other current assets. The Company recognized, as a component of cost of sales, net gains of \$62 and \$500 on the changes in fair value of derivative financial instruments in the three-month periods ended June 30, 2019 and 2018, respectively. The Company recognized, as a component of cost of sales, a net loss of \$14 and a net gain of \$687 on the changes in fair value of derivative financial instruments in the six-month periods ended June 30, 2019 and 2018, respectively. There were no derivatives that were designated as hedges at June 30, 2019.

**Note 18. Stock Buy Back Program**

On July 29, 2018, the Company's Board of Directors approved a share repurchase program authorizing the Company to repurchase up to \$150,000 of its common stock. Under the share repurchase plan, the Company may purchase common stock in open market transactions, block or privately negotiated transactions, and may from time to time purchase shares pursuant to a trading plan in accordance with Rule 10b5-1 and Rule 10b-18 under the Securities Exchange Act of 1934, as amended, or by any combination of such methods. The number of shares to be purchased and the timing of the purchases are based on a variety of factors. During the second half of 2018, the Company repurchased 582 shares of its stock at total cost of \$24,138 under this program. No additional shares were repurchased during the six months ended June 30, 2019. No time limit was set for completion of repurchases under the authorization and the program may be suspended or discontinued at any time.

## **Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations**

### **Forward-Looking Statements**

This Quarterly Report on Form 10-Q 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 Quarterly Report on Form 10-Q 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 and are sometimes identified by the words "will," "would," "should," "could," "may," "believes," "anticipates," "intends," "forecasts" and "expects" and similar expressions. Such forward-looking statements include, without limitation, statements regarding the Company's expected sales and results of operations during 2019, the Company's expected capital expenditures in 2019, the ability of the Company to meet its working capital and capital expenditure requirements through August 2020, the amount and impact of any current or future state or federal funding for transportation construction programs, the need for road improvements, the amount and impact of other public sector spending and funding mechanisms, changes in the economic environment as it affects the Company, the Company being called upon to fulfill certain contingencies, the granting of restricted stock units and other incentive awards, changes in interest rates and the impact of such changes on the financial results of the Company, changes in the prices of steel and oil and the impact of such changes generally and on the demand for the Company's products, customer's buying decisions, the Company's business, the ability of the Company to offset future changes in prices in raw materials, the change in the strength of the dollar and the level of the Company's presence and sales in international markets, the impact that further development of domestic oil and natural gas production capabilities would have on the domestic economy and the Company's business, the percentage of the Company's equipment sold directly to end users, the impact of IRS tax regulations, payment of dividends by the Company, the impact of the Company's efforts to impact its gross margins and inventory levels, and the ultimate outcome of the Company's current claims and legal proceedings.

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.

The risks and uncertainties identified herein under the caption "Item 1A. Risk Factors" in Part II of this Report, elsewhere herein and in other documents filed by the Company with the Securities and Exchange Commission, including the Company's Annual Report on Form 10-K for the year ended December 31, 2018, should be carefully considered when evaluating the Company's business and future prospects.

### **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 drilling, 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. The Company-owned dealer in Germany is being closed in 2019 and its assets liquidated.

**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.

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 in 2019).
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., GEFCO, Inc., Peterson Pacific Corp., Power Flame Incorporated and RexCon, Inc.

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, 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 new administration is expected, it may be at lower levels than originally approved or anticipated. In addition, Congress could pass legislation in future sessions that would allow for 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, causes reductions in sales and increased pricing pressure on the Company’s products. Rising interest rates also typically negatively impact customers’ attitudes toward purchasing equipment. The Federal Reserve has maintained historically low interest rates in response to the economic downturn which began in 2009; however, the Federal Reserve has increased the Federal Funds Rate several times in recent quarters, beginning in December 2016, with a 0.2570 decrease occurring in July 2019. The current Federal Funds Rate is still considered in the historically low range and future rate changes may occur.

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 2019.

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

Steel is a major component in the Company's equipment. Steel prices, which declined slightly in the first six months of 2019, are expected to remain stable for the third quarter of 2019. The Company expects moderate steel price increases in the fourth quarter of 2019. The Company will continue to utilize forward looking contracts when it deems conditions are appropriate (with no minimum or specified quantity guarantees) to minimize the impact of any price increases. The Company will review the trends in steel prices in 2019 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 2018, approximately 60% of the Company's sales were to the end user. The Company expects this ratio to be between 60% and 70% for 2019.

The Company is operated 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.

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 100% 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.

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 equipment components purchased. 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 Company expects the results of these efforts to positively impact its gross margins and inventory levels in the remainder of 2019 and thereafter.

## Results of Operations

### 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 repossessing 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 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. Sales related to this pellet plant sale are included in the results of operations for the three and six-month periods ending June 30, 2019 and are non-recurring. This pellet plant sale is referred to in this Quarterly Report as the Georgia Pellet Plant Sale.

### 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 charges against sales of \$75,315 and gross margins of \$71,029 in the second quarter of 2018. Such charges are non-recurring and are referred to in this Quarterly Report as the Arkansas Pellet Plant Charges.

## Net Sales

Net sales for the second quarter of 2019 were \$304,802 compared to \$272,528 for the second quarter of 2018, an increase of \$32,274 or 11.8%. Sales are generated primarily from new equipment and parts sales to domestic and international customers. Sales increased in the Infrastructure Group (due primarily to the Georgia Pellet Plant Sale in the second quarter of 2019 and the non-recurrence of the Arkansas Pellet Plant Charges from the second quarter of 2018 as discussed above) but decreased in the Aggregate and Mining Group and the Energy Group. Domestic sales for the second quarter of 2019 as compared to the second quarter of 2018 were negatively impacted by weakening demand and price competition for many of the Company's products, especially in the paving, oil and gas and aggregate markets. International sales in the second quarter of 2019 decreased 15.3% as compared to the second quarter of 2018. Sales reported by the Company's foreign subsidiaries in U.S. dollars for the second quarter of 2019 would have been \$2,715 higher had second quarter 2019 foreign exchange rates been the same as second quarter 2018 rates.

Net sales for the first six months of 2019 were \$630,582 compared to \$597,981 for the first six months of 2018, an increase of \$32,601 or 5.5%. Sales are generated primarily from new equipment and parts sales to domestic and international customers. Sales increased in the Infrastructure Group (due primarily to the Georgia Pellet Plant Sale in the second quarter 2019 and the non-recurrence of the Arkansas Pellet Plant Charges from the second quarter of 2018 as discussed above) but decreased in the Aggregate and Mining Group and Energy Group. Domestic sales for the first six months of 2019 as compared to the first six months of 2018 were negatively impacted by weakening demand and price competition for many of the Company's products, especially in the paving, oil and gas and aggregate markets as well as weather related delays experienced by our customers at many of their job sites. International sales in the first six months of 2019 decreased 2.4% as compared to the first six months of 2018. Sales reported by the Company's foreign subsidiaries in U.S. dollars for the first six months of 2019 would have been \$6,114 higher had first six months 2019 foreign exchange rates been the same as first six months 2018 rates.

Domestic sales for the second quarter of 2019 were \$246,213 or 80.8% of consolidated net sales compared to \$203,386 or 74.6% of consolidated net sales for the second quarter of 2018, an increase of \$42,827 or 21.1%. Domestic sales for the second quarter of 2019 as compared to the second quarter of 2018 increased by \$54,907 in the Infrastructure Group (including the results of the Georgia Pellet Plant Sale and the non-recurrence of the Arkansas Pellet Plant Charges discussed above) but decreased \$9,553 in the Aggregate and Mining Group and \$2,527 in the Energy Group.

Domestic sales for the first six months of 2019 were \$509,042 or 80.7% of consolidated net sales compared to \$473,464 or 79.2% of consolidated net sales for the first six months of 2018, an increase of \$35,578 or 7.5%. Domestic sales for the first six months of 2019 as compared to the first six months of 2018 increased by \$50,966 in the Infrastructure Group (including the results of the Georgia Pellet Plant Sale and the non-recurrence of the Arkansas Pellet Plant Charges discussed above) and \$2,287 in the Energy Group but decreased \$17,675 in the Aggregate and Mining Group.

International sales for the second quarter of 2019 were \$58,589 or 19.2% of consolidated net sales compared to \$69,142 or 25.4% of consolidated net sales for the second quarter of 2018, a decrease of \$10,553 or 15.3%. International sales for the second quarter of 2019 as compared to the second quarter of 2018 increased \$93 in the Aggregate and Mining Group but decreased by \$5,772 in the Energy Group and \$4,874 in the Infrastructure Group. Decreases in international sales in Canada, Central America, South America, Africa, the Middle East and China/Japan/Korea were partially offset by increases in sales in Europe and Asia.

International sales for the first six months of 2019 were \$121,540 or 19.3% of consolidated net sales compared to \$124,517 or 20.8% of consolidated net sales for the first six months of 2018, a decrease of \$2,977 or 2.4%. International sales for the first six months of 2019 as compared to the first six months of 2018 decreased \$5,623 in the Energy Group and \$4,321 in the Aggregate and Mining Group but increased by \$6,967 in the Infrastructure Group. Decreases in international sales in Africa, South America, Central America, China/Japan/Korea and the Middle East were partially offset by increases in sales in Asia, Australia and Canada.

Parts sales for the second quarter of 2019 were \$74,081 compared to \$78,719 for the second quarter of 2018, a decrease of \$4,638 or 5.9%. Parts sales decreased \$3,609 in the Infrastructure Group, \$1,007 in the Energy Group and \$22 in the Aggregate and Mining Group.

Parts sales for the first six months of 2019 were \$166,682 compared to \$166,804 for the first six months of 2018, a decrease of \$122 or 0.1%. Parts sales decreased \$1,320 in the Infrastructure Group but increased \$1,192 in the Aggregate and Mining Group and \$6 in the Energy Group.

#### **Gross Profit**

Consolidated gross profit for the second quarter of 2019 was \$83,450 compared to \$1,108 for the second quarter of 2018, an increase of \$82,342. Second quarter 2019 gross profit was impacted by the Georgia Pellet Plant Sale, which resulted in \$20,000 of gross margin in the quarter as the related inventory values had been written off in 2018 as discussed above. Second quarter 2018 gross profit was impacted by the Arkansas Pellet Plant Charges discussed above, which resulted in a decline in gross profit of \$71,029. Gross profit as a percentage of sales increased to 27.4% for the second quarter of 2019 compared to 0.4% for the second quarter of 2018 due primarily to the effects of the Georgia Pellet Plant Sale in the second quarter of 2019 and the Arkansas Pellet Plant Charges in the second quarter of 2018.

Consolidated gross profit for the first six months of 2019 was \$159,976 compared to \$79,113 for the first six months of 2018, an increase of \$80,863. The first six months of 2019 gross profit was impacted by the Georgia Pellet Plant Sale, which resulted in \$20,000 of gross margin in the period as the related inventory values had been written off in 2018 as discussed above. The first six months of 2018 gross profit was impacted by the Arkansas Pellet Plant Charges discussed above, which resulted in a decline in gross profit of \$71,029. Gross profit as a percentage of sales increased to 25.4% for the first six months of 2019 compared to 13.2% for the first six months of 2018 due primarily to the effects of the Georgia Pellet Plant Sale in the first six months of 2019 and the Arkansas Pellet Plant Charges in the first six months of 2018.

#### **Selling, General, Administrative and Engineering Expenses**

Selling, general, administrative and engineering expenses was \$52,969 for the second quarter of 2019 compared to \$51,263 for the second quarter of 2018, an increase of \$1,706 or 3.3%. The overall increase was attributable to a \$3,211 increase in general and administrative expense (primarily due to a \$1,998 increase in consulting fees/outside services, including the procurement and inventory level consulting services mentioned above; a \$618 increase in legal and professional fees; an increase of \$561 in annual incentive and stock incentive plan expense; an increase of \$465 in bad debt expense; and an increase of \$268 in corporate procurement expenses; partially offset by a \$696 reduction in plane maintenance costs) and reductions in selling expenses of \$867 (primarily due to reductions in employee wages and commissions) and engineering expenses of \$638. The above described expenses for the second quarter of 2019 includes \$657 of expenses incurred by the Company's start-up sales operations in Chile.

Selling, general, administrative and engineering expenses was \$111,316 for the first six months of 2019 compared to \$103,341 for the first six months of 2018, an increase of \$7,975 or 7.7%. The overall increase was attributable to a \$9,438 increase in general and administrative expense (primarily due to a \$5,085 increase in consulting fees/outside services, including the procurement and inventory level consulting services mentioned above; a \$1,396 increase in legal and professional fees; a \$925 increase in annual incentive and stock incentive plan expense; a \$688 increase in bad debt expense; a \$433 increase in T&E expense and a \$396 increase in recruitment and relocation expenses), which were partially offset by a \$1,103 reduction in selling expenses (primarily a \$949 decrease in T&E and a \$528 reduction in legal and professional fees) and a \$360 reduction in engineering expenses. The above described expenses for the second quarter of 2019 includes \$1,218 of expenses incurred by the Company's start-up sales operations in Chile.

#### **Interest Expense**

Interest expense for the second quarter of 2019 was \$484 as compared to \$168 for the second quarter of 2018, an increase of \$316, due primarily to interest on increased borrowings on the Company's domestic line of credit.

Interest expense for the first six months of 2019 was \$1,131 as compared to \$318 for the first six months of 2018, an increase of \$813, due primarily to interest on increased borrowings on the Company's domestic line of credit.

### Other Income, Net of Expenses

Other income, net of expenses was \$372 for the second quarter of 2019 compared to \$1,052 for the second quarter of 2018, a decrease of \$680, primarily due to a \$635 insurance recovery in the second quarter of 2018.

Other income, net of expenses was \$839 for the first six months of 2019 compared to \$1,513 for the first six months of 2018, a decrease of \$674, primarily due to a \$635 insurance recovery in the second quarter of 2018.

### Income Tax Expense

The Company's combined effective income tax rate was 23.1% for the second quarter of 2019 compared to 17.3% for the second quarter of 2018. The tax rate for 2019 returned to a more normalized rate as compared to the rates in 2018, which were impacted by the large operating loss resulting primarily from the Arkansas Pellet Plant Charges and the initial booking of the provisions of the Tax Cuts and Jobs Act of 2017.

The Company's combined effective income tax rate was 22.3% for the first six months of 2019 compared to 10.8% for the first six months of 2018. The tax rate for 2019 returned to a more normalized rate as compared to the rates in 2018 which were impacted by the large operating loss resulting primarily from the Arkansas Pellet Plant Charges and the initial booking of the provisions of the Tax Cuts and Jobs Act of 2017.

### Net Income

The Company had net income attributable to controlling interest of \$23,377 for the second quarter of 2019 compared to a net loss attributable to controlling interest of \$40,674 for the second quarter of 2018, an increase of \$64,051. The second quarter of 2019 includes an after tax income of \$15,273 related to the Georgia Pellet Plant Sale while the second quarter 2018 net loss includes an after-tax charge of \$57,182 due to the Arkansas Pellet Plant Charges, as discussed above. Net income attributable to controlling interest per diluted share was \$1.03 for the second quarter of 2019 compared to a net loss per share of \$1.76 for the second quarter of 2018, an increase of \$2.79. Diluted shares outstanding for the quarters ended June 30, 2019 and 2018 were 22,667 and 23,061, respectively.

The Company had net income attributable to controlling interest of \$37,651 for the first six months of 2019 compared to a net loss attributable to controlling interest of \$20,407 for the first six months of 2018, an increase of \$58,058. The first six months of 2019 includes an after tax income of \$15,273 related to the Georgia Pellet Plant Sale while the net loss for the first six months of 2018 includes an after-tax charge of \$57,182 due to the Arkansas Pellet Plant Charges, as discussed above. Net income attributable to controlling interest per diluted share was \$1.66 for the first six months of 2019 compared to a net loss per share of \$0.89 for the first six months of 2018, an increase of \$2.55. Diluted shares outstanding for the six months ended June 30, 2019 and 2018 were 22,656 and 23,053, respectively.

### Dividends

In February 2013, the Company's Board of Directors approved a dividend policy pursuant to which the Company began paying a quarterly \$0.10 per share dividend on its common stock beginning in the third quarter of 2013. In July 2018, the Company's Board of Directors approved a revised quarterly dividend of \$0.11 per share, a 10% increase. The actual amount of future quarterly dividends, if any, will be based upon the Company's financial position, results of operations, cash flows, capital requirements and restrictions under the Company's existing credit agreement, among other factors. The Board retained the power to modify, suspend or cancel the Company's dividend policy in any manner and at any time it deems necessary or appropriate in the future. The Company paid quarterly dividends of \$0.11 per common share to shareholders in the first and second quarters of 2019 and paid quarterly dividends of \$0.10 per common share to shareholders in the first and second quarters of 2018.

### Backlog

The backlog of orders as of June 30, 2019 was \$246,092 compared to \$302,892 as of June 30, 2018, a decrease of \$56,800 or 18.8%. Domestic backlogs decreased \$56,311 or 25.8% while international backlogs decreased \$489 or 0.6%. The decline in backlog was experienced by each of the segments (\$11,033 in the Infrastructure Group; \$40,438 in the Aggregate and Mining Group; and \$5,329 in the Energy Group). The Company is unable to determine whether the changes in backlogs were experienced by the industry as a whole; however, the Company believes the changes in backlogs reflect the current economic conditions the industry is experiencing.

**Employees**

Due to the recent reductions in backlogs and manufacturing activity, the Company made employee headcount reductions during the first six months of 2019 (from 4,401 employees at December 31, 2018 to 4,183 at June 30, 2019) and will continue to evaluate future staffing needs as sales and production levels dictate.

**Segment Net Sales-Quarter:**

	Three Months Ended			
	June 30,		\$ Change	% Change
	2019	2018		
Infrastructure Group	\$ 133,235	\$ 83,202	\$ 50,033	60.1%
Aggregate and Mining Group	106,837	116,297	(9,460)	(8.1)%
Energy Group	64,730	73,029	(8,299)	(11.4)%

Infrastructure Group: Sales in this group were \$133,235 for the second quarter of 2019 (including \$20,000 from the Georgia Pellet Plant Sale discussed above) compared to \$83,202 (after the \$75,315 reduction due to the Arkansas Pellet Plant Charges discussed above) for the same period in 2018, an increase of \$50,033 or 60.1%. Domestic sales for the Infrastructure Group increased \$54,907 or 84.4% for the second quarter of 2019 compared to the same period in 2018. Excluding the impacts of the Georgia Pellet Plant Sale and the Arkansas Pellet Plant Charges (which are included in domestic sales), domestic sales declined by \$40,408 for the second quarter of 2019 as compared to the second quarter of 2018 due to significant volume reductions in asphalt plant and mobile asphalt equipment sales. The Company believes the reduction in domestic sales is due to the lack of Congressional action on a highway funding bill to extend or replace the Fast Act which provides federal funding through September 2020; competitive pricing pressures in the market; and customers postponing orders due to weather related delays in early 2019 at customer job sites. International sales for the Infrastructure Group decreased \$4,874 or 26.9% for the second quarter of 2019 compared to the same period in 2018 due primarily to a decline in asphalt plant sales. The decline in sales occurred primarily in Canada. Parts sales for the Infrastructure Group decreased 10.7% for the second quarter of 2019 as compared to the same period in 2018.

Aggregate and Mining Group: Sales in this group were \$106,837 for the second quarter of 2019 compared to \$116,297 for the same period in 2018, a decrease of \$9,460 or 8.1%. Domestic sales for the Aggregate and Mining Group decreased by \$9,553 or 12.1% for the second quarter of 2019 compared to the same period in 2018 due primarily to decreased sales into the Company's traditional rock quarry markets resulting from decreased rental activity (which typically results in subsequent equipment sales) by many of our distributors and a shortened construction period due to weather related issues. International sales for the Aggregate and Mining Group remained constant with a minor increase of \$93 or 0.2% in the second quarter of 2019 compared to the same period in 2018. International sales increases between periods in Europe were offset by sales declines in Central America, South America and the Middle East. Parts sales for this group remained constant for the second quarter of 2019 compared to the same period in 2018 with a minor decrease of \$22.

Energy Group: Sales in this group were \$64,730 for the second quarter of 2019 compared to \$73,029 for the same period in 2018, a decrease of \$8,299 or 11.4%. Domestic sales for the Energy Group decreased \$2,527 or 4.3% for the second quarter of 2019 compared to the same period in 2018 due primarily to decreased sales of wood chipper sales by Peterson as well as decreased industrial boiler sales by Heatec due to a slowdown in the asphalt and oil and gas industries. These reduced sales were partially offset by increased concrete plant accessories sales by RexCon. International sales for the Energy Group decreased \$5,772 or 42.4% when compared to the second quarter of 2018. Sales decreases occurred primarily in China/Japan/Korea, South America and Africa. Parts sales for this group decreased 6.8% for the second quarter of 2019 compared to the same period in 2018 due primarily to decreased sales by the Company's GEFCO subsidiary, which was impacted by a large parts order to one customer during the second quarter of 2018.

**Segment Net Sales-Six Months:**

	Six Months Ended			
	June 30,		\$ Change	% Change
	2019	2018		
Infrastructure Group	\$ 288,229	\$ 230,296	\$ 57,933	25.2%
Aggregate and Mining Group	213,368	235,364	(21,996)	(9.3)%
Energy Group	128,985	132,321	(3,336)	(2.5)%

Infrastructure Group: Sales in this group were \$288,229 for the first six months of 2019 (including \$20,000 from the Georgia Pellet Plant Sale discussed above) compared to \$230,296 (after the \$75,315 reduction due to the Arkansas Pellet Plant Charges discussed above) for the same period in 2018, an increase of \$57,933 or 25.2%. Domestic sales for the Infrastructure Group increased \$50,966 or 25.5% for the first six months of 2019 compared to the same period in 2018. Excluding the impact of the Georgia Pellet Plant Sale and the Arkansas Pellet Plant Charges (which are included in domestic sales), domestic sales declined by \$44,349 for the first six months of 2019 as compared to the first six months of 2018 due to significant volume reductions in asphalt plant and mobile asphalt equipment sales. The Company believes the reduction in domestic sales is due to the lack of Congressional action on a highway funding bill to extend or replace the Fast Act which provides federal funding through September 2020; competitive pricing pressures in the market; and customers postponing orders due to weather related delays in early 2019 on customer job sites. International sales for the Infrastructure Group increased \$6,967 or 22.7% for the first six months of 2019 compared to the same period in 2018 due primarily to increases in asphalt plant sales. International sales increases between periods occurred primarily in Central America, Canada, Australia and the West Indies and were partially offset by a reduction in sales into Europe. Parts sales for the Infrastructure Group decreased 1.7% for the first six months of 2019 compared to the same period in 2018 due primarily to a reduction in asphalt plant related parts.

Aggregate and Mining Group: Sales in this group were \$213,368 for the first six months of 2019 compared to \$235,364 for the same period in 2018, a decrease of \$21,996 or 9.3%. Domestic sales for the Aggregate and Mining Group decreased by \$17,675 or 10.9% for the first six months of 2019 compared to the same period in 2018 due primarily to decreased sales into the Company's traditional rock quarry markets resulting from decreased rental activity (which typically results in subsequent equipment sales) by many of our distributors and a shortened construction period due to weather related issues. International sales for the Aggregate and Mining Group decreased \$4,321 or 5.9% in the first six months of 2019 compared to the same period in 2018. International sales decreases between periods occurred primarily in Central America, Africa, and the Middle East and were partially offset by sales increases in Asia and Canada. Parts sales for this group increased 2.0% for the first six months of 2019 compared to the same period in 2018.

Energy Group: Sales in this group were \$128,985 for the first six months of 2019 compared to \$132,321 for the same period in 2018, a decrease of \$3,336 or 2.5%. Domestic sales for the Energy Group increased \$2,287 or 2.1% for the first six months of 2019 compared to the same period in 2018 due primarily to increased equipment sales by GEFCO and Heatec, partially offset by a reduction in equipment sales by Peterson. International sales for the Energy Group decreased \$5,623 or 26.6% when compared to the first six months of 2018. Sales decreases occurred primarily in South America and Africa. Parts sales for this group remained relatively flat for the first six months of 2019 compared to the same period in 2018, with a minor decrease of \$121.

**Segment Profit (Loss)-Quarter:**

	Three Months Ended			
	June 30,		\$ Change	% Change
	2019	2018		
Infrastructure Group	\$ 24,445	\$ (62,734)	\$ 87,179	139.0%
Aggregate and Mining Group	8,489	12,548	(4,059)	(32.3)%
Energy Group	3,138	8,477	(5,339)	(63.0)%
Corporate	(13,220)	596	(13,816)	(2,318.1)%

Infrastructure Group: Segment profit for the Infrastructure Group was income of \$24,445 for the second quarter of 2019 compared to a loss of \$62,734 for the same period in 2018, an increase in earnings of \$87,179 or 139.0%. The segment gross profit for the second quarter of 2019 includes \$20,000 from the Georgia Pellet Plant Sale while the segment loss for the second quarter of 2018 includes a \$71,029 charge against gross profit due to the Arkansas Pellet Plant Charges, as discussed above. Gross margins for the segment's non-pellet related sales increased from 14.6% for the second quarter of 2018 to 19.9% in the second quarter of 2019. Segment profit between periods was also impacted by increased state income tax expense (\$3,091) due to increased earnings and increased general and administrative expenses (\$1,046).

Aggregate and Mining Group: Segment profit for the Aggregate and Mining Group was \$8,489 for the second quarter of 2019 compared to \$12,548 for the same period in 2018, a decrease of \$4,059 or 32.3%. The decrease in segment profits between periods resulted from a decrease in gross profit of \$3,549 due primarily to decreased sales of \$9,460 between periods. Gross margins dropped 110 basis points to 23.9% for the second quarter of 2019 compared to 25.0% for the second quarter of 2018 due primarily to overhead absorption issues related to the reduced production volume. Segment profits were also negatively impacted by an increase in general and administrative expenses (\$1,009).

Energy Group: Segment profit for the Energy Group was \$3,138 for the second quarter of 2019 compared to \$8,477 for the same period in 2018, a decrease of \$5,339 or 63.0%. Segment profits were negatively impacted by a \$4,621 decrease in gross profit between periods from decreased sales of \$8,299 along with the impact of a 360 basis point decrease in gross margin. The reduction in gross margins from 27.1% for the second quarter of 2018 to 23.5% for the second quarter of 2019 was primarily due to overhead absorption issues related to the reduced production volume. Total selling, general, administrative and engineering expenses remained relatively flat between periods with increases in general and administrative expenses (\$701) and engineering expenses (\$149) offset by decreased selling expenses (\$788).

Corporate: Corporate operations had a loss of \$13,220 for the second quarter of 2019 compared to income of \$596 for the second quarter of 2018, a decrease in earnings of \$13,816. The reduced earnings are due primarily to increases in income tax expense (\$12,872), interest expense (\$370) and costs related to the new start-up sales operation in Chile (\$657).

**Segment Profit (Loss)-Six Months:**

	Six Months Ended			
	June 30,		\$ Change	% Change
	2019	2018		
Infrastructure Group	\$ 39,683	\$ (47,882)	\$ 87,565	182.9%
Aggregate and Mining Group	17,166	25,658	(8,492)	(33.1)%
Energy Group	6,532	13,088	(6,556)	(50.1)%
Corporate	(26,690)	(10,652)	(16,038)	(150.6)%

Infrastructure Group: Segment profit for the Infrastructure Group was income of \$39,683 for the first six months of 2019 compared to a loss of \$47,882 for the same period in 2018, an increase in earnings of \$87,565 or 182.9%. The segment gross profit for the first six months of 2019 includes \$20,000 from the Georgia Pellet Plant Sale while the segment loss for the first six months of 2018 includes a \$71,029 charge against gross profit due to the Arkansas Pellet Plant Charges, as discussed above. Segment profit between periods was also impacted by a \$1,703 increase in gross profits on non-pellet plant sales as the reduction in gross profit due to the \$37,382 reduction in non-pellet plant sales between periods was offset by a 320 basis point increase in gross margins from 18.5% for the first six months of 2018 to 21.7% for the first six months of 2019. Segment profits were also negatively impacted by an increase in general and administrative expenses (\$2,084) and an increase in intercompany profit eliminations (\$1,687), which were partially offset by decreases in selling expenses (\$838) and engineering expenses (\$549).

Aggregate and Mining Group: Segment profit for the Aggregate and Mining Group was \$17,166 for the first six months of 2019 compared to \$25,658 for the same period in 2018, a decrease of \$8,492 or 33.1%. The decrease in segment profits between periods results from a decrease in gross profit of \$7,293 due primarily to decreased sales of \$21,996 between periods and a gross margin decrease of 90 basis points to 23.9% for the first six months of 2019 from 24.8% for the first six months of 2018. Segment profits were also negatively impacted by an increase in general and administrative expenses (\$2,300), partially offset by decreased engineering expenses (\$492).

Energy Group: Segment profit for the Energy Group was \$6,532 for the first six months of 2019 compared to \$13,088 for the same period in 2018, a decrease of \$6,556 or 50.1%. Segment profits were negatively impacted by a \$4,429 decrease in gross profit between periods resulting from a decrease in sales of \$3,336 along with the a 270 basis point decrease in gross margins. Gross margins between periods were also negatively impacted by an increase in unabsorbed overhead variances of \$3,815. Segment profits were also impacted by increases in general and administrative expenses (\$656) and engineering expenses (\$681), partially offset by a decrease in selling expenses (\$787).

Corporate: Corporate operations had a loss of \$26,690 for the first six months of 2019 compared to a loss of \$10,652 for the first six months of 2018, a decrease in earnings of \$16,038 or 150.6%. The reduced earnings are due primarily to increases in income tax expense (\$11,451), interest expense (\$907), costs related to the new start-up sales operation in Chile (\$1,218) and other general and administrative expenses not related to Chile (\$2,713).

**Goodwill Review**

The Company's annual test of goodwill for possible impairment, performed as of October 31, 2018, indicated that the goodwill at the Company's Power Flame subsidiary (which is included in the Energy Group) was partially impaired and the impairment charge recorded in the fourth quarter of 2018 reduced its net goodwill to \$4,929 as of December 31, 2018. The Company reviews goodwill for impairment concerns each quarter and no impairment charges were recorded during the six-month period ended June 30, 2019; however, the Company will continue to review Power Flame's business projections during the remainder of 2019, and it is possible additional impairment charges may be necessary prior to the end of 2019 since the Power Flame reporting unit had no excess fair value as of October 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 \$24,905 of cash available for operating purposes as of June 30, 2019, of which \$21,425 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. At June 30, 2019 and December 31, 2018, respectively, the Company had \$28,057 and \$58,778 borrowings outstanding under its revolving credit facility. Net of borrowings and letters of credit totaling \$8,630, the Company had borrowing availability of \$113,313 under the revolving credit facility as of June 30, 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 June 30, 2019.

The Company's South African subsidiary, Osborn Engineered Products SA (Pty) Ltd ("Osborn"), has a credit facility of \$6,706 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 June 30, 2019 and December 31, 2018, Osborn had no outstanding borrowings but had \$1,222 in performance, advance payment and retention guarantees outstanding under the facility as of June 30, 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 June 30, 2019, Osborn had available credit under the facility of \$5,484.

The Company's Brazilian subsidiary, Astec Brazil, had a working capital loan outstanding of \$1,052 and \$1,207 as of June 30, 2019 and December 31, 2018, respectively, from a Brazilian bank. 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 has various five-year equipment financing loans outstanding with Brazilian banks in the aggregate of \$18 and \$137 as of June 30, 2019 and December 31, 2018, respectively. These equipment loans have maturity dates ranging from July 2019 to April 2020.

### Cash Flows from Operating Activities:

	Six Months Ended June 30,		Increase (Decrease)
	2019	2018	
Net income (loss)	\$ 37,579	\$ (20,552)	\$ 58,131
Depreciation and amortization	13,139	13,880	(741)
Provision for warranties	4,496	7,529	(3,033)
Deferred income tax provision (benefit)	8,412	(121)	8,533
Changes in working capital:			
Trade and other receivables	(6,719)	(24,219)	17,500
Inventories	(5,240)	(3,410)	(1,830)
Prepaid expenses and other assets	564	(1,361)	1,925
Accounts payable	(2,006)	4,181	(6,187)
Customer deposits	(13,025)	(4,163)	(8,862)
Product warranty accruals	(5,287)	(11,482)	6,195
Prepaid and income taxes payable, net	7,669	(9,141)	16,810
Accrued pellet plant agreement costs	-	68,000	(68,000)
Other, net	3,289	(720)	4,009
Net cash provided by operating activities	<u>\$ 42,871</u>	<u>\$ 18,421</u>	<u>\$ 24,450</u>

Net cash from operating activities improved by \$24,450 for the first six months of 2019 as compared to the first six months of 2018 due primarily to the impact of net income (\$58,131), trade and other receivables (\$17,500), and the timing of tax payments versus when they were owed (\$8,533 and \$16,810). These increases were partially offset due to the timing of the \$68,000 payment required under the Arkansas pellet plant settlement agreement, which was recognized in the second quarter of 2018 but not paid until later in 2018. The increases were also partially offset by a reduction in the impact of customer deposits (\$8,862).

**Cash Flows from Investing Activities:**

	Six Months Ended June 30,		Increase (Decrease)
	2019	2018	
Expenditures for property and equipment	\$ (8,657)	\$ (8,719)	\$ 62
Other	569	338	231
Net cash used by investing activities	<u>\$ (8,088)</u>	<u>\$ (8,381)</u>	<u>\$ 293</u>

Net cash used by investing activities declined by \$293 for the first six months of 2019 as compared to the same period in 2018.

Total capital expenditures for 2019 are forecasted to be approximately \$25,000. The Company expects to finance these expenditures using currently available cash balances, internally generated funds and available credit under the Company's credit facilities. Capital expenditures are generally for machinery, equipment and facilities used by the Company in the production of its various products. The Company believes that its current working capital, cash flows generated from future operations and available capacity under its credit facility will be sufficient to meet the Company's working capital and capital expenditure requirements through August 2020.

**Cash Flows from Financing Activities:**

	Six Months Ended June 30,		Increase (Decrease)
	2019	2018	
Payment of dividends	\$ (4,956)	\$ (4,618)	\$ (338)
Net change in borrowings from banks	(31,014)	(1,105)	(29,909)
Other, net	62	(180)	242
Net cash used by financing activities	<u>\$ (35,908)</u>	<u>\$ (5,903)</u>	<u>\$ (30,005)</u>

Cash used by financing activities increased by \$30,005 for the first six months of 2019 compared to the same period in 2018 due primarily to the Company reducing the amount owed on its domestic line of credit during the first six months of 2019 by \$30,721.

**Financial Condition**

The Company's total current assets remained relatively flat at \$557,535 as of June 30, 2019 compared to \$560,991 as of December 31, 2018.

The Company's total current liabilities were \$173,936 as of June 30, 2019 compared to \$189,231 as of December 31, 2018, a decrease of \$15,295 or 8.1% due primarily to decreases in customer deposits (\$13,025) and accrued payroll and related liabilities (\$2,807).

**Market Risk and Risk Management Policies**

We have no material changes to the disclosure on this matter made in the Company's Annual Report on Form 10-K for the year ended December 31, 2018.

### **Contingencies**

The Company manufactured its first wood pellet plant for a customer located in Georgia 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 existing customer due to their unsuccessful attempts to obtain financing; the lack of success in attempting to market the plant to other pellet plant operators; the cost of repossessing 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 to zero in the fourth quarter of 2018. The sale of the Georgia pellet plant was ultimately recognized at the end of the second quarter of 2019 upon the receipt of the discounted \$20,000 sales price.

The Company and certain of its current and former executive officers have been named as defendants in a putative shareholder class action lawsuit filed on February 1, 2019, in the United States District Court for the Eastern District of Tennessee. The action is styled City of Taylor General Employees Retirement System v. Astec Industries, Inc., et al., Case No. 1:19-cv-00024-PLR-CHS. The complaint generally alleges that the defendants violated the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Rule 10b-5 promulgated thereunder by making allegedly false and misleading statements and that the individual defendants are control 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. The Company is unable to estimate the possible loss or range of loss at this time.

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

As of June 30, 2019, the Company does not have any off-balance sheet arrangements as defined by Item 303(a)(4) of Regulation S-K.

### **Contractual Obligations**

During the six months ended June 30, 2019, there were no substantial changes in the Company's commitments or contractual liabilities.

### **Item 3. Quantitative and Qualitative Disclosures about Market Risk**

The Company has no material changes to the disclosure on this matter made in the Company's Annual Report on Form 10-K for the year ended December 31, 2018.

### **Item 4. Controls and Procedures**

#### 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 due to material weaknesses in the Company's internal control over financial reporting that were disclosed in our Annual Report on Form 10-K for the year ended December 31, 2018.

#### Internal Control over Financial Reporting

Other than the remediation efforts discussed below, 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) that occurred during the six month period ended June 30, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Remediation

As previously described in Part II, Item 9A of our Annual Report on Form 10-K for the year ended December 31, 2018, we began implementing a remediation plan to address the material weaknesses mentioned above. The weaknesses will not be considered remediated until the applicable controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively.

**PART II - OTHER INFORMATION**

**Item 1. Legal Proceedings**

The Company is involved from time to time in legal actions arising in the ordinary course of its business. Other than as set forth in Note 14, Contingent Matters, to the accompanying unaudited condensed financial statements and Part I, "Item 3. Legal Proceedings" in the Company's Annual Report on Form 10-K for the year ended December 31, 2018, the Company currently has no pending or threatened litigation that the Company believes will result in an outcome that would materially affect the Company's business, financial position, cash flows or results of operations. Nevertheless, there can be no assurance that future litigation to which the Company becomes a party will not have a material adverse effect on its business, financial position, cash flows or results of operations.

**Item 1A. Risk Factors**

In addition to the other information set forth in this Report, you should carefully consider the factors discussed in Part I, "Item 1A. Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2018, which could materially affect the Company's business, financial condition or future results. There have been no material changes in the Company's risk factors from those disclosed in the Company's Annual Report on Form 10-K for the year ended December 31, 2018. The risks described in the Company's Annual Report on Form 10-K for the year ended December 31, 2018 and in this Quarterly Report on Form 10-Q are not the only risks facing our Company. Additional risks and uncertainties not currently known to management or that management currently deems to be immaterial also may materially adversely affect the Company's business, financial condition or operating results.

**Item 2. Unregistered Sales of Equity Securities and Use of Proceeds**

On July 29, 2018, the Company's Board of Directors approved a share repurchase program authorizing the Company to repurchase up to \$150,000 of its common stock. Through December 31, 2018, the Company had repurchased 582 shares of its stock at total cost of \$24,149 under this program. Under the share repurchase plan, the Company may purchase common stock in open market transactions, block or privately negotiated transactions, and may from time to time purchase shares pursuant to a trading plan in accordance with Rule 10b5-1 and Rule 10b-18 under the Securities Exchange Act of 1934, as amended, or by any combination of such methods. The number of shares to be purchased and the timing of the purchases are based on a variety of factors. No time limit was set for completion of repurchases under the authorization and the program may be suspended or discontinued at any time. No additional shares were repurchased under this plan during the first six months of 2019.

**Item 6. Exhibits**

Exhibit No.	Description
3.1	<a href="#">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.</a>
10.1	<a href="#">Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective July 25, 2019.</a>
31.1	<a href="#">Certification of the Chief Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</a>
31.2	<a href="#">Certification of the Chief Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</a>
32*	<a href="#">Certification of Chief Executive Officer and Chief Financial Officer pursuant to Rule 13a-14(b)/15d-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</a>
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

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

\* In accordance with Release No. 34-47551, this exhibit is hereby furnished to the SEC as an accompanying document and is not to be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended.

**Items 3, 4 and 5 are not applicable and have been omitted.**

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

ASTEC INDUSTRIES, INC.  
(Registrant)

Date: August 7, 2019

/s/ Richard J. Dorris  
Richard J. Dorris  
Interim Chief Executive Officer and President  
(Principal Executive Officer)

Date: August 7, 2019

/s/ David C. Silvious  
David C. Silvious  
Chief Financial Officer, Vice President, and Treasurer  
(Principal Financial and Accounting Officer)

AMENDED AND RESTATED  
BYLAWS OF  
ASTEC INDUSTRIES, INC.  
(A Tennessee Corporation)  
Adopted: March 14, 1990

ARTICLE 1  
SHAREHOLDER MEETINGS

1.1 Annual Meetings. An Annual Meeting of the Shareholders shall be held on the third Thursday in April of each year, or, if the notice of the meeting designates it as an annual meeting, at any date within the six months following the close of the fiscal year, the date to be determined by the Chairman of the Board, the President, the Secretary, or the Board. The business to be transacted at such meeting shall be the election of Directors and such other business as shall be properly brought before the meeting.

1.2 Special Meetings. Special meetings of the Shareholders may be called by the Chairman of the Board, the President, the Secretary, or by the Board. A special meeting of the Shareholders shall be held if the holders of at least ten percent (10%) of all the votes entitled to be cast on any issue proposed to be considered at the proposed special meeting sign, date and deliver to the Secretary one or more written demands for the meeting describing the purpose or purposes for which such special meeting is to be held.

1.3 Place of Meetings. Shareholder meetings shall be held at the principal office of the corporation or at any other place, within or without the State of Tennessee, as indicated in the notice of the meeting, or in the event of a meeting held pursuant to a waiver of notice, as set forth in the waiver.

1.4 Notice Requirements. Written or printed notice stating the date, time and place of the meeting and, in the case of a special meeting, the purpose or purposes for which the meeting is called and the person or persons calling the meeting, shall be delivered either personally or by mail by or at the direction of the President, the Secretary or the person or persons calling the meeting, to each Shareholder entitled to vote at the meeting and to any other Shareholder who will be entitled to dissent from an action on which Shareholders are to vote at the meeting. Such notice shall be given not less than 10 days nor more than two months before the date of the meeting and, if mailed, shall be deemed to be given when deposited in the United States mail addressed to the Shareholder at his address shown in the corporation's current record of Shareholders, with first-class postage thereon prepaid and, if delivered personally, shall be deemed given when actually received by the Shareholder.

1.5 Waiver of Notice. A Shareholder may waive any notice required by the Tennessee Business Corporation Act, the charter or these bylaws before or after the date and time stated in such notice. The waiver must be in writing, signed by the Shareholder entitled to notice and delivered to the corporation for inclusion in the minutes or filing with the corporate records. A Shareholder's attendance at a meeting shall (i) waive objection to lack of notice or defective notice of the meeting, except where a Shareholder at the beginning of the meeting (or promptly upon his arrival) objects to holding the meeting or transacting business at the meeting; and (ii) waive objection to consideration of a particular matter at the meeting that is not within the purpose or purposes described in the meeting notice, unless the Shareholder objects to considering the matter when it is presented.

1.6 Voting Groups; Quorum. All shares entitled to vote and be counted together collectively on a matter at a meeting of shareholders shall be a "voting group". Shares entitled to vote as a separate voting group may take action on a matter at a meeting only if a quorum of those shares exists with respect to that matter. Except as otherwise required by the Tennessee Business Corporation Act or provided in the charter, a majority of the votes entitled to be cast on a matter by a voting group constitutes a quorum of the voting group for action on that matter.

Once a share is represented for any purpose at a meeting, it is deemed present for quorum purposes for the remainder of the meeting and for any adjournment of that meeting unless a new record date is or must be set for that adjourned meeting.

1.7 Voting. Unless otherwise provided by the Tennessee Business Corporation Act or the charter, every outstanding share shall be entitled to one vote on each matter voted on at a Shareholders' meeting. Whenever any Corporate action, other than the election of Directors and except as otherwise provided by the charter, is to be taken by vote of the Shareholders, it shall be taken if a quorum is present and if the votes cast within the voting group in favor of the action exceed the votes cast opposing the action. Directors shall be elected by a majority of the votes represented and entitled to vote at an annual meeting at which a quorum is present.

1.8 Proxies. A Shareholder may vote his shares in person or by proxy. A Shareholder may appoint a proxy to vote or otherwise act for him by signing an appointment either personally or by his attorney-in-fact. An appointment of a proxy is effective when received by the Secretary or other officer or agent authorized to tabulate votes. An appointment is valid for eleven (11) months unless another period is expressly provided in the appointment form. An appointment of a proxy is revocable by the shareholder unless the appointment form conspicuously states that it is irrevocable and the appointment is coupled with an interest. If the validity of any appointment of proxy is questioned, it must be submitted to the Secretary of the meeting of Shareholders for examination or to a proxy officer or committee appointed by the person presiding at the meeting. The Secretary of the meeting or, if appointed, the proxy officer or committee, shall determine the validity or invalidity of any appointment of proxy submitted and reference by the Secretary in the Minutes of the meeting to the regularity of an appointment of proxy shall be received as prima facie evidence of the facts stated for the purpose of establishing the presence of a quorum at the meeting and for all other purposes.

1.9 Action Without Meeting. Action required or permitted by the Tennessee Business Corporation Act to be taken at a Shareholders' meeting may only be taken without a meeting if all Shareholders entitled to vote on the action consent to taking such action without a meeting. If the required consent is obtained, the affirmative vote of the number of shares that would be necessary to authorize or take such action at a meeting is the act of the Shareholders.

The action must be evidenced by one or more written consents describing the action taken, signed by each Shareholder entitled to vote on the action, indicating such signing Shareholder's vote or abstention on the action and delivered to the corporation for inclusion in the Minutes or for filing with the Corporate records.

If the Tennessee Business Corporation Act or the charter requires that notice of a proposed action be given to nonvoting Shareholders and the action is to be taken by consent of the voting Shareholders, then the corporation will give such nonvoting Shareholders written notice of the proposed action at least ten (10) days before such action is taken. Such notice will contain or be accompanied by the same material that would have been required to be sent to nonvoting Shareholders in a notice of a meeting at which the proposed action would have been submitted to the Shareholders for action.

1.10 Presiding Officer and Secretary. Meetings of the Shareholders shall be presided over by the Chairman of the Board of Directors, or if he is not present, by the President, or if neither the Chairman nor the President is present, by a Chairman to be chosen by a majority of the Shareholders entitled to vote at such meeting. The Secretary or, in his absence, an assistant Secretary shall act as Secretary of every meeting, but if neither the Secretary nor an assistant Secretary is present, the Shareholders entitled to vote at such meeting shall choose any person present to act as Secretary of the meeting.

1.11 Adjournments. Whether or not a quorum is present to organize a meeting, any meeting of Shareholders (including an adjourned meeting) may be adjourned by the holders of a majority of the voting shares represented at the meeting to reconvene at a specific time and place, but no later than four (4) months after the date fixed for the original meeting unless the requirements of the Tennessee Business Corporation Act concerning the selection of a new record date have been met. At any reconvened meeting within that time period, any business may be transacted that could have been transacted at the meeting that was adjourned. If notice of the adjourned meeting was properly given, it shall not be necessary to give any notice of the reconvened meeting or of the business to be transacted if the date, time and place of the reconvened meeting are announced at the meeting that was adjourned and before adjournment; provided, however, that if a new record date is or must be fixed, notice of the reconvened meeting must be given to persons who are Shareholders as of the new record date.

## ARTICLE 2 STOCK

2.1 Authorization and Issuance of Shares. In accordance with the Tennessee Business Corporation Act, the Board of Directors may authorize shares of any class or series provided for in the charter to be issued for any consideration valid under the provisions of the Tennessee Business Corporation Act. To the extent provided in the charter, the Board of Directors shall determine the preferences, limitations, and relative rights of the shares.

2.2 Stock Certificates. The shares of the corporation shall be represented by certificates which shall be in such form as the Board of Directors shall from time to time adopt. Share certificates shall be numbered consecutively, shall be in registered form, shall indicate the date of issuance, the name of the corporation and that it is organized under the laws of the State of Tennessee, the name of the Shareholder, and the number and class of shares and the designation of the series, if any, represented by the certificate. Each share certificate shall be signed (either manually or in facsimile,) by the Chairman of the Board of Directors, the President or a Vice President, and by the Secretary, an Assistant Secretary, the Treasurer, or an Assistant Treasurer. No Corporate seal need be affixed.

If the Board of Directors has authorized the issue of different classes of shares or different series within a class, the designations, relative rights, preferences and limitations for each class or series (and the authority of the board of directors to determine variations for future classes or series) will be summarized on the front or back of each certificate. Alternatively, each certificate will state on its front or back that the corporation will furnish the Shareholder this information in writing, without charge, upon request.

2.3 Shareholders of Record. The corporation shall keep a record of its Shareholders, arranged by voting group (and within each voting group by class or series of shares) and giving the names and addresses of all shareholders and the number of shares held by each. After fixing a record date for a meeting, such record; listing in alphabetical order the Shareholders as of the record date, shall be available for inspection by any Shareholder, beginning two (2) business days after notice of the meeting is given and continuing through the meeting, at the corporation's principal office or at a place identified in the meeting notice in the city where the meeting will be held.

2.4 Record Date With Regard to Shareholder Actions. For the purpose of determining shareholders entitled to notice of a shareholders' meeting, to demand a special meeting, to vote, or to take any other action, the board of directors may fix a date as the record date, such date to be not more than seventy (70) days before the meeting or action requiring such determination of Shareholders. A determination of Shareholders entitled to notice of or to vote at a Shareholders' meeting is effective for any adjournment of the meeting unless the Board of Directors fixes a new record date, which it must do if the meeting is adjourned to a date more than four (4) months after the date fixed for the original meeting. If no record date is fixed by the board of directors, the record date for any determination of Shareholders which may be proper or required by law shall be the date on which notice of the meeting is mailed in case of a Shareholder's Meeting; and the date on which any other action, the consummation of which requires a determination of Shareholders, is taken.

2.5 Record Date With Regard to Distributions and Share Dividends. For the purpose of determining Shareholders entitled to a distribution (other than one involving a repurchase or reacquisition of shares) or a share dividend, the board of directors may fix a date as the record date. If no record date is fixed by the Board of Directors, the record date shall be the date the board authorizes the distribution or share dividend.

2.6 Rights of Corporation with Respect to Registered Owners. Prior to due presentation for transfer of registration of its shares, the corporation may treat the registered owner of the shares as the person exclusively entitled to vote such shares, to receive any share dividend or distribution with respect to such shares, and for all other purposes; and the corporation shall not be bound to recognize any equitable or other claim to or interest in such shares on the part of any other person, whether or not it shall have express or other notice thereof, except as otherwise provided by law.

2.7 Transfer of Stock. The holder's endorsement and delivery of a certificate representing shares of the corporation shall be effective as between the parties to transfer the shares; but in all other respects no transfer shall be valid until the certificate representing the shares transferred has been surrendered by the person named in the certificate, or by an attorney lawfully constituted in writing, to the transfer agent designated to transfer the shares of the corporation and cancelled and a new certificate issued to the transferee.

2.8 Lost Stolen or Destroyed Certificates. Any person claiming a share certificate to be lost, stolen or destroyed shall make an affidavit or affirmation of the fact in the manner required by the corporation and, if the corporation requires, shall give the corporation a bond of indemnity in form and amount, and with one or more sureties satisfactory to the corporation, as the corporation may require, whereupon an appropriate new certificate may be issued in lieu of the one alleged to have been lost, stolen or destroyed.

ARTICLE 3  
DIRECTOR MEETINGS

3.1 Meetings of Board and Committees. The Board shall hold an annual meeting each year, without call, immediately before or after the Annual Meeting of the Shareholders. The Board or any officer so authorized by the Board may establish a date or dates on which regular meetings of the Board or any committee shall be held between annual meetings. A committee of the Board may meet on the dates so established or, if none, on the date set at its previous meeting or when earlier called by its Chairman or by a majority of its members. Special meetings of the Board may be called at any time by the Chairman of the Board, the President, the Secretary or any three Directors.

3.2 Place of Meetings. Meetings of the Board shall be held at any place either within or without the State of Tennessee that the Board may from time to time appoint by resolution or, if no resolution is in force, at the principal office of the corporation, or at such other place as shall have been designated in the notice of the meeting, or, in the event of a meeting held pursuant to waiver of notice, as set forth in the waiver.

3.3 Notice Requirements. No notice shall be required for any regularly scheduled meeting of the directors. Notice of any special meeting, setting forth the date, time and place of the meeting, shall be given to each director, not less than two days before the meeting. The purpose of any regular or special meeting need not be specified in the notice or any waiver of notice. Such notice shall be in writing unless oral notice is reasonable under the circumstances and may be given by any usual means of communication, including in person; by telephone, telegraph, teletype, or other form of wire or wireless communication; or by mail or private carrier. Written notice, if in a comprehensible form, is effective at the earliest of the following: (i) when received or when delivered, properly addressed, to the addressee's last known principal place of business or residence; (ii) five days after its deposit in the mail, as evidenced by the postmark, if mailed with first-class postage, prepaid and correctly addressed; or (iii) on the date shown on the return receipt, if sent by registered or certified mail, return receipt requested, and the receipt is signed by or on behalf of the addressee. Oral notice is effective when communicated if communicated in a comprehensible manner.

3.4 Waiver of Notice. A Director may waive any required notice before or after the date and time stated in the notice. Such waiver must be in writing, signed by the Director and filed with the Minutes or Corporate records, except that a Director's attendance at or participation in a meeting waives any required notice to him of such meeting unless the director at the beginning of the meeting (or promptly upon his arrival) objects to holding the meeting or transacting business at the meeting and does not thereafter vote for or assent to action taken at the meeting.

3.5 Quorum. Unless a greater number is required by the charter, these bylaws, or the Tennessee Business Corporation Act, a majority of the number of directors prescribed pursuant to Paragraph 4.2 of these bylaws shall constitute a quorum for the transaction of business. The presence of a majority of the members of a committee of the Board shall be required for the transaction of business.

3.6 Voting. Unless a greater number is required by the charter, these bylaws, or the Tennessee Business Corporation Act, the affirmative vote of a majority of the members present at a meeting at which a quorum is present shall be the act of the Board or any committee.

3.7 Presumption of Assent. A Director who is present at a meeting of the Board, or any committee thereof, when Corporate action is taken shall be deemed to have assented to the action taken unless: (i) he objects at the beginning of the meeting (or promptly upon his arrival) to holding it or transacting business at the meeting; (ii) his dissent or abstention from such action is entered in the minutes of the meeting; or (iii) he submits written notice of his dissent or abstention to the presiding officer of the meeting before the adjournment of the meeting or shall deliver or send such dissent by registered or certified mail to the secretary of the corporation promptly after the adjournment of the meeting. Such right to dissent or abstain shall not apply to a director who voted in favor of such action. A director who is absent from a meeting of the board, or any committee thereof, at which such action is taken shall be presumed to have assented to the action unless he shall deliver or send by registered or certified mail his dissent or abstention from such action to the secretary of the corporation or shall cause such dissent or abstention to be filed with the minutes of the proceedings of the Board or committee within a reasonable time after learning of such action.

3.8 Action by Consent. Unless the charter or these bylaws provide otherwise, the board of directors or any committee designated by the board may take action which the board or committee is required or permitted to take without a meeting by written consent, setting forth the action taken, signed in one or more counterparts by all of the directors or committee members, as the case may be, and indicating each signing Director's vote or abstention on the action. Such written consents shall be included in the minutes or filed with the corporate records reflecting the action taken. The affirmative vote of the number of directors that would be necessary to authorize or take such action at a meeting is the act of the Board.

3.9 Telephone Meeting Allowed. Participation by members of the board or any committee designated by the Board in any telephone meeting of the board or committee by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can simultaneously hear each other shall be permitted. Participation in such a meeting pursuant to this Paragraph 3.9 shall constitute presence in person at such meeting. The Directors shall be promptly furnished a copy of the minutes of any meeting held under this paragraph.

3.10 Adjournments. Whether or not a quorum is present to organize a meeting, any meeting of Directors (including an adjourned meeting) may be adjourned by a majority of the Directors present, to reconvene at a specific time and place. At any reconvened meeting any business may be transacted that could have been transacted at the meeting that was adjourned. If notice of the adjourned meeting was properly given, it shall not be necessary to give any notice of the reconvened meeting or of the business to be transacted, if the date, time and place of the reconvened meeting are announced at the meeting that was adjourned.

#### ARTICLE 4 DIRECTORS

4.1 Qualifications and General Powers. Members of the Board of Directors need not be Shareholders of the corporation and need not be residents of the State of Tennessee. All Corporate powers shall be exercised by or under the authority of, and the business and affairs of the corporation shall be managed under the direction of, the board of directors. In addition to the powers and authority expressly conferred upon it by these bylaws, the Board of Directors may exercise all powers of the corporation and do all lawful acts and things that are not by law, by charter or by these bylaws directed or required to be exercised or done the Shareholders.

4.2 Number. As provided in the charter of the corporation, the number of directors of the corporation shall be not less than three nor more than fifteen. The exact number of Directors within such minimum and maximum shall be fixed or changed from time to time solely by a resolution adopted by an affirmative vote of either (i) at least two-thirds (2/3) of the total number of directors then in office or (ii) holders of at least two-thirds (2/3) of the total issued and outstanding shares of the corporation's stock entitled to vote in the election of Directors.

4.3 Classification, Terms and Election. The Directors shall be divided into three classes, designated Class I, Class II and Class III. Each class shall consist, as nearly as may be possible, of one-third of the actual number of Directors constituting the entire Board of Directors. Directors of each class were elected at the 1989 Annual Meeting of Shareholders, Class I Directors for a one-year term, Class II Directors for a two-year term, and Class III Directors for a three-year term. At each succeeding annual meeting of Shareholders, successors to the class of Directors whose term expires at that annual meeting shall be elected or re-elected for a three-year term. Except as provided in Paragraph 4.5, a Director shall be elected by the affirmative vote of the holders of a majority of the total issued and outstanding shares of the corporation's stock represented at the annual meeting of Shareholders and entitled to vote in the election of Directors. If the number of Directors is changed, any increase or decrease shall be apportioned among the classes so as to maintain the number of Directors in each class as nearly equal as possible. In no case shall a decrease in the number of Directors have the effect of shortening the term of an incumbent Director. If the number of directors is increased, and any newly created directorships are filled by the Board, there shall be no classification of additional directors elected by the Board until the next meeting of the Shareholders called for the purpose of electing Directors. Each director shall serve until his successor is elected and qualified or until his earlier resignation, retirement, disqualification, removal from office or death.

4.4 Removal. The entire Board of Directors or any individual director may be removed from office only for cause by the affirmative vote of the holders of at least two-thirds (2/3) of the total issued and outstanding shares of the corporation's stock entitled to vote in the election of directors at any Shareholders' meeting in which notice of such purpose has been given.

4.5 Vacancies in Board. A vacancy occurring on the Board of Directors, however occurring, whether by increase in the number of Directors, resignation, retirement, disqualification, removal from office, death or otherwise, may be filled, until the next election of Directors by the Shareholders, by the affirmative vote of at least two-thirds (2/3) of the total number of Directors then remaining in office, though they constitute less than a quorum of the Board of Directors.

4.6 Election of Directors by Holders of Preferred Stock. Notwithstanding any of the foregoing provisions in this Article 4, whenever the holders of any one or more classes of preferred stock or series thereof issued by the corporation shall have the right, voting separately by class or series, to elect directors at an annual or special meeting of shareholders, the number of such Directors, and the election, term of office, filling of vacancies and other features of each such directorship, shall be governed by the terms of the charter or any designations, preferences and relative, participating, optional or other special rights and qualifications, limitations or restrictions upon any such class of preferred stock or series thereof issued pursuant to subparagraph 6B of the charter (collectively, a "Preferred Stock Designation"), and such Directors so elected shall not be divided into classes pursuant to this Article 4.

4.7 Committees. The Board by resolution may designate from among its members an executive committee and one or more other committees, each consisting of one or more Directors, and may delegate to such committee or committees all such authority of the board that it deems desirable, subject to limitations set forth in the charter, these bylaws, or the Tennessee Business Corporation Act. The committee shall report any action taken to the meeting of the board next following the taking of such action, unless the board otherwise requires. The Board may designate one or more directors as alternate members of any such committee, who may replace any absent member or members at any meeting of the committee. Each such committee, and each member of each such committee, shall serve at the pleasure of the board. The designation of any such committee and the delegation thereto of authority shall not relieve any Director of any responsibility imposed by law. So far as applicable, the provisions of these bylaws and of the Tennessee Business Corporation Act relating to the Board and its deliberations shall be applicable to any committee of the Board.

4.8 Compensation. Unless the charter provides otherwise, the Board of Directors may determine from time to time the compensation, if any, Directors may receive for their services as directors. A Director may also serve the corporation in a capacity other than that of Director and receive compensation, as determined by the Board of Directors, for services rendered in any other capacity; provided, however, that the Board shall have the number of "Independent Directors" as may be required for listing of the corporation's shares on the NASDAQ National Market System.

ARTICLE 5  
OFFICERS

5.1 Titles of Officers. The corporation shall have a Chairman of the Board, a President, one or more Vice Presidents as determined or designated by the Board, a Secretary and such other officers as are appointed by the Board. One person may be elected to more than one office, except that the offices of President and Secretary may not be held by the same person.

5.2 Election. All officers shall be elected or appointed at the annual meeting of the Board or at any special meeting of the Board.

5.3 Term of Office. Each officer shall serve at the pleasure of the Board of Directors and until his successor has been elected or appointed and qualified.

5.4 Resignation and Removal. An officer may resign at any time by delivering notice to the corporation. Such resignation is effective when such notice is delivered unless such notice specifies a later effective date. Any officer may be removed by the Board at any time with or without cause, but such removal shall be without prejudice to the contract rights, if any, of the person so removed. Election or appointment of an officer shall not of itself create contract rights.

5.5 Chairman of the Board. The Chairman of the Board, if one is elected, shall, unless otherwise provided by the Board, be the Chief Executive Officer of the corporation, and shall be considered an officer of the corporation for purposes of these bylaws and for all other purposes.

5.6 Duties. The Secretary shall be the officer responsible for preparing Minutes of Directors' and Shareholders' Meetings and for authenticating records of the corporation. All officers as between themselves and the corporation shall have such authority and perform such duties in the management of the corporation, in addition to those described in these bylaws, as usually appertain to such officers of corporations for profit, except as may be otherwise prescribed by the Board.

5.7 Compensation. The Board shall fix the compensation, or provide for fixing the compensation, of all officers of the corporation. The authority to fix the compensation of all officers of the corporation may be delegated to a committee of the Board.

5.8 Bonds. The Board of Directors by resolution may require any or all of the officers, agents or employees of the corporation to give bonds to the corporation, with sufficient surety or sureties, conditioned on the faithful performance of the duties of their respective offices or positions, and to comply with any other conditions as from time to time may be required by the Board of Directors.

ARTICLE 6  
INDEMNIFICATION

6.1 Definitions.

- (a) "Corporation" for purposes of this Article 6 includes (i) any domestic or foreign predecessor entity of the corporation in a merger or other transaction in which the predecessor's existence ceased on consummation of the transaction and (ii) subsidiaries of the corporation.
- (b) "Director" means an individual who is or was a Director of the corporation or an individual who, while a Director of the corporation, is or was serving at the corporation's request as a Director, Officer, Partner, Trustee, Employee, or Agent of another foreign or domestic corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise. A Director is considered to be serving an employee benefit plan at the corporation's request if his duties to the corporation also impose duties on or otherwise involve services by him to the plan or to participants in or beneficiaries of the plan. "Director" includes, unless the context requires otherwise, the estate or personal representative of a Director.
- (c) "Expenses" includes counsel fees.
- (d) "Liability" means the obligation to pay a judgment, settlement, penalty, fine (including an excise tax assessed with respect to an employee benefit plan), or reasonable expenses incurred with respect to a proceeding.
- (e) "Officer" means an individual who is or was an Officer of the corporation or an individual who, while an officer of the corporation, is or was serving at the corporation's request as a Director, Officer, Partner, Trustee, Employee, or Agent of another foreign or domestic corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise. An Officer is considered to be serving an employee benefit plan at the corporation's request if his duties to the corporation also impose duties on or otherwise involve services by him to the plan or to participants in or beneficiaries of the plan. "Officer" includes, unless the context requires otherwise, the estate or personal representative of an Officer.
- (f) "Official Capacity" means, when used with respect to a Director, the office of a Director of the corporation; when used with respect to an Officer, the office in the corporation held by such Officer; when used with respect to an Employee or Agent, the employment or agency relationship undertaken by the Employee or Agent on behalf of the corporation. The term "official capacity" does not include service for any other foreign or domestic corporation or any partnership, joint venture, trust, employee benefit plan, or other enterprise.

- (g) "Party" includes an individual who was, is, or is threatened to be made a named defendant or respondent in a proceeding.
- (h) "Proceeding" means any threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, or investigative and whether formal or informal.
- (i) "Reviewing Party" shall mean the person or persons making the entitlement determination pursuant to Paragraph 6.5 below, include a court making any determination hereunder.

6.2 Basic Indemnification.

(a) Except as provided in Paragraph 6.2(d) below, the corporation may indemnify any director or officer in the event such person is made a party to a proceeding because he is or was a director or officer against liability incurred in the proceeding if (i) he conducted himself in good faith; (ii) he reasonably believed, in the case of conduct in his official capacity, that his conduct was in the corporation's best interests, and, in all other cases, that his conduct was at least not opposed to the corporation's best interests, and (iii) in the case of any criminal proceeding, he had no reasonable cause to believe his conduct was unlawful.

(b) A person's conduct with respect to an employee benefit plan for a purpose he reasonably believed to be in the interests of the participants in and beneficiaries of the plan is conduct that satisfies the requirement of Paragraph 6.2(a)(ii).

(c) The termination of a proceeding by judgment, order, settlement, or conviction, or upon a plea of nolo contendere or its equivalent shall not, of itself, be determinative that the proposed indemnitee did not meet the standard of conduct set forth in Paragraph 6.2(a).

(d) The corporation shall not, unless ordered by a court pursuant to Paragraph 6.6 below, indemnify a person under this Article 6 in connection with (i) a proceeding by or in the right of the corporation in which such person was adjudged liable to the corporation, or (ii) any proceeding charging improper personal benefit to the person, whether or not involving action in his official capacity, in which he was adjudged liable on the basis that he improperly received a personal benefit.

6.3 Mandatory Indemnification.

The corporation shall indemnify a Director or Officer who was wholly successful, on the merits or otherwise, in the defense of any proceeding to which he was a party because he is or was a director or officer of the corporation against reasonable expenses incurred by him in connection with the proceeding.

6.4 Advances for Expenses.

(a) The corporation shall pay for or reimburse the reasonable expenses incurred by a Director or Officer as a party to a proceeding in advance of final disposition of the proceeding if: (i) such person furnishes the corporation a written affirmation of his good faith belief that he has met the standard of conduct set forth in Paragraph 6.2(a) above; (ii) such person furnishes the corporation a written undertaking, executed personally or on his behalf, to repay the advance if it is ultimately determined that he is not entitled to indemnification; and (iii) a determination is made by the reviewing party that the facts then known to it would not preclude indemnification under this Article 6.

(b) The undertaking required by Paragraph 6.4(a)(ii) above must be an unlimited general obligation of the Director or Officer but need not be secured and shall be accepted without reference to financial ability to make repayment.

(c) Determinations under this Paragraph 6.4 shall be made in the manner specified, in Paragraph 6.5 below.

6.5 Authorization of and Determination of Entitlement to Indemnification.

(a) The corporation may not indemnify a person under Paragraph 6.2 unless authorized in the specific case after a determination has been made that indemnification of such person is permissible in the circumstances because he has met the standard of conduct set forth in Paragraph 6.2(a).

(b) The determination that indemnification is permissible shall be made: (i) by the board of directors of the corporation by majority vote of a quorum consisting of directors not at the time parties to the proceeding; (ii) if a quorum cannot be obtained under subparagraph (i), by majority vote of a committee duly designated by the Board of Directors (in which designation Directors who are parties may participate), consisting solely of two or more Directors not at the time parties to the proceeding; (iii) by independent special legal counsel: (A) selected by the Board of Directors or its committee in the manner prescribed in subparagraph (i) or (ii); or (B) if a quorum of the Board of Directors cannot be obtained under subparagraph (i) and a committee cannot be designated under subparagraph (ii), selected by a majority vote of the full Board of Directors (in which selection Directors who are parties may participate); or (iv) by the shareholders, provided that shares owned by or voted under the control of proposed indemnitees who are at the time parties to the proceeding may not be voted on the determination.

(c) Authorization of indemnification and evaluation as to reasonableness of expenses shall be made in the same manner as the determination that indemnification is permissible, except that if the determination is made by special legal counsel, authorization of indemnification and evaluation as to reasonableness of expenses shall be made by those entitled under Paragraph 6.5(b)(iii) to select counsel.

6.6 Court-Ordered Indemnification. If a Director or Officer is a party to a proceeding, he may apply for indemnification to the court conducting the proceeding or to another court of competent jurisdiction. On receipt of an application, the court, after giving any notice the court considers necessary, may order indemnification if it determines that: (i) such person is entitled to mandatory indemnification under Paragraph 6.3, in which case the court shall also order the corporation to pay such person's reasonable expenses incurred to obtain court-ordered indemnification; or (ii) such person is fairly and reasonably entitled to indemnification in view of all the relevant circumstances, whether or not he met the standard of conduct set forth in Paragraph 6.2(a) above or was adjudged liable as described in Paragraph 6.2(d), but if he was adjudged so liable his indemnification is limited to reasonable expenses incurred.

6.7 Indemnification of Employees and Agents. The corporation may indemnify and advance expenses under this Article 6 to an employee or agent of the corporation who is not a director or officer to the same extent as into a Director or Officer.

6.8 Limitations on Indemnification. Nothing in this Article 6 shall require or permit indemnification of or on behalf of any person if a judgment or other final adjudication adverse to such person establishes his liability: (i) for any breach of such person's duty of loyalty to the corporation or its shareholders; (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; or (iii) under Section 48-18-304 of the Tennessee Business Corporation Act (or any successor provision thereof).

6.9 Liability Insurance. The corporation may purchase and maintain on behalf of a person who is or was a Director, Officer, Employee or Agent of the corporation, or who, while serving as a Director, Officer, Employee or Agent of the corporation, is or was serving at the request of the corporation as a Director, Officer, Partner, Trustee, Employee or Agent of another foreign or domestic corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise, against liability asserted against or incurred by him in that capacity arising from his status as a Director, Officer, Employee or Agent, whether or not the corporation would have the power to indemnify him against the same liability under Sections 48-18-502 or 48-18-503 of the Tennessee Business Corporation Act or under Paragraphs 6.2 or 6.3 of this Article 6.

6.10 Non-Exclusivity of Indemnification and Advancement of Expenses.

(a) The indemnification and advancement of expenses provided by or granted pursuant to this Article 6 shall not be deemed to be exclusive of any other rights to which a person seeking indemnification or advancement of expenses may be entitled, whether by application of the Tennessee Business Corporation Act, the Charter of the corporation, the corporation's bylaws, resolution of the Directors or Shareholders of the corporation, or an agreement providing for such indemnification; provided, however that no indemnification may be made to or on behalf of any person if a judgment or other final adjudication adverse to such person establishes his liability: (i) for any breach of such person's duty of loyalty to the corporation or its shareholders; (ii) for acts or omissions not in good faith or which involve intentional misconduct or knowing violations of law; or (iii) under Section 48-18-304 of the Tennessee Business Corporation Act (or any successor provision thereof).

(b) Subject to the limitations set forth in subparagraph (a) above, the board of directors or the shareholders of the corporation may from time to time adopt resolutions providing for indemnification of Directors, Officers, Employees or Agents, or the corporation may from time to time enter into agreements with any such persons providing for indemnification, which indemnification need not be coextensive or consistent with the indemnification or advancement of expenses permitted by these bylaws.

(c) This Article 6 shall not limit the corporation's power to pay or reimburse expenses incurred by a person in connection with his appearance as a witness in a proceeding at a time when he was not a named defendant in or respondent to the proceeding.

6.11 Severability. In the event that any of the provisions of this Article 6 (including any provision within a single paragraph, subparagraph, division or sentence) is held by a court of competent jurisdiction to be invalid, void or otherwise unenforceable, the remaining provisions of this Article 6 shall remain enforceable to the fullest extent permitted by law.

ARTICLE 7  
MISCELLANEOUS

7.1 Seal. The corporation may have a Corporate seal which may be altered at the corporation's pleasure; but the presence or absence of such seal on any instrument, or its addition thereto, shall not affect its character or validity or legal effect in any respect.

7.2 Stock in Other Companies. In the absence of other arrangement by the Board, the President of the corporation may vote, endorse for transfer or take any other action necessary with respect to shares of stock and securities issued by any other corporation and owned by this corporation; and he may make, execute and deliver any proxy, waiver or consent with respect thereto.

7.3 Offices and Agent. The corporation shall maintain a registered office in the State of Tennessee and shall have a registered agent whose business office is identical to the registered office. In addition to its registered office, the corporation may have offices at any other place or places, within or without the State of Tennessee, as the Board of Directors may from time to time select or as the business of the corporation may require or make desirable.

ARTICLE 8  
AMENDMENT

Subject to provisions to the contrary in the charter or these bylaws, these bylaws may be altered, amended or repealed, and new bylaws may be adopted, by the Shareholders or by the Board. Any bylaw adopted by the board may be amended or repealed by the Shareholders. The resulting bylaws may contain any provision for the regulation and management of business of the corporation not inconsistent with law and the charter. Any amendment of the charter inconsistent with these bylaws shall operate to amend the bylaws pro tanto, and those bylaws or parts of bylaws which merely summarize or restate the provisions of the charter or the provisions of the Tennessee Business Corporation Act or other law applicable to the corporation shall be operative with respect to the corporation only so far as they are descriptive of existing law and of the charter as amended.

ARTICLE 9  
TENNESSEE CONTROL SHARE ACQUISITION ACT

All control share acquisitions (as such term is defined in Section 48-35-302 of the Tennessee Business Corporation Act) in respect of any capital stock of this corporation are governed by and subject to the provisions of the Tennessee Control Share Acquisition Act, including Sections 48-35-308 and 48-35-309 of the Tennessee Business Corporation Act, and all amendments thereto; provided, however, in the event any provision of the Tennessee Control Share Acquisition Act is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of the Tennessee Control Share Acquisition Act shall apply to all control share acquisitions in respect of any capital stock of this corporation.

This Article 9 can only be amended by a 2/3 vote of the Directors or a majority of the shares of the corporation's stock then issued and outstanding entitled to vote in the election of Directors.

FIRST AMENDMENT TO THE AMENDED AND RESTATED  
BYLAWS OF ASTEC INDUSTRIES, INC.  
ADOPTED JULY 29, 1993

Pursuant to a resolution of the board of directors of Astec Industries, Inc. adopted at a meeting of the board of directors held on July 29, 1993, Section 4.1 of the bylaws of the corporation is deleted and the following is substituted in lieu thereof:

4.1 Qualifications and General Powers. Members of the board of directors need not be shareholders of the corporation and need not be residents of the State of Tennessee. No person may be elected or reelected as a member of the board of directors who is 70 years of age or older. All corporate powers shall be exercised by or under the authority of, and the business and affairs of the corporation shall be managed under the direction of the board of directors. In addition to the powers and authority expressly conferred upon it by these bylaws, the board of directors may exercise all powers of the corporation and do all lawful acts and things that are not by law, by the charter or by these bylaws directed or required to be exercised or done by the shareholders.

SECOND AMENDMENT TO THE AMENDED AND RESTATED  
BYLAWS OF ASTEC INDUSTRIES, INC.  
ADOPTED JULY 26, 2007

Paragraph 2.2 of the Bylaws of Astec Industries, Inc. is deleted and the following is substituted in its place:

2.2 Stock Certificates. Except as set forth below with respect to uncertificated shares, the shares of the corporation shall be represented by certificates which shall be in such form as the Board of Directors shall from time to time adopt. Share certificates shall be numbered consecutively, shall be in registered form, shall indicate the date of issuance, the name of the corporation and that it is organized under the laws of the State of Tennessee, the name of the Shareholder, and the number and class of shares and the designation of the series, if any, represented by the certificate. Each share certificate shall be signed (either manually or in facsimile,) by the Chairman of the Board of Directors, the President or a Vice President, and by the Secretary, an Assistant Secretary, the Treasurer, or an Assistant Treasurer. No corporate seal need be affixed.

If the Board of Directors has authorized the issue of different classes of shares or different series within a class, the designations, relative rights, preferences and limitations for each class or series (and the authority of the Board of Directors to determine variations for future classes or series) will be summarized on the front or back of each certificate. Alternatively, each certificate will state on its front or back that the corporation will furnish the Shareholder this information in writing, without charge, upon request.

The Board of Directors shall designate the classes of shares that may be represented by uncertificated shares and shall adopt procedures for the registration of transfers of uncertificated shares in lieu of the procedures set forth in these Bylaws for certificated shares.

Adopted by the Board of Directors effective July 26, 2007.

THIRD AMENDMENT TO THE AMENDED AND RESTATED  
BYLAWS OF ASTEC INDUSTRIES, INC.  
ADOPTED JULY 23, 2008

The following amendments to the Amended and Restated Bylaws of Astec Industries, Inc. were approved by at least a two-thirds majority of the directors by action taken at a meeting of the Board of Directors held on July 23, 2008:

1). Paragraph 4.1 as amended by the First Amendment to the Amended and Restated Bylaws on July 29, 1993 is deleted in its entirety and the following Paragraph 4.1 is substituted in lieu thereof:

4.1 Qualifications and General Powers. Members of the Board of Directors need not be shareholders of the corporation and need not be residents of the State of Tennessee. All corporate powers shall be exercised by or under the authority of, and the business and affairs of the corporation shall be managed under the direction of, the Board of Directors. In addition to the powers and authority expressly conferred upon it by these Bylaws, the Board of Directors may exercise all powers of the corporation and do all lawful acts and things that are not by law, by the charter or these Bylaws directed or required to be exercised or done by the shareholders.

2). Paragraph 4.5 is deleted and the following Paragraph 4.5 is substituted in lieu thereof:

4.5 Vacancies in Board. A vacancy on the Board of Directors, however occurring, whether by increase in the number of Directors, resignation, retirement, disqualification, removal from office, death or otherwise, may be filled, until the next election of Directors of the same class by the shareholders, by the affirmative vote of at least two-thirds (2/3) of the total number of Directors of all classes then remaining in office, even if they constitute less than a quorum of the Board of Directors.

Certified by the Secretary of the Corporation this 23rd day of July, 2008.

**FOURTH AMENDMENT TO THE AMENDED AND RESTATED  
BYLAWS OF ASTEC INDUSTRIES, INC.**

(Adopted July 25, 2019)

Pursuant to resolutions of the board of directors of Astec Industries, Inc., a Tennessee corporation (the "Company"), adopted at a meeting of the board of directors held on July 25, 2019, the Amendments below are hereby made to the Amended and Restated Bylaws of the Company.

Paragraph 1.2 is deleted in its entirety and the following Paragraph 1.2 is substituted in lieu thereof:

**1.2 Special Meetings.**

(a) Special meetings of the Shareholders may be called by the Chairman of the Board, the President, the Secretary, or by the Board. Shareholders' ability to cause a special meeting to be held is described in Section 1.2(b) below.

(b) Subject to the provisions of this Section 1.2(b) and all other applicable sections of these Bylaws, a special meeting of the Shareholders shall be held upon written request (a "Special Meeting Request") of one or more persons who or which Net Long Beneficially Own(s) not less than ten percent (10%) of all the votes entitled to be cast on any issue proposed to be considered at the proposed special meeting (the "Requisite Percentage") as of the time of such request and continues to Net Long Beneficially Own at least the number of shares of common stock set forth in the Special Meeting Request with respect to each such Shareholder through the date of the special meeting.

(i) A Special Meeting Request must be delivered by hand or by registered U.S. mail, postage prepaid, return receipt requested, or courier service, postage prepaid, to the attention of the Secretary of the corporation at the principal executive offices of the corporation. A Special Meeting Request shall be valid only if it is signed and dated by each Shareholder of record submitting the Special Meeting Request and each beneficial owner, if any, on whose behalf the Special Meeting Request is being made, or such shareholder's or beneficial owner's duly authorized agent (each, a "Requesting Shareholder"), and includes (A) a statement of the specific purpose(s) of the special meeting and the reasons for conducting such business at the special meeting; (B) in the case of any director nominations proposed to be presented at the special meeting, the information required by Section 1.12(c) of this Article 1; (C) in the case of any matter (other than a director nomination) proposed to be conducted at the special meeting, the information required by Section 1.12(a) of this Article 1; (D) a representation that each Requesting Shareholder, or one or more representatives of each such Shareholder, intends to appear in person or by proxy at the special meeting to present the proposal(s) or business to be brought before the special meeting; (E) an agreement by the Requesting Shareholders to notify the corporation promptly in the event of (1) any disposition prior to the time of the special meeting of any shares included within any Requesting Shareholder's Net Long Beneficial Ownership as of the date on which the Special Meeting Request was delivered to the Secretary and (2) any material change prior to the time of the special meeting in any Requesting Shareholder's Net Long Beneficial Ownership; (F) an acknowledgement that prior to the special meeting any disposition of shares of the corporation's common stock included within any Requesting Shareholder's Net Long Beneficial Ownership as of the date on which the Special Meeting Request was delivered to the Secretary shall be deemed to be a revocation of such Special Meeting Request with respect to such disposed shares and that any decrease in the Requesting Shareholders' aggregate Net Long Beneficial Ownership to less than the Requisite Percentage shall be deemed to be an absolute revocation of such Special Meeting Request; and (G) documentary evidence that the Requesting Shareholders had Net Long Beneficial Ownership of the Requisite Percentage as of the date of delivery of the Special Meeting Request to the Secretary and as of the business day immediately preceding the special meeting; provided, however, that if any of the Requesting Shareholders are not the beneficial owners of the shares representing the Requisite Percentage, then to be valid, the Special Meeting Request must also include documentary evidence (or, if not simultaneously provided with the Special Meeting Request, such documentary evidence must be delivered to the Secretary within ten days after the date of delivery of the Special Meeting Request to the Secretary) that the beneficial owners on whose behalf the Special Meeting Request is made had, together with any Requesting Shareholders who are beneficial owners, Net Long Beneficial Ownership of the Requisite Percentage as of the date of delivery of such Special Meeting Request to the Secretary and as of the business day immediately preceding the special meeting. In addition, the Requesting Shareholders on whose behalf the Special Meeting Request is being made shall (x) further update and supplement the information provided in the Special Meeting Request, if necessary, so that the information provided or required to be provided therein shall be true and correct as of the record date for the special meeting and as of the date that is ten business days prior to the date of the special meeting or any adjournment or postponement thereof, or, if there are fewer than ten business days between the date of the special meeting and such adjourned or postponed meeting, then as of the date of the special meeting so adjourned or postponed, and such update and supplement shall be delivered to, or mailed and received by, the Secretary at the principal executive offices of the corporation not later than five business days after the record date for notice of and voting at the special meeting (in the case of an update and supplement required to be made as of such record date), and not later than eight business days prior to the date of the special meeting or, if practicable, any adjournment or postponement thereof (and, if not practicable, on the first practicable date prior to the date to which the special meeting has been adjourned or postponed) (in the case of an update and supplement required to be made as of ten business days prior to the meeting or any adjournment or postponement thereof) and (y) promptly provide any other information reasonably requested by the corporation.

(ii) A Special Meeting Request shall not be valid, and a special meeting requested by shareholders shall not be held, if (A) the Special Meeting Request does not comply with this Section 1.2(b); (B) the Special Meeting Request relates to an item of business that is not a proper subject for shareholder action under applicable law; (C) the Special Meeting Request is delivered during the period commencing 120 days prior to the first anniversary of the date of the immediately preceding annual meeting of Shareholders and ending on the earlier of (x) the date of the next annual meeting or (y) 30 days after the first anniversary of the date of the previous annual meeting; (D) an identical or substantially similar item (as determined in good faith by the Board, a "Similar Item"), other than the election of directors, (1) was presented at an annual or special meeting of Shareholders held not more than 12 months before delivery of the Special Meeting Request or (2) is included in the corporation's notice of meeting as an item of business to be brought before an annual or special meeting of shareholders that has been called but not yet held or that is called for a date within 120 days of the receipt by the corporation of a Special Meeting Request; (E) a proposed item of business involves the election or removal of directors, changing the size of the Board, the filling of vacancies and/or newly created directorships resulting from any increase in the authorized number of directors or any similar matter (as determined in good faith by the Board, an "Election Item") and any Election Item (1) was presented at an annual or special meeting of Shareholders held not more than 120 days before delivery of the Special Meeting Request or (2) is included in the corporation's notice of meeting as an item of business to be brought before an annual or special meeting of Shareholders that has been called but not yet held or that is called for a date within 120 days of the receipt by the corporation of a Special Meeting Request; or (F) the Special Meeting Request was made in a manner that involved a violation of Regulation 14A under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or other applicable law.

(iii) The Requesting Shareholders may revoke a Special Meeting Request by written revocation delivered to the Secretary at the principal executive offices of the corporation at any time prior to the special meeting. If, following such revocation (or any deemed revocation pursuant to clause (F) of Section 1.2(b)(i)), there are unrevoked requests from Requesting Shareholders holding in the aggregate less than the Requisite Percentage (or there are no unrevoked requests at all), the Board, in its discretion, may cancel the special meeting.

(iv) If none of the Requesting Shareholders appears or sends a qualified representative to present the business specified in the Special Meeting Request to be presented for consideration, the corporation need not present such business for a vote at the special meeting, notwithstanding that proxies in respect of such business may have been received by the corporation.

(v) Business transacted at any special meeting called pursuant to this Section 1.2(b) shall be limited to (A) the purpose(s) stated in a valid Special Meeting Request received from the Requesting Shareholders holding in the aggregate the Requisite Percentage and (B) any additional matters that the Board determines to include in the corporation's notice of the special meeting.

(vi) For the purposes of this Section 3(b), the following definitions shall apply:

An "Affiliate" of a person shall mean another person that, directly or indirectly through one of more intermediaries, controls, is controlled by or is under common control with such person.

An "Associate" of a person shall mean (i) any corporation or organization (other than a majority-owned subsidiary of such person) of which such person is an officer or partner or is, directly or indirectly, the beneficial owner of ten percent or more of any class of equity securities; (ii) any trust or other estate in which such person has a substantial beneficial interest or as to which such person serves as trustee or in a similar fiduciary capacity; and (iii) any relative or spouse of such person, or any relative of such spouse, who has the same home as such person or who is a director or officer of the corporation or any of its parents or subsidiaries.

"Net Long Beneficial Ownership" (and its correlative terms), when used to describe the nature of a person's ownership of common stock of the corporation, shall mean the shares of stock of the corporation that such person or, if such person is a nominee, custodian or other agent that is holding the shares on behalf of another person (the "beneficial owner"), that such beneficial owner would then be deemed to own pursuant to Rule 200(b) under the Exchange Act (as such Rule is in effect on the date on which the Bylaws are first amended to include this Section 1.12(b)), excluding, at any time, any shares as to which such Shareholder or beneficial owner, as the case may be, does not then have the right to vote or direct the vote and excluding, at any time, any shares as to which such person or beneficial owner (or any Affiliate or Associate of such person or beneficial owner), as the case may be, had directly or indirectly entered into (or caused to be entered into) and not yet terminated a derivative or other agreement, arrangement or understanding that hedges or transfers, in whole or in part, directly or indirectly, any of the economic consequences of ownership of such shares, and further subtracting from any person's ownership of shares at any time such person's (and such person's Affiliates' and Associates') "short position" (as defined pursuant to Rule 14e-4(a) under the Exchange Act) (as such Rule is in effect on the date on which the By-Laws are first amended to include this Section 3(b)), all as the Board shall determine in good faith. The Board shall determine in good faith whether all requirements set forth in this Section 1.2(b) have been satisfied and such determination shall be binding on the corporation and its Shareholders.

The following new Paragraph 1.12 shall be added to the end of Article 1 of the Amended and Restated Bylaws of the Company:

### 1.12 Shareholder Proposals and Nominations at Annual Meetings.

(a) At an annual meeting of the Shareholders, no proposal for a Shareholder vote (other than a proposal that appears in the corporation's proxy statement after compliance with the procedures set forth in Securities and Exchange Commission Rule 14a-8 or any successor provision) shall be submitted by a Shareholder (a "Shareholder Proposal") to the corporation's Shareholders unless the Shareholder submitting such proposal (the "Proponent") shall have filed a written notice setting forth with particularity:

(i) the names and business addresses of the Proponent and all natural persons, corporations, partnerships, trusts or any other type of legal entity or recognized ownership vehicle (collectively, a "Person") acting in concert with the Proponent, including any beneficial owner on whose behalf the proposal is being made;

(ii) the name and address of the Proponent and the Persons identified in clause (i), if any, as they appear on the corporation's books;

(iii) the class and number of shares of the corporation which are, directly or indirectly, beneficially owned by the Proponent and by each Person identified in clause (i);

(iv) a brief description of the business desired to be brought before the meeting, the text of the proposal or business (including the text of any resolutions proposed for consideration and in the event that such business includes a proposal to amend these Bylaws, the language of the proposed amendment), the reasons for conducting such business at the meeting and any material interest in such business of such Proponent and each Person identified in clause (i), if any;

(v) whether and the extent to which any hedging or other transaction has been entered into by or on behalf of such Shareholder with respect to the stock of the corporation and whether and the extent to which any other transaction, agreement, arrangement or understanding (including any derivative or short positions, profit interests, options, warrants, stock appreciation or similar rights or borrowing or lending shares of stock) has been made by or on behalf of such Shareholder, the effect or intent of any of the foregoing being to manage the risk or benefit of share price changes in the stock price of the corporation for such person or to increase or decrease the voting power or pecuniary or economic interest of such person with respect to stock of the corporation; and

(vi) such other information as the Board reasonably determines is necessary or appropriate to enable the Board and Shareholders of the corporation to consider the Shareholder Proposal,

all such information (A) is to be provided as of the date of such notice, including, without limitation, any such interests held by members of the immediate family (sharing the same household) of such Proponent and such Person identified in clause (i), if any, and (B) shall be supplemented by such Proponent and such Person identified in clause (i), if any, not later than ten (10) days after the record date for the meeting to disclose such ownership as of the record date.

Such notice also shall include a representation (A) that such Proponent is a holder of record of capital stock of the corporation entitled to vote at such meeting, (B) that such Proponent intends to appear in person or by proxy at the annual meeting to bring such business before the meeting, (C) that such Proponent will notify the corporation in writing of the number of shares of capital stock of the corporation owned of record and beneficially by such Proponent and such Person identified in clause 1.12(a)(i), if any, as of the record date for the annual meeting within five (5) business days following the later of the record date or the date notice of the record date is first publicly disclosed, and (D) as to whether such Proponent and such Person identified in clause 1.12(a)(i), if any, intends or is part of a group which intends (1) to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the corporation's outstanding capital stock required to adopt or approve the proposal and/or (2) otherwise to solicit proxies from Shareholders in support of such proposal.

(b) If the Proponent does not appear or send a qualified representative to present the nomination proposal at the relevant annual meeting, the corporation need not present such proposal for a vote at such meeting, notwithstanding that proxies in respect of such vote may have been received by the corporation. The presiding officer at any Shareholders' meeting may determine that any Shareholder Proposal was not made in accordance with the procedures prescribed in these Bylaws or is otherwise not in accordance with law, and if it is so determined, such officer shall so declare at the meeting and the Shareholder Proposal shall be disregarded.

(c) In addition to any other applicable requirements, only persons who are selected and recommended by the Board or the committee of the Board designated to make nominations, or who are nominated by Shareholders in accordance with the procedures set forth in this Section 1.12, shall be eligible for election, or qualified to serve, as directors. Nominations of individuals for election to the Board at any annual meeting or any special meeting of Shareholders at which directors are to be elected may be made by any Shareholder of the corporation entitled to vote for the election of directors at that meeting by compliance with the procedures set forth in this Section 1.12. Nominations by Shareholders shall be made by written notice (a "Nomination Notice"), which shall set forth:

(i) As to the Shareholder and the beneficial owner, if any, on whose behalf a nomination is made (A) the name and record address of such Shareholder, as they appear on the corporation's books, and of such beneficial owner, if any, (B) the class or series and number of shares of capital stock of the corporation which are, directly or indirectly, owned beneficially or of record by such Shareholder and such beneficial owner, if any, (C) whether and the extent to which any hedging or other transaction has been entered into by or on behalf of such person with respect to the stock of the corporation and whether and the extent to which any other transaction, agreement, arrangement or understanding (including any derivative or short positions, profit interests, options, warrants, stock appreciation or similar rights or borrowing or lending shares of stock) has been made by or on behalf of such person, the effect or intent of any of the foregoing being to manage the risk or benefit of share price changes in the stock price of the corporation for such person or to increase or decrease the voting power or pecuniary or economic interest of such person with respect to stock of the corporation; (D) a description of all agreements, arrangements or understandings (whether written or oral) between or among such persons pursuant to which the nomination(s) are to be made by the Shareholder and any relationship between or among the Shareholder giving notice and the beneficial owner, if any, on the one hand, and each proposed nominee, on the other hand, and (E) all other information relating to such Shareholder and such beneficial owner, if any, that would be required to be disclosed, whether in a proxy statement, other filings required to be made in connection with solicitations of proxies for election of directors in a contested election, or otherwise, in each case pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder;

(ii) As to each person whom the Shareholder proposes to nominate for election or reelection as a director at such meeting (A) all information relating to such person that would be required to be disclosed, whether in a proxy statement, other filings required to be made in connection with solicitations of proxies for election of directors in a contested election, or otherwise, in each case pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder, (B) such person's written consent to being named in the proxy statement as a nominee and to serving as a director if elected and a statement whether such person, if elected, intends to tender, promptly following such person's election or reelection, an irrevocable resignation effective upon such person's failure to receive the required vote for reelection at the next meeting at which such person would face reelection and upon acceptance of such resignation by the Board, (C) a description of all direct and indirect compensation and other material monetary agreements, arrangements and understandings during the past three (3) years, and any other material relationships, between or among such Shareholder and beneficial owner, if any, and their respective Affiliates and Associates, or any other person or persons (including their names) acting in concert therewith, on the one hand, and each proposed nominee, and his or her respective Affiliates and Associates, or any other person or persons (including their names) acting in concert therewith, on the other hand, including, without limitation, all information that would be required to be disclosed pursuant to Item 404 promulgated under Regulation S-K if the Shareholder making the nomination and any beneficial owner on whose behalf the nomination is made, if any, or any Affiliate or Associate thereof or person acting in concert therewith, were the "registrant" for purposes of such rule and the nominee were a director or executive officer of such registrant, (D) any information that such person would be required to disclose pursuant to clause (i) of this sentence if such person were a Shareholder making a nomination, and (E) an undertaking from such nominee to notify the corporation in writing of any change in the information called for by the foregoing clauses (A), (B), (C) and (D) as of the record date for such meeting, by notice received by the Secretary at the principal executive offices of the corporation not later than the tenth (10th) day following such record date;

(iii) an undertaking by the Shareholder and beneficial owner, if any, to notify the corporation in writing of any change in the information called for by clauses (i) and (ii) as of the record date for such meeting, by notice received by the Secretary at the principal executive offices of the corporation not later than the tenth (10th) day following such record date; and

(iv) a representation (A) that the Shareholder is a holder of record of stock of the corporation entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to propose such business or nomination and (B) whether the Shareholder or the beneficial owner, if any, intends or is part of a group which intends (x) to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the corporation's outstanding capital stock required to approve or adopt the proposal or elect the nominee and/or (y) otherwise to solicit proxies or votes from the Shareholders in support of such proposal or nomination.

(d) The corporation may require any proposed nominee to furnish such other information as may reasonably be required by the corporation to determine whether such proposed nominee meets the criteria set forth in the corporation's Corporate Governance Guidelines to serve as a director of the corporation, including with regard to the independence of such proposed nominee. At the request of the corporation, the proposed nominee must submit all completed and signed questionnaires required of the corporation's directors and officers.

(f) If the nominating Shareholder does not appear or send a qualified representative to present the nomination proposal at the relevant meeting, the corporation need not present such proposal for a vote at such meeting, notwithstanding that proxies in respect of such vote may have been received by the corporation. If the presiding officer at any Shareholders' meeting determines that a nomination was not made in accordance with the procedures prescribed by these Bylaws, he shall so declare to the meeting and the defective nomination shall be disregarded. A Shareholder seeking to nominate a person to serve as a director must also comply with all applicable requirements of the Exchange Act, and the rules and regulations thereunder with respect to the matters set forth in this section.

(g) If a Shareholder Proposal or Nomination Notice is to be submitted at an annual Shareholders' meeting, it shall be delivered to, or mailed and received by, the Secretary of the corporation at the principal executive office of the corporation no later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the anniversary of the date of the immediately preceding annual meeting of Shareholders; provided, however, that in the event that the date of the annual meeting is advanced by more than thirty (30) days or delayed (other than as a result of adjournment) by more than sixty (60) days from the anniversary date of the immediately preceding annual meeting of Shareholders, a Shareholder Proposal or Nomination Notice must be so received no later than the close of business on the later of the ninetieth (90th) day prior to such annual meeting or the tenth (10th) day following the day on which public announcement of the date of such meeting is first made. If the Board has determined that directors are to be elected at a special meeting, and one or more director elections are included in the corporation's notice of meeting, in order to be timely, any Nomination Notice submitted for such special meeting of the Shareholders must be delivered to, or mailed and received by, the Secretary of the corporation at the principal executive office of the corporation not more than 120 days prior to the date of the meeting and not later than the close of business on the later of the 90th day prior to the meeting or the 10th day following the last to occur of (i) the day on which public disclosure of the date of such special meeting was first made by the corporation and (ii) the day on which public disclosure the nominees proposed by the Board to be elected at such meeting was first made by the corporation.

**Exhibit 10.1**

**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 July 25, 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 July 25, 2019.

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

**ASTEC INDUSTRIES, INC.**

Date: July 25, 2019

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

**“Appendix A”**

**Each Participant’s Date of Participation**

<b><u>Name of Participant</u></b>	<b><u>Effective Dates of Participation</u></b>
Tim Gonigam	August 1, 2000
Stephen C. Anderson	January 1, 2003
Richard Dorris	January 3, 2005
David C. 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
John Irvine	April 28, 2016
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
Robert Kilgore	August 2, 2018
Greg Renegar	January 1, 2019
Vince Trotta	April 15, 2019
Barry Ruffalo	August 12, 2019

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

I, Richard J. Dorris, certify that:

1. I have reviewed this quarterly report on Form 10-Q 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: August 7, 2019

/s/Richard J. Dorris  
Richard J. Dorris  
Interim CEO 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, David C. Silvious, certify that:

1. I have reviewed this quarterly report on Form 10-Q 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: August 7, 2019

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

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

In connection with the Quarterly Report of Astec Industries, Inc. (the "Company") on Form 10-Q for the period ended June 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Richard J. Dorris and David C. Silvius, certify, pursuant to Rule 13a-14(b)/15d-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

/s/ Richard J. Dorris

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Richard J. Dorris  
Interim CEO and President  
(Principal Executive Officer)  
August 7, 2019

/s/ David C. Silvius

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David C. Silvius  
Chief Financial Officer, Vice President and Treasurer  
(Principal Financial Officer)  
August 7, 2019