

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 March 31, 2019

OR

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

For the transition period from _____ to _____

Commission File Number **001-11595**

Astec Industries, Inc.

(Exact name of registrant as specified in its charter)

Tennessee

(State or other jurisdiction of
incorporation or organization)

62-0873631

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

1725 Shepherd Road, Chattanooga, Tennessee

(Address of principal executive offices)

37421

(Zip Code)

(423) 899-5898

(Registrant's telephone number, including area code)

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

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

Title of each Class	Trading Symbol	Name of each exchange on which registered
Common Stock	ASTE	NASDAQ

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 May 1, 2019
22,530,632

PART I - Financial Information

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Condensed Consolidated Statements of Comprehensive Income for the Three Months Ended March 31, 2019 and 2018

Condensed Consolidated Statements of Cash Flows for the Three Months Ended March 31, 2019 and 2018

Condensed Consolidated Statements of Equity for the Three Months Ended March 31, 2019 and 2018

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PART I – FINANCIAL INFORMATION
Item 1. Financial Statements

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

ASSETS	March 31, 2019	December 31, 2018
Current assets:		
Cash and cash equivalents	\$ 28,606	\$ 25,821
Investments	1,589	1,946
Trade receivables	133,431	130,569
Other receivables	3,780	3,409
Inventories	366,835	355,944
Prepaid income taxes	23,918	24,459
Prepaid expenses and other	17,914	18,843
Total current assets	<u>576,073</u>	<u>560,991</u>
Property and equipment, net	192,143	192,448
Investments	14,973	14,890
Operating lease right-of-use assets	4,335	--
Goodwill	33,067	32,748
Deferred income tax assets	23,543	27,490
Other long-term assets	28,171	26,890
Total assets	<u>\$ 872,305</u>	<u>\$ 855,457</u>
	LIABILITIES AND EQUITY	
Current liabilities:		
Current maturities of long-term debt	\$ 279	\$ 413
Accounts payable	76,451	70,614
Customer deposits	43,300	48,069
Accrued product warranty	11,051	10,928
Accrued payroll and related liabilities	19,160	24,126
Accrued loss reserves	2,071	1,832
Other current liabilities	38,481	33,249
Total current liabilities	<u>190,793</u>	<u>189,231</u>
Long-term debt	56,629	59,709
Deferred income tax liabilities	1,004	1,020
Other long-term liabilities	24,613	20,207
Total liabilities	<u>273,039</u>	<u>270,167</u>
Shareholders' equity	598,619	584,580
Non-controlling interest	647	710
Total equity	<u>599,266</u>	<u>585,290</u>
Total liabilities and equity	<u>\$ 872,305</u>	<u>\$ 855,457</u>

See Notes to Unaudited Condensed Consolidated Financial Statements

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

	Three Months Ended March 31,	
	2019	2018
Net sales	\$ 325,780	\$ 325,453
Cost of sales	249,254	247,448
Gross profit	76,526	78,005
Selling, general, administrative and engineering expenses	58,348	52,078
Income from operations	18,178	25,927
Interest expense	(648)	(150)
Other income, net of expenses	468	461
Income from operations before income taxes	17,998	26,238
Income tax provision	3,781	6,022
Net income	14,217	20,216
Net loss attributable to non-controlling interest	57	51
Net income attributable to controlling interest	\$ 14,274	\$ 20,267
Earnings per common share		
Net income attributable to controlling interest:		
Basic	\$ 0.63	\$ 0.88
Diluted	\$ 0.63	\$ 0.87
Weighted average number of common shares outstanding:		
Basic	22,498	23,045
Diluted	22,646	23,236
Dividends declared per common share	\$ 0.11	\$ 0.10

See Notes to Unaudited Condensed Consolidated Financial Statements

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

	Three Months Ended March 31,	
	2019	2018
Net income	\$ 14,217	\$ 20,216
Other comprehensive income:		
Foreign currency translation adjustments	963	1,712
Change in unrecognized pension benefit cost	--	65
Other comprehensive income	963	1,777
Comprehensive income	15,180	21,993
Comprehensive loss attributable to non-controlling interest	59	48
Comprehensive income attributable to controlling interest	\$ 15,239	\$ 22,041

See Notes to Unaudited Condensed Consolidated Financial Statements

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

	Three Months Ended March 31,	
	2019	2018
Cash flows from operating activities:		
Net income	\$ 14,217	\$ 20,216
Adjustments to reconcile net income to net cash provided (used)		
by operating activities:		
Depreciation and amortization	6,551	7,013
Provision (credit) for doubtful accounts	56	(82)
Provision for warranties	2,746	3,453
Deferred compensation expense (benefit)	411	(166)
Stock-based compensation	1,038	903
Deferred income tax provision	3,931	86
(Gain) loss on disposition of fixed assets	251	(48)
Distributions to SERP participants	(312)	(124)
Change in operating assets and liabilities:		
Sale (purchase) of trading securities, net	1,044	(108)
Trade and other receivables	(3,809)	(33,744)
Inventories	(10,891)	(19,780)
Prepaid expenses and other assets	1,156	(3,098)
Accounts payable	3,970	9,293
Accrued payroll and related expenses	(4,966)	(3,929)
Accrued product warranty	(2,643)	(2,825)
Customer deposits	(4,769)	2,138
Prepaid and income taxes payable, net	594	6,468
Other	3,412	2,013
Net cash provided (used) by operating activities	11,987	(12,321)
Cash flows from investing activities:		
Expenditures for property and equipment	(3,723)	(5,011)
Proceeds from sale of property and equipment	40	59
Other	(91)	(393)
Net cash used by investing activities	(3,774)	(5,345)
Cash flows from financing activities:		
Payment of dividends	(2,478)	(2,308)
Borrowings under bank loans	64,862	--
Repayments of bank loans	(68,075)	(643)
Sale of Company shares held by SERP	263	376
Withholding tax paid upon vesting of restricted stock units	(160)	(364)
Net cash used by financing activities	(5,588)	(2,939)
Effect of exchange rates on cash	160	265
Net change in cash and cash equivalents	2,785	(20,340)
Cash and cash equivalents, beginning of period	25,821	62,280
Cash and cash equivalents, end of period	\$ 28,606	\$ 41,940

See Notes to Unaudited Condensed Consolidated Financial Statements

Astec Industries, Inc.
Condensed Consolidated Statements of Equity
For the Three Months Ended March 31, 2019 and 2018
(in thousands)
(unaudited)

For the Three Months Ended March 31, 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	--	--	--	--	--	14,274	(57)	14,217
Other comprehensive income	--	--	--	963	--	--	--	963
Dividends declared	--	--	3	--	--	(2,481)	--	(2,478)
Stock-based compensation	1	--	1,177	--	--	--	--	1,177
RSU vesting	9	2	(2)	--	--	--	--	--
Withholding tax paid upon vesting of RSUs	--	--	(160)	--	--	--	--	(160)
Cumulative impact of No. ASU 2018-02	--	--	--	(721)	--	721	--	--
SERP transactions, net	--	--	46	--	217	--	--	263
Other	--	--	--	--	--	--	(6)	(6)
Balance, March 31, 2019	22,523	\$ 4,505	\$ 121,665	\$ (33,641)	\$ (1,669)	\$ 507,759	\$ 647	\$ 599,266

For the Three Months Ended March 31, 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 income	--	--	--	--	--	20,267	(51)	20,216
Other comprehensive income	--	--	--	1,777	--	--	--	1,777
Change in ownership percentage of subsidiary	--	--	--	--	--	--	(43)	(43)
Dividends declared	--	--	3	--	--	(2,311)	--	(2,308)
Stock-based compensation	--	--	1,581	--	--	--	--	1,581
Stock issued under incentive plans	17	3	(3)	--	--	--	--	--
Withholding tax paid upon vesting of RSUs	--	--	(364)	--	--	--	--	(364)
SERP transactions, net	--	--	207	--	169	--	--	376
Other	--	--	--	--	--	--	76	76
Balance, March 31, 2018	23,087	\$ 4,617	\$ 143,355	\$ (22,466)	\$ (1,791)	\$ 583,286	\$ 1,075	\$ 708,076

See Notes to Unaudited Condensed Consolidated Financial Statements

ASTEC 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-month period ended March 31, 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.

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 three months ended March 31, 2019.

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

Note 2. Earnings per Share

Basic earnings per share are determined by dividing earnings 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 attributable to controlling interest and the number of basic and diluted shares used in the computation of earnings per share:

	Three Months Ended March 31,	
	2019	2018
Numerator:		
Net income attributable to controlling interest	\$ 14,274	\$ 20,267
Denominator:		
Denominator for basic earnings per share	22,498	23,045
Effect of dilutive securities:		
Restricted stock units	100	136
Supplemental Executive Retirement Plan	48	55
Denominator for diluted earnings per share	22,646	23,236

Note 3. Receivables

Receivables are net of allowances for doubtful accounts of \$1,183 and \$1,184 as of March 31, 2019 and December 31, 2018, respectively.

Note 4. Inventories

Inventories consist of the following:

	March 31, 2019	December 31, 2018
Raw materials and parts	\$ 181,982	\$ 173,919
Work-in-process	70,327	69,718
Finished goods	90,583	89,152
Used equipment	23,943	23,155
Total	<u>\$ 366,835</u>	<u>\$ 355,944</u>

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 \$257,402 and \$254,493 as of March 31, 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 condensed 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, revolving debt, 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 March 31, 2019 and December 31, 2018 are Level 1 and Level 2 in the fair value hierarchy as defined above:

	March 31, 2019		
	Level 1	Level 2	Total
Financial Assets:			
Trading equity securities:			
SERP money market fund	\$ 452	\$ --	\$ 452
SERP mutual funds	5,127	--	5,127
Preferred stocks	266	--	266
Trading debt securities:			
Corporate bonds	4,371	--	4,371
Municipal bonds	--	1,301	1,301
Floating rate notes	1,356	--	1,356
U.S. government securities	2,227	--	2,227
Asset backed securities	--	428	428
Other	--	1,034	1,034
Derivative financial instruments	--	147	147
Total financial assets	<u>\$ 13,799</u>	<u>\$ 2,910</u>	<u>\$ 16,709</u>
Financial Liabilities:			
SERP liabilities	\$ --	\$ 7,387	\$ 7,387
Total financial liabilities	<u>\$ --</u>	<u>\$ 7,387</u>	<u>\$ 7,387</u>
	December 31, 2018		
	Level 1	Level 2	Total
Financial Assets:			
Trading equity securities:			
SERP money market fund	\$ 229	\$ --	\$ 229
SERP mutual funds	4,755	--	4,755
Preferred stocks	248	--	248
Trading debt securities:			
Corporate bonds	5,398	--	5,398
Municipal bonds	--	1,546	1,546
Floating rate notes	1,300	--	1,300
U.S. government securities	2,210	--	2,210
Asset backed securities	--	442	442
Other	--	708	708
Derivative financial instruments	--	333	333
Total financial assets	<u>\$ 14,140</u>	<u>\$ 3,029</u>	<u>\$ 17,169</u>
Financial Liabilities:			
SERP liabilities	\$ --	\$ 6,641	\$ 6,641
Total financial liabilities	<u>\$ --</u>	<u>\$ 6,641</u>	<u>\$ 6,641</u>

The Company reevaluates the volume of trading activity for each of its investments at the end of each quarter and adjusts the level within the fair value hierarchy as needed. No investments changed hierarchy levels from December 31, 2018 to March 31, 2019.

The trading equity investments noted above are valued at their fair value based on their quoted market prices, and the 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. Upon disposition of the wood pellet plant, the Company is required to apply the proceeds, if any, as payment against any outstanding balance on the line of credit. Other significant terms were left unchanged. As of March 31, 2019, outstanding borrowings under the agreement totaled \$55,758, 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 three-month period ended March 31, 2019 was \$81,776. Letters of credit totaling \$9,481, 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 March 31, 2019. Additional borrowing available under the credit facility is \$84,761 as of March 31, 2019. Borrowings under the agreement are subject to an interest rate equal to the daily one-month LIBOR rate plus a 0.75% margin, resulting in a rate of 3.25% as of March 31, 2019. The unused facility fee is 0.125%. Interest only payments are due monthly. The amended and restated credit agreement contains certain financial covenants, including provisions concerning required levels of annual net income and minimum tangible net worth.

The Company’s South African subsidiary, Osborn Engineered Products SA (Pty) Ltd (“Osborn”), has a credit facility of \$6,544 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 March 31, 2019, Osborn had no outstanding borrowings but had \$461 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 March 31, 2019, Osborn had available credit under the facility of \$6,083. The interest rate is 0.25% less than the South Africa prime rate, resulting in a rate of 10.0% as of March 31, 2019.

The Company’s Brazilian subsidiary, Astec Brazil, has a \$1,084 working capital loan outstanding as of March 31, 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 \$66 as of March 31, 2019 that have interest rates ranging from 6.0% to 16.3%. These equipment loans have maturity dates ranging from April 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 (\$279) and long-term debt (\$871) as of March 31, 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-month periods ended March 31, 2019 and 2018 are as follows:

	Three Months Ended March 31,	
	2019	2018
Reserve balance, beginning of the period	\$ 10,928	\$ 15,410
Warranty liabilities accrued	2,746	3,453
Warranty liabilities settled	(2,643)	(2,825)
Other	20	(25)
Reserve balance, end of the period	<u>\$ 11,051</u>	<u>\$ 16,013</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 \$8,301 as of March 31, 2019 and \$7,889 as of December 31, 2018, of which \$6,230 and \$6,057 were included in other long-term liabilities in the accompanying unaudited condensed consolidated balance sheets as of March 31, 2019 and December 31, 2018, respectively.

Note 10. Leases

The Company leases certain real estate, computer systems, material handling, office, automobiles and other equipment. The Company determines if a contract is a 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 \$4,973 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 1 to 20 years. Operating leases with original maturities less than one year in duration or with present values of less than \$5 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 an extensive contract review and related calculations, none of the Company's leases were deemed to be financing leases. Lease expense recorded in the three-month period ended March 31, 2019 under ASC 842 was not materially different from lease expense that would have been recorded under the previous lease accounting standard. Other transitional practical expedients allowed under ASU No. 2016-02 were adopted.

Other information concerning the Company's operating leases and the related expense, assets and liabilities follow:

	Three Months Ended March 31, 2019
Operating lease expense for the three months ended March 31, 2019	\$ 601
Cash paid for operating leases included in operating cash flows	645

	As of March 31, 2019
Operating lease right-of-use asset	\$ 4,335
Operating lease short-term liability included in other current liabilities	1,824
Operating lease long-term liability included in other long-term liabilities	2,529
Weighted average remaining lease term	4.86 years
Weighted average discount rate used in calculating right-of-use asset	4.11%

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

	Amount
2019 (nine months remaining)	\$ 1,628
2020	1,175
2021	631
2022	331
2023	168
2024 and thereafter	891
Total	\$ 4,824

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
Total	\$ 3,702

Note 11. Income Taxes

The Company's combined effective income tax rates were 21.0% and 23.0% for the three-month periods ended March 31, 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 March 31, 2019 has increased by approximately \$49 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-month periods ended March 31, 2019 and 2018 (excluding intercompany sales):

	Three Months Ended March 31, 2019			
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Total
Net Sales-Domestic:				
Equipment sales	\$ 79,364	\$ 55,204	\$ 39,731	\$ 174,299
Parts and component sales	42,191	19,159	12,308	73,658
Service and equipment installation revenue	3,231	625	1,543	5,399
Used equipment sales	1,493	413	1,270	3,176
Freight revenue	3,830	1,595	1,570	6,995
Other	437	(1,281)	146	(698)
Total domestic revenue	130,546	75,715	56,568	262,829
Net Sales-International:				
Equipment sales	16,452	19,049	4,962	40,463
Parts and component sales	6,273	10,178	2,492	18,943
Service and equipment installation revenue	1,364	391	33	1,788
Used equipment sales	110	466	--	576
Freight revenue	240	668	183	1,091
Other	9	64	17	90
Total international revenue	24,448	30,816	7,687	62,951
Total net sales	\$ 154,994	\$ 106,531	\$ 64,255	\$ 325,780

	Three Months Ended March 31, 2018			
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Total
Net Sales-Domestic:				
Equipment sales	\$ 85,518	\$ 63,494	\$ 36,731	\$ 185,743
Parts and component sales	41,113	17,834	11,315	70,262
Service and equipment installation revenue	1,928	326	2,096	4,350
Used equipment sales	1,624	1,410	167	3,201
Freight revenue	4,038	1,808	1,332	7,178
Other	265	(1,036)	113	(658)
Total domestic revenue	134,486	83,836	51,754	270,076
Net Sales-International:				
Equipment sales	5,914	22,327	4,762	33,003
Parts and component sales	5,062	10,289	2,473	17,824
Service and equipment installation revenue	812	311	--	1,123
Used equipment sales	503	856	--	1,359
Freight revenue	256	1,331	264	1,851
Other	61	117	39	217
Total international revenue	12,608	35,231	7,538	55,377
Total net sales	\$ 147,094	\$ 119,067	\$ 59,292	\$ 325,453

Sales into major geographic regions were as follows:

	Three Months Ended March 31,	
	2019	2018
United States	\$ 262,829	\$ 270,076
Canada	22,993	14,109
Australia	8,813	5,967
Africa	7,091	10,041
South America	7,054	8,867
Europe	6,490	10,461
Central America	3,549	3,553
China, Japan & Korea	2,140	656
Asia (excl. China, Japan & Korea)	2,131	844
West Indies	1,378	109
Middle East	851	630
Other	461	140
Total foreign	62,951	55,377
Total consolidated sales	\$ 325,780	\$ 325,453

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”), GEFCO, Inc. (“GEFCO”), 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 March 31, 2019				
	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Net sales to external customers	\$ 154,994	\$ 106,531	\$ 64,255	\$ --	\$ 325,780
Intersegment sales	2,071	4,757	7,021	--	13,849
Gross profit (loss)	35,506	25,545	15,479	(4)	76,526
Gross profit percent	22.9%	24.0%	24.1%	--	23.5%
Segment profit (loss)	\$ 15,238	\$ 8,678	\$ 3,394	\$ (13,470)	\$ 13,840

Three Months Ended March 31, 2018

	Infrastructure Group	Aggregate and Mining Group	Energy Group	Corporate	Total
Net sales to external customers	\$ 147,094	\$ 119,067	\$ 59,292	\$ --	\$ 325,453
Intersegment sales	8,271	3,906	5,139	--	17,316
Gross profit	33,280	29,289	15,286	150	78,005
Gross profit percent	22.6%	24.6%	25.8%	--	24.0%
Segment profit (loss)	\$ 14,852	\$ 13,110	\$ 4,611	\$ (11,248)	\$ 21,325

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

	Three Months Ended March 31,	
	2019	2018
Total segment profit	\$ 13,840	\$ 21,325
Recapture (elimination) of intersegment profit	377	(1,109)
Net income	14,217	20,216
Net loss attributable to non-controlling interest in subsidiaries	57	51
Net income attributable to controlling interest	\$ 14,274	\$ 20,267

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 \$2,646 at March 31, 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 \$1,362 related to these guarantees as of March 31, 2019.

In addition, the Company is contingently liable under letters of credit issued by a domestic lender totaling \$9,481 as of March 31, 2019, including \$3,200 of letters of credit guaranteeing certain Astec Brazil bank debt. The outstanding letters of credit expire at various dates through December 2020. As of March 31, 2019, the Company's foreign subsidiaries are contingently liable for a total of \$2,498 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 \$11,979 as of March 31, 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. The original customer is attempting to obtain financing to purchase the plant at a reduced price; however, the Company believes the ultimate consummation of the sale to this customer is uncertain. After considering the uncertainty of completing the sale to the existing customer; 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 late 2018.

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 13 and 24 RSUs vested during the three-month periods ended March 31, 2019 and 2018, respectively. The Company withheld 4 and 7 shares due to statutory payroll tax withholding requirements upon the vesting of the RSUs during each of the first three-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 three months of 2019 and 2018 was \$509 and \$1,412, respectively. The grant date fair value of the RSUs granted during the first three months of 2019 and 2018 was \$1,448 and \$3,098, respectively. Compensation expense of \$887 and \$752 was recorded in the three-month periods ended March 31, 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-month periods ended March 31, 2019 and 2018 is presented below:

	Three Months Ended March 31,	
	2019	2018
Interest income	\$ 275	\$ 214
Gain (loss) on investments	149	(103)
Other	44	350
Total	<u>\$ 468</u>	<u>\$ 461</u>

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 income 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 \$10,116 during the three-month period ended March 31, 2019. The Company reported \$147 and \$333 of derivative assets in other current assets at March 31, 2019 and December 31, 2018, respectively. The Company recognized, as a component of cost of sales, a net loss of \$76 and a net gain of \$187 on the changes in fair value of derivative financial instruments in the three-month periods ended March 31, 2019 and 2018, respectively. There were no derivatives that were designated as hedges at March 31, 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 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 three months ended March 31, 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 May 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, and future rate increases are expected; however, the current Federal Funds Rate is still considered in the historically low range.

Significant portions of the Company’s revenues from the Infrastructure Group relate to the sale of equipment involved in the production, handling, recycling or application of asphalt mix. Liquid asphalt is a by-product of oil refining. An increase or decrease in the price of oil impacts the cost of asphalt, which is likely to alter demand for asphalt and therefore affect demand for certain Company products. While increasing oil prices may have a negative financial impact on many of the Company’s customers, the Company’s equipment can use a significant amount of recycled asphalt pavement, thereby partially mitigating the effect of increased oil prices on the final cost of asphalt for the customer. The Company continues to develop products and initiatives to reduce the amount of oil and related products required to produce asphalt. Oil price volatility makes it difficult to predict the costs of oil-based products used in road construction such as liquid asphalt and gasoline. Oil prices began rising in early 2016 and have continued to fluctuate. Fluctuations are expected to continue 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 has 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 were mostly stable, although at a higher level than in the prior year, during the first quarter of 2019, and the Company expects minimal changes in the next several months. 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 strengthening 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 is also assisting 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 2019 and thereafter.

Results of Operations

Net Sales

Net sales for the first quarter of 2019 were \$325,780 compared to \$325,453 for the first quarter of 2018, an increase of \$327 or 0.1%. Sales are generated primarily from new equipment and parts sales to domestic and international customers. Sales increased in the Infrastructure Group and the Energy Group but decreased in the Aggregate and Mining Group. Domestic sales for the first quarter of 2019 as compared to the first quarter of 2018 declined by 2.7%, due partially to weather related delays experienced by our customers at many of their job sites and similar delays at select Company manufacturing facilities. International sales in the first quarter of 2019 increased 13.7% as compared to the first quarter of 2018, partially attributable to improved global market conditions and the stabilization of the U.S. dollar in certain foreign markets, coupled with the Company's strategy of keeping its sales and service structure in place in international markets where future growth is anticipated. Sales reported by the Company's foreign subsidiaries in U.S. dollars for the first quarter of 2019 would have been \$3,399 higher had first quarter 2019 foreign exchange rates been the same as first quarter 2018 rates.

Domestic sales for the first quarter of 2019 were \$262,829 or 80.7% of consolidated net sales compared to \$270,076 or 83.0% of consolidated net sales for the first quarter of 2018, a decrease of \$7,247 or 2.7%. Domestic sales for the first quarter of 2019 as compared to the first quarter of 2018 increased by \$4,815 in the Energy Group but decreased \$8,122 in the Aggregate and Mining Group and \$3,940 in the Infrastructure Group.

International sales for the first quarter of 2019 were \$62,951 or 19.3% of consolidated net sales compared to \$55,377 or 17.0% of consolidated net sales for the first quarter of 2018, an increase of \$7,574 or 13.7%. International sales for the first quarter of 2019 as compared to the first quarter of 2018 increased \$11,840 in the Infrastructure Group and \$148 in the Energy Group but decreased by \$4,414 in the Aggregate and Mining Group. Increases in international sales in Canada, Australia, Japan, Asia and the West Indies were partially offset by decreases in sales in the Russia, Africa, and Brazil.

Parts sales for the first quarter of 2019 were \$92,601 compared to \$88,086 for the first quarter of 2018, an increase of \$4,515 or 5.1%. Parts sales as a percentage of net sales increased 130 basis points to 28.4% in the first quarter of 2019 compared to 27.1% in the first quarter of 2018. Parts sales increased \$2,289 in the Infrastructure Group, \$1,214 in the Aggregate and Mining Group and \$1,012 in the Energy Group.

Gross Profit

Consolidated gross profit decreased \$1,479 or 1.9% to \$76,526 for the first quarter of 2019 compared to \$78,005 for the first quarter of 2018. Gross profit as a percentage of sales decreased 50 basis points to 23.5% for the first quarter of 2019 compared to 24.0% for the first quarter of 2018 due primarily to a reduction in overhead absorption due to decreased production levels.

Selling, General, Administrative and Engineering Expenses

Selling, general, administrative and engineering expenses increased \$6,270 to \$58,348 or 17.9% of net sales for the first quarter of 2019, compared to \$52,078 or 16.0% of net sales for the first quarter of 2018. The overall increase was attributable to a \$6,227 increase in general and administrative expense (primarily \$2,899 increase in consulting fees/outside services, including the procurement and inventory level consulting services mentioned above; \$1,096 increase in accounting, legal and professional fees; \$600 increase in SERP and stock incentive plan expense; and \$537 increase in recruitment and relocation expenses) and a \$279 increase in engineering expenses, partially offset by a \$236 decrease in selling expenses.

Interest Expense

Interest expense for the first quarter of 2019 increased \$498 to \$648 from \$150 for the first quarter of 2018 due primarily to a \$562 increase in interest on borrowings on the Company's domestic line of credit.

Other Income, Net of Expenses

Other income, net of expenses was \$468 for the first quarter of 2019 compared to \$461 for the first quarter of 2018, an increase of \$7.

Income Tax Expense

The Company's combined effective income tax rate was 21.0% for the first quarter of 2019 compared to 23.0% for the first quarter of 2018. The decline in tax rates is primarily due to an increase in estimated research and development tax credits, and reductions in the impact of foreign rate differentials and the global intangible low-taxed income (GILTI) provisions of the Tax Cuts and Jobs Act of 2017.

Net Income

The Company had net income attributable to controlling interest of \$14,274 for the first quarter of 2019 compared to net income attributable to controlling interest of \$20,267 for the first quarter of 2018, a decrease of \$5,993 or 29.6%. Net income attributable to controlling interest per diluted share was \$0.63 for the first quarter of 2019 compared to \$0.87 for the first quarter of 2018, a decrease of \$0.24. Diluted shares outstanding for the quarters ended March 31, 2019 and 2018 were 22,646 and 23,236, 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 quarter of 2019.

Backlog

The backlog of orders as of March 31, 2019 was \$236,548 compared to \$444,927 as of March 31, 2018, a decrease of \$208,379 or 46.8%. Domestic backlogs decreased \$179,322 or 52.6% while international backlogs decreased \$29,057 or 28.0%. The decline in backlog was experienced by each of the segments (\$150,096 in the Infrastructure Group, including \$64,600 related to pellet plants; \$35,047 in the Aggregate and Mining Group; and \$23,236 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, the Company made limited employee headcount reductions during the first quarter of 2019 (from 4,401 employees at December 31, 2018 to 4,344 at March 31, 2019) and will continue to evaluate future staffing needs as sales and production levels dictate.

Segment Net Sales-Quarter:

	Three Months Ended		\$ Change	% Change
	March 31,			
	2019	2018		
Infrastructure Group	\$ 154,994	\$ 147,094	\$ 7,900	5.4%
Aggregate and Mining Group	106,531	119,067	(12,536)	(10.5)%
Energy Group	64,255	59,292	4,963	8.4%

Infrastructure Group: Sales in this group were \$154,994 for the first quarter of 2019 compared to \$147,094 for the same period in 2018, an increase of \$7,900 or 5.4%. Domestic sales for the Infrastructure Group decreased \$3,940 or 2.9% for the first quarter of 2019 compared to the same period in 2018 due primarily to decreases in mobile asphalt equipment sales. The Company believes the reduction in mobile asphalt equipment sales is due to competitive pricing pressures in the market and customers postponing orders due to weather related delays on their existing installation jobs. International sales for the Infrastructure Group increased \$11,840 or 93.9% for the first quarter of 2019 compared to the same period in 2018 due primarily to increases in asphalt plant sales. While first quarter international sales increased year over year, the group's international backlog decreased by \$19,273, or 57.5%, from March 31, 2018 to March 31, 2019. International sales increases between periods occurred primarily in Canada, Mexico, Australia, Europe and the West Indies, partially offset by a reduction in sales into Russia. Parts sales for the Infrastructure Group increased 5.0% for the first quarter of 2019 compared to the same period in 2018.

Aggregate and Mining Group: Sales in this group were \$106,531 for the first quarter of 2019 compared to \$119,067 for the same period in 2018, a decrease of \$12,536 or 10.5%. Domestic sales for the Aggregate and Mining Group decreased by \$8,121 or 9.7% for the first quarter of 2019 compared to the same period in 2018 due primarily to decreased sales into the Company's traditional rock quarry markets. International sales for the Aggregate and Mining Group decreased \$4,415 or 12.5% in the first quarter of 2019 compared to the same period in 2018. International sales decreases between periods occurred primarily in Africa, Mexico, Brazil and Europe, partially offset by sales increases in Canada and Asia. Parts sales for this group increased 4.3% for the first quarter of 2019 compared to the same period in 2018.

Energy Group: Sales in this group were \$64,255 for the first quarter of 2019 compared to \$59,292 for the same period in 2018, an increase of \$4,963 or 8.4%. Domestic sales for the Energy Group increased \$4,814 or 9.3% for the first quarter of 2019 compared to the same period in 2018 due primarily to increases in sales by GEFCO and Heatec, partially offset by a reduction in sales by Peterson. International sales for the Energy Group remained relatively flat when compared to the first quarter of 2018. Sales decreases occurring primarily in Canada and South America were offset by increased sales in Japan and Australia. Parts sales for this group increased 7.3% for the first quarter of 2019 compared to the same period in 2018.

Segment Profit (Loss):

	Three Months Ended			
	March 31,		\$ Change	% Change
	2019	2018		
Infrastructure Group	\$ 15,238	\$ 14,852	\$ 386	2.6%
Aggregate and Mining Group	8,678	13,110	(4,432)	(33.8)%
Energy Group	3,394	4,611	(1,217)	(26.4)%
Corporate	(13,470)	(11,248)	(2,222)	(19.8)%

Infrastructure Group: Segment profit for the Infrastructure Group was \$15,238 for the first quarter of 2019 compared to \$14,852 for the same period in 2018, an increase in earnings of \$386 or 2.6%. Segment profit was impacted by an increase in gross profits of \$2,226 due to a \$7,900 increase in sales between periods. The increased margins were partially offset by increases in intercompany profit eliminations (\$1,486) and general and administrative expenses (\$1,038). Gross margins remained relatively constant between periods at 22.9% and 22.6% for the first quarter of 2019 and 2018, respectively.

Aggregate and Mining Group: Segment profit for the Aggregate and Mining Group was \$8,678 for the first quarter of 2019 compared to \$13,110 for the same period in 2018, a decrease of \$4,432 or 33.8%. The decrease in segment profits between periods results from a decrease in gross profit of \$3,744 due primarily to decreased sales of \$12,536 between periods. Gross margins remained relatively constant between periods at 24.0% and 24.6% for the first quarter of 2019 and 2018, respectively. Segment profits were also negatively impacted by an increase in general and administrative expenses (\$1,292), partially offset by decreased engineering expenses (\$379).

Energy Group: Segment profit for the Energy Group was \$3,394 for the first quarter of 2019 compared to \$4,611 for the same period in 2018, a decrease of \$1,217 or 26.4%. Segment profits were favorably impacted by a \$193 increase in gross profit between periods resulting from increased gross profits due to an increase in sales of \$4,963, offset by the impact of a 170 basis point decrease in gross margin. The increased gross profits were offset by increases in general and administrative expenses (\$741) and engineering expenses (\$531).

Corporate: Corporate operations had a loss of \$13,470 for the first quarter of 2019 compared to a loss of \$11,248 for the first quarter of 2018, an unfavorable change of \$2,222 or 19.8%, due primarily to increases in general and administrative expenses (\$3,156, including \$440 related to the new start-up sales operation in Chile) and interest expense (\$537), partially offset by a reduction in income taxes (\$1,421).

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 \$28,606 of cash available for operating purposes as of March 31, 2019, of which \$24,333 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 March 31, 2019, the Company had \$55,758 borrowings outstanding under its revolving credit facility. Net of letters of credit totaling \$9,481, the Company had borrowing availability of \$84,761 under the revolving credit facility as of March 31, 2019. The revolving credit facility agreement contains certain financial covenants, including provisions concerning required levels of annual net income and minimum tangible net worth. The Company was in compliance with the financial covenants of the agreement at March 31, 2019.

The Company's South African subsidiary, Osborn Engineered Products SA (Pty) Ltd ("Osborn"), has a credit facility of \$6,544 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 March 31, 2019, Osborn had no outstanding borrowings but had \$461 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 March 31, 2019, Osborn had available credit under the facility of \$6,083.

The Company's Brazilian subsidiary, Astec Brazil, has a \$1,084 working capital loan outstanding as of March 31, 2019 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 \$66 as of March 31, 2019. These equipment loans have maturity dates ranging from April 2019 to April 2020.

Cash Flows from Operating Activities:

	Three Months Ended March 31,		Increase (Decrease)
	2019	2018	
Net income	\$ 14,217	\$ 20,216	\$ (5,999)
Depreciation and amortization	6,551	7,013	(462)
Provision for warranties	2,746	3,453	(707)
Deferred income tax provision	3,931	86	3,845
Changes in working capital:			
Trade and other receivables	(3,809)	(33,744)	29,935
Inventories	(10,891)	(19,780)	8,889
Prepaid expenses and other assets	1,156	(3,098)	4,254
Accounts payable	3,970	9,293	(5,323)
Customer deposits	(4,769)	2,138	(6,907)
Product warranty accruals	(2,643)	(2,825)	182
Prepaid and income taxes payable, net	594	6,468	(5,874)
Other, net	934	(1,541)	2,475
Net cash provided (used) by operating activities	<u>\$ 11,987</u>	<u>\$ (12,321)</u>	<u>\$ 24,308</u>

Net cash from operating activities improved by \$24,308 for the first three months of 2019 as compared to the first three months of 2018 due primarily to decreases in the growth of receivables (\$29,935) and inventories (\$8,889), partially offset by a reduction in net income (\$5,999) and changes in customer deposits (\$6,907).

Cash Flows from Investing Activities:

	Three Months Ended March 31,		Increase (Decrease)
	2019	2018	
Expenditures for property and equipment	\$ (3,723)	\$ (5,011)	\$ 1,288
Other	(51)	(334)	283
Net cash used by investing activities	<u>\$ (3,774)</u>	<u>\$ (5,345)</u>	<u>\$ 1,571</u>

Net cash used by investing activities declined by \$1,571 for the first three months of 2019 as compared to the same period in 2018 due primarily to decreased capital expenditures in the first three months of 2019 as compared to the first three months of 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 May 2020.

Cash Flows from Financing Activities:

	Three Months Ended March 31,		Increase (Decrease)
	2019	2018	
Payment of dividends	\$ (2,478)	\$ (2,308)	\$ (170)
Net change in borrowings from banks	(3,213)	(643)	(2,570)
Other, net	103	12	91
Net cash used by financing activities	<u>\$ (5,588)</u>	<u>\$ (2,939)</u>	<u>\$ (2,649)</u>

Cash used by financing activities increased by \$2,649 for the first three months of 2019 compared to the same period in 2018 due primarily to the Company's net change in borrowing of \$2,570.

Financial Condition

The Company's total current assets increased to \$576,073 as of March 31, 2019 from \$560,991 as of December 31, 2018, an increase of \$15,082 or 2.7%, due primarily to increases in inventory (\$10,891), trade receivables (\$2,862) and cash (\$2,785) during the first three months of 2019.

The Company's total current liabilities remained relatively flat at \$190,793 as of March 31, 2019 from \$189,231 as of December 31, 2018 due primarily to increases in accounts payable (\$5,837) and other current liabilities (\$5,232) being offset by reductions in customer deposits (\$4,769) and accrued payroll and related liabilities (\$4,966).

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 under a Company-financed arrangement whereby the Company deferred the recognition of revenue as payment under the arrangement was not assured. The original customer is attempting to obtain financing to purchase the plant at a reduced price; however, the Company believes the ultimate consummation of the sale to this customer is uncertain. After considering the uncertainty of completing the sale to the existing customer; 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 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 March 31, 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 three months ended March 31, 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 three month period ended March 31, 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 quarter of 2019.

Item 6. Exhibits

Exhibit No.	Description
10.1	Amendment to "Appendix A" of the Astec Industries, Inc. Supplemental Executive Retirement Plan, effective April 25, 2019.
31.1	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.
31.2	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.
32*	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.
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.

ASTECH INDUSTRIES, INC.
(Registrant)

Date: May 9, 2019

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

Date: May 9, 2019

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

**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 April 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 April 25, 2019.

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

ASTEC INDUSTRIES, INC.

Date: April 25, 2019

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

“Appendix A”
Each Participant’s Date of Participation

Name of Participant	Effective Dates of Participation
W. Norman Smith	January 1, 1995
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

**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 annual 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
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5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: May 9, 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 annual 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
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5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: May 9, 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 March 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Richard J. Dorris and David C. Silvious, 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

Richard J. Dorris
Interim CEO and President
(Principal Executive Officer)
May 9, 2019

/s/ David C. Silvious

David C. Silvious
Chief Financial Officer, Vice President and Treasurer
(Principal Financial Officer)
May 9, 2019