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

FORM 10-K

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

For the fiscal year ended December 25, 2021

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 1-6770

MUELLER INDUSTRIES, INC.
(Exact name of registrant as specified in its charter)

Delaware	**25-0790410**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

150 Schilling Boulevard	**Suite 100**	
Collierville	**Tennessee**	**38017**
(Address of principal executive offices)		(Zip Code)

Registrant's telephone number, including area code: **(901) 753-3200**

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, $0.01 Par Value	MLI	New York Stock Exchange

Indicate by check mark whether the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by a 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, or a smaller reporting 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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes ☒ No ☐

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold, or the average bid and asked price of such common equity, as of the last business day of the Registrant's most recently completed second fiscal quarter was $2,461,602,567.

The number of shares of the Registrant's common stock outstanding as of February 18, 2022 was 57,301,881 excluding 22,881,123 treasury shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the following document are incorporated by reference into this Report: Registrant's Definitive Proxy Statement for the 2022 Annual Meeting of Stockholders, scheduled to be mailed on or about March 31, 2022 (Part III).

MUELLER INDUSTRIES, INC.

As used in this report, the terms "we," "us," "our," "Company," "Mueller," and "Registrant" mean Mueller Industries, Inc. and its consolidated subsidiaries taken as a whole, unless the context indicates otherwise.

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PART I

ITEM 1. BUSINESS

Introduction

Mueller Industries, Inc. (the Company) is a leading manufacturer of copper, brass, aluminum, and plastic products. The range of products we manufacture is broad: copper tube and fittings; line sets; PEX plastic tube and fittings; steel nipples; brass rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; compressed gas valves; refrigeration valves and fittings; pressure vessels; coaxial heat exchangers; and insulated flexible duct systems. We also resell brass and plastic plumbing valves, plastic fittings, malleable iron fittings, faucets, and plumbing specialty products. Our operations are located throughout the United States and in Canada, Mexico, Great Britain, South Korea, the Middle East, and China. The Company was incorporated in Delaware on October 3, 1990.

Each of our reportable segments is composed of certain operating segments that are aggregated primarily by the nature of products offered. These are the Piping Systems, Industrial Metals, and Climate segments.

Certain administrative expenses and expenses related primarily to retiree benefits at inactive operations are combined into the Corporate and Eliminations classification.

Financial information concerning segments and geographic information appears under "Note 3 – Segment Information" in the Notes to Consolidated Financial Statements, which is incorporated herein by reference.

New housing starts and commercial construction are important determinants of our sales to the heating, ventilation, and air-conditioning (HVAC), refrigeration, and plumbing markets because the principal end use of a significant portion of our products is in the construction of single and multi-family housing and commercial buildings. Repairs and remodeling projects are also important drivers of underlying demand for these products. In addition, our products are used in various transportation, automotive, and industrial applications.

Piping Systems Segment

The Piping Systems segment is composed of Domestic Piping Systems Group, Great Lakes Copper (Great Lakes), Pexcor Manufacturing Company and Heatlink Group Inc. (collectively, Heatlink Group), European Operations, Trading Group, Jungwoo Metal Ind. Co., LTD (Jungwoo-Mueller), and Mueller Middle East BSC (Mueller Middle East).

The Domestic Piping Systems Group manufactures and distributes copper tube, fittings, line sets, and pipe nipples, and resells steel pipe, brass and plastic plumbing valves, malleable iron fittings and faucets, and plumbing specialties. These products are manufactured in the U.S., sold in the U.S., and exported to markets worldwide. Our copper tube ranges in size from 1/8 inch to 8 1/8 inch diameter and is sold in various straight lengths and coils. We are a market leader in the air-conditioning and refrigeration service tube markets and we also supply a variety of water tube in straight lengths and coils used for plumbing applications in virtually every type of construction project. Our copper fittings, line sets, and related components are produced for the plumbing and heating industry to be used in water distribution systems, heating systems, air-conditioning, and refrigeration applications, and drainage, waste, and vent systems.

Great Lakes manufactures copper tube and line sets in Canada and sells the products primarily in the U.S. and Canada. Heatlink Group manufactures a complete line of products for PEX plumbing and radiant systems in Canada and sells these products in Canada and the U.S. European Operations manufactures copper tube in the United Kingdom, which is sold throughout Europe. The Trading Group manufactures steel pipe nipples and resells brass and plastic plumbing valves, malleable iron fittings, faucets, and plumbing specialty products to plumbing wholesalers, distributors to the manufactured housing and recreational vehicle industries, and building materials retailers in North America. Jungwoo-Mueller, our South Korean joint venture, manufactures copper-based joining products that are sold worldwide. Mueller Middle East, our Bahraini joint venture, manufactures copper tube and serves markets in the Middle East and Northern Africa.

We acquired Heatlink Group on May 31, 2017, Die-Mold on March 31, 2018, Kessler Sales and Distribution on August 2, 2020, and increased our equity interest in Mueller Middle East to 55 percent on December 7, 2021. These acquisitions complement our existing copper tube, line sets, copper fittings, and plastics businesses in the Piping Systems segment.

We disposed of Jiangsu Mueller-Xingrong Copper Industries Limited (Mueller-Xingrong), the Company's Chinese joint venture, on June 21, 2017. This business manufactured engineered copper tube primarily for air-conditioning applications in China. We also disposed of Die-Mold Tool Limited (Die-Mold) on September 2, 2021 in a contribution agreement with a limited liability company operating in the retail distribution business. Die-Mold manufactured PEX and other plumbing-related fittings and plastic injection tooling in Canada and sold these products in Canada and the U.S.

The segment sells products to wholesalers in the plumbing and refrigeration markets, distributors to the manufactured housing and recreational vehicle industries, building material retailers, and air-conditioning original equipment manufacturers (OEMs). It markets primarily through its own sales and distribution organization, which maintains sales offices and distribution centers throughout the United States and in Canada, Mexico, Europe, China, and South Korea. Additionally, products are sold and marketed through a complement of agents, which, when combined with our sales organization, provide the Company broad geographic market representation.

We compete with various companies, depending on the product line. In the U.S. copper tube business, domestic competition includes Cerro Flow Products LLC, and Cambridge-Lee Industries LLC (a subsidiary of Industrias Unidas S.A. de C.V.), as well as many actual and potential foreign competitors. In the European copper tube business, we compete with several European-based manufacturers of copper tube as well as other foreign-based manufacturers. In the Canadian copper tube business, our competitors include foreign-based manufacturers. In the copper fittings market, our domestic competitors include Elkhart Products Company (a subsidiary of Aalberts Industries N.V.) and NIBCO, Inc. We also compete with several foreign manufacturers. Additionally, our copper tube and fittings businesses compete with a large number of manufacturers of substitute products made from other metals and plastic.

Industrial Metals Segment

The Industrial Metals segment is composed of Brass Rod, Impacts & Micro Gauge, and Brass Value-Added Products.

Brass Rod manufactures a broad range of brass rod and shapes, as well as a wide variety of end products including plumbing brass, valves, and fittings sold primarily to OEMs in the industrial, HVAC, plumbing, and refrigeration industries. We extrude brass, bronze, and copper alloy rod in sizes ranging from 3/8 inches to 4 inches in diameter. These alloys are used in applications that require a high degree of machinability, wear and corrosion resistance, as well as electrical conductivity.

Impacts & Micro Gauge manufactures cold-form aluminum and copper products for automotive, industrial, and recreational components, as well as high-volume machining of aluminum, steel, brass, and cast iron impacts and castings for automotive applications. It sells its products primarily to OEMs in the U.S., serving the automotive, military ordnance, aerospace, and general manufacturing industries. Typical applications for impacts are high strength ordnance, high-conductivity electrical components, builders' hardware, hydraulic systems, automotive parts, and other uses where toughness must be combined with varying complexities of design and finish.

Brass Value-Added Products manufactures brass and aluminum forgings; brass, aluminum, and stainless steel valves; fluid control solutions; and gas train assembles. Our forgings are used in a wide variety of products, including automotive components, brass fittings, industrial machinery, valve bodies, gear blanks, and computer hardware. Our valves, fluid control systems, and gas train assemblies are used in the compressed gas, pharmaceutical, construction, and gas appliance markets.

We disposed of our Copper Bar business on October 25, 2021.

The segment sells its products primarily to domestic OEMs in the industrial, construction, HVAC, plumbing, and refrigeration markets. The total amount of order backlog for the Industrial Metals Segment as of December 25, 2021 was not significant.

Competitors, primarily in the brass rod market, include Wieland Chase, LLC, a subsidiary of Wieland-Werke AG and others, both domestic and foreign.

Climate Segment

The Climate segment is composed of Refrigeration Products, Westermeyer Industries, Inc. (Westermeyer), Turbotec Products, Inc. (Turbotec), Flex Duct, and Linesets, Inc.

Refrigeration Products designs and manufactures valves, protection devices, and brass fittings for various OEMs in the commercial HVAC and refrigeration markets. Westermeyer designs, manufactures, and distributes high-pressure components and accessories for the air-conditioning and refrigeration markets. Turbotec manufactures coaxial heat exchangers and twisted tubes for the HVAC, geothermal, refrigeration, swimming pool heat pump, marine, ice machine, commercial boiler, and heat reclamation markets. Flex Duct manufactures and distributes insulated HVAC flexible duct systems.

We acquired ATCO Rubber Products, Inc. on July 2, 2018, Shoals Tubular, Inc. (Shoals) on January 17, 2020, and H&C Flex on January 29, 2021. These acquisitions complement our existing businesses in the Climate segment.

We disposed of Fabricated Tube Products and Shoals on July 28, 2021. Fabricated Tube Products manufactured tubular assemblies and fabrications for OEMs in the HVAC and refrigeration markets; Shoals manufactured brazed manifolds, headers, and distributor assemblies.

The segment's sales are approximately evenly split between the OEM and wholesale channels in the HVAC and refrigeration markets in the U.S. The total amount of order backlog for the Climate segment as of December 25, 2021 was not significant.

Human Capital Resources

As of December 25, 2021, the Company employed approximately 5,337 employees, of which approximately 1,803 were represented by various unions. Those union contracts will expire as follows:

Location	Expiration Date
Port Huron, Michigan (Local 218 IAM)	May 7, 2023
Wynne, Arkansas (MCTP)	November 30, 2024
Port Huron, Michigan (Local 44 UAW)	June 26, 2022
Wynne, Arkansas (B&K LLC)	August 5, 2024
North Wales, Pennsylvania	September 30, 2022
Belding, Michigan	August 12, 2022
Fulton, Mississippi	October 2, 2025
Waynesboro, Tennessee	June 1, 2022
University Park, Illinois	June 20, 2024
Phoenix, Arizona	April 30, 2023

The union agreements at the Company's U.K. and Mexico operations are renewed annually. The Company expects to renew its union contracts without material disruption to its operations. We consider our relationship with our employees to be good.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing, and integrating our existing and additional employees. The principal purposes of our equity incentive plans are to attract, retain, and motivate selected employees and directors through the granting of stock-based compensation awards. The health and safety of our employees is our high priority and in particular, in response to the COVID-19 pandemic. We have taken additional measures to limit possible infections at the workplace.

Furthermore, we expect that our employees and members of our Board of Directors will conduct themselves ethically and properly as a matter of course and comply with the guidelines set forth on our Code of Business Conduct and Ethics.

Raw Material and Energy Availability

A substantial portion of our base metal requirements (primarily copper) is normally obtained through short-term supply contracts with competitive pricing provisions (for cathode) and the open market (for scrap). Other raw materials used in the production of brass, including brass scrap, zinc, tin, and lead are obtained from zinc and lead producers, open-market dealers, and customers with brass process scrap. Raw materials used in the fabrication of aluminum and plastic products are purchased in the open market from major producers.

Adequate supplies of raw material have historically been available to us from primary producers, metal brokers, and scrap dealers. Sufficient energy in the form of natural gas, fuel oils, and electricity is available to operate our production facilities. While temporary shortages of raw material and fuels may occur occasionally, to date they have not materially hampered our operations.

Our copper tube facilities can accommodate both refined copper and certain grades of copper scrap as the primary feedstock. The Company has commitments from refined copper producers for a portion of its metal requirements for 2022. Adequate quantities of copper are currently available. While we will continue to react to market developments, resulting pricing volatility or supply disruptions, if any, could nonetheless adversely affect the Company.

Environmental Proceedings

Compliance with environmental laws and regulations is a matter of high priority for the Company. Mueller's provision for environmental matters related to all properties was $5.0 million for 2021, $4.2 million for 2020, and $1.7 million for 2019. The reserve for environmental matters was $27.4 million at December 25, 2021 and $24.0 million at December 26, 2020. Environmental expenses related to non-operating properties are presented below operating income in the Consolidated Statements of Income, and costs related to operating properties are included in cost of goods sold. We currently anticipate that we will need to make expenditures of approximately $13.5 million for compliance activities related to existing environmental matters during the next three fiscal years.

For a description of material pending environmental proceedings, see "Note 14 – Commitments and Contingencies" in the Notes to Consolidated Financial Statements, which is incorporated herein by reference.

Other Business Factors

Our business is not materially dependent on patents, trademarks, licenses, franchises, or concessions held. In addition, expenditures for Company-sponsored research and development activities were not material during 2021, 2020, or 2019. No material portion of our business involves governmental contracts.

Seasonality

Our net sales typically moderate in the fourth quarter as a result of the seasonal construction markets and customer shutdowns for holidays, year-end plant maintenance, and physical inventory counts. Also, our working capital typically increases in the first quarter in preparation for the construction season.

SEC Filings

We make available through our internet website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (SEC). To retrieve any of this information, you may access our internet home page at www.muellerindustries.com, select Investors, and then select SEC Filings.

Selected Financial Data

(In thousands, except per share data)	2021		2020		2019		2018		2017
For the fiscal year: [1]									
Net sales	$ 3,769,345		$ 2,398,043		$ 2,430,616		$ 2,507,878		$ 2,266,073
Operating income [2]	655,845		245,838		191,403		172,969		150,807
Net income attributable to Mueller Industries, Inc.	468,520	[3]	139,493	[4]	100,972	[5]	104,459	[6]	85,598
Diluted earnings per share	8.25		2.47		1.79		1.82		1.49
Cash dividends per share	0.52		0.40		0.40		0.40		3.40
At year-end:									
Total assets	1,728,936		1,528,568		1,370,940		1,369,549		1,320,173
Long-term debt	1,064		286,593		378,724		489,597		448,592

(1) *Includes activity of acquired businesses from the following purchase dates: Mueller Middle East, December 7, 2021; H&C Flex, January 29, 2021; Kessler Sales & Distribution, August 3, 2020; Shoals Tubular, Inc., January 17, 2020; ATCO Rubber Products, Inc., July 2, 2018; Die-Mold Tool Limited, March 31, 2018; Pexcor Manufacturing Company Inc. and Heatlink Group Inc., May 31, 2017.*

(2) *Adjusted retroactively to reflect adoption of ASU 2017-07 that occurred during 2018. The components of net periodic benefit cost (income) other than the service cost component are included in other income (expense), net in the Consolidated Statements of Income.*

(3) *Includes gain of $57.8 million resulting from the sales of Fabricated Tube Products, Shoals Tubular, Inc., Die-Mold Tool Limited, and Copper Bar, offset by pre-tax impairment charges of $2.8 million on goodwill and fixed assets.*

(4) *Includes litigation settlement gain of $22.1 million resulting from the Deepwater Horizon Economic and Property Damage Settlement, offset by charges of $17.8 million resulting from the termination of the U.S. defined benefit pension plan, and pre-tax impairment charges of $3.8 million on fixed assets.*

(5) *Includes net expense of $3.6 million resulting from the change in fair value of contingent consideration.*

(6) *Includes a pre-tax insurance recovery gain of $3.7 million related to the losses incurred due to the 2017 fire at the brass rod mill in Port Huron, Michigan.*

ITEM 1A. RISK FACTORS

The Company is exposed to risk as it operates its businesses. To provide a framework to understand our operating environment, we are providing a brief explanation of the more significant risks associated with our businesses. Although we have tried to identify and discuss key risk factors, others could emerge in the future. These risk factors should be considered carefully when evaluating the Company and its businesses.

<u>Risks Related to the Economy and Other External Factors</u>

Increases in costs and the availability of energy and raw materials used in our products could impact our cost of goods sold and our distribution expenses, which could have a material adverse impact on our operating margins.

Both the costs of raw materials used in our manufactured products (copper, brass, zinc, aluminum, and plastic resins) and energy costs (electricity, natural gas and fuel) have been volatile during the last several years, which has resulted in changes in production and distribution costs. For example, recent and pending climate change regulation and initiatives on the state, regional, federal, and international levels that have focused on reducing greenhouse gas (GHG) emissions from the energy and utility sectors may affect energy availability and costs in the near future. While we typically attempt to pass costs through to our customers or to modify or adapt our activities to mitigate the impact of increases, we may not be able to do so successfully. Failure to fully pass increases to our customers or to modify or adapt our activities to mitigate the impact could have a material adverse impact on our operating margins. Additionally, if we are for any reason unable to obtain raw materials or energy, our ability to manufacture our products would be impacted, which could have a material adverse impact on our operating margins.

Economic conditions in the housing and commercial construction industries, as well as inflation and changes in interest rates, could have a material adverse impact on our business, financial condition, and results of operations.

Our business is sensitive to changes in general economic conditions, particularly in the housing and commercial construction industries. Prices for our products are affected by overall supply and demand in the market for our products and for our competitors' products. In particular, market prices of building products historically have been volatile and cyclical, and we may be unable to control the timing and extent of pricing changes for our products. Prolonged periods of weak demand or excess supply in any of our businesses could negatively affect our revenues and margins and could result in a material adverse impact on our business, financial condition, and results of operations.

The markets that we serve, including, in particular, the housing and commercial construction industries, are significantly affected by movements in interest rates and the availability of credit. Significantly higher interest rates could have a material adverse effect on our business, financial condition, and results of operations.

Our businesses are also affected by a variety of other factors beyond our control, including, but not limited to, employment levels, foreign currency exchange rates, consumer confidence, and unforeseen inflationary pressures. In the last year, inflationary pressures have increased. Although we generally attempt to pass along higher raw material costs to our customers in the form of price increases, there can be a delay between an increase in our raw material costs and our ability to raise the prices of our products. Additionally, we may not be able to increase the prices of our products due to other factors including competitive pricing pressure. If the Company is unable to offset significant cost increases through customer price increases, productivity improvements, cost reduction or other programs, Mueller's business, operating results or financial condition could be materially adversely affected.

Since we operate in a variety of geographic areas, our businesses are subject to the economic conditions in each such area. General economic downturns or localized downturns in the regions where we have operations could have a material adverse effect on our business, financial condition, and results of operations. Additionally, the impact of economic conditions on the operations or liquidity of any party with which we conduct our business, including our suppliers and customers, may adversely impact our business.

Our exposure to exchange rate fluctuations on cross border transactions and the translation of local currency results into U.S. dollars could have an adverse impact on our results of operations or financial position.

We conduct our business through subsidiaries in several different countries and export our products to many countries. Fluctuations in currency exchange rates could have a significant impact on the competitiveness of our products as well as the reported results of our operations, which are presented in U.S. dollars. A portion of our products are manufactured in or acquired from suppliers located in lower cost regions. Cross border transactions, both with external parties and intercompany relationships, result in increased exposure to foreign exchange fluctuations. The strengthening of the U.S. dollar could expose our U.S. based businesses to competitive threats from lower cost producers in other countries such as China. Lastly, our sales are translated into U.S. dollars for reporting purposes. The strengthening of the U.S. dollar could result in unfavorable translation effects when the results of foreign operations are translated into U.S. dollars. Accordingly, significant changes in exchange rates, particularly the British pound sterling, Mexican peso, Canadian dollar, and South Korean won, could have an adverse impact on our results of operations or financial position.

The novel coronavirus (COVID-19) and other possible pandemics and similar outbreaks, could result in material adverse effects on our business, financial position, results of operations and cash flows.

The novel coronavirus (COVID-19) pandemic, and the various governmental, industry and consumer actions related thereto, are having and could continue to have negative impacts on our business and have created or could create conditions in our other risk factors noted above. These impacts include, without limitation, potential significant volatility or decreases in the demand for our products, changes in customer and consumer behavior and preferences, disruptions in or closures of our manufacturing operations or those of our customers and suppliers, disruptions within our supply chain, limitations on our employees' ability to work and travel, potential financial difficulties of customers and suppliers, significant changes in economic or political conditions, and related financial and commodity volatility, including volatility in raw material and other input costs.

It is uncertain what the impact of various legislation and other responses being taken in the U.S. and other countries will have on the economy, international trade, our industries, our businesses and the businesses of our customers and suppliers.

Despite our efforts to manage the impacts, the degree to which COVID-19 and related actions ultimately impact our business, financial position, results of operations and cash flows will depend on factors beyond our control including the duration, spread and severity of the outbreak, the actions taken to contain COVID-19 and mitigate its public health effects, the impact on the U.S. and global economies and demand for our products, and how quickly and to what extent normal economic and operating conditions resume.

Market and Competition Risks

Competitive conditions, including the impact of imports and substitute products and technologies, could have a material adverse effect on the demand for our products as well as our margins and profitability.

The markets we serve are competitive across all product lines. Some consolidation of customers has occurred and may continue, which could shift buying power to customers. In some cases, customers have moved production to low-cost countries such as China, or sourced components from there, which has reduced demand in North America for some of the products we manufacture. These conditions could have a material adverse impact on our ability to maintain margins and profitability. The potential threat of imports and substitute products is based upon many factors, including raw material prices, distribution costs, foreign exchange rates, production costs, and the development of emerging technologies and applications. The end use of alternative import and/or substitute products could have a material adverse effect on our business, financial condition, and results of operations. Likewise, the development of new technologies and applications could result in lower demand for our products and have a material adverse effect on our business.

Litigation and Regulatory Risks

We are subject to claims, litigation, and regulatory proceedings that could have a material adverse effect on us.

We are, from time-to-time, involved in various claims, litigation matters, and regulatory proceedings. These matters may include contract disputes, personal injury claims, environmental claims and administrative actions, Occupational Safety and Health Administration inspections or proceedings, other tort claims, employment and tax matters and other litigation including class actions that arise in the ordinary course of our business. Although we intend to defend these matters vigorously, we cannot predict with certainty the outcome or effect of any claim or other litigation matter, and there can be no assurance as to the ultimate outcome of any litigation or regulatory proceeding. Litigation and regulatory proceedings may have a material adverse effect on us because of potential adverse outcomes, defense costs, the diversion of our management's resources, availability of insurance coverage and other factors.

We are subject to environmental, health, and safety laws and regulations and future compliance may have a material adverse effect on our results of operations, financial position, or cash flows.

The nature of our operations exposes us to the risk of liabilities and claims with respect to environmental, health, and safety matters. While we have established accruals intended to cover the cost of environmental remediation at contaminated sites, the actual cost is difficult to determine and may exceed our estimated reserves. Further, changes to, or more rigorous enforcement or stringent interpretation of environmental or health and safety laws could require significant incremental costs to maintain compliance. Recent and pending climate change regulation and initiatives on the state, regional, federal, and international levels may require certain of our facilities to reduce GHG emissions. While not reasonably estimable at this time, this could require capital expenditures for environmental control facilities and/or the purchase of GHG emissions credits in the coming years. In addition, with respect to environmental matters, future claims may be asserted against us for, among other things, past acts or omissions at locations operated by predecessor entities, or alleging damage or injury or seeking other relief in connection with environmental matters associated with our operations. Future liabilities, claims, and compliance costs may have a material adverse effect on us because of potential adverse outcomes, defense costs, diversion of our resources, availability of insurance coverage, and other factors. The overall impact of these requirements on our operations could increase our costs and diminish our ability to compete with products that are produced in countries without such rigorous standards; the long run impact could negatively impact our results and have a material adverse effect on our business.

Operational Risks

A strike, other work stoppage or business interruption, or our inability to renew collective bargaining agreements on favorable terms, could impact our cost structure and our ability to operate our facilities and produce our products, which could have an adverse effect on our results of operations.

We have a number of employees who are covered by collective bargaining or similar agreements. If we are unable to negotiate acceptable new agreements with the unions representing our employees upon expiration of existing contracts, we could experience strikes or other work stoppages. Strikes or other work stoppages could cause a significant disruption of operations at our facilities, which could have an adverse impact on us. New or renewal agreements with unions representing our employees could call for higher wages or benefits paid to union members, which would increase our operating costs and could adversely affect our profitability. Higher costs and/or limitations on our ability to operate our facilities and manufacture our products resulting from increased labor costs, strikes or other work stoppages could have a material adverse effect on our results of operations.

In addition, unexpected interruptions in our operations or those of our customers or suppliers due to such causes as weather-related events or acts of God, such as earthquakes, could have an adverse effect on our results of operations. For example, the Environmental Protection Agency has found that global climate change would be expected to increase the severity and possibly the frequency of severe weather patterns such as hurricanes. Although the financial impact of such future events is not reasonably estimable at this time, should they occur, our operations in certain coastal and flood-prone areas or operations of our customers and suppliers could be adversely affected.

If we do not successfully execute or effectively operate, integrate, leverage and grow acquired businesses, our financial results may suffer.

Our strategy for long-term growth, productivity and profitability depends in part on our ability to make prudent strategic acquisitions and to realize the benefits we expect when we make those acquisitions. In furtherance of this strategy, over the past several years, we have acquired businesses in Europe, Canada, South Korea, the Middle East, and the United States.

While we currently anticipate that our past and future acquisitions will enhance our value proposition to customers and improve our long-term profitability, there can be no assurance that we will realize our expectations within the time frame we have established, if at all, or that we can continue to support the value we allocate to these acquired businesses, including their goodwill or other intangible assets.

We may be subject to risks relating to our information technology systems.

We rely on information technology systems to process, transmit and store electronic information and manage and operate our business. The incidence of cyber attacks, computer hacking, computer viruses, worms, and other disruptive software, denial of service attacks, and other malicious cyber activities are on the rise worldwide. A breach of our information technology systems or those of our commercial partners could expose us, our customers, our suppliers, and our employees to risks of misuse or improper disclosure of data, business information (including intellectual property) and other confidential information. We operate globally, and the legal rules governing data storage and transfers are often complex, unclear, and changing. A breach could also result in manipulation and destruction of data, production downtimes and operations disruptions. Any such breaches or events could expose us to legal liability and adversely affect our reputation, competitive position, business or results of operations.

General Risk Factors

The unplanned departure of key personnel could disrupt our business.

We depend on the continued efforts of our senior management. The unplanned loss of key personnel, or the inability to hire and retain qualified executives, could negatively impact our ability to manage our business.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Information pertaining to our major operating facilities is included below. Except as noted, we own all of the principal properties. In addition, we own and/or lease other properties used as distribution centers and corporate offices. Our plants are in satisfactory condition and are suitable for the purpose for which they were designed and are now being used.

Location of Facility	Building Space (Sq. Ft.)	Primary Use	Owned or Leased
Piping Systems Segment			
Fulton, MS	778,065	Manufacturing, Packaging, & Distribution	Owned
New Market, VA	413,120	Manufacturing & Distribution	Owned
Bilston, England	402,500	Manufacturing	Owned
Wynne, AR	400,000	Manufacturing & Distribution	Owned
Yangju City, Gyeonggi Province, South Korea	343,909	Manufacturing	Owned
Cedar City, UT	260,000	Manufacturing & Distribution	Owned
Woodbridge, NJ	247,000	Distribution	Leased
Olive Branch, MS	205,264	Manufacturing & Distribution	Owned
London, Ontario, Canada	200,400	Manufacturing	Owned
North Wales, PA	174,000	Manufacturing	Owned
Covington, TN	159,500	Manufacturing	Owned
Monterrey, Mexico	152,000	Manufacturing & Distribution	Leased
Monterrey, Mexico	132,000	Manufacturing	Leased
Sanger, CA	127,390	Manufacturing & Distribution	Leased
Ennis, TX	109,700	Distribution	Leased
University Park, IL	90,100	Distribution	Leased
Ansonia, CT	89,396	Manufacturing & Distribution	Owned
Kansas City, MO	85,000	Distribution	Leased
St. Thomas, Ontario, Canada	73,124	Distribution	Leased
Shelby, OH	61,750	Distribution	Leased
Atlanta, GA	60,293	Distribution	Leased
Al Hidd, Kingdom of Bahrain	58,809	Manufacturing	Owned
Dallas, TX	55,585	Distribution	Leased
Ontario, CA	54,209	Distribution	Leased
Jacksonville, FL	48,000	Distribution	Leased
Glendale Heights, IL	43,295	Distribution	Leased
Calgary, Alberta, Canada	22,084	Distribution	Leased
Calgary, Alberta, Canada	21,117	Manufacturing	Leased
Calgary, Alberta, Canada	20,000	Manufacturing	Leased
Covington, TN	16,500	Distribution	Leased
Calgary, Alberta, Canada	6,600	Manufacturing	Leased
Industrial Metals Segment			
Port Huron, MI	450,000	Manufacturing	Owned
Belding, MI	293,068	Manufacturing	Owned
Brooklyn, OH	163,200	Manufacturing	Leased
Marysville, MI	81,500	Manufacturing	Owned
Brighton, MI	65,000	Machining	Leased
Waynesboro, TN	57,000	Manufacturing	Leased
Middletown, OH	55,000	Manufacturing	Leased

Location of Facility	Building Space (Sq. Ft.)	Primary Use	Owned or Leased
Climate Segment			
Plainville, GA	313,835	Manufacturing & Distribution	Owned
Fort Worth, TX	266,485	Manufacturing	Owned
Cartersville, GA	260,924	Manufacturing	Owned
Tampa, FL	202,614	Manufacturing & Distribution	Owned
Phoenix, AZ	178,250	Manufacturing & Distribution	Owned
Crawsfordville, IN	153,600	Manufacturing & Distribution	Owned
Fort Worth, TX	153,374	Manufacturing	Owned
Vineland, NJ	136,000	Manufacturing & Distribution	Owned
Guadalupe, Mexico	130,110	Manufacturing	Leased
Sacramento, CA	121,240	Manufacturing & Distribution	Owned
Bluffs, IL	107,000	Manufacturing	Owned
Fort Worth, TX	103,125	Manufacturing & Distribution	Owned
Hickory, NC	100,000	Manufacturing	Owned
Hartsville, TN	78,000	Manufacturing	Owned
Houston, TX	72,000	Manufacturing & Distribution	Owned
Phoenix, AZ	72,000	Manufacturing	Leased
Baltimore, MD	62,500	Manufacturing & Distribution	Owned
Springdale, AR	57,600	Manufacturing & Distribution	Owned
Lawrenceville, GA	42,000	Manufacturing	Leased
Xinbei District, Changzhou, China	33,940	Manufacturing	Leased
Kansas City, MO	30,500	Manufacturing	Leased
Ansonia, CT	24,000	Manufacturing	Leased

ITEM 3. LEGAL PROCEEDINGS

The Company is involved in certain litigation as a result of claims that arose in the ordinary course of business. Additionally, we may realize the benefit of certain legal claims and litigation in the future; these gain contingencies are not recognized in the Consolidated Financial Statements.

For a description of material pending legal proceedings, see "Note 14 – Commitments and Contingencies" in the Notes to Consolidated Financial Statements, which is incorporated herein by reference.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock is listed on the New York Stock Exchange (NYSE) under the symbol "MLI." As of February 18, 2022, the number of holders of record of Mueller's common stock was 616.

During fiscal 2020, we paid a quarterly cash dividend of $0.10 per share of common stock. During fiscal 2021, we paid a quarterly cash dividend of $0.13 per share of common stock.

Payment of dividends in the future is dependent upon the Company's financial condition, cash flows, capital requirements, earnings, and other factors.

See "Part II, Item 12, Equity Compensation Plan Information" for information regarding securities authorized for issuance under the Company's equity compensation plans.

Issuer Purchases of Equity Securities

The Company's Board of Directors has extended, until July 2022, the authorization to repurchase up to 20 million shares of the Company's common stock through open market transactions or through privately negotiated transactions. The Company may cancel, suspend, or extend the time period for the purchase of shares at any time. Any repurchases will be funded primarily through existing cash and cash from operations. The Company may hold any shares repurchased in treasury or use a portion of the repurchased shares for its stock-based compensation plans, as well as for other corporate purposes. From its initial authorization in 1999 through December 25, 2021, the Company has repurchased approximately 6.5 million shares under this authorization. Below is a summary of the Company's stock repurchases for the quarter ended December 25, 2021.

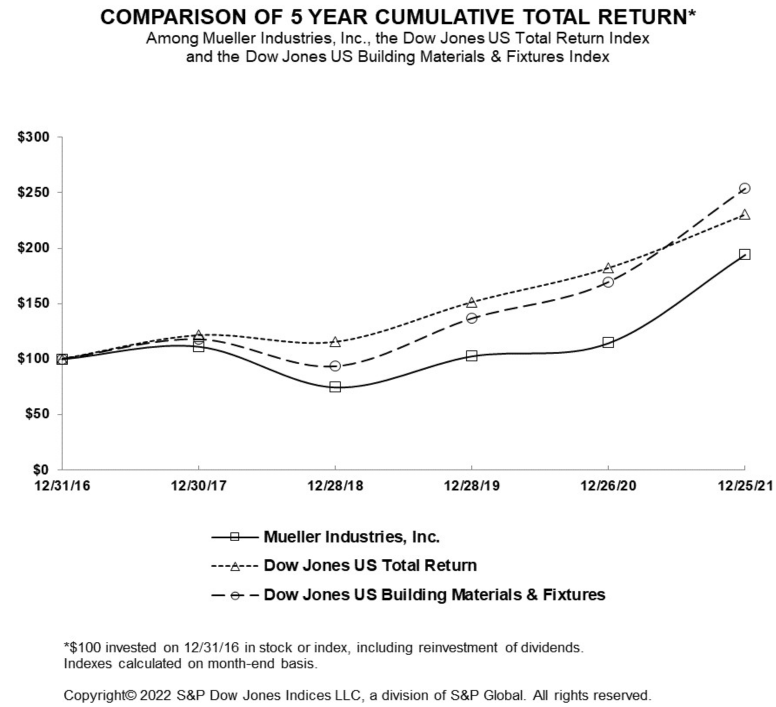
	(a) Total Number of Shares Purchased *(1)*	(b) Average Price Paid per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number of Shares That May Yet Be Purchased Under the Plans or Programs *(2)*
September 26, 2021 – October 23, 2021	33,399	48.06	32,399	13,542,659
October 24, 2021 – November 20, 2021	87,218	50.84	63,915	13,478,744
November 21, 2021 – December 25, 2021	7,579	58.59	—	13,478,744
Total	128,196		96,314	

(1) Includes shares tendered to the Company by holders of stock-based awards in payment of the purchase price and/or withholding taxes upon exercise and/or vesting. Also includes shares resulting from restricted stock forfeitures at the average cost of treasury stock.

(2) Shares available to be purchased under the Company's 20 million share repurchase authorization until July 2022. The extension of the authorization was announced on October 20, 2021.

Company Stock Performance

The following graph compares total stockholder return since December 26, 2015 to the Dow Jones U.S. Total Return Index (Total Return Index) and the Dow Jones U.S. Building Materials & Fixtures Index (Building Materials Index). Total return values for the Total Return Index, the Building Materials Index and the Company were calculated based on cumulative total return values assuming reinvestment of (i) regular quarterly dividends paid by the Company, (ii) the cash paid by the Company in conjunction with the special dividend and (iii) the proceeds of an assumed sale at par of the Debentures paid by the Company in connection with the special dividend.



	2016	2017	2018	2019	2020	2021
Mueller Industries, Inc.	100.00	111.37	74.66	102.64	114.50	194.04
Dow Jones U.S. Total Return Index	100.00	121.50	115.45	151.41	182.30	230.61
Dow Jones U.S. Building Materials & Fixtures Index	100.00	118.45	93.98	136.65	169.55	253.80

ITEM 6. RESERVED

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Management's discussion and analysis of financial condition and results of operations is contained under the caption "Financial Review" submitted as a separate section of this Annual Report on Form 10-K commencing on page F-2.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Quantitative and qualitative disclosures about market risk are contained under the caption "Financial Review" submitted as a separate section of this Annual Report on Form 10-K commencing on page F-2.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Financial Statements required by this item are contained in a separate section of this Annual Report on Form 10-K commencing on page F-18.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures designed to ensure information required to be disclosed in Company reports filed under the Securities Exchange Act of 1934, as amended (the Exchange Act), is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures are designed to provide reasonable assurance that information required to be disclosed in Company reports filed under the Exchange Act is accumulated and communicated to management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures pursuant to Rule 13a-15(e) of the Exchange Act as of December 25, 2021. Based on that evaluation, the Company's Chief Executive Officer and Chief Financial Officer have concluded that the Company's disclosure controls and procedures are effective as of December 25, 2021 to ensure that information required to be disclosed in Company reports filed under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and (ii) accumulated and communicated to management, including the Company's principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Pursuant to the rules and regulations of the SEC, internal control over financial reporting is a process designed by, or under the supervision of, the Company's principal executive and principal financial officers, and effected by the Company's Board of Directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States and includes those policies and procedures that (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Company's assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the issuer are being made only in accordance with authorizations of the Company's management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements. Due to inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Further, because of changes in conditions, effectiveness of internal control over financial reporting may vary over time.

The Company acquired H&C Flex and Mueller Middle East during 2021 and has excluded these businesses from management's assessment of internal controls. The total value of assets for these businesses represents four percent of the Company's consolidated total assets at December 25, 2021. Net sales and operating income from the dates of acquisition represent one percent of the Company's consolidated net sales, and less than one percent of operating income of the Company for 2021. Accordingly, these acquired businesses are not included in the scope of this report.

As required by Rule 13a-15(c) under the Exchange Act, the Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's internal control over financial reporting as of December 25, 2021 based on the control criteria established in a report entitled *Internal Control—Integrated Framework*, (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on such evaluation, management has concluded that our internal control over financial reporting was effective as of December 25, 2021.

Ernst & Young LLP, the independent registered public accounting firm that audited the Company's financial statements included in this Annual Report on Form 10-K, has issued an attestation report on the Company's internal control over financial reporting, which is included herein.

Changes in Internal Control Over Financial Reporting

There were no changes in the Company's internal control over financial reporting during the Company's fiscal quarter ended December 25, 2021, that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Mueller Industries, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Mueller Industries, Inc.'s internal control over financial reporting as of December 25, 2021, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Mueller Industries, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 25, 2021, based on the COSO criteria.

As indicated in the accompanying Management's Report on Internal Control over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of H&C Flex and Mueller Middle East, which are included in the 2021 consolidated financial statements of the Company and constituted 4% of total assets as of December 25, 2021 and 1% and less than 1% of net sales and operating income, respectively, for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of H&C Flex and Mueller Middle East.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 25, 2021 and December 26, 2020, the related consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the three years in the period ended December 25, 2021, and the related notes and financial statement schedule listed in the Index at Item 15(a) and our report dated February 23, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

Ernst & Young LLP

Memphis, Tennessee
February 23, 2022

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

The information required by Item 10 is contained under the captions "Ownership of Common Stock by Directors and Executive Officers and Information about Director Nominees," "Corporate Governance," "Report of the Audit Committee of the Board of Directors," and "Section 16(a) Beneficial Ownership Compliance Reporting" in the Company's Proxy Statement for its 2022 Annual Meeting of Stockholders to be filed with the SEC on or about March 31, 2022, which is incorporated herein by reference.

The Company has adopted a Code of Business Conduct and Ethics that applies to its chief executive officer, chief financial officer, and other financial executives. We have also made the Code of Business Conduct and Ethics available on the Company's website at www.muellerindustries.com.

ITEM 11. EXECUTIVE COMPENSATION

The information required by Item 11 is contained under the caption "Compensation Discussion and Analysis," "Summary Compensation Table for 2021," "2021 Grants of Plan Based Awards Table," "Outstanding Equity Awards at Fiscal 2021 Year-End," "2021 Option Exercises and Stock Vested," "Potential Payments Upon Termination of Employment or Change in Control as of the End of 2021," "2021 Director Compensation," "Report of the Compensation Committee of the Board of Directors on Executive Compensation" and "Corporate Governance" in the Company's Proxy Statement for its 2022 Annual Meeting of Stockholders to be filed with the SEC on or about March 31, 2022, which is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Equity Compensation Plan Information

The following table discloses information regarding the securities to be issued and the securities remaining available for issuance under the Registrant's stock-based incentive plans as of December 25, 2021 (shares in thousands):

Plan category	(a) Number of securities to be issued upon exercise of outstanding options, warrants, and rights	(b) Weighted average exercise price of outstanding options, warrants, and rights	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	615	$ 28.42	1,474
Equity compensation plans not approved by security holders	—	—	—
Total	615	$ 28.42	1,474

Other information required by Item 12 is contained under the captions "Principal Stockholders" and "Ownership of Common Stock by Directors and Executive Officers and Information about Director Nominees" in the Company's Proxy Statement for its 2022 Annual Meeting of Stockholders to be filed with the SEC on or about March 31, 2022, which is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by Item 13 is contained under the caption “Corporate Governance” in the Company’s Proxy Statement for its 2022 Annual Meeting of Stockholders to be filed with the SEC on or about March 31, 2022, which is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by Item 14 is contained under the caption “Appointment of Independent Registered Public Accounting Firm” in the Company’s Proxy Statement for its 2022 Annual Meeting of Stockholders to be filed with the SEC on or about March 31, 2022, which is incorporated herein by reference.

PART IV

ITEM 15. **EXHIBITS, FINANCIAL STATEMENT SCHEDULES**

(a) The following documents are filed as part of this report:

1. Financial Statements: the financial statements, notes, and report of independent registered public accounting firm described in Item 8 of this Annual Report on Form 10-K are contained in a separate section of this Annual Report on Form 10-K commencing on page F-1.

2. Financial Statement Schedule: the financial statement schedule described in Item 8 of this report is contained in a separate section of this Annual Report on Form 10-K commencing on page F-1.

3. Exhibits:

Certificate of Incorporation and Bylaws

3.a Restated Certificate of Incorporation of the Registrant dated February 8, 2007 (Incorporated herein by reference to Exhibit 3.1 of the Registrant's Annual Report on Form 10-K, dated February 28, 2007, for the fiscal year ended December 30, 2006).

3.b Amended and Restated By-laws of the Registrant, effective as of January 15, 2016 (Incorporated herein by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, dated January 19, 2016).

Long-Term Debt Instruments

4.1 Indenture, dated March 9, 2017, among the Registrant (as issuer) and Regions Bank (as trustee) (Incorporated herein by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, dated March 13, 2017).

4.2 Form of 6% Subordinated Debenture due 2027 (Incorporated herein by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, dated March 13, 2017).

4.3 Certain instruments with respect to long-term debt of the Registrant have not been filed as Exhibits to this Report since the total amount of securities authorized under any such instruments does not exceed 10 percent of the total assets of the Registrant and its subsidiaries on a consolidated basis. The Registrant agrees to furnish a copy of each such instrument upon request of the SEC.

4.4 Description of securities

Consulting, Employment, and Compensatory Plan Agreements

10.1 Mueller Industries, Inc. 2002 Stock Option Plan Amended and Restated as of February 16, 2006 (Incorporated herein by reference to Exhibit 10.20 of the Registrant's Annual Report on Form 10-K, dated February 28, 2007, for the fiscal year ended December 30, 2006).

10.2 Mueller Industries, Inc. 2009 Stock Incentive Plan (Incorporated by reference from Appendix I to the Company's 2009 Definitive Proxy Statement with respect to the Company's 2009 Annual Meeting of Stockholders, as filed with the Securities and Exchange Commission on March 26, 2009).

10.3 Mueller Industries, Inc. 2014 Stock Incentive Plan (Incorporated by reference from Appendix I to the Company's 2014 Definitive Proxy Statement with respect to the Company's 2014 Annual Meeting of Stockholders, as filed with the Securities and Exchange Commission on March 19, 2014).

10.4 Amendment to the Mueller Industries, Inc. 2002 Stock Option Plan, dated July 11, 2011 (Incorporated herein by reference to Exhibit 10.16 of the Registrant's Annual Report on Form 10-K, dated February 28, 2012, for the fiscal year ended December 31, 2011).

10.5 Amendment to the Mueller Industries, Inc. 2009 Stock Incentive Plan, dated July 11, 2011 (Incorporated herein by reference to Exhibit 10.17 of the Registrant's Annual Report on Form 10-K, dated February 28, 2012, for the fiscal year ended December 31, 2011).

10.6	2019 Incentive Plan (incorporated by reference to Annex 1 to the Company's definitive proxy statement filed with the SEC on March 28, 2019).
10.7	Mueller Industries, Inc. 2011 Annual Bonus Plan (Incorporated herein by reference to Exhibit 10.18 of the Registrant's Annual Report on Form 10-K, dated February 28, 2012, for the fiscal year ended December 31, 2011).
10.8	Summary description of the Registrant's 2022 incentive plan for certain key employees.
10.9	Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Brian K. Barksdale (Incorporated herein by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016).
10.10	Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Mark Millerchip (Incorporated herein by reference to Exhibit 10.6 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016).
10.11	Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Steffen Sigloch (Incorporated herein by reference to Exhibit 10.8 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016).
10.12	Employment Agreement, dated as of March 15, 2018, by and between Mueller Industries, Inc. and Gregory L. Christopher (Incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, dated March 19, 2018).
10.13	Change in Control Agreement, effective February 22, 2022 by and between the Registrant and Jeffrey A. Martin
10.14	Change in Control Agreement, effective February 22, 2022 by and between the Registrant and Christopher J. Miritello
Financing Agreements	
10.15	Credit Agreement, dated as of December 6, 2016 among the Registrant (as borrower), Bank ofAmerica (as agent), and certain lenders named therein (Incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, dated December 12, 2016).
10.16	Amendment No. 1 to Credit Agreement among the Registrant (as borrower), Bank of America, N.A. (as agent), and certain lenders named therein dated April 22, 2019 (Incorporated herein by reference to Exhibit 10.17 of the Registrant's Annual Report on Form 10-K, dated February 26, 2020, for the fiscal year ended December 28, 2019).
10.17	Credit Agreement, dated as of March 31, 2021, among the Company (as borrower), Bank of America, N.A. (as administrative agent), and certain lenders named therein (Incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, dated April 5, 2021).
Other Exhibits	
21.0	Subsidiaries of the Registrant.
23.0	Consent of Independent Consent of Independent Registered Public Accounting Firm.
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.INS	XBRL Instance Document

101.LAB XBRL Taxonomy Extension Label Linkbase

101.PRE XBRL Presentation Linkbase Document

101.SCH XBRL Taxonomy Extension Schema

ITEM 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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, on February 23, 2022.

MUELLER INDUSTRIES, INC.

/s/ Gregory L. Christopher
Gregory L. Christopher, Chief Executive Officer
(Principal Executive Officer) and Chairman of the Board

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

Signature	Title	Date
/s/ Gregory L. Christopher Gregory L. Christopher	Chief Executive Officer (Principal Executive Officer) and Chairman of the Board	February 23, 2022
/s/ Terry Hermanson Terry Hermanson	Lead Independent Director	February 23, 2022
/s/ Elizabeth Donovan Elizabeth Donovan	Director	February 23, 2022
/s/ William C. Drummond William C. Drummond	Director	February 23, 2022
/s/ Gary S. Gladstein Gary S. Gladstein	Director	February 23, 2022
/s/ Gennaro J. Fulvio Gennaro J. Fulvio	Director	February 23, 2022
/s/ Scott J. Goldman Scott J. Goldman	Director	February 23, 2022
/s/ John B. Hansen John B. Hansen	Director	February 23, 2022
/s/ Charles P. Herzog, Jr. Charles P. Herzog, Jr.	Director	February 23, 2022

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

Signature and Title	Date
/s/ Jeffrey A. Martin Jeffrey A. Martin Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)	February 23, 2022
/s/ Anthony J. Steinriede Anthony J. Steinriede Vice President – Corporate Controller	February 23, 2022

MUELLER INDUSTRIES, INC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

FINANCIAL STATEMENT SCHEDULE

Schedule for the years ended December 25, 2021, December 26, 2020, and December 28, 2019

FINANCIAL REVIEW

The Financial Review section of our Annual Report on Form 10-K consists of the following: Management's Discussion and Analysis of Results of Operations and Financial Condition (MD&A), the Consolidated Financial Statements, and Other Financial Information, all of which include information about our significant accounting policies, practices, and the transactions that impact our financial results. The following MD&A describes the principal factors affecting the results of operations, liquidity and capital resources, contractual cash obligations, and the critical accounting estimates of the Company. The discussion in the Financial Review section should be read in conjunction with the other sections of this Annual Report, particularly "Item 1: Business" and our other detailed discussion of risk factors included in this MD&A.

OVERVIEW

We are a leading manufacturer of copper, brass, aluminum, and plastic products. The range of products we manufacture is broad: copper tube and fittings; line sets; brass rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; PEX plastic tube and fittings; refrigeration valves and fittings; compressed gas valves; pressure vessels; steel nipples; and insulated flexible duct systems. We also resell brass and plastic plumbing valves, plastic fittings, malleable iron fittings, faucets and plumbing specialty products. Mueller's operations are located throughout the United States and in Canada, Mexico, Great Britain, South Korea, the Middle East, and China.

Each of the reportable segments is composed of certain operating segments that are aggregated primarily by the nature of products offered as follows:

- Piping Systems: The Piping Systems segment is composed of Domestic Piping Systems Group, Great Lakes Copper, Heatlink Group, European Operations, Trading Group, Jungwoo-Mueller (our South Korean joint venture), and Mueller Middle East (our Bahraini joint venture). The Domestic Piping Systems Group manufactures and distributes copper tube, fittings, and line sets. These products are manufactured in the U.S., sold in the U.S., and exported to markets worldwide. Great Lakes Copper manufactures copper tube and line sets in Canada and sells the products primarily in the U.S. and Canada. Heatlink Group manufactures a complete line of products for PEX plumbing and radiant systems in Canada and sells these products in Canada and the U.S. European Operations manufacture copper tube in the United Kingdom, which is sold throughout Europe. The Trading Group manufactures pipe nipples and sources products for import distribution in North America. Jungwoo-Mueller manufactures copper-based joining products that are sold worldwide. Mueller Middle East manufactures copper tube and serves markets in the Middle East and Northern Africa. The Piping Systems segment sells products to wholesalers in the plumbing and refrigeration markets, distributors to the manufactured housing and recreational vehicle industries, building material retailers, and air-conditioning original equipment manufacturers (OEMs).

- Industrial Metals: The Industrial Metals segment is composed of Brass Rod, Impacts & Micro Gauge, and Brass Value-Added Products. The segment manufactures and sells brass rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; and gas valves and assemblies. The segment manufactures and sells its products primarily to domestic OEMs in the industrial, transportation, construction, heating, ventilation, and air-conditioning, plumbing, refrigeration, and energy markets.

- Climate: The Climate segment is composed of Refrigeration Products, Westermeyer, Turbotec, Flex Duct, and Linesets, Inc. The segment manufactures and sells refrigeration valves and fittings, high pressure components, coaxial heat exchangers, insulated HVAC flexible duct systems, and line sets. The segment sells its products primarily to the heating, ventilation, air-conditioning, and refrigeration markets in the U.S.

New housing starts and commercial construction are important determinants of our sales to the heating, ventilation, and air-conditioning, refrigeration, and plumbing markets because the principal end use of a significant portion of our products is in the construction of single and multi-family housing and commercial buildings. Repairs and remodeling projects are also important drivers of underlying demand for these products. In addition, our products are used in various transportation, automotive, and industrial applications.

According to the U.S. Census Bureau, actual housing starts in the U.S. were1.60 million in 2021, which compares to 1.38 million in 2020 and 1.29 million in 2019. Mortgage rates remain at historically low levels, as the average 30-year fixed mortgage rate was approximately 2.96 percent in 2021 and 3.11 percent in 2020. The private nonresidential construction sector, includes offices, industrial, health care, and retail projects. According to the U.S. Census Bureau, the value of private nonresidential construction put in place was $467.9 billion in 2021, $479.0 billion in 2020, and $500.1 billion in 2019.

Profitability of certain of our product lines depends upon the “spreads” between the cost of raw material and the selling prices of our products. The open market prices for copper cathode and copper and brass scrap, for example, influence the selling price of copper tube and brass rod, two principal products manufactured by the Company. We attempt to minimize the effects on profitability from fluctuations in material costs by passing through these costs to our customers; however margins of our businesses that account for inventory on a FIFO basis may be impacted in periods of significant fluctuations in material costs. Our earnings and cash flow are dependent upon these spreads that fluctuate based upon market conditions.

Earnings and profitability are also impacted by unit volumes that are subject to market trends, such as substitute products, imports, technologies, and market share. In our core product lines, we intensively manage our pricing structure while attempting to maximize profitability. From time-to-time, this practice results in lost sales opportunities and lower volume. For plumbing systems, plastics are the primary substitute product; these products represent an increasing share of consumption. For certain air-conditioning and refrigeration applications, aluminum-based systems are the primary substitution threat. We cannot predict the acceptance or the rate of switching that may occur. U.S. consumption of copper tube and brass rod is still predominantly supplied by U.S. manufacturers. In recent years, brass rod consumption in the U.S. has declined due to the outsourcing of many manufactured products from offshore regions.

RESULTS OF OPERATIONS

Consolidated Results

The following table compares summary operating results for 2021, 2020, and 2019:

				Percent Change	
(In thousands)	2021	2020	2019	2021 vs. 2020	2020 vs. 2019
Net sales	$ 3,769,345	$ 2,398,043	$ 2,430,616	57.2 %	(1.3)%
Operating income	655,845	245,838	191,403	166.8	28.4
Net income	468,520	139,493	100,972	235.9	38.2

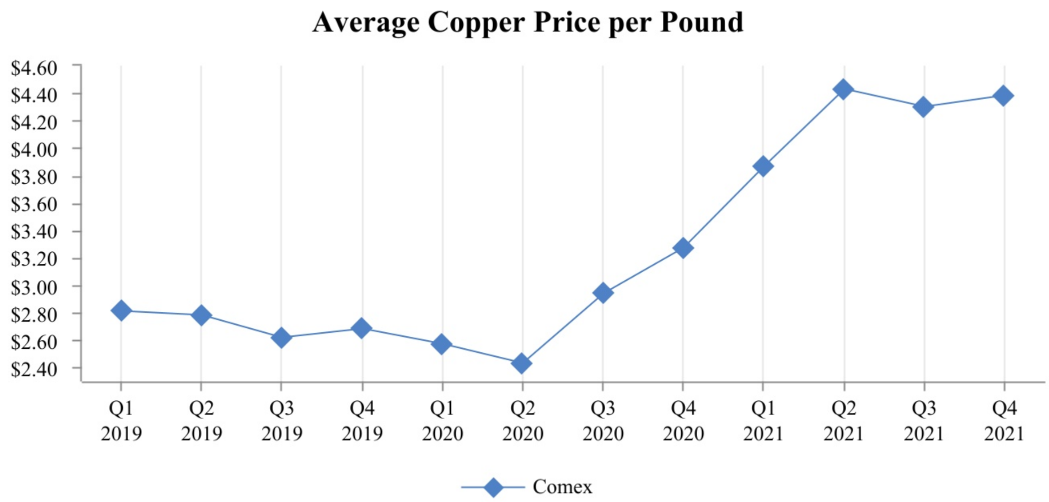
The following are components of changes in net sales compared to the prior year:

	2021 vs. 2020	2020 vs. 2019
Net selling price in core product lines	37.0 %	1.6 %
Unit sales volume in core product lines	6.4	(5.4)
Acquisitions	8.6	2.8
Dispositions	(0.7)	—
Other	5.9	(0.3)
	57.2 %	(1.3)%

The increase in net sales in 2021 was primarily due to (i) higher net selling prices of $886.5 million in our core product lines, primarily copper tube and brass rod, (ii) higher unit sales volume of $154.4 million in our core product lines, (iii) incremental sales of $152.7 million recorded by Kessler, acquired in August 2020, (iv) an increase in sales of $140.6 million in our non-core product lines, (v) sales of $48.9 million recorded by H&C Flex, acquired in January 2021, and (vi) sales of $4.6 million recorded by Mueller Middle East, acquired in December 2021. These increases were slightly offset by a decrease in sales of $16.5 million as a result of the dispositions of Die-Mold, FTP, and STI during 2021.

The decrease in net sales in 2020 was primarily due to (i) lower unit sales volume of $130.9 million in our core product lines, primarily brass rod and copper tube. Lower unit sales volume was due in part to the impacts of the COVID-19 pandemic on demand for our products, particularly in the second quarter of 2020. This decrease was partially offset by (i) sales of $54.9 million recorded by Kessler, acquired in August 2020, (ii) higher net selling prices of $38.1 million in our core product lines, primarily copper tube, and (iii) sales of $12.2 million recorded by STI, acquired in January 2020.

Net selling prices generally fluctuate with changes in raw material costs. Changes in raw material costs are generally passed through to customers by adjustments to selling prices. The following graph shows the Comex average copper price per pound by quarter for the most recent three-year period:



The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2021, 2020, and 2019:

(In thousands)	2021	2020	2019
Cost of goods sold	$ 2,938,989	$ 1,966,161	$ 2,035,610
Depreciation and amortization	45,390	44,843	42,693
Selling, general, and administrative expense	184,052	159,483	162,358
Litigation settlement, net	—	(22,053)	—
Gain on sale of businesses	(57,760)	—	—
Gain on sale of assets, net	—	—	(963)
Impairment charges	2,829	3,771	—
Insurance recovery	—	—	(485)
Operating expenses	$ 3,113,500	$ 2,152,205	$ 2,239,213

	2021	2020	2019
Cost of goods sold	78.0 %	82.0 %	83.7 %
Depreciation and amortization	1.2	1.9	1.8
Selling, general, and administrative expense	4.9	6.6	6.6
Litigation settlement, net	—	(0.9)	—
Gain on sale of businesses	(1.5)	—	—
Gain on sale of assets, net	—	—	—
Impairment charges	—	0.1	—
Insurance recovery	—	—	—
Operating expenses	82.6 %	89.7 %	92.1 %

The increase in cost of goods sold in 2021 was primarily due to the increase in the average cost of copper, our principal raw material, an increase in sales volume across all product lines, and an increase in sales volume resulting from the acquisitions of Kessler, H&C Flex, and Mueller Middle East. Gross margin as a percentage of sales was 22.0 percent compared with 18.0 percent in the prior year. The combination of strong demand for our products, inflationary pressures, and industry wide supply constraints contributed to an environment of higher selling prices. These factors, along with higher fixed cost leverage and favorable sales mix, benefited margins. The decrease in cost of goods sold in 2020 was primarily due to the decrease in sales volume in our core product lines. This was partially offset by the increase in sales volume resulting from the acquisitions of Kessler and STI and an increase in the average cost of copper.

Depreciation and amortization increased in 2021 and 2020 as a result of long-lived assets of businesses acquired.

Selling, general, and administrative expenses increased in 2021 primarily due to (i) an increase in employment costs, including incentive compensation, of $11.4 million, (ii) an increase in agent commissions of $8.7 million, (iii) incremental expenses of $6.1 million associated with Kessler and H&C Flex, (iv) an increase of $1.4 million in professional fees, and (v) expenses of $1.3 million associated with the write-off of vendor deposits. These increases were partially offset by (i) fees of $2.6 million received as a settlement of preexisting relationships and (ii) the absence of expenses associated with FTP, STI, and Die-Mold of $1.8 million. The decrease in selling, general, and administrative expenses in 2020 was primarily due to (i) expense for contingent consideration arrangements associated with businesses acquired of $5.7 million recognized in the prior year, (ii) a decrease in travel and entertainment expense of $3.9 million, (iii) a decrease in employment costs of $3.0 million, and (iv) a decrease in lease expense of $1.5 million. These decreases were partially offset by (i) expenses of $7.4 million associated with Kessler and STI, (ii) income of $2.1 million recognized in the prior year as a result of the reduction of contingent consideration arrangements associated with businesses acquired, (iii) an increase in bad debt expense of $1.1 million, and (iv) plant consolidation costs of $0.9 million.

During 2021, we recognized gains of $46.6 million on the sale of the FTP and STI businesses, $4.7 million on the disposition of the Die-Mold business, and $6.5 million on the sale of the Copper Bar business, as well as asset impairment charges of $2.8 million related to goodwill and fixed assets. The gain on the sale of FTP and STI and the deconsolidation of Die-Mold were reported within Corporate and Eliminations and the gain on the sale of Copper Bar was recorded in the Industrial Metals segment. Prior to the dispositions, the results of FTP and STI were included within the Climate segment, the results of Die-Mold were included within the Piping Systems segment, and the results of Copper Bar were included within the Industrial Metals segment.

During 2020, we recognized a gain of $22.1 million for the settlement of our claim under the Deepwater Horizon Economic and Property Damage Settlement Program and asset impairment charges of $3.8 million related to production equipment that was idled.

During 2019, we recognized a net gain of $1.0 million on the sale of real property. We also recognized an insurance recovery gain of $0.5 million related to the losses incurred due to the 2017 fire at our brass rod mill in Port Huron, Michigan.

Interest expense decreased in 2021 primarily as a result of the redemption of our Subordinated Debentures during the second quarter of 2021. The decrease in 2020 was primarily a result of lower principal outstanding and reduced interest rates associated with our unsecured $350.0 million revolving credit facility.

During 2021, we recognized expense of $5.7 million for a redemption premium related to our Subordinated Debentures redeemed.

Environmental expense for our non-operating properties was higher in 2021 and 2020 than in 2019 primarily as a result of ongoing remediation activities.

During 2020, we recognized a $17.8 million expense to terminate our U.S. defined benefit pension plan, which consisted of an $11.6 million non-cash charge and $6.2 million in federal excise tax on surplus assets returned to the Company.

Other income, net, was lower in 2021 primarily as a result of lower net periodic benefit income from our benefit plans, and higher in 2020 primarily as a result of a curtailment gain related to our benefit plans.

Income tax expense was $165.9 million in 2021, representing an effective tax rate of 25.9 percent. This rate was higher than what would be computed using the U.S. statutory federal rate primarily due to (i) the provision for state and local income taxes, net of the federal benefit, of $21.1 million and (ii) the effect of foreign statutory rates different from the U.S. federal rate and other foreign adjustments of $11.2 million. These increases were partially offset by (i) the impact of investments in unconsolidated affiliates of $0.7 million and (ii) other adjustments of $0.4 million.

Income tax expense was $55.3 million in 2020, representing an effective tax rate of 26.4 percent. This rate was higher than what would be computed using the U.S. statutory federal rate primarily due to (i) the provision for state and local income taxes, net of the federal benefit, of $5.9 million, (ii) the effect of foreign statutory rates different from the U.S. federal rate of $2.8 million, and (iii) other adjustments of $3.0 million. These increases were partially offset by the impact of investments in unconsolidated affiliates of $0.4 million.

Income tax expense was $35.3 million in 2019, representing an effective tax rate of 21.2 percent. This rate was higher than what would be computed using the U.S. statutory federal rate primarily due to (i) the provision for state and local income taxes, net of the federal benefit, of $3.2 million, and (ii) the impact of investments in unconsolidated affiliates of $0.5 million. These increases were partially offset by other adjustments of $3.4 million.

During 2021, we recognized losses of $0.2 million on our investments in unconsolidated affiliates, net of foreign tax, compared to losses of $10.2 million in 2020. The loss on these investments for 2021 included net losses of $1.7 million for Tecumseh, partially offset by net gains of $0.8 million for the retail distribution business and a gain on fair value recognition related to our investment in Mueller Middle East of $0.7 million.

During 2020, we recognized losses of $10.2 million on our investments in unconsolidated affiliates, net of foreign tax, compared to losses of $24.6 million in 2019. The loss on these investments for 2020 included net losses of $10.4 million for Tecumseh and net gains of $0.2 million for Mueller Middle East. Our Tecumseh investment showed improvement in 2020 due to a pre-tax gain of $11.6 million from a land sale and the early impacts of ongoing restructuring activities.

During 2019, we recognized losses of $24.6 million on our investments in unconsolidated affiliates, net of foreign tax. The loss of these investments included net losses of $22.0 million for Tecumseh and net losses of $2.6 million for Mueller Middle East. Included in the losses for Tecumseh were $6.4 million of severance and restructuring expenses and a product liability settlement of $3.4 million. These expenses were offset by a gain on the sale of land of $1.8 million.

Piping Systems Segment

The following table compares summary operating results for 2021, 2020, and 2019 for the businesses comprising our Piping Systems segment:

				Percent Change	
(In thousands)	2021	2020	2019	2021 vs. 2020	2020 vs. 2019
Net sales	$ 2,600,030	$ 1,583,002	$ 1,542,456	64.2 %	2.6 %
Operating income	486,287	165,719	131,879	193.4	25.7

The following are components of changes in net sales compared to the prior year:

	2021 vs. 2020	2020 vs. 2019
Net selling price in core product lines	45.7 %	2.5 %
Unit sales volume in core product lines	6.8	(3.2)
Acquisitions	10.0	3.6
Dispositions	(0.2)	—
Other	1.9	(0.3)
	64.2 %	2.6 %

The increase in net sales in 2021 was primarily attributable to (i) higher net selling prices of $719.0 million in the segment's core product lines, primarily coppertube, (ii) incremental sales of $152.7 million recorded by Kessler, (iii) higher unit sales volume of $107.6 million in the segment's core product lines, (iv) an increase in sales of $44.6 million in the segment's non-core product lines, and (v) sales of $4.6 million recorded by Mueller Middle East. These increases were slightly offset by a decrease in sales of $2.6 million as a result of the disposition of Die-Mold.

The increase in net sales in 2020 was primarily attributable to (i) sales of $54.9 million recorded by Kessler and (ii) higher net selling prices of $38.1 million in the segment's core product lines, primarily copper tube. These increases were partially offset by lower unit sales volume of $48.7 million in the segment's core product lines.

The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2021, 2020, and 2019:

(In thousands)	2021	2020	2019
Cost of goods sold	$ 1,996,610	$ 1,311,697	$ 1,313,980
Depreciation and amortization	23,384	23,071	22,621
Selling, general, and administrative expense	93,749	78,744	75,170
Gain on sale of assets, net	—	—	(1,194)
Impairment charges	—	3,771	—
Operating expenses	$ 2,113,743	$ 1,417,283	$ 1,410,577

	2021	2020	2019
Cost of goods sold	76.8 %	82.9 %	85.2 %
Depreciation and amortization	0.9	1.5	1.5
Selling, general, and administrative expense	3.6	4.9	4.9
Gain on sale of assets, net	—	—	(0.1)
Impairment charges	—	0.2	—
Operating expenses	81.3 %	89.5 %	91.5 %

Gross margin as a percentage of sales was 23.2 percent compared with 17.1 percent in the prior year. The combination of strong demand for our products, inflationary pressures, and industry wide supply constraints contributed to an environment of higher selling prices. These factors, along with higher fixed cost leverage and favorable sales mix, benefited margins. The increase in cost of good sold in 2021 was primarily due to the increase in the cost of copper, an increase in sales volume in the segment's core product lines, and an increase in sales volume resulting from the acquisitions of Kessler and Mueller Middle East. The decrease in cost of goods sold in 2020 was primarily due to lower manufacturing costs and lower employee healthcare costs.

Depreciation and amortization increased slightly in 2021 and 2020 as a result of long-lived assets of businesses acquired.

Selling, general, and administrative expenses increased for 2021, primarily due to (i) higher employment costs, including incentive compensation, of $6.1 million, (ii) incremental expenses of $4.3 million associated with Kessler, (iii) an increase in agent commissions of $2.0 million, (iv) expenses of $1.3 million associated with the write-off of vendor deposits, and (v) the absence of $1.3 million of government subsidies provided to certain businesses related to the COVID-19 pandemic recorded in 2020. The increase in 2020 was primarily due to (i) expenses of $5.5 million associated with Kessler, (ii) income of $2.1 million recognized in the prior year as a result of the reduction of contingent consideration arrangements associated with businesses acquired, and (iii) higher foreign currency transaction losses of $0.7 million. These increases were partially offset by (i) a reduction in employment costs of $2.2 million, (ii) a decrease in travel and entertainment expense of $2.0 million, (iii) a decrease in marketing expenses of $0.9 million, and (iv) a decrease in supplies and utilities of $0.6 million.

During 2020, we recognized asset impairment charges of $3.8 million related to production equipment that was idled.

During 2019, we recognized a gain of $1.2 million on the sale of real property.

Industrial Metals Segment

The following table compares summary operating results for 2021, 2020, and 2019 for the businesses comprising our Industrial Metals segment:

				Percent Change	
(In thousands)	2021	2020	2019	2021 vs. 2020	2020 vs. 2019
Net sales	$ 703,363	$ 472,159	$ 554,372	49.0 %	(14.8)%
Operating income	85,475	54,065	61,724	58.1	(12.4)

The following are components of changes in net sales compared to the prior year:

	2021 vs. 2020	2020 vs. 2019
Net selling price in core product lines	36.7 %	— %
Unit sales volume in core product lines	10.3	(15.2)
Other	2.0	0.4
	49.0 %	(14.8)%

The increase in net sales in 2021 was primarily due to (i) higher net selling prices of $167.5 million in the segment's core product lines, primarily brass rod, (ii) higher unit sales volume of $46.8 million in the segment's core product lines, and (iii) higher sales of $8.4 million in the segment's non-core product lines.

The decrease in net sales during 2020 was primarily due to lower unit sales volume of $82.3 million in the segment's core product lines. Lower unit sales volume was due in part to the impacts of the COVID-19 pandemic on demand for our products, particularly in the second quarter of 2020.

The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2021, 2020, and 2019:

(In thousands)	2021	2020	2019
Cost of goods sold	$ 605,715	$ 398,000	$ 473,010
Depreciation and amortization	6,929	7,528	7,489
Selling, general, and administrative expense	11,698	12,566	12,359
Gain on sale of businesses	(6,454)	—	—
Loss on sale of assets	—	—	275
Insurance recovery	—	—	(485)
Operating expenses	$ 617,888	$ 418,094	$ 492,648

	2021	2020	2019
Cost of goods sold	86.1 %	84.3 %	85.3 %
Depreciation and amortization	1.0	1.6	1.4
Selling, general, and administrative expense	1.6	2.6	2.3
Gain on sale of businesses	(0.9)	—	—
Loss (gain) on sale of assets, net	—	—	—
Insurance recovery	—	—	(0.1)
Operating expenses	87.8 %	88.5 %	88.9 %

Gross margin as a percentage of sales was 13.9 percent compared with 15.7 percent in the prior year, reflecting the impact of rising raw material costs. The increase in cost of goods sold in 2021 was primarily due to the increase in selling prices and sales volume in the segment's core product lines. The decrease in cost of goods sold in 2020 was primarily related to the decrease in sales volume in the segment's core product lines.

Depreciation and amortization decreased slightly in 2021 as a result of several long-lived assets becoming fully depreciated. Depreciation and amortization in 2020 was consistent with 2019.

Selling, general, and administrative expense in 2021 was consistent with 2020 and 2019.

During 2021, we recognized a gain of $6.5 million on the sale of the Copper Bar business.

Climate Segment

The following table compares summary operating results for 2021, 2020, and 2019 for the businesses comprising our Climate segment:

				Percent Change	
(In thousands)	2021	2020	2019	2021 vs. 2020	2020 vs. 2019
Net sales	$ 495,414	$ 370,131	$ 356,216	33.8 %	3.9 %
Operating income	85,536	56,802	42,727	50.6	32.9

Net sales for 2021 increased primarily as a result of an increase in volume and price in certain product lines, as well as sales of $48.9 million recorded by H&C Flex. These increases were partially offset by a decrease in sales of $13.8 million as a result of the dispositions of FTP and STI in 2021. Net sales for 2020 increased primarily as a result of sales of $12.2 million recorded by STI.

The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2021, 2020, and 2019:

(In thousands)	2021	2020	2019
Cost of goods sold	$ 367,343	$ 276,274	$ 273,850
Depreciation and amortization	10,379	10,249	9,298
Selling, general, and administrative expense	29,327	26,806	30,385
Gain on sale of assets, net	—	—	(44)
Impairment charges	$ 2,829	$ —	$ —
Operating expenses	$ 409,878	$ 313,329	$ 313,489

	2021	2020	2019
Cost of goods sold	74.1 %	74.6 %	76.9 %
Depreciation and amortization	2.1	2.8	2.6
Selling, general, and administrative expense	6.0	7.3	8.5
Gain on sale of assets, net	—	—	—
Impairment charges	0.6	—	—
Operating expenses	82.8 %	84.7 %	88.0 %

Cost of goods sold increased in 2021, consistent with the increase in net sales. Gross margin as a percentage of sales was 25.9 percent compared with 25.4 percent in the prior year. There was a slight increase in cost of goods sold in 2020. Depreciation and amortization in 2021 was consistent with 2020, and increased in 2020 primarily as a result of depreciation and amortization of the long-lived assets acquired at ATCO and STI. Selling, general, and administrative expenses increased in 2021 as a result of (i) higher employment costs of $2.7 million and (ii) expenses associated with H&C Flex of $1.8 million. These were partially offset by the absence of expenses associated with FTP and STI of $1.4 million. Selling, general, and administrative expenses decreased in 2020 as a result of expense of $5.7 million for a contingent consideration arrangement associated with an acquired business recognized in the prior year. This was partially offset by expenses associated with STI of $1.9 million.

During 2021 the segment recognized impairment charges on goodwill and long-lived assets of $2.8 million.

LIQUIDITY AND CAPITAL RESOURCES

The following table presents selected financial information for 2021, 2020, and 2019:

(In thousands)	2021	2020	2019
Increase (decrease) in:			
Cash, cash equivalents, and restricted cash	$ (37,000)	$ 29,334	$ 20,904
Property, plant, and equipment, net	8,990	13,444	(7,505)
Total debt	(326,001)	(58,378)	(110,444)
Working capital, net of cash and current debt	141,525	38,855	(35,231)
Net cash provided by operating activities	311,701	245,073	200,544
Net cash provided by (used in) investing activities	29,073	(125,622)	(40,457)
Net cash used in financing activities	(376,722)	(92,264)	(139,694)

Cash Provided by Operating Activities

During 2021, net cash provided by operating activities was primarily attributable to (i) consolidated net income of $475.1 million, (ii) an increase in current liabilities of $73.8 million, (iii) depreciation and amortization of $45.7 million, and (iv) stock-based compensation expense of $9.8 million. These cash increases were partially offset by (i) an increase in accounts receivable of $124.7 million, (ii) an increase in inventories of $119.5 million, and (iii) gains of $57.8 million recorded on the sale of the FTP, STI, Die-Mold, and Copper Bar businesses. The fluctuations of accounts receivable, inventories, and current liabilities were primarily due to increased sales volume in certain businesses and higher material costs during 2021.

During 2020, net cash provided by operating activities was primarily attributable to (i) consolidated net income of $143.6 million, (ii) an increase in current liabilities of $74.1 million, (iii) depreciation and amortization of $45.2 million, (iv) a decrease in other assets of $20.6 million, (v) a non-cash charge related to the termination of the U.S. pension plan of $11.6 million, (vi) losses from unconsolidated affiliates of $10.2 million, (vii) stock-based compensation expense of $8.6 million, and (viii) a decrease in inventories of $5.2 million. These cash increases were partially offset by an increase in accounts receivable of $76.4 million.

During 2019, net cash provided by operating activities was primarily attributable to (i) consolidated net income of $106.2 million, (ii) depreciation and amortization of $43.0 million, (iii) a decrease in inventories of $39.6 million, (iv) losses from unconsolidated affiliates of $24.6 million, (v) stock-based compensation expense of $8.7 million, and (vi) a decrease in accounts receivable of $6.6 million. These cash increases were offset by (i) an increase in other assets of $15.6 million, (ii) a decrease in other liabilities of $7.9 million, and (iii) a decrease in current liabilities of $7.1 million. The fluctuations in accounts receivable and inventories were primarily due to decreased selling prices and sales volume in certain businesses and additional working capital needs in 2019.

Cash Used in Investing Activities

The major components of net cash provided by investing activities in 2021 included (i) proceeds of $81.9 million from the sale of the FTP, STI, and Copper Bar businesses, net of cash sold, and (ii) payments received on notes receivable of $8.5 million. These sources were partially offset by (i) capital expenditures of $31.8 million and (ii) $30.2 million for the purchases of H&C Flex and Mueller Middle East, net of cash acquired.

The major components of net cash used in investing activities in 2020 included (i) $72.6 million for the purchases of Kessler and Shoals, net of cash acquired, (ii) capital expenditures of $43.9 million, and (iii) the issuance of notes receivable of $9.3 million.

The major components of net cash used in investing activities in 2019 included (i) capital expenditures of $31.2 million and (ii) investments in our unconsolidated affiliates, Tecumseh and Mueller Middle East, of $16.0 million. These uses of cash were offset by (i) the $3.5 million working capital settlement received from the previous owners for the ATCO acquisition and (ii) proceeds on the sale of properties of $3.2 million.

Cash Used in Financing Activities

For 2021, net cash used in financing activities consisted primarily of (i) $630.0 million used to reduce the debt outstanding under our Credit Agreement, (ii) $290.2 million used for the redemption of the Subordinated Debentures, (iii) $29.1 million used for the payment of regular quarterly dividends to stockholders of the Company, (iv) $9.7 million used for the payment of dividends to noncontrolling interests, (v) $5.1 million used for repayment of debt by Jungwoo-Mueller, and (vi) $4.9 million used for the repurchase of common stock. These uses of cash were partially offset by the issuance of debt under our Credit Agreement of $595.0 million.

For 2020, net cash used in financing activities consisted primarily of (i) $245.0 million used to reduce the debt outstanding under our Credit Agreement, (ii) $22.3 million used for the payment of regular quarterly dividends to stockholders of the Company, (iii) $7.0 million used for the payment of contingent consideration related to ATCO, and (iv) $5.6 million used to repurchase common stock. These uses of cash were partially offset by the issuance of debt under our Credit Agreement of $190.0 million.

For 2019, net cash used in financing activities consisted primarily of (i) $205.0 million used to reduce the debt outstanding under our Credit Agreement, (ii) $22.3 million used for the payment of regular quarterly dividends to stockholders of the Company, (iii) $4.3 million used for repayment of debt by Jungwoo-Mueller, (iv) $3.2 million used for the payment of contingent consideration related to ATCO, and (v) $1.8 million used to repurchase common stock. These uses of cash were partially offset by the issuance of debt under our Credit Agreement of $100.0 million.

Liquidity and Outlook

We believe that cash provided by operations, funds available under the Credit Agreement, and cash on hand will be adequate to meet our liquidity needs, including working capital, capital expenditures, and debt payment obligations. Our current ratio was 2.7 to 1 as of December 25, 2021.

As of December 25, 2021, $53.7 million of our cash and cash equivalents were held by foreign subsidiaries. The undistributed earnings of most of the foreign subsidiaries are considered to be permanently reinvested. These earnings could be remitted to the U.S. with a minimal tax cost. Accordingly, no additional income tax liability has been accrued with respect to these earnings or on any additional outside basis differences that may exist with respect to these entities.

We believe that cash held domestically, funds available through the Credit Agreement, and cash generated from U.S. based operations will be adequate to meet the future needs of our U.S. based operations.

Fluctuations in the cost of copper and other raw materials affect the Company's liquidity. Changes in material costs directly impact components of working capital, primarily inventories, accounts receivable, and accounts payable. The price of copper has fluctuated significantly and averaged approximately $4.24 in 2021, $2.80 in 2020, and $2.72 in 2019.

We have significant environmental remediation obligations which we expect to pay over future years. Approximately $1.5 million was spent during 2021 for environmental matters. As of December 25, 2021, we expect to spend $9.6 million in 2022, $3.1 million in 2023, $0.8 million in 2024, $0.9 million in 2025, $0.7 million in 2026, and $12.3 million thereafter for ongoing projects.

Cash used to fund pension and other postretirement benefit obligations was $0.6 million in 2021 and $0.7 million in 2020. We anticipate making contributions of approximately $1.0 million to these plans in 2022.

The Company declared and paid a quarterly cash dividend of 10.0 cents per common share during each quarter of 2019 and 2020, and a quarterly cash dividend of 13.0 cents per common share during each quarter of 2021. Payment of dividends in the future is dependent upon our financial condition, cash flows, capital requirements, and other factors.

Capital Expenditures

During 2021 our capital expenditures were $31.8 millior. We anticipate investing approximately $30.0 million to $40.0 million for capital expenditures in2022.

Long-Term Debt

The Company's Credit Agreement provides for an unsecured $400.0 million revolving credit facility, which matures on March 31, 2026. Funds borrowed under the Credit Agreement may be used for working capital purposes and other general corporate purposes. In addition, the Credit Agreement provides a sublimit of $50.0 million for the issuance of letters of credit, a sublimit of $35.0 million for loans and letters of credit made in certain foreign currencies, and a swing line loan sublimit of $25.0 million. Outstanding letters of credit and foreign currency loans reduce borrowing availability under the Credit Agreement. There were no borrowings outstanding under the Credit Agreement at December 25, 2021.

Jungwoo-Mueller has several secured revolving credit arrangements with a total borrowing capacity of KRW 20.0 billion (or approximately $16.8 million). Borrowings are secured by the real property and equipment of Jungwoo-Mueller. There were no borrowings outstanding at Jungwoo-Mueller as of December 25, 2021.

As of December 25, 2021, the Company's total debt was $1.9 million or 0.1 percent of its total capitalization.

Covenants contained in the Company's financing obligations require, among other things, the maintenance of minimum levels of tangible net worth and the satisfaction of certain minimum financial ratios. As of December 25, 2021, we were in compliance with all of our debt covenants.

Share Repurchase Program

The Company's Board of Directors has extended, until July 2022, its authorization to repurchase up to 20 million shares of the Company's common stock through open market transactions or through privately negotiated transactions. We may cancel, suspend, or extend the time period for the repurchase of shares at any time. Any repurchases will be funded primarily through existing cash and cash from operations. The Company may hold any shares repurchased in treasury or use a portion of the repurchased shares for stock-based compensation plans, as well as for other corporate purposes. From its initial authorization in 1999 through December 25, 2021, the Company had repurchased approximately 6.5 million shares under this authorization.

CONTRACTUAL CASH OBLIGATIONS

The following table presents payments due by the Company under contractual obligations with minimum firm commitments as of December 25, 2021:

		Payments Due by Year			
(In millions)	Total	2022	2023-2024	2025-2026	Thereafter
Total debt	$ 2.9	$ 0.8	$ 0.4	$ 0.2	$ 1.5
Operating and capital leases	26.9	7.6	9.2	5.1	5.0
Heavy machinery and equipment	1.0	1.0	—	—	—
Purchase commitments [(1)]	1,053.9	1,053.7	0.1	0.1	—
Transition tax on accumulated foreign earnings	1.9	—	—	1.9	—
Total contractual cash obligations	$ 1,086.6	$ 1,063.1	$ 9.7	$ 7.3	$ 6.5

[(1)] *This includes contractual supply commitments totaling $934.2 million at year-end prices; these contracts contain variable pricing based on Comex and the London Metals Exchange quoted prices. These commitments are for purchases of raw materials, primarily copper cathode and brass scrap, that are expected to be consumed in the ordinary course of business.*

The above obligations will be satisfied with existing cash, funds available under the Credit Agreement, and cash generated by operations. The Company has no off-balance sheet financing arrangements.

MARKET RISKS

The Company is exposed to market risks from changes in raw material and energy costs, interest rates, and foreign currency exchange rates. To reduce such risks, we may periodically use financial instruments. Hedging transactions are authorized and executed pursuant to policies and procedures. Further, we do not buy or sell financial instruments for trading purposes. A discussion of the Company's accounting for derivative instruments and hedging activities is included in "Note 1 - Summary of Significant Accounting Policies" in the Notes to Consolidated Financial Statements.

Cost and Availability of Raw Materials and Energy

Raw materials, primarily copper and brass, represent the largest component of the Company's variable costs of production. The cost of these materials is subject to global market fluctuations caused by factors beyond our control. Significant increases in the cost of metal, to the extent not reflected in prices for our finished products, or the lack of availability could materially and adversely affect our business, results of operations and financial condition.

The Company occasionally enters into forward fixed-price arrangements with certain customers. We may utilize futures contracts to hedge risks associated with these forward fixed-price arrangements. We may also utilize futures contracts to manage price risk associated with inventory. Depending on the nature of the hedge, changes in the fair value of the futures contracts will either be offset against the change in fair value of the inventory through earnings or recognized as a component of accumulated other comprehensive income (AOCI) in equity and reflected in earnings upon the sale of inventory. Periodic value fluctuations of the contracts generally offset the value fluctuations of the underlying fixed-price transactions or inventory. At December 25, 2021, we held open futures contracts to purchase approximately $40.6 million of copper over the next 15 months related to fixed-price sales orders and to sell approximately $15.0 million of copper over the next seven months related to copper inventory.

We may enter into futures contracts or forward fixed-price arrangements with certain vendors to manage price risk associated with natural gas purchases. The effective portion of gains and losses with respect to positions are deferred in equity as a component of AOCI and reflected in earnings upon consumption of natural gas. Periodic value fluctuations of the futures contracts generally offset the value fluctuations of the underlying natural gas prices. There were no open futures contracts to purchase natural gas at December 25, 2021.

Interest Rates

The Company had no variable-rate debt outstanding at December 25, 2021 and $41.1 million outstanding at December 26, 2020. At this borrowing level, a hypothetical 10 percent increase in interest rates would have had an insignificant unfavorable impact on our pre-tax earnings and cash flows. The primary interest rate exposure on variable-rate debt is based on LIBOR.

Foreign Currency Exchange Rates

Foreign currency exposures arising from transactions include firm commitments and anticipated transactions denominated in a currency other than an entity's functional currency. The Company and its subsidiaries generally enter into transactions denominated in their respective functional currencies. We may utilize certain futures or forward contracts with financial institutions to hedge foreign currency transactional exposures. Gains and losses with respect to these positions are deferred in equity as a component of AOCI and reflected in earnings upon collection of receivables or payment of commitments. At December 25, 2021, we had open forward contracts with a financial institution to sell approximately 6.0 million euros, 22.8 million Swedish kronor, and 11.0 million Norwegian kroner through April 2022.

The Company's primary foreign currency exposure arises from foreign-denominated revenues and profits and their translation into U.S. dollars. The primary currencies to which we are exposed include the Canadian dollar, the British pound sterling, the Mexican peso, and the South Korean won. The Company generally views its investments in foreign subsidiaries with a functional currency other than the U.S. dollar as long-term. As a result, we generally do not hedge these net investments. The net investment in foreign subsidiaries translated into U.S. dollars using the year-end exchange rates was $362.1 million at December 25, 2021 and $406.5 million at December 26, 2020. The potential loss in value of the Company's net investment in foreign subsidiaries resulting from a hypothetical 10 percent adverse change in quoted foreign currency exchange rates at December 25, 2021 and December 26, 2020 amounted to $36.2 million and $40.7 million, respectively. This change would be reflected in the foreign currency translation component of AOCI in the equity section of our Consolidated Balance Sheets until the foreign subsidiaries are sold or otherwise disposed.

We have significant investments in foreign operations whose functional currency is the British pound sterling, the Mexican peso, the Canadian dollar, and the South Korean won. In 2021, the value of the British pound decreased approximately one percent, the Mexican peso decreased approximately three percent, the Canadian dollar remained consistent, and the South Korean won decreased approximately seven percent, relative to the U.S. dollar. The resulting net foreign currency translation losses were included in calculating net other comprehensive loss for the year ended December 25, 2021 and were recorded as a component of AOCI.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The Company's accounting policies are more fully described in "Note 1 - Summary of Significant Accounting Policies" in the Notes to Consolidated Financial Statements. As disclosed in Note 1, the preparation of financial statements in conformity with general accepted accounting principles in the United States requires management to make estimates and assumptions about future events that affect amounts reported in the financial statements and accompanying notes. Actual results could differ significantly from those estimates. Management believes the following discussion addresses our most critical accounting policies, which are those that are most important to the portrayal of the Company's financial condition and results of operations and require management's most difficult, subjective, and complex judgments.

Inventory Valuation Reserves

Our inventories are valued at the lower-of-cost-or-market. The market price of copper cathode and scrap are subject to volatility. During periods when open market prices decline below net realizable value, the Company may need to provide an allowance to reduce the carrying value of its inventory. In addition, certain items in inventory may be considered excess or obsolete and, as such, we may establish an allowance to reduce the carrying value of those items to their net realizable value. Changes in these estimates related to the value of inventory, if any, may result in a materially adverse impact on our reported financial position or results of operations. The Company recognizes the impact of any changes in estimates, assumptions, and judgments in income in the period in which they are determined.

As of December 25, 2021 and December 26, 2020, our inventory valuation reserves were $10.1 million and $7.1 million, respectively. The expense recognized in each of these periods was immaterial to our Consolidated Financial Statements.

Impairment of Goodwill

As of December 25, 2021, we had $171.3 million of recorded goodwill from our business acquisitions, representing the excess of the purchase price over the fair value of the net assets we have acquired.

Goodwill is subject to impairment testing, which is performed annually as of the first day of the fourth quarter unless circumstances indicate the need to accelerate the timing of the tests. These circumstances include a significant change in the business climate, operating performance indicators, competition, or sale or disposition of a significant portion of one of our businesses. In our evaluation of goodwill impairment, we perform a qualitative assessment at the reporting unit level that requires management judgment and the use of estimates to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If the qualitative assessment is not conclusive, management compares the fair value of a reporting unit with its carrying amount and will recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, not to exceed the total amount of goodwill allocated to the reporting unit.

We identify reporting units by evaluating components of our operating segments and combining those components with similar economic characteristics. Reporting units with significant recorded goodwill include Domestic Piping Systems, B&K LLC, Great Lakes, Heatlink Group, European Operations, Jungwoo-Mueller, Mueller Middle East, Westermeyer, Turbotec, and Flex Duct.

The fair value of each reporting unit is estimated using a combination of the income and market approaches, incorporating market participant considerations and management's assumptions on revenue growth rates, operating margins, discount rates and expected capital expenditures. Estimates used by management can significantly affect the outcome of the impairment test. Changes in forecasted operating results and other assumptions could materially affect these estimates.

We evaluated each reporting unit during the fourth quarters of 2021 and 2020, as applicable. With the exception of the Turbotec reporting unit, the estimated fair value of each of these reporting units exceeded its carrying values in 2021 and 2020, and we do not believe that any of these reporting units were at risk of impairment as of December 25, 2021. During the third quarter of 2021, the Company recognized an impairment charge of $2.1 million related to Turbotec, reported within the Climate segment.

Pension and Other Postretirement Benefit Plans

We sponsor several qualified and nonqualified pension and other postretirement benefit plans in the U.S. and certain foreign locations. We recognize the overfunded or underfunded status of the plans as an asset or liability in the Consolidated Balance Sheets with changes in the funded status recorded through comprehensive income in the year in which those changes occur. The obligations for these plans are actuarially determined and affected by assumptions, including discount rates, expected long-term return on plan assets for defined benefit pension plans, and certain employee-related factors, such as retirement age and mortality. We evaluate the assumptions periodically and makes adjustments as necessary.

The expected return on plan assets is determined using the market value of plan assets. Differences between assumed and actual returns are amortized to the market value of assets on a straight-line basis over the average remaining service period of the plan participants using the corridor approach. The corridor approach defers all actuarial gains and losses resulting from variances between actual results and actuarial assumptions. These unrecognized gains and losses are amortized when the net gains and losses exceed 10 percent of the greater of the market value of the plan assets or the projected benefit obligation. The amount in excess of the corridor is amortized over the average remaining service period of the plan participants. For 2021, the average remaining service period for the pension plans was 11.5 years.

We determine the discount rate (which is required to be the rate at which the projected benefit obligation could be effectively settled as of the measurement date) with the assistance of actuaries, who calculate the yield available on high quality corporate bonds of a term that reflects the maturity and duration of expected benefit payments.

Environmental Reserves

We recognize an environmental reserve when it is probable that a loss is likely to occur and the amount of the loss is reasonably estimable. We estimate the duration and extent of our remediation obligations based upon reports of outside consultants, internal and third party estimates and analyses of cleanup costs and ongoing monitoring costs, communications with regulatory agencies, and changes in environmental law. If we were to determine that our estimates of the duration or extent of our environmental obligations were no longer accurate, we would adjust our environmental reserve accordingly in the period that such determination is made. Estimated future expenditures for environmental remediation are not discounted to their present value.

Environmental expenses that relate to ongoing operations are included as a component of cost of goods sold. Environmental expenses related to non-operating properties are presented below operating income in the Consolidated Statements of Income.

Income Taxes

We estimate total income tax expense based on domestic and international statutory income tax rates in the tax jurisdictions where we operate, permanent differences between financial reporting and tax reporting, and available credits and incentives.

Deferred income tax assets and liabilities are recognized for the future tax effects of temporary differences between the treatment of certain items for financial statement and tax purposes using tax rates in effect for the years in which the differences are expected to reverse. Realization of certain components of deferred tax assets is dependent upon the occurrence of future events.

Valuation allowances are recorded when, in the opinion of management, it is more likely than not that all or a portion of the deferred tax assets will not be realized. These valuation allowances can be impacted by changes in tax laws, changes to statutory tax rates, and future taxable income levels, and are based on our judgment, estimates, and assumptions. In the event we were to determine that we would not be able to realize all or a portion of the net deferred tax assets in the future, we would increase the valuation allowance through a charge to income tax expense in the period that such determination is made. Conversely, if we were to determine that we would be able to realize our deferred tax assets in the future, in excess of the net carrying amounts, we would decrease the recorded valuation allowance through a decrease to income tax expense in the period that such determination is made.

We record liabilities for known or anticipated tax issues based on our analysis of whether, and the extent to which, additional taxes will be due. These unrecognized tax benefits are retained until the associated uncertainty is resolved. Tax benefits for uncertain tax positions that are recognized in the Consolidated Financial Statements are measured as the largest amount of benefit, determined on a cumulative probability basis, that is more likely than not to be realized upon ultimate settlement. To the extent we prevail in matters for which a liability for an uncertain tax position is established or are required to pay amounts in excess of the liability, our effective tax rate in a given period may be materially affected.

New Accounting Pronouncements

See "Note 1 – Summary of Significant Accounting Policies" in our Consolidated Financial Statements.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING INFORMATION

This Annual Report contains various forward-looking statements and includes assumptions concerning the Company's operations, future results, and prospects. These forward-looking statements are based on current expectations and are subject to risk and uncertainties, and may be influenced by factors that could cause actual outcomes and results to be materially different from those predicted. The forward-looking statements reflect knowledge and information available as of the date of preparation of the Annual Report, and the Company undertakes no obligation to update these forward-looking statements. We identify the forward-looking statements by using the words "anticipates," "believes," "expects," "intends" or similar expressions in such statements.

In connection with the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, the Company provides the following cautionary statement identifying important economic, political, and technological factors, among others, which could cause actual results or events to differ materially from those set forth in or implied by the forward-looking statements and related assumptions. In addition to those factors discussed under "Risk Factors" in this Annual Report on Form 10-K, such factors include: (i) the current and projected future business environment, including interest rates and capital and consumer spending; (ii) the domestic housing and commercial construction industry environment; (iii) availability and price fluctuations in commodities (including copper, natural gas, and other raw materials, including crude oil that indirectly affects plastic resins); (iv) competitive factors and competitor responses to the Company's initiatives; (v) stability of government laws and regulations, including taxes; (vi) availability of financing; and (vii) continuation of the environment to make acquisitions, domestic and foreign, including regulatory requirements and market values of candidates.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF INCOME
Years Ended December 25, 2021, December 26, 2020, and December 28, 2019

(In thousands, except per share data)	2021	2020	2019
Net sales	$ 3,769,345	$ 2,398,043	$ 2,430,616
Cost of goods sold	2,938,989	1,966,161	2,035,610
Depreciation and amortization	45,390	44,843	42,693
Selling, general, and administrative expense	184,052	159,483	162,358
Litigation settlement, net	—	(22,053)	—
Gain on sale of businesses	(57,760)	—	—
Gain on sale of assets, net	—	—	(963)
Impairment charges	2,829	3,771	—
Insurance recovery	—	—	(485)
Operating income	655,845	245,838	191,403
Interest expense	(7,709)	(19,247)	(25,683)
Redemption premium	(5,674)	—	—
Environmental expense	(5,053)	(4,454)	(1,321)
Pension plan termination expense	—	(17,835)	—
Other income, net	3,730	4,887	1,684
Income before income taxes	641,139	209,189	166,083
Income tax expense	(165,858)	(55,321)	(35,257)
Loss from unconsolidated affiliates, net of foreign tax	(157)	(10,219)	(24,594)
Consolidated net income	475,124	143,649	106,232
Net income attributable to noncontrolling interests	(6,604)	(4,156)	(5,260)
Net income attributable to Mueller Industries, Inc.	$ 468,520	$ 139,493	$ 100,972
Weighted average shares for basic earnings per share	56,011	55,821	55,798
Effect of dilutive stock-based awards	787	569	545
Adjusted weighted average shares for diluted earnings per share	56,798	56,390	56,343
Basic earnings per share	$ 8.36	$ 2.50	$ 1.81
Diluted earnings per share	$ 8.25	$ 2.47	$ 1.79
Dividends per share	$ 0.52	$ 0.40	$ 0.40

See accompanying notes to consolidated financial statements.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Years Ended December 25, 2021, December 26, 2020, and December 28, 2019

(In thousands)	2021	2020	2019
Consolidated net income	$ 475,124	$ 143,649	$ 106,232
Other comprehensive (loss) income, net of tax:			
Foreign currency translation	(6,730)	10,350	7,409
Net change with respect to derivative instruments and hedging activities, net of tax of $47, $(146), and $(195)	(181)	508	690
Net change in pension and postretirement obligation adjustments, net of tax of $(1,379), $(1,560), and $(671)	5,703	4,652	3,112
Attributable to unconsolidated affiliates, net of tax of $(284), $38, and $244	978	(132)	(839)
Total other comprehensive (loss) income, net	(230)	15,378	10,372
Consolidated comprehensive income	474,894	159,027	116,604
Comprehensive income attributable to noncontrolling interests	(4,838)	(5,647)	(4,610)
Comprehensive income attributable to Mueller Industries, Inc.	$ 470,056	$ 153,380	$ 111,994

See accompanying notes to consolidated financial statements.

MUELLER INDUSTRIES, INC.
CONSOLIDATED BALANCE SHEETS
As of December 25, 2021 and December 26, 2020

(In thousands, except share data)	2021	2020
Assets		
Current assets:		
Cash and cash equivalents	$ 87,924	$ 119,075
Accounts receivable, less allowance for doubtful accounts of $2,590 in 2021 and $1,538 in 2020	471,859	357,532
Inventories	430,244	315,002
Other current assets	28,976	33,752
Total current assets	1,019,003	825,361
Property, plant, and equipment, net	385,562	376,572
Operating lease right-of-use assets	23,510	29,301
Goodwill, net	171,330	167,764
Intangible assets, net	61,714	77,207
Investment in unconsolidated affiliates	61,133	37,976
Other noncurrent assets	6,684	14,387
Total Assets	$ 1,728,936	$ 1,528,568
Liabilities		
Current liabilities:		
Current portion of debt	$ 811	$ 41,283
Accounts payable	180,793	147,741
Accrued wages and other employee costs	49,629	46,299
Current portion of operating lease liabilities	6,015	6,259
Other current liabilities	145,191	98,061
Total current liabilities	382,439	339,643
Long-term debt, less current portion	1,064	286,593
Pension liabilities	5,572	13,552
Postretirement benefits other than pensions	11,961	13,289
Environmental reserves	17,678	21,256
Deferred income taxes	14,347	16,842
Noncurrent operating lease liabilities	17,099	21,602
Other noncurrent liabilities	21,813	14,731
Total liabilities	471,973	727,508
Equity		
Mueller Industries, Inc. stockholders' equity:		
Preferred stock - $1.00 par value; shares authorized 5,000,000; none outstanding	—	—
Common stock - $.01 par value; shares authorized 100,000,000; issued 80,183,004; outstanding 57,295,961 in 2021 and 57,087,432 in 2020	802	802
Additional paid-in capital	286,208	280,051
Retained earnings	1,458,489	1,019,694
Accumulated other comprehensive loss	(53,347)	(54,883)
Treasury common stock, at cost	(470,034)	(468,919)
Total Mueller Industries, Inc. stockholders' equity	1,222,118	776,745
Noncontrolling interests	34,845	24,315
Total equity	1,256,963	801,060
Commitments and contingencies	—	—
Total Liabilities and Equity	$ 1,728,936	$ 1,528,568

See accompanying notes to consolidated financial statements.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
Years Ended December 25, 2021, December 26, 2020, and December 28, 2019

(In thousands)	2021	2020	2019
Operating activities:			
Consolidated net income	$ 475,124	$ 143,649	$ 106,232
Reconciliation of consolidated net income to net cash provided by operating activities:			
Depreciation	39,120	38,715	37,337
Amortization of intangibles	6,270	6,128	5,356
Amortization of debt issuance costs	265	319	318
Loss from unconsolidated affiliates	157	10,219	24,594
Insurance proceeds - noncapital related	—	—	485
Redemption premium	5,674	—	—
Change in the fair value of contingent consideration	—	—	3,625
Insurance recovery	—	—	(485)
Stock-based compensation expense	9,822	8,570	8,744
Provision for doubtful accounts receivable	1,216	1,208	(80)
Non-cash pension plan termination expense	—	11,642	—
(Gain) loss on disposals of assets	(769)	132	(963)
Gain on sale of businesses	(57,760)	—	—
Impairment charges	2,829	3,771	—
Deferred income tax expense (benefit)	7,413	(4,046)	(428)
Changes in assets and liabilities, net of effects of businesses acquired and sold:			
Receivables	(124,708)	(76,404)	6,585
Inventories	(119,514)	5,207	39,561
Other assets	919	20,609	(15,639)
Current liabilities	73,755	74,097	(7,076)
Other liabilities	(5,467)	(1,142)	(7,944)
Other, net	(2,645)	2,399	322
Net cash provided by operating activities	311,701	245,073	200,544

See accompanying notes to consolidated financial statements.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(continued)
Years Ended December 25, 2021, December 26, 2020, and December 28, 2019

(In thousands)	2021	2020	2019
Investing activities:			
Proceeds from sale of assets, net of cash transferred	2,302	181	3,240
Acquisition of businesses, net of cash acquired	(30,206)	(72,648)	3,465
Proceeds from sale of business, net of cash sold	81,884	—	—
Capital expenditures	(31,833)	(43,885)	(31,162)
Payment received for (issuance of) notes receivable	8,539	(9,270)	—
Investments in unconsolidated affiliates	(1,613)	—	(16,000)
Net cash provided by (used in) investing activities	29,073	(125,622)	(40,457)
Financing activities:			
Dividends paid to stockholders of Mueller Industries, Inc.	(29,137)	(22,341)	(22,325)
Dividends paid to noncontrolling interests	(9,722)	—	(846)
Issuance of long-term debt	595,000	190,038	100,658
Repayments of long-term debt	(920,610)	(246,898)	(206,718)
Repayment of debt by consolidated joint ventures, net	(5,113)	(259)	(4,305)
Repurchase of common stock	(4,864)	(5,574)	(1,763)
Payment of contingent consideration	(1,250)	(7,000)	(3,170)
Net cash received (used) to settle stock-based awards	85	(230)	(1,225)
Debt issuance costs	(1,111)	—	—
Net cash used in financing activities	(376,722)	(92,264)	(139,694)
Effect of exchange rate changes on cash	(1,052)	2,147	511
(Decrease) increase in cash, cash equivalents, and restricted cash	(37,000)	29,334	20,904
Cash, cash equivalents, and restricted cash at the beginning of the year	127,376	98,042	77,138
Cash, cash equivalents, and restricted cash at the end of the year	$ 90,376	$ 127,376	$ 98,042

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
Years Ended December 25, 2021, December 26, 2020, and December 28, 2019

	2021		2020		2019	
(In thousands)	Shares	Amount	Shares	Amount	Shares	Amount
Common stock:						
Balance at beginning of year	80,183	$ 802	80,183	$ 802	80,183	$ 802
Balance at end of year	80,183	$ 802	80,183	$ 802	80,183	$ 802
Additional paid-in capital:						
Balance at beginning of year		$ 280,051		$ 278,609		$ 276,849
Acquisition (issuance) of shares under incentive stock option plans		720		(745)		(644)
Stock-based compensation expense		9,822		8,570		8,744
Issuance of restricted stock		(4,385)		(6,383)		(6,340)
Balance at end of year		$ 286,208		$ 280,051		$ 278,609
Retained earnings:						
Balance at beginning of year		$ 1,019,694		$ 903,070		$ 824,737
Net income attributable to Mueller Industries, Inc.		468,520		139,493		100,972
Dividends paid or payable to stockholders of Mueller Industries, Inc.		(29,725)		(22,869)		(22,639)
Balance at end of year		$ 1,458,489		$ 1,019,694		$ 903,070
Accumulated other comprehensive loss:						
Balance at beginning of year		$ (54,883)		$ (68,770)		$ (79,792)
Total other comprehensive income attributable to Mueller Industries, Inc.		1,536		13,887		11,022
Balance at end of year		$ (53,347)		$ (54,883)		$ (68,770)

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(continued)
Years Ended December 25, 2021, December 26, 2020, and December 28, 2019

	2021		2020		2019	
(In thousands)	Shares	Amount	Shares	Amount	Shares	Amount
Treasury stock:						
Balance at beginning of year	23,096	$ (468,919)	23,234	$ (470,243)	23,480	$ (474,240)
Issuance of shares under incentive stock option plans	(88)	(636)	(71)	515	(94)	1,908
Repurchase of common stock	97	(4,864)	248	(5,574)	162	(4,251)
Issuance of restricted stock	(218)	4,385	(315)	6,383	(314)	6,340
Balance at end of year	22,887	$ (470,034)	23,096	$ (468,919)	23,234	$ (470,243)
Noncontrolling interests:						
Balance at beginning of year		$ 24,315		$ 18,668		$ 14,904
Purchase of Mueller Middle East		15,414		—		—
Dividends paid to noncontrolling interests		(9,722)		—		(846)
Net income attributable to noncontrolling interests		6,604		4,156		5,260
Foreign currency translation		(1,766)		1,491		(650)
Balance at end of year		$ 34,845		$ 24,315		$ 18,668

See accompanying notes to consolidated financial statements.

Notes to Consolidated Financial Statements

Note 1 – Summary of Significant Accounting Policies

Nature of Operations

The principal business of Mueller Industries, Inc. is the manufacture and sale of copper tube and fittings; line sets; PEX plastic tube and fittings; steel nipples; brass rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; compressed gas valves; refrigeration valves and fittings; pressure vessels; coaxial heat exchangers; and insulated flexible duct systems. The Company also resells brass and plastic plumbing valves, plastic fittings, malleable iron fittings, faucets, and plumbing specialty products. The Company markets its products to the HVAC, plumbing, refrigeration, hardware, and other industries. Mueller's operations are located throughout the United States and in Canada, Mexico, Great Britain, South Korea, the Middle East, and China.

Fiscal Years

The Company's fiscal year consists of 52 weeks ending on the last Saturday of December. These dates were December 25, 2021, December 26, 2020, and December 28, 2019.

Basis of Presentation

The Consolidated Financial Statements include the accounts of Mueller Industries, Inc. and its majority-owned subsidiaries. The noncontrolling interests represent a private ownership interest of 40 percent of Jungwoo Metal Ind. Co., LTD (Jungwoo-Mueller). In addition, as of December 25, 2021 this includes a 45 percent ownership interest of Mueller Middle East BSC (Mueller Middle East).

Certain prior year balances have been reclassified to conform to current year presentation.

Revenue Recognition

Given the nature of the Company's business and product offerings, sales transactions with customers are generally comprised of a single performance obligation that involves delivery of the products identified in the contracts with customers. Performance obligations are generally satisfied at the point in time of shipment and payment is generally due within sixty days. Variable consideration is estimated for future rebates on certain product lines and product returns. The Company records variable consideration as an adjustment to the transaction price in the period it is incurred. Since variable consideration is settled within a short period of time, the time value of money is not significant. The cost of shipping product to customers is expensed as incurred as a component of cost of goods sold.

The Company's Domestic Piping Systems Group engages in certain transactions where it acts as an agent. Revenue from these transactions is recorded on a net basis.

See "Note 3 – Segment Information" for additional information on disaggregation of revenue from contracts with customers.

Acquisitions

Accounting for acquisitions requires the Company to recognize separately from goodwill the assets acquired and liabilities assumed at their acquisition date fair values. Goodwill is measured as the excess of the purchase price over the net amount allocated to the identifiable assets acquired and liabilities assumed. While management uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date, the estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. The operating results generated by the acquired businesses are included in the Consolidated Statements of Income from their respective dates of acquisition. Acquisition related costs are expensed as incurred. See "Note 2 – Acquisitions & Dispositions" for additional information.

Cash Equivalents and Restricted Cash

Temporary investments with original maturities of three months or less are considered to be cash equivalents. These investments are stated at cost. At December 25, 2021 and December 26, 2020, temporary investments consisted of money market mutual funds, commercial paper, bank repurchase agreements, and U.S. and foreign government securities totaling approximately $1.4 million and $13.3 million, respectively.

Amounts included in restricted cash relate to required deposits in brokerage accounts that facilitate the Company's hedging activities as well as imprest funds for the Company's self-insured workers' compensation program. See "Note 4 – Cash, Cash Equivalents, and Restricted Cash" for additional information.

Allowance for Doubtful Accounts

The Company routinely grants credit to many of its customers without collateral. The risk of credit loss in trade receivables is substantially mitigated by the credit evaluation process. The Company provides an allowance for receivables that may not be fully collected. In circumstances where the Company is aware of a customer's inability to meet their financial obligations (e.g., bankruptcy filings or substantial credit rating downgrades), it records an allowance for doubtful accounts against amounts due to reduce the net recognized receivable to the amount it believes most likely will be collected. For all other customers, the Company recognizes an allowance for doubtful accounts based on its historical collection experience and the impact of current economic conditions. If circumstances change (e.g., greater than expected defaults or an unexpected material change in a major customer's ability to meet their financial obligations), the Company could change its estimate of the recoverability of amounts due by a material amount. Historically, credit losses have been within management's expectations. The balance for uncollectible accounts was $2.6 million and $1.5 million as of December 25, 2021 and December 26, 2020, respectively.

Inventories

The Company's inventories are valued at the lower-of-cost-or-market. The material component of its U.S. copper tube and copper fittings inventories is valued on a LIFO basis and the non-material components of U.S. copper tube and copper fittings inventories are valued on a FIFO basis. The material component of its U.K. and Canadian copper tube inventories are valued on a FIFO basis. The material component of its brass rod and forgings inventories are valued on a FIFO basis. Certain inventories are valued on an average cost basis. Elements of cost in finished goods inventory in addition to the cost of material include depreciation, amortization, utilities, maintenance, production wages, and transportation costs.

The market price of copper cathode and scrap is subject to volatility. During periods when open market prices decline below net book value, the Company may need to provide an allowance to reduce the carrying value of its inventory. In addition, certain items in inventory may be considered obsolete and, as such, the Company may establish an allowance to reduce the carrying value of those items to their net realizable value. Changes in these estimates related to the value of inventory, if any, may result in a materially adverse impact on the Company's reported financial position or results of operations. The Company recognizes the impact of any changes in estimates, assumptions, and judgments in income in the period in which it is determined. See "Note 5 – Inventories" for additional information.

Leases

The Company leases certain manufacturing facilities, distribution centers, office space, and equipment. Leases with an initial term of twelve months or less are not recorded on the balance sheet; expense for these leases is recognized on a straight line-basis over the term of the lease. Most of the Company's leases include one or more options to renew up to five years and have remaining terms of one to 15 years. These options are not included in the Company's valuation of the right-of-use assets as the Company is not reasonably certain to exercise the options.

The Company has certain vehicle leases that are financing; however, these leases are deemed immaterial for disclosure.See "Note 8 – Leases" for additional information.

Property, Plant, and Equipment

Property, plant, and equipment is stated at cost less accumulated depreciation. Expenditures for major additions and improvements are capitalized, while minor replacements, maintenance, and repairs are charged to expense as incurred. Depreciation of buildings, machinery, and equipment is provided on the straight-line method over the estimated useful lives ranging from 20 to 40 years for buildings and five to 20 years for machinery and equipment. Leasehold improvements are amortized over the lesser of their useful life or the remaining lease term.

The Company continually evaluates these assets to determine whether events or changes in circumstances have occurred that may warrant revision of the estimated useful life or whether the remaining balance should be evaluated for possible impairment. See "Note 9 – Property, Plant, and Equipment, Net" for additional information.

Goodwill

Goodwill is recognized for the excess of the purchase price over the fair value of tangible and identifiable intangible net assets of businesses acquired. Several factors give rise to goodwill in business acquisitions, such as the expected benefit from synergies of the combination and the existing workforce of the acquired business. Goodwill is evaluated annually for possible impairment as of the first day of the fourth quarter unless circumstances indicate the need to accelerate the timing of the evaluation. In the evaluation of goodwill impairment, management performs a qualitative assessment to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If the qualitative assessment is not conclusive, management compares the fair value of a reporting unit with its carrying amount and will recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, not to exceed the total amount of goodwill allocated to the reporting unit.

Fair value for the Company's reporting units is determined using a combination of the income and market approaches (level 3 within the fair value hierarchy), incorporating market participant considerations and management's assumptions on revenue growth rates, operating margins, discount rates and expected capital expenditures. The market approach measures the fair value of a business through the analysis of publicly traded companies or recent sales of similar businesses. The income approach uses a discounted cash flow model to estimate the fair value of reporting units based on expected cash flows (adjusted for capital investment required to support operations) and a terminal value. This cash flow stream is discounted to its present value to arrive at a fair value for each reporting unit. Future earnings are estimated using the Company's most recent annual projections, applying a growth rate to future periods. Those projections are directly impacted by the condition of the markets in which the Company's businesses participate. The discount rate selected for the reporting units is generally based on rates of return available for comparable companies at the date of valuation. Fair value determinations may include both internal and third-party valuations. See "Note 10 – Goodwill and Other Intangible Assets" for additional information.

Investments in Unconsolidated Affiliates

Tecumseh

The Company owns a 50 percent interest in an unconsolidated affiliate that acquired Tecumseh Products Company (Tecumseh). The Company also owns a50 percent interest in a second unconsolidated affiliate that provides financing to Tecumseh. These investments are recorded using the equity method of accounting, as the Company can exercise significant influence but does not own a majority equity interest or otherwise control the respective entities. Under the equity method of accounting, these investments are stated at initial cost and are adjusted for subsequent additional investments and the Company's proportionate share of earnings or losses and distributions.

The Company records its proportionate share of the investees' net income or loss, net of foreign taxes, one quarter in arrears as income (loss) from unconsolidated affiliates, net of foreign tax, in the Consolidated Statements of Income. The Company's proportionate share of the investees' other comprehensive income (loss), net of income taxes, is recorded in the Consolidated Statements of Comprehensive Income and Consolidated Statements of Changes in Equity. The U.S. tax effect of the Company's proportionate share of Tecumseh's income or loss is recorded in income tax expense in the Consolidated Statements of Income. In general, the equity investment in unconsolidated affiliates is equal to the current equity investment plus the investees' net accumulated losses.

Retail Distribution

The Company acquired a 17 percent noncontrolling equity interest in a limited liability company in the retail distribution business by contributing the outstanding common stock of Die-Mold in exchange for the equity method interest. The transaction was recorded as a deconsolidation of a subsidiary and the recognition of an equity method investment at fair value, as described in "Note 2 - Acquisitions and Dispositions." This investment is recorded using the equity method of accounting. The Company records its proportionate share of the investees' net income or loss one month in arrears as income (loss) from unconsolidated affiliates in the Consolidated Statements of Income. The Company's proportionate share of the investees' other comprehensive income (loss), net of income taxes, is recorded in the Consolidated Statements of Comprehensive Income and Consolidated Statements of Changes in Equity.

The investments in unconsolidated affiliates are assessed periodically for impairment and written down when the carrying amount is not considered fully recoverable. See "Note 11 – Investments in Unconsolidated Affiliates" for additional information.

Self-Insurance Accruals

The Company is primarily self-insured for workers' compensation claims and benefits paid under certain employee health care programs. Accruals are primarily based on estimated undiscounted cost of claims, which includes incurred but not reported claims, and are classified as accrued wages and other employee costs.

Pension and Other Postretirement Benefit Plans

The Company sponsors several qualified and nonqualified pension and other postretirement benefit plans in the U.S. and certain foreign locations. The Company recognizes the overfunded or underfunded status of the plans as an asset or liability in the Consolidated Balance Sheets with changes in the funded status recorded through comprehensive income in the year in which those changes occur. The obligations for these plans are determined by actuaries and affected by the assumptions, including discount rates, expected long-term return on plan assets for defined benefit pension plans, and certain employee-related factors, such as retirement age and mortality. The Company evaluates its assumptions periodically and makes adjustments as necessary.

The expected return on plan assets is determined using the market value of plan assets. Differences between assumed and actual returns are amortized to the market value of assets on a straight-line basis over the average remaining service period of the plan participants using the corridor approach. The corridor approach defers all actuarial gains and losses resulting from variances between actual results and actuarial assumptions. These unrecognized gains and losses are amortized when the net gains and losses exceed 10 percent of the greater of the market value of the plan assets or the projected benefit obligation. The amount in excess of the corridor is amortized over the average remaining service period of the plan participants. For 2021, the average remaining service period for the pension plans was 11.5 years.

We determine the discount rate (which is required to be the rate at which the projected benefit obligation could be effectively settled as of the measurement date) with the assistance of actuaries, who calculate the yield available on high quality corporate bonds of a term that reflects the maturity and duration of expected benefit payments. See "Note 13 – Benefit Plans" for additional information.

Environmental Reserves and Environmental Expenses

The Company recognizes an environmental liability when it is probable the liability exists and the amount is reasonably estimable. The Company estimates the duration and extent of its remediation obligations based upon reports of outside consultants, internal and third party estimates and analyses of cleanup costs and ongoing monitoring costs, communications with regulatory agencies, and changes in environmental law. If the Company were to determine that its estimates of the duration or extent of its environmental obligations were no longer accurate, it would adjust environmental liabilities accordingly in the period that such determination is made. Estimated future expenditures for environmental remediation are not discounted to their present value.

Environmental expenses that relate to ongoing operations are included as a component of cost of goods sold. Environmental expenses related to non-operating properties are presented below operating income in the Consolidated Statements of Income. See "Note 14 – Commitments and Contingencies" for additional information.

Earnings Per Share

Basic earnings per share is computed based on the weighted average number of common shares outstanding. Diluted earnings per share reflects the increase in weighted average common shares outstanding that would result from the assumed exercise of outstanding stock options and vesting of restricted stock awards calculated using the treasury stock method. There were no stock-based awards excluded from the computation of diluted earnings per share for the year ended December 25, 2021 and approximately 10 thousand excluded for the year ended December 26, 2020 because they were antidilutive.

Income Taxes

Deferred income tax assets and liabilities are recognized when differences arise between the treatment of certain items for financial statement and tax purposes. Realization of certain components of deferred tax assets is dependent upon the occurrence of future events. The Company records valuation allowances to reduce its deferred tax assets to the amount it believes is more likely than not to be realized. These valuation allowances can be impacted by changes in tax laws, changes to statutory tax rates, and future taxable income levels and are based on the Company's judgment, estimates, and assumptions regarding those future events. In the event the Company was to determine that it would not be able to realize all or a portion of the net deferred tax assets in the future, it would increase the valuation allowance through a charge to income tax expense in the period that such determination is made. Conversely, if it was to determine that it would be able to realize its deferred tax assets in the future, in excess of the net carrying amounts, the Company would decrease the recorded valuation allowance through a decrease to income tax expense in the period that such determination is made.

The Company provides for uncertain tax positions and the related interest and penalties, if any, based upon management's assessment of whether a tax benefit is more likely than not to be sustained upon examination by tax authorities. Tax benefits for uncertain tax positions that are recognized in the financial statements are measured as the largest amount of benefit, determined on a cumulative probability basis, that is more likely than not to be realized upon ultimate settlement. To the extent the Company prevails in matters for which a liability for an uncertain tax position is established or is required to pay amounts in excess of the liability, the Company's effective tax rate in a given financial statement period may be affected.

These estimates are highly subjective and could be affected by changes in business conditions and other factors. Changes in any of these factors could have a material impact on future income tax expense. See "Note 15 – Income Taxes" for additional information.

Taxes Collected from Customers and Remitted to Governmental Authorities

Taxes assessed by a governmental authority that are directly imposed on a revenue producing transaction between the Company and its customers, primarily value added taxes in foreign jurisdictions, are accounted for on a net (excluded from revenues and costs) basis.

Stock-Based Compensation

The Company has in effect stock incentive plans under which stock-based awards have been granted to certain employees and members of its Board of Directors. Stock-based compensation expense is recognized in the Consolidated Statements of Income as a component of selling, general, and administrative expense based on the grant date fair value of the awards. See "Note 17 – Stock-Based Compensation" for additional information.

Concentrations of Credit and Market Risk

Concentrations of credit risk with respect to accounts receivable are limited due to the large number of customers comprising the Company's customer base, and their dispersion across different geographic areas and different industries, including HVAC, plumbing, refrigeration, hardware, automotive, OEMs, and others.

The Company minimizes its exposure to base metal price fluctuations through various strategies. Generally, it prices an equivalent amount of copper raw material, under flexible pricing arrangements it maintains with its suppliers, at the time it determines the selling price of finished products to its customers.

Derivative Instruments and Hedging Activities

The Company's earnings and cash flows are subject to fluctuations due to changes in commodity prices, foreign currency exchange rates, and interest rates. The Company uses derivative instruments such as commodity futures contracts, foreign currency forward contracts, and interest rate swaps to manage these exposures.

All derivatives are recognized in the Consolidated Balance Sheets at their fair value. On the date the derivative contract is entered into, it is either a) designated as a hedge of (i) a forecasted transaction or the variability of cash flow to be paid (cash flow hedge) or (ii) the fair value of a recognized asset or liability (fair value hedge), or b) not designated in a hedge accounting relationship, even though the derivative contract was executed to mitigate an economic exposure (economic hedge), as the Company does not enter into derivative contracts for trading purposes. Changes in the fair value of a derivative that is qualified, designated, and highly effective as a cash flow hedge are recorded in stockholders' equity within accumulated other comprehensive income (AOCI), to the extent effective, until they are reclassified to earnings in the same period or periods during which the hedged transaction affects earnings. Changes in the fair value of undesignated derivative instruments executed as economic hedges are reported in current earnings.

The Company documents all relationships between derivative instruments and hedged items, as well as the risk-management objective and strategy for undertaking various hedge transactions. This process includes linking all derivative instruments that are designated as fair value hedges to specific assets and liabilities in the Consolidated Balance Sheets and linking cash flow hedges to specific forecasted transactions or variability of cash flow.

The Company also assesses, both at the hedge's inception and on an ongoing basis, whether the designated derivative instruments that are used in hedging transactions are highly effective in offsetting changes in cash flow or fair values of hedged items. When a derivative instrument is determined not to be highly effective as a hedge or the underlying hedged transaction is no longer probable of occurring, hedge accounting is discontinued prospectively in accordance with the derecognition criteria for hedge accounting.

The Company primarily executes derivative contracts with major financial institutions. These counterparties expose the Company to credit risk in the event of non-performance. The amount of such exposure is limited to the fair value of the contract plus the unpaid portion of amounts due to the Company pursuant to terms of the derivative instruments, if any. If a downgrade in the credit rating of these counterparties occurs, management believes that this exposure is mitigated by provisions in the derivative arrangements which allow for the legal right of offset of any amounts due to the Company from the counterparties with any amounts payable to the counterparties by the Company. As a result, management considers the risk of loss from counterparty default to be minimal. See "Note 7 – Derivative Instruments and Hedging Activities" for additional information.

Fair Value of Financial Instruments

The carrying amounts for cash and cash equivalents, accounts receivable, and accounts payable approximate fair value due to the short-term maturity of these instruments.

The fair value of long-term debt at December 25, 2021 approximates the carrying value on that date. The estimated fair values were determined based on quoted market prices and the current rates offered for debt with similar terms and maturities. The fair value of long-term debt is classified as level 2 within the fair value hierarchy. This classification is defined as a fair value determined using market-based inputs other than quoted prices that are observable for the liability, either directly or indirectly.

Foreign Currency Translation

For foreign subsidiaries for which the functional currency is not the U.S. dollar, balance sheet accounts are translated at exchange rates in effect at the end of the year and income statement accounts are translated at average exchange rates for the year. Translation gains and losses are included in equity as a component of AOCI. Transaction gains and losses that arise from exchange rate fluctuations on transactions denominated in a currency other than the functional currency are recognized in selling, general, and administrative expense in the Consolidated Statements of Income. Included in the Consolidated Statements of Income were net transaction losses of $0.6 million in 2021, losses of $0.5 million in 2020, and gains of $0.2 million in 2019.

Use of and Changes in Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the United States (U.S. GAAP) requires management to make estimates, assumptions, and judgments that affect the amounts reported in the financial statements and accompanying notes. Management makes its best estimate of the ultimate outcome for these items based on historical trends and other information available when the financial statements are prepared. Changes in estimates are recognized in accordance with the accounting rules for the estimate, which is typically in the period when new information becomes available to management. Areas where the nature of the estimate makes it reasonably possible that actual results could materially differ from amounts estimated include but are not limited to: pension and other postretirement benefit plan obligations, tax liabilities, loss contingencies, litigation claims, environmental reserves, and impairment assessments of long-lived assets (including goodwill).

Recently Adopted Accounting Standards

In October 2020, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2020-10, *Codification Improvements: An Amendment of the FASB Accounting Standards Codification*. The ASU facilitates updates to the Accounting Standards Codification for technical corrections such as conforming amendments, clarifications to guidance, simplifications to wording or structure of guidance, and other minor improvements. The Company adopted the ASU during the first quarter of 2021 using a retrospective approach. The adoption of the ASU did not have a material impact on the Company's Consolidated Financial Statements.

In January 2020, the FASB issued ASU No. 2020-01, *Investments - Equity Securities (Topic 321), Investments - Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815): Clarifying the Interactions between Topic 321, Topic 323, and Topic 815*. The new guidance addresses accounting for the transition into and out of the equity method and measuring certain purchased options and forward contracts to acquire investments. The Company adopted the ASU during the first quarter of 2021 using a prospective approach. The adoption of the ASU did not have a material impact on the Company's Consolidated Financial Statements.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes: Simplifying the Accounting for Income Taxes*. The new guidance affects general principles within Topic 740, Income Taxes. The amendments of ASU 2019-12 are meant to simplify and reduce the cost of accounting for income taxes. The Company adopted the ASU during the first quarter of 2021 using a prospective approach. The adoption of the ASU did not have a material impact on the Company's Consolidated Financial Statements.

Recently Issued Accounting Standards

In January 2021, the FASB issued ASU No. 2021-01, *Reference Rate Reform (Topic 848): An Amendment of the FASB Accounting Standards Codification.* The new guidance was issued in response to concerns about structural risks of interbank offered rates, and, particularly, the risk of cessation of the London Interbank Offered Rate (LIBOR). Regulators in numerous jurisdictions around the world have undertaken reference rate reform initiatives to identify alternative reference rates that are more observable or transaction based and less susceptible to manipulation. The ASU is effective in 2021 but can be applied through December 31, 2022. The updated guidance requires retrospective adoption, and early adoption is permitted. The Company does not expect the adoption of the ASU to have a material impact on its Consolidated Financial Statements.

In October 2021, the FASB issued ASU No. 2021-08, *Business Combinations (Topic 805): An Amendment of the FASB Accounting Standards Codification.* The new guidance was issued to improve accounting for acquired revenue contracts with customers in a business combination by addressing diversity in practice and inconsistency related to the (i) recognition of an acquired contract liability and (ii) payment terms and their effect on subsequent revenue recognized by the acquirer. The ASU is effective for fiscal years beginning after December 15, 2022 for public entities. The updated guidance requires prospective adoption, and early adoption is permitted. The Company does not expect adoption of the ASU to have a material impact on its Consolidated Financial Statements.

Note 2 – Acquisitions and Dispositions

2021 Acquisitions

Mueller Middle East

On December 7, 2021, the Company entered into an agreement providing for the purchase of an additional 15 percent equity interest in Mueller Middle East for a total of 55 percent, for approximately $20.0 million. The total purchase price consisted of $15.8 million in cash paid at closing (net of cash acquired), a gain recognized on the settlement of preexisting relationships of $2.6 million, a contingent consideration arrangement of $1.0 million, and the fair value of the Company's existing investment in the joint venture of $0.7 million. Mueller Middle East, which manufactures copper tube, is headquartered in Bahrain. This business complements the Company's existing copper tube businesses in the Piping Systems segment. Prior to entering into this agreement, the Company was the technical and marketing lead with a 40 percent ownership in a joint venture with Cayan Ventures and Bahrain Mumtalakat Holding Company and accounted for this investment under the equity method of accounting. The Company began consolidating this business for financial reporting purposes in December 2021. Mueller Middle East manufactures and sells copper coils to certain Mueller subsidiaries. Total sales to Mueller subsidiaries were approximately $48.2 million and $37.4 million for the period in 2021 prior to consolidation and 2020, respectively.

H&C Flex

On December 20, 2020, the Company entered into an asset purchase agreement with Hart & Cooley LLC. The transaction closed on January 29, 2021, whereby the Company purchased the Hart & Cooley flexible duct business, which included inventory, manufacturing equipment, and related assets for approximately $15.3 million. The total purchase price consisted of $14.0 million in cash paid at closing and a contingent consideration arrangement of $1.3 million, which was paid in Q3 2021. The Company treated this as a business combination. The acquired business, H&C Flex, is a manufacturer and distributor of insulated HVAC flexible duct systems. It is reported within and complements the Company's existing businesses in the Climate segment.

2020 Acquisitions

Kessler

On August 3, 2020, the Company entered into an asset purchase agreement with Wieland-Kessler LLC, whereby the Company purchased the Kessler distribution business, which included inventory, manufacturing equipment, and related assets. The total purchase price was $57.2 million in cash paid at closing. The Company treated this as a business combination. The acquired business, Kessler Sales and Distribution, LLC (Kessler), is a distributor of residential and commercial plumbing products. It is reported within and complements the Company's existing businesses in the Piping Systems segment. For the years ended December 25, 2021 and December 26, 2020, the Company's total net sales included $207.9 million and $55.0 million, respectively, of revenue recognized by Kessler from the date of acquisition.

Shoals

On January 17, 2020, the Company entered into a stock purchase agreement pursuant to which the Company acquired all of the outstanding stock of Shoals Tubular, Inc. (Shoals) for approximately $15.3 million in cash at closing, net of working capital adjustments. Shoals is a manufacturer of brazed manifolds, headers, and distributor assemblies used primarily by manufacturers of residential heating and air conditioning units. The acquired business is reported within and complements the Company's existing businesses in the Climate segment. This business was sold in Q3 2021.

Purchase Price Allocations

These acquisitions were accounted for using the acquisition method of accounting whereby the total purchase price was allocated to tangible and intangible assets acquired and liabilities assumed based on respective fair values.

The following table summarizes the allocation of the purchase price to acquire these businesses, which were financed by available cash balances, as well as the assets acquired and liabilities assumed at the respective acquisition dates. During the year, immaterial adjustments were made to the Kessler provisional purchase price allocation resulting in an increase in intangible assets of $1.5 million, a decrease in property, plant, and equipment of $1.4 million, and a decrease in goodwill of $0.1 million. The purchase price allocations for Mueller Middle East and H&C Flex are provisional as of December 25, 2021 and subject to change upon the completion of the final valuation of long-lived assets, the noncontrolling interest, and contingent consideration during the measurement period.

(In thousands)	Mueller Middle East	H&C Flex	Kessler	Shoals
Total consideration	$ 20,017	$ 15,279	$ 57,233	$ 15,321
Allocated to:				
Accounts receivable	10,669	—	—	660
Inventories	4,733	4,511	25,106	1,809
Other current assets	1,747	—	—	26
Property, plant, and equipment	22,476	10,813	2,211	3,700
Operating lease right-of-use assets	936	—	10,526	—
Goodwill	12,098	—	11,600 [(1)]	1,870 [(1)]
Intangible assets	—	—	16,600	7,480
Total assets acquired	52,659	15,324	66,043	15,545
Accounts payable	4,600	—	—	217
Current portion of operating lease liabilities	—	—	1,692	—
Other current liabilities	11,489	45	—	7
Noncurrent operating lease liabilities	1,030	—	7,118	—
Other noncurrent liabilities	109	—	—	—
Total liabilities assumed	17,228	45	8,810	224
Noncontrolling interest	15,414	—	—	—
Net assets acquired	$ 20,017	$ 15,279	$ 57,233	$ 15,321

[(1)] *Tax-deductible goodwill*

The following details the total intangible assets identified in the allocation of the purchase price at the respective acquisition dates:

(In thousands)	Estimated Useful Life	Kessler	Shoals
Intangible asset type:			
Customer relationships	20 years	$ 12,640	$ 4,290
Non-compete agreements	3-5 years	—	150
Patents and technology	10-15 years	—	2,620
Trade names, licenses, and other	5-10 years	3,960	420
Total intangible assets		$ 16,600	$ 7,480

2021 Dispositions

Copper Bar

On October 25, 2021, the Company sold its Copper Bar business for approximately $10.1 million. This business manufactured copper bar products used primarily by OEMs in the U.S. and was included in the Industrial Metals segment. The carrying value of the assets disposed totaled $3.6 million, consisting primarily of inventories and long-lived assets. As a result of the transaction, the Company recognized a pre-tax gain of $6.5 million on the sale of the business in the Consolidating Financial Statements.

Die-Mold

On September 2, 2021, the Company entered into a contribution agreement with a limited liability company in the retail distribution business, pursuant to which the Company exchanged the outstanding common stock of Die-Mold for a 17 percent equity interest in the limited liability company. Die-Mold manufactures PEX and other plumbing-related fittings and plastic injection tooling in Canada and sells these products in Canada and the U.S. and was included in the Piping Systems Segment. Die-Mold reported net sales of $10.9 million and operating income of $2.2 million for the year ended December 25, 2021 compared to net sales of $13.5 million and operating income of $2.3 million in the year ended December 26, 2020. As a result of the transaction, the Company recognized a gain of $4.7 million based on the excess of the fair value of the consideration received (the 17 percent equity interest) over the carrying value of Die-Mold. The Company utilized a combination of income and market comparable companies approaches using an EBITDA multiple to determine the fair value of the consideration received of $22.8 million, which is recognized within the Investments in unconsolidated affiliates line of the Consolidated Balance Sheet. The excess of the fair value of the deconsolidated subsidiary over its carrying value resulted in the gain.

Fabricated Tube Products and Shoals Tubular, Inc.

On July 28, 2021, the Company entered into a purchase agreement with J.W. Harris Co., Inc. and Lincoln Electric Holdings, Inc., pursuant to which the Company sold the assets of Fabricated Tube Products (FTP) and all of the outstanding stock of STI for approximately $75.7 million. These businesses manufacture and fabricate valves and assemblies, brazed manifolds, headers, and distributor assemblies used primarily by manufacturers of residential heating and air conditioning units in the U.S. and were included in the Climate segment. They reported combined net sales of $37.0 million and operating income of $5.5 million for the year ended December 25, 2021 compared to combined net sales of $51.5 million and operating income of $6.4 million in the year ended December 26, 2020. The carrying value of the assets disposed totaled $32.7 million, consisting primarily of accounts receivable, inventories, and long-lived assets. The carrying value of the liabilities disposed totaled $3.6 million, consisting primarily of accounts payable. As a result of the transaction, the Company recognized a pre-tax gain of $46.6 million on the sale of these businesses in the Consolidating Financial Statements.

Note 3 –Segment Information

The Company's reportable segments are Piping Systems, Industrial Metals, and Climate. Each of the reportable segments is composed of certain operating segments that are aggregated primarily by the nature of products offered as follows:

Piping Systems

Piping Systems is composed of the following operating segments: Domestic Piping Systems Group, Great Lakes Copper, Heatlink Group, European Operations, Trading Group, Jungwoo-Mueller (the Company's South Korean joint venture), and Mueller Middle East (our Bahraini joint venture). The Domestic Piping Systems Group manufactures and distributes copper tube, fittings, and line sets. These products are manufactured in the U.S., sold in the U.S., and exported to markets worldwide. Outside the U.S., Great Lakes Copper manufactures copper tube and line sets in Canada and sells the products primarily in the U.S. and Canada. Heatlink Group produces a complete line of products for PEX plumbing and radiant systems in Canada and sells these products in Canada and the U.S. European Operations manufacture copper tube in the U.K. which is sold primarily in Europe. The Trading Group manufactures pipe nipples and resells brass and plastic plumbing valves, malleable iron fittings, faucets, and plumbing specialty products in the U.S. and Mexico. Jungwoo-Mueller manufactures copper-based joining products that are sold worldwide. Mueller Middle East manufactures copper tube and serves markets in the Middle East and Northern Africa. The Piping Systems segment's products are sold primarily to plumbing, refrigeration, and air-conditioning wholesalers, hardware wholesalers and co-ops, building product retailers, and air-conditioning OEMs.

As disclosed in "Note 2 – Acquisitions & Dispositions," during September 2021 the Company exchanged the outstanding common stock of Die-Mold for an equity interest in a limited liability company in the retail distribution business, resulting in the deconsolidation of Die-Mold and the recognition of a $4.7 million gain. This gain is reported within Corporate and Eliminations. The results of Die-Mold, prior to deconsolidation, were included within the Piping Systems segment.

During 2020, the segment recognized fixed asset impairment charges for certain manufacturing equipment of $3.8 million.

During 2019, the segment recognized a gain of $1.2 million on the sale of real property.

Industrial Metals

Industrial Metals is composed of the following operating segments: Brass Rod, Impacts & Micro Gauge, and Brass Value-Added Products. These businesses manufacture brass rod, impact extrusions, and forgings, as well as a wide variety of end products including plumbing brass, automotive components, valves, fittings, and gas assemblies. These products are manufactured in the U.S. and sold primarily to OEMs in the U.S., many of which are in the industrial, transportation, construction, heating, ventilation, and air-conditioning, plumbing, refrigeration, and energy markets.

During 2021, the segment recognized a gain of $6.5 million on the sale of the Copper Bar business.

During 2019, the segment recognized a loss of $0.3 million on the sale of real property and an insurance recovery gain of $0.5 million related to the losses incurred due to the 2017 fire at the brass rod mill in Port Huron, Michigan.

Climate

Climate is composed of the following operating segments: Refrigeration Products, Westermeyer, Turbotec, Flex Duct, and Linesets, Inc. These domestic businesses manufacture and fabricate valves, assemblies, high pressure components, coaxial heat exchangers, insulated HVAC flexible duct systems, line sets, brazed manifolds, headers, and distributor assemblies primarily for the heating, ventilation, air-conditioning, and refrigeration markets in the U.S.

As disclosed in "Note 2 – Acquisitions & Dispositions," during July 2021 the Company sold the assets of FTP and all of the outstanding stock of STI, resulting in a gain of $46.6 million. This gain is reported within Corporate and Eliminations. The results of FTP and STI, prior to the sale, were included within the Climate segment.

During 2021 the segment recognized impairment charges on goodwill and long-lived assets of $2.8 million.

Performance of segments is generally evaluated by their operating income. Summarized product line, geographic, and segment information is shown in the following tables. Geographic sales data indicates the location from which products are shipped. Unallocated expenses include general corporate expenses, plus certain charges or credits not included in segment activity.

During 2021, 2020, and 2019, no single customer exceeded 10 percent of worldwide sales.

The following tables represent a disaggregation of revenue from contracts with customers, along with the reportable segment for each category:

(In thousands)	For the Year Ended December 25, 2021			
	Piping Systems	Industrial Metals	Climate	Total
Tube and fittings	$ 2,055,639	$ —	$ —	$ 2,055,639
Brass rod and forgings	—	565,870	—	565,870
OEM components, tube & assemblies	32,557	48,572	137,564	218,693
Valves and plumbing specialties	511,834	—	—	511,834
Flex duct and other HVAC components	—	—	357,850	357,850
Other	—	88,921	—	88,921
	$ 2,600,030	$ 703,363	$ 495,414	$ 3,798,807
Intersegment sales				(29,462)
Net sales				$ 3,769,345

(In thousands)	For the Year Ended December 26, 2020			
	Piping Systems	Industrial Metals	Climate	Total
Tube and fittings	$ 1,232,724	$ —	$ —	$ 1,232,724
Brass rod and forgings	—	356,547	—	356,547
OEM components, tube & assemblies	56,176	42,127	138,551	236,854
Valves and plumbing specialties	294,102	—	—	294,102
Flex duct and other HVAC components	—	—	231,580	231,580
Other	—	73,485	—	73,485
	$ 1,583,002	$ 472,159	$ 370,131	$ 2,425,292
Intersegment sales				(27,249)
Net sales				$ 2,398,043

Disaggregation of revenue from contracts with customers (continued):

(In thousands)	For the Year Ended December 28, 2019			
	Piping Systems	Industrial Metals	Climate	Total
Tube and fittings	$ 1,271,558	$ —	$ —	$ 1,271,558
Brass rod and forgings	—	425,573	—	425,573
OEM components, tube & assemblies	29,103	48,104	133,651	210,858
Valves and plumbing specialties	241,795	—	—	241,795
Flex duct and other HVAC components	—	—	222,565	222,565
Other	—	80,695	—	80,695
	$ 1,542,456	$ 554,372	$ 356,216	$ 2,453,044
Intersegment sales				(22,428)
Net sales				$ 2,430,616

Summarized segment information is as follows:

(In thousands)	For the Year Ended December 25, 2021				
	Piping Systems	Industrial Metals	Climate	Corporate and Eliminations	Total
Net sales	$ 2,600,030	$ 703,363	$ 495,414	$ (29,462)	$ 3,769,345
Cost of goods sold	1,996,610	605,715	367,343	(30,679)	2,938,989
Depreciation and amortization	23,384	6,929	10,379	4,698	45,390
Selling, general, and administrative expense	93,749	11,698	29,327	49,278	184,052
Gain on sale of businesses	—	(6,454)	—	(51,306)	(57,760)
Impairment charges	—	—	2,829	—	2,829
Operating income	486,287	85,475	85,536	(1,453)	655,845
Interest expense					(7,709)
Redemption premium					(5,674)
Environmental expense					(5,053)
Other income, net					3,730
Income before income taxes					$ 641,139

Segment information (continued):

(In thousands)	For the Year Ended December 26, 2020 Piping Systems	Industrial Metals	Climate	Corporate and Eliminations	Total
Net sales	$ 1,583,002	$ 472,159	$ 370,131	$ (27,249)	$ 2,398,043
Cost of goods sold	1,311,697	398,000	276,274	(19,810)	1,966,161
Depreciation and amortization	23,071	7,528	10,249	3,995	44,843
Selling, general, and administrative expense	78,744	12,566	26,806	41,367	159,483
Litigation settlement, net	—	—	—	(22,053)	(22,053)
Impairment charges	3,771	—	—	—	3,771
Operating income	165,719	54,065	56,802	(30,748)	245,838
Interest expense					(19,247)
Pension plan termination expense					(17,835)
Environmental expense					(4,454)
Other income, net					4,887
Income before income taxes					$ 209,189

(In thousands)	For the Year Ended December 28, 2019 Piping Systems	Industrial Metals	Climate	Corporate and Eliminations	Total
Net sales	$ 1,542,456	$ 554,372	$ 356,216	$ (22,428)	$ 2,430,616
Cost of goods sold	1,313,980	473,010	273,850	(25,230)	2,035,610
Depreciation and amortization	22,621	7,489	9,298	3,285	42,693
Selling, general, and administrative expense	75,170	12,359	30,385	44,444	162,358
Gain on sale of assets, net	(1,194)	275	(44)	—	(963)
Insurance recovery	—	(485)	—	—	(485)
Operating income	131,879	61,724	42,727	(44,927)	191,403
Interest expense					(25,683)
Environmental expense					(1,321)
Other income, net					1,684
Income before income taxes					$ 166,083

Summarized geographic information is as follows:

(In thousands)	2021	2020	2019
Net sales:			
United States	$ 2,791,571	$ 1,765,810	$ 1,775,321
United Kingdom	330,908	207,754	230,791
Canada	469,652	293,776	285,720
Asia	83,217	58,256	64,363
Mexico	93,997	72,447	74,421
	$ 3,769,345	$ 2,398,043	$ 2,430,616

Long-lived assets:	2021	2020	2019
United States	$ 272,903	$ 289,508	$ 286,727
United Kingdom	36,529	30,872	18,776
Canada	26,422	29,582	31,429
Asia	48,742	26,107	25,637
Mexico	966	503	559
	$ 385,562	$ 376,572	$ 363,128

(In thousands)	2021	2020	2019
Expenditures for long-lived assets (including those resulting from business acquisitions):			
Piping Systems	$ 43,429	$ 39,209	$ 15,505
Industrial Metals	5,744	5,968	9,101
Climate	12,428	5,521	3,845
General Corporate	3,521	448	2,711
	$ 65,122	$ 51,146	$ 31,162
Segment assets:			
Piping Systems	$ 1,160,272	$ 977,937	$ 796,262
Industrial Metals	173,290	152,683	161,904
Climate	250,107	258,668	249,853
General Corporate	145,267	139,280	162,921
	$ 1,728,936	$ 1,528,568	$ 1,370,940

Note 4 – Cash, Cash Equivalents, and Restricted Cash

(In thousands)		2021		2020
Cash & cash equivalents	$	87,924	$	119,075
Restricted cash included within other current assets		2,349		8,198
Restricted cash included within other assets		103		103
Total cash, cash equivalents, and restricted cash	$	90,376	$	127,376

Note 5 – Inventories

(In thousands)		2021		2020
Raw materials and supplies	$	130,133	$	85,927
Work-in-process		64,989		49,361
Finished goods		245,226		186,785
Valuation reserves		(10,104)		(7,071)
Inventories	$	430,244	$	315,002

Inventories valued using the LIFO method totaled $18.5 million at December 25, 2021 and $17.3 million at December 26, 2020. At December 25, 2021 and December 26, 2020, the approximate FIFO cost of such inventories was $140.4 million and $108.1 million, respectively. Additionally, the Company values certain inventories on an average cost basis.

At the end of 2021 and 2020, the FIFO value of inventory consigned to others was $11.0 million and $6.4 million, respectively.

Note 6 – Consolidated Financial Statement Details

Other Current Liabilities

Included in other current liabilities as of December 25, 2021 and December 26, 2020 were the following: (i) accrued discounts, allowances, and customer rebates of $82.2 million and $56.0 million, respectively, (ii) current taxes payable of $35.7 million and $6.3 million, respectively, (iii) current environmental liabilities of $9.7 million and $2.7 million, respectively, and (iv) net loss positions on derivative contracts of $0.5 million and $6.3 million, respectively. In addition, as of December 26, 2020 this included (i) accruals for excise tax of $6.4 million resulting from the termination of the U.S. defined benefit pension plan and (ii) accrued interest of $5.4 million.

Other Income, Net

(In thousands)		2021		2020		2019
Net periodic benefit income	$	1,903	$	3,013	$	465
Interest income		353		1,101		722
Other		1,474		773		497
Other income, net	$	3,730	$	4,887	$	1,684

Note 7 – Derivative Instruments and Hedging Activities

The Company's earnings and cash flows are subject to fluctuations due to changes in commodity prices, foreign currency exchange rates, and interest rates. The Company uses derivative instruments such as commodity futures contracts, foreign currency forward contracts, and interest rate swaps to manage these exposures.

Commodity Futures Contracts

Copper and brass represent the largest component of the Company's variable costs of production. The cost of these materials is subject to global market fluctuations caused by factors beyond the Company's control. The Company occasionally enters into forward fixed-price arrangements with certain customers; the risk of these arrangements is generally managed with commodity futures contracts. These futures contracts have been designated as cash flow hedges.

At December 25, 2021, the Company held open futures contracts to purchase approximately $40.6 million of copper over the next 15 months related to fixed price sales orders. The fair value of those futures contracts was a $1.1 million net gain position, which was determined by obtaining quoted market prices (level 1 within the fair value hierarchy). In the next 12 months, the Company will reclassify into earnings realized gains or losses relating to cash flow hedges. At December 25, 2021, this amount was approximately $0.7 million of deferred net gains, net of tax.

The Company may also enter into futures contracts to protect the value of inventory against market fluctuations. At December 25, 2021, the Company held open futures contracts to sell approximately $15.0 million of copper over the next seven months related to copper inventory. The fair value of those futures contracts was a $0.4 million net loss position, which was determined by obtaining quoted market prices (level 1 within the fair value hierarchy).

The Company presents its derivative assets and liabilities in the Consolidated Balance Sheets on a net basis by counterparty. The following table summarizes the location and fair value of the derivative instruments and disaggregates the net derivative assets and liabilities into gross components on a contract-by-contract basis:

	Asset Derivatives			Liability Derivatives		
		Fair Value			Fair Value	
(In thousands)	Balance Sheet Location	2021	2020	Balance Sheet Location	2021	2020
Commodity contracts - gains	Other current assets	$ 1,150	$ 1,213	Other current liabilities	$ —	$ 68
Commodity contracts - losses	Other current assets	(46)	(8)	Other current liabilities	(353)	(5,863)
Total derivatives [(1)]		$ 1,104	$ 1,205		$ (353)	$ (5,795)

[(1)] *Does not include the impact of cash collateral provided to counterparties.*

The following table summarizes the effects of derivative instruments on the Consolidated Statements of Income:

(In thousands)	Location	2021	2020
Undesignated derivatives:			
Gain (loss) on commodity contracts (nonqualifying)	Cost of goods sold	$ 217	$ (8,893)

The following tables summarize amounts recognized in and reclassified from AOCI during the period:

	Year Ended December 25, 2021		
(In thousands)	Gain (Loss) Recognized in AOCI (Effective Portion), Net of Tax	Classification Gains (Losses)	Gain Reclassified from AOCI (Effective Portion), Net of Tax
Cash flow hedges:			
Commodity contracts	$ 2,389	Cost of goods sold	$ (2,542)
Other	(28)	Other	—
Total	$ 2,361	Total	$ (2,542)

	Year Ended December 26, 2020		
(In thousands)	Loss Recognized in AOCI (Effective Portion), Net of Tax	Classification Gains (Losses)	Loss Reclassified from AOCI (Effective Portion), Net of Tax
Cash flow hedges:			
Commodity contracts	$ (4,579)	Cost of goods sold	$ 5,091
Other	(4)	Other	—
Total	$ (4,583)	Total	$ 5,091

The Company primarily enters into International Swaps and Derivatives Association master netting agreements with major financial institutions that permit the net settlement of amounts owed under their respective derivative contracts. Under these master netting agreements, net settlement generally permits the Company or the counterparty to determine the net amount payable for contracts due on the same date and in the same currency for similar types of derivative transactions. The master netting agreements generally also provide for net settlement of all outstanding contracts with the counterparty in the case of an event of default or a termination event. The Company does not offset fair value amounts for derivative instruments and fair value amounts recognized for the right to reclaim cash collateral. At December 25, 2021 and December 26, 2020, the Company had recorded restricted cash in other current assets of $2.0 million and $7.6 million, respectively, as collateral related to open derivative contracts under the master netting arrangements.

Note 8 – Leases

The Company leases certain facilities, vehicles, and equipment which expire on various dates through 2032. The following table includes supplemental information with regards to the Company's operating leases:

(In thousands, except lease term and discount rate)	December 25, 2021	December 26, 2020
Operating lease right-of-use assets	$ 23,510	$ 29,301
Current portion of operating lease liabilities	6,015	6,259
Noncurrent operating lease liabilities	17,099	21,602
Total operating lease liabilities	$ 23,114	$ 27,861
Weighted average discount rate	3.67%	3.91%
Weighted average remaining lease term (in years)	5.51	5.99

Some of the Company's leases include variable lease costs such as taxes, insurance, etc. These costs are immaterial for disclosure.

The following table presents certain information related to operating lease costs and cash paid during the period:

	For the Year Ended	
(In thousands)	December 25, 2021	December 26, 2020
Operating lease costs	$ 8,365	$ 7,039
Short term lease costs	4,607	4,734
Total lease costs	$ 12,972	$ 11,773
Cash paid for amounts included in the measurement of lease liabilities	$ 7,869	$ 7,040

Maturities of the Company's operating leases are as follows:

(In thousands)	Amount
2022	$ 6,760
2023	4,579
2024	3,402
2025	2,518
2026	2,312
2027 and thereafter	4,898
Total lease payments	24,469
Less imputed interest	(1,355)
Total lease obligations	23,114
Less current obligations	(6,015)
Noncurrent lease obligations	$ 17,099

Note 9 – Property, Plant, and Equipment, Net

(In thousands)	2021	2020
Land and land improvements	$ 34,050	$ 33,602
Buildings	238,033	218,319
Machinery and equipment	657,673	658,613
Construction in progress	34,311	28,631
	964,067	939,165
Less accumulated depreciation	(578,505)	(562,593)
Property, plant, and equipment, net	$ 385,562	$ 376,572

Depreciation expense for property, plant, and equipment was $39.1 million in 2021, $38.7 million in 2020, and $37.3 million in 2019.

Note 10 – Goodwill and Other Intangible Assets

Goodwill

The changes in the carrying amount of goodwill by segment were as follows:

(In thousands)	Piping Systems	Industrial Metals	Climate	Total
Goodwill	$ 172,175	$ 8,854	$ 21,652	$ 202,681
Accumulated impairment charges	(40,552)	(8,853)	—	(49,405)
Balance at December 28, 2019:	131,623	1	21,652	153,276
Additions	11,710	—	1,964	13,674
Currency translation	814	—	—	814
Balance at December 26, 2020:	144,147	1	23,616	167,764
Additions	12,098	—	—	12,098
Reductions [1]	(4,402)	—	(1,964)	(6,366)
Impairment charges	—	—	(2,087)	(2,087)
Currency translation	(79)	—	—	(79)
Balance at December 25, 2021:				
Goodwill	192,316	8,854	21,652	222,822
Accumulated impairment charges	(40,552)	(8,853)	(2,087)	(51,492)
Goodwill, net	$ 151,764	$ 1	$ 19,565	$ 171,330

[1] *Includes disposals of Die-Mold and STI businesses.*

Reporting units with recorded goodwill include Domestic Piping Systems Group, B&K LLC, Great Lakes, Heatlink Group, European Operations, Jungwoo-Mueller, Mueller Middle East, Westermeyer, Turbotec, and Flex Duct. Several factors give rise to goodwill in the Company's acquisitions, such as the expected benefit from synergies of the combination and the existing workforce of the acquired businesses. With the exception of the Turbotec reporting unit, there were no impairment charges resulting from the 2021, 2020, or 2019 annual impairment tests as the estimated fair value of each of the reporting units exceeded its carrying value. During the third quarter of 2021, the Company recognized an impairment charge of $2.1 million related to Turbotec, reported within the Climate segment.

Other Intangible Assets

The carrying amount of intangible assets at December 25, 2021 was as follows:

(In thousands)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	$ 55,108	$ (13,803)	$ 41,305
Non-compete agreements	2,474	(2,458)	16
Patents and technology	18,396	(6,501)	11,895
Trade names and licenses	13,654	(5,598)	8,056
Other	1,676	(1,234)	442
Other intangible assets	$ 91,308	$ (29,594)	$ 61,714

The carrying amount of intangible assets at December 26, 2020 was as follows:

(In thousands)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	$ 61,068	$ (11,676)	$ 49,392
Non-compete agreements	2,689	(2,527)	162
Patents and technology	22,585	(5,672)	16,913
Trade names and licenses	14,631	(4,476)	10,155
Other	1,676	(1,091)	585
Other intangible assets	$ 102,649	$ (25,442)	$ 77,207

Amortization expense for intangible assets was $6.3 million in 2021, $6.1 million in 2020, and $5.4 million in 2019. Future amortization expense is estimated as follows:

(In thousands)	Amount
2022	$ 5,607
2023	5,295
2024	5,069
2025	4,943
2026	4,789
Thereafter	36,011
Expected amortization expense	$ 61,714

Note 11 – Investments in Unconsolidated Affiliates

Tecumseh

The Company owns a 50 percent interest in an unconsolidated affiliate that acquired Tecumseh. The Company also owns a 50 percent interest in a second unconsolidated affiliate that provides financing to Tecumseh. Tecumseh is a global manufacturer of hermetically sealed compressors for residential and specialty air conditioning, household refrigerators and freezers, and commercial refrigeration applications, including air conditioning and refrigeration compressors, as well as condensing units, heat pumps, and complete refrigeration systems.

The following tables present summarized financial information derived from the Company's equity method investees' combined consolidated financial statements, which are prepared in accordance with U.S. GAAP.

(In thousands)	2021	2020
Current assets	$ 214,550	$ 167,451
Noncurrent assets	76,406	78,241
Current liabilities	169,155	120,202
Noncurrent liabilities	46,059	50,020
Net sales	$ 452,917	$ 384,919
Gross profit	57,028	50,347
Net loss	(3,330)	(20,892)

The Company's loss from unconsolidated affiliates, net of foreign tax, for 2021 and 2020 included net losses of $1.7 million and $10.4 million, respectively, for Tecumseh.

Retail Distribution

On September 2, 2021, the Company acquired a 17 percent noncontrolling equity interest in a limited liability company in the retail distribution business by contributing the outstanding common stock of Die-Mold in exchange for the equity method interest.

The Company's loss from unconsolidated affiliates, net of foreign tax, for 2021 included net gains of $0.8 million for the retail distribution business.

Note 12 – Debt

(In thousands)	2021	2020
Subordinated Debentures with interest at 6.00%, due 2027	$ —	$ 284,479
Revolving Credit Facility with interest at 1.25%, due 2021	—	35,000
Jungwoo-Mueller credit facility with interest at 1.90%, due 2021	—	5,811
2001 Series IRB's with interest at 1.14%, due 2021	—	250
Other	2,940	2,555
	2,940	328,095
Less debt issuance costs	(1,065)	(219)
Less current portion of debt	(811)	(41,283)
Long-term debt	$ 1,064	$ 286,593

Credit Agreement

On March 31, 2021, the Company entered into a Credit Agreement to replace its prior credit agreement that would have matured on December 6, 2021. The Company's total borrowing capacity under the Credit Agreement is $500.0 million. The Credit Agreement provides for an unsecured $400.0 million revolving credit facility, which matures on March 31, 2026, and a term loan facility of $100.0 million, with an original maturity date of March 31, 2022. The term loan was fully repaid in 2021, reducing the total borrowing capacity under the Credit Agreement to $400.0 million. Borrowings under the Revolving Credit Facility bear interest, at the Company's option, at the Eurocurrency Rate which is determined by the underlying currency of the Credit Extension or the Base Rate as defined by the Credit Agreement, plus a variable premium. Advances may be based upon the one, three, or six-month interest period. The variable premium is based upon the Company's debt to total capitalization ratio, and can range from 112.5 to 162.5 basis points for Eurocurrency Rate loans and 12.5 to 62.5 basis points for Base Rate loans. At December 25, 2021, the premium was 115.0 basis points for Eurocurrency Rate loans and 15.0 basis points for Base Rate loans. Additionally, a commitment fee is payable quarterly on the total commitment less any outstanding loans or issued letters of credit, and varies from 15.0 to 30.0 basis points based upon the Company's debt to total capitalization ratio. Availability of funds under the Revolving Credit Facility is reduced by the amount of certain outstanding letters of credit, which are used to secure the Company's payment of insurance deductibles, certain retiree health benefits, and other corporate obligations, totaling approximately $28.9 million at December 25, 2021. Terms of the letters of credit are generally renewable annually.

Subordinated Debentures

During the first quarter of 2021, the Company announced the redemption of its Subordinated Debentures due 2027. The full redemption of outstanding debentures occurred on April 15, 2021 for a total of $291.4 million in principal plus accrued interest and a redemption premium of $5.7 million that was expensed during the second quarter.

Jungwoo-Mueller

Jungwoo-Mueller has several secured revolving credit arrangements with a total borrowing capacity of KRW20.0 billion (or approximately $16.8 million). Borrowings are secured by the real property and equipment of Jungwoo-Mueller.

Covenants contained in the Company's financing obligations require, among other things, the maintenance of minimum levels of tangible net worth and the satisfaction of certain minimum financial ratios. At December 25, 2021, the Company was in compliance with all debt covenants.

Aggregate annual maturities of the Company's debt are as follows:

(In thousands)	Amount
2022	$ 811
2023	222
2024	222
2025	185
2026	—
Thereafter	1,500
Long-term debt	$ 2,940

Net interest expense consisted of the following:

(In thousands)	2021	2020	2019
Interest expense	$ 8,096	$ 19,510	$ 25,957
Capitalized interest	(387)	(263)	(274)
	$ 7,709	$ 19,247	$ 25,683

Interest paid in 2021, 2020, and 2019 was $13.9 million, $19.8 million, and $25.4 million, respectively.

Note 13 – Benefit Plans

Pension and Other Postretirement Plans

The Company sponsors several qualified and nonqualified pension plans and other postretirement benefit plans for certain employees. The following tables provide a reconciliation of the changes in the most significant plans' benefit obligations and the fair value of the plans' assets for 2021 and 2020, and a statement of the plans' aggregate funded status:

	Pension Benefits		Other Benefits	
(In thousands)	2021	2020	2021	2020
Change in benefit obligation:				
Obligation at beginning of year	$ 90,809	$ 182,164	$ 12,782	$ 12,653
Service cost	—	—	258	212
Interest cost	1,272	3,260	281	430
Actuarial (gain) loss	(4,062)	10,790	(812)	422
Plan amendments	—	—	—	(26)
Benefit payments	(2,832)	(9,214)	(634)	(716)
Curtailment	—	—	—	(183)
Settlement [(1)]	—	(99,585)	—	—
Foreign currency translation adjustment	(904)	3,394	(50)	(10)
Obligation at end of year	84,283	90,809	11,825	12,782
Change in fair value of plan assets:				
Fair value of plan assets at beginning of year	78,480	183,486	—	—
Actual return on plan assets	4,791	13,313	—	—
Employer contributions	—	—	634	716
Benefit payments	(2,832)	(9,214)	(634)	(716)
Settlement [(1)]	—	(99,585)	—	—
Surplus assets [(1)]	—	(12,386)	—	—
Foreign currency translation adjustment	(961)	2,866	—	—
Fair value of plan assets at end of year	79,478	78,480	—	—
Funded (underfunded) status at end of year	$ (4,805)	$ (12,329)	$ (11,825)	$ (12,782)

[(1)] *In November 2019, the Company's Board of Directors approved the termination of the U.S. defined benefit pension plan. Settlement accounting criteria was met in Q4 2020, therefore, all resulting settlement charges occurred in 2020. The plan termination resulted in incremental benefit payments of approximately $100.0 million and termination costs of $17.8 million, which consisted of an $11.6 million non-cash settlement charge and $6.2 million in federal excise tax on surplus assets returned to the Company of approximately $12.4 million, as of December 26, 2020.*

The following represents amounts recognized in AOCI (before the effect of income taxes):

	Pension Benefits		Other Benefits	
(In thousands)	2021	2020	2021	2020
Unrecognized net actuarial loss (gain)	$ 19,629	$ 26,476	$ (1,893)	$ (1,187)
Unrecognized prior service credit	—	—	(1,930)	(2,401)

The Company sponsors one pension plan in the U.K. which comprised100 percent of the above benefit obligation at December 25, 2021 and December 26, 2020, and100 percent of the above plan assets at December 25, 2021 and December 26, 2020.

As of December 25, 2021, $0.8 million of the actuarial net loss and the remainder of the prior service credit will, through amortization, be recognized as components of net periodic benefit cost in 2022.

The aggregate status of all overfunded plans is recognized as an asset and the aggregate status of all underfunded plans is recognized as a liability in the Consolidated Balance Sheets. The amounts recognized as a liability are classified as current or long-term on a plan-by-plan basis. Liabilities are classified as current to the extent the actuarial present value of benefits payable within the next 12 months exceeds the fair value of plan assets, with all remaining amounts classified as long-term.

As of December 25, 2021 and December 26, 2020, the total funded status of the plans recognized in the Consolidated Balance Sheets was as follows:

	Pension Benefits		Other Benefits	
(In thousands)	2021	2020	2021	2020
Current liability	$ —	$ —	$ (962)	$ (948)
Long-term liability	(4,805)	(12,329)	(10,863)	(11,834)
Total (underfunded) funded status	$ (4,805)	$ (12,329)	$ (11,825)	$ (12,782)

The components of net periodic benefit cost (income) are as follows:

(In thousands)	2021	2020	2019
Pension benefits:			
Interest cost	$ 1,272	$ 3,260	$ 5,972
Expected return on plan assets	(3,671)	(5,704)	(8,103)
Amortization of net loss	1,536	2,305	1,950
Settlement charge	—	11,642	—
Net periodic benefit (income) cost	$ (863)	$ 11,503	$ (181)
Other benefits:			
Service cost	$ 258	$ 212	$ 260
Interest cost	281	430	609
Amortization of prior service credit	(470)	(519)	(902)
Amortization of net gain	(103)	(193)	(88)
Curtailment gain	—	(2,591)	—
Settlement charge	—	—	(2)
Net periodic benefit income	$ (34)	$ (2,661)	$ (123)

During 2020, the Company recognized a curtailment gain of $2.6 million related to one of its postretirement benefit plans.

The components of net periodic benefit cost (income) other than the service cost component are included in other income, net in the Consolidated Statements of Income.

The weighted average assumptions used in the measurement of the Company's benefit obligations are as follows:

	Pension Benefits		Other Benefits	
	2021	2020	2021	2020
Discount rate	1.90 %	1.40 %	3.73 %	2.92 %
Expected long-term return on plan assets	4.96 %	4.69 %	N/A	N/A
Rate of compensation increases	N/A	N/A	5.00 %	5.00 %
Rate of inflation	3.70 %	3.20 %	N/A	N/A

The weighted average assumptions used in the measurement of the Company's net periodic benefit cost are as follows:

	Pension Benefits			Other Benefits		
	2021	2020	2019	2021	2020	2019
Discount rate	1.40 %	1.93 %	3.72 %	2.92 %	3.70 %	4.56 %
Expected long-term return on plan assets	4.69 %	3.84 %	5.05 %	N/A	N/A	N/A
Rate of compensation increases	N/A	N/A	N/A	5.00 %	5.00 %	5.00 %
Rate of inflation	3.20 %	3.20 %	3.40 %	N/A	N/A	N/A

The Company's Mexican postretirement plans use the rate of compensation increase in the benefit formulas. Past service in the U.K. pension plan will be adjusted for the effects of inflation. All other pension and postretirement plans use benefit formulas based on length of service.

The annual assumed rate of increase in the per capita cost of covered benefits (i.e., health care cost trend rate) is assumed to range from4.5 to 6.4 percent for 2022, gradually decrease to 4.1 percent through 2040, and remain at that level thereafter. The health care cost trend rate assumption does not have a significant effect on the amounts reported.

Pension Assets

The weighted average asset allocation of the Company's pension fund assets are as follows:

	Pension Plan Assets	
Asset category	2021	2020
Equity securities (includes equity mutual funds)	66 %	66 %
Multi-asset securities	24	24
Cash and equivalents (includes money market funds)	—	1
Alternative investments	10	9
Total	100 %	100 %

At December 25, 2021, the long-term target allocation, by asset category, of assets of the Company's defined benefit pension plans was: (i) equity securities and multi-asset securities, including equity index funds – not less than 70 percent; and (ii) alternative investments – not more than 10 percent.

The pension plan obligations are long-term and, accordingly, the plan assets are invested for the long-term. Plan assets are monitored periodically. Based upon results, investment managers and/or asset classes are redeployed when considered necessary. None of the plans' assets are expected to be returned to the Company during the next fiscal year. The assets of the plans do not include investments in securities issued by the Company.

The estimated rates of return on plan assets are the expected future long-term rates of earnings on plan assets and are forward-looking assumptions that materially affect pension cost. Establishing the expected future rates of return on pension assets is a judgmental matter. The Company reviews the expected long-term rates of return on an annual basis and revises as appropriate. The expected long-term rate of return on plan assets was 4.96 percent for 2021 and 4.69 percent in 2020.

The Company's investments for its pension plans are reported at fair value. The following methods and assumptions were used to estimate the fair value of the Company's plan asset investments:

Cash and money market funds – Valued at cost, which approximates fair value.

Mutual funds – Valued at the net asset value of shares held by the plans at December 25, 2021 and December 26, 2020, respectively, based upon quoted market prices.

Limited partnerships – Limited partnerships comprise a diversified portfolio of real estate investments which are classified as Level 3 due to a lack of observable inputs existing at the measurement date. Accordingly, the estimated fair values may differ significantly from the values that would have been used had a ready market existed for these investments. Limited partnership investments are recorded at estimated fair value based on financial information received from the investment manager. The investment manager determines fair value based upon, among other things, property valuations received from valuation specialists at regular intervals.

The following table sets forth by level, within the fair value hierarchy, the assets of the plans at fair value:

	Fair Value Measurements at December 25, 2021			
(In thousands)	Level 1	Level 2	Level 3	Total
Cash and money market funds	$ 292	$ —	$ —	$ 292
Mutual funds [(1)]	—	71,465	—	71,465
Limited partnerships	—	—	7,721	7,721
Total	$ 292	$ 71,465	$ 7,721	$ 79,478

	Fair Value Measurements at December 26, 2020			
(In thousands)	Level 1	Level 2	Level 3	Total
Cash and money market funds	$ 492	$ —	$ —	$ 492
Mutual funds [(2)]	—	71,084	—	71,084
Limited partnerships	—	—	6,904	6,904
Total	$ 492	$ 71,084	$ 6,904	$ 78,480

(1) *Approximately 78 percent of mutual funds are actively managed funds and approximately 22 percent of mutual funds are index funds. Additionally, 27 percent of the mutual funds' assets are invested in non-U.S. multi-asset securities and 73 percent in non-U.S. equities.*

(2) *Approximately 76 percent of mutual funds are actively managed funds and approximately 24 percent of mutual funds are index funds. Additionally, 27 percent of the mutual funds' assets are invested in non-U.S. multi-asset securities and 73 percent in non-U.S. equities.*

The table below reflects the changes in the assets of the plan measured at fair value on a recurring basis using significant unobservable inputs (level 3 of fair value hierarchy) during the year ended December 25, 2021:

(In thousands)	Limited Partnerships
Balance, December 26, 2020	$ 6,904
Net appreciation in fair value	817
Balance, December 25, 2021	$ 7,721

Contributions and Benefit Payments

The Company does not expect to contribute to the U.K. pension plan, other than to reimburse expenses, and expects to contribute $1.0 million to its other postretirement benefit plans in 2022. The Company expects future benefits to be paid from the plans as follows:

(In thousands)	Pension Benefits	Other Benefits
2022	$ 2,861	$ 962
2023	2,970	1,029
2024	3,082	1,029
2025	3,199	1,011
2026	3,320	1,016
2027-2031	18,586	4,511
Total	$ 34,018	$ 9,558

Multiemployer Plan

The Company contributes to the IAM National Pension Fund, National Pension Plan (IAM Plan), a multiemployer defined benefit plan. Participation in the IAM Plan was negotiated under the terms of two collective bargaining agreements in Port Huron, Michigan, the Local 218 IAM and Local 44 UAW that expire on May 7, 2023 and June 26, 2022, respectively. The Employer Identification Number for this plan is 51-6031295.

The risks of participating in multiemployer plans are different from single-employer plans in the following aspects: (i) assets contributed to the multiemployer plan by one employer may be used to provide benefits to employees of other participating employers; (ii) if a participating employer stops contributing to the plan, the underfunded obligations of the plan may be borne by the remaining participating employers; (iii) if the Company chooses to stop participating in the plan, the Company may be required to pay the plan an amount based on the underfunded status of the plan, referred to as a withdrawal liability.

The Company makes contributions to the IAM Plan trusts that cover certain union employees; contributions by employees are not permitted. Contributions to the IAM Plan were approximately $1.3 million in 2021, $1.2 million in 2020, and $1.2 million in 2019. The Company's contributions are less than five percent of total employer contributions made to the IAM Plan indicated in the most recently filed Form 5500.

Under the Pension Protection Act of 2006, the IAM Plan's actuary must certify the plan's zone status annually. Plans in the red zone are generally less than 65 percent funded, plans in the yellow zone are less than 80 percent funded, and plans in the green zone are at least 80 percent funded. If a plan is determined to be in endangered status, red zone or yellow zone, the plan's trustees must develop a formal plan of corrective action, a Financial Improvement Plan and/or a Rehabilitation Plan. For 2021 and 2020 the IAM Plan was well funded over 89 percent; but remained in the red zone due to the trustees' election to voluntarily place the fund in critical status in 2019 to strengthen the its funding position. The fund has remained in critical status since that election and is not projected to emerge from critical status in the upcoming year. The plan seeks to strengthen its financial health by reducing and eliminating most adjustable benefits as allowed by federal law.

401(k) Plans

The Company sponsors voluntary employee savings plans that qualify under Section 401(k) of the Internal Revenue Code of 1986. Compensation expense for the Company's matching contribution to the 401(k) plans was $4.5 million in 2021, $4.0 million in 2020, and $4.2 million in 2019. The Company match is a cash contribution. Participants direct the investment of their account balances by allocating among a range of asset classes including mutual funds (equity, fixed income, and balanced funds) and money market funds. The plans do not allow direct investment in securities issued by the Company.

UMWA Benefit Plans

In October 1992, the Coal Industry Retiree Health Benefit Act of 1992 (1992 Act) was enacted. The 1992 Act mandates a method of providing for postretirement benefits to the United Mine Workers of America (UMWA) current and retired employees, including some retirees who were never employed by the Company. In October 1993, beneficiaries were assigned to the Company and the Company began its mandated contributions to the UMWA Combined Benefit Fund, a multiemployer trust. Beginning in 1994, the Company was required to make contributions for assigned beneficiaries under an additional multiemployer trust created by the 1992 Act, the UMWA 1992 Benefit Plan. The ultimate amount of the Company's liability under the 1992 Act will vary due to factors which include, among other things, the validity, interpretation, and regulation of the 1992 Act, its joint and several obligation, the number of valid beneficiaries assigned, and the extent to which funding for this obligation will be satisfied by transfers of excess assets from the 1950 UMWA pension plan and transfers from the Abandoned Mine Reclamation Fund. Contributions to the plan were $ 134 thousand, $57 thousand, and $223 thousand for the years ended 2021, 2020, and 2019, respectively.

Note 14 – Commitments and Contingencies

Environmental

The Company is subject to federal, state, local, and foreign environmental laws and regulations. For all properties, the Company has provided and charged to expense $5.0 million in 2021, $4.2 million in 2020, and $1.7 million in 2019 for pending environmental matters. Environmental reserves totaled $27.4 million at December 25, 2021 and $24.0 million at December 26, 2020. As of December 25, 2021, the Company expects to spend $9.6 million in 2022, $3.1 million in 2023, $0.8 million in 2024, $0.9 million in 2025, $0.7 million in 2026, and $12.3 million thereafter for ongoing projects.

Non-operating Properties

Southeast Kansas Sites

The Kansas Department of Health and Environment (KDHE) has contacted the Company regarding environmental contamination atthree former smelter sites in Kansas (Altoona, East La Harpe, and Lanyon). The Company is not a successor to the companies that operated these smelter sites, but has explored possible settlement with KDHE and other potentially responsible parties (PRP) in order to avoid litigation.

The Company in February 2022 reached a settlement with another PRP relating to these three sites.Under the terms of that agreement, the Company will pay $5.6 million, which was previously reserved, in exchange for the other PRP's agreement to conduct or fund any required remediation with the geographic boundaries of the three sites (namely, the parcel(s) on which the former smelters were located), plus coverage of certain off-site areas (namely, contamination that migrated by surface water runoff or air emissions from the Altoona or East La Harpe site, and smelter materials located within 50 feet of the geographic boundary of each site). The settlement does not cover certain matters, including potential liability related to the remediation of the town of Iola which is not estimable at this time. The other PRP will also provide an indemnity that would cover third-party cleanup claims for those sites, subject to a time limit and a cap.

Altoona. Another PRP conducted a site investigation of the Altoona site under a consent decree with KDHE and submitted a removal site evaluation report recommending a remedy. The remedial design plan, which covers both on-site and certain off-site cleanup costs, was approved by the KDHE in 2016. Construction of the remedy was completed in 2018. According to KDHE, repais to the remedy were scheduled to be conducted in the fall of 2021.

East La Harpe. At the East La Harpe site, the Company and two other PRPs conducted a site study evaluation under KDHE supervision and prepared a site cleanup plan approved by KDHE. In 2016, the corporate parent (Peabody Energy) of a third party that the Company understands may owe indemnification obligations to one of the other PRPs (Blue Tee) in connection with the East La Harpe site filed for protection under Chapter 11 of the U.S. Bankruptcy Code. KDHE has extended the deadline for the PRPs to develop a repository design plan to allow for wetlands permitting to take place. In December 2018, KDHE provided a draft agreement which contemplates the use of funds KDHE obtained from two other parties (Peabody Energy and Blue Tee) to fund part of the remediation, and removes Blue Tee from the PRPs' agreement with KDHE. The Company is currently negotiating the terms of the draft agreement, but pursuant to the terms of the settlement with the other PRP noted above, the Company expects the remediation to be conducted and paid for entirely by the other PRP.

Lanyon. With respect to the Lanyon Site, in 2016, the Company received a general notice letter from the United States Environmental Protection Agency (EPA) asserting that the Company is a PRP, which the Company has denied. EPA issued an interim record of decision in 2017 and has been remediating properties at the site. According to EPA, 1,371 properties in total will be remediated, and the work will be completed in the fall of 2022.

Shasta Area Mine Sites

Mining Remedial Recovery Company (MRRC), a wholly owned subsidiary, owns certain inactive mines in Shasta County, California. MRRC has continued a program, begun in the late 1980s, of implementing various remedial measures, including sealing mine portals with concrete plugs in portals that were discharging water. The sealing program achieved significant reductions in the metal load in discharges from these adits; however, additional reductions are required pursuant to an order issued by the California Regional Water Quality Control Board (QCB). In response to a 1996 QCB Order, MRRC completed a feasibility study in 1997 describing measures designed to mitigate the effects of acid rock drainage. In December 1998, the QCB modified the 1996 order extending MRRC's time to comply with water quality standards. In September 2002, the QCB adopted a new order requiring MRRC to adopt Best Management Practices (BMP) to control discharges of acid mine drainage, and again extended the time to comply with water quality standards until September 2007. During that time, implementation of BMP further reduced impacts of acid rock drainage; however, full compliance has not been achieved. The QCB is presently renewing MRRC's discharge permit and will concurrently issue a new order. It is expected that the new 10-year permit will include an order requiring continued implementation of BMP through 2032 to address residual discharges of acid rock drainage. At this site, MRRC spent approximately $1.5 million from 2019 through 2021 for remediation, and currently estimates that it will spend between approximately $14.0 million and $16.0 million over the next 30 years and has accrued a reserve at the low end of this range.

Lead Refinery Site

U.S.S. Lead Refinery, Inc. (Lead Refinery), a non-operating wholly owned subsidiary of MRRC, has conducted corrective action and interim remedial activities (collectively, Site Activities) at Lead Refinery's East Chicago, Indiana site pursuant to the Resource Conservation and Recovery Act since December 1996. Although the Site Activities have been substantially concluded, Lead Refinery is required to perform monitoring and maintenance-related activities pursuant to a post-closure permit issued by the Indiana Department of Environmental Management effective as of March 2, 2013. Lead Refinery spent approximately $0.5 million from 2019 through 2021 with respect to this site. Approximate costs to comply with the post-closure permit, including associated general and administrative costs, are estimated at between $1.6 million and $2.3 million over the next 15 years. The Company has recorded a reserve at the low end of this range.

On April 9, 2009, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the U.S. Environmental Protection Agency (EPA) added the Lead Refinery site and surrounding properties to the National Priorities List (NPL). On July 17, 2009, Lead Refinery received a written notice from the EPA indicating that it may be a PRP under CERCLA due to the release or threat of release of hazardous substances including lead into properties surrounding the Lead Refinery NPL site. The EPA identified two other PRPs in connection with that matter. In November 2012, the EPA adopted a remedy for the surrounding properties and in September 2014, the EPA announced that it had entered into a settlement with the two other PRPs whereby they will pay approximately $ 26.0 million to fund the cleanup of approximately 300 properties surrounding the Lead Refinery NPL site (zones 1 and 3 of operable unit 1) and perform certain remedial action tasks.

On November 8, 2016, the Company, its subsidiary Arava Natural Resources Company, Inc. (Arava), and Arava's subsidiary MRRC each received general notice letters from the EPA asserting that they may be PRPs in connection with the Lead Refinery NPL site. The Company, Arava, and MRRC have denied liability for any remedial action and response costs associated with the Lead Refinery NPL site. In June 2017, the EPA requested that Lead Refinery conduct, and the Company fund, a remedial investigation and feasibility study of operable unit 2 of the Lead Refinery NPL site pursuant to a proposed administrative settlement agreement and order on consent. The Company and Lead Refinery entered into that agreement in September 2017. The Company has made a capital contribution to Lead Refinery to conduct the remedial investigation and feasibility study with respect to operable unit 2 and has provided financial assurance in the amount of $1.0 million. The remedial investigation and feasibility study remain ongoing. The EPA has also asserted its position that Mueller is a responsible party for the Lead Refinery NPL site, and accordingly is responsible for a share of remedial action and response costs at the site and in the adjacent residential area.

In January 2018, the EPA issued two unilateral administrative orders (UAOs) directing the Company, Lead Refinery, and four other PRPs to conduct soil and interior remediation of certain residences at the Lead Refinery NPL site (zones 2 and 3 of operable unit 1). The Company and Lead Refinery have reached agreement with the four other PRPs to implement these two UAOs, with the Company agreeing to pay, on an interim basis, (i) an estimated $4.5 million (subject to potential change through a future reallocation process) of the approximately $25.0 million the PRPs estimated it would cost to implement the UAOs, which estimate is subject to change, and (ii) $2.0 million relating to past costs incurred by other PRPs for work conducted at the site, as well as the possibility of up to $0.7 million in further payments for ongoing work by those PRPs. As of year-end, the Company has made payments of approximately $7.6 million related to the aforementioned agreement with the other PRPs. The Company disputes that it was properly named in the UAOs, and has reserved its rights to petition the EPA for reimbursement of any costs incurred to comply with the UAOs upon the completion of the work required therein. The Company and Lead Refinery are also evaluating entry into an administrative settlement agreement and order on consent with the EPA, along with the four other PRPs, which would involve payment of certain past and future costs relating to operable unit 1, in exchange for certain releases and contribution protection for the Company, Lead Refinery and their respective affiliates relating to that operable unit. The Company reserved $3.3 million for this settlement at the end of 2021. In October 2017 and March 2018, separate groups of private plaintiffs sued the Company, Arava, MRRC, and Lead Refinery, along with other defendants, in two civil tort actions relating to the site. The Company, Arava, and MRRC have been voluntarily dismissed from both litigations without prejudice. Lead Refinery's motion to dismiss one of the matters was granted without prejudice, but plaintiffs in that case have sought to amend their complaint. At this juncture, the Company is unable to determine the likelihood of a material adverse outcome or the amount or range of a potential loss in excess of the current reserve with respect to any remedial action or litigation relating to the Lead Refinery NPL site, either at Lead Refinery's former operating site (operable unit 2) or the adjacent residential area (operable unit 1), including, but not limited to, EPA oversight costs for which EPA may attempt to seek reimbursement from the Company, and past costs for which other PRPs may attempt to seek contribution from the Company.

Bonita Peak Mining District

Following an August 2015 spill from the Gold King Mine into the Animas River near Silverton, Colorado, the EPA listed the Bonita Peak Mining District on the NPL. Said listing was finalized in September 2016. The Bonita Peak Mining District encompasses 48 mining sites within the Animas River watershed, including the Sunnyside Mine, the American Tunnel, and the Sunbank Group. On or about July 25, 2017, Washington Mining Company (Washington Mining) (a wholly-owned subsidiary of the Company's wholly-owned subsidiary, Arava), received a general notice letter from the EPA stating that Washington Mining may be a PRP under CERCLA in connection with the Bonita Peak Mining District site and therefore responsible for the remediation of certain portions of the site, along with related costs incurred by the EPA. Shortly thereafter, the Company received a substantively identical letter asserting that it may be a PRP at the site and similarly responsible for the cleanup of certain portions of the site. The general notice letters identify one other PRP at the site, and do not require specific action by Washington Mining or the Company at this time. At this juncture, the Company is unable to determine the likelihood of a materially adverse outcome or the amount or range of a potential loss with respect to any remedial action related to the Bonita Peak Mining District NPL site.

Operating Properties

Mueller Copper Tube Products, Inc.

In 1999, Mueller Copper Tube Products, Inc. (MCTP), a wholly owned subsidiary, commenced a cleanup and remediation of soil and groundwater at its Wynne, Arkansas plant to remove trichloroethylene, a cleaning solvent formerly used by MCTP. On August 30, 2000, MCTP received approval of its Final Comprehensive Investigation Report and Storm Water Drainage Investigation Report addressing the treatment of soils and groundwater from the Arkansas Department of Environmental Quality (ADEQ). The Company established a reserve for this project in connection with the acquisition of MCTP in 1998. Effective November 17, 2008, MCTP entered into a Settlement Agreement and Administrative Order by Consent to submit a Supplemental Investigation Work Plan (SIWP) and subsequent Final Remediation Work Plan (RWP) for the site. By letter dated January 20, 2010, ADEQ approved the SIWP as submitted, with changes acceptable to the Company. On December 16, 2011, MCTP entered into an amended Administrative Order by Consent to prepare and implement a revised RWP regarding final remediation for the Site. The remediation system was activated in February 2014. Costs to implement the work plans, including associated general and administrative costs, are estimated to approximate \$0.7 million to \$0.9 million over the next four years. The Company has recorded a reserve at the low end of this range.

United States Department of Commerce Antidumping Review

On December 24, 2008, the Department of Commerce (DOC) initiated an antidumping administrative review of the antidumping duty order covering circular welded non-alloy steel pipe and tube from Mexico for the November 1, 2007 through October 31, 2008 period of review. The DOC selected Mueller Comercial as a respondent in the review. On April 19, 2010, the DOC published the final results of the review and assigned Mueller Comercial an antidumping duty rate of 48.33 percent. On May 25, 2010, the Company appealed the final results to the U.S. Court of International Trade (CIT). On December 16, 2011, the CIT issued a decision remanding the Department's final results. While the matter was still pending, the Company and the United States reached an agreement to settle the appeal. Subject to the conditions of the agreement, the Company anticipated that certain of its subsidiaries would incur antidumping duties on subject imports made during the period of review and, as such, established a reserve for this matter. After the lapse of the statutory period of time during which U.S. Customs and Border Protection (CBP) was required, but failed, to liquidate the entries at the settled rate, the Company released the reserve. Between October 30, 2015 and November 27, 2015, CBP sent a series of invoices to Southland Pipe Nipples Co., Inc. (Southland), requesting payment of approximately \$3.0 million in duties and interest in connection with 795 import entries made during the November 1, 2007 through October 31, 2008 period. On January 26, 2016 and January 27, 2016, Southland filed protests with CBP in connection with these invoices, noting that CBP's asserted claims were not made in accordance with applicable law, including statutory provisions governing deemed liquidation. The Company believes in the merits of the legal objections raised in Southland's protests, and CBP's response to Southland's protests is currently pending. Given the procedural posture and issues raised by this legal dispute, the Company cannot estimate the amount of potential duty liability, if any, that may result from CBP's asserted claims.

Deepwater Horizon Economic and Property Damage Claim

During 2020, Mueller Copper Tube Company, a wholly owned subsidiary of the Company, collected approximately \$22.1 million related to its claim under the Deepwater Horizon Economic and Property Damage Settlement Program. The collected amount represent settlement proceeds received after the payment of fees and expenses.

Guarantees

Guarantees, in the form of letters of credit, are issued by the Company generally to assure the payment of insurance deductibles, certain retiree health benefits, and debt at certain unconsolidated affiliates. The terms of the guarantees are generally one year but are renewable annually as required. These letters are primarily backed by the Company's revolving credit facility. The maximum payments that the Company could be required to make under its guarantees at December 25, 2021 were \$28.9 million.

Other

The Company is involved in certain litigation as a result of claims that arose in the ordinary course of business, which management believes will not have a material adverse effect on the Company's financial position, results of operations, or cash flows. It may also realize the benefit of certain legal claims and litigation in the future; these gain contingencies are not recognized in the Consolidated Financial Statements.

Note 15 – Income Taxes

The components of income before income taxes were taxed under the following jurisdictions:

(In thousands)	2021	2020	2019
Domestic	$ 518,080	$ 144,770	$ 112,812
Foreign	123,059	64,419	53,271
Income before income taxes	$ 641,139	$ 209,189	$ 166,083

Income tax expense consists of the following:

(In thousands)	2021	2020	2019
Current tax expense:			
Federal	$ 107,804	$ 37,964	$ 19,066
Foreign	34,455	16,221	12,727
State and local	16,186	5,182	3,892
Current tax expense	158,445	59,367	35,685
Deferred tax expense (benefit):			
Federal	(3,504)	(5,991)	1,725
Foreign	2,572	90	(2,311)
State and local	8,345	1,855	158
Deferred tax expense (benefit)	7,413	(4,046)	(428)
Income tax expense	$ 165,858	$ 55,321	$ 35,257

The difference between the reported income tax expense and a tax determined by applying the applicable U.S. federal statutory income tax rate to income before income taxes is reconciled as follows:

(In thousands)	2021	2020	2019
Expected income tax expense	$ 134,639	$ 43,930	$ 34,892
State and local income tax, net of federal benefit	21,132	5,949	3,234
Effect of foreign statutory rates different from U.S. and other foreign adjustments	11,185	2,783	(882)
Investment in unconsolidated affiliates	(679)	(387)	538
Other, net	(419)	3,046	(2,525)
Income tax expense	$ 165,858	$ 55,321	$ 35,257

The Company continues to assert that the undistributed earnings of most of its foreign subsidiaries are permanently reinvested. No taxes have been accrued with respect to these undistributed earnings or any outside basis differences. The Company has elected to provide for the tax expense related to global intangible low-taxed income (GILTI) in the year the tax is incurred.

The Company includes interest and penalties related to income tax matters as a component of income tax expense, none of \hich was material in 2021, 2020, and 2019.

During 2021, the Internal Revenue Service completed its audit of the Company's 2015 and 2017 tax returns, the results of which were immaterial to the Consolidated Financial Statements. The statute of limitations is open for the Company's federal tax return for 2018 and all subsequent years. The statutes of limitations for most state returns are open for 2018 and all subsequent years, and some state and foreign returns are also open for some earlier tax years due to differing statute periods. While the Company believes that it is adequately reserved for possible audit adjustments, the final resolution of these examinations cannot be determined with certainty and could result in final settlements that differ from current estimates.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities are presented below:

(In thousands)	2021	2020
Deferred tax assets:		
Inventories	$ 15,153	$ 13,910
Other postretirement benefits and accrued items	8,382	11,477
Other reserves	9,962	7,782
Foreign tax attributes	6,410	6,250
State tax attributes, net of federal benefit	12,043	21,178
Stock-based compensation	3,608	3,751
Right of use liability	4,988	6,034
Basis difference in unconsolidated affiliates	7,690	8,478
Total deferred tax assets	68,236	78,860
Less valuation allowance	(26,624)	(27,199)
Deferred tax assets, net of valuation allowance	41,612	51,661
Deferred tax liabilities:		
Property, plant, and equipment	45,804	48,990
Right of use asset	5,099	6,157
Other liabilities	1,765	638
Total deferred tax liabilities	52,668	55,785
Net deferred tax liabilities	$ (11,056)	$ (4,124)

As of December 25, 2021, after consideration of the federal impact, the Company had state income tax credit carryforwards of $1.7 million, all of which expire by 2024, and state net operating loss (NOL) carryforwards with potential tax benefits of $10.4 million, after consideration of the federal impact, expiring between 2022 and 2036. The state tax credit and NOL carryforwards were fully offset by valuation allowances.

As of December 25, 2021, the Company had other foreign tax attributes with potential tax benefits of $4.6 million, which have an unlimited life and were fully offset by a valuation allowance. The Company also had other foreign tax attributes of $1.8 million, which have limited lives expiring between 2030 and 2038, which are offset by a valuation allowance of $0.6 million. The Company has also recorded a valuation allowance against deferred tax assets related to the book-tax differences in investments in unconsolidated affiliates.

Income taxes paid were approximately $132.9 million in 2021, $49.3 million in 2020, and $41.8 million in 2019.

Note 16 – Equity

The Company's Board of Directors has extended, until July 2022, its authorization to repurchase up to20 million shares of the Company's common stock through open market transactions or through privately negotiated transactions. The Company has no obligation to purchase any shares and may cancel, suspend, or extend the time period for the purchase of shares at any time. Any purchases will be funded primarily through existing cash and cash from operations. The Company may hold any shares purchased in treasury or use a portion of the repurchased shares for its stock-based compensation plans, as well as for other corporate purposes. From its initial authorization in 1999 through December 25, 2021, the Company has repurchased approximately 6.5 million shares under this authorization.

Note 17 – Stock-Based Compensation

The Company has in effect stock incentive plans under which stock-based awards have been granted to certain employees and members of its Board of Directors. Under these existing plans, the Company may grant stock options, restricted stock awards, and performance stock awards. Approximately 1.5 million shares were available for future stock incentive awards at December 25, 2021.

During the years ended December 25, 2021, December 26, 2020, and December 28, 2019, the Company recognized stock-based compensation, as a component of selling, general, and administrative expense, in its Consolidated Statements of Income of $9.8 million, $8.6 million, and $8.7 million, respectively.

The total compensation expense not yet recognized related to stock incentive awards at December 25, 2021 was $21.0 million, with an average expense recognition period of 2.7 years.

The Company generally issues treasury shares when stock options are exercised, or when restricted stock awards or performance stock awards are granted. A summary of the activity and related information follows:

	Stock Options		Restricted Stock Awards		Performance Stock Awards	
(Shares in thousands)	Shares	Weighted Average Exercise Price	Shares	Weighted Average Grant Date Fair Value	Shares	Weighted Average Grant Date Fair Value
Beginning of period	793	$ 26.81	706	$ 30.89	$ 495	$ 30.50
Granted	28	46.19	91	44.08	142	43.46
Exercised/Released	(194)	24.20	(217)	32.39	—	—
Forfeited	(12)	31.83	(3)	34.20	(13)	29.61
End of period	615	$ 28.42	577	$ 32.40	624	$ 33.46

Stock Options

Stock options are generally granted to purchase shares of common stock at an exercise price equal to the average of the high and low market price of the Company's stock on the grant date. Generally, the awards vest within five years from the grant date. Any unexercised options expire after not more than ten years. The fair value of each option is estimated as a single award and amortized into compensation expense on a straight-line or accrual basis over its vesting period based on its vesting schedule.

The Company estimates the fair value of all stock option awards as of the grant date by applying the Black-Scholes-Merton option pricing model. The use of this valuation model in the determination of compensation expense involves certain assumptions that are judgmental and/or highly sensitive including the expected life of the option, stock price volatility, risk-free interest rate, and dividend yield. Additionally, forfeitures are not estimated at the time of valuation; they are recognized as they occur. The weighted average of key assumptions used in determining the fair value of options granted and a discussion of the methodology used to develop each assumption are as follows:

	2021	2020	2019
Fair value of stock options on grant date	$ 15.60	$ 6.81	$ 8.78
Expected term	7.9 years	7.9 years	7.8 years
Expected price volatility	33.6 %	31.9 %	28.6 %
Risk-free interest rate	1.3 %	0.6 %	2.4 %
Dividend yield	1.1 %	1.7 %	1.4 %

Expected term – This is the period of time estimated based on historical experience over which the options granted are expected to remain outstanding. An increase in the expected term will increase compensation expense.

Expected price volatility – This is a measure of the amount by which a price has fluctuated or is expected to fluctuate. The Company uses actual historical changes in the market value of its stock to calculate the volatility assumption. Daily market value changes from the grant date over a past period representative of the expected term of the options are used. An increase in the expected price volatility rate will increase compensation expense.

Risk-free interest rate – This is the U.S. Treasury rate for the week of the grant, having a term representative of the expected term of the options. An increase in the risk-free rate will increase compensation expense.

Dividend yield – This rate is the annual dividends per share as a percentage of the Company's stock price. An increase in the dividend yield will decrease compensation expense.

The total intrinsic value of options exercised was $3.8 million, $2.4 million, and $1.6 million in 2021, 2020, and 2019, respectively. The total fair value of options that vested was $0.4 million, $0.7 million, and $1.0 million in 2021, 2020, and 2019.

At December 25, 2021, the aggregate intrinsic value of all outstanding options was $18.5 million with a weighted average remaining contractual term of 4.9 years. Of the outstanding options, 402 thousand are currently exercisable with an aggregate intrinsic value of $12.8 million, a weighted average exercise price of $26.75, and a weighted average remaining contractual term of 4.3 years.

Restricted Stock Awards

The fair value of each restricted stock award equals the fair value of the Company's stock on the grant date and is amortized into compensation expense on a straight-line or accrual basis over its vesting period based on its vesting schedule. The weighted average grant-date fair value of awards granted during 2021, 2020, and 2019 was $44.08, $29.00, and $28.64, respectively.

The aggregate intrinsic value of outstanding and unvested awards was $33.7 million at December 25, 2021. The total fair value of awards that vested was $7.0 million, $5.6 million, and $5.6 million in 2021, 2020, and 2019, respectively.

Performance Stock Awards

Performance stock awards require achievement of certain performance criteria which are predefined by the Compensation Committee of the Board of Directors at the time of grant. The fair value of each performance stock award equals the fair value of the Company's stock on the grant date. Performance stock awards are vested and released at the end of the performance period if the predefined performance criteria are achieved.

For all performance stock awards, in the event the certified results equal the predefined performance criteria, the Company will grant the number of shares equal to the target award. In the event the certified results exceed the predefined performance criteria, additional shares up to the maximum award will be granted. In the event the certified results fall below the predefined performance criteria but above the minimum threshold, a reduced number of shares will be granted. If the certified results fall below the minimum threshold, no shares will be granted.

In the period it becomes probable that the minimum threshold specified in the award will be achieved, the Company recognizes expense for the proportionate share of the total fair value of the performance stock awards related to the vesting period that has already lapsed for the shares expected to vest and be released. The remaining fair value of the shares expected to vest and be released is expensed on a straight-line basis over the balance of the vesting period. In the event the Company determines it is no longer probable that it will achieve the minimum threshold specified in the award, all of the previously recognized compensation expense is reversed in the period such a determination is made.

The weighted average grant-date fair value of awards granted during 2021, 2020, and 2019 was $43.46, $29.61, and $29.11, respectively.

The aggregate intrinsic value of outstanding and unvested awards was $36.5 million at December 25, 2021.

Note 18 – Accumulated Other Comprehensive Income (Loss)

AOCI includes certain foreign currency translation adjustments from those subsidiaries not using the U.S. dollar as their functional currency, net deferred gains and losses on certain derivative instruments accounted for as cash flow hedges, adjustments to pension and other post-employment benefit liabilities, and other comprehensive income attributable to unconsolidated affiliates.

The following table provides changes in AOCI by component, net of taxes and noncontrolling interest (amounts in parentheses indicate debits to AOCI):

(In thousands)	Cumulative Translation Adjustment	Unrealized Gain (Loss) on Derivatives	Pension/ OPEB Liability Adjustment	Attributable to Unconsol. Affiliates	Total
Balance at December 28, 2019	$ (46,198)	$ 476	$ (21,855)	$ (1,193)	$ (68,770)
Other comprehensive income (loss) before reclassifications	8,859	(4,583)	(3,639)	(132)	505
Amounts reclassified from AOCI	—	5,091	8,291	—	13,382
Balance at December 26, 2020	(37,339)	984	(17,203)	(1,325)	(54,883)
Other comprehensive (loss) income before reclassifications	(4,964)	2,361	4,899	978	3,274
Amounts reclassified from AOCI	—	(2,542)	804	—	(1,738)
Balance at December 25, 2021	$ (42,303)	$ 803	$ (11,500)	$ (347)	$ (53,347)

Reclassification adjustments out of AOCI were as follows:

	Amount reclassified from AOCI			
(In thousands)	2021	2020	2019	Affected Line Item
Unrealized losses (gains) on derivatives:				
Commodity contracts	$ (3,848)	$ 6,337	$ (587)	Cost of goods sold
	1,306	(1,246)	101	Income tax expense (benefit)
	$ (2,542)	$ 5,091	$ (486)	Net of tax and noncontrolling interests
Amortization of net loss (gain) and prior service cost on employee benefit plans	$ —	$ 11,642	$ —	Pension plan termination expense
	963	(998)	960	Other income, net
	(159)	(2,353)	(163)	Income tax benefit
	$ 804	$ 8,291	$ 797	Net of tax and noncontrolling interests

Note 19 – Quarterly Financial Information (Unaudited) [(1)]

(In thousands, except per share data)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2021				
Net sales	$ 818,148	$ 1,012,592	$ 982,248	$ 956,357
Gross profit [(2)]	149,730	212,880	237,983	229,763
Consolidated net income [(3)]	65,238	110,932	172,256	126,698
Net income attributable to Mueller Industries, Inc.	63,107	108,832	170,980	125,601
Basic earnings per share	1.13	1.95	3.05	2.24
Diluted earnings per share	1.11	1.92	3.01	2.21
Dividends per share	0.13	0.13	0.13	0.13
2020				
Net sales	$ 602,919	$ 500,168	$ 619,105	$ 675,851
Gross profit [(2)]	94,204	97,009	118,325	122,344
Consolidated net income [(4)]	33,951	28,487	43,957	37,254
Net income attributable to Mueller Industries, Inc.	32,415	27,956	42,702	36,420
Basic earnings per share	0.58	0.50	0.77	0.65
Diluted earnings per share	0.57	0.50	0.76	0.64
Dividends per share	0.10	0.10	0.10	0.10

(1) *The sum of quarterly amounts may not equal the annual amounts reported due to rounding. In addition, the earnings per share amounts are computed independently for each quarter, while the full year is based on the weighted average shares outstanding.*

(2) *Gross profit is net sales less cost of goods sold, which excludes depreciation and amortization.*

(3) *Includes income earned by H&C Flex, acquired during Q1 2021, and Mueller Middle East, acquired during Q4 2021.*

(4) *Includes income earned by Shoals Tubular, Inc., acquired during Q1 2020, and Kessler Sales and Distribution, acquired during Q3 2020.*

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Mueller Industries, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Mueller Industries, Inc. (the Company) as of December 25, 2021 and December 26, 2020, the related consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the three years in the period ended December 25, 2021, and the related notes and financial statement schedule listed in the Index at Item 15(a) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 25, 2021 and December 26, 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 25, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 25, 2021, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 23, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

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

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

Critical Audit Matter

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

Defined Benefit Pension Obligation

Description of the Matter	At December 25, 2021 the aggregate defined pension obligation was $84.3 million and exceeded the fair value of pension plan assets of $79.5 million, resulting in an underfunded defined pension obligation of $4.8 million. As disclosed in Notes 1 and 13 to the consolidated financial statements, the Company recognizes the overfunded or underfunded status of the plans as an asset or liability in the consolidated balance sheets with changes in the funded status recorded through comprehensive income in the year in which those changes occur. The obligations for these plans are actuarially determined and affected by assumptions, including discount rates, expected long-term return on plan assets, and certain employee-related factors such as mortality. Auditing the defined benefit pension obligation is complex and required the involvement of our actuarial specialists due to the highly judgmental nature of actuarial assumptions (e.g., discount rate, mortality rate, and expected return on plan assets) used in the measurement process. These assumptions have a significant effect on the projected benefit obligation.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls that address the measurement and valuation of the defined benefit pension obligation. For example, we tested controls over management's review of the defined benefit pension obligation, including the significant actuarial assumptions used by management and the related data inputs. To test the defined benefit pension obligation, our audit procedures included, among others, evaluating the methodology used, the significant actuarial assumptions discussed above and testing the completeness and accuracy of the underlying data, including the participant data used by management. We involved our actuarial specialist to assist with our procedures. For example, we compared the actuarial assumptions used by management to historical trends and evaluated the change in the defined benefit pension obligation from prior year due to the change in service cost, interest cost, actuarial gains and losses, benefit payments, and contributions. In addition, we evaluated management's methodology for determining the discount rate that reflects the maturity and duration of the benefit payments that is used to measure the defined benefit pension obligation. As part of this assessment, we compared management's selected discount rate to an independently developed range of reasonable discount rates. To evaluate the mortality rate assumption, we assessed whether the information is consistent with publicly available information, and whether any market data adjusted for entity-specific factors were applied. Lastly, to evaluate the expected return on plan assets, we assessed whether management's assumption was consistent with a range of returns for a portfolio of comparative investments.

Ernst & Young LLP

We have served as the Company's auditor since 1991.

Memphis, Tennessee
February 23, 2022

MUELLER INDUSTRIES, INC.
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS
Years Ended December 25, 2021, December 26, 2020, and December 28, 2019

(In thousands)	Balance at beginning of year	Additions: Charged to costs and expenses	Additions: Other additions	Deductions	Balance at end of year
2021					
Allowance for doubtful accounts	$ 1,538	$ 1,216	$ —	$ 164	$ 2,590
Environmental reserves	$ 24,001	$ 4,964	$ —	$ 1,539	$ 27,426
Valuation allowance for deferred tax assets	$ 27,199	$ 108	$ 642	$ 1,325	$ 26,624
2020					
Allowance for doubtful accounts	$ 770	$ 1,208	$ —	$ 440	$ 1,538
Environmental reserves	$ 20,866	$ 4,242	$ —	$ 1,107	$ 24,001
Valuation allowance for deferred tax assets	$ 23,130	$ 2,317	$ 1,898	$ 146	$ 27,199
2019					
Allowance for doubtful accounts	$ 836	$ (81)	$ 263	$ 248	$ 770
Environmental reserves	$ 23,619	$ 1,659	$ —	$ 4,412	$ 20,866
Valuation allowance for deferred tax assets	$ 25,311	$ 2,919	$ 290	$ 5,390	$ 23,130

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934**

As of February 18, 2022, Mueller Industries, Inc. had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: Common Stock, $0.01 par value per share (the "Common Stock").

The following summary describes our Common Stock and the material provisions of our Restated Certificate of Incorporation, dated February 8, 2007 (the "Certificate of Incorporation"), and our Amended and Restated By-laws, effective as of January 15, 2016 (the "Bylaws"). Because the following is only a summary, it does not contain all of the information that may be important to you, and is qualified in its entirety by the full text of our Certificate of Incorporation and our Bylaws, copies of which are on file with the SEC and included as exhibits to our Annual Report on Form 10-K for the year ended December 31, 2019. You should refer to the text of these documents for a complete description. Unless the context requires otherwise, references in this exhibit to "Mueller," the "Company," "we," "us," and "our" refer to Mueller Industries, Inc. together with its consolidated subsidiaries.

We are authorized to issue 105,000,000 shares of capital stock, of which:

- 100,000,000 shares, par value $0.01 per share, are designated as Common Stock; and
- 5,000,000 shares, par value $1.00 per share, are designated as Preferred Stock

As of February 18, 2022, we had outstanding 57,301,881 shares of Common Stock, excluding 22,881,123 treasury shares, and no shares of Preferred Stock.

Common Stock

Voting Rights

Except as otherwise provided for in our Certificate of Incorporation, holders of our Common Stock are entitled to one (1) vote per share on all matters submitted to our stockholders for a vote. Our Common Stock does not have cumulative voting rights.

Dividends

Subject to the rights of holders of outstanding shares of Preferred Stock, the holders of Common Stock are entitled to receive dividends, if any, as may be declared from time to time by the Board of Directors in its discretion out of funds legally available for the payment of dividends.

Liquidation

Upon our liquidation, dissolution or winding-up, the holders of Common Stock shall be entitled to share ratably in all assets remaining after the payment of any liabilities and the liquidation preferences of any outstanding shares of Preferred Stock.

No Preemptive, Redemption or Conversion Rights

Our Common Stock is not subject to redemption or sinking fund provisions and does not have any conversion rights. Our Common Stock does not have preemptive or other rights to subscribe for additional shares of any class of our capital stock.

Voting Rights for the Election of Directors

Our Board of Directors is not classified. Our Bylaws provide that our Board of Directors may consist of one (1) or more members, and that, until such time as our Board of Directors determines otherwise, the number of directors shall be nine (9).

Our Bylaws provide that directors are elected at the annual meeting of the stockholders at which a quorum is present, and the persons receiving a plurality of the votes cast shall be so elected. Our Certificate of Incorporation does not provide for cumulative voting in the election of directors.

Our Board of Directors has the ability to fill vacancies on our Board of Directors.

Special Stockholder Meetings

Our Bylaws provide that special meetings of the stockholders may be called only by our Chairman or our Chief Executive Officer. Special meetings may be called by the Chairman only upon written request of a majority of the Entire Board of Directors (as defined below).

"Entire Board of Directors" means the total number of directors which the Company would have if there were no vacancies.

Exhibit 10.8

2021 INCENTIVE PLAN FOR CERTAIN KEY EMPLOYEES

The Company has a discretionary annual incentive program under which exempt salaried employees may earn cash payments based on a percentage of base annual salary. The actual percent is based on a variety of guidelines including performance levels of the respective business units primarily measured by operating income subject to certain adjustments.

The payment to an employee is based upon (i) their assigned grade level, (ii) actual company earnings achieved relative to a pre-determined target, which is adjusted upward if company performance exceeds target and reduced if company performance is less than target, and (iii) base salary paid during the fiscal year.

February 22, 2022

Re: Severance Protections

Dear Jeff:

This letter (this "***Agreement***") sets forth certain severance protections that are being provided to you as a key executive in the Company. Described are the payments and benefits that you may be eligible to receive in the event that your employment with Mueller Industries, Inc. and its direct and indirect subsidiaries (the "***Company***") is terminated, and the enhanced payments and benefits that you may be eligible to receive in the event that your employment with the Company is terminated in relation to a Change in Control, as set forth below. For the avoidance of doubt, this Agreement is intended to supersede in its entirety that certain letter agreement by and between you and the Company, regarding change in control protections, dated July 26, 2016.

In the event that your employment with the Company is terminated by the Company without Cause (other than on account of your death or Disability) or by you for Good Reason, you shall be entitled to a lump sum cash payment in an amount equal to the sum of:

- An amount equal to two (2) times your base salary (as in effect immediately prior to such termination); and
- An amount equal to two (2) times the average annual bonus paid to you (including, for this purpose only, any amounts deferred) in respect of the three calendar years immediately preceding the calendar year in which such termination occurs.

In the event the Company has a Change in Control occurrence and upon or within three (3) years following this occurrence, your employment with the Company is terminated by the Company without Cause (other than on account of your death or Disability) or by you for Good Reason, you shall be entitled to a lump sum cash payment in an amount equal to the sum of:

- An amount equal to three (3) times your base salary (as in effect immediately prior to the Change in Control or, if greater, the date of such termination); and
- An amount equal to three (3) times the average annual bonus paid to you (including, for this purpose only, any amounts deferred) in respect of the three calendar years immediately preceding the calendar year in which the Change in Control occurs (or the three calendar years immediately preceding the calendar year of such termination, if greater).

In addition, to the extent permitted by applicable law without any penalty to you or the Company and subject to your election of COBRA continuation coverage for you and your covered dependents under the Company's group health plan, continued coverage under the Company's group health plan at the Company's cost (or at the discretion of the Company, reimbursement for COBRA premiums) for two (2) years following your termination.

For purposes of this Agreement, "***Good Reason***" means, without your written consent (1) a material reduction in your base salary or your annual bonus opportunity, in each case, as in effect immediately prior to the Reference Date (as defined below), or (2) the relocation of your principal place of employment more than fifty (50) miles from the location where you were principally employed immediately prior to the Reference Date. To terminate your employment for Good Reason, within sixty (60) days following the occurrence of an event that constitutes Good Reason, you must give the Company ten (10) days' prior written notice of your termination, setting forth in reasonable specificity the event that constitutes Good Reason, during which ten (10) day notice period the Company will have a cure right (if curable). For purposes of this definition, "***Reference Date***" means the date of the reduction or relocation, as applicable, or, in the case of a termination that occurs in relation to a Change in Control, the date of such Change in Control.

Please note that this Agreement is not to be construed as a contract of employment or to alter your "at-will" employment status, and nothing herein prohibits either the Company or you from terminating your employment with the Company at any time for any reason. All payments and or extension of benefits and vesting are subject to your execution and delivery to the Company of a general release of claims in a form reasonably acceptable to the Company that becomes effective within sixty (60) days of such termination.

All payments described herein will be subject to withholding for federal, state, and local taxes and other regular payroll deductions. In addition, the following provisions will apply with respect to certain tax matters:

- In the event that any of the payments or benefits described in this Agreement, when added to all other amounts or benefits provided to you, on your behalf or for your benefit by the Company or its affiliates in connection with your termination of employment ("***Covered Payments***"), would constitute parachute payments ("***Parachute Payments***") within the meaning of Section 280G of the Internal Revenue Code (the "***Code***") and would be subject to the excise tax imposed under Section 4999 of the Code (or any successor provision thereto) or any similar tax imposed by state or local law or any interest or penalties with respect to such taxes (collectively, the "***Excise Tax***"), then Covered Payments will be either (i) reduced to the minimum extent necessary to ensure that no portion of the Covered Payments is subject to the Excise Tax (that amount, the "***Reduced Amount***") or (ii) payable in full if your receipt on an after-tax basis of the full amount of payments and benefits (after taking into account the applicable federal, state, local and foreign income, employment and excise taxes (including the Excise Tax)) would result in you receiving an amount that is at least one dollar greater than the Reduced Amount. If the Covered Payments are to be reduced pursuant to clause (i) in the immediately preceding sentence, such reduction will be done in a manner that maximizes your economic position. In applying this principle, the reduction will be made in a manner consistent with the requirements of Section 409A of the Code ("***Section 409A***"), and where two economically equivalent amounts are subject to reduction but payable at different times, such amounts will be reduced on a pro rata basis but not below zero.

- An initial determination as to whether any of the Parachute Payments will be subject to the Excise Tax, and the amount of any reduction, if any, that may be required hereunder, will be made by an accounting, consulting or specialty firm selected by the Company (the "***Accounting Firm***") prior to the consummation of the applicable change in the ownership or effective control of the Company or in the ownership of a substantial portion of the assets of the Company. You will be furnished with notice of all determinations made as to the Excise Tax payable with respect to Parachute Payments, together with the related calculations of the Accounting Firm, promptly after such determinations and calculations have been received by the Company.

- For purposes hereof, (1) no portion of the Parachute Payments the receipt or enjoyment of which you will have effectively waived in writing prior to the date of payment of the Parachute Payments will be taken into account; (2) no portion of the Parachute Payments will be taken into account which in the opinion of the Accounting Firm does not constitute a "parachute payment" within the meaning of Section 280G(b)(2) of the Code and the Accounting Firm will be required to value any restrictive covenants (including, without limitation, any covenants not to compete with the Company or solicit employees or customers of the Company) in forming such opinion; (3) the Parachute Payments will be reduced only to the extent necessary so that the Parachute Payments (other than those referred to in the immediately preceding clause (1) or (2)) in their entirety constitute reasonable compensation for services actually rendered within the meaning of Section 280G(b)(4) of the Code or are otherwise not subject to disallowance as deductions, in the opinion of the auditor or tax counsel referred to in such clause (2); and (4) the value of any non-cash benefit or any deferred payment or benefit included in the Parachute Payments will be determined by the Company's independent auditors based on Sections 280G and 4999 of the Code and the regulations for applying those Code sections, or on substantial authority within the meaning of Section 6662 of the Code.

- You will not be required to mitigate the amount of any payment provided for in this Agreement by seeking other employment or otherwise. Unless otherwise agreed to in writing, the amount of payment or the benefit provided for in this Agreement will not be reduced by any compensation earned by you as the result of employment by another employer or by reason of your receipt of or right to receive any retirement or other benefits after the date of termination of employment or otherwise. You and the Company will cooperate in good faith to review, consider and pursue reasonable and customary mitigation strategies to avoid the imposition of the Excise Tax on any amounts due to you hereunder or otherwise.

- It is possible that after determinations and selections made pursuant hereto that you will receive an amount that is either more or less than the limitation provided above (hereafter referred to as an "***Excess Payment***" or "***Underpayment***," respectively). If it is established, pursuant to a final determination of a court or an Internal Revenue Service proceeding that has been finally and conclusively resolved, that an Excess Payment has been made, then you will refund the Excess Payment to the Company promptly on demand, together with an additional payment in an amount equal to the product obtained by multiplying the Excess Payment times the rate that is 120% of the applicable annual federal rate (as determined in and under Section 1274(d) of the Code) times a fraction whose numerator is the number of days elapsed from the date of your receipt of such Excess Payment through the date of such refund and whose denominator is 365. In the event that it is determined (x) by a court of competent jurisdiction, or (y) by an independent auditor upon request you or the Company, that an Underpayment has occurred, the Company will pay an amount equal to the Underpayment to you within ten (10) days of such determination together with an additional payment in an amount equal to the product obtained by multiplying the Underpayment times the rate that is 120% of the applicable annual federal rate (as determined under Section 1274(d) of the Code) times a fraction whose numerator is the number of days elapsed from the date of the Underpayment through the date of such payment and whose denominator is 365.

- It is intended that payments made under this Agreement will be exempt from or compliant with Section 409A, and this Agreement will be construed in a manner that effects such intent. Without limiting the foregoing, for purposes of any amounts constituting "nonqualified deferred compensation" under Section 409A, (i) references to "termination of employment" or like terms will mean a "separation from service" as defined under Section 409A, (ii) payments may be delayed as and to the extent necessary to meet the requirements of Section 409A(a)(2)(B)(i), (iii) if payments are conditioned on execution of a general release of claims, and the prescribed review and revocation period spans two separate taxable years, payments will be delayed until the later taxable year, and (iv) any installment payments will be treated as a right to receive a series of separate and distinct payments for purposes of Section 409A.

You may not assign, transfer, or otherwise dispose of this Agreement, or any of your other rights or obligations hereunder (other than your rights to payments hereunder, which may be transferred only by will or by the laws of descent and distribution), without the prior written consent of the Company, and any such attempted assignment, transfer, or other disposition without such consent will be null and void.

This Agreement sets forth the entire agreement between the parties hereto with respect to the subject matter hereof, and supersedes all other agreements and understandings, written or oral, between the parties hereto with respect to the subject matter hereof. Capitalized terms used but not otherwise defined herein shall have the meaning ascribed to such terms in the Mueller Industries, Inc. 2019 Incentive Plan.

Any waiver, alteration, amendment, or modification of any of the terms of this Agreement will be valid only if made in writing and signed by the parties hereto. No waiver by either of the parties hereto of their rights hereunder will be deemed to constitute a waiver with respect to any subsequent occurrences or transactions hereunder unless such waiver specifically states that it is to be construed as a continuing waiver.

This Agreement will be governed by and construed in accordance with the laws of the State of Tennessee (without giving effect to the choice of law principles thereof) applicable to contracts made and to be performed entirely within such jurisdiction.

* * *

Please acknowledge your agreement with the terms as set forth in this Agreement by signing and dating the enclosed copy and returning it to me.

Sincerely,

MUELLER INDUSTRIES, INC.

By: /s/ Gregory L. Christopher
Name: Gregory Christopher
Title: Chief Executive Officer

Acknowledged and agreed to as of this
22nd day of February 2022 by:

By: /s/ Jeffrey A. Martin
Name: Jeffrey A. Martin

February 22, 2022

Re: Severance Protections

Dear Chris:

This letter (this "***Agreement***") sets forth certain severance protections that are being provided to you as a key executive in the Company. Described are the payments and benefits that you may be eligible to receive in the event that your employment with Mueller Industries, Inc. and its direct and indirect subsidiaries (the "***Company***") is terminated, and the enhanced payments and benefits that you may be eligible to receive in the event that your employment with the Company is terminated in relation to a Change in Control, as set forth below. For the avoidance of doubt, this Agreement is intended to supersede in its entirety that certain letter agreement by and between you and the Company, regarding change in control protections, dated January 3, 2017.

In the event that your employment with the Company is terminated by the Company without Cause (other than on account of your death or Disability) or by you for Good Reason, you shall be entitled to a lump sum cash payment in an amount equal to the sum of:

- An amount equal to two (2) times your base salary (as in effect immediately prior to such termination); and
- An amount equal to two (2) times the average annual bonus paid to you (including, for this purpose only, any amounts deferred) in respect of the three calendar years immediately preceding the calendar year in which such termination occurs.

In the event the Company has a Change in Control occurrence and upon or within three (3) years following this occurrence, your employment with the Company is terminated by the Company without Cause (other than on account of your death or Disability) or by you for Good Reason, you shall be entitled to a lump sum cash payment in an amount equal to the sum of:

- An amount equal to three (3) times your base salary (as in effect immediately prior to the Change in Control or, if greater, the date of such termination); and
- An amount equal to three (3) times the average annual bonus paid to you (including, for this purpose only, any amounts deferred) in respect of the three calendar years immediately preceding the calendar year in which the Change in Control occurs (or the three calendar years immediately preceding the calendar year of such termination, if greater).

In addition, to the extent permitted by applicable law without any penalty to you or the Company and subject to your election of COBRA continuation coverage for you and your covered dependents under the Company's group health plan, continued coverage under the Company's group health plan at the Company's cost (or at the discretion of the Company, reimbursement for COBRA premiums) for two (2) years following your termination.

For purposes of this Agreement, "***Good Reason***" means, without your written consent (1) a material reduction in your base salary or your annual bonus opportunity, in each case, as in effect immediately prior to the Reference Date (as defined below), or (2) the relocation of your principal place of employment more than fifty (50) miles from the location where you were principally employed immediately prior to the Reference Date. To terminate your employment for Good Reason, within sixty (60) days following the occurrence of an event that constitutes Good Reason, you must give the Company ten (10) days' prior written notice of your termination, setting forth in reasonable specificity the event that constitutes Good Reason, during which ten (10) day notice period the Company will have a cure right (if curable). For purposes of this definition, "***Reference Date***" means the date of the reduction or relocation, as applicable, or, in the case of a termination that occurs in relation to a Change in Control, the date of such Change in Control.

Please note that this Agreement is not to be construed as a contract of employment or to alter your "at-will" employment status, and nothing herein prohibits either the Company or you from terminating your employment with the Company at any time for any reason. All payments and or extension of benefits and vesting are subject to your execution and delivery to the Company of a general release of claims in a form reasonably acceptable to the Company that becomes effective within sixty (60) days of such termination.

All payments described herein will be subject to withholding for federal, state, and local taxes and other regular payroll deductions. In addition, the following provisions will apply with respect to certain tax matters:

- In the event that any of the payments or benefits described in this Agreement, when added to all other amounts or benefits provided to you, on your behalf or for your benefit by the Company or its affiliates in connection with your termination of employment ("***Covered Payments***"), would constitute parachute payments ("***Parachute Payments***") within the meaning of Section 280G of the Internal Revenue Code (the "***Code***") and would be subject to the excise tax imposed under Section 4999 of the Code (or any successor provision thereto) or any similar tax imposed by state or local law or any interest or penalties with respect to such taxes (collectively, the "***Excise Tax***"), then Covered Payments will be either (i) reduced to the minimum extent necessary to ensure that no portion of the Covered Payments is subject to the Excise Tax (that amount, the "***Reduced Amount***") or (ii) payable in full if your receipt on an after-tax basis of the full amount of payments and benefits (after taking into account the applicable federal, state, local and foreign income, employment and excise taxes (including the Excise Tax)) would result in you receiving an amount that is at least one dollar greater than the Reduced Amount. If the Covered Payments are to be reduced pursuant to clause (i) in the immediately preceding sentence, such reduction will be done in a manner that maximizes your economic position. In applying this principle, the reduction will be made in a manner consistent with the requirements of Section 409A of the Code ("***Section 409A***"), and where two economically equivalent amounts are subject to reduction but payable at different times, such amounts will be reduced on a pro rata basis but not below zero.

- An initial determination as to whether any of the Parachute Payments will be subject to the Excise Tax, and the amount of any reduction, if any, that may be required hereunder, will be made by an accounting, consulting or specialty firm selected by the Company (the "***Accounting Firm***") prior to the consummation of the applicable change in the ownership or effective control of the Company or in the ownership of a substantial portion of the assets of the Company. You will be furnished with notice of all determinations made as to the Excise Tax payable with respect to Parachute Payments, together with the related calculations of the Accounting Firm, promptly after such determinations and calculations have been received by the Company.

- For purposes hereof, (1) no portion of the Parachute Payments the receipt or enjoyment of which you will have effectively waived in writing prior to the date of payment of the Parachute Payments will be taken into account; (2) no portion of the Parachute Payments will be taken into account which in the opinion of the Accounting Firm does not constitute a "parachute payment" within the meaning of Section 280G(b)(2) of the Code and the Accounting Firm will be required to value any restrictive covenants (including, without limitation, any covenants not to compete with the Company or solicit employees or customers of the Company) in forming such opinion; (3) the Parachute Payments will be reduced only to the extent necessary so that the Parachute Payments (other than those referred to in the immediately preceding clause (1) or (2)) in their entirety constitute reasonable compensation for services actually rendered within the meaning of Section 280G(b)(4) of the Code or are otherwise not subject to disallowance as deductions, in the opinion of the auditor or tax counsel referred to in such clause (2); and (4) the value of any non-cash benefit or any deferred payment or benefit included in the Parachute Payments will be determined by the Company's independent auditors based on Sections 280G and 4999 of the Code and the regulations for applying those Code sections, or on substantial authority within the meaning of Section 6662 of the Code.

- You will not be required to mitigate the amount of any payment provided for in this Agreement by seeking other employment or otherwise. Unless otherwise agreed to in writing, the amount of payment or the benefit provided for in this Agreement will not be reduced by any compensation earned by you as the result of employment by another employer or by reason of your receipt of or right to receive any retirement or other benefits after the date of termination of employment or otherwise. You and the Company will cooperate in good faith to review, consider and pursue reasonable and customary mitigation strategies to avoid the imposition of the Excise Tax on any amounts due to you hereunder or otherwise.

- It is possible that after determinations and selections made pursuant hereto that you will receive an amount that is either more or less than the limitation provided above (hereafter referred to as an "***Excess Payment***" or "***Underpayment***," respectively). If it is established, pursuant to a final determination of a court or an Internal Revenue Service proceeding that has been finally and conclusively resolved, that an Excess Payment has been made, then you will refund the Excess Payment to the Company promptly on demand, together with an additional payment in an amount equal to the product obtained by multiplying the Excess Payment times the rate that is 120% of the applicable annual federal rate (as determined in and under Section 1274(d) of the Code) times a fraction whose numerator is the number of days elapsed from the date of your receipt of such Excess Payment through the date of such refund and whose denominator is 365. In the event that it is determined (x) by a court of competent jurisdiction, or (y) by an independent auditor upon request you or the Company, that an Underpayment has occurred, the Company will pay an amount equal to the Underpayment to you within ten (10) days of such determination together with an additional payment in an amount equal to the product obtained by multiplying the Underpayment times the rate that is 120% of the applicable annual federal rate (as determined under Section 1274(d) of the Code) times a fraction whose numerator is the number of days elapsed from the date of the Underpayment through the date of such payment and whose denominator is 365.

- It is intended that payments made under this Agreement will be exempt from or compliant with Section 409A, and this Agreement will be construed in a manner that effects such intent. Without limiting the foregoing, for purposes of any amounts constituting "nonqualified deferred compensation" under Section 409A, (i) references to "termination of employment" or like terms will mean a "separation from service" as defined under Section 409A, (ii) payments may be delayed as and to the extent necessary to meet the requirements of Section 409A(a)(2)(B)(i), (iii) if payments are conditioned on execution of a general release of claims, and the prescribed review and revocation period spans two separate taxable years, payments will be delayed until the later taxable year, and (iv) any installment payments will be treated as a right to receive a series of separate and distinct payments for purposes of Section 409A.

You may not assign, transfer, or otherwise dispose of this Agreement, or any of your other rights or obligations hereunder (other than your rights to payments hereunder, which may be transferred only by will or by the laws of descent and distribution), without the prior written consent of the Company, and any such attempted assignment, transfer, or other disposition without such consent will be null and void.

This Agreement sets forth the entire agreement between the parties hereto with respect to the subject matter hereof, and supersedes all other agreements and understandings, written or oral, between the parties hereto with respect to the subject matter hereof. Capitalized terms used but not otherwise defined herein shall have the meaning ascribed to such terms in the Mueller Industries, Inc. 2019 Incentive Plan.

Any waiver, alteration, amendment, or modification of any of the terms of this Agreement will be valid only if made in writing and signed by the parties hereto. No waiver by either of the parties hereto of their rights hereunder will be deemed to constitute a waiver with respect to any subsequent occurrences or transactions hereunder unless such waiver specifically states that it is to be construed as a continuing waiver.

This Agreement will be governed by and construed in accordance with the laws of the State of Tennessee (without giving effect to the choice of law principles thereof) applicable to contracts made and to be performed entirely within such jurisdiction.

* * *

Please acknowledge your agreement with the terms as set forth in this Agreement by signing and dating the enclosed copy and returning it to me.

Sincerely,

MUELLER INDUSTRIES, INC.

By: /s/ Gregory L. Christopher
Name: Gregory Christopher
Title: Chief Executive Officer

Acknowledged and agreed to as of this
22nd day of February 2022 by:

By: /s/ Christopher J. Miritello
Name: Christopher J. Miritello

Exhibit 21.0

MUELLER INDUSTRIES, INC.
List of Subsidiaries

Subsidiary*	State or Country of Incorporation
ATCO Rubber Products, Inc.	Michigan
Mueller Brass Holding Company, Inc.	Delaware
Mueller Brass Co. (Assumed name: Mueller Brass Products)	Michigan
Extruded Metals, Inc.	Delaware
Mueller Advanced Connections, LLC	Delaware
Mueller Industrial Realty Co.	Michigan
Itawamba Industrial Gas Company, Inc.	Mississippi
Mueller Plastics Holding Company, Inc.	Ohio
Mueller Plastics Corporation, Inc.	Delaware
Mueller Brass Forging Company, Inc.	Delaware
Mueller Copper Tube Company, Inc.	Delaware
Mueller Fittings, LLC	Mississippi
Mueller Fittings Company, Inc.	Michigan
Mueller East, Inc.	Delaware
Mueller Formed Tube Company, Inc.	Delaware
Mueller Impacts Company, Inc.	Delaware
Mueller Press Company, Inc.	Mississippi
Mueller Refrigeration Products Company, Inc.	Delaware
Mueller LBHC, Inc.	Delaware
Lincoln Brass Works, Inc. (Assumed name: Mueller Gas Products)	Michigan
Overstreet-Hughes, Co., Inc.	Tennessee
Mueller Refrigeration LLC	Delaware
Mueller Refrigeration Holding Company, Inc.	Delaware
Mueller Streamline Co.	Delaware
Kessler Sales & Distribution LLC	Delaware
B&K, LLC (d/b/a BK Products)	Delaware
Heatlink Group USA, LLC	Tennessee
Precision Tube Company, LLC	Pennsylvania
Mueller Southeast, Inc.	Pennsylvania
Southland Pipe Nipples Company, Inc.	Texas
Mueller Tool and Machine, Inc.	Delaware
Mueller Casting Company, Inc.	Delaware
Mueller Packaging, LLC	Mississippi
Micro Gauge, Inc.	Michigan
Microgauge Machining, Inc.	Michigan
Propipe Technologies, Inc. (Assumed name: Mueller Gas Products)	Ohio
WTC Holding Company	Michigan
MA Industrial Secured Lending, LLC (5)	Delaware
Muellux Holding Company I SARL	Luxembourg
Muellux Holding Company II SARL	Luxembourg
Mueller Middle East B.S.C. (8)	Bahrain
Mueller Europe Investment Company Ltd.	United Kingdom
Jungwoo Metal Ind. Co., Ltd. (6)	South Korea

Subsidiary*	State or Country of Incorporation
Mueller Europe, Limited	United Kingdom
Westermeyer Industries, Inc.	Illinois
Sherwood Valve Products, Inc.	Ohio
Sherwood Valve LLC	Delaware
DENO Investment Company, Inc.	Michigan
Mueller de Mexico, S.A. de C.V. (1)	Mexico
The Mosack Group, LLC (2)	Delaware
DENO Holding Company, Inc.	Michigan
B & K Industries, Inc.	Illinois
Mueller Copper Tube Products, Inc.	Delaware
Howell Metal Company (d/b/a Precision Tube)	Virginia
Turbotec Products, Inc.	Connecticut
Mueller Canada Holding Co. Ltd.	Alberta
Heatlink Group, Inc.	Alberta
Great Lakes Copper Ltd.	Nova Scotia
Linesets, Inc.	Delaware
Climate Components, LLC	Delaware
Arava Natural Resources Company, Inc.	Delaware
United States Fuel Company	Nevada
King Coal Company	Utah
Canco Oil & Gas Ltd.	Alberta, Canada
Aegis Oil and Gas Leasing Ltd.	Alberta, Canada
Bayard Mining Corp.	Delaware
Washington Mining Company	Maine
Amwest Exploration Company	Delaware
USSRAM Exploration Company	Maine
White Knob Mining Company	Idaho
Arava Exploration Company	Colorado
Summit Systems, Inc.	Delaware
Mining Remedial Recovery Company	Delaware
Carpentertown Coal & Coke Company	Pennsylvania
U.S.S. Lead Refinery, Inc.	Maine
Leon Water Enterprises, Inc. (50%)	Texas
Macomber Construction Company	Ohio
Macomber, Incorporated	Ohio
Macomber Building and Land Corporation	Delaware
DENO Investment Company II, Inc.	Michigan
Tecumseh Products Holdings LLC (7)	Delaware
Tecumseh Products Co.	Michigan
MII Financial Corporation	Michigan
Mueller Streamline Holding S.L.U.	Spain
WTC HoldCo I, LLC	Delaware
WTC HoldCo II, LLC	Delaware
Mueller Comercial de Mexico S. de R.L. de C.V. (3)	Mexico
NICNA Mexico Servicios, S. de R.L. de C.V. (4)	Mexico
Mueller Streamline II, LLC	Delaware
Changzhou Mueller Refrigerant Valve Manufacturing Co., Ltd.	China

Subsidiary*	State or Country of Incorporation
Mueller Industries Trading (Shanghai) Co., Ltd.	China
Mueller Streamline Trading, LLC	Delaware
Mueller Streamline China, LLC	Delaware

**All subsidiaries are 100% owned, except as shown.*

(1) *Owned by DENO Investment Company, Inc. (99.94%) and Mueller Streamline Co. (.06%)*

(2) *Owned by DENO Investment Company, Inc. (17%)*

(3) *Owned by Mueller Streamline Holding S.L.U. (99.983%), WTC HoldCo I, LLC (0.016%), and WTC HoldCo II, LLC (0.001%)*

(4) *Less than 1% of the outstanding common stock is owned by WTC HoldCo I, LLC*

(5) *Owned by WTC Holding Company (50%)*

(6) *Owned by Mueller Europe Investment Company Ltd. (60%)*

(7) *Owned by DENO Investment Company II, Inc. (50%)*

(8) *Owned by Muellux Holding Company II SARL (55%)*

Exhibit 23.0

Consent of Independent Registered Public Accounting Firm

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

1) Form S-3 No. 333-182906 pertaining to the registration of 20,845,718 shares of Mueller Industries, Inc. common stock,
2) Form S-8 No. 333-232882 pertaining to the Mueller Industries, Inc. 2019 Incentive Plan,
3) Form S-8 No. 333-197609 pertaining to the Mueller Industries, Inc. 2014 Incentive Plan,
4) Form S-8 No. 333-160718 pertaining to the Mueller Industries, Inc. 2009 Stock Incentive Plan,
5) Form S-8 No. 333-138413 pertaining to the Mueller Industries, Inc. 2002 Stock Option Plan, and
6) Form S-8 No. 333-91238 pertaining to the Mueller Industries, Inc. 2002 Stock Option Plan;

of our reports dated February 23, 2022, with respect to the consolidated financial statements of Mueller Industries, Inc. and the effectiveness of internal control over financial reporting of Mueller Industries, Inc., included in this Annual Report (Form 10-K) of Mueller Industries, Inc. for the year ended December 25, 2021.

/s/ Ernst & Young LLP
Ernst & Young LLP

Memphis, Tennessee
February 23, 2022

Exhibit 31.1

CERTIFICATION

I, Gregory L. Christopher, certify that:

1 I have reviewed this annual report on Form 10-K of Mueller Industries, Inc.;

2 Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3 Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4 The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

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

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

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

Date: February 23, 2022

/s/ Gregory L. Christopher
Gregory L. Christopher
Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Jeffrey A. Martin, certify that:

1 I have reviewed this annual report on Form 10-K of Mueller Industries, Inc.;

2 Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3 Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4 The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

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

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

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

Date: February 23, 2022

/s/ Jeffrey A. Martin
Jeffrey A. Martin
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Mueller Industries, Inc. (the "Company") on Form 10-K for the period ending December 25, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Gregory L. Christopher, Chief Executive Officer of the Company, certify, pursuant to 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/ Gregory L. Christopher
Gregory L. Christopher
Chief Executive Officer
Date: February 23, 2022

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Mueller Industries, Inc. (the "Company") on Form 10-K for the period ending December 25, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jeffrey A. Martin, Chief Financial Officer of the Company, certify, pursuant to 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/ Jeffrey A. Martin
Jeffrey A. Martin
Chief Financial Officer
Date: February 23, 2022