

Elevator Technology

# Our home, our family, our livelihood

Corporate Sustainability  
Executive Summary  
United States

October 2014 – September 2016



thyssenkrupp





# thyssenkrupp moves people – the future of urban mobility.

In 40 short years, we've become one of the world's leading elevator companies with unique engineering capabilities, offering next-generation solutions like MULTI, the ropeless elevator, ACCEL, an accelerated people mover, and MAX, a cloud-based predictive maintenance service. Whether building a new state-of-the-art system or optimizing and modernizing existing ones, our solutions deliver crucial energy and time efficiencies, helping to address the challenges of urbanization and transform cities into the best places to live.



Sales of over  
**€ 7.5 billion**

**50,000+**  
employees

Figures for our Elevator Technology business

## A trusted partner

We support our customers throughout their project lifecycle, from the design to the end-of-life phase. Every step of the way, we strive to fully understand their needs and consistently deliver the safest, highest quality passenger transportation solutions, maintenance and modernization packages.

Through our internal technical support function, ITS (International Technical Services), thyssenkrupp trains its service technicians in a multibrand portfolio, enabling them to successfully service more than 1.2 million units under maintenance.

## thyssenkrupp – the diversified industrial group

engineering. tomorrow. together – three words that describe who we are, what we do, and how we do it. Driven by global megatrends such as urbanization and the need for efficient use of environmental resources, our global community of more than 156,000 colleagues works together with our customers to harness our engineering expertise and strive for technological and business solutions that satisfy the demand for “more” in a “better” way.

Find out more: [www.thyssenkrupp.com](http://www.thyssenkrupp.com)



One World Trade Center



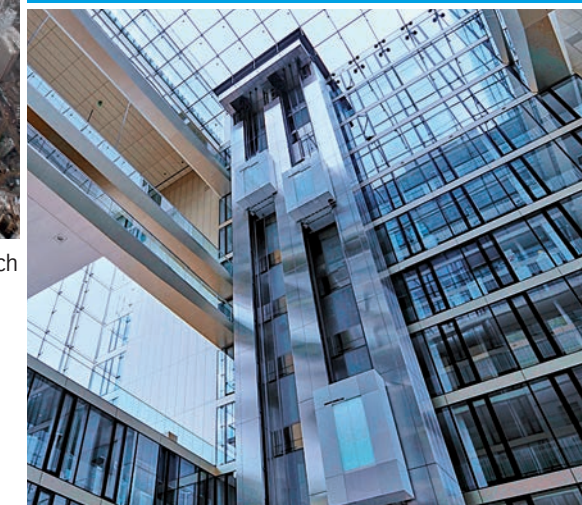
Makkah Clock Tower / Source © SL Rasch

We provide smart and innovative products for a wide variety of applications:

- Passenger and freight elevators
- Escalators and moving walks
- Passenger boarding bridges
- Stair and platform lifts
- Customized service and modernization solutions



Mercedes Benz



thyssenkrupp Quartier



# Letter from the Chief Executive Officer



Dear Colleagues and Friends:

It's easy to talk about a commitment to sustainability. But it takes hard work and dedication to follow through on that commitment every day. I'm proud to say that here at thyssenkrupp Elevator's Americas Business Unit, we don't just talk the talk – we also walk the walk. Sustainability has been an evolving concept since we began our journey

to map and reduce our impacts almost a decade ago. And, as our sustainability initiatives and team have grown, we have remained steadfast in our effort to do the right thing. Because when it comes to our home, our family and our livelihood, everything we do makes a difference.

Our home needs protection and we must all do our part to ensure its resources are preserved for future generations. thyssenkrupp takes that responsibility seriously. We strive for transparency by measuring and tracking the impacts we make because it is the best way to lessen them. Some of our pioneering achievements include being the first elevator company to publish an Environmental Product Declaration (EPD) and earning the Health Product Declaration (HPD) label for our elevator cabs. We remain committed to expanding our leadership role at the forefront of our industry's effort to provide sustainable innovations and transparency for customers who specify our products.

Our family at thyssenkrupp is committed to making our company and products better – while always putting people first. Feedback is a crucial element of our success, which is why we utilize both Net Promoter Score (NPS) surveys from our customers and WE employee survey feedback to guide us.

The feedback we receive helps us continually improve our culture, products and services through training, safety and education programs.

Our livelihood is based on more than the company's bottom line. It's also about our people, products and services having a positive impact on the world. Projects like our net-zero elevator initiative highlight collaborative efforts both with industry thought leaders and our global and local teams. We believe it's possible to be a growth-oriented company as well as a responsible corporate citizen.

**“...here at thyssenkrupp Elevator's Americas Business Unit, we don't just talk the talk – we also walk the walk.”**

I am proud of the work we have accomplished over the last two years. Our home, family and livelihood all factor into our business decisions as we work together to ensure sustainability and profitability co-exist and complement each other. Our efforts to date have been immensely successful, judging by the awards we've won, the lists we've been named to and the high-level certifications we've earned. But this is a journey and we plan to continue moving forward – there's always more we can do when it comes to building a better world.

Sincerely,

Richard Hussey

President and CEO, thyssenkrupp Elevator Corporation

# Letter from the Vice President of Sustainability



Dear Colleagues and Friends:

I'm proud to present our fifth sustainability summary report. Over the course of the past two years, thyssenkrupp Elevator has continued to be the leader in green building and material transparency and consistently strives for greater efficiency across our entire product line. In this FY 2014/2015, FY 2015/2016 biennial report, we

present sustainability performance updates that demonstrate our diligence in utilizing scientific research and data to understand our true impacts, and illustrate the measures we take to meet the most stringent human health and environmental standards.

**“We aim to equip 180,000 elevators around the world with MAX, our revolutionary technology.”**

As the world becomes increasingly connected and urbanized, efficient and reliable mobility is key. We apply this mindset to our elevator designs and take a holistic approach to engineering in order to address challenges at a systemic level. As seen in our application of regenerative energy, as well as our MAX and HoloLens partnership with Microsoft, our goal is to continually improve our standards, finding energy saving and net zero

opportunities at every turn. With MAX, we aim to equip 180,000 elevators around the world with this revolutionary technology in 2017 and we don't plan to stop there.

As demand for intelligent design production grows, so does our involvement with third party entities and non-governmental organizations that push for transparency and accountability. We're currently developing Life Cycle Assessments (LCAs) and Environmental Product Declarations (EPDs) for 100 percent of our products, including the endura MRL, synergy and momentum, and updating our Health Product Declarations (HPD) in 2016 to be the only elevator HPD with the highest level of disclosure at 1000 parts per million (ppm). Our enviromax® product and our elevator cab achieved a Platinum and Bronze Cradle to Cradle Material Health Certificate respectively, and are LEED Material Ingredient Disclose Credit eligible and LEED Material Ingredient Optimization Credit eligible.

As green building standards continue to increase, so does our response to meet—and exceed—these targets. thyssenkrupp Elevator supports the U.S. Green Building Council and the LEED rating system through our corporate SILVER sponsorship and remains a Visionary Sponsor of the Living Building Challenge, a rigorous program established by the International Living Future Institute that certifies only the most advanced sustainability standards in the built environment. We even have over 200 employees who are LEED Green Associates and two staff members who are Living Building Challenge Ambassadors, further embedding this cutting edge philosophy into our corporate culture.

At thyssenkrupp Elevator, we believe that building awareness about sustainable alternatives is critical to improvement across the board and we understand that more than ever, environmental preservation doesn't have to come at the cost of industry growth. That's why we remain a resource for projects that want to maintain a competitive market edge and prefer responsible suppliers and better building materials. We look forward to doing our part to continue to promote a sustainable future going forward into 2017 and beyond, as we engineer tomorrow together.

Sincerely,

Brad Nemeth

Vice President of Sustainability, thyssenkrupp Elevator Corporation

# Corporate Sustainability Executive Summary

At thyssenkrupp Elevator, we want sustainability to be ingrained in everything we do and we take our role as a leader in corporate social responsibility very seriously. We aim to contribute to solutions that uphold the integrity of life support systems on Earth and consider the impacts of climate change, biodiversity loss, pollution and land and water degradation. We believe no system operates independently and we consider the interactions between human, environmental and engineering systems to create the most comprehensive product possible.

From our supply chain model to our finished product and safety requirements, we apply the evidence-based, quantitative data needed to guide our sustainability reporting and policy in the most thorough way. We believe corporate social responsibility and sustainability are fundamental to our business model and understand we can only be truly successful and endure over time should these metrics be consistently and systemically applied to our product development.

Examples of thyssenkrupp Elevator products and services that offer embedded sustainability elements include TAC32T, a controller that offers increased reliability, safety and efficiency using an absolute positioning system (APS). Technologies like our TWIN elevator reduce energy consumption by up to 27 percent and increase floor space by 30 percent using two independently operating cabs in the same shaft. In addition, our endura MRL hydraulic elevator uses enviromax, the industry’s first performance-improving, readily biodegradable fluid with a Platinum Cradle to Cradle Material Health Certificate.

enviromax is the only USDA certified bio-based product and is fire-resistant and vegetable-based using canola oil harvested from the northern U.S. and Canada.

We’ve expanded the use of enviromax to 100 percent of the endura MRL product line and it now constitutes 50 percent of total hydraulic oil currently used.

At thyssenkrupp Elevator, we’re making continued efforts to reach net zero energy, which is energy that is 100 percent renewably powered on a net annual basis. We increase energy efficiency through the use of regenerative energy—energy produced when the elevator motor acts as a generator—instead of letting clean, renewable energy go to waste. Our elevators are capable of harnessing power for the building or putting it back into utility grid. Our net zero synergy elevator is an example of this effort. We believe making simple changes like installing LED lighting should be standard throughout our product line and we have done just that. LEDs contain no mercury, have a 10-year lifespan and reduce energy consumption without compromising look or visibility.

Attribute	enviromax	Petroleum
Flash point	600+ °F	400 °F
Healthy Materials	Cradle 2 Cradle Platinum	No
Viscosity Index	200+	100
Renewable	Yes	No
Biodegradable	Readily	No
Toxicity	Ultra-low	Yes
Lubricity	3500	2500
Bio-accumulation	No	Yes



In terms of health and building material quality, we are the first elevator company to publish an [Environmental Product Declaration \(EPD\)](#) and continue to promote LCA and green building improvements at every turn. We also abide by the most stringent industry standards including LEED, Cradle to Cradle, the Living Building Challenge and WELL Standard concepts.

In addition to function, we know that the embedded chemicals we’re exposed to everyday have an impact on the environment and our health. As a result, we are part of the transparency movement to push for better and cleaner materials. We published a [HPD](#), disclosing the ingredients in our cab and entrances down to 1000 ppm and have two Declare labels for our endura MRL.

In 2015, our first Declare label was published as Living Building Challenge Compliant for Living Building Challenge Buildings. We don’t use any of the 21 chemicals listed on the redlist from the International Living Future Institute and, to date, we remain the only elevator company to have Declare labels. We continue to expand our Cradle to Cradle and transparency work and gain insight into our products and work with the most robust material transparency standard, Cradle to Cradle, to fully optimize our equipment. We are also the only elevator company to have a Cradle to Cradle Material Health Certificate in Bronze and Platinum.

Additionally, we converted our elevator production process in our LEED Gold certified factory in Middleton, TN—which was built in 1969— to use powder coating versus solvent-based paint in order to eliminate the use of solvents and hazardous chemicals during the painting process. We have reduced hazardous waste by 83 percent since 2013 and our goal is to completely eliminate hazardous waste from our system. This painting process covers all steel in the elevator, both inside and outside the cab. In order to eliminate interior volatile organic chemical (VOC) emissions to ensure our customers aren’t exposed to toxic chemicals, our cabs abide by the [CA01350 low VOC](#) emission standard. We can even deliver an elevator without paint upon request. Our cabs are third party validated by [UL Underwriters Laboratories](#), and thyssenkrupp Elevator is the only elevator company to achieve this validation.

CRADLE TO CRADLE

PRODUCTS

INNOVATION

INSTITUTE

Material Health

BRONZE

Create a Cab Elevator Cab

ISSUED TO: ThyssenKrupp Elevator Americas

STANDARD: 3.1

LEAD ASSESSMENT BODY: ToxServices LLC

ASSESSED APPLICATIONS: Manufacturing, Application, Occupancy, Recycling

PRODUCTS COVERED: Create a Cab Elevator Cab in four design options, as described on the specification sheet available on the Material Health Certificate Registry: [www.c2c.org/products/mhregistry](#)

EXPRES: 23 July 2017

CRADLE TO CRADLE

PRODUCTS

INNOVATION

INSTITUTE

Material Health

PLATINUM

BioBlend Enviromax 2.0 Biodegradable Elevator Hydraulic Oil

ISSUED TO: ThyssenKrupp Elevator Americas

STANDARD: 3.0

LEAD ASSESSMENT BODY: ToxServices LLC

ASSESSED APPLICATIONS: Manufacturing, Elevator reservoir filling, Elevator maintenance, Elevator use, Elevator reservoir emptying, Oil recycling

PRODUCTS COVERED: Enviromax 2.0 Biodegradable Elevator Hydraulic Oil, Plastic drum (packaging) meets banned list requirements but has not been assessed to determine certification level.

EXPRES: 3 June 2017



Declare.

endura MRL cab  
ThyssenKrupp Elevator

Final Assembly: Middleton, Tennessee, USA  
Life Expectancy: 25 Years  
End of Life Options: Recyclable (75%)

Ingredients:  
Steel (Richburg, SC), Butyl Cellsolve, SEC-Butanol, Aluminum Chloride Hexhydrate, Aluminum Hydroxidechloride, Polycarbonate, Acrylonitrile Butadiene Styrene, Triphenyl Phosphate, Nylon, Acrylonitrile Butadiene Styrene, Ethanol, Antimony Oxides, Cab Operating Panel\*

\*LBC Temp Exemption (10-E2 Small Electrical Components)

Living Building Challenge Criteria:  
TKE-001  
VOC Content: N/A  
Declaration Status: ☒ LBC Red List Free ☒ LBC Compliant ☐ Declared  
EXP: 05/01/2017  
VOC Emissions: CDPH Compliant

[www.tke.org](#) [www.toxservices.com](#) [www.declareproducts.com](#)

Declare.

Elevator Doors and Entrances  
ThyssenKrupp Elevator

Final Assembly: Middleton, TN, USA  
Life Expectancy: 25 Years  
End of Life Options: Recyclable (75%)

Ingredients:  
Stainless Steel 400, SAE 1018 Steel, Aluminum, Unspecified Grade Steel, SAE 1011 Steel, Zamak, SAE 1080 Steel, Nylon 6, Proprietary Ingredients (<1.0%)\*

\*LBC Temp Exemption (10-E4 Proprietary Ingredients <1%)

Living Building Challenge Criteria:  
TKE-002  
VOC Content: N/A  
Declaration Status: ☒ LBC Red List Free ☒ LBC Compliant ☐ Declared  
EXP: 01 JAN 2018  
VOC Emissions: N/A

[www.tke.org](#) [www.toxservices.com](#) [www.declareproducts.com](#)

UL

VALIDATED

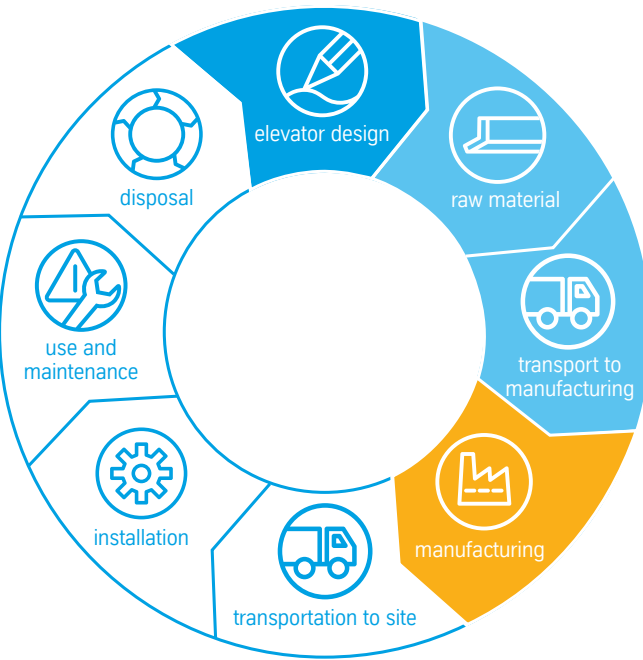
• THYSSENKRUPP ELEVATOR  
STANDARD CAB IS A LOW  
VOC EMITTING MATERIAL  
PER CASECTION 01350

[UL.COM/ECV](#)



# Our home

Environmental responsibility plays a key role in thyssenkrupp Elevator’s comprehensive approach to business and is the main driver of our biennial sustainability summary report. After all, we all share the same home—planet Earth—and it’s up to all of us to protect, value and preserve our natural resources for future generations. We therefore believe that sustainability requirements should be integrated into product designs, and we design with a life cycle approach. We incorporate this philosophy into our engineering to ensure operating systems are efficient and have the least environmental footprint.



As part of an influential global company, we continually strive for climate and environmentally friendly products and services throughout our supply chain, no matter where our customer is located. Our goals consist of strategies and targets that take a “more” and “better” approach that addresses the demand for “more” goods and services produced in a “better” way. Put simply, we strive to not just stay on top of the latest sustainability trends, but inspire others in the industry to do more.

## Life cycle assessment

As a manufacturer, thyssenkrupp Elevator understands each individual attribute of our products, impacts greater design and functionality. From a sustainability standpoint, we are making continual improvements based on the results of our LCAs to ensure the design has the least environmental impact. For example, by incorporating photovoltaics (PV) into our elevators we

significantly reduce its energy footprint. We are researching ways to reduce material size and weight in order to increase energy efficiency while still complying with code standards. We believe our elevators are part of a larger, growing trend to build greener and better throughout the built environment. We are also continually measuring our product’s LCA footprint, from cradle-to-grave and, more importantly, from Cradle to Cradle, to help us and our customers make better informed decisions.

For this year’s sustainability summary, we’re excited to report that we are the first elevator to publish an Environmental Product Declaration (EPD) for our endura MRL elevator. EPD is a verified and registered document that transparently communicates a product’s environmental impact with regards to LCA. We led efforts to develop Product Category Rules (PCRs) with the International EPD System program. *The Envirodec PCR for Lifts (Elevators) Version 1.0* was published in October 2015, and now, with these rules, we are able to develop comparable LCAs in the elevator industry. We are committed to publish EPDs abided by ISO 14025 and ISO14040/44 standards for 100 percent of our elevator models.

## Material transparency

thyssenkrupp Elevator supports the U.S. Green Building Council and the LEED rating system through our corporate SILVER sponsorship and we’re proud that we remain a leader in material transparency with two Cradle to Cradle Material Health Certifications, including enviromax and our standard cab. The Cradle to Cradle Product Standard, a certification that evaluates a product using five quality categories, is one of the strictest in the industry. Every two years, manufacturers must demonstrate good-faith efforts to improve their products in order to gain recertification. We’re happy to report that thyssenkrupp Elevator entered Cradle to Cradle’s pilot project having the second product in the building industry to achieve a Material Health Certification. Furthermore, enviromax achieved Platinum Cradle to Cradle Material Health Certificate and achieved LEED Material Ingredient Disclose Credit eligible and LEED Material Ingredient Optimization Credit Eligible. thyssenkrupp Elevator’s Create-a-cab Elevator Cab received a Bronze Cradle to Cradle Material Health Certificate, which qualifies for LEED Material Ingredient Disclosure Credit Eligible and CA 01350 Low-Emitting Materials.

Our cabs were also the first to achieve a HPD label in 2015, and in 2016 we improved upon this achievement to reach the highest level of disclosure at 1000 parts per million (ppm). HPD is referenced by architects to drive consistent transparency in the building product sector and is the leading industry standard for the reporting of building product content and associated health information. The HPD is the main reporting tool in building certification programs such as [LEED v4](#).

# LEED v4

## Credit Matrix

Credit	Intent	How thyssenkrupp can help
Optimize Energy Performance	Use whole building energy simulation to achieve increasing levels of energy performance.	thyssenkrupp Elevator’s energy calculator based on ISO 25745 can help you determine proposed energy savings over a baseline that can be added to your project’s energy model.
Building Product Disclosure and Optimization: Environmental Product Declarations	Encourage the use of products and materials with publicly available, critically reviewed life-cycle assessments conforming to ISO 14044 that have at least cradle-to-gate scope.	thyssenkrupp Elevator published the first Lift Environmental Product Declaration (EPD) that follows the Product Category Rules of the International EPD® System for endura MRL.
Building Product Disclosure and Optimization: Sourcing of Raw Materials	Encourage the use of products and materials for which life-cycle information is available and reward teams for selecting products sourced in a responsible manner.	thyssenkrupp AG provides continuous and fully integrated reporting on its sustainability performance in our annual report, applying the international standards of the Global Reporting Initiative (GRI) and the UN Global Compact. Please visit: <a href="https://www.thyssenkrupp.com/en/company/sustainability/integrated-reporting/">https://www.thyssenkrupp.com/en/company/sustainability/integrated-reporting/</a>
Building Product Disclosure and Optimization: Material Ingredients	Encourage the use of products and materials for which life-cycle information is available and reward teams for selecting products from companies that have inventoried chemical ingredients.	thyssenkrupp Elevator has two Health Product Declarations, two Declare labels, and Platinum and Bronze Cradle to Cradle Material Health Certificates. These certifications fulfill both the Disclosure and Optimization Material Ingredient points.

engineering.tomorrow.together.





## Corporate energy reduction

With a “more” and “better” mentality in mind, as a corporation, thyssenkrupp focuses on reducing energy usage throughout global operations and strives for continual, systemic energy management in our production and service processes across all of our companies. Targeting fuel reduction, as well as increased efficiency, safety and better performance standards, helps to minimize our global environmental footprint and positions us for long-term, sustainable, success.

Energy efficiency improvements, however, aren’t limited to operations. In 2016 alone, we serviced 220,655 elevators across the United States to ensure every passenger could depend on our elevators to move them up and down buildings safely. We use a fleet of around 3,200 vehicles to regularly monitor and provide service to our elevators. However, because over 65 percent of thyssenkrupp Elevator’s total energy consumption in the U.S. comes from our fleet, we have to use our fuel intelligently to meet our global GHG impact reduction goals. To do so, we diversify fuel to save energy and reduce GHG emissions and we’re now using the XL3 Hybrid Drive System, which results in a 25 percent increase in fuel economy per vehicle. We believe that having a mixed portfolio that includes propane, electric and hybrid vehicles makes a significant difference over traditionally powered engines, alternative fuels (flexi fuel), hybrid electric and other low emitting and efficient technologies.

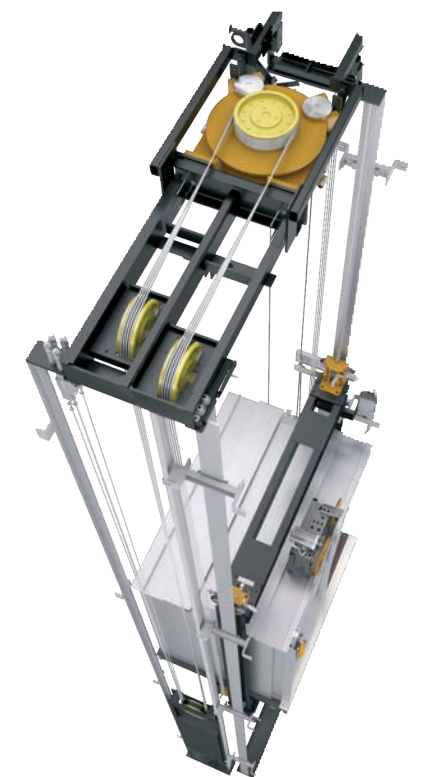
Given that our vehicle replacement program is the main driver in our fuel reduction efforts, we upgrade the oldest fleet vehicles to use state-of-the-art technology and right size the vehicle to fit the specific location and function. Our fleet also includes low GHG-emitting and fuel-efficient engines. By 2020, we will have increased the average fuel economy of our fleet from 15 to 17.8 thereby lowering our fuel consumption by 700,000 gallons and preventing 6,325 ST of CO<sub>2</sub> from being released into the atmosphere.

Looking forward, we expect fuel efficiency efforts to only increase across our product line given our push to enhance route optimization, driver training, hybrid employee incentives and MAX, our predictive maintenance and service solution. By implementing MAX, we estimate saving one million gallons of gas and preventing 9,035 ST of CO<sub>2</sub> from being released into the atmosphere. The interplay between MAX and Microsoft’s HoloLens technology will enable service technicians to visualize and diagnose a problem well before any action needs to be taken. This unique technological partnership is why thyssenkrupp Elevator is revolutionizing the entire sector.

## Net zero energy

We’re constantly exploring ways to save energy and enhance performance within our elevators themselves to ensure our products provide the safest, most cost effective and environmentally friendly experience for our customers. Supported by LCA results, we launched an initiative to create a net zero elevator system and in 2015 installed the first net zero elevator at the Fraunhofer Center for Sustainable Energy Systems, an energy laboratory located in Boston that operates in close cooperation with MIT. The synergy elevator is a freestanding structure that doesn’t rely on traditional methods of structural support. Photovoltaic cells allow the elevator to generate as much electricity as it consumes and it comes equipped with an AC gearless machine and TAC32T controller that regenerates braking energy and provides intelligent standby energy consumption profiles that don’t require a separate machine room. All of these combined attributes reduce energy consumption and maintenance needs. Standard elevators use significant amounts of energy when idle for lighting, ventilation and cooling, so we designed this synergy elevator so that they go into a state of hibernation. The elevator is also smart enough to shut off LED lights and fans when not in use.

For all thyssenkrupp elevators, both residential and nonresidential designs exceed ASHRAE 90.1-2013, the stringent industry standard that requires non-digitized lighting in the cab not have efficacy less than 35 lumens per watt and that cab ventilation for elevators lacking air conditioning consume up to 0.33 watts per cubic feet per minute at maximum speed. ASHRAE standards also require an unoccupied at rest elevator with the doors shut for over 15 minutes turn off cab interior lighting and ventilation until the elevator is back in use.





“thyssenkrupp reserves the right to stop business with suppliers who are in clear, verifiable violation of the thyssenkrupp Supplier Code of Conduct.”

- Excerpt from the Supplier Code

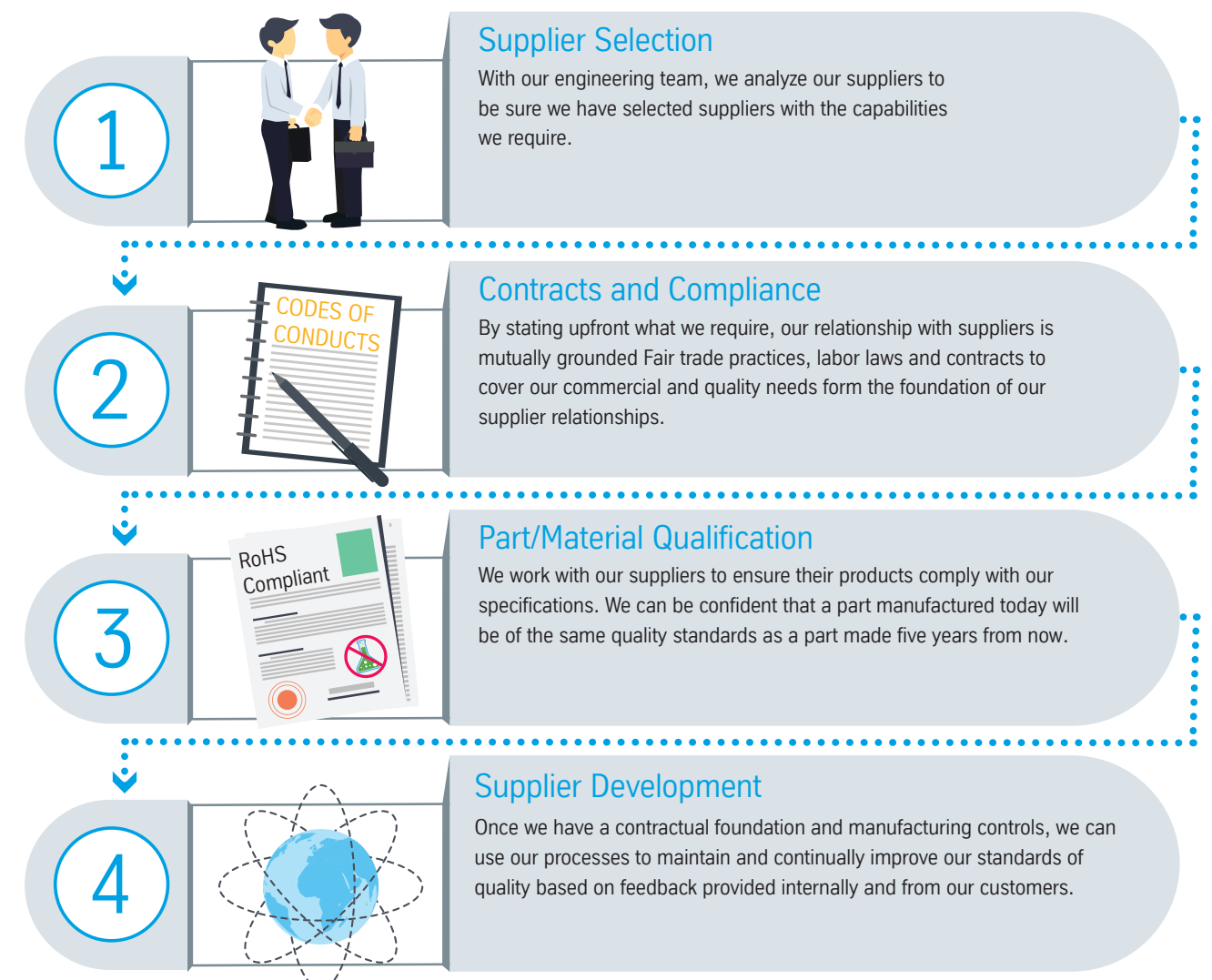
## Supply chain

thyssenkrupp strives to be more than just compliant when it comes to sustainability in our supply chain. We believe in going further and understand that we, as an influential global corporation, have a responsibility to reduce our products' waste and toxicity. In addition to publishing our HPDs for our standard line of elevator cabs and doors, thyssenkrupp Elevator has voluntarily established codes of conduct for products produced and follows the policies, regulations and guidelines dictated by thyssenkrupp AG.

We have also voluntarily adopted the Restriction of Hazardous Substances (RoHS) guidelines, which restricts the use of specific hazardous materials found in electrical and electronic products. From an R&D perspective, we ensure that all electric and electronic components in our products are RoHS compliant and request that suppliers provide sufficient information to inform our HPDs. Most importantly, we inquire with suppliers about their sustainability efforts and request suppliers sign ethical codes of conduct.

Along with our efforts to reduce hazardous substances in our supply chain, our on-going goal is to ensure that all sourced materials contain safe chemicals and have low, zero or positive environmental impact. To reach this goal, we continually research ways to assess raw materials risk that reflect future natural resource scarcity or environmental uncertainty, are sourced or produced in countries with high social or political conflict, and/or contain chemicals of concern. To improve supplier performance, we have documented our sustainability requirements in the “thyssenkrupp Supplier Code of Conduct”. thyssenkrupp Americas' suppliers are also subject to the thyssenkrupp Group Supplier Code of Conduct, which is reviewed by 100 supplier audits annually.

From fuel, to increased efficiency standards, to supply chain transparency, we believe in practicing what we preach. Green purchasing is an important component of this mindset and we have updated our leasing terms and conditions to include green building and sustainability attributes as well as updated our green purchasing guide that's distributed to our entire supply chain. We have also implemented an internal policy to eliminate Styrofoam cups and plastic coffee stirrers and are promoting the use of reusable dishes in our dining areas. In general, we prefer brands that are compostable and biodegradable.





Factory Environmental Performance

From a production standpoint, we continually strive to improve environmental performance within our plant in Middleton, TN. Our energy demand has stayed relatively constant, while production has increased 84 percent since 2010. Recent highlights include updating our painting process to powder coating so that we could eliminate the painting line, reducing 83 percent of our hazardous waste since 2013. We're happy to have achieved LEED Gold certification, earning 63 points out of the 60 required, and even went a step further to address preventative solutions to energy savings by implementing a new Building Management System that led to an Annual Energy savings of \$120,000. Historically, over

\$400,000 a year is spent on repairs and since June 2014 \$0 in repairs has been spent since we implemented the preventative maintenance program.

We also replaced 12 of the 50-ton AC units at the facility, resulting in \$50,000 per year in energy savings. We completed roof recoating, turning it into a highly heat reflective white roof and lowering indoor office temperature and preventing repair costs. In 2016, we hosted an Occupant Comfort Survey that resulted in 86 percent employee satisfaction in the factory and have volunteered for the [Better Plants program](#) twice, a program that requires a 20 percent reduction in energy. We abide by the ISO 14000 Environment Management System (EMS) and gather feedback from our global team in an effort to continually improve corporate processes and policies.

Environmental performance chart

The following environmental data corresponds to our operations in the United States. We use this data to define strategic goals and targets to reduce our environmental footprint.

	2013	2014	2015 <sup>7</sup>	2016
<b>Production Change YOY<sup>1</sup></b>	<b>BASELINE</b>	<b>7%</b>	<b>3%</b>	<b>14%</b>
<b>Energy and emissions</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Total Electricity [MWh]</b>	<b>36,274</b>	<b>35,092</b>	34,654	35,627
Corporate Offices	4,306	3,018	4,198	4,354
Branch Offices	7,355	7,292	7,201	7,174
Manufacturing	24,613	24,782	23,255	24,099
<b>Total Natural Gas Field [MWh]</b>	<b>30,429</b>	<b>34,311</b>	<b>32,576</b>	<b>34,137</b>
Corporate Offices <sup>2</sup>	71	90	66	50
Branch Offices	6,416	6,683	6,161	4,778
Manufacturing	23,942	27,538	26,349	29,310
<b>Fleet Fuel</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Total Vehicle Fuel Consumption [KGal]<sup>3</sup></b>	<b>4,359</b>	<b>4,573</b>	<b>4,415</b>	<b>4,592</b>
<b>Total CO2e Emissions [ST]<sup>4</sup></b>	<b>67,757</b>	<b>68,489</b>	<b>69,108</b>	<b>69,457</b>
<b>Water consumption</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Total Municipal Water [US KGal]<sup>5</sup></b>	<b>20,912</b>	<b>20,824</b>	<b>19,758</b>	<b>24,026</b>
Corporate Offices	*	1,307	1,086	998
Branch Offices	4,364	5,121	4,107	3,568
Manufacturing	16,548	14,395	14,565	19,460
<b>Waste and materials</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Materials to Recycling (Hazardous and Non-Hazardous) [ST]</b>	<b>10,374</b>	<b>8,523</b>	<b>8,258</b>	<b>9,889</b>
<b>Waste to Landfill [ST]</b>	<b>1,213</b>	<b>1,234</b>	<b>1,222</b>	<b>1,209</b>
<b>Hazardous Materials to Disposal [ST]<sup>6</sup></b>	<b>16</b>	<b>22</b>	<b>12</b>	<b>3</b>
<b>Total Waste [ST]</b>	<b>1,229</b>	<b>1,256</b>	<b>1,234</b>	<b>1,211</b>

1. Production has increased year over year since 2011.

2. Asterisks (\*) are found where data was not available for that particular year.

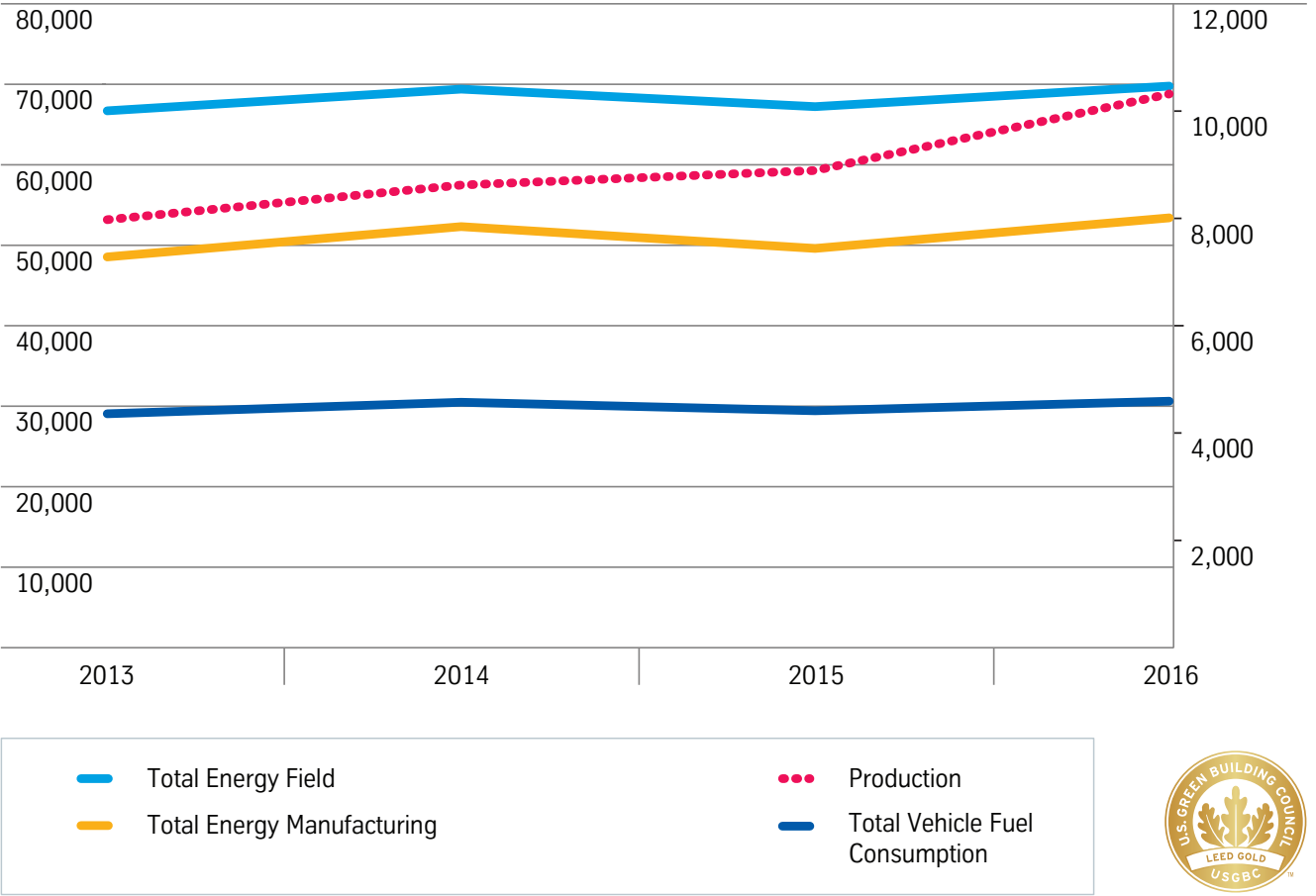
3. Vehicle fuel consumption covers service vehicles only, it does not include any shipping to or from our factories.

4. Total emissions cover corporate offices, branches and manufacturing. Emissions are calculated from energy consumption using greenhouse gas emission factors from the Environmental Protection Agency (EPA) and using global warming potentials with a time horizon of 100 years, retrieved from the United Nations Framework Convention on Climate Change.

5. Materials include metal scrap, paper, cardboard, wood, batteries, and spray cans.

6. Hazardous materials include hydro oil, machine oil coolant, and thinner used during the production process.

7. There are minor changes in 2015 values due to data quality enhancement.



Our factory in Middleton, TN was built in 1969 and it is the first elevator factory to get LEED Gold certification for existing buildings.





# Our family

Without our family, thyssenkrupp wouldn't thrive. After all, happy and engaged employees make for a better company and a better product. At thyssenkrupp Elevator, we put our people—our family—first and believe that providing the resources, training and community necessary for each one of our employees to build their careers and thrive reflects upon our corporate culture and success. With an emphasis on building upon strengths and working on weaknesses, we incorporate feedback from our team so that we can continually improve our company culture and work environment. In 2016, over 116,000 employees (78 percent of our total workforce) completed our second Group-wide employee survey, which contains over 70 questions. Highlights include an increase in sustainable engagement since 2014 as well as a perceived increase in our health and safety culture.

We take safety seriously and abide by OSHA standards. With a goal of “zero accidents”, we provide guidance on health and safety training and provide a handbook that is distributed to all employees that further outline these policies.

Furthermore, all thyssenkrupp Elevator employees are provided with the thyssenkrupp Elevator Americas “Code of Business Conduct (“the Code”)” and are required to read and return a signed copy of the Code for inclusion in his/her employee file as a condition of employment. The Code specifically states: “the Company and all employees must act responsibly and strictly within the limits of prevailing environmental laws, regulations and ordinances so as to protect the environment and avoid harm to human life”. Company policies are posted on internal sites accessible to all employees and each employee is responsible for complying and notifying his or her supervisor or other management of any violation. Additional policies, guidelines, training modules, and presentations are available for manager and employee review and download, and for incorporation into team meetings. Depending upon their role within the company, specific employees receive mandatory classroom and e-learning training on ethics and compliance topics.

We believe in continued learning and on-the-job training to ensure our employee family not only internalizes, but shares, our sustainability lessons and experiences. For example, thyssenkrupp offers LEED-focused continuing education so we can teach our customers about the value of sustainable building products and design. We also offer customer and public-facing courses on our website and target relevant trade can reach a broader sustainability audience.

**“the Company and all employees must act responsibly and strictly within the limits of prevailing environmental laws, regulations and ordinances so as to protect the environment and avoid harm to human life.”**



## Diversity

In addition to supporting our global family and ensuring continued learning opportunities and safety standards, we believe that it takes international and intercultural collaboration to develop solutions for the challenges of tomorrow. thyssenkrupp Elevator culture therefore values employees equally and believes in opportunities that support a work/life balance.



At thyssenkrupp, we believe our diversity unites us; because of it we can do more together.



# Our livelihood

At thyssenkrupp, we recognize that a profitable business model is our livelihood and is only as successful as the supportive culture we provide to our employees and the positive impact our products and services have on the world. We value continual outreach to partners, investors, markets, employees and the public when determining our economic course and believe strongly in transparency of corporate communications. We genuinely value each stakeholder's place at the table and understand that consistent engagement is essential to any good corporate governance structure.

In order to maintain these high standards for quality engagement across the corporation, our executive supervisory board focus on long-term vision and collectively value sustainability as a critical component to responsible business practice. An intensive, ongoing dialogue between the supervisory boards is the basis for effective management and we recognize the value of this process and have enhanced these dialogues in accordance with national and international standards.

In 2017, our business goals include strengthening our commitment to sustainability to include efficiency measures that simultaneously support the bottom line. We also wish to advance our worldwide market position, which involves intensifying and modernizing our services and business, expanding customer relations, increasing performance optimization and striving for continuous optimization of product quality and design. We aim to do this by focusing on innovations such as MULTI, ACCEL and MAX. We see great, sustainable, economic promise in the years ahead and we don't intend to stop there.

To review thyssenkrupp Elevator's economic impact, download [thyssenkrupp AG's Annual Report](#).

## In summary

Every two years, thyssenkrupp Elevator publishes a sustainability executive report to communicate our corporate social and environmental responsibility strategies, policies and business efforts to our shareholders, customers, and to the public. In this fifth summary, we're proud to report on our continued efforts to embed sustainability into our everyday business practices. We believe that the value of our livelihood depends on how we treat our global home and family. After all, we only have one planet and we each need to do our part to make the world a better, more prosperous and habitable place for future generations.

As we look towards 2017 and beyond, thyssenkrupp and thyssenkrupp Elevator intends to expand upon our current sustainability performance engaging our brand promise, "engineering, tomorrow, together" and "more" and "better" approaches. We believe these are more than just words and embody our collective mindset that tomorrow's vision must incorporate the diversity, skills and ingenuity of today. Together, we can achieve so much and we look forward to our evolving journey.





thyssenkrupp Elevator Corporation

Elevator Technology  
2591 Dallas Parkway, Suite 600  
Frisco, TX 75034  
P: +1 877 230 0303  
[www.thyssenkruppelevator.com](http://www.thyssenkruppelevator.com)



engineering.tomorrow.together.

All illustrations and specifications are based on information in effect at time of publication approval.  
thyssenkrupp Elevator reserves the right to change specifications or design and to discontinue items without prior notice or obligation.  
© 2017 thyssenkrupp Elevator Corporation. CA License #C11-651371