

Elevators and LEED



Developing the future.



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Course Organization

SECTION 1

What is LEED

SECTION 2

Elevators and the Environment

Life Cycle Assessment & (v4)
Environmental Product

Declarations

SECTION 3

Elevators and LEED

SECTION 4

What to Look for in a Sustainable
Elevator Company

LEED

- Leadership in Energy and Environmental Design
- Developed by the USGBC in 2000
 - Provides independent third-party verification that a building was designed and built using strategies aimed at achieving high performance in key areas
 - Sustainable Site Development
 - Water Savings
 - Energy Efficiency
 - Materials Selection
 - Indoor Environmental Quality



LEED

- Point – system
- 3rd party verified
- Uses established industry standards
- Is not product specific. NO product can be LEED Certified. Only buildings can be LEED Certified.
- 9 billion square feet of building space participating in the rating systems
- 1.6 million feet certifying per day around the world
- Nearly 25,000 participating projects

How can elevators impact a LEED Building

- Energy Efficiency
 - Elevator energy is applied to a whole building energy model.
- Materials and Resources
 - Urea-formaldehyde free products
 - Regional Materials – exempt
 - Recycled Content - exempt
- Indoor Environmental Quality
 - Meets CA -1350 Air Quality Standard
- Innovation
 - Credit is awarded to projects that achieve innovation

SECTION 2

Elevators & the Environment

Elevators and LEED
October 17th 2013
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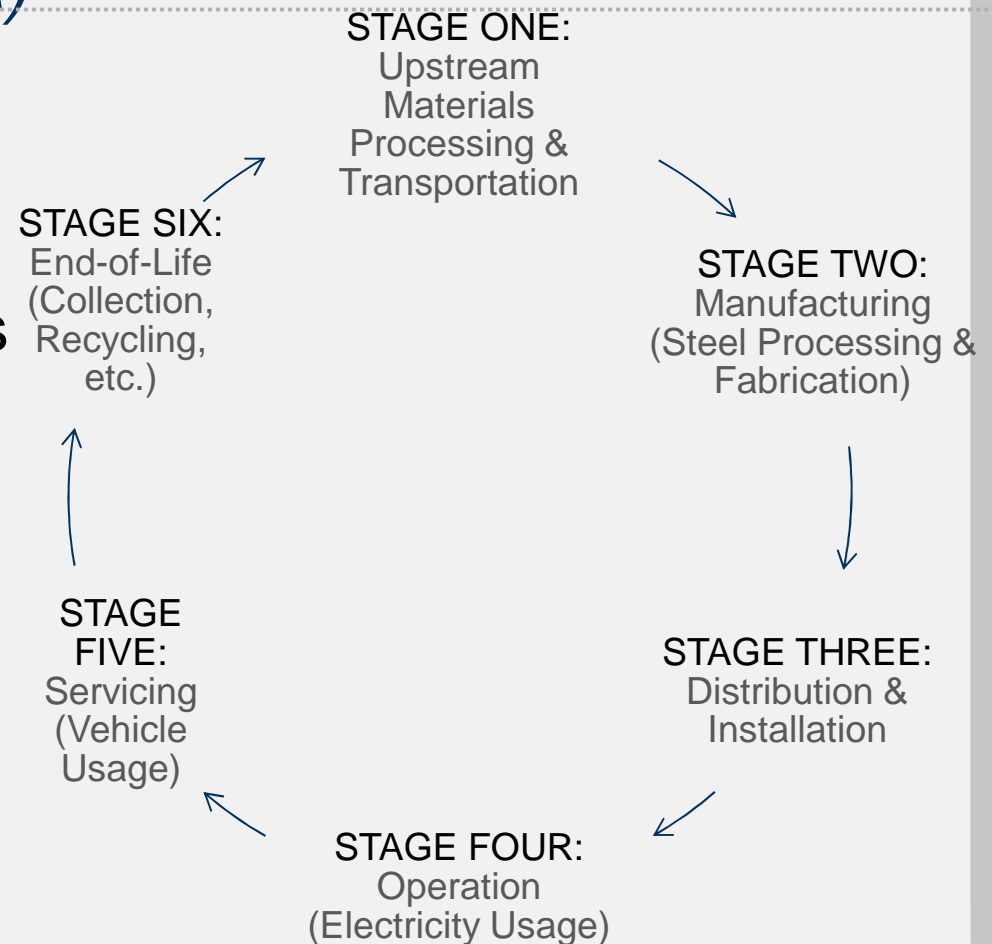
Elevators & the Environment

life cycle assessment (LCA)

- The collection, assessment, and interpretation of data from an environmental perspective over a product's life cycle (production, use and end-of-life)
- ISO Standard 14040
 - Prescribes methodological steps for conducting an LCA



International
Organization for
Standardization



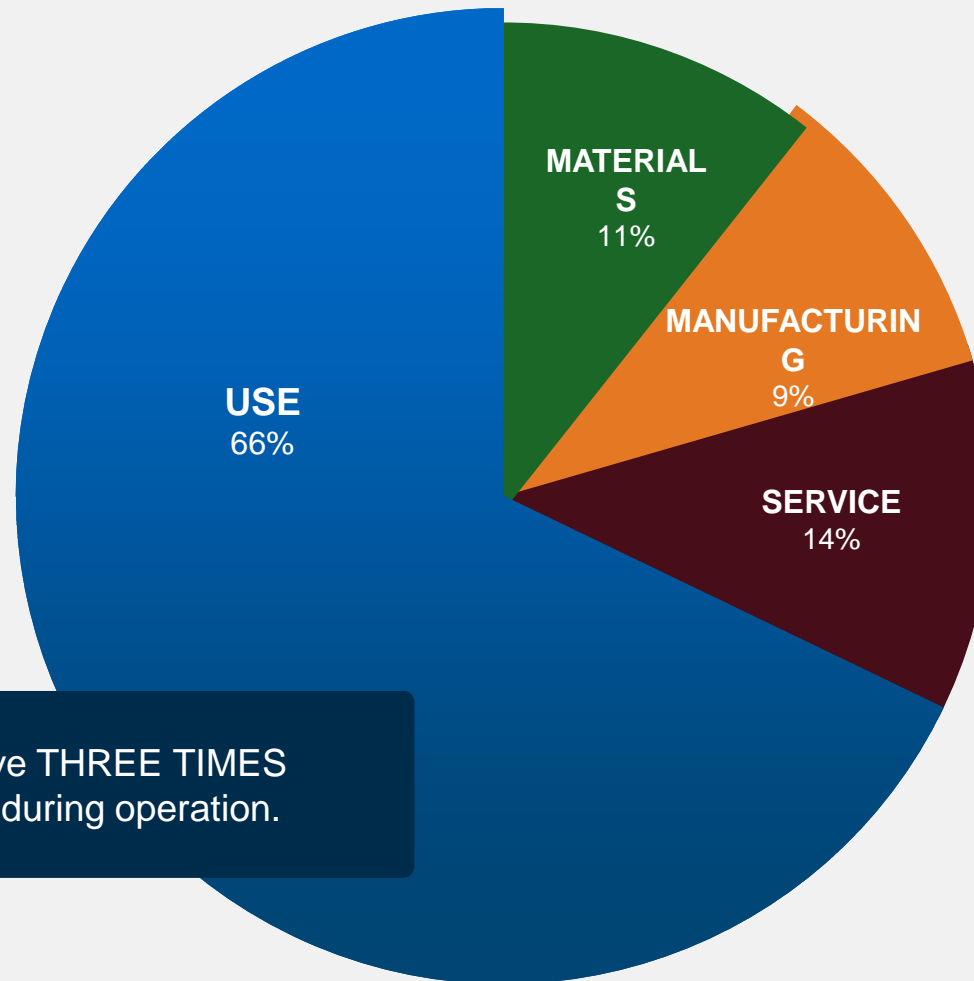
Elevators & the Environment

environmental product declarations (EPDs)

- Condensed data from a product's Life Cycle Analysis following the guidelines established by ISO 14040
- For elevators: EPDs are currently voluntary, “self-declarations” with no current “Product Category Rules” to certify against
- Becoming more widespread across the building industry



Elevators & the Environment



Elevators have **THREE TIMES** more impact during operation.

SECTION 3

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Elevators & LEED

- Leadership in Energy and Environmental Design
- Let's explore areas where points can be achieved and clarify where they can't



Elevators & LEED

credit categories

- **Sustainable Sites (SS)** // 10 credits, 26 points
- **Water Efficiency (WE)** // 4 credits, 10 points
- **Energy & Atmosphere (EA)** // 6 credits, 35 points
- **Materials & Resources (MR)** // 6 credits, 14 points
- **Indoor Environmental Quality (IEQ)** // 10 credits, 15 points
- **Innovation & Design Process (ID)** // 2 credits, 6 points
- **Regional Priority (RP)** // 1 credit, 4 points

Optimize Energy Performance

intent

- Achieve increasing levels of energy performance following the guidelines of ASHRAE 90.1 – 2007
- Valued at 1 – 19 points
- For a reduction of 12% - 48% below an established baseline

how elevators can help

- Manufacturers can provide energy calculations for building energy model.
- Elevators can be added to energy model as “Exceptional Calculations.”

Construction Waste Management Plan

intent

- Promoting the diversion of construction and demolition debris from landfills and incinerators through recycling
 - 1 point for 50% waste diversion, 2 points for 75% waste diversion
- A plan and documentation procedure will be determined by the LEED project manager

how elevators can help

- Manufacturers should follow the construction team's waste plan
- Appropriate job site sorting and recycling

Recycled Content

intent

- To increase demand for building products that incorporate recycled content materials and reduce impact from virgin material usage
 - 1 point for 10% recycled content, 2 points for 20% recycled content

how elevators can help

- Elevators are considered “specialty equipment” and are specifically excluded from this credit
- Manufacturers can still help complete all necessary forms stating exclusion
- Going beyond LEED – Elevators are primarily made of steel, with an average recycled content of 70-90%

Regional Materials

intent

- To increase demand for building materials and products that are extracted and manufactured within the region
- Products that have been extracted, harvested or recovered, and manufactured within 500 miles (roundtrip) of the project site (based on cost)
 - 1 point for 10%, 2 points for 20%

how elevators can help

- Elevators are considered "specialty equipment" are specifically excluded from this credit
- Manufacturers can still help complete all necessary forms stating exclusion
- Going beyond LEED – choose products that are manufactured locally

Certified Wood

intent

- To encourage environmentally responsible forest management by promoting the use of Forest Stewardship Council (FSC)-certified wood
- Use a minimum of 50% of wood-based materials and products that are certified in accordance with Forest Stewardship Council's

Principles and Criteria how elevators can help

- Listed below are elevator components that may contain wood that could be FSC-certified:
 - Particleboard used in raised applied panels or laminated plastic cabs
 - Handrails
 - Platform
 - Veneer applications and canopy of downlight ceilings
- Manufacturers can provide information on their products'

certifications

Construction IEQ Management Plan

intent

- Reduce air quality problems during the construction process to help sustain the comfort and well-being of construction workers and building occupants by meeting SMACNA guidelines
- Protect absorptive materials from moisture damage
- Filter return air grilles used during construction

how elevators can help

- Manufacturers can commit to complying with the IEQ Management Plan set forth by the design team
- Protect materials from moisture damage



Low-Emitting Materials

intent

- Reduce the quantity of indoor air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of installers and occupants
- Follow guideline for low-VOC adhesives, sealants, paints, and coating
- Volatile Organic Compounds (VOCs) are carbon compounds that participate in atmospheric reactions

how elevators can help

- All on-site applications should use products that follow VOC limits
- This excludes all products applied during manufacturing
- Manufacturers can verify and document the use of compliant materials
- Going beyond LEED – use powder-coated products for lower VOCs during manufacturing and more durable products

Low Emitting Materials – Composite Wood Products

intent

- To reduce the quantity of indoor air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of installers and occupants
- No composite woods or laminating adhesives may contain added urea-formaldehyde resins

how elevators can help

- Manufacturers can specify particleboard and plywood containing no added urea-formaldehyde – and provide documentation to the design team

Innovation in Design

intent

- To provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by USGBC in categories not specified by LEED Rating System
- One point is awarded for each innovation achieved (5 max pts)

how elevators can help

- New technologies and systems
 - Machine room-less systems
 - Regenerative drives
 - Destination control
 - Biodegradable hydraulic oil
- Any or all may qualify – manufacturers can provide support &

document

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summary

- Potential credits
- Elevators can help a project achieve:
 - EA 1: Optimizing Energy Performance
 - MR 2: Construction Waste Management Plans
 - IEQ 3.1: Low-Emitting Materials
 - IEQ 4.1, 4.2, 4.3, 4.4: Indoor Air Quality Management Plans
 - ID 1: Innovation in Design

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summary

- Credits Currently Excluded:
 - MR 4 – Recycled Content
 - MR 5 – Regional Materials/Manufacturing
- In these cases, manufacturers can still help by completing all needed forms for a project, even if they are excluded from a credit



Thank You

This concludes the American Institute of
Architects Continuing Education System Program

For more information, visit
www.thyssenkruppelevator.com

SECTION 4

Sustainable Elevator Company Attributes

Sustainable Elevator Company Attributes

commitment to sustainability

- Sustainability mission statement and vision
- Life cycle assessment (LCA) and Life cycle costing (LCC) in conformance with ISO 14040 standards
- Environmental product declarations (EPD)
- Transparency in products, information, and communications
- Maintaining elevators in accordance with sustainable practices



Sustainable Elevator Company Attributes

energy-saving products and systems

- Capacity to provide energy consumption analyses suitable for use with LEED and other certification and documentation systems

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Step 2: Select Equipment

	Scenario A		Scenario B
Application	Geared	?	Geared
Drive Type	MG	?	MG
Capacity (lbs)	2000		2000
Speed (fpm)	350		350
Cab Lighting	Incandescent		Incandescent
Auto Light Shut-Off	NO		NO
Auto Exhaust Fan Shut-Off	NO		NO

Step 3: Calculate Results

Results: Scenario A	Kwh (Annually)	USD (Annually)	Results: Scenario B	Kwh (Annually)	USD (Annually)
Cab Exhaust Fan	0	\$ 0	Cab Exhaust Fan	0	\$ 0
Cab Lighting	0	\$ 0	Cab Lighting	0	\$ 0
Machine Room Cooling	0	\$ 0	Machine Room Cooling	0	\$ 0
Elevator	0	\$ 0	Elevator	0	\$ 0
Total Energy Consumption	0	\$ 0	Total Energy Consumption	0	\$ 0
			Potential Savings	0	\$ 0

Annual Number of Starts: 0 Calculate Results Annual Number of Starts: 0

Sustainable Elevator Company Attributes

informed support for building certification programs

- LEED Accredited Professionals on staff
- Clear understanding of which LEED points are available
- A nationwide support infrastructure that can help design teams complete specific forms that are required for certification
- Technicians that are trained in using the right products during service and maintenance
- Technicians that emphasize safety above all else

