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# Competencies for Facility Professionals

## Section 4: Sustainability

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### Section 4 Topic Preview

- **Topic 1:** Sustainability Strategies
- **Topic 2:** Triple Bottom Line
- **Topic 3:** Green Building Rating Systems
- **Topic 4:** Other Sustainability Tools
- **Topic 5:** Sustainability Reporting

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### What Is Sustainability?

- Customers, economic interests, public attitudes, and regulations shifting from “all-eyes-on-profit” mentality
- Safety and health of customers, workers, community
- Good conduct toward workers
- ISO: Needs of present met without compromising future
- Documented evidence of changes in practices
- Key part of strategy: FM alignment

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**Benefits of Sustainability**

- Productivity and health: Indoor environmental quality
- Optimized systems for energy and water that cost less from life-cycle perspective
- Tax benefits, subsidies, and community goodwill
- Better employees attracted at less expense
- Consumer awareness
- Ethical imperative
- FM: More satisfied and productive occupants, longer equipment life

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**Sustainability Competency**

- Knowledge**
  - Understand impacts on productivity, utility use, waste
  - Current on innovations
- Skills**
  - Measure, analyze, report
  - Business cases for sustainability
- Abilities**
  - Requires leadership toward vision
  - Change management

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**Sustainability Strategies**

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graph TD
    Values --> OrgStrategy[Organizational strategy]
    OrgStrategy --> FMStrategicPlan[FM strategic plan]
    FMStrategicPlan --> FMWorkPlans[FM work plans]
    OrgStrategy --> Goals[Goals  
Leadership support  
(e.g., chief sustainability officer)]
    FMStrategicPlan --> ProgramGoals[Program goals  
Budgets]
    FMWorkPlans --> Initiatives[Initiatives  
Reporting  
Continuous improvement]
    
```

• Alignment  
• Accountability

• Implementation  
• Control

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
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### FM Sustainability Initiatives




**Energy use and emissions**

- Controls
- Solar




**Water use**

- Use and re-use
- Local availability, treatment




**Site impacts**

- Storm water discharge, erosion
- Light pollution




**Materials and waste**

- Depletion of limited resources
- Sourcing, recycling, hazards



**Business processes**

- O&M: Life-cycle extension
- Procurement: Supplier validation



**Occupants**

- Indoor environmental quality
- Motivation, retention

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### Discussion Question

What is the best way to communicate the sustainability strategy?

a) Use stand-alone initiatives and events.

b) Champion both profit and sustainability.

c) Criticize the profit growth motivation.

d) Keep stakeholders guessing but innovate.

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### FM's Role in Creating Sustainable Facility

**Direct approach**

- Present your ideas.
- New hire with a plan.
- Compelling arguments.
- Long-term profit.
- Stakeholder networking.
- Build support.
- Only way for large scale.

**Indirect approach**

- Work behind scenes.
- Stay in area of influence.
- Present successes after.
- Quick wins:
  - Can execute change.
  - How change helped.
  - Team motivation.
  - Get experience.

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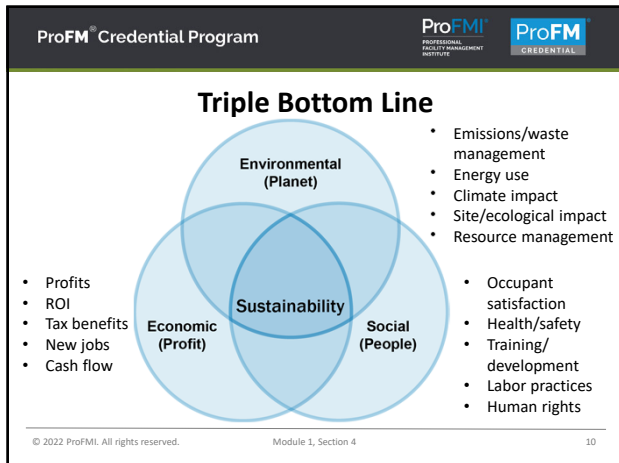
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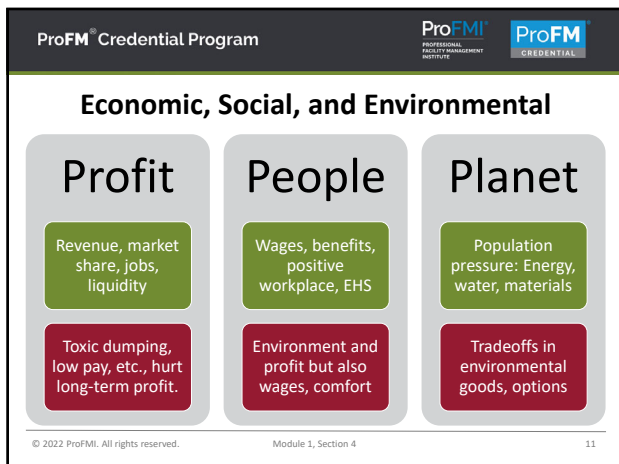
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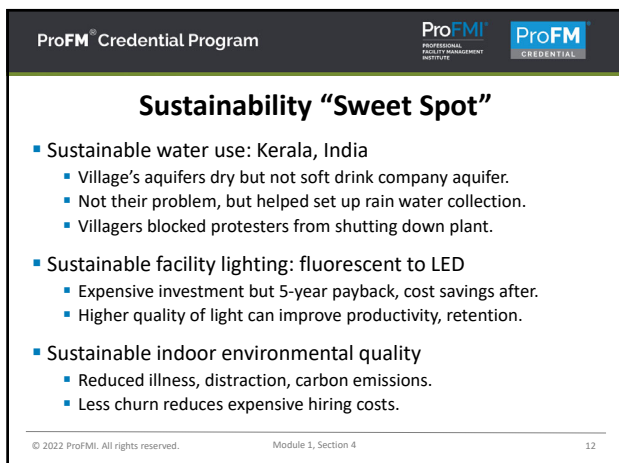
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### Green Building Rating Systems

- Whole-building certification or as source of ideas
- May require third-party or government inspection; possible periodic evaluation
- Transportation category
- Choosing a system
  - Government regulations
  - Government preference
  - Group affiliation
  - Facility fit
- Advantages
  - TBL transparency
  - Minimize impacts
  - O&M savings
  - Marketing and recruiting

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### Leadership in Energy and Environmental Design (LEED)

- Leading US measurement for sustainable facilities
- Number of certifications for types of facilities/construction projects
  - LEED-NC: New Commercial Construction
  - LEED-EB: Existing Buildings
  - LEED-CS: Core and Shell
  - LEED-CI: Commercial Interiors
- Nongovernment certification (peers govern)
- Corporate social responsibility in profitable way

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### LEED Point System

- Points:
  - Certified (40–49)
  - Silver (50–59)
  - Gold (60–79)
  - Platinum (80+)
- Category prerequisites to meet

**Categories:**

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environment Quality
- Innovation

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**UK/Canada/US: BREEAM/Green Globes**

- For existing buildings but can use for new construction
- Original green building rating system
- No penalty for lack of system if unnecessary to design
- Percentage of possible points
  - 1 Globe: 35 to 54%
  - 2 Globes: 55 to 69%
  - 3 Globes: 70 to 84%
  - 4 Globes: 85 to 100%
- Third-party verification

**Project management**

**Indoor environment**

**Emissions and other impacts**

**Site**

**Energy**

**Water**

**Resources, materials, solid waste**

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**China (Three Star) and Australia (Green Star)**

**China: Three Star System**

- Government program encourages cost savings
- Requires one full year of operation for rating
- Similar to LEED
  - Categories
  - Stars match Silver, Gold, and Platinum ratings

**Australia: Green Star**

- Local ecology focus
- Involved community

**Green Star Categories**

• Management	• Materials
• Indoor environment quality	• Land and ecology use
• Energy	• Emissions
• Transport	• Innovation
• Water	

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**Japan (CASBEE) and Green Building Council**

**Japan: CASBEE**

- Government agency
- Academia, industry
- Similar categories plus focus on co-efficiency
  - Profit, environmental can coexist
- Pre-design, design, post-construction

**Green Building Council**

- World Green Building Council
- Not rating system
- Research system to use
- Gather support for business case

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### Sustainability Scorecard

Align with vision or present business case to promote

	Focus Area	Change	Goal	Difference	Weighted Score
Economic	Debt	-1	+2	-3	-1
	Cash flow	+3	+3	0	+1
Environment	Portfolio	+1	+2	-1	+1
	Energy	+2	+4	-2	+2
	Waste	-1	+2	-3	-2
Social	Emissions	+2	+1	+1	+4
	Wages	+3	+1	+2	+3
	Workspace	0	+1	-1	0
	Community	+1	+1	0	+1
Sustainability score					+9

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### Materiality Matrix

**Stakeholders** (Y-axis): More important, Less important

**Organization** (X-axis): Less important, More important

**Materiality Zones:** High, Medium, Low

**Topics Plotted:** Livable wage, Supply chain sustainability, Health & safety, Compliance, Community engagement, Education, E-waste, Debt, Cash flow, Tax, Solar power, Water usage, Lighting.

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### Carbon Footprint

- CO<sub>2</sub> emissions
  - Direct: From facilities, operations
  - Indirect: From utilities, supply chain, commuting
- Measure; then set reduction goals (1% can be a lot)
- Intended versus unintended
- Add solar panels: Indirect may increase footprint at first
- Ride sharing, public transportation, telecommuting
- Remodel or demolish and start new?

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**Equipment Rating Systems**

<b>Energy Star</b>	<ul style="list-style-type: none"> <li>• US EPA and DOE rating</li> <li>• Performance for set task</li> </ul>
<b>GreenSpec</b>	<ul style="list-style-type: none"> <li>• Environmental Building News</li> <li>• Recycled, nontoxic, conserving...</li> </ul>
<b>Building Energy Quotient</b>	<ul style="list-style-type: none"> <li>• ASHRAE energy quantifier</li> <li>• HVAC large % of energy</li> </ul>

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**EMS and Waste Audits**

<p><b>Environmental Management System (EMS)</b></p> <ul style="list-style-type: none"> <li>▪ ISO 14001; ISO 9000 (Quality Management) and 26000 (CSR) also useful</li> <li>▪ Collect data, evaluate conditions, implement improvements, monitor results</li> <li>▪ Demonstrates commitment</li> <li>▪ Cost savings and optimization</li> </ul>	<p><b>Waste Audits and EPA's WasteWise Program</b></p> <ul style="list-style-type: none"> <li>▪ Difficult due to volume and variety</li> <li>▪ Air, water, land</li> <li>▪ WasteWise                             <ul style="list-style-type: none"> <li>▪ Reduce, reuse, recycle efficiently</li> <li>▪ Recognizes achievements</li> </ul> </li> </ul>
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**Sustainability Reporting**

- Risks versus dividends
  - Honesty and transparency even of failures?
  - Trust and support
  - New business or revenue sources
  - Recruitment and retention
  - Important to know your audience
- Much data already gathered for other uses
  - Beware of diminishing returns from data collection
  - Transparent about what is and is not collected

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### Global Reporting Initiative (GRI)

- Not a replacement for LEED, Green Star, etc.
- TBL perspectives and holistic measures (carbon footprint)
- Helps quantify progress toward TBL goals, though many measures are non-numerical
- GRI framework
  - Universality
  - Pick and choose standards that apply



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### GRI Series

Series	Standard	Description
Universal Standards (100 series)	GRI 101: Foundation	Reporting principles and requirements
	GRI 102: General Disclosures	Context on organization, strategy, ethics, governance, stakeholder engagement, and reporting process
	GRI 103: Management Approach	Why each topic-specific standard is used, where impacts occur, and response
Topic-Specific Standards	GRI 200 (Economic), 300 (Environmental), and 400 (Social)	Disclosures on TBL topic areas with many subtopics

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### Reporting Principles

#### General principles

- Stakeholder inclusiveness
- Sustainability context
- Materiality
- Completeness

#### Quality of report principles

- Accuracy
- Balance
- Clarity
- Comparability
- Reliability
- Timeliness



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### Discussion Question

A facility manager gathers information on occupational and customer health and safety, equal opportunity employment, and local communities. What else is in this series of GRI reporting standards?

- a) Effluents and waste
- b) Security practices and customer privacy
- c) Indirect economic impacts and anti-corruption

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### Building Performance Measurement Systems

- Energy efficiency a top priority (cost, carbon footprint)
- Energy use intensity (EUI) index

$$EUI = \frac{\text{Annual Building Energy Consumption (in MJ or KBTu)}}{\text{Building Area (in square meters or square feet)}}$$

- Utilities supply data: Index uses direct sources only
- Baselines used to set goals and plan projects
- Water consumption: Education, upgrades, recapture
- Waste: Inflow, use, waste handling by category

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### Questions?



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