Practical building blocks to deep green and healthy buildings: From preconstruction to operations

Marcus Thompson, Community Development Manager
Matt Williams, Project Manager
Myrrh Caplan, Sustainability Director

FBI, Cincinnati Field Office
LEED Gold Certified
University of Cincinnati, Fifth Third Arena Renovation
Seeking LEED Silver

Premier Health, Miami Valley Hospital, Southeast Addition NICU and Enabling Projects
LEED Silver Certified

Northwest Local School District, Taylor Elementary School
LEED Gold Certified

Fairfield City School District, Compass Elementary School
LEED Silver Certified

University of Cincinnati, Teachers-Dyer Complex Renovation Phase 3
LEED Silver Certified
The Client’s Mission is the Project’s Mission.
Foundation: Visioning

What we do as an organization.

Who/what we influence.

Visible innovation/innovators.

Able to certify...which one?

Recruit/retain/grow culture.

Comfort, healthy, attractive.
Foundation: Organizational strategy

UN Sustainable Development Goals

**Goal 5**
Achieve gender equality and empower all women and girls.

**Goal 8**
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

**Goal 9**
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

**Goal 11**
Make cities and human settlements inclusive, safe, resilient and sustainable.

**Goal 12**
Ensure sustainable consumption and production patterns.

**Goal 13**
Take urgent action to combat climate change and its impacts.

**Goal 16**
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective accountable and inclusive institutions at all levels.
39 percent of global carbon emissions come from the construction and operation of buildings*

*Global Alliance for Buildings and Construction, 2018 GLOBAL STATUS REPORT
Foundation: Organizational commitments

WE ARE STILL IN
Foundation: Where business is
Foundation: Future portfolio innovation

Seattle: 100% by 2050*
Portland: 80% by 2050*
San Francisco: NET 0 by 2050*
Los Angeles: Carbon Neutral by 2050
Boston: 50% by 2030*
NYC: 80% by 2050*
Washington, DC: 100% by 2050*
Houston: Carbon Neutral by 2050

*Carbon Neutral Cities Alliance: https://carbonneutralcities.org
Foundation: Measurable achievements

**Envision**
- St. Petersburg Pier District
- LaGuardia Airport Expansion

**LEED v4**
- Bank of America Tower
- New York Penn - Farley Train Hall

**WELL/FitWel/Parksmart**
- Skanska CD Projects = FitWel
- Las Olas Parking Garage

**LBC/NZE**
- Georgia Tech, The Living Building
- Gulf State Park Interpretive Center
Foundation: From less bad to more good
Our Carbon Roadmap

To become carbon neutral
- We partner to innovate
- More measurement of climate impact is needed across the industry
- Procurement is key
- Full value chain in focus
The Skanska Group will have net-zero carbon emissions resulting from our business by 2045, including the value chain in all projects.

Skanska Group reduces emissions from our own operations by half, this includes the value chain in projects initiated by Skanska development units.
Understanding Our Impact

Embodied Carbon
(There on day 1 from the extraction, manufacture, transport and installation of construction materials)

Operational Carbon
(Building energy consumption over 50 years)

50% 50%
EC3: Embodied Carbon in Construction Calculator

Material Facts

- Serving size: 1 potato (148g/5.2oz)
- Amount per serving: Calories 110

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<th>Nutrient</th>
<th>Amount</th>
<th>% Daily Value</th>
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<tr>
<td>Total Sugars</td>
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<tr>
<td>Includes 0g Added Sugars</td>
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**Protein 3g**
- Vitamin D 0mg: 0%
- Calcium 20mg: 2%
- Iron 1.1mg: 6%
- Potassium 620mg: 15%
- Vitamin C 27mg: 30%
- Vitamin B6 0.2mg: 10%

* The % Daily Value (DV) tells you how much is in a serving of food compared to a daily limit. 2,000 calories is used for general nutrition advice.
Potential Embodied **Carbon Savings**
Introducing Arc Insight

Projects

536 Projects within 40 miles of 10118

- LEED Certified: 113 (21.08%)
- LEED Gold: 197 (36.75%)
- LEED Silver: 199 (37.13%)
- LEED Platinum: 27 (5.04%)

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Insight: Comparing Thresholds

Average Water reduction

40%
Percent reduction below EPAct 1992

Average Waste diversion

-75%
Percent estimated diversion
### Other Tools: Better results

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Project Goal</th>
<th>Long-term/Hi-level Concerns</th>
<th>Immediate Issues/Follow-ups?</th>
<th>Strategies/BMPs to Vet</th>
<th>Skanska Pre-meeting Needs</th>
<th>Questions to Team/Client</th>
<th>Present to Team/Client</th>
<th>Next Steps</th>
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**Other Tools:**
- Better results
INVEST IN PEOPLE FOR RETURN ON INVESTMENT

90% Salary/Benefits

9% Rent/Operations

1% Energy

The buildings where we **LIVE, WORK, LEARN & RELAX** profoundly impact our health, well-being & productivity.
A Comprehensive Approach to Well-Being

- Air
- Water
- Nourishment
- Light
- Movement
- Thermal Comfort
- Sound
- Materials
- Mind
- Community
Wellness Methodology in Buildings

- Communications
- Monitoring
- Material Control
- BMPs
  - Housekeeping
  - Moisture prevention
  - Filtration/protection
  - Tobacco prohibition
  - Dust control

For both green- and wellness-oriented projects, providing a healthy atmosphere for building occupants is vital.

**Employee health and productivity is the main driver,** with salaries often making up 90% of an owner’s operating budget.
Wellness Methodology in Buildings

- Early engagement of MEP in water system design discussion
- Plan for integration of water purification equipment and filtration
- Quality control assessments of water delivery systems and fixtures

In the WELL program, water quality is an area of concern for occupants, and one we have a key role in.
Wellness Methodology in Buildings

- Early engagement with design team to identify opportunities found on previous wellness projects
- Early involvement of MEP subcontractors
- Use NZE and wellness experience to incorporate innovations

Light is a key element within any wellness-oriented approach, as specific tactics improve occupant wellness. Also, Energy use typically makes up 8-9% of operating budgets so increased efficiency is direct savings.

ENERGY & LIGHT
Wellness Methodology in Buildings

- Implement ISO14001 plan for each site
- Identify opportunities to incorporate more durable options while meeting aesthetics
- Ensure any remediation is beyond compliance

From a health perspective, the engagement of the internal and community stakeholders

LOCATION:
COMMUNITY & MIND
Wellness Methodology in Buildings

- Focus on recommendations that are lower-emitting but also biophilic
- Focus on local economic development through community-range goods
- Transparency and education for future tenants on what went into making the space healthy

This focus area, while not worth as many points as others, takes a good deal of careful management and can have a lasting impact on occupants, local economic development, and infrastructure.
Best of the Best in Construction Practices
Reused and re-employed

Kendeda Center for Sustainable Innovation, Atlanta, USA
Teeing Up Proactive, Healthy & Green Facilities
Wellness Methodology in Buildings

Facility Management

- Proactive
- Inclusive
- Data-based
- Green + Health O&M

PROACTIVE FACILITY MANAGEMENT GUIDE

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Thank you!