Reducing Energy Use: Meeting the 2030 Challenge and other Initiatives
Professional Development Conference
September 16, 2010

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William Sturm, AIA, Serena Sturm Architects, Ltd.
Vuk Vujovic, Assoc. AIA, Legat Architects, Inc.
Why should architects focus on energy?
Why should architects focus on energy?
The 2030 Challenge

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*Using no fossil fuel GHG-emitting energy to operate.
“Architects need to accept responsibility for their role in creating the built environment and, consequently, believe we must alter our profession’s actions and encourage our clients and the entire design and construction industry to join with us to change the course of the planet’s future.”

AIA Sustainable Architectural Practice Position Statement

December 2005
...we commit to take the following four steps in recognition of this AIA 2030 Commitment:

1. Establish Sustainability Leadership
2. Implement Operational Action Items
3. Develop Sustainability Action Plan
4. Report Annual Progress
What is the AIA 2030 Commitment?

1. Establish a team or leader to guide the development and implementation of the firm’s plan
2. Implement a minimum of four action items related to firm operations
3. Develop a sustainability action plan that will demonstrate success toward the 2030 goals
4. Report progress toward goals and share publicly

Timeline:
- Two Months:
  - Establish a team or leader to guide the development and implementation of the firm’s plan
- Six Months:
  - Implement a minimum of four action items related to firm operations
- One Year:
  - Develop a sustainability action plan that will demonstrate success toward the 2030 goals
- One Year & Annually Thereafter:
  - Report progress toward goals and share publicly
Establish a team or leader to guide the development and implementation of the firm's plan.
Implement a minimum of four action items related to firm operations

Energy Use
Calculate firm’s baseline energy intensity
Energy Star rated equipment and appliances
Replacement of incandescent lamps with fluorescent

Waste
Reduce paper consumption by using electronic documents
Institute a firm-wide recycling policy
Purchase environmentally friendly cleaning supplies

Transportation
Incentives for employees who ride share, walk, or bike
Establish a policy for offsetting firm travel
Fuel efficient rental cars encouraged for firm travel

Meetings
Paperless technology for agendas, handouts, and presentations
Encourage virtual meetings when possible

### Firm Information
- **Firm Name:** Cooper Carry
- **Firm Address:** 150 Peachtree Street NE, Suite 500, Atlanta, GA
- **Firm Size:** 1200

### Office Energy Use
- **Calculate firm’s baseline energy intensity (BTU/FL/YR):** 77,970 BTU/FL/YR
- **Record percentage decrease from baseline:** 21.46%

1. **Installation of occupancy sensors in meeting rooms and other common spaces.**
   - Partially Implemented / In Planning: Alexandria Office - installed light sensors to automate light usage in office areas.
   - Atlanta Office - both motion sensors and light sensors have been installed in all meeting rooms and open office space.

2. **Institute a firm-wide recycling policy.**
   - Partially Implemented / In Planning: All offices have a mandatory recycling program.

3. **Purchase environmentally friendly cleaning supplies.**
   - Fully Implemented: All cleaning supplies are environmentally friendly.

### Travel
- **Percentage of commuting travel reduced and offset:**
- **Percentage of business travel reduced and offset:**

1. **Incentives for employees who ride share, walk, or bike.**
   - Partially Implemented / In Planning: We participate in the Transportation Fringe Benefit for Bicycle and Public Transportation.

2. **Establish a policy for fuel efficient rental cars for firm travel.**
   - Partially Implemented / In Planning: We rarely rent vehicles, but have purchased a Toyota Prius which is used for most out of town travel.

3. **Establish a policy for offsetting firm travel.**
   - Partially Implemented / In Planning:

4. **Encourage telecommuting options for employees.**
   - Partially Implemented / In Planning: One employee participates monthly in a teleconference meeting for the state USGC, each employee is allotted ten hours paid per quarter to participate in community/civic endeavors.

5. **Other.**
   - Not Implemented:
Develop a sustainability action plan that will demonstrate success toward the 2030 goals.

**Sustainable Operations**
Set sustainable operations goals aimed at reducing the negative impact of firm operations

**Set Sustainable Design Goals**
Design projects to reduce the amount of fossil-fuel based energy used to align with 2030 goals regardless whether required by client

**Institute Staff Training and Education**
Ensure staff is invested in the firm’s sustainable design goals and can contribute to the success

**Develop a Business Strategy**
Communicate why a sustainable design approach is important and why the firm is qualified

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**3 - Develop Sustainability Action Plan**

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**STATEMENT OF INTENT**

- Sustainable Design
- Development of a sustainability action plan
- Demonstrating success toward the 2030 goals
- **Sustainable Operations**
  - Setting sustainable operations goals to reduce the negative impact of firm operations
- **Set Sustainable Design Goals**
  - Design projects to reduce the amount of fossil-fuel based energy used to align with 2030 goals regardless whether required by client
- **Institute Staff Training and Education**
  - Ensuring staff is invested in the firm’s sustainable design goals and can contribute to the success
- **Develop a Business Strategy**
  - Communicating why a sustainable design approach is important and why the firm is qualified
4 - Report Progress

Report progress toward goals and share publicly

All the data needed is:

- Project identifier (internal)
- Gross Square Feet
- Building Occupancy Type
- Is the project modeled?
- EUI from Modeled Projects or Design Energy Code for Non-Modeled Projects
- Lighting Power Density
To join, download the commitment letter, sign it, and return to AIA National.
AIA 2030 Commitment Reporting Tool

Getting Started

This file is a collaborative work product of many AIA member firms. Key participants include an AIA Chicago Chapter Working Group, An AIA National COTE Working Group and individuals from many other member firms. This file is intended to be shared with AIA member firms for reporting required by the AIA 2030 Commitment. This file is not intended for individual distribution and publication.

Intent

This tool generates a report which is intended to provide your firm and the AIA with a snapshot of how your firm’s design work is progressing toward the 2030 targets. Several aspects of the AIA 2030 Commitment are incorporated into this tool, including predicted energy use, project modeling and intent to collect actual use data. The activities of collecting project data and analyzing report outputs is intended to drive the topic of energy performance to the front of design considerations for all projects.

Steps

There are four steps to reporting your firm’s design work progress toward the 2030 goals:
AIA 2030 Commitment Reporting Tool

Worksheet
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Fill in white cells; all others are calculated automatically or do not apply.
For firms with multiple offices, you may choose to complete this worksheet separately for each office, then enter report output separately on the ‘Multiple Office Worksheet.’

Enter firm name here: ___________________________ Enter calendar year for reporting: ______

Projects

General Information


### Worksheet for Multiple Offices


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For multiple office firms, it may be preferrable for internal purposes to complete separate copies of the 'AIA 2030 Commitment Worksheet' for each office; then enter the report results manually from each office below. The Report tab in this file will automatically reflect the data entered here.

<table>
<thead>
<tr>
<th>Enter firm name here:</th>
<th>Enter calendar year for reporting:</th>
<th>If using this multiple office worksheet:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Offices</th>
<th>Predicted EUI Analysis</th>
<th>Modeling</th>
<th>Use Data</th>
</tr>
</thead>
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# AIA 2030 Commitment Reporting Tool

**Report**


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This page is formatted to automatically print an 11x17 pdf report. Please submit this pdf to AIA as part of your firm’s annual 2030 Commitment reporting. Refer to the AIA website for guidance on reporting procedure.

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### AIA 2030 Commitment Annual Report

#### Participating Chicago Offices

**Design Work 2009**

<table>
<thead>
<tr>
<th>Predicted EUI</th>
<th>Project Modeling</th>
<th>Use</th>
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<tbody>
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</table>
AIA 2030 Commitment Reporting Tool Results

AIA 2030 Commitment Annual Report
Participating Chicago Offices
Design Work 2009

**Predicted EUI**

- 2010: 21%
- 2015: 40%
- 2020: 60%
- 2025: 80%
- 2030: 100%

**Project Modeling**

- Not Modeled: 21%
- Modeled: 60%
- GSF of Active Projects: 14,182,286

**Use Data To Be Collected**

- Data will be collected: 24%
- Data will not be collected: 76%
- GSF of Active Projects: 5,398,286

**LPD Analysis**

- Firm % LPD Reduction from ASHRAE 90.1 2007: 18%
- GSF of Active Projects: 12,078,386

**Current 2030 PEUI Reduction Goal**: 50.0%
**Firm PEUI % Reduction from Average EUI**: 22%
**% GSF of Active Projects meeting current goal**: 13%
LPD Analysis

Firm % LPD Reduction from ASHRAE 90.1 2007

LPD Reduction Goal 25%
Firm % LPD Reduction from ASHRAE 90.1 2007 18%
GSF of Active Projects 12,076,386
% GSF of Active Projects meeting current goal 42%
Use Data To Be Collected

Data will be collected: 76%
Data will not be collected: 24%

GSF: 5,598,281
Data will not be collected: 17,962,041
Project Modeling

Modeled: 14,182,266
Not Modeled: 9,378,056

GSF of Active Projects
Predicted EUI

<table>
<thead>
<tr>
<th>% Reduction from Average EUI</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>2030</td>
</tr>
<tr>
<td>90%</td>
<td>2025</td>
</tr>
<tr>
<td>80%</td>
<td>2020</td>
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<tr>
<td>70%</td>
<td>2015</td>
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<tr>
<td>60%</td>
<td>2010</td>
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Current 2030 PEUI Reduction Goal: 50.0%
Firm PEUI % Reduction from Average EUI: 22%
GSF of Active Projects: 23,560,322
% GSF of Active Projects meeting current goal: 13%
AIA Chicago Promotes the AIA 2030 Initiative

AIA Chicago seeks to:

• Educate the Chapter on the Initiative

• Encourage all Chicago firms to sign on to the national commitment

• Answer: “Where does the Chicago design community stand now?”

• Identify key areas of focus

• Track the annual progress of the local design community
AIA Chicago Promotes the AIA 2030 Initiative

Of the 121 signatory firms, 18 are in Chicago.

Six of these have shared 2009 design data.
AIA Chicago Firms Example

AIA 2030 Commitment Annual Report:
Participating Chicago Offices
Design Work 2009

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AIA Chicago Firms Example

Participating Offices Combined
2009 Predicted EUI Reduction

100% 2030
90% 2025
80% 2020
70% 2015
60% 2010
50% 2009
40%
30%
20%
10%
0%

Firm PEUI % Reduction from Average EUI

22%
Participating Offices
2009 Predicted EUI Reduction by Project Size

- Small <10,000 GSF (13 projects): 34%
- Medium 10,001-500,000 GSF (58 projects): 30%
- Large >500,001 GSF (9 projects): 19%

Avg 22%
AIA Chicago Firms Example

Participating Offices

2009 Predicted EUI Reduction by Building Sector

(width of bar represents relative project work in GSF)