



# Sustainability Action Plan 2013/14

AIA 2030 Commitment  
August 19, 2013

**coolearth**  
architecture inc.

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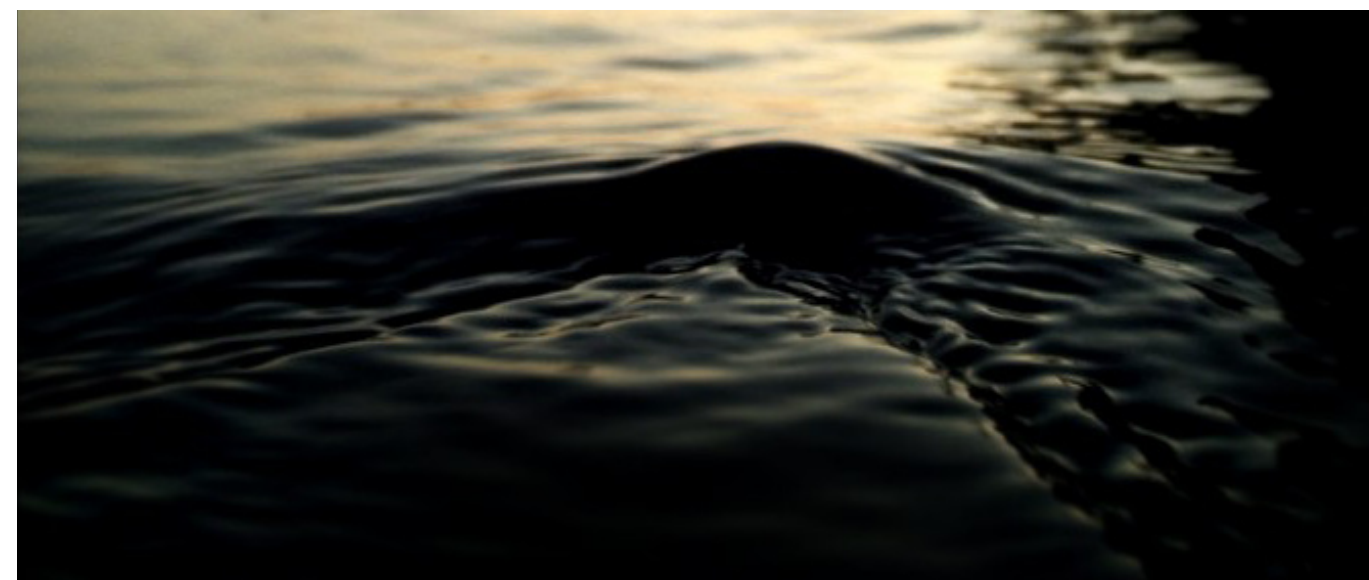
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Cooearth Architecture Inc. wants to be part of the discussion within our community about how to address climate change. This community not only includes our clients, but also our city, province, our country and the world.

But are we effective? It is important to measure the impact of our work, both in energy and costs. We want to make sure we are contributing to actual change. The knowledge that is gained through these processes should be shared with the community and used to inform future projects. This is why we have joined the AIA 2030 Commitment.



In preparation for developing a long-term sustainability plan we took a look at the actions we already had in place as well as adding a few more policies, to get the gears in motion.

- Environmentally Friendly Products:
  - Office supplies
    - All computer monitors are LCD monitors with the exception of one rarely used CRT monitor and one new LED Energy Star rated monitor
    - Recycled paper products
  - Kitchen supplies
  - Cleaning supplies
  - Bathroom tissue – 100% post-consumer recycled paper
  - Reused Office Furniture
  - Low Flow toilet
- Product Material Strategy
  - No material should be collected from trade shows, pictures can be taken and notes added. When an appropriate smart phone app is found, we will use this to take pictures and take notes to collect information.
  - When a sales person visits only materials that are unique and directly related to environmental design should be accepted
  - Sample will only be kept for specific client meetings, then returned if possible.
- Energy Use
  - Turning off PCs and other electronic equipment when applicable
  - Replace inefficient equipment with Energy Star rated

- Waste Management:
  - All paper and plastics are recycled weekly
  - All organics are placed in the composting bin weekly
  - All waste is sent out for garbage collection monthly
  - Battery alternative policy (use of wired mice rather than wireless)
- Reduced Paper Consumption:
  - No more in-office handouts
  - Employees were fitted with smart phones instead of iPads
  - Regulating incoming mail
- Past Presentations
  - Sheena
    - 2013 OAA Conference, May 10th, 2013. Co presented with Susan Lewis of CS&P Architects; "FROM HERE TO THERE: OAA AND THE PATH TO HIGH PERFORMANCE"
    - Presentation to the Georgian Bay Biosphere Reserve, Oct. 25th 2012; "To use only as much energy as we make from clean sources: Net Zero and Building Design"
    - Presentation to NORR, April 17th, 2012. "Energy Modeling for Architects"
    - Presentation to the Municipality of Kawartha Lakes Council, co presented with Paul Douset of Sustainable T.O. April 2012. "Sustainable Home Design"
    - Presentation to Danny Harvey's class, University of Toronto, Oct. 24th 2011. "Global Warming and the Practice of Architecture"
    - Presentation to the Georgian Bay Biosphere Reserve, March 6th 2010. "Good Ideas: Urban Design & Public Buildings"
  - Craig
    - Presentation to the Passive House Course, May 3rd 2012. "Using Passive House to Target Net-Zero"
    - Teaching at George Brown
  - Lou
    - Spoke at the 4th Conference – Trade Mission Energy Efficiency in Buildings and green Building. September 27, 2010. "Intergrading Solar Energy into Buildings"
    - Article in Profiles 2010 magazine. "Why Net-Zero Energy?"

### 3.1 office resource use



Coolearth Architecture Inc.  
Toronto Office

#### Office Energy Use

The Coolearth Architecture office is a commercial storefront mid unit in a small strip of a pedestrian district called The Junction in Toronto.

#### GAS

Billing Date:	m <sup>3</sup>	kWh	kWh/m <sup>2</sup>
12/10/2012-09/11/2012	61	539.8	3.9817
10/11/2012-08/12/2012	185	1637.2	12.0764
09/12/2012-10/01/2013	285	2522.1	18.6037
11/01/2013-09/02/2013	277	2451.3	18.0814
10/02/2013-11/03/2013	338	2991.2	22.0639
12/03/2013-10/04/2013	100	885	6.528
11/04/2013-09/05/2013	164	1451.3	10.7052
10/05/2013-10/06/2013	23	203.5	1.5011
10/05/2013-10/07/2013	10	88.5	0.6528
11/07/2013-12/08/2013	1	8.8	0.0649
13/08/2013-11/09/2013	2	17.7	0.1306
12/09/2013-10/10/2013	18	159.3	1.175
Average	122	1079.64	7.96
			12955.68kWh/y average

#### ELECTRICITY

Billing Date:	kWh	kWh/m <sup>2</sup>
04/06/2012-04/07/2012	763	5.6281
04/07/2012-02/08/2012	847	6.2477
02/08/2012-04/09/2012	870	6.4221
04/09/2012-03/10/2012	635	4.6839
03/10/2012-05/11/2012	746	5.5027
05/11/2012-03/12/2012	634	4.6766
03/12/2012-04/01/2013	612	4.5143
04/01/2013-04/02/2013	653	4.8167
04/02/2013-05/03/2013	605	4.4626
05/03/2013-04/04/2013	667	4.9199
04/04/2013-06/05/2013	758	5.5912
06/05/2013-04/06/2013	629	4.6397
Average	701.58	5.18
		8418.96kWh/Y average

ELEC/GAS YEARLY AVERAGE: 157.67 kWh/m<sup>2</sup>

Steps toward less energy use:

- Create a time line for eventual reliance on 100% green power affordability
- Take printers off standby
- Maintain an office temperature of 26° in the summer and 20° in the winter.
- Prepare an energy model for our office space
- Investigate upgrading ventilation to high performance

**Office Paper Use**

Steps toward going paperless:

- Recording paper consumption
- Purchase recycled paper products
- Review existing office filing and prepare a policy on when to store hard copies
- Move to digital fax reception

**Office Water Use**

WATER Date:	Days of Consumption	m <sup>3</sup>	Cost
01/26/11-05/12/11	106	2.8	\$6.54
05/12/11-09/29/11	140	3	\$7.21
09/29/11-11/20/11	52	2.7	\$6.49
11/20/11-03/26/12	127	6	\$15.32
03/26/12-07/30/12	126	5.5	\$14.42
07/30/12-11/26/12	119	5.2	\$13.63
11/26/12-03/25/13	119	5.2	\$14.50
03/25/13-07/29/13	126	6.1	\$17.42
<b>Total</b>	<b>915</b>	<b>36.5</b>	<b>\$95.53</b>

22 cubic meters in one year

Steps toward using less water:

- Install low flow faucets (Flow rate of below the 2.2 GPM standard)

**Commuting Energy Use**

The commuting involved in getting to and from work as well as travelling to meetings is a large contributor to GHG emission of the firm. Employees currently get to and from work primarily by car, with a small percentage of bike riding.

**TRANSPORTATION**

	Type of Vehicle	km Taveled Daily	CO2 Output of Vehicle	Traveled Yearly (km)	Yearly CO2 Output (kg)
SHEENA	2005 Toyota Echo	20.8km (Home) 446km (Parry Sound)	171.8g/km	15,196.80	2,610.81
LOU	2010 A4 Audi	24km	197g/km	5,760	1,134.72
CRAIG	2007 Honda Fit	6km	163.2g/km	1,440	186.048
ALEX	2010 Mazda 3	64.6km	163.5g/km	5,168	844.968
<b>Total</b>				<b>27,564.80</b>	<b>4,590.50</b>

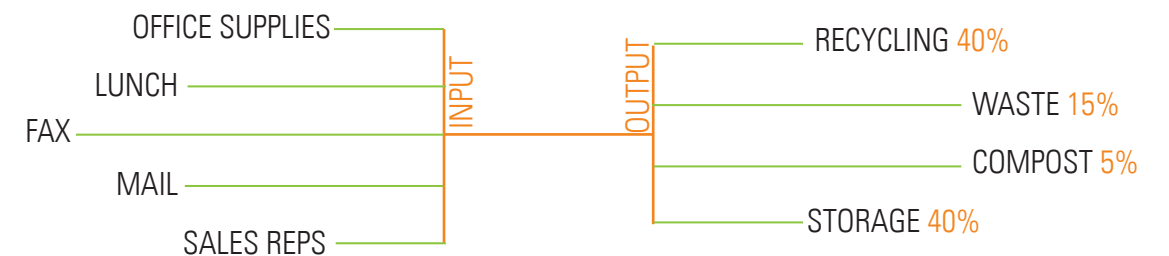
Steps toward decreasing contribution to GHG emissions through transportation:

- Create individual staff plans for personal reduction
- Coordinate travel plans
- Investigate the feasibility and price of a virtual meeting system

**Recycling and Waste**

All paper products are either filed or recycled. A measurement of the amount and type of paper products being recycled can illuminate how much waste is going through the office, as well as give an indication of if our efforts are effective in decreasing it. Other recycling will be recorded as well. In an effort to reduce the amount of material destined for a landfill, the quantity of garbage, compost and recycling will be measured and compared over time.

**CURRENT RESOURCE FLOW THROUGH OFFICE**



Steps toward reduction of waste:

- Attention to what needs to be recycled/composted to reduce what goes in the trash
- Measure waste output, and change over time
- Use reusable containers
- Eliminate plastic water bottles in the office

### 3.2 staff education

An improvement in personal habits and knowledge could greatly improve the EUI of the firm. Furthering education in environmental and passive technologies as well as volunteer work with the community are goals we wish to achieve.

These are the skills we have identified that we need to take in order to offer better sustainable environmental design.

	CRAIG	SHEENA	LOU
Proposed ○			
Taken ●			
OAA 2030		○	
Passive House (1week)		●	
Retscreen	●	●	
Lighting Systems	○		
Hot 2000			
Equest			
LEED	●		
Green Building Advisor			●
Construct Canada	○	○	○
Zero Net Energy for Houses	○		
Ecotect	●		
Passive House Convention		○	
Therm	●		
IES-VG	●	●	

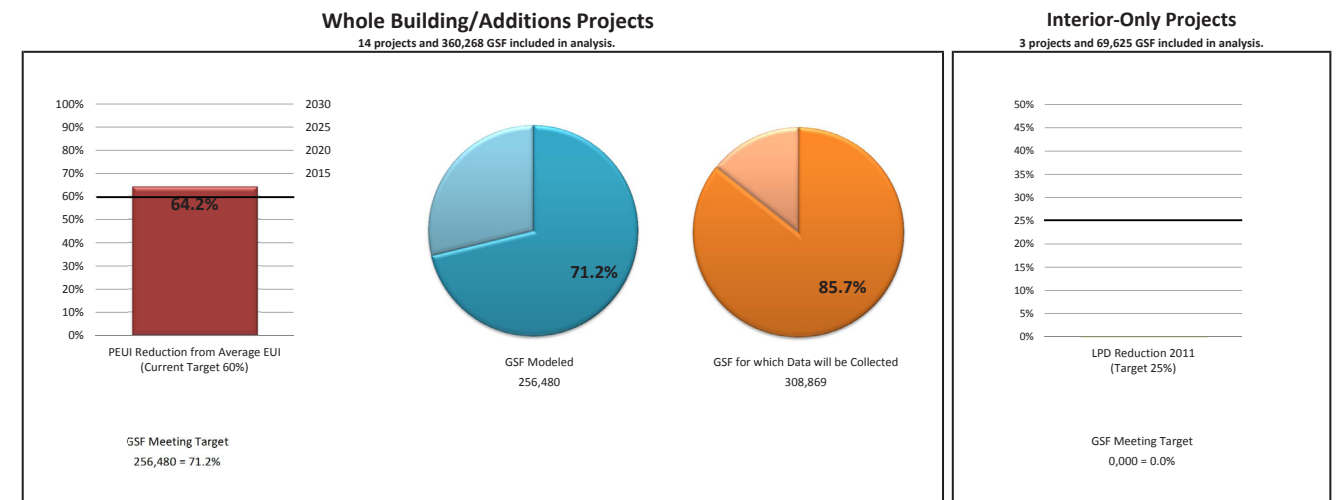
### 3.3 work

Cooearth Architecture Inc. will strive to work with clients in order to satisfy project needs as well as progress from the baseline EUI developed from the data collected from projects of 2012.

We will do this by providing services such as:

- Offer energy modeling at competitive rates
- Offer an analysis of rating and its appropriateness for the project
- Education used to illustrate successful strategies

AIA 2030 Commitment Annual Report  
**Cooearth Architecture inc.**  
**Design Work 2012**



#### Setting Sustainable Design Goals:

We met and surpassed the 60% reduction of EUI. However we would like to increase this success and move towards 70% obtaining this target by 2015. Reduction in energy used by lighting is a design concern for us. Steps, such as courses about lighting systems, will be taken to improve knowledge of lighting design.

### 3.4 initiative to give back to our community

Current issues to address this year:

- LEED/Code compliance procedures do not reflect energy intensity and specifically ignore factors such as window-wall ratio. We will educate our clients and the public.
- Energy models are not meant for compliance and are being fiddled. We will become proficient in the use of energy models, and lobby at all levels for measurement and verification
- The industry and the public do not understand the magnitude of the different areas of the energy budget: simplify the process and choices.



Parry Sound DSSAB; Awarded LEED Silver

In an effort to increase public knowledge and spur interest we will develop and publish 4 marketing pieces on the following topics:

1. Develop marketing material to explain Energuide for houses.
2. Develop marketing material to explain measurement and verification of energy usage and environmental issues.
3. Develop marketing material comparing certification processes. (LEED, Passive House, Living Building Challenge, BREEN)
4. Develop modeling material connecting 2030/Passive House to energy use reductions required to address climate change.
5. Case Studies

Strategy for disseminating information.

- Create posters to display the issues relevant to climate change and environmental awareness. Hang posters in window that changes
- Create new website. Include information about what the firms goals are in terms of increasing EUI reduction and architectural values.
- Increase traffic to our website – advertisement, word of mouth etc.

### 3.5 presentations to the community

As part of our effort to increase the knowledge of both our firm and the public, we will become committed to personally making presentations to the community. Members of the firm will work to educate through teaching courses, appearing and making presentations at seminars, guest critiquing at universities, volunteering with educational programs, etc. A goal will be set of a minimum of three presentations a year. In this way we will begin to further immerse the firm into the surrounding community and spread awareness of green design principles.

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