

What's YOUR Office's Footprint?

At this spring's Building Energy conference (<http://buildingenergy.nesea.org>), partner Bruce Coldham arranged a workshop with Jim Merkel (<http://radicalsimplicity.org>) on the methodology of Ecological Footprinting. Merkel's book Radical Simplicity, challenges citizens of the industrial nations to consider the resources required to sustain our lifestyles.

One of his tools in this challenge is the Ecological Footprint calculator, drawn from the work of William Rees and Mathis Wackernagel (<http://www.globalfootprint.org>). The calculator uses a "footprint factor" by which we can convert all consumption to a common unit – the global acreage required to support it. The equation is simple: calculate what you consume, convert it to global acreage, and then compare that to what is available to us.

BRINGING IT HOME

We were curious, and decided as a firm to do our own Ecological Footprint, as an internal audit of our process.

According to year 2000 data, there are currently no more than 4.7 acres of bio-productive Earth per person from which we may each draw to create everything in our lives. And even that assumes that humans deserve domain over all productive lands, leaving nothing for the rest of our planet's species.

In 2000, we used an average of 5.8 acres per person for human-related production . Which means we are overdrawing on the planet's bio-productive resources by about 20%. We are outstripping our planet's ability to regenerate the web of life that sustains us.

In the industrialized nations, our footprint is large. The average citizen of the U.S. requires 24 acres on which to grow her food, absorb her waste (including CO₂), and manufacture her products. The average Canadian, 22 acres. In contrast, the average Indian uses only 2 acres, the average Chinese, 4. In an era when we are overdrawing on the Earth's resource budget-literally living on "deficit consumption"- bringing our lifestyles into line with our global resource budget is an act of social justice.

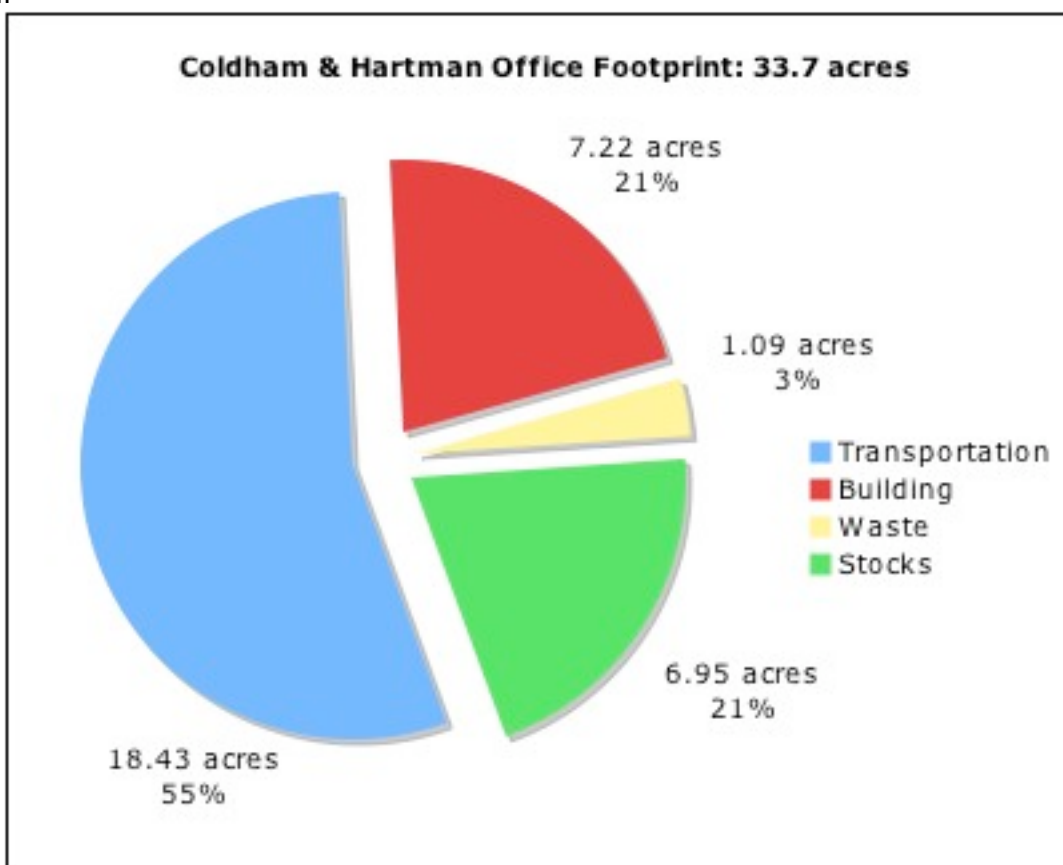
ADDING IT UP

Following the example of Best Foot Forward (www.bestfootforward.com), a British organization that calculates corporate footprints¹, we calculated our company's footprint in Shelter, Transport, Stocks (Durable Goods), and Waste.

(Goods and Services, which are calculated for Personal Footprints, are shares of other business' footprints. For corporate footprinting, it creates endless difficulties -and a grossly distorted accounting - to include it. Best Foot Forward didn't count it, so neither did we.)

The calculations are straightforward, based largely on objects' weights, estimated lifespans, and their Wackernagel/Rees "Footprint Factor". We tracked our heating/cooling, electric, and water consumption through monthly bills. We weighed our trash and our books. We found the weight of our computers in an online database. We estimated the lifecycle of our desks and our lamps and guessed the weight of the red wooden kangaroo on the peak of our porch.

We found:



Our totals:

Transport: 18.43 acres	55%	Building: 7.22 acres	21%
Both daily commutes and business travel.		Includes actual building, lot size, heating/cooling/electricity	
Stocks: 6.95 acres	21%	Waste: 1.09 acres	3%
Computers, furniture, paper, books, office gear.		Recycling, garbage.	

WHAT NOW?

33.7 global acres for a business with 6 employees is 5+ acres per person, just for our lives at work. We'd need one and a half Earths to provide this volume of resources, which doesn't allow for any of our personal consumption. What are our big consumption categories?

Our **Transport** sector is the largest, at **55%** (18.43 acres).

In our favor:

One employee walks to work;
Two employees carpool regularly;
The office does not accept work that would require air travel;
Our company cars are both hybrids.

Against us:

One employee has to travel nearly 100 miles a day to come to the office
(We have somewhat generously assumed the responsibility for all of this travel, though she began commuting here to complete her education and still goes to school 4 days/wk).
--The contribution of this commute alone is 8.55 acres, one quarter of our office footprint.

Action Item 1: Encourage local living.

Our long-distance commuter is already looking for a home closer to work and school.

Result: If our longest commute were reduced to be equal to our median commute, our footprint would be decreased by 6.22 acres.

Building consumes **21%** (7.22 acres).

The largest single item here is **electric usage**, 42% of Building, about 500kwh/month.

We've been taking the pulse of our electric load lately, using P3's Kill-A-Watt (about \$30 from [Energy Federation Incorporated](#)).

Copier: 23kwh/mo.

FYI: "Energy Saver" mode only saves 2kwh/month over full-power standby.

Better by far to keep it off.

Our main printer: 7.68 kWh/mo.

24% is **propane** for heating. But we already run a pretty efficient Rinnai, and heat only what we need, to about 66-68 degrees.

31% is for the **structure** itself. 1100 s.f in footprint.

Action Item 2: Find the energy hogs in our plug load.

Result: Reducing our electric usage by 50% would decrease our footprint by 1.5 acres, 4.5%

Action Item 3: Have solar panels installed, to provide cleaner, more local power.

Result: Reducing our grid-based electric usage by 90% would decrease our footprint by 2.8 acres, an 8% decrease of our total.

Stocks comprise another **21%** (6.95 acres).

Of this total:

47% is **Durable Paper**. Of this, 2/3 is paper records— and we are fairly careful about creating excess paperwork, using an online digital room for transfer of records between ourselves and clients or contractors. Another 10% comes from books/magazines. But throwing out our books or paper accounting records, though it would lower next month's footprint, would contribute nearly nothing to decreasing our impact on the planet.²

37% of Stocks can be blamed on our **computers**. Our all-in-one iMacs account for about half the footprint of our G5 tower-and-monitor combinations; the laptops are a tenth the footprint of the towers, and better on electric usage as well.

10% is our **wooden furniture**.

Action Item 4: Be cautious in creating paper records. Restrict electronics purchases; buy laptops when feasible instead of towers.

Result: By eliminating paper files altogether, we might reduce our recorded footprint by 2.2 acres. Minus the increase we'd incur by adding more computer storage.

At the bottom: **Waste, 3%** (1.09 acres).

Notice how small is the thing we first think of when we consider how much we consume: our waste.

Reduce, re-use, recycle? Our recycling is already somewhat religious. Paper recycling is 60% of our waste, by footprint (and 68% by weight). In contrast, garbage is only 14% by weight, but 30% by footprint. Not much to be gained there, and even recycling has costs.

Our actual garbage: about 80 pounds a month.

Our entire waste profile only comprises 3% of what we really USE on a monthly basis. If we're concerned about ecological footprinting, we should see that improving our recycling habits- though helpful- pales in comparison to our other activities' impacts.

Action Item 5: Keep recycling, keep printing to a minimum.

WHAT WE HAVE LEARNED

It is no surprise to us that more recycling won't rescue this planet from the harm we've done it. For Coldham & Hartman, at least, Ecological Footprint reduction is about energy consumption, mostly in the form of transportation fuel and electric usage.

Concern about our Ecological Footprint is also, by definition, concern about Climate Change. Eco-Footprinting includes the acres of vegetative cover it would require to absorb the greenhouse gases emitted by combustion engines and power generation. But it goes further than just a Carbon Footprint, and tries to ensure that the current focus on greenhouse gases doesn't keep us from remembering that the bio-productive power of the Earth ALSO has limits. We exceed them only at our own peril.

WHAT CAN YOU DO?

Calculate your own footprint, either individually, or as a company. Look for the areas in which you can make a change, and get started.

Redefining Progress (see below) has announced the release of Footprint 2.0 (we used Footprint 1.0), which takes into account more marginally productive land (so there's more for each of us) and does a more accurate job with species habitat and carbon (so our footprint is a lot bigger). There's no time to stall—according to Footprint 2.0 the news is worse than we think.

Contact us at footprint@ColdhamAndHartman.com with your comments and suggestions, or to report your results and anecdotes.

ONLINE RESOURCES

Jim Merkel's site: <http://www.radicalsimplicity.org>

Mathis Wackernackel's organization: <http://www.footprintnetwork.org>

Redefining Progress (and Footprint 2.0): <http://www.rprogress.org/>

Individual footprint calculator (online): <http://www.myfootprint.org>

Corporate Footprinting: As a service from www.BestFootForward.com

Or a simple corporate version is online at: www.officefootprint.org
(they also sell Carbon Offsets, for those inclined toward purchasing Indulgences)

¹ The British Commission for Architecture and the Built Environment's own audit, done by Best Foot Forward is one of the few corporate audits which is readily available online. See: <http://www.cabe.org.uk/AssetLibrary/9695.pdf>

² One of the shortcomings of the Footprinting methodology seems to be that we could do just this: we could effectively externalize the cost of producing these books by taking a one-time penalty in Waste. Throw it out, look bad for a month, but then appear lighter than ever. (Better yet- burn it!) Or maybe the method accounts for this in some hidden part of the equation. I'm hoping someone well-versed in these things can straighten us out about this (write footprint@ColdhamAndHartman.com and let me know)