

2012 Seattle Energy Code

Seattle City Council Energy & Environment Committee

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Seattle Legislated Goals

- 20% better than 2010 ASHRAE 90.1 standard
- Comprehensive Plan: Reduction in overall (new + existing) building energy use:
 - Commercial **5% by 2020**, 10% by 2030
 - Residential **8% by 2020**, 20% by 2030
- Climate Action plan
 - Substantial alterations
 - Total building energy performance
- Carbon neutral by 2050

Non-energy benefits

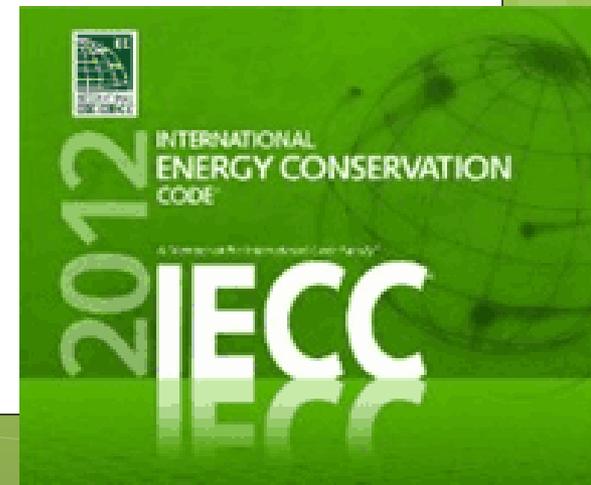
(Hard to quantify, but larger than zero)

- Daylight, views, fresh air, comfortable temps, quiet spaces, all make us feel good.
- People who feel better concentrate better, are healthier and more productive, & stay at their jobs longer.



Not Just Another Code Edition

- ~~Seattle Energy Code~~ RIP
- New code based on 2012 IECC
 - (International Energy Conservation Code)
- ...with 200 Washington State amendments
- ...and 100 Seattle amendments
 - (mostly to carry existing provisions forward)
- Six well-attended public meetings
- Extensive public contributions



How will Seattle meet legislated energy targets?

(thicker insulation isn't getting us there)

1. Target performance code
2. Enhanced commissioning
3. Substantial alterations
4. Solar-ready roof
5. Metering
6. Plug load controls
7. Allowable glazing percent
8. Periodic energy audits



Concept #1

Target Performance Path

- Optional path for several common building types
- Predict UEI performance with energy modeling
- Prove performance with 12 months' operations
 - \$4/SF bond, letter of credit, or “pledge & fine”
- A few mandatory rules (metering, air barrier, etc.)
- Otherwise, owner and design team free to meet energy target however they like
- Will this unleash a flood of innovation, or will it be used to game the system and produce worse buildings?

Concept #2

Making Commissioning Happen

- Commissioning is effective if it actually gets done...
- ...but no one wants to delay the move-in
- Separate permit required to finish up incomplete tests and correction of deficiencies within a year after C of O.
- Require qualified Commissioning Authority (Cx)
- Require conflict of interest statement if not third-party Cx



Concept #3: Minimum Energy Performance for “Substantial Alterations”

- Once in a generation opportunity for “deep green” retrofit
- For major alterations to a building, such as a complete gut-and-remodel, close to full compliance required
- Several compliance paths
- “Impracticality” clause



Concept #4: Solar-Ready Roof

- Non-residential low-rise buildings provide 40% unobstructed roof space for future solar
- Small renewable energy system required now...
- ...or additional heat recovery
- ...or + 10% HVAC efficiency



Concept #5

Large Tenant Sub-metering

- Electrical sub-metering for each full floor tenant space (new buildings and tenant improvements to existing buildings)
- Data sent to tenant dashboard
- Tenants able to monitor (and manage) their energy use



Concept #6

Plug Load Controls

- Plug loads represent 20% of commercial building energy use
- In offices & classrooms, at least 50% of outlets controlled by time clock or occupancy sensors.
- CA study shows 3 – 8 year payback



Concept #7

Allowable Glazing Area

- 2009 Code: 40% glazing allowed in prescriptive path
- 2012 Code: 30% glazing allowed: OK for most buildings, but not office or condo towers
- What to do? Allow 40% glazing, if high-performance glazing is used



Concept #8 (not in this code)

Periodic Energy Audits

- Q: Is your building's economizer working?
- Every 5 years, ASHRAE Level 2 audit required
 - (but no requirement to fix the deficiencies noted)
- Residential dwelling units excluded
- Modeled after similar rules in NYC & SFO
- Alternative path: Contract with building energy monitoring & diagnostics service

Possibilities for Next Code Cycle

- Target performance code mandatory?
- Restrict electric resistance heating?
- Triple glazing standard?
- More heat recovery and storage?

