sustainabilityprogram

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PRESERVATION GREEN LAB of the National Trust for Historic Preservation
and
CITY OF SEATTLE

MODEL ENERGY CODE PROJECT
Outcome-Based Energy Codes for Maximizing Building Energy Performance

The Problem:

More than 43% of the nation's carbon emissions come from the operation of buildings, which makes reusing and improving the energy efficiency of older and historic buildings an essential part of a sustainable future. Existing buildings represent the vast majority of building energy use, but the prescriptive energy codes that are prevalent today do a poor job of encouraging widespread retrofit. Their "one size fits all" approach doesn't recognize the inherent passive strengths and weaknesses of individual buildings and at the same time often creates challenges for historic buildings by prescribing changes that can compromise their historic character and detract from their value. Compliance with energy codes is determined at permit time, using prescriptive or predictive models, with no post-construction accountability for actual performance. Prescriptive codes trail rather than lead innovation because they don't allow for new unproven approaches to load reduction or local renewable generation. Most experts agree that prescriptive codes are soon going to "hit a wall" in terms of the energy performance they can yield, relative to the dramatic change that is needed to effectively combat climate change.

The Solution:

The Preservation Green Lab of the National Trust for Historic Preservation has partnered with the City of Seattle and the New Buildings Institute to pioneer a new energy code compliance framework, for both new and existing buildings, based on actual post-construction performance outcomes. Within this proposed new framework, building owners would have the flexibility to pursue whatever retrofit strategies they deem appropriate to their individual buildings, but would be required to actually achieve a pre-negotiated performance target, on an ongoing basis. This would happen in the context of mandatory annual reporting of actual energy consumption for all existing buildings, a policy that the City of Seattle is pursuing so that it can rate and rank performance across its entire building stock and focus incentives to trigger upgrades of the worst performers. A third policy element linked to this effort is more extensive sub-metering requirements so that energy loads can be measured by tenant and by load type. Altogether these could capture the effects not just of building design but of actual commissioning and tenant behavior, and serve as the foundation for massive-scale market-driven improvements and potential district-level energy performance trading schemes.

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