



Shaping Tomorrow's
Built Environment Today

ASHRAE Task Force for Building Decarbonization

This information is a product of the ASHRAE Task Force for Building Decarbonization and is provided for informational purposes only. The statements within are not intended and should not be relied upon as official statements of ASHRAE. More information can be found at www.ashrae.org/about/ashrae-task-force-for-building-decarbonization.

December 17, 2021

Building Performance Standards Resources and Publications

Prepared by the BPS Working Group of ASHRAE's Task Force for Building Decarbonization.

Overall Policy

Title	Author	Date	Description
Fact Sheet: Biden Administration Accelerates Efforts to Create Jobs Making American Buildings More Affordable, Cleaner, and Resilient (Includes announcement on new federal BPS)	U.S. White House	May 2021	The White House plans to launch new Federal Building Performance Standards to lead by example. The Federal BPS will establish metrics, targets, and tracking methods to reach federal carbon emissions goals. The performance standards will identify progressive performance milestones as well as the resources that agencies need to meet them.
All Cities with Climate Action Plans	The Zero Energy Project	Current	This listing identifies all the currently known municipalities committed to building climate action plans and includes links to their actual plans. Zero Energy Project will keep this list up to date as the climate action movement expands.
Understanding the Housing Affordability Risk Posed by Building Performance Policies	Zachary Hart et al.	August 2020	This paper identifies potential solutions for improving the development of a BPS and the other efforts that jurisdictions can make to facilitate the improved energy performance of affordable housing.

Comparison of U.S. Building Performance Standards	IMT	Current	This comparison of current BPS throughout the U.S. includes links to actual policies plus additional information on benchmarking and tune-up policies.
Model Ordinance for Building Performance Standards	IMT	October 2021	This is a template for cities and states to develop building performance standards. It provides structural foundation that can be tailored to individual jurisdictions.

Overview

Title	Author	Date	Description
BPS Needs Assessment	ASHRAE BPS Working Group	September 2021	This two-page needs assessment provides the industry needs to establish and implement the BPS from the market perspective.
Using Building Performance Standards to Address Carbon Emissions	ASHRAE BPS Working Group	September 2021	This document provides an overview of the following key areas for consideration when developing a BPS: <ol style="list-style-type: none"> 1. Target Setting 2. Implementation and Enforcement 3. Equitable Application and Compliance Support
The Technical Basis of Building Performance Standards	Jim Edelson and Kim Cheslak	March 2021	This paper examines technical approaches used to set the key metrics for both buildings and fuels in performance standard legislation. It considers how standards for existing buildings, including ASHRAE/IES Standard 100 and ASHRAE Standard 105, are being referenced in setting these parameters.
ASHRAE Standard 100 Users' Guide	RDH Building Science with support from BC Hydro, the Province of British Columbia, and the Northwest Energy Efficiency	July 2021	This guide is intended to be used in conjunction with ASHRAE/IES Standard 100-2018. The purpose of this User's Guide is to provide additional explanation, examples, and reference material to supplement Standard 100.

	Alliance (NEEA), and in partnership with the University of British Columbia (UBC) and the State of Washington Department of Commerce		
Mandatory Building Performance Standards: A Key Policy for Achieving Climate Goals	Steven Nadel and Adam Hinge	June 2020	This white paper profiles 17 jurisdictions of three types: those where standards are now being successfully implemented, those where implementation is just beginning or about to begin, and those where adoption is being considered. It summarizes current trends across jurisdictions and draws preliminary conclusions.
Benchmarking and Transparency: Resources for State and Local Leaders	U.S. Department of Energy (DOE)	2019	This resource guide provides state and local leaders with streamlined access to key existing resources for developing and implementing high-impact building energy benchmarking and transparency programs in their jurisdictions.
Benchmarking and Building Performance Standards Policy Toolkit	U.S. Environmental Protection Agency (EPA)	Current	This toolkit includes four sections focused on different aspects of policy development, each intended to build on the previous section. As BPS policies are new and evolving, EPA will seek to update this toolkit and add new resources, including a resource to help state and local governments identify performance metrics.
Building Performance Standards: A New Framework for Equitable Policies to Address Existing Buildings	American Cities Climate Challenge	2021	This is a framework for local governments and community and industry stakeholders interested in building performance standards to improve existing buildings. The policy tool can help cities reach climate goals while integrating equity and economic inclusion.

Leading by Example: Building Performance Standards for Decarbonizing Federal Buildings	Resources for the Future	August 2021	This document explores options for implementing a building performance standard across a broader scope of buildings and geography than a single city or state, such as all federal buildings.
Building Performance Standards: Lessons from Carbon Policy	Resources for the Future	October 2020	This document examines lessons from carbon policy and their applicability to building performance standards. Discusses policy in DC, NYC, and Tokyo.

Tools

Title	Author	Date	Description
ENERGY STAR® Portfolio Manager®	U.S. Environmental Protection Agency (EPA)	Current	This tool facilitates building performance reporting and benchmarking, and the ENERGY STAR score can also be used as the BPS metric to set targets.
Building Energy Audit Template	U.S. Department of Energy (DOE)	Current	This is an online portal which cities can use to collect standardized information about a building's physical systems and recommended upgrades. Auditors use the mobile-friendly interface to submit data.
SEED Platform™	U.S. Department of Energy (DOE)	Current	This tool is a central database for city BPS data that merges information from Portfolio Manager, Audit Template, and other city datasets in one place.
BETTER (Building Efficiency Targeting Tool for Energy Retrofits)	U.S. Department of Energy (DOE)	Current	The BETTER tool converts monthly energy consumption data (like that collected by ENERGY STAR Portfolio Manager and shared with SEED) into recommendations for energy efficiency upgrade measures.
Asset Score	U.S. Department of Energy (DOE)	Current	This tool assesses the energy efficiency of a building's physical systems and produces an Energy Asset Score Report.
ComStock and ResStock	U.S. Department of Energy (DOE)	Current	These analysis tools can identify which building stock improvements save the most energy and money.

Metrics

Title	Author	Date	Description
Understanding and Choosing Metrics for Building Performance Standards and Zero-Carbon Recognition	U.S. Environmental Protection Agency (EPA)	Forth-coming	This white paper provides information on the implications of different metrics.

BPS for New Construction

Title	Author	Date	Description
Implementing an Outcome-Based Compliance Path in Energy Codes: Guidance for Cities	National Institute of Building Sciences (NIBS), New Buildings Institute (NBI)	October 2017	This guidance document gives jurisdictions the means to help them achieve their energy performance goals for buildings. It also provides them with the regulatory language to put an outcome-based compliance path into place.
Energy Compliance Though the Target Performance or Total Building Performance Paths	City of Seattle, Seattle Department of Construction and Inspections	2018	This white paper answers frequently asked questions on how to meet the Seattle Energy Code requirements though the Total Building Performance (TBP) and Target Performance Path (TPP) compliance pathways.
Event Report: Getting to Outcome-Based Building Performance	Mark Frankel and Jim Edelson	2015	This report summarizes the work undertaken by a group of building industry thought leaders who gathered for a Performance Outcome Summit in August 2014 in Seattle, Washington. During a day and a half workshop, the group examined the opportunities, barriers, and next steps that will transition the commercial building industry from estimating energy use, based on models in the design phase, to measuring real performance outcomes, based on actual energy use in an occupied building.

International

Title	Author	Date	Description
A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives	European Commission	October 2020	This strategy document is focused on increasing building energy renovations to drive carbon reduction in the context of economic recovery in the wake of the Covid-19 crisis.
Filling the policy gap: Minimum energy performance standards for European buildings	Louise Sunderland and Marion Santini	June 2020	This paper proposes minimum energy performance standards (MEPS) as a regulatory tool that can set Europe's buildings on the route to decarbonization.