A trusted, non-partisan leader, the Institute for Market Transformation (IMT) focuses on innovative and pragmatic solutions that fuel greater investment in high-performance buildings to meet local market priorities. IMT offers hands-on technical assistance and market research, alongside expertise in policy and program development and deployment and promotion of best practices and knowledge exchange.

This presentation is part of a suite of resources for building performance standards. Additional resources include: Summary of IMT’s Model Law for a Building Performance Standard (BPS), full Model Law and a Short Model Law. We also have a BPS overview infographic and video, and several policy briefs on how to incorporate social priorities into BPS.

IMT’s full suite of building performance standard resources is available at www.imt.org/bps. In addition, IMT welcomes feedback via its Senior Advisor, Cliff Majersik at cliff@imt.org and via bps@imt.org.
Building Performance Standards: A Cornerstone to Climate Policy

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Building Performance Standards are the most powerful policy tool available to drive improved building performance.
Principles

1. Align with goals/commitments
2. Social and racial equity
3. Regulatory fairness
4. Jobs and economic growth
5. Maximize certainty
6. Transparency
7. Drive early action
8. Accommodate building life cycle events
9. Simplicity
10. Ease of compliance/implementation
What Makes a BPS Different?

- Requires Improvement Across a Wide Range of Buildings
- Drives Private Value, Creating Investment in Private Buildings
- Yields Deep Retrofits at Scale
- Sends Long-Term Market Signal
- Provides equitable and comprehensive climate action
- Balances Flexibility and Immediate Action
BPS: A Platform for Building Regulation

Decarbonization + Electrification

Inclusiveness + Equity

Grid Reliability + Flexibility

Resilience + Public Health

Utility Bill Affordability
BPS Approach: Better Buildings for All

Source: Building Performance Standards: Framework for Equitable Policies to Address Existing Buildings (prepared for American Cities Climate Challenge)
Our Approach
How IMT’s BPS Strategy Addresses Building Performance

Standards Based on Performance Metrics
- Site Energy Use Intensity
- Onsite and District Thermal GHGs
- Water Use Intensity
- Coincident Peak Demand
- Indoor Air Quality

Actions to Advance Social Priorities
- Anti-displacement, affordable housing protections packaged with ordinance
- Owners seeking additional flexibility required to advance other community priorities
Final Performance Standards

For each performance metric, buildings must meet a long-term (15-30+ years in the future), final performance standard by a prescribed date.

**Final performance standards are the same for each building type.**

Interim Performance Standards

Each building has its own trajectory for reaching the final standard based on its performance in the baseline year.

Jurisdiction sets interim standards to drive buildings’ progress.
Key BPS Resources

Putting Policy in Action:
Building Performance Standard
Implementation Guide

Community Engagement Framework

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Summary of IMT’s Model Ordinance
for a Building Performance Standard

Short Model BPS Law
James Burton, Zachary Hart, CMI Majerski, and Jessica Miller
Example: Final and Interim Standards for Three Office Buildings
Alternative Compliance Option:
Building owners seeking additional flexibility may propose a detailed Building Performance Action Plan to create customized requirements for a building.
Method by which building owner can propose an alternative compliance plan to avoid penalties for missing upcoming standard(s)

The BPAP, if approved, is a binding agreement between building owner and jurisdiction

Newly created attachment to building’s deed and any for-sale listings shall reference BPAP
Building Performance Action Plan (continued)

Must include:

• A physical description of the building including an inventory of major equipment

• Technical recommendations for meeting or exceeding applicable standards

• A timeline for when planned improvements will be completed

• Certain actions owner will take to advance community priorities such as equity, public health, resilience
BPAP Compliance Example

Lighting Upgrade & Building Tune-Up

Envelope Upgrade

Mechanical Upgrade

Baseline Year | Interim Standard 1 | Interim Standard 2 | Final Standard
---|---|---|---

Default straight line trajectory
BPAP trajectory
What if a Building Does Not Meet the Standard?

If a building misses an interim or final performance standard, its owner must pay an alternative compliance payment.

Payment amount shall proportionally reflect

• The number of standards with which the owner failed to comply
• The magnitude of non-compliance for each un-met standard
• The assessed value of the property

The payment amount must be high enough to create an incentive to comply by meeting the standards rather than making the payment.
Recommended Performance Metrics
Recommended Metrics for Performance Standards

- Maximum Normalized Site Energy Use Intensity
- Maximum Onsite Greenhouse Gas Emissions
- Maximum Coincident Peak Electric Demand
- Maximum Coincident Peak Local Electric Demand
- Water Use Intensity
- Ventilation
Maximum Normalized Site Energy Use Intensity (kBtu/sq. ft./year)

- Owners have more control over site EUI than source EUI.
- Site EUI favors electrification because it is not adjusted for energy losses from transmission and distribution.
- ENERGY STAR Portfolio Manager can normalize site EUI for weather for all properties. IMT is collaborating with building owners, state and local governments, trade organizations, and the EPA to determine the feasibility of normalizing for other property use characteristics such as hours of operation and number of workers.
Maximum Onsite and District Thermal Greenhouse Gas Emissions

- Requires owners to reduce and ultimately phase-out use of fossil fuels such as gas
- Works with site EUI to encourage electrification and require the reduction of overall energy consumption
- Does not set a standard for GHGs attributable to electricity purchased from the grid in part because time of use data is not widely available
Maximum Coincident Peak Electric Demand
Maximum Coincident Peak Local Electric Demand

- Coincident Peak Electric Demand is a property’s electricity demand when total system demand on the utility serving the property was at its highest point for the year.

- Coincident Peak Local Electric Demand is a property’s electricity demand when total system demand on the electric substation serving the property was at its highest point for the year.

- These metrics allow jurisdictions to limit buildings’ electricity demand at peak times.

- Most jurisdictions will have to wait to implement standards until necessary data, metering technology and digital communications infrastructure are widely available.
In areas where reducing water consumption is a priority, IMT recommends a performance standard based on buildings’ water use intensity.
Ventilation (CO$_2$ < 1,000 ppm)

- Single standard (CO$_2$ < 1,000 ppm) doesn’t ratchet down over time, but each cycle there are fewer alternative compliance options (e.g. ASHRAE 62.1)
- Jurisdiction may choose to add additional IAQ metrics in later cycles such as PM2.5, Formaldehyde, or CO
- Timely during the pandemic as good IAQ and ventilation reduce the spread of respiratory viruses
Composition of Administrative Entities

Community Accountability Board (CAB)

Technical Committee

Implementing Department

Building Performance Improvement Board (BPIB)
Community Accountability Board (CAB)

- Composed of experts in racial and social equity, representatives of local community organizations
- CAB tasked with reviewing impact of the proposed law on disinvested communities and recommending actions to increase equity. Sample tasks:
  - Allocate funds earmarked for disinvested communities
  - Produce periodic report evaluating equity impacts
  - Advise on selection of members to Building Performance Improvement Board
  - Advise on rules and complementary programs and policies
Advisory board composed of experts in building science & real estate

- Advises the Department on implementation of the BPS
- Recommends final performance standards to the Department
- Recommends complementary programs and policies
- Reviews appeals of any BPAP rejected by the Department
Technical Committee

- Sub-group of BPIB consisting of technical experts
- Recommends final performance standards to the BPIB
- Reviews properties’ proposed Building Performance Action Plans and recommends approval/disapproval
Social Priorities Related to BPS Policies

Health

• Create assessment requirements in early BPS compliance cycle to build dataset and move jurisdictions to target setting in later phases

Housing Affordability

• Preliminary recommendations around compliance flexibility are built into base ordinance
• Exploring tenant protections to recommend as complementary policy tools

Resilience

• Exploring how climate threats and impacts can inform policy
• Researching how city resilience needs can be alternative compliance options (i.e. cooling center)

Economic Development

• Researching alternative compliance options + workforce requirements
Roadmap for Creating Equitable and Effective Building Performance Standards

Creating successful building performance standards consists of five main activities centering inclusive outreach and engagement throughout the process.

1 Inclusive Outreach & Engagement
- Engage communities
- Engage businesses
- Engage utilities

2 Planning & Coordination
- Make project plans
- Coordinate with internal, external, and community partners
- Conduct data analysis and research

3 Policy Development
- Determine policy parameters
- Respond to community and stakeholder feedback
- Draft legislation and regulations

4 Policy Adoption
- Introduce legislation
- Attend to legislative process until adoption and enactment of legislation
- Maintain communication with communities and stakeholders

5 Policy Implementation
- Manage reporting, compliance, and enforcement processes
- Coordinate supporting programs
- Maintain ongoing engagement with communities and stakeholders

Transformative Solutions
Meaningful community engagement unleashes unprecedented capacity to develop and implement solutions to current crises.
Data Management & IT
Policy Management Software

Building Performance Policy Management Software

Collection, and storage of covered building data

Property Owner Portal

Customer Relations Management (CRM)
Creating a High-Performance Building Hub
High Performance Building Hub

- Drives successful implementation
- Accelerates local capacity with outside knowledge
- Operates outside of the government
- Provides training & technical assistance
- One-stop shop for resources
- Augments limited funding