



MASSACHUSETTS
**DEPARTMENT OF
ENERGY RESOURCES**

TEDI Modeling Peer Review

Why, Who, How?

June 2026

Outline

- Introduction / Objectives
- TEDI Basics
- DOER research project
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- Peer Review Process
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- Q&A

Type your questions on the Q&A.

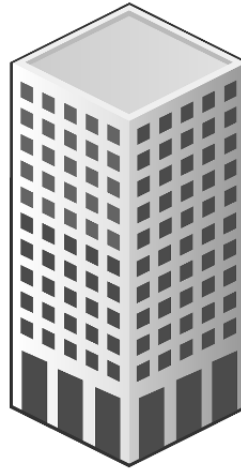
This deck will be shared with all attendees at the end of the session.

Introduction / Objectives

- The most recent MA Stretch Energy Code and Specialized Opt-In Codes became effective 2023.
- Significant changes to compliance requirements and workflows, notably:
 - Performance path:
 - TEDI modeling (C401.2.1.2)
 - Envelope performance:
 - Derating and Thermal Bridges (C402.1)
 - Component Performance Alternative (aka envelope “backstop”) (C402.1.5 and C402.4)
- Pioneering compliance approaches.
- Steep learning curve for everyone!
- Lessons learned (for everyone, including the State) along the way.
- DOER TEDI Research Project: Evaluate the use of TEDI modeling to date and explore improvements / modifications to the process and thresholds.

TEDI Basics: Definition

Thermal Energy Demand Intensity



$$\text{Heating TEDI} = \frac{\text{Annual heating demand}}{\text{Total building area}}$$

÷

Heating efficiency

=

Heating EUI

If a building is heated with a boiler or a GSHP, the heating TEDI is the same, the heating EUI is different.

$$\text{Cooling TEDI} = \frac{\text{Annual cooling demand}}{\text{Total building area}}$$

÷

Cooling COP

=

Cooling EUI

If a building is cooled with natural ventilation or a terrible AC, the cooling TEDI is the same, the cooling EUI is different.

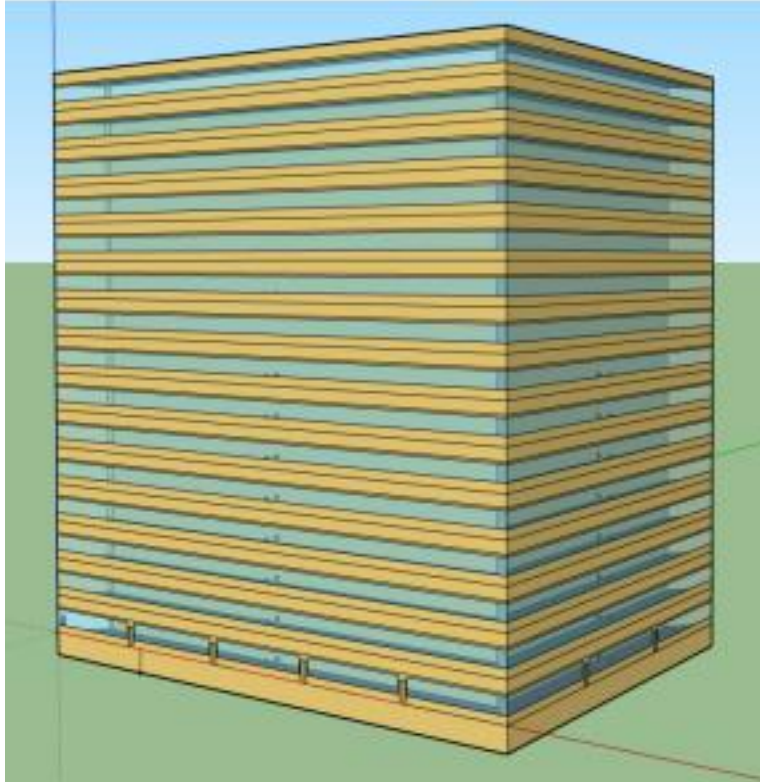
TEDI is a metric focused on regulating thermal load maximums, to reduce capacity needs and carbon emissions.

TEDI Basics: MA TEDI Requirements

Occupancy Type	Area (ft ²)	Heating MA TEDI (kBtu/ft ²)	Cooling MA TEDI (kBtu/ft ²)
Office, police or fire station, library, post office, town hall	≤ 75,000 - ≥ 125,000	2.5 - 1.5	21 - 23
K-12 school	≤ 75,000 - ≥ 125,000	2.4 - 2.2	12 - 20
Residential multifamily or dormitory	≤ 75,000 - ≥ 125,000	3.2 - 2.8	15 - 22
All other	≤ 75,000 - ≥ 125,000	2.5 - 1.5	21 - 23
Small building	<40,000	3.5	21

Expected to come into effect in ~6mo

MA TEDI Energy Model



Same as the Proposed Design

- Massing
- Window-to-Wall Ratio
- Enclosure thermal performance
- Airtightness
- Ventilation heat recovery
- HVAC system
- Zoning

Standardized

- Occupancy schedule
- Ventilation schedule / rates
- Setpoints
- HVAC/Systems operations and controls
- Weather file

Factors that can be
changed to meet
MA TEDI thresholds

Factors that can't be
changed to meet
TEDI thresholds

DOER Research Project

Tasks:

- Review / perform QAQC of TEDI models and backstop calculations
- Provide feedback to teams on their workflows and designs
- Gather detailed data to identify patterns that may indicate updates needed to TEDI values
- Review patterns of TEDI compliance across similar projects to identify best practices on effective TEDI compliance strategies
- Disaggregate annual and peak load to identify opportunities to improve building performance
- Issue recommendations on updates to Technical Guidance for the MA Stretch Energy Code
- DOER will be issuing a report about the findings, with anonymized project results

DOER Research Project: Team



KARPMAN
CONSULTING



The Green Engineer
Sustainable Design Consulting



AndelmanLelek
Solutions for Sustainable Designs



AIRLIT
studio

TEDI Modeling Peer Review

Who?

- Any design team working on a project pursuing the TEDI modeling path may sign up

Why?

- Receive detailed review comments to aid in correct modeling and compliance, contribute to research that informs the next generations of MA energy codes
- Free

How?

- Submit required documentation
- Project teams will receive written comments in response to the model review ideally within 3-4 weeks but will depend on number of models received
- Two reviews at different design stages can be performed per project (encouraged!)

Note: This is a Peer Review and not a QA/QC of the submitter's energy model. The reviewers do not adjust and run the models themselves or directly consult with the team until TEDI compliance is achieved.

Timeline

IDEAL



ALSO POSSIBLE



Data Privacy

- All materials submitted will be only accessible to the DOER TEDI research team
- Projects will be assigned a project code, to be used when submitting documentation
- Project design documents will be deleted at the end of the research project
- Project data will be anonymized by project code when referred to in the data set

Peer Review Process: Documentation

To submit all documentation email MassDOERTEDI@wsp.com to obtain:

- a project code
- a Dropbox link
- responses to any questions you may have

Peer Review Process: TEDI Compliance Tool

[TEDI Compliance Tool V13.xlsm](#)

AutoSave

TEDI Compliance Tool V13 — Last Modified: June 8

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Find & Select

Add-ins

Create a PDF and Share link

CommentsShare

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Instructions

Version 1.3, Published 11/25/2025.

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General Information

1. This TEDI Compliance Tool may be used to document compliance with Massachusetts Stretch Energy Code C407.1 Targeted Performance.

2. This tool is designed to assist energy modelers in developing the energy model in accordance with Attachment C and documenting compliance. The *Project Information* tab should be completed prior to energy modeling to understand how to model and report different building area types.

3. If you have any questions or comments regarding the TEDI Compliance Tool, please contact stretchcode@mass.gov.

How to use the TEDI Compliance Tool

Step 1: Enable macros

In order for the form to function correctly, when prompted with a Security Warning, enable macros by clicking Enable Content. This tool is for use with Excel 2016 or later.

Step 2: Complete Project Information tab

1. Complete the *Project Information* tab before any other tabs as selections on this tab will trigger or hide project-specific information and tabs.

Step 3: Review the Guidelines Checklist tab

1. Review the *Guidelines Checklist* tab before and during energy modeling. This tab is designed to help ensure that the energy model is created following the Appendix C: Targeted Performance Simulation Guidelines.

Step 4: Transfer simulation outputs into the Compliance Calculations tab

1. Report the annual heating and cooling output of all systems in the building that maintain space temperature setpoints in Tables 1 and 2 on the *Compliance Calculations* tab.

2. To perform automated quality control checks, the simulation results may be transferred from the Building Energy Modeling (BEM) tool into the TEDI Compliance Tool by copying the standard reports generated by the BEM tool into the appropriate tab of the TEDI Compliance Tool. The appropriate tab (e.g. "Results from eQUEST" or "Results from EnergyPlus") will automatically become visible when the software tool is selected on the *Project Information* tab, and includes tool-specific instructions.

2. On projects that used BEM tools which have not been pre-approved (i.e. not eQUEST or EnergyPlus), the simulation results must be manually entered on the *Compliance Calculations* tab. Although IESVE 2021.4.0.0+ is a pre-approved program, results from IESVE will need to be manually reported on the *Compliance Calculations* tab.

Step 5: Review Quality Control Checks tab and Optionally Fill Out and Review the Design and Model Compare tab.

Review and address all items that are flagged on the Quality Control Checks tab. Modify inputs in the TEDI Compliance Tool and/or the models as appropriate to address the flagged issues. The Design and Model Compare tab provides a reference set of model inputs used in the Massachusetts Stretch Code sample passing models for TEDI (Thermal Energy Demand Intensity). It is intended to help project teams understand the assumptions behind the sample models and compare them to their own designs. This tab has been included as a helper tab and its use is optional.

mass save

Savings through energy efficiency

InstructionsProject InformationGuidelines ChecklistCompliance CalculationsQuality Control ChecksSubmittal ChecklistRevision LogDesign and Model Compare

ReadyAccessibility: Investigate

110%

Peer Review Process: Required Documentation (1)

Requirement	Notes	File format
Completed TEDI Compliance Tool V13.xlsm .	At minimum fill tabs: <i>-Project Information</i> <i>-Compliance Calculations</i> <i>-Design and Model Compare Table 1 Column I</i>	.xlsx or .xlsm
Modeler credentials demonstrating compliance with Section 2 of Attachment C or noted in the Guidelines Checklist tab of the TEDI Compliance Tool V13.		.pdf
Full set of design documents on which the TEDI model is based.	Team may redact sensitive information from the set.	.pdf
Documentation for assembly derating due to thermal bridging in accordance with Section C402.7 and Attachment A.	If no derating calculations have been performed but derated envelope performance targets have been established, provide documentation.	.pdf, .xlsx or .xlsm

Peer Review Process: Required Documentation (2)

Requirement	Notes	File format
Calculation of the average ventilation rate, consistent with Section C103.2 #16.		.pdf, .xlsx or .xlsm
Completed Comcheck Mechanical Compliance Certificate (preferred) OR brief HVAC narrative including system types, areas served, exhaust air energy recovery systems and effectiveness, economizer controls, DCV, fan power assumptions and relevant temperature and fan control sequences		.pdf
Brief narrative description of modeled shading features, including the general type of shading, the areas or façades served, and whether the shading is included in the energy model.		.pdf

Peer Review Process: Required Documentation (3)

Requirement (see Annex 1 of the Targeted Performance Simulation Guidelines)	File format
eQUEST Result Files: Sim file with the complete set of simulation reports	.sim or .pdf
Energy Plus/OpenStudio Result Files: Complete set of simulation reports in HTML format	.HTML

Please ensure that all file names include the project code!

You MAY share your model file (very useful to the research team) but are not required to.

Peer Review Process: Required Documentation (4)

Requirement (see Annex 1 of the Targeted Performance Simulation Guidelines)	File format
IESVE Result Files: Room Loads Report Zone Loads Report Space Loads and Ventilation Report ASHRAE 62.1 Report Plant Loops & Equipment Report System Loads Report Energy Model Output Report Model Orientation and Rotation Check Report PRM Compliance Report ECB Compliance Report BPRM Report UnmethHours Report Detailed Simulation Report	.pdf, .xlsx or .xlsm

Please ensure that all file names include the project code!

You MAY share your model file (very useful to the research team) but are not required to.

Peer Review Process: Supporting Documentation

Requirement	Notes	File format
Fenestration documentation per Section C402.4.6	If no specific product data is available, document anticipated target values.	.pdf
Completed Lighting ComCheck		
Calculations supporting the modeled leakage rate for each thermal block, including how leakage is distributed and assigned in the model		.pdf, .xlsx or .xlsm
Narrative describing how wind speed and local terrain properties were accounted for in the infiltration modeling	IESVE only	.pdf, .xlsx or .xlsm
Takeoffs documenting the areas of the building served by exhaust air energy recovery systems		.pdf, .xlsx or .xlsm
Calculations documenting the modeled system fan power		.pdf, .xlsx or .xlsm
Calculations documenting demand-controlled ventilation model inputs according to Attachment C Section 13.3d	Only when as-designed HVAC is modeled	.pdf, .xlsx or .xlsm

Resources / Useful Links

- 2025 Stretch Energy Code Documentation
<https://www.mass.gov/info-details/2025-massachusetts-building-energy-codes#links-to-code-documents>
- 2025 Stretch Code Technical Guidance
<https://www.mass.gov/doc/2023-stretch-code-technical-guidance-document-main-text/download>
- **Attachment A:** Envelope Performance and Thermal Bridge Derating
<https://www.mass.gov/doc/2023-stretch-code-envelope-performance-and-thermal-bridging/download>
- **Attachment C:** Targeted Performance Simulation Guidelines
(teams **must** be familiar with this document prior to submission)
<https://www.mass.gov/doc/2023-stretch-code-targeted-performance-simulation-guidelines/download>
- TEDI Compliance Tool v13
<https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.masssave.com%2Ftrade-partners%2F-%2Fmedia%2F15CE75635ED7405EA049C7036A23F696.ashx&wdOrigin=BROWSELINK>

Q&A

Contact info:

MassDOERTEDI@wsp.com