

### Residential Energy Code Training

To **schedule a training session** with your group, email [energycodesma@psdconsulting.com](mailto:energycodesma@psdconsulting.com)  
All courses have been approved for **continuing education credits** for MA code officials and CSL licensees.

#### Course 1: 2023 Residential Stretch Code Overview Parts 1-3 (3 hours)

##### Part 1: 2023 Residential Stretch Code Overview (1 hour)



Part 1 of this course will highlight the changes to the new 2023 residential stretch energy code. Topics discussed will include changes to compliance path options, new requirements for prescriptive path users, and changes to the Energy Rating Index (ERI) and Passive House Compliance Paths along with additional efficiency requirements. Changes to solar readiness and Electric Vehicle wiring will be discussed. The new municipal opt-in code will also be briefly summarized.

##### Part 2: 2023 Residential Stretch Code requirements and additional efficiency requirements (1 hour)



Part 2 of this course will review new energy code provisions in the Massachusetts 10<sup>th</sup> Edition of the Building Code and significant changes between the 2018 and 2021 International Energy Conservation Code (IECC). Part 2 will discuss new requirements of the code since the 2018 IECC and what additional efficiency requirements apply to stretch code projects.

##### Part 3: 2023 Residential Stretch Code Solar Ready and EV Ready (1 hour)



Part 3 of this course covers new solar-ready provisions including scope, solar-ready rooftop area requirements, exceptions, roof orientations, documentation, interconnection pathways and roof loads, and electrical requirements. The second portion of Part 3 of this course covers EV ready requirements, including number of parking spaces, wiring requirements, and exceptions. Frequently asked questions about both topics will also be addressed.

#### Course 2: Residential Existing Buildings (3 hours)

##### Part 1: Residential Buildings Overview (1 hour)



Residential renovations, alterations, repairs, and additions make up the largest portion of building permit applications; yet there is confusion as to when the new energy code requires HERS ratings on these projects and when it does not. Part 1 of this course will provide an overview of the new requirements for existing residential buildings. Solar readiness and how it applies will also be discussed. This course will cover several of the most common types of existing home projects and describe the applicability of the most important energy code provisions.

## Part 2: 2023 Residential Existing Buildings, Additions (1 hour)



Part 2 of this course covers how an addition is impacted by the new energy code. When does an addition require a HERS rating and when is it not needed. Part 2 of this course covers the HERS process and requirements. What is a passing score for an addition? How does solar readiness apply to additions? Do all additions need blower door testing? Examples of different types of additions are used in the course to show when a HERS rating is needed and not needed.

## Part 3: 2023 Residential Existing Buildings, Alterations (1 hour)



Part 3 of this course covers how an alteration is impacted by the new energy code. When does an alteration require a HERS rating and when is it not needed. Part 3 of this course covers the HERS process and requirements. What is a passing score for an alteration? How does solar readiness apply to alterations? Do all alterations need blower door testing? Examples of different types of alterations are used in the course to show when a HERS rating is needed and not needed.

## Course 3: Ventilation for Tight Homes: Air Sealing Improving IAQ (3 hours)

### Part 1: Residential Air Barrier and Insulation Installation (1 hour)



The installation of a continuous air and thermal barrier is perhaps the best and most cost-effective way to reduce energy waste and save money on utility bills; at the same time, important details are often missed. Part 1 of this course will be framed around the 2021 IECC Air Barrier and Insulation Installation criteria found in Table R402.4.1.1 with photos and graphics to illustrate noncompliant and compliant installation of critical details like attic penetrations, wall-to-ceiling transitions, rim joists, garage walls, knee walls, and tubs and showers on exterior walls. Installing and inspecting insulation to meet code and manufacturer requirements will also be discussed.

### Part 2: 2023 Residential Whole-House Mechanical Ventilation: (1 hour)



Mechanical ventilation is as important to indoor air quality as it is for energy conservation. Part 2 of this course will cover the 2021 IECC, 2021 International Residential Code (IRC), and Massachusetts amendments relating to whole-house mechanical ventilation system requirements. This will include when whole-house ventilation is required, how to calculate the minimum design airflow rate, and how to verify installed airflow rates. Part 2 will also provide an overview of different ventilation systems – exhaust only, supply-only and balanced ventilation, including Energy Recovery Ventilators (ERVs) and Heat Recovery Ventilators (HRVs) – along with the pros and cons of each type of system.

### Part 3: 2023 Residential Mechanical Ventilation for Code Compliance (1 hour)



In Part 3 of this course the new requirement of HRV and ERV only systems will be discussed as well as other code requirements for ventilation systems in residential buildings. This will include when whole-house ventilation is required, how to calculate the minimum design airflow rate, and how to verify installed airflow rates. Part 3 will also briefly summarize the content of Part 2.

## Course 4: Efficient, Effective, and Code Compliant HVAC and DHW (3 hours)

### Part 1: Mechanical Systems and Service Water Heating (1 hour)



Mechanical systems and service water heating systems are key elements to energy performance of residential buildings. At the same time, code provisions related to these systems are among those with least code compliance. Part 1 of this course covers code provisions with the highest energy impacts and suggestions for verifying compliance during plan reviews and inspections. Topics will include mechanical system sizing, mechanical piping insulation, controls such as programmable thermostats, heat pump supplementary heat and hot water boiler outdoor temperature setback; circulation systems and demand recirculation systems for hot water, insulation around piping in different scenarios, drain water heat recovery, and heated swimming pools. This course has been updated to reflect the new IECC 2021 requirements.

## Part 2: Equipment Sizing: Manuals J and S and D (1 hour)



According to a 2015-16 study on single-family residential homes, only 14% of homes meet the code requirement of designing mechanical equipment based on ACCA Manual S and Manual J. Part 2 of this course covers Manual S requirements and why following Manual S would not only lower energy bills, but also increase comfort. The discussion will include the ACCA design process, and Manual J load calculation process & modeling, which is the first step in sizing equipment properly, Manual S oversizing provisions, available software tools to carry out Manual S calculations, and ends with a case study demonstrating how the Manual J and Manual S process works. This course has been updated to reflect the new IECC 2021 requirements.

## Part 3: Duct Sealing, Testing, and Design (1 hour)



Part 3 of this course discusses code requirements for duct testing, prescriptive duct leakage requirements, and duct insulation and air sealing requirements. With a discussion on best practices in duct insulation, Part 3 will discuss Manual D which is a process to design duct systems and required by code. This course has been updated to reflect the new IECC 2021 requirements.

**WE ARE MASS SAVE®:**



**EVERSOURCE**



**nationalgrid**

