# November 2024 PEX Meeting

November 20, 2024

Mathew McCarthy mathew.mccarthy@nationalgrid.com

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# Contents

# 01 Safety Moment – Thanksgiving Safety

Kimberly Murphy Kimberly.Murphy@nationalgrid.com

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# Thanksgiving Is A Wonderful Time, But Keep Safety In Mind

Thanksgiving is a wonderful time to gather with friends and family, eat delicious food, watch football, and travel to visit loved ones. While enjoying the holiday, and as things might get hectic, it is important to always keep safety in mind.

Top **safety hazards during the Thanksgiving holiday** include:

- **FIRE** … kitchen fires, candles and outdoor deep fryers
- **FOOD** … choking and poisoning, cuts and burns during food preparation
- **TRAVEL** … car accidents, driving while intoxicated or distracted

# KITCHEN SAFETY

- Keep children away from the stove.
- Do not leave the house while the turkey is cooking.
- Ensure the kitchen floor is kept clear and doesn't have any trip hazards.
- Keep matches, lighters, candles and knives out of the reach of children.

Thanksgiving is the #1 day of the year for cooking fires, reports State Farm insurance. The U.S. Fire Department confirms that more than 4,000 fires occur on Thanksgiving Day and preparing deep fried turkeys, using a turkey fryer, is the cause of approximately 5 deaths, 50 injuries, and the destruction of 900 homes and more than $15 million in property damage every year.

# HOLIDAY FIRE PREVENTION TIPS


- Keep baking soda on hand to put out kitchen fires.
- Do not leave food cooking or the stove unsupervised.
- Make sure smoke alarms are working.
- A fire extinguisher should always be nearby.
- Do not leave candles burning unattended.
- Follow all instructions carefully when using a deep fryer and monitor closely!

Incidents of choking and food poisoning increase during the holidays, especially around Thanksgiving, as people are preparing and consuming more food than usual. Food Safety News reports that approximately 51 million turkeys are consumed on Thanksgiving.

## FOOD SAFETY

- Always wash your hands after handling raw or under-cooked poultry.
- Use separate cutting boards for raw meat and produce to prevent cross-contamination.
- The USDA recommends cooking the turkey at a minimum of 325 degrees. Use a food thermometer and cook the turkey to an internal temperature of 165 to 180 degrees to ensure the turkey is cooked thoroughly and to avoid illness caused by consuming under-cooked poultry.
- Store leftovers within 2 hours or toss them.

## PET SAFETY

- Turkey and chicken bones should never be given to pets because they can splinter and pets may choke.
- Dogs should be kept away from any dish that has onions, leeks, garlic, raisins, grapes or chocolate, as those foods can be hazardous to your dog's health.

## HOLIDAY TRAVEL SAFETY

- Buckle up, every trip.
- Make sure your vehicle is well maintained.
- Plan your route ahead of time.
- Carry and emergency kit in the car.
- Be aware of weather conditions.
- Take caution in parking lots while out shopping.
- No texting while driving.

**DO NOT DRINK AND DRIVE.**


Have a Safe and Happy
Thanksgiving!

# 02 Boston BERDO – Impacts to Energy Service Companies

Aidan Callan aidan.callan@boston.gov

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# Boston's Building Performance Standards - BERDO

*November 20, 2024*

# WHAT IS BERDO?

*The Building Emissions Reduction and Disclosure Ordinance (BERDO) addresses Boston's largest source of emissions.*

- BERDO requires medium and large buildings in Boston to reduce emissions over time and achieve **net-zero emissions by 2050**.
- By complying with BERDO, the approximately 6,000 covered buildings (5% of buildings in Boston) could collectively **reduce city-wide emissions by nearly 40%**.
- There are several ways a building can directly or indirectly reduce its emissions and come into compliance with its BERDO emissions standard.

# Building Performance Standards

# WHAT IS REQUIRED UNDER BERDO?

## REPORTING

*Annual reporting of total energy and water use from the previous calendar year.*

## THIRD-PARTY VERIFICATION

*Third-party verify reported data on their first year of reporting and every "Verification Year" thereafter.*


## EMISSIONS REDUCTIONS

*Reduce annual emissions below an emissions standard (emissions limit).*

# WHAT BUILDINGS ARE COVERED BY BERDO?

- **Non-residential buildings** that are **20,000 ft$^2$** or larger excluding parking (e.g., office spaces, churches, universities)
- **Residential buildings** that have **15 or more units** (e.g., apartments and multi-family buildings)
- Any parcel of land with multiple buildings that sum to **20,000 ft$^2$** or **15 units** or more.


# WHEN DO EMISSIONS STANDARDS START?

| First year with an emissions standard | Non-Residential buildings | Residential buildings |
|---|---|---|
| 2025 | 35,000 $ft^2$ or larger | 35 or more units |
| 2030 | 20,000 - 34,999 $ft^2$ | 15 - 34 units |

# WHAT ARE THE EMISSIONS STANDARDS (LIMITS)?

*Emissions standards set annual emissions limits based on different types of building uses.*

## Emissions Standards by Building Use Type:

| Building use | Emissions standard ($kgCO_2e/SF/yr.$) | | | | | |
|---|---|---|---|---|---|---|
| | 2025-2029 | 2030-2034 | 2035-2039 | 2040-2044 | 2045-2049 | 2050- |
| Assembly | 7.8 | 4.6 | 3.3 | 2.1 | 1.1 | 0 |
| College/ University | 10.2 | 5.3 | 3.8 | 2.5 | 1.2 | 0 |
| Education | 3.9 | 2.4 | 1.8 | 1.2 | 0.6 | 0 |
| Food Sales & Service | 17.4 | 10.9 | 8.0 | 5.4 | 2.7 | 0 |
| Healthcare | 15.4 | 10.0 | 7.4 | 4.9 | 2.4 | 0 |
| Lodging | 5.8 | 3.7 | 2.7 | 1.8 | 0.9 | 0 |
| Manufacturing/ Industrial | 23.9 | 15.3 | 10.9 | 6.7 | 3.2 | 0 |
| Multifamily housing | 4.1 | 2.4 | 1.8 | 1.1 | 0.6 | 0 |
| Office | 5.3 | 3.2 | 2.4 | 1.6 | 0.8 | 0 |
| Retail | 7.1 | 3.4 | 2.4 | 1.5 | 0.7 | 0 |
| Services | 7.5 | 4.5 | 3.3 | 2.2 | 1.1 | 0 |
| Storage | 5.4 | 2.8 | 1.8 | 1.0 | 0.4 | 0 |
| Technology/Science | 19.2 | 11.1 | 7.8 | 5.1 | 2.5 | 0 |

- Based on emissions intensity and reported in kilograms of carbon dioxide equivalent per square foot per year.
- Based on the building use type and reduced every five years.
- All buildings covered by BERDO are expected to achieve net-zero emissions by 2050.

# COMPLIANCE MECHANISMS

# HOW WILL BUILDINGS REDUCE THEIR EMISSIONS?

**Options to keep a building's emissions under its limit include:**

## Direct reduction of emissions produced by a building:

- *Energy efficient appliance upgrades, electrification, improved building insulation and controls, etc.*

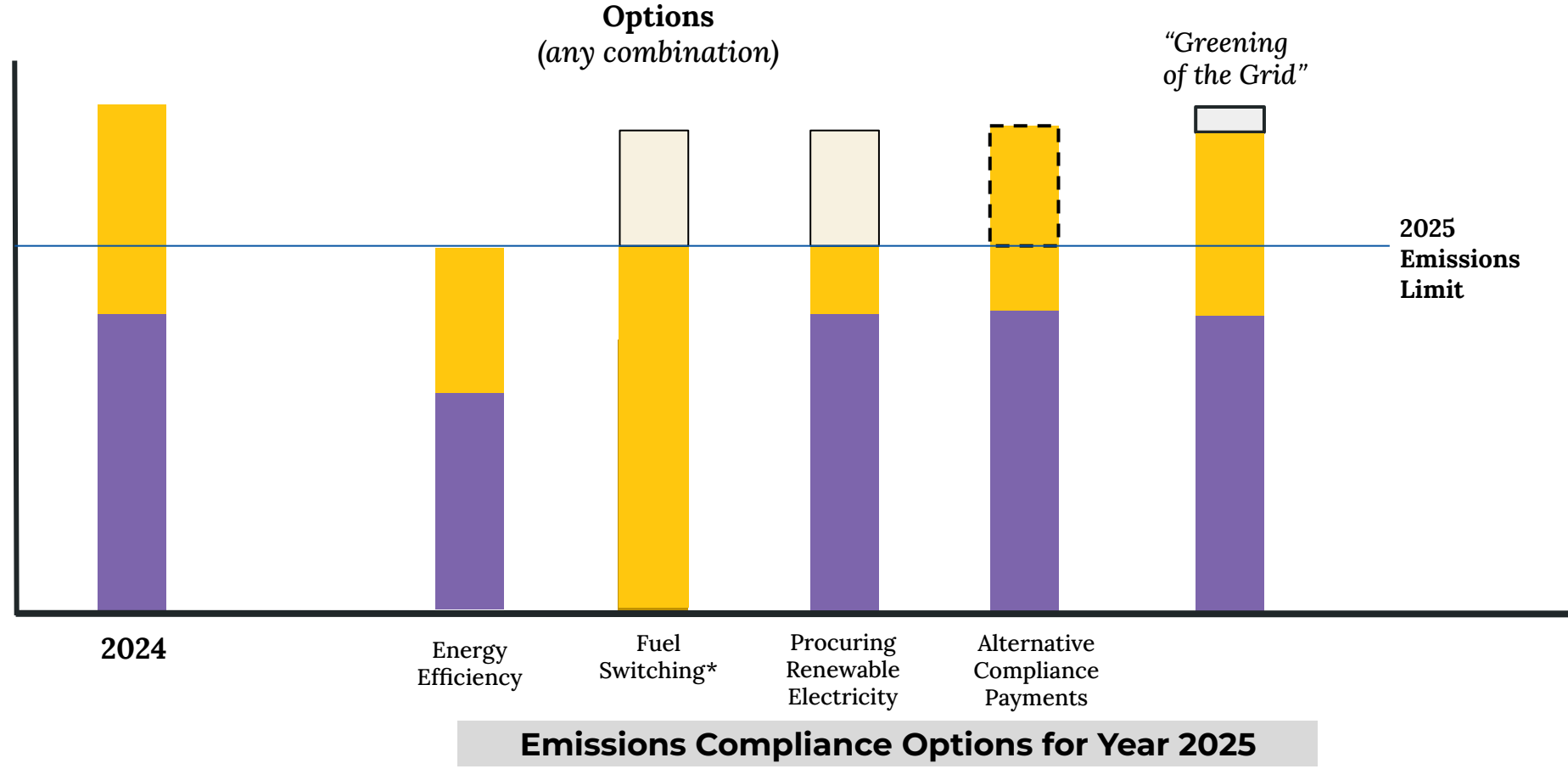
## Purchasing of eligible renewable energy

- *Boston Community Choice Electricity, local solar generation, Renewable Energy Certificates, Power Purchase Agreements*
- *Renewable energy may be used to reduce emissions only from electricity usage.*

## Alternative Compliance Payments (ACP)

- *$234 per metric ton of $CO_2e$*
- *ACPs go into the Equitable Emissions Investment Fund*

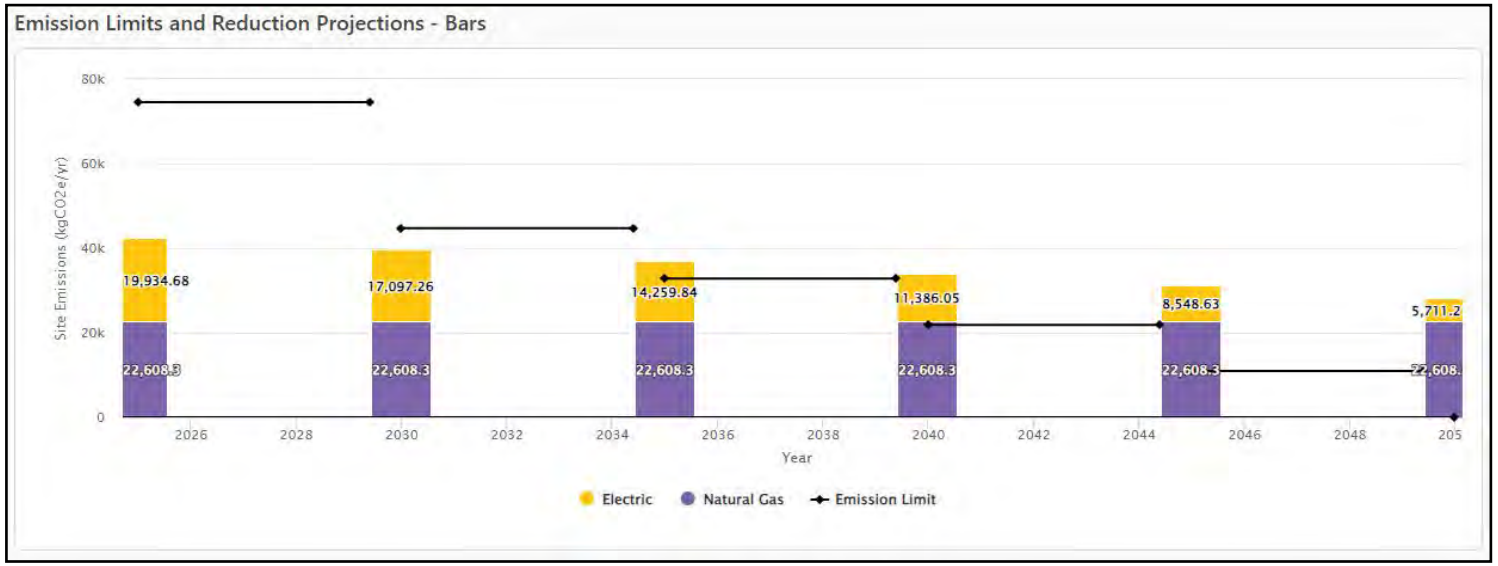
# EXAMPLE: SINGLE BUILDING COMPLIANCE




** Fuel switching often best when combined with efficiency  **For illustrative purposes only*

# BERDO EMISSIONS CALCULATOR

**BERDO Emissions Calculator** - Designed to assist building owners in evaluating and understanding their projected emissions and compliance. Paired with its **guidance document**.




*berdocalculator.touchstoneiq.com*

# FLEXIBILITY MEASURES

| | BLENDED EMISSIONS STANDARD | BUILDING PORTFOLIO | INDIVIDUAL COMPLIANCE SCHEDULE | HARDSHIP COMPLIANCE PLAN |
|---|---|---|---|---|
| **DESCRIPTION** | Allows Owners of a building or building portfolio with more than one primary use to calculate a blended emissions standard based on the mix of primary uses in the building(s). | Allows Owners of multiple Buildings to comply with a single portfolio-level emissions standard according to the mix of Building Uses in the portfolio. | Allows Owners to comply with an alternative emissions reduction schedule based on a baseline year. | Allows Owners to comply with alternative emissions reduction limits and/or schedules. |
| **EMISSIONS REDUCTION REQUIREMENT** | Requires calculating and complying with a blended emissions standard. | Requires use of a blended emissions standard in most cases. | Requires a 50% emissions reduction from the baseline year by 2030 and a 100% reduction by 2050. | May allow alternative emissions reduction timeline or less stringent emissions reduction limits. |
| **ELIGIBILITY** | **More than one** Primary Use in a building. | Any Owner with **multiple buildings**, that demonstrates eligible shared ownership or a shared Institutional Master Plans for all Buildings in the Building Portfolio. | **Third-party verified data** for the baseline year and Gross Floor Area must not have reduced by more than 10% and the Primary Use type must be the same from the baseline year. | Owner must **demonstrate** one of the **eligible hardships**. |
| **REQUIRES REVIEW BOARD APPROVAL** | ⊘ | ✓ | ✓ | ✓ |
| **CAN BE COMBINED WITH** | Building Portfolios | Blended Emissions Standard;<br>Individual Compliance Schedules;<br>Hardship Compliance Plans | Building Portfolios | Building Portfolios |

**A Building Owner **cannot** combine an Individual Compliance Schedule with a Hardship Compliance Plan.*

# WHY YOU MAY CONSIDER APPLYING FOR A FLEXIBILITY MEASURE

## BUILDING PORTFOLIOS

- *If you own multiple BERDO buildings.*
- *If you want to align your capital planning to target deeper retrofits and other improvements in certain buildings first.*

## INDIVIDUAL COMPLIANCE SCHEDULE

- *If you have good quality historical data that can be third-party verified.*
- *If you have implemented significant building retrofits or other emissions reduction efforts prior to 2021.*
- *If your current emissions are significantly higher than the average building in your Building Use category.*
- *If you would prefer to plan emissions reduction efforts by benchmarking against your historical emissions, rather than based on your Building Use category.*

## HARDSHIP COMPLIANCE PLAN

- *If you face an unforeseen "hardship" that will not allow you to comply with emissions standards in the short-term (1 - 3 years)*
- *If you face a long-term "hardship" (4+ years) in complying with emissions standards.*

# REMINDERS & RESOURCES

# FINES & ENFORCEMENT

*The Ordinance establishes three types of fines:*

| | | |
|---|---|---|
| **Failure to comply with reporting and verification requirements** | • *Non-Residential Buildings ≥ 35,000 sq. ft.*<br>• *Two or more Buildings on the same parcel ≥ 100,000 sq. ft.*<br>• *Residential Buildings ≥ 35 units or ≥ 35,000 sq. ft.* | $300 per Day |
| | • *Non-Residential Buildings ≥ 20,000 SF but < 35,000 sq. ft.*<br>• *Residential Buildings ≥ 15 units but < 35 units; or ≥ 20,000 sq. ft. but <35,000 sq. ft.* | $150 per Day |
| **Failure to comply with Emissions standards** | • *Non-Residential Buildings ≥ 35,000 sq. ft.*<br>• *Two or more Buildings on the same parcel ≥ 100,000 sq. ft.*<br>• *Residential Buildings ≥ 35 units or ≥ 35,000 sq. ft.* | $1,000 per Day |
| | • *Non-Residential Buildings ≥ 20,000 SF but < 35,000 sq. ft.*<br>• *Residential Buildings ≥ 15 units but < 35 units; or ≥ 20,000 sq. ft. but <35,000 sq. ft.* | $300 per Day |
| **Failure to accurately report information** | • *All Buildings* | $1,000 - $5,000, at Review Board's discretion |

# HOW WE ARE HELPING BUILDING OWNERS

- **Help desk phone and email**
- **BERDO Emissions Calculator tool (Guide)**
- **BERDO webinar series (recordings available at boston.gov/berdo)**
  - *Recordings on flexibility measures and emissions compliance*
- **Free assistance for BERDO reporting and third-party verification**
  - *Targeting self-managed residential buildings, small non-profit owners, or commercial buildings with small business tenants. Staff will prioritize owners with limited English proficiency, digital literacy, financial resources, located in EJ communities, and/or facing unusual challenges.*
- **Weekly office hours for emissions compliance**
- **One-on-one building emissions consultations**
- **How to Report Guide**
- **Renewable Energy Guide**
- **Hardship Compliance Plan Guide & FAQs**
- **BERDO Handbook for Condo Associations**

# RESOURCES

[BERDO Homepage]
[BERDO Regulations]
[Retrofit Resource Hub]
[BERDO Emissions Calculator]

**CONTACT US:**

**Emissions Compliance:** retrofit@boston.gov

**Energy Reporting:** energyreporting@boston.gov

# THANK YOU

# 03 Engineered Tax Services - Changes to 179D & 45L programs

Cindy Blumenfeld cblumenfeld@engineeredtaxservices.com

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# about
# engineered tax services

| National | Basis | Results |
| --- | --- | --- |
| Licensed Engineering Firm with 16 offices across the U.S.A. | Specializes in engineering studies for tax strategies | Tremendous Revenue generated for ETS partners |

| Achievements | Clients | Partners |
| --- | --- | --- |
| ETS averages $24,500,00 in monthly refunds and tax benefits for architects, contractors and engineering firms involved in Public Building designs. | Clients include IKEA, JW Marriott, Boeing, Snowbird Ski Resort, Ford, BMW, Outback, top 100 CPA firms and Architectural firms | Tremendous Revenue generated for ETS partners |

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Presenter | Cindy Blumenfeld
director of business development

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# about our speaker

Cindy has generated 100s of millions of dollars in tax savings for her clients.

- She is a Seasoned Public Speaker.
- She enjoys Sharing the latest and greatest with the AIA, CPA and Real Estate community.
- She is able to uncover significant tax savings that are too often missed through various specialty studies, such as Cost Segregation, R&D and 179D Energy Certifications.

# maximizing opportunities for real estate

Via energy tax incentives, cost segregation, disposition, and tangible property repairs & maintenance regs

# ENERGY POLICY ACT OF 2005

- **Congress passed legislation in August of 2005 to encourage property owners to build energy-efficient real estate properties to promote reduction in energy consumption. Service dates were from 1/1/06 through 12/31/08.**
- **The Emergency Economic Stabilization Act of 2008 (HR-1424), approved and signed on October 3, 2008, extends the benefits of the Energy Policy Act of 2005 through December 31, 2014.**
- **The ruling allows up to a $1.80 per sq. ft. tax deduction.**
- **Deduction is eligible to the entity which funds the investment on a private property or to the designer on a government owned property.**

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# qualifying whole building

- Applies to Improvements or New Construction
- $1.80 per square foot if the whole building meets target savings
- Building must reduce total annual combined energy cost versus ASHRAE 90.1 - 2007


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# CANDIDATES

- Upgrades, Renovations and Retrofits
- New construction
- Private commercial owners or leaseholders
- Designers of Government Buildings
- Commercial and Residential (4+ stories)
- **LEED Certified Buildings**
- Green / Energy-Efficient Buildings
- Types: Schools, Government, Office, Retail, Hospitality, Industrial, Manufacturing, Healthcare, Parking Garages

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# Public Buildings and Tax Deductions?

For energy-efficient commercial building property expenditures made by a public entity, the Secretary of the Treasury shall promulgate regulations that allow the deduction to be allocated to the “person primarily” responsible for designing the property in lieu of the public entity.

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Design Firm Name / Logo

Date____

Project____
Contact____
Title____
Address ___

Re: Project Name____
179D Deduction for Energy Efficient Commercial Buildings

Dear _____:

As discussed, I am forwarding the allocation form regarding the 179D Federal Energy Tax Incentive for the designers of tax-exempt buildings. The IRS Section 179D allows an income tax deduction for new qualifying energy efficient lighting, HVAC and building envelope systems in commercial buildings placed in service from 2006 and forward.

In the event that the building is owned by a non-tax paying entity, public or government-owned, these tax incentives are allocated to the Designers (since entities do not pay tax) according to the *"Energy Policy Act of 2005"*, then extended by the *"Emergency Economic Stabilization Act of 2008"*, again by the *"Tax Increase Prevention Act of 2014"*, and again by the *"Protecting Americans from Tax Hikes (PATH) Act of 2015"* and then again recently at the end of 2019 in the *"Omnibus Appropriations Bill H.R.1865"* Tax Extenders Bill. The most recent extension in the "Consolidated Appropriations Act of 2021," passed at the end of 2020, made the 179D program permanent.

Please provide your confirmation below of our firm as the primary "Designer" for this project. Our firm has hired a licensed independent third-party engineering firm (as required by the IRS) to extensively analyze the energy consumption related to our design and certify that the interior lighting, HVAC and/or building envelope systems satisfies the government requirements for energy efficiency. This documentation is required from us by the IRS and necessary for our third party to complete their assignment.

If any related tax benefits are verified, we have been assured that designating us as the Designer of this project and making us eligible for these tax benefits does not affect Name of Public entity tax issues relative to the project at all, but simply confirms Name of Public entity authorization to allow our firm to seek this tax incentive through the IRS for designing your building and/or systems. Below is the verification form we need you to sign confirming us as the primary designer of the building, quantifying the project costs, etc.

If you have any questions, please don't hesitate to give me or *"Your ETS Contact"* with Engineered Tax Services (ETS), the engineering firm we are working with on the energy study, a call to discuss. Their contact information is below.

Name,Title - Engineered Tax Services
Email and number

Sincerely,

_____

*Enclosures: 179D Designer Allocation Form*

*Cc: Name*

## § 179D Energy Tax Allocation

In an effort to support sustainable building, we are seeking certification under the Energy Policy Act 179D that the following property meets an energy efficiency standard set forth in the Act. To do so, we need to verify the following basic information about the property:

| ***Property Information:*** | |
|---|---|
| **The address of this building is:** | |
| **The total cost of the property placed in service was:** | |
| **The date the property was placed in service was:** | |
| **Amount of Allocation under 179D:** | |

Under penalties of perjury, I declare that I have examined this allocation letter, including any accompanying documents, and to the best of my knowledge and belief, the facts presented in support of this allocation are true, correct, and complete.

| ***Authorized Representative at the Property:*** | |
|---|---|
| **Name:** | |
| **Address:** | |
| **Phone:** | |
| **Signature:** | |

I also understand that the Basis of the subject building must be reduced by the amount of the 179D deduction allocated to the designer and as indicated in the 179D certification.

| ***Authorized Representative of the Designer:*** | |
|---|---|
| **Name:** | |
| **Company:** | |
| **Address:** | |
| **Phone:** | |
| **Signature:** | |

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THE AMERICAN INSTITUTE OF ARCHITECTS


## 179D Energy Efficient Commercial Building Tax Deduction: A Federal Financing Tool for Public Sector Green Building Projects

The Energy Efficient Commercial Building Tax Deduction is a federal tax incentive that allows owners of commercial property to deduct from their taxes up to $1.80 per square foot for qualifying energy efficient property. It also contains a provision that allows public entities to give this tax incentive to the designer of the energy efficient property, since public entities do not pay taxes. This provision provides federal, state, and local entities a cost-effective way to improve energy efficiency in new or retrofit projects.

The American Institute of Architects represents over 80,000 architects and emerging professionals across the world. As a leader in the design and construction industry, the AIA supports incentivizing energy efficiency in a myriad of ways, but particularly through provisions like 179D, that have proven to be quite successful in the field.

### Background

The Energy Policy Act of 2005 created the Energy Efficient Commercial Building Tax Deduction, recognizing that a substantial portion of U.S. energy consumption is attributable to commercial buildings, and to provide building owners with a tax incentive to help offset the costs associated with enhancing the energy efficiency of commercial buildings. The provision, codified in 26 U.S.C §179D and therefore sometimes referred to as “179D”, allows the owner of a commercial building to deduct the installation costs of energy efficiency enhancements, up to $1.80 per square foot.

Moreover, to encourage the public sector to utilize these same energy efficient enhancements, Congress provided a federal, state, or local government owner of a commercial building an election to allocate the tax deduction to the primary person responsible for designing the technical specifications for the installation of energy efficient enhancements.

The overarching purpose of the deduction is to encourage energy efficiency by creating a tax incentive intended to benefit a commercial building owner. If the owner of a commercial building is a private entity, the deduction may be taken by the building owner and is not allocated to the design firm. However, in cases where the building owner is a public entity, which does not pay taxes, the law allows for this deduction to be allocated to the design firm. Many agencies have used this allocation to finance energy efficient enhancements, despite not being able to receive a deduction directly for these enhancements.

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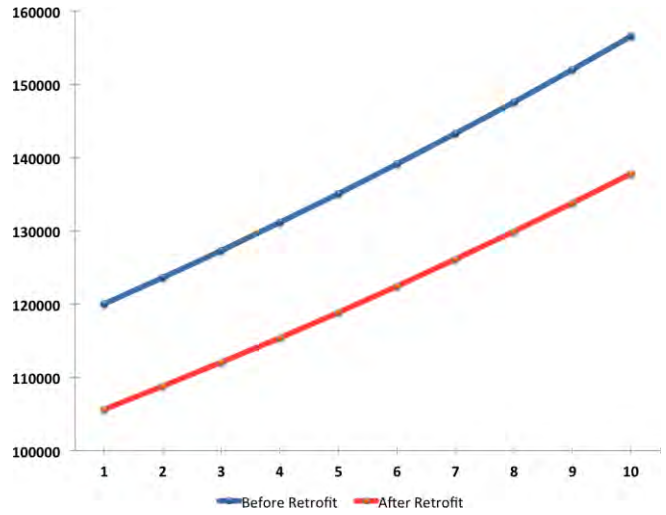
*Sample Middle School Energy Costs Per Year*

*Total Savingsover 10 years: $165,080*




project to qualify for the 179D partial lighting deduction. In return, the school saved $15,000 on its energy bill in that year alone. It saved even more the next year, and will continue to save each year. Over 10 years, that totals to over $150,000, for a single school. (Fig. 1) School districts that take advantage of 179D for five , 10, or 20 schools can save millions of dollars over 10 years, at no additional cost to them, by using 179D as a financing mechanism to achieve more energy efficient designs.

This example illustrates the impact of just 12 percent savings in a single school. There are hundreds of other examples of the deduction providing even greater benefits to school districts, army bases, convention centers, and other publicly owned buildings across the nation.

# SUMMARY OF TAX DEDUCTIONS

**Table 1 Summary of Tax Deductions**

| | Fully Qualifying Property | Partially Qualifying Property | | | |
|---|---|---|---|---|---|
| | | Envelope | HVAC and SHW 10% | Lighting 20% | Interim Lighting Rule 20% |
| **Savings Requirements*** | 50% energy and power cost savings | 16⅔% energy and power cost savings | 16⅔% energy and power cost savings | 16⅔% energy and power cost savings | 25% lower LPD (50% for warehouses) |
| **Tax Deduction** | Cost of qualifying property up to $1.80/ft$^2$ | Cost of qualifying property up to $0.60/ft$^2$ | Cost of qualifying property up to $0.60/ft$^2$ | Cost of qualifying property up to $0.60/ft$^2$ | Cost of qualifying property up to $0.60/ft$^2$ times applicable percentage** |

* Savings refer to the reduction in the energy and power costs of the combined energy for the interior lighting, HVAC, and SHW systems as compared to a reference building that meets the minimum requirements of Standard 90.1-2001.

** The tax deduction is prorated depending on the reduction in LPD. See IRS Notice 2006-52 for the definition of "applicable percentage."

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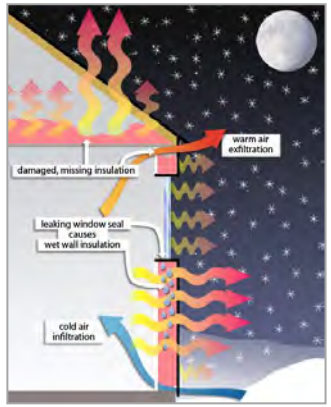
# QUALIFYING PARTIAL BUILDING SYSTEMS

1. **Lighting** – Interior and Parking Garages

2. **HVAC** - Heating, Cooling, Ventilation and Hot Water

3. **Building Envelope** – Windows, Doors, Roofs and Insulation

   New or Existing Building partial deduction of $.30 - $.60/sf for upgrades to any one of the three major systems.

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Guidelines – 179 D Deduction | IRB 2006-26 = NOTICE 2006-52

# Deduction for Energy Efficient Commercial Buildings

Sets forth procedurally and administratively the requirements for § 179D(c) and (d)

Clarification of partial deduction

- Reference Building
- Certification
- Qualified Person
- Qualified Software for Energy Modeling
- Site Visit
- Definitions
- Allocation Letter

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***Projects Placed in Service: January 1, 2016 – December 31, 2016***

***179D Energy Tax Benefits – Energy Guidelines for ASHRAE 90.1-2007***

<table>
<tr><th>System/Category</th><th>Results</th><th>Building</th><th colspan="2">Key Factors</th></tr>
<tr><td rowspan="13">Lighting (Interiors / Parking Garages)<br>• Watts per square foot<br>• Type of bi-level switching used (motion sensors, occupancy controls on separate lighting circuits, split ballasts, dimmers etc.)*<br>• Type of lighting***<br>* Bi-level switching under interim rules not required for parking garages, restrooms, storerooms, lobbies, and hotel / motel guestrooms.<br>** Except for warehouses which must show a 50% reduction in Lighting Power Density (LPD).<br>*** Fixtures / ballasts must be new to qualify.</td><td rowspan="13"></td><td>LPD Reductions vs. ASHRAE 90.1 – 2007**</td><td>25%<br>$.30/sqft</td><td>40%<br>$.60/sqft</td></tr>
<tr><td>Automotive</td><td>0.68</td><td>0.54</td></tr>
<tr><td>Convention Ctr.</td><td>0.90</td><td>0.72</td></tr>
<tr><td>Hospital</td><td>0.90</td><td>0.72</td></tr>
<tr><td>Hotel*</td><td>0.75</td><td>0.60</td></tr>
<tr><td>Office</td><td>0.75</td><td>0.60</td></tr>
<tr><td>Manufacturing</td><td>0.98</td><td>0.78</td></tr>
<tr><td>Parking Garage*</td><td>0.23</td><td>0.18</td></tr>
<tr><td>Retail</td><td>1.13</td><td>0.90</td></tr>
<tr><td>Sports Arena</td><td>0.83</td><td>0.66</td></tr>
<tr><td>School/University</td><td>0.90</td><td>0.72</td></tr>
<tr><td>Warehouse**</td><td colspan="2">0.40</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>HVAC<br>• SEER/EER/COP rating of equipment<br>• Variable Air Volume (VAV) Systems<br>• Chiller / Boiler Systems<br>• VRF/VRV Systems<br>• WSHPs<br>• Geothermal Applications<br>• Controls: Variable Frequency Drives (VFDs) on Fans and/or Pumps, Economizers, Energy Recovery Units, Building Management Systems, etc.</td><td></= 3 floors and <25,000 sf<br>---<br>4 to 5 floors and <25,000 sf, or <5 floors and 25,000 to 150,000 sf<br>---<br>>/= 5 floors and / or >150,000 sf and < 240,000 sf</td><td colspan="3">• CV System (Airside)<br>• 13.0 EER<br>• Gas-fired Furnace, 80%+ efficiency<br>---<br>• VAV systems (Airside)<br>• 13.0 EER<br>• Boiler, 80%+ efficiency<br>• HW Pumps / CV <120k sf and VFD for 120k to 150k sf<br>---<br>• VAV System (Airside)<br>• Water-cooled Chiller / Boiler System<br>• 6.0 COP (ASHRAE = 4.45 to 5.5 COP)<br>• CHW Pump / CV<br>• HW Pump / VFD</td></tr>
</table>

| | | |
|---|---|---|
| | ---------- >/= 5 floors and / or >240,000 sf ---------- Residential / Dorms / Barracks | ---------- • VAV System (Airside) • Water-cooled Chiller/ Boiler System • **7.0 COP** (ASHRAE = 5.0 to 6.0 COP) • CHW Primary Pump / CV • CHW Secondary Pump / VFD • HW Pump / VFD ---------- • 10 EER / DX • Packaged Terminal Air Conditioner (PTAC) / CV • Boiler with CV Pumps |
| **Building Envelope**<br>• Insulation: R-value of roof<br>• Insulation: R-value of walls<br>• Glazing: U-values, SHGC, Ratio to walls | • Roof<br>• Insulation<br>• Glazing | • Roof: R-30+ Value<br>• Walls: **R-22+** Value<br>• SHGC = .29 or less<br>• < 40% Glazing to Walls |

**Lighting**

| | |
|---|---|
| Bi-Level Switching | Bi-level switching is defined as manual or automatic control (or a combination thereof) that provides two levels of lighting power in a space (not including off). A space is defined as an area enclosed by four (or more) floor-to-ceiling walls. Dimming or dual switching would satisfy this definition. |
| Motion Sensors | Systems that turn lights on only when they detect movement in the area, thus saving energy by not lighting areas that are unoccupied. Bathrooms are typical places for such lights. |
| Occupancy Sensors/Controls | An optical, ultrasonic, or infrared sensor that turns room lights on when they detect a person's presence and off after the space is vacated. |
| Split Ballasts | A piece of equipment required to control the starting and operating voltages of electrical gas discharge lights. Examples of gas discharge light sources include fluorescent lights and high-intensity discharge (HID) lamps. Split ballasts allow for partial usage through the use of lighting controls. |
| Dimmers | A rheostat or other device used to vary the intensity of an electric light. |

**Envelope**

| | |
|---|---|
| Roof R-values | The R-value of a roofing material is a measure of its insulation capability, which tells you how quickly heat moves through the material. A material with a higher R-value is a better insulator than a material with a lower R-value. |
| Wall R-values | The **R-value** is a measure of thermal resistance used in the building and construction industry. The higher the rating, the more effective the insulation. |
| Window Glazing/ low-E | Low-emittance (low-E) coatings are microscopically thin, virtually invisible, metal or metallic oxide layers deposited on a window or skylight glazing surface primarily to reduce the U-factor by suppressing radiative heat flow. Coating a glass surface with a low-emittance material and facing that coating into the gap between the glass layers blocks a significant amount of this radiant heat transfer, thus lowering the total heat flow through the window. Different types of low-E coatings have been designed to allow for high solar gain, moderate solar gain, or low solar gain |
| SHGC | Solar Heat Gain Coefficient- It is a measure of how much of the sun's heat is transmitted through those fixtures, expressed in a number from zero to one. A window that has a SHGC of .3 will allow 30 percent of the sun's heat to pass through. Whether you want a higher or lower number will depend on your goal: A product with a low SHGC will help to block heat and reduce cooling loads in hot weather; a product with a high SHGC will be more effective at harnessing solar heat in cold weather. |

**HVAC**

| | |
|---|---|
| SEER/EER Rating | Seasonal Energy Efficiency Rating the SEER rating of a unit is the cooling output in BTU (British thermal unit) during a typical cooling-season divided by the total electric energy input in watt-hours during the same period. The higher the unit's SEER rating the more energy efficient it is. |
| VFD | Variable Frequency Drives are widely used. In ventilation systems for large buildings, variable-frequency motors on fans save energy by allowing the volume of air moved to match the system demand. They are also used on pumps, elevator, conveyor and machine tool drives. |
| VAV | Variable Air Volume- An HVAC system that has a stable supply-air temperature, and varies the air flow rate to meet the temperature requirements. Compared to Constant Air Volume (CAV) systems, these systems waste less energy through unnecessarily-high fan speeds. Most new commercial buildings have VAV systems. |
| Economizers | An economizer is a mechanical device used to reduce energy consumption. Economizers recycle energy produced within a system or leverage environmental temperature differences to achieve efficiency improvements. |
| CO2 Sensors | A sensor for the measurement of gaseous carbon dioxide. Used in combination with energy recovery units or demand controlled ventilation to promote energy efficiency. Used to maintain appropriate indoor carbon dioxide levels. |
| Energy Recovery Units | Mechanisms that extract energy from the indoor air (warm air in winter, cool air in summer) and transfer it to the fresh incoming air. |
| Chillers | Chillers are industrial- and commercial-grade refrigerating systems used in cooling applications (i.e. buildings, raw materials, chemicals, medical equipment and industrial equipment). The system includes a compressor, evaporator, condenser, reservoir, thermal expansion valve and stabilization assembly. HVAC chillers use water, oils and other liquid compounds as refrigerants. |

Please provide us with the information below.
From this we will put together a cost benefit analysis and give you our fee for the Abandonment, R&M, and/or EPAct studies.

Your Contact Name: Your Phone: Date:

| PROPERTY CONTACT INFORMATION | | |
|---|---|---|
| Property Name: | | |
| Property Address: | City: | State: |
| Contact at Property: | Phone: | E-mail: |

| INFORMATION NEEDED FOR A COST BENEFIT ANALYSIS | |
|---|---|
| A depreciation schedules will help us maximize the benefit to the client. Please ask client for a copy and attach.<br>Attached: Yes □ No □ | |
| Total Sq. ft. of building: | Sq. Ft. of impacted area of new lighting: |
| Provide ceiling height for lighting, if 20 feet or more: | |
| Type of building /usage: Number of buildings: | |
| Number of hours building is in use: | Number of days per week: |
| Date building placed into service (date the client purchased, leased, or built the building and moved in):<br>Month: Year: | |
| Total cost of new lighting (parts and labor): $ | |
| If you are replacing T-12's, provide cost of parts and labor of T12's: $ | |

**What are you taking out?** Number fixtures, type, wattage, and model of each. Are you **replacing the fixture or a retrofit**? If available, please attach inventory or proposal.

**EXAMPLE**

| *FIXTURE REPLACEMENT* | |
|---|---|
| ***Number of Fixtures:*** | ***Type:*** |
| *64* | *1000W M.H.* |
| *209* | *T-8 2X4 32W* |
| *24* | *T-8 U-Tub* |

| *COMPONENT UPGRADE SUMMARY-RETROFIT* | |
|---|---|
| ***Number of Fixtures:*** | ***Type:*** |
| *20* | *1000W M.H.* |
| *10* | *T-8 2X4 32W* |
| *5* | *T-8 U-Tub* |

**Fixture replacement:**

**Component replacement:**

What are you putting in?

| **Benefit Estimated** | | |
|---|---|---|
| *Date in Service: June 2008* | *Sq. Ft.: 153,000* | |
| | *High* | *Low* |
| *179D* | *$91,800* | *$91,800* |
| *Abandonment* | *$150,169* | *$129,692* |
| *R&M for T12's* | - | - |
| *R&M Labor* | - | - |
| ***Total Deductions*** | ***$241,969*** | ***$221,492*** |
| ***Fee*** | | |
| *179D, Abandonment, and R&M Certification* | | *$5,600* |
| ***Estimated net Benefit Based on 30% Tax Rate (State, Federal, & Local)*** | | |
| *Benefit* | *$72,591* | *$66,448* |
| *Fee's* | *$5,600* | *$5,600* |
| ***Net Benefits*** | ***$66,991*** | ***$60,848*** |

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# 179d certification summary – 3 system study

| Location | Square Feet | TAX DEDUTION |
|---|---|---|
| Elementary School, Maryland | 97,500sf | $170,100.00 |
| Total | | $170,100.00 |

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# 179D Inflation Reduction Act Overview

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# 179D Summary

## 2006-2022

- Commercial building owners
- Designers of buildings owned by
    - Governmental entities

## 2023 and Later

- Commercial building owners
- REITs
- Designers of tax-exempt buildings:
    - Government entities
    - Not-for-profit organizations
    - Churches and other religious organizations
    - Tribal and Alaska Native Corporations

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# 179D Summary – Tax Deduction

**2006 - 2022**

- Interim rules at .60 cents/sq ft federal tax deduction for:
  - Interior lighting
  - HVAC and hot water systems
  - Envelope (roof and windows)
- OR whole building $1.80/sq ft

- Applicable to new construction and retrofits of commercial buildings and high-rise (4+stories) multifamily projects
- The deduction can be claimed retroactively up to three years

**2023 and Beyond**

- Base deduction:
  - Sliding scale starting at .50 cents/sq ft for energy savings of 25 percent
  - Allows an additional .02 cents/sq ft for each % above 25 percent
  - Up to $1/sq ft for energy savings of 50 percent or greater
- Bonus deduction (prevailing wage/apprenticeship):
  - Sliding scale starting at $2.50/sq ft for energy savings of 25 percent
  - Allows an additional .10 cents/sq ft for each % above 25 percent
  - Up to $5/sq ft for energy savings of 50 percent or greater

# 179D Summary – Tax Deduction

| Efficiency Gain Over Baseline | Deduction Amount "Base Rate" | Labor Standards "Bonus Rate" |
|---|---|---|
| 25 % (minimum) | 50 cents per sqft$^2$ | $2.50 per sqft$^2$ |
| 30% | 60 cents per sqft$^2$ | $3.00 per sqft$^2$ |
| 35% | 70 cents per sqft$^2$ | $3.50 per sqft$^2$ |
| 40% | 80 cents per sqft$^2$ | $4.00 per sqft$^2$ |
| 50% (maximum) | $1.00 per sqft$^2$ | $5.00 per sqft$^2$ |

Labor Provision exemption:

Any project in construction prior to 1/29/2023 is exempt from prevailing wage and apprenticeship for the 5x benefit multiplier.

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# Bonus Deduction

## Prevailing Wage and Apprenticeships

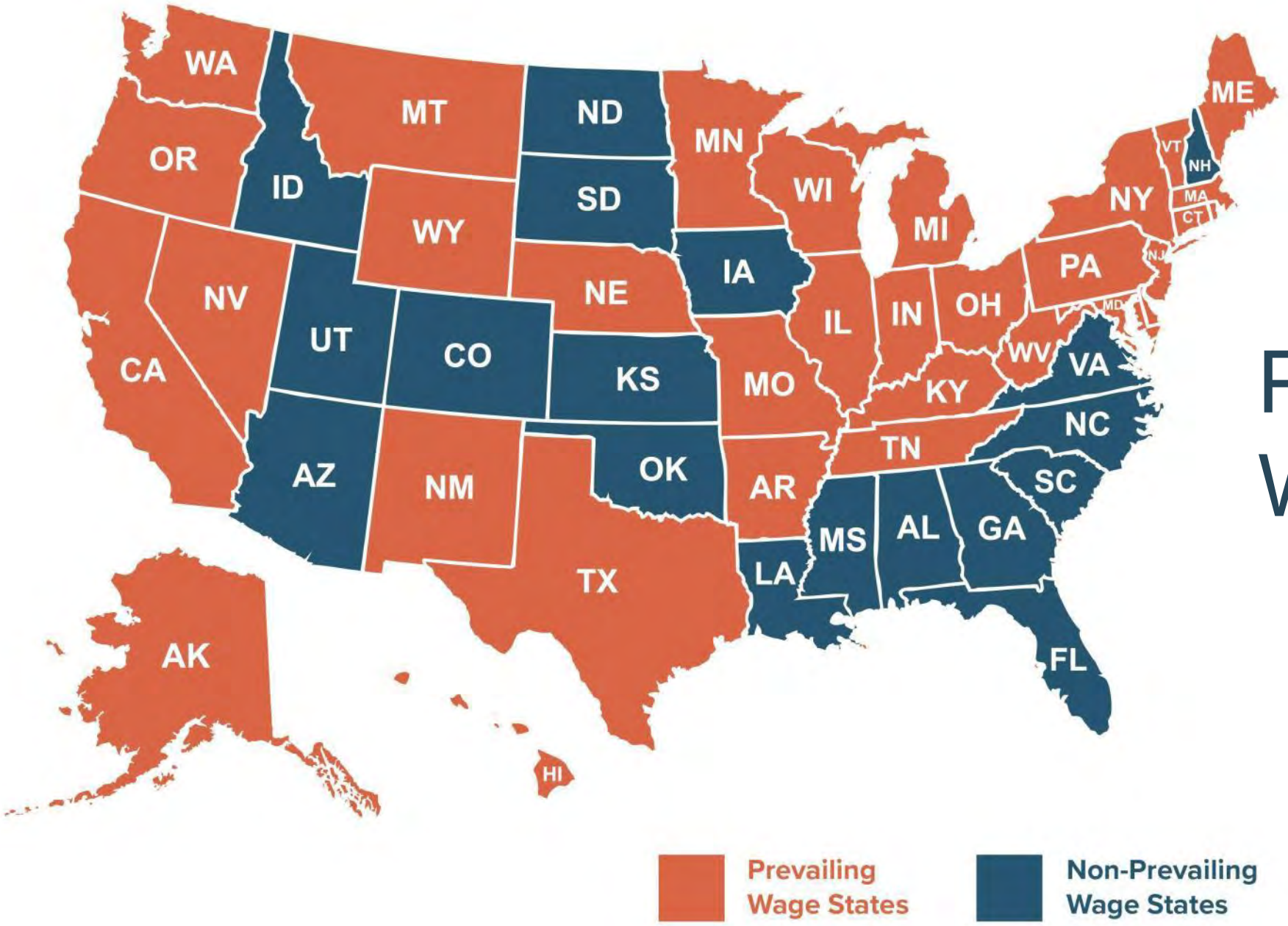
### How to meet the labor provisions

To qualify for the bonus deductions, projects must:

1. Pay “prevailing wages” to laborers or mechanics employed by the taxpayer or contractor/subcontractor that install equipment and,
2. Satisfy “apprenticeship” hiring requirements:

   12.5% in 2023; and 15% in 2024.

   1. Taxpayers, contractors or subcontractors that employ four or more individuals will be required to employ at least 1 or more qualified apprentices
   2. Comply with applicable apprentice-to- journeyworker ratios.
   3. Taxpayers can be deemed as satisfying the requirement if they make a good faith effort to request qualified apprentices from a registered apprenticeship program that is denied, or a program fails to respond within five days of such a request.




# Prevailing Wage Map

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# Qualified Retrofit Plans Replaced Interim Rules

Allows a retrofit baseline: the buildings own specific level of pre-retrofit site energy use intensity (EUI) rather than the longstanding ASHRAE comparison.

- Building must be 5 years or older
- Must have a qualified retrofit plan in place by a professional engineer or architect
- Deduction can only be claimed after one year in service and results of the plan are achieved and verified
- "Final certification" must be made one year after implementation

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# 179D Summary- Certification Process

## Certification Steps

1. Energy Modeling
2. Site Verification

## Design Documentation

1. Architectural drawings
2. Mechanical drawings
3. Electrical drawings
4. Specifications for the wall/roof insulation R-values and glazing U-values

## Administrative Documentation

1. Construction cost budget spreadsheet
    - The AIA payapp will often have this information for us.
2. Tax-exempt entity info:
    - Name of the public entity owner of the property.
    - Name of the owner's representative.
    - Address of the representative's office.

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# Abandonment & Partial Dispositions

- Often, the existing system of an improvement/renovation (lights, HVAC, roof, etc.) remains on the 39-year depreciation schedule for immediate deduction
- Owners can increase the value of cost segregation and 179D by incorporating Abandonment and Partial Dispositions into their study for increased cash benefit and reduced ROI
- This is the method of disposing of the value of an asset that has been removed for an immediate tax deduction

# HVAC info needed for epact, abandonment & repair & maintenance

| |
|---|
| Total cost of new HVAC (parts and labor): $ |
| Why are you replacing the old system? What is it?(full specifications, brand-name, model, inside air and outside air) |
| **What are you taking out?** *Number of units, type, SN, model of each. Are you replacing or repairing? Attach estimate, cut sheets, Purchase order, work order, proposal, etc.? Are you replacing: inside air_____ outside air____* and control systems_____. |
| **What are you putting in?** Please provide full details manufacturers spec sheet for each unit or component.<br>EXAMPLE:<br>HVAC SEER/EER ratings of systems Controls: VFDs, VFDs on pumps, Economizers, CO2 Sensors, Energy Recovery Units, etc. VAV System Boiler / chiller systems |

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# Abandonment Case Study

**Details:**

- 100,000 sq. ft. facility – office and warehouse
- Relighting cost: $150,000
- Utility and other rebates: $65,000
- EPAct tax deduction: $60,000
- Abandonment deductions: $90,000

**Results:**

- Post-tax benefits based on a 35 percent tax rate = $52,500 ($150,000 at 35 percent)
- Actual total cost = $31,500 ($150,000 less rebate and tax benefits

# goal of cost segregation studies

*"Would you rather get your money back today or in 39 years?"*

- Goal = to identify all construction-related costs that can be more quickly depreciated over 5, 7, 10 and 15 years and reclassified from 39, 31.5 and 27.5 years
- Traditional depreciation for Real Property is 39 years for commercial property and 27.5 years for residential rental property
- Reducing tax lives results in accelerated depreciation deductions, a reduced tax liability, and increased cash flow

*"You must pay taxes. But there's no law that says you gotta leave a tip."*

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# items to be reclassified

- Site Improvements (landscaping/parking)
- Light Fixtures
- Branch wiring
- Special Plumbing
- Flooring
- Millwork
- Millwork Window Coverings
- Partition Walls
- Cabinetry
- Furnishings
- Shelving
- Wall Coverings

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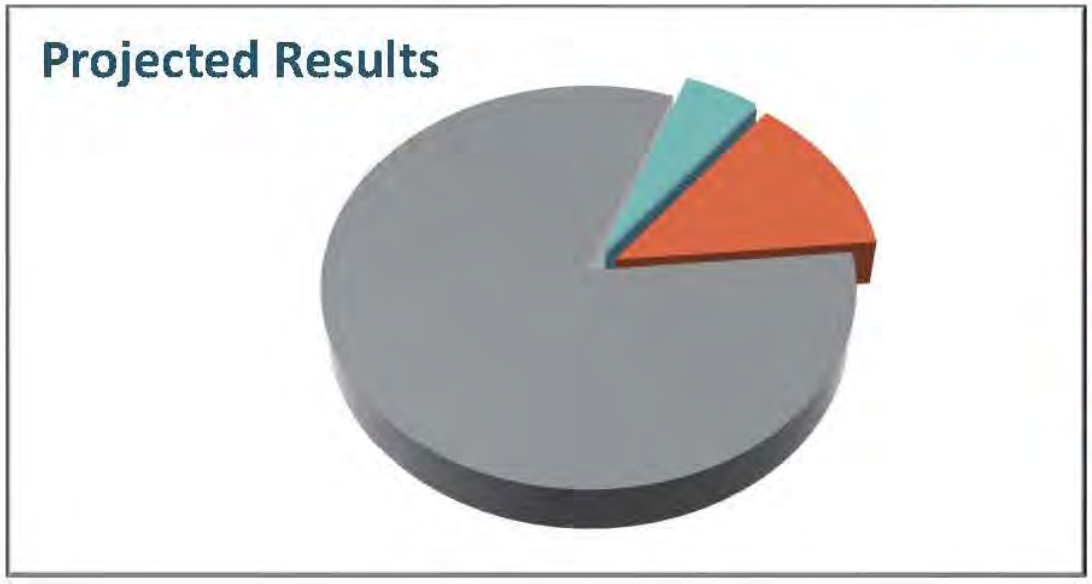
# Benefits Analysis – Warehouse/Office

| Property Details | | |
|---|---|---|
| Placed-In-Service: | *7/1/2024* | |
| Bonus Depreciation*: | *60%* | **Results May Vary* |
| Building Type: | *Warehouse - Office* | |
| Scope: | *New Construction* | |
| Study Type: | *Full Engineering* | |

| Depreciation Basis Calculation | | | |
|---|---|---|---|
| **Construction Cost =** | **Construction Cost** | **- Land** | **Confirm with your Tax Professional** |
| $13,500,000.00 = | $13,500,000.00 | **- $0.00** | |
| *Land Value Source* | | *0%* | |




**5 Year Property**
$675,000
**5%**

**7 Year Property**
$-
**0%**

**15 Year Property**
$1,755,000
**13%**

**39 Year Property**
$11,070,000
**82%**

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# Benefits Analysis – Warehouse/Office


**$1,677,196.15**

**Est. Tax Deduction at Next Filing**

**Next Steps**

| | |
|---|---|
| 1. Submit signed engagement | *Begin Study* |
| 2. Kick off call and Request for informatior | *Week 1* |
| 3. Site Visit | *Week 2-3* |
| 4. Engineering and QC | *Week 4-6* |
| 5. Draft Results Delivery | *Week 6* |
| 6. Final Report Issued | *48 Hours after* |

**Detailed Cost Segregation Reports Include:**

Detailed Engineering with all 5, 7, 15 and 27.5 or 39 year assets
HVAC, Electrical, and Plumbing System Analysis
Repair & Maintenance Study
Tax Schedules to support CPA input
Insurance Appraisal for lower property premiums
Professional Quality Control Review
IRS Audit Defense

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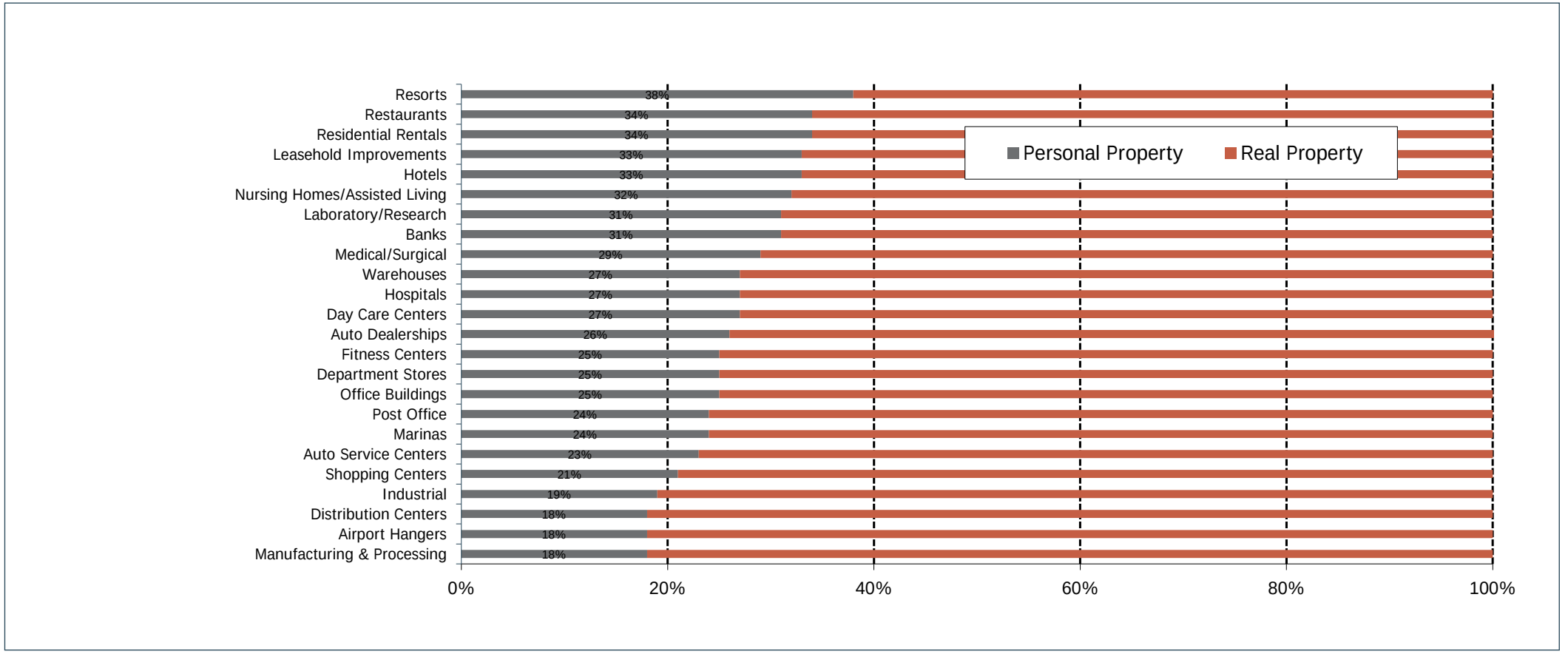
# which properties benefit most?

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# cost segregation recent results

Project: Apartment Complex – 12 Complexes

Cost: $18,100,000

5 Year Tax Savings: $1,585,222

Project: High-End Office Building

Cost: $5,234,125

5 Year Tax Savings: $625,678

Project: Hotel

Cost: $7,123,456

5 Year Tax Savings: $812,145

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# case study – major retailer


179D and Cost Segregation

Over $35,000 Energy Tax Deduction

Over $640,000 Additional Five-Year Tax Benefit


179D and Cost Segregation

Over $1,391,089 Energy Tax Deduction for 6 Properties

Over $25,277,445 Five-Year Cash Benefit for 4 Buildings

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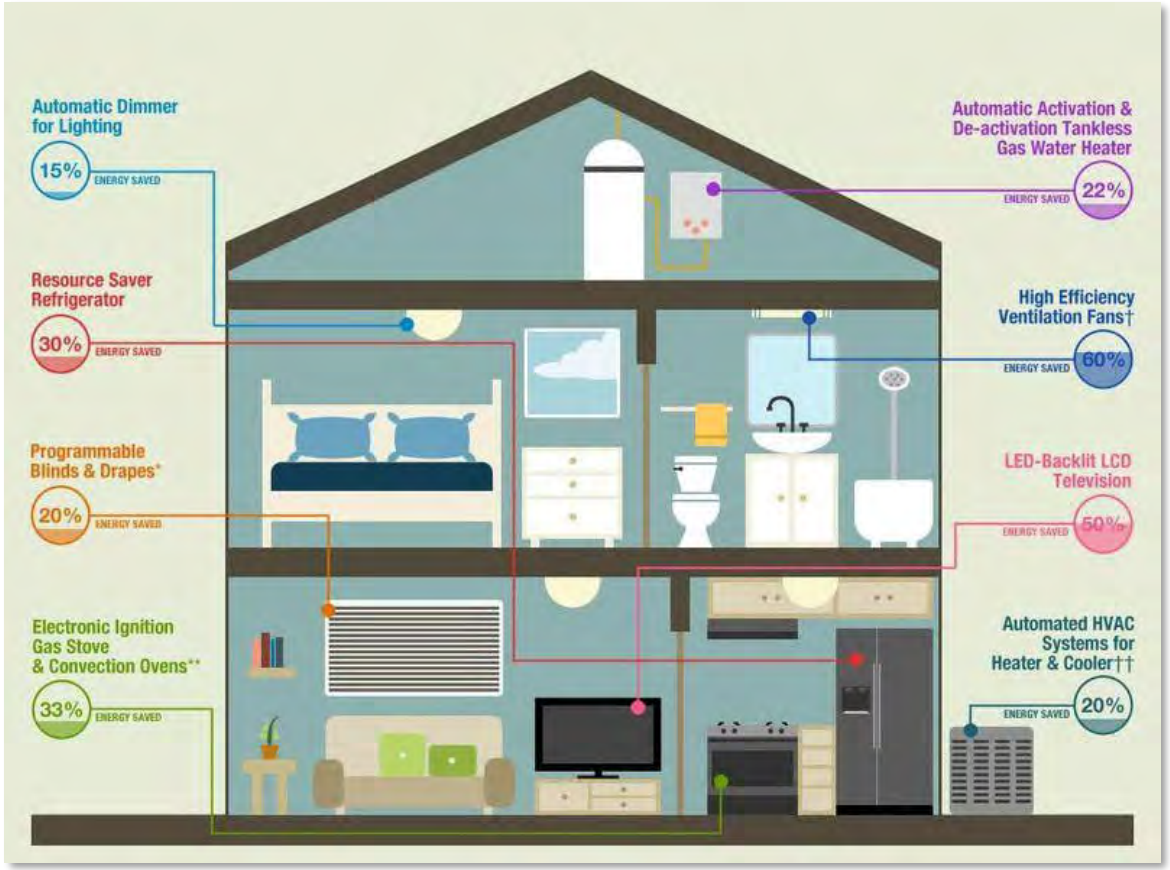
# 45L Tax Credit - Summary

- $2,000 tax credit per unit
- Appropriations Bill Retroactive Extension
  - Units leased or rented in 2018 - 2022
- Energy-efficient residential homes and multifamily units (Three stories or less)
- Developers, builders, investors
- Requires third-party testing and certification

# 45L Tax Credit - Summary




- New construction
- Major renovations
- Unit-by-unit qualification
- Based on unit original sale or lease date
- Passes through to investors
- Required blower-door test
- Pre-qualification recommended

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# 2023- 45L Tax Credit - Changes

- Any multifamily and residential
- Buildings can potentially claim BOTH 179D and 45L credits
- Residential units (no height limit)
- Mixed-use must be > 50 percent residential
- Must meet both national and regional EPA requirements
- Per unit credit

*10 Year Extension!

# 45L Tax Credit – Qualifications and Credit

| Home Type | Qualification Requirement | Prevailing Wage Requirement | Credit Amount |
|---|---|---|---|
| Single Family* | EnergyStar | No | $2,500 |
| Single Family* | ZERH | No | $5,000 |
| Manufactured Home | EnergyStar | No | $2,500 |
| Manufactured Home | ZERH | No | $5,000 |
| Multifamily | EnergyStar | No | $500 |
| Multifamily | ZERH | No | $1,000 |
| Multifamily | EnergyStar | Yes | $2,500 |
| Multifamily | ZERH | Yes | $5,000 |
| *Single Family includes site-built and modular single family homes, duplexes and townhomes. | | | |

# 45L Case Studies

| | | | |
|---|---|---|---|
| **Senior Housing in Canyon, TX** | Three-Story Study Housing | 204 Units | **Certified for $408,000 Tax Credits** |
| **Senior Housing in Edinburg, TX** | Two-Story Study Housing | 252 Units | **Certified for $504,000 Tax Credits** |
| **Senior Living Community in Negaunee, MI** | One-story Assisted Living Facility | 38 Units | **Certified for $76,000 Tax Credits** |

# Certification

Effective Building Lighting Power [W]: 49178, Applicable Area [SF]: 61259
Calculated Building Lighting Power Density [W/SF]: 0.8030177, ASHRAE 2001 Allowed Lighting Power Density [W/SF]: 1.5
LPD Reduction [%]: 46.46549, Applicable Deduction [per SF]: 0.8

Info 5011 — — — (1) Have controls and circuiting that comply fully with the mandatory and prescriptive requirements of Standard 90.1-2001;
(2) Include provision for bi-level switching in all occupancies except hotel and motel guest rooms, store rooms, restrooms, public lobbies, and garages; and
(3) Meet the minimum requirements for calculated lighting levels as set forth in the IESNA Lighting Handbook, Performance and Application, Ninth Edition, 2000;

CERTIFICATIONS

I hereby certify that the plans and specifications covered by this calculation are in compliance as required by the authority of jurisdiction

Prepared By: ENGINEERED TAX SERVIC — Building Official: _____
Date: _____ — Date: _____

I certify that this building is in compliance as required by the authority of jurisdiction

Owner Agent: RAINFORTH GRAD ARCHIT — Date: _____

If required by law, I hereby certify (*) that the system design is in compliance as required by the authority of jurisdiction

Architect: RAINFORTH GRAD ARCHIT — Reg No: /95827
Electrical Designer: CHARLES A MARTIN & AS — Reg No: /E2186
Lighting Designer: CHARLES A MARTIN & AS — Reg No: _____
Mechanical Designer: DAVID A. WESTON — Reg No: /M03220
Plumbing Designer: DAVID A. WESTON — Reg No: /M03220

(*) Signature may be required when law requires design to be performed by registered design professionals. Typed names and registration numbers may be used where all relevant information is contained on signed/sealed plans.

EnergyGauge Summit® v3.22

2/7/2018 — Page 4 of 5



**Certification**


Cindy Blumenfeld

cblumenfeld@engineeredtaxservices.com

direct | 954.439.1671

# 04 PEX 2024 Goals and Progress

Mathew McCarthy Mathew.McCarthy@nationalgrid.com

nationalgrid

# PEX 2024 Goals and Progress

| CY 2024 PEX Progress (As of 11/18/24) | | | | | |
|---|---|---|---|---|---|
| **Key Performance Indicators** | **Goal** | **Paid** | **(%G)** | **Forecast** | **(%G)** |
| Electric Savings (NLT MWH) | 82,450 | 79,045 | 96% | 150,000 | 182% |
| Gas Savings (NLT Therms) | 1,674,970 | 1,319,931 | 79% | 2,500,000 | 149% |
| Electric Electrification (NLT MMBTu) | 49,510 | 11,229 | 23% | 30,000 | 61% |
| Gas Electrification (NLT MMBTu) | 64,490 | 18,290 | 28% | 57,000 | 88% |

# 05 Quick Hits/Reminders/2024 Meeting Dates

Mathew McCarthy Mathew.McCarthy@nationalgrid.com

nationalgrid

# Quick Hits and Reminders:

- **Upcoming Trainings:**
  - Mass Save events and trainings can be found on the Mass Save website here.
  - Lighting Training Recording
  - MAEEP Lighting Controls – December 10th from 8:30am-4pm EST. Training will be held at the Four Points by Sheraton - 1125 Boston-Providence Turnpike Norwood, MA 02062. Register here.
- **PEX 1:1s:**
  - Held throughout December
- **New Measures - High Efficiency Hand Dryers:**
  - Targeting next year:
    - Efficient Hand Dryer must be motion activated with power rating <1500 Watts
    - $100-$200 per unit installed
- **PEX Landing Page:**
  - https://www.nationalgridus.com/MA-Project-Expediter-Program

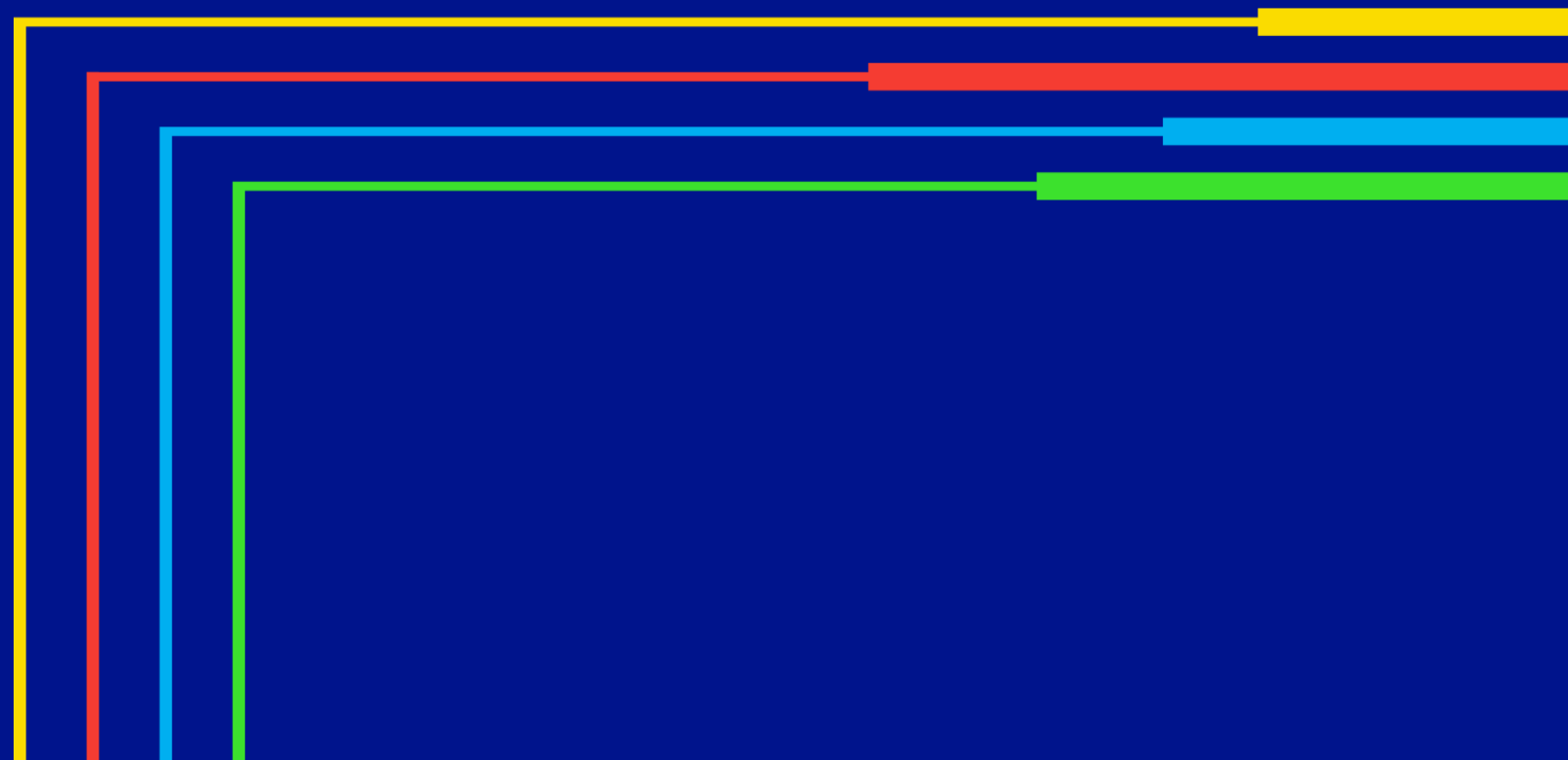
# 2024 Meeting Dates

## Meeting Schedule

- December 18, 2024

# Thank You!

**Be Safe**



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