

# 2024 ASHRAE Annual Conference

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## Inflation Reduction Act 2022 §179D Tax Deduction and §45L Tax Credit

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Energy Tax Incentives

# Learning Objectives

- Understand the evolution of Sections 179D and 45L within the United States Internal Revenue Code (IRC)
- Illustrate the advantages that designers or building owners receive from Section 179D in relation to Energy Efficient Commercial Property.

# Outline/Agenda

- Background of §179D & §45L
- Inflation Reduction Act changes to §179D
- Net Present Value of §179D Tax Deduction to Building Owners
- Cash Value of §179D Tax Deduction to Designers of EECBP Government, Tax Exempt, And Tribal-Owned Buildings
- Inflation Reduction Act changes to §45L

# Background of §179D & §45L



- Both §179D and §45L refer to sections of the **United States IRC** that provide tax incentives for energy-efficient building improvements.

- Public Law 109-58: Energy Policy Act of 2005 (EPAAct 2005)** took effect on Aug. 8, 2005

- Public Law No: 117-169: The Inflation Reduction Act of 2022** brought about significant enhancements to Sections 179D and 45L of the US IRC

# Background of §179D & §45L

- Initial Guidance from the IRS was 2006-26 IRB (**Internal Revenue Bulletin**) and **Notice 2006-52** guidance included detailed instructions regarding *certification prerequisites, inspection procedures, and guidelines for energy modeling.*
- 2008 the IRS provided new guidelines under **20014 IRB; Notice 2008-40.**
  - Designer Allocation for Government Buildings
  - Department of Energy (DOE) Approval of Specific Technologies
  - Adjusted Partially Qualifying Percentages
  - Extension of Deduction Availability





# Inflation Reduction Act changes to §179D

## LEGACY

**UP TO \$1.80/SF**  
Plus Inflation Adjustment add-on

**PARTIAL- \$0.60/SF PER CATEGORY**  
(LIGHTING, HVAC, BLDG. ENVELOPE)

### NO LABOR REQUIREMENTS

Labor Requirements do not affect legacy §179D Tax Deduction Amounts

### GOVERNMENT BLDGS. ONLY

Only Government Building Owners may Allocate §179D to designers.

### WHOLE BLDG. OR PARTIAL CATEGORY

Can analyze whole buildings or individual categories.

### PREVIOUSLY LIMITED TO \$1.80/SF

Prior to IRA changes §179D was only available up to \$1.80/sf over the life of a building.

### INTERIM LIGHTING RULE AVAILABLE

A simplified methodology for the lighting category may be used, with additional partial qualification opportunities.

# 2023

## POST IRA

**UP TO \$5.00/SF**  
Plus Inflation Adjustment add-on

**PARTIAL- BETWEEN \$0.50-\$5.00/SF**  
Partial Deductions Available Based on Energy Qualifications and Labor Req.

### LABOR REQUIREMENTS FOR INCREASED BENEFIT

5x Multiplier in effect for compliance with (PWA)

### TAX-EXEMPT ORGANIZATIONS

Expanded to include ALL tax-exempt organizations

### WHOLE BUILDING ANALYSIS REQ.

Can no longer use partial system analysis for qualification

### RE-CERTIFY BUILDINGS FOR NEW ENERGY IMPROVEMENTS

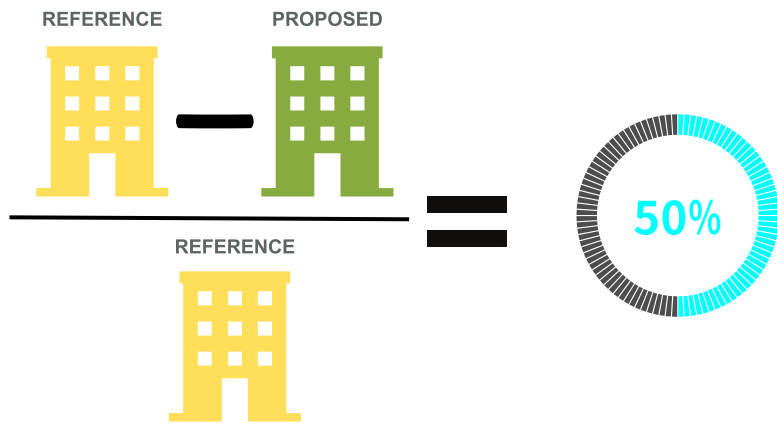
If new capital expenditure occurs private sector can be recertified every 3 years and tax-exempt every 4 years

### ADDITIONAL QUALIFICATION METHODOLOGIES

Retrofits may use Energy Use Intensity methodology (Pre and Post Retrofit Measurement and Verification)

# Inflation Reduction Act changes to §179D

## TOTAL ENERGY & POWER COST



REFERENCE BUILDING PARAMETERS BUILDING PIS BEFORE 2016	
PARAMETER	REFERENCE BUILDING MODEL
BUILDING/SPACE CLASSIFICATION	SAME AS TAXPAYER'S BUILDING AND BY STANDARD 90.1-2001 §9.3.1.1 OR 9.3.1.2
CLIMATE ZONE	SAME AS TAXPAYER'S BUILDING
UTILITY RATES	SAME AS TAXPAYER'S BUILDING
ANNUAL WEATHER DATA	TYPICAL YEAR WEATHER FILE
FORM (AREA, SHAPE, FLOORS)	SAME AS TAXPAYER'S BUILDING
BUILDING PERFORMANCE METHOD	PRM IN APPENDIX G OF ASHRAE STANDARD 90.1-2004
ENVELOPE	ASHRAE 90.1-2001 MINIMUM REQUIREMENTS*
INTERIOR LIGHTING	ASHRAE 90.1-2001 MINIMUM REQUIREMENTS*
HVAC SYSTEMS	ASHRAE 90.1-2001 MINIMUM REQUIREMENTS*
SHW SYSTEMS	ASHRAE 90.1-2001 MINIMUM REQUIREMENTS*

# Inflation Reduction Act changes to §179D

REFERENCE



PIS IN 2016 AND LATER



90.1-2007



90.1-2007



90.1-2007



62.1-2004



90.1-2007

## REFERENCE BUILDING PARAMETERS BUILDING PIS BEFORE 2016

PARAMETER	REFERENCE BUILDING MODEL
VENTILATION REQUIREMENTS	ASHRAE STANDARD 62-1999 (ASHRAE 1999)
RECEPTACLE LOADS	2005 CALIFORNIA NONRESIDENTIAL ACM APPROVAL MANUAL TABLES N2-2 AND N2-3
PROCESS LOADS	2005 CALIFORNIA NONRESIDENTIAL ACM APPROVAL MANUAL §2.4.1.5
EXTERIOR LIGHTING	EXCLUDED FROM THE SIMULATIONS
SCHEDULES	2005 CALIFORNIA NONRESIDENTIAL ACM APPROVAL MANUAL TABLES N2-2 AND N2-3
INFILTRATION	CALIFORNIA NONRESIDENTIAL ACM APPROVAL MANUAL §2.4.1.6

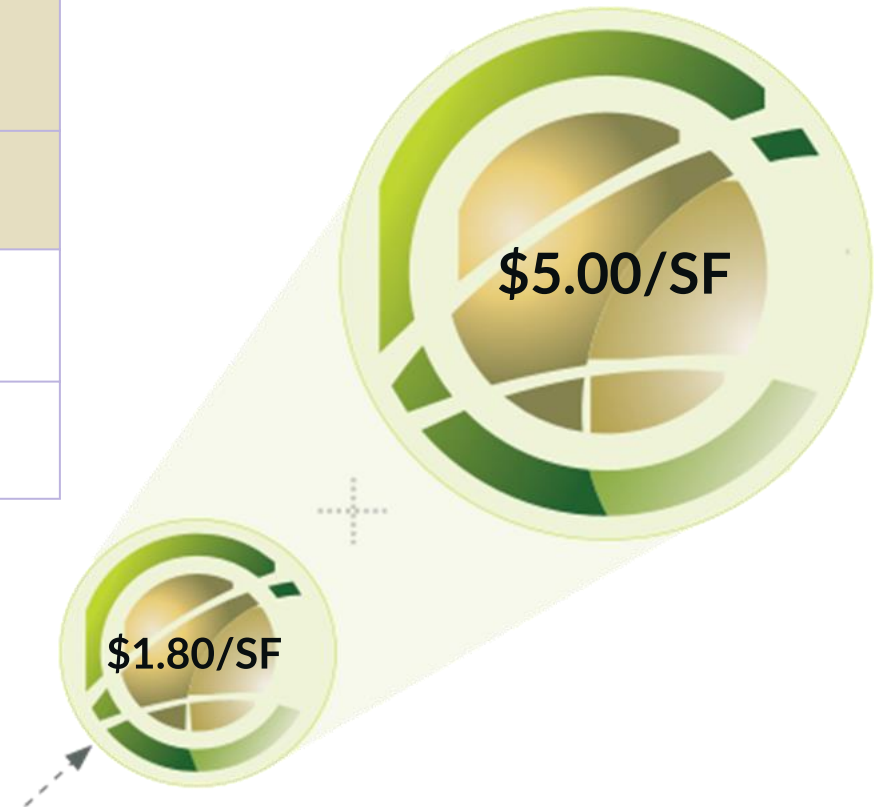
It's important to note that reductions in other energy uses, such as **receptacles, process loads, refrigeration, cooking, and elevators**, will not be considered when determining the 50% cost reduction



# Inflation Reduction Act changes to §179D

## INCREASED TAX DEDUCTION BENEFIT

PREVAILING WAGE & APPRENTICESHIP REQUIREMENTS (PWA) WILL DETERMINE THE STARTING POINT OF THE §179D TAX DEDUCTION BENEFIT PLUS INFLATION ADJUSTMENTS		KEY RELEVANT CHANGES FOR EECBP PLACED IN SERVICE AFTER JAN. 1, 2023		
		25% REDUCTION	EACH ADDITIONAL % POINT	50% OR HIGHER
<b>PWA</b>	MEETS	\$2.50/SF	\$0.10/SF	\$5.00/SF
	DOES NOT MEET	\$0.50/SF	\$0.02/SF	\$1.00/SF



# Inflation Reduction Act changes to §179D

## DEDUCTION BENEFIT RATES FOR THE YEARS 2023 AND 2024 INCORPORATING INFLATION ADJUSTMENTS

PREVAILING WAGE & APPRENTICESHIP REQUIREMENTS (PWA) WILL DETERMINE THE STARTING POINT OF THE §179D TAX DEDUCTION BENEFIT PLUS INFLATION ADJUSTMENTS		FY 2023	FY2024	FY 2023 /2024	FY 2023	FY2024
		25% REDUCTION		EACH ADDITIONAL % POINT	50% OR HIGHER	
<b>PWA</b>	MEETS	\$2.68/SF	\$2.83/SF	\$0.11/SF	\$5.36/SF	\$5.65/SF
	DOES NOT MEET	\$0.54/SF	\$0.57/SF	\$0.02/SF	\$1.07/SF	\$1.13/SF

# Inflation Reduction Act changes to §179D

## ASHRAE STANDARD 90.1 REQUIREMENTS

DATE PLACED IN SERVICE	APPLICABLE REFERENCE
BEFORE JAN. 1, 2015	ASHRAE STANDARD 90.1-2001
AFTER DEC. 31, 2014, AND BEFORE JAN. 1, 2027	ASHRAE STANDARD 90.1-2007
AFTER DEC. 31, 2026	ASHRAE STANDARD 90.1-2019

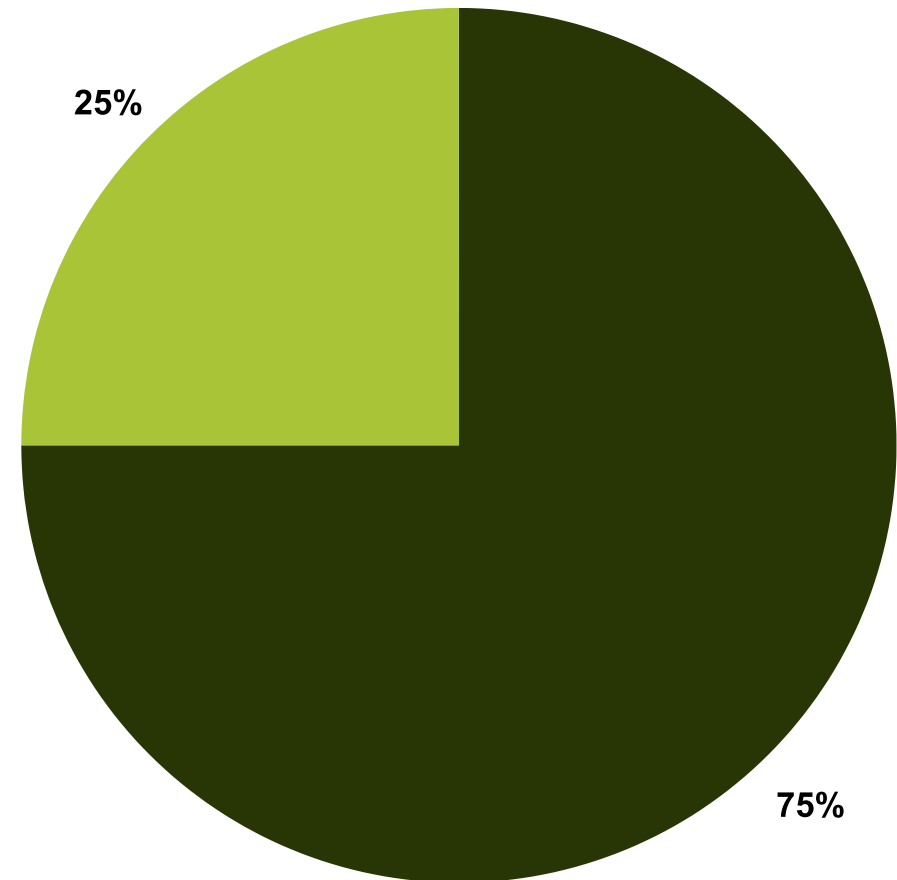
## AN ILLUSTRATION OF CHANGES IN ASHRAE STANDARD 90.1 SPECIFIC TO CLIMATE ZONE 2

KEY RELEVANT CHANGES FOR EECBP PLACED IN SERVICE AFTER JAN. 1, 2023			
PARAMETER	ASHRAE STANDARD 90.1-2001	ASHRAE STANDARD 90.1-2007	ASHRAE STANDARD 90.1-2019
Interior Lighting School/University	1.5 W/ft <sup>2</sup>	1.2 W/ft <sup>2</sup>	0.72 W/ft <sup>2</sup>
HVAC Systems A/C Single Package <65,000 Btu/h	9.7 SEER	13 SEER	13.4 SEER2
Envelope Roof Metal Building	R-19	R-19	R10+ R19 FC
Envelope Wall Metal Building	R-13	R-13	R-0 + R-9.8 C.I.
Envelope Slab-On Grade Floor Unheated	NR	NR	NR
Envelope Vertical Glazing	U-1.27	U-0.75	U-0.62
SHW Systems Electric Water Heaters	0.93-0.00132V EF	0.93-00132V EF	0.9254 - (0.0003 × V) EF

# Net Present Value (NPV) to Building Owners

## EPACT 2005- NET PRESENT VALUE

TOTAL BUILDING SQUARE FOOTAGE	139,702
TAX BRACKET	25%
§179D QUALIFYING RATE (\$/SF)	\$5.65
TOTAL DEDUCTION	\$789,316.30
EPACT CASH VALUE	\$197,329
NET PRESENT VALUE RATE OF RETURN	8.00%
<b>TOTAL NET PRESENT VALUE</b>	<b>\$123,657.57</b>



# Net Present Value (NPV) to Designer's EECBP

## EPACT 2005- NET PRESENT VALUE

TOTAL BUILDING SQUARE FOOTAGE	1,616,764
TAX BRACKET	25%
§179D QUALIFYING RATE (\$/SF)	\$5.65
TOTAL DEDUCTION	\$9,134,716.60
<b>EPACT CASH VALUE</b>	<b>\$2,283,679.15</b>

## WHO IS THE DESIGNER OF EECBP?

- **ARCHITECTS**
- **ENGINEERS**
- **CONTRACTOR**
  - **ELECTRICAL**
  - **HVAC**
  - **ENVELOPE**
- **ENVIRONMENTAL CONSULTANT**
- **ENERGY SERVICES**
  - **CERTIFIED ENERGY MANAGERS (CEM)**
  - **CERTIFIED LIGHTING EFFICIENCY PROFESSIONALS (CLEP)**
  - **CERTIFIED ENERGY AUDITORS (CEA)**

# Inflation Reduction Act changes to §45L

§45L TAX CREDIT ENERGY MULTI-FAMILY HOMES		
REQUIREMENTS	PRE-IRA TAX YEARS 2022 & PRIOR	POST-IRA TAX YEAR 2023 THROUGH 2032
QUALIFICATION REQUIREMENTS	UNITS MUST MEET ENERGY EFFICIENCY STANDARDS 50% HIGHER THAN THE 2006 IECC STANDARDS, WITH 10% OF THE SAVING BEING ACHIEVED FROM THE BUILDING ENVELOPE	UNITS MAY BE CERTIFIED UNDER EITHER THE ENERGY STAR NEW HOMES AND MULTIFAMILY PROGRAMS AND FOR AN INCREASED CREDIT AMOUNT THE DOE- ZERO ENERGY READY HOMES PROGRAM (ZERH)
HEIGHT REQUIREMENTS	BUILDINGS MUST BE THREE STORIES OR LESS	NO LIMITATION OF STORIES FOR THE ENERGY STAR PROGRAM. LIMITED TO <b>FIVE STORIES</b> OR LESS FOR ZERH
TAX CREDIT AMOUNT	\$2000/PER UNIT	*\$2500 FOR ENERGY STAR \$5000 FOR ZERH OR \$500 FOR ENERGY STAR \$1000 FOR ZERH
TAX YEAR ELIGIBILITY	ELIGIBLE FOR NEW HOMES INITIALLY SOLD OR LEASED UNTIL DEC. 31, 2022, AMENDABLE TAX YEARS	ELIGIBLE FOR NEW HOMES INITIALLY SOLD OR LEASED AFTER DEC. 31, 2023

**\*PREVAILING WAGE IS A REQUIREMENT FOR MULTI-FAMILY HOMES.**



# Inflation Reduction Act changes to §45L

§45L TAX CREDIT ENERGY SINGLE FAMILY HOMES		
REQUIREMENTS	PRE-IRA TAX YEARS 2022 & PRIOR	POST-IRA TAX YEAR 2023 THROUGH 2032
QUALIFICATION REQUIREMENTS	UNITS MUST MEET ENERGY EFFICIENCY STANDARDS 50% HIGHER THAN THE 2006 IECC STANDARDS, WITH 10% OF THE SAVING BEING ACHIEVED FROM THE BUILDING ENVELOPE	UNITS MAY BE CERTIFIED UNDER EITHER THE ENERGY STAR NEW HOMES AND MULTIFAMILY PROGRAMS AND FOR AN INCREASED CREDIT AMOUNT THE DOE- ZERO ENERGY READY HOMES PROGRAM (ZERH)
HEIGHT REQUIREMENTS	NO HEIGHT RESTRICTION FOR SFH	NO LIMITATION OF STORIES FOR THE ENERGY STAR PROGRAM. LIMITED TO <b>FIVE STORIES</b> OR LESS FOR ZERH
TAX CREDIT AMOUNT	\$2000/PER UNIT	**\$2500 FOR ENERGY STAR \$5000 FOR ZERH
TAX YEAR ELIGIBILITY	ELIGIBLE FOR NEW HOMES INITIALLY SOLD OR LEASED UNTIL DEC. 31, 2022, AMENDABLE TAX YEARS	ELIGIBLE FOR NEW HOMES INITIALLY SOLD OR LEASED AFTER DEC. 31, 2023

**\*\*PREVAILING WAGE IS NOT A REQUIREMENT FOR SINGLE-FAMILY HOMES.**

# Conclusion

- The evolution of §179D and §45L of the US IRC reflects a commitment to promoting energy efficiency in commercial and residential construction.
- Introducing a new certification methodology, including non-profit and tribal governments, and elevated ASHRAE standards underscore the commitment to advancing sustainable building practices.
- Cash Value of §179D Tax Deduction to Designers of EECBP Government, Tax Exempt, And Tribal-Owned Buildings
- The potential to use these Energy Tax Incentives toward our decarbonization goals

# Bibliography


- Public Law 109-58-Aug 8, 2005: Energy Policy Act of 2005
- Internal Revenue Service (IRS), Treasury: Internal Revenue Bulletin 2006-26 IRB; Notice 2006-52
- Internal Revenue Service (IRS), Treasury: Internal Revenue Bulletin 2008-14 IRB; Notice 2008-40
- Public Law 117-169-Aug 16, 2022
- Internal Revenue Service (IRS), Treasury: Internal Revenue Bulletin 2022-61 IRB; Notice 2022-26108
- Internal Revenue Service (IRS), Treasury: Announcement 2023-1: Updated Reference Standard 90.1 for §179D
- NREL National Renewable Laboratory. Energy Savings Modeling and Inspection Guidelines for Commercial Building Federal Tax Deduction for Buildings in 2016 and Later
- ASHRAE Standard 90.1 2001, 2007, 2019 Energy Standard for Buildings Except Low-Rise Residential Buildings I-P Edition


# Questions



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