# SITE ENERGY USE INTENSITY FOR MULTIFAMILY BUILDINGS

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A framework for setting an effective EUI target that enables reaching Net Zero Energy development in 2030.

#### ± 32 EUI : CODE MINIMUM

- → Current Alexandria Energy Code is ASHRAE Standard 90.1-2019 / IECC 2021.
- > Simulation Based Analysis for Climate Zone 4A generates EUI values from 29.9 33.6 (4-10 stories).

Туре	VA 90.1-2016/ 2018 IECC	VA 90.1-2019/ 2021 IECC	90.1-2022	90.1-2022 Variability
Office	31.2	29.0	25.3	21.0 - 31.0
Multifamily MR	37.7	29.9	34.4	25.0 - 44.0
Multifamily HR	40.3	33.6	40.0ª	Not Available

> 'Data and Analysis for Alexandria for Target Setting' ~ Pacific Northwest National Laboratory' (Table 5 p.5)

#### ± 30 EUI : STANDARD PRACTICE

- Metered energy performance benchmark data for buildings in the Alexandria region documents EUI values from 29.4 - 30.9 (4-10 stories).
- > The top 25% of buildings bult in the last 15 years sets a reasonable baseline for current Standard Practice.

Туре	Year Built	25%	Median	Property Count
				1
Multifamily MR	2010 and after	29.4	42.8	169
Multifamily HR	All Years	33.9	52.8	428
Multifamily HR	Before 1946	40.3	56.9	49
Multifamily HR	1946-1959	40.3	56.3	46
Multifamily HR	1960-1979	36.7	61.5	97
Multifamily HR	1980-1999	32.2	42.8	17
Multifamily HR	2000-2009	35.5	51.0	64
Multifamily HR	2010 and after	30.9	46.7	153

> 'Data and Analysis for Alexandria for Target Setting' ~ Pacific Northwest National Laboratory' (Table 4 p.4)

## ± 23 EUI : BEST PRACTICE

The ASHRAE Advanced Energy Design Guide for Multifamily Buildings' demonstrates that zero energy multifamily buildings are financially feasible, operationally workable, and readily achievable.



#### 15-20 EUI : LEADING EDGE

- > Passive House certified multifamily buildings regularly achieve EUI performance between 15 and 20 EUI.
- > See selected webinars at BuildOurFuture.org:
  - > Affordable Housing: The Case for Passive House Design and Net Zero Energy / 2022
  - > Tall Buildings, Small Energy Bills: Passive House at Scale / 2022
  - > High Performing Buildings and Districts / 2021

## **38** EUI : DRAFT PROPOSAL

> Why establish an EUI target weaker than current Code Minimum and Standard Practice?

## 23 EUI : RECOMMENDATION

- > In 2025, require 23 EUI, to align with current best practice.
- > In 2030, realign to the latest ASHRAE Advanced Energy Design Guide.