

DOCKETED

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Project Title:	2025 Energy Code Rulemaking
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Document Title:	DRAFT 2025 Proposed Nonresidential HVAC Performance System Map
Description:	This is a draft performance approach system map for the 2025 proposed changes to nonresidential HVAC systems. This is being provided to facilitate a better understanding of the proposal for comments during the 45-day comment period.
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NR System Descriptions : Adding System 14 and 15

System 3a – SZAC	Packaged single zone air conditioner	Single-phase single zone system with constant-volume fan, direct expansion cooling, and gas furnace heating.
System 3b – SZHP	Packaged single zone heat pump	Single-phase single zone system with constant-volume fan, direct expansion heat pump cooling and heating, and electric resistance supplemental heating.
System 5 – PVAV	Packaged VAV	Multizone packaged system with variable-volume fan, direct expansion cooling, gas furnace heating, and hot water reheat terminal units served by a central gas boiler.
System 6 – VAV	Built-up VAV	Multizone built-up system with variable-volume fan, chilled water cooling provided by a central water cooled chiller and cooling tower, and hot water heating provided by central gas boiler.
System 7b – SZVAVHP	Packaged single zone variable-air-volume heat pump	Single zone system with variable-air-volume fan, direct expansion heat pump cooling and heating, and electric resistance supplemental heating.
System 7c – SZVAVDFHP	Packaged single zone variable-air-volume dual-fuel heat pump	Single zone system with variable-air volume fan, direct expansion heat pump cooling and heating, and gas supplemental heating.
<u>System 14 – AWHP+FPFC+DOAS</u>	<u>Air-to-water heat pump with four-pipe fan coil units and DOAS</u>	<u>Zonal four-pipe fan coil units with three-speed fans and DOAS providing ventilation. Chilled water cooling provided by a central water-cooled chiller and cooling tower, and space-heating hot water provided by an air-to-water heat pump with supplemental electric resistance boiler.</u>
<u>System 15 – VRF+DOAS</u>	<u>VRF system with DOAS</u>	<u>Zonal VRF units with three-speed fans and DOAS providing ventilation.</u>

Office Mapping

Description	Floors	Climate Zone	Capacity	System
<u>Office, financial institution, and library</u> < 25,000 ft ²	4 - 5 floors	All	No limit	System 15 - VRF + DOAS
<u>Office, financial institution, and library</u> 25,000 – 150,000 ft ²	≤ 5 floors	All	No limit	System 15 - VRF + DOAS
<u>Office, financial institution, and library</u> ≤ 150,000 ft ²	> 5 floors	All	No limit	System 14 - <u>AWHP+FPFC</u>
<u>Office, financial institution, and library</u> > 150,000 ft ²	No limit	All	No limit	System 14 - <u>AWHP+FPFC</u>

SCHOOLS Mapping

Description	Floors	Climate Zone	Capacity	System
<u>School² and total building conditioned floor area < 150,000 ft²</u>	Buildings ≤ 3 floors	2-15	< 65 kBtu/h	System 3b – SZHP
<u>School² and total building conditioned floor area < 150,000 ft²</u>	Buildings ≤ 3 floors	2-15	≥ 65 kBtu/h	System 7b – SZVAVHP
<u>School² and total building conditioned floor area < 150,000 ft²</u>	Buildings ≤ 3 floors	1, 16	< 65 kBtu/h	System 3c – SZDFHP
<u>School² and total building conditioned floor area < 150,000 ft²</u>	Buildings ≤ 3 floors	1, 16	≥ 65 kBtu/h	System 7c – SZVAVDFHP
<u>School² and total building conditioned floor are ≤ 150,000 ft²</u>	> 5 floors	<u>All</u>	<u>No limit</u>	<u>System 14 – AWHP+FPFC</u>
<u>School² and total building conditioned floor are > 150,000 ft²</u>	<u>No limit</u>	<u>All</u>	<u>No limit</u>	<u>System 14 – AWHP+FPFC</u>

5.1.3 HVAC System Map

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Additions and Alterations System Modification

For nonresidential additions and alterations projects, the standard design building shall follow the same rules as the HVAC system map above, except for the following changes:

1. The building that will follow the logic of the system map rules may be the modeled building (the addition or alteration alone, or the addition or alteration and a portion of the existing building) or the entire building (the entire existing building, plus an addition, if present).
2. Section 140.4(a)2, Single zone space-conditioning system type is not applicable to additions and alterations. Alterations shall follow Section 140.4(b)2C. Table 2A outlines Standard Design on applicable prototype space types and systems with cooling capacity <65kBtu/h and supersedes Table 2 in Alterations. ~~Any system designated as a heat pump in the system map is replaced with an air conditioner of equivalent type.~~

Table 2A. Nonresidential HVAC System Map (Alterations)

<u>Space Type</u>	<u>Above-Grade Floors</u>	<u>Climate Zone</u>	<u>System Cooling Capacity</u>	<u>Standard Design</u>
<u>Retail or grocery¹</u>	<u>Buildings <=2 floors</u>	<u>3-13 and 15</u>	<u><65 kBtu/h</u>	<u>System 3b - SZHP</u>
<u>Retail or grocery¹</u>	<u>Buildings <=2 floors</u>	<u>1,2, 14 and 16</u>	<u><65 kBtu/h</u>	<u>System 3a - SZAC</u>
<u>Retail or grocery¹ total building area < 25,000 ft²</u>	<u>Buildings =3 floors</u>	<u>3-13 and 15</u>	<u><65 kBtu/h</u>	<u>System 3b - SZHP</u>
<u>Retail or grocery¹ total building area < 25,000 ft²</u>	<u>Buildings =3 floors</u>	<u>1,2, 14 and 16</u>	<u><65 kBtu/h</u>	<u>System 3a - SZAC</u>
<u>School² and total building conditioned floor area < 150,000 ft²</u>	<u>Buildings ≤ 3 floors</u>	<u>1-15</u>	<u>< 65 kBtu/h</u>	<u>System 3b – SZHP</u>
<u>School² and total building conditioned floor area < 150,000 ft²</u>	<u>Buildings ≤ 3 floors</u>	<u>16</u>	<u>< 65 kBtu/h</u>	<u>System 3b – SZAC</u>
<u>Office, financial institution and total building area < 25,000 ft²</u>	<u>Buildings ≤ 3 floors</u>	<u>3-13 and 15</u>	<u>< 65 kBtu/h</u>	<u>System 3b – SZHP</u>
<u>Office, financial institution and total building area < 25,000 ft²</u>	<u>Buildings ≤ 3 floors</u>	<u>1,2, 14 and 16</u>	<u><65 kBtu/h</u>	<u>System 3a - SZAC</u>
<u>Library and total building area < 25,000 ft²</u>	<u>Buildings ≤ 3 floors</u>	<u>1, 3-15</u>	<u>< 65 kBtu/h</u>	<u>System 3b – SZHP</u>
<u>Library and total building area < 25,000 ft²</u>	<u>Buildings ≤ 3 floors</u>	<u>2 and 16</u>	<u><65 kBtu/h</u>	<u>System 3a - SZAC</u>