



**BSR/ASHRAE Addendum *cn* to  
ANSI/ASHRAE Standard 135-2020**

**Public Review Draft**

# **Proposed Addendum *cn* to Standard 135-2020, BACnet<sup>®</sup> - A Data Communication Protocol for Building Automation and Control Networks**

**Second Public Review (September 2023)  
(Draft shows Proposed Changes to Current Standard)**

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**[This foreword, the table of contents, the introduction, and the “rationales” on the following pages are not part of this standard. They are merely informative and do not contain requirements necessary for conformance to the standard.]**

## FOREWORD

The purpose of this addendum is to present a proposed change for public review. These modifications are the result of change proposals made pursuant to the ASHRAE continuous maintenance procedures and of deliberations within Standing Standard Project Committee 135. The proposed changes are summarized below.

### **135-2020*cn*-1 Clarify Engineering Units, p. 3**

In the following document, language to be added to existing clauses of ANSI/ASHRAE 135-2020 is indicated through the use of *italics*, while deletions are indicated by ~~striketrough~~. Where entirely new subclauses are proposed to be added, plain type is used throughout. Only this new and deleted text is open to comment at this time. All other material in this document is provided for context only and is not open for public review comment except as it relates to the proposed changes.

The use of placeholders like XX, YY, ZZ, X1, X2, NN, x, n, ? etc., should not be interpreted as literal values of the final published version. These placeholders will be assigned actual numbers/letters only after final publication approval of the addendum.

## 135-2020*cn*-1 Clarify Engineering Units

### Rationale

The BACnetEngineeringUnits enumeration lacks some metric units. It is also unclear in some cases what actual unit was intended. In other cases, the meaning of particular units is a local matter.

Engineering units are clarified and complemented for equivalent sets of scales for units of both the Inch-Pound (I-P) and Système International (SI) units' systems.

Additional units are added for gas metering.

Note to reviewer, some engineering units have been reorganized to make grouping consistent. The textual name for "joule-per-hour" was deemed erratum and has been updated to "joules-per-hour" in this document.

[Insert new **Clause 12.1.X**, before current 12.1.8 Reliability, p. 163]

### 12.1.X Engineering Units Ambiguities

The BACnetEngineeringUnits enumeration, defined in Clause 21, includes some units that are potentially ambiguous. These fall into three categories:

- Units originally defined in BACnet with an implied but ambiguous meaning as to which real unit was intended.
- Units that were originally defined in BACnet with the intention that their meaning would be site-specific, but that site-specificity was never called out in the standard.
- Units that are, by their nature, commonly used but based on different implied standards that are not uniform in different locales or applications.

#### 12.1.X.1 Ambiguous Unit: Ton

Units that were defined and included the word "tons" in their name, could have been used for American Short Tons, or Imperial Long Tons, or Metric Tonnes. There are now separate units defined for those different definitions. The ambiguous uses of the word "tons" are being left in to avoid impacting sites that have implemented those units and agreed on the contextual meaning.

#### 12.1.X.2 Intentionally Site-Specific Units

The enumerations currency1 to currency10, volume1 to volume10, volumetric-flow1 to volumetric-flow10, and site-unit1 to site-unit10 are explicitly intended to have a site-specific meaning. Use of these ranges in a device must be configurable and cannot have fixed values.

Any BACnet property value whose engineering unit is a currency, and makes use of currency1 through currency10, shall have a site-specific meaning as to which actual currency is equivalent to those 10 units for that site. The assignment and administration of those equivalencies shall be a local matter.

Units of volume and volumetric flow, such as cubic-feet or cubic-feet per second, can have different meanings depending on the locale or their application. The volume of a room, for example, is normally a constant. There are some applications, such as gas volume, where simply saying "cubic-feet" is ambiguous because the volume depends on knowing the temperature and pressure. There may also be other cases of ambiguity for units beyond the specific instances of currency, volume, and volumetric flow that have not yet been identified. Before Protocol Revision X, in those applications that used any of these units, the meaning was ambiguous. When such units are used, the meaning of the value and its unit are a local matter.

Any BACnet property value whose engineering unit may be ambiguous due to application or locale, and makes use of volume1 to volume10, volumetric-flow1 to volumetric-flow10, or site-unit1 to site-unit10 shall have a site-specific meaning as to which actual unit definition is equivalent to those intentionally site-specific units for that site. The assignment and administration of those equivalencies shall be a local matter.

[Change **Clause 21, BACnetEngineeringUnits Production**, p. 892]

**BACnetEngineeringUnits ::= ENUMERATED { -- See below for numerical order**

<b>-- Acceleration</b>	
meters-per-second-per-second	(166),
<b>--Area</b>	
square-meters	(0),
square-centimeters	(116),
square-feet	(1),
square-inches	(115),
<b>--Currency, <i>determined by the installation.</i></b>	
currency1	(105),
currency2	(106),
currency3	(107),
currency4	(108),
currency5	(109),
currency6	(110),
currency7	(111),
currency8	(112),
currency9	(113),
currency10	(114),
<b>--Efficiency</b>	
<i>btu-per-hour-per-watt</i>	(?), -- <i>Energy Efficiency Ratio (EER)</i>
<i>btu-per-watt-hour-seasonal</i>	(?), -- <i>Seasonal Energy Efficiency Ratio (SEER),</i> -- <i>cooling/watt-hour</i> -- <i>or Heating Seasonal Performance Factor (HSPF),</i> -- <i>heat/watt-hour</i>
<i>coefficient-of-performance</i>	(?), -- <i>Energy transferred per energy consumed (COP)</i>
<i>coefficient-of-performance-seasonal</i>	(?), -- <i>Energy transfer per energy consumed over a season</i> -- <i>(SCOP)</i>
<i>kilowatt-per-ton-refrigeration</i>	(?), -- <i>Cooling efficiency using short tons refrigeration</i>
<i>lumens-per-watt</i>	(?),
<b>--Electrical</b>	
milliamperes	(2),
amperes	(3),
amperes-per-meter	(167),
amperes-per-square-meter	(168),
ampere-square-meters	(169),
decibels	(199),
decibels-millivolt	(200),
decibels-volt	(201),
farads	(170),
henrys	(171),
ohms	(4),
ohm-meter-squared-per-meter	(237),
ohm-meters	(172),
milliohms	(145),
kilohms	(122),
megohms	(123),
microsiemens	(190),
millisiemens	(202),
siemens	(173),

siemens-per-meter	(174),
<i>microsiemens-per-centimeter</i>	(?),
<i>millisiemens-per-centimeter</i>	(?),
<i>millisiemens-per-meter</i>	(?),
teslas	(175),
volts	(5),
millivolts	(124),
kilovolts	(6),
megavolts	(7),
volt-amperes	(8),
kilovolt-amperes	(9),
megavolt-amperes	(10),
volt-amperes-reactive	(11),
kilovolt-amperes-reactive	(12),
megavolt-amperes-reactive	(13),
volts-per-degree-kelvin	(176),
volts-per-meter	(177),
degrees-phase	(14),
power-factor	(15),
webers	(178),

--Energy

ampere-seconds	(238),
volt-ampere-hours	(239), -- i.e. VAh
kilovolt-ampere-hours	(240),
megavolt-ampere-hours	(241),
volt-ampere-hours-reactive-hours	(242), -- i.e. <del>varh</del> VARh
kilovolt-ampere-hours-reactive-hours	(243),
megavolt-ampere-hours-reactive-hours	(244),
volt-square-hours	(245),
ampere-square-hours	(246),
joules	(16),
kilojoules	(17),
kilojoules-per-kilogram	(125),
megajoules	(126),
<i>gigajoules</i>	(?),
<i>terajoules</i>	(?),
watt-hours	(18),
kilowatt-hours	(19),
megawatt-hours	(146),
<i>gigawatt-hours</i>	(?),
watt-hours-reactive-hours	(203),
kilowatt-hours-reactive-hours	(204),
megawatt-hours-reactive-hours	(205),
<i>gigawatt-reactive-hours</i>	(?),
btus	(20), -- <i>British thermal units</i>
kilo-btus	(147),
mega-btus	(148),
therms	(21), -- <i>100,000 British thermal units</i>
ton-hours	(22), -- <i>short tons refrigeration by time</i>
<i>active-energy-pulse-value</i>	(?), -- i.e. $1/(Wh)$
<i>reactive-energy-pulse-value</i>	(?), -- i.e. $1/(VARh)$
<i>apparent-energy-pulse-value</i>	(?), -- i.e. $1/(VAh)$
<i>volt-squared-hour-pulse-value</i>	(?), -- i.e. $1/(V^2h)$
<i>ampere-squared-hour-pulse-value</i>	(?), -- i.e. $1/(A^2h)$

--Enthalpy		
joules-per-kilogram-dry-air	(23),	
kilojoules-per-kilogram-dry-air	(149),	
megajoules-per-kilogram-dry-air	(150),	
btus-per-pound-dry-air	(24),	
btus-per-pound	(117),	
--Entropy		
joules-per-degree-kelvin	(127),	
kilojoules-per-degree-kelvin	(151),	
megajoules-per-degree-kelvin	(152),	
joules-per-kilogram-degree-kelvin	(128),	
-- Force		
newton	(153),	
--Frequency		
cycles-per-hour	(25),	
cycles-per-minute	(26),	
hertz	(27),	
kilohertz	(129),	
megahertz	(130),	
<i>per-day</i>	(?),	
per-hour	(131),	
<i>per-minute</i>	(100),	
<i>per-second</i>	(101),	
<i>per-millisecond</i>	(?),	
--Humidity		
grams-of-water-per-kilogram-dry-air	(28),	
percent-relative-humidity	(29),	
--Length		
micrometers	(194),	
millimeters	(30),	
centimeters	(118),	
kilometers	(193),	
meters	(31),	
inches	(32),	
feet	(33),	-- <i>international foot</i>
<i>yards</i>	(?),	-- <i>3 international feet</i>
<i>miles</i>	(?),	-- <i>international mile, 1609.344 meters</i>
<i>nautical-miles</i>	(?),	-- <i>international nautical mile, 1852 meters</i>
--Light		
candelas	(179),	
candelas-per-square-meter	(180),	
watts-per-square-foot	(34),	
watts-per-square-meter	(35),	
lumens	(36),	
luxes	(37),	
foot-candles	(38),	
--Mass		
<i>nanograms</i>	(?),	

<i>micrograms</i>	(?),	
milligrams	(196),	
grams	(195),	
kilograms	(39),	
pounds-mass	(40),	
tons	(41),	-- <i>ambiguous ton unit</i>
<i>metric-tonnes</i>	(?),	-- <i>Metric tonne, 1000 kilograms</i>
<i>short-tons</i>	(?),	-- <i>U.S. short ton, 2000 pounds, 907.18474 kilograms</i>
<i>long-tons</i>	(?),	-- <i>Imperial long ton, 1016.0469088 kilograms</i>

--Mass Flow

grams-per-second	(154),
grams-per-minute	(155),
<i>grams-per-hour</i>	(?),
<i>grams-per-day</i>	(?),
kilograms-per-second	(42),
kilograms-per-minute	(43),
kilograms-per-hour	(44),
<i>kilograms-per-day</i>	(?),
pounds-mass-per-second	(119),
pounds-mass-per-minute	(45),
pounds-mass-per-hour	(46),
<i>pounds-mass-per-day</i>	(47812),
tons-per-hour	(156),
<i>short-tons-per-second</i>	(?),
<i>short-tons-per-minute</i>	(?),
<i>short-tons-per-hour</i>	(?),
<i>short-tons-per-day</i>	(?),
<i>metric-tonnes-per-second</i>	(?),
<i>metric-tonnes-per-minute</i>	(?),
<i>metric-tonnes-per-hour</i>	(?),
<i>metric-tonnes-per-day</i>	(?),
<i>long-tons-per-second</i>	(?),
<i>long-tons-per-minute</i>	(?),
<i>long-tons-per-hour</i>	(?),
<i>long-tons-per-day</i>	(?),

--Power

milliwatts	(132),
watts	(47),
kilowatts	(48),
megawatts	(49),
<i>gigawatts</i>	(?),
<i>btus-per-second</i>	(?),
<i>btus-per-minute</i>	(?),
btus-per-hour	(50),
<i>btus-per-day</i>	(?),
<i>kilo-btus-per-second</i>	(?),
<i>kilo-btus-per-minute</i>	(?),
kilo-btus-per-hour	(157),
<i>kilo-btus-per-day</i>	(?),
<i>mega-btus-per-second</i>	(?),
<i>mega-btus-per-minute</i>	(?),
<i>mega-btus-per-hour</i>	(?),
<i>mega-btus-per-day</i>	(?),
<i>joules-per-second</i>	(?),

<i>joules-per-minute</i>	(?)	
<i>joules-per-hour</i>	(247),	
<i>joules-per-day</i>	(?)	
<i>kilojoules-per-second</i>	(?)	
<i>kilojoules-per-minute</i>	(?)	
<i>kilojoules-per-hour</i>	(?)	
<i>kilojoules-per-day</i>	(?)	
<i>megajoules-per-second</i>	(?)	
<i>megajoules-per-minute</i>	(?)	
<i>megajoules-per-hour</i>	(?)	
<i>megajoules-per-day</i>	(?)	
horsepower	(51),	
tons-refrigeration	(52),	-- Heat transfer to melt one short ton of ice
--Pressure		
pascals	(53),	
hectopascals	(133),	
kilopascals	(54),	
millibars	(134),	
bars	(55),	
pounds-force-per-square-inch	(56),	
<i>pounds-force-per-square-inch-absolute</i>	(?)	
<i>pounds force-per-square-inch-gauge</i>	(?)	
millimeters-of-water	(206),	
centimeters-of-water	(57),	
inches-of-water	(58),	
millimeters-of-mercury	(59),	
centimeters-of-mercury	(60),	
inches-of-mercury	(61),	
--Temperature		
degrees-celsius	(62),	
<i>degrees-celsius-per-day</i>	(?)	
<i>degrees-celsius-per-hour</i>	(91),	
<i>degrees-celsius-per-minute</i>	(92),	
degrees-kelvin	(63),	
<i>kelvin-per-day</i>	(?)	
degrees-kelvin-per-hour	(181),	
degrees-kelvin-per-minute	(182),	
degrees-fahrenheit	(64),	
<i>degrees-fahrenheit-per-day</i>	(?)	
<i>degrees-fahrenheit-per-hour</i>	(93),	
<i>degrees-fahrenheit-per-minute</i>	(94),	
degree-days-celsius	(65),	
degree-days-fahrenheit	(66),	
<i>delta-degrees-celsius</i>	(?)	
delta-degrees-fahrenheit	(120),	
delta-degrees-kelvin	(121),	
--Time		
years	(67),	
months	(68),	
weeks	(69),	
days	(70),	
hours	(71),	
minutes	(72),	



seconds	(73),
hundredths-seconds	(158),
milliseconds	(159),
--Torque	
newton-meters	(160),
<i>pound-force-feet</i>	(?),
<i>pound-force-inches</i>	(?),
<i>ounce-force-inches</i>	(?),
--Velocity	
millimeters-per-second	(161),
millimeters-per-minute	(162),
meters-per-second	(74),
meters-per-minute	(163),
meters-per-hour	(164),
kilometers-per-hour	(75),
feet-per-second	(76),
feet-per-minute	(77),
miles-per-hour	(78),
--Volume	
cubic-feet	(79),
cubic-meters	(80),
imperial-gallons	(81),
milliliters	(197),
liters	(82),
us-gallons	(83),
<i>millions-of-us-gallons</i>	(?),
<i>millions-of-imperial-gallons</i>	(?),
<i>volume1</i>	(?),
<i>volume2</i>	(?),
<i>volume3</i>	(?),
<i>volume4</i>	(?),
<i>volume5</i>	(?),
<i>volume6</i>	(?),
<i>volume7</i>	(?),
<i>volume8</i>	(?),
<i>volume9</i>	(?),
<i>volume10</i>	(?),
--Volumetric Flow	
cubic-feet-per-second	(142),
cubic-feet-per-minute	(84),
million-standard-cubic-feet-per-minute	(254),
cubic-feet-per-hour	(191),
cubic-feet-per-day	(248),
standard-cubic-feet-per-day	(47808),
million-standard-cubic-feet-per-day	(47809),
thousand-cubic-feet-per-day	(47810),
thousand-standard-cubic-feet-per-day	(47811),
cubic-meters-per-second	(85),
cubic-meters-per-minute	(165),
cubic-meters-per-hour	(135),
cubic-meters-per-day	(249),
<i>imperial-gallons-per-second</i>	(?),

imperial-gallons-per-minute	(86),	
<i>imperial-gallons-per-hour</i>	(?),	
<i>imperial-gallons-per-day</i>	(?),	
milliliters-per-second	(198),	
<i>milliliters-per-minute</i>	(?),	
liters-per-second	(87),	
liters-per-minute	(88),	
liters-per-hour	(136),	
<i>liters-per-day</i>	(?),	
<i>us-gallons-per-second</i>	(?),	
us-gallons-per-minute	(89),	
us-gallons-per-hour	(192),	
<i>us-gallons-per-day</i>	(?),	
<i>cubic-meter-pulse-value</i>	(?),	-- <i>i.e.</i> 1/m <sup>3</sup>
<i>volumetric-flow1</i>	(?),	
<i>volumetric-flow2</i>	(?),	
<i>volumetric-flow3</i>	(?),	
<i>volumetric-flow4</i>	(?),	
<i>volumetric-flow5</i>	(?),	
<i>volumetric-flow6</i>	(?),	
<i>volumetric-flow7</i>	(?),	
<i>volumetric-flow8</i>	(?),	
<i>volumetric-flow9</i>	(?),	
<i>volumetric-flow10</i>	(?),	
--Other		
degrees-angular	(90),	
<del>degrees celsius per hour</del>	<del>(91),</del>	
<del>degrees celsius per minute</del>	<del>(92),</del>	
<del>degrees fahrenheit per hour</del>	<del>(93),</del>	
<del>degrees fahrenheit per minute</del>	<del>(94),</del>	
joule-seconds	(183),	
kilograms-per-cubic-meter	(186),	
kilowatt-hours-per-square-meter	(137),	
kilowatt-hours-per-square-foot	(138),	
watt-hours-per-cubic-meter	(250),	
joules-per-cubic-meter	(251),	
megajoules-per-square-meter	(139),	
megajoules-per-square-foot	(140),	
mole-percent	(252),	
no-units	(95),	
newton-seconds	(187),	
newtons-per-meter	(188),	
parts-per-million	(96),	
parts-per-billion	(97),	
pascal-seconds	(253),	
percent	(98),	
percent-obscuration-per-foot	(143),	
percent-obscuration-per-meter	(144),	
percent-per-second	(99),	
<i>percent-per-minute</i>	(?),	
<i>percent-per-hour</i>	(?),	
<i>percent-per-day</i>	(?),	
<del>per minute</del>	<del>(100),</del>	
<del>per second</del>	<del>(101),</del>	

psi-per-degree-fahrenheit	(102),		
radians	(103),		
radians-per-second	(184),		
revolutions-per-minute	(104),		
square-meters-per-newton	(185),		
watts-per-meter-per-degree-kelvin	(189),		
watts-per-square-meter-degree-kelvin	(141),		
per-mille	(207),		
<i>per-million</i>	(?),	-- 1:1000000	-- 1:1000000
<i>per-billion</i>	(?),	-- 1:1000000000	-- 1:1000000000
grams-per-gram	(208),		
<i>milligrams-per-gram</i>	(211),		
<i>micrograms-per-gram</i>	(?),		
<i>nanograms-per-gram</i>	(?),		
kilograms-per-kilogram	(209),		
grams-per-kilogram	(210),		
<del>milligrams per gram</del>	<del>(211),</del>		
milligrams-per-kilogram	(212),		
<i>micrograms-per-kilogram</i>	(?),		
<i>nanograms-per-kilogram</i>	(?),		
grams-per-milliliter	(213),		
<i>milligrams-per-milliliter</i>	(?),		
<i>micrograms-per-milliliter</i>	(?),		
<i>nanograms-per-milliliter</i>	(?),		
<i>kilograms-per-liter</i>	(?),		
grams-per-liter	(214),		
milligrams-per-liter	(215),		
micrograms-per-liter	(216),		
<i>nanograms-per-liter</i>	(?),		
grams-per-cubic-meter	(217),		
milligrams-per-cubic-meter	(218),		
micrograms-per-cubic-meter	(219),		
nanograms-per-cubic-meter	(220),		
grams-per-cubic-centimeter	(221),		
<i>milligrams-per-cubic-centimeter</i>	(?),		
<i>micrograms-per-cubic-centimeter</i>	(?),		
<i>nanograms-per-cubic-centimeter</i>	(?),		
becquerels	(222),		
kilobecquerels	(223),		
megabecquerels	(224),		
gray	(225),		
milligray	(226),		
microgray	(227),		
sieverts	(228),		
millisieverts	(229),		
microsieverts	(230),		
microsieverts-per-hour	(231),		
millirems	(47814),		
millirems-per-hour	(47815),		
decibels-a	(232),		
nephelometric-turbidity-unit	(233),		
pH	(234),		
grams-per-square-meter	(235),		
minutes-per-degree-kelvin	(236),		
degrees-lovibond	(47816),		
alcohol-by-volume	(47817),		

international-bittering-units	(47818),
europaean-bitterness-units	(47819),
degrees-plato	(47820),
specific-gravity	(47821),
europaean-brewing-convention	(47822),
<i>mils-per-year</i>	(?),
<i>millimeters-per-year</i>	(?),
<i>pulses-per-minute</i>	(?),
<i>bits-per-second</i>	(?),
<i>kilobits-per-second</i>	(?),
<i>megabits-per-second</i>	(?),
<i>gigabits-per-second</i>	(?),
<i>bytes-per-second</i>	(?),
<i>kilobytes-per-second</i>	(?),
<i>megabytes-per-second</i>	(?),
<i>gigabytes-per-second</i>	(?),
<i>site-unit1</i>	(?),
<i>site-unit2</i>	(?),
<i>site-unit3</i>	(?),
<i>site-unit4</i>	(?),
<i>site-unit5</i>	(?),
<i>site-unit6</i>	(?),
<i>site-unit7</i>	(?),
<i>site-unit8</i>	(?),
<i>site-unit9</i>	(?),
<i>site-unit10</i>	(?)

-- Numerical Order Reference

- ...
- see ~~degrees~~-kelvin (63),
- ...
- see delta-~~degrees~~-kelvin (121),
- see kilohms (122),
- see megohms (123),
- see millivolts (124),
- see kilojoules-per-kilogram (125),
- see megajoules (126),
- see joules-per-~~degree~~-kelvin (127),
- see joules-per-kilogram-~~degree~~-kelvin (128),
- ...
- see watts-per-square-meter-~~degree~~-kelvin (141),
- see cubic-feet-per-second (142),
- see percent-obscuration-per-foot (143),
- see percent-obscuration-per-meter (144),
- see milliohms (145),
- see megawatt-hours (146),
- see kilo-btus (147),
- see mega-btus (148),
- see kilojoules-per-kilogram-dry-air (149),
- see megajoules-per-kilogram-dry-air (150),
- see kilojoules-per-~~degree~~-kelvin (151),
- see megajoules-per-~~degree~~-kelvin (152),

- ...
- see volts-per-degree-kelvin (176),
- see volts-per-meter (177),
- see webers (178),
- see candelas (179),
- see candelas-per-square-meter (180),
- see degrees-kelvin-per-hour (181),
- see degrees-kelvin-per-minute (182),
- see joule-seconds (183),
- see radians-per-second (184),
- see square-meters-per-newton (185),
- see kilograms-per-cubic-meter (186),
- see newton-seconds (187),
- see newtons-per-meter (188),
- see watts-per-meter-per-degree-kelvin (189),
- ...
- see watt-hours-reactive-hours (203),
- see kilowatt-hours-reactive-hours (204),
- see megawatt-hours-reactive-hours (205),
- ...
- see minutes-per-degree-kelvin (236),
- ...
- see volt-ampere-hours-reactive-hours (242),
- see kilovolt-ampere-hours-reactive-hours (243),
- see megavolt-ampere-hours-reactive-hours (244),
- see volt-square-hours (245),
- see ampere-square-hours (246),
- see joules-per-hour (247),
- see cubic-feet-per-day (248),
- ...
- ...
- see european-brewing-convention (47822)
- see *per-day* (?)
- see *per-millisecond* (?)
- see *yards* (?)
- see *miles* (?)
- see *nautical-miles* (?)
- see *nanograms* (?)
- see *micrograms* (?)
- see *metric-tonnes* (?)
- see *short-tons* (?)
- see *long-tons* (?)
- see *grams-per-hour* (?)
- see *grams-per-day* (?)
- see *kilograms-per-day* (?)
- see *short-tons-per-second* (?)
- see *short-tons-per-minute* (?)
- see *short-tons-per-hour* (?)
- see *short-tons-per-day* (?)
- see *metric-tonnes-per-second* (?)
- see *metric-tonnes-per-minute* (?)
- see *metric-tonnes-per-hour* (?)
- see *metric-tonnes-per-day* (?)
- see *long-tons-per-second* (?)
- see *long-tons-per-minute* (?)

-- see long-tons-per-hour (?.)  
-- see long-tons-per-day (?.)  
-- see btus-per-second (?.)  
-- see btus-per-minute (?.)  
-- see btus-per-day (?.)  
-- see kilo-btus-per-second (?.)  
-- see kilo-btus-per-minute (?.)  
-- see kilo-btus-per-day (?.)  
-- see mega-btus-per-second (?.)  
-- see mega-btus-per-minute (?.)  
-- see mega-btus-per-hour (?.)  
-- see mega-btus-per-day (?.)  
-- see joules-per-second (?.)  
-- see joules-per-minute (?.)  
-- see joules-per-day (?.)  
-- see kilojoules-per-second (?.)  
-- see kilojoules-per-minute (?.)  
-- see kilojoules-per-hour (?.)  
-- see kilojoules-per-day (?.)  
-- see megajoules-per-second (?.)  
-- see megajoules-per-minute (?.)  
-- see megajoules-per-hour (?.)  
-- see megajoules-per-day (?.)  
-- see degrees-celsius-per-day (?.)  
-- see kelvin-per-day (?.)  
-- see degrees-fahrenheit-per-day (?.)  
-- see delta-degrees-celsius (?.)  
-- see million-cubic-feet-per-minute (?.)  
-- see million-cubic-feet-per-day (?.)  
-- see imperial-gallons-per-second (?.)  
-- see imperial-gallons-per-hour (?.)  
-- see imperial-gallons-per-day (?.)  
-- see liters-per-day (?.)  
-- see us-gallons-per-second (?.)  
-- see us-gallons-per-day (?.)  
-- see percent-per-minute (?.)  
-- see percent-per-hour (?.)  
-- see percent-per-day (?.)  
-- see per-million (?.)  
-- see per-billion (?.)  
-- see micrograms-per-gram (?.)  
-- see nanograms-per-gram (?.)  
-- see micrograms-per-kilogram (?.)  
-- see nanograms-per-kilogram (?.)  
-- see milligrams-per-milliliter (?.)  
-- see micrograms-per-milliliter (?.)  
-- see nanograms-per-milliliter (?.)  
-- see kilograms-per-liter (?.)  
-- see nanograms-per-liter (?.)  
-- see milligrams-per-cubic-centimeter (?.)  
-- see micrograms-per-cubic-centimeter (?.)  
-- see nanograms-per-cubic-centimeter (?.)  
-- see btu-per-hour-per-watt (?.)  
-- see btu-per-watt-hour-seasonal (?.)  
-- see coefficient-of-performance (?.)  
-- see coefficient-of-performance-seasonal (?.)

-- see kilowatt-per-ton-refrigeration (?),  
-- see lumens-per-watt (?),  
-- see pound-force-feet (?),  
-- see pound-force-inches (?),  
-- see ounce-force-inches (?),  
-- see pounds-force-per-square-inch-absolute (?),  
-- see pounds force-per-square-inch-gauge (?),  
-- see microsiemens-per-centimeter (?),  
-- see millisiemens-per-centimeter (?),  
-- see millisiemens-per-meter (?),  
-- see millions-of-us-gallons (?),  
-- see millions-of-imperial-gallons (?),  
-- see milliliters-per-minute (?),  
-- see mils-per-year (?),  
-- see millimeters-per-year (?),  
-- see pulses-per-minute (?),  
-- see active-energy-pulse-value (?),  
-- see reactive-energy-pulse-value (?),  
-- see apparent-energy-pulse-value (?),  
-- see volt-squared-hour-pulse-value (?),  
-- see ampere-squared-hour-pulse-value (?),  
-- see cubic-meter-pulse-value (?),  
-- see gigawatts (?),  
-- see gigajoules (?),  
-- see terajoules (?),  
-- see gigawatt-hours (?),  
-- see gigawatt-reactive-hours (?),  
-- see bits-per-second (?),  
-- see kilobits-per-second (?),  
-- see megabits-per-second (?),  
-- see gigabits-per-second (?),  
-- see bytes-per-second (?),  
-- see kilobytes-per-second (?),  
-- see megabytes-per-second (?),  
-- see gigabytes-per-second (?),  
-- see volume1 (?),  
-- see volume2 (?),  
-- see volume3 (?),  
-- see volume4 (?),  
-- see volume5 (?),  
-- see volume6 (?),  
-- see volume7 (?),  
-- see volume8 (?),  
-- see volume9 (?),  
-- see volume10 (?),  
-- see volumetric-flow1 (?),  
-- see volumetric-flow2 (?),  
-- see volumetric-flow3 (?),  
-- see volumetric-flow4 (?),  
-- see volumetric-flow5 (?),  
-- see volumetric-flow6 (?),  
-- see volumetric-flow7 (?),  
-- see volumetric-flow8 (?),  
-- see volumetric-flow9 (?),  
-- see volumetric-flow10 (?),  
-- see site-unit1 (?),

-- *see site-unit2* (?)  
-- *see site-unit3* (?)  
-- *see site-unit4* (?)  
-- *see site-unit5* (?)  
-- *see site-unit6* (?)  
-- *see site-unit7* (?)  
-- *see site-unit8* (?)  
-- *see site-unit9* (?)  
-- *see site-unit10* (?)

...  
}

-- Enumerated values 0-255 and 47808-49999 are reserved for definition by ASHRAE. Enumerated values  
-- 256-47807 and 50000-65535 may be used by others subject to the procedures and constraints described  
-- in Clause 23.



[Add a new entry to **History of Revisions**, p. 1364]

**(This History of Revisions is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard.)**

#### **HISTORY OF REVISIONS**

...	...	...
1	X	<b>Addendum <i>cn</i> to ANSI/ASHRAE Standard 135-2020</b> Approved by ASHRAE on MONTH DAY, 20XX; and by the American National Standards Institute on MONTH DAY, 20XX.  1. Clarify Engineering Units