

Hi Dustin and Krista –

Please find attached two of the primary documents from the workgroup that assisted NEEA with providing credits for the Commercial energy code C406 table.

The first is the Excel doc that includes the credit values and backup documentation for most of the credits the TAG and MVPE approved. I translated this into a word document markup with the credit values in the table. There are numerous notes that will be discussed, but a few are condensed here:

1. The WA State energy code baselines that we rate progress against were not available as a data set, so the workgroup generally agreed on ASHRAE 90.1-2007 as a baseline.
 - a. Most of the workgroup feel this baseline includes slightly more energy savings than the 2006 WSEC but was the best baseline to use, since others that were considered were less stringent and farther away in general from the 2006 WSEC-C.
 - b. Some feel that ASHRAE 90.1-2007 is *not* as stringent as the building built under the 2006 WSEC since WA used more electric heat pumps and electric resistance than ASHRAE 90.1-2007.
2. Each credit is worth 0.1% of energy savings within that typology. This means that typologies where the based code without credits is very stringent include smaller numbers for the credits, based on calculations; this is because only a small amount of energy savings will be from C406 choices. For some other typologies, C406 options are a large percentage of the overall building energy reduction, so a large number of credits are offered, and large number will be required. The number of points for each credit in one typology is completely unrelated to the number of points for a credit within a different typology.
3. The baseline for each table for heating and water heating is the minimum EPCA appliance receiving 0 credits. There are some caveats.
4. Some credit values are negative, but this is because there are combinations of systems that includes many positive credits, and some negative credits.
5. Some of the credits did not have a clear path for this group to estimate energy savings, so they are left blank. The TAG suggested PNNL could model many things, but that was before talking to PNNL. These were not modeled.
 - a. Thermal imaging
 - b. Fault diagnostics points
 - c. Peak heating and cooling loads
 - d. Gas heat pump beyond minimum efficiency
6. The TAG understood, as I recall, that some things would come out of the modeling process, and that has been the case. As you can see from the table, some sub-options were modeled that are important but that the TAG did not specifically include in their options. My recommendation is that the Council votes these forward.
 - a. For example, H41 water source heat pump 10% improvement was not modeled; the intent is that this line would be removed and the designer would interpolate

between the minimum efficiency and the 20% improvement that was modeled. These unmodeled rows can be removed from the table.

- b. For WSHP, we split this into two categories: one with gas boiler and the other with AWHP. This has an impact on performance which is why the modeling split this into two. Both are included in the attached word doc.
 - c. PNNL modeled 1.5 gpm showerheads, which was not in the table.
7. A footnote b was suggested to be added to table C406.2(6) to clarify that the credit does not include equipment for a specific calculation.
 8. TSPR improvements within the table are based on an air source heat pump, which is why they include a large number of points.

UPDATE 4/13/26

The word doc has now been updated with gas service water heating equipment as the workgroup determined, which separates it into two types based on standards. There is also a suggestion that the credits for 'no heating,' 'no cooling,' and 'no service water heating' should be much lower, also in the attached. For example, we don't want to incentivize apartment buildings to install no cooling to meet credits given the impacts of climate change on warmer weather.

As for credit requirements for each typology, we have two proposals:

1. David Reddy suggested credit requirements (4C/5B for each typology):

| Hotel | Health Care | Apartment | Office | Lab Areas | Restaurant | Retail | School | Warehouse | Other |
|---------------|-------------|-----------|---------|-----------|------------|-----------|-----------|-----------|-----------|
| R-1, R-4, I-1 | I-2 | R-2 | B | B | A-2 | M | E | S-1, S-2 | |
| 179 / 185 | 174 / 175 | 284 / 296 | 38 / 26 | 76 / 89 | 122 / 170 | 175 / 233 | 123 / 154 | 268 / 326 | 231 / 232 |

50 / 49

2. Greg Johnson suggested credit requirements (4C/5B for each typology):

| Credit Measure Values | | | | | | | | | |
|------------------------------------|-------------|-----------|--------|-----------|------------|--------|--------|-----------|-------|
| 4C (Seattle) / 5B (Spokane) | | | | | | | | | |
| Hotel | Health Care | Apartment | Office | Lab Areas | Restaurant | Retail | School | Warehouse | Other |
| R-1, R-4, I-1 | I-2 | R-2 | B | B | A-2 | M | E | S-1, S-2 | |

| | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 101 / 56 | 101 / 80 | 249 / 90 | 142 / 31 | 152 / 59 | 136 / 29 | 103 / 55 | 145 / 67 | 233 / 89 | 200 / 72 |
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NEEA saved the day by funding PNNL to do the heavy lifting for the underlying work – a big thank you to them as well as the amazing job done by over a dozen volunteers that totaled hundreds of hours!

-Kjell

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