



Feature T01: Thermal Performance

Part 1: Support Thermal Environment

WELL v2™ pilot
Q1 2020 addenda

How to use this document:

This document is intended to serve as a guide on how to create educational materials required for Part 1: Support Thermal Environment of Feature T01: Thermal Performance. This document is meant to demonstrate an acceptable degree of detail for a documentation submission. Ultimately, the level of detail is up to the discretion of the project team, as long as each of the requirements is sufficiently addressed.

- Part 1: A professional narrative outline and examples have been provided.

Note: The variable items are highlighted in yellow throughout the document.

The text is updated to the Q1 2020 version of WELL v2 pilot, which may vary from future versions of WELL v2.

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FEATURE T01: THERMAL PERFORMANCE

PART 1: SUPPORT THERMAL ENVIRONMENT

EXAMPLE PROFESSIONAL NARRATIVE

At <<INSERT PROJECT NAME>>, we have used the following assumptions in our thermal comfort calculations:

A. For all spaces except commercial kitchen spaces and dwelling units:

a. Clothing insulation (clo) levels:

- i. *Example: The small office has a consistent formal dress policy throughout both the winter and summer seasons. The clo levels are consistently 0.96, which is trousers, a long-sleeve shirt and jacket.*
- ii. *Example: The dress policy varies in different seasons of the year. In the summer months, the clo level that has been used is 0.5 (typical summer clothing) and in the winter the clo level that has been used is 1.0 (typical winter clothing.)*
- iii. *Example: Our team worked with 5 employees whose clothing levels reflect the rest of the company to craft their typical clo levels using ASHRAE 55 TABLE 5.2.2.2B Garment Insulation (Iclu). We then used this average clo value in our calculations. Note, our office is located in a temperate location and temperature doesn't vary significantly between heating and cooling seasons:*
 1. *Employee #1: bra (0.01), panties (0.03), half-slip (0.14), pantyhose (0.02), shoes (0.02), long-sleeve shirtdress (thin) (0.33) = 0.55*
 2. *Employee #2: men's briefs (0.04), t-shirt (0.08), ankle-length athletic socks (0.02), shoes (0.02), short-sleeve dress shirt (0.19), straight trousers (thin) (0.15) = 0.5*
 3. *Employee #3 = bra (0.01), panties (0.03), shoes (0.02), calf-length socks (0.03), sleeveless / scoop neck blouse (0.12), skirt (thick) (0.23) = 0.44*
 4. *Employee #4 = men's briefs (0.04), t-shirt (0.08), ankle-length athletic socks (0.02), shoes (0.02), long-sleeve dress shirt (0.25), walking shorts (0.08), sleeveless vest (thin) (0.13) = 0.62*
 5. *Employee #5 = men's briefs (0.04), ankle-length athletic socks (0.02), shoes (0.02), long-sleeve dress shirt (0.25), straight trousers (thin) (0.15), single-breasted jacket (thin) (0.36) = 0.84*
 6. **Average clo value = 0.59**

b. Metabolic rates:

- i. *Example: Our project has two main sections: office and gym. In the office area, team members are sitting. In these areas a metabolic rate of 1.1 was used. In the gym area, a metabolic rate of 3.5 was used.*
- ii. *Example: In our project, occupants spend approximately 75% of their time sitting and typing (met rate 1.1), 10% of their time filing standing (met rate 1.4%), 10% of their time reading seated (met rate 1.0) and 5% of their time walking (met rate 1.7). This averages out to a met rate of 1.15 which we used in our calculations.*
- iii. *Example: There are 6 floors in the project. Floors 2-4 used a metabolic rate of 1.1 since they are standard office where occupants are typing. On floors 5 and 6, team members are doing an even mix of filing, walking, and writing, so we've used a metabolic rate of 1.37.*

- c. Airspeed between 0.6 and 1.7m [2 to 5.6 ft] (this part of the narrative is only for projects that use the elevated air speed method):

- i. *Example: Our project is using simple diffusers and is planning on providing air movement at above 0.1 m/s.*
- ii. *Example: Our project includes ceiling fans which move air at 0.6 m/s when the temperature is above 25 °C and are turned off at lower temperatures.*

B. For commercial kitchen spaces:

- a. *Example: The operative temperature in the commercial kitchen does not exceed 27 °C [80 °F] at any time.*
- b. *Example: The kitchen thermostat is set to 75°F. Mechanical systems automatically adjust temperature when kitchen equipment raises the temperature of the space.*

C. For dwelling units, after meeting requirements listed above in the “For all spaces except commercial kitchen spaces and dwelling units” section as well as providing a narrative specific to thermal comfort within dwelling units:

- a. *Example: The local climate does not require cooling, as the location’s 2% peak cooling design load condition is 80 °F, which is within acceptable thermal conditions.*
- b. *Example: Each dwelling unit can accommodate window AC units, ceiling fans and floor fans. The building provides each tenant with a phone number to call for assistance with installation. The building provides guidance to each tenant on how to maintain different types of systems, including tips and tricks on annual maintenance before the cooling season begins. The base building has a central heating system and provides thermostats to each tenant so that the tenant can control the heat levels in their space.*
- c. *Example: The base building provides a central heating and cooling system. The landlord provides maintenance to both systems on a quarterly basis and provides tenants a phone number to call in the event that there are thermal comfort issues. The base building systems are designed in compliance with ASHRAE 55:2013 requirements for typical clo values of 1.0 and met values of 1.1.*