

## Validation Example

The following example project has been selected from the latest Ashrae's Handbook (2013) to show that results are in full accordance with the ASHRAE single-room example of the "Nonresidential Cooling and Heating Load Calculations" chapter of the ASHRAE 2013 Handbook of Fundamentals (pages 18.37 to 18.46).

Inputs and results for this example project are shown in the two pdf printout files generated by the program.

[ASHRAE Example room - Thermal losses.pdf](#)

[ASHRAE Example room - Cooling loads.pdf](#)

More specifically, here are the results of the ASHRAE example in comparison to the ones included within the FineHVAC reports (see the following table):

### Cooling loads

|                            | ASHRAE 2013 example<br>Chapter 18 |       | 4M Cooling report |                                              |
|----------------------------|-----------------------------------|-------|-------------------|----------------------------------------------|
|                            | Page                              | Table | Page              | Table                                        |
| 24-hour lighting load      | 18.39                             | 28    | 10                | Lighting schedule and load in space per hour |
| 24-hour Spandrel wall load | 18.42                             | 29B   | 9                 | Loads per Surface and hour – Wall "W2 SW"    |
| Walls loads at 3 pm.       | 18.45                             | 34    | 9                 | Loads per Surface and hour                   |
| Openings loads at 3 pm.    | 18.45                             | 34    | 9                 | Loads per Surface and hour                   |
| Ceiling load at 3 pm.      | 18.45                             | 34    | 9                 | Loads per Surface and hour                   |
| Lighting load at 3 pm.     | 18.45                             | 34    | 12                | Space Loads per hour                         |
| People load at 3 pm.       | 18.45                             | 34    | 12                | Space Loads per hour                         |
| Equipment load at 3 pm.    | 18.45                             | 34    | 12                | Space Loads per hour                         |

### Thermal loads

|                            | ASHRAE 2013 example<br>Chapter 18 |                           | 4M Heating report |                       |
|----------------------------|-----------------------------------|---------------------------|-------------------|-----------------------|
|                            | Page                              | Table                     | Page              | Table                 |
| Windows, walls, roof loads | 18.46                             | Table in "Part 6" example | 5                 | "Calculation" chapter |
| Infiltration load          | 18.46                             | Table in "Part 6" example | 5                 | "Calculation" chapter |

[This video](#) helps the reader to see the results as they have been calculated by the program.