



Floor Area Measurement Best Practices #13
Requirements for Floor Area Calculation Rounding Precision
Applicable to: All BOMA Floor Area Measurement Standards
Approved: February 2015

Introduction: The Floor Measurement Standards Committee of BOMA International has approved this Best Practice to provide guidance in addition to that included in the BOMA 2010 Office Standard. This Best Practice does not modify the BOMA 2010 Office Standard published as ANSI/BOMA Z65.1-2010 but may be considered for inclusion in future updates of that publication.

Question: **How many decimal places do I need to carry in my calculations in order to comply with the BOMA floor area measurement standards?**

Answer: The BOMA standards do not specify how many decimal places must be carried for area units measured (square feet or meters) or for load factors. The measurer must turn to local industry standards to determine their own best practices.

When measuring in square feet (imperial units) it is common practice to round final calculations to the whole square foot. In a typical leasing agreement, a fraction of a square foot is typically not considered worth negotiating over.

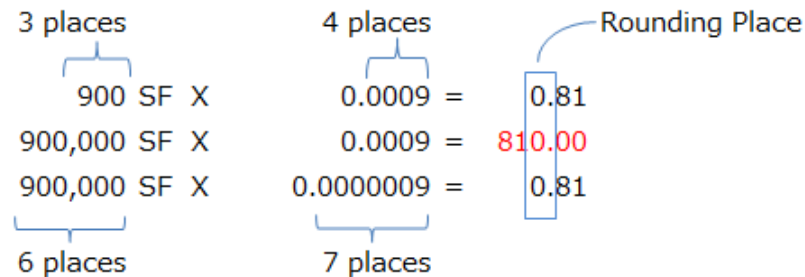
When measuring in square meters (metric units) it is common practice to round final calculations to the first decimal place (1/10th of a square meter). When one moves up to a square meter, this is a significantly larger area than a square foot. Just a tenth of a square meter is a little larger than a whole square foot. In regions using the metric system, leasing agreements are often written with rounding to the first or second decimal place (1/10th or 1/100th of a square meter).

When rounding load factors it is necessary to understand and account for the relationship between the load factor and the area size. The load factors have a varying potential to affect the final area since they are multipliers in the calculation. The variance created by load factor rounding is directly affected by the size of the usable area the load factor is being applied to. In order to maintain accuracy at the same level as the units you are rounding to, the load factor has to be carried out to as many decimal points as are needed to offset the largest area number's digit places before the decimal. For example, an area that is only 900 square feet need only have the load factor calculated to the fourth decimal place to ensure accuracy to the whole square foot. However an area of 900,000 square feet needs the decimal carried to the seventh place to maintain accuracy to the whole square foot. So to ensure accuracy in the ones place (a whole square foot) you need to calculate the load factor out as many decimal places as equals one more than the number of units to the left of the decimal in the largest measurement to which the factor is being applied.

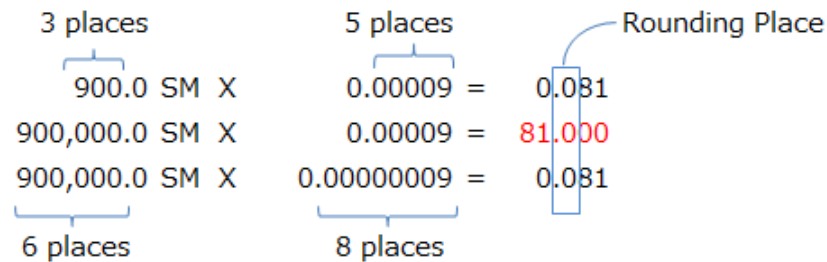
Alternatively if you are rounding to the first decimal place (a tenth of a whole unit) as commonly seen with square meters, you will need to count the number of digits left of the decimal in the largest area and add two to find your correct decimal place to calculate your load factors to. This compensates for the rounding to a tenth of a whole unit. See the illustration on the next page.

Illustration 1a:

Calculating to 1 whole unit:



Calculating to the 10th of a whole unit:



Citations:

- Office Buildings: Standard Methods of Measurement (ANSI/BOMA Z65.1–2010)
- Industrial Buildings: Standard Methods of Measurement (ANSI/BOMA Z65.2–2012)
- Multi-Unit Residential Buildings: Standard Methods of Measurement (ANSI/BOMA Z65.4—2010)
- Retail Buildings: Standard Methods of Measurement (ANSI/BOMA Z65.5—2010)
- Mixed Use Properties: Standard Methods of Measurement (ANSI/BOMA Z65.6—2012)



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