

An aerial photograph of a suburban neighborhood. The houses are mostly two-story structures with gabled roofs, interspersed with lush green trees. A winding pond or stream runs through the lower portion of the image. The overall scene is bright and sunny, suggesting a clear day.

**MLS<sup>®</sup> Home Price  
Index (HPI)  
Methodology  
Backgrounder**

## MLS® Home Price Index (HPI) Methodology Backgrounder

How do attributes such as the number of bedrooms, number of bathrooms, lot size and a host of other features contribute to the price of a home? The MLS® Home Price Index (HPI) does the work and answers this question using more than 15 years of MLS® System data and sophisticated statistical models.

It uses this data to define a “benchmark home” as the baseline for its price models, which is a virtual representation of what a typical, middle-of-the-road home would look like for a particular property type in a particular neighbourhood. The models for the MLS® HPI use benchmark homes as the basis for calculating the contribution of each feature or attribute to the price of the home.

A benchmark home does not necessarily represent an actual existing home, but instead combines all the typical features of a certain property type in that neighbourhood. Every neighbourhood and property type combination has its own set of models in the MLS® HPI.

For example, to obtain the number of bedrooms for a benchmark home:

1. Collect all the sales for a certain property type in a particular neighbourhood starting from five years before either the time the models were developed or the most recent annual review, and up until either the development of the models or annual review; then
2. Arrange all these sales so they are sorted from the smallest number of bedrooms to the largest number of bedrooms; and finally,
3. Pick the one that lands right in the middle of them (this is called the median)—this would be the number of bedrooms for the benchmark home.

A benchmark home is referred to as “middle-of-the-road” because it’s constructed from attributes that fall in the middle of the range of all home sales. Other quantitative attributes for benchmark homes such as number of bathrooms, living area and lot size are calculated the same way.

For qualitative attributes, such as exterior, heating fuel, and foundation, the most common value (this is called the mode) is chosen.

Once all characteristics have been obtained to build a typical “middle-of-the-road” benchmark home, the models use this information to determine how each attribute affects the price. Please see Appendix A for a table presenting typical attributes and their modelling parameters.

If you’d like to learn more, you can access a detailed methodology document via the link to MLS® HPI reference materials at <https://www.crea.ca/housing-market-stats/mls-home-price-index/resources/>.

## Appendix A – Benchmark modelling for a two-storey single-family home

Benchmark attribute	Benchmark value	Model coefficient	Benchmark model value (Benchmark value x model coefficient)
Finished basement? (yes=1 no=0)	1	0.09916109	0.09916109
Hard siding? (yes=1 no=0)	1	0.01822980	0.01822980
Living area (sq. ft.)	1,600	0.00012801	0.20481942
Number of bathrooms	2	0.03689373	0.07378746
Number of fireplaces	1	0.06672047	0.06672047
Number of garage spaces	1	0.01064111	0.01064111
Number of half bathrooms	1	0.07630139	0.07630139
Number of rooms	7	0.00766833	0.05367831
Other factors not modelled (default=1)	1	12.99547005	12.99547005
Square root of lot size (sq. ft.)	57.01	0.00720978	0.41102934

*Table 1 – sample benchmark attributes and weightings in a model*

To determine the benchmark price, all the benchmark model values are added up together (in this example we get 14.00983845). Then the formula  $P = e^x$  is used, where  $P$  is the benchmark price,  $e$  is a mathematical constant (Euler's number) roughly equal to 2.71828, and  $x$  is the sum of the benchmark model values (14.00983845).

In this example, the benchmark price is calculated to be \$1,214,500 (rounded to the nearest hundred dollars) for a two-storey single-family home in this neighbourhood in a particular month.

Please note: all figures used in the table are for demonstration purposes only and do not represent any specific neighbourhood or period. Every property type and neighbourhood combination in the MLS® HPI will have its own unique set of values, as well as coefficients that vary from one month to the next. Additionally, while only a sample of benchmark attributes have been presented in the table, the set of attributes will also change depending on the type of home and neighbourhood.