



# OS MasterMap<sup>®</sup> Topography Layer – Building Height Attribute

Technical specification

# Technical specification

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# Introduction

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The documentation is supplied in portable document format (PDF) only. Free Adobe® Reader® software, which displays the specification, incorporates search and zoom facilities and allows you to navigate within. Hyperlinks are used to navigate between associated parts of the specification and to relevant Internet resources by clicking on the blue hyperlinks and the table of contents.

# Chapter 1 Introduction

OS MasterMap Topography Layer-Building Height Attribute (BHA) Beta release is a dataset containing absolute and relative height values for buildings contained within OS MasterMap Topography Layer. It is an enhancement to, and forms part of, the OS MasterMap Topography Layer.

BHA Beta contains height values for buildings only, specifically for Topographic Area features with the theme of 'Buildings' within the OS MasterMap Topography Layer. It is necessary to join the Building Height data to the corresponding OSMM Topography Layer feature to which it belongs, identified by the building TOID.

A license to use OS MasterMap Topography Layer is required to use the Building Height Attribute data. The data is being provided as a Beta version which, over time, will be extended to include full national coverage.

## Available Formats

Building Height Attribute data is supplied in Comma-Separated Value (CSV) file format. Files will not be compressed.

## Supply Mechanism

Building Height Attribute is supplied in 5km<sup>2</sup> geographic chunks.

To receive BHA data customers are required to go to [OS Orders](#) and request the data. Customers who already have BHA alpha data will not receive data automatically.

Each 5km<sup>2</sup> chunk will contain BHA for any building polygon that intersects that area, as such any BHA values that fall across tile boundaries in contiguous tiles will be duplicated.

Tiles are supplied with all available data contained within. Not all 5km<sup>2</sup> tiles will have complete coverage.

## File Naming

The CSV files are named as the 5km chunks they correspond to. For example;

**TQ2060** for TQ26SW

**TQ2065** for TQ26NW

**TQ2560** for TQ26SE

**TQ2565** for TQ26NE

## Chapter 2 Building Height Attribute Structure

OS MasterMap Topography Layer – Building Height Attribute consists of three absolute height values and two relative height values for each building polygon.

### Absolute Heights

The absolute building heights describe the height of the building at three distinct points. They are measured against Ordnance Datum Newlyn (ODN) and require the use of other height products (for example, OS Terrain 5) to give meaningful heights to the building features. If we have been unable to calculate a valid value for any of these attributes the field will be populated as NULL.

### Relative Heights

Relative building heights have been generated from the above absolute height values. These provide height values that can be utilised without the use of other height products. If we have been unable to calculate a valid value for any of these attributes the field will be populated as NULL.

### Model Overview CSV

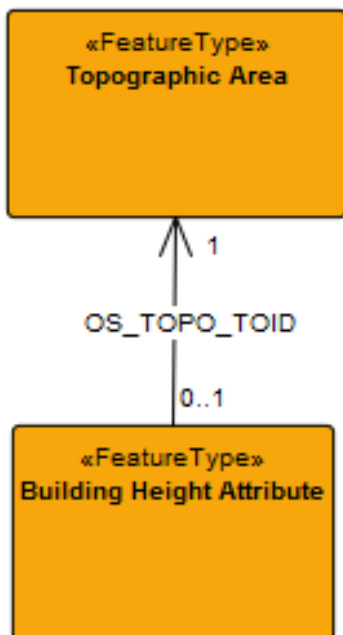


Figure 1 High Level overview showing the relationship between the Topographic Area Feature Type in OS MasterMap Topography Layer and the Building Height Attribute

## UML Model of Building Height Attribute data in CSV format

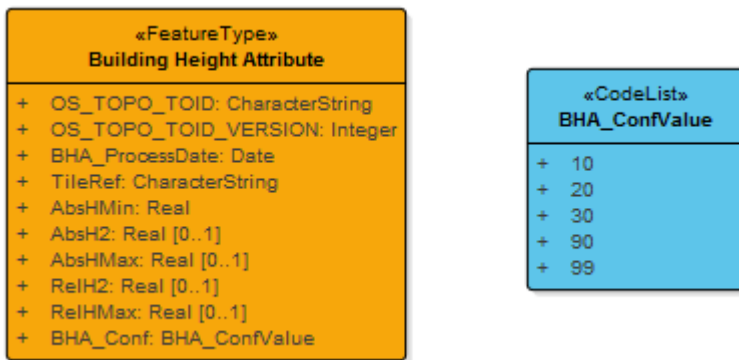


Figure 2 BHA UML Model

## Building Height Attributes

Building Type attribute is a single feature type with ten attributes.

### Attribute Name and Definition

The name of the attribute and what it is describing

### Attribute Type

The nature of the attribute. The following values may occur;

Type	Description
Date	Specifies a day within the Gregorian calendar in the format YYYY-MM-DD
Integer	Any positive or negative whole number or zero.
Real	A floating point number.
CharacterString	An ordered set of characters.

### Multiplicity

[1] indicates that the attribute is mandatory and can only occur once.

[0..1] indicates that the attribute is optional; if present, it only occurs once.

<b>OS_TOPO_TOID</b>		
<b>Description:</b> Unique feature identifier of the topographicArea building polygon taken from OS MasterMap Topography Layer		
<b>Type:</b> CharacterString	<b>Length:</b> 20	<b>Multiplicity:</b> 1
<b>OS_TOPO_TOID_VERSION</b>		
<b>Description:</b> The Version number of the TOID for which the height values have been calculated		
<b>Type:</b> Integer	<b>Length:</b> 3	<b>Multiplicity:</b> 1
<b>BHA_ProcessDate</b>		
<b>Description:</b> The date that the Building Height Attribute values were calculated for the given OS_TOPO_TOID. Dates will follow the structure YY-MM-DD		
<b>Type:</b> Date	<b>Length:</b> 10	<b>Multiplicity:</b> 1
<b>TileRef</b>		
<b>Description:</b> The 5km <sup>2</sup> tile reference within which the Building Height Attribute is located		
<b>Type:</b> CharacterString	<b>Length:</b> 6	<b>Multiplicity:</b> 1
<b>AbsHMin</b>		
<b>Description:</b> AbsHMin is the absolute minimum height of the intersection of the external building walls and the underlying ground surface		
<b>Type:</b> Real	<b>Length:</b> 4.1	<b>Multiplicity:</b> 1
<b>AbsH2</b>		
<b>Description:</b> AbsH2 is the absolute height of the base of the roof, that is, where the roof intersects the principal part of the building. The principal part of the building is defined as the main structure.		
<b>Type:</b> Real	<b>Length:</b> 4.1	<b>Multiplicity:</b> 0..1
<b>AbsHMax</b>		
<b>Description:</b> AbsHMax is the absolute height of the highest point on the building and can include any structure such as chimneys, plant housings and machinery.		
<b>Type:</b> Real	<b>Length:</b> 4.1	<b>Multiplicity:</b> 0..1



<b>RelH2</b>		
<p><b>Description:</b> <math>\text{RelH2} = \text{AbsH2} - \text{AbsHMin}</math></p> <p>RelH2 is the relative building height from the base of the building (AbsHMin) to the height of the base of the roof (AbsH2).</p>		
<b>Type:</b> Real	<b>Length:</b> 4.1	<b>Multiplicity:</b> 0..1
<b>RelHMax</b>		
<p><b>Description:</b> <math>\text{RelHMax} = \text{AbsHMax} - \text{AbsHMin}</math></p> <p>RelHMax is the relative building height from the base of the building (AbsHMin) to the height of the highest point on the building (AbsHMax).</p>		
<b>Type:</b> Real	<b>Length:</b> 4.1	<b>Multiplicity:</b> 0..1
<b>BHA_Conf</b>		
<p><b>Description:</b> A qualitative assessment of the confidence of the height statistics for each topographicArea building polygon</p>		
<b>Type:</b> BHA_ConfValue	<b>Length:</b> 2	<b>Multiplicity:</b> 1

## Values

Values: BHA_ConfValue		
List of values describing the confidence we have in the accuracy of the Building Height Attribute values per building.		
Value	Confidence	Description
10	High	Buildings that are represented well by the BHA values and for which we have high confidence in the geometric accuracy of the values
20	Moderate	Buildings that are represented well by the BHA values but where we do not have a high confidence in the geometric accuracy of the height values
30	Low	Buildings that have a complex geometry which cannot be accurately represented using the BHA values
90	Incomplete	Building for which we have not been able to calculate some or all of the Building Height Attribute values
99	Not Assessed	Buildings for which the confidence level of the BHA values has not been assessed

## Example Record

Data will be supplied as a Comma-Separated Values (CSV) file and will appear in the following format;

osgb1000000347730836,3,2017-5-14,HP6510,26.2,32,34.1,5.8,7.9,99

where; osgb1000000347730836 (TOID)

3 (version)

2017-5-14 (process date)

HP6510 (tile reference)

26.2 (AbsHmin)

32 (AbsH2)

34.1 (AbsHMax)

5.8 (RelH2)

7.9 (RelHmax)

99 (confidence level)