ORDNANCE SURVEY GB

OS MASTERMAP TOPOGRAPHY LAYER – BUILDING HEIGHT ATTRIBUTE – TECHNICAL SPECIFICATION

Version history

Version	Date	Description
1.0	03/2016	Initial version.
1.2	10/2018	Minor updates.
1.3	10/2020	Minor updates.
1.4	11/2021	Minor updates.

Purpose of this document

This document provides information about and insight into the OS MasterMap Topography Layer – Building Height Attribute product and its potential applications. For information on the contents and structure of OS MasterMap Topography Layer – Building Height Attribute, please refer to the Overview and the Getting Started Guide.

The terms and conditions on which OS MasterMap Topography Layer – Building Height Attribute is made available to you and your organisation are contained in that Ordnance Survey customer contract. Please ensure your organisation has signed a valid current customer contract to be able to use OS MasterMap Topography Layer – Building Height Attribute.

We may change the information in this document at any time, giving you the notice period set out in your contract. We do not accept responsibility for the content of any third-party websites referenced or accessed in or through this document.

This document has been screened according to Ordnance Survey's Equality Scheme. If you have difficulty reading this information in its current format and would like to find out how to access it in a different format (braille, large print, computer disk or in another language), please contact us on:
+44 (0)3456 05 05 05.

Copyright in this document

© Ordnance Survey Limited 2021. This document (including for the avoidance of doubt, any mapping images reproduced within it) is protected by copyright and apart from the rights expressly granted within this document to use the content, all rights are reserved. Any part of this document may be copied for use internally in your organisation or business so that you can use OS MasterMap Topography Layer – Building Height Attribute under the terms of your licence (but not otherwise).

No part of this document may be reproduced or transmitted in any form or by any means (including electronically) for commercial exploitation, onward sale or as free promotional material without getting the written consent of Ordnance Survey beforehand.

Trademarks

Ordnance Survey, OS, OS Logos, OSGB36, OS MasterMap and TOID are registered trademarks, and OS MasterMap Topography Layer – Building Height Attribute is a trademark of Ordnance Survey, Britain's mapping agency.

Contact details

OS website 'Contact us' page (https://www.ordnancesurvey.co.uk/contact-us).

Contents

1. Introduction to the product

OS MasterMap Topography Layer – Building Height Attribute is a dataset containing absolute and relative height values for buildings and selected structures contained within OS MasterMap Topography Layer. It is an enhancement to, and forms part of, OS MasterMap Topography Layer.

Building Height Attribute contains height values for buildings, tanks, chimneys (industrial) and glasshouses, specifically for Topographic Area features with the theme of 'Buildings' within OS MasterMap Topography Layer. It is necessary to join the Building Height Attribute data to the corresponding OS MasterMap Topography Layer feature to which it belongs, identified by the building topographic identifier (TOID). As such, an OS MasterMap Topography Layer licence is required to use the Building Height Attribute data. The Building Height Attribute data provides full national coverage.

1.1 Product supply format

Building Height Attribute data is supplied in comma-separated values (CSV) file format. Files will not be compressed.

1.2 Product supply mechanism

OS MasterMap Topography Layer – Building Height Attribute is supplied as an online download. You can download data in CSV format from the OS Data Hub (https://osdatahub.os.uk/).

The product is currently still available for customers to request through OS Orders (https://orders.ordnancesurvey.co.uk/sso/login.shtml).

Building Height Attribute is supplied in 5km² geographic chunks. Each 5km² chunk will contain Building Height Attribute values for any building polygon that intersects that area. As such, any Building Height Attribute values that fall across tile boundaries in contiguous tiles will be duplicated.

Tiles are supplied with all available data contained within them. Not all 5km² tiles will have complete coverage.

1.3 File naming in the product

The CSV files are named as the 5km² chunks they correspond to, for example:

- **TQ2060** for TQ26SW

- **TQ2065** for TQ26NW

- **TQ2560** for TQ26SE

- **TQ2565** for TQ26NE

2. Product structure

OS MasterMap Topography Layer – Building Height Attribute consists of three absolute height values and two relative height values for each building polygon. The included structures – tanks, chimneys (industrial) and glasshouses – are not distinguished from the buildings in this dataset. As such, they are subject to the same attribution and parameters. The unit of measurement used for absolute and relative building heights is metres.

2.1 Absolute heights

The absolute building heights describe the height of the buildings and selected structures 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 or have insufficient confidence in a value for any of these attributes, the fields will be populated as NULL.

2.2 Relative heights

Relative building heights have been generated from the 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 or have insufficient confidence in a value for any of these attributes, the field will be populated as NULL.
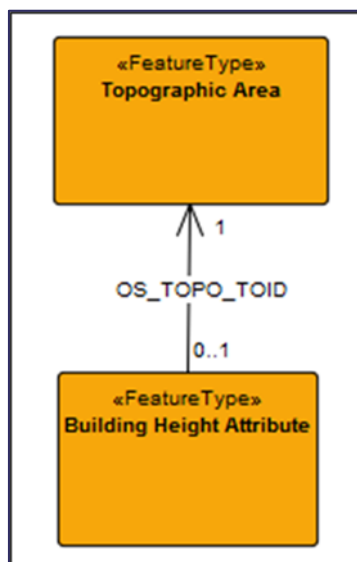
2.3 Model overview for CSV

Figure 1: High-level overview data model showing the relationship between the Topographic Area feature type in OS MasterMap Topography Layer and the Building Height Attribute feature type.

2.4 UML model of Building Height Attribute data in CSV format

The Unified Modeling Language (UML) model of OS MasterMap Topography Layer – Building Height Attribute in CSV format can be seen in Figure 2:
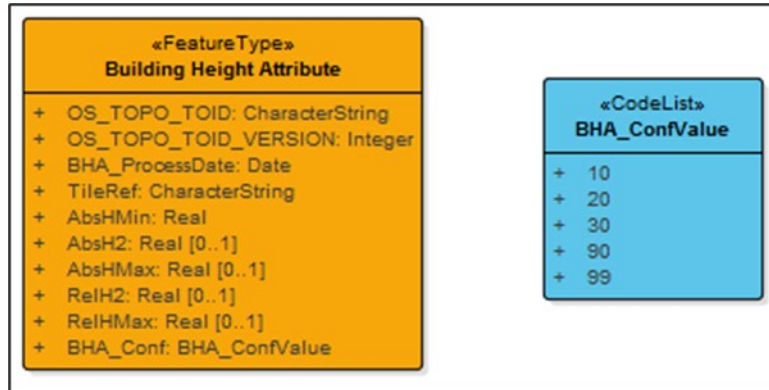

Figure 2: UML model showing the OS MasterMap Topography Layer – Building Height Attribute feature type and code list for the CSV supply.

2.5 Building Height Attribute feature type

This section describes the single feature type that makes up the OS MasterMap Topography Layer – Building Height Attribute product. The Building Height Attribute feature type has 10 attributes. The following information is given about each attribute:

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: Describes how many times this element is expected to be populated in the data. An attribute may be optional or mandatory within the product as denoted by the following:

• [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.

Building Height Attribute

OS_TOPO_TOID

Description: Unique feature identifier of the topographicArea building polygon taken from OS MasterMap Topography Layer.

Type: CharacterString	Length: 20	Multiplicity: 1

OS_TOPO_TOID_VERSION

Description: The version number of the TOID for which the height values have been calculated.

Type: Integer	Length: 3	Multiplicity: 1

BHA_ProcessDate

Description: The date that the Building Height Attribute values were calculated for the given OS_TOPO_TOID. Dates will follow the structure YY-MM-DD.

Type: Date	Length: 10	Multiplicity:1

TileRef

Description: The 5km² tile reference within which the Building Height Attribute is located.

Type: CharacterString	Length: 6	Multiplicity: 1

AbsHMin

Description: AbsHMin is the absolute minimum height of the intersection of the external building walls and the underlying ground surface.

Type: Real	Length: 4.1	Multiplicity: 1

AbsH2

Description: 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.

Type: Real	Length: 4.1	Multiplicity: 0..1

AbsHMax

Description: AbsHMax is the absolute height of the highest point on the building and can include any structure, such as chimneys, plant housings and machinery.

Type: Real	Length: 4.1	Multiplicity: 0..1

RelH2

Description: $RelH2 = AbsH2 - AbsHMin$.

RelH2 is the relative building height from the base of the building (AbsHMin) to the height of the base of the roof (AbsH2).

Type: Real	Length: 4.1	Multiplicity: 0..1

RelHMax

Description: $RelHMax = AbsHMax - AbsHMin$.

Building Height Attribute		
RelHMax is the relative building height from the base of the building (AbsHMin) to the height of the highest point on the building (AbsHMax).		
Type: Real	Length: 4.1	Multiplicity: 0..1
BHA_Conf		
Description: A qualitative assessment of the confidence of the height statistics for each topographicArea building polygon.		
Type: BHA_ConfValue	Length: 2	Multiplicity:1

2.6   Code list

Code list: 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 Building Height Attribute values and for which we have high confidence in the geometric accuracy of the values.
20	Moderate	Buildings that are represented well by the Building Height Attribute 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 Building Height Attribute values.
90	Incomplete	Buildings 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 Building Height Attribute values has not been assessed.

2.7 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)