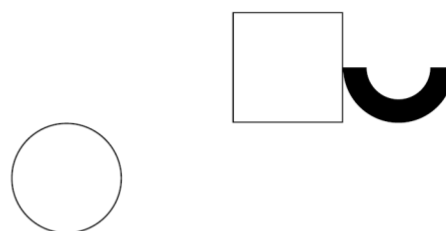
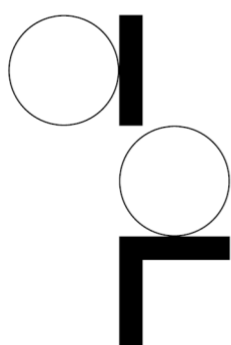
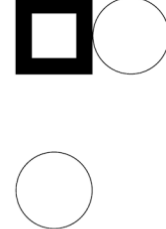
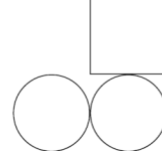


Buildings

Release Report
June 2022

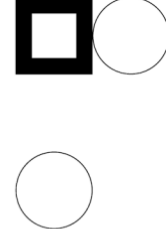
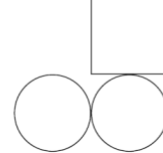




Disclaimer

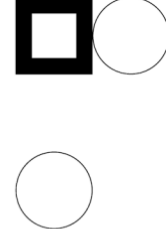
Geoscape Australia believes this publication to be correct at the time of printing and does not accept responsibility for any consequences arising from the use of the information herein. Readers should rely on their own skill and judgement to apply information to particular issues.

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission of Geoscape Australia.



Contents

1. Introduction	4
1.1 Document Purpose	4
1.2 Audience.....	4
1.3 References	4
1.4 Contact	5
2. Overview	6
2.1 Release Summary	6
3. Change Notifications	8
3.1 Notification of Change	8
4. Issues	9
4.1 New Issues.....	9
4.2 Resolved Issues	9
4.3 Ongoing Issues	9
5. Future Considerations	11
5.1 Legacy 'CAD' naming	11
Annex A – Total Counts	12
Buildings Theme – Summary	12



1. Introduction

Buildings is a digital dataset representing buildings across Australia. The Buildings dataset has relationships with the G-NAF, Cadastre, Property and Administrative Boundaries products produced by Geoscape Australia.

Data quality and potential capture timelines will vary across Australia based on three categories. Each category has been developed based on several factors defined by the population distribution (categorised based on population size), industrial/commercial activities, the probability of natural events (e.g. flooding) and the image source.

- **Urban (satellite source)** - areas with a population greater than 200, or with significant industrial/commercial activity in a visual assessment, digitised from satellite imagery
- **Urban (aerial source)** - areas with a population greater than 200, or with significant industrial/commercial activity in a visual assessment, digitised from aerial imagery
- **Rural** – all other areas

Geoscape Australia welcomes your feedback on the Buildings product. We also publish regular product development updates on our website (www.geoscape.com.au).

1.1 Document Purpose

This document provides a description of the issues, changes, features, updates and statistics relating to the applicable Buildings release. This document should be read in conjunction with the current Buildings Product Guide.

1.2 Audience

This document is made available to partners and customers. It is intended to be used by business managers, data managers and analysts as a guide and reference to understanding the content and variations within a data release.

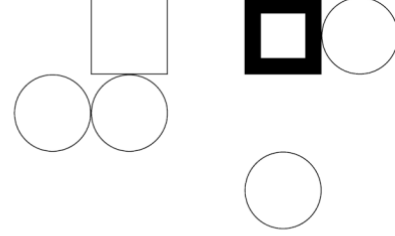
1.3 References

Buildings Product Guide Version 3.1

Geoscape Data Product Descriptions and Guides (geoscape.com.au/data/)

Geoscape Data Release Reports

Geoscape Support Page (www.geoscape.com.au/support)



1.4 Contact

Geoscape Australia Support

Geoscape Australia

Email: support@geoscape.com.au

Portal: support.geoscape.com.au

Web: www.geoscape.com.au

2. Overview

2.1 Release Summary

This product was released to customers on **30 June 2022** with data extracted on 23 June 2022.

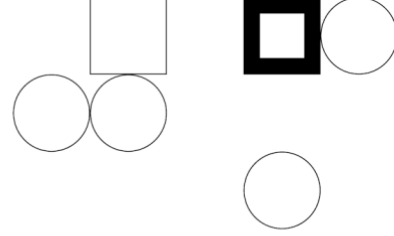
This release is a full national data population for **Version 3.1** of the Buildings product, described by the Buildings Product Guide v3.1.

This release includes updates for the areas listed in the table below.

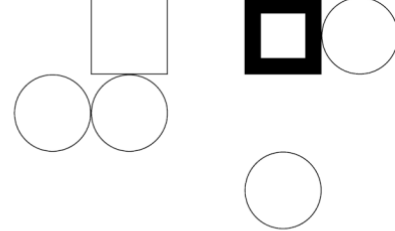
Locations of updated areas per State

State	Location	Urban Area (km ²)
NSW	Capital Region	45
	Coffs Harbour - Grafton	16
	Mid North Coast	183
	Murray	15
	Richmond - Tweed	257
NT	Northern Territory - Outback	37
QLD	Cairns	231
	Ipswich	127
	Mackay - Isaac - Whitsunday	114
	Toowoomba	50
	Townsville	333
	Wide Bay	534
SA	Adelaide - Central and Hills	21
	Adelaide - North	502
	Adelaide - West	51
	Barossa - Yorke - Mid North	55
	South Australia - South East	37
VIC	Melbourne - Outer East	184
	Melbourne - South East	230
	North West	136
WA	Mandurah	124
	Perth - Inner	87
	Perth - North East	406
	Perth - North West	430
	Perth - South East	647
	Perth - South West	494
	Western Australia - Wheat Belt	14
Total		5,360

[^] Location names are derived from intersection with the 2021 Statistical Area Level 4 (SA4) spatial dataset from the ABS.



Spatial files of the updated areas are available upon request via support@geoscape.com.au.



3. Change Notifications

3.1 Notification of Change

3.1.1 2021 Mesh Block Code Inclusion

In the September 2022 release, the 'mesh_block_code' field for Buildings will be updated with 2021 Australian Bureau of Statistics (ABS) Mesh Block Code values. This will replace the 2016 ABS Mesh Block Codes that are currently used in the June 2022 release.

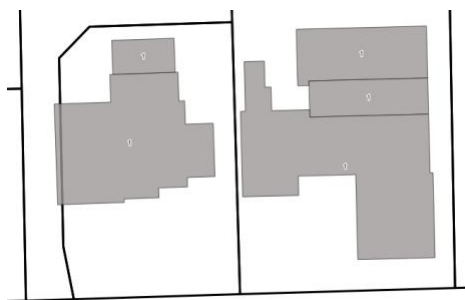
3.1.2 Building Merge

Buildings derived from aerial result in more detail roof polygons as the methods are more sensitive to roof material and level changes. This has changed the definition of the feature representation in the product from the roof outline to building parts. Geoscape is seeking to consolidate these building parts into a single representation where there is a high confidence that they represent a single building. It is expected that this change will result in a decrease in the feature count.

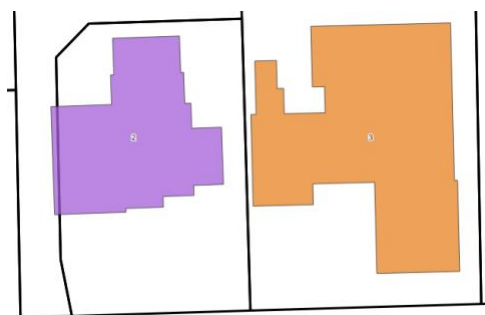
Our intention is to implement this change in the next release.

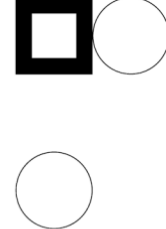
An example of the planned change is shown below.

Before: Parts of a building are represented as separate polygons with different building_pid values.



After: Buildings are consolidated to a single representation where there is high confidence that the parts belong to the same building.





4. Issues

4.1 New Issues

4.1.1 Over-capture of metal roof material in aerial supplies

In the June 2022 release, we have noticed that there is an over-capture of Metal roof type in the aerial capture. This occurred primarily for residential buildings. In some areas of the new aerial capture (e.g. Perth and Cairns), Metal classification was actually improved overall in relation to the previous satellite capture (satellite previously incorrectly classified Metal roofs as Tile). We are working with our production partners to improve the accuracy of the roof_material attribute, which can be affected by image smoothing, causing Tile roofs to be incorrectly classified as Metal.

4.2 Resolved Issues

4.2.1 Missing relationships in building_property and building_address

It was identified that approximately 11,061 building_property linkages were not implemented for the March 2022 release. The linkages have been resolved for the June 2022 release.

This resulted in missing linkages in the building_address table in the March 2022 release, as addresses are linked to buildings through cadastre and/or property. These have also been resolved for the June 2022 release.

4.3 Ongoing Issues

4.3.1 Buildings represented by multiple parts


Buildings being created through our workflows using an aerial imagery source can be represented by multiple polygons instead of the intended single polygon. We are investigating an enhancement to improve this representation and will introduce this once we have a remediation developed. If this has been developed in time for the June release then this will be highlighted in the June Pre Release report.

4.3.2 Building PID issue affecting 2 records

An issue relating to the building PID of 'bld155d2bf94c5e' has been identified in the March 2022 release. This building PID related to a building located in New South Wales in the November 2021 release. In the March 2022 release, this PID has been incorrectly used for a different building that exists in Queensland. This has resulted in the retirement of the original building in NSW with matching building PID.

4.3.3 Roof_material classification

Over classification of buildings with a primary roof material of 'Tile'. Geoscape Australia continues to work with its partners to improve the techniques used in the classification of



roof materials. For further information please refer to Classification Correctness - Building Roof/Roof Material in the product description.

4.3.4 Centroid not within building polygon

When mapping the building centroid from the centroid_longitude and centroid_latitude there will be occurrences where the point does not fall inside the building geometry. This occurs because of the complexity of the building geometry and impacts < 0.1% of buildings. A fix for this issue will be investigated for a future release.

4.3.5 Swimming_pool_adjacent incorrectly 'null'

Some records containing attribution for swimming_pool_review_date also contain 'null' attribution for swimming pool adjacent where the allowed values are 'no' or 'yes'. This affects < 0.25% of buildings.

4.3.6 Duplication of buildings between update areas

New and updated buildings are captured within Areas of Interest (AOIs). Buildings that intersect two adjacent AOIs are duplicated. This issue affects approximately 1,800 buildings.

4.3.7 Duplicate building polygons

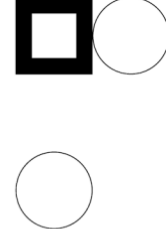
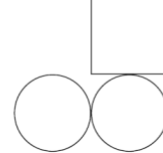
There are 8,417 buildings with duplicate geometries, resulting in 8,427 additional building polygons present. A fix for this issue will be investigated for a future release.

4.3.8 Roof colour assignment

An over classification of light roof colours has been identified. This is mainly present in the update area in Melbourne that was included for the November 2022 release. This has improved in recent supplies.

4.3.9 Building position offset from imagery

There is evidence of buildings having a horizontal shift of approximately 0.5m in the NSW suburbs of Parramatta and the Dee Why area. This has occurred where the new shift to the digital elevation model has not worked as intended. As we continue to refine the aerial derived building processes, we'll seek to resolve this issue.



5. Future Considerations

This section outlines enhancements under consideration, but not planned into a specific release. For further details on these please contact Support.

5.1 Legacy 'CAD' naming

The `building_cad` table contains a field that is called `'cad_pid'`, while the Cadastre product has an attribute called `'cadastre_pid'`. We have input the `'cadastre_pid'` values into this `'cad_pid'` field to not affect customer processes with attribute name changes. In addition the table name of `'building_cad'` no longer matches the Cadastre product. There is no current plan to change either the `'building_cad'` table name or `'cad_pid'` field name.

Annex A – Total Counts

Buildings Theme – Summary

For the buildings table the additional, retired, updated and total building counts, as well as the percent change to the previous release have been listed in the table below. For the aspatial tables the total record counts have been listed.

TABLE NAME		ACT	NSW	NT	OT	QLD	SA	TAS	VIC	WA	TOTAL	
buildings	Additional	5	79,673	4,858	0	272,375	314,818	2	85,558	873,044	1,630,333	
	Retired	0	29,566	1,569	0	101,559	115,157	0	31,189	339,819	618,859	
	Updated	64	91,675	3,439	0	299,950	169,938	1,751	101,093	727,109	1,395,019	
	Total	198,782	5,243,089	179,363	449	3,386,271	1,952,119	512,946	4,738,500	2,422,085	18,633,604	
	% Change in total from Previous Release	0.00%	0.96%	1.87%	0.00%	5.31%	11.39%	0.00%	1.16%	28.23%	5.74%	
	Solar Panel	Yes	22,369	432,772	16,775	8	489,613	254,235	19,981	443,995	335,685	2,015,433
		No	174,793	3,866,469	129,451	329	2,266,115	1,341,294	328,765	3,479,922	1,667,555	13,254,693
	Swimming Pool Adjacent	Yes	15,347	664,432	45,520	0	582,449	134,817	8,359	295,352	361,237	2,107,513
		No	181,760	3,648,085	100,177	355	2,184,344	1,459,278	344,312	3,645,070	1,646,579	13,209,960
	building_cad		242,603	10,163,230	343,197	554	4,533,129	2,426,198	620,471	7,929,543	4,593,857	30,852,782
building_property		214,326	6,237,682	280,929	0	4,621,780	2,377,717	552,320	9,570,505	2,440,763	26,296,022	
building_address		530,528	9,086,825	261,043	75	4,717,978	2,394,102	581,392	7,142,601	3,725,086	28,439,630	

The increase in total counts for buildings, building_cad, building_property and building_address is due to the changes in building representation described in section 3.1.2.