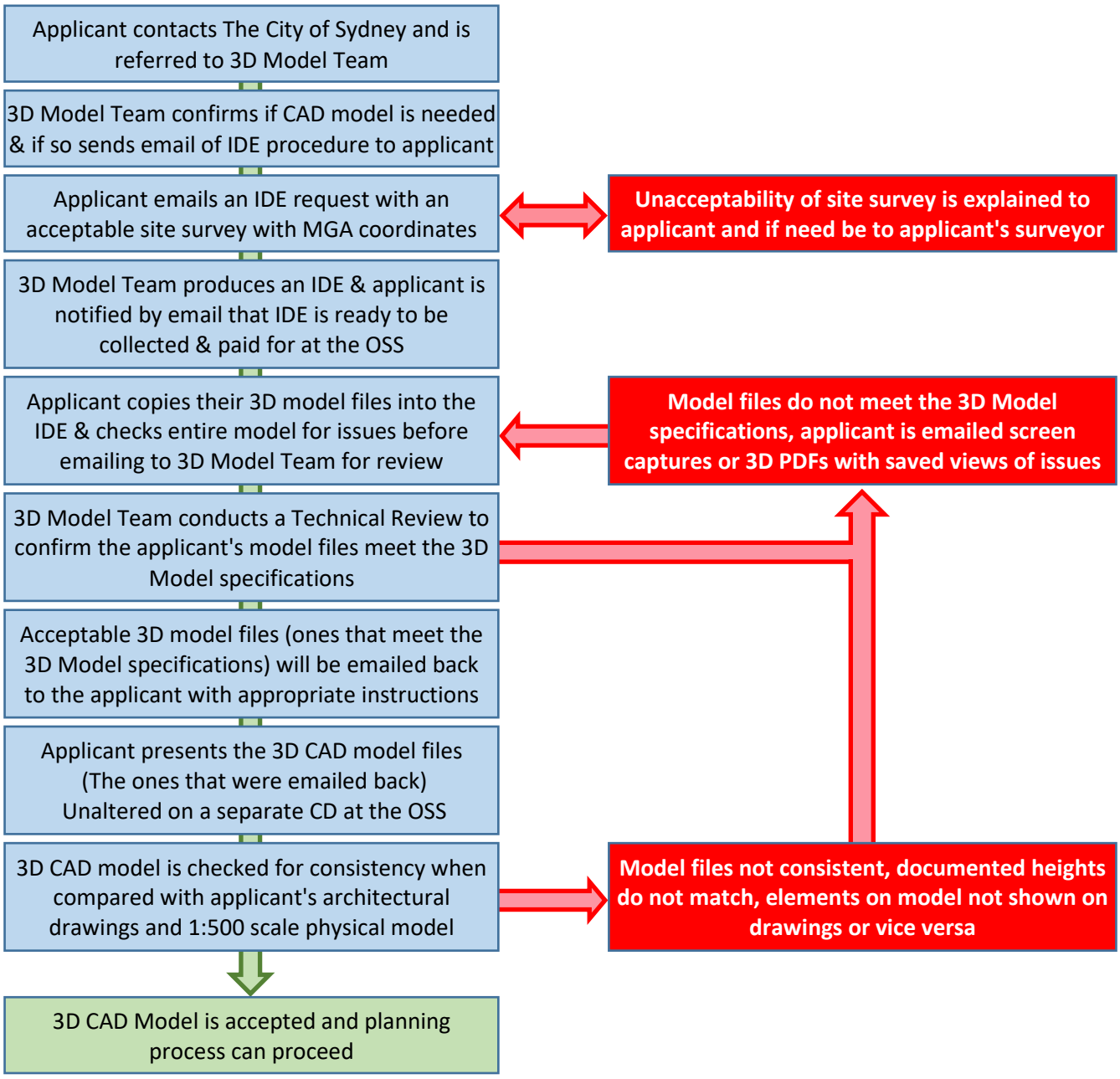
City of Sydney
Town Hall House
456 Kent Street
Sydney NSW 2000

Specification for Developments requiring 3D CAD Models

Version 05 - January 2019



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1. Overview

1.1 Purpose

The purpose of this specification is to produce:

- 3D CAD models capable of insertion into a photogrammetric surveyed 3D model of the Sydney LGA and to keep the model up to date.
- 3D CAD models that are geometrically and aesthetically accurate for city planning and development assessment, and
- 3D CAD models that can be shared across multiple CAD platforms.

1.2 Procedure for Model Submission

Contact The City of Sydney modelling section as soon as possible to avoid any delay in Development Application lodgement.

Contact the City of Sydney modelling section by either:

E-mail: model@cityofsydney.nsw.gov.au

Phone: 02 9265 9333

An Initial Data Extraction file (IDE) must be obtained for developments requiring 3D CAD models.

A reasonable amount of time is required for technical testing of CAD files by the City of Sydney's Modelling Team prior to lodgement. This will allow for corrections by applicant and subsequent checks. It may take two (2) weeks or more - depending on complexity of design and skill level of person(s) allocated to revise issues with models.

1.3 Criteria for Model Submission

3D CAD models will be required for the Local Government Area (LGA) of the City of Sydney whereby, any development that proposes to make amendments to a building's existing exterior within the CBD

and/or

Any new development or alterations and additions, over 5 million dollars, or that result in a building of 4 stories of more.
(i.e. existing 3 storey building adding 1 new storey)

The 3D CAD models must be lodged at Development Application stage and can be requested for LEC approval, Design Excellence, and/or Amended Development Application as a result of council meetings or negotiated options.

Any changes to the design will require resubmission of the 3D CAD model prior to the issue of the Occupation Certificate (OC) or if required as a condition within the development applications notice of determination.

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1.4 Level of Detail Required

It is required that two (2) 3D CAD models be submitted at their respective level of detail. All IDE data must appear in Detailed Building & Building Envelope files.

1.4.1 Detailed Building (BLDG)

Scale: **1:1**

File Size: **6 Mb** (excluding IDE information)

File Format: **DWG** and/or **DGN**

All buildings within proposed site boundaries need to be modelled in detail, including existing buildings that will be retained or adapted in the development.

The **detailed model** is required to show:

- Setbacks, Colonnades, Balconies, Fenestration
- Awnings, Shading Devices, Roof Detail, Parapets, Louvers, Significant Projections, Plant and Lift Motor Rooms.
- Stairs, Balustrades, Fences, Gates, Hard Landscaping, Pergolas, all terrain within site boundaries (extruded down to RL0 - AHD)
- Doors and windows to be shown in closed position. Model all surfaces if open.
- All elements must be 3D (have material depth), 2D geometry not acceptable.
- Monochrome 3D CAD models are acceptable. Material pallets, colours & lighting are not required.
- External geometry must be modelled. Internal geometry & fine detail such as hardware (door handles, hinges, nuts & bolts), sprinklers systems, building maintenance equipment are discouraged as it amounts to large file sizes.
- Alignment of geometry is to be coplanar and collinear. There are to be no gaps. All surfaces must be modelled if a void is part of design intent to ensure model is light tight.

1.4.2 Building Envelope (ENVP)

Scale: **1:1**

File Size: **2 Mb** (excluding IDE information)

File Format: **DWG** and/or **DGN**

All buildings within proposed site boundaries need to be modelled in detail, including existing buildings that will be retained or adapted in the development.

The **envelope model** is required to show:

- Setbacks, Colonnades, Balconies, Fenestration
- Awnings, Roof, Parapets & Plant Rooms
- All terrain within site boundaries (extruded down to RL0 - AHD)
- Alignment of geometry is to be coplanar and collinear (no gaps)

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2. CAD File Formats

2.1 DGN

Microstation DGN is the preferred file format accepted by the City of Sydney council if the CAD file was primarily produced with Microstation (i.e. not exported or converted to DGN).

. DGN files to be in accordance with all aspects of this specification.

All versions of Microstation files will be accepted.

2.2 DWG

DWG is an accepted file format by the City of Sydney council.

DWG files to be in accordance with all aspects of this specification.

All versions of AutoCAD are acceptable for files in DWG format, (saved as the latest release available).

2.3 File Size

Files greater than **6Mb** (Bldg) and **2Mb** (Envp) will **not** be accepted.

Files are to be reduced using appropriate CAD file optimisation utilities prior to submission. Not zipped.

During the technical review, Files exceeding 10Mb will require you to request access to The City of Sydney's FX - File Exchange online sharing facility. A link will be sent by the City Of Sydney's Modelling Team.

External file sharing platforms (eg Dropbox) are not permitted.

2.4 File Naming Convention

Files are to be renamed in this format:

Street_Name_Street (type)_Number-Range_SUBURB_model type.

The two model types are categorised as follows:

Building (Detailed) – 6Mb max – abbreviation "Bldg"

eg. **Kent_St_456_SYDNEY_bldg**

Building (Envelope) – 2Mb max – abbreviation "Envp"

eg. **Kent_St_456_SYDNEY_envp**

Data in each file are to be consolidated into layers provided.

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2.5 Reference Files

The submitted 3D CAD model is not to contain any reference / x-reference files.

The IDE is to be renamed as described in **section 2.4** which will have the applicants 3D CAD detailed model copied into the Proposed BLDG level / layer – 6Mb (the Proposed ENVP level / layer will remain empty)

The IDE is to be renamed as described in **section 2.4** which will have the applicants 3D CAD envelope model copied into the Proposed ENVP level / layer – 6Mb (the Proposed BLDG level / layer will remain empty)

3. Initial Data Extraction (IDE)

3.1 IDE File

3D CAD model files must contain IDE data. The file size of IDE data is deducted and therefore does not count towards 3D CAD file sizes.

City of Sydney will supply a base IDE file containing the following:

- Map Grid of Australia (MGA) Co-ordinates Grid
- 100 metres Context Buildings – indicative data (if available). Additional data is not available from City of Sydney and is to be sourced by applicant.
- Existing Site buildings are not supplied
- Detailed CAD Survey – supplied by applicant/s
- Sun Access Planes (SAP) – if applicable
- Proposed Building – an empty layer for applicant/s to insert proposed design CAD model
- Proposed Envelope – an empty layer for applicant/s to insert proposed design CAD model

IDE files are available in **DWG** and **DGN** formats only.

3.2 Map Grid / Co-ordinate System

All submitted 3D CAD models are to be spatially referenced to the (Map Grid of Australia (MGA).

The origin is not to be relocated unless advised by the City's Modelling team.

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3.3 IDE Requirements

To obtain an Initial Data Extraction file for your proposed development please send an email to model@cityofsydney.nsw.gov.au a copy of your **CAD survey file** (in either .dwg or .dgn format) **with two (2) points on the site boundary clearly marked to show their Northing and Easting MGA (Map Grid of Australia) coordinates, which must be based on Established Marks registered in the Department of Lands and Property Information's SCIMS Database with a Horizontal Position Equal to or better than Class C.** This is to allow the modelling team to spatially locate your survey into the national co-ordinate system and the City of Sydney's 3D CAD environment.

The City of Sydney prefers that two (2) site boundary *corners* be marked with these MGA coordinates.

Please also state, in the email, the **purpose** of obtaining the IDE (e.g. Development Application) and the **total number of storeys** intended for the project.

IDE file will contain your survey positioned to MGA coordinates provided by your surveyor, indicative context buildings surrounding your site and any Sun Access Planes affecting your site if applicable.

The City of Sydney's modelling team will then contact you when a CD containing the IDE (Initial Data Extraction) CAD files for your site have been prepared and is ready to be collected from the One Stop Shop on Level 2 of Town Hall House.

The fee in the portion of the table highlighted below must be paid to the City of Sydney's One Stop Shop on Level 2 before the counter staff can hand over the IDE CD.

The IDE CD will contain one .dgn and one .dwg CAD file.

Within each of those files, the City of Sydney's modelling team will have

- added and orientated the survey data you provide to be coincident with its MGA coordinates, and

- included 3D data on context buildings surrounding the subject site.

After you collect this CD, please then:

- save two copies of either one of the IDE CAD files,
    - Rename the first copy as the Detailed Building file,

      eg. K**ent_St_456_SYDNEY_bldg**
    - & Rename the other copy as the Building Envelope file,

      eg. **Kent_St_456_SYDNEY_envp,**
- in each of these new files, insert your specification-compliant 3D CAD model over the survey at its correct RL above AHD (RL 0.0m is indicated by the blue MGA grid in the IDE files),and then
- email test versions of the two CAD model files to model@cityofsydney.nsw.gov.au for the City of Sydney's modelling team's checking.

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4. Working Units

4.1 Working Units

Working units are in accordance with the supplied IDE file. Working units are to be in metres. The working units as determined by the .dgn IDE file are as follows;

Metres

Master units: Sub units:	m (metres)
Master units per sub unit:	mm (millimetres)
Positional units per sub unit:	1000 1

5. Elements / Objects

5.1 Unacceptable Elements / Object Types

The following DGN and DWG elements / objects are **not permitted** in submitted 3D CAD models*;

- Lines
- Line Strings
- Cells and Shared Cells (Blocks)
- Text
- Text Nodes
- Dimensions
- Hatch
- Area Fill
- Attributes (tags) raster data
- Lighting
- Cameras
- Materials
- Misaligned geometry (gaps)
- 2D Geometry (all elements must be 3D (have depth)
- Duplicate geometry
- Internal geometry & fine detail such as hardware (door handles, hinges, nuts & bolts), sprinklers systems, building maintenance equipment are discouraged as it amounts to large file sizes.
- Overlapping geometry
- Ununified Surface Normals

All other known DGN and DWG elements / objects will be permitted.

*exclusions do not apply to IDE data.

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6. Standard Review Process

6.1 3D CAD / Physical Model Review

STAGES	REQUIREMENTS	REVIEWED AGAINST
Development Application (DA)	Physical & Digital Models Required	Drawings at Lodgement
DA Approval with conditions and/or Court Assessment (LEC)	Physical & Digital Models Required	Conditions specified in the Notice of Determination. Approved Stamped Drawings and/or LEC Stamped Plans
Amendments (S96) (S4.55) etc	Physical & Digital Models Required	Revised Drawings
Construction Certificate (CC)	Physical & Digital Models Required	Conditions specified in the Notice of Determination. Approved Stamped Drawings
Occupation Certificate (OC)	Physical & Digital Models Required	Conditions specified in the Notice of Determination. Photographs of completed building supplied by Applicant. Photographs must show all external facades, roof areas of completed building so that it can be compared to models. Be sure photos are not obstructed in any way, such as scaffolding.

The City of Sydney's Modelling Team will send an email with the following instructions upon final review:

Digital CAD model files on CD/ USB are subject to review against complete documentation package at lodgement. Please email amended models for review should there be a revision to design between now and lodgement. Otherwise:

- burn the attached files onto a CD labelled eg **"3D CAD models of Kent_St_456_SYDNEY"** and
- submit that CD - together with payment for the appropriate 3D Model handling fee" to the City of Sydney's One Stop Shop Customer Service Counter, on Level 2 of Town Hall House.

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7. Fees & Charges

7.1 Fees & Charges apply

The URL link to the City of Sydney's **Fees & Charges**
http://www.cityofsydney.nsw.gov.au/Council/FeesCharges.asp

Development Applications Requiring 3D Models Initial Data Extraction **(IDE)**	per application – refer to link for current fees & charges
3D Development Application Lodgement Fee	per application – refer to link for current fees & charges
Resubmission of a 3D File Amendment Fee (for each subsequent re-submission S96, S4.55, CC & OC)	per application – refer to link for current fees & charges

8. Check List

- ○ Contact Modelling Team
- ○ Request Initial Data Extraction
- ○ Collection & Payment of Initial Data Extraction
- ○ 3D CAD Models emailed to modelling team for review prior to lodgement
- ○ 3D CAD models reviewed by modelling team & emailed to applicant
- ○ Reviewed 3D CAD models burnt onto a CD/ USB
  (NOTE – Do not include 3D CAD Models on USB with Documentation Package – 3D CAD Models must be separate CD or USB)
- ○ 3D CAD models & physical models reviewed by modelling team against Architectural documentation during Development Application Lodgement
- ○ Compliant 3D CAD Models accepted
- ○ Development Application processed

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9. File Lodgement

3D CAD model files are to be submitted **ONLY** at:

CBD (One Stop Shop)
Town Hall House
Level 2, 456 Kent Street
Sydney, NSW 2000
02 9265 9333

Opening Hours:
Monday to Friday
8am to 6pm
Public Holidays
Closed

UNDER NO CIRCUMSTANCES SHOULD 3D CAD FILES BE DELIVERED DIRECTLY TO TOWN PLANNERS

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