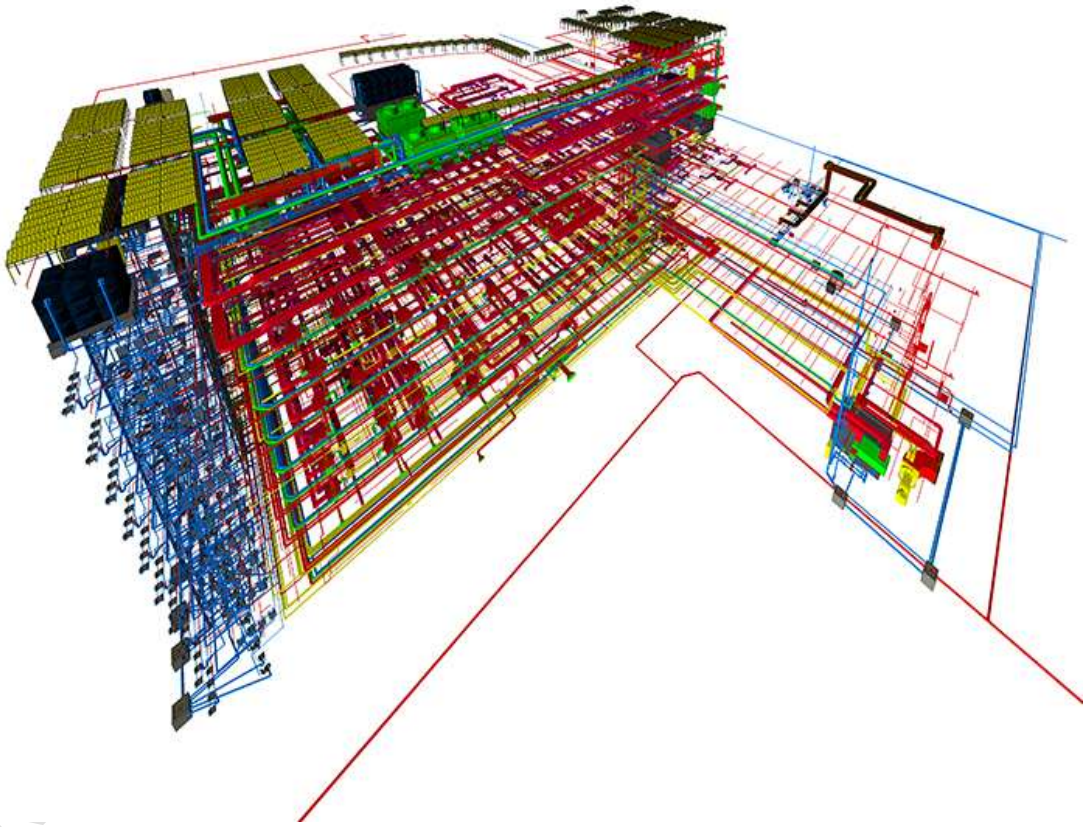
Building and Construction Authority

Proposed Code of Practice for BIM e-Submission

Part 3: MEP Requirements



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BCA acknowledges the leadership provided by the BIM Steering Committee in support of the production of the Proposed Technical Reference for BIM e-submission.

The Proposed Technical Reference for BIM e-submission has been drafted by the Centre for Construction IT on behalf of BCA and the BIM Steering Committee.

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The development of this technical requirement has been a collaborative effort among a cadre of very knowledgeable consultants and processing officers from different regulatory agencies. Significant contributors are listed below:

Regulatory agencies:

Public Utility Board
Water Supply Network Department

Infocomm Development Authority
Telecommunication Facility Coordination Committee

CityGas Pte Ltd
Parks & Tree Regulatory Section

Participating Consultants:

AECOM Pte Ltd
Arup Pte Ltd
PTA Consultants Pte Ltd
Surbana International Consultants Pte Ltd
Squire Mech Pte Ltd
United Project Consultants Pte Ltd

OBJECTIVES

The objective of this Document is to assist qualified persons (QPs) in developing BIM models to meet new requirements of Building Information Model (BIM) submission. It describes the requirements and guidance for creating BIM with specific object types, associated properties and presentation format to the following regulatory agencies for processing:

a. Public Utility Board (PUB), Water Supply Network Department
b. Infocomm Development Authority (IDA)
c. CityGas Pte Ltd

This submission guideline contains a list of requirements written in a concise form to guide QPs in e submission to the above mentioned regulatory agencies. It is by no means an exhaustive

Note: ***The respective regulatory agency reserves the right to reject and request for necessary correction of any required deliverables or formats that do not meet the requirements.***

SCOPE

These submission guidelines contain lists of requirements of the building works which must be complied with when making a building plan or planning submission. The items in this Standard Guideline may also be amended or revoked when new written laws come into force. For more information or enquiries on the specific submission requirements, please consult the appropriate regulatory agency above. For Software specific on how to BIM e-submission, refer to Appendix A of this guide. These user manuals should be read carefully as this Document cannot take into account all the special features of individual BIM application. For any submission requirements mentioned in the Appendices that require customisations to a certain extent, QPs are also advised to make reference to the training materials distributed or to consult the respective software vendor for any enquiries on the application. If there are contradictions between this submission guideline and vendor's instructions, BCA BIM team shall be contacted for clarification.

Table of Contents

I. GENERAL REQUIREMENTS

1. Deliverables

1.1 File Format & Software Version

- All submissions shall be in Native file format (ie. .rvt, .dgn, .pla etc).

  For the latest acceptable Native file format and software version, always refer to *https://www.corenet.gov.sg/general/building-information-modeling-(bim)-e-submission.aspx*

  Plans, elevations, sections, layout views or sheets (refer to Appendix A for specific requirements from each regulatory agency), with appropriate titleblock and PE's stamp;

  a. Schematic Diagram is required for submission to all agencies involved
  b. Notes and Legend is required for submission to all agencies involved
  c. Site Plans and Location Plans is required for submission to all agencies involved
  d. Native file should include:
     - Complete BIM model showing the complete services
     - Part 3D BIM model (services + archi model, if any) by floor/ by shafts/ important part cross sections (Refer to Appendix A)
     - Take note of the naming convention – if part section, include grid numbers (Refer to Section 2.4)

1.2 File and Folder Structure

All submissions shall be structured by the following:

File Structure

- Single file
  - One single BIM to contain all information. Suitable for small sized project with only one main building.

- Federated files

- Several BIM to contain all information. Suitable for medium to bigger sized projects with several buildings; or that are too big to handle.
- UNC (Universal Naming Convention) path or Relative path shall be used.

> A relative path defines the position of a linked file in a working directory such as project folder. Its position is defined by its relative location.

QPs may opt to use any of the above mentioned method, whichever is appropriate for the project.

1. MODEL ORIENTATION AND SITE CONFIGURATION

The site, building model or its adjacent buildings should be drawn in the real orientation or spatial coordinate system and with reference to Singapore Standard Datum (>100M), rather than project reference level at zero ground.

> Registered Land Surveyor shall provide X, Y, Z points.

2. SCALE

All BIM submitted for approval has to be drawn in real size as built (1:1) in metric scale.

> All 2D Views generated from BIM ***shall not have odd drawing scales.***

3. STANDARD NAMING CONVENTION OF FILES AND VIEWS

Standard naming convention shall be used.

3.1 File Naming

Project ID					Author			Block/ Zone					Unit/ Storey			Submission Version		Software Version			User- defined					

- Single File example:

Project ID					Author			Block/ Zone					Unit/ Storey			Submission Version		Software Version			User- defined					
M	L	P	1	_	A	-	_	M	A	I	N	_	-	-	_	A	_	1	3	_						

- Federated Files example:

Project ID					Author			Block/ Zone					Unit/ Storey			Submission Version		Software Version			User- defined					
M	L	P	1	_	A	-	_	M	A	I	N	_	-	-	_	A	_	1	3	_	S	I	T	E		
M	L	P	1	_	A	-	_		1	0	1	_	-	-	_	A	_	1	3	_	B	L	K	1	0	1
M	L	P	1	_	A	-	_			-	-	_	A	1	_	A	_	1	3	_	U	N	I	T	A	1

Table 1. File Naming convention

Name of field	Indicators	Max. number of characters	Description
Project Identification		4	User defined field for the project
Author	A-	1	Architect
	C-		Civil engineer
	G-		Geotechnical engineer
	E-		Electrical engineer
	L-		Land surveyor
	M-		Mechanical engineer
	N-		Equipment supplier
	S-		Structural engineer
	T-		Telecommunication/ signal engineer
	V-		Other disciplines
	X-		Contractor
Zone/ Block	NN	4	where, N=Zone or Block number Eg.: 101 for Block 101 A1 for Zone A1 POD for Podium
	--		For all blocks
Unit or Storey/ Level	NN	3	where, N= Unit or Storey/ Level Eg.: A2 for Unit A2
	---		For all Unit or Storey/ Level
Software Version	NN	2	where, N= software version Eg.: 13 for Revit 2013 S5 for Aecosim ss5 18 for Archicad 18
User- defined	NN	4	User- defined code for in- house applications

3.2 View Naming

Agency						Type of View			View Name						
F	S	S	D	-	_	F	P	_	1ST	S	T	O	R	E	Y

Table 2 View Naming Convention

Name of field	Indicators	Max. number of characters	Description
Agency	CBPD	6	Central Building Plan Department
	WRN		Water Reclamation (Network)
	WTR		Water Supply Network
	FSSD		Fire Safety and Shelter Department
	TFCC		Telecommunication Facility Coordination Committee
	CITYGAS		CityGas Pte Ltd
Type of view	SP	2	Site Plan
	FP		Floor Plan
	FE		Elevation

	FX		Section
	DT		Detail
	3D		3D
	LV		Layout View (Cover Page)
	DG		Schematic Diagram
	LG		Legend
	DP		Diagrammatic Plan(for strata boundaries)
	LP		Landscape Plan
	AP		Area Plan
	TP		Terrain/ Topographic Plan
View Name (user-defined)	01	3	01 Storey/ Level 02 Storey/ Level where, N= Storey's no. 01M- 99M 01B- 99B
	02		
	NN		
	Mezzanine M		
	Basement N		
	Elevation N		where, N = Directions Eg. East, West, North, South; or 1, 2, 3, 4
	Section N		where, N = Section's number
	Summary of X		where, X = Schedule's name e.g. GFA

4. CORE INFORMATION (CI) FOR BIM OBJECTS

All submissions shall have minimal Core Information (CI) as specified by the respective regulatory agency. Refer to ***III. Core Information (CI) for BIM Objects***

Table 3. Terms used in Core Information (CI)		
Building Element	Refers to the actual physical element constructed on site by the contractors.	
BIM Object	Refers to the BIM object to be used to create the building element in the model.	
Parameters	Refer to the attributes/ parameters required by individual regulatory agencies.	
	Name:	Name of the parameter
	Data List:	Valid list of values for each parameter
	Remarks:	Any other specific remark in particular to the parameter.

5. ANNOTATIONS AND DIMENSIONS

All submissions shall have minimal annotations as specified by the respective regulatory agency. Refer to ***Agency- Specific Requirements***.

6. LAST SAVED VIEWS

Checking and approval from the regulatory agencies is based on the "Last Saved Model", together with the "Last Saved View" of site plans, floor plans, elevations and sections submitted. Therefore, QPs are to ensure that the following items are checked upon submission:

a. Maximum extent is saved for each view;
b. No hidden objects or annotations;
c. Any link (3D model or BIM saved in other file) that is considered part of the submission is loaded upon submission;
d. There shall be no missing/ unreadable external files.
e. All other external references, irrelevant drawing layers, objects, annotations, draft work and construction lines, which are not part of the proposed building elements, are to be removed or purged upon submission; and
f. No propriety fonts are used for annotations and all the fonts should be legible; and
g. All objects and annotation in each phase were displayed in the last saved view.

7. COVER PAGE

Use the provided Title Block in the Template. Red box indicates the portion that can be changed. Customise the information according to company requirements.

Cover Page shall have the following information:

- Project Information
- View List/ Schedule List
- Endorsement/ QPs declaration

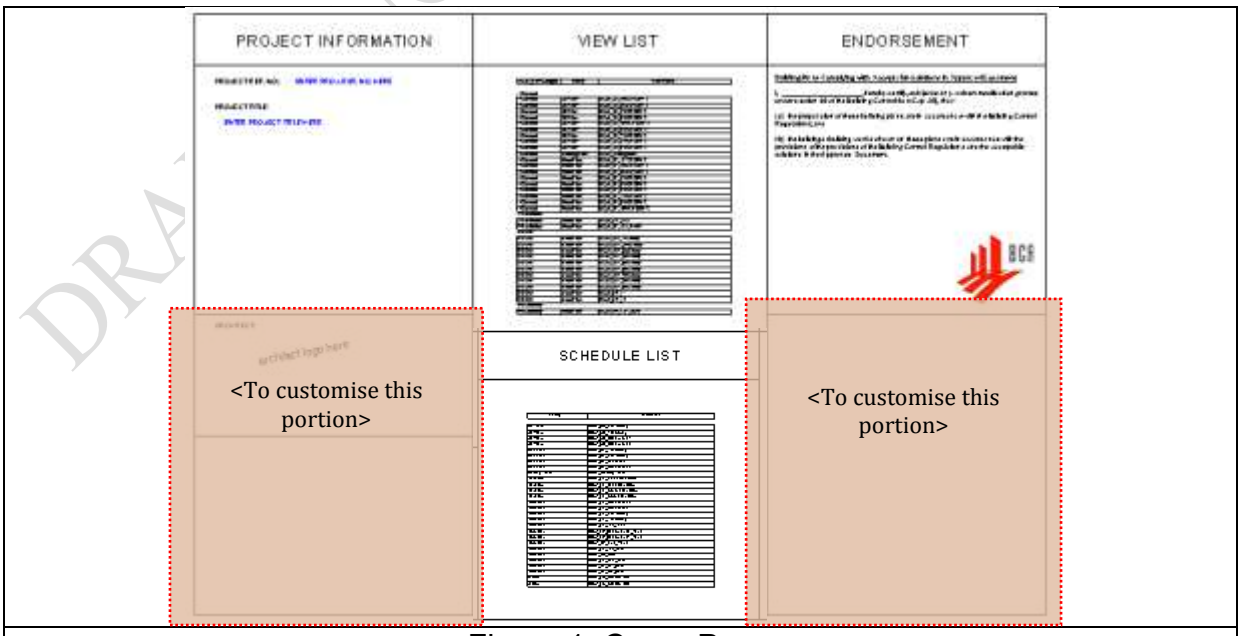


Figure 1. Cover Page

8. ADDITION & ALTERATIONS AND AMENDMENT SUBMISSIONS

The same BIM model (with changes incorporated to comply with the requirements) should be used in resubmission (i.e. no shifting of spatial coordinate system in the re-submitted model). The revised submission should be indicated clearly in the name of BIM file submitted.

For any plan of alteration or addition to an existing building, or, re-submission for regulatory approval, all the building objects or elements should be demarcated clearly by colours in Table 4 (in accordance with SS CP83 Part 5):

Table 1 Colours used for A&A project

Colour	Usage
Magenta	Proposed elements
Cyan	Existing elements
Yellow	Deleted elements

Any building works which are to be deleted, removed or demolished must be shown in dotted lines on the plans and presented in a manner that can be easily identified or distinguished, as shown in Figure 3.

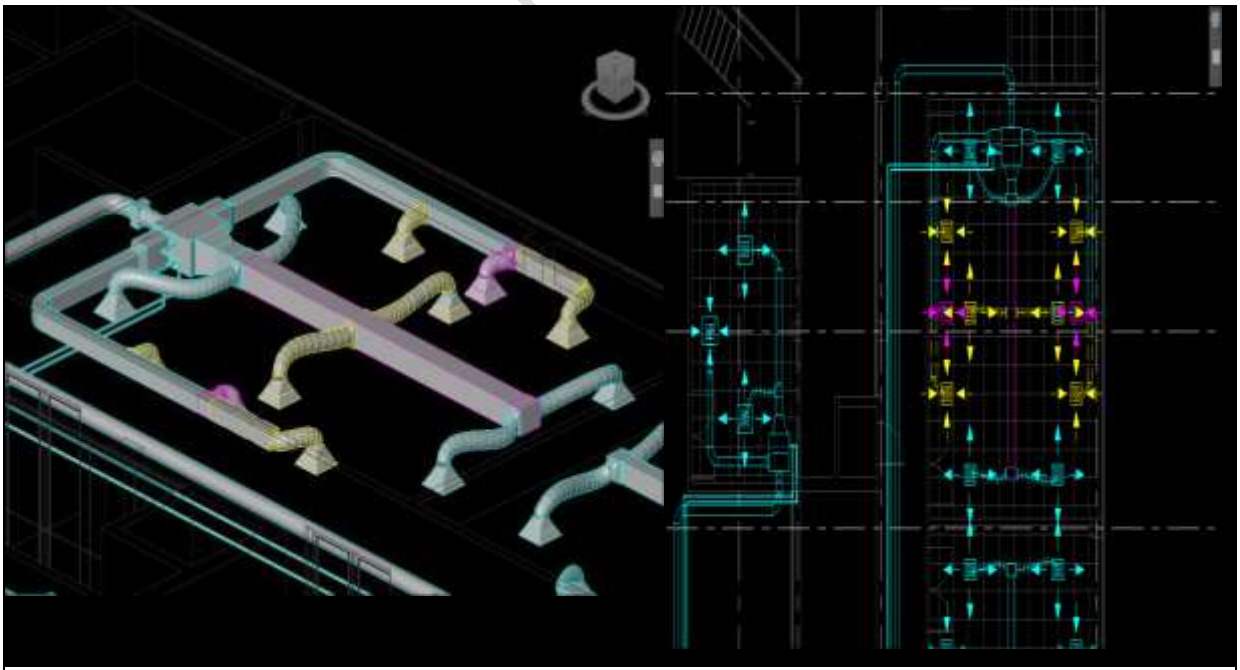


Figure 1 Sample of A&A project / project for re-submission (plan and 3D views)

PEs should include a complete set of all related model views (plans, elevations, sections and 3D views) in every submission, including the re-submission of amendments. For any model view which contains NO amendments, a box indicating that this is “For Reference ONLY” shall be placed on the top right corner of the model view, and all its building objects or elements shall be demarcated with **CYAN** colour, as shown in **Figure 4.**

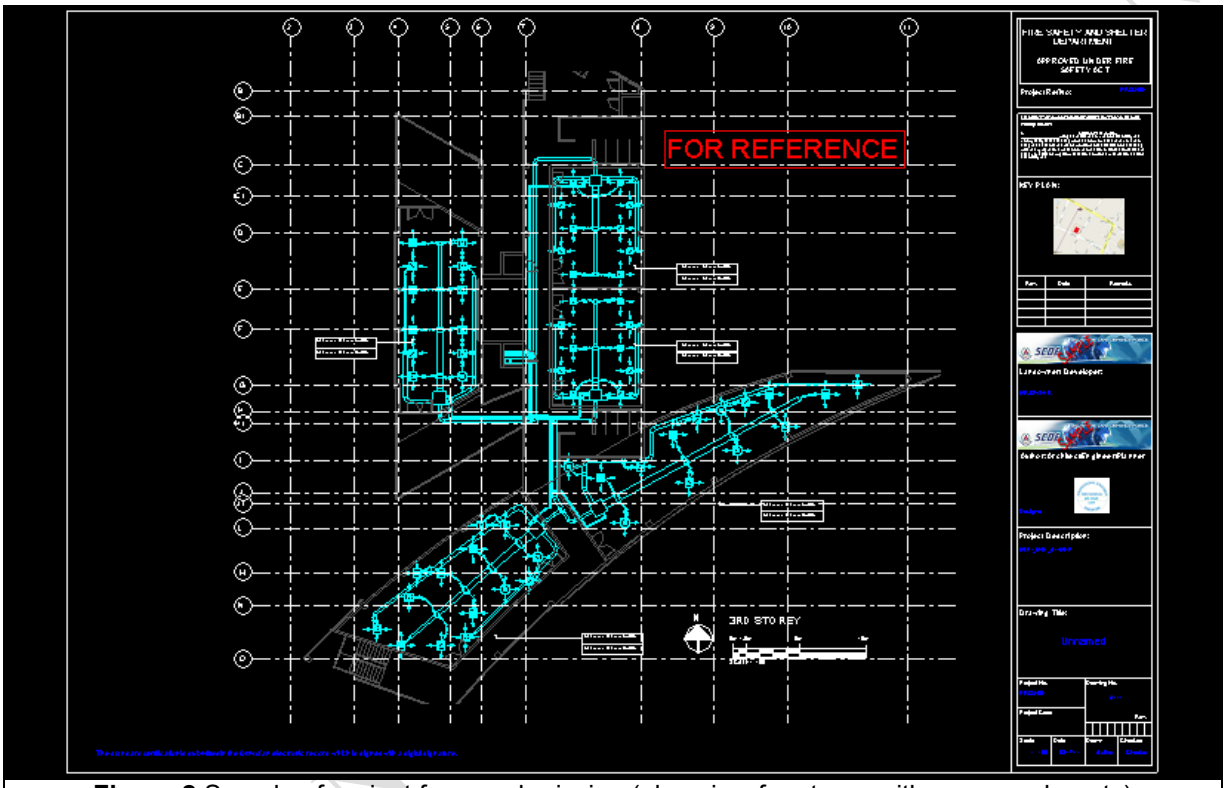


Figure 2 Sample of project for re-submission (plan view for storey with no amendments)

II. AGENCY- SPECIFIC REQUIREMENTS

A. PUB-WTR SUBMISSION REQUIREMENTS

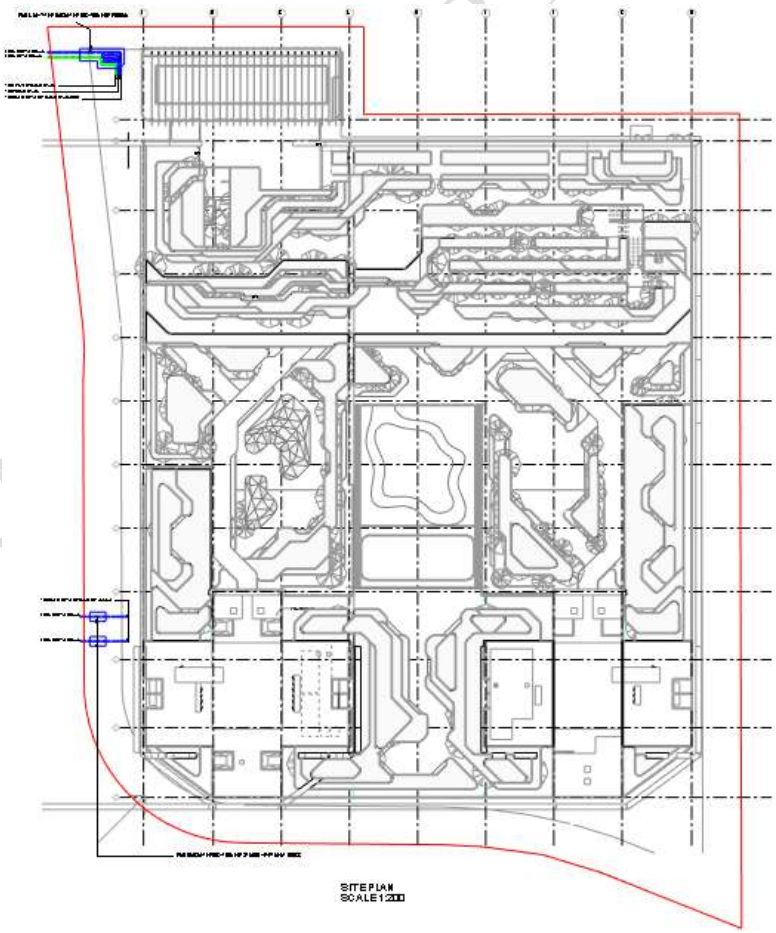
1. General Requirements for all PUBWTR Submissions

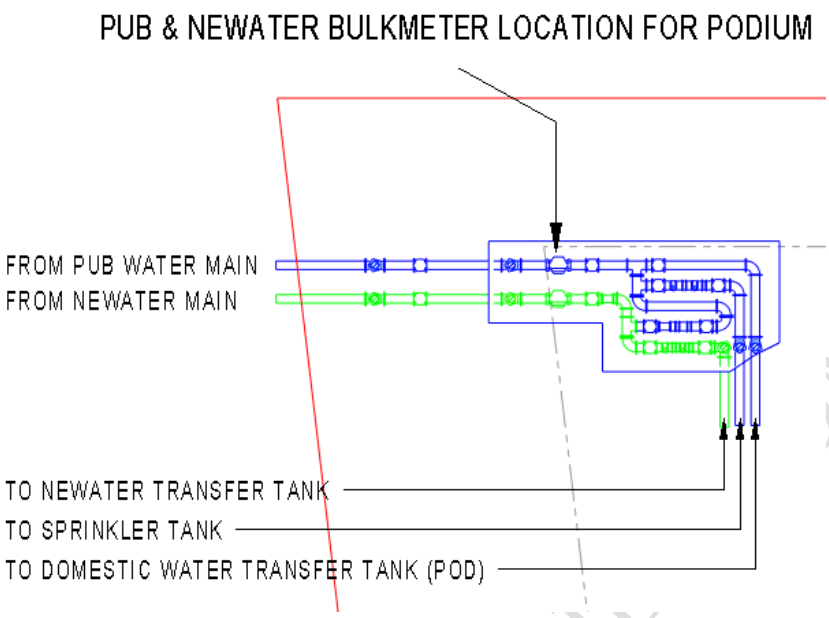
Only Schematic Line Diagram and 3D cross sectional model of important parts/zones, as specified below, are required for PUBWTR BIM e-submission. No 2D floor plans, elevations and sectional drawing views are required during submission

1.1. 2D Views

1.1.1. Location and site plan including the following details:

a. Proposed water meter location
b. Entrance to development
c. Boundary of development sites

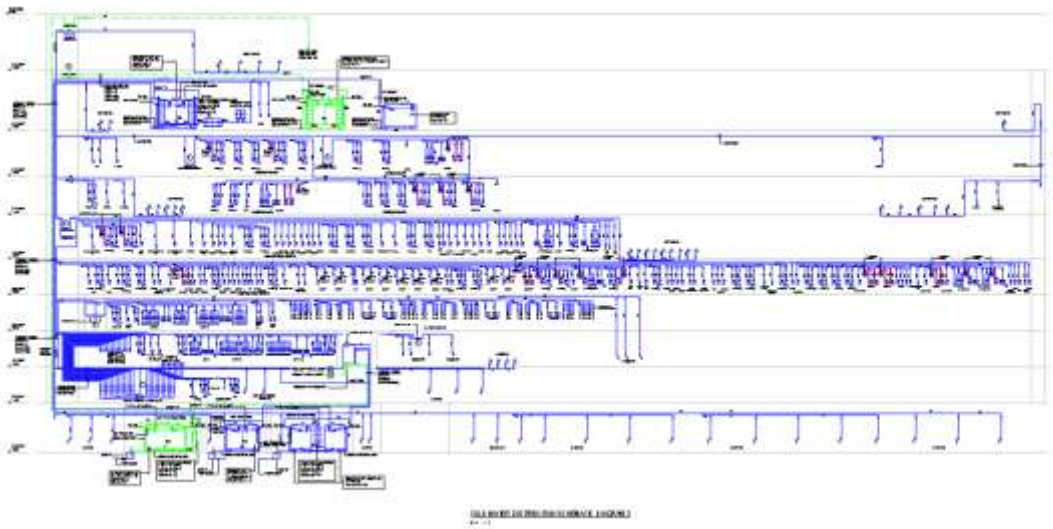




1.1.2. Overall water system schematic drawing shall indicate the following:

a. Proper labeling to be provided for the various water pipes
b. The following color code shall be adopted:
    i. Direct water supply from PUB water main in BLUE
    ii. Indirect water supply via gravity feed in GREEN
    iii. Indirect water supply via pump feed in BROWN
    iv. Hot water supply/return pipes in BLACK
    v. NEWater in PURPLE
c. Reduced level of platform
d. Reduced level of highest water fitting/fire hydrant (if applicable) receiving direct supply from PUB water mains
e. Diameter of all water pipes
f. Terminal water draw-off fittings
g. Breakdown of estimated daily and indirect water requirements
h. Water tank including the following details:
    i. Inlet, outlet, overflow, warning and drain pipes with their diameters indicated
    ii. Reduced level of inlet to tank
    iii. Material of tank
    iv. Nominal size and effective capacity of tank to be indicated

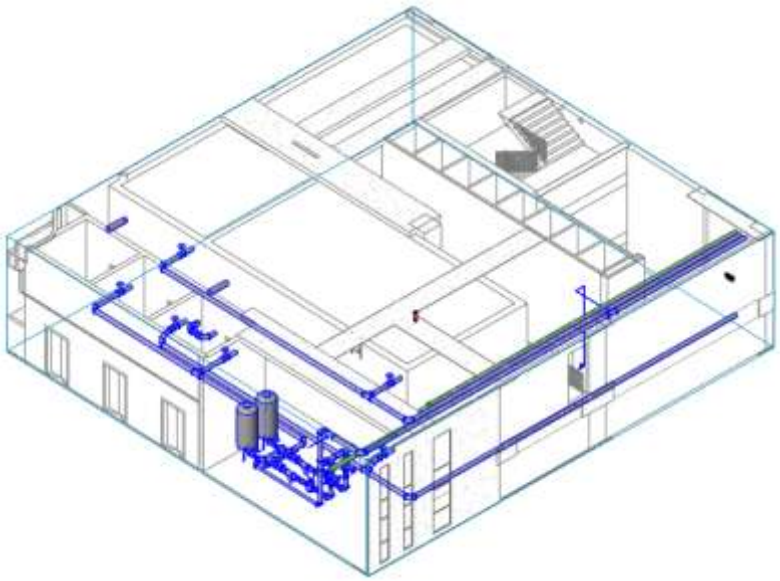
i. PUB water /NEWater meters and chambers – For meter size 25 mm and above



1.2. Part 3D BIM Model

QPs shall prepare the important part 3D BIM model, as specified below, for submission.

a. Water tank with surrounding fences
b. PUB water meters/NEWater meters, chambers and surrounding structures PUB water submeters and compartment



B. IDA-TFCC SUBMISSION REQUIREMENTS

1. General Requirements for Submission of BIM model to IDA

The models to be submitted shall meet the requirements specified under chapter 3 of the Code of Practice for Info-communication Facilities in Buildings (COPIF). The plans shall contain but not limited to the sectional and elevation drawings of the building. All dimensions and grids shall be indicated clearly on the plans.

When submitting the plans, avoid odd scales. The scales and grid reference shall also be indicated on all plans.

1.1. Site Plan and Location Plan View

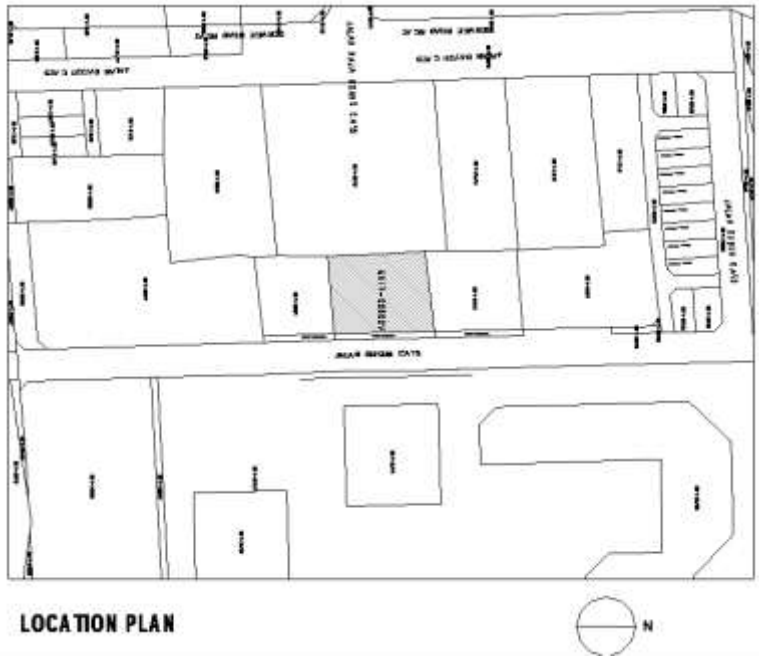
The plans shall contain details of the following:

1.1.1. Location Plan

a. The location of the lot relative to its neighboring lots; and

b. The various roads constituting the access layout to the lot

Example:

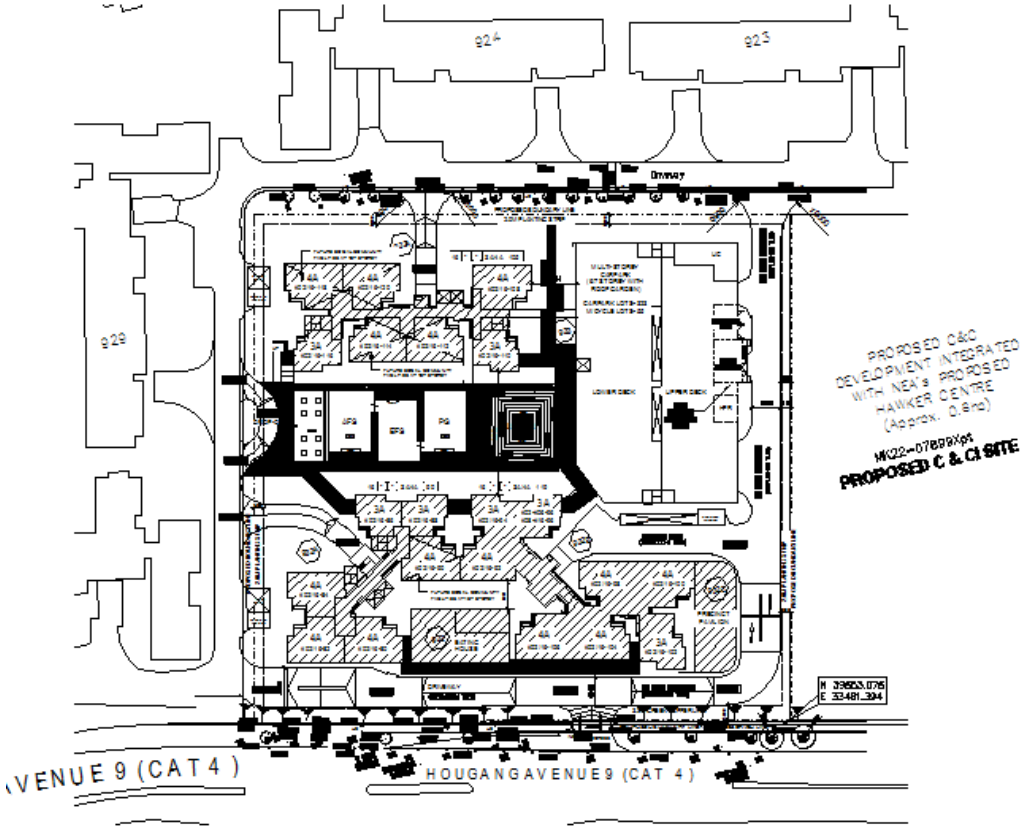


1.1.2. Site Plan

a. The means of access to the site and to the perimeter of each building;

b. Distances between buildings and/or structures

c. The existing (if any) and proposed underground telecommunication systems at the site
d. The North/East Coordinates (e.g. E12345.678/N12345.678) and
e. Temporary Occupancy Date



1 SITE PLAN
1 : 500

1.2. BIM Model & generated plans from BIM model

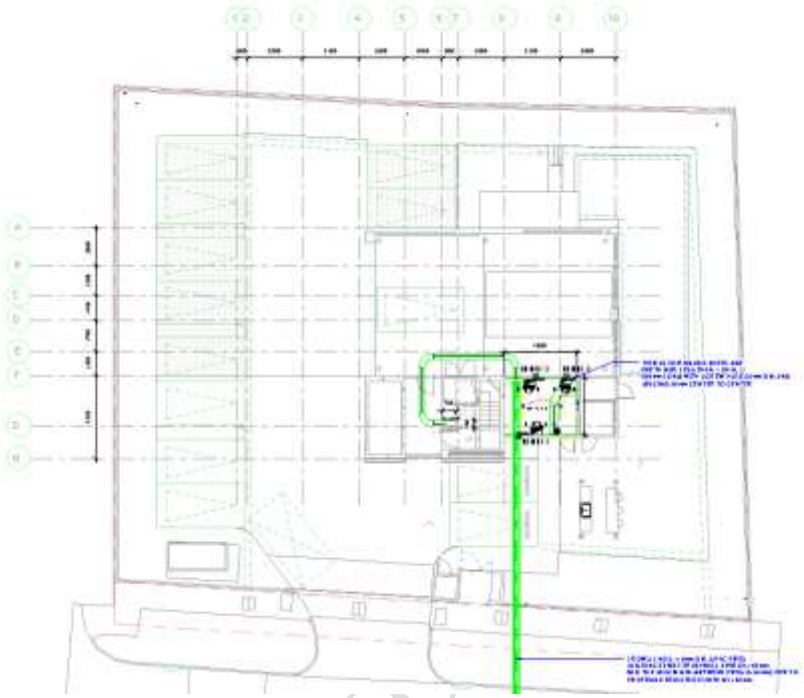
Models/Plans to be submitted for lead-in pipes, main distribution frame (MDF) room, and telecommunication equipment room (TER), telecommunication risers and residential units or tenant premises shall include the following:

a. Dimensions and the location of the lead-in pipes including the depth which the lead-in pipes is to be located;
b. Dimensions of the MDF and TER rooms (i.e. length, breadth and height) ;
c. Dimensions of the telecommunication riser (i.e. width and depth) and the location, size of the metal cable trays to be provided on the depth sides of the telecommunication risers; and

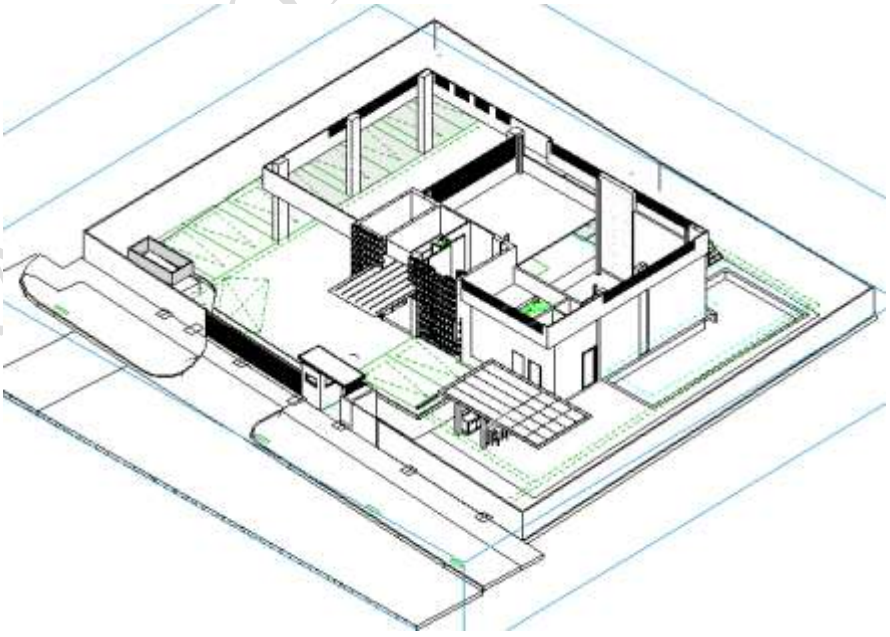
d. The layout plan and model for every floor highlighting the location and height of respective telecommunication points, i.e. TV points, telephone points, data points, fibre termination points, etc.

e. Colour codes all the telecommunication risers.

Example:



Plan view



Part 3D model

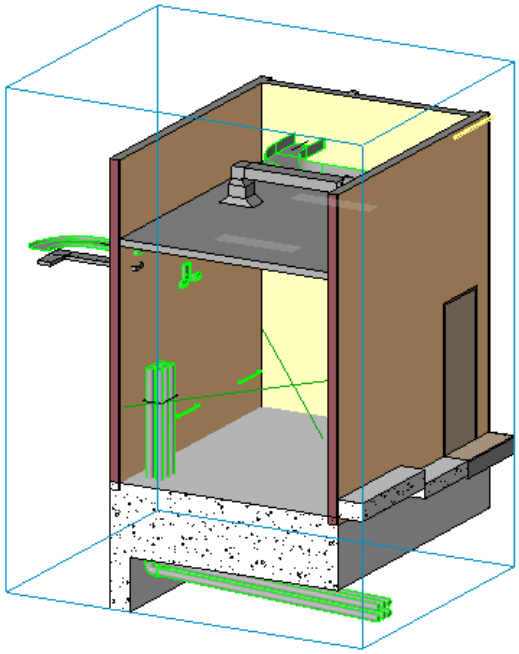
1.2.1. Part 3D Model

PEs shall provide the part 3D model of the BIM model. The Part 3D model shall indicate the following:

1.2.2. Main Distribution Frame or Telecommunication Equipment Room

a. Location of the door into the MDF or TER room and louvers for ventilation. Where central air-conditioning is provided, the height of the air-conditioning ducting shall be indicated;
b. If a column is allowed to be located at any corner of the MDF or TER room, there is to be indicated inside the model; and
c. If a beam is allowed to be located at a height of higher than 3.5 m in the MDF or TER room, this is to be indicated inside the model

Example: Part 3D model



1.2.3. Telecommunication Risers

Location of cable trays, distribution boxes or frame, equipment, etc

1.3. Schedule

QPs shall provide the following schedules generated from the BIM model:

2.1) Telecommunication points, TV points, data points, fibre termination points.

2.2) Electrical DB points

Example:

<Telephone Points Schedule>

A	B
Level	Count
Level 2	12
Level 3	12
Level 4	10
Level 5	9
Level 7	9
Level 8	9
Level 9	9
Level 10	9
Level 11	9
Level 12	9
Level 13	9
Level 14	9
Level 15	9
Level 16	7
ATTIC	4
Grand total	135

1.4. Colour code for TFCC submission

SYSTEM TYPE	SYSTEM CLASSIFICATION	COLOR	DECIMAL		
			RED 2	GREEN 3	BLUE 4
Normal Power Cable Tray/Trunking/Ladder (Hatch)	Tray/Trunking/Ladder	131	170	255	255
Emergency Power/Gsm /Security Cable Tray/ Trunking/Ladder(Hatch)	Tray/Trunking/Ladder	80	63	255	0
Telecommunication System (Tel/Data Scv)	Tray/Trunking/Ladder	131	170	255	255
Power System	S/S/O, Isolator etc	80	63	255	0
Public System	Speaker	80	63	255	0
Lighting Fixture	Normal	241	255	170	199
Lighting Fixture	Essential/Battery	71	212	255	170
Lighting Circuit (Dashed Line Type)	Normal	51	255	255	170
Lighting Circuit (Divide Line Type)	Essential/Battery	61	234	255	170
Lighting Fixture	Switch	131	170	255	255

Lighting Fixture	Exit Light	71	212	255	170
Electrical Equipment	Equipment	2	255	255	0

C. CITYGAS SUBMISSION REQUIREMENTS

1. General Requirements for Submission of BIM model to City Gas

This document provides the general guidelines for professional engineers and licensed gas service workers to comply when they submit BIM model to City Gas. The professional engineers/ licensed gas service workers shall ensure the design of the gas installation and all gas service works carried out on the gas installation comply with the requirements and provisions of the latest revision of the following:

a) The Gas Act (Cap 116A);
b) The Gas (Supply) Regulations;
c) The Gas Supply Code
d) Code of Practice for Gas Installation, Singapore Standard, CP51
e) City Gas Handbook on Gas Supply; and
f) Any other relevant rules, regulations and Codes of Practice

1.1. Plans Submission

Each submission plan shall bear the declaration on the right side column of the layout sheet shown below. A blank space of 90mm (w) x 60mm (h) shall also be provided on the right side column for City Gas internal use. Please refer to City Gas Handbook on Gas Supply for Designated Representative's declaration required by City Gas.

The submission of plans for approval by Designated Representative shall consist of the following plans:

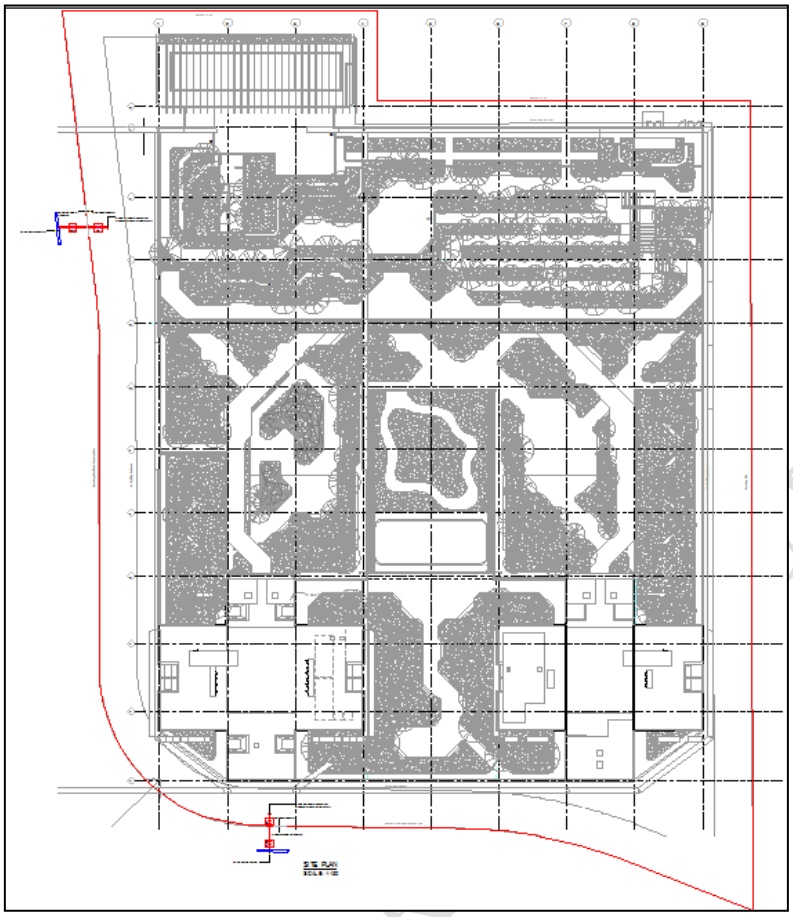
1.1.1. Location plan

a. Submission shall include a location plan with the development boundary line highlighted in red.

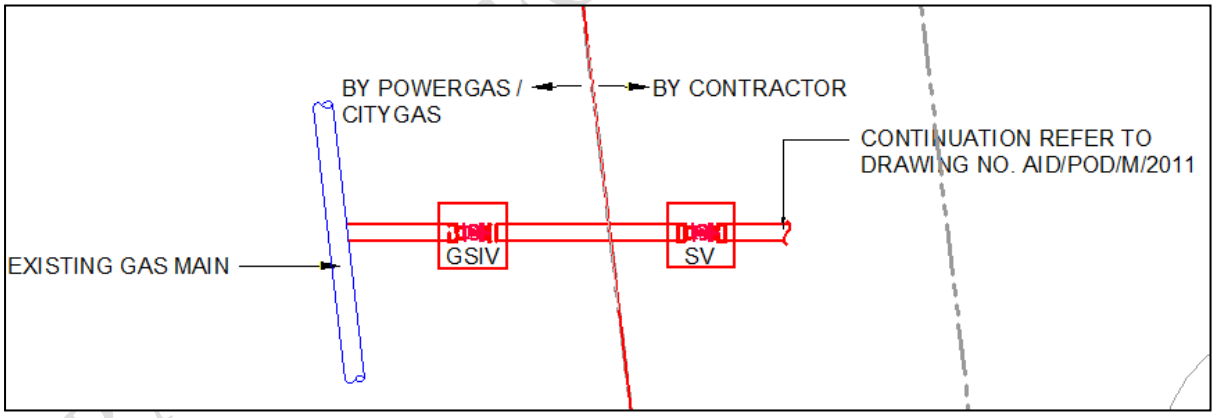
Location Plan Example

1.1.2. Site Plan

a. Plan shall prepare at a scale of 1:500 or 1:1000
b. Highlight the development boundary line in red
c. Plan shall have grid lines and dimension indicate
d. Plan shall show the specifications of pipe installation
e. Indicate the location of gas connection



Example of Site Plan



1.1.3. Plans generated from BIM model and Part 3D BIM Model

a. Plan shall preferably be submitted at a scale of 1:100 or 1:200
b. Plan shall have grid lines and dimension indicated
c. Indicate the location of the gas connection
d. Each compartment/space shall indicate clearly with annotations of;

- The purpose of the compartment/space

- The mode of ventilation of the compartment/space

e. Plan shall show the specifications of gas pipe and pipe sleeve

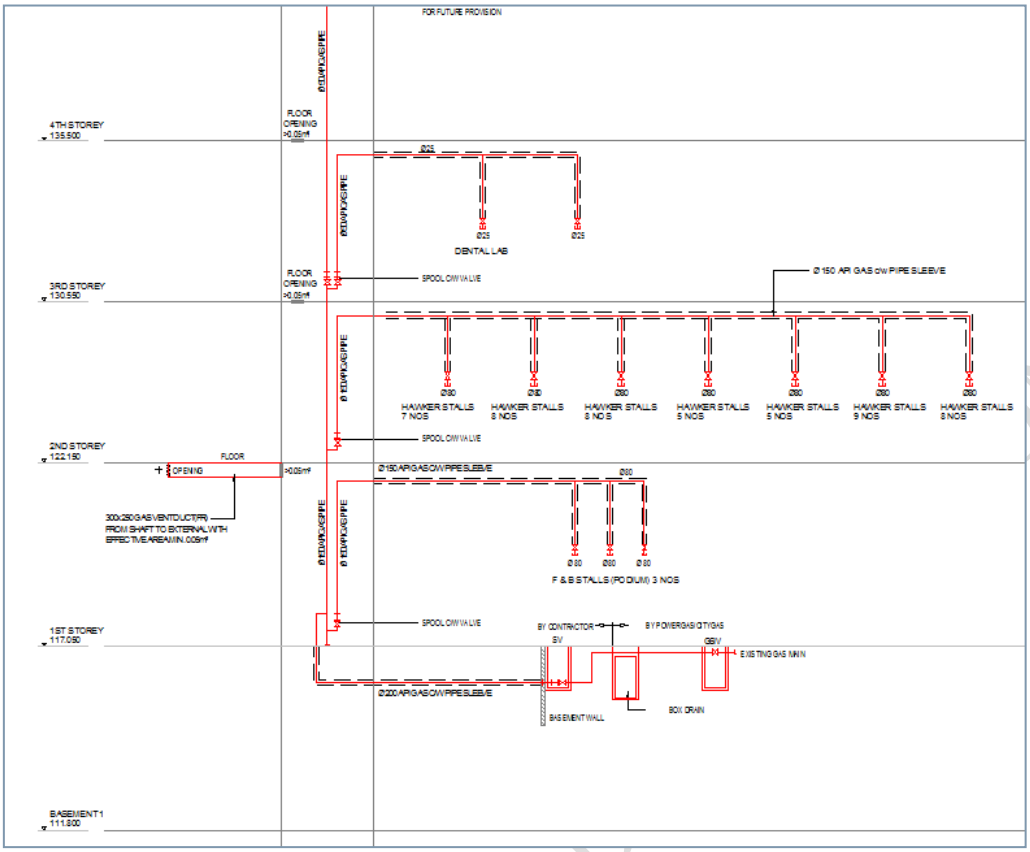
f. Roof plan shall be submitted if the gas duct ventilation is proposed at roof level

Example of Floor Plan

1.1.4. Schematic Diagram and Detail plan

a. Submit schematic drawing of gas installation for each building

b. Typical detail of the gas installation (such as gas duct ventilation, trench, box-up detail, meter installation, duckfoot support design)



1.2. Colour code for gas piping

The table below specifies the colours to be used for different gas elements.

Gas Elements	Colour
Proposed / Additional Elements	Magenta
Existing / Approved Elements	Cyan
Deleted Elements	Yellow

1.3. File Deliverable Requirements

Submission plans must be saved in the native BIM format. Each plan shall be submitted individually in its own file.

For resubmission /amendment submission, Designated Representative is required to submit only the deviated plans for approval.

1.4. Pipe materials and sizes used for gas installation

The table below shows the pipe materials and sizes commonly used for gas installation.

Note:
Please note that these are for reference only and shall not relieve the Professional Engineer of his/her obligations and responsibilities in ensuing that the design complies fully with all relevant authorities' requirements

Material (Standards)	Size (mm)	Types of Joints (Standards)
Polyethylene pipes	32, 63, 125, 180, 250, 315	Butt fusion Electrofusion joint
Ductile iron pipes	100, 150, 200, 300	Bolted gland joint
Galvanised iron pipes (seamless & heavy gauge type)	20, 25, 32, 40, 50, 80, 100	Threads joint (Below 100mm diameter) Flange joint (100mm diameter and above)
Steel pipes (Seamless type)	20, 25, 32, 40, 50, 80, 100, 150, 200, 300	Welded joint
Copper pipes (seamless & half hard type)	15, 22, 28	Compression joint Capillary joint

Appendix A. Step by step BIM Template guide

Refer to the separate documents for BIM Software Template Training Guide.
Find the latest template training guide in https://www.corenet.gov.sg/general/building-information-modeling-(bim)-e-submission.aspx

A.1 AUTODESK REVIT

A.2 BENTLEY AECOSIM

A.3 GRAPHISOFT ARCHICAD

Appendix B. Standard Certification for Building Works

B-1 NEA-CBPD/PUB-WRN: Qualified Person's Endorsements

I,_____, confirm that the drainage details as shown on the relevant drawings in this file are in accordance with the current information provided by the Chief Engineer, Central Building Plan Department, NEA

B-2: PUB Water: Qualified Person's Endorsements

I, _____, the Professional Engineer-in-charge hereby certify that the water service installation is designed in full compliance with the Public Utilities Board's requirements including the Public Utilities (Water Supply) Regulations, Singapore Standard CP 48 – Code of Practice for Water Services, other Authorities' requirements and other statutory requirements. I also confirm that potable water storage tanks shall not be located below sanitary pipes and other non-potable water pipes, and that all the water fittings to be installed in the water service installation shall be of the types that comply with standards prescribed / stipulated by PUB and all water conservation measures will be adopted.

PUB Water: Professional Engineer's Declaration

The Professional Engineer in-charge shall provide written confirmation (either in title block or letter) on the following items, if applicable to the project:

- Flow rates available at the water fittings taking direct supply from PUB water mains will not be adversely affected when the low and / or high level water tanks are being replenished and the replenishment of the low and / or high level water tanks will not be affected by the direct supply draw offs.

- Pipes that serve future connections will not lead to stagnation.
- The proposed water service installations can cater to the draw-offs of water supply to the future connections.

- The structural integrity of the existing building is not adversely affected by the proposed additional / extension work to the water service installation.
- The existing water service installation is adequately sized to cater for the additional draw-offs of water supply to the proposed water service installation.
- Installation of PUB submeters:
    - The PUB submeter will be under a different account holder from the master meter account holder.
    - The submeters will be properly housed in enclosures which are accessible from the common areas.
    - Proper drainage will be provided for the submeter compartment.
    - Permanent unit-number tag will be provided and securely mounted upstream of the submeter.
    - Sufficient space will be provided around the submeter to facilitate installation, maintenance and meter reading.
    - The common water services will not encroach into the tenanted areas and the water services downstream of the submeter will not be laid within other tenanted premises.
    - All connections between the tees from the service / distributing pipes and the stop cocks upstream of the submeters will be by means of threaded joints or brazed joints. Compressions fittings will not be used.
- Private submeters are used for monitoring purpose and not for the sale of PUB water to others.
- Installation of hot water system:
    - The cold water supply to the water fittings will not fail before the hot water supply and the hot water system is safe to use.
    - There are no differential pressures in the cold and the hot water supplies to the terminal fittings.
    - The hot water system installation, including the provision of appropriate backflow preventer, will be carried out in

compliance with the specifications and requirements of the heater manufacturer.

B-3: FSSD: Qualified Person's Endorsements

1. Fire Safety Works Complying with Prescriptive Provisions in Fire Code

FIRE PROTECTION (FP) AND AIR-CONDITIONING/MECHANICAL VENTILATION PLAN

I, (Name of qualified person) NRIC No./Passport No._____, being a qualified person under the Fire Safety Act, hereby certify that the fire safety works as shown on these plans have been designed in accordance with the provisions of the Fire Code, the Fire Safety Act and any regulations made thereunder, the relevant codes of practice and design guidelines, subject to modifications or waivers under section 27 of the Fire Safety Act.

I, (Name of qualified person) hereby certify that the proposed _____ system has been designed in accordance with the provisions of (State the code used).

2. Fire Safety Works with Alternative Solution (Performance-based Fire Safety Engineering)

FIRE PROTECTION (FP) AND AIR-CONDITIONING/MECHANICAL VENTILATION PLAN – OPTION 1

To be completed by the qualified person who is a fire safety engineer and who prepares the plans of fire safety works which include any alternative solution, and the fire safety engineering report.

I, (Name of qualified person), NRIC No./Passport No._____ being a qualified person and a fire safety engineer under the Fire Safety Act, hereby certify that

(a) the fire safety works as shown on these plans have been designed in accordance with the provisions of the Fire Code, the Fire Safety Act and any regulations made thereunder, the relevant codes of practice and design guidelines, subject to modifications or waivers under section 27 of the Fire Safety Act; and

(b) the alternative solution in the plans, and the fire safety engineering report, satisfy the fire performance requirements in the Fire Code, and comply with the Fire Safety Act and any regulations made thereunder, the relevant codes of practice and design guidelines, subject to any deviation or modification approved by the Commissioner.

I, (Name of qualified person) hereby certify that the proposed _____ system has been designed in accordance with the provisions of (State the code used).

FIRE PROTECTION (FP) AND AIR-CONDITIONING/MECHANICAL VENTILATION PLAN – OPTION 2

To be completed by a qualified person who is NOT a fire safety engineer and who prepares the plans of fire safety works, and prepares the alternative solution in the plans under the supervision of a fire safety engineer.

I, (Name of qualified person), NRIC No./Passport No. _____ being a qualified person under the Fire Safety Act, hereby certify that

(a) the fire safety works as shown on these plans have been designed in accordance with the provisions of the Fire Code, the Fire Safety Act and any regulations made thereunder, the relevant codes of practice and design guidelines, subject to modifications or waivers under section 27 of the Fire Safety Act; and

(b) the alternative solution in the plans adheres to the fire safety engineering report.

I, (Name of qualified person) hereby certify that the proposed _____ system has been designed in accordance with the provisions of (State the code used).

To be completed by the fire safety engineer who is not a qualified person and who supervises the preparation of the alternative solution in the plans of fire safety works, and prepares the fire safety engineering report.

I, (Name of fire safety engineer), NRIC No./Passport No._____ being a fire safety engineer under the Fire Safety Act, hereby certify that the alternative solution shown on these plans, and the fire safety engineering report, satisfy the fire performance requirements in the Fire Code, and comply with the provisions of the Fire Safety Act and any regulations made thereunder, the relevant codes of practice and design guidelines, subject to any deviation or modification approved by the Commissioner.

I, (Name of qualified person) in accordance with Regulation 4(5) of the Fire Safety (Building Fire Safety) Regulations hereby certify that the Minor Addition/Alteration works have been satisfactorily completed on date: _____ ; and

I certify that the addition / alteration works do not affect the existing fire protection system in accordance with Regulation 4(5) of the Fire Safety (Building Fire Safety) Regulations; or

I certify that the addition / alteration works as shown in these drawings affected the existing *sprinkler / automatic fire alarm systems and I have supervised the works on site to ensure that the said system(s) have been modified in accordance with Regulation 4(5) of the Fire Safety (Building Fire Safety) Regulations.
*include whichever is applicable

B-4: IDA-TFCC: Qualified Person's Endorsements

I, _____, hereby submit the proposed provision of Telecommunication Facilities for your approval. I certify that the digital information submitted is accurate for the stated development project.

B-5: CITYGAS: Qualified Person's Endorsements

I, _____the designated representative of the project, hereby certify that with respect to the project, the gas installation is designed to and all gas service works shall be carried out in compliance to the requirements and provisions of the latest revision of the following:
a) Gas Act (Cap 116A);
b) Gas (Supply) Regulations 2008;
c) Gas Supply Code;
d) Code of Practice for Manufactured Gas Pipe Installation, Singapore Standard, CP51:2004;
e) Fire code, the Fire Safety Act and any regulations made thereunder;
f) Other relevant code/standard:_____(please specify for installation with operating pressure higher than 20KPa)
g) All relevant acts, regulations, and rules which are applicable to the gas service work;
I further certify that I hold a valid practising certificate/gas service worker license.
The gas installation shall be designed to operate at _____barg.

Table Formats

Figures

This guide is part of the Proposed Code of Practice for BIM e-Submission series:

Proposed Code of Practice for BIM e-submission

Part 1: Architectural Requirements
Part 2: Structural Requirements
Part 3: MEP Requirements

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www.corenet.gov.sg

