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# Appendix 1 CIC BIM User Guide for Preparation of Statutory Plan Submissions

# ArchiCAD

THEFT

# December 2020

#### Disclaimer

Whilst reasonable efforts have been made to ensure the accuracy of the information contained in this publication (Reference Materials), the CIC nevertheless encourages readers to seek appropriate independent advice from their professional advisers where possible. Readers should not treat or rely on this publication (Reference Materials) as a substitute for such professional advice.

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# Preface

The Construction Industry Council (CIC) is committed to seeking continuous improvement in all aspects of the construction industry in Hong Kong. To achieve this aim, the CIC forms Committees, Task Forces and other forums to review specific areas of work with the intention of producing Alerts, Reference Materials, Guidelines and Codes of Conduct to assist participants in the industry to strive for excellence.

The CIC appreciates that some improvements and practices can be implemented immediately whilst others may take more time for implementation. It is for this reason that four separate categories of publication have been adopted, the purposes of which are as follows:

- Alerts The Alerts are reminders in the form of brief leaflets produced quickly to draw the immediate attention of relevant stakeholders to the need to follow some good practices or to implement some preventive measures in relation to the construction industry.
- Reference The Reference Materials are standards or methodologies generally adopted and regarded by the industry as good practices. The CIC recommends the adoption of the Reference Materials by industry stakeholders where appropriate.
- Guidelines The Guidelines provide information and guidance on particular topics relevant to the construction industry. The CIC expects all industry stakeholders to adopt the recommendations set out in the Guidelines where applicable.
- Codes of The Codes of Conduct set out the principles that all relevant industry participants should follow. Under the Construction Industry Council (Cap 587), the CIC is tasked to formulate codes of conduct and enforce such codes. The CIC may take necessary actions to ensure compliance with the codes.

If you have read this publication, we encourage you to share your feedback with us. Please take a moment to fill out the Feedback Form attached to this publication in order that we can further enhance it for the benefit of all concerned. With our joint efforts, we believe our construction industry will develop further and will continue to prosper for years to come.

# Foreword

I am glad to see the release of CIC BIM User Guide for Preparation of Statutory Plan Submissions ArchiCAD (December 2020). This software specific user guide shall be read in conjunction with the CIC BIM Standards for Preparation of Statutory Plan Submissions (December 2020).

This software specific user guide is only provided to demonstrate the feasibility of drawings generation with the Standards.

With the software specific user guides which contains step by step procedures of modelling, BIM users can easily apply the templates for the generation of statutory plan submission drawings.

Feedback on the CIC BIM User Guide for Preparation of Statutory Plan Submissions ArchiCAD (December 2020) from practitioners subsequent to the issuance of this publication will be considered in future revisions.

On behalf of the CIC, I would like to thank everyone who has contributed to producing this CIC BIM User Guide for Preparation of Statutory Plan Submissions ArchiCAD (December 2020), in particular to the members of the Task Force on BIM Standards.

Ar. Ada FUNG, BBS Chairperson Committee on Building Information Modelling Construction Industry Council December 2020

## 1. Hardware/ System Requirements

#### **1.1 General**

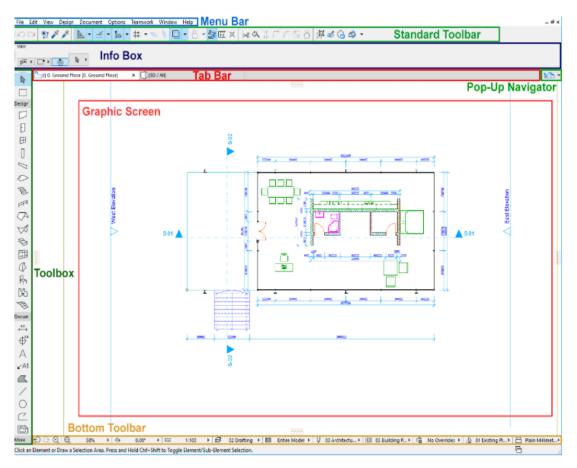
Hardware / system requirement for modellings, coordination and visualization on desktop/notebook computers and mobile devices should be determined by the BIM managers for different projects on a case by case basis. The minimum requirement varies for different applications, project sizes and operating systems.

https://www.graphisoft.com/support/system\_requirements/AC23/

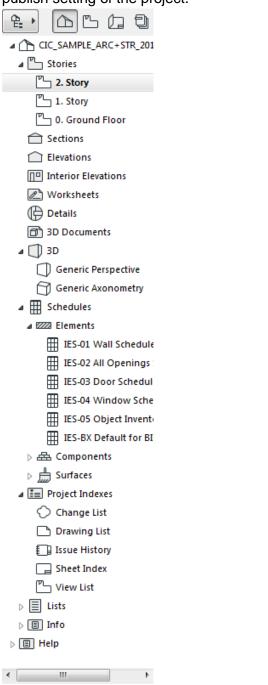
# 2. ArchiCAD Basics

#### **2.1 User Interface**

• In ArchiCAD, for all the projects, the user interface provides all the tools to work with the model. The user interface can be customized to feed various kinds of works.



• Pop-Up Navigator: manage the floor plan, view, schedules, layout plan and publish setting of the project.



• Bottom Toolbar: help to navigate the view, set the scale of the drawing and zoom factor.

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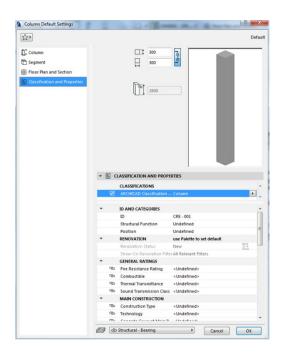
Menu Bar & Standard Toolbar: all the commands and functions are listed for BIM modelling.



 Toolbox: List all the tool include MEP for building the 3D model and prepare for the documentation

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• Element Default Setting: manage the properties (include IFC) of the selected element.



#### 2.2 Difference of TPL, PLN&PLA file

There are several types of file formal for you to choose when saving your works in ArchiCAD. The TPL file is for you when you want to save your current project setting as template for future use. The PLN file is the most used format type for ArchiCAD users. The major difference between PLN and PLA file is that PLA merged all library elements into an embedded library which can be open in anyplace without extra Library. For the PLN, it needs to connect to the Library which is in the cloud or somewhere else.

#### 2.3 Embedded Library and Linked Library

In ArchiCAD, the library groups the elements with various classification standards. Based on the sources, there are three main types of Library which are embedded Library, linked Library and BIM cloud library.

#### Embedded Library

- Embedded Library can store the project-specific object that you create in the project. All objects in the embedded Library are always editable and available for the user to access in the project file.
- Embedded objects exist only in that particular project and can be used only in that project. If you delete an object from the Embedded Library, it is gone. If you edit an embedded object, that modification will occur immediately in the Embedded Library of that particular project

#### Linked Libraries

- The linked Library is the Library you added manually from linked folder to the project file. The default standard ArchiCAD library also belongs to the linked Library.
- In Teamwork mode, there are no linked libraries only the Embedded Library, and BIM cloud Libraries.
- If the linked Library is missing, the elements belong to linked Library will only be shown in green dot in 2D view and missed in 3D view.

#### BIM Cloud Library

- Except for the linked Library, the user can also add the BIM cloud libraries which are located on the BIM cloud no matter it is a solo or teamwork project.
- Once the BIM cloud library is updated or refreshed, all the users will receive the changes, both solo and teamwork file.

#### **2.4 Hotlink Modules**

You can insert the content or model of external file (sources) into the host file through hotlink modules.

- The file type for the hotlink modules is .mod
- When managing the repetitive part of the model like a bedroom for a hotel, the hotlink module is a lightweight choice for users to manage the project
- Modules are stored in the host Project. If the source file is not currently available, the Module is still present and visible. However, the Module can't be updated.
- The placed Hotlink can only be edited as an entity. However, the user can choose to break Hotlink in order to edit the individual element of Hotlink.
- When the users choose to break the hotlink modules, the Module inside of the host file will no longer be updated.

Attributes of the Hotlink Modules

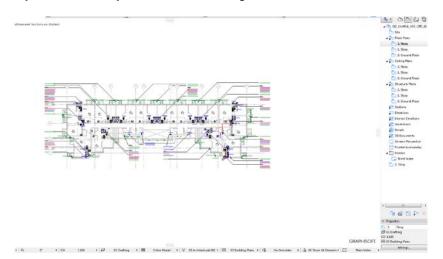
- If the elements of the Hotlink Module use attributes with the same names as attributes of the Host Project, the Host attributes will be applied
- If no attributes of that name exist in the Host, new attributes will be added to the Host Project.
- Attributes imported with Hotlink Modules will not be removed when deleting Hotlinks or Modules.
- Once an attribute is part of the host file, that attribute will not be updated by any attribute modifications in the source file.

IFC Hotlink Module and other file types

- Except for .mod format, the ifc file also can be used as a hotlink.
- In addition, for other file types like the 3dm, users can use Rhino software to import to ArchiCAD.

#### 2.5 View Map

In View Map, all the view will store in here. The view is stored version of a viewpoint each view is defined by its adjustable View Settings that you configure for a particular purpose as you construct your Virtual Building.



When you save a view, the settings below will be saved

- Layer Combinations
- Scale
- Partial Structure Display
- Pen Set
- Model View Options Combination
- Graphic Override
- Renovation Filter
- Floor Plan Cut Plane
- Dimensions
- Zoom and Rotation

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#### 2.6 Layer Setting and Layer Combination

The main purpose of the layer in ArchiCAD is to separate elements logically. Not only the element will be grouped by the layer, but also the dimensions and symbols. Layer

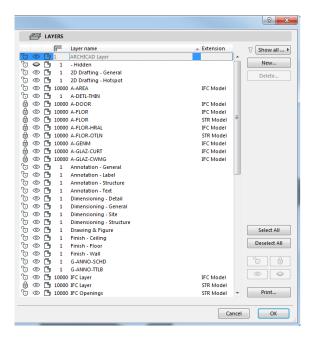
- An element can only belong to a single layer
- For each layer, you can define the following settings:

Lock/unlock: This can let users determine whether the element belongs to the layer can be edit or not.

Show/hide: The User can choose to show or hide the element of certain layers.

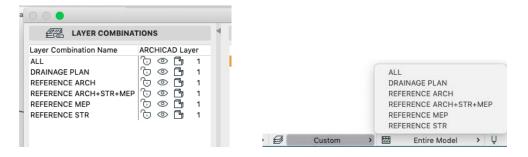
3D view mode: The user can choose different types of 3D style.

Layer intersection group: Help the user to control element intersections.



#### Layer Combination

The layer combination is designed for you to access certain layers with specific settings quickly.



### 2.7 Symbol, Dimensions

#### Symbol Tool

In toolbox, there are several symbol tools for users to identify the element in the drawing. The label function will act like the tag in Revit.

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PROPERTIES			
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Dimension

In ArchiCAD, the dimension not only can be placed in 2D views like floor plan, section etc., but also the 3D view. The dimension in ArchiCAD will be automatically updated when the element is modified.

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#### **2.8 Properties and Classification**

#### Properties

Properties are optional, user-defined data assigned to an element or Building Material to provide additional, searchable information of the element. The information in the property can be export within the IFC format.

Properties Manager

In ArchiCAD, You can manage the property information through the property manager.

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	٢	Structural - Bearing	Cancel OK	

#### Classification

In ArchiCAD, users can use the classification to organize the project element and material and related data and ensure accurate data exchange with other applications.

▲ ⊕ ARCHICAD Classification - v 2.0
⊿ 🔊 Site
> 🔊 Geographic Element
⊳ 🔊 Massing
🗞 Civil Element
⊳ ይ Space
> 🔊 Elements
⊳ 🔊 Components
⊳ 🗩 Materials

#### **Classification Manager**

In ArchiCAD, the classification can also be edited through the classification manager.

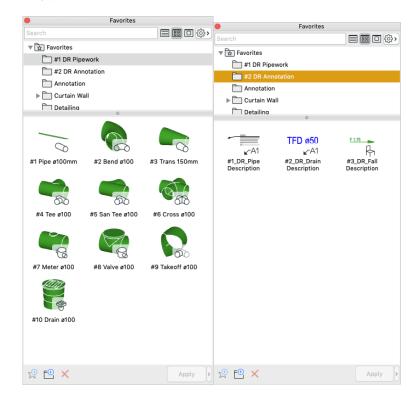
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Show conflicts with Classification in Hotlinks	1 5	Property Manager
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#### **2.9 Favorites**

In ArchiCAD, the user can also save the tool setting that you use frequently. The Favorites function not only can be used in the current project, the users also can export the favourites to the other project they want.

The setting store in the Favorites

- The information in classification and property
- Fill settings like the fill text
- Library part



### 3. Getting Start

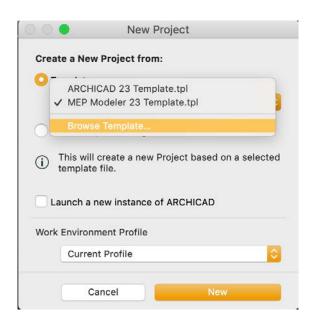
In this Chapter, it mainly discusses about how to use the template to create your own drainage plan submission. This part not only will show the example within the template, but also introduce the method to create your own drainage plan for submission.

#### 3.1 Open Drainage Template Project

Open a new project in ArchiCAD 23 by following steps:

Open ArchiCAD  $\rightarrow$  Click "Browse" button and choose CIC\_Template\_DR. Tpl for drainage submission plan.  $\rightarrow$  Click "Selected".

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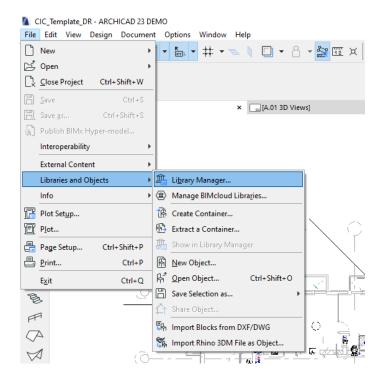
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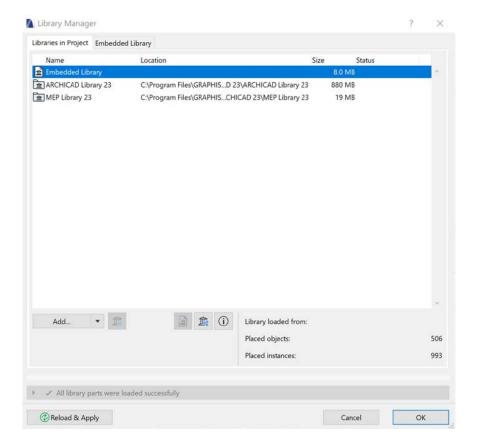
Opening Project		
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#### 3.2 Set MEP Working Environment

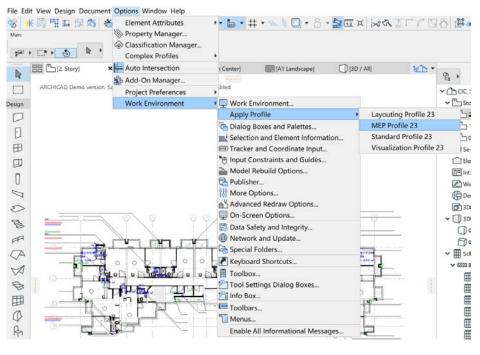
Click the File →Library and Object →Library Manager

Click Add to import the MEP Library 23 or any customized library. And click OK.



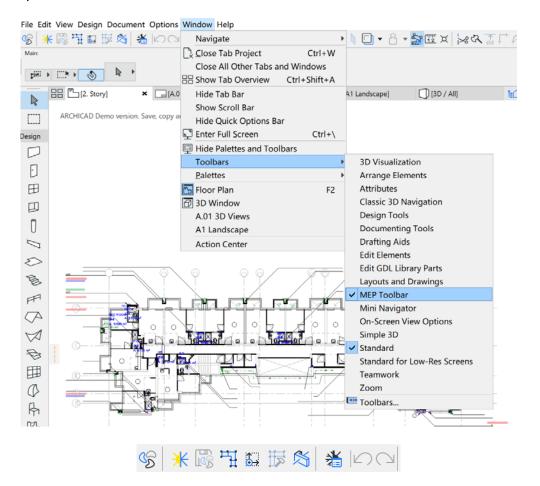


In order to show the MEP tool in the toolbox, Select Option  $\rightarrow$  Working Environment  $\rightarrow$  Apply Profile  $\rightarrow$  MEP Profile.



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To quick access the MEP edited tool, Select Window→Toolbar→MEP Toolbar



Click the MEP System Setting S.

In MEP settings, create the drainage systems and choose it to use with pipework. The Edit Select System is mainly used to distinguish the system by giving a different colour. For drainage plan, we did it as shown. Later we mainly use the graphical override function to display only the Axis lines.

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Click the Graphical Override on the bottom toolbar.

C Simplified Plan ►

In the dropdown menu, Choose Drainage Plan only to display the Axis Line. Choose No Overrides in order to display the Elements Fill on 2D.

	Gr	aphic Override Combinations	
No Overrides	•	Name:	
		Dranage Plan	
Dranage Plan			
Fire Plan		Order of rules to be applied:	
Simplified Plan		Name	≌ & ≜
Site Plan		<ul> <li>All Cover Fills - Transparent</li> </ul>	
Structural Plan		All Cut Fills - Transparent, No Skin Separators	
		<ul> <li>All Zone Fills - Transparent</li> </ul>	
	0	Rules applied by Renovation Filter	Edit Rules
New Delete	)		Cancel OK

# 3.3 Set up Project Preferences and MEP Preferences

Click the Option  $\rightarrow$  Project Preferences  $\rightarrow$  Working Units

Working Units						
+ <sup>1.2</sup> Length Unit:	millimeter	0				
Decimals:	0	1234				
/ Area Unit:	square meter	0				
Decimals:	2	1.23				
Volume Unit:	cubic meter	0				
Decimals:	2	1.23				
∕ Angle Unit:	decimal degrees	0				
Decimals:	0	61°				
Layout Unit:	millimeter	<b>\$</b>				
Decimals:	0	1234				
123 Numbers without Units (Font	sizes, Pieces, etc.)					
Decimals:	2	1.23				
	Cance	е ОК				

Click the MEP Toolbar for the MEP Preferences

MEP Prefere	ences
Routing Options	
Rise/drop unit:	Degree
Duct segment length limit:	1950
Pipe segment length limit:	6000
Cable Carrier segment length	2000
Standard Bend Angles           90.00°         Add           60.00°         Remove           30.00°         15.00°	Predefined Sizes Ducts Pipes Cable Carriers
Convert Objects to MEP Elements Reserve MEP Modeler license when	ARCHICAD starts

#### 3.4 Create custom property.

The template is the reach of detail properties related to drainage plan. If you want to add extra properties, select Option $\rightarrow$ Property Manager

CIC_SAMPLE_ARC+STR_2017 -	ARCHI	CAD 2	3 DEI	NO			
File Edit View Design Doc	ument	Opti	ons	Window	Help		
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Main:	Layer:	$\otimes$	Prop	erty Manag	ger		Meth
Default Settings	0	₽	Class	sification N	lanager		
-			Com	plex Profile	es	•	
▶ === <sup>1</sup> 2. Story [2. Story]		<b> </b> ⊨	Auto	Intersectio	n		hee
ARCHICAD Demo version	n. Save, (	ŵ	Add	-On Manag	er		d.
Design			Proje	ect Preferer	ices	•	
			Wor	k Environm	ent	•	

In Property Manager, you can create a new property by click the new bottom on the left.

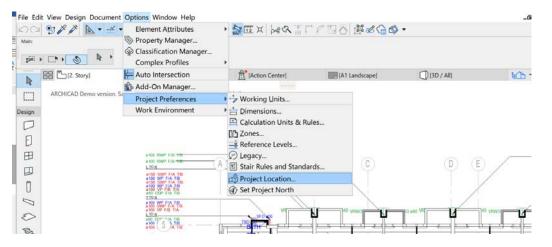
The user can also edit in detail of the created property. Like to define this property will available for which classification item.

	Q				]	Property Name:	Editabl
	Name	Туре	Default		1	Combustible	
*	GENERAL RATINGS			+	^	Description:	
¢	Fire Resistance R	Option Set	<undefined></undefined>				
\$	Combustible	True/False	<undefined></undefined>				
¢	Thermal Transmi	String	<undefined></undefined>				
ŧ	Sound Transmiss	String	<undefined></undefined>			VALUE DEFINITION	
•	PRODUCT INFO			$^+$		▼ AVAILABILITY FOR CLASS	IFICATIONS
¢	Model	String	<undefined></undefined>			Available for items with the	following Classifications:
¢	Serial No.	String	<undefined></undefined>				
ŧ	Barcode	String	<undefined></undefined>				ARCHICAD Classification - v 2.0 - Awning ARCHICAD Classification - v 2.0 -
ŧ	Acquisition Date	String	<undefined></undefined>			○ None	Balustrade
¢	Purchase Price	Number	<undefined></undefined>			Custom	ARCHICAD Classification - v 2.0 - Barrel Roof
٠	MANUFACTURING			$^+$			ARCHICAD Classification - v 2.0 - Base Slab
¢	Manufacturer	String	<undefined></undefined>			Edit	ARCHICAD Classification - v 2.0 - Beam ARCHICAD Classification - v 2.0 - Beam
ŧ	Production Date	String	<undefined></undefined>				Segment ARCHICAD Classification - v 2.0 - Bored Pile
ŧ	Country of Origin	String	<undefined></undefined>				ARCHICAD Classification - v 2.0 - Bored Pile ARCHICAD Classification - v 2.0 - Brace
¢	Product Website	String	www.graphisoft				ARCHICAD Classification - v 2.0 - Butterfly Roof
¢	Point of Contact	String	<undefined></undefined>				ARCHICAD Classification - v 2.0 - Caisson
¢	Warranty End D	String	<undefined></undefined>				Foundation ARCHICAD Classification - v 2.0 - Ceiling
٠	MAIN CONSTRUCT	ION		+		Transfer:	ARCHICAD Classification - v 2.0 - Chimnev
	Construction Type how conflicts with I		<undefined></undefined>		Ŷ	1 1 × 1	Classification Manager

• For Classification function, please refer to 2.9 Property and Classification

#### **3.5 Create Site Boundary**

In the menu bar, select "Option"  $\rightarrow$  "Project preference"  $\rightarrow$  "Project Location"



Input the location reference like the Latitude, Longitude, Altitude and etc to the project location settings or import any location data file like the .kmz for google earth.

Project Location			201	
Project Name:				Edit
Site Full Address:				Edit
Latitude:	22° 15' 0.0000"		N ~ •	
Longitude:	114° 10' 0.0000"		E ~	
Time Zone (UTC):	(UTC+08:00)港	特別行政區,原	· 香木香	
Altitude (Sea Level):	23.00	▶ m		
Project North:			$\square$	
<u>/10</u>	90.00°	Þ		
			V	
Note: Changing Project Location including in 3D Views and Came			Show in Goo	ogle Maps
			Cancel	OK

The ArchiCAD mainly support three types of location data: The XML format

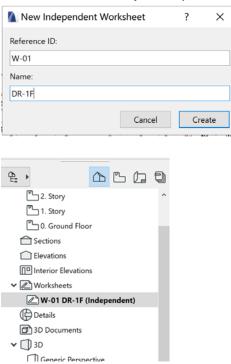
The Google Earth (.kmz) format

The SketchUp (.skp) format

1 打开					×
查找范围(I):	1 20191129 -	Drainage Plan	~ 6		•
快速访问 東面 席 単単路 (単単路)	名称 PDF			修改日期 2019/12/	/23 13:56
网络	¢				>
	文件名(N):			~	打开(0)

#### **3.6 Import Drainage Drawing**

Create a new worksheet in the Project Map and give a name like DR-1F. Click the worksheet in the Project Map



Click "File"  $\rightarrow$  "External Content"  $\rightarrow$  "Place External Drawing".

CIC_SAMPLE_ARC+STR_2017 -	ARCHICAD 23 DEMO
File Edit View Design Document	Options Window Help
🗋 New	・↓ + + ~ N □ + 8 + 20 × 20 × 20 × 10 × 10 × 20 × 10 × 10 ×
🖻 Open	)
Close Project Ctrl+Shift+V	V
🗄 Save Ctrl+	S
Save as Ctrl+Shift+	S 👌 [W-01 DR-1F] 🗶 🕞 [A.01 General No 🟦 [Action Center] 🛛 🔚 [A1 Landscape] 🛛 » 🏠 🔻
🔊 Publish BIMx Hyper-model	
Interoperability	• opy and teamwork functions are disabled.
External Content	▶ 🖄 Place Hotlink
Libraries and Objects	🕨 🔐 Break Hotlink (Embed Elements)
Info	▶ 🔯 Save Hotlink as File
🚰 Plot Setup	🗒 Save Selection as Module
Plot	Page Hotlink Module Manager
📇 Page Setup Ctrl+Shift+I	P 🕒 Place External Drawing
Print Ctrl+l	P 🗁 Place External Drawing from BIMcloud
Exit Ctrl+C	2 🖺 Drawing Manager
7	🗟 Attach Xref
5	🖺 Xref Manager
1 () m	
B	

Choose the drawing in the folder and place the drawing.

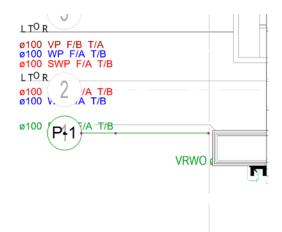
Select the units of the drawing according to the project requirement.

?	×
xternal dr	awing
RCHICAD	:
Place	e

### 3.7 Create Grid and Manage Floor Setting

Based on the drawing, add the grid symbol in the toolbox. In the default dialogue box, the user can select the select detail setting based on their needs for both floor plan and section plan.

🛕 Grid El	ement Default Settings	? ×
公,		Default
- [∅ F	LOOR PLAN	
Grid line:		Show on Story:
	Segment Length:	All Stories ~
	0 0 0	
\$ <u>}</u>	Solid Line	
Markers:	@ \	Staggering:
	0 0 + +	1000 I
	® 🗹	******
- [] s	ECTION/ELEVATION	
General	~	Copy from 🗸
Grid line:		
	Segment Length:	
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Markers:	to Project Zero 🕨	Staggering:
	⊚ 2 10000	1000 I"
	Image: Second state         10000           to Project Zero ▶           Image: Second state           Image: Second state <t< td=""><td>1000 Į</td></t<>	1000 Į
	NAMING RULES	
O Custor	n A	
Generation	ate names automatically Start at: Prefix:	Style: Suffix:
	A Prenc	Style: Suffix:
		-1,6,6,1,
• 🕀 🕻		
▶ [A∀ T ▶ @ 3	EXT STYLE	
	LASSIFICATION AND PROPERTIES	
	Structural - Grid	Cancel OK
		Currer OK





For floor setting or story setting in ArchiCAD, Select Design  $\rightarrow$  Story Setting. In the setting, box defines the floor height and elevation of each floor in your project.

20	21		Design Tools			8 - 5	N III X	28	101	10 #sg@	•	
Mairc Default	Settings	E a	Story Settings Ctrl Edit Elements by Stories Edit Story Levels	+7	•	Geometry	Wethod:	ç	Grid Na	ning: Automatic name Start at: D		Automatic Grid
<b>№</b>	88 0	22	Section/Elevation Range Connect Solid Element Operations	•	A	L01 Gener	el No	ff (Action C	(enter)	I3D / All	×	» 100 .
Design		1	Outline Polygon with Magic Wand Magic Wand Settings Convert Selection to Morph(s)	1								
Ð			Modify Morph Enter System Edit Mode	,								
			Modify Railing Modify Curtain Wall	•								
		4	Roof Extras Design Extras Grid System	,								
		10	Collision Detection Update Zones									
FF		٢	Energy Evaluation	•								

🚺 Story Settings			?	$\times$
No. Name	Elevation	Height to Nex	t 💌	
• 2	6000	3000		^
• 1	3000	3000	$\checkmark$	
• 0 Ground Floor	0	3000	$\checkmark$	
				$\sim$
Insert Above	Insert Below	Delete	e Story	
				-
		Cancel	OK	

#### 3.8 Import Hotlink modules

In most of the cases, the user needs to import the architecture or structure model to the project file. In ArchiCAD, those modules are imported through Hotlink.

Choose one of the floor plans in 2D view

Keep the floor plan on the main screen, Select File $\rightarrow$  External Content  $\rightarrow$  Place Hotlink. Choose the Module you want to place.

File Edit View Desi	gn Document C	Options Window H	elp					
🗋 New		) 🔹 井 🕶 🖉	🗆 🔹 🔓 📲 🖾 🗶	×2 1	$\Gamma f f f h$	1 🗗 🖉 🎧 🔊 🔻		
🖂 Open		•	Geometry Method:		Grid Naming:		Automatic Grid N	laming Style:
🖹 Close Project	Ctrl+Shift+W	itructural - Grid	•	Ç		Custom name	A.B.	
🗄 Save	Ctrl + S	structural - Grid	dr Co	140	N	lame: K		
🖹 Save as	Ctrl+Shift+S	)[W-01 DR-1F]	[A.01 General No	Action (	Center]	] [3D / All]	» 🏠 🔹	2
🔊 Publish BIMx Hy	/per-model							욭 🕨
Interoperability		<ul> <li>opy and teamwork</li> </ul>	functions are disabled.					🗸 💾 Stor
External Conten	t	Place Hotlin	<b>ζ</b>					Ľ 2.
Libraries and O	bjects		k (Embed Elements)					۳_1.
Info		▶ 📴 Save Hotlink	as File					Ľ_ 0.
🚰 Plot Set <u>u</u> p		🗒 <u>S</u> ave Selectio	n as Module					🗇 Sec
Plot		Protlink Mod	ule Manager					🗀 Elev
📇 Page Setup	Ctrl+Shift+P	🕒 Place Extern	al Drawing					🔲 Inte
📇 Print	Ctrl+P	🕒 Place Extern	al Drawing from BIMclou	d				🗸 🖉 Wo
Exit	Ctrl+Q	🕒 Drawing Ma	nager					2 W
17		🗟 Attach Xref						(Det
~		📋 Xref Manage	r					🗗 3D I
R								✓ □ 3D
~1								
	Terrer.							
	MC	DULE						
		Skip Nested	Modules			Select Module.	**	

In the selecting box, input the module file you want (ifc or .mod) and click OK.

👔 Select Hotlink Module				?	×
Available Hotlink Modules o	f this Project:				
Source File	Linked Stories	Conversion Info	Source Location Macintosh HD\Users\r	icardodia	s\ ^ ~
Invalid Module. Templa Macintosh HD\Applicat	5	RCHICAD\ARCHICAD 23 Templa	te.tpl	odule	
			Cancel	Selec	t.

After choosing the modules, choose to keep the elevation as story structure of the host project if you have already set the location and elevation of the modules. Place the Hotlink.

HOTLINK SETTINGS			
Master Layer:	<b>@</b>	Model Unit - M	Nodule
Master ID:			
Orientation:	Area	0.00*	
		Adjust angle of f rotation	fixed-angle elements to reflect Hotlin
Elements' Elevation:			to Story Structure of Host Project as in Story Structure of Hotlink Source
Additional Offset:			Windows to Wall Base
Top Linked Elements:	Ũ	<ul> <li>Adjust Height to</li> <li>Keep Height as i</li> </ul>	Story Structure of Host Project in Story Structure of Hotlink Source
		Cancel	Place Hotlink

#### Note:

The Hotlink only can place in the floor plan view.

## 4. Creating Model Object

NOTE: You may use the predefined Favorites saved within the template as a reference. Changing the MEP System it will automatically display the correct colour both in 2D Drainage Plan and in 3D.

#### **4.1 Drainage Element**

In the drainage plan, the following object will be modelled through ArchiCAD.

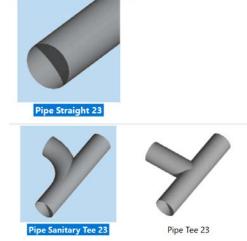
- Pipe segment
- Pipe fitting
- Pipe Equipment

#### 4.1.1 Drainage Pipe, Bend, Transition Tool and Pipe Tool.

In Toolbar, click the tool under the pipework.

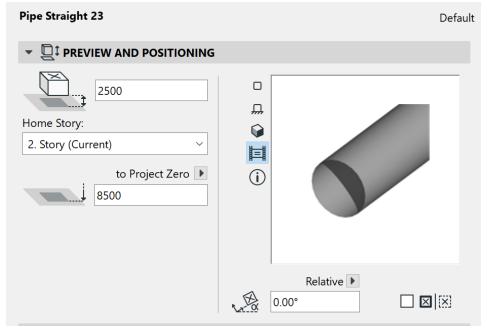
Pipework	
$\bigcirc$	
$\bigcirc$	
$\bigcirc$	
60	

On the left of the default setting, select the pipe element



In preview and position, set the home story to define the pipe is belong to which story. And also set the height of the pipe.

Also, the user can preview the pipe in floor plan view, 2D and section view.



In the general setting of MEP custom setting, the user can set the geometric information of the pipe and define the MEP system it belongs to.

General Settings	Visualization	Connections	
A	(A) Length Insulation Thickness	<b>6000</b> 30	•
MEP CUSTOM SETTIN	MEP System:	Heating	
Custom Setting	gs		3
General Settings	<b>gs</b> Visualization	Connections	
		Connections 90.00° 150 30	•

<ul> <li>↓ Antiperation Setting</li> </ul>	igs	
General Settings	Visualization	Connections
	(A) Length (B) Branch Radius (C) Branch Offset Insulation Thickness	500 ) 200 ) 330 )
↓		
MEP CUSTOM SETTIN		
General Settings	Visualization	Connections
	(A) Length	250
c <b>‡</b>	Angle	12.52°
	(B) Offset	0
•–• B	(C) Offset	56
	Insulation	

Click the connection in MEP custom settings section. Give a diameter, connection type and pipe thickness for the pipe.

Thickness

MEP System:

30

Heating

►

▶

▼ 🔆 MEP CUSTOM SETTINGS			
Image: A state of the state			I
General Settings	Visua	lization	Connections
🛇 Main 1	Þ		
		Nominal Size (A) Diameter Nom. Wall Thickness Connection Type	nom 100
₩ A			

Define the symbol of the pipe in floor plan and section settings.

▼ 🖾 FLOOR PLAN AND SECTION							
•	SYMBOL				^		
/	🗸 猗 Override Object's Line T	Гурes					
l	🖓 🏠 Override Object's Pens						
[	Symbol Lines	Solid Line					
(	Ų Symbol Line Pen	0.18 mm	3				

#### Define the display setting of the pipe in Floor Plan Display

٠	🖾 FLO	OOR PLAN AND SECTION	Surfaces				
*		FLOOR PLAN DISPLAY				^	oject Indexes
		Show on Stories	All Relevant Stories		£ Þ	Ê	Home Story Only
*		SYMBOL				<u>∎</u> 1	Home & One Story Up
	∕~a	Override Object's Line Types	i			<u>≣</u> ‡	Home & One Story Down
	Ų~a	Override Object's Pens				≣ŧ	Home & One Story Up & Down
	$\Box$	Symbol Lines	Solid Line			<u>ال</u>	One Story Up
	□J	Symbol Line Pen	0.18 mm	3		<u>ا</u>	One Story Down
-	M MC	DDEL				Ê	All Stories
	9					£	All Relevant Stories
0	verride S	Surfaces:					
	0 272	5h					15

In classification and properties section, input the pipe's information.

CLASSIFICATION AND PROPERTIES			
	CLASSIFICATIONS		~
	ARCHICAD Classification - v.	Pipe Segment	
	Show On Renovation Filter	All Relevant Filters	^
•	PRODUCT INFO		
e	Model	<undefined></undefined>	
e	Serial No.	<undefined></undefined>	
e	Barcode	<undefined></undefined>	
e	Acquisition Date	<undefined></undefined>	
e	Purchase Price	<undefined></undefined>	
-	MANUFACTURING		
e	Manufacturer	<undefined></undefined>	
e	Production Date	<undefined></undefined>	
e	Country of Origin	<undefined></undefined>	
e	Product Website	www.graphisoft.com	
e	Point of Contact	<undefined></undefined>	
e	Warranty End Date	<undefined></undefined>	
-	ENVIRONMENTAL		$\checkmark$

Lastly, give a layer for the pipe. And click OK.

•	ENVIRONMENTAL		~
	⑦ DR SWP	Cancel	ОК

#### **4.2 MEP Routing**

In ArchiCAD, the main method to create the pipe is Routing Function.

Click the  $\mathbf{k}$  in the standard toolbar to open the routing menu.

Set the diameter of the pipe, construction method, drawing point, MEP system, routing option, and layer. The rest of the setting or information will be followed by the settings in the toolbar.

The black dots under the "to Project Zero" is mainly for you to choose the reference line location.

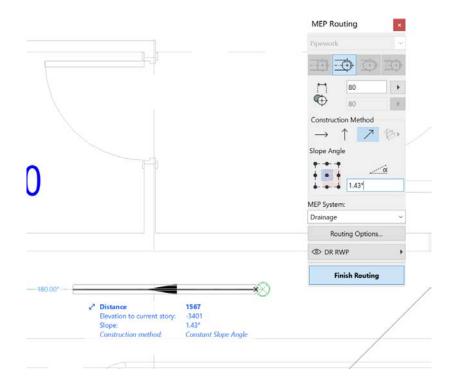
Reference Line is relevant only during a Routing operation, and indicates the anchor point of the routed elements when you click on the screen to place them.

MEP Routing
Pipework ~
500
500
Construction Method
$\rightarrow$ $\uparrow$ $\nearrow$ $$
to Project Zero
2400
MEP System:
Cooling ~
Routing Options
MEP - HVAC
Start Routing

In the routing option menu, the user can set the several major setting of the pipe like the connection type.

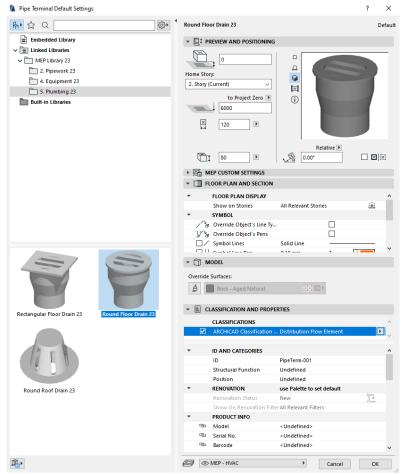
Cooling     Connection Type     Flanged       Insulation     Insulation     Image: Connection Type       Insulation     Image: Connection Type     Image: Connection Type	<u>- mia</u>					Z400 MEP System:	
			(WHO BE)		~	Cooling	
MEP - HVAC Insulation Thickness 30	Þ		Flanged	Connection Type		Routing Options	
Insulation Thickness 30		$\checkmark$		Insulation			
		30		Insulation Thickness		WIEP - HVAC	
Transition Rule Place before bend		d	Place before bend			Start Pouting	
Connector Diameter 0			0	Connector Diameter		Start Routing	

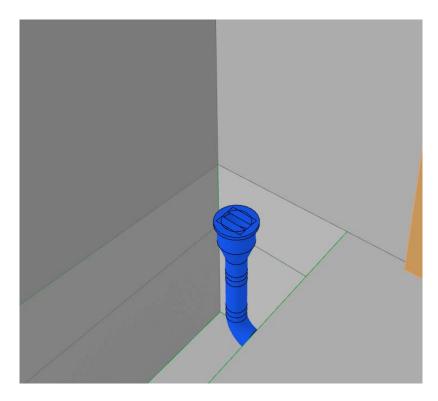
Click start routing to draw the pipe and input the slop angle of the drainage pipe. When finishing the routing, double click the right bottom of the mouse.



#### 4.3 Pipe Terminal Tool

In Toolbar, click "Pipe Terminal Tool" select the relative Library  $\rightarrow$  place it into the position in 2D or 3D





#### 4.4 Drainage Equipment

In the toolbar, click Equipment Tool in Toolbar. Select relative Library.

Choose the item on the left and edit it on the right if you want.

Object Default Settings 2 X 除·☆ Q SINK {
 ô}
 •
 {
 63
 •
 Basin 23 Default Found 73+ library part(s): \* QI PREVIEW AND POSITIONING Rectangular Floor Sink 23 Scrub Sink 23 860 Д .... Home Story: 0 Flexible (by Elevation) 国 to Project Zero 🕨 **(i)** 860 X 600 Service Sink 23 Sink Belfast 23 6.5  $\times$ 1 450 . 140 . Ø α 0.00° - DASIN SETTINGS Basin Types... Top Height Sink Corner 23 Sink General 23 1000 • Rounded 2 On Pedestal Utility Sink 23 Work Sink 23 Flat Back-Oval Disabled Rectangular ➡ □ FLOOR PLAN AND SECTION FLOOR PLAN DISPLAY Show on Stories Home Story Only Ĥ Basin 23 Basin Cabinet 23 SYMBOL Override Object's Line Types Ung Override Object's Pens Symbol Lines Solid Line 0.00 ---- D MODEL Override Surfaces: Basin Double 23 Å Basin Corner 23 CLASSIFICATION AND PROPERTIES (i) More elements on the BIM Components Portal DR RWP Þ OK Cancel

If you want to create your drainage equipment, please refer to the following guide as a reference.

http://gdl.graphisoft.com/reference-guide/gdl-guide

# 5. Configuring Schedules

#### **5.1 Open the Schedule**

After finishing the modelling, click Project Map on the Pop-Up Navigator. In here, you can see the schedule of the drainage plan.

#### 

✓ IZZZI Elements

- Foul Water Manhole Schedule
- Petrol Interceptor Schedule
- Strom Water Manhole Schedule
- Sump Pit Schedule

#### 5.2 Strom Water Manhole Schedule

Strom Water Manhole Schedule							
Manhole NO. Pipe Diameter (mm) C.L I.L D.T.I.L Depth (mm) Type							
STMH	225	3.43	2.43	2.28	755	T1	

Automatic update item	Depth
Manually Input item	Manhole NO., Pipe Diameter, C.L., I.L., D.T.I.L., Type

#### 5.3 Foul Water Manhole Schedule

Foul Water Manhole Schedule								
Manhole NO. Pipe Diameter (mm) C.L I.L D.T.I.L Depth (mm)								
FTMH	150	3.42	2.42	2.27	1980	T1		
SMH-01	150	-5.85	-6.6	-6.3	1750	E		
WMH-01	150	-5.85	-6.6	-6.3	1750	E		
WMH-02	150	-6.6	-6.85	-5.55	1750	E		

Automatic update item	Depth
Manually Input item	Manhole NO., Pipe Diameter, C.L., I.L., D.T.I.L., Type

#### **5.4 Petrol Interceptor Schedule**

Petrol Interceptor Schedule						
Petrol Interceptor NO. C.L I.L B.L Depth (mr						
PI-01	5.9	6.9	8.4	2500		

Automatic update item	Depth
Manually Input item	Petrol Interceptor NO., C.L., I.L., B.L

# 5.5 Sump Pit Schedule

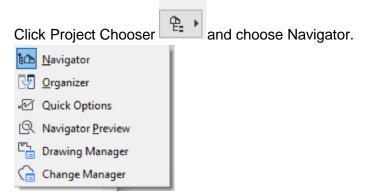
Sump Pit Schedule								
Pump Duty (Each						ty (Each)		
Sump Pit NO.	Sump Pit Size (LxWxD)	C.L	I.L	B.L	Pump NO.	FLOW (I/s)	HED (m)	
SWPP-02	2000(L)x1500(W)x600(D)	-5.85	-6.5	-7.5	SSP02-01,02	6	20	
SWPP-03	2000(L)x1500(W)x600(D)	-5.85	-6.5	-7.5	SSP03-01,02	3	20	
SWPP-04	2000(L)x1450(W)x600(D)	-5.85	-6.5	-7.5	SSP04-01,02	3	20	

Automatic update item	Sump Pit Size
Manually Input item	Sump Pit NO., C.L., I.L., B.L., Pump NO. Pump Duty

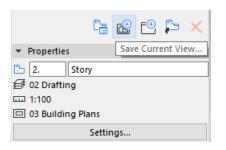
## 6. tandardizing View Setting and Prepare Layout Production

#### 6.1 Saving view

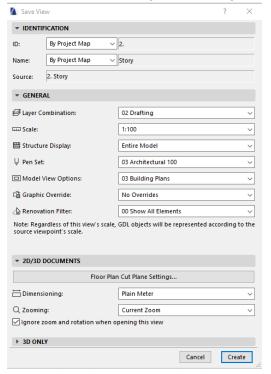
After finishing the drainage modelling, the user can save specific floor plan or 3D perspective view in view map for drainage submission



Click the view map and click save current view.



In the save view dialogue, set the general setting and click create.



#### 6.2 Create Typical Detail and General Note

In ArchiCAD, there are two ways to generate a general note and detail drawing. The first one is to edit them through ArchiCAD.

Right-click the worksheet in Project Map to create a new worksheet and give a name like general note.

In worksheet, choose the text tool in the toolbar to text the general note. Choose the Drawing & Figure layer for general note and typical detail.

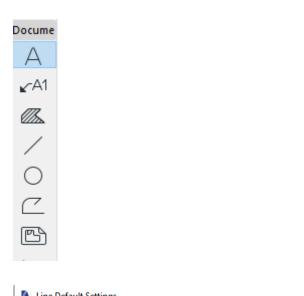
🚺 Text Defa	ult Settings				?	×
☆•						Default
TEX TEX	T STYLE					
<b>v</b>	Arial		```	Western		~
M:::‡ 3.0	0 mm			A J 86		
B		Ŧ	Leading:	‡A 100		÷%
	· -		Width:	⇔ 100		÷%
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GENERAL NOTES

- 1. THE WHOLE DRAINAGE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE BUILDING ORDINANCE AND BUILDING REGULATIONS AND THE CURRENT REGULATIONS OF HONG KONG ENVIRONMENTAL PROTECTION DEPARTMENT.
- 2. ALL DIMENSIONS AND PIPE SIZES SHOWN ON THE DRAWINGS ARE IN mm UNLESS OTHERWISE STATED.

For Detail Drawing, also create a worksheet for it.

Use the different tool to draw the typical detail drawings.



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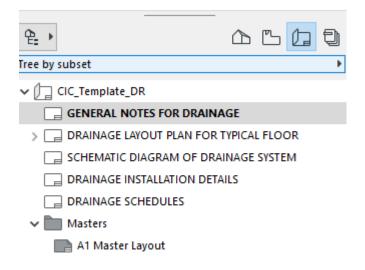
Furthermore, the user can also generate on other software like AutoCAD and import as external drawing in the format of PDF or DWG.

## 7. Creating Layout

#### 7.1 Title Block in Master Layout

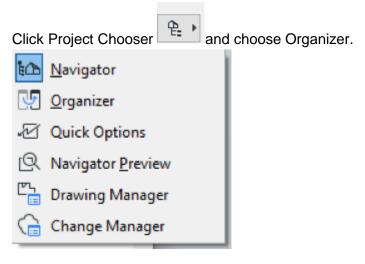
In Drainage template, the title block includes standardized view and location of BD's approval stamp chop and RSE's name chop.

The user can click Layout Book→Masters to see the title block

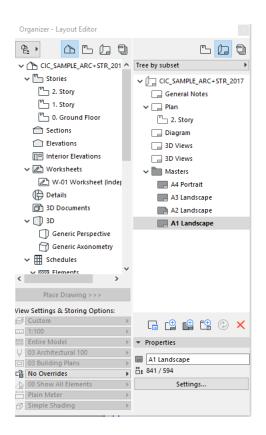


#### 7.2 Create Layout

In the template, there are some example sheets. You can also create other layout based on your needs.



You can drag any floor plan, 3D view, index etc. into the layout.



#### 7.3 Layout List

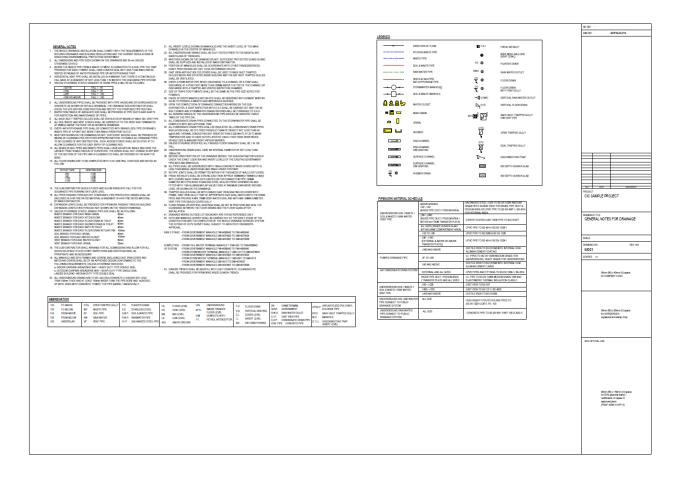
The example of the layout list can be found in the Sheet Index of view map. If the user adds a new layout, it will automatically update.

	Header Opt eeze Index				
	1 10	0 ' 20 ' 30 ' 40	0 <mark>1 ' 50 ' 60 ' 70 ' 80 ' 90 ' 100 ' 110 ' 120 ' 130 '</mark>	140 <sup>1</sup> 150 <sup>1</sup>	160 ' 170 ' 18
- 1 0			DRAWING LIST		
2		Drawing No.	Drawing Title	Size	Rev.
-	1	M001	GENERAL NOTES FOR DRAINAGE	A1	-
8	2	M002	SCHEMATIC DIAGRAM OF DRAINAGE SYSTEM	A1	-
- -	3	M003	DRAINAGE LAYOUT PLAN FOR TYPICAL FLOOR	A1	-
-	4	M004	DRAINAGE INSTALLATION DETAILS	A1	-
ß	5	M005	DRAINAGE SCHEDULES	A1	-

## 7.4 Example of Sheets

#### 7.4.1 General Notes for Drainage

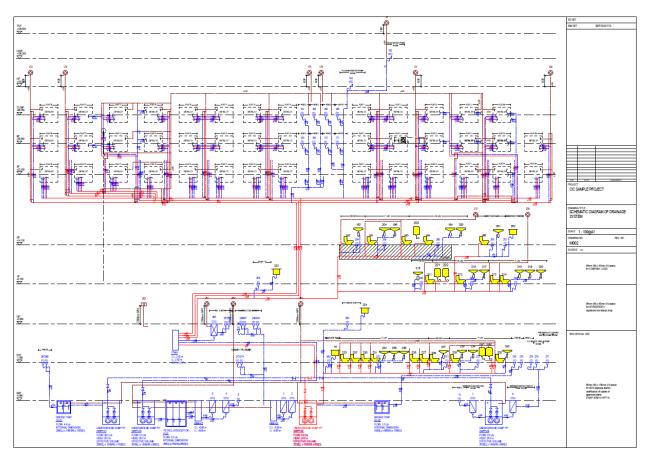
In Layout Book, click General Book



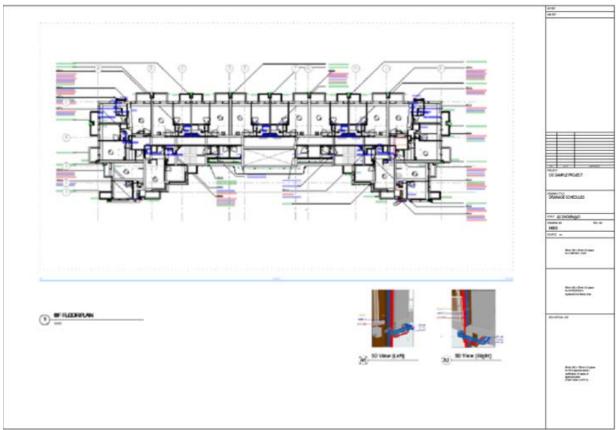
Layout Type	Layout Name
Drafting Layout	General Note

## 7.4.2 Schematic Diagram of Drainage System

In Layout Book click "SCHEMATIC DIAGRAM OF DRAINAGE SYSTEM"



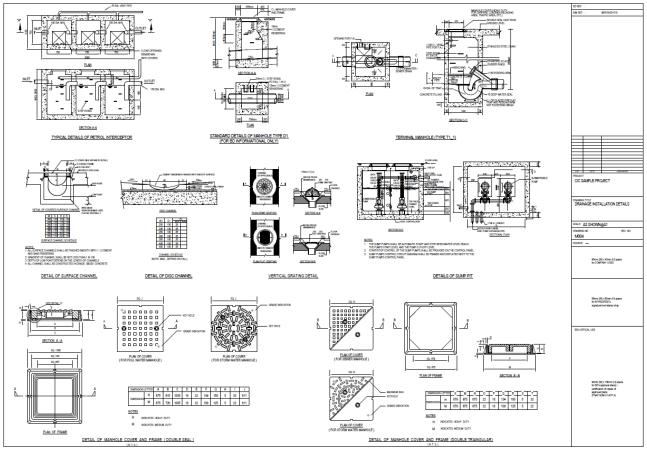
Layout Type	Layout Name
Elevation	Drainage Schematic



## 7.4.3 Drainage Layout Plan for Typical Floor

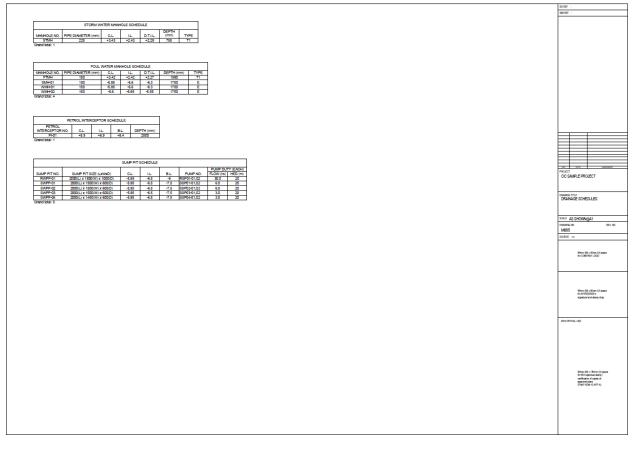
Layout Type	Layout Name
Floor Plans	6/F Floor Plan
3D View	3D View (Right), 3D View (Left)

#### 7.4.4 Drainage Installation Detail



Layout Type	Layout Name
Drafting View	Drainage Installation

## 7.4.5 Drainage Schedules



Layout Type	Layout Name
Schedule	Foul Water Manhole Schedule
	Petrol Interceptor Schedule
	Storm Water Manhole Schedule
	Sump Pit Schedule

## 8. Exporting Model as Deliverables

#### 8.1 Exporting Layout as PDF and DWG

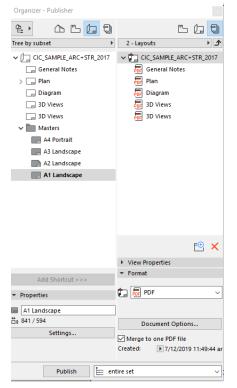
In Organizer, Choose one side as Layout Book one side as Publisher Sets. Create a new publish set to publish the layout.

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Drag the layout you want to publish into the Publish Set you create.

Double click the set and choose the publish format as PDF or DWG and do some other customization for your PDF or DWG.

Click Publish button to create the PDF or DWG.



#### Feedback Form

# CIC BIM User Guide for Preparation of Statutory Plan Submissions ArchiCAD December 2020

To improve future editions of this publication, we would be grateful to have your comments.

Plea	se put a " Y " in the appropriate box.)					
1.	As a whole, I feel that the publication is:	Strongly	Agree	Neutral	Disagree	Strongly
		Agree				Disagree
	Informative					
	Comprehensive					
	Useful					
	Practical					
	Does the publication enable you to understand	Yes		No	No Comment	
	more about the subject?					
-	Have you made reference to the publication in your work?	Quite Of	ten	Sometimes		Never
	your work!					
4.	To what extent the publication benefits you?	Strongly	Agree	Neutral	Disagree	Strongly
		Agree				Disagree
	Supply chain Information/data integrity					
	Work efficiency					
	Project Collaborations					
5.	Overall, how would you rate our publication?	Excellent	Very Good	Satisfactory	Fair	Poor
6.	Other comments and suggestions, please specify	(use separa	te sheets if	necessary).		
Per	sonal Particulars (optional):*					
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#### (Please put a " $\checkmark$ " in the appropriate box.)

- \* The personal data in this form will be used only for this survey. Your data will be kept confidential and dealt with only by the Construction Industry Council.
- ^ Circle as appropriate.

Please return the feedback form to: CIC Secretariat – BIM E-mail: bim@cic.hk; Address: 38/F, COS Center, 56 Tsun Yip Street, Kwun Tong, Hong Kong Fax No.: (852) 2100 9090

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