LG Electronics

# LATS CAD User's Manual

CAD Drawing & System Check Simulation Program's Tutorial & Manual

LG Electronics Nov. 10, 2017

# **Table of Contents**

Table of Contents	2
System Requirement	6
Software	6
Installation	7
Procedure for using LATS CAD	7
Program installation	7
Following	8
User Registration	8
LATS Execution	
LATS CAD Window	11
Project Management	
Project Creation	12
Space Information Creation	15
Building Creation (Using Excel Sheet)	15
Building Creation (Using Master Menu)	17
Floor Management	
Room Management	19
Area Designation	20
Environment Setting	23
Equipment Positioning	24
Indoor Unit Positioning	24
Outdoor Unit Positioning	27
AHU Positioning	29
Pipe Connection	34
Riser Hole Positioning	

Refrigerant Pipe Connection	36
Branching Pipe Connection	38
Drain Pipe Connection	
Material Index	41
Drawing Check	42
Drawing Check _Pipe Design Check	42
System Check	43
Checking Drain Validation	47
Refrigerant System Diagram Drawing	49
Building Board Composition	49
Schematic(Refrigerant) Diagram Equipment Arrangement	50
Control Diagram Drawing	52
Layer Arrangement	52
Outdoor Unit Property Information Change	52
Controller Positioning	53
Control Cable Model Setting	54
Control Wiring	54
Wiring remote control	55
Control Riser Hole Positioning	56
Control Remarks	56
Checking Communication line Validation	57
List of Control Equipment	58
Schematic(Control) Diagram Equipment Arrangement	59
Function Description of Each Icon (Include Ribbon Menu)	61
Equipment Editing	61
Rotate Equipment	62
Move Equipment	63
Copy Equipment	63
Delete Equipment	66
Rotate Equipment (180)	66
Equipment Assignment	67
Match Equipment Property	68
Piping Equipment	69
Equipment and Pipe Index	73
Property Information	74
Auto-arrange Indoor Unit	76

Material Scale (in Material Index)	82
Control Wiring	82
Wiring remote control	84
Control Cable Model Setting	86
Control System Diagram Drawing	87
Building Board Composition	87
Schematic (Control) Diagram Equipment Arrangement	88
System Validation Check	91
Drawing Refresh	91
Checking Connect Condition (Drawing Check)	91
Checking Refrigerant Pipe Validation (System Check)	95
Checking Drain Validation (Drain Check)	
Checking Communication Line Validation (Control Check)	
Project Save AS	

#### Function Description for Each Tab of Pallet Menu

104

Master Menu and Symbol Menu	
Main Tab (Master Menu)	
Environment Setting (Project and Configuration)	106
Project Information	
Space Information	
Layer Tab (Master Menu)	
Layer On/Off	
Layer Control	
Indoor Unit Tab (Symbol Menu)	120
Indoor Unit Information	
Positioning for each Product Type	
Outdoor Unit Tab (Symbol Menu)	126
IDU Logical Relationship	
Outdoor Unit Information	
Multi Type Equipment Positioning	130
Pipe Material Tab (Symbol Menu)	133
Riser Hole	
Y-Branched Pipe	135
Branch Coupler	
ODU Connector	
Header	

HR Unit	
BD [Y Branch]	140
BD unit Coupler	141
BD Unit	141
Drain T	142
Drain Cap	142
Drain Exit	143
Control Solution (Symbol Menu)	144
Controller Positioning	145
Control Riser Hole Positioning	146
Material Remarks (Symbol Menu)	147
Branching Pipes connecting between Outdoor Units	148
Branching Pipes	148
Branching Pipes (Multi)	149
Header Branching Pipes	149
HR Unit	150
BD Unit	150
Pipe Notes & Pipe Notes(Single Index)	151
Control Note	151
Control Connection Detail Diagram	152
Control Product Detail Diagram	152
Control Solution note	153
User Symbol Define Function (Symbol Menu)	154
Make the new model as user symbol define function	154
Add the user defined symbol model in project	158
Precautions	
Others	163
Utilizing Automatic Save Function	

# **System Requirement**

#### Software

- LATS CAD\_32bit:

1. OS: Windows7\_with SP1, Windows8, Windows10 (32bit) \*\*Please keep Windows update is the latest.

2. AutoCAD: 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018 (32bit)

<u>\*\*In installing AutoCAD, ".NET Framework" have to be installed. (Basically, ".NET Framework" is installed</u> automatically.)

3. MS Office Excel, Access

- LATS CAD\_64bit:

1. OS: Windows7\_with SP1, Windows8, Windows10 (64 bit) \*\*Please keep Windows update is the latest.

2. AutoCAD: 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018 (64 bit)

<u>\*\*In installing AutoCAD, ".NET Framework" have to be installed. (Basically, ".NET Framework" is installed</u> automatically.)

3. MS Office

# Installation

# Procedure for using LATS CAD



## **Program installation**

1. first install





#### Click setup

2. reinstall



Click setup

Remove the previous version

Install

# Following

This chapter is written about explanation of functions at LATS, and method and process how to use the functions in general. And It consists of explanation of each functions that user of LATS can understand the functions, when they follow this chapter step by step. If you want more detailed descriptions of each function, check reference page.

### **User Registration**

1. When LATS is executed after Installing, please execute the CAD Mode.



2. Please agree the license agreement. ( or please input appload(ap) in command line)

LATS Dishie Agreement	
* Flease read the following loanse agreement carefulls.	
TBMS And Canditors Of Up The use of LC Discretific Data for Canditoring Datas Eugeneting Program "LATE CHO" is 1. Our and classes of Basese (2) in concessors of Learner Agreemy to loade by the terms of the Learner LL Bist (2) the Canditorian of Learner May term bases and metaling the Software, the Learner ag (2) the Learner and "Learner May Term bases and metaling the Software is iteration assess (2) the Learner and "Learner May Term bases and metaling the Software is iteration assess	e adject to the following terms and conditions (Heat Tame?). By use strate grants to the Locatese a Prec of charge, non-socialists and non. The to about by the terms of the location. Topponers of a well by location and our any collates of the Software.
Lower's under lating Introduce an experiment of the lower and lower with the exception of the general more to capy the otherware or Documentations with the exception of the general more to make advectations to us machinations of the solution and part of the do- the solution of the solution of the solution of the solution of the solution more to the solution of the solution of the solution of the solution of the solution more the solution of the solution of the solution of the solution of the solution more the solution of the sol	In of a bedug capy, and by the Lammer's regioners and other personnel under the Loen forms or Downerfaller unders received and the durch of a durch or upgrade uncon a more indexe provided by 16 Sectioners; and from a whole or is port to any person whole provide the received and the section of the section of the section of the received and the section of the section of the section of the received and the section of the section of the section of the received and the section of the section of the section of the received and the section of the section of the section of the received and the section of the section of the section of the received and the section of
3. Changes in Terms of Use US Electronics Inc. reserves the right, acits discretion, to revise these Terms from the	o the. Heate dreck these terms periodically for any updates or dran
Dute of any program Content LC Decironics Inc. operates and maintains this program and its contents for your percor	aluse, information and convenience in business. You may seek and &
(0) Thur Communications with IC Berthones Stv. 5- the event you'rene env questions regarding the Terms or otherwise with to campus altern and broadcast. You may not post or transmit to or from the program any unlawful.	rate militure, you may contact us by small at the addresses noted on threathing, Balace, defaustory, obscine, abusive, scandidoue, at
1 acrest the terms of the loanse agreement.	
1 to not eccept the tome of the loance agreement.	#10 No

- 3. For requesting temporary license, input data.(The \* marked item is mandatory.)
- 4. After checking the inputted data, click [OK] button for complete request. If you want to cancel, then click [Cancel] button.
- 5. Temporary license is available during 2 weeks. When the manager issue formal license, you can use.

Request Temporary Lice	ise 🗾
*Nation	<b></b>
*Job Type	•
*Company	
*First Name	
*Last Name	
*E-Mail	
Telephone	
*Cell Phone	
Zip-code	
Address	
	OK Cancel

6. If you are not still issued the license after 2 weeks, please contact LATS CAD manager(lats@lge.com)

### **LATS Execution**

LATS Hub		×
	Language : Output Language : Units : Region : "AutoCAD 2013	English   English  SI  Global  - English"  CAD Mode
Homepage Go There are no items to up	Update Run	Notice View

- 1. Select Language & Units & Region to apply
- 2. Select AutoCAD version
- 3. Select [CAD mode] button.
- 4. View updates or notices (It is activated when there is an update or a notice.)

Caution! When there is an update, please run update.

😥 LATS Hub		
**	Language : English   Report Language : English  Units : SI  Region : Global  "AutoCAD 2013 - English"  CAD Mode	
Homepage Go 1183 entries are update	Update Run View	

### LATS CAD Window

LATS CAD Window is composed with 2 Menus, Drawing, Pull Down Menu(It can be changed to Ribbon Menu if not setting AutoCAD Classic), and Command Line.

Menu has 2 types as Master Menu at left of window and Symbol Menu at right of window. And to show Master Menu or Symbol Menu, click Show Master Menu, Show Symbol Menu on Pull Down Menu or Ribbon Menu. Master Menu has 2 Tabs of Main Tab and Layer Manage Tab. And Symbol Menu has 6 Tabs of Indoor Unit Tab, Outdoor Unit Tab, Pipe Material Tab, Control Solution Tab, Material Index Tab, and User Define Symbol Tab.

LATS CAD has Menus and Icons in the each tab. The Menus has function of Equipment Editing, System Diagram Drawing, and System Checking. The Icons are equipments, pipes, setting environment, etc.



#### **Project Management**

Use "New Project" to create a new project, and input "Project Information".

#### **Project Creation**

1. Select New Project to set Project Information. The project folder is created at the designated location.

(Master Menu  $\rightarrow$  "Open" of Project  $\rightarrow$  Click the button "  $\implies$  " )



2. Input each of the information by clicking general information, design condition, and designer/Customer Information tab. (Check New Project)

Pr	oject Information			Y		×
C	General Inform	ation Units	Design Condition	Designer/Custom	er Information	
	Work Path	d:₩Docum	ents and Settings₩M	New F	Project <b>⊽</b> S₩Lats 📂	
	Project					
	Project Description					
	Registeration Date	2014-10-30				
						///////////////
				ОК Арр	ly Can	cel

- 2.1 General Information
- Work Path: Project Folder
- Project: Project Name
- Project Description: Other Project Information
- Registration Date: Working Date (automatically input)

#### 2.2 Units

Project Information	l la Ma		<b>0</b> III					x
General Information	Units	Design	Condition	Designer/C	Customer Info	ormation		
© m	0	ft						
Diameter	n 🔘	inch						
Load	0	kcal/h	⊚ kBtu/h	⊚ HP	© RT			
Capacity	0	kBtu/h	© HP	© RT				
Temperature ● ℃	0	۴						
Air Flow	H O	смм	CFM					
Water Flow	M ©	GPM						
Weight	0	lbs						
				ОК	A	pply	Cancel	

\* <u>Caution!</u> It is only setting value on drawing. For report units, it needs to set on output language of <u>configuration</u>.

#### 2.3 Design Condition

- It sets country, region, and city.
- It verifies cooling/heating dry gate and wet gate temperature conditions.

Project Information			<b>×</b>
General Information Units	Design Condition De	esigner/Customer Informat	tion
<b>1</b>	Country Alba Region - City/Province TIR/	ania 🔹 👻	
Design Condition	Indoor	Outdoor	
	DBT 27.0 °C	DBT 33,0 °C	
Cooling	WBT 19,5 °C	WBT 24,2 °C	
	RH 50,0 %	RH 48,4 %	
	DBT 20.0 °C	DBT -1.0 °C	
Altitude Heating	₩BT 13.8 °C	₩BT -2,1 °C	
11U_m	RH 50,0 %	RH 80,0 %	
			J
	ОК	Apply	Cancel

- 2.3 Designer/Customer Information
  - Input Designer/Customer Information.

Project Information	Design Condition Designer/Customer Information
Customer Information	
Name	Name
Phone	Phone
Fax	Fax
Email	Email
Address	Address
	OK Apply Cancel

#### **Space Information Creation**

It creates buildings, floors, and rooms, which are the basic setting elements of the drawing, and sets the Reference Point and area.

There 2 ways, inserting by making an Excel Sheet and directly registering to Master Menu.

#### **Building Creation (Using Excel Sheet)**

After creating a project, create "Building Information" using Excel Sheet.

Read Information defined in Excel Sheet to create buildings, floors, and rooms.

< Excel Building Information >

1. Input Building, Floor, and Room Information, location of the drawing, floor height, and room area in the Excel Sheet template.

Template File is in Dat folder under Program folder. (BldgInfo\_Template.xls) The path of the drawing can be input through the interactive box by the user.

	A	В	C	D	E	F	G	Н	1	J	
1		Name	TEST								
2	Builing Information	File Name									
3		Scale 1:	100.0	Up	2.0	Down	1.0	Height	3.5		
4											
5	Floor		- Deen Unicht		Heating Total heat		Cooling S	Cooling Sensible heat		Heating Total heat	
a	FIOUI	Koom	Height	Unit Load	Load	Unit Load	Load	Unit Load	Load	Area	
7	2F		4.0		0.0		0.0		0.0		
8	1F	1R	4.0								
9		2R	4.0								
10		3R	4.0								
11		4R	4.0		1						
12	1B		4.0		0.0		0.0		0.0		

Caution! When changing the template format, change(insert) only Row Information of the marked category. If other categories are changed, an Error will occur when the Building Information is extracted from the Project.

2. Designate the prepared Excel Sheet to create buildings, floors, and rooms.



2.1 Select "Add buildings" in Building Information in Master Menu.

2.2 Select "Open building information from Excel file" in "Building Information Management"

2.3 Select the Excel File (File with Building Information input in the template) and drawing

Building informat	ion management
	I Open building information from Excel file
XLS File	
Building name	New building2
Work drawing	
- Auto Floor	Generation
Above (	Grade Floor Standard Height 3.5 m
Below (	Grade Floor Ceiling Height m
	OK Cancel

- 3. The Building Information input in the Excel File is applied
  - Test Building is created, and if Room Information is input in the Excel File, Room Information is also applied.



#### **Building Creation (Using Master Menu)**

Create Building Information in the Main Tab of Master Menu

1. Select "Add Buildings" of Building Information.

LatsCAD		Main
Category	Setting	
🕂 📷 Project	lge	
Building Information	Add buildin	
🛨 🏩 Configuration		lage
		Маг
		ler
		Lay

2. Input Building Name, Floor, and Standard Floor Height, and designate the drawing.

2.1 Drawing name is saved as Project Name\_Building Name.dwg, and is copied to Project folder.

r	Building information management
	Onen kulding information from Fund file
ł	
	Building name New building
	Work drawing
	Auto Floor Generation
	Above Grade Floor Standard Height 3.5 m
	Below Grade Floor Ceiling Height m
	OK Cancel

Caution! When ceiling concealed duct type Indoor Unit is selected, and it designates the ceil height. Don't have to be input the other case.

- 3. Building Information is created as the same in "Open Building Information from Excel File".
- 4. Opening Building Drawing (Select Building Information and Open the Drawing)

LATSCAD Master Menu			
LatsCAD		AutoCAD	$\mathbf{X}$
Category	Setting Value		T drawina?
💽 📷 Project	TestProject_M	Open rea	) i urawniy:
🖃 🚮 Building Information	Add building	C BHZ VA	
New building	×>	ит С	

5. For the case of creating building using ExcelSheet, the following steps are also the same.

10 10 10 10 10 2		100 100	DARGE	1.8 2 4		10	- D.Lover	Distant	
uriscus Mana Mana	<u>a B</u>						r Unit	Late Symbol Ar	Instant
Cargory The The Constant Constant of the Constant C	Carling Use of Links 20 20 20 20 20 20 20 20 20 20 20 20 20	alian dauga					Manual Indon - Comis Saturon - Peer Manual - Outloor Int - Indon	Additiv     Additiv     Additiv     Casteria Arth     Casteri	y with y
] Auto entargo recent avec 🖂 a	dide Highlightichid	Command Command NOVE bt Specify cust fi	: Specify opposi : H M found base point or [ ret point as dis	(e borberr Displacement) clacement>:	<pre>cDisplacement:</pre>	>: Specify #	costi pei	FALI	

Caution! Default Scale is 1:1

#### **Floor Management**

It is able to modify/insert/delete floor information selected automatically, when building creation.

1. While Building is selected, after clicking right mouse button, select Floor Management.

LATSCAD Maste	r Menu		
LatsCAD	* # *		ain
Category		Setting Value	2
💽 📷 Project		TestProject_M	
🖃 🚮 Building In	formation	Add building	
E New h	uildina	<u>73</u>	
÷ 🖘	Floor N	lanagement	
• •	Copy F	oor/Room Area	<b>F</b>
	Delete		
•	Open B		
	Master		
-	Room 1	Name Arrangement	

2. If to add/delete floor is needed in addition to the set floors, use Add Floor/Delete Floor function. (Add/Delete after selecting the Floor).

oor Name	Floor leve,	SortOrder
Rootop Roor	15	37
3 4th Floor	10	36
3td Floor	40	35
2nd Floor	70	34
1st Floor	35	33
Cooling and Heating distribution diagram		-30
🚆 Control distribution diagram		-31
Equipment fat		-32
Add Upstars Add Downstars Delete Flor	or Organize Floor	

#### **Room Management**

It is able to input room information of each floor.

1. While Floor is selected, after clicking the right mouse button, select Room Management.



2. Room Add/Delete is possible for the selected floor.

Input Type 🔍 Ar-Conditioning 💿 Ar-Ventilation 🔤 Room Search											arch		
		C10 4.11		Cooling	1	Cooling sensi	ble heat	Heating	1	IDU Ca	ipa.		
Room name	Boundar	(m)	(m)	Unit Load (kW/m)	Load (KW)	Unit Load (kW/m)	Load (kW)	Unit Load (kW/m)	Load (kW)	Cooling (kW)	Heating (kW)	Order	
New room4	5	28.9	29.9	0.100	2.990		_	0.080	2.352	3.03	10.02	5	
B RPS_P4_1	6	64.8	64.8	0.100	6.480		_	0.080	5.184	14.42	15.94	6	
E RPS_P4_2	6	64.8	64.8	0.100	6.480			0.080	5.184	22.54	25.03	7	
E RPS_P5_1	6	64.9	64.8	0.100	6.490			0.090	5.184	28.19	30.01	8	
E APS_P5_2	6	64.0	64.0	0.100	6.400			0.000	5.104	20.19	30.01	9	
RPS_MP(AL_1	B	88.7	88.7	0.100	8.870			0.080	7.096	18.05	20.05	10	
HPS_h2_1	6	50.0	50.0	0.100	5.000			0.080	4.000	9.00	9.99	11	
B RPS_b_1	6	90.5	90.5	0.100	9.050			0.000	7.240	9.03	10.02	12	
B RPS_CA_1	B	96.7	98.0	0.100	9.800			0.080	7.840	18.05	20.05	13	
B RPS_CA_2	6	96.7	96.7	0.100	9.670			0,080	7.736	18.05	20.05	14	

#### Area Designation

It designates Floor Area, Reference Point, and Room Area.

Caution! To copy Floor/Room Area, the Reference point of the both floors to be copied should be set first.

1. Generate Floor Area



- Designate Floor Area using rectangle or poly line, or designate certain area as the Floor Area using Boundary Selection.



2. Set Floor Reference Point



- After Floor Area is designated, designate the Reference Point of the floor.



- Set the point being the base of each floor as the Reference Point.

- When the Designation of Floor Area and the Setting of Floor Reference Point are completed, the Floor Icon is updated in Master Menu.

LATSCAD Master Menu		
LatsCAD		lain
Category	Setting Value	2
🛨 🚞 Project	TestProject_M	
🖃 🚮 Building Information	Add building	
🗄 🚮 New building	<b>1</b>	ы
- 🟊 test	F	nag
🛨 🛸 Rooftop Floor	<b>↓</b> F	Σ
🕂 🛸 4th Floor	<b>↓</b>	ayer
🕂 🛸 3rd Floor	<u>.</u>	
🕂 🛸 2nd Floor	<b>↓</b>	
🕂 🛸 1st Floor	<b>↓</b>	
🔁 Cooling an		
- 🔁 Control dis		
🔁 Equipment list		
+ 😒 Configuration		-

3. Generate Room Area

LATSCAD Master Menu		[-][Top][2D Wir	
LatsCAD	REC RE		
Category	Setting Value	Ma	
Building Information	Add building		
- New building		nager	$\langle \rangle$
🕂 🔂 New room	Modify Room	2 Information	< 🖪 \
+ Section 44 Floor	Delete Room	n Aroa	
- 🗄 RPS_P1_2	Zoom Room A	Area	
- 🗄 RPS_P3_2	Room Name A	Arrangement	
- New room4	Room Name S	Selection	

- Designate Room Area using rectangle and poly line, or designate certain area as the Room Area using Boundary Selection.



- When Floor and Room Area are designated, Room Icon is updated in Master Menu.



- When the designation of Floor Area/Floor Reference Point/Room Area is completed, all icons in Master Menu are updated, and the area for each room is recognized in CAD.

LATSCAD Master Menu																
LatsCAD		i														
Category	Setting Value	▲ Ž														
🛨 👝 Project	TestProject_M															
🖃 🚮 Building Information	Add building															
🕂 🚮 New building	<u>22</u>	5	A last East most in	formation man	and the second second									-		r x
🕂 🛰 Rooftop Floor	<b>₽</b>	lag	Input 1	vpe Ar	Conditioning		© Ar	Ventilatio	n				_	Room Se	earch	
- 🛰 4th Floor	(I)	Mar		<u> </u>		100000	Coolin	9	Cooling sens	ble heat	Heatin	,	IDU C	apa.		
- 🔠 RPS_P1_1	6	yer	Room name	Boundar	CAD Area (m/)	loom Area (m <sup>2</sup> )	Unit Load (kW/m/)	Load (kW)	Unit Load (kW/m?)	Load (kW)	Unit Load (kW/m/)	Load (kW)	Cooling (kW)	Heating (kW)	Sort Order	
- 🔠 RPS P1 2	ß	<u> </u>	El New scen4	B	233	29.9	6.160	2 990			0.000	2.332	9.03	10.02	5	
	а С		B RPS_P4_2	8	64.0	64.8 64.9	0.100	6.400			0.000	5.184	22.54	15.94	7	
			8 RPS_P5_1	6	64.8	64.8	0.100	6.480			0.080	5.184	28.19	30.01	8	
- 🗄 RPS_P3_2	le S		E RPS_P5_2		64.8	64.0	0.100	6.400			0.000	5104	28.19	30.01	9	1
- 🔛 New room4	հ		RPS_MPGAL1	2	50.0	50.0	6.100	5.000			0.080	4 000	9.00	9.99	10	-1
	2		E RPS_b_1	0	90.5	90.5	0.100	9.050			0.000	7.240	9.00	10.02	12	
- 🔠 RPS_P4_1	B	8	B RPS_CA_1	6	96.7	98.0	0.100	9.800			0.080	7,840	18.05	20.05	13	
- 🔠 RPS_P4_2	ß		RPS_CA_2	6	96.7	96.7	0.100	9.670			0.080	7.736	18,05	20.05	14	
- 🔠 RPS_P5_1	ß		Add To Up	Add To Do	wn D	elete Room	Sort Re	om						ок	Can	cel

- Area for each Room/Floor may be Expanded/Deleted through Other Area Expansion/Deletion function.

#### **Environment Setting**

......

In LATS CAD, there is two type of environment setting. (Project setting, Program setting)

The project setting (under project button) is affected only the project file. And program setting (Configuration) is affected all working project.

1. It sets the data for Unit for each Project and Standard Height of Indoor Unit.

SCAD		Vain				
ategory	Setting Value	<u> </u>			🖃 🏟 Configuration	
Project	TestProject_H			Exalists	-🔇 Language	English
- O Work Path	D:\★ 2017 업		Sy Language	English	- 🔇 Output language	English
- Uesigner		iger	-53 Output language	English	- 🚱 Output Unit	SI
- 🌣 Unit	Units	Mana	- 🚱 Output Unit	SI	- 🔍 System Search	
e Length	m	iyer	+ 🗟 System Search		+ 📀 Operation Mode	
🛛 😑 Pipe Diameter	mm	La La	Chan dead the black	03111-00	🔄 🖃 😡 Zone	
- 😑 Heat load	kW	=	+ 🔤 Standard Unit Load	(KW / m•j	- 😑 Global	V
- 😑 Capacity	kW		-🔛 System Check		- 🗢 Korea	
Temperature	°C		🕂 🐺 🖌 Setting CS		- 😑 Korea GOV	
HRV     Elowrate(Water)	LIDM		+ 🐴 Set Length	Millimeters	- N America	
Weight	kg		Jet Length	Millimeters	- CS America	
🖃 🥸 Standard heig	m		+ 📥 Pipe end connection			
<ul> <li>Duct Type</li> </ul>	3.0		🕂 🚡 Annotation	Annotation setting		
- 😑 Ceiling Type	2.7		- Short Cut			
- 😑 Wall-mount type	2.0				Asia	
- 😑 Floor Type	0.0		User Annotation		-⊖ EU	
Pipe Material	3.5		Symbol Composition		- 😑 India	
Slock Auto-Purge	Update				🗌 🔽 🗀 🙆 Bueeia&CIS	

2. It sets various data through Environment Setting.

Caution! Check Zone of System Search to change Model line-ups according to the selected region.

### **Equipment Positioning**

It selects equipments such as Indoor Unit and Outdoor Unit to position them in the drawing.

#### **Indoor Unit Positioning**

Indoor Unit Positioning method has 2 types as Normal Positioning and Auto-arrange Indoor Unit.

- 1. Normal Positioning
- 1.1 Select Indoor Unit tab in Symbol Menu.
- 1.2 Select Product Type. (MULTI V, GHP, MULTI (F), SINGLE CAC, SINGLE RAC)
- 1.3 Double click Indoor Unit Type icon to be positioned in Indoor Unit tab.
- 1.4 Select desired Model, and click OK button.





of ceiling concealed duct type (high static pressure) Indoor Unit.

1.5 Designate the equipment insertion position.

- If there is an equipment to position as a reference, click reference equipment, or press Enter.



*Caution! If SINGLE RAC is selected in Product Type, Outdoor Unit is immediately positioned after positioning Indoor Unit.* 

2. Auto-arrange Indoor Unit

Position using IDU Wizard function: only activated when Indoor Unit tab in Symbol Menu is selected and after Manual Registration of Room.

2.1 Select Auto-arrange Indoor Unit Menu in Symbol Menu. (MultiV, Multi, Single A Indoor)



2.2 Select Room Area to position

		Select the	border to	automatically	arrange ind	oor units. 🗧
		001001 410	001001.00	adtornationally	anange ma	oor anno, -
	× 12					

2.2.1 Auto-arrange Indoor Unit

- Select Indoor Unit Type to position (The number of equipments is recommended according to the selected equipment)

- Select Positioning Option (Positioning Type, Number of Positioning, and Positioning Distance)
- Select Accessory

Arrangement			)	Indoor Unit Infor	mation			
Center	O Wal-side	C User		Outdoor Unit				
Room Information	nt.			Indoor Unit	Wall Mo	unted		
Room Area : 1	89.7		F.	Model		Coolin	Heatin	Buyer N.*
Room Load :	7.00	0000		<ul> <li>ARNU050584</li> </ul>	A2	1.61	1.79	ARNU05
THI Canacity :		0000	11976.5	ARNU05GSBI	L2	1.61	1.79	ARNU05
Recommendation :		0000		APINU07GSBI APINU07GSBI	12	2.20	2.49	ARNU07 II
Canacity of IDLIS :				APINU07GS84	A2	2.20	2.49	ARNU07
Ratio	- (%)		52 L	<ul> <li>AFINU07GSE/</li> </ul>	42	2.20	2.49	ARNU07
hauto .		11900.0		APINU07GSEI	L2	2.20	2.49	ARNU07
No. of Row	14	of Column		AFNU096581	L2	2.01	3.19	ARNU09
TABLE OF HEAVEN		, or course	-	ARNU09G58/	A2	2.81	319	ARNU09
Spacing and Directio	n			APNU09GSEI	L2	2.01	3.19	ARNU09
Row Soar	ma			· ARNU09GSE/	A2	2.81	3.19	ARNU09
			PK)	ARNU125588	12	3.60	3.99	ARNUT2
Column Space	cing		R:	ARNU12GS8/	A2	3.60	3.99	ARNU12
Arrange Ar	0.0 40	Real I		· AFINITI265F/	1.7	3.60	3.99	ARNI 112 *
Analys A	4e	R		-				,
	Basically, if ro the row is ad negative, it is	w spacing is negat ided down and if c added left.	we, olumn					
Chamber								
Supply		eturn					1.1	
	- ) [		(F)		NO	woo	er	
Accessory		Total (Rocated	)					
Model	Name	Quantity	Insert					
			Constant of					
			Ditecte					

#### 2.3 Set Base Point in the drawing

- It is automatically positioned as the decided positioning direction/number of equipments/positioning distance.





#### **Outdoor Unit Positioning**

1. Select Outdoor Unit tab in Symbol Menu.

2. Double click Outdoor Unit Type icon to position in Outdoor Unit tab.



3. Select IDU Models to be connected with the selected ODU Model.



4. Select ODU Model, and click OK button

ODU information				_				
ODU Information		(EU) ODU Model				Connect Indoor Uni	t Information	
Category	Setting Value	Combination 100 Ratio(%)	.0 (Auto-F	Recommen	Idation	Total IAC Nominal	Cooling Capacity: 11.	.2 kW
<ul> <li>Group ID Prefix</li> </ul>	OAC-	ODU Type Mul	TIV 5		•	2 2 2	Physical	•
<ul> <li>Group ID</li> </ul>							Thyoical	
<ul> <li>Facility ID</li> </ul>		Model	tion ratio	Cooling (kW)	Heating (kW)	Location	Model	Cooling (kW)
Install Location	E	ARUMOBOLTE5	50.00	22.39	22.39	(L) (01)Rooftop	ARNU09GTRC4	2.81
Model	ARUM080LTE5	ARUM100LTE5	40.00	27.99	27.99 =	(02)Rooftop	ARNU09GTRC4	2.81
<ul> <li>Buyer Model</li> </ul>	ARUM080LTE5	ARUM120LTE5	33.33	33.59	33.59	(03)Rooftop	ARNU09GTRC4	2.81
ODU ODU	MULTI V 5	ARUM140LTE5	28.57	39.21	39.21	104IRooftop	ARNU09GTRC4	2.81
<ul> <li>Cooling capacity (kW)</li> </ul>	22.39	ARUM160LTE5	25.00	44.81	44.81			
<ul> <li>Heating capacity(kW)</li> </ul>	22.39	ABUM180LTE5	22.22	50.41	50.41			
Cooling consumpti	4.49	ABUM200LTE5	20.00	56.01	56.01			
Heating consumpt	3.97	ABUM221LTE5	18.18	61.60	61.60			
<ul> <li>Power</li> </ul>	3/380-415/50,3/380/60 🖉	ABUM220LTE5	18.18	61.60	61.60			
		ABUM240LTE5	16.67	67.20	67.20			
		ABUM241LTE5	16.67	67.20	67.20			
Inlet Water Information		ABUM260LTE5	15.38	72.80	67.20			
Inlet Terro (Cooling)	(90)	ABUM261LTE5	15.38	72.80	72.80			
inectientp. (cooling)	(*C)	ABUM280LTE5	14.29	78.40	78.40			
(Heating)	(°C)	<	1		10.10			
Water Flow Rate	(LPM)			_				
			016					
Huid Type	· · · · · ·		0.0				1	
Concentration	(100 % Fixed)					Outdoor Unit's		_
A						Oucubor Offic s	L byblock	
Accessory			and the second	-		Outdoor Unit help		
Model Nan	ne Qu		1000					
			-					
			res and real	Z				
			Y.					
Add	Delete			r			ОК	Cancel

- It is able to check IDUs that you select above step.

- You may set only Indoor Units connected to the corresponding Outdoor Unit as one color by designating Outdoor Unit Group color.

- 4. Designate Equipment Insertion Position
  - If there is an equipment to position as a reference, click reference equipment, or press Enter.



### **AHU Positioning**

AHU Model can be made using User Define or LATS AHU.

1. User Define

Click the "User Symbol Define Icon".

	User Symbol Define	color locks	- T	x
	Information		Symbol Composition	
LATSCAD Symbol Menu	Туре	Import LATSAHU	Symbol Type	File Conn Select
🐼 🖬 💓 💽	Symbol Information Output Unit  SI	q		
			Port Type	Connect Port Width
User Define AHU				
User Define Chiller				
User Define RAC Product			Port Location Search	
			Insert Poiont >>	Select object >>
			(0,0)	U selected.
				Save Exit

(2) LATS AHU(will be developed.)

If you have LATS AHU, you can export the block of LATS AHU.

2. It selects the "AHU" in User Symbol Define Tab.

LatsCAD Symbol Menu
🐼 🖬 🖬 🕷
User Define AHU
User Define Chiller
User Define RAC Product

#### 3. AHU Model selects

uipment Inf	ormation				odel Search				
List	Category	Value	<u>^</u>	Γ	Model		Туре	No, Port	^
Model Name		123thest			9 123			3	
Туре					123thest			1	
Purpose					9 234			3	=
Power(-V-H	z)				345			3	
	Туре				• 567			3	
	Air Flow(CMH)				● 8888			4	U
Supply Fan	Extenal Static Pressure(				<ul> <li>test1231</li> </ul>			2	
	Output(kW)				testtest			1	
	Standard		=		😑 test_ahu			3	-
	Fan Type				•		111	•	
	Fan Air Flow(CMH)			-M					
Return Fan	Extenal Static Pressure(				02111 0000			Select >>	
	Power(kW)								
	Standard				Model		_		
Coil Air Flow	(m/s)				Qty	0/	1		
Coil Area(m <sup>a</sup>	)			E	xpansion Kit				
	Refrigerant	r410a			Туре	TXV	Kit 🤅	EEV Kit	
	Nominal Capacity(kW)	49			Model			-	
	Pipe Connection(mm)								
	Inlet_Cooling(DBT)(°C)				Qty				
Cooling Coil	Inlet_Cooling(WBT)(°C)			C	ontrol Kit		1.00		
Cooling Coil					Туре	<ul> <li>Cont</li> </ul>	troi Kit 🤇	Comm. Kit	
Cooling Coil	Outlet_Cooling(DBT)(°C)				Model	PRCKD	21E	- T	
Cooling Coil	Outlet_Cooling(DBT)(°C) Outlet_Cooling(WBT)(°C)								
Cooling Coil	Outlet_Cooling(DBT)(°C) Outlet_Cooling(WBT)(°C) Refrigerant				Qty	1			

#### 3.1 The MultiV ODU model selects.

ODU list					
ODU Type MUL	TI V S		-		
Model	Cooling (kW)	Heating (kW)	-		
ARUMOBOLTES	22.39	22.39		- LU	
ARUM100LTE5	27.99	27.99			
ARUM120LTE5	33.59	33.59	1		
ARUM140LTE5	39.21	39.21			
ARUM160LTES	44.81	44.81			
ARUM180LTE5	50.41	50.41			
ARUM200LTE5	56.01	56.01		-	
ARUM220LTE5	61.60	61.60			
ARUM221LTE5	61.60	61.60		CT I I I I	
ARUM240LTE5	67.20	67.20		a man of the	
ARUM241LTE5	67.20	67.20	17		-
ARUM261LTE5	72.80	72.80			
ARUM260LTE5	72.80	67.20			and and
ARUMORN TEE	79.40	29.40	-	OK	ancel

3.1.1 Select "ODU Type".

3.1.2 Select ODU Model.

3.1.3 OK.

\* The default of ODU quantity is determined by AHU's No. port. And it can modify.

4. The Expansion model selects.

Expansion Kit	Expansion Kit
Type TXV Kit EEV Kit	Type O TXV Kit O EEV Kit
Model PATX13A0	Model PRLK048A0
Qty 2	Qty 2

(TXV kit)

(EEV kit)

4.1 TXV kit : The model name is determined automatically by ODU total capacity.

4.2 EEV kit : if you select the model name, the equipment's quantity is determined automatically.

5. The Control model selects.

Control Kit	Control Kit
Type 💿 Control Kit 🛛 🔿 Comm. Kit	Type 🔿 Control Kit 💿 Comm. Kit
Model PRCKD20E	Model PRCKA0
Qty 1	Qty 2

(Control kit)

(Comm. kit)

5.1.TXV kit : The model name is determined automatically by ODU total capacity.

5.2 EEV kit : if you select the model name, the equipment's quantity is determined automatically.

\*When Select the EEV kit, It cannot select "Control kit" .

6. Click the "OK".

7. Positioning AHU&ODU

7.1 AHU is positioned.

Specify insertion point or 🔳 466559,6626	174403, 3214	

7.2 Check the ODU model. (Click the "OK")

100 Information			(EU) COU Hodel				Connect Indoor Unit	Information	
Calegory	Setting Value		Ratio(%)	100,0 Postal	Action in the second	reacteri	These proceedings of	song capacity	and say
<ul> <li>Group-ID Phetic</li> </ul>	GAC-	- 18	COU Type	HULTIV 5		*	A 100 100	Physical	
<ul> <li>Group ID</li> <li>Earlier ID</li> </ul>		- 11		tion ratio	Cooline	Heating +			Cooling
<ul> <li>Install coston</li> </ul>		- 8	MOGBI	(3)	(1995	000	Location	MODEL	0.995
Model	ADDMINE TES	- 31	<ul> <li>950000</li> </ul>	5 0.00	22.39	22.38			
<ul> <li>Description</li> </ul>	ADUMINE TES		<ul> <li>ALUH100.1</li> </ul>	ES 0.00	27.90	27.99 ±			
	MINDINE	- 18	<ul> <li>ARUH120L1</li> </ul>	15 0.00	33.59	33.59			
Contractment (1)(1)	22.99		<ul> <li>ATUH140LT</li> </ul>	15 0.00	39.21	29.25			
Maning angenet & tall	11.00		ARUH160LT	ES 0.00	44.81	44.81			
Costo concerno	145		<ul> <li>ARUH160.7</li> </ul>	ES 0.00	50.43	50.41			
· Undirectionary	3.07		<ul> <li>ATUH200L1</li> </ul>	15 0.00	56.01	56.01			
Contraction	1/2004/15/00 1/2004/1		<ul> <li>ARUH239L1</li> </ul>	E5 0.00	61.60	61.60			
			<ul> <li>Alluk221L1</li> </ul>	E5 0.00	61.60	61.63			
			ARUNCAGLII	E5 0.00	67.20	67.20			
the second second second second			<ul> <li>ARUH2HLT</li> </ul>	ES 0.00	\$7.20	67.20			
HART WACK THOMACON			<ul> <li>ATUH20LT</li> </ul>	E5 0.00	72.00	67.20			
Inist Temp. (Cooling)	(90)		<ul> <li>ARUKSELT</li> </ul>	E5 0.00	72.80	72.80			
(Master)	(*C)		<ul> <li>ARUHOSOUTI</li> </ul>	E5 0.00	78.40	79.40			
(mar. 19)			<ul> <li>ARUH300LT</li> </ul>	(5 0.00	83.99	03.99 +			
Water Flow Rate	(UH)				ille -				
Fluid Type				915			<b>R</b> ()	*	
Concentration	(100 %)	(bace					Outrieve Unit's	Disting	
Accessory							Outries Lint hab		_
Model Nan	14.	Ju., 1		1000	E				
				-	1				
				122-112	8				

7.3 The first ODU is positioned.

7.4 Select the refrigerant port direction.



7.5 If ODU quantity over to 2, next ODU is positioned.



7.6 Connect the AHU model and ODU.



8. Kind of Connect Port

8.1 Refrigerant Port: It is selected making AHU symbol. When AHU is positioned, Expansion mark is positioned.



8.2 Control Port: When AHU is positioned, Control mark & port are positioned.



#### **Pipe Connection**

It positions the Riser Hole and draws Riser Hole to connect the positioned Outdoor Units and Indoor Units.

#### **Riser Hole Positioning**

It positions the Riser Hole connecting a floor to the other floor.

1. Double click Riser Hole icon in Pipe material tab in Symbol Menu.



2. Designate Pipe Type (Refrigerant pipe, Drain pipe, Control), Top floor, and I Lowest floor, and Riser Hole group and OK Button, and press Enter.

<u>Caution!</u> To designate Control of Pipe Type, check Control riser hole of Control Solution Tab of Symbol Menu.

Riser Hole	<b></b>
Riser Hole Informati	on
Pipe Type	Refrigerant Pipe      Drain     Control
Connected ODU	
Pipe No.	V New Entry
Top Floor	Altitude
Lowest Floor	( 0.0 m )
RiserHole group	ByBlock 👻
Riserhole help	
	OK Cancel

<u>Caution!</u> To position the Riser Hole, Floor Reference Points have to be set in all floors between the Top Floor and the Lowest Floor.

- 3. Designate Riser Hole insertion point to position the Riser Hole.
  - If there is an equipment to position as a reference, click reference equipment, or press Enter



4. Then, based on the Reference Point of the corresponding floor, the Riser Hole is positioned in the same position in each floor.

- 5. Positioning Riser Hole Notes
  - 5.1 Select Equipment and Pipe index Menu in Symbol Menu.

<b>1</b>	Ċ	•	B
	ļ.	258	P
Multi¥	•		

5.2 Select Riser Hole to position Notes. (Multiple selections are possible using drag.)



5.3 When the position is designated, the Riser Hole note is positioned in the corresponding location.

0 0 0	

#### **Refrigerant Pipe Connection**

Through Piping Equipment Menu in Symbol Menu, Refrigerant Pipe can be drawn from Outdoor Unit or Riser Hole. In this case, show drawing method using Auto-piping functions.

🐼 🖬 🙋	
	25# 🖳 🔡
MultiV 💌	2

1. Draw Main Pipe by clicking Mouse from Riser Hole or Outdoor Unit Refrigerant Port.

1.1 Draw Main Pipe by clicking Mouse from Riser Hole or Outdoor Unit Refrigerant Port.

1.2 Press Enter, to finish drawing pipe.



- The radius of Pipe bending part can be set in Environment Setting of Main Tab.

Category	Setting Value	72
Roject	TestProject_M	
• 🙀 New building		-
- @ Configuration		1
-S Language	English	100
- 🕥 Output language	English	Ma
- 🔇 Output Unit	51	3
• System Search		1
🖲 👥 Standard Unit Load	(kW/ / m²)	18
System Check		
• E. Setting CS		
- O Set Length	Milmetera	
Fillet R(Pipe)	00	
Fillet R(Drain)	0.0	
10 Pipe OFFSET	300.0	
Automatic	50.0	
• - Pipe end connection		
• T Annotation	Annotation setting	
- Short Cut		
(A) User Annotation		
Symbol Composition		
2. Pipe connection with Indoor Unit. (Using Auto-piping)

2.1 Select Piping Equipment Menu of Symbol Menu.

2.2 Input to "S" in command line for Select Auto-piping.

[Select connection point or [Auto-piping(5) Offset Piping(for drain)(0)

Independent refrigerant pipe(R) Independent drain pipe(D)] :

2.3 First select the Pipe, and select Indoor Units to connect.

2.4 If you want to finish Auto-piping, press Enter.



Caution! It is automatically connected only when Indoor Unit Port is toward Main Pipe or in parallel.

- The last Indoor Unit connection option (Normal connection, direct connection) can be set in Environment Setting.



- Normal: Insert Branching Pipe in Main Pipe to connect Indoor Unit.

- Direct: Directly connect Indoor Unit without inserting Branching Pipe.

<u>Caution!</u> The Auto Piping is not supported Header / HR unit / 3 or 4 way Branch / HR unit Coupler / ODU Connector.

#### **Branching Pipe Connection**

1. Y-branched pipe

Insert Branching Pipe to Main Pipe to connect to Indoor Unit. (It is automatically connected in Autopiping.)

1.1 Double click Y Branching Pipe icon in Pipe Material tab in Symbol Menu.



1.2 Select insertion point of Main Pipe, and select left or right direction.



1.3 After selecting Piping Equipment Menu, draw Refrigerant Pipe from the connection point of Branching Pipe to Indoor Unit Port.





#### **Drain Pipe Connection**

Connect drain Pipe in parallel with Refrigerant Pipe.

1. Select Piping Equipment Menu in Symbol Menu.

💕 🖬 🙋	
	258 👥
Multi¥ 💌	6

2. Input to "O" in command line for Selecting offset wiring.

[Select connection point or [Auto-piping(S) Offset Piping(for drain)(0)

Independent refrigerant pipe(R) Independent drain pipe(D)] :

3. After designating parallel path standard Pipe, designate offset direction.



4. Drain Pipe is connected with certain distance offset along Main Pipe.



- Offset distance can be designated in Environment Setting of Main Tab.

🖃 🏟 Configuration	
- 🌍 Language	English
– 🔇 Output language	English
– 🔇 Output Unit	SI
🕂 🛴 System Search	
🛨 🏧 Standard Unit Load	(kW / m²)
–🔣 System Check	
🕂 🛴 Setting CS	
🗄 🧝 Set Length	Millimeters
Fillet R(Pipe)	0.0
Fillet R(Drain)	0.0
- 10 Pipe OFFSET	300.0
→ Automatic	50.0

#### **Material Index**

The remarks for the Pipe material applied to the drawing may be inserted in Material Index tab in Symbol Menu.

The name of the inserted Model is changed according to the language condition setting of Environment Setting in Main Tab.



Connection of Liquid & Gas pipe in Outdoor Units											
INDEX	Connection of Liquid & Gas pipe in Outdoor Units										
C1	ARCNN20										
C2	ARCNN30										
<b>C</b> 3	ARCNN21										
C4	ARCNN31										
<b>C</b> 5	ARCNN41										
C6	ARCNB20										
C7	ARCNB30										

# **Drawing Check**

It selects Pipe diameter and Branching Pipe to insert in the drawing, and carries out system efficacy inspection.

#### **Drawing Check \_ Pipe Design Check**



It updates and shows the connection structure currently composed.

1. It searches the location of the selected equipment and displays the connection relations between Indoor Unit – Outdoor Unit through Tree Option Setting.

2. Re-composition is possible for each type of Refrigerant, Drain, and Control.

3. It displays the equipments non-connected.

Detail Tree     @ Refrigerant Drawing     Location Search     Orain Drawing     Connectively Check     Control solution Drawing     Path Trace	ulid Tree 🛛 🕌 System cher	×				Ext
Category	Model	Group ID	Install Location	Cooling	Heating	
MV) MULTI V 5	ARUMOBOLTES	ODU-	15	23.79	22.40	
🕘 🕣 HR Unit	PRHR022	HR1	15	23.79		
🗟 🚾 Branch coupler	ARBLN03321	¥2	1.F	23.79		
High Static Duct	ARNU96GB8A4	IDU-	1F	23.79	31.50	
(MV) MULTI V S	ARUM080LTE5	ODU-	1F Multi V_1	23.79	22.40	
E HR Unit	PRHR022	HR1	1F Multi V_1	23.79		
Branch coupler	ARELN03321	Y2	1F Multi V_1	23.79		
High Static Duct	ARNU96G88A4	IDU-	1F Multi V_1	23.79	31.50	
(MV) MULTI V S	ARUMO80LTE5	ODU-	1F Multi V_1	23.79	22.40	
E HR Unit	PRHR022	HR1	1F Multi V_1	23.79		
Branch coupler	ARBLN03321	Y2	1F Multi V_1	23.79		
High Static Duct	ARNU96GB8A4	IDU-	1F Multi V_1	23.79	31.50	
(MV) MULTI V 5	ARUMOBOLTE5	ODU-	1F Multi V_7	15.49	22.40	
🗄 🛞 Head	ARBL057	H2	1F Multi V_7	15.49		
- Mid Static Duct	ARNU07GM1A4	IDU-	1F Multi V_7	2.21	2.50	
Mid Static Duct	ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50	
Mid Static Duct	ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50	
- Mid Static Duct	ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50	
- Mid Static Duct	ARNU07GM1A4	IDU-	1F Multi V_7	2.21	2.50	

Caution! System check will check capacity and pipe diameters by simulation. To check faults on the drawing, execute drawing check if you want to find faults on the drawing.

# System Check

Tree Option							
Detail Tree     Refrigerant Drawing     Location Search     Drain Drawing     Connectivity Check     Control solution Drawing     Path Trace	Rebuild Tree	System chec	*				Ext
Category	_	Model	Group ID	Install Location	Cooling	Heating	
(MV) MULTI V 5		ARUMOBOLTE5	CDU-	15	23.79	22.40	
- AR Unit		PRHR022	HR1	15	23.79		
Branch coupler		AR8LN03321	¥2	1F	23.79		
High Static Duct		ARNU96GB8A4	IDU-	1F	23.79	31.50	
- [] (MV) MULTI V S		ARUMOBOLTES	ODU-	1F Multi V_1	23.79	22.40	
🖻 💿 HR Unit		PRHR022	HR1	1F Multi V_1	23.79		
Branch coupler		ARELN03321	Y2	1F Multi V_1	23.79		
High Static Duct		ARNU96G88A4	IDU-	1F Multi V_1	23.79	31.50	
- 🛄 (MV) MULTEV S		ARUMO80LTE5	ODU-	1F Multi V_1	23.79	22.40	
🖻 💿 HR Unit		PRHR022	HR1	1F Multi V_1	23.79		
Branch coupler		ARBLN03321	Y2	1F Multi V_1	23.79		
High Static Duct		ARNU96GB8A4	IDU-	1F Multi V_1	23.79	31.50	
- [] (MV) MULTI V S		ARUMOBOLTES	ODU-	1F Multi V_7	15.49	22.40	
🗄 💽 Head		ARBL057	H2	1F Multi V_7	15.49		
- Mid Static Duct		ARNU07GM1A4	IDU-	1F Multi V_7	2.21	2.50	
Mid Static Duct		ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50	
Mid Static Duct		ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50	
- Mid Static Duct		ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50	
Mid Static Duct		ARNU07GM1A4	IDU-	1F Multi V_7	2.21	2.50	

Caution! System check can be executed only when the drawing check has no error.

1. System Analysis

Obsolete Model						Equip	ment Loo	ation Search	8
Category	Group ID	Install Lo	ation ratio	Cooling	Heating	Pipe	Syst	Verity Time	System Analysis
ARUMOBOBTES:MULTI V 5	000-1-1	Roottop	78.13	17.71	1510	¥	<b>V</b>	2018-03-29-5	
ARUM120LTES:MULTI V 5	CDU-2-1	Rooftop	51.19	17.15	16.33	×.	×	2018-03-29 5	Defailt
ARUM440LTES:MULTI V 5	000-3-1	Roottop	127.27	123.21	137.25	~		2018-03-29 5	La contrata de la con
ARUBOBOLTE4:MULTI V IV	000-2-1	Rooftop	76.79	22.39	25.20	~	-	2018-03-29 5	Equipment List
ARUBOBOLTE4:MULTI V IV _	000-1-1	Rooftop	78.13	17.71	18.40	*	~	2018-03-29 \$	Equipment List (By Floor)
									Print Report
6									Equipment Table
pacity Verification Result									Tree View
			Capacity	Verification	@ Gene	ral	0.00	nditional	Print GERP
Description		Linit	Current value(	lax. value : s	elected equip	(inema			L COMPOSE
lotal pipe length		1000.0 m	10.6 m						Export to LATS HVA
ongest equivalent pipe length		175.0 m	13.1 m : ARNU	I0G87A4[)1]					
ongest top pipe length after first branch		40.0 m	4.1 m : ARNU6	GB7A4[i1]					
)Ifference in height (Above : indoor, Below : o	utidaer)	110.0 m	3.0 m : ARNUG	G87A4[ii]					
ifference in height (Above : outdoor, Below :	indoor)	110.0 m							
Ofference in height (indoor - indoor)		40.0 m	0.0 m : ARNUE	087A4[i1]-A	RNUE0CB7A	4[//]			
ongest real pipe length		150.0 m	10.6 m : ARNU8	0G87A4[1]					
leight difference between HR unit and HR uni	t (within same t	30.0 m	0.0 m						
leight difference between HR unit and HR unit	t (serial connec	5.0 m	0.0 m						
leight difference between Indoor Unit and HR	unt	15.0 m	0.5 m						
WUM0806TE5 : System check complete	ed successfully.							^	ОК

- It shows the system verification result for each system.

Obsolete Model						Equip	ment Lo	ation Search	10
alegory	Group ID	Install Lo	ation ratio	Cooling (kW)	Heating (kW)	Pipe	Syst	Verity Time	System Analysis
ARUMOBOBTES:MULTI V S	000-1-1	Roottop	78.13	17.71	15.10	<b>V</b>	<b>V</b>	2018-03-29-5	
ARUM120LTES:MULTI V 5	ODU-2-1	Rooftop	51.19	17.15	16.33	×.	×	2018-03-29 5	Defailt
ARUM440LTES:MULTI V 5	000-3-1	Roottop	127.27	123.21	137.25	~		2018-03-29 5	
ARUBOBOLTE4:MULTI V IV	000-2-1	Rooftop	76.79	22.39	25.20	~	-	2018-03-29 5	Equipment List
ARUBOBOLTE4:MULTI V IV	000-1-1	Rooftop	78.13	17.71	18.40	*	~	2018-03-29 \$	Equipment List (By Floor)
									Print Report
		m							Equipment Table
acity Verification Result						0211			Tree View
			Capacity	Verification	@ Gene	ial	0.00	nditional	Print GERP
scription		Linit	Current value(I	flax: value : s	elected equip	(inemi)			-
al pipe length		1000.0 m	10.6 m						Export to LATS HVA
rgest equivalent pipe length		175.0 m	13.1 m: ARNUR	30G87A4[)1]					
igest top pipe length after first branch		40.0 m	4.1 m : ARNU60	GB7A4[d]					
ference in height (Above : indoor, Below	outdoor)	110.0 m	3.0 m : ARNU60	G87A4[d]					
ference in height (Above : outdoor, Below	indoor)	110.0 m	2						
ference in height (indoor - indoor)		40.0 m	0.0 m : ARNUEC	X387A4[i1]-A	RNU60CB7A	4[11]			
igest real pipe length		150.0 m	10.6 m : ARNUG	0G87A4[1]		NO/01			
ght difference between HR unit and HR u	nt (within same t	30.0 m	0.0 m						
pht difference between HR unit and HR u	nt (serial connec	5.0 m	0.0 m						
ght difference between Indoor Unit and H	Runt	15.0 m	0.5 m						
UM0808TE5 : System check comple	ted successfully.	<u>.</u>						j	or

- When setting Refrigerant pipe & Drain pipe to mode "Auto" in Annotation Option, Pipe diameter and Branching Pipe annotations are automatically selected.

Configuration		Apportation Option				
-🚱 Language 🛛 English	h					-
-🚱 Output language 🛛 English	h	Annotation directory path and	Scale			
– 🚱 Output Unit 🛛 SI		Path		5	cale	
🔍 System Search		C:WProgram FilesWLGEWLATS	WSymbol#Annotation	1	00	
+ 📀 Operation Mode						
+ 😡 Zone		Product ID Prefix		Annotation insert	Point(Dwg Units : Mam	eters)
• 🛬 Standard Unit Load (kW /	m²]	Category	Setting Value	ODU	IDU	
- 🔛 System Check 🛛		<ul> <li>Outdoor Unit(Prefix)</li> </ul>				
• 🚺 Setting CS		<ul> <li>Indoor Unit(Prefix)</li> </ul>	IDU-	dy 💦 💡	4	
• 🎃 Set Length Millime	ters	<ul> <li>SINGLE(Prefix)</li> </ul>	Single-	dx Stall 8	dx Land 8	
Bipe end connection		ERV (Prefix)     AHI (Prefix)	AHU.	SARI O		i i
Annotation Annota	ation setting	Chiller(Prefbc)	CH-	dx 1000.0	dx 1000.0	
- Outdoor U OAC-		Refrigerant Pipe	Auto(Symbol)	4. 500.0	1. 1000.0	
- Indoor Unit(Prefix) IAC-		ODU Connector	Auto(Symbol)	dy 500.0	dy 1000.0	
- I SINGLE(Prefix) Single		Chuin Pipe		Refrinerant Pine	Drain Pine	Pine Material
- HRV (Prefix) LZ-		<ul> <li>Communication line</li> </ul>	Symbol	the ingeneric repo	Diantipe	T D C FINICEI M
- AHU(Prefix) AHU-						NO.
- O Chiller(Prefix) CH-				dist	dist	dist
-  Refrigerant Pipe Auto(S	iymbol)			2 4	25A	2
- O Drain Pipe Auto(T	ext)					
- O Communc Symbo	bl			dist 200.0	dist 150.0	dist 500.0
- • Scale 1.00					-	
The path c:\pro	gram file	Apply all placed annotation			Ok	Cancel
		U				



#### 2. Print Report

- After selecting the system to print and the category for output, it outputs the report. (The output contents are listed for each tab of Excel Sheet.)

G	enerate Report						8	LatsCAD	Carl Cont
	Select systems to	orint.				Select the contents to print		1	
	Group ID	Syst	Model	Install Location	^	Category			
1	😑 📃 0AC-1-1	<b>V</b>	ARUN080LTE4	1 st Floor		Project overview			
	😑 📃 0AC-1-2	<b>V</b>	ARUN080LTE4	1 st Floor	Ε	Load overview		Air Conditioning & Energy Solution	
	😑 📃 0AC-2-3		ARUN100LTE4	2nd Floor HR		System selection			
	😑 📃 0AC-2-2	<b>V</b>	ARUN100LTE4	2nd Floor HB		Selection overview		miles.	
	😑 📃 0AC-2-1	<b>V</b>	ARUN100LTE4	2nd Floor HB		😑 🔲 System tree			
	😑 📃 0AC-3-2		ARUN120LTE4	1 st Floor		😑 🔲 System comm. tree			1 - Elion
	😑 📃 0AC-3-1		ARUN120LTE4	2nd Floor Ope		Proposal of quotation			
	😑 📃 0AC-4-1		ARUN160LTE4	1 st Floor					and the second
	😑 🔲 0AC-4-2		ARUN160LTE4	1st Floor					
	😑 🔲 0AC-4-3		ARUN160LTE4	1st Floor				Project name : LGE LATS	S CAD6
	😑 📃 0AC-5-2		ARUN260LTE4	1st Floor				Destination	
	😑 📃 0AC-5-1	<b>V</b>	ARUN260LTE4	1st Floor			OK	Destination .	
	😑 📃 0AC-6-1	<b>V</b>	ARUN360LTE4	1st Floor					
	0.021		ADUNIAR TEA	1.10			Cancel	Prepared by :	
	Select all					Select all			

3. Equipment List

- Select the position to insert List of Equipments in the drawing.

- The contents for equipment and pipe material applied to the drawing are inserted as List of Equipments.

- The mark assigned automatically when insert the Equipment table.

	1 . Barrier																														
								_																							
			0.7		0000		017		-	10.07	e in the			1.00		<b>COMPANY</b>	-	-		1.000	-		1.00		-	10.00		-			
			۰.											-									-				-				
	and the second se	Company of the local division of the local d			- 1									+	-																
																															_
	The second s																														
-																															
	1		1				000			1			-		l and the second							1		-	1739	_					
	+-00 <b>6</b> .				-1		1100							-			10.0	-		<b>CONTRACT</b>		-	-	_	100.0	1000	100	AND 1	N /1 14-1	\/ Indoor unit	
			۱.				-						-																		
	4444	Contract I	•								-				1.000		** **		-		1000		-								
		Contact F			•				811				-	a. 16 a							100	1			4.1						
																					1										
		1 at 1																													
																					۰										
121																															
																														MODEL	
1.5		lased on the Bills	1.02		1		-																						INARA		
		Cutter sere	and it	1.1	1.04	C 7 4 5	er yak																								
		<ul> <li>Intercome ding</li> </ul>		a Longs	17.0																										
		a la dese avec de	-	-		-																									
		Custon Inny	12	1.55	0.05	100	1.940																								
		<ul> <li>Interconnecting</li> <li>Langel Difference</li> </ul>	2.5	1	115-																										
																															<u></u>
3.0		of capacities																											I IAUE I	T ARNUUDG IRU/	

Caution! When change the mark(outdoor unit prefix, indoor unit prefix, and hrv prefix) in the Index, Enter the new equipment list .

nnotation directory path and	Scale			
Path		Sc	ale	
C:\Program Files\LGE\LATS	SWSymbolWAnnotation	1	.00	
roduct ID Prefix		Annotation Insert F	oint(Dwg Units : Mill	meters)
Category	Setting Value	ODU	IDU	
Outdoor Unit(Prefix)		-		
<ul> <li>Indoor Unit(Prefix)</li> </ul>	IDU-	dy 😔 💦	dy and	
<ul> <li>SINGLE(Prefix)</li> </ul>	Single-	dx 25 3	dx 1	
<ul> <li>ERV (Prefix)</li> </ul>	LZ-	889		
<ul> <li>AHU(Prefix)</li> </ul>	AHU-	A CONTRACTOR OF A	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
<ul> <li>Chiller(Prefix)</li> </ul>	CH-	dx 1000.0	dx 1000.0	
<ul> <li>Refrigerant Pipe</li> </ul>	Auto(Symbol)	dv 500.0	dv 1000.0	
<ul> <li>ODU Connector</li> </ul>	Auto(Symbol)	03 200.0	09 1000.0	
<ul> <li>Drain Pipe</li> </ul>	Auto(Text)	Refrigement Dise	Desin Dina	Dina Material
<ul> <li>Communcation line</li> </ul>	Symbol	Kengerant Pipe	Drain Mpe	Pipe Material
		dist	1 Later	Y2
		2 4	254	-5
		dist 200.0	det 150.0	diet 500.0
		00, 100.0	005 10010	001 00010

4. Tree View

Tree View						A System check		
(1) 04C-2-27 ARIN10013	TEA 1 0 OAC 2.1/ ARRIVED TEA 1	C OAC-3-27 ARUNI201 TEA )	0AC-3-1( ARUN120LTE4 )	CO OACAN ARIENTON TO A A		Outdoor Unit List	Epupment Location Sear	a 🖸 🔯
Step 0	Step 1	Step 2	Step 3	Step 4 +	Refrigerant	Calegory Group ID Insta	Lo aton ratio (3) Cooling Heating Pipe Syst., Verity Te	ne System Analysis
Facility D CAC3-1 Moter Address Team Coor Case-PryMin 33 So Additional International Install Location : 2nd Floor C	12 224 56 ABUN03231 5.0/5.5 m	9-52-22 A700-197 27/85 m	52222 ARELNOSSE1 28/11.1= 5.2/13.7= 6.35/12.7 3.7/12.2=	9 50 22 2 6 57 17 8 m [2] AC-5 ARRUSOFTICA (14 11 7 3 VA) 204 FRec Genetic- (14 11 7 FAN) 204 FRec Genetic- (14 11 7 FAN) 204 FRec Genetic-	Central Solution	C ((2) ARAGONITISMAN V CONCEL AND     CONCEL A	Dial         1/3 <td>22 C 22 C</td>	22 C 22 C
×		945202 ARE 197 12.5 161 m	6.35.127 5.17.14.2# 5.52.222 AREUN03321 2.67.29 # 6.35.127	In Contract And Co	Peert DWG Sevelmage	Longet up at with other to technic	0 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	C CK

- Verification and changes of property information for the selected equipment are possible.

- 5. Equipment List(By Floor) / Equipment Table / Print GERP.
- -. Equipment List by the each floor can be position in drawings or to be outputted excel sheet.

Ntdoor Unit List Chsolete Model						Equi	ment La	cation Search 🖄	0
Category	Groep ID	Install Lo	ation ratio	Cooling	Heating	Pipe	Syst.	Verity Time	System Analysis
ARUMORORTES MULTI V 5	004-1-1	Reaftop	78.13	17.71	15.10	1		2018-03-29 \$	
ARUMI20LTES MULTEV 5	000-2-1	Roottop	51.19	1715	16.33	1	1	2018-03-29 5	Defect -
ARUBOBOLTE4:MULTI V IV	000-2-1	Rooftop	76.79	22.39	25.20	2		2018-03-29 5	Equipment List
ARUBOBOLTEK MULTI V TV	0DU-1-1	Rooftop	78.13	17.71	18.40	4	×	2018-03-29 1	Equipment Lat
								•	(IN PROF)
(L.				_			_	1	Equipment Table
pacty Verification Result									Tree View
			Capacity	Verification	(8 Gene	al .	-0.0	inditional	Drivet GEEP
lescription		Lint	Current values	Max value : a	elected equip	(fremc			
Total pipe langth	23	1003.0 m	stān.						Export to LATS HVAC
Langest equivalent pipe length		175.0 m	13.1 m A/MJ	00007A491				_	A CONTRACTOR OF A CONTRACTOR O
Longest top pipe length after thist branch		43.0 m	4.1 m. ARUS	0087A4012				_	
Difference in height (Above - indoor, Below - o	utdoor)	115.0 m	3.0 m ARNJ0	0GIS7A461]				_	
Ofference in height (Above : outdoor, Below :	indoor)	113.0 m	-					_	
Difference in height (indoor - indoor)	_	43.0 n	0.0 m: ARNU0	00874-013-8	RNL/60387A	4511		_	
angest real pipe length		153.0 n	11.6 n : A-8U	(0087A4)1]			_	_	
regit america services HR unit and HR unit	Deleter same t	33.0 m	12.0				-	_	
reight emerance pervises HR unit and HR unit	jeener connec	5.0 m	100			_	_	_	
regre an entrice perioden indoor one and the		15.0 11	1210						
ARUM083BTES : System check complete	é successfully.							*	ОК

6. Equipment Table / Print GERP

Equipment Table Print GERP is printed with quantity calculation of equipments by Excel Sheets.

Chsolete Model						Equi	pment Lo	cation Search 🖄						_
Category	Group ID	Install Lo.	ation ratio	Cooling	Heating	Pipe	Syst	Verity Time	Sustan Andres					
ARUMOBORTIS MULTI V 5	COU-1-1	Reafter	78.13	17.77	15.10	~		2018-03-29 1	- State of the sta				_	
ARUMIZOLTES:MULTE V 5	0DU-2-1	Roottop	51.19	17.15	16.33	4	1	2018-03-29 5	Particle and IV Contained set	tem name			Gathering	200
ARUM460LTES.MULTEV 5	ODU-3-1	Rooftop	127.27	123.21	137.25	4		2018-03-29.5					outrenty .	1
ARUBOBOLTEA: MULTI V N _	0DU-2-1	Rooftop	76.79	22.39	25.20	4		2018-03-29 5	Equipment List	Dalla on Data	Ourselles Modified Ltd.	En altor Dalana	Customblam	ŝ
APUBOBOLTEK MULTI V IV	ODU-1-1	Roottop	78.13	17.71	18.4C	1	×	2018-03-29 5	Equipment Lat	Desverybate	duanny ModifiedListru.	FinalDuPhoe	aystemreame	1
									(By Floor)				UAC 101	
									Print Report				040102	
													040-10-3	
									Equipment Table				040-104	
								-	Tree Merey		1		0AC 105	
Nacty versication kesuit			Ganachy	verfication	-			and the second	ARUB080LTE4		1		GAC 107	
					- vere	-		100.00110	Print GERP   ARUDODOLTE4		1		OAC-10-8	
escription		Lint	Current value)	Max value: a	elected equip	(trans)			ARUBOROLTE4		1		OAC-10-9	
dal pipe length	A	1001 0 M	118m					_	Export to LATS HVAC  ARUBOROLTE4		1		OAC-1010	
ingest equivalent pipe length	- 8	175.0 m	12.1 n A/NU	(16007A451				_	ARUBOROLTE4		1		GAC-1011	
ingest top ppe length after that branch		40.0 m	4.1 m: ARUO	087A4012					ARUBOBOLTE4		1		DAC-1012	
fference in height (Above : indoor, Below : o	utdoor)	110.0 m	3.0 m; AR60,00	G87A4(1)					ARUBDIOLTE4		1		GAC-10-13	
fference in height (Above : outdoor, Below :	indoor)	113.0 m	2						ARUE100LTE4		1		OAC-11-1	
fference in height (indoor - indoor)		43.0 n	0.0 m; ARNUG	OB7A4013-A	RNL60387A	611			ARUB100LTE4		1		0AC-11-2	
ingest real pipe length		153.0 n	11.6 n : ARNJ	R0G87A4()1)	-				ARUB100LTE4		1		DAC-11-3	
eight difference between HR unit and HR uni	t (within same t	38.0 m	0.0 m						ARUB100LTE4		1		0AC-11-4	
eight difference between HR unit and HR uni	t jaaral connec	5.0 m	0.0 m						ARUB100LTE4		1		OAC-11-5	
eight difference between indoor 3nil and HR	ant	15.0 m	05m						<ul> <li>ARUB220,TE4</li> </ul>				DAC-12-1	
DIMODISTES - Sustain chack complete	d siccastile							11	ARUB220LTE4				GAC-12-2	
nomeno en a senti creci conpeci	a and some							2	ARUB220LTE4				UAL-12/3	
									OK ARUBZALTES		1		UAL/124	
									La sala sala sala sala sala sala sala sa					

/iodelCode.SUF/DX	DeliveryDute	Quantity	ModifiedListPrice	FinalDCPrice	System	DelveryFrom							
BOBOLTEA		3			CaC-10-1	L							
ARUBOSOLTE4		1			OAC-10-2	L.							
ARUBOSOLTE4		1			OAC-10-3	L							
ARUBOBOLTE4		1			O4C-10-4	£							
ARUBOBOLTE4		1			OAC-10-5	L.							
ARUBOBOLTE4	1	1			OaC-10-5	L							
ARUBOBOLTE4		1			OAC-10-7	L							
ARUBOBOLTE4		1			OAC-10-8	L.							
ARUBOROLTE4		1			GaC-30-7	£							
ARUBOBOLTE4		1			OAC-10-10	L							
ARUBOROLTE4		1			OAC-10-11	L.		A					
ARUBOBOLTE4		1			OAC-10-12	£	Cooling	Heating Unit :	select Table				
ARU6080LTE4	1	1			CAC-10-15	L							4
ARUBIOUTE4		1			O4C-11-1	L							
ARUB100LTE4		1			040-11-2	L.	Equipment	Outdoor Unit	Cooling Capacity	Heating Capacity	Quantity	Connection	
ARUS100LTE4		1			C4C-11-3	£	NO	Model Name				Ratio	
ARUBIOLTEA		1			OsC-11-4	E.			( KW )	( kW )	(EA)		
ARUB100LTE4		1			OAC-11-5	L.							Ī
ARU#220LTE4	1	3			CaC-12-1	E	010111	ADUINIDOD TEA		05.0	Ι.		1
ARUB220LTE4		1			OAC-12-2	6	UAC-1-1	ANUIVUOUL I E 4	22,9	60,6	· ·	100.00%	I
ARUB230LTEA		1			OaC-12-8	E.							1
ARUB220LTE4		1			OaC-12-4	L.							T
ARU8230LTE4		1			O4C-12-5	6. L							+
ARUB230LTE4		2			CAC-12-5	L	× Out door Un	it Type is defined t	y Code				
A RECEIPTION THAT					010.111								



<Equipment Table>

7. Export to LATS HVAC

The Systems which are drawn on the project can export to LATS HVAC to check more detail.

Chsolete Model						Eq.4	ment La	cation Search 🖄	0					
Category	Groep ID	Install Lo	ation ratio	Cooling	Heating	Pipe	Syst	Verity Time	Curtan Analyse					
ARUMOBOLITIS MULTI V 5	000-1-1	Roothop	78.13	17.77	15.10	~		2015-03-29 2	Jakan Pranta					
ARUM120LTES:MULTE V 5	0DU-2-1	Rooftop	51.19	17.15	16.33	~	1	2018-03-29.5	Default +	Export to HVAC				
ARUMACUTES MULTI V 5	0DU-3-1	Rooftop	127.27	123 21	137.25	1		2018-03-29 5	Ecurment List					
- ETV ARUBOROLTEK MULTIVIV	0DU-1-1	Rooftop	78.13	17.71	18.40	- 2	-	2018-03-29 5		Colored all a surface				
							-		Equipment List (By Floor)	Select the system	is to export.			
									Print Report	* The saved file ca	n be availab	e to open from LAT	S HVAC 1.0.23.0 ver. or	the later ver
									En manuel Table	Group ID	Syst	Model	Install Location	
*		+							Copress new			ARUB160LTE4	Roofton	
apacty Verification Result									Tree View			APUN/140LCCO	Reaften	
			Capacity	Verification	(§ Gene	ai .	0.0	inditional	Print GERP		M	AR0V140L330	Roonop	
Description		Lint	Current values	Max value : a	elected equip	(trent								
Tital pipe length		1005 0 m	12.6 m						Export to LATS HVAC					
Longest equivalent pipe length		175.0 m	12.1 m A/M/	(100007A451)										
Langest top pipe length after thist branch		40.0 m	4.1 m: ARNUS	0087A-012										
Difference in height (Above : indoor, Below : o	utdoor)	110.0 m	30 m; ARNU9	0587A401										
Difference in height (Above : outdoor, Below :	indeer)	112.0 m	6											
Difference in height (indoor - indoor)		43.0 m	0.0 m; ARNU0	008744013-4	RNL/60387A	4011								
Longest real pipe length		153.0 m	11.6 n : ARNU	00087A431]										
Height difference between HR unit and HR unit	Colthin same t	33.0 m	0.5 m											
Height difference between HR unit and HR unit	[serial connec	5.0 m	0.0 m											
Height difference between Indoor Shitl and HR	INE	15.0 m	05m											
ARUH083BTES : System check complete	d successfully.													
									ОК	_				

\* The saved file can be available to open from LATS HVAC 1.0.23.0 ver. or the later version.

\*\* The saved file can be available to open from LATS HVAC 1.5.2.0 ver.(N.America) or the later version.

#### **Checking Drain Validation**

Check Drain Pipe Diameter.

1. Select Drain Exit in Pipe Material in Symbol Menu.



2. After selecting the last exit of Drain Pipe, close the drain exit with "Drain Exit".



3. Select Checking Drain Validation in Master Menu.



4. It shows Drain Pipe structure from Drain Exit.

Drawing Check						100	
Tree Option Detrai Tree Centre Refigerant Drawing Lecators Search Connectivity Check Path Trace	Rebuild Tree	System die	ck.			(	Ext
Category		Model	Group ID	Install Location	Cooling	Heating	_
- 😐 Drain Exit			DEAINOUT	15	945.26		
C T-connector		Conservation	т	18	945.26	1	
High Static Duct		ARNU96588A4	IDU-	15	23.79	31.50	
E T-connector			T	15	921.47		
High Static Duct		ARNU96088A4	IDU-	1/	23.79	31.50	
Contractor			Τ.	1.F	897.68		
High Static Duct		ARNU96588A4	IDU-	1F	23.79	31.50	
E T-connector			T	15	873.90		
High Static Duct		ARNU96088A4	IDU-	14	23.79	31.50	
E Connector			т	1,8	850.11		
-m High Static Duct		ARNU96588A4	IDU-	15	23.79	31.50	
E-O T-connector			T	15	\$26.32		
High Static Duct		ARNU96388A4	IDU-	14	23.79	31.50	
T-connector			т	14	802.53		
High Static Duct		ARNU96588A4	IDU-	15	23.79	31.50	
E & T-connector			T	15	778.74		
High Static Duct		ARNU96388A4	IDU-	15	23.79	31.50	
T-connector			т	14	754.96		
High Static Duct		ARNU96088A4	IDU-	15	23.79	31.50	

5. Drain Pipe Diameter is automatically selected and inserted in the drawing.



# **Refrigerant System Diagram Drawing**

#### **Building Board Composition**

It composes the building board in the drawing of the system diagram before positioning equipment and pipe material.

1. Select "Building Board Composition" in Pull Down Menu or Ribbon Menu (LGE LATS CAD).

2. Set Building Board Option (Drawing Save Mode, Riser Location, Spacing and Width Between Floors, and Floor Name Location).

'New building' Building Boa	ird					×
			Equipm	ent Arrange	Quantity	
Floor Name	Floor level	Spacing	Outdoor	Indoor	Air Cha	
🔉 Rooftop Floor	3.5	1.0	11	4		
👒 4th Floor	10	1.0	4	36		
👒 3rd Floor	40	1.0	8	61		
🔹 2nd Floor	70	1.0	12	90		
👒 1st Floor	3.5	1.0	13	73		
Drawing Save Mode			Concin	a and Width	Potwoon Flo	
Drawing save mode			Spacin		Detween Fit	JUIS
Refrigerant Diagram	Cont	rol Diagram	ł	leight 500	0.0 W	idth 80000.0
Picer Location			Eleor N	lamo Locatio		
Kiber Eucacion			HOUT			
eft O Cento	er 🤇	Right	V	Left	1	Right
	_	_			_	
	Gene	ate		Cancel		
	_					

2. Select the lower left point to position board in the drawing.

Assign the left bottom point to generate board, 3 = 166996,0522	-1270795,5056
Command: *Cancel*	
Command: LATS_DRWOBJ	
Assign the install location :	
Rotation Angle :	
Command: LATS_BORDER	
Assign the left bottom point to generate board. :	I ►

3. Building Board creation is completed to draw system diagram.

Riser	Floor name	
hole	<b>`</b>	
positio	n <> Distance	
-		
		_

#### Schematic(Refrigerant) Diagram Equipment Arrangement

It positions the equipments to draw system diagram.

1. Select "LATSCAD  $\rightarrow$  Schematic(Refrigerant) Diagram Equipment Arrangement" in Pull Down Menu or Equipment Place in Ribbon Menu.

- When equipments are positioned in Building Board, the equipments are checked Arrange tab of Riser Diagram.

LATSCAD Riser Diagram				×
Category	Group I	D Install Location	Arrange	•
MULTI V IV HEAT RECOVERY (ARUB080LTE4)	0AC-10-	B Rooftop Floor		E
HOLE-7(Rooftop Floor)		Rooftop Floor		
- (     Riser Branch pipe (ARBLB01621)		4th Floor		
🖃 💿 HR Unit ( PRHR022 )		4th Floor Ne		
4 Way Cassette (ARNU15GTQC4)	IAC-4	4th Floor Ne		
4 Way Cassette (ARNU15GTQC4)	IAC-4	4th Floor Ne	<b>V</b>	
- O HOLE-7(3rd Floor)		3rd Floor		
- 📀 HR Unit ( PRHR022 )		3rd Floor Ne		
- 4 Way Cassette (ARNU15GTQC4)	IAC-4	3rd Floor Ne		
4 Way Cassette (ARNU15GTQC4)	IAC-4	3rd Floor Ne		
MULTI V IV HEAT RECOVERY (ARUB080LTE4)	0AC-10-	6 Rooftop Floor		
🖃 🎯 HOLE-8(Rooftop Floor)		Rooftop Floor		
🖃 🎯 HOLE-8(4th Floor)		4th Floor		
🖃 📀 HR Unit ( PRHR022 )		4th Floor RPS_b_1		
🗐 🎯 HOLE-9(4th Floor)		4th Floor RPS_b_1		
🖃 🎯 HOLE-9(3rd Floor)		3rd Floor RPS_b_2		
🖃 📀 HB Unit (PRHR022)		3rd Floor RPS_b_2		
- 🔂 4 Way Cassette ( ARNU15GTQC4 )	IAC-4	3rd Floor RPS_b_2		
4 Way Cassette ( ARNU15GTQC4 )	IAC-4	3rd Floor RPS_b_2		
- 🔯 4 Way Cassette (ARNU15GTQC4)	IAC-4	4th Floor RPS_b_1		
4 Way Cassette (ARNU15GTQC4)	IAC-4	4th Floor RPS_b_1		
MULTI V IV HEAT RECOVERY (ARUB080LTE4)	0AC-10-	5 Rooftop Floor		
🖃 🎯 HOLE-10(Rooftop Floor)		Rooftop Floor		
HOLE-10(4th Floor)		4th Floor		<b>.</b>
Arrange Option				
Identical Model Gruop Arrange(Same Room)	Place All	Locate IDUs		_
Hide placed equipment			Exit	
Contained drain	Locate Device			
			_	

2. Position the equipments. (Select Arrange Option)

2.1 Identical Model Group Arrange (Same Room)

- When "Identical Model Group Arrange (Same Room)" is selected in Arrange Option, Indoor Unit Notes and Positioned Rooms are displayed as a group.



#### 2.2 Hide Placed equipment

- Hide Equipments of placing in Building Board to Riser Diagram. When all Equipments positioned in Building Board, not exist equipment in Riser Diagram.

2.3 Place All

- select "Place All" → All Equipments of Riser Diagram are positioned in Building Board.

2.4 Locate IDUs

- After selecting Outdoor Unit or Riser in Riser Diagram, select "Locate IDUs"  $\rightarrow$  Indoor Units are positioned in Building Board.

(Indoor Units connected to the selected Outdoor Unit are automatically positioned.)

2.5 Locate Device

- After selecting Outdoor Unit or Indoor Unit in Riser Diagram, select "Locate Device"  $\rightarrow$  The selected equipments are positioned in Building Board.

negory .	Group ID	Install Location	Arrange	•		
MULTI V IV HEAT RECOVERY (ARUB000LTE4)	0AC-10-8	Roottop Floor		=		
- (a) HOLE-7(Floothop Floor)		Rooftop Floor				
. (9) Riter Branch pipe (ARBLB01621 )		4th Floor				
🗄 📀 HR Unit ( PRHR022 )		4th Floor Ne				
4'w/ay Cassette (ARNU15GTQC4)	IAC-4	4th Floor Ne				
4 Way Cassette (ABNU15GTQC4)	IAC-4	4th Floor Ne	×			
(0) HOLE-7(3rd Floor)		3rd Floor			أحارك أكراكم أكراك	CALLY & HEAT RECEASED & HEAT RECEASED
HB Unit (PBHB022)		3rd Floor Ne				
4 Way Cassette (ABNU15GTQC4)	IAC-4	3rd Floor Ne				
4 Way Cassette (ARNU15GTQC4)	IAC-4	3rd Floor Ne				
MULTI V IV HEAT RECOVERY (ARUBOSOLTE4)	0/C-10-6	Rootop Floor	×			
Book Hole - 8(Roottop Floor)		Roottop Floor				الجفا أقبعا
🖃 🎯 HOLE-8(4th Floor)		4th Floor				
🗄 📀 HR Uwi (PRHR022 )		4th Floor RPS_b_1			Rooftop Floor	
🗇 💿 HOLE-9(4th Floor)		4th Floor RPS_b_1				
HOLE-9(3rd Floor)		3rd Floor RPS_b_2				
HR Unk (PRHR022)		3rd Floor RPS_b_2				
4 Way Cassette (ARNU15GTQC4)	IAC-4	3rd Floor FIPS_b_2	<b>V</b>			
4 Way Cassette (ARNU15GTQC4)	IAC-4	3rd Floor RPS_b_2				
4 Way Cassette (ARNU15GTQC4)	IAC-4	4th Floor RPS_b_1	×			84918 04918 x384
4 Way Cassette (ARNU15GTQC4)	IAC-4	4th Floor RPS_b_1	<b>V</b>		4th Eloor	Services ALC 1
EN MULTIN MEAT RECOVERY (ARTIROPOLITEA)	0AC-10-5	Rooftop Floor				Anna Anna Anna Anna
		Rootop Floor				
HOLE-10(Rootop Floor)						

3. The connection between Outdoor Unit-Indoor Unit is manually connected through Piping Equipment.



# **Control Diagram Drawing**

#### Layer Arrangement

It rearranges Layer for Control design.

- 1. Select Layer Manager Tab in Master Menu.
- 2. Activate Control Layer Menu.



#### **Outdoor Unit Property Information Change**

Change the color of Indoor Units connected to the same Outdoor Unit through Outdoor Unit Property Information (Color Change).



## **Controller Positioning**

1. Select the Controller Solution tab in Symbol Menu.

2. Double click the controller icon to position in Controller Solution tab.

_	
or Unit	Control Riser Hole
Outdo	Remote Controller
_	AC Easy Control
Aaterial	AC Smart
Pipe N	ACP Advanced Control Platform
Ę	AC Manager
Solutio	BACnet
Control	LonWork
	Dry Dry Contact
ial Index	PDI Power Distributor Indicator

3. Select the Controller Model, and click OK button.

	mation	Control Solution Mad	iel	
Category	Setting Value	Quantity	1	
Facility ID	N3	Control Solution	AC Fr	
• Type	ACEZ	Canadi Soldon		
Name	AC EZ TOUCH	Model	Name	
Model	PACEZA000	PACEZA000	AC EZ TOUCH	
Instal Location		PQCSZ25050	AC EZ	
Connectble E	IDU 64			
Connected IDU	· ·			
Connected Ecol/				
B ETC	5 inch touch screen			
		<	Automotive Distances in the second s	
	sense to the sense of the sense of the		1.000	

- 4. Designate Controller Insertion Position
  - If there is a Controller to position as a reference, click reference equipment, or press Enter.

ACEz	Ortho: 13

#### **Control Cable Model Setting**

It sets Cable Model for each Control communication line.

	Cubic Humo	COIOI
TF-SB1.0x2C	VCTF-SB 1.0×2C	(255, 127, 0)
TF-SB1.0x2C	VCTF-SB 1.0×2C	(255,255,0)
/G22×3C	AWG22×3C	( 0, 0, 255 )
TF-SB1.0x2C	VCTF-SB 1.0×2C	(255,0,0)
PCAT.5	UTP CAT.5	( 0, 255, 0 )
	TF-SB1.0x2C TF-SB1.0x2C /G22×3C TF-SB1.0x2C PCAT.5	TF-SB10x2C         VCTF-SB 1.0x2C           TF-SB10x2C         VCTF-SB 1.0x2C           G22x3C         AWG22x3C           TF-SB10x2C         VCTF-SB 1.0x2C           PCAT.5         UTP CAT.5

#### **Control Wiring**

It connects Control line between Control Ports. (only exists in Control Solution Tab)

-##-•#-



1. Select the Control Wiring Menu.

2. Select the Control Port to connect manually, or connect automatically through Auto-piping.

- 2.1 Manual Connection
  - Select Control Riser Hole or Control Port to connect.
  - After the connection, remaining Control Ports cannot be used.



- 2.2 Automatic Connection (Auto-piping) after drawing Main Control Line
  - 2.2.1 Draw Main Control Line based on the equipments to connect to.
  - 2.2.2 Select Smart Cabling in Control Cabling Option.

2.2.3 After drawing Main Control Line, select Indoor Units to connect to.



#### Wiring remote control

It connects Control line between Remote Controller Port and IDU Control Port. (Only exists in Control Solution Tab)



1. Select the Control Wiring Menu.

2. Select the Control Port to connect manually, or connect automatically through Auto-piping.

The method to connect the remote control wiring is same with Control Wiring.



#### **Control Riser Hole Positioning**



1. Select Control Riser Hole in Control Solution tab in Symbol Menu.

Riser Hole Information	n			_
Pipe Type	() Refrigerant Pip	e 🔿 Drain	Contro	ol
Connected ODU				
Pipe No.		- I New	Entry	
Top Floor		· Attude		
Lowest Floor	6	• (0.0 m	)	
RiserHole group	ByBlock		•	
Riserhole help				

- 2. After setting Floor Information, position in the desired location.
- 3. The types of the Control Lines starting from Control Riser Hole are decided by the type of the connected equipment (Control, Indoor Unit, Outdoor Unit, ventilation).

#### **Control Remarks**

Remarks for Control equipments applied to the drawing can be inserted in Material Index tab in Symbol Menu.

The name of the Model inserted is changed according to output language setting of Environment Setting in Master Menu.



#### **Checking Communication line Validation**



- 1. Select Checking Communication line Validation.
- 2. The connection relations of Controller and Indoor/Outdoor Units physically connected are defined based on the central Control line.
- 3. Cable length, the number of connected Indoor Units, and the number of PI485 Points are verified.

Tree Contain Detail Tree Cefrigerant [ Location Search Connectivity Check Path Trace	rawing Rebu D 4' of t Please	he connectivity e check the list!	System check rror(s)[error : 3, th	ie unconnected eq	ulp. : 1] is(are) oc	curred.		Ex
	li	12000000		Cabl	e length(m)		Linke	d Information
Category	Model	Remote co	Central con	IDU-ODU c	Remocon	IDU	PI, 485	Install Locatio
(KI) ACP1	ACP IV	PACP4B000		/ 794.3	/ 518.7		108	4(1)
- KS AS1	AC Smart IV	PACS4B000		4.7 / 65.3	/37.9		8	1(1)
-1 ODU-	MULTI V 5	ARUMOSOLTES	4	43.8 / 60.6	/ 26.7		8	
EDU-	Mid Static Duct	ARNU07			5.4 / 26.7			
DU-	Mid Static Duct	ARNU07			3.3 / 21.3			
🕀 🚮 IDU-	Mid Static Duct	ARNU07			3.1 / 18.0			
🖃 🌉 IDU-	Mid Static Duct	ARNU07_			3.1 / 14.9			
🖃 🌉 IDU-	Mid Static Duct	ARNU07			3.7 / 11.8			
🕀 🛃 IDU-	Mid Static Duct	ARNU07			3.9 / 8.1			
- tidu-	Mid Static Duct	ARNU07			4.2/4.2			
ODU-	MULTI V S	ARUM100LTES		16.8 / 16.8	/ 11.2		1	
HR1	HR Unit	PRHR022			4.5 / 11.2			
- IDU-	HYDRO KIT	ARNH10GK2A			6.7 / 6.7			
-00 HOLE-2(1F)	Riser			3.5 / 125.6				
- (HOLE-2(2F))	Riser			3.5 / 122.1				
🖃 🖪 LZ-	EcoV	LZ-H200GBA2		107.3 / 118.6				PNF-P14AOR
⊡ 🕄 LZ-	EcoV	LZ-H025GBA2		5.4 / 11.3				PNF-P14AOR
-19 17.	EcoV	LZ-HOSOGBA4		59/59				PNF-P14AOR

# List of Control Equipment



1. Select "System Check" in "Pipe Design Check".

2. Select the Equipment List. (List of Control Equipment is added to the existing Equipment List.)

Obsolete Model						Equip	ment Loo	cation	Search		20
Category	Group ID	Install Lo	ation ratio (%)	Cooling (kW)	Heating (kW)	Pipe	Syst	EN	1378	-	System Analysis
ARUMO80LTE5:MULTI V 5	ODU-	1F	125.00	23.79	22.49	<b>V</b>	<b>_</b>		0.000	Ε	ų
ARUMO80LTE5:MULTI V 5	ODU-	1F	125.00	23.79	22.49	$\checkmark$	$\checkmark$	. (	0.000		Default
ARUMO80LTE5:MULTI V 5	ODU-	1F Multi V_	68.75	15.49	14.03	$\checkmark$	<b>V</b>	<b>V</b> (	0.010	ſ	
ARUMO80LTE5:MULTI V 5	ODU-	1F Multi V_	125.00	23.79	22.49	$\checkmark$	$\checkmark$	<b>V</b> (	0.010		Equipment List
ARUMO80LTE5:MULTI V 5	ODU-	1F Multi V_	125.00	23.79	22.49	$\checkmark$	$\checkmark$	<b>V</b> (	0.010		Equipment List
ARUMO80LTE5:MULTI V 5	ODU-	1F Multi V_	125.00	23.79	22.49	$\checkmark$	$\checkmark$	<b>V</b> (	0.010		(By Floor)
ARUMO80LTE5:MULTI V 5	ODU-	1F Multi V_	125.00	23.79	22.49	$\checkmark$	$\checkmark$	<u> </u>	0.000		Drint Doport
ARUM080LTE5:MULTI V 5	ODU-	1F	125.00	23.79	22.49	<b>V</b>	$\checkmark$		0.000		Print Report
ARUMO80LTE5:MULTI V 5	ODU-	1F	125.00	23.79	22.49	$\checkmark$	$\checkmark$		0.000	-	Equipment Table
		m	405.00					- ·	4		Equipitient Table
lescription		Limit	Current value(I	Max. value : s	elected equip	oment)					Print GERP
Total pipe length		1000.0 m	13.7 m								Export to HVAC
Longest equivalent pipe length		175.0 m	16.2 m : ARNU9	6GB8A4[i1]							
ongest top pipe length after first branch		40.0 m	5.3 m : ARNU96	3GB8A4[i1]							About EN3/8
Difference in height (outdoor below indoor)		110.0 m	3.0 m : ARNU96	3GB8A4[i1]							
Difference in height (outdoor above indoor)		110.0 m									
		40.0 m	0.0 m : ARNU96	3GB8A4[i1]-A	RNU96GB8A	4[i1]					
Difference in height (indoor - indoor)		150.0 m	13.7 m : ARNU9	96GB8A4[i1]							
Difference in height (indoor - indoor) Longest real pipe length			0.0 m								
Difference in height (indoor - indoor) Longest real pipe length HR Box height difference		15.0 m	0.0 11								
Difference in height (indoor - indoor) Longest real pipe length HR Box height difference HR Box height difference in serial connection	of HR units	15.0 m 5.0 m	0.0 m								
Difference in height (indoor - indoor) Longest real pipe length HR Box height difference HR Box height difference in serial connection Height difference(HR unt <-> DU)	of HR units	15.0 m 5.0 m 15.0 m	0.0 m 0.5 m								

Network Solution			
PRODUCT	MODEL	ΟΤΥ	DIMENSION
Simple wired remote controller(for hotel)	PORCECSO	1	-
Grille (4 Way Casetta - TN, TM, TP Chassis)	PT-UMC	133	
Grille (4 Way Casette - TR, TQ)	PT-UQC	95	-
AC EZ TOUCH	PACEZA000	2	137x25x121
NOTE  Cable Controller			
- Wired Remote Controller : AWG 22x3C (Less the	an 100m)		

#### Schematic(Control) Diagram Equipment Arrangement

Draw Control System Diagram based on the positioned Controller and Control Communication Lines.

- 1. Building Board Composition
  - 1.1 Select Building Board in Pull Down Menu or Ribbon Menu (LGE LATSCAD).
  - 1.2 Select "Control Diagram" in the Drawing Save Mode to create Building Board.

Floor Nomo	Floor lough	Section	Equipm	ent Arrange	Quantity	
ribor Name	Floor level	opacing	Outdoor	Indoor	Air Cha	
Rooftop Floor	3.5	1.0	11	4		
4th Floor	10	1.0	4	36		
3rd Floor	40	1.0	8	61		
2nd Floor	70	1.0	12	90		
👒 1 st Floor	3.5	1.0	13	73		
Drawing Save Mode			Spacin	g and Width	Between Fic	ors
🗢 Refrigerant Diagr	am 🖲 Cont	rol Diagram	1	Height 500	0.0 W	idth 80000.0
Riser Location			Floor I	lame Locatio	n	
🖲 Left 🛛 Ce	nter 🤅	Right	12	Left	9	Right

1.3 Designate lower left point in the drawing to insert Building Board.



- 2. Control System Diagram Equipment Positioning
  - 2.1 Select Schematic(Control) Diagram Equipment Arrangement in Pull Down Menu(LGE LATSCAD).
  - 2.2 Select Arrange Option.

Category	Group ID	Install Location	Arrange	
- 🙀 N2		3rd Floor		
- DAC-15-2		3rd Floor		
- 14C-7		3rd Floor R		
14C-7		3rd Floor R		1
- 14C-7		3rd Floor R		
- 14C-7		3rd Floor R		
- 14C-7		3rd Floor R		
14C-7		3rd Floor R		
@ [] 0AD151		3rd Floor		
		3rd Floor R		
- 14C-7		3rd Floor R		
- HC7		3rd Floor R		
14C-7		3rd Floor R		
- 14C-7		3rd Floor R		
- AC8		3rd Floor R		
- 💼 N1		2nd Floor 0		
CAC81		2nd Floor 0		
14C8		2nd Floor 0		
-14C-8		2nd Floor 0		
14C-8		2nd Floor 0		
- 14C-16		2nd Floor 0		
- 14C-8		2nd Floor 0		
14C8		2nd Floor 0		
IAC8		2nd Floor 0		-
Arrange Option	1			
Identical Model Gruop Arrange(Same Room)	Place Al	Locate IDUs		_
			Ext	1000

2.2.1 Identical Model Group Arrange (Same Room)

- When "Identical Model Group Arrange (Same Room)" is selected in Arrange Option, Indoor Unit Notes and Positioned Rooms are displayed as a group.

2.2.2 Place All

- select "Place All" → All Equipments of Riser Diagram are positioned in Building Board.

2.2.3 Locate IDUs

- After selecting Outdoor Unit or Riser in Riser Diagram, select "Locate IDUs"  $\rightarrow$  equipments of Indoor Units are positioned in Building Board.

(Indoor Units connected to the selected Outdoor Unit are automatically positioned.)

2.2.4 Locate Device

- After selecting Outdoor Unit or Indoor Unit in Riser Diagram, select "Locate Device"  $\rightarrow$  The selected equipments are positioned in Building Board.

2.5 Select Control Wiring Menu of Control Solution Tab to connect Indoor/Outdoor Unit Communication Lines and Central Control Communication Line.

# Function Description of Each Icon (Include Ribbon Menu)

It describes which operations are done in the functions in each Icon, and it is the explanation page based on the conditions and the exceptional cases to use the functions.

# **Equipment Editing**

Editing of Indoor Unit, Outdoor Unit, and Pipe Material, and Control Solution, and Material Index Positioning of Pipe Notes can be done. Multiple equipment selection is included in the entire Menu.



#### **Rotate Equipment**

It can rotate the positioned equipment based on the central point.



- 2. Select the object to rotate in the drawing, press Enter.
- 3. Input rotation direction or rotation value.

3.1 You may rotate by selecting the direction to rotate.

- The 3 o'clock direction is 0 degree.
- For multiple selections, they rotate individually based on the center of each object.
- For fixed pressure Duct, the equipment and the chamber rotate the same.



3.2 You may also rotate the equipment by the input of desired angle. (Input angle in the command input line)



#### **Move Equipment**

It moves Equipment and Pipe Material from the base point to the selected point.

MultiV 💌	
	M

- 1. Select Move Equipment menu ().
- 2. Select the object to move in the drawing, and press Enter.
- 3. Select or input the "Move Equipment" base point.
- 4. Select or input the "Move Equipment" moving point.
- It moves maintaining the connection relations.



# **Copy Equipment**

It copies equipment and Pipe Material to the selected point.

		25A 🖳	
MultiV	•	2	
1. Select Copy Ec	quipmer	nt menu	

2. Select object to copy in the drawing or input Copy Option in the command line.

2.1 Select object to copy in the drawing.

2.1.1 After executing the Menu, when the equipment to copy is selected, the copy of the equipment is immediately possible. Press Enter to finish.



2.2. After executing Copy Equipment Menu, select Copy Option in the command line

```
Select the drawing element to copy.
[Equipment Copy(select equipment)/Multiple Copy[M]/ Floor Copy(F)/ Room Copy(R) ] :
```

- 2.2.1 Multiple Copy (M)
  - After selecting Copy Equipment Menu, input "M" in the command line for Multiple Copy.
  - Select equipments and materials to copy, and press Enter to finish selecting.
  - Select the reference point, click the position of copy.
  - The copy of the equipment is immediately possible. Press Enter to finish.





- 2.2.2 Floor Copy (F)
  - After selecting Copy Equipment Menu, input "F" in the command line for Floor Copy.
  - Select Source Floor and Target Floor.

- Equipment and Pipe Information are copied exactly. (Reference Point for Copy is the reference point of the Floor.)

ource Floor	Target Floor
Rooltop Floor	The Rooftop Floor
🔹 🥦 4th Floor	🦄 4th Floor 🤤
3rd Floor	🌤 3rd Floor
Image: Second	🌤 2nd Floor
• 🛸 1st Floor	Tat Floor
opy Option	
Equipment(IDU, ODU)	Path
Control Equipment	Path

Example) For the 1<sup>st</sup> and 3<sup>rd</sup> floor with the same drawing, equipment positioning, and Pipe connection, design only the 1<sup>st</sup> floor and execute Floor Copy.

	Y	
--	---	--

Example) 1<sup>st</sup> Floor

Example) 3rd Floor before/after

2.2.3 Room Copy (R)

- It copies Equipment and Pipe Information in the certain Room.
- After selecting Copy Equipment Menu, input "R" in the command line for Room Copy.
- Select the Source Room of Floor and the Target Room of Floor.

iource Floor		Target Floor	
the floor poor     the floor poor     the floor     the floor		<ul> <li>The Reading Floor</li> <li>The Min Reading Floor</li> <li>The All Ploor</li> <li>The All Ploor</li> <li>The All Ploor</li> <li>The Ploor</li> <li>The Floor</li> <li>The Floor</li> </ul>	
Copy Option Equipment(IDU, 0DU) Control Equipment	Ref. Path		OK Cancel

- Copy the equipments in the Source Room of Floor to the Target Room of Floor. (The base point for Copy is the lower left of the Room Area.)

- The Equipment and Pipe Information are copied exactly.
- Check "Copy pipe and drain(Except Indoor/Outdoor Unit)", to copy only pipe and drain.

#### **Delete Equipment**

It deletes the Equipment and Pipe Material.

MultiV	<b>E</b>
1. Select Delete Equ	ipment Menu (

2. Select the object to delete in the drawing, and press Enter to finish.

#### **Rotate Equipment (180)**

It rotates the selected Equipment or Pipe Material by 180°.

💕 🖬 🗉	i 💽 🧖
	25#1
MultiV 💌	6

- 1. Select Rotate Equipment (180) Menu (
- 2. Select the object to rotate in the drawing, and press Enter to finish.

Caution! Indoor unit and Outdoor unit is rotate 180, but Pipe Material is mirroring.



## **Equipment Assignment**

It arranges the selected equipments vertically or horizontally according to the base equipment.

		25A 🖓	<b>1</b>
MultiV	•	2	
			1

- 1. Select Equipment Assignment Menu (🚞
- 2. Select the object that becomes the base equipment to arrange in the drawing.
- 3. Continue to select the equipments by drag or clicks to be arranged and press the Enter key.



<Before>



<After>

#### **Match Equipment Property**

It synchronizes the Property Information of the selected Equipments.

MultiV	•	

- 1. Select Match Equipment Property Menu (📕
- 2. Select the objects to synchronize in the drawing.

2.1 When select equipments by click, the first selected equipment becomes the base equipment to synchronize. (Multiple equipments may be selected)



2.2 When select equipments by drag, at first select the base equipment, and then drag other equipment to synchronize.



2.3 It synchronizes all of positioning directions and Property Information of the Equipment.



Caution! When other types of symbols are selected, only the positioning direction and the scale are the same.



#### **Piping Equipment**

Piping for Refrigerant/Drain Pipe can be done based on the Port of the Equipment.

MultiV 💌	
1. Select Piping Equ	ipment Menu (🛄)

- 2. Select Port for Manual Piping, or select a Piping Option.
  - 2.1 Manual Piping
    - 2.1.1 After executing Menu, start the connection from Port. (Designate the path for Piping)
    - 2.1.2 It connects from Indoor Unit, Outdoor Unit Port, and Riser Hole.

(It is decided as Refrigerant Pipe or Drain Pipe according to the types of Port and Riser Hole.)



- 2.2 Select Piping Option (Automatic Piping)
  - After executing Menu, you can draw piping using Automatic Piping functions like Auto-piping (S), Offset wiring (O), Independent refrigerant pipe (R), and Independent drain pipe (D)

- Draw Main Pipe for Automatic Piping. (Manually draw by designating the path to Refrigerant Pipe as Main Pipe)

2.2.1 Auto-piping [S]

- Smart piping is possible connecting automatically Main pipe to Indoor Units.
- After executing Menu, input the "S" for Auto-piping in the Command line

Select connection point or [Auto-piping(S) Offset Piping(for drain)(0)

Independent refrigerant pipe(R) Independent drain pipe(D)] :

- Draw Main Pipe for Automatic

Piping. (Manually draw by designating the path to Refrigerant Pipe as Main Pipe)



- After selecting Main Pipe for Piping, select the equipment for Auto-piping. (After selecting the Refrigerant Pipe drawn as Main Pipe, select the equipment to connect.)



- Automatically connect the selected Pipe and the Equipment (Automatic creation of Branching

Pipe)



Caution! It is recommended that execute Automatic Connection when the Port of Indoor Unit is toward Main Pipe or in parallel.

- Auto-piping is possible between already drawn Pipes. (After selecting Main Pipe, select the Pipe to connect, instead of selecting the Equipment.)



2.2.2 Offset wiring [O]

- Offset wiring is possible connecting automatically drain pipe.
- After executing Menu, input the "O" for Offset wiring in the Command line

Select connection point or [Auto-piping(5) Offset Piping(for drain)(0

Independent refrigerant pipe(R) Independent drain pipe(D)] :

- Select already connected Refrigerant Pipe (Main Pipe) and set offset direction



- Drain Pipe is drawn following the lower level structure of the selected Main Pipe, and it is connected to Indoor Unit Drain Pipe Port.



2.2.3 Independent Refrigerant Pipe [R]

- Independent Refrigerant Pipe is possible without connection to Riser Hole or Port (Refrigerant Pipe).

- After executing Menu, input the "R" for Independent Refrigerant Pipe in the Command line
- Position Pipe regardless of the Ports of Riser Hole and Equipment.

Select connection point or [Auto-piping(S) Offset Piping(for drain)(0)

Independent refrigerant pipe(R) Independent drain pipe(D)] :

Caution! The direction of the Pipe is decided by the first selected point.



- And then, Independent Refrigerant Pipe is possible to automatic Connection using Auto Piping to Indoor Units



2.2.4 Independent Drain Pipe [D]

- Independent Drain Pipe is possible without connection to Riser Hole or Port. (Drain Pipe)
- After executing Menu, input the "D" for Independent Refrigerant Pipe in the Command line

Select connection point or [Auto-piping(5) Offset Piping(for drain)(0)

Independent refrigerant pipe(R) Independent drain pipe(D)]

- Pipe may be positioned regardless of the Ports of Riser Hole and Equipment.

Caution! The direction of the Pipe is decided by the first selected point.
# **Equipment and Pipe Index**

Create Notes for equipment and pipe material.

MultiV 💌	
	25

- 1. Select Equipment and Pipe Index Menu (
- 2. Select pipe or riser hole to create notes.

2.1 Select riser hole to position notes, and designate the path. (The same method is applied to control riser hole notes)



- 2.2 Select pipe to position notes.
  - Select pipe to input notes, and designate the position.



# **Property Information**

It shows the Property Values of Equipment and Riser Hole.

MultiV 💌 👔

- 1. Select Property Information Menu (
- 2. Select the object to see the Property Information in the drawing.
- 2.1 When Indoor Unit/Outdoor Unit is selected, it shows its property.
- 2.2 The properties of the selected equipment or Equipment Model can change.



- After selecting the equipment, the same function is supported in LATS Property Information in Popup Menu.



2.2.1 Group Color Change (When Outdoor Unit property is changed, the property of the connected Indoor Unit is changed)

(The Color Information of the Equipments connected to Outdoor Unit is changed at once.)

ODU Information		(N America) 00	J Model				Connect Indoor Un	it Information	
Category	Setting Value	Combination     Ratio(%)	100.0	(Auto-Re	ecommer	idation	Total IAC Nomina	Cooling Capacity	: 0.0 kW
Group ID Prefix     Group ID	OAC-	ODU Type	MULTI V S			•	a 🖉 🖉	Physical	-
<ul> <li>Facility ID</li> </ul>		Model	tion	ratio 1	Cooling	Heating ~	Location	Madel	Cooling
Install Location		ARUB #377	TES	(%)	(1493	(100)	Lord ton		(1499)
Model	ARUM0728TE5	ANUMUT2	160	0.00	21.10	63./4			
<ul> <li>Buyer Model</li> </ul>	ARUM0728TE5		115	0.00	20.12	21.65			
ODU ODU	MULTI V 5	<ul> <li>ARUNI0905</li> </ul>	TES	0.00	28.15	31.65			
<ul> <li>Cooling capacity (kW)</li> </ul>	21.1	AR(18/1211	TES	0.00	26.17	20.56			
<ul> <li>Heating capacity(kW)</li> </ul>	23.74	ARUAR 21	TES	0.00	25.17	20.56			
<ul> <li>Cooling cons</li> </ul>	4.28	<ul> <li>ARUN1441</li> </ul>	TES	0.00	42.20	47.48			
<ul> <li>Heating cons</li> </ul>	5.39	<ul> <li>ARUN144</li> </ul>	TES	0.00	47.20	47.48			
<ul> <li>Power</li> </ul>	1/208-230/60	- ARUM1681	TES	0.00	49.24	55.10			
		ARUM1688	TES	0.00	49.24	55.39			
		ARUM1921	TES	0.00	56.27	63.30			
Inlet Water Information		ARUM1921	TES	0.00	56.27	63.30			
Inlet Terro, (Coolon)	1903	ARUN(216)	TES	0.00	62.30	71.22			
and rentp. (cookig)	(*0)	<ul> <li>ARUN(216)</li> </ul>	TES	0.00	63.30	71.22			
(Heating)	(*C)	ARUM2418	TES	0.00	70.34	71.22 *			
Water Flow Rate	(LPM)			-					
D.4 7							and the second s		
Plue Type			100	- 14					
Concentration	(100 % Fixe	i)					Outdoor Unit's	D ByBlock	-
Accourace			1000	- B					
receipert							Outdoor Unit help		
Model Nam	e Qu.				2				
			100						
			175.1	1- 10	2				
			1000	1.10	2				

2.2.2 The model of the selected equipment may be changed.

2.2.3 Up/Down Riser Hole Information can be viewed or changed.

- After executing menu, Up/Down Riser Hole
- The property information (Classification/Floor Information/Color) can change.

A Riser Hole	
Riser Hole Informati	on
Pipe Type	Refrigerant Pipe      Drain     Control
Connected ODU	
Pipe No.	▼ New Entry
Top Floor	옥탑층 🔹 Altitude
Lowest Floor	1층 v (7.0 m)
RiserHole group	ByBlock
Riserhole help	
	OK Cancel

# Auto-arrange Indoor Unit

Based on the selected Room and Indoor Unit, Indoor Unit is automatically positioned. (Exists only in Indoor Unit tab of Symbol Menu)

i i i i	* *
	1
MultiV 💌	2

- 1. Select Auto-arrange Indoor Unit Menu (
- 2. Select the Room Area Boundary Line to position.



3. When the Indoor Unit to apply is selected, the recommended number of units is provided with the consideration of Room area and load.

Arrangement	22010/18/8	5557		(Pinmenica) Indoor U	nit Informat	sion		
Center	C Wall-side	O User		Outdoor Unit			<<0	ρIJ
Room Information	1. 19.17			Indoor Unit 4 M	ay Cassette			•
Room Area	746.3		1	Model	Coolin	Heatin	Ventil,	•
Room Load	130.60	0000		ARNU053TRC4	1.61	1.79		
IDU Capacity	1.61	2000	20100.82	ARNU073TNA4	2.20	2.49	1	Ш
Recommendation	: 82	0000		ARNU073TRC4	2.20	2.49		Ш
Capacity of IDUs	132.02			ARNU093TRC4	2.81	3.19		
Ratio	101.1 (%)			ARNU093TNA4	2.81	3.19	14	11
		37127.18		ARNU123TRC4	3.60	3.99	1.4	Ш
No. of Row 1	No. c	f Column 82		ARNU123TNA4	3.60	3.99		Ш
				ARNU153TNA4	4.51	5.01		
Spacing and Dire	tion			ARNU153TQC4	4.51	5.01		L
Row S	pacing 20100.8	-		ARNU183TNA4	5.60	6.30	-	L
Calum 8	452.8	1		ARNU183TQC4	5.60	6.30	2.4	
Courn s	pacing hours	-	R	ARNU243TMA4	7.09	8.00	1	
Arrange	Angle 0.0			ARNU243TNA4	7.09	8.00	1	
	Basically, if row : the row is adde negative, it is ad	pacing is negati d down and if ci Ided left.	ve, siumn		10			
Chamber	1000			1 de		5		
Supply Charri	er Ell	Return Chamber			-	-	1	
Accessory		Total (Rocated)					-	
Model	Name	Quantity				-		
	Grille (4 Way	1	ansert					
PT-UQC								

#### 3.1 Arrangement

		a l	Arrangement Center	© Wall-side	e 💿 User	
			- Room Information -			
/IAC-		LAC-	Room Area :	306.8		
1		$\searrow$	Room Load :	128.01		
			IDU Capacity :	14.10		24578.69
			Recommendation :	10		
		Personal Contraction of the second se	Capacity of IDUs :	141.00		
	n m m		Ratio :	110.1 (%)		
			No. of Row 1		35945.37 No. of Column 10	

3.1.1 Center: It positions the selected equipments based on the center of the corresponding "Room".

3.1.2 Wall-side: It positions based on the walls in 4 directions, and it sets the location of the wall to position and the number (row, column).

Arrangement © Center	@ Wa	ll-side	e 🔘 Use	er	
Room Information		$\square$			
Room Area : Room Load : IDU Capacity : Recommendation : Capacity of IDUs :	306.8 128.01 14.10 10 141.00				24578.69
Ratio :	110.1 (%	)	35945.37		J
No. of Row 1			No. of Column	10	

3.1.3 User: It positions based on the location designated by the user.

#### 3.2 Room Information

- The Room Area/Room Load of the selected Room Area is displayed, and the recommended number for the Indoor Unit capacity is displayed.

- Input the number of equipments to be positioned through the input of "No. of Row" and "No. of Column".

- When arranging by Wall-side, click which side equipments are positioned.

3.3 Spacing and Direction

- Designate the gap between the equipments and the angle.



#### 3.4 Port / Symbol Mirror

- Some indoor unit can change port direct. (wall-mounted, floor stand, convertible type etc.) And some ventilation unit can reverse up-down. If you check "port mirror", it will be changed.



4. It is automatically positioned in the corresponding Room in the drawing according to the set conditions.



- When UCS is changed, automatic positioning according to the changed angle is possible.





Result of the existing automatic positioning

Result of the changed automatic positioning

- 4.1 Multi V Indoor
- Select Indoor Unit.

Auto Indoor Unit Arrange	and the second se	
Arrangement @ Center	(N America) Indoor Unit Information Outdoor Unit	< <odu< td=""></odu<>
Room Information Multi V	Indoor Unit 4 Way Cassette	•
Room Area : 746.3 Room Load : 130.60	Model Coolin Headn Ve ARNU053TRC4 1.61 1.79	
Recommendation : 82	• ARNU073TRC4 2.20 2.49	
Ratio : 101.1 (%)	ARNU093TNA4 2.81 3.19     ARNU093TNA4 2.81 3.19	
37127.18 No. of Row 1 No. of Column 82	ARNU123TRC4 3.60 3.99     ARNU123TRA4 3.60 3.99	-
Spacing and Direction	ARNU153TNA4 4.51 5.01     ARNU153TNA4 4.51 5.01	- 4
Row Spacing 20100.8	• ARNU183TNA4 5.60 6.30	
Column Spacing 452.8	ARNU183TQC4 5.60 6.30     ARNU243TMA4 7.09 8.00	
Arrange Angle 0.0	• ARNU243TNA4 7.09 8.00	• •
Basically, if row spacing is negative, the row is added down and if column negative. It is added loft		
Chamber	TO MO	
Supply Chamber	100	
Accessory		2
Total (Rocated)		2
PT-UQC Grille (4 Way 1		
Delete		
	ОК	Cancel

- 4.2 Multi Indoor & Single A Indoor
- Insert the ODU Unit before using Auto-arrange Indoor Unit function.



- Use Auto-arrange Indoor Unit function.



- After select ODU in Indoor Information, Click the ODU unit in drawing.



- Select Indoor Unit.

#### 4.3 Single Indoor

- Select Indoor Unit.

A Auto Indoor Unit Arrange	
Arrangement © Center © Wall-side © User Room Information	(EU) Indoor Unit Information Outdoor Unit Indoor Unit Floor Standing
RPS_H Room Area : 64.8 Room Load : 6.48 IDU Capacity : 8.15 Recommendation : 1 Capacity of IDUs : 8.15 Ratio : 125.8 (%) 8200.0	Model         Coolin,         Heatin,         Ventil, <ul></ul>
No. of Row 1 No. of Column 1 Spacing and Direction Row Spacing 7900.0 Column Spacing 8200.0 Arrange Angle 0.0 Basically, if row spacing is negative, the row is added down and if column negative, it is added left.	
Chamber Supply Chamber	-
Model Name Quantity Insert Delete	OK Cancel

- input the IDU, and then input the ODU in the drawing.



# Material Scale (in Material Index)

Material scale can be adjusted for the Material Index tab. (It exists only in Material Index tab of Symbol Menu)



1. After setting the Material scale, select and position the desired Pipe.



## **Control Wiring**



- 1. Select Control Wiring Menu (Exists only in Control Solution tab of Symbol Menu)
- 2. Manual Connection
  - 2.1 Select the Control Port of the Equipment to connect, and connect without selecting Option.
  - 2.2 The types of the communication lines are decided by the types of the connected equipments.
    - Indoor Unit (or ventilation)-Indoor Unit (or ventilation), Indoor Unit-Outdoor Unit (or Riser Hole): Outdoor Unit Communication Line

- Controller-Outdoor Unit (or Riser Hole), Controller-Indoor Unit (or ventilation): Central Control Communication Line

3. Select Control Wiring Option

Draw the control cable. Select connection point or [Auto wiring(S)] :

3.1 Auto wiring (S): The same can be applied to the connection between Controllers.

3.1.1 Select Riser Hole or Indoor Unit Port to draw Central Control Line.



3.1.2 Select Auto wiring (S) in Control Wiring Option of Command line.





3.1.4 Based on Central Control Line, Indoor/Outdoor Unit Communication Lines are automatically connected.

<u>Caution!</u> If Communication Line is connected to the Control Port of Indoor Unit (or ventilation), the remaining 3 Ports cannot be used.

### Wiring remote control

	į		B
		25A 🗖	<b>P</b>
C 22 555 999	Tuqis 0 0 0	-##- ->##-	

- 1. Select Control Wiring Menu ( ). (Exists only in Control Solution tab of Symbol Menu)
- 2. Manual Connection
  - 2.1 Select the Control Port of the Remote controller first and connect to Equipment without selecting Option.
- 3. Select Control Wiring Option

Draw the remote control. Select connection point or [Auto wiring(S)]: Refernce wiring(R)]:

3.1 Auto wiring (S): The same can be applied to the connection between Controllers.

3.1.1 Select Remote Controller Port and draw the Remote Control Line.



3.1.2 Select Auto wiring (S) in Wiring Remote Control Option of Command line.

3.1.3 Select Main Control Line, and select Indoor Units to connect to.

3.1.4 Based on Central Control Line, Indoor/Outdoor Unit Communication Lines are automatically connected.



3.2 Reference Wiring (R): It connects Remote controller to Indoor Unit by same pattern which is the reference.





3.2.2 Select Reference wiring (R) in Wiring Remote Control Option of Command line.

3.2.3 Select the reference cable.

3.2.4 Select the Indoor Unit to connect to remote controller and Press the Enter key.



3.2.5 Select the Remote controller to connect and Press the Enter key.

3.2.6 Indoor Unit / Remote control wiring is automatically connected

# **Control Cable Model Setting**

It sets the model for each control cable. (Exists only in Control Solution tab of Symbol Menu)



- 1. Select control cable model setting Menu (
- 2. Set the model to be applied to each communication line type.

Control Cable Setup								
Group	Model	Cable Name	Color					
Central Control Communication Lin	VCTF-SB1.0x2C	VCTF-SB 1.0×2C	(255, 127, 0)					
Indoor/Outdoor unit communi	VCTF-SB1.0x2C	VCTF-SB 1.0×2C	(255,255,0)					
Remote Controller Communic	AWG22×3C	AWG22×3C	(0,0,255)					
<ul> <li>Power Meter Communication lien</li> </ul>	VCTF-SB1.0x2C	VCTF-SB 1.0×2C	(255, 0, 0)					
LAN Communication Line	UTPCAT.5	UTP CAT.5	(0, 255, 0)					
		)						
OK Cancel								

# **Control System Diagram Drawing**

# **Building Board Composition**

It composes the building board in the drawing of the system diagram before positioning Control Solutions.

1. Select "Building Board Composition" in Pull Down Menu or Ribbon Menu (LGE LATS CAD).

2. Set Building Board Option (Drawing Save Mode, Riser Location, Spacing and Width Between Floors, and Floor Name Location).

'N	ew building' Building Boa	ard					×
	First Name	Elson la mil	0	Equipm	ent Arrange	Quantity	
	Floor Name	Floor level	Spacing	Outdoor	Indoor	Air Cha	
	👒 Rooftop Floor	3.5	1.0	11	4		
	👒 4th Floor	10	1.0	4	36		
	👒 3rd Floor	40	1.0	8	63		
	🔉 2nd Floor	70	1.0	12	90		
	👒 1st Floor	3.5	1.0	13	73		
	Denvise Court Made			Caracia	d sandah	Detroit of	
	Drawing save mode			Spacin	g and widen	between Pit	JOIS
	Refrigerant Diagram	Cont	rol Diagram	1	leight 500	0.0 W	idth 80000.0
	Riser Location			Floor N	Vame Locatio	n	
	🖲 Left 🛛 🔘 Cent	er 🤅	Right	V	Left	V	Right
		Gener	rate		Cancel		

3. Select the selection of left / under point to generate building board.

Select the reference point to generate building board.(left/under point):

Riser freight Location freight	Name
Width	
	14

## Schematic (Control) Diagram Equipment Arrangement

It positions the equipments to draw system diagram.

1. Select "LATSCAD  $\rightarrow$  Schematic(Control) Diagram Equipment Arrangement" in Pull Down Menu or Controller Place in Ribbon Menu.

- When composing the Building Board, System Diagram Type should be selected as Control Diagram.
- When equipments are positioned in Building Board, the equipments are checked Arrange tab of Riser Diagram.

LATSCAD Riser Diagram				×
Category	Group ID	Install Location	Arrange	<u>^</u>
- 🖽 N2		3rd Floor		
DAC-15-2		3rd Floor		
- 🔁 IAC-7		3rd Floor R		-
-@ IAC-7		3rd Floor R		=
- 🔁 IAC-7		3rd Floor R		
- 🔁 IAC-7		3rd Floor R		
-@ IAC-7		3rd Floor R		
LAC-7		3rd Floor R		
⊡ 🛅 0AC-15-1		3rd Floor		
- 🔁 IAC-7		3rd Floor R		
- 😳 IAC-7		3rd Floor R		
- 🔁 IAC-7		3rd Floor R		
- 🔁 IAC-7		3rd Floor R		
		3rd Floor R		
IAC-8		3rd Floor R		
- 🕮 N1		2nd Floor O	Image: A start and a start	
DAC-8-1		2nd Floor 0		
- 🔂 IAC-8		2nd Floor O		
-@ IAC-8		2nd Floor 0	Image: A start and a start	
- 🔯 IAC-8		2nd Floor 0		
-@ IAC-16		2nd Floor 0	Image: A start and a start	
- 🔯 IAC-8		2nd Floor 0		
-@ IAC-8		2nd Floor O	Image: A start and a start	
- 🔂 IAC-8		2nd Floor 0		Ψ.
Arrange Option				
Identical Model Gruop Arrange(Same Room)	Place All	Locate IDUs		
			Exit	
	Locate Device			

2. Position the equipments. (Select Arrange Option)

2.1 Identical Model Group Arrange (Same Room)

- When "Identical Model Group Arrange (Same Room)" is selected in Arrange Option, Indoor Unit Notes and Positioned Rooms are displayed as a group.



#### 2.2 Hide Placed equipment

- Hide Equipments of placing in Building Board to Riser Diagram. When all Equipments positioned in Building Board, not exist equipment in Riser Diagram.

2.3 Place All

- select "Place All" → All Equipments of Riser Diagram are positioned in Building Board.

2.4 Locate IDUs

- After selecting Outdoor Unit or Riser in Riser Diagram, select "Locate IDUs"  $\rightarrow$  Indoor Units are positioned in Building Board.

(Indoor Units connected to the selected Outdoor Unit are automatically positioned.)

2.5 Locate Device

- After selecting Outdoor Unit or Indoor Unit in Riser Diagram, select "Locate Device"  $\rightarrow$  The selected equipments are positioned in Building Board.

3rd Floor 3rd Floor 3rd Floor R 3rd Floor R 3rd Floor R 3rd Floor R 3rd Floor R 3rd Floor R	E
3rd Floor 3rd Floor R 3rd Floor R 3rd Floor R 3rd Floor R 3rd Floor R 3rd Floor R	Е
3rd Floor R	E
3rd Floor R	
3rd Floor R	
3rd Floor R 3rd Floor R 3rd Floor R	
3rd Floor R	
3rd Floor R	
3rd Floor	
3rd Floor R	
2nd Floor O 🧹	
2nd Floor O 🧹	
2nd Floor 0 🧹	
2nd Floor 0 🧹	
2nd Floor O 🧹	
2nd Floor 0 🖌	-
	30 Floor R 30 Floor R 30 Floor R 30 Floor R 30 Floor R 30 Floor R 20 floor O 20 flo



4. The connection between Outdoor Units and Central Controllers is manually connected through Control Wiring.



# **System Validation Check**

Perform the inspection for pipe diameter, branching pipes, and system efficacy, and show the result.

## **Drawing Refresh**

It shows the initialization of the drawing information and the currently composed Outdoor Unit, Indoor Unit connecting structure.

💽 🔣 🖻 🔛 🗒

Perform refresh for the equipment connection information.

If check Drawing Refresh, reflect information of drawing (Auto CAD) in the LATS CAD.

<< 'New building' Gather	ing information >>	
	23%	
Gathering equipments a	ind pipes	

Caution! When use function of Auto CAD like Undo, Delete, Copy..., must check Drawing Refresh.

## **Checking Connect Condition (Drawing Check)**

It initializes the drawing information and shows the outdoor unit and indoor unit connection structure currently composed.



Verify the structure diagram of each of refrigerant/drain/control line, and check the error in the connection composition.

Tree Option	Refrinerant Drawinn	Rebuild Tree	TX System the	×			1	Ex		
Connectivity Check	Control solution Drawing	The 2 of link erro	The 2 of link error(t) is(are) occurred. Please check the list!							
Category			Model	Group ID	Install Location	Cooling	Heating			
(MV) MULTI V 5			ARUMOBOLTES	ODU-	1F	23.79	22.40			
- HR Unit			PRHR022	HR1	1F	23.79				
Branch coupler			ARBLN03321	Y2	1F	23.79				
High Static Du	uct		ARNU96GB8A4	IDU-	1F	23.79	31.50			
MULTI V S			ARUMOBOLTES	ODU-	1F Multi V_1	23,79	22.40			
🖃 🕣 HR Unit			PRHR022	HR1	1F Multi V_1	23,79				
Branch coupler			ARBLN03321	Y2	1F Multi V_1	23.79				
High Static Du	ict		ARNU96GB8A4	IDU-	1F Multi V_1	23.79	31.50			
- 🚺 (MV) MULTI V S			ARUM080LTE5	ODU-	1F Multi V_1	23.79	22.40			
🖻 💿 HR Unit			PRHR022	HR1	1F Multi V_1	23.79				
Branch coupler			ARBLN03321	Y2	1F Multi V_1	23.79				
High Static Du	uct		ARNU96GB8A4	IDU-	1F Multi V_1	23.79	31.50			
- 🚺 (MV) MULTI V S			ARUMOBOLTES	ODU-	1F Multi V_7	15.49	22.40			
🖃 🛞 Head			ARBL057	H2	1F Multi V_7	15.49				
Mid Static Duct			ARNU07GM1A4	IDU-	1F Multi V_7	2.21	2.50			
- Mid Static Duct			ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50			
Mid Static Duct			ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50			
- Mid Static Duct			ARNU07GM1A4	IDU-	1F Multi V_7	2.22	2.50			
- Mid Static Duct			ARNU07GM1A4	IDU-	1F Multi V 7	2.21	2.50			

#### 1. Drawing Information Initialization

Initialize the ports of the positioned equipments and perform automatic connection of the equipments that are not connected. (Automatic Link Connection)



1.1 When there is a port not connected within Automatic Connection Tolerance of Configuration, it is

automatically connected.

Drawing Chick						-	8C.214	a) X
Tree Option Detail Trice Location Search Connectivity Check Path Trace	Retigeant Drawing     Drain Drawing     Costrol solution Drawing	Rebuild Tree	Connected to out	ck Soor unit			(	Ext
Calegory			Model	Group ID	Install Location	Cooling	Heating	*
	- Branch pipe		AR8UN01621	¥1	1F Multi V_64	8.38		
	E aranch gipe		AR8UN01621	¥1	17 Multi V_64	6.42		
	Euc Branch pipe		ARE.N01621	¥1	1F Multi V_64	4.28		
	🖯 🚅 Branch pi	pe	ARR.N01621	¥1	1F Multi V_64	213		
	- 🛃 4 Way	Cassette	ARNUC7GTRC4	IDU-	1F Multi V_64	2.13	2.50	
	4 Way Ca	ssette	ARNU07GTRC4	IDU-	1F Multi V_64	2.14	2.50	
	4 Way Catter	tte	ARNU07GTRC4	IDU-	1F Multi V_64	2.15	2.50	
	4 Way Cassette		ARNU07GTRC4	IDU-	1F Multi V_64	2.15	2.50	
	4 Way Cassette		ARNU07GTRC4	IDU-	1F Multi V_64	216	2.50	
	4 Way Cassette		ARNU07GTRC4	IDU-	1F Multi V_64	2.16	2.50	
	4 Way Causetta		ARNU0701RC4	IDU-	1F Multi V_64	2.17	2.50	
CIT (MI) MULTE F			NU5M30	ODU-	1#	2.05	10.10	
Cassetta 4Way			MTOBAH	IDU-	17	2.05	2,30	
C (3 (2) Ventilation (DRV)						CMH_High	CMH_LOW	
- () EcoV			LZ-H025GRA2	1.2.	26	250	150	
-CI EcdV			LZ-H050GBA4	LZ-	25	500	320	
EcoV			LZ-H200GBA2	125	25	2000	1600	100
(iii) Not connected indo	or units			1		-	-	1
4 Way Cassette			ARMUR/GTRC4	100-	JF Multi V_64	2.20	2.50	

1.2 Verify Automatic Connection Tolerance, and execute Checking connect Condition  $\rightarrow$  Port is automatically connected



#### 2. Detail Map

- Select Detail Map in Tree Option, and click Rebuild Tree.
- It is displayed as Detail Map including branching pipes.

#### 2.1 Refrigerant Map

Tree Option  Detail Tree  Refigerant Drawing  Location Search  Drain Drawing	build Tree System che	ck				Ext
Connectivity Check Control solution Drawing						
Category	Model	Group ID	Install Location	Cooling	Heating	
- 🚺 (NV) MULTI V 5	ARUMODOL TES	ODU-	1.0	23.79	22,40	
- + HR Unit	PRHR022	HR1	15	23.79		
Euc Branch coupler	AR8LN03321	¥2	15	23.79		
High Static Duct	ARNU96388A4	IDU-	15	23.79	31.50	
(NV) MUCT V 5	ARUMOLOLITES	ODU-	1F Multi V_1	23.79	22,40	
R UNIT	PRHRD22	HR1	1F Multi V_1	23.79		
Eranch coupler	AR8LN03321	¥2	1F Multi V_1	23.79		
High Static Duct	ARNU96388A4	IDU-	1F Multi V_1	23.79	31.50	
(NV) MULTI V 5	ARUMOLOLITES	ODU-	1F Multi V_1	23.79	22,40	
. HR UNIT	PRHRD22	HR1	1F Multi V_1	23.79		
Eranch coupler	AR8LN03321	¥2	1F Multi V_1	23.79		
High Static Duct	ARNU96388A4	IDU-	1F Multi V_1	23.79	31.50	
(NV) MULTI V 5	ARUMOLOLITES	ODU-	1F Multi V_7	15.49	22,40	
E () Head	AR8L057	H2	1F Multi V_7	15.49		
Mid Static Duct	ARNU075M1A4	IDU-	1F Multi V,7	2.21	2.50	
Mid Static Duct	ARNU073M1A4	IDU-	1F Multi V_7	2.22	2.50	
Mid Static Duct	ARNU075M1A4	IDU-	1F Multi V_7	2.22	2.50	
Mid Static Duct	ARNU073M1A4	IDU-	1F Multi V_7	2.22	2.50	
Mid Static Duct	ARNU075M1A4	IDU-	1F Multi V_7	2.21	2.50	

#### 2.2 Drain Map

Tree Option  Decision Search  Connectivity Check  Control solution Drawing  Path Trace	Rebuild Tree	n ) exist(s). Please che	ck the list		(	Ext
Category	Model	Group ID	Install Location	Cooling	Heating	
Orain EiR		DRAINOUT	14	308.28		
T-connector		T	1F	368.28		
- m High Static Duct	ARNU96G88A4	IDU-	1F	23.79	31.50	
T-connector		T	1F	344.49		
Connector		T	1F Multi V_1	320.70		
- O T-connector		т	1F Multi V_1	296.92		
High Static Duct	ARNU96588A4	IDU-	1F Multi V_1	23.79	31.50	
C T-connector		T	1F	273.13		
High Static Duct	ARNU96G8844	IDU-	1F	23.79	31.50	
- T-connector		T	1F	249.34		
High static Duct	AKNU96088A4	IDU-	19	23.79	31.50	
Connector		T	15	225.55		
High Static Duct	ARNU96088A4	IDU-	15	23.79	31.50	
🗄 👌 T-connector		T	15	201.76		
Connector		т	1F Multi V_1	177.97		
E-& T-connector		T	1 <sup>p</sup> Multi V_7	154.19		
- Mid Static Duct	ARNU07GM1A4	IDU-	1F Multi V_7	2.21	2.50	
🗉 🕹 T-connector		T	1F Multi V_7	151.98		
Mid Static Duct	ARNU075M1A4	IDU-	1F Multi V_7	2.21	2.50	

#### 2.3 Control Map

Tree Option Detail Tree Location Search Connectivity Check Path Trace Tree Connectivity Check Control sol	t Drawing ing ution Drawing	dd Tree	Sistem chack nor(s)(evror : 2, d	he unconnected eq	ulp. : 2) is(ane) oc	curred.		Ex	e
	1	Land		Cabl	e length(m)		Linke	d Information	-
Category	Model	Remote co	Central con	IDU-ODU c	Remocon	IDU	P1.485	Install Locatio	ñ
ACP1	ACP IV	PACP48000		/794.3	×× / 522.1		107	4(1)	
- (#4) AS1	AC Smart IV	PACS48000		4.7 / 65.3	/ 37.9		8	1(1)	
COU-	MULTI V S	ARUMOBOLTES		43.8 / 60.6	/ 26.7		8		
E 100-	Mid Static Duct	ARNU07			5.4 / 26.7				
G 🖬 100-	Mid Static Duct	ARNU07_			3.3/21.3				
C 🚺 IDU-	Mid Static Duct	ARNU07			3.1/18.0				
- 💶 100+	Mid Static Duct	ARNU07			3.1 / 14.9				
C 🖬 100-	Mid Static Duct	ARNU07			3.7 / 11.8				
E 100-	Mid Static Duct	ARNU07_			3.9/81				
E IDU-	Mid Static Duct	ARNU07			42/42				
- C 000-	MULTI V 5	ARUMIDOLTE:		10.8 / 10.5	~~/11.7		- 1		
HR1	HR Unit	PRHR022			45/112				
DU-	HYDRO KIT	ARNH10GK2A			6.7 / 6.7				
HOLE-2(1F)	Riser			35/125.6					
- (HOLE-2(2P))	Riser			3.5 / 122.1					
801 12-	EcoV.	LZ-H20008A2		107.3 / 118.6				PNF-PLAACE	
B (]] 12-	EcoV	LZ-H02568A2		5.4/11.3				PINE-PLAAOR	
L (]] 12-	EcoV.	LZ-H050GBA6		5.9/5.9				PNF-PLAAOR	
A CONTRACT OF A CONTRACT.	1.1.1.1.M.1.1.M.			10	1114.0				

#### 3. Location Search

- Move the screen in the drawing to the selected equipment.



- 4. Connectivity Check
- It can check pipe, drain and control connectivity. If then pipe isn't connected, it will change the color.
- As clicking the Rebuild Tree, the pipe will be connected with ports.

			Drawing Check					0.0
			Connectivity Check	Refrigerant Drawing     Drain Drawing     Control solution Drawing	Rebuild Tree	System che	ck.	Ex
			Category			Model	Group ID	Install Locati
				55 4 Way	Cassette	ARNU07GTRC4	IDU-	1F Multi V 6
				4 Way Ca	isette	ARNU07GTRC4	IDU-	1F Multi V_6
				4 Way Casset	te	ARNU07GTRC4	IDU-	1F Multi V_6
				4 Way Cassette		ARNU07GTRC4	IDU-	1F Multi V_6-
				4 Way Cassette		ARNU07GTRC4	IDU-	1F Multi V_6
		<u> </u>		4 Way Cassette		ARNU07GTRC4	IDU-	1F Multi V_6
		14		4 Way Cassette		ARNU07GTRC4	IDU-	1F Multi V_6
			- III (Mt) MULTI F			MU5M30	ODU-	1F
			Cassette 4Way			MTOBAH	IDU-	1F
3 <u>1</u>			Z) Ventilation(ERV)					
	ra	_°	- B EcoV			LZ-H025GBA2	LZ-	2F
			- CB EcoV			LZ-H050GBA4	LZ-	2F
		/	- BcdV			LZ-H200GBA2	LZ-	2F
			(W) Not connected indo	or units				
			High Static Duct			ARNU95G88A4	IDU-	15
			141					

#### 5. Path Trace

- Select Path Trace in Tree Option, and select the indoor unit to verify. The Outdoor Unit Trace of the selected indoor unit is displayed.



- The equipment connection information is displayed along the pipes, and the connection between riser hole and riser hole is displayed as a straight line.

## **Checking Refrigerant Pipe Validation (System Check)**

Tree Option	and a second			
Ostal Tres     Ostal South     Ostal Down     Ostal Down	e			DE
Category	Model	Group ID	Install Location	Cooling
- EL (MO MULTI V 5	ARUMORO, 785	004	14	23.79
E (a) HE UNI	199-05222	1473	17	23.79
E at tranch coupler	A881,N03323	12	U.	23.79
-III High Static Durt	ARNU9608844	DP	15	23.79
- ET (MV) MULTIV 5	ARUMOBOL/1E5	000-	1F MURI V 1	23.79
- A HR UNI	PRHR022	HRS	1F MUD V.1	23.79
E C Branch couplin	A88LN03322	12	17 Mart V.1	23.79
Lett High State Durt	ARAUSECEEAA	179-	IF SA/B V.1	21.79
III (MY) MULTIV 5	ARUM060,705	000-	17 MARIN 1	23.79
IN COLUMN	PRH8222	HPD	LF MARIN V 1	23.79
tranch couplier	A85LN03323	12	LF MURI V_1	23.79
High Static Duct	ARNUROCEEA4	IDU-	15 Multi V 1	21.79
- COMUNICATIVIS	ARUMOBOL/155	000-	17 Multi V_7	15.49
-  Head	AR8.057	H2	1F Multi V.7	15.49
Mid Static Duct	ARNU070MbA8	IDU-	1F Multi V_7	2.21
Mid Static Duct	ARNU070M1A4	IDU-	1F SAJE V_7	2.22
		1711.	THE REAL PROPERTY OF ME	3.95

1. System Analysis (Perform checking refrigerant pipe validation and verification after connection is completed, and created the result value in the drawing)

1.1 Select outdoor unit to verify and select system analysis.

Obsolete Model						Equip	ment Lo	ation Search 📃	6
Category	Group ID	Install Lo	ation ratio (%)	Cooling (kW)	Heating (kW)	Pipe	Syst	Verity Time	System Analysis
ARUMOBOBTES:MULTI V 5	000-1-1	Roottop	78.13	17.71	1510	¥	<b>V</b>	2018-03-29 5	
ARUM120LTES:MULTI V 5	CDU-2-1	Rooftop	51.19	17.15	16.33	1	×	2018-03-29 5	Default
ARUM440LTES:MULTI V 5	000-3-1	Roottop	127.27	123.21	137.25	~		2018-03-29 5	
ARUBOBOLTE4:MULTI V IV	000-2-1	Roottop	76.79	22.39	25.20	~		2018-03-29 5	Equipment List
ER AKOROBOLITA MUCH A IA	000-1-1	Roottop	78.13	17.71	18.40	*	×	2018-03-29 \$	Equipment List (By Floor)
									Print Report
									Equipment Table
pacity Verification Result			100000000		2000000	2215			Tree View
			Capacity	Verification	@ Gane	ni	0.00	nditional	Print GERP
Description		Linit	Current value(I	fax. value : s	elected equip	menit)			L. COMMONIA
lotal pipe length		1000.0 m	10.6 m						Export to LATS HVA
ongest equivalent pipe length		175.0 m	13.1 m ARNUR						
ongest top pipe length after first branch		40.0 m	4.1 m ARNUE	G87A4[d]					
lifference in height (Above : indoor, Below : o	utdoor)	110.0 m	3.0 m : ARNU60	G87A4[d]					
Ofference in height (Above : outdoor, Below	indoor)	110.0 m	(						
Ofference in height (indoor - indoor)		40.0 m	0.0 m : ARNUEC	087A4[i1]-A	NU60CB7A	4(11)			
ongest real pipe length		150.0 m	10.6 m : ARNUG	0G87A4[]1]		00/2			
leight difference between HR unit and HR un	t (within same t	30.0 m	0.0 m						
leight difference between HR unit and HR un	t (serial connec	5.0 m	0.0 m						
leight difference between Indoor Unit and HR	unt	15.0 m	0.5 m						
KUH0808TES : System check complete	ed successfully.							1	ОК

1.2 Show the system check result values in Capacity Verification Result.

1.3 The pipe diameter and branching pipe symbol are inserted automatically in the drawing.

(When Annotation is set as Manual, it is not displayed. It is input by the user through Equipment and Pipe Index of Symbol Menu, or change the setting on Annotation setting)



#### 2. Equipment List

Equipments and pipe information applied to the drawing are output in Table form.

Obsolete Model						Equip	ment Lo	ation Search 📃	10
Category	Group ID	Install Lo	ation ratio	Ceoling (kW)	Heating (kW)	Pipe	Syst_	Verity Time	System Analysis
ARUMOBOBTES MULTI V 5	000-1-1	Roottop	78.13	17.71	15.10	<b>1</b>	<b>V</b>	2018-02-29-5	
ARUM120LTES MULTI V 5	00U-2-1	Rooftop	51.19	17.15	16.33	~	~	2018-03-29 5	(note-b
ARUM440LTES MULTI V 5	ODU-3-1	Roottop	127.27	123.21	137.25	×.		2018-03-29 5	Equipment   int
ARCHOROLOGICAL MULTINE	000-2-1	Roofton	78.13	17.71	18.40	÷.		2018-03-29 5	Equipment bac
		rare sup	10.15		10.44	-			Equipment List (By Floot)
								_	Print Report
									Equipment Table
pacity Verification Result									Tree View
			Capacity	Verification	@ Gene	al.	0.00	ndtional	Print GERP
escription		Lint	Current value()	lax value : s	elected equip	(trenk			-
stal pipe length		1000.0 m	10.6 m					_	Export to LATS HVA
ongest equivalent pipe length		175.0 m	13.1 m : ARNUS	0087A401				_	
ongest top pipe length after first branch		40.0 m	4.1 m : ARNU60	G87A401]					
fference in height (Above : indoor, Below : o	utdoor)	110.0 m	3.0 m : ARNU60	G87A401]					
fference in height (Above : outdoor, Below :	indeor)	110.0 m	1						
fference in height (indoor - indoor)		40.0 m	0.0 m : ARNU60	G87A401}-A	RNUHOGB7A	401)		_	
ingest real pipe length		150.0 m	10.6 m : ARNUE	0087A4(1)				_	
sight difference between HR unit and HR unit	(within same t	30.0 m	0.0 m						
sight difference between HR unit and HR unit	(serial connec	5.Q m	0.0 m					_	
eight difference between Indoor Unit and HR	Int	15.0 m	0.5 m						
RUM0808TES : System check complete	d successfully.							*	OK

2.1 Click the reference point to enter Equipments list in the drawing.

Select the reference point to enter equipment list :

2.2 Equipment List is inserted in the drawing.

E Ga	074 11/2/12	<u> </u>																						
																	-	-	-	-				
				-			-		-			instant I	-	<b>Linking</b>	1000			aj tij ka	ALC: N	Trees In	-			
	10.110	Personal Tray		1841						Page No.	- Aug							1.0.00						
		ference they		100								•									 			
	_	_		⊢					1041	and the second	000						_			wint.	 PCY88.	100-1		
-	0.000					1	and the lot of					-		1		1	-	-		-		 8/10/98		1
		0.01544.0					4.91										-	And Personnel of the local division of the l		1		 		
	A Real Property lies	0.01544.0		1000													-	10000				 DAMES IN	1000	
	COMPANY OF T	0.015+4.0		1000	148		811					100.000					**	And Personnel of the local division in the l		100000		 14000	1000	
		***	•																					
																		_						
-																								
	464,2244,414	based on the Srike	1.16.20	d lora -																				
		ry I ndeer temp	202	537E .	20.12	10.00																		
			644		e																			
		Level Difference	1.0																					
	na trig taquer	V adoor area 2	10	P PROFESSION		N 8																		
		Charles on New Party	2.0		20.000	1,000																		
		Lave Difference																						
	apa phan an	set topacities																						

#### 3. Equipment List (By Floor)

Equipments and pipe information by floor applied to the drawing are output in Table form.

Creation         Group (L)         Instal L.D.,         Monres(t), Colorsy         House (t), H	Obsolete Model						Equip	ment Lo	cation Search 📃	0
	Category	Group ID	Install Lo	ation ratio	Cooling	Heating	Pipe	Syst	Verity Time	System Analysis
Image: Adv/120/CTS MULTY S         OCU-3-4         Rooftep         51.9         17.15         16.8.3         V         Statu-02-36         Fordulat           Image: Adv/120/CTS MULTY S         OCU-3-4         Rooftep         72.72         12.3.2         Statu-02-36         St	ARUMOEDETES:MULTI V 5	000-1-1	Roottop	78.18	17.71	15.10	1		2018-03-29-5	Streetoringtin
■ []] & AUUGOLTIS MULTI Y M         OOU-3-1         Rooftop         127.27         123.21         137.25         ■         2016-03-06         Features L           ■ []] & AUUGOLTIS MULTI Y M         OOU-3-1         Rooftop         76.79         23.23         97.71         18.40         >         2016-03-06         Features L           ■ []] & AUUGOLTIS MULTI Y M         OOU-3-1         Rooftop         76.13         17.71         18.40         >         2016-03-06         Features L           ■ []] & AUUGOLTIS MULTI Y M         OOU-3-1         Rooftop         76.13         17.71         18.40         >         2016-03-06         Features L           ■ []] & AUUGOLTIS MULTI Y M         OOU-3-1         Rooftop         76.13         17.71         18.40         >         2016-03-06         Features L           ■ []] & AUUGOLTIS MULTI Y M         OUU-3-1         Rooftop         76.13         17.71         18.40         >         2016-03-06         Features L           ■ []] & AUUGOLTIS MULTI Y M         OUU-3-1         Rooftop         76.13         17.71         18.40         >         Tree Veatures L           ■ []] & Contraction Reading         170.61         Readinger State Million         Tree Veatures L         Tree Veatures L         Tree Veatures L         Tree	ARUM120LTES MULTI V 5	00U-2-1	Rooftop	51.19	17.15	16.33	1	1	2018-03-29 5	Defect
	ARUM440LTES MULTI V 5	ODU-3-1	Rooftop	127.27	123.21	137.25	≤		2018-03-29 5	(eren
• [] Ø. ANUBODCILIA MULTIVINCOUL-1         Rootop         78.13         17.71         18.40         2018-01-25         Expenses (Ling) Priors Report           • [] Ø. ANUBODCILIA MULTIVINCOUL-1         Rootop         78.13         17.71         18.40         2018-01-25         Expenses (Ling) Priors Report           • [] Ø. ANUBODCILIA MULTIVINCOUL-1         Count of the second second multiple second second mult	ARUBOBOLTE4 MULTI V IV	ODU-2-1	Rooftop	76.79	22.39	25.20	~	-	2018-03-29 \$	Equipment List
Capacity Verification Result         Conditional         Print Resolut           Coupled Y Verification Result         Coupled Y Verification (* General Description         Coupled Y Verification (* General 10 and 10 a	ARUBOBOLTE4 MULTI V IV	000-1-1	Rooftop	78.13	17.71	18.40	*	*	2018-03-29 5	Equipment List (By Floor)
m         figurement. To           Describtion         Fund         Connect Verification Result         Torritotion           Describtion         Total         Connect Verification Result         Torritotion           Describtion         Total         Connect Verification Result         Total Result           Connect Verification Result         Connect Verification         Connect Verification         Total Result           Describtion         Total And Total         Total And Total Result         Total Result         Total Result           Describtion         1000 of 1100 of 11										Print Report
Description         Link         Capacity Verification         General         The Verw Part GEDP           Description         Link         Connect value/Nax: value selected explorem()         The Verw Part GEDP         Part GEDP           Description         Link         Connect value/Nax: value selected explorem()         Part GEDP         Part GEDP           Description         1755 off 13 1 m. Allow0000F7.40(1)         Connect value/Nax: value selected explorem()         Part GEDP           Otherwork an beqU (Allow r. Index: Max: value value/Nax: value selected explorem()         1755 off 13 1 m. Allow0000F7.40(1)         Connect Nature Value/Nax: value selected explorem()         Part Nature Value Nax: Value Selected explorem()         Part N										Equipment Table
Departy Verification Res.tt         Copacity Verification @ General         Constitution           Description         Lind Correct result/size values : selected exponent)         The description           Description         Lind Correct result/size values : selected exponent)         The description           Corport to pole sings         19.6 m         The description         The description           Corport to pole sings for the values         19.6 m         Addoord 20.74.001         The description           Otherwork is neglicity correct values of the values         19.6 m         Addoord 20.74.001         The description           Otherwork is neglicity correct values         19.6 m         Addoord 27.40(1)         The description         The description           Otherwork is neglicity correct values         19.0 m         20 m         Addoord 27.40(1)         The description           Otherwork is neglicity correct values         19.0 m         20 m         Addoord 20.24.01(1)         The description           Unservers the value of the und and the description         20 m         The description           The def description between the und and the										Tree Merry
Description         Link         Current value(Sax: value: value(odd explorent))         Print GGBP           This pack right         1900 m         19 m         Adv0000274.0011         Explore the pack right in the first factor of the pack right in the pack righ in the pack right in the pack right in the pack ri	apacity Verification Result			Canacity	Verfication	- Cana	ral.	110	odtineal	nee ven
Left         Current requirement         Left         Current requirement         Expose trangent										Print GERP
Understand         Visio if it is in Advoctod27.4(b)1         Expect to Understand         Expect to Understand           Understand shaft frait transh         440 ml 41 ml Advoctod27.4(b)1         Expect to Understand         Expect to Understand           Otherwoors in Medit (Advor - Indion, Below: Indion)         100 ml         Expect to Understand         Expect to Understand           Otherwoors in Medit (Advor - Indion, Below: Indion)         100 ml         Expect to Understand         Expect to Understand           Otherwoors in Medit (Advor - Indion)         40 ml 40 ml Advoctod27.4(b)1         Expect to Understand         Expect to Understand           Otherwoors in Medit (Advor - Indion)         40 ml 40 ml Advoctod27.4(b)1         Expect to Understand         Expect to Understand           Memories in Medit (Advor - Indion)         40 ml 40 ml Advoctod27.4(b)1         Expect to Understand         Expect to Understand           Memories in Medit (Advor - Indion)         40 ml 40 ml Advoctod27.4(b)1         Expect to Understand         Expect to Understand           Medit formers advoces INF und and Kit and (under (well: same t)         20 ml 0 ml         Expect to Understand         Expect to Understand           Medit formers advoces INF und and Kit and (under (well: same t)         20 ml 0 ml         Expect to Understand         Expect to Understand	Lescrenon		Line	Current value(	and Anna - a	rescied equip	proent()			
Comparts Departments per eigen         1/2 s m 3/1 fm JANDOCORTAC(1)           Otherword in Appl() Alban : Indus; Evelus: (Abben)         42 G m (JANDOCORTAC(1))           Otherword in Appl() Alban : Indus; Evelus: (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Indus; Evelus: (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Indus; Evelus: (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Andocort (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Andocort (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Andocort (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Andocort (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Andocort (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Andocort (Abben)         112 d m JANDOCORTAC(1)           Otherword in Appl() Alban : Andocort (Abben)         0 d m           Mappl() Alban : Andocort (Abben)         0 d m	rotal pipe length		1000.0 m	10.0 m						Export to DATS HV7
Compare the regist area free to account of a 10 mm A 1 mm Annocount Angli 1           Compare an Angli Angli Angli Tables, Televin : Angli Angli 100 mm           Offerences in Angli Angli Angli 100 mm           Angli Angli Angli Angli 100 mm           Angli Angli Angli 100 mm           Angli Angli	Longest equivalent pipe length	-	175.0 m	13.1 m ARNUR	sousrA401]				_	
Contention and equil (cause)         Fits of m j a in in-development-equil           Contention and equil (cause)         eduity in in-development-equil           Contention and equil (cause)         eduity in-development-equil           Contention and equil (cause)         eduity in-development-equility in-development-equil           Contention and equil (cause)         eduity in-development-equility in-de	Longest top pipe engin anter wat pranch	Advert 1	40.0 m	4.1 H ARRUD	AUG/ANI/				_	
Unified of a strapping (Lobors - Solidor)         - Solidor)         - Solidor	Dimenence in negre (Adave - Indole, Below - o	veacor)	110.0 11	3.0 15 . A001000	state seaful				_	
committee in apple (note: - Reader)         4 u in in in an apple (note: - Reader)           compared have been shared and apple (note: - Reader)         150 d m in 154 m. ARR/COORDATActing (note: Apple)           negot difference behaves hills wit and xHR wit (within same)         30 m in 0 f m in           negot difference behaves hills wit and xHR wit (within same)         30 m in 0 f m in           negot difference behaves hills wit and xHR wit (within same)         30 m in 0 f m in	Dimerence in neight (Addive - outdoor, becow	Piddoor)	110.0 m		and the second of				_	
Ungest and part might         150 m B         150 m B </td <td>Dimenence in neight (indoor - indoor)</td> <td></td> <td>40.0 m</td> <td>U.U.H. ARNUS</td> <td>solar webub-w</td> <td>ANUNUNUBIA</td> <td>4(1)</td> <td></td> <td>_</td> <td></td>	Dimenence in neight (indoor - indoor)		40.0 m	U.U.H. ARNUS	solar webub-w	ANUNUNUBIA	4(1)		_	
Neglic difference between His und and HiS und (vertime aware t) 20 0 m (2 0 m Neglic difference between HIR und and HIS und (semai connec 5.0 m (2 0 m Insight difference between Modor Und and With Unut 1.5 0 m (2 5 m	Longest real pipe length		150.0 M	10.5 H . ARHUR	(1)PANISUUS				_	
Height difference between Indoor Unit and HR unit 15.0 m 0.5 m	Height difference between HK une and HK une	(wenn same c	20.0 m	0.0 H					_	
regine difference between indoor unit and rik unit 15.0 m 2.5 m	regis unererue services HK une and HK une	(seven connec	5.0 m	2.2 11					_	
			10.4 10	4.9.11			_			

2.1 Select how to output equipment list whether by drawings or Excel.

Floor Name	Sign	Quantity	Install location	
Ath Floor				
<ul> <li>3rd Floor</li> </ul>				
<ul> <li>2nd Floor</li> </ul>				
• • Ist Floor				

2.2 To output by drawings, click Equipment List (By Floor) and select the reference point to enter Equipments list in the drawing.

#### Select the reference point to enter equipment list :

2.3 Equipment List is inserted in the drawing.

	-	MODE.		UR Level	•				
			1 minutes	ALC: MICHAU	-				
	-			-	-				
-		-							
		148.8	1 martin	a production					
	-	-		-					
	-			-					
	10176	-		-	-				
		-							
	-	_		-					
				and in such little in the		-			
				-	_				
		_							
and the local division of the			1 1000		-				
1000									
			Concession of the	-	-	-			
				-					
	and a state	1000		and the owner where the					
	-								
	-			-					
	-			and the second second					
e fetteret	ales Cartele	in the second second	# Dataset		8150	all for indoor i	are the	rende Cas	er ele
-	(minimal)	-	First Manual Pro-	10	-	-	 1000	-	
-				-		-		-	
							•		
		-				-			
-						-			
						-			
-	-					-			
-	-	-				-			
-	-				÷	-			
-	-					111			
-	-	÷							
-						1111			
-									
	-	-	-	V R Love		IIII			
	-		271	Ville Local		1111			
	-		-			1111			
			-						
	*** *** **** ****		-						
			-						
	*** *** ***** ***** ***** ***** ***** ****								
	40 40 40 40 40 40 40 40 40 40		-						
			<b>e</b> 1	11:11:11:					

2.4 Select how to output equipment list whether by drawings or Excel.

tuilding	Building Name	New building							
Information	Working Drawing	TesProtect_M	ULTI V_VE I_N	fancal_New building.	WG				
Floor Name	Rooftop Floor	Burn, Dooling Load	93	Burn Cooling Decector	27.0	Burn meeting Load	7,4	But Heating Casests	10.0
Equipment Type	Equipment I	ID .	Model		Quantity	Install Location	ri		Remark
Outdoor Unit	DAC-10-1 C4	AC-10-2 OAC-10-	ARUSOROUT	14	80	Rooftop Floor			
Outdeer Unit	OAC-12-5.04	AC-12-6	ARU8220LT	E4	2.0	Rooffop Floor			
andoor Unit	SAC-4		ARNUISSI	204	2.0	RPS J			
Indoor Unit	JAC-6		ARNUBOGTE	PC4	2.0	RPS_L			
Refrigerant pig	6.35 (1/4)	5			7.0	Rooftop Floor			
Refrigerant pla	0.52 (2/2)				187.5	Floor level Roof	top Floor		
Refrigerant pla	127(1/2)				775.1	Floor level, Roof	top Floor		
Refrigerant pla	15.88 ( 5/8 )				741.9	Floor level Roof	top Floor		
Refrigerant pie	19.05 ( 3/4 )				684.7	Floor level Roof	top Floor		
Refrigerant pla	28.58 (1-1/	81			28.5	Floor level.toof	top Floor		
Refrigerant pla	349(1-3/8	1			21.1	Floor level Roof	top Floer		
Branch pipe	¥7		AR8180332	1	1.0	Rooftop Floor			
Branch pipe	HR1		PRHR022		2.0	RFS_LRFS_3			
Refrigerant co	C8		ARCVIS21		2,0	Reaftap Floor	Kcoftop Floor		
Floor Name	4th Floor	Burn, Conting Logal	97.2	Burn Chairing Danasta	276.8	Burn weating Load	77.8	Burn Heating Canacity	126.1
Equipment Type	Equipment I	D	Model		Quantity	Install Location	n .		Remark
Outdoor Unit	DAC-10-7.04	AC-10-12.0AC-10	ARUBOBOLT	E4	3.0	4th Floor			
Outdoor Unit	OAC-12-4		ARUB220UT	E4	1.0	4th Roor			
Indoor Unit	JAC-3		ARNAUL2GTR	IÇA	4.0	RFS_P4_1			
Indoor Unit	SAC-4		ARNU15GTO	204	19.0	RPS_D_LRPS_C	A 2 New room	ARPS, CALLAPS, MP	
Indocr Unit	JAC-6		ARMUBOGE	PC4	1.0	RPS_P4_2			
Indoor Linit	IAC-7		ARYANABOTY	AC4 .	12.0	825,25,2,825,3	P5_18P6_P3_	18PS.P3.18PS.P1.2	
Refrigerant pie	6.35 (1/4)	-			121.0	4th Floor			
Refrigerant pi	9.52 (3/8)	2			192.4	4th Floor			
Refrigerant pla	127 (1/2)				449.3	4th Floor			
Refrigerant pla	15.88(5/8)	é.			225.4	4th Floor			
Refrigerant pie	19.05 ( 3/4 )				216.4	4th Floor			
Refrigerant pis	22.2 (7/8)		1		28.9	4th Floor			
Refrigerant pla	2858(1-10	81			11.9	4th Foor			
Bulleton and					41.0	(th) Finan			

- 4. Print Report
  - 4.1 It outputs the designed drawing information in a report format.

Obsolete Model						Equip	ment Lo	ation Search	10
Category	Group ID	Install Lo	ation ratio	Ceoling (kW)	Heating (kW)	Pipe	Syst	Verity Time	System Analysis
ARUMOBOBTES: MULTI V 5	000-1-1	Rooftop	78.13	17.71	15:10	×	<b>V</b>	2018-02-29-5	
ARUM120LTES MULTI V 5	0DU-2-1	Rooftop	51.19	17.15	16.33	~	~	2018-03-29 5	Default
ARUM440LTES MULTI V 5	ODU-3-1	Rooftop	127.27	123.21	137.25	×		2018-03-29 5	Environment List
ARUBOBOLITEA MULTI VIV	000-2-1	Rooftop	76.79	22.39	25.20	1		2018-03-29 5	Equipment List
Dit washington and	000-1-1	havinge	70.42	\$1.75	10.44			4V10-V2-17 3	Equipment List (By Floor)
									Print Report
									Equipment Table
pacity Verification Result								-	Tree View
			Capacity	Verification	@ Gene	al.	0.00	ndtional	Print GERP
lescription		Lint	Current value!	lax value : s	elected equip	(trent)			-
btal pipe length		1000.0 m	10.6 m					_	Export to LATS HVA
ongest equivalent pipe length		175.0 m	13.1 m : ARNUR	0087A401]	_				
ongest top pipe length after first branch		40.0 m	4.1 m : ARNUE	G87A401]					
ifference in height (Above : indoor, Below : o	utdoor)	110.0 m	3.0 m : ARNUG	G87A4(H)				_	
ifference in height (Above : outdoor, Below :	indeor)	110.0 m	l'anna anna						
(fference in height (indoor - indoor)		40.0 m	0.0 m : ARNU60	G87A401}-A	RNUHOGB7A	401)		_	
ongest real pipe length		150.0 m	10.6 m : ARNUR	0087A4(1)				_	
eight difference between HR unit and HR unit	(within same t	30.0 m	0.0 m					_	
eight difference between HR unit and HR unit	(serial connec	5.0 m	0.0 m						
eight difference between Indoor Unit and HR	unt	15.0 m	0.5 m						
RUM0808TES : System check complete	d successfully.							*	ок

4.2 Select the contents to print.

- Select the systems that are printed(It is able to check which system is system-checked.
- Select the contents to print through checking each option or "Select all".

Select systems to pr	rint.			select the contents to print
Group ID OAC-17-1 OAC-1-1 OAC-10-1	Syst	Model ARUN040LSS0 ARUN080LTE4 ABUB080LTE4	Install Location 2nd Floor HydroKit_1 1st Floor Bootton Floor	Category Project overview Category Cate
OAC-10-11     OAC-16-1     OAC-1-2		ARUB080LTE4 ARUN080LLS4 ARUN080LTE4	3rd Floor 2nd Floor HydroKit_1 1st Floor	Selection overview     System tree     System tree
OAC-10-6     OAC-10-8     OAC-10-8		ARUB080LTE4 ARUB080LTE4	Rooftop Floor Rooftop Floor	Proposal of quotation
OAC-10-3     OAC-10-4     OAC-10-2		ARUB080LTE4 ARUB080LTE4 ARUB080LTE4	Rooftop Floor Rooftop Floor	
OAC-10-13     OAC-10-10     OAC-10-10		ARUB080LTE4 ARUB080LTE4	4th Floor Rooftop Floor	→ OK Cancel

4.3 The report is print in Excel File format.

LatsCAD	CLC LCC
Project name : I Destin	GE LATS CAD6
Prepar	ed by :

#### 5. Tree View

Tree view can check each system information.

Obsolete Model						Equip	ment Lo	ation Search 🗔	10
Category	Group ID	Install Lo.,	ation ratio	Cooling	Heating	Pipe	Syst_	Verity Time	System Analysis
ARUMOBOBTES:MULTI V 5	000-1-1	Rooftop	78.13	17.71	1510	V		2018-03-29-5	alicentination
ARUM120LTES MULTI V 5	00U-2-1	Rooftop	51.19	17.15	16.33	1	1	2018-03-29 5	Default
ARUM440LTES MULTI V 5	ODU-3-1	Rooftop	127.27	123.21	137.25	~	-	2018-03-29 5	
ARUBOBOLTE4 MULTI V IV	ODU-2-1	Rooftop	76.79	22.39	25.20	~	-	2018-03-29 \$	Equipment List
ARUBOBOLTE4 MULTEV IV _	000-1-1	Rooftop	78.13	17.71	18.40	*	*	2018-03-29 5	Equipment List (By Floor)
									Print Report
C									Equipment Table
pacity Verification Result									Tree View
			Capacity	Verification	@ Gene	ral	0.00	ndtional	Print GERP
lescription		Lint	Current value(	llax value : s	elected equip	(treme		_	
otal pipe length		1000.0 m	10.6 m						Export to LATS HV
ongest equivalent pipe length		175.0 m	13.1 m : ARNO	_					
ongest top pipe length after first branch		40.0 m	4.1 m : ARNUE	G87A4[/1]				_	
ifference in height (Above - indoor, Below : o	utdoor)	110.0 m	3.0 m ARNUG	G87A4(H)				_	
Merence in height (Above outdoor, Below	indeor)	110.0 m						_	
(fference in height (indoor - indoor)		40.0 m	0.0 m : ARNU60	0087A4013-A	RNU60G87A	4)1)		_	
ongest real pipe length		150.0 m	10.6 m : ARNUR	30087A401]				_	
eight difference between HR unit and HR unit	(within same t	30.0 m	0.0 m					_	
leight difference between HR unit and HR unit	t (serial connec	5.0 m	0.0 m					_	
eight difference between Indoor Unit and HR	unt	15.0 m	0.5 m			_			
RUM0808TES : System check complete	d successfully.							•	OK

5.1 It is able to show each of Refrigerant system diagram and control system diagram.



5.2 Location Search

- Move the screen in the drawing to the selected equipment.

5.3 Difference in height (IDU-ODU):



5.4 Total Length

- Total Length means the length from outdoor unit to the selected equipment.

5.5 "Print DWG" and "Save Image"

- To output Tree diagram to drawings, click the "Print DWG".
- To output Tree diagram to image file (.jpeg), click the "Save Image".



6. About EN378 (Only for EU)

- EN378: It is the European regulation that the amount of refrigerant leakage should satisfy the equation (The amount of refrigerant per volume of room is equal or less than 0.44).

6.1 After system analysis, It shows which system is met the regulation EN378

6.2 It shows value of EN379 equation. If the system is not met, value is shown red.



#### 7. Obsolete Model

Obsolete Model (gray): When you open the old project including obsolete model, check the model.

Obsolete Model	_						Equip	ment Loc	ation Search 🖂	1
Category		Group ID	Install Lo	ation ratio	Cooling	Heating	Pipe	Syst	Verily Tito*	System Analysis
• 1 ARU822	OLTEA MULTIVIVIE.	DAC-12-4	4h Floor	31.56	61.72	69.31	~	~	2017-02-28 1	
· ARUBON	OLTER MULTIVIVIL.	BAC 131	1st Floor	158.33	67.23	75.61	×		2017-02-28.5	Defect
• E3 MURCH	OLTERMANTIVIN'H	GAC 141	1st Floor	68.82	72.83	81.91	~	×	2017-02-28 :	E-01455
ARUE32	OLTEA MULTIVIVII.	DAD 15-1	3id Floor	96.32	89.62	100.82	<b>V</b>		2017/02/28 1	Equipment Lat
• 🚼 🗌 ARU832	OLTE&MULTIVIVII.	0AC-15-2	3rd Floor	54.42	89.62	100.82	1	¥	2017-02-28 :	Fourtheast 1 at
· C Attanto	BUSE MULTINE PRO	CALIES	2ndFL.	54.91	22.29	22.39	~	×	2017/02/28 5	(By Floor)
		040.000	dR.	101.65	12.07	12.51	~	-	2017-02-28 :	Date Barnet
<ul> <li>SW077</li> </ul>	Working Mounted	Single			1.00	3.90				
Not conv	ecled indoor units								-	Equipment Table
*										Tree View
	utoCAD		-	Capacity	Verfication	(8) Gent	eal	() Co	nditional	Port GERP
Description				ect value()	Vax. value : a	elected equi	pment)			
Total pipe length	This system	includes obsole	te model.							
Longest equivale	Do you still	want to run sin	sui20on?	IN ARM	10GK2A2(0)					
Longest top pipe				m: ARNI	10GK2A2[0]					
Difference in her	-	ano. ]		ARNU9	338844121				1	
Difference in her		MU	oleiw(W)							
Ofference in height	(Indoor - Indoor)	_	40 0 m	3.0 m : ARNUS	G8844(1)-A	R8H10GK2A	2[0]			
Longest real pipe le	ngth		150.0 m	SS.6 m : ARNH	10GK2A2[3]					
HR Dox height differ	ence		15.0 m	0.0 m						
HR Box height differ	whice in serial connection	of HR units	5.0 m	0.0 m						
Height difference(H	Runt ⇔ 10U)		15.0 m	3.5 m						
ARUE240LTE4 : 5 @ The maximum This system does	ystem check error occ total capacity of a bran not meet the regulatio	urred. Ich pipe of HR In EN378.	unit is less than	n 16.0kW (54	uskatu/h)	current ca	ipacty k	28.0kW		ок

#### 8. Export to LATS HVAC

The Systems which are drawn on the project can export to LATS HVAC to check more detail.

Choolete Model						Equip	ment La	cation Search 🖄	<b>1</b>					
Category	Group ID	Install Lo	ation ratio	Cooling	Heating	Pipe	Syst,	Verity Time	System Analyse					
ARUMOBOLITES MULTI V 5	000-1-1	Roottop	78.13	17.71	15.10	~		2015-03-29 5						
ARUM120LTES:MULTE V 5	0DU-2-1	Rooftop	51.19	17.15	16.33	~	4	2018-03-29 5	Default -	Export to HVAC				
ARUM460TESMULT V 5     ARUM460TESMULT V 5	0DU-3-1	Rooftop	127.27	123 21	137.25	1	1	2018-03-29 5	Econment List	Export to True				
· ETV ARUBOROLTEC MULTIV IV	000-1-1	Rooftop	78.13	17.71	18.40	3	-	2018-03-29 5						
									(By Floor)	Select the system	is to export.			
									Print Report	* The saved file ca	n be availabl	e to open from LAT	S HVAC 1.0.23.0 ver. c	r the later version.
										Group ID	Syst	Model	Install Location	
*[									Equipment, Table	ET OPU	- 9 - 400	ADUDA COLTEA	Deeffer	
anarty Verification Result									Tree View	000-	<u> </u>	ARUBICULIE4	кооттор	
and the second se			Capacity	Verficition	it Gene	a .	0.0	indtional		DDU-	<b>M</b>	ARUV140LSS0	Rooftop	
Description		Lint	Current value!	Max value : a	elected equip	(trans)			Pret GURP					
Total pipe langth		1001.0 m	12.6 m						Export to LATS HVAC					
Longest equivalent pipe length		175.0 m	12.1 m A/MU	(100007A491)	2				Contractor and a second second					
Longest top pipe length after thist branch		40.0 m	4.1 m. ARU0	0087A4012										
Difference in height (Above : indoor, Below : o	utdoor)	110.0 m	3.0 m ARNUE	0G87A401)										
Difference in height (Above : outdoor, Below :	indoor)	113.0 m	2											
Difference in height (indoor - indoor)		43.0 n	0.0 m: ARNUG	008744013-3	RNL60387A	4041								
Longest real pipe length		153.0 n	11.6 n : ARNU	(0007A4)1]										
Height difference between HR unit and HR uni	t (within same t	38.0 m	0.5 m											
Height difference between HR unit and HR uni	t (asral connec	5.0 m	0.0 m											
Height difference between Indoor Shill and HR	ant	15.0 m	05m											
ARUMORURIES : System check complete	d surrestile							14						
	a contraction of the								10.00					
									OK					
									Number of Concession, Name	Coloct Al				

\* The saved file can be available to open from LATS HVAC 1.0.23.0 ver. or the later version.

\*\* The saved file can be available to open from LATS HVAC 1.5.2.0 ver.(N.America) or the later version.

# **Checking Drain Validation (Drain Check)**



1. Check the Drain Pipe connection by structure, to select the pipe diameter to create the result value in the drawing.

2. It shows the connection structure based on Drain Exit or Discharge Riser Hole.

Tree Option C Detail Tree D Refrigerant Drawing	Rebuild Tree	System chee	é.		Ext
Control Search     Control Solution Drawing     Drath Trace	The 27 of the un	connected system()(	exist(s). Please che	ck the list	
Category		Madel	Group ID	Install Location	Cooling
- • Drain Ext			DRAINOUT	15	368.28
- T-connector			T	1F	368.28
High Static Duct		ARNU96G88A4	IDU-3	11	23.79
- O T-connector			T	1F	344.49
E T-connector			T	1F Multi V_1	320.70
- Connector			T	1F Multi V_1	296.92
High Static Duct		ARNU96G88A4	IDU-3	1F Multi V_1	23.79
- Connector			T	15	278.13
High Static Duct		ARNU96G88A4	IDU-3	14	23.79
- T-connector			T	15	249 34
High Static Duct		ARNU96G88A4	IDU-3	15	23.79
- A T-connector			T	15	225.55
High Static Duct		ARNU96G88A4	IDU-3	1F	23.79
T-connector			т	15	201.76
Ed. T-connector			т	1F Multi V_1	177.97
Connector			т	1F Multi V_7	154.19
Mid Static Duct		ARNU07GM1A4	IDU-2	1F Multi V 7	2.21

<u>Caution!</u> 'Drain Exit' or "Drain Riser Hole' Symbol must be connected to the last exit part of the Drain Pipe to create the structure.

3. Drain Pipe Diameter is automatically created in the drawing.

- When Annotation is set as Manual, it is not displayed. It is input by the user through Equipment and Pipe Index of Symbol Menu, Or change the setting on Annotation setting



# **Checking Communication Line Validation (Control Check)**



1. Based on the Central Control Line, it verifies the Cable length, the number of Indoor Units connected to Controller, and the number of PI.485 Points.

Tree Option Detail Tree Detail Tree Concetion Search Dran Drawing Connectivity Check Path Trace	awing Rebu reference Rebu reference Rebu Rebu Rebu Rebu Rebu Rebu Rebu Rebu	Id Tree Ist	System check rror(s)(error : 2, 6	he unconnected eq	ulp. : 2] is(are) oc	curred.	Exit
_				Cabl	e length(m)		L
Category	Model	Remote co	Central con,	IDU-ODU c	Remocon	IDU	PI, I
- (er) ACP1	ACP IV	PACP48000		-,- / 794.3	/ 522.1		1
Gei AS1	AC Smart IV	PACS48000		4.7 / 65.3	/ 37.9		
- ODU-1-33	MULTI V 5	ARUMOSOLTES		43.8 / 60.6	/26.7		
0 IDU-2	Mid Static Duct	ARNU07			5.4 / 26.7		
- 10U-2	Mid Static Duct	ARNU07			3.3 / 21.3		
E 10U-2	Mid Static Duct	ARNU07			3.1/18.0		
- IDU-2	Mid Static Duct	ARNU07			3.1/14.9		
🖻 🚺 IDU-2	Mid Static Duct	ARNU07			3.7/11.8		
E 10U-2	Mid Static Duct	ARNU07			3.9/8.1		
L IDU-2	Mid Static Duct	ARNU07			42/42		
- COU-2-1	MULTI V 5	ARUM100LTES		16.8 / 16.8	/ 11.2		
HR1	HR Unit	PRHR022			4.5 / 11.2		
1DU-4	HYDRO KIT	ARNH10GK2A			6.7/6.7		
- ( HOLE-2(1F)	Riser			3.5 / 125.6			
- (8) (HOLE-2(2F))	Riser			3.5 / 122.1			
E 12-3	EcoV	LZ-H200GBA2		107.3 / 118.6			/
E 17-1	Ecol/	17 00050040		54/112			

# **Project Save AS**



Entire Project contents may be saved, be saved as a different name, or both

Save as project		x
Work Division	Cause Cause Ac Cause 4 Cause Ac	
Work Division	Save Save AS Save + Save AS	_
Previous working	D:₩★ 2017 업무파일₩1. LATS CAD₩2. 프로젝트파일₩QE_김푸름Y₩TestProject_MUL	TIV
Base path	D:₩★ 2017 업무파일₩1. LATS CAD₩2. 프로젝트파일₩QE_김푸름Y	2
Project	TestProject_MULTI V_v2.1_Manual	
Description		
Registration date	2017-03-03	
	Check Can	icel

# Function Description for Each Tab of Pallet Menu

This capture describes which operations are done in the functions in each Menu, and it is the explanation page based on the conditions and the exceptional cases to use the functions.

# Master Menu and Symbol Menu

Menu has 2 types as Master Menu at left of window and Symbol Menu at right of window. Master Menu has 2 Tabs of Master Tab and Layer Tab. And Symbol Menu has 6 Tabs of Indoor Unit Tab, Outdoor Unit Tab, Pipe Material Tab, Control Solution Tab, Material Index Tab and User Define Symbol Tab.

- 1. Showing Master Menu
- Utilize LGE LATSCAD  $\rightarrow$  Show Master Menu/Show Symbol Menu in Pull Down Menu

	<u> </u>
LG	E LatsCAD Help Express
	Close Project
La	Show Master Menu
	Show Symbol Menu
	Building Board Schematic(Refrigerant) Diagram Equipment Arrangement Schematic(Control) Diagram Equipment Arrangement
	Print GERP
	User Manual LGE Product Information

# Main Tab (Master Menu)

Main Tab is in Master Menu.

Project Information, Building Information, and Environment Setting Information can be viewed.

LATSCAD Master Menu		
	8	
LatsCAD		
Category	Setting Value	
🕂 👝 Project	TestProject_M	En Ed Varw part Igenat Igena Igena Denesato Mosty Evanter Moder LDE Last-O gen Egoress D D D D D D V D D D D D D D D D D D D D
🖃 🚮 Building Information	Add building	国家大協会な社会での 国際など DoLover コーーのLover J Moder Auto Symbol Assistant
🗆 🚮 New building	<b>1</b>	
🖃 🛰 Rooftop Floor	<b>₽</b>	☐ Cotegory Se., 2
- 🔠 RPS_a	ß	O     Configuration     A.       E     D     Configuration       C     Configuration     A.       B     Configuration     A.
BPS_L	ß	O Carette AViey
🛨 🛰 4th Floor	<b>F</b>	P) B) · · · · · · · · · · · · · · · · · · ·
🛨 🛰 3rd Floor	F.	NY N
+ 🛰 2nd Floor	Ţ.	DutLow State     Par Starter
+ 🛰 1st Floor	Ē	c Bio Standard (14
📇 Cooling an	ň	O Wall Mouried
Control dis		30 Part Cod Minu
Equipment list		2 At Cool Galery
		Celling Floor (Celling)
	English	Ceirg Supended
	English	<pre></pre> <pre>&lt;</pre>
	er	AucodD meiu ulliter laedd, erzer maformed list on input cemend: COORDUCINE EcoVDA
	51	
Buyer모델	Un	
+ 🕵 System Search		
+ 🎫 Standard Unit Load	(KW / m²)	
System Check		
+ 🛃 Setting CS		
🕂 🚉 Set Length	Millimeters	
+ H Pipe end connection		
🕂 🚡 Annotation	Annotation setting	
Short Cut		
- A User Annotation		
Symbol Composition		

## **Environment Setting (Project and Configuration)**

It can set the environment of the project.

#### 1. Project



- Unit: Units of Length, Pipe Diameter, Load / Capacity, and Temperature - Standard Height Indoor Unit: Apply the height from the floor for each indoor

unit type



- Block Auto-Purge: If blocks are updated more than the blocks in the current drawing, it automatically changes the blocks.

2. Configuration

🖃 🏟 Configuration	
-🔇 Language	English
- 😚 Output language	English
– 🔇 Output Unit	SI
- 🌍 Buyer모델	On
🖃 🔍 System Search	
+ 📀 Operation Mode	
+ 😡 Zone	
🖹 🊈 Standard Unit Load	(kW / m²
– 😑 Cooling	0.175
- 😑 Heating	0.175
– 🔣 System Check	
🖹 🚺 Setting CS	
– 😑 Annotation	WCS
🗆 😑 Output in DWG	WCS
🗄 🧟 Set Length	Millimeter
Fillet R(Pipe)	0.0
Fillet R(Drain)	0.0
- 10 Pipe OFFSET	300.0
- Automatic	200
Pipe end connection	
– 😑 Refrigerant Pipe	Direct
– 😑 Drain Pipe	Normal
🗆 😑 Cable	Open
🕂 🚡 Annotation	An
- 🔛 Short Cut	
<ul> <li>User Annotation</li> </ul>	
Symbol Composition	

- Language: Korean, English, French, Spanish, Italian, German, Turkish, Portuguese, Russian, Chinese, Hungarian and Thai
  - (CAD needs to be started again if changed)
- Output language: Korean, English, French, Spanish, Italian, German, Turkish, Portuguese, Russian, Chinese, Hungarian and Thai
  - (Change Output or Remarks Data)
- Output Units: SI, IP
- Buyer Model: Show model name by buyer model name or factory model name
- System Search
- → Operation Mode: Heat Pump (contained Heat Recovery), Cooling Only
- $\rightarrow$  Zone: Change Model lineup according to the selected region

*Caution! Check Zone of System Search to change Model lineup according to the selected region.* 

- Standard Unit Load: Calculate automatically Room Load by Standard Unit Load
- System Check: Change the setting of System Check(Pipe / Diversity / Hydrokit)
- Setting CS: When UCS and WCS are different CS(Co-ordinate Systems), It can set Annotation and output's CS.
- Set Length
  - $\rightarrow$  Fillet Radius: Radius of the automatic round of Refrigerant Pipe and Drain Pipe
  - → Pipe OFFSET: Offset Distance of Refrigerant Pipe during Parallel Path Piping
- → Automatic Connection Tolerance: Tolerance Setting for Automatic Connection with Port
- Pipe End Connection: Pipe End Part Treatment Option for Smart Wiring and Offset wiring
- → Refrigerant Pipe
- \*Normal: Insert Branching Pipe from Main Pipe to connect the last Indoor Unit \*Direct: Directly connect to the last Indoor Unit Main Pipe without using Branching Pipe
- $\rightarrow$  Drain Pipe: \*Normal, Elbow, T+Cap
- → Cable: \*Open, Close
- Annotation: Select Auto or Manual for the input of Refrigerant Pipe and Drain Pipe Notes
- Shortcut : Define shortcut of LATS functions.
- User annotation : Define user define annotation.
- Symbol Composition : Define symbols' ports

# **Project Information**

Create New Project or open Project.

1. Select "Open" of Project in Master Menu.

LatsCAD					
Categ	jory	Setting Value	2		
		Open >>			
6	Building Information	Add building	_		
÷ 🌣	Configuration		ger		

2. Select New Project and input Various Information

Project Information	100		100		×
General Inform	ation Units	Design Conditio	on Designer/C	ustomer Informa	ation
			0	New Project 📝	
Work Path	d:₩Docume	nts and Settings†	₩My Document	s₩LATS₩Lats	
Project					
Project Description					
Registeration Date	2014-10-30				
					///
			ОК	Apply	Cancel

# **Space Information**

Create Building Space Information, Buildings, Floors, and Rooms, and manage Information.

- 1. Create Buildings
- 1.1 Create Buildings (By Excel)

LatsCAD	8	lain
Category	Setting Value	2
📄 Project	Open	
🚮 Building Information	Add building 📃 >>	
🛨 🏟 Configuration		Jer
		anag
		Ň
		Laye

1.1.1 Select "Add buildings" in Building Information in Master Menu.

1.1.2 Select "Open building information from Excel file" in "Building Information Management"

1.1.3 Select the Excel File (File with Building Information input in the template) and drawing

E	Building informat	on management	×
		Open building information from Ex-	cel file
	XLS File		
	Building name	New building2	
	Work drawing		
	Auto Floor	Generation	
	Above (	Grade Floor Star	ndard Height 3.5 m
	Below (	Grade Floor C	eiling Height m
			OK Cancel

1.1.4 The Building Information input in the Excel File is applied

- Test Building is created, and if Room Information is input in the Excel File, Room Information is also applied.

LatsCAD	ETRE E	Main
Category	Setting	
🛨 💕 Project	lge	
- 🖄 Building Information	Add buildin	
🖃 🌧 TEST	2	age
–≫ Rooft	0	Mar
-🥆 2F	0	er
🖃 💽 1F	0	Lay
- 🞛 2R	0	
- 🎛 3R	0	
- 🎛 4R	0	
R1F		
🛨 🏟 Configuration		

1.2. Create Buildings (By Manual)

1.2.1 Input Building Name, Floor, and Standard Floor Height, and designate the drawing.

1.2.2 Drawing name is saved as Project Name\_Building Name.dwg, and is copied to Project folder.

Building information management				
	🗐 Open buildi	ng informatio	n from Excel file	
XLS File	•			
Building name	New building		]	
Work drawing	1			
Auto Floor Generation				
Above	Grade	Floor	Standard Height	3.5 m
Below	Grade	Floor	Ceiling Height	m
			ОК	Cancel
#### Caution! When ceiling concealed duct type Indoor Unit is selected, and it designates the ceil height. Don't have to be input the other case.

1.2.3 Building Information is created as the same in "Open Building Information from Excel File".

1.2.4 Opening Building Drawing (Select Building Information and Open the Drawing)

LATSCAD Master Menu			
LatsCAD		AutoCAD	
Category	Setting Value		
💽 📷 Project	TestProject_M		
🖃 🚮 Building Information	Add building		
New building			J

2. Building Management (Mouse right Button on Building)

2.1 Floor Management

LATSCAD Maste	er Menu		ain
Category		Setting Value	Z
+ Project		TestProject_M	
🖃 🚮 Building Ir	formation	Add building	
New H	uildina		
•	Floor N	lanagement	
••	Copy F	loor/Room Area	
● <b>●</b> ●	Delete	Building	
•••	Open B	uilding Drawing	
	Master	building information	
	Room 1	Name Arrangement	

2.2 Floors may be added or deleted, and floor name and floor height information may be input for the corresponding building.

Floor Name	Floor leve	SortOrder	
Roottop Floor	3.5	37	
Star 4th Floor	10	36	
3rd Floor	40	35	
2nd Floor	70	34	
💁 1st Floor	35	33	
😂 Cooling and Heating distribution diagram		-30	
Control distribution diagram		-31	
Equipment list		-32	
Add Upstairs Add Downstairs Delete F	loor Organize Floor		

#### 2.3 Copy Floor Equipment.



2.3.1 Select Source Floor/Room and Target Floor.

2.3.2 Equipment and Pipe Information are copied exactly. (Reference Point for Copy is the reference point of the Floor.)

2.3.3 Check "Copy pipe, drain and Control (Except Indoor/Outdoor Unit)", to copy only pipe, drain and control.

opy floor equipment/floor zone		Copy floor equipment/floor zone	
Source Floor	Target Floor	Source Floor	Target Floor
Routing-Floor     Alf-Poor     Af-Poor     And-Ploor     And-Ploor     And-Ploor     And-Ploor     And-Ploor	Roufup Floor     An Floor     An Floor     An Floor     An Floor     An Floor     In Floor	Brachtsp Floor     Brachtsp Floor     Brack     Bra	Reating Picer     Ari Picer     Ari Picer     Ari Picer     Ari Picer     Ari Picer     Tat Picer
Copy Option Copy Option Copy Option Control Equipment	Ref. Path Drain Path	Copy Option Caupment(IDU, OOU) Control Equipment Dran i Dran i	ath GR GAncel

Example) For the 1<sup>st</sup> and 3<sup>rd</sup> floor with the same drawing, equipment positioning, and Pipe connection, design only the 1<sup>st</sup> floor and execute Floor Copy.



Example) 1<sup>st</sup> Floor

Example) 3<sup>rd</sup> Floor before/after

2.4 Open Building Drawing: It opens the drawing connected to the building.

(For the existing Project File, Drawing is also automatically opened when the Project is opened.)

2.5 Master Building Information: Information for equipments positioned in the drawing may be verified and output to Excel.

(Load value for each Type may be verified)

		Uni	t Load(kW/	m²)		Load(kW)				IDU Cap	a,(kW)	(
ioom name	com Area (m²)	Cooling	Coolin	Heating	Cooling	Coolin	Heating	onnection adoor unit	Indoor unit model	Cooling	Heating	Co
🕋 New building												
🖃 👒 Rooftop Floor												
- 🗄 RPS_a	35.3	0.100		0.080	3.530		2.824	2	ARNU15GTQC4[2 SETS]	9.03	10.02	
BPS_L	57.6	0.100		0.080	5.760		4.608	2	ARNU30GTPC4[2 SETS]	17.99	19.99	
🖃 🛰 4th Floor												
- 🔠 RPS_P1_1	64.8	0.100		0.080	6.480		5.184	2	ARNU48GTMC4[2 SETS]	28.19	30.01	
- 🗄 RPS_P1_2	64.8	0.100		0.080	6.480		5.184	2	ARNU48GTMC4[2 SETS]	28.19	30.01	
- 🔠 RPS_P3_1	64.8	0.100		0.080	6.480		5.184	2	ARNU48GTMC4[2 SETS]	28.19	30.01	
- 🔠 RPS_P3_2	64.8	0.100		0.080	6.480		5.184	2	ARNU48GTMC4[2 SETS]	28.19	30.01	
- 🔠 New room4	29.9	0.100		0.080	2.990		2.392	2	ARNU15GTQC4[2 SETS]	9.03	10.02	
- 🔠 RPS_P4_1	64.8	0.100		0.080	6.480		5.184	4	ARNU12GTRC4[4 SETS]	14.42	15.94	
		III										Þ

3. Floor Management (Mouse right Button on Floor)

3.1 Room Management (While the floor is selected, Mouse right button)

Ir		
Category	Setting Value	
🖃 📷 Project	TestProject_M	
🖃 🚮 Building Information	Add building —	
🗄 🚮 New building	S = S	$\sim$
- Rooftop Floor	Room Management	ſ 🖻 \
	Manual Registration of Room	
- 🛰 4th Floor	Delete Floor	
- 🔠 RPS_P1_	Generate Floor Area	
- 🔠 RPS_P1_	Set Eleer Reference Doint	
- 🔠 RPS_P3_		
- 🔠 RPS_P3_	Zoom Floor Area	-
- 🔠 New roon	Copy Floor Equipment	
- 🔠 RPS_P4_		
- 🔠 RPS_P4	Room Name Arrangement	

3.1.1 Room Management: Rooms may be added or deleted, and load and area values may be input.

- If load value is already input, apply the load value.
- If load value is not input, decide the load value by the unit load value.

	4th Floor' room info	rmation m	anagement											x
Γ	Input Type   Air-Conditioning  Air-Ventilation											Room	Search	
Cooling				ing	Cooling ser	nsible heat	Heatin	g	IDU Capa,		<u>^</u>			
	Room name	년 편 택	Boundar	(m²)	(kW)	Unit Load (kW/m²)	Load (kW)	Unit Load (kW/m²)	Load (kW)	Unit Load (kW/m²)	Load (kW)	Cooling (kW)	Heating (kW)	Ord
	RPS_P1_2	3	ß	64.8	64.8	0.100	6.480			0.080	5.184	28.19	30.01	2
	RPS_P3_1	3	ß	64.8	64.8	0.100	6.480			0.080	5.184	28.19	30.01	3
	BPS_P3_2	3	ß	64.8	64.8	0.100	6.480			0.080	5.184	28.19	30.01	4 =
	🗄 New room4	3	ß	29.9	29.9	0.100	2.990			0.080	2.392	9.03	10.02	5
	RPS_P4_1	3	ß	64.8	64.8	0.100	6.480			0.080	5.184	14.42	15.94	6
	RPS_P4_2	3	ß	64.8	64.8	0.100	6.480			0.080	5.184	22.54	25.03	7
	RPS_P5_1	3	ß	64.8	64.8	0.100	6.480			0.080	5.184	28.19	30.01	8
	B RPS_P5_2	3	ß	64.8	64.8	0.100	6.480			0.080	5.184	28.19	30.01	9
	E RPS_MP(A)_1	3	ß	88.7	88.7	0.100	8.870			0.080	7.096	18.05	20.05	10
	RPS_h2_1	3	ß	50.0	50.0	0.100	5.000			0.080	4.000	9.00	9.99	11 +
	•													P.
	Add To Up     Add To Down     Delete Room     Sort Room       OK     Cancel							ncel						

🔺 '4th Floor' room info	rmation m	nanagement												1 X
Input Ty	pe 🍳	Air-Conditio	ning		🔘 Air-Ventilat	ion						Room	Search	
					Cooling		Cooling sensible heat		Heating	1	IDU Capa,		^	
Room name	실명 선택	Room Boundar	CAD Area (m²)	loom Area (kW)	Unit Load (kW/m²)	Load (kW)	Unit Load (kW/m²)		Load (kW)	Unit Load (kW/m²)	Load (kW)	Cooling (kW)	Heating (kW)	So Ord
🗄 BPS_P4_1	2	6	64.8	64.8	0.100	6.480				0.080	5.184	14.42	15.94	6
B RPS_P4_2	ß	ß	64.8	64.8	0.100	6.480				0.080	5.184	22.54	25.03	7
BPS_P5_1	2	ß	64.8	64.8	0.100	6.480				0.080	5.184	28.19	30.01	8
RPS_P5_2	ß	ß	64.8	64.8	0.100	6.480				0.080	5.184	28.19	30.01	9
BPS_MP(A)_1	2	ß	88.7	88.7	0.100	8.870				0.080	7.096	18.05	20.05	10
B RPS_h2_1	ß	ß	50.0	50.0	0.100	5.000				0.080	4.000	9.00	9.99	11
🔠 RPS_b_1	ß	6	90.5	90.5		2112011				0.080	7.240	9.03	10.02	12
B RPS_CA_1	23	ß	96.7	98.0	Copy Ro	om Inform	ation			0.080	7.840	18.05	20.05	13
RPS_CA_2	D3	ß	96.7	96.7	Paste Ro	om Inform	ation			0.080	7.736	18.05	20.05	14
8 New room5	5				Conv Re	aister Roon				0.175				15 🖛
•													_	•
A '4th Floor' room info	mation m	anagement												x I
Input Typ	e o	Air-Condition	ning		O Air-Ventilat	ion						Room	Search	
					Coolin	g	Cooline Heating			IDU Ca	U Capa,			
Room name	실명 선택	Room Boundar	CAD Area (m²)	loom Area (kW)	Unit Load (kW/m²)	Load (kW)	Unit Loat (kW/m²)		.oad (kW)	Unit Load (kW/m²)	Load (kW)	Cooling (kW)	Heating (kW)	So Ord
B RPS_P4_1	2	ß	64.8	64.8	0.100	6.480				0.080	5.184	14.42	15.94	6
RPS_P4_2	2	ß	64.8	64.8	0.100	6.480				0.080	5.184	22.54	25.03	7
RPS_P5_1	2	ß	64.8	64.8	0.100	6.480				0.080	5.184	28.19	30.01	8
RPS_P5_2	3	ß	64.8	64.8	0.100	6.480				0.080	5.184	28.19	30.01	9
E RPS_MP(A)_1	3	ß	88.7	88.7	0.100	8.870				0.080	7.096	18.05	20.05	10
E RPS_h2_1	3	ß	50.0	50.0	0.100	5.000				0.080	4.000	9.00	9.99	11 =
RPS_b_1	2	ß	90.5	90.5	0.100	9.050				0.080	7.240	9.03	10.02	12
BPS_CA_1	3	ß	96.7	98.0	0.100	9.800				0.080	7.840	18.05	20.05	10
E RPS CA 2	2	ቤ	96.7	96.7	0.100	9.670				0.080	7.736	18.05	20.05	14
🔠 New room5	23				0.175	6.	n Daam Infa		_	0.175				15 👻
Add To Up	Add To	Down	Delete Ro	om	Sort Room	Pas	te Room Infor py Register Ro	rmatio om	n			ОК	G	ncel

#### 3.1.2 Room Copy: After selecting the Room to copy, select Copy Room

3.1.3 Paste Room: Select the existing Room to change after Copy Room, and select Paste Room of Mouse right button  $\rightarrow$  Only Property Information is copied

<u>Caution!</u> This Paste Room function is only available, when select Paste Room of Mouse right button at existing Room. If you want to paste room in new room, use Copy Register Room function.

2.6.3 Copy Register Room: After Copy Room, Select Copy Register Room of Mouse right button at a room desired placing new room.

- A new Room is created under selecting room, and the Property Information is also copied.

Example) Restaurant room data Copy and, select Copy Register Room at President Office.



3.2 Manual Registration of Room

Manual Registration of Room is run in the order of Generate Room Area, Modify Room Information, and Auto-arrange Indoor Unit.

3.2.1 Draw the Room Area or Select Room Area in the drawing.



[[Select start point] or [Select previous area(S)] :

3.2.2 Input Room Information Management

lasic Room Informatio	n.			
Building_Floor Name	New buildin	g 4th Floor		
Room Name	New roomd			< <select< td=""></select<>
Drawing Units	Milmeters			
Room CAD Area(m?)	75.5	Area	Sync.	
Room Area(m?)	75.5	Calc		
ad Information				
	Unit Load (kW/m/)		Loa (ki/i	d ()
Cooling	0.175	Calc.	13.212	Calc.
Sensible		Calc.		Calc.
Heating	0.175	Calc.	13.212	Calc.
door Unit Capacity				
Cooling		( 0.0 %)		
Heating		( 0.0 %)		
RV				
HRV Load(CMH)		Input		
HRV Capacity(CNH)		( %)		

Caution! After change the values (Room Area, Unit Load, and Load), Please click the "Calc."

3.2.3 Auto-arrange Indoor Unit: Select Indoor Unit in the room automatically.

Please check "Auto-arrange Indoor unit" in "Function Description of Each Icons".

- 3.3 Delete Floor: It deletes the corresponding floor completely.
- 3.4. Generate Floor Area



- Designate Floor Area using rectangle or poly line, or designate certain area as the Floor Area using Boundary Selection.



Category	Setting Value	2
🛨 🚞 Project	TestProject_M	
🖃 🚮 Building Information	Add building	_
🗄 🚮 New building	<u> </u>	<b></b>
- 🛰 test		nag
🕂 🛸 Rooftop Floor	<b>↓</b>	Ξ.
🛨 🛰 4th Floor	<b>₽</b>	iyer
🕂 🛰 3rd Floor	<b>₽</b>	
🕂 🛰 2nd Floor	<b>₽</b>	
🕂 🏊 1st Floor	<b>₽</b>	
- 😂 Cooling an		
- Control dis		
😂 Equipment list		
🛨 🏟 Configuration		

#### 3.5 Set Floor Reference Point

LATSCAD Master Menu			[-][	
	<b>H</b>			
LatsCAD		ain		
Category	Setting Value	2		
🗉 📷 Project	TestProject_M			
🗆 🖃 Building Informatio	n Add building			
🗄 🚮 New building	<b>W</b>	ы		
🕂 🦄 Rooftop Flo	ior 📭	anag		
🕂 🛸 4th Floor	(.F)	2		
🕂 🛰 3rd Fl	Room Management			
🛨 🛰 2nd F	Manual Registration of Roor	n		
🛨 🏊 1st Fl	Delete Floor			
😂 Coolir	Delete Hoor		_	
😂 Contr	Generate Floor Area		、 I	
🖨 Equip	Set Floor Reference Point		JI	$\sim$
🛨 🏩 Configuration	Zoom Floor Area			
	Copy Floor Equipment			
	Room Name Arrangement			

- After Floor Area is designated, designate the Reference Point of the floor.



- Set the point being the base of each floor as the Reference Point.

- When the Designation of Floor Area and the Setting of Floor Reference Point are completed, the Floor Icon is updated in Master Menu.

LATSCAD Master Menu		
LatsCAD		lain
Category	Setting Value	_ ≥
🛨 🚞 Project	TestProject_M	
🖃 🚮 Building Information	Add building	
🗆 🚮 New building	<b>\$</b>	e
-🟊 test		nag
🕂 🥆 Rooftop Floor	<b>₽</b>	ž
🕂 🛰 4th Floor	<b>₽</b>	ayer
🛨 🛰 3rd Floor	T.	
🕂 🛰 2nd Floor	<b>₽</b>	
🛨 🏊 1st Floor	<b>₽</b>	
- 😂 Cooling an		
- 😂 Control dis		
😂 Equipment list		
🛨 🏟 Configuration		

- 4. Room Management (Mouse right Button on Room)
- 4.1 Generate Room Area



- Designate Room Area using rectangle and poly line, or designate certain area as the Room Area using Boundary Selection.



- When Floor and Room Area are designated, Room Icon is updated in Master Menu.

LATSCAD Master Menu	B	
LatsCAD		Main
Category	Setting Value	
🕂 📷 Project	TestProject_M	
🖃 🚮 Building Information	Add building	
🖃 🚮 New building	<b>1</b>	5
🛨 🛸 Rooftop Floor	₽.	lag
🖃 🛰 4th Floor		Mai
- 🔠 RPS_P1_1	ß	yer
- 🖪 RPS P1 2	6	E.
- 🖪 RPS P3 1	6	
- BPS P3 2	С С	
- R New room4	ñ	
BPS P4 1	к.	
BPS P4 2	к К	-
	<u> </u>	

- When the designation of Floor Area/Floor Reference Point/Room Area is completed, all icons in Master Menu are updated, and the area for each room is recognized in CAD.



- Area for each Room/Floor may be Expanded/Deleted through Other Area Expansion/Deletion function

4.2 Zoom Floor Area: Expand and show the corresponding floor in the screen.

4.3 Room Name Arrangement



4.3.1 It arranges the Room name in drawings.



# Layer Tab (Master Menu)

Layer Tab is in Master Menu.

Layer change and delete, and On/Off functions may be used.

Layer On/Off		- Show layer dialog: It can change the setting by layers. (Layer Properties
		Manager)
	Main	- Selected entity layer off: The layers of which equipments or materials are
	Jer	selected are on/off.
Layer Control	ayer Manaq	- All Layer(patterned by LATS_*) off: The all layer patterned by LATS_* are
	_	on/off
		- Refrigerant layer: The Refrigerant pipe and material's layers are on/off.
		- Drain layer: The Drain pipe and material's layers are on/off.
		- Control layer: The Control wire, equipment and material's layers are on/off.
		- Duct layer: The Control material's layers are on/off.
		- Floor Reference Layer: The Floor Reference layers are on/off.
		- Floor/Room boundary layer: The Floor/Room boundary layers are on/off.
		- Air direction Layer: The air direction layer of IDU are on/off
		- Air flow type Layer: The air flow type layer of duct type models are on/off
		- Service space Layer: The service space layer are on/off
		- Installation space Layer: The installation space layer are on/off
		- Cassette panel Layer/Cassette Layer: The cassette panel layer

and cassette layer is switched each other in cassette model symbol.

# Layer Control

LATSCAD MASTER MENU	
A Sector	
LatsCAD	Main
Layer On/Off	
🚬 🕵 🛃 🚅	
	Jar
	Mana
Layer Control	aver
- 🎇 🔛	_

- Move selected entity to LG-Arch layer: The selected entities

are changed to LG-Arch layer. Then the entities cannot delete by

). And the entities' color also LATS CAD's delete function (

change to gray.





- Delete selected entity: The selected entities are deleted.

# Indoor Unit Tab (Symbol Menu)

Indoor Unit Tab is in Symbol Menu.

Indoor Units may be positioned in the drawing.

1. Select Indoor Unit Type in the Indoor Unit tab of Symbol Menu. (For Single, when the Indoor Unit is positioned, Outdoor Unit is immediately referenced and positioned.)

2. Double click the desired Indoor Unit Type.

3. Select the desired Indoor Unit Model, and press Enter.

4. Click at desired position in the drawing, and select direction of refrigerant port and drain port.

5. Press Enter to finish.





Contro Port

### **Indoor Unit Information**

If Double click the desired Indoor Unit Type, It is able to check Indoor Unit Information.

door Unit								
Indoor Unit Information		(EU) Indoor Unit Model Search						
Category	Setting Value	Outdoor Unit <						
😑 Outdoor Unit ID		Indoor Unit 4 Way Cassette						
<ul> <li>Group ID Prefix</li> </ul>	IAC-							
Group ID		Model D Cooling Heating entilatic						
Install Location	=	● ARNU05GTRC4						
Model	ARNU05GTRC4	ARNU07GTRC4 (2.20) 2.49						
Buyer Model	ARNU05GTRC4	ARNU09GTRE4 (2.81 3.19)						
Name	CeilingCassette-4Way	ARNU09GTRC4 (2.81 3.19)						
Cooling capacity (kW)     1.61		ARNU12GTRC4 (2) 3.60 3.99						
Sensible heat capacity(kW)	1.13	● ARNU15GTQA4 ④ 4.51 5.01						
Heating capacity(kW)	1.79	ARNU15GTQC4 (9) 4.51 5.01						
Cooling load(kW)		ARNU18GTQC4 (2) 5.60 6.30						
Supply Chamber	Return Chamber	ARNU21GTQC4     0     6.01     6.80						
		ARNU24GTPC4     0     7.09     8.00						
		ARNU28GTPC4     0     8.21     9.23						
Inlet & Outlet Water Informa	tion	ARNU30GTPC4						
Iniet vv.	Outlet W. I							
(Cooling)	(°C) (°C)							
(Heating)	(°C) (°C)							
Water Flow Rate	(LPM)							
Huid Type Water	· · · · · · · · · · · · · · · · · · ·							
Concentration 10	00 (100 % Fixed)							
Room Design Temperature(R	eturn Air)							
DBT	WBT RH							
(Cooling) 27.0	(°C) 19.0 (°C) 47.2 (%)							
(Heating) 20.0	(°C)	and the second se						
Note : Cooling capacity is sim	ulated by WBT							
		Uncessory OK Calleer						

1. Indoor Unit Information

- Outdoor Unit ID: the connected Outdoor Unit ID. (Assigned automatically when insert the Equipment table)

- Group ID Prefix (Assigned automatically when insert the Equipment table)
- Group ID: Indoor Unit Group ID. (Assigned automatically when insert the Equipment table)
- Installation Location: Indoor Unit's Installation Location.
- Model: Indoor Unit Model Name.
- Name: Indoor Unit Type
- Cooling Capacity (KW): Cooling Capacity.
- Sensible Heat Capacity (KW): Sensible Heating Capacity.
- Heating Capacity (KW): Heating Capacity.
- Cooling Load (KW): Cooling Load of the positioned room.
- Heating Load (KW): Heating Load of the positioned room.
- Sensible Heating Load (KW): Sensible Heating Load of the positioned room.

- Elevation Difference of outdoor unit (m): Height Difference with the connected Outdoor Unit.(Calculate automatically)



2. Inlet & Outlet Water Information.

- It is setting for Water Products.

Indoor Unit Information       Category       Setting Value       Outdoor Unit       Cooling Value       Cooling Va	oor Unit							
Category       Setting Value         Outdoor Unit ID         Group ID Prefix         Group ID Prefix         Instal Location         Instal Location         Model         ARNH04GK3A2         Buyer Model         ARNH04GK3A2         Name         HydroKit(MiddeTemp.)         Cooling capacity (kW)         Heating capacity(kW)         Heating capacity(kW)         Heating capacity(kW)         Supply Chamber         Return Chamber         Inlet W.T         Outdeor Unit         Model         ARNH04GK3A2         Outdoor Unit         Market Capacity (kW)         Heating capacity (kW)         Supply Chamber         Return Chamber         Conding Congoung (Congoung (Congoung (Congoung (Congoung (Congoung (Congoung (Congoung (Congoung (Congoung (Con	Indoor Unit Information			(EU) Indoor U	nit Model Se	arch		
Outdoor Unit ID   Group ID Prefix   Incore Unit   Hyper Model   ARNH016K2A2   Name   HydroKit(MiddeTemp.)   Cooling capacity (kW)   Sensible heat capacity(kW)   Heating capacity(kW)   Supply Chamber   Return Chamber   Inlet W.T   (Cooling)   23.0   (Cooling)   23.0   (C)   Heating)   20.0   (Cooling)   27.0   (Cooling)	Category	Setting Value	*	Outdoor Unit				< <odu< td=""></odu<>
Group ID       IAC-         Group ID       Instal Location         Instal Location       ARNH106K2A2         Model       ARNH04GK3A2       13.77         Buyer Model       ARNH106K2A2         Name       HydroKit(MiddleTemp.)         Cooling capacity (kW)       28.11         Sensible heat capacity(kW)       31.51         Cooling load(kW)       31.51         Supply Chamber       Return Chamber         Inlet & Outlet W.T       Outlet W.T         (Cooling)       23.0       (°C)         Mater Flow Rate       92.0       (LPM)         Fluid Type       Water       Water         OB       0.0       (°C)       34.9       (°C)         Note : Cooling capacity is simulated by WBT       Outlet W.T       Image: Cooling Capacity is simulated by WBT       Cooling Capacity is simulated by WBT	Outdoor Unit ID			Indoor Unit	HYDRO KI	-		•
Group ID       Install Location         Install Location       ARNH10GK2A2         Model       ARNH10GK2A2         Buyer Model       ARNH10GK2A2         Name       Hydrokit(Middel Temp.)         Cooling capacity (k/V)       28.11         Sensible heat capacity(k/W)       31.51         Cooling capacity(k/W)       31.51         Cooling locad(k/W)       31.51         Supply Chamber       Return Chamber         Inlet & Outlet W.T       Outlet W.T         (Cooling)       23.0       (°C)         Nater Flow Rate       92.0       (LPM)         Fluid Type       Water       Outlet W.T         (Cooling)       27.0       (°C)       47.2         Note : Cooling capacity is simulated by WBT       OK       Cancel	<ul> <li>Group ID Prefix</li> </ul>	IAC-						
Install Location       Install Location       Image: Control of Control	😑 Group ID			Model	Э.,	Cooling	Heating (kW)	entilation (CMH)
Model       ARNH10GK2A2         Buyer Model       ARNH10GK2A2         Name       HydroKit(MiddeTemp.)         Cooling capacity (KW)       28.11         Sensible heat capacity(KW)       31.51         Cooling load(KW)       31.51         Cooling load(KW)       31.51         Supply Chamber       Return Chamber         Inlet & Outlet Water Information       Inlet W.T         (Cooling)       23.0 (°C)       18.6 (°C)         (Heating)       30.0 (°C)       34.9 (°C)         Water Flow Rate       92.0 (LPM)         Fluid Type       Water         Concentration       100.0 (100 % Fixed)         Room Design Temperature(Return Air)       WBT         DBT       WBT         Mate : Cooling capacity is simulated by WBT       Accessory	Install Location		E	ARNH04GI	K3A2 🗵	(617	13.77	
• Name       ARNH10GK2A2         • Name       Hydrokit(MiddeTemp.)         Cooling capacity (kW)       28.11         • Sensible heat capacity(kW)       31.51         • Cooling load(kW)	Model	ARNH10GK2A2		ARNH04GI	K2A2 🗵	12.31	13.77	
• Name        HydroKit(MiddleTemp.)             • Cooling capacity (kW)        28.11             • Sensible heat capacity(kW)        31.51             • Cooling load(kW)        31.51             • Supply Chamber        Return Chamber          Inlet & Outlet Water Information        Inlet W.T             (Cooling)        23.0             (Keating)        30.0             Water Flow Rate        92.0             Pklid Type        Water             Concentration        100.0             100.0        (100 % Fixed)             Room Design Temperature(Return Air)        WBT             DBT        (cooling)             Z0.0        (°C)             Note:        Cooling capacity is simulated by WBT	Buyer Model	ARNH10GK2A2		ARNH08GI	K3A2 🗵		25.20	
Cooling capacity (KW) 28.11     Geoling capacity (KW) 31.51     Cooling load(KW)     Supply Chamber Return Chamber  Inlet & Outlet Water Information Inlet W.T (Cooling) 23.0 (°C) 18.6 (°C) (Heating) 30.0 (°C) 34.9 (°C) Water Flow Rate 92.0 (LPM) Fluid Type Water Concentration 100.0 (100 % Fixed) Room Design Temperature(Return Ar) DBT WBT RH (Cooling) 27.0 (°C) 19.0 (°C) 47.2 (% (Heating) 20.0 (°C) Note : Cooling capacity is simulated by WBT  Accessory OK Cancel	Name	HydroKit(MiddleTemp.)		ARNH10G	K2A2 🛛 🕑	28.11	31.51	-
Sensble heat capacity(KW)     Heating capacity(KW) 31.51     Cooling load(KW)     Supply Chamber     Return Chamber     Inlet & Outlet Water Information     Inlet W.T     (Cooling) 23.0 (°C) 18.6 (°C)     (Heating) 30.0 (°C) 34.9 (°C) Water Flow Rate 92.0 (LPM)     Fluid Type Water     Concentration 100.0 (100 % Fixed) Room Design Temperature(Return Air)     DBT     WBT     RH     (Cooling) 27.0 (°C) 19.0 (°C) 47.2 (%     (Heating) 20.0 (°C) Note : Cooling capacity is simulated by WBT     Accessory     OK Cancel	<ul> <li>Cooling capacity (kW)</li> </ul>	28.11						
Heating capacity(kW) 31.51 Cooling load(kW) Supply Chamber Return Chamber Inlet & Outlet Water Information Inlet W.T (Cooling) 23.0 (°C) 18.6 (°C) (Heating) 30.0 (°C) 34.9 (°C) Water Flow Rate 92.0 (LPM) Fluid Type Water = • Concentration 100.0 (100 % Fixed) Room Design Temperature(Return Air) DBT WBT RH (Cooling) 27.0 (°C) 19.0 (°C) 47.2 (% (Heating) 20.0 (°C) Note : Cooling capacity is simulated by WBT Accessory OK Cancel	Sensible heat capacity(kW	1	_					
Cooling load(kW) Supply Chamber Return Chamber Inlet & Outlet W.T Inlet W.T Outlet W.T (Cooling) 23.0 (°C) 18.6 (°C) Water Flow Rate 92.0 (LPM) Fluid Type Water Concentration 100.0 (100 % Fixed) Room Design Temperature(Return Air) DBT WBT RH (Cooling) 27.0 (°C) 19.0 (°C) Accessory OK Cancel	Heating capacity(kW)	31.51	_					
Supply Chamber       Return Chamber         Inlet & Outlet W.T       Outlet W.T         (Cooling)       23.0       (°C)         Water flow Rate       92.0       (LPM)         Fluid Type       Water       •         Concentration       100.0       (100 % Fixed)         Room Design Temperature(Return Air)       WBT       RH         (Cooling)       27.0       (°C)       47.2       (%         Note : Cooling capacity is simulated by WBT       Accessory       OK       Cancel	Cooling load(kW)		Ŧ					
(Cooling)       23.0       (°C)       16.0       (°C)         (Heating)       30.0       (°C)       34.9       (°C)         Water Flow Rate       92.0       (LPM)         Fluid Type       Water       •         Concentration       100.0       (100 % Fixed)         Room Design Temperature(Return Air)       DBT       WBT         DBT       WBT       RH         (Cooling)       27.0       (°C)         Note : Cooling capacity is simulated by WBT       Accessory	Inlet & Outlet Water Inform Inlet V	N.T Outlet W.T						
(Heating)       30.0 (°C)       34.9 (°C)         Water Flow Rate       92.0 (LPM)         Fluid Type       Water         Concentration       100.0 (100 % Fixed)         Room Design Temperature(Return Air)       DBT         DBT       WBT         (Cooling)       27.0 (°C)         Note : Cooling capacity is simulated by WBT	(Cooling) 2	(°C) 10.0 (°C)						
Water Flow Rate       92.0 (LPM)         Fluid Type       Water         Concentration       100.0 (100 % Fixed)         Room Design Temperature(Return Air)       DB T         DB T       WBT         (Cooling)       27.0 (°C)         19.0 (°C)       47.2 (%)         Note : Cooling capacity is simulated by WBT         Accessory       OK	(Heating) 3	30.0 (°C) 34.9 (°C)					1	
Fluid Type       Water         Concentration       100.0         100.0       (100 % Fixed)         Room Design Temperature(Return Air)         DB T       WB T         (Cooling)       27.0         (°C)       19.0         (Heating)       20.0         Note : Cooling capacity is simulated by WBT	Water Flow Rate 9	92.0 (LPM)				0		
Concentration 100.0 (100 % Fixed) Room Design Temperature(Return Air) DBT WBT RH (Cooling) 27.0 (°C) 19.0 (°C) 47.2 (%) (Heating) 20.0 (°C) Note : Cooling capacity is simulated by WBT Accessory OK Cancel	Fluid Type Water	r 👻						
Room Design Temperature(Return Air) DBT WBT RH (Cooling) 27.0 (°C) 19.0 (°C) 47.2 (% (Heating) 20.0 (°C) Note : Cooling capacity is simulated by WBT Accessory OK Cancel	Concentration 10	0.0 (100 % Fixed)			APPENING	AFT	F	
DBT     WBT     RH       (Cooling)     27.0     (°C)       (Heating)     20.0     (°C)       Note : Cooling capacity is simulated by WBT     Accessory	Room Design Temperature(	(Return Air)						
(Cooling)         27.0         (°C)         19.0         (°C)         47.2         (%)           (Heating)         20.0         (°C)         (°C)         Note : Cooling capacity is simulated by WBT         Accessory         OK         Cancel	DB	T WBT RH						
(Heating) 20.0 (°C) Note : Cooling capacity is simulated by WBT Accessory OK Cancel	(Cooling) 27.0	(°C) 19.0 (°C) 47.2 (	%				100	
Note : Cooling capacity is simulated by WBT Accessory OK Cancel	(Heating) 20.0	(°C)			-	-		
Accessory OK Cancel	Note : Cooling capacity is s	imulated by WBT			WELL THE			
			[	Accessory		ОК		Cancel

2.1 Input the value of Inlet water temp. and Select the Fluid Type.

3. Accessory

- List of the accessories added to Indoor Unit.

2.1 Add Accessory

2.1.1 Input the number in the accessories list, and click "OK".

Model	Name	Basic qu	Quantity	Placed	Total	-
PQRCHCA0QW	Simple Controller without mode (White)	1				
PQWRHQ0FDB	Wireless LCD remote control	1				
PQRSTA0	Remote Temperature Sensor	1				
PZCWRCG3	Group Control Kit	1				
PT-UQC	Grille (4 Way Casette - TR, TQ)	1	1		1	
PQDSA	Dry Contact	1				
PDRYCB000	Simple Dry Contact	1				
PDRYCB400	Two Setpoint Dry Contact	1				
PDRYCB300	Dry Contact for Thermostat	1				Ξ
PDRYCB500	Dry Contact	1				
PRIP0	INDEPENDANT POWER MODULE	1				
PT-QCHW0	Decoration panel(Gen4 TQ/TR)	1				
PRGK024A0	EEV Kit	1				

4. Indoor Unit Model Search.

- Indoor Unit may be selected by filtering with Outdoor Unit type and Indoor Unit type.

5. Port / Symbol Mirror

- Some indoor unit can change port direct. (wall-mounted, floor stand, convertible type etc.)

And some ventilation unit can reverse up-down. If you check "port mirror", it will be changed.

oor Unit		(FU) Indees	Unit Madel Con			
Cotogonu	Sotting Volue	Outdoor Uni	t Model Sea	Ircn		< <odu< td=""></odu<>
Category	Setting value					
Group ID Prefix	IAC.	Indoor Unit	Wall Mount	ed		•
Group ID	inc.	Model		Cooling	Heating	entilation
<ul> <li>Install Location</li> </ul>		Model	J	(kW)	(k₩)	(CMH)
Model	ABNU05GSBL4	ARNU05	SBL4 🙂	1.61	1.79	
Buver Model	ABNU05GSBL4	ARNUU/	iSBL4 😡	2.20	2.49	
Name	WallMounted[Libero]	ARNUU9	iSBL4 🙂	2.81	3.19	
Cooling capacity (kW)	1.61	ARNUIZI     ARNUIZI	aSBL4 🙂	3.60	3.99	
Sensible heat capacity(kW)	1.13	ARNUIS		4.51	5.01	
Heating capacity(kW)	1.79			5.60	6.30	
<ul> <li>Cooling load(kW)</li> </ul>				0.70	0.00	
Curati Chamber			10.40	10.04		
Inlet & Outlet Water Informa Inlet W.	tion T Outlet W.T					
(Cooling)	(°C) (°C)					
(Heating)	(°C) (°C)					
Water Flow Rate	(LPM)					
Fluid Type Water						
Concentration 10						
concentration It	(100 % Fxed)					
Room Design Temperature(R	eturn Air) WBT RH	816				
(Cooling) 27.0	(°C) 19.0 (°C) 47.2 (%)					
(Heating) 20.0	(°C)					
Note : Cooling capacity is sim	ulated by WBT					
Port Mirror		Accessory		ОК		Cancel

#### Port mirror:



Symbol mirror (reverse up-down):



# Positioning for each Product Type

1. MultiV and Multi



- 1.1 Select Indoor Unit tab in Symbol Menu
- 1.2 Select Product Type
- 1.3 Select the desired Product Model, and press Enter
- 1.4 Click at desired position in the drawing, and select direction of refrigerant port and drain port

1.5 Press Enter to finish

Caution! For Multi Product, select and position Outdoor Unit first and then select Indoor Unit.

2. Single



2.1 Select Indoor Unit tab in Symbol Menu

2.2 Select Product Type (Single)

2.3 Select the desired Product Model, and press Enter

2.4 Click at desired position in the drawing, and select direction of refrigerant port and drain port

- After positioning Indoor Unit, position Outdoor Unit by referring to the location of the positioned Indoor Unit





Caution! Single Type is positioned from Indoor Unit Positioning stage to Outdoor Unit at once.

# **Outdoor Unit Tab (Symbol Menu)**

Outdoor Unit Tab is in Symbol Menu.

Outdoor Unit may be positioned in the drawing.

1. Select Product Type in the Outdoor Unit Tab of Symbol Menu.

(For Single, there is no Outdoor Unit Type to be selected separately.)

2. Double click the desired Outdoor Unit Type, and press Enter.

3. Select the desired Outdoor Unit Model.

- 4. Click at desired position in the drawing, and select direction of refrigerant port
- 5. Press Enter to finish.





Refrigerant and Control Port

## **IDU Logical Relationship**

- 1. Select the IDU Logical Relationship Menu in Outdoor Unit Tab of Symbol Menu.
- 2. The ODU to set relation is selected in Category, and click Set Relation Button.
- 3. Select the IDU in drawing, and press Enter.

Caution! When click Set Relation Button, IDU Logical Relationship window is closed temporarily.

4. Connect the IDU low lank selected ODU.



5. When click Remove Relation with selecting IDU in Category, can cancel Relation with ODU

ODU-IDU Logical Relationship						<b>x</b>
Outdoor Unit List			Ea	uinment Loc	ation Sync 🗐	
lf.		1		upment Loc	acion sync.	
Category	Group ID	Install Locati	nation ratio (%)	Cooling (kW)	Heating (kW)	
Ducted Split (LN-C4300SC)	DUCT-1-1	3rd Floor		41.03	0.00	
	0AC-2-1	2nd Floor	80.00	28.11	31.51	
	0AC-2-2	2nd Floor	100.00	28.11	31.51 ≡	
- D. MULTLY IV (ARUN100LTEA)	0AC.2.3	2nd Eloor	100.00	28.11	21.51	
[1]HYDRO KIT:ARNH10GK2A2	IAC-16	2nd Floor		28.11	31.5	Set Relation
	OAC-8-1	2nd Floor	168.30	134.43	151.22	
	OAC-3-1	2nd Floor	222.02	33.62	37.81	Remove Relation
■ ■ MULTI V IV HEAT RECOVERY (	0AC-11-1	2nd Floor	80.00	28.11	31.51	
MULTI V IV HEAT RECOVERY (	0AC-11-2	2nd Floor	0.00	28.11	31.51	
■ ■ MULTI V IV HEAT RECOVERY (	0AC-11-3	2nd Floor	100.00	28.11	31.51	
	OAC-9-1	2nd Floor	91.01	173.64	195.33	Default -
	0AC-9-2	2nd Floor	100.12	173.64	195.33	
	0AC-9-3	1st Floor	98.50	173.64	195.33	Equipment List
	0AC-7-1	1st Floor	127.84	123.24	138.62	
	0AC-6-1	1st Floor	156.25	100.82	113.42	Unit Choice Table
	0AC-1-1	1st Floor	180.80	26.10	39.22	
	0AC-3-2	1st Floor	114.29	33.62	37.81	Property
⊞ MULTI V IV (ARUN080LTE4)	OAC-1-2	1st Floor	60.71	22.39	25.20 🛫	
						UK

### **Outdoor Unit Information**

DDU Information			(EU) ODU Model				Connect Indoor Ur	it Information( Logica	al Mode )
Category	Setting Value	^	Combination Ratio(%)	100.0 (A	uto-Recomme	endation	Total IAC Nomina	Cooling Capacity: 17	3.8 kW
Group ID Prefix	DAC-		ODU Type	MULTEV 5		•	2. 2. 2.	Physical	•
😑 Group ID	9								
Facility ID	2		Model	tion ra	tio Cooling K) (kW)	Heating ^	Location	Model	Cooling (kW)
Install Location	2nd Floor	E	ARUM520LTI	E5 119.	37 145.60	145.60	(01)2nd Floo	ARNU54GTMC4	15.83
Model	ARUM640LTE5		ARUM540LTI	E5 114.	95 151.20	151.20	(02)2nd Floo	ARNU54GTMC4	15.83
Buyer Model	ARUM640LTE5		ABUM560LTI	E5 110.	84 156.79	156.79	6 (03)2nd Floo	ABNU54GTMC4	15.83
● ODU	MULTI V 5		ARUM580LTI	E5 107.	02 162.39	162.39	(04)2nd Floo	ARNU54GTMC4	15.83
Cooling capacity (kW)	179.18		ARUM600LTI	E5 103.	45 167.99	167.99	(05)2nd Floo	ARNU54GTMC4	15.83
Heating capacity(kW)	179.18		ARUM620LTI	E5 100.	12 173.59	173.59	(06)2nd Floo	ARNU54GTMC4	15.83
Cooling consumpti	45.69		● ARUM640LT	E5 96.	99 179.18	179.18	(07)2nd Floo	ARNU54GTMC4	15.83
Heating consumpt	42.06		ARUM660LT	E5 94.	05 184.78	184.78	(08)2nd Floo	ARNU54GTMC4	15.83
Power	3/380-415/50,3/380/60	-	ARUM680LTI	E5 91.	28 190.38	190.38	(09)2nd Floo	ARNU54GTMC4	15.83
			ARUM700LTI	E5 88.	67 196.01	196.01 =	(10)2nd Floo	ARNU54GTMC4	15.83
			ARUM720LTI	E5 86.	21 201.60	201.60	(11)2nd Floo	ARNU54GTMC4	15.83
nlet Water Information			ARUM740LTI	E5 83.	88 207.20	207.20			
Inlet Temp. (Cooling	(%)		ARUM760LTI	E5 81.	67 212.80	212.80			
	(0)		ARUM780LTI	E5 79.	58 218.40	218.40			
(Heating)	) (*C)		ARUM800LTI	E5 77.	59 223.99	223.99 -			
Water Flow Rate	e (LPM)								
Fluid Type		-	e la	OLG	@LG		•		
Concentration	(100 % Elxed	D		- CI		CHER IN			
				Mark 1	Margh		Outdoor Unit	BABIOCK	
ccessory							Outdoor Unit help		
Model Na	me Qu								
				-	-				
			·	1. J	1 24 20				
Add	Delete								Concol

#### 1. Outdoor Unit Information

- Group ID Prefix: Group ID Prefix value Setting (Assigned automatically when insert the Equipment table)
- Group ID: Group ID for each Model. (Assigned automatically when insert the Equipment table)
- Facility ID: Facility ID for each Group. (Assigned automatically when insert the Equipment table)
- Installation Location: Location where Outdoor Unit is installed.
- Model: Model Name
- Outdoor Unit Type: Outdoor Unit Type Information

- Cooling Capacity (KW): Cooling Capacity
- Heating Capacity (KW): Heating Capacity
- Cooling Power Consumption (KW): Cooling Power Consumption
- Heating Power Consumption (KW): Heating Power Consumption
- Power: Outdoor Unit Power.
- Combination Ratio (%): Combination Ratio with the connected Indoor Unit.
- Additional Refrigerant Amount: Refrigerant Amount to be added (assigned at System Checking)
- Total Pipe Length (m): The length of all the Pipes connected to Outdoor Unit.
- IDU: The number of Indoor Units connected to the corresponding Outdoor Unit.
- 2. Outdoor Unit Model Search.

- Combination Ratio: Combination Ratio based on Automatic Recommendation (The value closest to the standard combination ratio comes up to the top of the blue color)

- 3. Connect Indoor Unit Information (Logical Mode).
  - It shows the location, Model name, and Capacity of the connected Indoor Unit.
- 4. Accessory

- It shows the list of the accessories added.

Model	Name	Basic qu	Quantity	Placed	Total	14
PQWRHQ0FDB	Wireless LCD remote control	1				1
PQWRCQ0FDB	Wireless LCD remote control	1				1
PQRCVCL0Q	Simple Controller with mode (Black)	1				
PQRCHCA0Q	Simple Controller without mode (Black)	1				
PQRCVCL0QW	Simple Controller with mode (White)	1				
PQRCHCA0QW	Simple Controller without mode (White)	1				
PREMTBOO1	Wide wired remote controller	1				
PREMTBB01	Wide wired remote controller	1				
PREMTB100	New Standard wired Remote Controller	1				
PREMTA000A	Premium wired remote controller	1				
PREMTA000B	Premium wired remote controller	1				
PDRYCB000	Simple Dry Contact	1				
PQDSBC1	Dry Contact for economizer	1				
DDDVCD400	T 0.1 10 0 1 1					

# Multi Type Equipment Positioning

Indoor Unit		
اللہ اللہ اللہ اللہ اللہ اللہ اللہ اللہ	Multi	
Jutdoor (	Multi M	
ĥ	Multi F	

1. Select Outdoor Unit tab in Symbol Menu.

2. Select Product Type (Multi or Multi F(for N.America))

3. Select the desired Indoor unit to be connected. (If the Indoor unit is not positioned, just click Enter Key)

4. Select the desired Product format and Model.

ODU Information		(EU) ODU Model				Connect Indoor U	Init Information	
Category	Setting Value	Combination 10 Ratio(%)	0.0 (Auto Base)	-Recommer	ndation	Total IAC Nomin	al Cooling Capacity:	0.0 kW
Group ID Prefix	OAC-	ODU Type MI	ITIE		•	2 🔊 🖓	Physical	-
Group ID							(Thyoica)	
Facility ID		Model	tion ratio	Cooling	Heating (KW)	Location	Model	Cooling (PW)
Install Location	=	A2HW146FA2	0.00	4 10	4.69			(61)
Model	A2UW14GFA2	A2UW166EA2	0.00	4.69	5.28			
Buyer Model	MU2M15	A201/186EA2	0.00	5.28	6.33			
ODU	Multiple piping type (1 phase	● ∆3UW/216EA2	0.00	6.15	7.03			
Cooling capacity (kW)	4.1	6 A4UW/24GEA2	0.00	7.03	8.44			
Heating capacity(kW)	4.69	ALIW/276FA2	0.00	7.05	9.09			
Cooling consumpti	1.02	A4019270FA2	0.00	8.79	10.11			
Heating consumpt	1.08	AJUWJUGFA2	0.00	0.73	10.11			
Power	1/220-240/50	<ul> <li>ADDW400FA0</li> </ul>	0.00	11.20	12.51			
Inlet Temp. (Cooling) (Heating) Water Flow Rate Fluid Type Concentration	(°C) (°C) (C) (LPM) (10~50 %)			C LG	and a state of the	< Outdoor Unit	III -'s ByBlock Ip	
Model Nar	ne Qu					MULTI F/SINGL	.E Combina	tion Table

5. Position them in the drawing.

6. After selecting Multi of Indoor Unit tab, select the desired Indoor Unit Model.

7. Select ODU in Indoor Unit Model search categories.

			(EU) Indoor U	nit Model	Sear	ch	<b>–</b>	
Category	Setting Value	-	Outdoor Unit	nit < <odu< td=""><td>&lt;<odu< td=""></odu<></td></odu<>			< <odu< td=""></odu<>	
😑 Outdoor Unit ID		Indoor Unit Cassette 4Way			•			
Group ID Prefix	IAC-							
😑 Group ID			Model		э	Cooling (kW)	Heating (kW)	entilation (CMH)
Install Location		=	AMNH05G	TRA0	Θ	1.47	1.61	
Model	AMNH05GTRA0		AMNH07G	TRA0	Θ	2.05	2.26	
Buyer Model	MT06AH		ATNH09GF	RLE2	Θ	2.64	2.90	
😑 Name	Ceiling Cassette 4-Way		ATNH12GE	RLE2	Θ	3.52	3.87	
Cooling capacity (kW)	1.47		ATNH18GI	QLE2	Θ	5.28	5.80	
Sensible heat capacity(kW)	1.03	_	ATNH24GF	PLE2	Θ	7.03	7.74	
<ul> <li>Heating capacity(kW)</li> </ul>	1.61	_						
(Heating)	(°C) (°C)			~	(			
Vater Flow Rate Fluid Type Concentration Com Design Temperature(R	(LPM) (10~50 %) eturn Air) WRT RH			1				

8. Select Outdoor Unit of Multi Type already positioned in the drawing.

9. Only the equipments that can be applied to the selected Outdoor Unit are sorted according to each Indoor Unit format

ndoor Unit							×
Indoor Unit Information			(EU) Indoor Unit	: Model Sear	ch		
Category	Setting Value	<b>^</b>	Outdoor Unit				< <odu< td=""></odu<>
Outdoor Unit ID			Indoor Unit	Cassette 4W	av		•
<ul> <li>Group ID Prefix</li> </ul>	IAC-				·		
<ul> <li>Group ID</li> </ul>			Model	Э	Cooling	Heating	entilation (CMH)
Install Location		=	AMNH05GTR	AO 😶	1.47	1.61	
Model	AMNH05GTRA0		AMNHU/GTH	IAU 🙂	2.05	2.26	
Buyer Model	MT06AH		ATNH09GRL	E2 😕	2.64	2.90	
Name	Ceiling Cassette 4-Way		ATNH12GBL	E2 😕	3.52	3.87	
Cooling capacity (kW)	1.47		ATNH18GQL	E2 Θ	5.28	5.80	
Sensible heat capacity(kW)	1.03	_	ATNH24GPLI	E2 Θ	7.03	7.74	
Heating capacity(kW)	1.61	_					
Cooling load(kW)		-					
Inlet & Outlet Water Informa Inlet W. (Cooling) (Heating) Water Flow Rate Fluid Type Concentration Room Design Temperature(R DBT (Cooling) (Heating)	Uion         Outlet W.T           (°C)         (°C)           (°C)         (°C)           (LPM)         (°C)           (10~50 %)         (°C)           eturn Air)         WBT           (°C)         (°C)	(%)					
Note : Cooling capacity is sin	nuated by VVB I						
			Accessory		ОК		Cancel

9. Select the desired Models among the sorted Indoor Unit equipments, and position them in the drawing.



# Pipe Material Tab (Symbol Menu)



Riser Hole, Down Hole, and Pipe Material may be positioned in the drawing.

#### **Riser Hole**

1. select Riser Hole in Pipe Material of Symbol Menu.



#### 2. Set Riser Hole Type.

A Riser Hole	
Riser Hole Informat	on
Pipe Type	Refrigerant Pipe      Drain     Control
Connected ODU	
Pipe No.	✓ Vew Entry
Top Floor	Altitude
Lowest Floor	( 0.0 m )
RiserHole group	ByBlock •
Riserhole help	
	OK Cancel

- Pipe Type: Select the classifications of Refrigerant Pipe, Drain Pipe, and Control Line.

- Connected ODU: Connected Outdoor Units are displayed.

- Pipe No.: For new creation, check in the New Entry check box, and if extending the already positioned Riser Hole, select the corresponding Riser Hole.

- Top Floor: Designate the highest floor.

- Lowest Floor: Designates the lowest floor.

3. When reference positioning is selected

```
Select objects:
Assign the install location :
```

4. Select the desired location in the drawing and insert Riser Hole. Position it by selecting the equipment for the reference positioning.(Input the coordinates or drag)



- Move Riser Hole: When it is moved, the Riser Holes in all the floors are moved the same. (They are equally deleted when it is deleted)



Example) For the Riser Hole connected from the 1st floor to the 5th floor, If the Riser Hole in the 2<sup>nd</sup> floor is moved, the positions of the Riser Holes in all the floors are equally moved.

- Change of Riser Hole symbol branched vertically (after Drawing Check)



# **Y-Branched Pipe**

Y-Branched Pipe can use divide to Refrigerant Pipe.

1. Select Y Branched Pipe in Pipe Material of Symbol Menu.



2. Place Branched Pipe insertion point above Refrigerant Pipe, and select the branching direction.

			l
	Lommand:	71111,2662	-

3. Connect from Branched Pipe to Indoor Unit Refrigerant Pipe Port using Piping Equipment Menu in Symbol Menu.



# **Branch Coupler**

1. Select Branch Coupler in Pipe Material of Symbol Menu.



2. Place Branch Coupler insertion point above Refrigerant Pipe, and select the branching direction.



3. Connect from Branch Coupler to Indoor Unit Refrigerant Pipe Port and HR unit Port using Piping Equipment Menu in Symbol Menu.



# **ODU Connector**

1. Select ODU Connector in Pipe Material of Symbol Menu.



2. Place ODU Connector insertion point above Refrigerant Pipe, and select the branching direction.



3. Connect from ODU Connector to Outdoor Unit using Piping Equipment Menu in Symbol Menu.



<u>Caution! ODU Connector's direction is mandatory for connect to only left side. If you want connect to</u> <u>right side, reverse the ODU equipment Using AutoCAD function "mirror"</u>.



## Header

1. Select Header in Pipe Material of Symbol Menu.



2. Place Header at the end of Refrigerant Pipe, and select the branching direction.



3. Connect from Header to Indoor Unit Refrigerant Pipe Port using Piping Equipment Menu in Symbol Menu.



- Position Header 7Way and Header 10Way in the same way.
- Leave Connection that is unnecessary for piping as it is.

### **HR Unit**

1. Select HR Unit Type in Pipe Material of Symbol Menu.



2. Select the HR unit model in pipe branch information window.



3. Place HR Unit at the end of Refrigerant Pipe, and select the branching direction.



Caution! HR unit has in-out port. The In port is Left port and the out port is Right port.

4. Connect from HR unit to Indoor Unit Refrigerant Pipe Port using Piping Equipment Menu in Symbol Menu.



- Position HR Unit 3Way and HR Unit 4Way in the same way.

- Leave Connection that is unnecessary for piping as it is.

# BD [Y Branch]

1. Select BD [Y Branch] in Pipe Material of Symbol Menu.



2. Place BD Unit at the end of Refrigerant Pipe, and select the branching direction.



3. Connect from BD [Y Branch] to BD unit Port using Piping Equipment Menu in Symbol Menu.



# **BD** unit Coupler

1. Select BD unit Coupler in Pipe Material of Symbol Menu.



2. Place BD Unit Coupler at the end of Refrigerant Pipe, and select the branching direction.

### **BD Unit**

1. Select BD unit in Pipe Material of Symbol Menu.



2. Place BD Unit at the end of Refrigerant Pipe, and select the branching direction.



3. Connect from BD unit to Indoor Unit Refrigerant Pipe Port using Piping Equipment Menu in Symbol Menu.



- Position BD Unit 3Way and BD Unit 4Way in the same way.
- Leave Connection that is unnecessary for piping as it is.

### Drain T

1. Select Drain T in Pipe Material of Symbol Menu.



2. Place Drain T insertion point above Drain Pipe, and select the branching direction.



3. Connect to Indoor Unit Port using Piping Equipment Menu in Symbol Menu.



### **Drain Cap**

1. Select Drain Cap in Pipe Material of Symbol Menu.



2. Insert Cap at the end of Drain Pipe.



# **Drain Exit**

1. Select Drain Exit in Pipe Material of Symbol Menu.



2. Insert Drain Exit at the last exit of Drain Pipe.

- When Drain Exit or Drain Riser Hole is inserted, Drain Pipe Diameter can be automatically selected.



# **Control Solution (Symbol Menu)**

Controller may be positioned in the drawing.

- 1. Double click the desired Controller Type.
- 2. Select the equipment to connect to calculate the minimum number of Controllers.
  - Refer to the maximum number of Indoor Units that can be connected to each Controller.
- 3. Position the Controller in the drawing.
- 4. Compose the logical connection relations between the positioned Controller and the equipments.



Control Port


# **Controller Positioning**

- 1. Select the Controller Solution tab in Symbol Menu.
- 2. Double click the controller icon to position in Controller Solution tab.



3. Select the Controller Model, and click OK button.



- 4. Designate Controller Insertion Position
  - If there is a Controller to position as a reference, click reference equipment, or press Enter.

ACEz	Ortho: 13

# **Control Riser Hole Positioning**



1. Select Control Riser Hole in Control Solution tab in Symbol Menu.

Riser Hole Informatio	n		_		
Pipe Type	() Refrigerant I	Pipe ()	Drain	Control	J
Connected ODU					
Pipe No.		*	New E	ntry	
Top Floor	Č.	٠	Attude		
Lowest Floor	C.	•	(0.0 m)		
RiserHole group	ByBlock			]	
Riserhole help					
				-	

- 2. After setting Floor Information, position in the desired location.
- 3. The types of the Control Lines starting from Control Riser Hole are decided by the type of the connected equipment (Control, Indoor Unit, Outdoor Unit, ventilation).

# **Material Remarks (Symbol Menu)**

Material Remarks may be positioned in the drawing.

- 1. Double click the desired remarks and the detail diagram.
- 2. Insert in the desired location in the drawing.
- A separate table exists according to the set output language condition.

(Korean, English, French, Spanish, Italian, German, Turkish, Portuguese, Russian, Chinese, Hungarian and Thai)



INDEX	Connection of Liquid & Gas pipe in Outdoor Units
C1	ARCNN20
C2	ARCNN30
C3	ARCNN21
C4	ARCNN31
C5	ARCNN41
C6	ARCNB20
C7	ARCNB30
C8	ARCNB21
C9	ARCNB31
C10	ARCNB41

# **Branching Pipes connecting between Outdoor Units**

# **Branching Pipes**

Y Brand	h
INDEX	Y Branch
<b>Y1</b>	ARBLN01621
Y2	ARBLN03321
Y3	ARBLN07121
¥4	ARBLN14521
Y5	ARBLN23220
Y6	ARBLB01621
Y7	ARBLB03321
<b>Y8</b>	ARBLB07121
<b>Y9</b>	ARBLB14521
¥10	ARBLB23220

# **Branching Pipes (Multi)**

Y Branch(MULTI)				
INDEX	Y Branch			
MY1	PMBL3620			
MY2	PMBL5620			
MY3	PMBL1203F0			

# Header Branching Pipes

	2
INDEX	HEADER
H1	ARBL054
H2	ARBL057
H3	ARBL104
H4	ARBL107
H5	ARBL1010
H6	ARBL2010

### HR Unit

INDEXHR UNITHR1PRHR022HR2PRHR032HR3PRHR042HR4PRHR023HR5PRHR033
HR1PRHR022HR2PRHR032HR3PRHR042HR4PRHR023HR5PRHR033
HR2PRHR032HR3PRHR042HR4PRHR023HR5PRHR033
HR3PRHR042HR4PRHR023HR5PRHR033
HR4 PRHR023 HR5 PRHR033
HR5 PRHR033
HR6 PRHR043
HR7 PRHR063
HR8 PRHR083

# **BD Unit**

BD UNIT				
INDEX	BD UNIT			
BD1	PMBD3620			
BD2	PMBD3630			
BD3	PMBD3640			
BD4	PMBD7220			
BD5	PMBD7230			
BD6	PMBD5420L			
BD7	PMBD5430L			
BD8	PMBD5440L			

Refrigera	ant pipe diameter from branch to branch	🔳 Refrigera	ant Pipe
INDEX	Connecting Pipes [mm(Inch)]	Туре	(Diameter, mm)
1	6.35 (1/4)	1	6.35:12.7
2	9.52 (3/8)	2	9.52:12.7:15.88
3		3	9.52:15.88
			9.52:15.88:19.05
4	15.88 (5/8)	5	9.52:19.05
5	19.05 (3/4)	6	9.52:19.05:22.2
6	22.2 (7/8)	7	9,52:22,2
7	25.4 (1)	8	12.7:12.7:19.05
8	28.58 (1 1/8)	9	12.7:15.88:19.05
9	31.8 (1 1/4)	10	12.7:28.58
10	34.9 (1 3/8)	11	15.88:22.2:28.58
11	38.1 (1 1/2)	12	15.88:28.58
12	41.3 (1 5/8)	13	15,88:28,58:34,9
40	44 5 (4 2(4)	14	15.88:34.9
13	44.5 (1 3/4)	15	19.05:28.58:34.9
14	50.8 (2)	16	19.05:34.9
15	53.98 (2 1/8)	17	19.05:41.3
Blue : Li	quid pipe,	18	22.2:44.5
Yellow : L	es pipe, ow Gas pipe	Liquid:Ge	as:Low Pressure

# Pipe Notes & Pipe Notes(Single Index)

# **Control Note**

E Symbols of V-net support	nter devientes diagram									
	nan ta devinde depen	-	Bymbole of V-net applyment.							
			-							
Bayla Cashil Cartalar										
40 Ameri										
Ji: earth III)	AD Small-Bill									
••••		<b>•••</b>								
Mint Stars	BADHEGW T									
Letters éclemy	LorWak GW									
SC kinninger		-								
Panetin Costrator		-								
	Demand Controller	E REAL								
Bry Quelant Mill		DCU								
		-								
Pillet Zuste Deletter										
R an air	E	C								
	===									

## **Control Connection Detail Diagram**

After inserting in the drawing, delete unnecessary connection detail diagrams.



For overseas, DC is not used, and there is no connection detail diagram.

# **Control Product Detail Diagram**

After inserting in the drawing, delete unnecessary product detail diagrams.



### **Control Solution note**

#### Note

#### · Cable Standard

- Wired Remote Controller : AWG 22\*3C(Less than 100m)
- PC~HUB~ ACP : UTP cable (Above CAT.5)
- ACP ~ ODU : Shielded wire thicker than 1.0mm2 (AWG 17 or above) \* 2C ODU ~ ODU : Shielded wire thicker than 1.0mm2 (AWG 17 or above) \* 2C
- ODU ~ IDU to IDU : Shielded wire thicker than 1.0mm2 (AWG 17 or above) \* 2C
- W.H.M (Watt hour meter) ~ PDI : Shielded wire thicker than 1.0mm2 (AWG 17 or above)\*2C

#### Limitation of cable length

- S.C.C ~ Function Controller : Less than 1m
- Total 485 comm. Cable length : Less than 1000m
- IDU ~ Wired Remote Controller : Less than 50m
- ACP ~ HUB (UTP cable length) : Less than 80m

Total number of 485devices(central controller, PDI and PI485) should be fewer than 32ea One PI485 can supply electric power up to two S.C.Cs (required extra two core cable),

In case of power supplying more than two S.C.Cs, use other PI485 or adapter (SMPS)

# **User Symbol Define Function (Symbol Menu)**

If you want to make new model (RAC, AHU, Chiller) that is not in LATS CAD's model lineup, Please Use User Symbol Define Function. And the symbol

The user defined symbol can reporting, making equipment table.

### Make the new model as user symbol define function

Click the "User Symbol Define Icon".

	User Symbol Define	- T	
	Information	Symbol Composition	
LATSCAD Symbol Menu	Type	Symbol Type	File Conn Select
	Symbol Information Output Unit   SI  IP		
		Port Type	Connect Port Width
User Define AHU			
Chiller			
RAC Product		Port Location Search	
		Insert Poiont >> (0.0)	Select object >>
			Save Exit

User Syr	nbol Define	ALC: N	1	-			-	×
Informatio	n		_	Sy	mbol Composition			
	Type RAC Product	Import L AT			Symbol Type	File	Conn	Select
					Plan(IDU)			
Symbol In	formation	ID			Plan(ODU)			
	tput Unit 🔍 51 🕓	1			Elevation(ODU)			
List	Category	Value	^	<b>^</b>				
Model Na	ame		_		<del>-</del>	0		
Туре			_		Port Type	Conne	ect P	ort Width
Power			_					
Cooling	Capa(kBtu/h)		_					
Cooling	Capacity(kW)		_					
Cooling	Cooling Capacity(kcal/h)							
Heating	Capa(kBtu/h)		]					
Heating	Capacity(kW)							
Heating	Capacity(kcal/h)							
Powerli	nput_Cooling(kW)		_					
Powerlin	nput_Heating(kW)		_					
Current_	Cooling(A)		_					
Current_	Heating(A)							
Refriger	ant		_					
Pipe[Liqu	uid:Gas](mm)		_					
Pipe[Dra	in](mm)		_		Dent la esti a Carach			
	Dimension(mm)		_		Port Location Search			
	Weight(kg)				Insert Poiont >>		Select	object >>
	Compressure Type		_		(0.0,0.0)		0 se	elected.
ODU	Compressure Powe							
	Туре		-	J			Save	Exit
-								

- 2. Information :
- -. Select the Product type (RAC Product, AHU, Chiller)
- 3. Symbol Information:
- -. If you have already the user symbol, you can modify as open the previous xml file.
- -. Output unit: Select the output unit.(SI or IP)
- -. Insert Product Information.
- 4. Symbol Composition:
- -. Open the dwg file to make Plan block.

Symbol Type	File	Conn	Select	Constant Manual Science	
Plan(IDU)				f in the second	
Elevation(IDU)				<u> </u>	
😑 Plan(ODU)					
Elevation(ODU)					

-. Draw the port in the block.



Ex) RAC Product Plan[IDU] : It need to 6 lines (Refrigerant Input, Drain Output, Control Port 1,2,3,4)

-. Click "connect" button.

Symbol Type	File	Conn	Select
Plan(IDU)	Open	$\checkmark$	
Elevation(IDU)			
😑 Plan(ODU)			
Elevation(ODU)			
Port Type	Conne	ct Po	rt Width
Is a straight str		$\sum$	
🏹 Drain 🚥 🗤			
🖲 Contron or i	Linke	Ы	
🖲 Control Port 2			
🖲 Control Port 3			
E Control Port 4			

-. Select the line.



-. Select Symbol conter point.



-. Select object.

Select object >>	
O selected.	

-. If you insert the product data and block port, save it.

User Syml	bol Define				_		Į
nformation	1		_	Symbol Composition			
		Import LATSAHU		Symbol Type	File	Conn	Select
	Type AHU	▼ .	]	Plan	Open		
				<ul> <li>Elevation</li> </ul>	Open		
Symbol Info	ormation					-	
Outp	put Unit 🧿 SI 🛛 🔘	1h					
List	Category	Value	<u> </u>				
Model Nar	me	123					
Туре				Port Type	Conne	ct Po	rt Width
Purpose				In Refrigerant Input	Linke	± l	
Power(-V	(-Hz)			In Refrigerant Input	Linke	± l	
	Type			In the second	Linke	± 1	
	Air Flow(CMH)		=	A Refrigerant Input			
Supply	Extenal Static Press			Sefrigerant Input			
	Output(kW)			A Refrigerant Input			
	Standard			Sefrigerant Input			
	Ean Turne			Hefrigerant Input			
	Fail type			Drain Uutput			
	Fan Air Flow(CMH)			<ul> <li>Duct (SA)</li> <li>Duct (BA)</li> </ul>			
Return	Extenal Static Press			Cuct (nA)			
	Power(KW)			Cuct (EA)			
	Standard			1. Duor (cA)			
Coil Air Flo	ow(m/s)						
Coil Area(	(m²)			Dest Leasting Scool			
	Refrigerant			Port Location Search			
	Nominal Capacity(kW)	150		Insert Poiont >>		Select of	bject >>
	Pipe Connection(mm)			(398334.02,-79865.98	)	185 s	elected.
Cooling	Inlet_Cooling(DBT)(°				-	_	
	Inlet_Cooling(WBT)(		-			Sava	E E M

# Add the user defined symbol model in project

1. Click the product type



#### 2 AHU:

2.1. AHU Model selects

uipment Infi	ormation			Model Search	1		
List	Category	Value	<b>^</b>	Model	Туре	e No,Pa	rt 🤺
Model Name		123thest		123		3	
Туре				123the	st	1	
Purpose				234		3	
Power(-V-Hz	2)			345		3	-
	Туре			<ul> <li>567</li> <li>0000</li> </ul>		3	-1
	Air Flow(CMH)			6888 <b>•</b>		4	-1
Supply Fan	Extenal Static Pressure(			test123	1	2	_
	Output(kW)			e testtest		1	
	Standard		=	😑 test_ah	u	3	-
	Fan Type			•			•
	Fan Air Flow(CMH)				1		_
Return Fan	Extenal Static Pressure(			HOLTIVODO	,	Select >	>
	Power(kW)						
	Standard			Mode			
Coil Air Flow	(m/s)			Qt	/ 0/ 1		
Coil Area(m <sup>2</sup> )	)			Expansion Ki	t		
	Refrigerant	r410a		Тур	e 🍳 TXV Kit	C EEV Kit	
	Nominal Capacity(kW)	49		Mod	el	~	
	Pipe Connection(mm)				. —		
Cooling Coil	Inlet_Cooling(DBT)(°C)			Qt	У		
	Inlet_Cooling(WBT)(°C)			Control Kit			
	Outlet_Cooling(DBT)(°C)			Тур	e 🔍 Control Kit	Comm. Kit	
	Outlet_Cooling(WBT)(°C)			Mode	PRCKD21E	*	
	Refrigerant			Qt	<b>y</b> 1		
	Nominal Capacity(kW)						

#### 2.2 The MultiV ODU model selects.

DU list				
ODU Type MUL	TI V S		-	
Model	Cooling (kW)	Heating (kW)	-	
ARUMDBOLTES	22.39	22.39		
ARUM100LTE5	27.99	27.99	E	
ARUM120LTE5	33.59	33.59		
ARUM140LTE5	39.21	39.21		
ARUM160LTES	44.81	44.81		
ARUM180LTES	50.41	50.41		
ARUM200LTE5	56.01	56.01		-
ARUM220LTE5	61.60	61.60		
ARUM221LTE5	61.60	61.60		177
ARUM240LTE5	67.20	67.20		1 mm - 1 mm
ARUM241LTE5	67.20	67.20	100	
ARUM261LTE5	72.00	72.80		
ARUM260LTE5	72.80	67.20		
ARUMORI TEE	79.40	29.40		UK Cancel

2.2.1 Select "ODU Type".

2.2.2 Select ODU Model.

2.23 OK.

\* The default of ODU quantity is determined by AHU's No. port. And it can modify.

2.3 The Expansion model selects.

Expansion Kit Type  TXV Kit	Expansion Kit Type O TXV Kit O EEV Kit
Model PATX13A0	Model PRLK048A0
Qty 2	Qty 2

(TXV kit)

(EEV kit)

2.3.1 TXV kit: The model name is determined automatically by ODU total capacity.

2.3.2 EEV kit: if you select the model name, the equipment's quantity is determined automatically.

#### 2.4. The Control model selects.

Control Kit	Control Kit
Type 💿 Control Kit 🛛 🔿 Comm. Kit	Type 🔵 Control Kit 💿 Comm. Kit
Model PRCKD20E	Model PRCKA0
Qty 1	Qty 2

#### (Control kit)

(Comm. kit)

2.4.1 TXV kit: The model name is determined automatically by ODU total capacity.

2.4.2 EEV kit: if you select the model name, the equipment's quantity is determined automatically.

\*When Select the EEV kit, It cannot select "Control kit" .

#### 2.5. Click the "OK".

- 2.6. Positioning AHU&ODU
- 2.6.1 AHU is positioned.



2.6.2 Check the ODU model. (Click the "OK")

notemeter USG				(EU) OOU Hode					Connect Indoor Unit	: Information		
Calegory	Setting V	alue		Combination Potic(%)	100.0 CA	uto Recomme	induction		Total IAC Nominal I	Cooling Capacity	0.0 KW	
Group 10 Prets     Group 10	GAC-			OOU Type	HULTIV 5			•	A 10 10	Physical		•
· Facility ID				Model	tion ra	is   Cooling	Heating		Location	Model	Coolin	2
<ul> <li>Install Location</li> </ul>			121	-		CI (1997	(0.90)	1			0.94	9.1
<ul> <li>Model</li> </ul>	4R1M090	LTE5	- 11									
Euper Hodel	ARLM000	LTES		- ANDHIDLE	45 0	N 27.99	27.99	7				
000	MULTIVE			- ANDHIDAL	45 0		33.99					
Cosing capacity (Kvi)	22.39			C LEADING T			10.00	н.				
<ul> <li>Heating capacity/k/wl</li> </ul>	22.39			ARUMINUT T	53 U.	20 44.01	84.01					
Cooling consumpti.	4.49			ATUMORT		N N 01	50.41					
<ul> <li>Heating consumpt.</li> </ul>	3.97			- ARTICLER -			12.00					
Poset	2/380-815	50.3/393/60	1.2	ARDINGSR.	CD 0	N 01.00	61.00					
				A ARTINOVALITE	55 0	a an an	67.30					
				<ul> <li>ARTINOVER</li> </ul>	EE 0	67.00	67.30					
niet Water Information				A ARLINGTON T		11.00	67.35					
Inter Toma (dashed		10.00		ARUMONU T	25 0	1 100	72.00					
anet remp. (coord)		60		ALIN201	25 0	10 70.40	70.45					
(Heating)		(*C)		· ARLHOUGT	65 0	0 01.99	83.99					
Water Flow Rate		(UPH)				100						
Flad Type					918				965 C	**	_	
Concentration		(100 % Pos	0		-				-	(manual)		
					100				Outcool Unit 1	TT BADGOC		-
or same a									Outdoor Unit help			
Model Nar	ne.	Qu			-	Number of Street						
					2.1							

2.6.3 The first ODU is positioned.

2.6.4 Select the refrigerant port direction.



2.6.5 If ODU quantity over to 2, next ODU is positioned.



2.6.6 Connect the AHU model and ODU.

		OAC-
AHU- OAC-		OAC-

#### 2.7. Kind of Connect Port

2.7.1 Refrigerant Port: It is selected making AHU symbol. When AHU is positioned, Expansion mark is positioned.



2.7.2 Control Port: When AHU is positioned, Control mark & port are positioned.



3. Chiller

3.1 Select Chiller Model. (LATS CAD don't support water pipe design yet)

List         Category         Value         Model         Type         No           Idedi Name <th>uipment Inf</th> <th>formation</th> <th></th> <th></th> <th>Model Search</th> <th></th> <th></th>	uipment Inf	formation			Model Search		
Model Name	List	Category	Value	*	Model	Type	No, Port
Type         Image: Construction of the construction o	Model Name						
Purpose         Image: Construct of the second of the	Туре						
Power(-V+J2)         Import (Import (I	Purpose						
Aminal Capacity(UN)         Image: Coling Capacity(UR)           Heating Capacity(UR)         Image: Coling Capacity(UR)           Heating Capacity(UR)         Image: Coling Capacity(UR)           Power Input_Cooling(W)         Image: Coling Capacity(UR)           Power Input_Cooling(W)         Image: Coling Capacity(UR)           Current         Current_Leating(XA)           Current         Current_Heating(XA)           Current         Image: Coling Capacity(UR)           Current         Image: Coling Capacity(UR)           Current         Image: Coling Capacity(UR)           Current         Image: Coling Capacity(UR)           Current_Heating(XA)         Image: Capacity(UR)           Compresion         Image: Capacity(UR)           Compresion         Image: Capacity(UR)           Ferige: Capacity(UR)         Image: Capacity(UR)           Lead Loss(KB)         Image: Capacity(UR)           Ferige: Canacito(Image: Capacity(UR))         Image: Capacity(UR)           Feri	Power(-V-H	z)					
Cooling Capacity(UsRt)         Cooling Capacity(UsRt)           Heating Capacity(UsRt)         Cooling Capacity(UsRt)           Heating Capacity(UsRt)         Cooling Capacity(UsRt)           Power Input_Cooling(W)         Power Input_Cooling(W)           Power Input_Teating(N)         Cooling Capacity(UsRt)           Current Cooling(A)         Cooling Capacity(UsRt)           Current Cooling(A)         Cooling Capacity(UsRt)           Current Cooling(A)         Cooling Capacity(UsRt)           Current Heating(A)         Cooling Capacity(UsRt)           Compres Cooling(A)         Cooling Capacity(UsRt)           Type         Cooling Capacity(UsRt)           Compres Cooling(A)         Cooling Capacity(UsRt)           Ype         Cooling Capacity(UsRt)           Fead Loss(KPa)         Cooling Capacity(UsRt)           Evaporetior         Flow Chechin(mm)           Outlet Pipe Connection(mm)         Cooling Capacity(UsRt)           Outlet Pipe Connection(mm.)         Cooling Capacity	Casting C	Nominal Capacity(kW)					
Naminal Capacity(UN)         Image: Capacity(UR)           Peter Input_Cooling(WV)         Image: Capacity(UR)           Power Input_Cooling(WV)         Image: Capacity(UR)           Power Input_Cooling(WV)         Image: Capacity(UR)           Current         Current_Cooling(A)           Current_Heating(A)         Image: Capacity(UR)           Current_Heating(A)         Image: Capacity(UR)           Refrigerant         Image: Capacity(UR)           Dimension(YKK)         Image: Capacity(UR)           Compresh         Type           Orr         Image: Capacity(UR)           Compresh         Type           Image: Capacity(UR)         Image: Capacity(UR)           Mater Flow (UPM)         Image: Capacity(UR)           Image: Capacity(UR)         Image: Capacity(UR)	Cooling C	Cooling Capacity(UsRt)					
Heating Capacity(UsRt)         Heating Capacity(UsRt)           Power Input_Cooling(KW)         Power Input_Heating(KW)           Power Input_Heating(KW)         Power Input_Heating(KW)           Current_Cooling(A)         Comment           Current_Cooling(A)         Comment           Current_Heating(A)         Comment           Dimension[WithD]         Comment           Comprest         Type           OTY         Comment           Comprest         Type           Intel Pipe Connection(mm)         Comment           Intel Pipe Connection(mm)         Intel Pipe Connection(mm)           Intel Pipe Connection(mm)         Type           Type         Type	Uppeties 0	Nominal Capacity(kW)					
Power input_locoling(XW)         Image: Coling(XW)           Power input_leating(XW)         Image: Coling(XW)           Current_Coling(A)         Image: Coling(A)           Current_teating(A)         Image: Coling(A)           Weight(K)         Image: Coling(A)           Compresimation         Type           OnY         Image: Coling(A)           Head Loss(KPa)         Image: Coling(A)           Evaporter         Image: Coling(A)           Image: Coling(A)         I	neating C	Heating Capacity(UsRt)					
Power Input_Heating(W)		Power Input_Cooling(kW)					
Current Current         Current_Cooling(A)         Image: Cooling(A)           Refrigerat         Image: Cooling(A)         Image: Cooling(A)           Dimension/WtkD](mm)         Image: Cooling(A)         Image: Cooling(A)           Comprest         Type         Image: Cooling(A)         Image: Cooling(A)           Comprest         Type         Image: Cooling(A)         Image: Cooling(A)           Auge: Cooling(A)         Image: Cooling(A)         Image: Cooling(A)           Face: Cooling(A)         Image: Cooling(A)         Image: Cooling(A)           Value: Flow (CPM)         Image: Cooling(A)         Image: Cooling(A)           Image: Cooling(A)         Image: Cooling(A)         Image: Cooling(A)           Image: Cooling(A) <td>Power In</td> <td>Power Input_Heating(kW)</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Power In	Power Input_Heating(kW)					
Current         Current_Heating(A)         E           Refrigerant         Imension(VxHxD)(mm)         Imension(VxHxD)(mm)           Weight(ky)         Type         Imension(VxHxD)(mm)           Compress         Type         Imension(VxHxD)(mm)           Compress         Type         Imension(VxHxD)(mm)           Fead Loss(KPa)         Imension(VxHxD)(mm)           Water Flow(LPM)         Imension(VxHxD)(mm)           Imension(VxHxD)         Imension(VxHxD)(mm)           Outlet Pipe Connection(mm)         Outlet Pipe Connection(mm.)           Outlet Pipe         Imension(VxHxD)		Current_Cooling(A)					
Refrigerant         Index           Dimension[WixHxD](mm)         Index           Weight(kg)         Index           Compres         Type           OnrY         Index           Head Loss(kPa)         Index           Veider Flow(UMM)         Index           Intel Pipe Connection(mm)         Index           Type         Index           Type         Index	Current	Current_Heating(A)		=			
Dimension/WXHxDJ(mm)         Image: Compression of the complex state of the comple	Refrigerant						
Weight(kg)         Type           Compres         Type           OTY         OTY           Evaporator         Type           Water Flow (LPM)         Intel Pipe Connection(mm)           Outlet Pipe Connection(m         Outlet Pipe Connection(m           Type         Type	Dimension[V	VxHxD](mm)					
Type         Image: Compression of the sector of the s	Weight(kg)						
OTY	0	Туре					
Type         Type           Head Loss(kPa)         Head Loss(kPa)           Water Flow(LPM)         Head Loss(kPa)           Inlet Pipe Connection(mm)         Outlet Pipe Connection(m           Outlet Pipe Connection(m         Type	compres	QTY					
Head Loss(kPa)           Evaporator         Water Flow(LPM)           Inlet Pipe Connection(mm)         Inlet Pipe Connection(m           Outlet Pipe Connection(m         Type		Туре					
Evaporator         Water Flow(LPM)           Inlet Pipe Connection(mm)		Head Loss(kPa)					
Inlet Pipe Connection(mm)           Outlet Pipe Connection(m           Type	Evaporator	Water Flow(LPM)					
Outlet Pipe Connection(m Type		Inlet Pipe Connection(mm)					
Туре		Outlet Pipe Connection(m					
		Туре					
Fan QTY		Fan QTY					
Fan Motor Air Flow(CMM)	Fan Motor	Air Flow(CMM)					

- 4 .RAC Product :
- 4.1 Select the Indoor unit type.
- 4.2 It is same with Single product

Indoor Unit						_	×
Indoor Unit Information			(EU) Indoor U	Init Model Se	arch		
Category	Setting Value	*	Outdoor Unit				< <odu< td=""></odu<>
Outdoor Unit ID		ſ	Indoor Unit	Ceiling Cas	sette		
<ul> <li>Group ID Prefix</li> </ul>	Single-	•				L an an	
<ul> <li>Group ID</li> </ul>			Model	Э.	·· Cooling ·· (kW)	Heating (kW)	entilation (CMH)
Install Location		E					
Model     Rever Medel							
Name							
<ul> <li>Cooling capacity (kW)</li> </ul>							
<ul> <li>Sensible heat capacity(kW)</li> </ul>							
<ul> <li>Heating capacity(kW)</li> </ul>							
<ul> <li>Cooling load(kW)</li> </ul>		-					
Inlet & Outlet Water Informat Inlet W. (Cooling)	ion T Outlet W.T (°C) (°C)						
(Heating)	(*C)						
Water Flow Rate	(LPM)						
Fluid Type	<b>~</b>						
Concentration	(10~50 %)			N	o Model		
Room Design Temperature(Re	eturn Air)						
DBT	WBT RH						
(Cooling)	(°C) (°C) (%	»)					
(Heating)	(°C)						
Note : Cooling capacity is simi	ulated by WBT						
			Accessory		ОК		Cancel

## Precautions

1. To send the project files with User define Symbol in system, user must send project files with xml files.

2. For example, when user sends the project file with AHU in the system, user must send the project file with AHU xml file.

3. If user don't have the AHU xml files, LATS CAD cannot calculate the AHU simulation



# Others

This chapter is written about explanation of useful function in using LATS CAD.

# **Utilizing Automatic Save Function**

Drawing is automatically saved using the Automatic Save function of AutoCAD.

- 1. Input AutoCAD Command Options.
- 2. Verify the automatic save location in File tab.

2.1 It is automatically saved in the folder of the corresponding path, and the path may be changed.

2.2 Automatic Save Period may be set in Open and Save tab.

urrent profile.					Current drawing TestProject. uilding DWG					
Files Display	Open and Save	Plot and Publish	System	User Preferences	Drafting	3D Modeling	Selection	Profiles 0	Online	
File Save Save as: AutoCAD 2 V Maintain Dumbria 50 File Safety P V Automat 10	File Open 9 Poplicatio 9 External 1 Demand Enabled	File Open           9         Burber of recently-used files           10         Daplay full path in title           Application Monu         9           9         Number of recently-used files           External References (Kets)         Demaid load Syste:           Enabled with coopr         •           Image of References (Kets)         •								
Create backup copy with each save Create backup copy with each save Creating Creating Creation Mantan a log file acc5 File develop in temporary files Security Options Display digital signature information				Object AF Demand Object of Proxy ins Show pr V Show	W Alow other users to Befeckt current drawing           Object.APX. Applications           Bennal load Object.APX appl:           Object.detApt appl:           Orging direct and command mode           Proor images for custom objects:           Strom proor graphics           V_D Stop direct prior formation dislog box.					

3. It is saved with the extension sv\$ File format, and it can be converted and used as dwg File format if necessary.

4. During the File recovery, use it by pasting the File converted from sv\$ to dwg in the corresponding Project folder.