



LATS HVAC User's Manual

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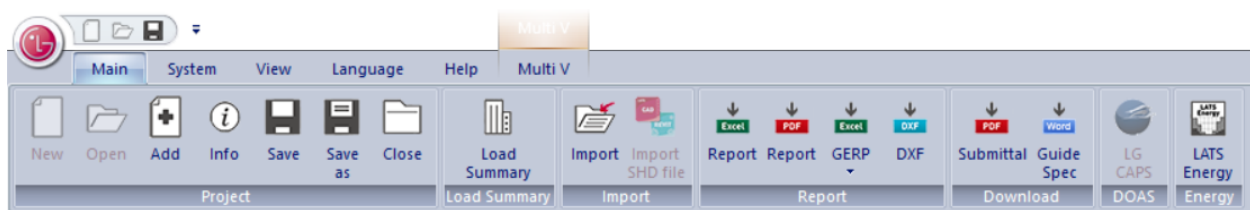
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Program Requirements

- Windows 7/8/10 32/64bit
- MS office 2007 SP3-2019 (Excel, Access mandatory)
- **Serial number:** latshvac
- All projects must be saved on physical drives (LATS-HVAC is not compatible with shared drives)

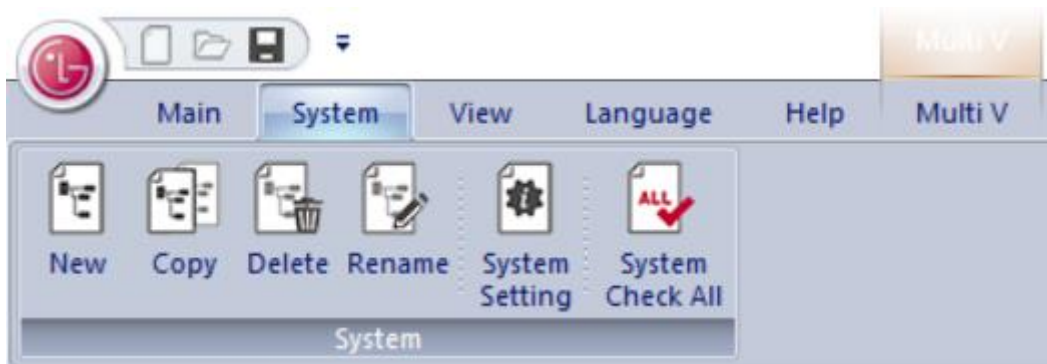
Introducing LATS-HVAC

Main Tab



- **New:** Create new project.
- **Open:** Open existing project file.
- **Add:** Add systems from another project.
- **Info:** Check project file information.
- **Save:** Save project file.
- **Save as:** Save duplicate of project file.
- **Close:** Close project file.
- **Load Summary:** Import Excel file with room information or manually input information. (See page 19-20 for more information.)
- **Import:** Import old project files from programs such as LATS Multi V, LATS Multi F and LATS ERV.
- **SHD File Import:** Import project files (.shd) from LATS CAD and LATS Revit.
- **Report:** Create report in Excel or PDF format.
- **GERP:** Automatically compile and create equipment list in Excel or DXF file. Equipment schedules are also under this tab.
- **DXF:** Create Tree/Schematic diagram in DXF file format.
- **Submittal:** Download submittal for the models selected in the project file.
- **Guide Spec:** Download guide specs for the models selected in the project file.
- **LG CAPS:** Open LG CAPS software. (LG CAPS must be installed on your computer)
- **LATS Energy:** Open LATS Energy link. (Must log in to EP in order to use it)

System Tab



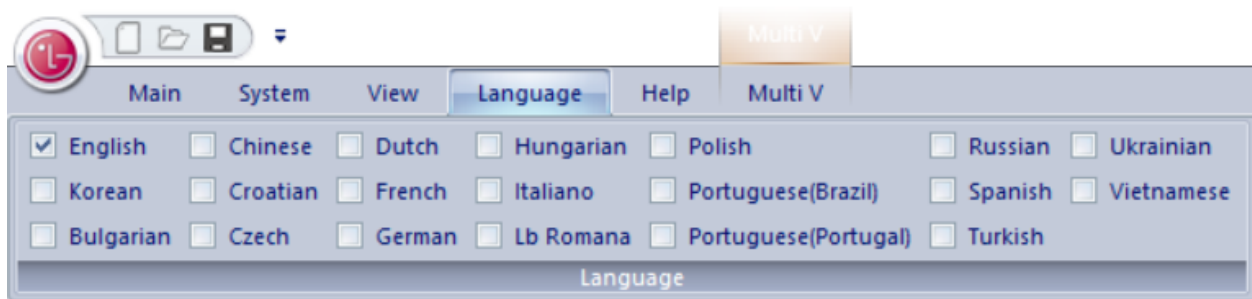
- **New:** Create new system within the same project file.
- **Copy:** Create a duplicate of the system in a new project tab.
- **Delete:** Delete selected system tab.
- **Rename:** Rename system tab.
- **System Setting:** Change or review system setting.
- **System Check All:** Run system check for all systems.

View Tab



- **System Tree:** Show or hide System Tree window.
- **Log Viewer:** Show or hide Log Viewer window.
- **Properties:** Show or hide Properties window.
- **Overview:** Show or hide Overview window.
- **System Detail Information:** Show or hide System Detail Information window.

Language Tab



Change language from the Language tab. Simply click on one of the boxes and it will automatically change the language for you.

Help Tab



- **About LATS:** View installed LATS HVAC version.
- **LATS Help:** Link to the User's Manual.
- **View Update Info:** Opens LATS HVAC update log.
- **Project File Info:** Displays LATS HVAC program version of the project.

Properties Window

Common	
Unit Information	
Temperature	°F
Pipe Length	ft
Water Flow Rate	GPM
Weight	lbs
Pipe Diameter	inch
Air Flow Rate	CFM
Pressure Drop(Air)	inchAq
Heat Load	kBtu/h
Pressure Drop(Water)	inchAq
Space Volume	ft³
Display	
Panel Position	Top
Model Name	Factory Model Name
Pipe Diameter	On
Pipe Length	On
Pipe Legend	On
Symbol Legend	On
IDU Tag	On
Room Load	On
IDU Height	On
Discontinued Model	Off
IDU Information Legend	Off
System Legend Position	Left Bottom
Program Setting	
Auto-save (min)	5
Auto Update	On
Multi V	
Branch Option	Both
Elbow Count	On
Schematic	
ODU Breaker	Total
Conditional App	
22.2(7/8)->25.4(1)	Off
28.58(1+1/8)->31.8(1+1/4)	Off
34.9(1+3/8)->38.1(1+1/2)	Off
Hydro Kit	
Lock Operation Mode	Off
Simulation	
Diversity	Off
OAU Simulation	Off
ASHRAE 15	On
Altitude Factor	Off
Display	
Block Load	Off

• **Unit Information:** To change all units at once, click on the SI or IP button located on the top of the Properties window.

You may also manually change each unit from the drop-down menu that shows when you click on it.

• **Panel Position:** Change the panel (where IDU and pipe accessories are dragged) position to Top or Right side of the tree diagram.

• **Model name:** Always set it to 'Buyer Model Name'.

• **Pipe Legend/Pipe Diameter/Pipe Length:** Turn **on** to show pipe legend/pipe diameter/pipe length on tree diagram.

If you turn it **off**, your tree diagram for reports would not show those.

• **Symbol Legend:** Turn **on** to show legend for Thermostat, Group Control and Dry Contact icons.

• **IDU Tag/Room Load/IDU Height:** Turn **on** to show indoor unit tags, room loads and indoor unit height difference from outdoor unit on tree diagram.

• **Discontinued Model:** Turn **on** to show and select discontinued models.

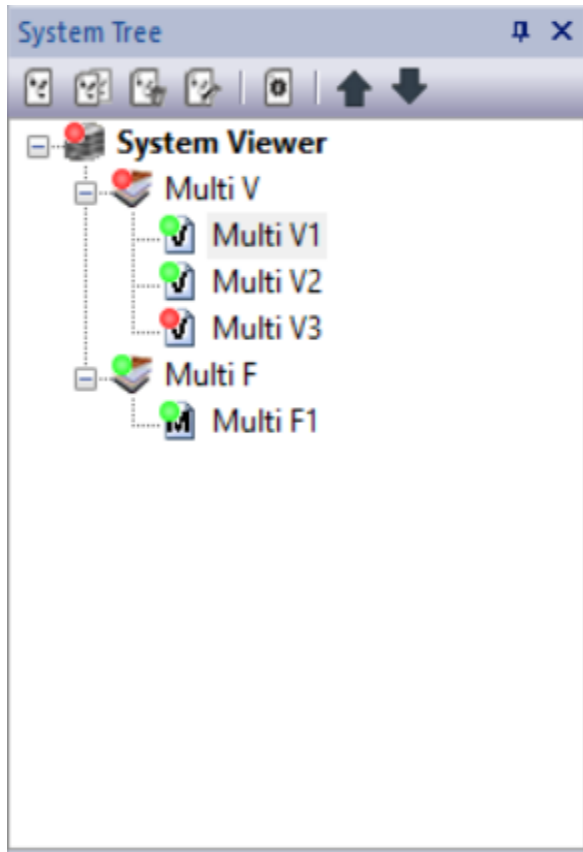
• **IDU Information Legend:** Turn **on** to show the legend with indoor unit information on tree diagram.

• **System Legend Position:** Change the position of legend with system information to bottom left or top right.

- **Auto-save/Auto Update:** Turn **on** auto-save to save projects automatically and auto update to run program updates automatically.
- **Branch Option:** Set the system to show or hide certain pipe accessories.
- **Elbow Count:** Turn **on** to show elbow counts on tree diagram
- **Schematic (ODU Breaker):** Always set it to 'Each' for North America region.
- **Conditional App:** Turn **off** to keep US standard pipe sizes under conditional application (conditional application upsizes pipe diameters)
- **Hydro Kit Operation mode lock:** Allows the system to pass system check for hydro kits that exceed combination ratio over 100%.
- **Diversity:** If turned **on**, IDU capacity is only corrected by design temperatures and not dependent on corrected ODU capacity. On is recommended in **cooling load dominant** regions.
If turned **off**, ODU capacity is corrected by design temperatures, combination ratio, and piping. It will be proportionally divided out to the IDUs as well. Off is recommended in **heating load dominant** regions.
- **OAU Simulation:** Turning **on** will include OAUs in simulation. Turning it **off** will exclude OAUs from simulation.
- **ASHRAE 15:** Turn **on** to calculate minimum room volume based on 26.0 lbs / 1000 ft³.
- **Altitude Factor:** Turn **on** to make sure Altitude Factor is applied for the project.
- **Block Load:** Turn **on** to use Block Load for tree diagram.

Note that you have to click on **Save** button located on the top of the Properties window to save any changes you make.

System Tree Window



From System Tree Window, you can see the overview of your entire project and systems. You can switch to different system by double clicking on it. And by using the icons located on the top of the window, you may also create new system, duplicate selected system, delete selected system, rename selected system, and view selected system settings.



Create new system



Create duplicate of selected system



Delete selected system



Rename selected system



View selected system settings



Change order of system

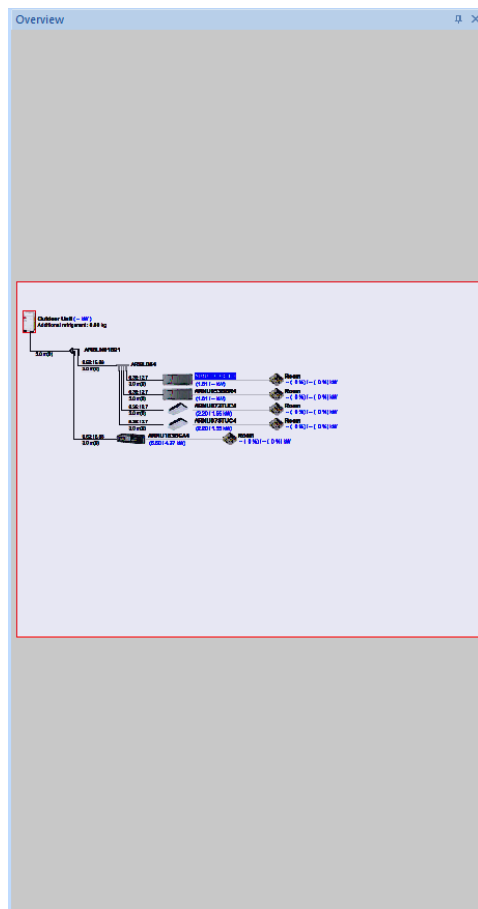
If your system fails to pass System Check, it will show red light on the project icon. If it passed, the light color would be green.

Log Viewer Window

Log Viewer Window logs the actions made in the project and shows the messages.



Overview Window



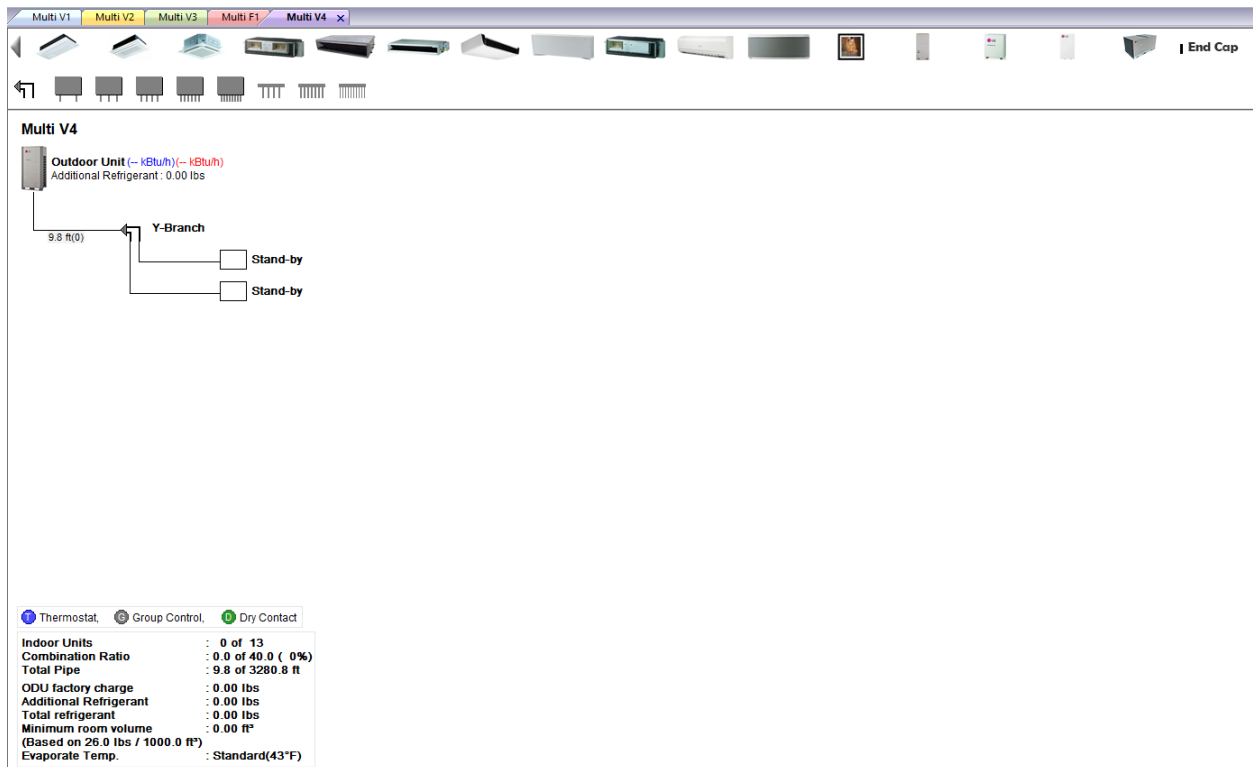
Overview window will show you the full view of the project.
You can see the entire system.

System Detail Check Box Window

System Detail Information		
System Detail Information		
Current Pipe Information		
Total pipe length	49.2 / 3280.8 ft	
Longest Pipe Length		
Real Length	29.5 / 492.1 ft	
Equivalent Length	39.4 / 574.1 ft	
Longest pipe length after 1st branch	19.7 / 131.2 ft	
Correction Factor		
Rated capacity of Outdoor Unit	168.0 kBtu/h	189.0 kBtu/h
Temperature & Combination Ratio	0.76	0.91
Pipe Length	0.99	1.00
Defrosting Factor	-	1.00
Altitude Factor	0.99	0.99
Total Correction Factor	0.75	0.90
Corrected Capacity of Outdoor unit	126.0 kBtu/h	170.2 kBtu/h
Amount of Refrigerant		
Additional Refrigerant	11.80 lbs	
Total refrigerant	38.30 lbs	
Design Conditions(°F/°F(%))		
Indoor DBT/WBT(RH)	75.0/59.7(40.8)	70.0/60.5(58.2)
Outdoor DBT/WBT(RH)	95.2/78.9(49.5)	1.0/0.5(86.0)

This System Detail Information window will show and simultaneously update detail information about a system including pipe information, correction factors, refrigerant amount and design conditions.

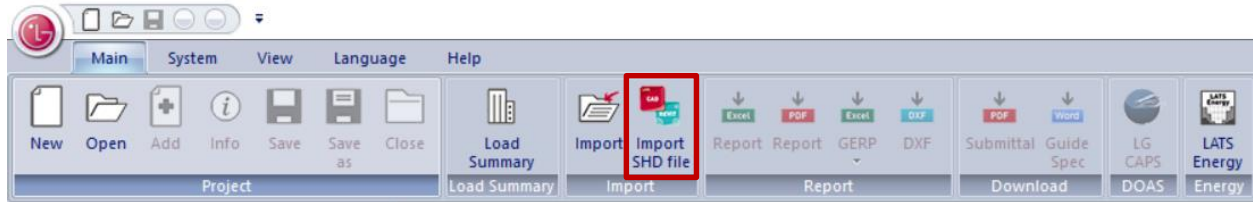
Project Window



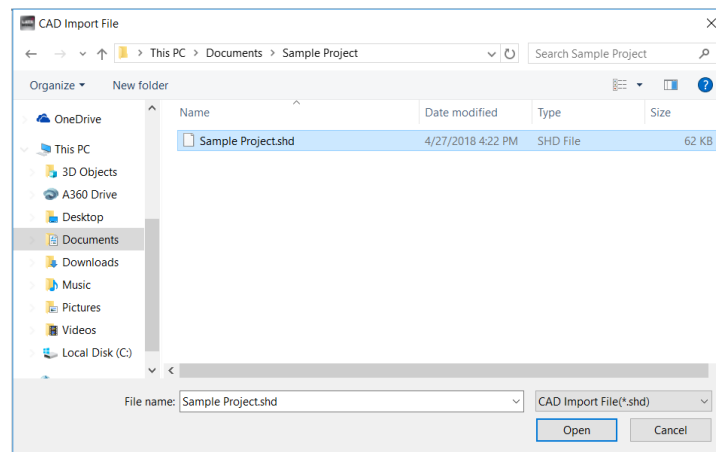
This is the actual project window that shows up when you create a new project. You can either drag and drop desired model or pipe accessories from the top menu into the Stand-by box or double click on it to select what to insert. You may also right click on it to see different actions such as deleting or inserting more.

Import LATS CAD project

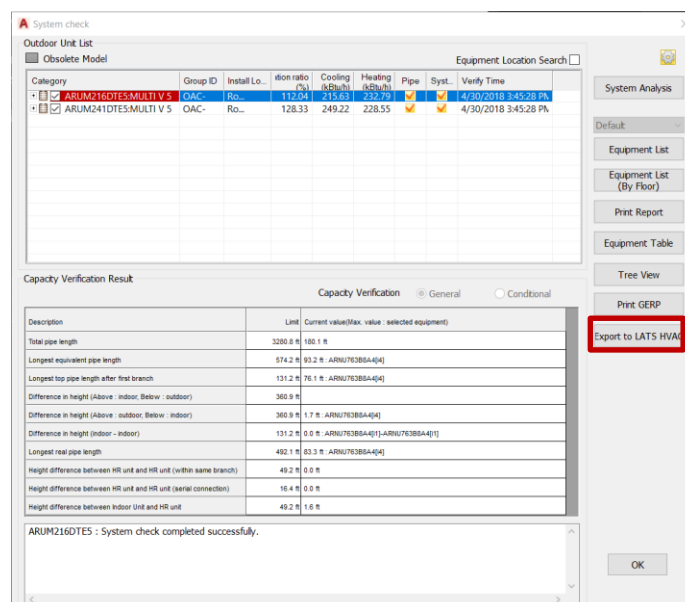
1. Click 'Import CAD' from Main tab.



2. Find LATS CAD or LATS Revit project (.shd)

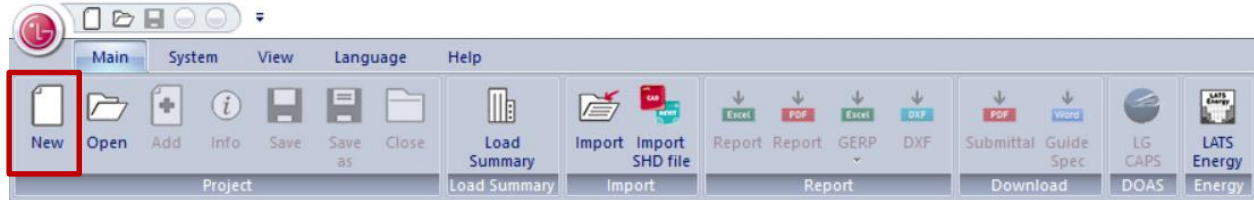


Note: LATS CAD and LATS Revit projects can be exported as .shd file format from program 'System Check' window.



Creating a project

1. Click 'New' from Main tab.



2. Input date, project name, folder to save on, and any descriptions for the project.

A screenshot of the 'Project Information' dialog box. It contains the following fields:

- 'Prepared On*': A date field with '2016-09-09' entered.
- 'Project*': A text field with 'Project_20160909' entered.
- 'Path of the Project': A text field with 'C:\Users\lguser\Downloads' entered, followed by a browse button ('...').
- 'Comments': A large text area for additional information.

At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

3. Choose country, state, and city for correct design condition. You may also change indoor and outdoor cooling/heating temperatures accordingly. Altitude will be automatically changed per state/city selection but you may adjust accordingly as well.

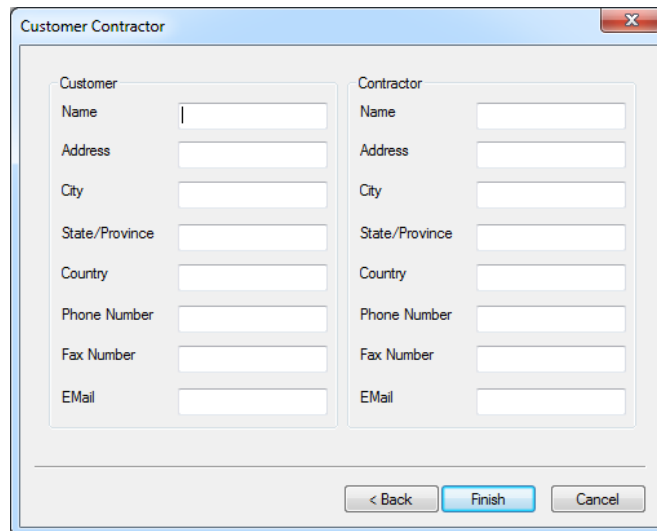
A screenshot of the 'Design conditions' dialog box. It features a world map on the left and a form on the right for selecting location and design parameters.

- 'Country': A dropdown menu set to 'United States'.
- 'State/Province': A dropdown menu set to 'Colorado'.
- 'City': A dropdown menu set to 'Colorado Springs'.
- 'Altitude': A text field with '6145.0' and a unit dropdown set to 'ft'.
- 'Design Conditions' table:

	Indoor (Return Air)			Outdoor		
Cooling	DBT	80.6 °F	▼	DBT	91.0 °F	▼
	WBT	66.2 °F	▼	WBT	57.9 °F	▼
	RH	50.0 %		RH	13.8 %	
Heating	DBT	68.0 °F	▼	DBT	-2.9 °F	▼
	WBT	55.8 °F	▼	WBT	-3.4 °F	▼
	RH	50.0 %		RH	86.0 %	

At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

4. Input any customer/contractor information for the project. Information put here will be printed in report.

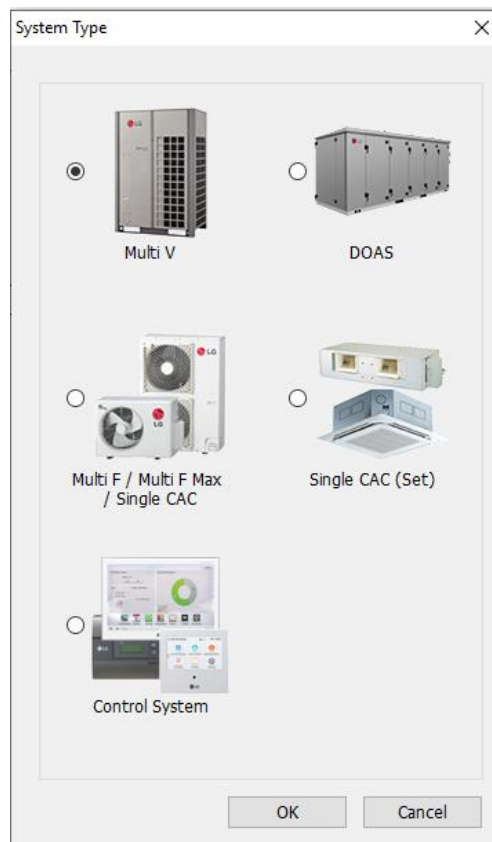


The 'Customer Contractor' dialog box is a standard Windows-style window with a title bar and a close button. It contains two columns of input fields. The left column is for 'Customer' and the right column is for 'Contractor'. Each column has fields for Name, Address, City, State/Province, Country, Phone Number, Fax Number, and EMail. At the bottom, there are three buttons: '< Back', 'Finish', and 'Cancel'.

Customer	Contractor
Name	Name
Address	Address
City	City
State/Province	State/Province
Country	Country
Phone Number	Phone Number
Fax Number	Fax Number
EMail	EMail

< Back Finish Cancel

5. Select system type that the project will be built on. There are five options: Multi V, DOAS, Multi F / F Max / Single CAC, Single CAC (Set) and Control System.



The 'System Type' dialog box is a standard Windows-style window with a title bar and a close button. It displays five radio button options, each with an image and a label. The options are: Multi V (with a vertical unit image), DOAS (with a horizontal unit image), Multi F / Multi F Max / Single CAC (with a split system image), Single CAC (Set) (with a ceiling cassette image), and Control System (with a control panel image). At the bottom, there are two buttons: 'OK' and 'Cancel'.

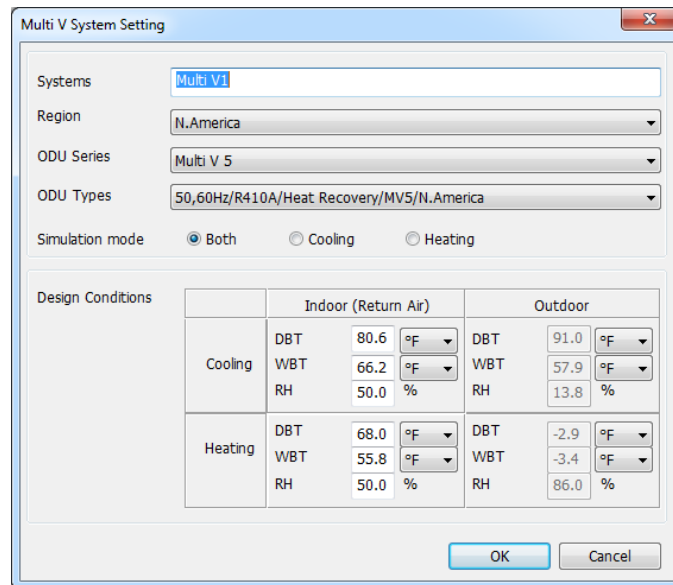
Multi V DOAS

Multi F / Multi F Max / Single CAC Single CAC (Set)

Control System

OK Cancel

6. Finally, set the system and ODU type. After creating new project, project window will look different according to your selection of system type.
 - a. If you have selected **Multi V** as system type, please go to **Multi V** section of the manual.

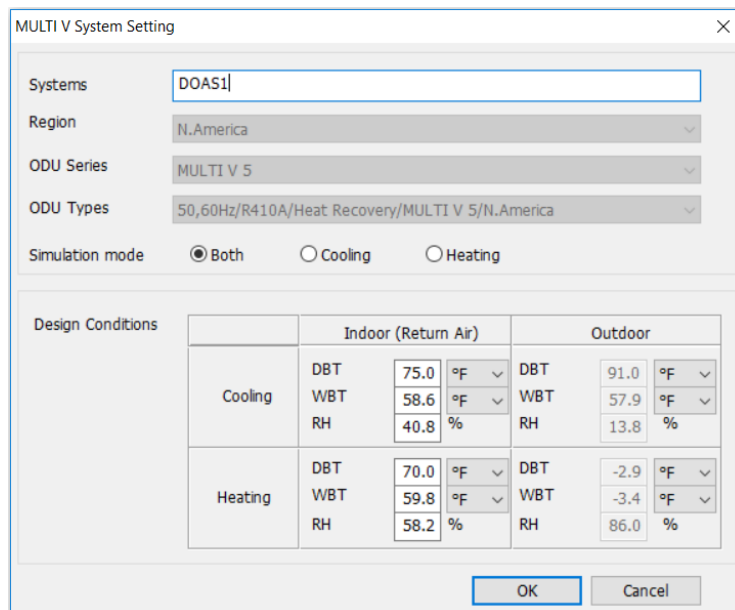


The 'Multi V System Setting' dialog box is shown. It has a title bar with a close button. The 'Systems' field contains 'Multi V1'. The 'Region' dropdown is set to 'N.America'. The 'ODU Series' dropdown is set to 'Multi V 5'. The 'ODU Types' dropdown is set to '50,60Hz/R410A/Heat Recovery/MV5/N.America'. The 'Simulation mode' section has three radio buttons: 'Both' (selected), 'Cooling', and 'Heating'. Below this is the 'Design Conditions' section, which contains a table with indoor and outdoor air conditions for both cooling and heating modes.

		Indoor (Return Air)			Outdoor		
Cooling	DBT	80.6	°F		DBT	91.0	°F
	WBT	66.2	°F		WBT	57.9	°F
	RH	50.0	%		RH	13.8	%
Heating	DBT	68.0	°F		DBT	-2.9	°F
	WBT	55.8	°F		WBT	-3.4	°F
	RH	50.0	%		RH	86.0	%

At the bottom right are 'OK' and 'Cancel' buttons.

- b. If you have selected **DOAS** as system type, please go to **DOAS** section of the manual.



The 'MULTI V System Setting' dialog box is shown. It has a title bar with a close button. The 'Systems' field contains 'DOAS1'. The 'Region' dropdown is set to 'N.America'. The 'ODU Series' dropdown is set to 'MULTI V 5'. The 'ODU Types' dropdown is set to '50,60Hz/R410A/Heat Recovery/MULTI V 5/N.America'. The 'Simulation mode' section has three radio buttons: 'Both' (selected), 'Cooling', and 'Heating'. Below this is the 'Design Conditions' section, which contains a table with indoor and outdoor air conditions for both cooling and heating modes.

		Indoor (Return Air)			Outdoor		
Cooling	DBT	75.0	°F		DBT	91.0	°F
	WBT	58.6	°F		WBT	57.9	°F
	RH	40.8	%		RH	13.8	%
Heating	DBT	70.0	°F		DBT	-2.9	°F
	WBT	59.8	°F		WBT	-3.4	°F
	RH	58.2	%		RH	86.0	%

At the bottom right are 'OK' and 'Cancel' buttons.

- c. If you have selected **Multi F / F Max / Single CAC** as system type, please go to **Multi F / F Max / Single CAC** section of the manual.

System Setting

Systems: **Multi F**

Region: **N America**

ODU Types: **Multi F MAX**

Simulation Mode: ☒ Both ☐ Cooling ☐ Heating

		Indoor (Return Air)			Outdoor		
Cooling	DBT	80.6	°F		DBT	91.0	°F
	WBT	66.2	°F		WBT	57.9	°F
	RH	50.0	%		RH	13.8	%
Heating	DBT	68.0	°F		DBT	-2.9	°F
	WBT	55.8	°F		WBT	-3.4	°F
	RH	50.0	%		RH	86.0	%

OK Cancel

- d. If you have selected **Single CAC (Set)** as system type, please go to **Single CAC (Set)** section of the manual.

Single CAC (Set)

Design Conditions

Room Information

Room Name: []

Room Design Condition

Cooling: DBT: 27.0 °C, WB: 19.5 °C, RH: 50.0 %

Heating: DBT: 20.0 °C, WB: 13.0 °C, RH: 50.0 %

Requirement info

Total cooling load: 0.0 kW

Sensible cooling: 0.0 kW

Heating load: 0.0 kW

Airflow Rate: 0.0 CMM

ESP: 0.0000 kg/cm²

System Information

Region: N America

Product Type: Ceiling Cassette

Hz/Ref/Type: 60Hz / R410A / Heat Pump

Product Name (ODU): LT-C1260CA

Product Name (IDU): []

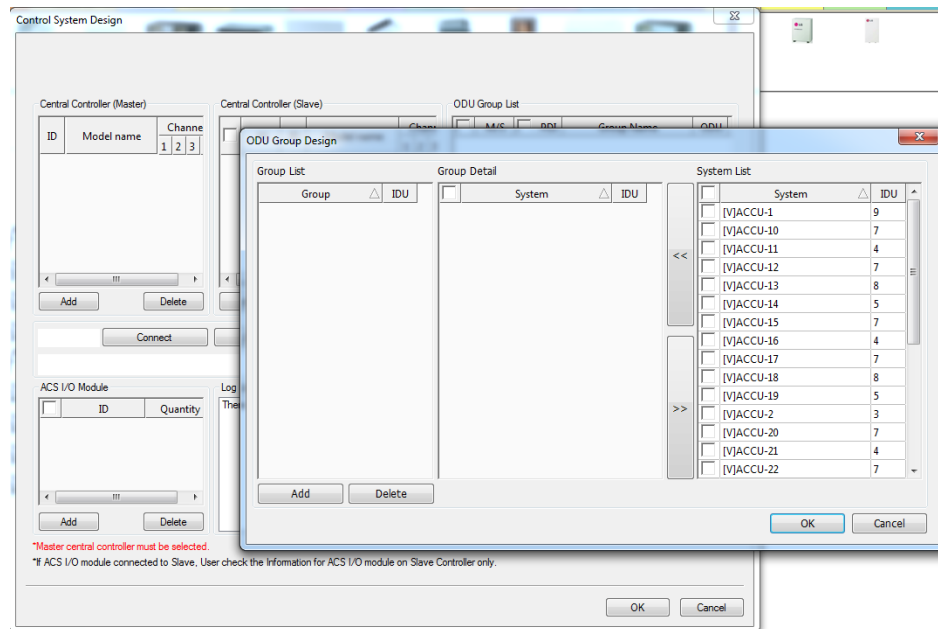
Simulation results

Product name: LT-C1260CA

Airflow Rate: 0.0 CMM

	Rated	Corrected
Total Cooling Capa	3.52	0.00
Sensible Capa	2.75	0.00
Heating Capa	0.00	0.00
SPF	1.20	0.00
Cooling Power	0.00	0.00
Heating Power	0.00	0.00
Motor type		
additional refrigerant charge	0.00	kg

- e. If you have selected **Control system** as system type, please go to **Control system** section of the manual.



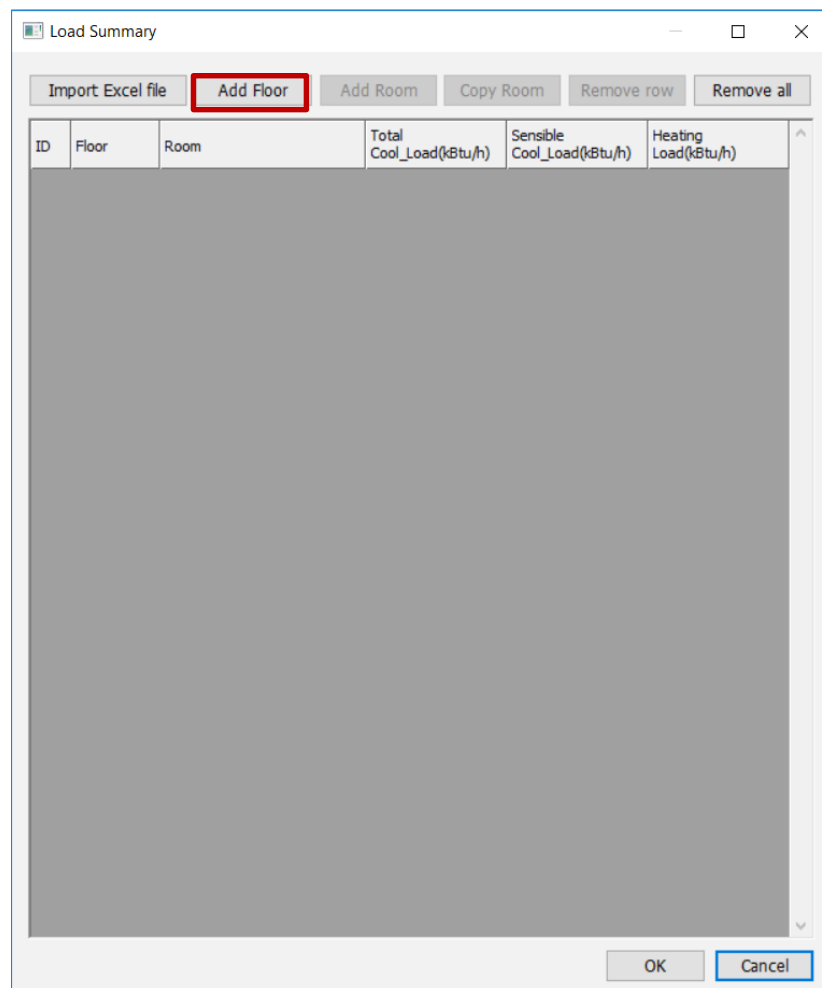
Loading Room Information

There are two ways to insert room information: one is to click on 'Load Summary' button from Main tab and the other is to double click on 'Room' icon that appears next to IDU models when inserted.

1. Click on 'Load Summary' from Main tab.



2. Click 'Add Floor' and start inserting information. 'Add Room' is the button to add rooms in the selected floor area.



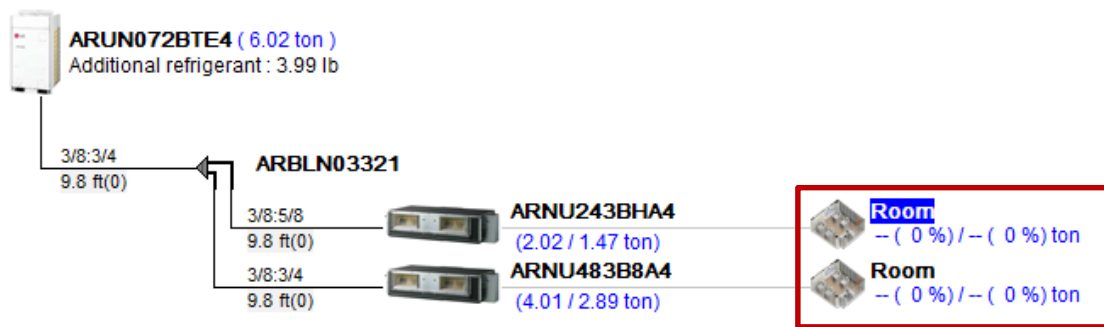
- If you wish to import Excel file with room information, click on 'Import Excel' button. Note that Excel file should not have header included and that column A should be floor, column B is room name, column c is total cooling load, column D is sensible cool load, and column E is heating load. Below is an example of Excel file.

	A	B	C	D	E
1	Floor 1	VP Office	11	9	6
2	Floor 1	Supervisor Office	12	9.5	7.5
3	Floor 1	Manager Office	80	60	55

You can also open the same 'Load Summary' window by clicking 'Room' icon next to IDU models as mentioned:

- These 'Room' icons appear when IDU models are inserted to Stand-by boxes. Double click on them to see 'Load Summary' window.

MultiV1

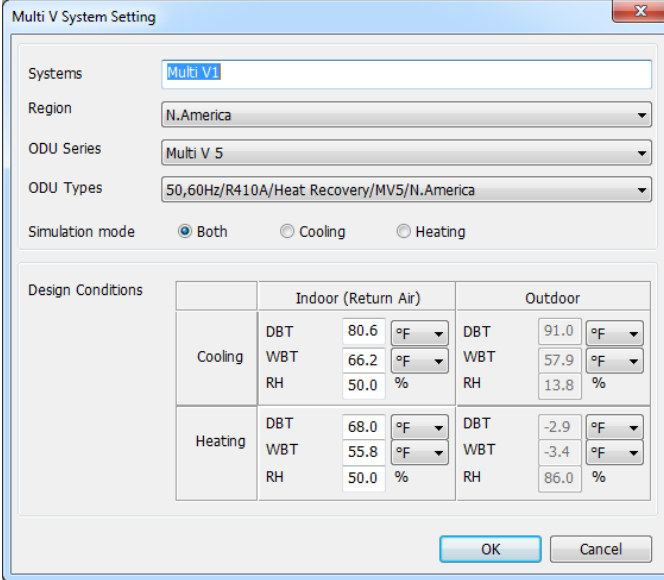


- When information is inserted, select the room where that IDU will be inserted in and hit OK. Selected room will be then connected.

MultiV1



Multi V Project



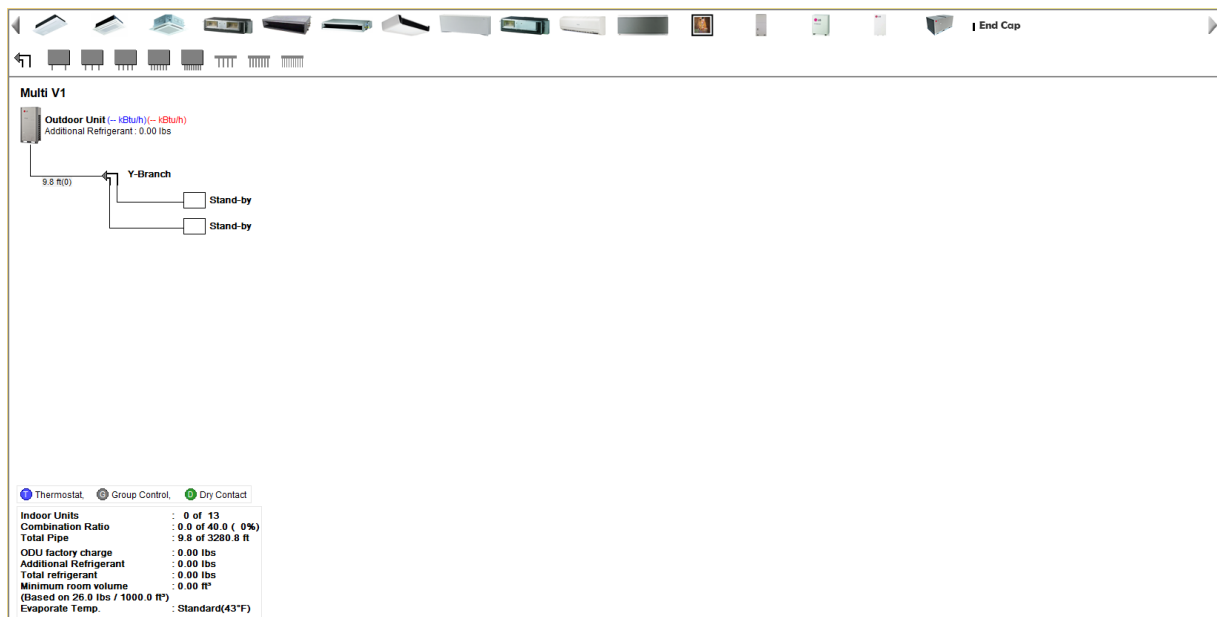
The dialog box 'Multi V System Setting' contains the following fields and controls:

- Systems:** Text field with 'Multi V1' entered.
- Region:** Dropdown menu with 'N.America' selected.
- ODU Series:** Dropdown menu with 'Multi V 5' selected.
- ODU Types:** Dropdown menu with '50,60Hz/R410A/Heat Recovery/MV5/N.America' selected.
- Simulation mode:** Radio buttons for 'Both' (selected), 'Cooling', and 'Heating'.
- Design Conditions:** A table with two main sections: 'Indoor (Return Air)' and 'Outdoor'. Each section has rows for 'Cooling' and 'Heating' modes, with columns for DBT, WBT, and RH. Values are entered in text boxes with unit dropdowns.

		Indoor (Return Air)			Outdoor		
Cooling	DBT	80.6	°F		DBT	91.0	°F
	WBT	66.2	°F		WBT	57.9	°F
	RH	50.0	%		RH	13.8	%
Heating	DBT	68.0	°F		DBT	-2.9	°F
	WBT	55.8	°F		WBT	-3.4	°F
	RH	50.0	%		RH	86.0	%

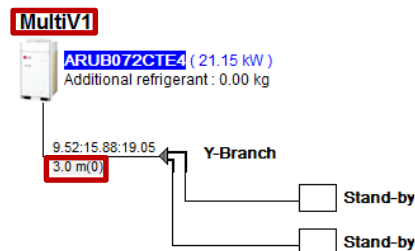
- **Systems:** Name the system.
- **Region:** Select the N.America. Note that each region will have different product database.
- **ODU Series:** Select Multi V series.
- **ODU Types:** Select the type of ODU between Heat Recovery and Heat Pump.
- **Simulation mode:** Select the simulation mode between cooling and heating. Depending on your selection, report view will show capacities values either on heating or cooling mode. You could also choose 'both' to show both heating and cooling capacities.

Note that you can change cooling and heating temperature but RH must be set as 50%.



Project window for Multi V system

Multi V System Setting window can be viewed again by double clicking on the title of the project:



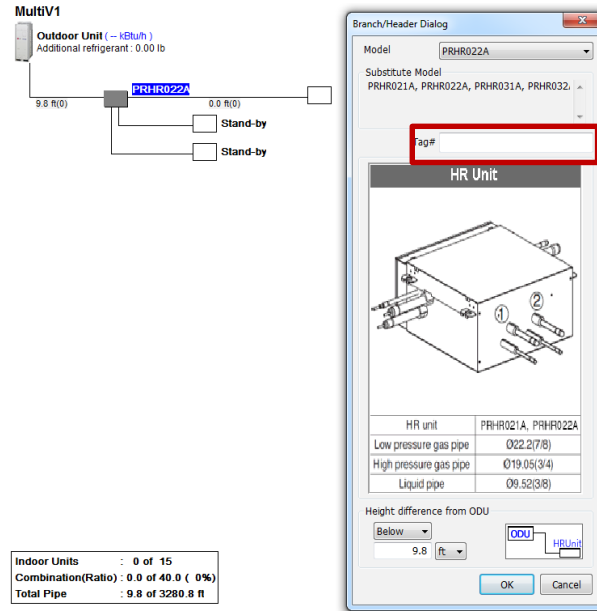
You can also modify the pipe length by double clicking on the recorded length. Pipe Length window will pop up and you can simply change the length and elbow count, which is the number of piping turns.

Also, please refer to the table below for fitting losses and equivalent feet of pipe.

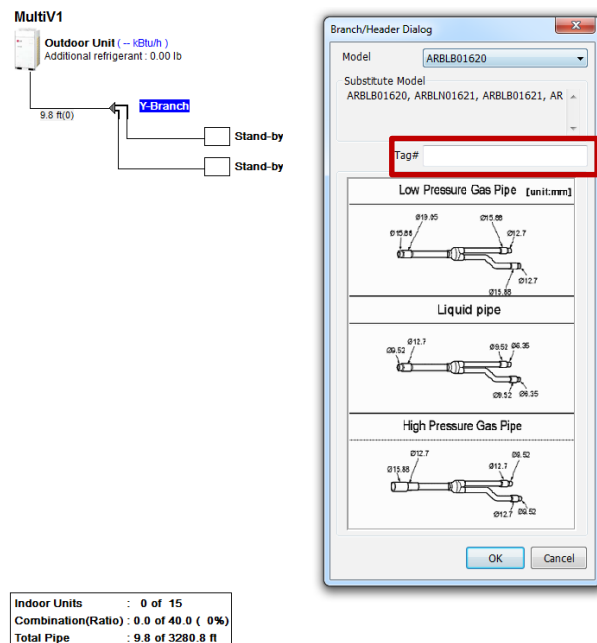
inch	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	1-5/8	1-3/4	2-1/8
Long Radius Elbow (ft)	0.5	0.6	0.7	0.8	1.2	1.3	1.5	1.6	1.8	2.0	2.1	2.3	2.5	2.8
Y-Branch (ft)	1.6													
Header (ft)	3.3													
HR Unit (ft)	8.2													

Heat Recovery vs. Heat Pump

When setting ODU types, there are two settings you can choose from: Heat recovery and Heat pump. In Heat recovery system, you can place HR boxes as well as Y-branches whereas from Heat pump system, you cannot place HR boxes.



Heat Recovery



Heat Pump

When you look at the dialog window for either Y-branch or HR unit, you will notice Tag# space. Here, you can insert ID to distinguish multiple Y-branch/HR units. This will help in actual installation process to easily lay them out without confusion.

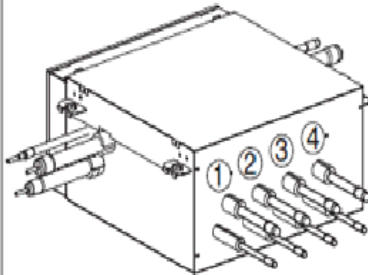
Branch/Header Dialog

Model: PRHR042A

Substitute Model:
PRHR021A, PRHR022A, PRHR031A,
PRHR032A, PRHR041A, PRHR042A

Tag#

HR Unit



HR unit	PRHR041A, PRHR042A
Low pressure gas pipe	Ø28.58(1-1/8)
High pressure gas pipe	Ø22.2(7/8)
Liquid pipe	Ø15.88(5/8)

Height difference from ODU

Below ☐ All

9.8 ft

ODU HRUnit

OK Cancel

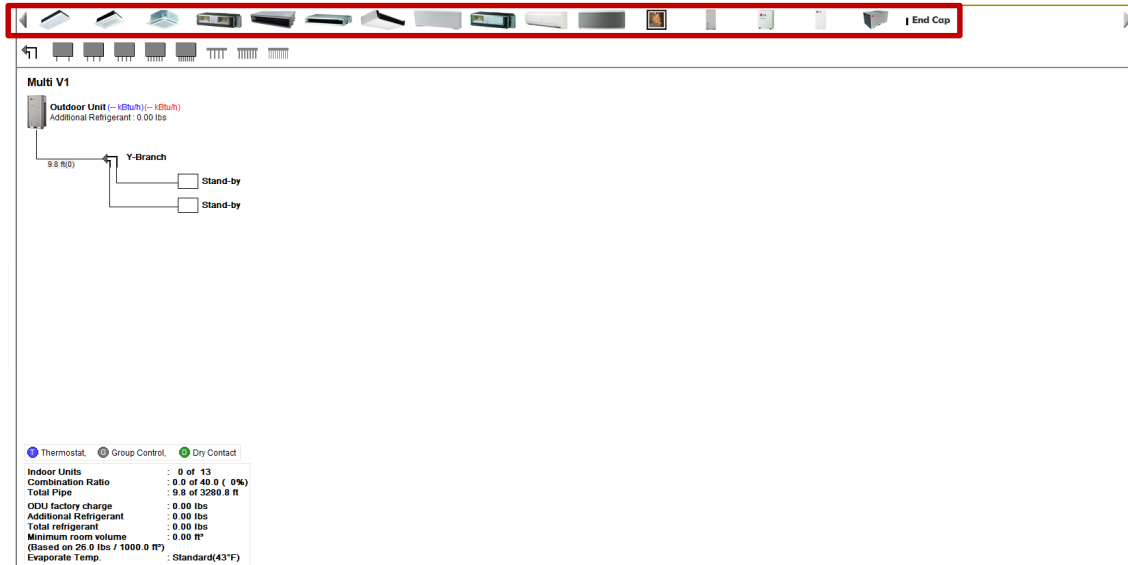
← Especially for HR unit dialog, you can also set elevation of HR unit to ODU. Check the 'All' box to change all HR unit elevation for the system at the same time.

Inserting Indoor Unit

There are two ways to insert IDU: Drag and drop, and double click.

Drag and drop:

1. Select desired IDU from the icon bar located on the top of the window.



2. Drag and drop the icon to desired Stand-by box.
3. When Indoor Unit Properties window pops up, set IDU options appropriately and click OK.

The 'Indoor Unit Properties' dialog box is shown. It contains the following sections and fields:

- Indoor Unit:** Includes a 3D model of a ceiling cassette unit.
- Generation:** Set to 4.
- IDU Type:** Set to CASSETTE 4WAY.
- IDU Model:** Set to ARNU053TRD4.
- Height difference from ODU:** Set to 9.8 ft. Below this, there are checkboxes for 'Below', 'All', and 'ODU'. The 'All' checkbox is checked.
- Room Design Temp.(Return Air Temp.):** Includes fields for DBT (Cooling: 75.0 °F, Heating: 70.0 °F), WBT (58.6 °F), and RH (40.8 %).
- Note:** Cooling capacity is simulated using WBT.
- Air flow rate:** Set to High, 265 CFM.
- Model Capacity:** A table showing capacities for Total Cooling, Sensible Cooling, and Heating.
- Est. Discharge Temp.:** Includes fields for Cooling (62.3 °F) and Heating (91.3 °F).
- Tag#:** Set to 1.
- Accessories:** A button to view accessories.
- Buttons:** OK and Cancel.

	Total Cooling	Sensible Cooling	Heating
IDU Capacity	3.9	3.6	6.1
Design Load	0.0	0.0	0.0
Room	0.0	0.0	0.0

Note that there's also 'All' box under Height difference section and the return air temperatures. By checking this box, you can change all IDU elevation and return air temperatures for the system at once.

4. End caps must be placed on empty ports

The screenshot shows the 'Indoor Unit Properties' dialog box for an 'End Cap' unit. The 'Indoor Unit' section includes a preview image of the unit, 'Generation' set to 4, 'IDU Type' set to 'END CAP', and 'IDU Model' set to '-'. The 'Height difference from ODU' section shows 'Below' selected with a value of 9.8 ft. The 'Room Design Temp.(Return Air Temp.)' section shows 'Cooling' at 75.0 °F, 'Heating' at 70.0 °F, 'WBT' at 58.6 °F, and 'RH[%]' at 40.8. A note states: 'Note: Cooling capacity is simulated using WBT.' The 'Model Capacity' section shows a table with columns for 'Total Cooling', 'Sensible Cooling', and 'Heating'. The 'IDU Capacity' row shows 0.0 for all three. The 'Design Load' row shows 0.0 for all three. The 'Room' row shows 0.0 for all three. The 'End Cap' section is highlighted. The 'Tag#' is 1. The 'Future IDU' checkbox is unchecked. The 'OK' button is highlighted with a red box.

	Total Cooling	Sensible Cooling	Heating	
IDU Capacity	0.0	0.0	0.0	kBtu/h
Design Load	0.0	0.0	0.0	kBtu/h
Room	0.0	0.0	0.0	%

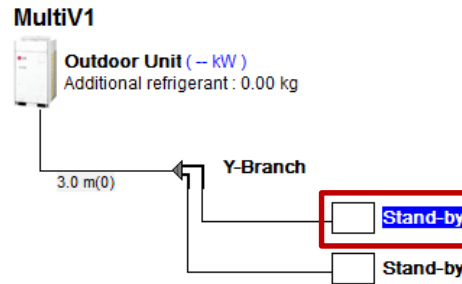
Note: Check the Future IDU box to assign IDU for future use. A system must be at least 50% combination ratio with regular IDUs then future IDUs can be added up to 130%.

The screenshot shows the 'Indoor Unit Properties' dialog box for a 'DUCT HIGH STATIC' unit. The 'Indoor Unit' section includes a preview image of the unit, 'Generation' set to 4, 'IDU Type' set to 'DUCT HIGH STATIC', and 'IDU Model' set to 'ARNU073M2A4'. The 'Height difference from ODU' section shows 'Below' selected with a value of 9.8 ft. The 'Room Design Temp.(Return Air Temp.)' section shows 'Cooling' at 80.6 °F, 'Heating' at 68.0 °F, 'WBT' at 67.1 °F, and 'RH[%]' at 50.0. A note states: 'Note: Cooling capacity is simulated using WBT.' The 'Air flow rate' is set to 'High' with a value of 468 CFM. The 'ESP' section shows 'ESP' at 0.2400 inchAq and 'Setting value' at 85. The 'Model Capacity' section shows a table with columns for 'Total Cooling', 'Sensible Cooling', and 'Heating'. The 'IDU Capacity' row shows 7.5 for Total Cooling, 6.0 for Sensible Cooling, and 8.8 for Heating. The 'Design Load' row shows 0.0 for all three. The 'Room' row shows 0.0 for all three. The 'Ceiling Concealed Duct - High Static' section is highlighted. The 'Est. Discharge Temp.' section shows 'Cooling' at 68.8 °F and 'Heating' at 85.3 °F. The 'Tag#' is 1. The 'Future IDU' checkbox is checked. The 'OK' button is highlighted with a red box.

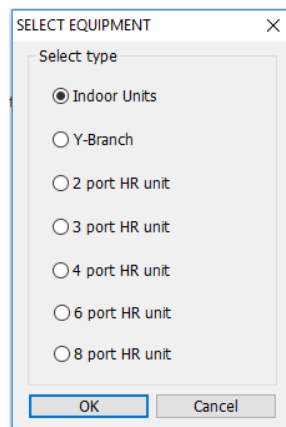
	Total Cooling	Sensible Cooling	Heating	
IDU Capacity	7.5	6.0	8.8	kBtu/h
Design Load	0.0	0.0	0.0	kBtu/h
Room	0.0	0.0	0.0	%

Double click:

1. Double click the Stand-by box. Indoor Unit Properties window will pop up.

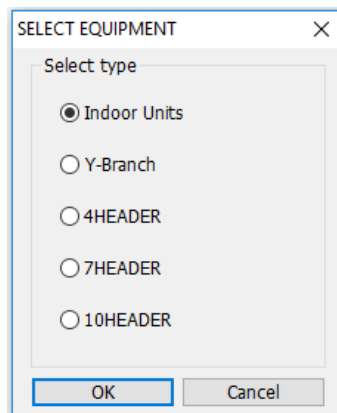


2. From Select Equipment window, choose 'Indoor Units'.

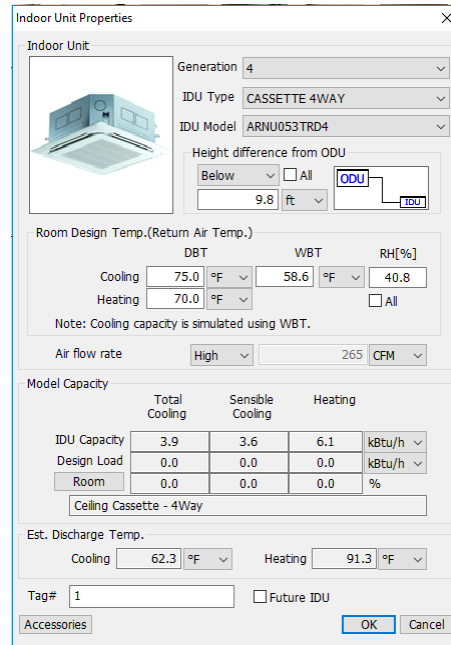


You can also select pipe accessories such as Y-branch or header. This will create further Stand-by boxes that you can insert more on.

Note that there will be different list of options – such as Heat Recovery boxes – if you have Heat Recovery ODU opposed to Heat Pump ODU:



- When Indoor Unit Properties window pops up, set IDU options appropriately and click OK.



Indoor Unit Properties window showing configuration options for an indoor unit.

Indoor Unit: Generation: 4, IDU Type: CASSETTE 4WAY, IDU Model: ARNU053TRD4.

Height difference from ODU: Below, 9.8 ft, All, ODU, IDU.

Room Design Temp. (Return Air Temp.): DBT, WBT, RH[%]. Cooling: 75.0 °F, 58.6 °F, 40.8. Heating: 70.0 °F, All.

Note: Cooling capacity is simulated using WBT.

Air flow rate: High, 265 CFM.

Model Capacity:

	Total Cooling	Sensible Cooling	Heating
IDU Capacity	3.9	3.6	6.1 kbtu/h
Design Load	0.0	0.0	0.0 kbtu/h
Room	0.0	0.0	0.0 %

Ceiling Cassette - 4Way

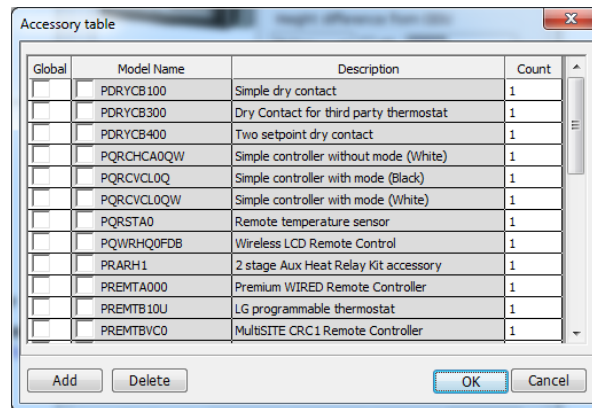
Est. Discharge Temp.: Cooling: 62.3 °F, Heating: 91.3 °F.

Tag#: 1, Future IDU.

Accessories: OK, Cancel.

From Indoor Unit Properties window, Room Design Temperature can be modified only if Diversity from Properties Window is set as ON.

And you can add accessories from Accessories button:



Accessory table window showing a list of accessories.

Global	Model Name	Description	Count
<input type="checkbox"/>	PDRYCB100	Simple dry contact	1
<input type="checkbox"/>	PDRYCB300	Dry Contact for third party thermostat	1
<input type="checkbox"/>	PDRYCB400	Two setpoint dry contact	1
<input type="checkbox"/>	PQRCHCA0QW	Simple controller without mode (White)	1
<input type="checkbox"/>	PQRCVCL0Q	Simple controller with mode (Black)	1
<input type="checkbox"/>	PQRCVCL0QW	Simple controller with mode (White)	1
<input type="checkbox"/>	PQRSTA0	Remote temperature sensor	1
<input type="checkbox"/>	PQWRHQ0FDB	Wireless LCD Remote Control	1
<input type="checkbox"/>	PRARH1	2 stage Aux Heat Relay Kit accessory	1
<input type="checkbox"/>	PREMTA000	Premium WIRED Remote Controller	1
<input type="checkbox"/>	PREMTB10U	LG programmable thermostat	1
<input type="checkbox"/>	PREMTBVC0	MultiSITE CRC1 Remote Controller	1

Add **Delete** **OK** **Cancel**

4. End caps must be placed on empty ports

Indoor Unit Properties

Indoor Unit

End Cap

Generation: 4

IDU Type: END CAP

IDU Model: -

Height difference from ODU

Below ☐ All ☒ ODU

9.8 ft

Room Design Temp. (Return Air Temp.)

DBT WBT RH[%]

Cooling 75.0 °F 58.6 °F 40.8

Heating 70.0 °F ☐ All

Note: Cooling capacity is simulated using WBT.

Model Capacity

	Total Cooling	Sensible Cooling	Heating	
IDU Capacity	0.0	0.0	0.0	kBtu/h
Design Load	0.0	0.0	0.0	kBtu/h
Room	0.0	0.0	0.0	%

End Cap

Tag# 1 ☐ Future IDU

OK Cancel


Selecting Outdoor Unit

Outdoor Unit Properties

System Info
System Name : Multi V1

Series/Type
Series : Multi V 5
Types : 50,60Hz/R410A/Heat Recovery/MV5/N.Am

Search Type
☒ Full Models ☐ Auto selection 100

 **ARUM072BTE5**
ARUM072DTE5
ARUM096BTE5
ARUM096DTE5
ARUM121BTE5
ARUM121DTE5
ARUM144BTE5

☒ Defrosting factor

Model Capacity	Cooling Capacity	Heating Capacity	
ODU	72.0	70.9	kBtu/h
Input Power	4.28	6.93	kW
Power Supply	3/208-230V/60Hz		
Current Combi.(%)	455.6		

Accessories Outdoor Multi Frame OK Cancel

1. Double click on the ODU icon. Outdoor Unit Properties window will pop up.
2. To manually select, from the listed models, choose one and click OK.
3. To automatically select, change the search type to 'Auto selection' and the program will automatically select based on combination rate.

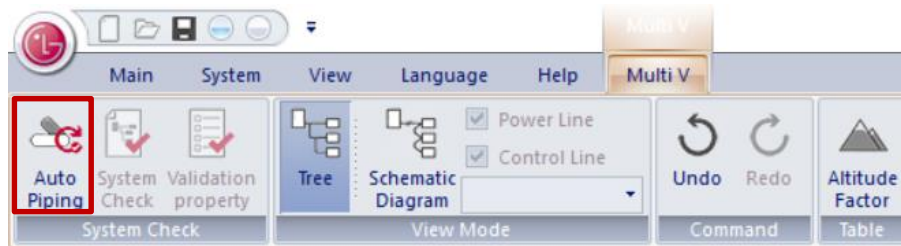
Note that defrosting factor means that for heating to under 0 degree, capacity will be calculated automatically.

And you may also add accessories for ODU from Accessories button.

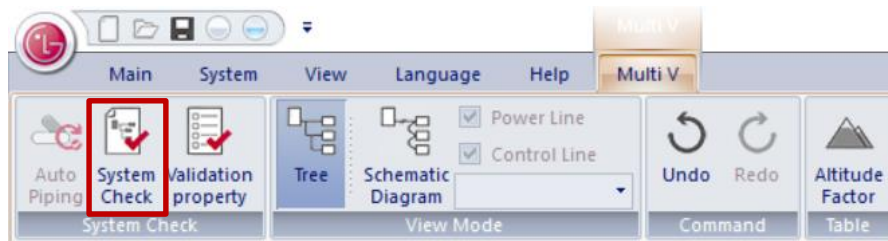
System Check

After configuration is done, you will need to run System Check to finalize that the system is set correctly.

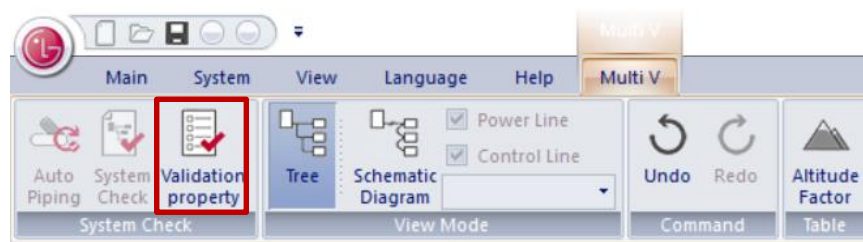
1. Go to Multi V tab and click on 'Auto Piping' button. This function will automatically correct the pipe diameter and Y-branch size.



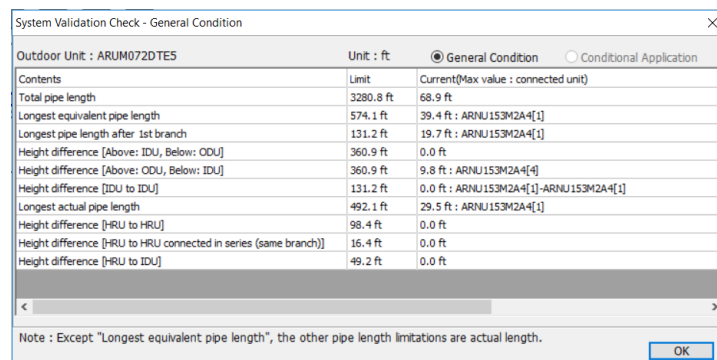
2. When 'Auto Piping' is completed, 'System Check All' button will be enabled. Click on 'System Check All' button.



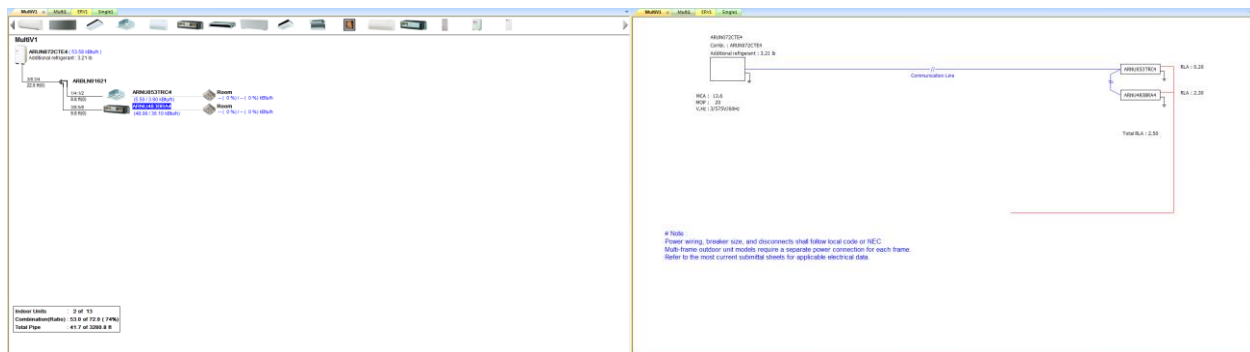
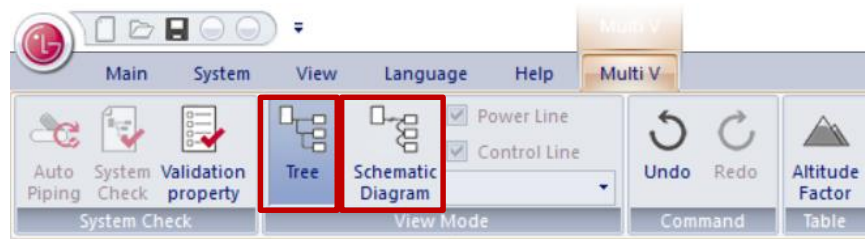
3. When 'System Check All' is completed, 'System Properties' button will be enabled. Click on 'System Properties' button.



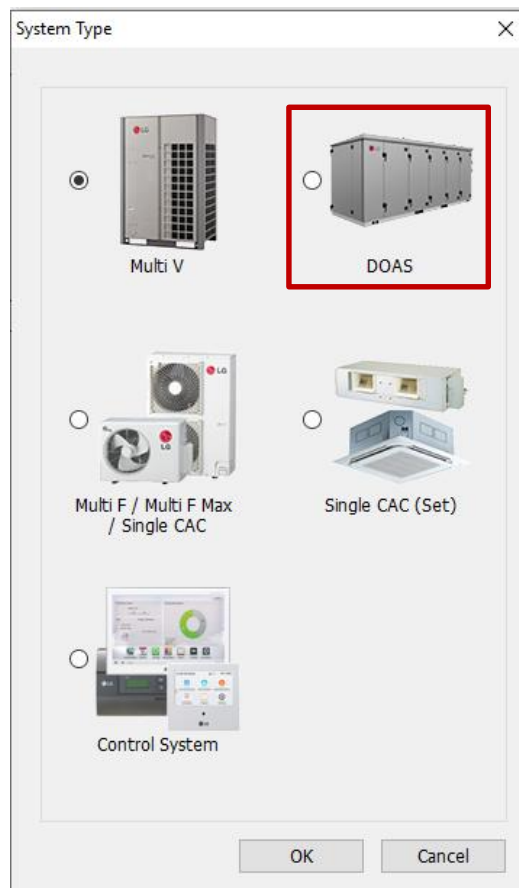
4. System Validation Property window will pop up.



Note that you can also change the view of Project window from Tree to Schematic. Tree diagram lets you see refrigerant diagram in isometric perspective whereas Schematic diagram will let you see electrical and communication sketch.



DOAS Project



From System Type window, select "DOAS"

MULTI V System Setting

Systems:

Region:

ODU Series:

ODU Types:

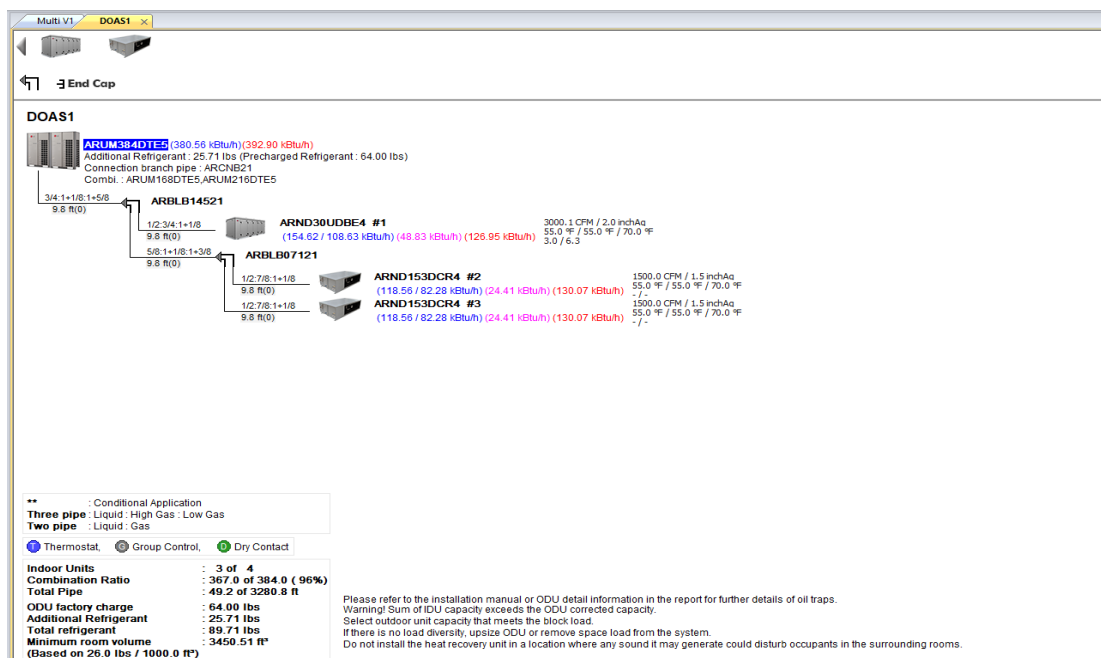
Simulation mode: ☒ Both ☐ Cooling ☐ Heating

Design Conditions		Indoor (Return Air)			Outdoor		
Cooling	DBT	80.6	°F		DBT	91.0	°F
	WBT	67.1	°F		WBT	73.0	°F
	RH	50.0	%		RH	43.0	%
Heating	DBT	68.0	°F		DBT	1.0	°F
	WBT	56.7	°F		WBT	0.5	°F
	RH	50.0	%		RH	86.0	%

OK Cancel

- **Systems:** Name the system.
- **Region:** Default regions will be N.America
- **ODU Series:** Default series will be Multi V 5
- **ODU Types:** Default type will be Heat Recovery

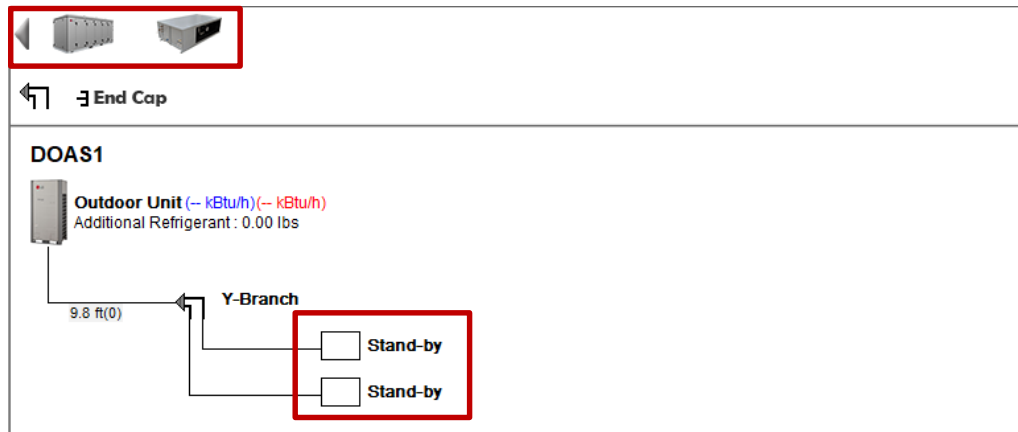
Note that you can change cooling and heating temperature but RH must be set as 50%.



Project window for DOAS system

Selecting DOAS Unit

1. Either drag and drop DOAS units from icon bar or double click on a Stand-by box to open DOAS Indoor Unit Properties window



2. Select models from Split Rooftop DOAS or Split Compact DOAS list. Change air flow rates, external static pressure, discharge position and target temperatures from Design Parameter / Performance tab. Select electrical and controls information from Electrical / Controls tab.

The screenshot shows the 'Indoor Unit Properties' window with the 'Design Parameter / Performance' tab selected. The window contains the following information:

- IDU Type:** SPLIT ROOFTOP DOAS
- IDU Model:** ARND30UDBE4
- Height difference from ODU:** Below, 9.8 ft
- Room Design Temp. (Return Air Temp.):**

	DBT	WBT	RH[%]
Cooling	80.6 °F	67.1 °F	50.0
Heating	68.0 °F	56.7 °F	50.0
- Note:** Cooling capacity is simulated using WBT.
- Design Parameter / Performance Tab:**
 - Supply Air:**
 - Air flow rate: 3000 CFM
 - ESP: 2.0000 inchAq
 - Discharge Position: Bottom
 - Target Cooling DBT / Dew Point: 70.0 °F / 55.0 °F
 - Target Heating DBT / Dew Point: 75.0 °F
 - Return Air:**
 - Discharge Position: Bottom
 - ESP: 2.0000 inchAq
 - Entering Air Temp:**

	DBT	WBT	RH (%)
Cooling	91.0 °F	73.0 °F	43.0
Heating	1.0 °F	0.5 °F	86.0
 - Exhaust Air:**
 - Air flow rate: 3000 CFM
 - Discharge Position: Side
 - Outdoor Air:**
 - Discharge Position: End
 - Leaving Air Temp:**

	DBT	WBT	RH (%)
Cooling	55.0 °F	55.0 °F	100.0
Reheat	70.0 °F	60.7 °F	59.2
Heating	75.0 °F		
 - Model Capacity:**

	Total Cooling	Sensible Cooling	Reheat	Heating	
IDU Capacity	154.6	108.6	48.8	127.0	kBtu/h
ERW Efficiency	66.5	69.4	-	66.5	%
ISMRE / IS COP	3.0	-	-	6.3	
- Tag#:** 1
- Buttons:** Fan Curve, Psychometric Chart, OK, Cancel

3. Click OK.


Selecting Outdoor Unit

Outdoor Unit Properties

System Info
System Name : DOAS1

Series/Type
Series: MULTI V 5
Types: 50,60Hz/R410A/Heat Recovery/MULTI V 5

Search Type
☒ Full Models
 ☐ Auto-select
 100



- ARUM264BTE5
- ARUM288BTE5
- ARUM288DTE5
- ARUM312DTE5**
- ARUM312BTE5
- ARUM336BTE5
- ARUM336DTE5

☒ Defrosting Factor

Model Capacity

	Cooling Capacity	Heating Capacity	
ODU	312.3	319.2	kBtu/h
Input Power	19.68	34.12	kW
Current Combi.	91.7		%
Power Supply	3Phase/460V/60Hz		

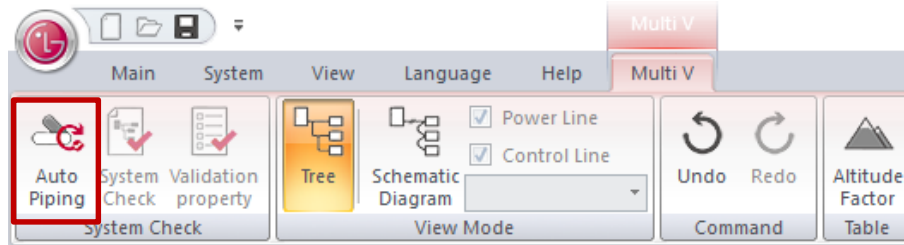
Accessories ODU Frame **OK** Cancel

1. Double click on the ODU icon. Outdoor Unit Properties window will pop up.
2. To manually select, from the listed models, choose one and click OK.
3. To automatically select, change the search type to 'Auto selection' and the program will automatically select based on combination rate.

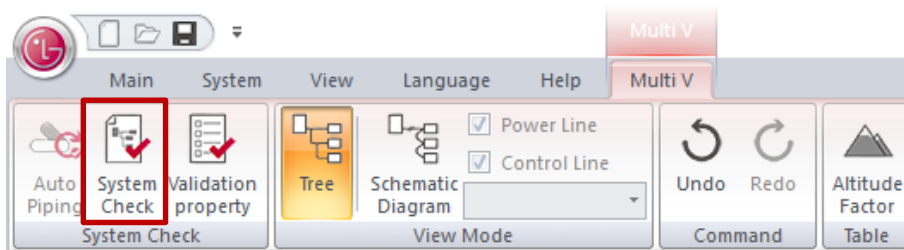
And you may also add accessories for ODU from Accessories button.

System Check

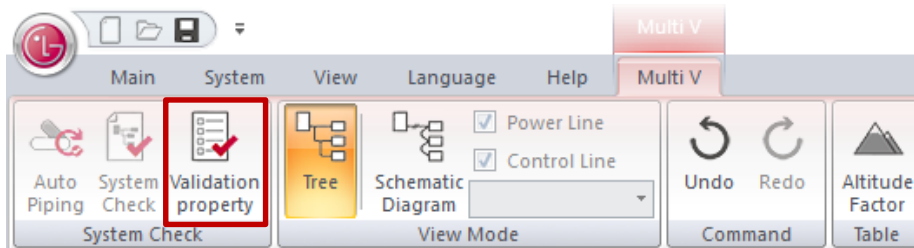
1. Go to Multi V tab and click on 'Auto Piping' button. This function will automatically correct the pipe diameter and Y-branch size.



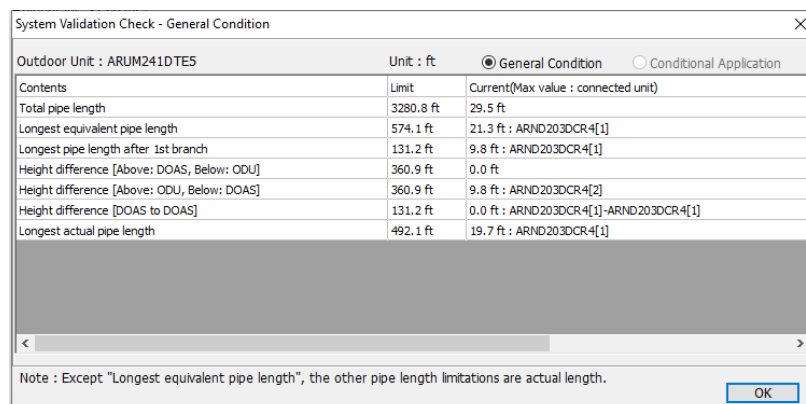
2. When 'Auto Piping' is completed, 'System Check' button will be enabled. Click on 'System Check' button.



3. When 'System Check All' is completed, 'System Properties' button will be enabled. Click on 'System Properties' button.



4. System Validation Property window will pop up.



Multi F /Single CAC Project

Note: Single CAC system has Cassette, Ducted, Console and VAHU models

The 'System Setting' dialog box for 'Multi F1' shows the following configuration:

- Systems:** Multi F1
- Region:** N America
- ODU Types:** Multi F
- Simulation Mode:** Both (selected), Cooling, Heating

Design Conditions:

	Indoor (Return Air)			Outdoor		
Cooling	DBT	80.6 °F		DBT	91.0 °F	
	WBT	66.2 °F		WBT	57.9 °F	
	RH	50.0 %		RH	13.8 %	
Heating	DBT	68.0 °F		DBT	-2.9 °F	
	WBT	55.8 °F		WBT	-3.4 °F	
	RH	50.0 %		RH	86.0 %	

Buttons: OK, Cancel

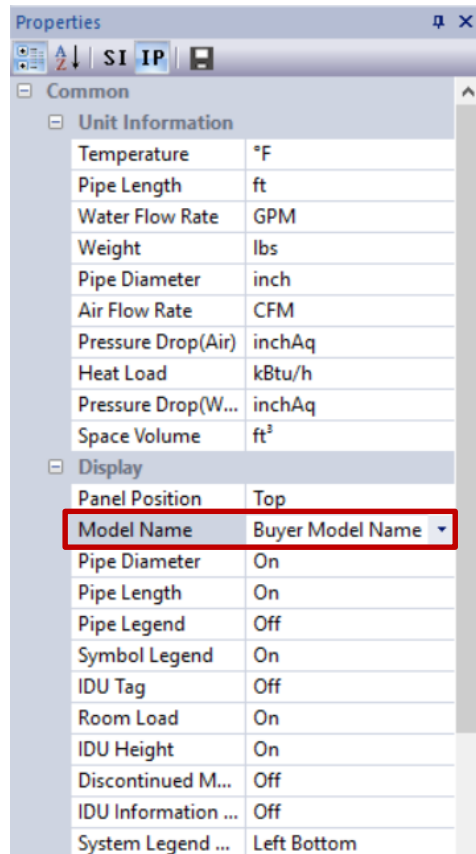
- **Systems:** Name the system.
- **Region:** Select the region where the system will be placed. Note that each region will have different product database.
- **ODU Types:** Select the type of ODU.
- **Simulation mode:** Select the simulation mode between cooling and heating. Depending on your selection, report view will show capacities values either on heating or cooling mode. You could also choose 'both' to show both heating and cooling capacities.
- Note that you can change cooling and heating temperature but RH must be set as 50%.



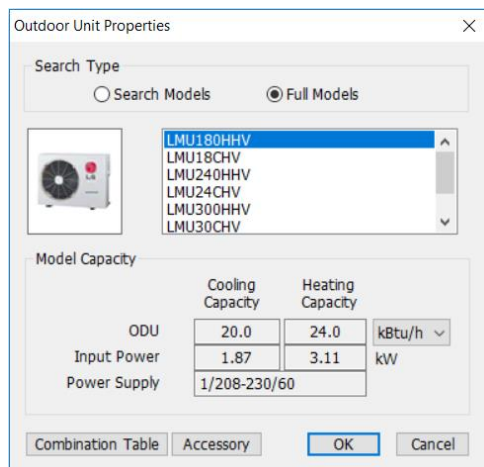
Project window for Multi F / Single CAC system

Selecting Outdoor Unit

For Multi F and Single systems, an outdoor unit has to be selected before inserting indoor unit. Also, before choosing ODU, from the Properties window, you can first choose whether to see the model names as Buyer Model name or Factory Model name. Recommended setting is to set it as 'Buyer Model Name' all times.



Remember to click on Save button for any changes to be updated.
Then to select ODU:

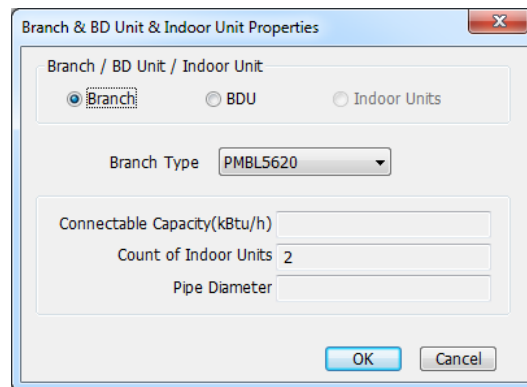


1. Double click on ODU icon. Outdoor Unit Properties window will pop up.
2. Select Search Models to search model by category. To view all lists instead, select Full Models option.
3. From Combination Table button, you can also check the model's automatic calculated combination table.
4. Click OK when done.

You can also add accessories from Accessories button.

Inserting Branch, BD, Indoor Unit

1. Double click the Stand-by box. Branch & BD Unit & Indoor Unit Properties window will pop up.



Branch & BD Unit & Indoor Unit Properties

Branch / BD Unit / Indoor Unit

☒ Branch ☐ BDU ☐ Indoor Units

Branch Type: PMBL5620

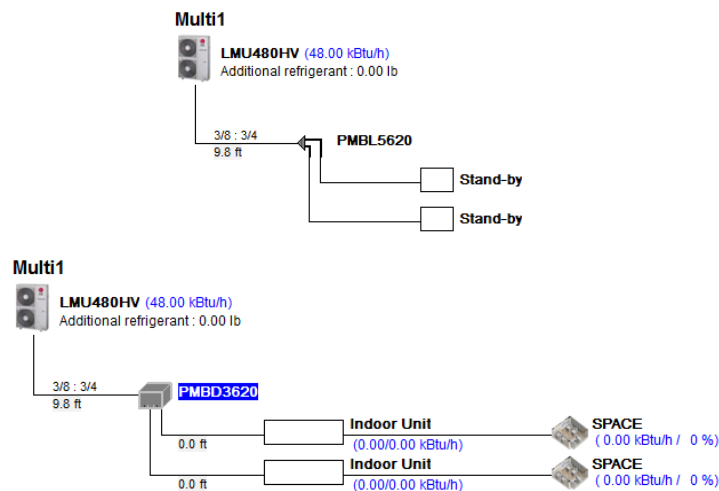
Connectable Capacity(kBtu/h):

Count of Indoor Units: 2

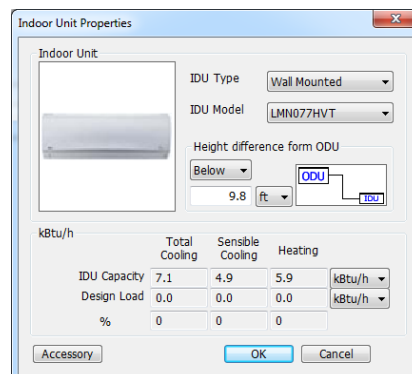
Pipe Diameter:

OK Cancel

2. Insert Branch or BDU. Then either of this will show up in Project window.



3. From here, if you have chosen Branch, insert BDU to Stand-by box. If you have inserted BDU first, then either drag and drop IDU from the icon list or double click and choose IDU.



Indoor Unit Properties

Indoor Unit

IDU Type: Wall Mounted

IDU Model: LMN07HVT

Height difference form ODU: Below 9.8 ft

ODU IDU

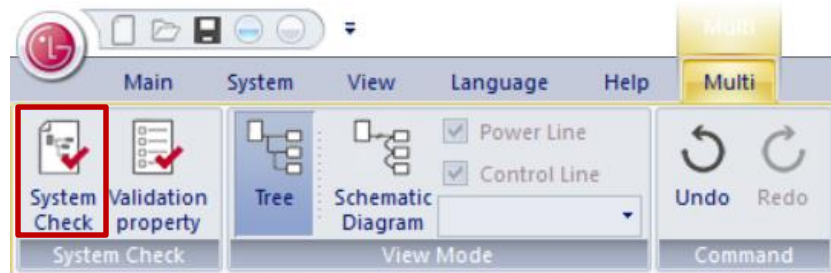
kBtu/h	Total Cooling	Sensible Cooling	Heating
IDU Capacity	7.1	4.9	5.9
Design Load	0.0	0.0	0.0
%	0	0	0

Accessory OK Cancel

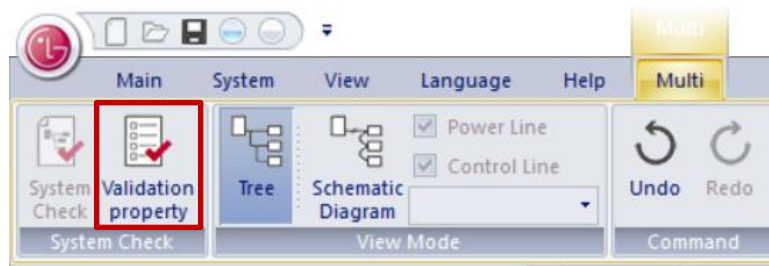
System Check

After configuration is done, you will need to run System Check to finalize that the system is set correctly.

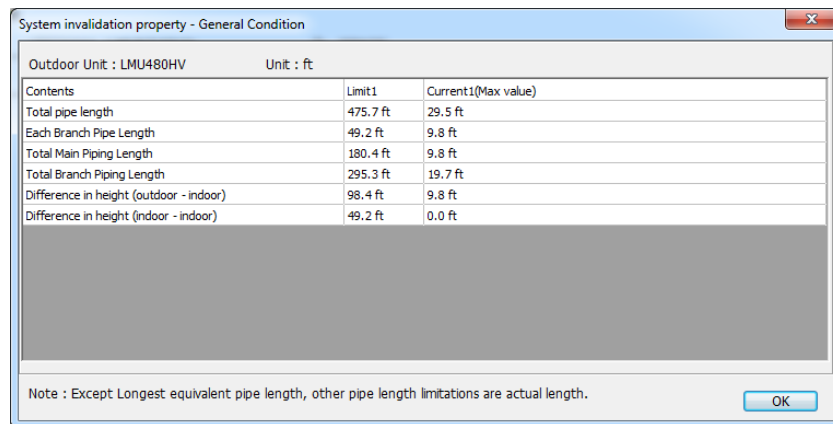
1. Go to Multi tab and click on 'System Check' button.



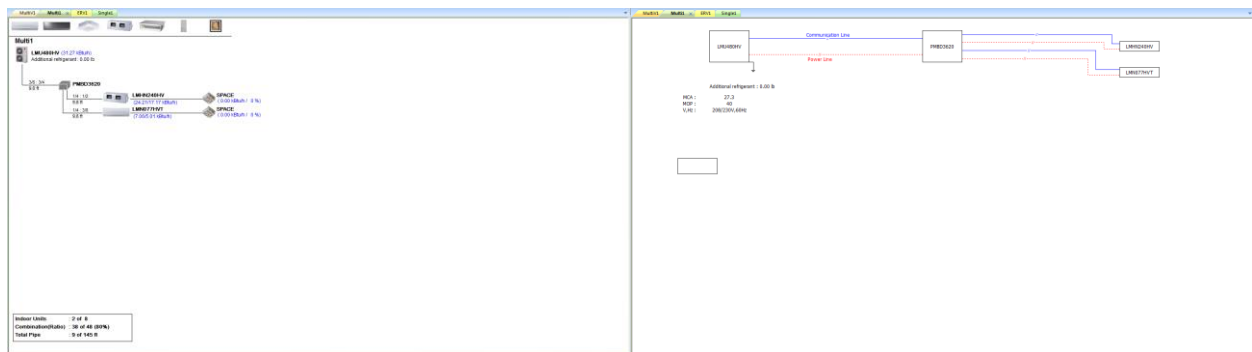
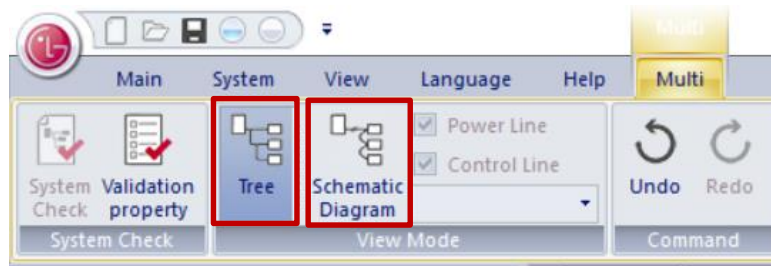
2. When 'System Check' is completed, 'System Properties' button will be enabled. Click on 'System Properties' button.



3. System Validation Property window will pop up.



Note that you can also change the view of Project window from Tree to Schematic. Tree diagram lets you see refrigerant diagram in isometric perspective whereas Schematic diagram will let you see electrical and communication sketch.



Single CAC (Set) Project

Note: Single CAC (Set) system has Single Wall Mount models

If you select Single CAC (Set) as your system type, below Project window will be shown:

The screenshot shows the 'Single1' window of a software application. It is divided into three main sections: Design Conditions, System Information, and Simulation results.

Design Conditions

- Room information:** Floor/Room Name (empty).
- Room Design Condition:**
 - Cooling:** DBT: 80.6 °F, WBT: 67.0 °F, RH: 50.0 %.
 - Heating:** DBT: 68.0 °F, WBT: 56.6 °F, RH: 50.0 %.
- Requirement info:**
 - Total cooling load: 0.0 kBtu/h
 - Sensible cooling: 0.0 kBtu/h
 - Heating load: 0.0 kBtu/h
 - Airflow Rate: 0 CFM
 - ESP: 0.0000 inchAq

System Information

- Region: N America
- Product Type: Ceiling Cassette
- Hz/Ref/Type: 60Hz, R410A, Heat Pump
- Product Name (IDU): LT-C1260CA
- Product Name (ODU): (empty)
- AirFlow Rate: 0 CFM
- Filter: Exist
- Heater: NONE
- Equivalent pipe length: 0.0 ft
- Elevation: 0.0 ft

Simulation results

- Product name: LT-C1260CA
- Airflow Rate: 0 CFM
- Ratio(Capa/Load):
 - Cooling capa ratio: 0.0 %
 - Sensible Cooling ratio: 0.0 %
 - Heating capa ratio: 0.0 %
- Rated vs Corrected values:**

	Rated	Corrected
Total Cooling Capa :	12.00	0.00
Sensible Capa :	9.40	0.00
Heating Capa :	0.00	0.00
SHF :		0.00
Cooling Power :	1.20	0.00
Heating Power :	0.00	0.00
Motor type :		
additional refrigerant charge :	0.00	

Project window for Single CAC system

1. Insert room information, its design conditions, and any additional information such as cooling/heating load if needed.

This is a close-up of the 'Design Conditions' section of the project window. It contains the following fields:

- Room information:** Floor/Room Name (empty).
- Room Design Condition:**
 - Cooling:** DBT: 80.6 °F, WBT: 67.0 °F, RH: 50.0 %.
 - Heating:** DBT: 68.0 °F, WBT: 56.6 °F, RH: 50.0 %.
- Requirement info:**
 - Total cooling load: 0.0 kBtu/h
 - Sensible cooling: 0.0 kBtu/h
 - Heating load: 0.0 kBtu/h
 - Airflow Rate: 0 CFM
 - ESP: 0.0000 inchAq

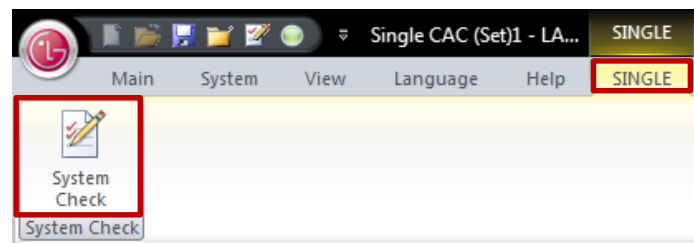
2. Select model type, product name, and insert system information such as pipe length. Note that if product name doesn't show properly, it is most likely because from Properties, it is set to 'Factory Model Name'. Change it to 'On'.

System Information

- Region :	N.America	- Air flow rate :	339	CFM
- Product type :	Wall Mounted	- Filter :	Exist	
- Hz/Ref/Type :	60Hz R410A Heat Pump	- Heater :	None	
- Product name (IDU) :	LSN090HSV5	- Equivalent pipe length :	0.0	ft
- Product name (ODU) :	LSU090HSV5	- Elevation :	0.0	ft

Acc.

3. From Single tab, click 'System Check' button.



4. Then check simulation results from Project window.

Simulation results

- Airflow Rate :	0	CFM		
- Ratio(Capa/Load)				
- Cooling capa ratio :	0.0	%	- Total Cooling Capa :	9.00
- Sensible Cooling ratio :	0.0	%	- Sensible Capa :	7.38
- Heating capa ratio :	0.0	%	- Heating Capa :	11.00
			- SHF :	0.85
			- Cooling Power :	0.66
			- Heating Power :	0.83
			- Motor & Drive type:	Standard & -
			- Additional refrigerant charge :	0.00

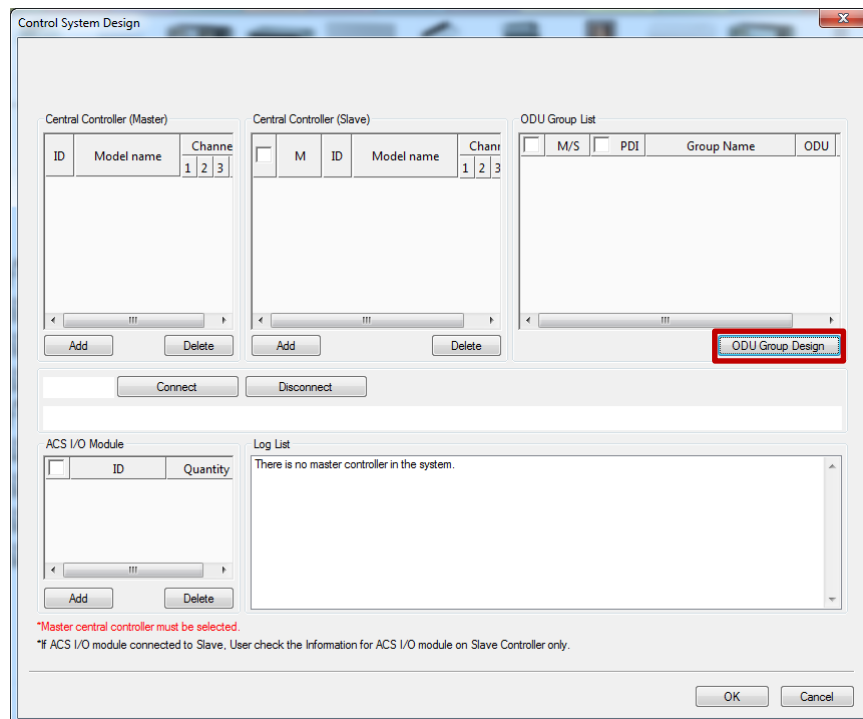
	Rated	Corrected	
Total Cooling Capa :	9.00	9.02	kBtu/h
Sensible Capa :	7.38	7.71	kBtu/h
Heating Capa :	11.00	9.35	kBtu/h
Cooling Power :	0.66	0.66	kW
Heating Power :	0.83	0.74	kW
Additional refrigerant charge :	0.00		lbs

Control system

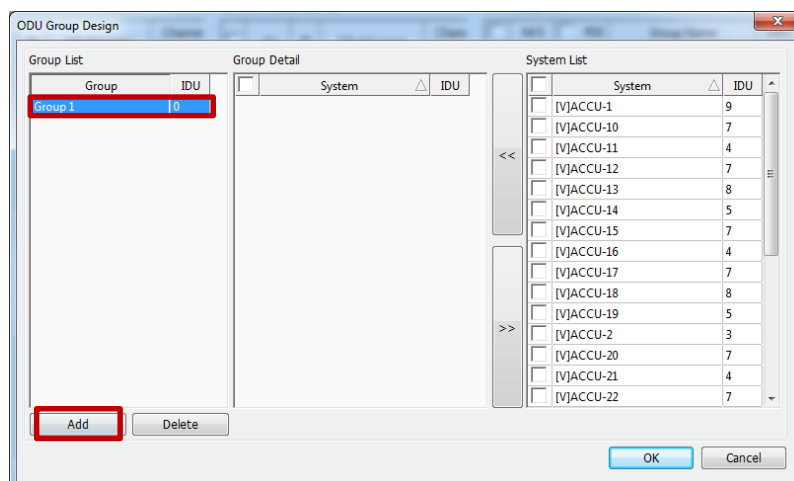
When you have system(s) in your project, you can then design control system for the entire project.

ODU Group Design

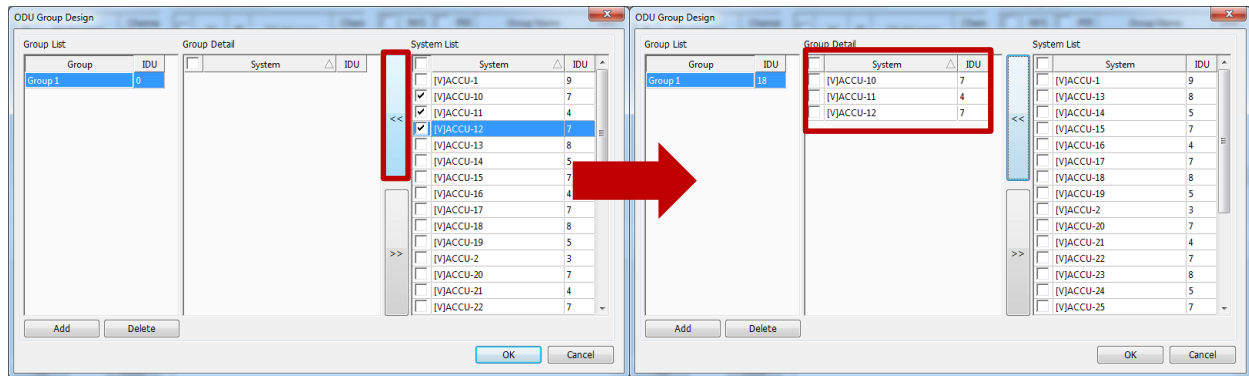
1. Click 'ODU Group Design' button from the Control System Design window.



2. Click 'Add' to add ODU groups. Double click on the name to change its name.

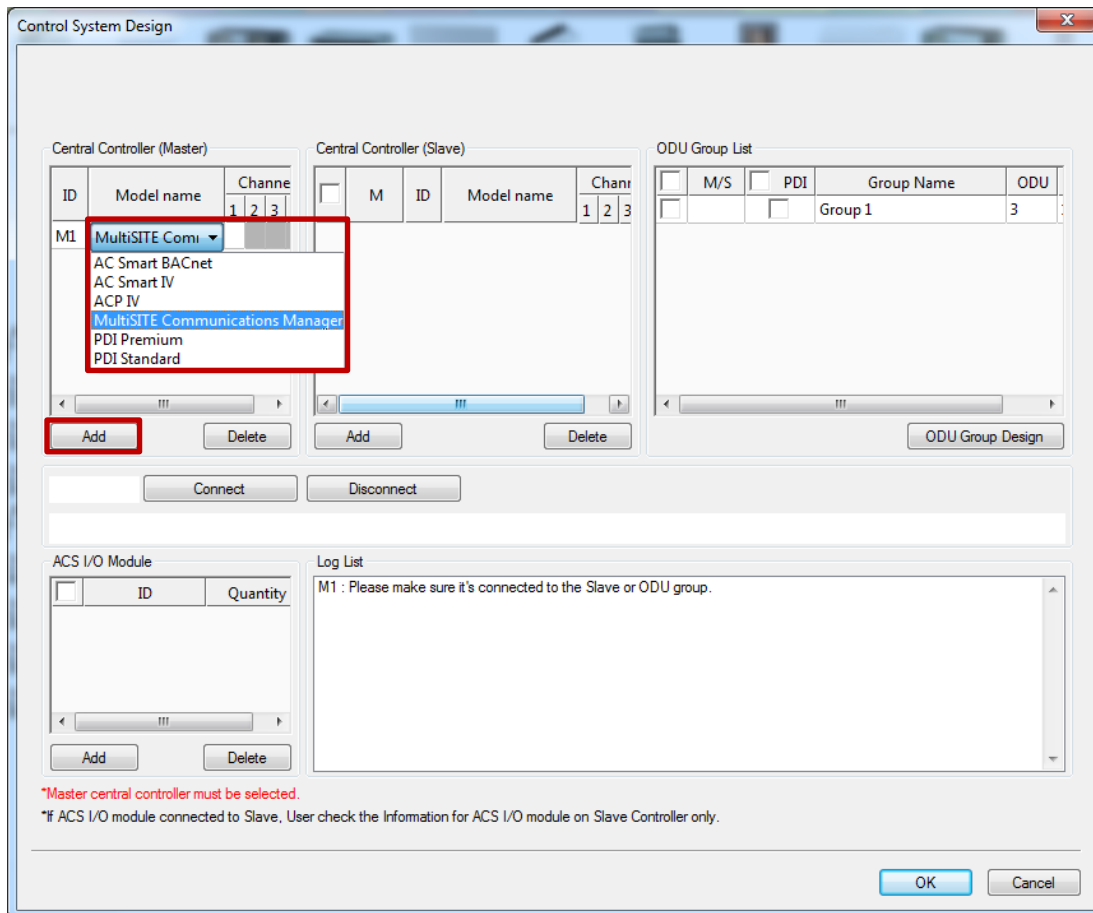


3. Check the systems you want to add to the group, and add it to the group by clicking "<<" button.



Connecting Main and ODU group

1. Click 'Add' and select Main controller.



Note that you may select PDI from Main controller menu as well.

2. Check the channel and ODU group, and then click 'Connect'.

The screenshot shows the 'Control System Design' window with three main sections: 'Central Controller (Master)', 'Central Controller (Slave)', and 'ODU Group List'. In the 'Central Controller (Master)' section, the 'Channel' column for 'M1' is highlighted with a red box. In the 'ODU Group List' section, the 'M/S' checkbox for 'Group 1' is checked and highlighted with a red box. Below these sections, the 'Connect' button is highlighted with a red box. The 'Log List' section contains a message: 'M1 : Please make sure it's connected to the Slave or ODU group.'

ID	Model name	Channel
		1 2 3
M1	MultiSITE Co...	

M	ID	Model name	Channel
			1 2 3

<input checked="" type="checkbox"/>	M/S	<input type="checkbox"/> PDI	Group Name	ODU
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Group 1	3

Buttons: Add, Delete, Connect, Disconnect, ODU Group Design

Log List: M1 : Please make sure it's connected to the Slave or ODU group.

OK Cancel

Note that if you select the channel and ODU group correctly, you'll see 'Controller ID Channel no.' next to 'Connect' button, and your selected ODU group name under the 'Connect' button.

3. When it's connected correctly, that channel will be marked with green color.

The screenshot shows the 'Control System Design' window after the connection. The 'Channel' column for 'M1' in the 'Central Controller (Master)' section is now highlighted with a green box. The 'Connect' button remains highlighted with a red box. The 'Log List' section is empty.

ID	Model name	Channel
		1 2 3
M1	MultiSITE Co...	

M	ID	Model name	Channel
			1 2 3

<input checked="" type="checkbox"/>	M/S	<input type="checkbox"/> PDI	Group Name	ODU
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Group 1	3

Buttons: Add, Delete, Connect, Disconnect, ODU Group Design

Connecting Main to Sub to ODU group

1. Click 'Add' and select Sub controller.

The screenshot shows the 'Control System Design' window. It contains three main sections: 'Central Controller (Master)', 'Central Controller (Slave)', and 'ODU Group List'.

Central Controller (Master): A table with columns 'ID', 'Model name', and 'Channel'. It contains one entry: M1, MultiSITE Co..., with channel 1 selected.

Central Controller (Slave): A table with columns 'M', 'ID', 'Model name', and 'Channel'. It contains two entries: S1 and S2, both with 'AC Smart IV' as the model name. A red box highlights the 'Model name' column for S1 and S2. Below the table is a red 'Add' button.

ODU Group List: A table with columns 'M/S', 'PDI', 'Group Name', and 'ODU'. It contains one entry: Group 1, with ODU 3.

Below these sections are buttons for 'Add', 'Delete', 'Connect', and 'Disconnect'. The 'Connect' button is highlighted with a red box. Below the buttons is a text field containing 'S1, S2'.

Log List: A text area showing the following messages:

- S1 : No connection to master.
- S2 : No connection to master.
- M1 : Please make sure it's connected to the Slave or ODU group.

At the bottom, there are 'OK' and 'Cancel' buttons.

2. Check the sub controller(s) and Main controller channel, then click 'Connect'.

This screenshot shows the same 'Control System Design' window as the previous one, but with the 'Connect' button highlighted by a red box. The 'Central Controller (Slave)' table now has checkmarks in the 'M' column for S1 and S2, indicating they are connected to the master. The 'Log List' area is empty, suggesting the connection was successful.

3. When it's connected correctly, that channel will be marked with green color.

Control System Design

Central Controller (Master)

ID	Model name	Channel
M1	MultiSITE Co...	<div><div>1</div><div>2</div><div>3</div></div>

Add Delete

Central Controller (Slave)

<input checked="" type="checkbox"/>	M	ID	Model name	Channel
<input type="checkbox"/>	M1C1	S1	AC Smart IV	<div><div>1</div><div>2</div><div>3</div></div>
<input type="checkbox"/>	M1C1	S2	AC Smart IV	<div><div>1</div><div>2</div><div>3</div></div>

Add Delete

ODU Group List

<input type="checkbox"/>	M/S	<input type="checkbox"/>	PDI	Group Name	ODU
<input type="checkbox"/>		<input type="checkbox"/>		Group 1	3

ODU Group Design

M1C1

S1, S2

ACS I/O Module

<input type="checkbox"/>	ID	Quantity
--------------------------	----	----------

Add Delete

Log List

M1C1 : Please make sure it's connected to the ODU group.

*Master central controller must be selected.

*If ACS I/O module connected to Slave, User check the Information for ACS I/O module on Slave Controller only.

OK Cancel

Connecting ACS I/O Module

1. Click 'Add' and select the controller you want to add I/O module to.

The screenshot shows the 'Control System Design' window. It contains several panels:

- Central Controller (Master):** A table with columns ID, Model name, and Channels (1, 2, 3). It contains one entry: M1, MultiSITE Co..., with channel 1 highlighted in green.
- Central Controller (Slave):** A table with columns M, ID, Model name, and Channels (1, 2, 3). It contains two entries: M1C1, S1, AC Smart IV and M1C1, S2, AC Smart IV.
- ODU Group List:** A table with columns M/S, PDI, Group Name, and ODU. It contains one entry: Group 1, 3.
- ACS I/O Module:** A table with columns ID and Quantity. It contains one entry: S1, 1. A dropdown menu is open for the ID column, showing options: Select, S1, and S2. The 'Add' button is highlighted with a red box.
- Log List:** A text area containing the message: 'M1C1 : Please make sure it's connected to the ODU group.'

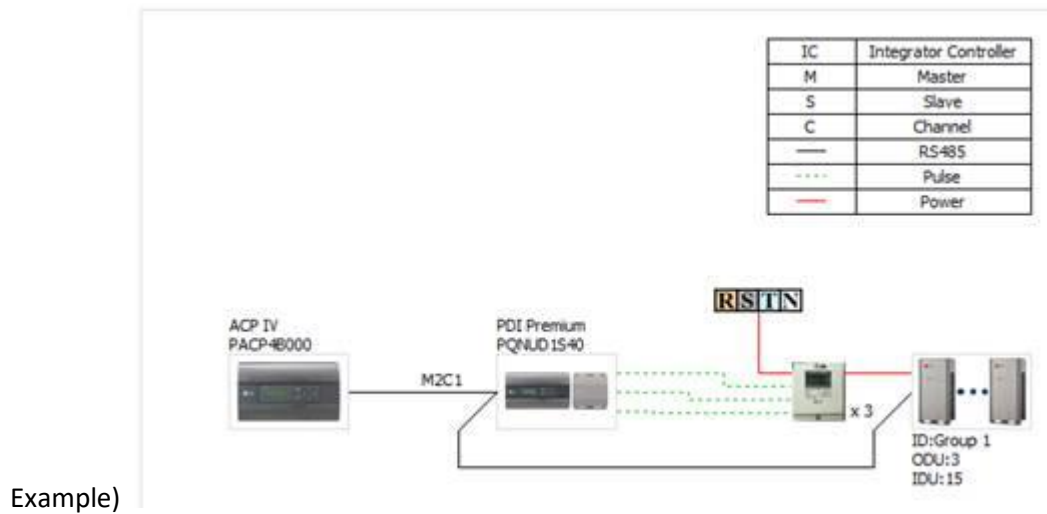
At the bottom, there are 'OK' and 'Cancel' buttons. A red note at the bottom left states: '*Master central controller must be selected.' Another note below it states: '*If ACS I/O module connected to Slave, User check the Information for ACS I/O module on Slave Controller only.'

2. Double click on the quantity input to edit the quantity.

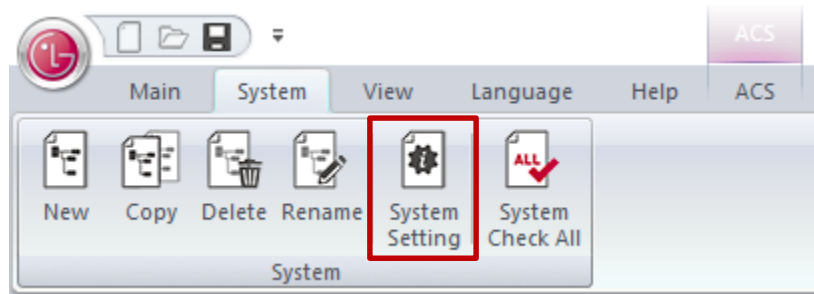
This screenshot is a zoomed-in view of the 'ACS I/O Module' panel from the previous image. The 'Quantity' input field for the entry 'S1' is highlighted with a red box and contains the value '3'. The 'Add' and 'Delete' buttons are visible below the table. The 'Log List' panel and the red notes at the bottom are also visible.

Finishing design and revising

1. When done, click 'OK' to finish the design.

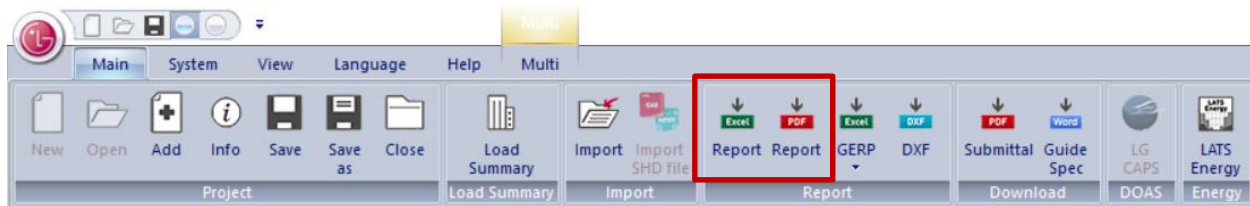


2. To revise, go to 'System setting' from System tab and revise.

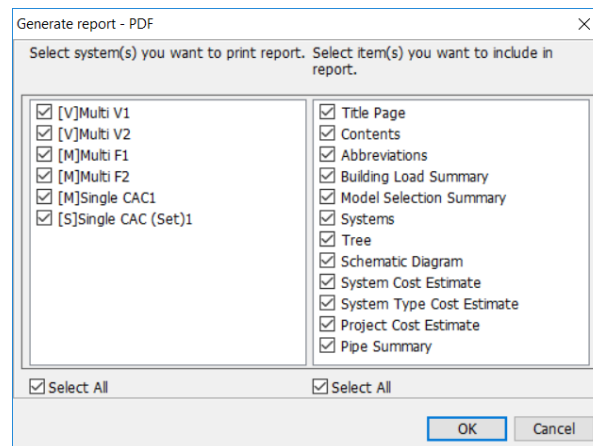


Export Report


After system check has been performed successfully, you can then export report summary of each systems into Excel file. 'Report' button can be found from Main tab. If you want Excel version of the report, choose the first icon. If you want PDF version, choose the second icon.



When you click on 'Report', you can then select which systems you wish to export, and what contents you wish to put into the report file.



After selecting details, it will automatically generate Excel file and open up the file. Here is a preview of an example project:



Air Conditioning Proposal

ver 10.5.1

Model Selection - Summary

09/12/2016

AIR CONDITIONING PROPOSAL SHEET

09/12/2016

LG Electronic U.S.A.

11405 Old Roswell Road, Alpharetta, Georgia

Prepared by :

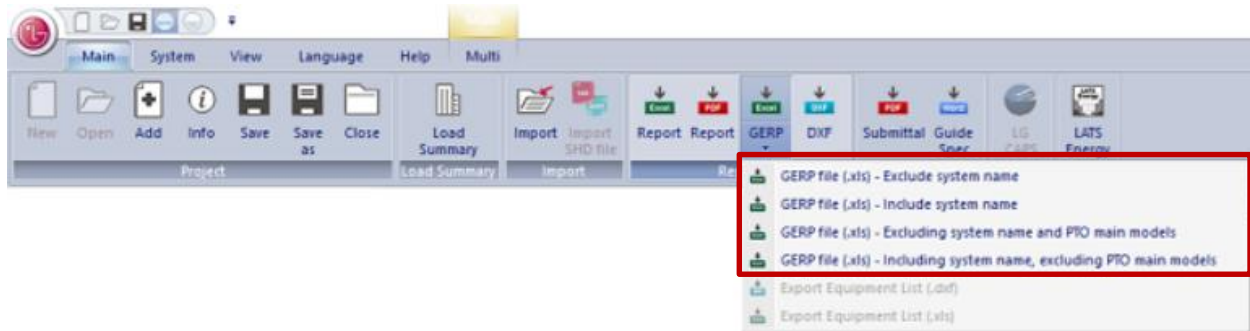
Project Name: Project_20160912

1. Outdoor Units

Model Name	Quantity	Description
ARUN072CTE4	1	60Hz/R410A/Heat Pump/Multi V1/Casada

Export GERP

After system check has been performed successfully, you can not only export reports but also can automatically compile and create equipment lists in Excel file. This can be done through 'GERP' button in Main tab. There are different GERP files you can choose from:



Here is a preview example of GERP file:

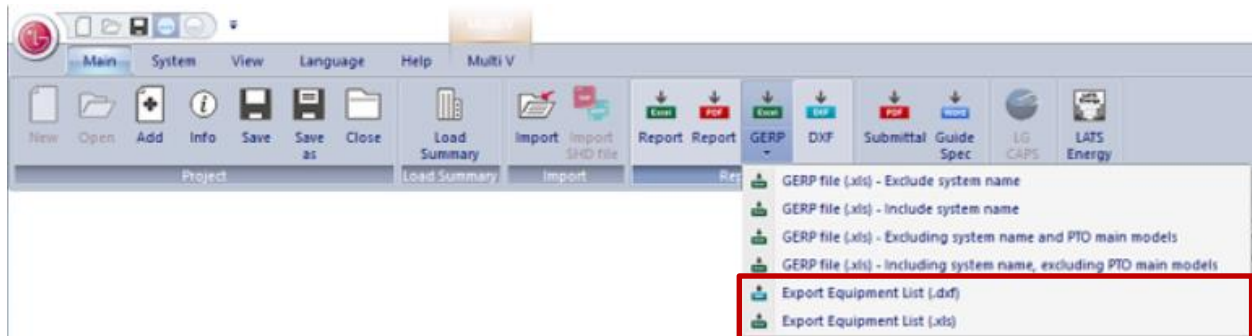
ModelCode.SUFFIX	DeliveryDate	Quantity	ModifiedListPrice	FinalDCPrice	DeliveryFr
ARUN072CTE4		1			L
ARNJ053TRC4		1			L
ARNJ483BRA4		1			L
ARBLN01621		1			L
LMU480HV		1			L
LMHN240HV		1			L
LMN077HVT		1			L
PMBD3620		1			L
AMNW09GL1A0		1			L
AUJW09GAE		1			L
PACP4B000		1			L
PACS4B000		1			L

Hit OK and it will export into Excel file:

	A1	ModelCode.SUFFIX					
	A	B	C	D	E	F	G
	ModelCode.SUFFIX	DeliveryDate	Quantity	ModifiedListPrice	FinalDCPrice	DeliveryFr	Description
1	ARUN072DTE4		1			L	
2	ARUN168DTE4		1			L	
3	ARUN240DTE4		1			L	
4	PRLK048A0		2			L	EEV Kit
5	PRLK096A0		2			L	EEV Kit
6	ARBLN07121		1			L	
7	ARCNN21		1			L	
8	PRDCAM		3			L	AHU Comm Kit with I/O board(Heat pump only)
9	PREMTB10U		3			L	LG programmable thermostat
10							
11							
12							
13							
14							

Export Equipment Schedule

Equipment schedules can be compiled and exported into Excel or AutoCAD (DXF) files automatically from the same menu as well.



And here is an example of Excel file:

Multi V Indoor Unit Equipment Schedule																							
Location	Mark	Room Name	Model Number	Type	Quantity	Nominal Capacity (BTU/h)			Corrected Capacity (BTU/h)			Entering (Return) Air Temperature (°F)			Fan Airflow (CFM)			Piping Connections (in.)			Power		
						Total Cooling	Sensible Cooling	Heating	Total Cooling	Sensible Cooling	Heating	Cooling DB	Cooling WB	Heating DB		Liquid	Gas	Volts	Phase	Hz	PLA		
MultiV1		Room	ARNU053TRC4	CASSETTE_4WAY	1	5500	3900	6100	5436	3899	6094	81	67	68	265/247/212	94	92	220/240V	1Ph	50Hz/60Hz	0.2		
MultiV1		Room	ARNU483BRA4	DUCT_HIGH_STATIC	1	48100	35617	51200	48084	36096	51152	81	67	68	1582/1434/1176	3/8	5/8	220/240V	1Ph	50Hz/60Hz	2.3		

Multi V Outdoor Unit Equipment Schedule - Air																													
Location	Mark	Model Number	Type	Quantity	Cooling Capacity (BTU/h)			Corrected Capacity (BTU/h)			Fan Airflow (CFM)			Outdoor Temperature (°F)			Efficiency			Refrigerant			Piping Connections (in.)			Power			
					Total Cooling	Heating Cooling		Total Cooling	Heating Cooling		Quantity			Cooling DB	Cooling WB	Heating DB	Cooling EER (SEER)	Heating COP (HSPFP)		Liquid	LP Gas	HP Gas	Volts	Phase	Hz	MCA			
MultiV1		ARUN072CTE4		1	72000	81000		53582	57247		7400	1	94	74	17					R410A			3/8	3/4	HP Gas	575V	3Ph	60Hz	13.6

Multi V Outdoor Unit Equipment Schedule - Water																									
Location	Mark	Model Number	Type	Quantity	Cooling Capacity (BTU/h)			Corrected Capacity (BTU/h)			Water			Efficiency			Refrigerant			Piping Connections (in.)			Power		
					Total Cooling	Heating Cooling		Total Cooling	Heating Cooling		Flowrate (GPM)	Entering Water Temp (°F)		Cooling EER (SEER)	Heating COP (HSPFP)		Liquid	LP Gas	HP Gas	Volts	Phase	Hz	MCA		

Multi V HR Boxes										Power				
Location	Mark	Model Number	Quantity	Volts	Phase	Hz	PLA							

Here is an example of DXF schedule file:

Multi V Indoor Unit Equipment Schedule																								
Location	Mark	Room Name	Model Number	Type	Quantity	Nominal Capacity (BTU/h)			Corrected Capacity (BTU/h)			Entering (Return) Air Temperature (°F)			Fan Airflow (CFM)		Piping Connections (in.)		Power					
						Total Cooling	Sensible Cooling	Heating	Total Cooling	Sensible Cooling	Heating	Cooling DB	Cooling WB	Heating DB	Liquid	Gas	Volts	Phase	Hz	PLA				
MultiV1		Room	ARNU053TRC4	CASSETTE_4WAY	1	5500	3900	6100	5436	3899	6094	81	67	68	265/247/212	94	92	220~240V	1Ph	50Hz/60Hz	0.2			
MultiV1		Room	ARNU483BRA4	DUCT_HIGH_STATIC	1	48100	35617	51200	48084	36096	51152	81	67	68	1582/1434/1176	3/8	5/8	220~240V	1Ph	50Hz/60Hz	2.3			

Multi V Outdoor Unit Equipment Schedule - Air																								
Location	Mark	Model Number	Type	Quantity	Cooling Capacity (BTU/h)		Corrected Capacity (BTU/h)		Fan Airflow (CFM)		Outdoor Temperature (°F)			Efficiency		Refrigerant	Piping Connections (in.)			Power				
					Total Cooling	Heating Cooling	Total Cooling	Heating Cooling	Quantity	Cooling DB	Cooling WB	Heating DB	Cooling EER (SEER)	Heating COP (HSPFP)	Liquid		LP Gas	HP Gas	Volts	Phase	Hz	MCA		
MultiV1		ARUN072CTE4		1	72000	81000	53582	57247	7400	1	94	74	17			R410A	3/8	3/4	HP Gas	575V	3Ph	60Hz	13.6	

Multi V Outdoor Unit Equipment Schedule - Water																								
Location	Mark	Model Number	Type	Quantity	Cooling Capacity (BTU/h)		Corrected Capacity (BTU/h)		Water		Efficiency			Refrigerant	Piping Connections (in.)			Power						
					Total Cooling	Heating Cooling	Total Cooling	Heating Cooling	Flowrate (GPM)	Entering Water Temp (°F)	Cooling EER (SEER)	Heating COP (HSPFP)	Liquid		LP Gas	HP Gas	Volts	Phase	Hz	MCA				

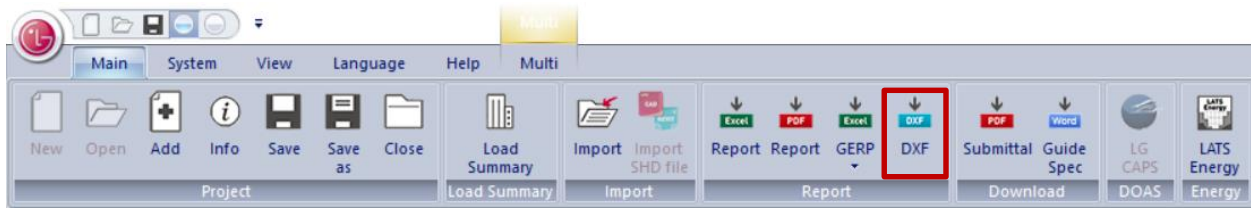
Multi V HR Boxes										Power				
Location	Mark	Model Number	Quantity	Power										
				Volts	Phase	Hz	PLA							

The function will compile model name, quantity, price, description and so on automatically.

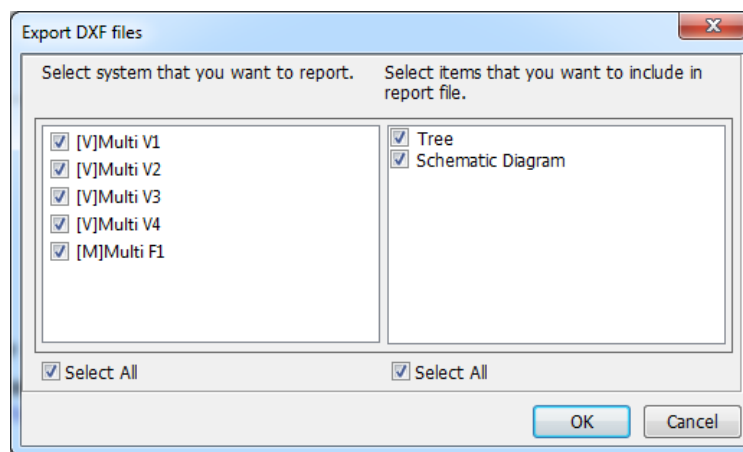
Note that this can be only created for Multi V projects.

Export DXF

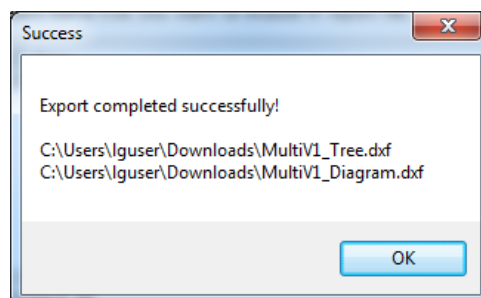
You can also export Tree diagram and Schematic diagram in AutoCAD file from LATS HVAC. This function is located under Main tab as 'DXF' button.



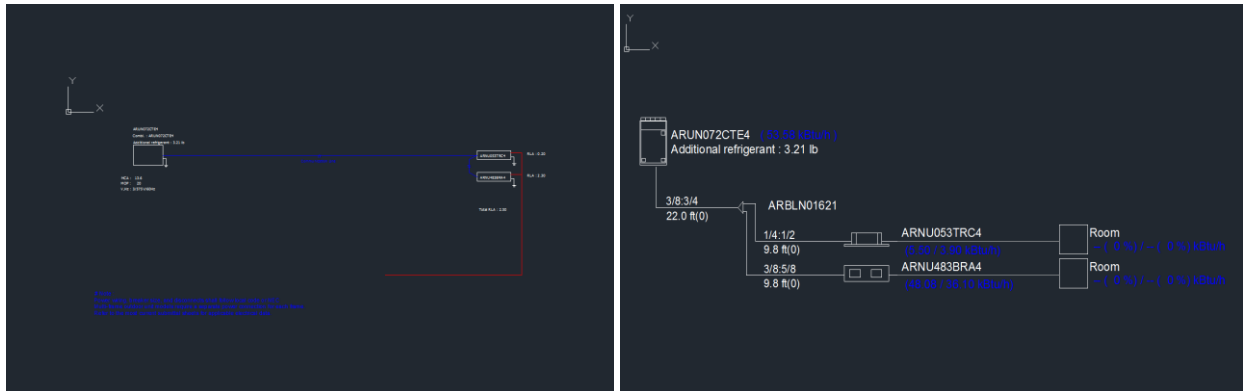
When you click on the button, you can choose which to include in the file and which systems you want DXF exports for:



After chosen, select the folder path where you want the file to be saved on. If it is successfully exported, this message will pop up:

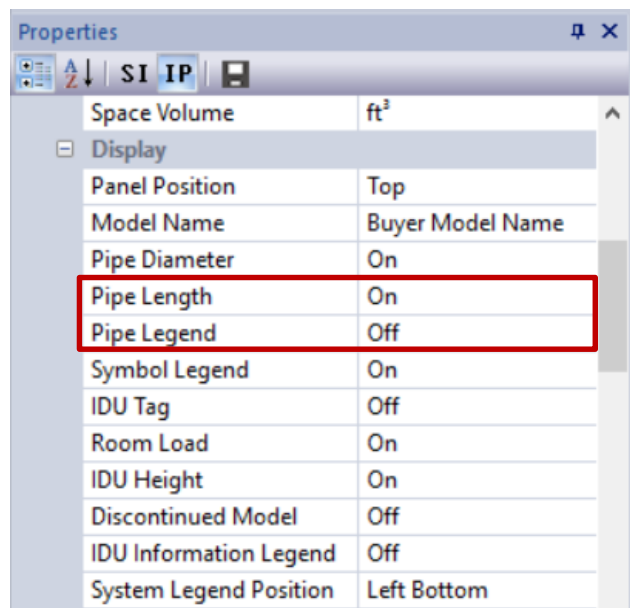


Here is an example of exported DXF file:



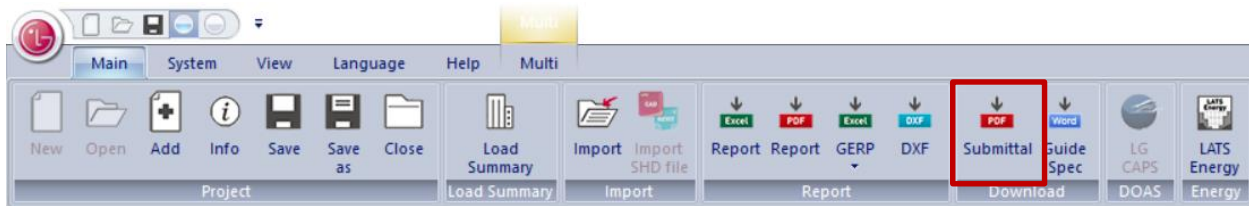
Note that this can be only created for Multi V and Multi F projects.

Also, if you wish to hide pipe diameter or pipe length, you can change options from Properties window.

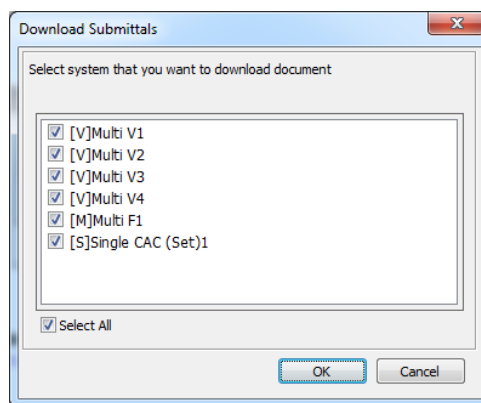


Download Submittals

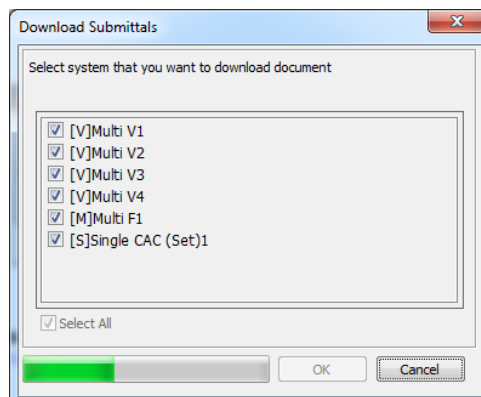
You can download submittals of all ODU, IDU, HRU, and available accessories in your project by clicking 'Submittal' button. It is located under Main tab.



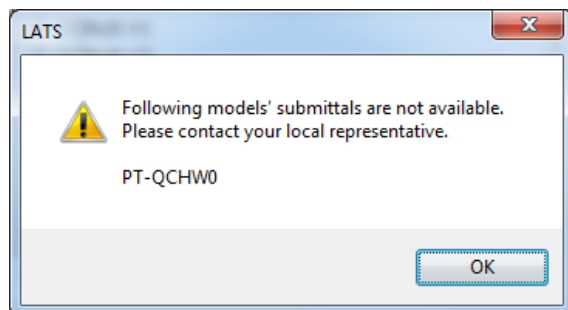
When you click on the button, you can choose which systems' submittals you wish to download:



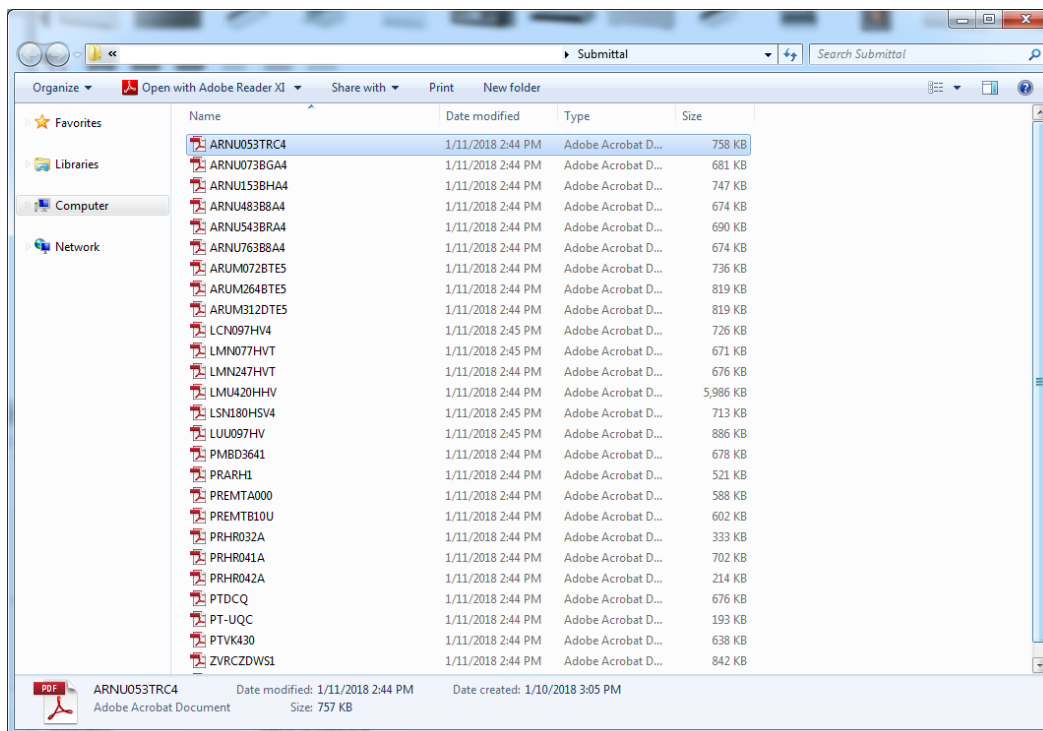
After chosen, click OK and you'll see the progress of the download from the same window.



If any of the submittal(s) cannot be downloaded, it will show this error message. Please check with your local representative to see if the submittal is available or not.

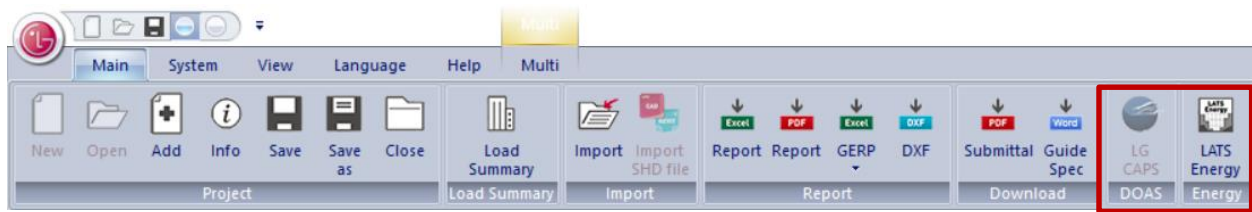


And after the download is completed, it will automatically open the folder containing all the downloaded submittals. The folder is located where your project file is saved.



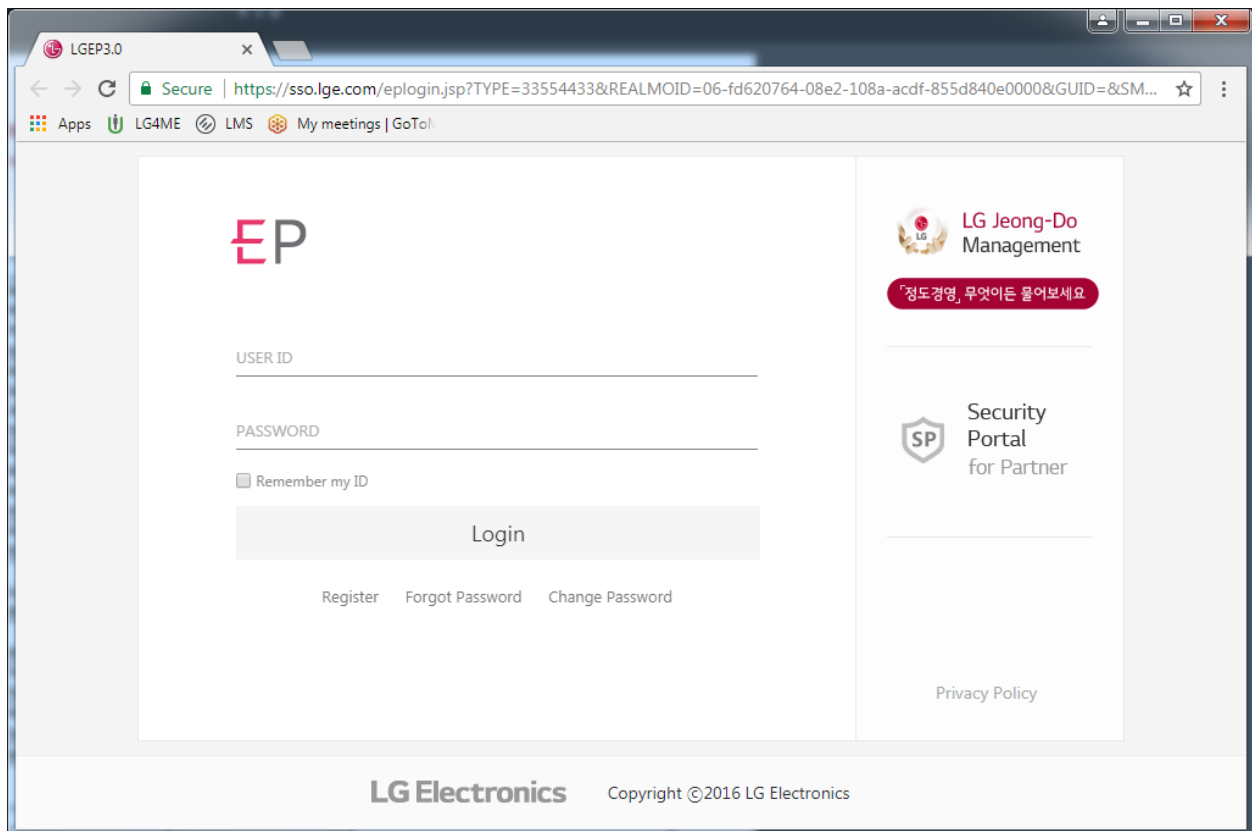
Other Links

You can open LG CAPS software or LATS Energy website by clicking the shortcut buttons located on Main tab.



Note that you must have LG CAPS installed on your computer to use LG CAPS shortcut or it will be disabled like above image.

Also, you must log in to EP website to use LATS Energy website.



For additional information on functions such as Diversity or Operation Mode Lock, please contact your Local LG Electronics representative [here](#).