

# TOSHIBA

Leading Innovation >>>

## VRF Selection Tool Software

v1.2.19



*Better Air Solutions*

Toshiba Carrier Corporation  
TCEU Pre-Sales Division  
October 26, 2018

<b>Scope of Disclosure</b>	Distributions
<b>Owner</b>	Toshiba Carrier Corporation

1. Introduction
2. Set up
3. New Project
4. Design Window
5. System Design
6. Central Controllers
7. Output

# 1. Introduction



- VRF System Design
  - Indoor Units
  - Outdoor Units
  - Accessories
  - Controls
- Capacities, pipes... calculation
- Equipment list
- System check according to the specifications
- PDF, CAD and Excel Outputs

# 1. Introduction

Item	Description
OS	Microsoft Windows 7 Microsoft Windows 8.1 Microsoft Windows 10 * Windows 10, only while devices are supported
CPU	As recommended by your OS, or better
Memory	As recommended by your OS, or better
Display	Selection Tool mode: FWXGA (1366 x 768) resolution Floor Plan Mode: UXGA (1600 x 1200) resolution High Color or better
Hard disk	* Microsoft .NET, Framework 4.6 are separate
Required components	<b>Microsoft .NET, Framework 4.6 (will be installed if you don't have it)</b>
Required software	Microsoft Excel 2010 / 2013 / 2015 Reader or browser that can view and print PDF files
Internet	Online connection required in order to register the license

# 1. Introduction

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## **Current Status:**

- Released on 26/10/2018
- Selection Tool goes Global
- Software is ready
  - Already beta tested on the field
  - Similar to AIRS for a smooth transition
  - Translations and Sales Data are pending
  - Same features and more
- Server is working
  - Registrations and activations are online
- GPDR compliance

# Index

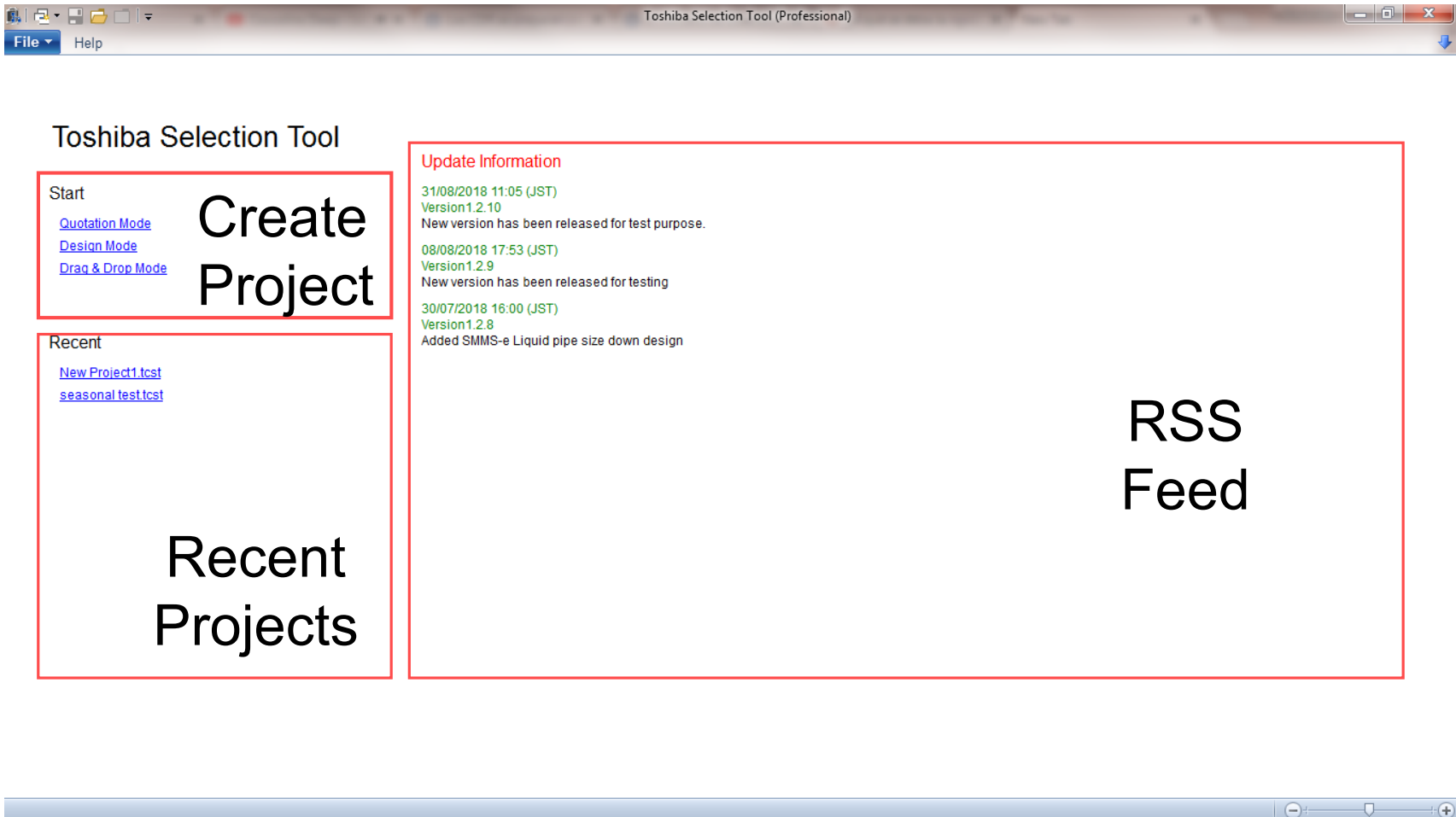
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1. Introduction
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## 2. Set up

### Start up page:










The following window displays when you start the software

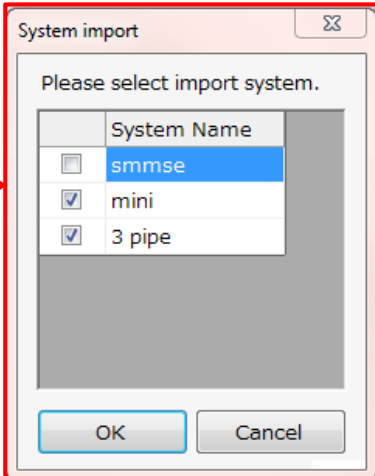


## 2. Set up

### File menu:

The following window displays when clicking on File menu:

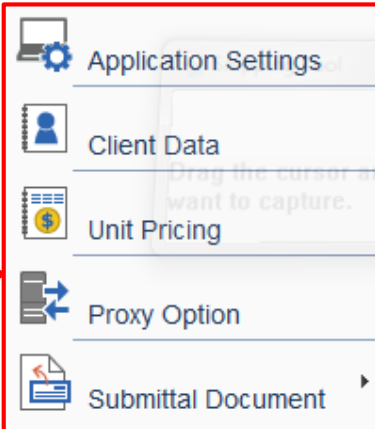
 New Project	Create Project
 Save	Save Options
 Save as	
 Open	Open & Save Options
 Close(View Top Page)	
 Print / Export	Create Outputs
 Import	Combine projects
 Setting	Software Settings
 Exit	Close Software

The 'System import' dialog box prompts the user to 'Please select import system.' It features a table with the following entries:

	System Name
<input type="checkbox"/>	smmse
<input checked="" type="checkbox"/>	mini
<input checked="" type="checkbox"/>	3 pipe

Buttons for 'OK' and 'Cancel' are located at the bottom of the dialog.

The 'Application Settings' menu is open, showing the following options:

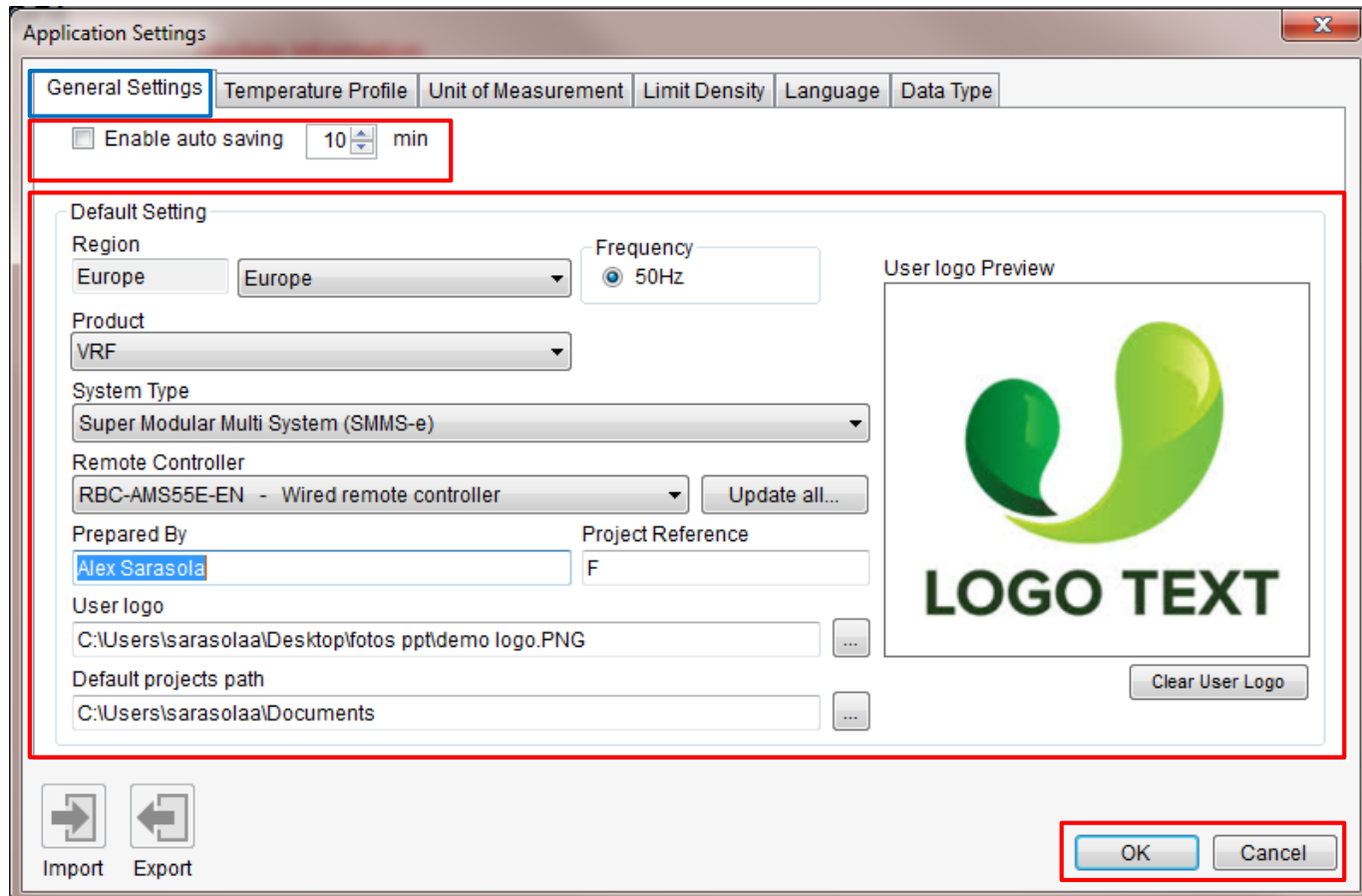
- Application Settings
- Client Data
- Unit Pricing
- Proxy Option
- Submittal Document



## 2. Set up

### Application Settings:

Open applications settings to configure the software and set default settings:



## 2. Set up

# Application Settings:

Set the default temperature conditions for new projects:

The screenshot displays the 'Application Settings' dialog box with the 'Temperature Profile' tab selected. The 'Temperature Settings' section is highlighted with a red box and contains the following data:

Category	Parameter	Value	Unit
Internals	Cooling Dry Bulb	27.0	°C
	Cooling wet Bulb	19.0	°C
	Cooling Relative Humidity	47	%
	Heating Dry Bulb	20.0	°C
Outdoors	Cooling Dry Bulb	35.0	°C
	Heating Wet Bulb	6.0	°C
All Fresh Air Intake : Outside Air Supply	Cooling wet Bulb	28.0	°C
	Heating Dry Bulb	0.0	°C

The 'Predefined Temperature Profiles' section is also highlighted with a red box. It includes an 'Edit profiles...' button and a 'Units' section with radio buttons for 'Metric(°C)' (selected) and 'Imperial(°F)'. A red arrow points from the 'Edit profiles...' button to a detailed view of a profile in the foreground.

The detailed view shows a 'Profile Description' dialog box with the following data:

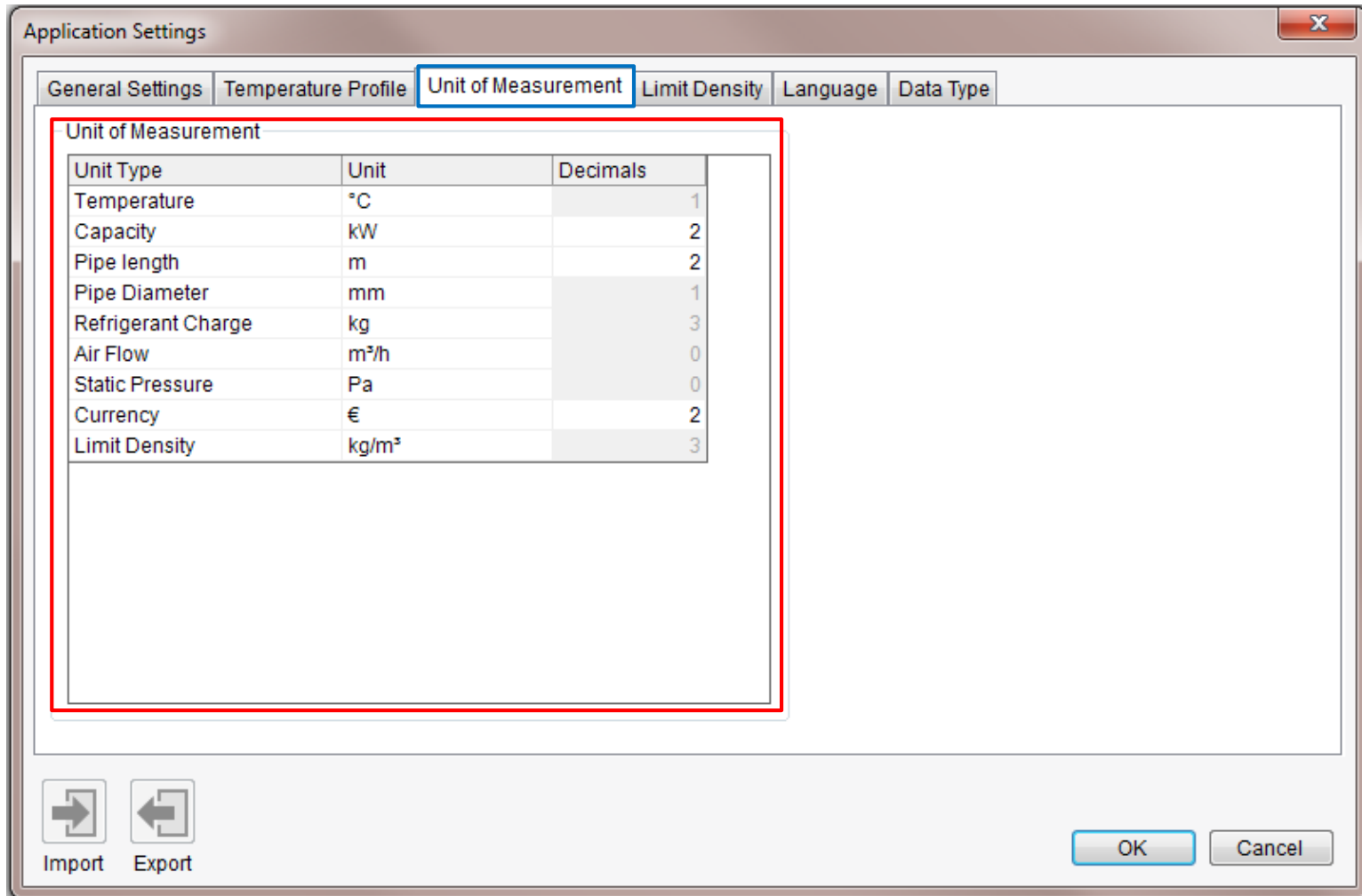
Category	Parameter	Value	Unit
Internals	Cooling Dry Bulb	27.0	°C
	Cooling Wet Bulb	19.0	°C
	Cooling Relative Humidity	47	%
	Heating Dry Bulb	20.0	°C
Outdoors	Cooling Dry Bulb	35.0	°C
	Heating Wet Bulb	6.0	°C
All Fresh Air Intake : Outside Air Supply	Cooling Wet Bulb	28.0	°C
	Heating Dry Bulb	0.0	°C

At the bottom of the 'Application Settings' dialog, there are 'Import' and 'Export' buttons. A red box highlights the 'Export' button with the text: 'Export the temp as an Excel file in order to edit the list'.

## 2. Set up

# Application Settings:

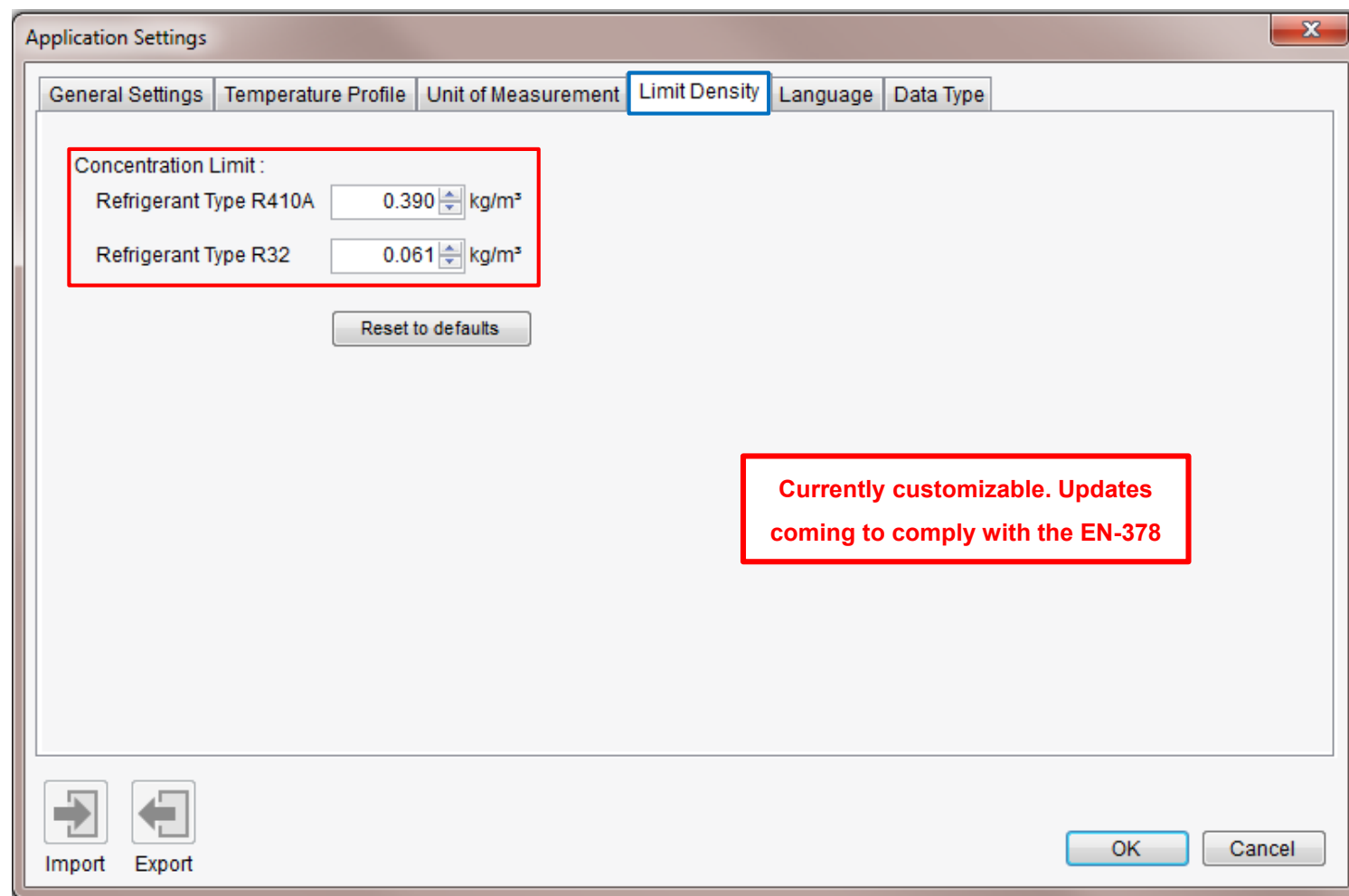
Select the default units the software will use:



## 2. Set up

### Application Settings:

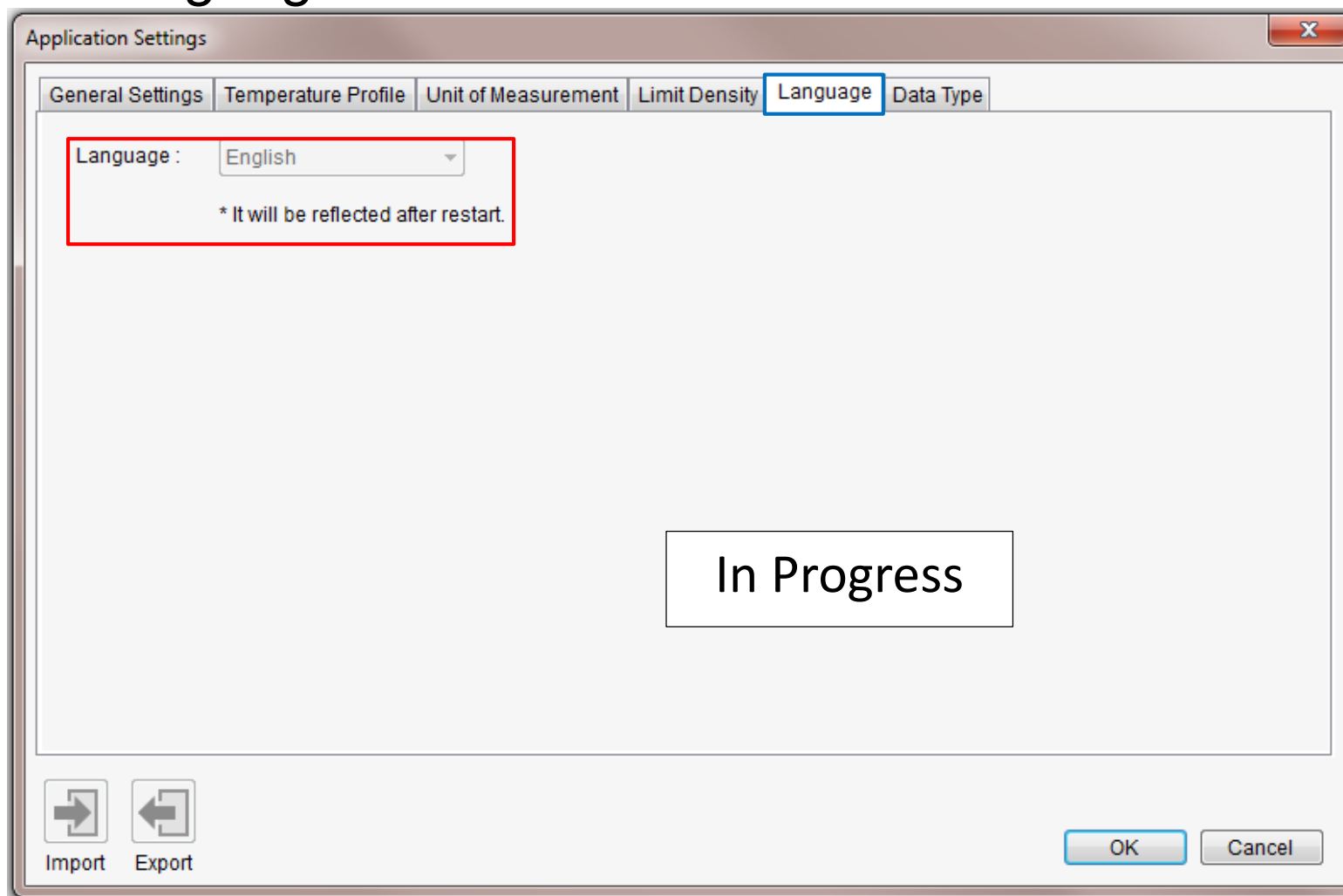
Set the limit density values for the software



## 2. Set up

# Application Settings:

## Set the language for the software



## 2. Set up

### Client data:

Save the clients data profiles to be used on the output:

The screenshot shows a software interface for entering client data. The interface is divided into three main sections:

- Left Sidebar:** A tree view showing the company name 'Sample Company.co.ltd' selected.
- Top Form:** A form with the following fields:
  - Company Name: Sample Company.co.ltd
  - Add1: sampleAdd-1
  - Add2: sampleAdd-2
  - Add3: sampleAdd-3
  - Town/City: SamplesTown
  - County: SamplesCounty
  - Post Code: 111-222
  - Country: United States (dropdown)
  - Contact: D.J.Trmp
  - TelNo: 555-0000-1111
  - Email: trmp@samplehouse.com
- Bottom Table:** A table titled 'Locations/Sites' with the following data:

Description	Add1	Town/City	TelNo
Loc-1	add-1	sample Town	555-0000-2222
Site-1	add-2	sample City	555-0000-3333

## 2. Set up

### Unit pricing:

Edit the price list for all the Carrier units and accessories

Unit Pricing

Client: <default price list> Client Database

Show All (selected)  
Indoor/Outdoor Unit  
Accessories

Search: [ ] Clear Reset price to default Reset ALL prices to default Zero ALL prices

Model Number	Type	Description	Item Price (€)
MMU-AP0094HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0094HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0124HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0124HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0154HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0154HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0184HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0184HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0244HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0244HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0274HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0274HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0304HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0304HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0364HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0364HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0484HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0484HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0564HP1-E	Indoor Unit	4-way Cassette	0.00
MMU-AP0564HP1-TR	Indoor Unit	4-way Cassette	0.00
MMU-AP0094HP-E	Indoor Unit	4-way Cassette	0.00

Import Export Client pri...

Export the price list as an Excel file in order to edit the list

OK Close

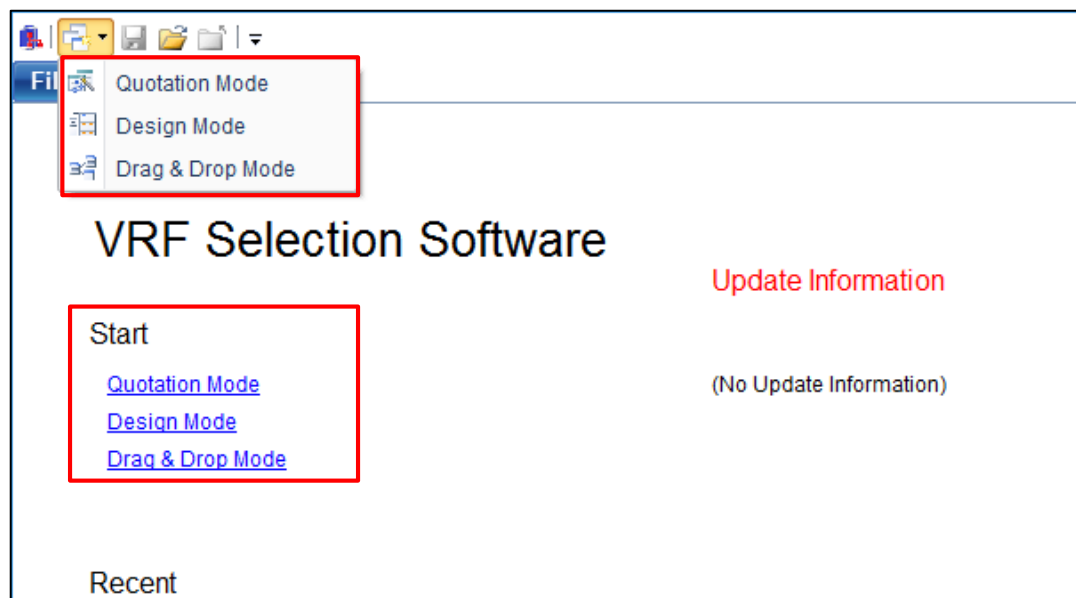
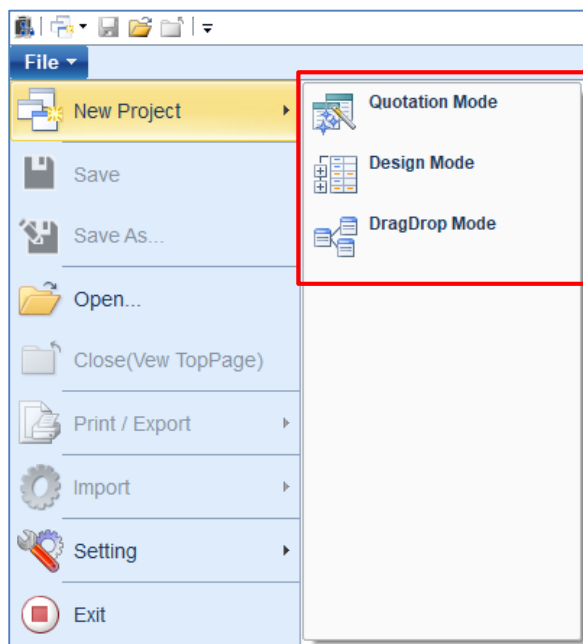
# Index

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1. Introduction
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3. **New Project**
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### 3. New Project



3 different ways to start a project:

- Quotation mode: quick design with automatic piping for quick quotations
- Design mode: A more advanced quotation mode
- Drag & Drop mode: Will create a blank canvas with most options

### 3. New Project

## New Project:

Before creating a project, the New Project window will be displayed

**Select Region**

**System type**

**New Project**

General Client Advanced Floors Rooms Design Condition Comment

**Project Details**

Title  
New Project3

Region  
Europe Europe

Frequency  
50Hz

Reference No

Reference Text

Prepared By

Revision

Project Save Location  
C:\Users\sarasolaa\Documents

**System Details**

Name  
System 1

Product  
VRF

Type  
Super Modular Multi System (SMMS-e)

Standard  All Fresh Air Intake  Dx kit(0-10V)

Refrigerant saving  
 Cooling Only

Maximum Building Diversity 0 %  Indoor Unit auto-sizing

Equivalent Length Ratio 1.2  Load Sharing

PMV Series 3

Single Drawing for all floors  Separate Drawing for individual floors

OK Cancel

### 3. New Project

## Drag and Drop mode:

Select the System type and fill the required information (just the Project Title is mandatory). Beware, the region can't be changed later:

The screenshot shows the 'New Project' dialog box with the following details:

- Project Details:**
  - Title: New Project3
  - Region: Europe (dropdown menu)
  - Frequency: 50Hz (radio button selected)
  - Reference No: [empty field]
  - Reference Text: [empty field]
  - Prepared By: [empty field]
  - Revision: [empty field]
  - Project Save Location: C:\Users\sarasolaal\Documents
- System Details:**
  - Name: System 1
  - Product: VRF (dropdown menu)
  - Type: Super Modular Multi System (SMMS-e) (dropdown menu)
  - Standard:  (selected)
  - All Fresh Air Intake:
  - Dx kit(0-10V):
  - Refrigerant saving:  (checked)
  - Cooling Only:
  - Maximum Building Diversity:  0 %
  - Indoor Unit auto-sizing:
  - Equivalent Length Ratio: 1.2
  - Load Sharing:
  - PMV Series: 3 (dropdown menu)
  - Single Drawing for all floors:  (selected)
  - Separate Drawing for individual floors:

### 3. New Project

## Drag and Drop mode:

Client company data and project address can be set for the output:

The screenshot displays a software interface with a tabbed menu at the top. The 'Client' tab is selected and highlighted with a blue border. The interface is divided into two main columns of input fields. The left column contains fields for 'Client Name' (with a 'Select...' button), 'Client Address' (a multi-line text area), 'Contact', 'Main Tel No', and 'E-mail'. The right column contains fields for 'Site Address' (a multi-line text area), 'Site Name', 'Site Address' (another multi-line text area), 'Site Contact', 'Site Contact Tel No', and 'E-mail'. All input fields are currently empty.

### 3. New Project

## Drag and Drop mode:

Fan Speed correction factors and the altitude correction factors can be set:

New Project

General Client **Advanced** Floors Rooms Design Condition Comment

Fan speed correction coefficients

	Cooling	Sensible	Heating
High	1.000	1.000	1.000
Medium+	0.950	0.925	0.950
Medium	0.900	0.850	0.900
Low+	0.850	0.800	0.850
Low	0.800	0.740	0.800

Reset to defaults

Update Project

Altitude Condition

	Cooling	Heating
Outdoor	1.000	1.000
Indoor	1.000	1.000

Fan Speeds

Set Fan Speed of all Indoor Units to:

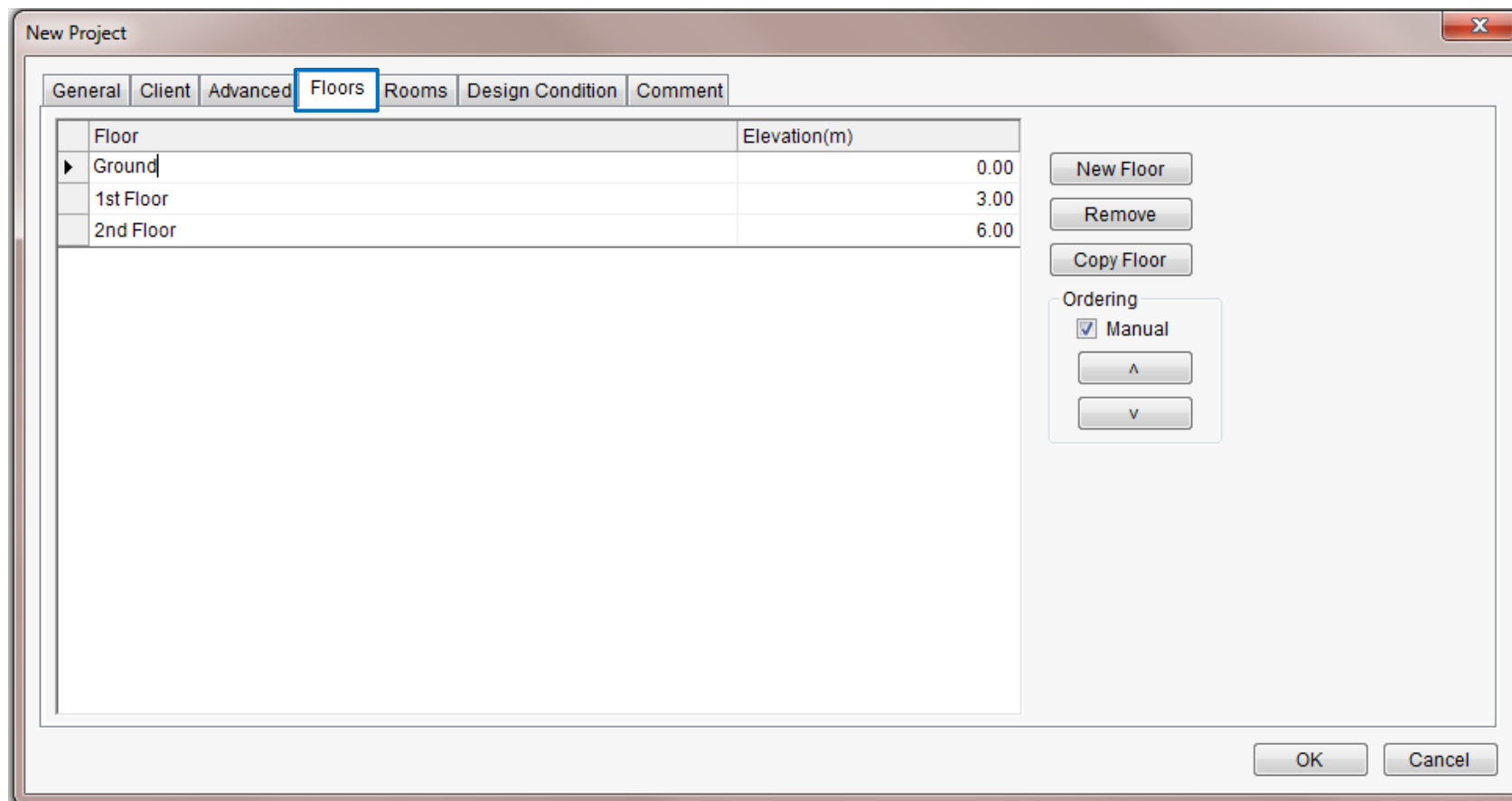
High Medium+ Medium Low+ Low

OK Cancel

### 3. New Project

## Drag and Drop mode:

Floors for the system can be set. It will set the height automatically to the units on the floor



### 3. New Project

## Drag and Drop mode:

Configure the virtual rooms and the room specifications:

The screenshot shows the 'New Project' window with the 'Rooms' tab selected. A table lists the following rooms and their specifications:

Room	Floor	Cooling			Heating	Room Dimensions		Room Load(kW)			
		DB(°C)	WB(°C)	RH(%)	DB(°C)	Area(m2)	Volume(m3)	Cooling	Sensible	Heating	ROT
Garaje	Ground	27.0	19.0	47	20.0	40.00	250.00	4.80	3.60	4.40	<input type="checkbox"/>
Toilet	1st Floor	27.0	19.0	47	20.0	20.00	50.00	2.40	1.80	2.20	<input type="checkbox"/>
Kitchen	1st Floor	27.0	19.0	47	20.0	40.00	120.00	4.80	3.60	4.40	<input type="checkbox"/>
Sitting room	1st Floor	27.0	19.0	47	20.0	70.00	150.00	8.40	6.30	7.70	<input type="checkbox"/>
Bedroom	2nd Floor	27.0	19.0	47	20.0	20.00	95.00	2.40	1.80	2.20	<input type="checkbox"/>
Bedroom 2	2nd Floor	27.0	19.0	47	20.0	75.00	200.00	9.00	6.75	8.25	<input type="checkbox"/>

Below the table, indoor conditions are listed: Indoor DB(Cooling): 18°C - 32°C, Indoor DB(Heating): 15°C - 28°C, Indoor WB(Cooling): 15°C - 24°C, Indoor RH(Cooling): 20% - 80%. A 'Duplicate selected Rooms' button is also present.

A callout box states: **Volume used to calculate the leak values  
Area \* ROT = required capacities**

The detailed view for 'Bedroom 2' shows the following R.O.T. values:

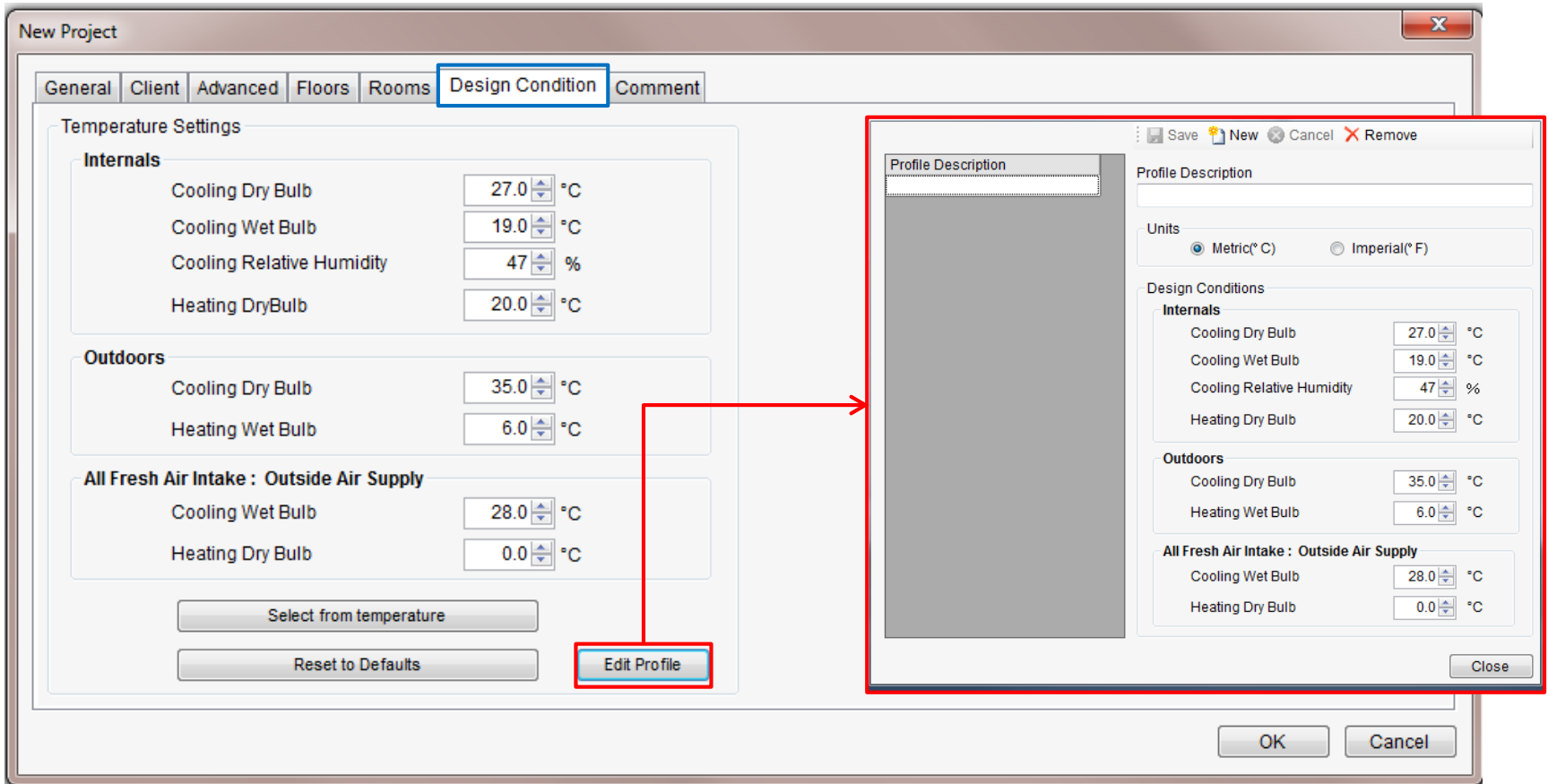
- Room R.O.T. Cooling: 0.12
- Room R.O.T. Sensible: 0.09
- Room R.O.T. Heating: 0.11

The note indicates: R.O.T. values must be entered in kW/m2.

### 3. New Project

## Drag and Drop mode:

Set the default temperatures for the project:

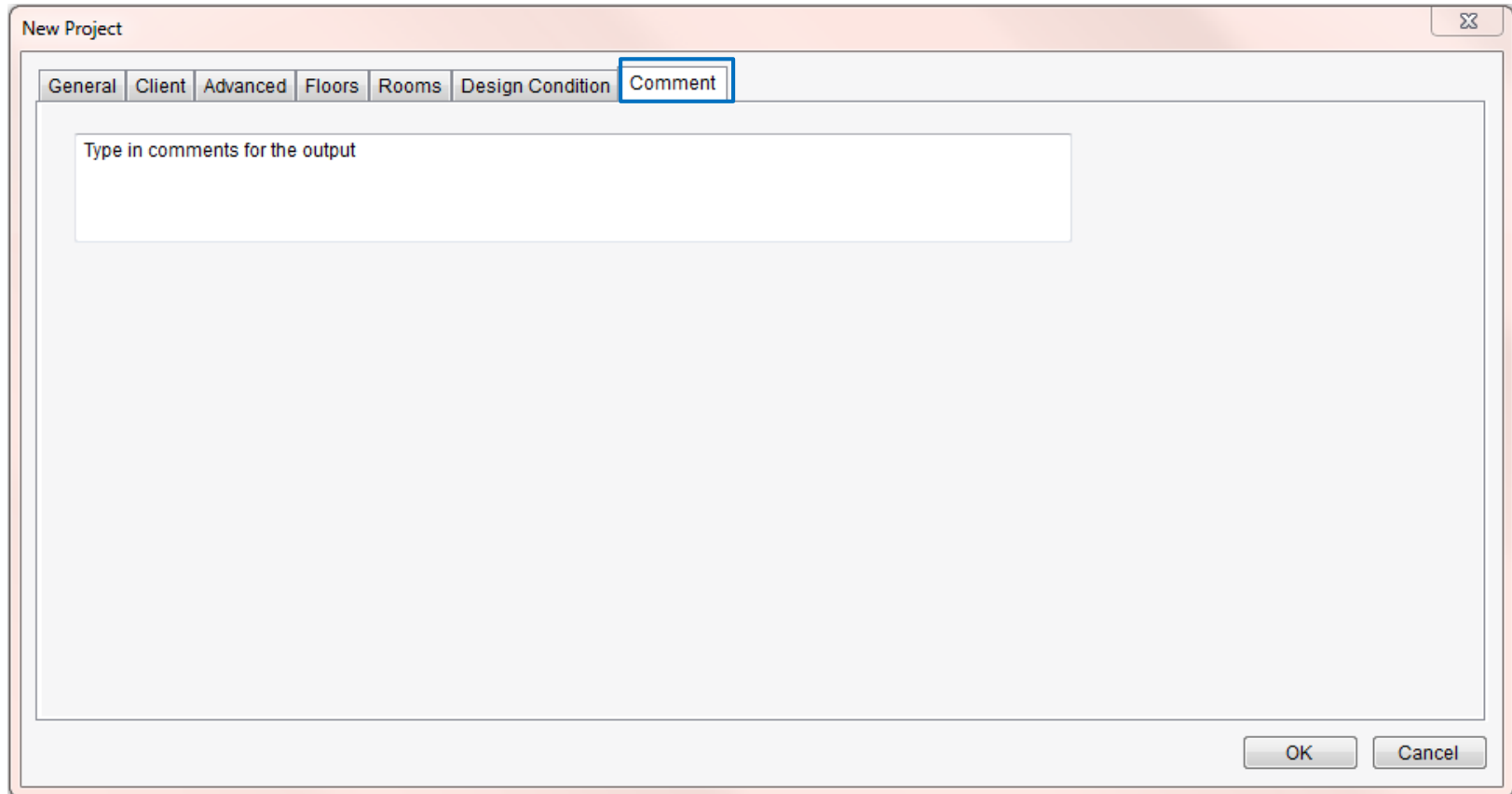




### 3. New Project

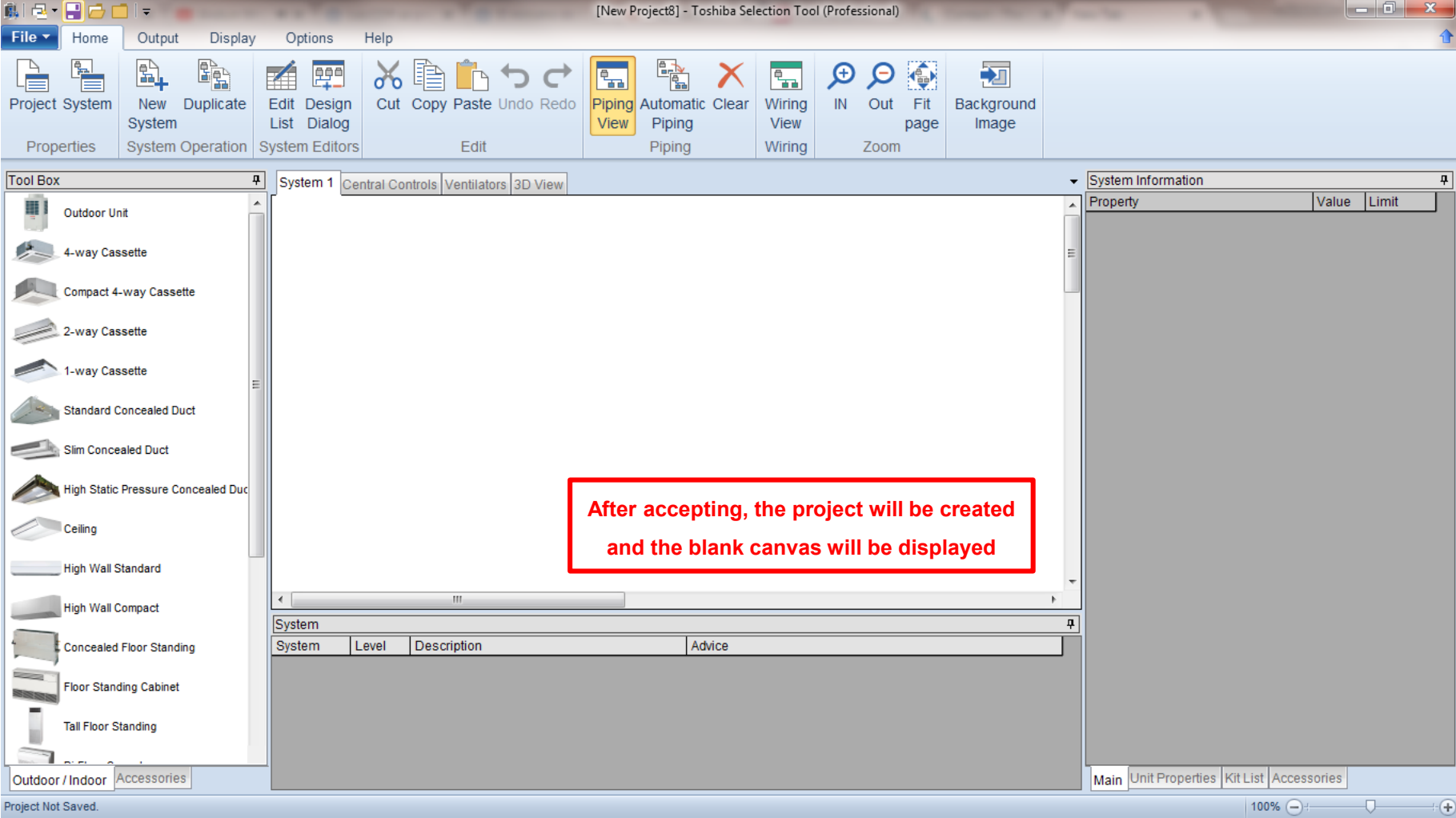
## Drag and Drop mode:

Type in comments to be displayed on the output



The image shows a software dialog box titled "New Project". It has a tabbed interface with the following tabs: "General", "Client", "Advanced", "Floors", "Rooms", "Design Condition", and "Comment". The "Comment" tab is currently selected and highlighted with a blue border. Inside the dialog, there is a large text input area with the placeholder text "Type in comments for the output". At the bottom right of the dialog, there are two buttons: "OK" and "Cancel".

# 3. New Project



## 3. New Project

# Quotation mode: Set the basic settings

New Project

General Comment

Project Details

Title  
New Project9

Region  
Europe Europe

Frequency  
 50Hz

Outdoor unit Setting

Name  
System 1

Product  
VRF

Type  
Super Modular Multi System (SMMS-e)

Standard  All Fresh Air Intake  Dx kit(0-10V)

Refrigerant saving  
 Cooling Only

Project Save Location  
C:\Users\sarasolaal\Documents

Single Drawing for all floors  Separate Drawing for individual floors

OK Cancel

**The quotation mode has limited tab and options when creating a new project.**

### 3. New Project

# Quotation mode: Chose the units for the quotation:

**Set multiple systems**

**Outdoor unit will be chosen automatically**

Capacity Rank	005	007	009	012	015	018	024	027	030	036	048	056	072	096	
Capacity Code	PMV	0.6	0.8	1.0	1.25	1.7	2.0	2.5	3.0	3.2	4.0	5.0	6.0	8.0	10.0
Cooling Rated Capacity	4-way Cassette			2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	16.0		
Sensible Capacity	4-way Cassette			2.1	2.6	3.2	4.0	4.9	5.5	6.2	7.7	9.8	11.0		
Heating Rated Capacity	4-way Cassette			3.2	4.0	5.0	6.3	8.0	9.0	10.0	12.5	16.0	18.0		
Quantity	4-way Cassette			0	0	0	0	0	0	0	0	0	0		
Cooling Rated Capacity	Compact 4-way Cassette		1.7	2.2	2.8	3.6	4.5	5.6							
Sensible Capacity	Compact 4-way Cassette		1.5	1.8	2.2	2.7	3.3	4.0							
Heating Rated Capacity	Compact 4-way Cassette		1.9	2.5	3.2	4.0	5.0	6.3							
Quantity	Compact 4-way Cassette		0	0	0	0	0	0							
Cooling Rated Capacity	2-way Cassette		2.2	2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	16.0		
Sensible Capacity	2-way Cassette		1.8	2.2	2.7	3.2	4.1	5.1	5.6	6.2	8.4	9.7	10.9		
Heating Rated Capacity	2-way Cassette		2.5	3.2	4.0	5.0	6.3	8.0	9.0	10.0	12.5	16.0	18.0		
Quantity	2-way Cassette		0	0	0	0	0	0	0	0	0	0	0		
Cooling Rated Capacity	1-way Cassette		2.2	2.8	3.6	4.5	5.6	7.1							
Sensible Capacity	1-way Cassette		1.8	2.3	2.8	3.4	4.0	5.0							
Heating Rated Capacity	1-way Cassette		2.5	3.2	4.0	5.0	6.3	8.0							
Quantity	1-way Cassette		0	0	0	0	0	0							
Cooling Rated Capacity	Standard		2.2	2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	16.0		

**Indoor Units Total Capacity**

Capa. Code	0.0	HP
Cooling	0.0	kW
Sensible	0.0	kW
Heating	0.0	kW

**Outdoor Unit Model / Capacity**

Model	-
Cooling	- kW
Heating	- kW

**Outdoor Unit Select with**

Standard  High Efficiency

**Pipe Length**

Automatic  Manual

Farthest pipe(m)  Main pipe(m)  Branching piping(m)  Indoor Unit Connecting piping(m)

Unit per Row

Back Next Close

**Set the pipe lengths automatically by setting the farthest pipe or set manually the pipes length of the system**

# 3. New Project

## Quotation mode: The design will be created:

The screenshot displays the Toshiba Selection Tool (Professional) interface for a new project. The main workspace shows a piping diagram for 'System 1' with three horizontal branches. The left sidebar contains a 'Tool Box' with various HVAC components like Outdoor Units, Cassettes, and Ducts. The right sidebar shows 'System Information' and a 'System' table with alerts.

Property	Value	Limit
Total System Check		X
Outdoor Units	0 Unit	-
Indoor Units (Control P.C.Boards)	0 Unit	-
Outdoor Combined Rated HP	0 HP	-
Outdoor Combined Rated Cooling	0.00...	-
Outdoor Combined Rated Heating	0.00...	-
Indoor Combined Rated Cooling	0.00...	-

System	Level	Description	Advice
System 1	Alert	Pipe length is zero (x29)	Please enter a length.
System 1	Alert	Outdoor Units Pipe length is zero (x4)	Please enter a length in Setting of Outdoor Unit.

Property	Value	Limit
Farthest Piping Between Outdoor...	0.00 m	-
Main Piping Real Length(L1)	0.00 m	-
Main Piping Equivalent Length(L1e)	0.00 m	-
Greatest Indoor Unit Connecting Pi...	0.00 m	-
Greatest Outdoor Unit Connecting...	0.00 m	-
Greatest Piping Between Branches...	0.00 m	-
Highest Outdoor Unit	0.00 m	-
Lowest Outdoor Unit	0.00 m	-
Highest Indoor Unit	0.00 m	-
Lowest Indoor Unit	0.00 m	-

Toshiba Selection Tool  
Automatic piping drawing  
 Normal (unicursal)  Vertical (with Branches)  
OK Cancel

### 3. New Project

# Quotation mode: The design will be created:

The screenshot displays the Toshiba Selection Tool (Professional) interface for a new project. The main workspace shows a piping diagram for 'System 1' with various indoor units connected to a central control unit. A 'System Information' table is visible on the right, and a 'Toshiba Selection Tool' dialog box is open, allowing the user to choose between 'Normal (uncursal)' and 'Vertical (with Branches)' for automatic piping drawing. A system alert table at the bottom indicates a warning for zero pipe length.

Property	Value	Limit
<b>Total System Check</b>		<b>X</b>
Outdoor Units	1 Unit	-
Indoor Units (Control P.C.Boards)	15 Unit	36 Unit
Outdoor Combined Rated HP	16 HP	-
Outdoor Combined Rated Cooling	45.0...	-
Outdoor Combined Rated Heating	50.0...	-

System	Level	Description	Advice
System 1	Alert	Pipe length is zero (x29)	Please enter a length.

Property	Value	Limit
Farthest Piping Between Outdoor...	0.00 m	25.00 m
Main Piping Real Length(L1)	0.00 m	100.00 m
Main Piping Equivalent Length(L1e)	0.00 m	120.00 m
Greatest Indoor Unit Connecting Pi...	0.00 m	30.00 m
Greatest Outdoor Unit Connecting...	0.00 m	10.00 m
Greatest Piping Between Branches...	0.00 m	50.00 m
Highest Outdoor Unit	0.00 m	-
Lowest Outdoor Unit	0.00 m	-
Highest Indoor Unit	0.00 m	40.00 m
Lowest Indoor Unit	0.00 m	70.00 m

### 3. New Project

## Design mode:

Set the basic settings:

**New Project**

General | Client | Advanced | Design Condition | Comment

**Project Details**

Title: New Project 4

Region: Europe (dropdown) | Frequency: 50Hz (radio button)

Reference No: [text field]

Reference Text: [text field]

Prepared By: [text field]

Revision: [text field]

Project Save Location: C:\Users\sarasolaal\Documents [Browser...]

**System Details**

Name: System 1

Product: VRF (dropdown)

Maximum Building Diversity: 0 % [checkbox Indoor Unit auto-sizing]

Equivalent Length Ratio: 1.2 [checkbox Load Sharing]

PMV Series: 3 (dropdown)

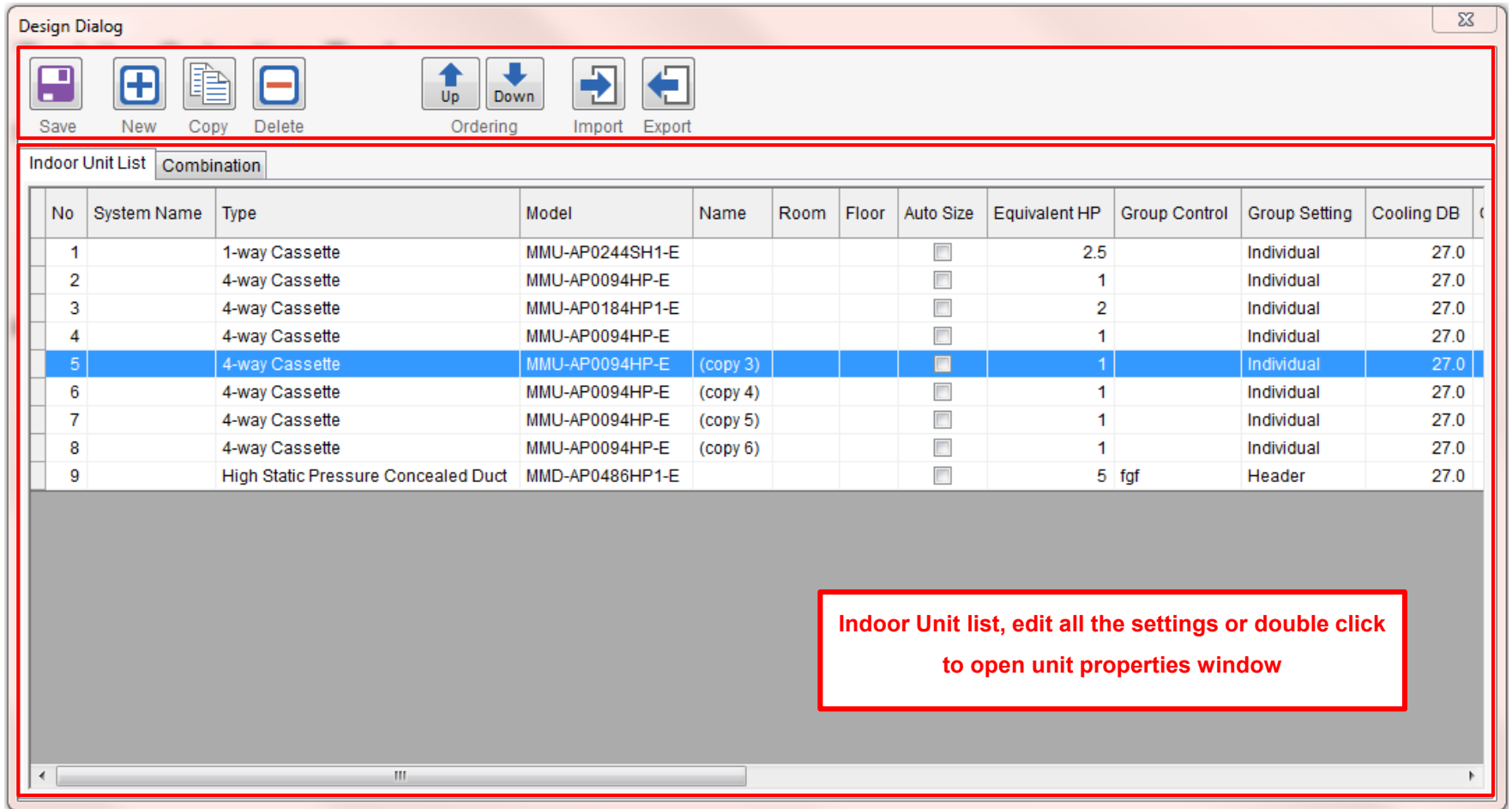
**The design mode has limited tab and options when creating a new project.**

OK Cancel

### 3. New Project

## Design mode:

A more advanced quotation mode:



The screenshot shows the 'Design Dialog' window with a toolbar containing icons for Save, New, Copy, Delete, Ordering (Up/Down), Import, and Export. Below the toolbar is the 'Indoor Unit List' table, which is currently in 'Combination' mode. The table lists 9 units with columns for No., System Name, Type, Model, Name, Room, Floor, Auto Size, Equivalent HP, Group Control, Group Setting, and Cooling DB. Row 5 is highlighted in blue. A red-bordered box at the bottom right of the window contains the text: 'Indoor Unit list, edit all the settings or double click to open unit properties window'.

No	System Name	Type	Model	Name	Room	Floor	Auto Size	Equivalent HP	Group Control	Group Setting	Cooling DB
1		1-way Cassette	MMU-AP0244SH1-E				<input type="checkbox"/>	2.5		Individual	27.0
2		4-way Cassette	MMU-AP0094HP-E				<input type="checkbox"/>	1		Individual	27.0
3		4-way Cassette	MMU-AP0184HP1-E				<input type="checkbox"/>	2		Individual	27.0
4		4-way Cassette	MMU-AP0094HP-E				<input type="checkbox"/>	1		Individual	27.0
5		4-way Cassette	MMU-AP0094HP-E	(copy 3)			<input type="checkbox"/>	1		Individual	27.0
6		4-way Cassette	MMU-AP0094HP-E	(copy 4)			<input type="checkbox"/>	1		Individual	27.0
7		4-way Cassette	MMU-AP0094HP-E	(copy 5)			<input type="checkbox"/>	1		Individual	27.0
8		4-way Cassette	MMU-AP0094HP-E	(copy 6)			<input type="checkbox"/>	1		Individual	27.0
9		High Static Pressure Concealed Duct	MMD-AP0486HP1-E				<input type="checkbox"/>	5 fgf		Header	27.0



### 3. New Project

## Design mode:

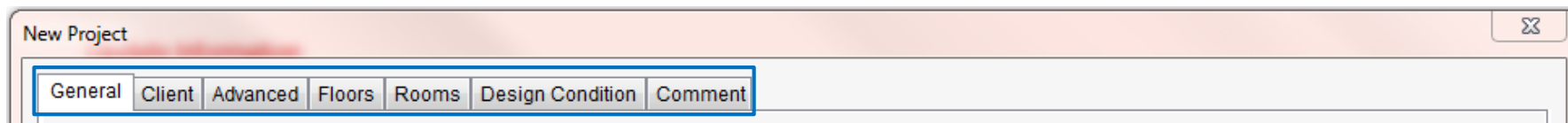
A more advanced quotation mode:

The screenshot shows the 'Design Dialog' window with the following components:

- Toolbar:** Save, New, Copy, Delete, Up, Down, Import, Export, and Design condition.
- Indoor Unit List / Combination:** Two tabs are visible.
- Outdoor Unit Data:**
  - Refrigerant Cycle: Number 1, Name
  - Unit Type: Super Modular Multi System (SMMS-e)
  - Model: MMY-MAP1806HT8P-E
  - Cooling Capacity: 50.40 kW
  - Heating Capacity: 56.00 kW
  - Connected Indoor unit Count: 3
  - Total Cooling: 15.50 kW
  - Total Heating: 17.50 kW
  - Capacity Ratio: 30.56 %
- Project Tree:** New Project11
  - System 1 - MMY-MAP1806HT8P-E
    - MMU-AP0244SH1-E
    - MMU-AP0094HP-E
    - MMU-AP0184HP1-E
  - System 2 - MMY-MAP0806FT8P-E
    - MMD-AP0486HP1-E
- Selectable Indoor Unit:** A table with 8 rows:

No	Model	Name
4	MMU-AP0094HP-E	
5	MMU-AP0094HP-E	(copy 3)
6	MMU-AP0094HP-E	(copy 4)
7	MMU-AP0094HP-E	(copy 5)
8	MMU-AP0094HP-E	(copy 6)
- Unit per Row:** 8
- Piping schematic:** A button at the bottom right.

### 3. New Project



Mode / Tab	Mode			Tab	
	Quotation Mode	Design Mode	Drag & Drop Mode	Project Property	System Property
General	Displayed	Displayed	Displayed	Displayed	Displayed
Client	-	Displayed	Displayed	Displayed	-
Advanced	-	Displayed	Displayed	Displayed	-
Floors	-	-	Displayed	-	Displayed
Rooms	-	-	Displayed	-	Displayed
Design Condition	-	Displayed	Displayed	-	Displayed
Unit of Measurement				Displayed	
Comment	Displayed	Displayed	Displayed	Displayed	Displayed

# 3. New Project

## Project created:

Once the project has been created, the user can open the design dialog window again by clicking here. Can also be opened with projects created using drag and drop or quotation mode

Edit the system and project properties from here:

- **Project properties:**
  - General Project properties
  - Client data
  - Fan speed and altitude correction factors
  - Units
  - Project notes
- **System properties:**
  - System properties
  - System Floors
  - System Rooms
  - Design conditions
  - System notes

Information	Value	Limit
Arm Check		X
Units	0 Unit	-
Units (Control P.C.Boards)	0 Unit	-
Combined Rated HP	0 HP	-
Outdoor Combined Rated Cooling	0.00...	-
Outdoor Combined Rated Heating	0.00...	-
Indoor Combined Rated Cooling	0.00...	-
Indoor Combined Corrected Cooling	0.00...	-
Indoor Combined Rated Heating	0.00...	-
Indoor Combined Corrected Heating	0.00...	-
Indoor Units Combined Capacity C...	0.0	-
Outdoor Combined Capacity Code	0	-
Capacity Ratio	0.0 %	50 - 135%
Total Pipe Length	0.00 m	-
Farthest Piping Real Length	0.00 m	-
Farthest Piping Equivalent Length	0.00 m	-
Farthest Piping From 1st Indoor Br...	0.00 m	-
Farthest Piping From 1st Indoor Br...	0.00 m	-
Farthest Piping Between Outdoor...	0.00 m	-
Main Piping Real Length(L1)	0.00 m	-
Main Piping Equivalent Length(L1e)	0.00 m	-
Greatest Indoor Unit Connecting Pi...	0.00 m	-
Greatest Outdoor Unit Connecting...	0.00 m	-
Greatest Piping Between Branches...	0.00 m	-
Highest Outdoor Unit	0.00 m	-
Lowest Outdoor Unit	0.00 m	-
Highest Indoor Unit	0.00 m	-
Lowest Indoor Unit	0.00 m	-

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3. New Project
4. Design Window
5. System Design
6. Central Controllers
7. Output

## 4. Design Window

### Design window:

After creating a project, the design window appears. The design window has the following areas:

- Main functions
- Toolbox
- Canvas
- Error list
- System info

The screenshot displays the Toshiba Selection Tool (Professional) software interface. The main window is titled "[New Project12] = Toshiba Selection Tool (Professional)". The interface is divided into several key areas:

- Menu Bar:** File, Home, Output, Display, Options, Help.
- Toolbar:** Project System, New Duplicate, Edit Design List Dialog, System Editors, Piping View, Automatic Clear Piping, Wiring View, IN Out, Fit page, Background Image.
- Tool Box (Left):** A list of HVAC components including Outdoor Unit, 4-way Cassette, Compact 4-way Cassette, 2-way Cassette, 1-way Cassette, Standard Concealed Duct, Slim Concealed Duct, High Static Pressure Concealed Duct, Ceiling, High Wall Standard, High Wall Compact, Concealed Floor Standing, Floor Standing Cabinet, Tall Floor Standing, Bi-Flow Console, Air to Air Heat Exchanger with DX-C, Air to Air Heat Exchanger with DX-C Humidifier, Fresh Air Intake Indoor Unit, DX Coil Interface (TA), and Mid temperature Hot Water Module.
- Canvas (Center):** A 3D view of a piping system labeled "System 1" with tabs for Central Controls, Ventilators, and 3D View. It shows a network of pipes connecting various indoor units to an outdoor unit.
- System Information (Right):** A table listing system properties and their values/limits.
- Error List (Bottom):** A table showing system alerts.

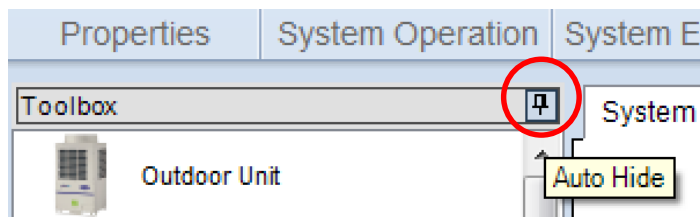
Property	Value	Limit
<b>Total System Check</b>		X
Outdoor Units	0 Unit	-
Indoor Units (Control P.C Boards)	0 Unit	-
Outdoor Combined Rated HP	0 HP	-
Outdoor Combined Rated Cooling	0.00...	-
Outdoor Combined Rated Heating	0.00...	-
Indoor Combined Rated Cooling	0.00...	-
Indoor Combined Corrected Cooling	0.00...	-
Indoor Combined Rated Heating	0.00...	-
Indoor Combined Corrected Heating	0.00...	-
Indoor Units Combined Capacity Code	0.0	-
Outdoor Combined Capacity Code	0	-
Capacity Ratio	0.0 %	50 - 135%
Total Pipe Length	0.00 m	-
Farthest Piping Real Length	0.00 m	-
Farthest Piping Equivalent Length	0.00 m	-
Farthest Piping From 1st Indoor Bran...	0.00 m	-
Farthest Piping From 1st Indoor Bran...	0.00 m	-
Farthest Piping Between Outdoor Uni...	0.00 m	-
Main Piping Real Length(L1)	0.00 m	-
Main Piping Equivalent Length(L1e)	0.00 m	-
Greatest Outdoor Unit Connecting Pipi...	0.00 m	-
Greatest Outdoor Unit Connecting Pi...	0.00 m	-
Greatest Piping Between Branches E...	0.00 m	-
Highest Outdoor Unit	0.00 m	-
Lowest Outdoor Unit	0.00 m	-
Highest Indoor Unit	0.00 m	-
Lowest Indoor Unit	0.00 m	-
Greatest Height Between Indoor And...	0.00 m	-
Greatest Height Difference Between I...	0.00 m	-
Greatest Height Difference Between...	0.00 m	-
Limit Density	0.000...	-
Additional Charge	0.000...	-
Total Charge	0.000...	-

system	Level	Description	Advice
System 1	Alert	Pipe length is zero (x29)	Please enter a length.
System 1	Alert	Outdoor Units Pipe length is zero (x4)	Please enter a length in Setting of Outdoor Unit.

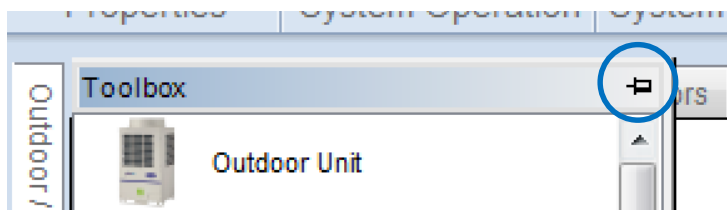
## 4. Design Window

### Design window:

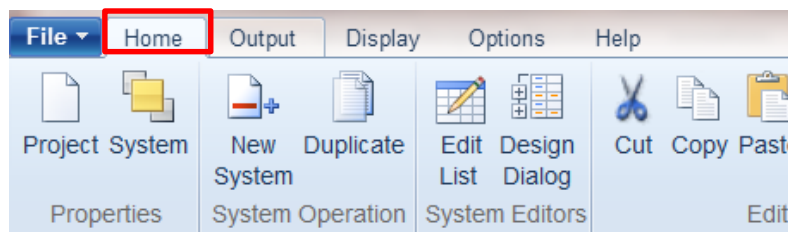
The different windows can be customized to increase the canvas area:



Auto-Hide pin



Re-dock pin

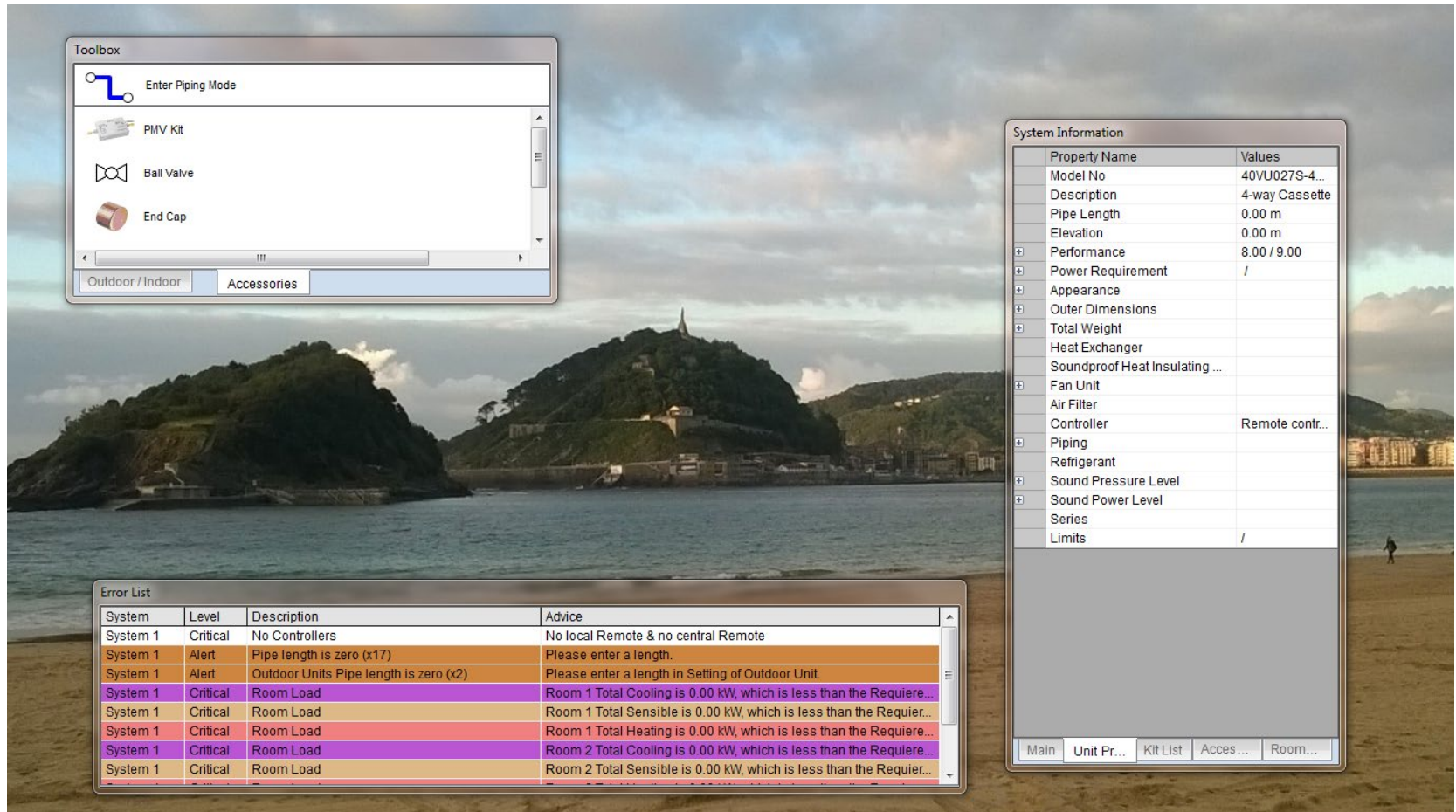


Double click to automatically hide

## 4. Design Window

### Design window:

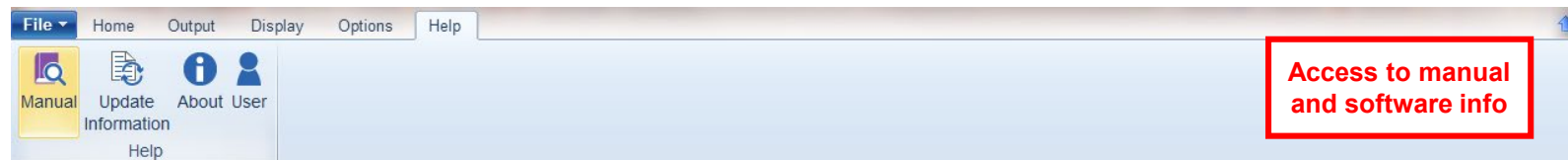
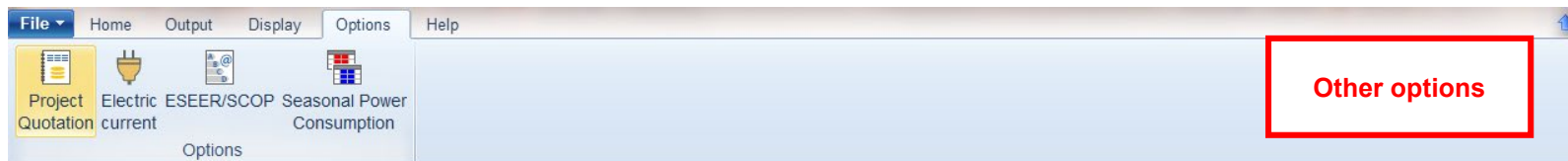
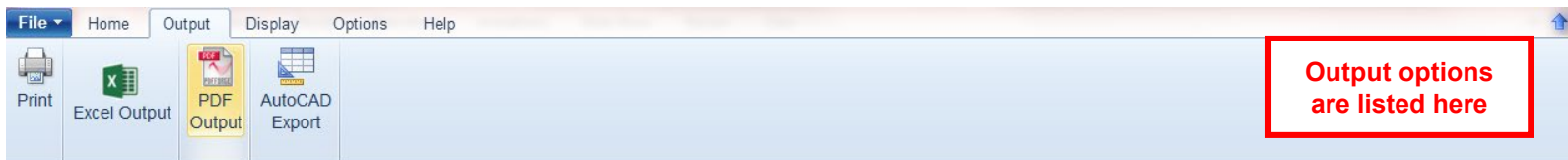
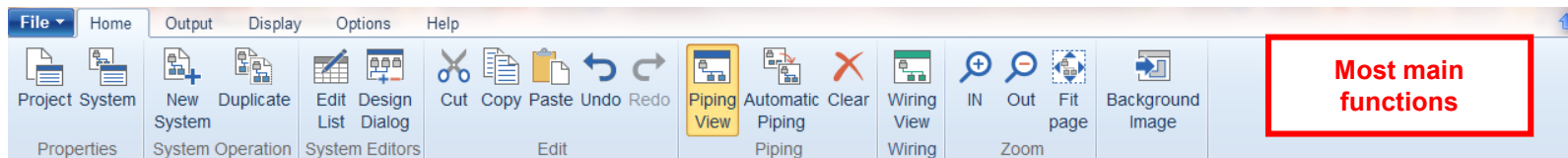
Boxes can also be set outside the software frame:



## 4. Design Window

### Main functions menu:

There are 5 tabs in the top with the main functions:





## 4. Design Window

### Canvas:

Displays the design and its pipework. Can also display the wiring view or the central Controls.

The screenshot displays the Toshiba Selection Tool (Professional) interface. The main canvas shows a piping diagram for 'System 1' with three horizontal branches of indoor units connected to a central outdoor unit. The 'Piping View' and 'Wiring View' buttons in the top toolbar are highlighted with red boxes. The 'Central Controls' button in the top toolbar is also highlighted with a red box. The left sidebar shows a 'Tool Box' with various indoor unit and duct options. The right sidebar shows a 'System Information' table with various properties and values. The bottom status bar shows 'Project Not Saved' and a zoom level of 59%.

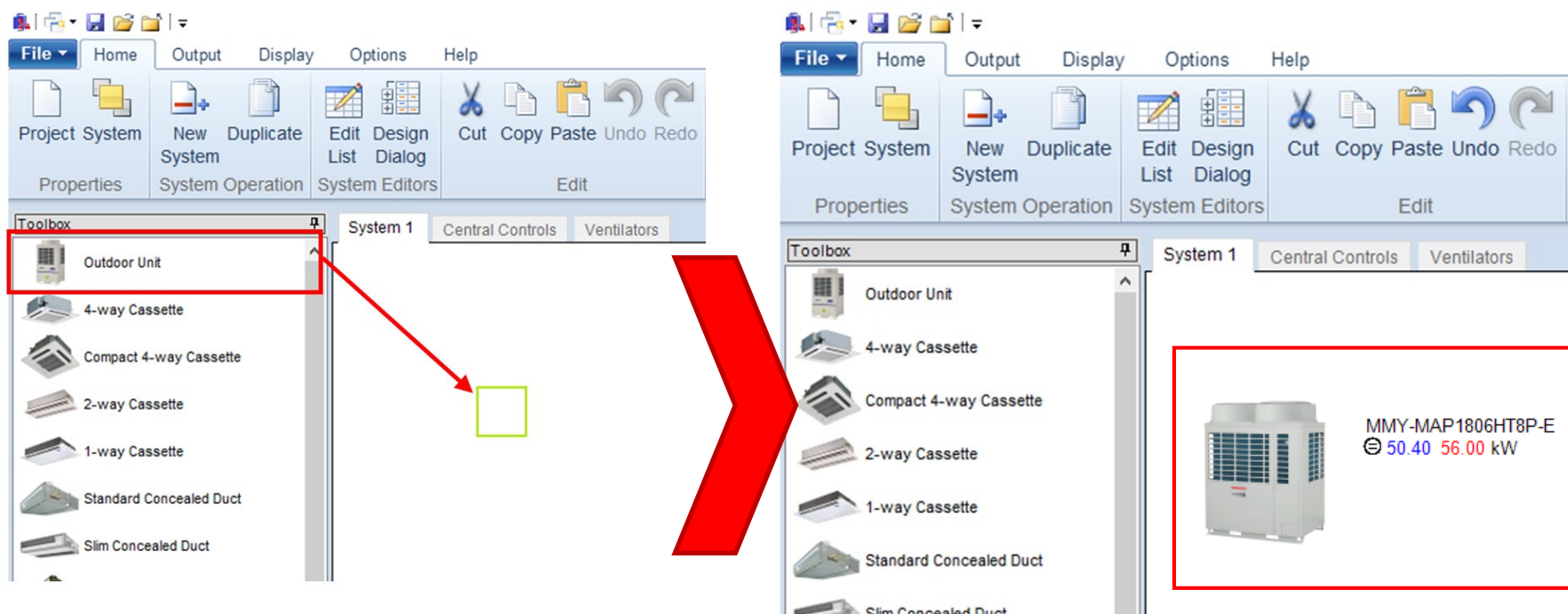
Property	Value	Limit
Total System Check		X
Outdoor Units	0 Unit	-
Indoor Units (Control P.C.Boards)	0 Unit	-
Outdoor Combined Rated HP	0 HP	-
Outdoor Combined Rated Cooling	0.00...	-
Outdoor Combined Rated Heating	0.00...	-
Indoor Combined Rated Cooling	0.00...	-
Indoor Combined Corrected Cooling	0.00...	-
Indoor Combined Rated Heating	0.00...	-
Indoor Combined Corrected Heating	0.00...	-
Indoor Units Combined Capacity Code	0.0	-
Outdoor Combined Capacity Code	0	-
Capacity Ratio	0.0 %	50 - 135%
Total Pipe Length	0.00 m	-
Farthest Piping Real Length	0.00 m	-
Farthest Piping Equivalent Length	0.00 m	-
Farthest Piping From 1st Indoor Bran...	0.00 m	-
Farthest Piping From 1st Indoor Bran...	0.00 m	-
Farthest Piping Between Outdoor Uni...	0.00 m	-
Main Piping Real Length(L1)	0.00 m	-
Main Piping Equivalent Length(L1e)	0.00 m	-
Greatest Indoor Unit Connecting Pipl...	0.00 m	-
Greatest Outdoor Unit Connecting Pi...	0.00 m	-
Greatest Piping Between Branches E...	0.00 m	-
Highest Outdoor Unit	0.00 m	-
Lowest Outdoor Unit	0.00 m	-
Highest Indoor Unit	0.00 m	-
Lowest Indoor Unit	0.00 m	-
Greatest Height Between Indoor And...	0.00 m	-
Greatest Height Difference Between I...	0.00 m	-
Greatest Height Difference Between...	0.00 m	-
Limit Density	0.000...	-
Additional Charge	0.000...	-
Total Charge	0.000...	-

System	Level	Description	Advice
System 1	Alert	Pipe length is zero (x29)	Please enter a length.
System 1	Alert	Outdoor Units Pipe length is zero (x4)	Please enter a length in Setting of Outdoor Unit.

## 4. Design Window

### Toolbox:

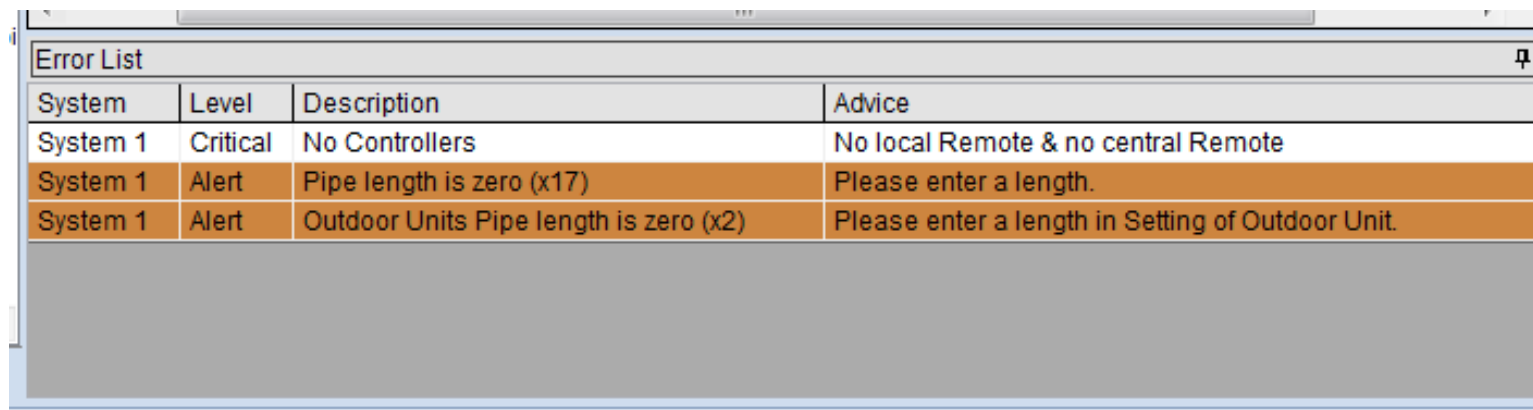
Drag and drop Indoor units, Outdoor Units and Accessories from the toolbox to the canvas



## 4. Design Window

### Error list:

The errors of the design will be displayed here. The user must fix the critical errors or the system will be out of specification.



System	Level	Description	Advice
System 1	Critical	No Controllers	No local Remote & no central Remote
System 1	Alert	Pipe length is zero (x17)	Please enter a length.
System 1	Alert	Outdoor Units Pipe length is zero (x2)	Please enter a length in Setting of Outdoor Unit.

# 4. Design Window

## System information: There are different tabs displaying

Property	Value	Limit
<b>Total System Check</b>	<b>X</b>	
Outdoor Units	2 Unit	-
Indoor Units	9 Unit	64 Unit
Outdoor Combined Rated HP	36 HP	-
Outdoor Combined Rated Cooling	101...	-
Outdoor Combined Rated Heating	113...	-
Indoor Combined Rated Cooling	72.0...	-
Indoor Combined Corrected Cooling	72.0...	-
Indoor Combined Rated Heating	81.0...	-
Indoor Combined Corrected Heating	81.0...	-
Indoor Units Combined Capacity C...	27.0	-
Outdoor Combined Capacity Code	36	-
Capacity Ratio	75.0 %	50 - 135%
Total Pipe Length	0.00 m	1000.00 m
Farthest Piping Real Length	0.00 m	180.00 m
Farthest Piping Equivalent Length	0.00 m	220.00 m
Farthest Piping From 1st Indoor Br...	0.00 m	-
Farthest Piping From 1st Indoor Br...	0.00 m	90.00 m
Farthest Piping Between Outdoor...	0.00 m	25.00 m
Main Piping Real Length(L1)	0.00 m	100.00 m
Main Piping Equivalent Length(L1e)	0.00 m	120.00 m
Greatest Indoor Unit Connecting Pl...	0.00 m	30.00 m
Greatest Outdoor Unit Connecting...	0.00 m	10.00 m
Greatest Piping Between Branches...	0.00 m	50.00 m
Highest Outdoor Unit	0.00 m	-
Lowest Outdoor Unit	0.00 m	-
Highest Indoor Unit	0.00 m	40.00 m
Lowest Indoor Unit	0.00 m	70.00 m
Greatest Height Between Indoor A...	0.00 m	-
Greatest Height Difference Between...	0.00 m	40.00 m
Greatest Height Difference Between...	0.00 m	5.00 m
Limit Density	0.00	0.44
Additional Charge	11.8...	-
Total Charge	34.8...	-

Displays the properties of the system

Property Name	Values
Model No	38VT036S68HTEE
Description	Outdoor Unit
Pipe Length	0 m
Elevation	0 m
Equivalent HP	36
Region Code	
Performance	36 / 101 / 113
Unit Type	
Units	2 Units
Power Requirement	
Dimensions Packing	
Dimensions Unit	
Weight Packing	
Weight Unit	
Color	
Compressor	
Fan	
Heat Exchanger	
Refrigerant	
High Pressure Switch	
Power Supply Wiring	80.7 / 100
Control Wiring	
Piping	28.6 / 0.0 / 15.9
Sound Pressure	64.5 / 66.5
Sound Power	84.5 / 86.5
Max External Static Pressure	
Operating Temperature Range	-5.0 - 46.0 / -20.0 - 15.5
Limits	64 / 1
No Units	
Series	

Displays the properties of the selected unit

Type	Qty	Model No	Description
Type:Accessory			
	9	40VPU056S1STEE	Panel
Type:Branch			
	1	RBM-BT24E	Outdoor Unit Branch Kit
	2	RBM-BY105E	Y-Joint
	4	RBM-BY205E	Y-Joint
	1	RBM-BY305E	Y-Joint
	1	RBM-BY55E	Y-Joint
Type:Indoor Unit			
	9	40VU027S-4S-TEE	4-way Cassette
Type:Outdoor Unit			
	1	38VT036S68HTEE	Outdoor Unit
Type:Refrigerant			
	11.8	R410A	Refrigerant Type R410A

Displays the equipment list of the system

Qty	Model No	Description
Type:Control Accessories		
1	TCB-PX100-PE	Optional Enclosure of th...
1	TCB-PX30MUE	Optional Enclosure of th...
Type:General Accessories		
1	TCB-BC1602UE	Air-discharge direction kit
1	TCB-FF101URE2	Auxiliary fresh air flange
1	TCB-SP1602UE	Spacer for height adjust...

Accessories of the selected unit

Capacity	Cooling	Sensi...	Heating
Required	6.00	4.50	5.50
Total	0.00	0.00	0.00
2			
Capacity	Cooling	Sensi...	Heating
Required	12.00	9.00	11.00
Total	0.00	0.00	0.00
3			
Capacity	Cooling	Sensi...	Heating
Required	18.00	13.50	16.50
Total	0.00	0.00	0.00
4			
Capacity	Cooling	Sensi...	Heating
Required	0	0	0
Total	0.00	0.00	0.00

Room loads info

# Index

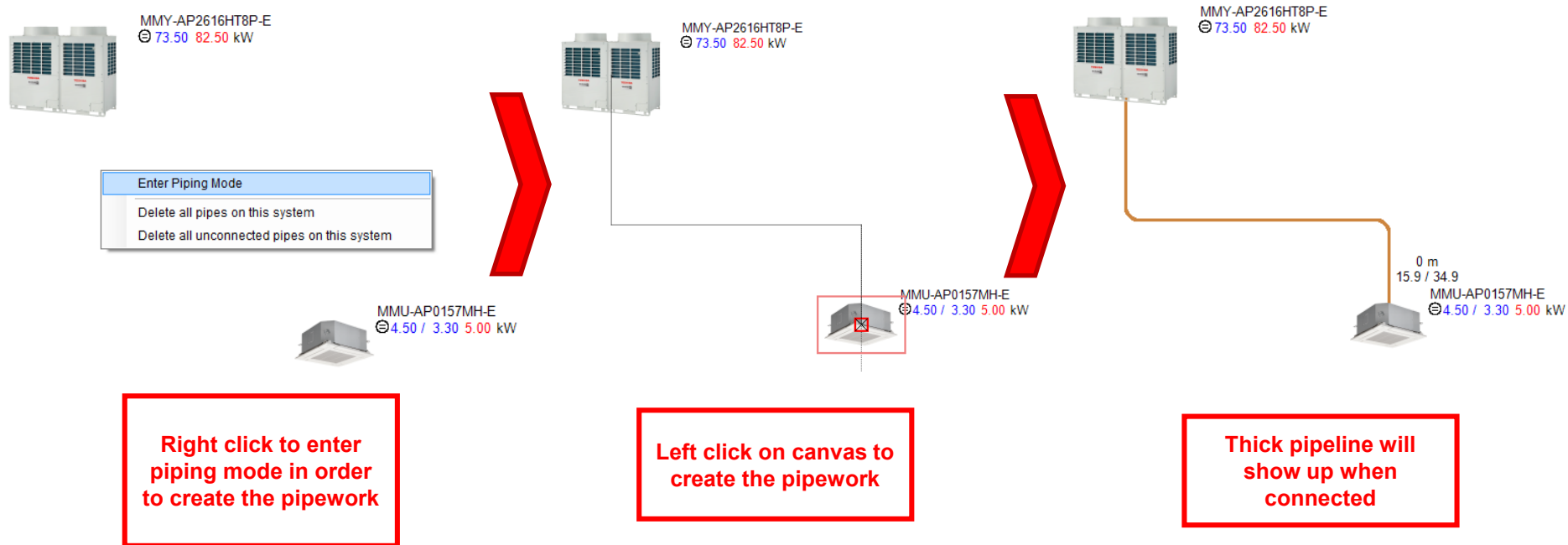
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## 5. System Design

### Piping mode:

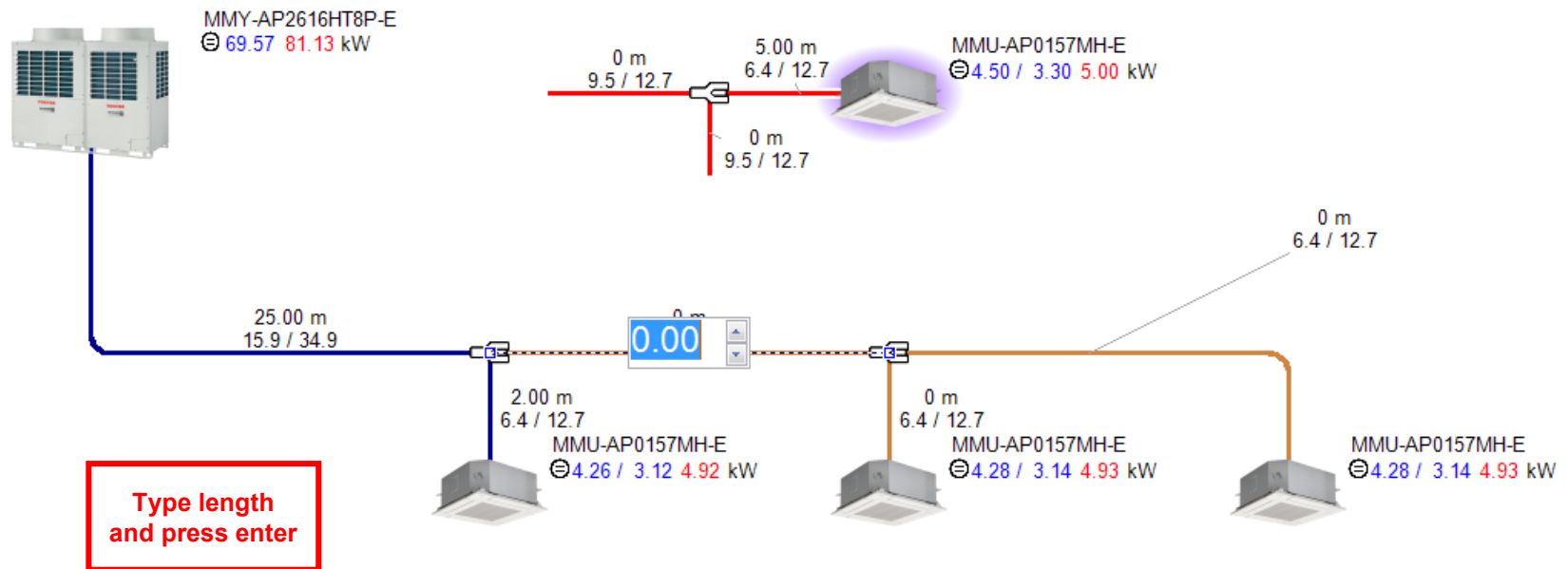
The quotation mode and the design mode will create the design automatically; however, the software offers many more options for a customized design. There are infinite possible combinations for the pipework:



## 5. System Design

### Pipework:

Double click on a pipe to enter its length and once the length has been set, the colour will change to blue. Red pipe means they are not connected to the OU:



## 5. System Design

### Outdoor Unit properties:

Double click over the Outdoor unit to open the Outdoor Unit properties window

Select model manually or set the auto size

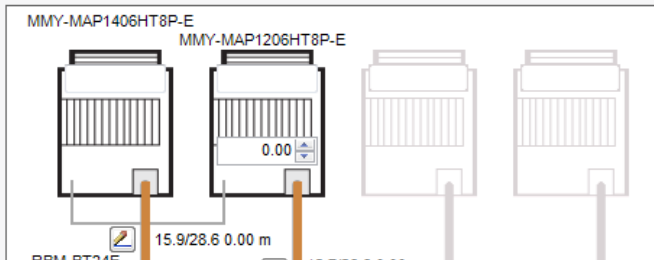
Outdoor Unit Property

Type: Super Modular Multi System (SMMS-e)  
MMY-AP2616HT8P-E  Standard  High Efficiency

Autosize 100 %

Outdoor Unit Name

MMY-MAP1406HT8P-E MMY-MAP1206HT8P-E




RBM-BT24E

15.9/28.6 0.00 m 12.7/28.6 0.00 m 15.9/34.9 5.00 m

Set the pipe length for Combined OUs

Capacity Information

Rated Cooling	73.50 kW
Rated Heating	82.50 kW
Corrected Cooling	72.27 kW
Corrected Heating	82.12 kW
Required Cooling	0.00 kW
Required Heating	0.00 kW



Picture and capacities are displayed

Accessories

Header | Follower1

Slot 1 <none>

Slot 2 <none>

Slot 3 <none>

Slot 4 <none>

Slot 5 <none>

Electrical Information

Summary 3N AC+Earth 380-415V 50Hz

View Sales Data

OK Cancel

Select the accessories if required



## 5. System Design

# Indoor Unit properties

Double click over any Indoor unit to open the Indoor Unit properties window

Setting of Indoor Units (Manual Sizing)

**Location**  
Room:

**Indoor Unit**  
Type:

Model:

Name:  Fan Speed:

**Controls**  
 Individual  Header  Follower  
Group:    
Header Remote:   
 Schedule Timer:   
Follower Remote:

**PMV kit**  
 Connect  
Elevation (relative to Indoor Unit):  m  
Pipe length (from Indoor Unit):  m


**Required Capacity**  
Require Cooling:  kW  
Require Sensible:  kW  
Require Heating:  kW

**Design Conditions**  
Cooling DB:  °C  
Cooling WB:  °C  
Relative Humidity:  %  
Heating DB:  °C

**Pipe Length**  
 m  
Pipe Equivalent Length  
Equivalent Length Ratio  
 Auto   
or Number of Bends  
90°   
Long radius   
or Equivalent Length  
 m

**Ceiling Panel**  
Panel Model:   
Elevation (relative to Outdoor unit) Above Outdoor Unit  
 Auto  m

**Capacity Information**  
Capacity Code: 1.7  
Rated Cooling: 4.50 kW  
Rated Sensible: 3.20 kW  
Rated Heating: 5.00 kW  
Cooling Capability: 4.47 kW  
Sensible Capability: 3.18 kW  
Heating Capability: 4.99 kW  
Corrected Cooling: 4.47 kW  
Corrected Sensible: 3.18 kW  
Corrected Heating: 4.99 kW

**Options**  
  
Table:  
Model | Description | Qty  
Type: CNCConnectors  
TCB-KBCN7... | Connector for CN7... | 1  
TCB-KBCN6... | Connector for CN6... | 1  
TCB-IFCB5-PE | Windows Switch D... | 1  
Type: ControlAccessories  
  
Rotation angle (+:Right, -:Left):  °

Select model, size, room and Fan Speed

Individual required capacities and design conditions can be set

Configure the grouping and controls of the unit

Picture and capacities are displayed

Select the accessories if required and set pipe length/height

## 5. System Design

# Ventilators

Currently on a separate tab. Double click over to open properties window

The screenshot shows the Toshiba Selection Tool (Professional) interface. The 'Ventilators' tab is selected in the 'ToolBox' and 'System Editors' sections. A red box highlights the 'Ventilators' tab. The 'Setting of Air to Air Heat Exchanger' dialog box is open, showing various configuration options. A red box highlights the 'Limited options compared to the IU' text at the bottom of the dialog box.

**Setting of Air to Air Heat Exchanger**

**Location**  
Room: - none - Rooms...  
Unit  
Type: Air to Air Heat Exchanger Standard  
Model: VN-M150HE  
Name: Fan Speed: High

**Controls**  
 Individual  Header  Follower  
Header Remote: - none -  
 Schedule Timer:  
Follower Remote:

**Options**  
Accessories...  
**Selected Accessories**  
Model Description Qty  
Limit

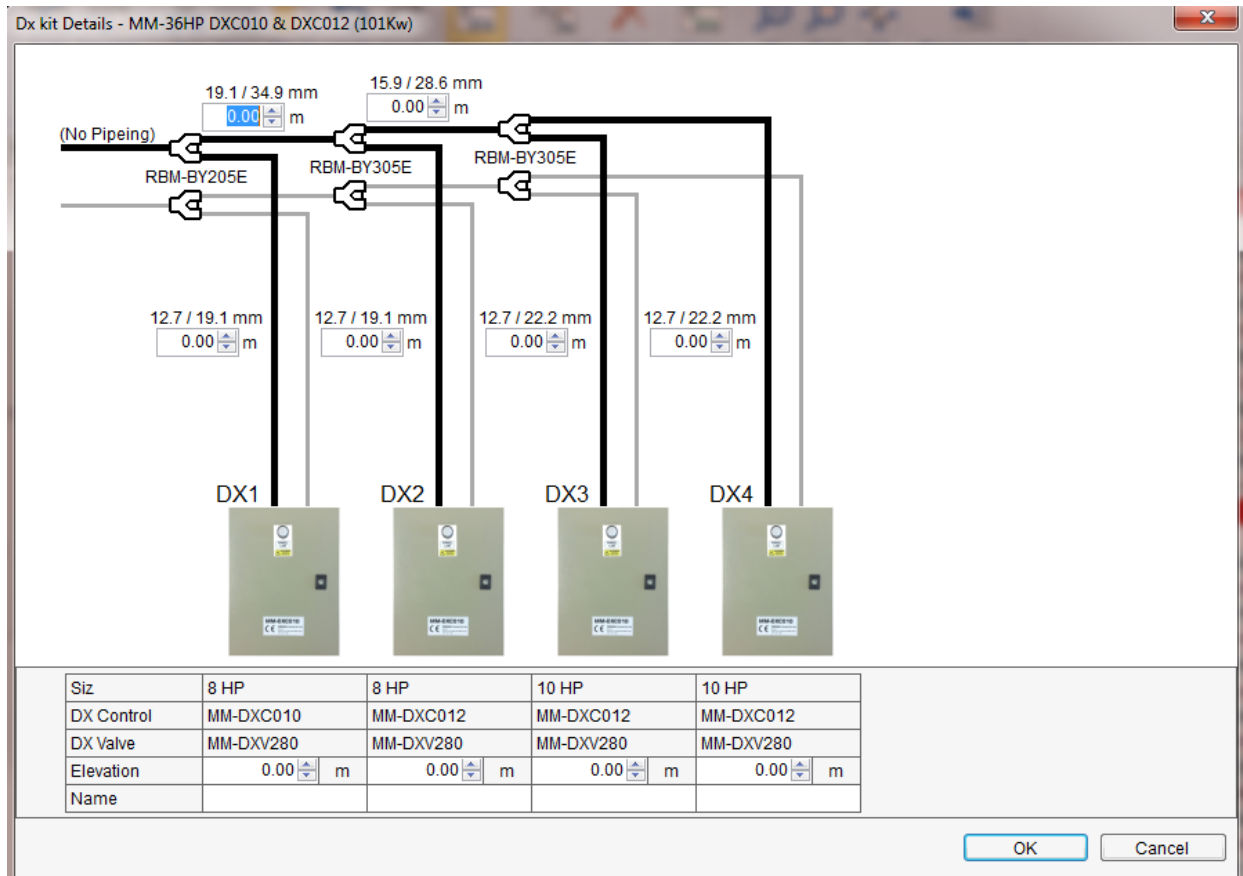
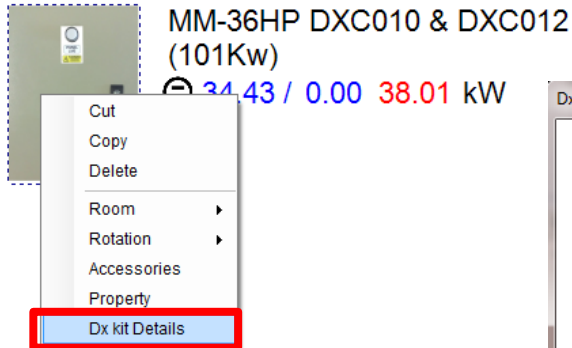
**Limited options compared to the IU**

System  
System Level Description  
System 1 Alert Pipe length is zero (x29)  
Ventilators Warning No Controllers

## 5. System Design

### Dx-kit details

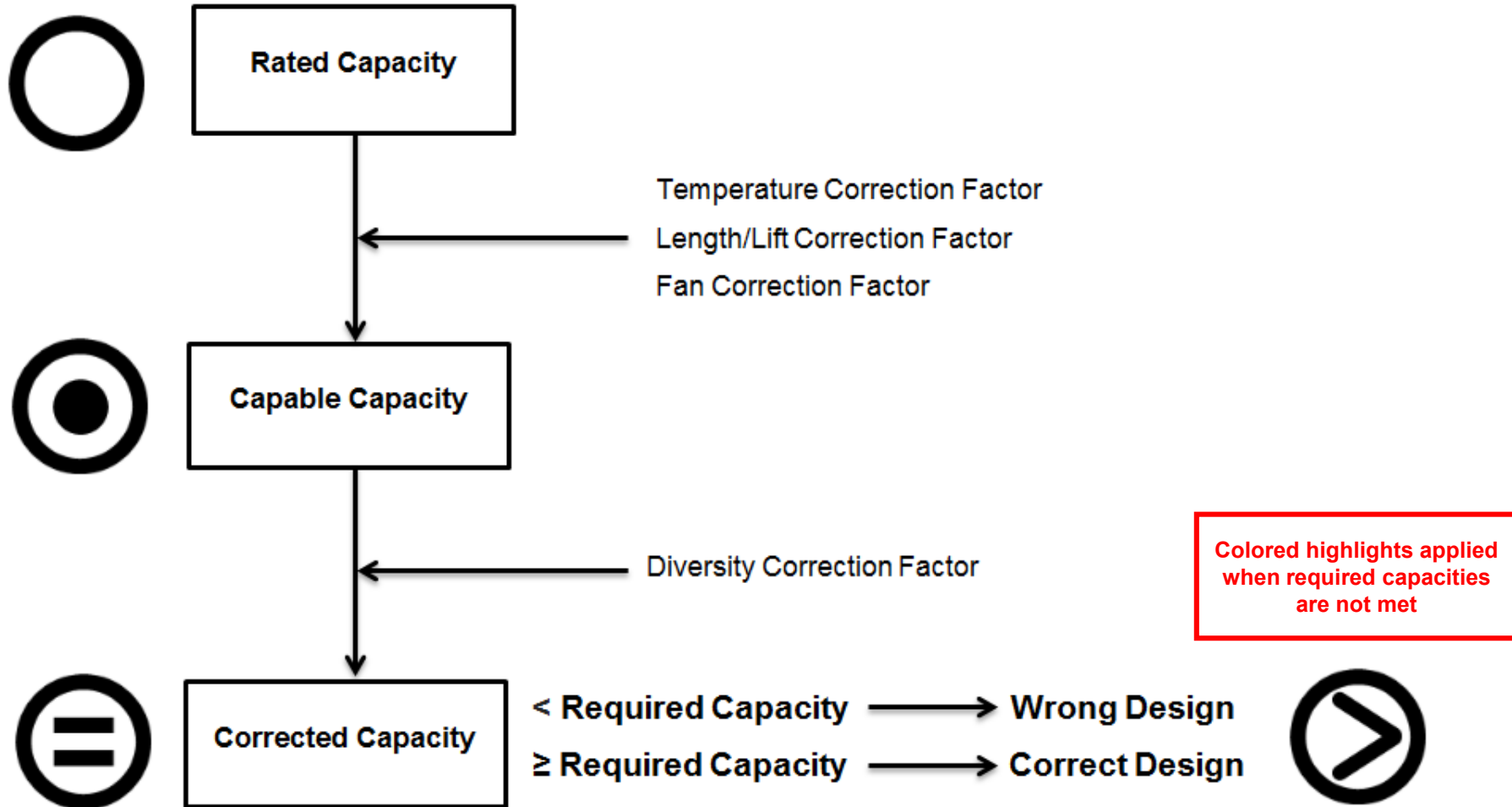
Right click on a DX-kit in order to open the pipework:



## 5. System Design

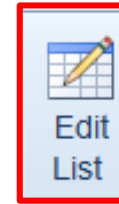
# Capacities calculation

How the capacities are calculated:



# 5. System Design

## Edit list: Configure multiple units properties faster



Click on "Edit List" to open the window

Edit List

System 1 | System 2 | System 3 | System 4 | System 5 | System 6 | System 7

Indoor Units							Requirements (kW)			Corrected (kW)		
Select	No	Image	Type	Model	Fan Speed	Name	Cooling	Sensible	Heating	Cooling	Sensible	Heating
<input checked="" type="checkbox"/>	1		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High		0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	2		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High		0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	3		High Wall Standard	MMK-AP0157HP-E (4.5kW)	Medium		0.00	0.00	0.00	2.31	1.55	2.57
<input type="checkbox"/>	4		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High		0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	5		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High	abc	0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	6		High Wall Standard	MMK-AP0157HP-E (4.5kW)	MediumPlus	dfg	0.00	0.00	0.00	2.31	1.60	2.57
<input type="checkbox"/>	7		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High	hjk	0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	8		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High	fdg	0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	9		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High	(copy)	0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	10		High Wall Standard	MMK-AP0157HP-E (4.5kW)	High	(copy)	0.00	0.00	0.00	2.31	1.64	2.57
<input type="checkbox"/>	11		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High	(copy)	0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	12		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High		0.00	0.00	0.00	4.62	3.18	5.13
<input type="checkbox"/>	13		High Wall Standard	MMK-AP0157HP-E (4.5kW)	High		0.00	0.00	0.00	2.31	1.64	2.57
<input type="checkbox"/>	14		4-way Cassette	MMU-AP0304HP1-E (9.0kW)	High		0.00	0.00	0.00	4.62	3.18	5.13

Copy selected units

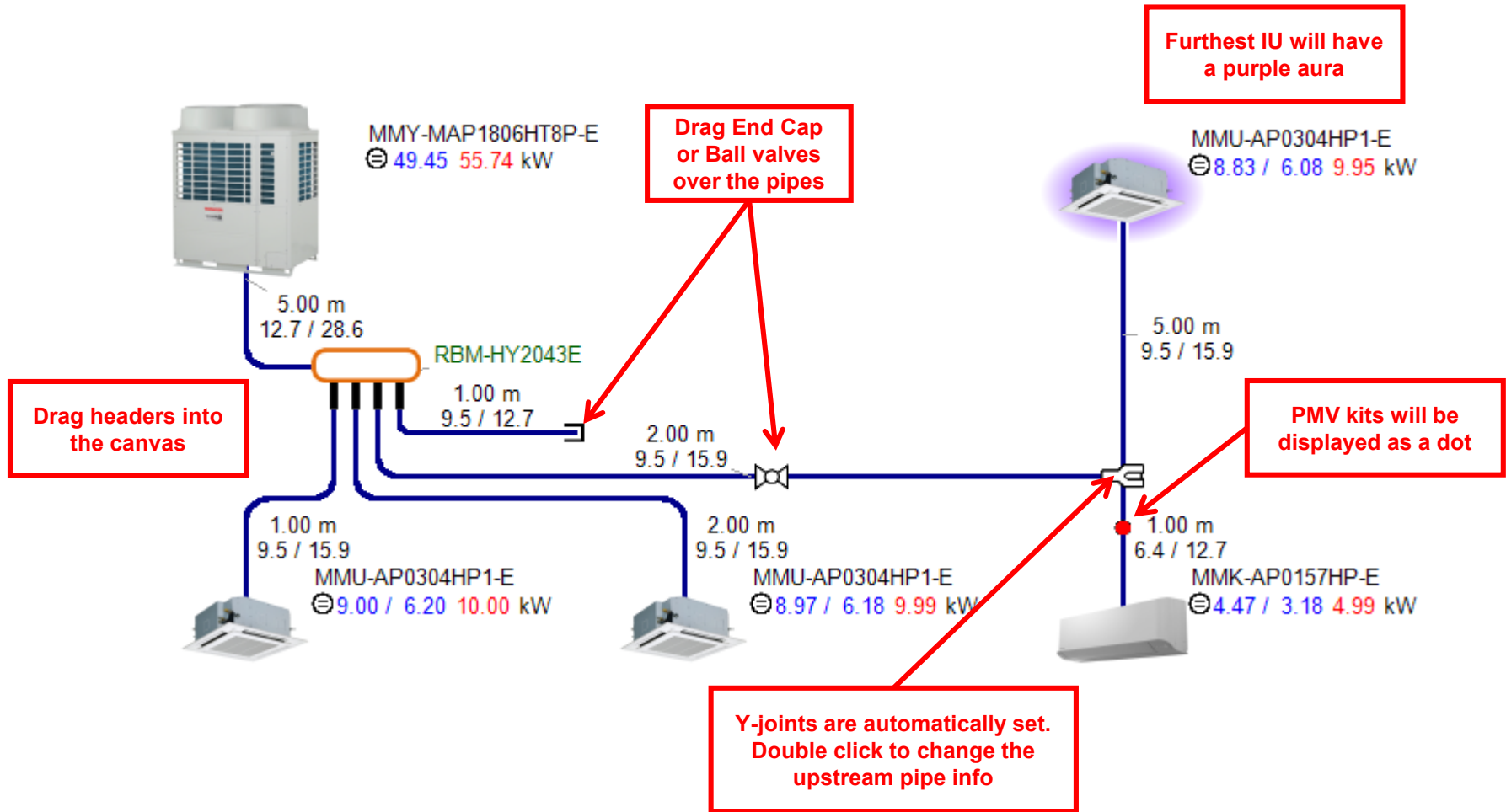
Modify the setting of multiple units at the same time

Copy all selected | Paste to current system | Close

## 5. System Design

### Accessories:

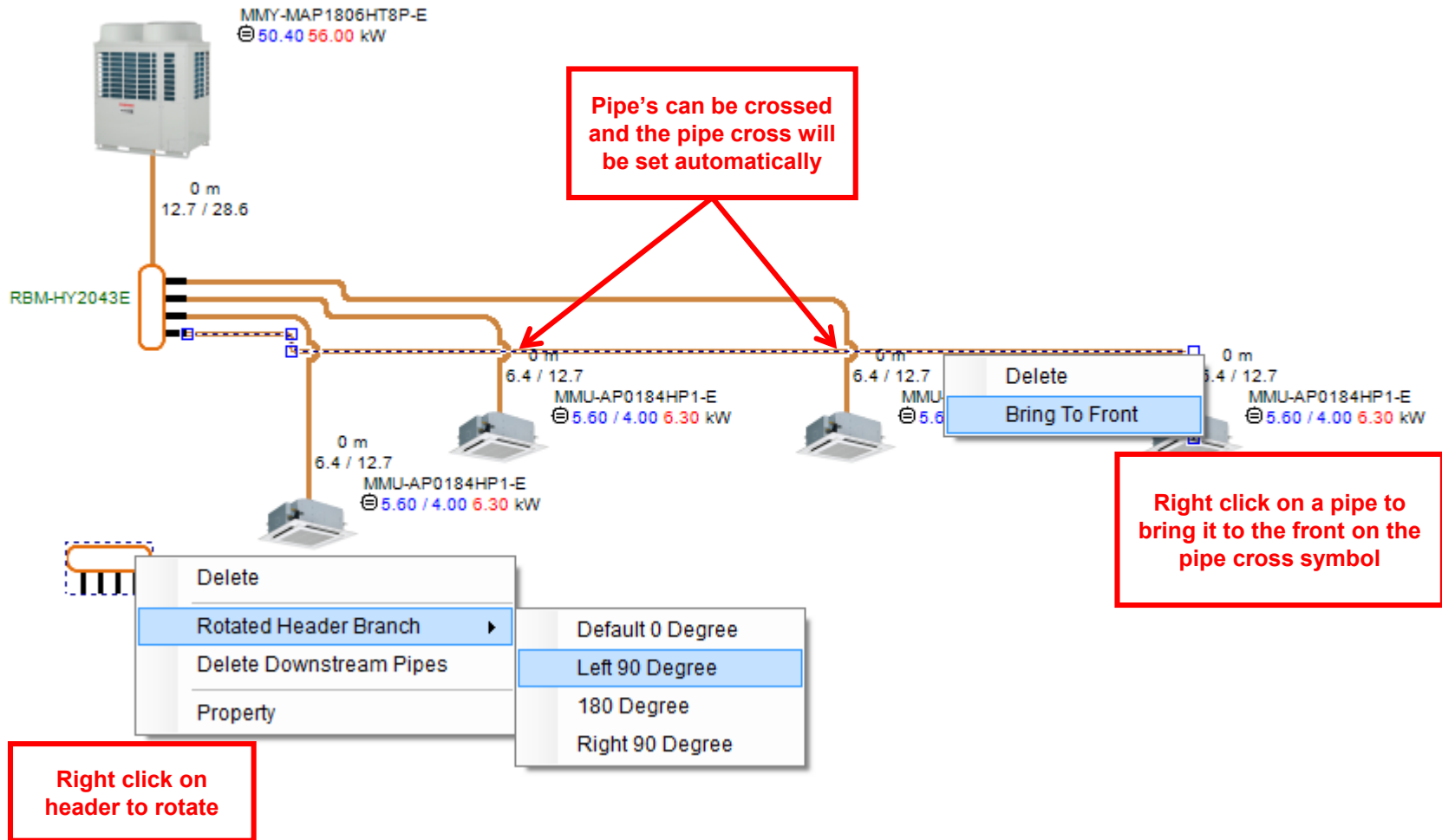
The user can use multiple accessories on the design:



## 5. System Design

### Accessories:

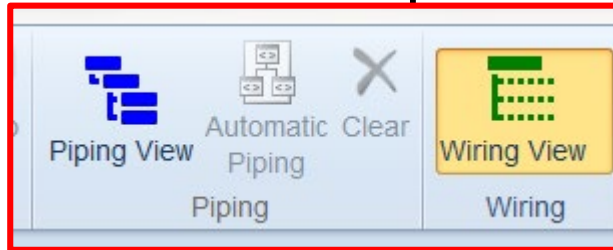
The user can use multiple accessories on the design:



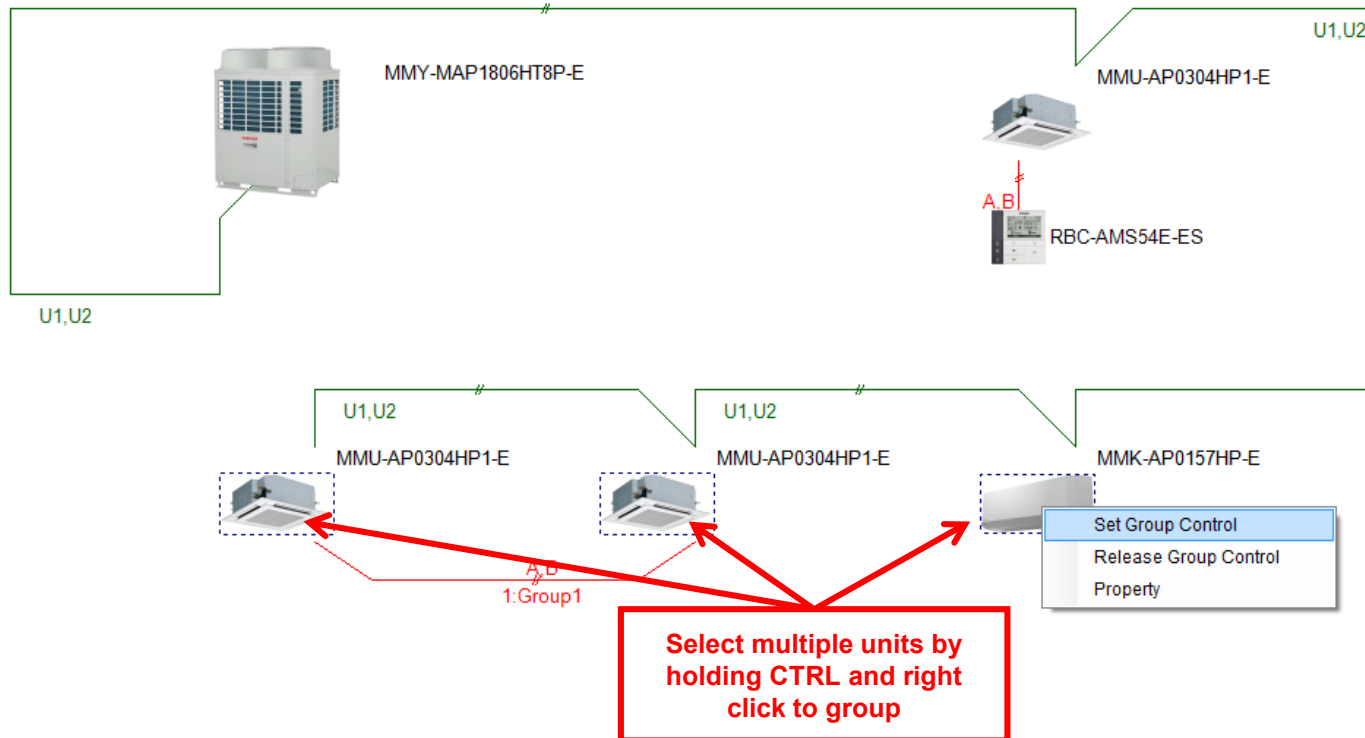
## 5. System Design

### Wiring view:

The user can use multiple accessories on the design:



Alternate between wiring view and piping view using the button on home tab



Select multiple units by holding CTRL and right click to group



## 5. System Design

### Background picture

Use the background menu to set the background pictures:

The screenshot shows the Toshiba Selection Tool (Professional) interface. The 'Background Image' menu item in the top toolbar is highlighted with a red box. A red callout box points to it with the text: "Set a different per floor clicking on it on every floor". Below the toolbar, the 'Background Dialog' box is open, also highlighted with a red border. It contains a 'Load background image' button, a preview window showing a floor plan with labels like 'ENSUITE', 'ATTIC ROOM', and 'EAVES STORAGE', and an 'Image size Adjustment' panel. The 'Image size Adjustment' panel includes fields for X Position (415.9681), Y Position (400.0000), Size (Horizontal) (1.0000), and Size (Vertical) (1.0000), with a 'Keep aspect ratio' checkbox and a 'Set' button. An 'Opacity' slider is set to 20%. A red callout box points to the 'Image size Adjustment' panel with the text: "Change picture size, opacity or move it around". The background shows a 'Tool Box' on the left with various HVAC components and a 'System Information' table on the right.

	Value	Limit
	1 Unit	-
P.C.Boards)	20 Unit	36 Unit
ated HP	16 HP	-
ated Cooling	45.0...	-
ated Heating	50.0...	-
ed Cooling	145.0...	-
rected Cooling	49.5...	-
ed Heating	163	-
1st Indoor Br...	0.00 m	-
1st Indoor Br...	0.00 m	90.00 m
een Outdoor...	0.00 m	25.00 m
ngth(L1)	0.00 m	100.00 m
nt Length(L1e)	0.00 m	120.00 m
Connecting Pi...	0.00 m	-
Connecting...	0.00 m	10.00 m
een Branches...	0.00 m	50.00 m
	0.00 m	-
	0.00 m	-
	0.00 m	40.00 m
	0.00 m	70.00 m

## 5. System Design

### Print & PDF output:

Update the Seasonal Power Consumption data to include

it:

Set regions and view graphs

Seasonal Power Consumption

System Name: System 1

Country: Turkey  
City: Istanbul

Outdoor Temperature: Min 0.2 °C Max 32.2 °C

Design condition

Theremo Off Temperature: 15 °C

Period P1: 01/01/2018 ~ 01/04/2018 P2: 01/11/2018 ~ 31/12/2018

Run Time

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon.																								
Tue.																								
Wed.																								
Thu.																								
Fri.																								

Use Cooling

Theremo Off Temperature: 17 °C

Period: 01/06/2018 ~ 15/09/2018

Run Time

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon.																								
Tue.																								
Wed.																								
Thu.																								
Fri.																								

Close

Design conditions should not be much higher than the Tmax

Operating time per hour and year

# 5. System Design

## SPC:

SPC calculates the Power Input per every hour on the year based on the load and the design temperatures. The result is an estimate of the OU consumption per year

Same method but different number for each OU

MMY-MAP0806HT8P-E (8HP, 22.4kW system)

Cooling		Compressor + Outdoor Fan Power consumption (kW)															
Outdoor Unit Dry-Bulb (°C)	Outdoor Unit 100% Cooling Capacity (kW)	100% Capacity		90% Capacity		80% Capacity		70% Capacity		60% Capacity		50% Capacity		40% Capacity		30% Capacity	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)
40 °C	20.8	20.8	5.99	18.8	4.85	16.7	3.89	14.6	3.09	12.5	2.43	10.4	1.89	8.34	1.47	6.25	1.15
39 °C	21.2	21.2	5.90	19.1	4.78	16.9	3.84	14.8	3.04	12.7	2.39	10.6	1.87	8.47	1.45	6.35	1.13
37 °C	21.8	21.8	5.72	19.6	4.64	17.5	3.72	15.3	2.95	13.1	2.32	10.9	1.81	8.73	1.41	6.54	1.10
35 °C	22.4	22.4	5.54	20.2	4.49	17.9	3.60	15.7	2.86	13.4	2.25	11.2	1.75	8.96	1.36	6.72	1.07
32 °C	22.4	22.4	5.10	20.2	4.15	17.9	3.34	15.7	2.66	13.4	2.10	11.2	1.65	8.96	1.29	6.72	1.03
31 °C	22.4	22.4	4.72	20.2	3.85	17.9	3.10	15.7	2.48	13.4	1.97	11.2	1.55	8.96	1.22	6.72	1.00
30 °C	22.4	22.4	4.55	20.2	3.71	17.9	3.00	15.7	2.40	13.4	1.90	11.2	1.50	8.96	1.18	6.72	0.98
29 °C	22.4	22.4	4.38	20.2	3.58	17.9	2.89	15.7	2.32	13.4	1.84	11.2	1.46	8.96	1.15	6.72	0.96
27 °C	22.4	22.4	4.08	20.2	3.34	17.9	2.70	15.7	2.17	13.4	1.73	11.2	1.38	8.96	1.09	6.72	0.92
25 °C	22.4	22.4	3.80	20.2	3.11	17.9	2.53	15.7	2.04	13.4	1.63	11.2	1.30	8.96	1.03	6.72	0.83
23 °C	22.4	22.4	3.62	20.2	2.97	17.9	2.42	15.7	1.95	13.4	1.57	11.2	1.25	8.96	1.00	6.72	0.80
21 °C	22.4	22.4	3.54	20.2	2.91	17.9	2.37	15.7	1.92	13.4	1.54	11.2	1.23	8.96	0.99	6.72	0.80
20 °C	22.4	22.4	3.51	20.2	2.88	17.9	2.35	15.7	1.90	13.4	1.53	11.2	1.23	8.96	0.98	6.72	0.79
19 °C	22.4	22.4	3.47	20.2	2.86	17.9	2.33	15.7	1.89	13.4	1.52	11.2	1.22	8.96	0.98	6.72	0.79
17 °C	22.4	22.4	3.41	20.2	2.81	17.9	2.30	15.7	1.86	13.4	1.50	11.2	1.21	8.96	0.97	6.72	0.79
15 °C	22.4	22.4	3.36	20.2	2.77	17.9	2.27	15.7	1.84	13.4	1.49	11.2	1.20	8.96	0.97	6.72	0.78

Many internal factors (set temp, Ambient Temp, Capacities, nominal power...) are used to calculate the capacity and the power input

Calculated per operating hour during the year and results on the output

If OU design temp is higher than the Region Tmax, the load wont reach 100% giving higher numbers

TC : Total Capacity PI : Power Input  
Indoor air temperature conditions : 27.0°C dry-bulb / 19.0°C wet bulb

Calculates the load linearly between Thermo\_off and T\_design

# Index

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1. Introduction
2. Set up
3. New Project
4. Design Window
5. System Design
- 6. Central Controllers**
7. Output

## 6. Central Controls

### Central Controls tab:

The user can design the Central Controls of the project:

The screenshot displays a software interface with a top navigation bar containing tabs for System 1 through System 7, Central Controls, Ventilators, and 3D View. The 'Central Controls' tab is highlighted with a red box. On the left, a 'Tool Box' lists various control components such as 'Schedule timer [TCB-EXS21TLE]', '16way ON-OFF controller [TCB-CC1]', 'Compliant Manager [BMS-CM1280TL]', 'Smart Manager [BMS-SM1280H1SE]', 'Smart Manager with Data Analyse [ ]', 'Touch Screen [BMS-CT5121E]', 'Touch Screen [TCB-TSC640-PY]', 'Digital VO Relay Interface [BMS-IFDC]', 'Energy Monitoring Interface [BMS-IF]', 'Relay Interface [BMS-IFLSV4E]', 'interface [BMS]', 'ce [TCB-IFMB64]', and 'Lonworks interface [TCB-IFLN642I]'. A red arrow points from the '16way ON-OFF controller' component to a callout box. The main workspace shows three system panels: 'System 1 Line Address : 14', 'System 2 Line Address : 15', and 'System 3 Line Address : 15'. Each panel contains a schematic diagram. A red dot is visible on the 'System 2' panel, with a red arrow pointing to it from a callout box. Another red arrow points from the '16way ON-OFF controller' component to this dot. A third red arrow points from the '16way ON-OFF controller' component to the 'System 2' panel. A fourth red arrow points from the '16way ON-OFF controller' component to the 'System 3' panel. A fifth red arrow points from the '16way ON-OFF controller' component to the 'System 1' panel. A sixth red arrow points from the '16way ON-OFF controller' component to the 'System 2' panel. A seventh red arrow points from the '16way ON-OFF controller' component to the 'System 3' panel.

Click on "Central Controls" tab in order to open the swap the canvas

Drag the controls over the system until you see a green dot

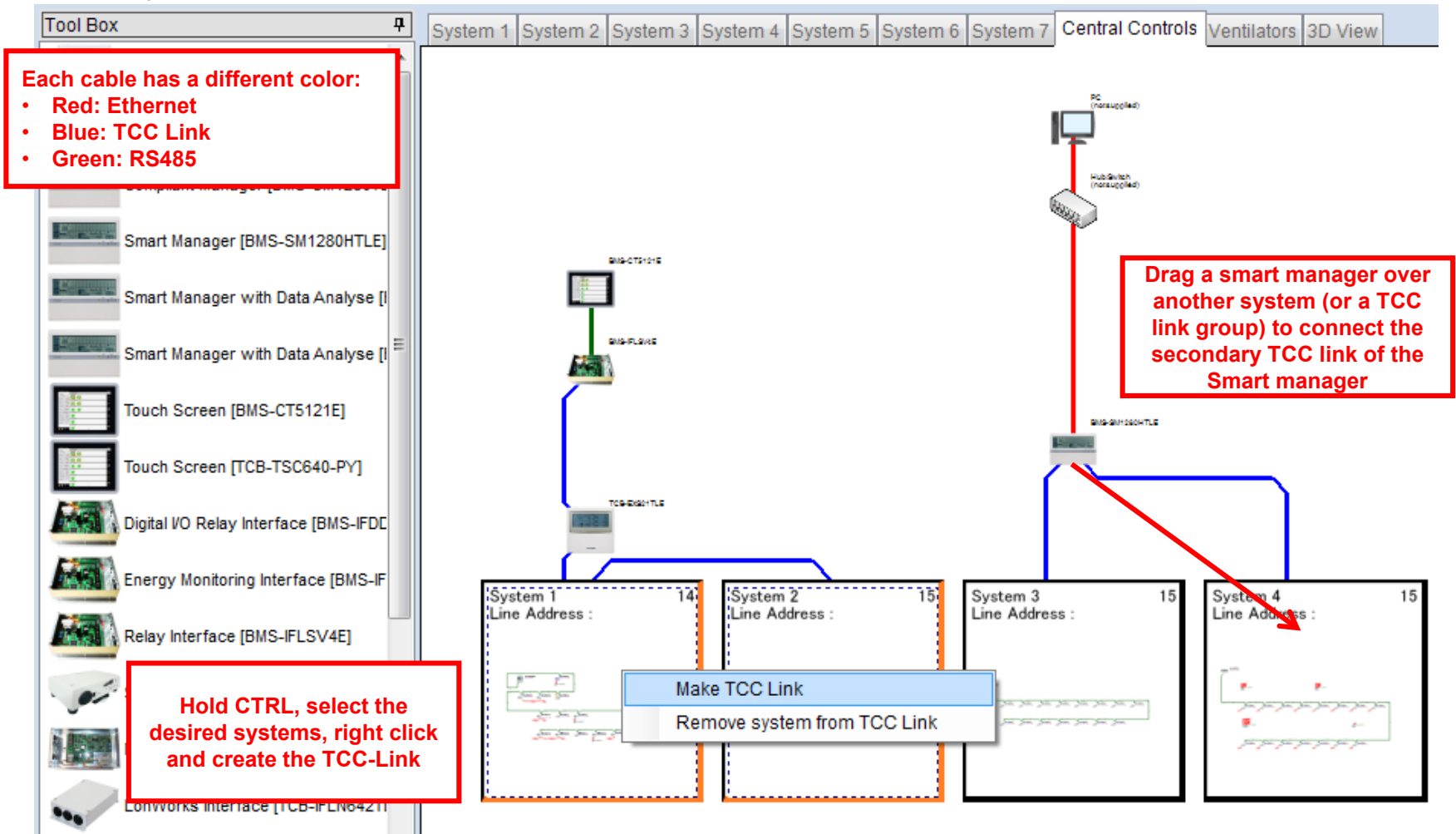
The toolbox will now display the central control and multiple interfaces

Each system is represented as a box and the number on the top right indicates the number of IUs in the system

## 6. Central Controls

### TCC-Link:

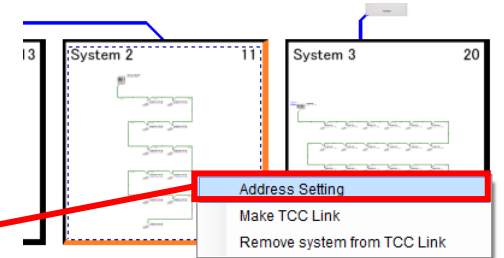
The systems can be connected with a TCC link:



## 6. Central Controls

### Address Setting:

The address for all the units can be set.  
Right click on a system to set them:



Address setting

No	Model	Indoor Unit No	Floor	Room	Unit Name	Parent Indoor Unit No.	Group Address	Line Address	Indoor Unit Address
1	MMY-MAP1606HT8P-E	-		-		-	-		-
2	MMU-AP0094HP1-E	System 1-1				-	0		1
3	MMU-AP0094HP1-E	System 1-2				-	0		2
4	MMU-AP0094HP1-E	System 1-3				-	0		3
5	MMU-AP0094HP1-E	System 1-4				-	0		4
6	MMU-AP0094HP1-E	System 1-5				-	0		5
7	MMU-AP0094HP1-E	System 1-6				-	0		6
8	MMU-AP0092WH1	System 1-7				-	0		7
9	MMU-AP0092WH1	System 1-8				-	0		8
10	MMU-AP0092WH1	System 1-9				-	0		9
11	MMU-AP0092WH1	System 1-10				-	0		10
12	MMU-AP0092WH1	System 1-11				-	0		11
13	MMU-AP0092WH1	System 1-12				-	0		12
14	MMU-AP0092WH1	System 1-13				-	0		13
15	MMU-AP0092WH1	System 1-14				-	0		14
16	MMU-AP0092WH1	System 1-15				-	0		15
17	MMU-AP0092WH1	System 1-16				-	0		16

Automatic setting

Set the Address to the units on the system

OK Cancel

# Index

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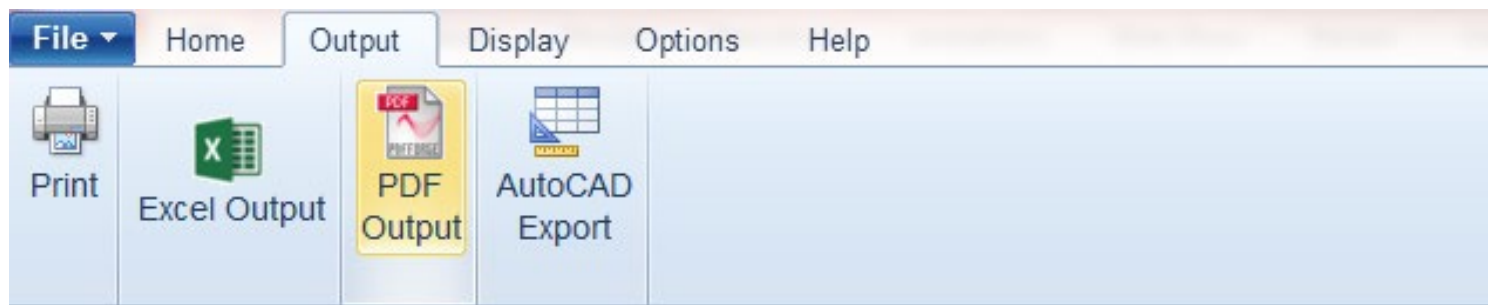
1. Introduction
2. Set up
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4. Design Window
5. System Design
6. Central Controllers
7. Output



## 7. Output

### Output options:

On the Output tab, the user can create multiple outputs for the designed project:



The print and the PDF output are the same, the differences is that the print option will print it and the PDF will save it as a PDF on the computer

## 7. Output

### Print & PDF output:

On the Output tab, the user can create multiple outputs for the designed project:

The screenshot shows the 'PDF Output' dialog box with the following components and annotations:

- Project:** New Project1
- Output Quality:** High
- Printer settings:** Printer (dropdown), Paper size: A4 (210 x 297 mm)
- Systems:** A list of systems (System 1 to System 7) with checkboxes. **Annotation:** "Select the desired systems and which sections" (red box).
- Templates:** A list of sections (Cover page, Project Quotation, Index, Project Note, Project Equipment list, Project Compliance, System Equipment list, System Details, Ventilators Details, Seasonal Power Consumption, Schematic overview, Floor Perspective 3D, Outdoor Unit Details, System Wiring Diagram, Piping & Wiring Diagram, Project Wiring Diagram, Control System, Submittal Data, Sales Data) with checkboxes. **Annotation:** "There are different options for each output section" (red box).
- Printing:** Document Approx Pages: 70
- Output Profiles:** A list of output profiles (Cover page, Project Quotation, Index, Project Note, Project Equipment list, Project Compliance, System Equipment list, System Details, Schematic overview, Outdoor Unit Details, System Wiring Diagram, Piping & Wiring Diagram, Project Wiring Diagram, Control System, Submittal Data, Sales Data). **Annotation:** "Output profiles" (red box).
- Options:** A yellow box containing checkboxes for "Show Price Information" and "Show Outdoor units combined". **Annotation:** "Attach a PDF or select the Sales Data options" (red box).
- Buttons:** "Create multiple diagram", "Generate", and "Cancel".

**Additional Annotations:**

- "Select PDF quality" (red box) points to the Output Quality dropdown.
- "Attach a PDF or select the Sales Data options" (red box) points to the Sales Data option in the Output Profiles list.

# 7. Output

## Print & PDF output:

After printing or saving the PDF, a professional output will be created:

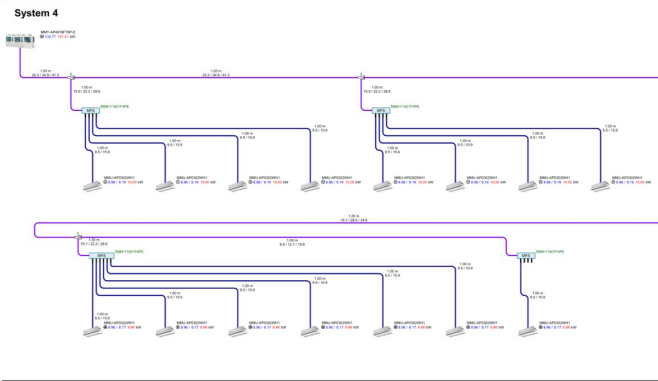
TOSHIBA

Project Name: New Project1  
Created Date: 06/09/2018  
Client Name:



TOSHIBA

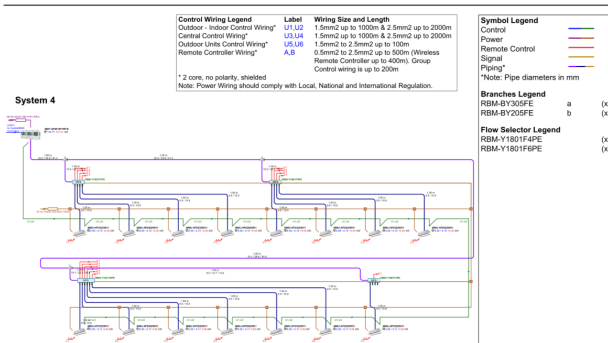
### Schematic Overview



Project Name: New Project1  
Prepared By: \_\_\_\_\_ Revision: \_\_\_\_\_ Version: 1.2.10  
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TOSHIBA

### Piping & Wiring Diagram



Project Name: New Project1  
Prepared By: \_\_\_\_\_ Revision: \_\_\_\_\_ Version: 1.2.10  
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TOSHIBA

### System Equipment List

**System 1**

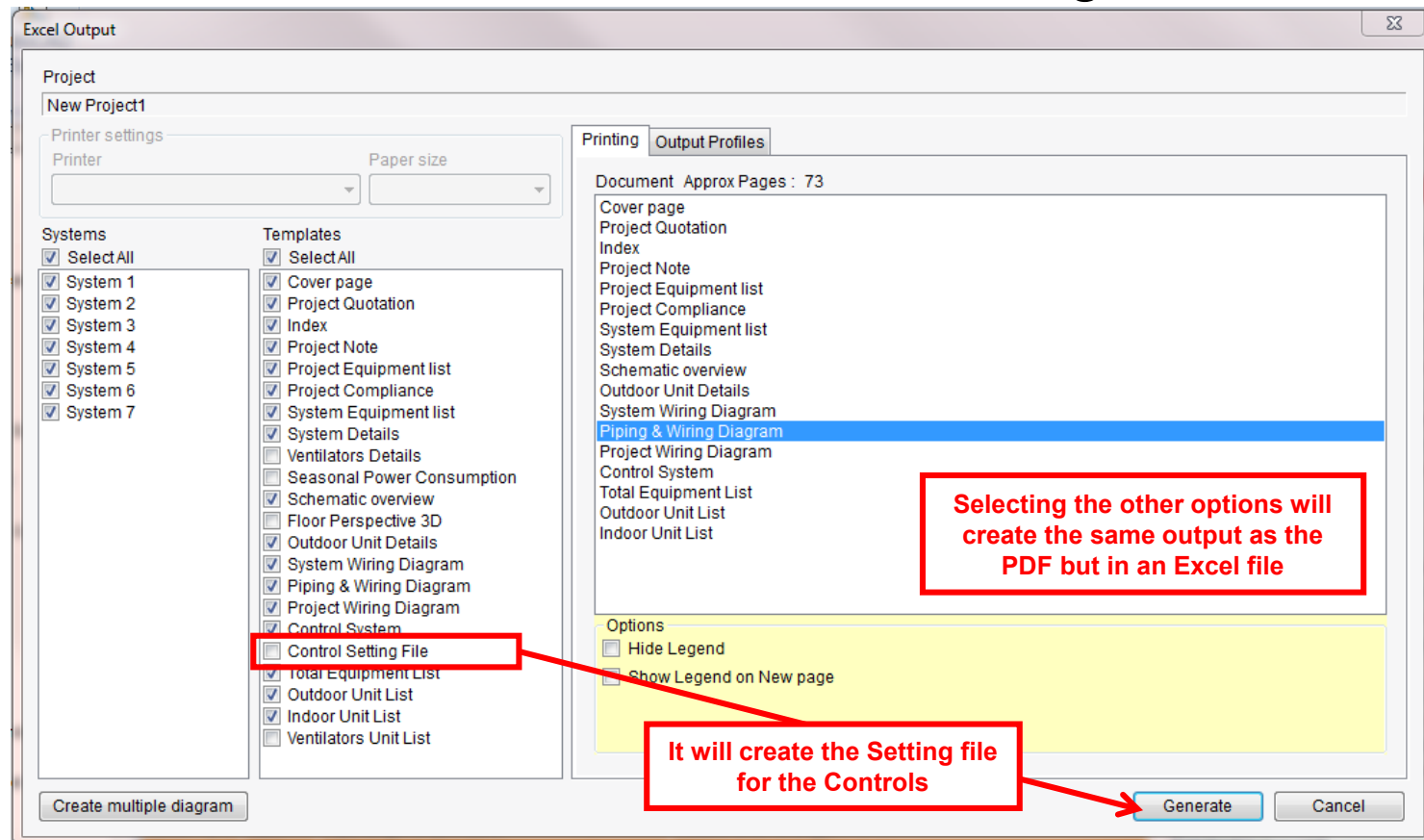
Outdoor Units	Quantity	Description	
RMV-AP438HTSP-E	1	Super Modular Multi System (SMMS-a)	
RMV-AM438HTSP-E		Super Modular Multi System (SMMS-a)	
Indoor Units	Quantity	Description	
MMS-AP438HTSP-E	15	3.2HP 4-way Cassette	
Y Joints	Quantity	Description	
RBM-BT24E	2	Outdoor Unit Branch Kit	
RBM-BY305E	6	Y-Joint	
RBM-BY205E		Y-Joint	
RBM-BY105E		Y-Joint	
Accessories	Quantity	Description	
RBC-U31PG(W)-E		Ceiling Panel	
Piping Length	Quantity	Description	
Pipe Diameter	Total Length	Gas Side Discharge Side Liquid Side	
9.5mm	0.00 m	0.00 m 0.00 m 0.00 m	
12.7mm	0.00 m	0.00 m 0.00 m 0.00 m	
15.8mm	0.00 m	0.00 m 0.00 m 0.00 m	
19.1mm	0.00 m	0.00 m 0.00 m 0.00 m	
22.2mm	0.00 m	0.00 m 0.00 m 0.00 m	
28.6mm	0.00 m	0.00 m 0.00 m 0.00 m	
34.9mm	0.00 m	0.00 m 0.00 m 0.00 m	
41.3mm	0.00 m	0.00 m 0.00 m 0.00 m	
Total Refrigerant Charge Amount	Amount	Description	
Refrigerant (R410A)	34.500 kg	Refrigerant amount (from factory)	
Outdoor Unit	12.700 kg	Amount needed for piping at the site	
Additional Refrigerant	<b>TOTAL: 47.200 kg</b>		
Outdoor Design Temperature	Mode	Description	Temperature
Cooling		Dry bulb Temperature	35.0 °C
Heating		Wet bulb Temperature	6.0 °C
Electronic Information (Outdoor Units)	Property	Value	Description
MOCP(A)	125		Maximum Overcurrent Protection
MCA(A)	107.4		Minimum Circuit Amps
Protection Device Size(A)			
Wire(cable size(mm <sup>2</sup> ) or AWG(#))			
Electronic Information (Indoor Units)	Property	Value	Description
Total MCA(A)	16.35		

Project Name: New Project1  
Prepared By: \_\_\_\_\_ Revision: \_\_\_\_\_ Version: 1.2.10  
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## 7. Output

### Excel output:

The Excel output will create an Excel file with all the data regarding the project. It will create the same output as the Print & PDF, but it also includes the Setting file:



# 7. Output

## Setting File:

The Setting File created through the Excel output looks like this:

Building Name		New Project 2										IP Address		192.168.2.80					
No	Outdoor Name	Outdoor Unit Combination Model Name	Indoor Unit Model Name	I/F No	Central Address	Line Address	Indoor Unit Address	Group Address	Parent Indoor Unit No.	R.C.group / Indoor Name	Floor Name	Tenant Name	Area Name	Digital I/O Relay Interface		Energy Monitoring Relay Interface			
														Key Input Address - Channel	Fire Alarm Address - Channel	Power Meter (Indoor) Address - Channel	Power Meter (Outdoor) Address - Channel		
1		38VT040S68HTEE	40VU027S-4S-TEE	0															
2		38VT040S68HTEE	40VU027S-4S-TEE	0															
3		38VT040S68HTEE	40VU027S-4S-TEE	0															
4		38VT040S68HTEE	40VU027S-4S-TEE	0															
5		38VT040S68HTEE	40VU027S-4S-TEE	0															
6		38VT040S68HTEE	40VU027S-4S-TEE	0															
7		38VT040S68HTEE	40VU027S-4S-TEE	0															
8		38VT040S68HTEE	40VU027S-4S-TEE	0															
9		38VT040S68HTEE	40VU027S-4S-TEE	0															
10		38VT040S68HTEE	40VU027S-4S-TEE	0															
11		38VT040S68HTEE	40VU027S-4S-TEE	0															
12		38VT040S68HTEE	40VU027S-4S-TEE	0															
13		38VT040S68HTEE	40VU027S-4S-TEE	0															
14		38VT040S68HTEE	40VU027S-4S-TEE	0															
15		38VT040S68HTEE	40VU027S-4S-TEE	0															
16		38VT040S68HTEE	40VU027S-4S-TEE	0															
17		38VT040S68HTEE	40VU027S-4S-TEE	0															
18		38VT040S68HTEE	40VU027S-4S-TEE	0															
19		38VT040S68HTEE	40VU027S-4S-TEE	0															
20		38VT022168HTEE	40VU0122-2S-JEE	0															
21		38VT022168HTEE	40VU0122-2S-JEE	0															
22		38VT022168HTEE	40VU0122-2S-JEE	0															
23		38VT022168HTEE	40VU0122-2S-JEE	0															
24		38VT022168HTEE	40VU0182-2S-JEE	0															
25		38VT022168HTEE	40VU0182-2S-JEE	0															
26		38VT022168HTEE	40VU0182-2S-JEE	0															
27		38VT022168HTEE	40VU0242-2S-JEE	0															
28		38VT022168HTEE	40VU0242-2S-JEE	0															
29		38VT022168HTEE	40VU0242-2S-JEE	0															
30		38VT022168HTEE	40VU0242-2S-JEE	0															
31																			
32																			
33																			
34																			

**Import it to the Controls using the Setting File software.**

**Separate software, download it from the portal**

## 7. Output

### CAD output:

Create the design schematic or diagram on a CAD file using the CAD output:

Create CAD outputs for one system or all the project

The screenshot shows the 'AutoCAD Export' dialog box with the following configuration:

- Step 1 - Select which system to export:**
  - This System(All floors)
  - Entire Project
- System Selection Table:**

System Name	System Type
System 1	Super Modular Multi System (SMMS-e)
System 2	Super Modular Multi System (SMMS-e)
System 3	Super Modular Multi System (SMMS-e)
System 4	Super Heat Recovery Multi System (SHRM-e)
System 5	Super Modular Multi System (SMMS-e)
System 6	Super Modular Multi System (SMMS-e)
System 7	Super Modular Multi System (SMMS-e)

- Step 2 - Select which drawing to export:**
  - Diagram:**
    - Piping
    - Wiring
    - Piping + Wiring
  - Schematic

- Step 3 - Select export location/file names:**
- Save to folder: C:\Users\sarasolaal\Documents
- Filename Prefix: New Project1
- Type of export data: DWG (AutoCAD AC27)
- Filenames Table:**

Filenames	System	Floor	Page No	Done
New Project1_System 3_Piping.dwg	System 3		1	<input type="checkbox"/>

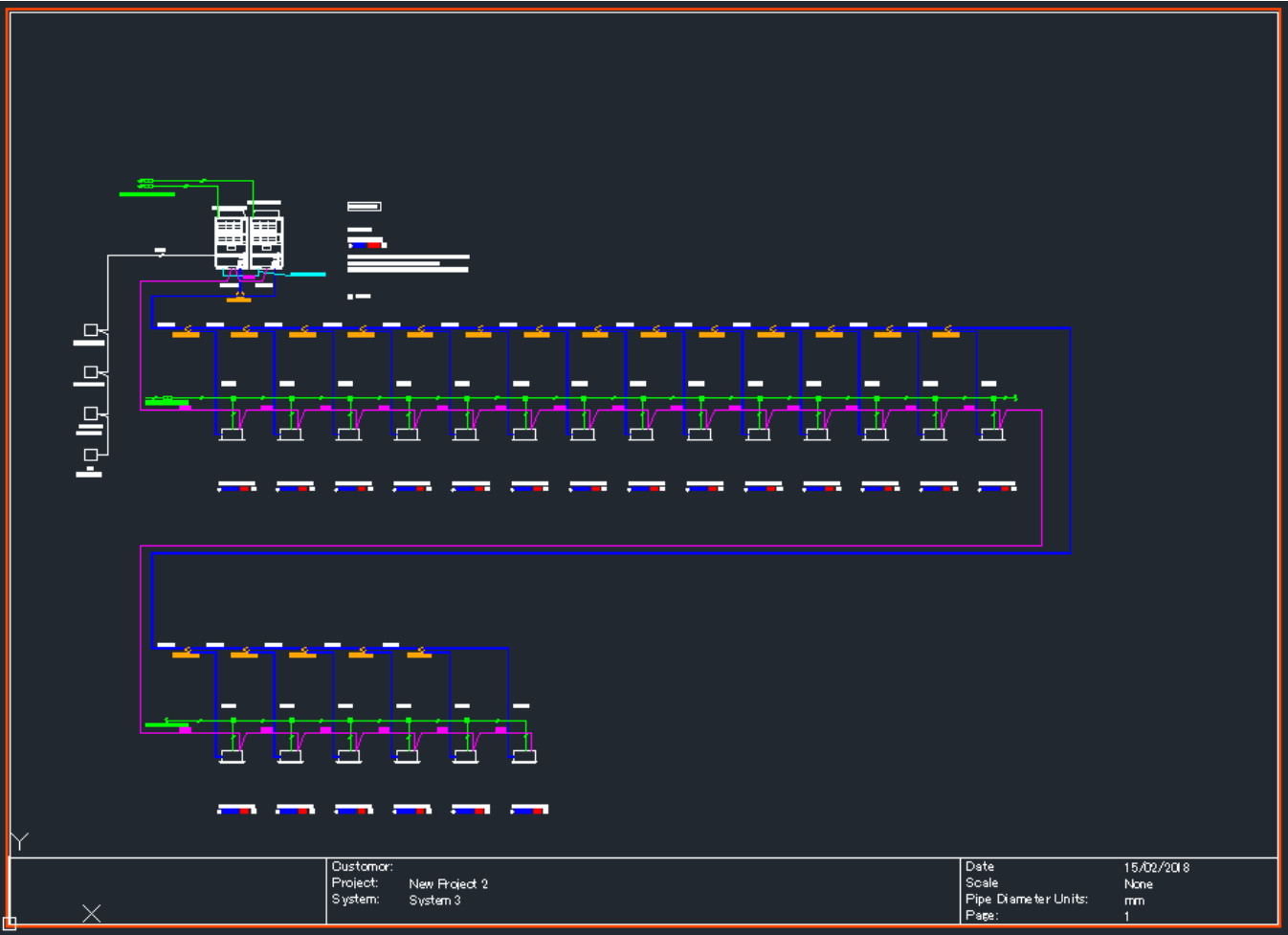
- Step 4 - Generate DWG exports:**
  - Generate AutoCAD DWG Export
  - Close

Select the desired outputs and a destination folder

# 7. Output

## CAD output:

This is how the Piping and wiring CAD looks like:



# 7. Output

## 3D CAD output:

This is how the 3D CAD looks like:

The screenshot displays a 3D CAD interface for a piping system. The main window shows a network of pipes and components. The components are labeled with codes and power ratings, such as MMU-AP0302WH1 (9.00 / 6.20 10.00 kW) and MMY-AP4816FT8P-E (135.40 151.50 kW). The interface includes a Tool Box on the left with various settings like System (System 4), Floor, and View Options. A red box highlights the '3D View' tab in the top navigation bar. Another red box highlights the 'AutoCad Export' button at the bottom of the Tool Box. A metadata table is located in the bottom right corner.

Customer:	
Project:	New Project1
System:	System 4
Date:	25/09/2018
Scale:	None



**TOSHIBA**

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