

# Partner+ Tool Kit

## KOLDPRO™

### User guide

Our web-based tool allows for both quick design calculations and detailed design calculations, catering to all your cold room refrigeration load calculation requirements.

Additional tools such as Sizing Guide and Psychrometric Calculator are also included.



1

#### Open KOLDPRO application

**KOLDPRO™ v.2.0**

[Demo](#) [How To](#)

A web-based tool for Refrigeration load calculations for **CHILLER** and **FREEZER** cold storage applications.

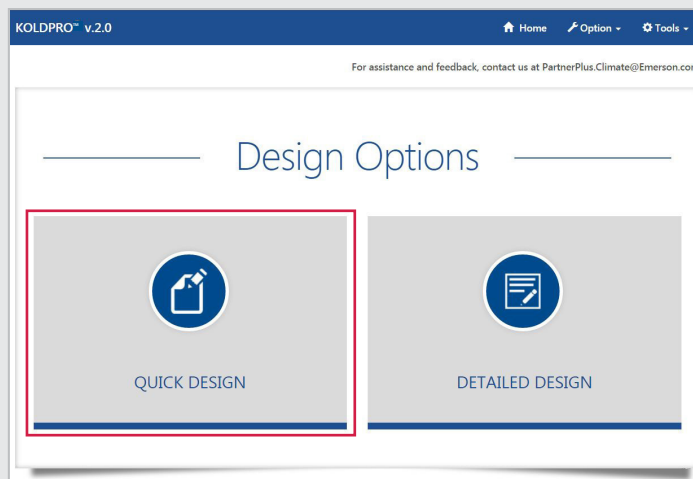
Make sure you use any of the following browsers for accessing KOLDPRO™ v.2.0: Internet Explorer version 11 or higher, Mozilla Firefox or Google Chrome. Lower versions of Internet Explorer are not compatible with KOLDPRO™ v.2.0 software and will yield inaccurate results.

Web

### Quick design

1

First step is to select between quick design and detailed design.



2

Upon clicking on quick design, the user will be asked to select the region, country and city where the design condition will be based.

**Quick Design**

Project Details      Quick Design      Report Generation

**1** **City Selection**

Region	Country	State	City
Africa	Kyrgyzstan		Macatan
<b>Asia</b>	Macau		<b>Mactan Intl.</b>
Europe	Malaysia		<b>Manila/Luzon Island</b>
Mid-East	Mongolia		Ninoy Aquino Intl.
North & Central America	Pakistan		Puerto Princesa (AFB)
South America	<b>Philippines</b>		Roxas/Panay Island
South West Pacific	Russian Federation		Sangley Point
	Singapore		Tacloban/Leyte Isl.
	Taiwan		Tarlac (D. Balili)

Country / City \*      Manila/Luzon Island / Philippines

Latitude (deg)      14.58N      Ground Temp. (°C)      25.8

Longitude (deg)      120.98E

3

Next step is to select the application, key in details for room conditions and surrounding temperature. Click "SAVE AND CONTINUE" once done.

**2** **Design**

**Application**

Walk-In Chiller

Walk-In Freezer

**Outdoor Air Condition**

Dry Bulb (°C)      33.8

Wet Bulb (°C)      26.2

Pressure (bar)      1.014

**Room Conditions**

Dry Bulb (°C) \*      0

Rel. Humidity (%) \*      100

**Surrounding Temperature**

Dry Bulb (°C) \*      34.1

Rel. Humidity (%) \*      54

Wet Bulb (°C) \*      26.3

**SAVE AND CONTINUE** ➔

4

Under quick design section, the user will be asked to enter unit run time and safety factor, room type and dimension, and product loading.

### Quick Design

Application: Chiller

Unit Run Time (hr) \*: 16

Safety Factor (%) \*: 10

Room Dimensions \*: [Please Select]

Room Temperature (°C): 0.0

Surrounding Dry Bulb (°C): 34.1

Product Loading \*: Average

4.1 Upon selecting the room type, the user is then required to provide the room dimension, together with the number of glass door needed. Click “Save” once done.

Room Design: Rectangular with Glass Door


Height: (m) \*: 24    Width: (m) \*: 6    Length: (m) \*: 11

No of Glass Door: \* 1


Save

Construction material selection and details for walls, roof and floor will be shown. Kindly note that load calculation algorithm assumes that walls and roof have identical insulation type and thickness. Click “SAVE AND CONTINUE” once done.


### Quick Design



Project Details



Quick Design



Report Generation

Application

Unit Run Time (hr) \*

Safety Factor (%) \*

Room Dimensions \*

Room Temperature (°C)

Surrounding Dry Bulb (°C)

Product Loading \*

Chiller

16

10

Rectangular with Glass Door

0.0

34.1

Average

?

?

?

?

?

?

Label	Construction Material	Thickness (mm)	Surface Area (m <sup>2</sup> )	U (Watt/m <sup>2</sup> -K)	R (K-m <sup>2</sup> /Watt)
Walls	Polyurethane	100	816	0.221	4.508
Roof	Polyurethane	100	66	0.221	4.508
Floor	Concrete	150	66	1.124	0.898

Load (Watt) **38,176.32**

**Note:** Load calculation algorithm assumes that Walls and Roof have identical insulation (type and thickness).

← PREVIOUS

SAVE AND CONTINUE →

# 6

Last step would be the report generation. This is where the user will provide the project, customer, designer information, company logo and recommendation.

Quick Design

Project Details   Quick Design   Report Generation

**Project Info**

Name Of Project: Emerson Walk-In Chiller  
Description: Chiller to Broccoli  
Date: February 13, 2017

**Customer Info**

Name: Emerson  
Address: Quezon City, Philippines  
Phone: +63926897255  
Email: partnerplus.climate@emerson.com

**Designer Info**

Name: Emerson  
Address: Quezon City, Philippines  
Phone: +63926897255  
Email: partnerplus.climate@emerson.com  
Company logo: KoldPro\_wFooter\_08172015.jpg (Choose file)  
Recommendation: [Empty field]

PREVIOUS   SAVE AND CONTINUE

Click on “Save and Continue” to proceed.

6.1 The user can send the generated report thru email, or save it in pdf or excel file format for future reference.

Successfully Saved

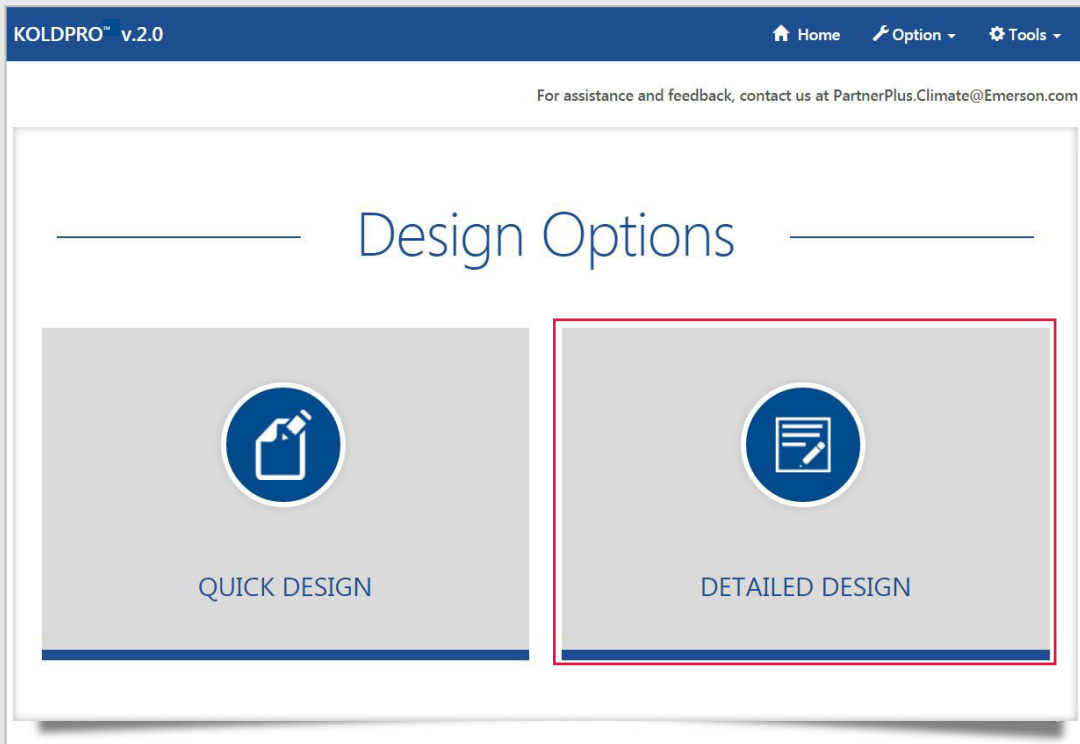
E-MAIL   PDF   EXCEL

HOME   BACK

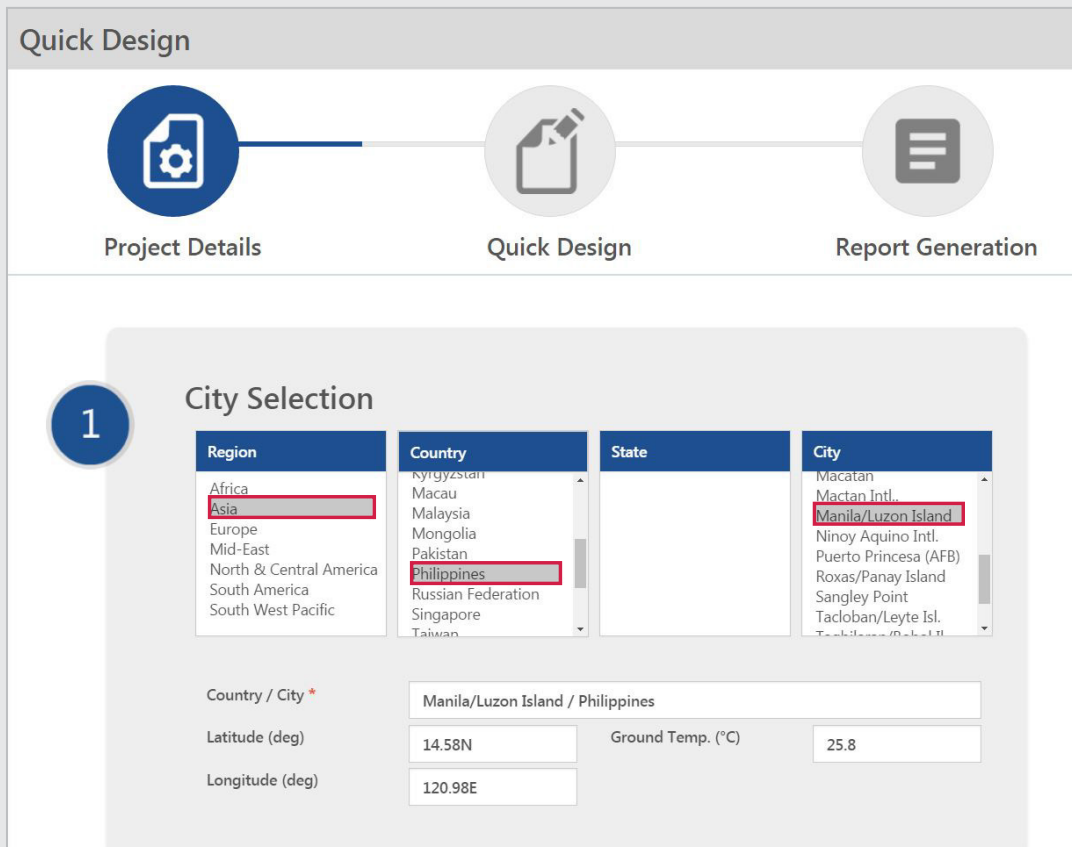
# Detailed design

1

First step is to select between quick design and detailed design.



Upon clicking on detailed design, the user will be asked to select the region, country and city where the design condition will be based.



2

Last step would be the report generation. This is where the user will provide the project, customer, designer information, company logo and recommendation.

2

## Design

### Application

Walk-In Chiller

Walk-In Freezer

### Outdoor Air Condition

Dry Bulb (°C)

Wet Bulb (°C)

Pressure (bar)

### Room Conditions

Dry Bulb (°C) \*  ?

Rel. Humidity (%) \*

### Surrounding Temperature

Dry Bulb (°C) \*  ?

Rel. Humidity (%) \*

Wet Bulb (°C) \*

SAVE AND CONTINUE →

3

Under detailed design section, the user will be asked to enter details required for load calculation summary.

### 3.1 Transmission load

#### 3.1.1 Click on the drop down menu and select room type.

### Detailed Design

Project Details

Detailed Design

Report Generation

1 Transmission
2 Internal
3 Infiltration
4 Product
5 Load Summary

#### Walls/Floor/Roof

Room Dimensions \*

[Please Select]

[Please Select]

Rectangular

L-Shaped

Insulation Type

U  
(Watt/m<sup>2</sup> K)

Load (Watt)

Load (Watt)

#### 3.1.2. Select wall orientation (internal, north, south, east and west) and enter room dimension. Click on “Save” once done.

The screenshot shows a web interface for 'Room Design: Rectangular'. It features a central diagram of a rectangular room with four walls labeled Wall 1, Wall 2, Wall 3, and Wall 4. Each wall has an 'Orientation' dropdown menu. Wall 1's dropdown is open, showing options: Internal, North, South, East, and West. Below the diagram, there are radio buttons for 'Inside' (selected) and 'Outside'. At the bottom, there are input fields for 'Height: (m)' (2.4), 'Width: (m)' (6), and 'Length: (m)' (11). A 'Save' button is located at the bottom right.

3.1.3 Select the type, thickness, and color of insulation to be used for walls, roof and floor. The user can also select the type of door, door location, quantity, and measurement. Click on “Save” to proceed.

The screenshot shows the 'Walls/Floor/Roof' configuration screen. At the top, it says 'Room Dimensions' with a dropdown set to 'Rectangular'. Below is a table for configuring insulation for each wall, roof, and floor.

	Insulation Type	Thickness (mm)	Color	Orientation	TD (K)	U (Watt/m <sup>2</sup> ·K)
Wall1	Molded Polystyr	100 mm	Light	Internal	34.1	0.363
Wall2	Molded Polystyr	100 mm	Light	Internal	34.1	0.363
Wall3	Molded Polystyr	100 mm	Light	Internal	34.1	0.363
Wall4	Molded Polystyr	100 mm	Light	Internal	34.1	0.363
Roof	Molded Polystyr	100 mm	Light		38.8	0.363
Floor	Molded Polystyr	100 mm			25.8	0.318

Below the table, there is a 'Load (Watt)' field showing 2,645.54. A checkbox is checked with the text 'Set all walls and roof to have same insulation and thickness.'

The 'Doors' section has a table for configuring doors:

	Wall	Door Type	Quantity	Height (m)	Width (m)	U (Watt/m <sup>2</sup> ·K)
Door 1	Wall1	Single Pane Glas	1	2	1	6.416

Below the table, there is an '+Add Door' button and a 'Load (Watt)' field showing 437.59.

A note at the bottom states: 'Note: Non-Glass Door assumes that it uses the same insulation and thickness type as the chosen wall. Hence, load is already included in the wall load calculation.'

At the bottom of the screen, there are 'PREVIOUS' and 'SAVE AND CONTINUE' buttons.



### 3.2 Internal load

#### 3.2.1 Fill in the necessary information for internal load calculation.

Lighting: user may select the type of lamp from the drop down list and calculate load based on number of lights or total load in watts.

People: average number of people that will be entering the refrigerated space.

Motor: select the motor size and location from the drop down list.

Equipment: user may enter the load as either watt/ft2 or the total load.

Click on “SAVE AND CONTINUE”.

### 3.3 Infiltration load

Select the infiltration method from the dropdown list and enter required details for that method.

### 3.3.1 Air change

**Infiltration Methods**

with Ante Room     without Ante Room

Infiltration Method: Air Change

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**Air Change**

Usage \* [Please Select]

[Please Select]

Heavy

Average

Load (Watt)

### 3.3.2 Door openings

**Infiltration Methods**

with Ante Room     without Ante Room

Infiltration Method: Door Openings

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**Door Openings**

No. of Doorway Passage \*

Open-Close Time(sec/passage) \*

Time door simply stands open (min) \*

Daily (or order) time period of door usage (hr) \*

### 3.3.3 Directly specified

**Infiltration Methods**

with Ante Room     without Ante Room

Infiltration Method: Directly Specified

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**Directly Specified**

Air Flow Rate \*

## 3.4 Product load

Select the product type and enter the product's specifications.

1 Transmission
2 Internal
3 Infiltration
4 Product
5 Load Summary

Product \* [Please Select]

Product Name \* [Please Select]

Entry Temperature of Product (°C) \*

Daily Product Weight (kg) \*

Total Product Weight (kg) \*

Pull Down Time (hr) \*

+ Add to List

The product will be added on the table below upon clicking on "Add to list". Click on "SAVE AND CONTINUE" once done.

Product Name	Entry Temp (°C)	Weight (kg)	Total Weight (kg)	Pull Down Time (hr)	Load (Watt)	
Broccoli	28	3000	30000	24	4,641.07	🗑️

Load (Watt) 4,641.07

← PREVIOUS
SAVE AND CONTINUE →

3

3.5 Load summary will be shown for checking and reference. User can enter or change the unit run time and safety factor before proceeding to the next step.

Category	Value (Watt)
<b>Transmission</b>	
Wall/Floor/Roof	2,645.21
Door	437.59
<b>Internal</b>	
Lighting	9.96
People	181.12
Equipment	0.59
Motor	3,145.53
<b>Infiltration</b>	
Air Change	412.64
<b>Product</b>	
Product	4,641.07
<b>Total</b>	
Total	11,473.71
<b>Unit Run Time (hr)</b>	16
<b>Safety Factor (%)</b>	10
<b>Refrigeration Load</b>	18,931.62

4

Last step would be the report generation. This is where the user will provide the project, customer, and designer information, company logo and recommendation.

**Quick Design**

Project Details | Quick Design | Report Generation

**Project Info**

Name Of Project: Emerson Walk-in Chiller  
 Description: Chiller to Broccoli  
 Date: February 13, 2017

**Customer Info**

Name: Emerson  
 Address: Quezon City, Philippines  
 Phone: +6326897255  
 Email: partnerplus.climate@emerson.com

**Designer Info**

Name: Emerson  
 Address: Quezon City, Philippines  
 Phone: +6326897255  
 Email: partnerplus.climate@emerson.com  
 Company logo: KoldPro\_wFooter\_08172015.jpg [Choose file]

Recommendation: [Empty field]

Click on "SAVE AND CONTINUE" to proceed.

# 4

continuation

4.1 The user can send the generated report thru email, or save it in pdf or excel file format for future reference.

