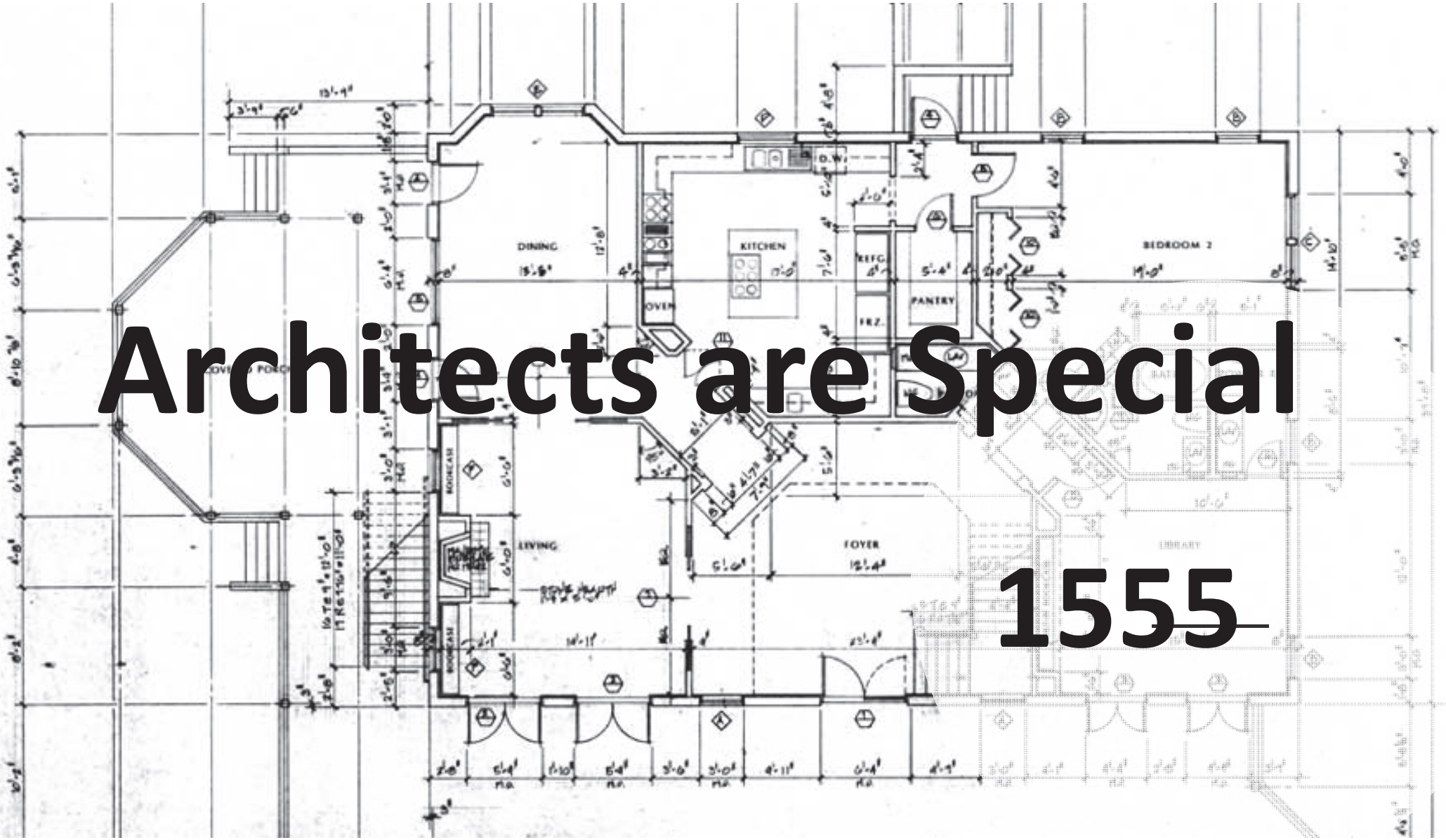
—美麗建築再進化—

Beyond Beautiful Buildings

A Presentation by

Sanky Sue

Daikin Industries Ltd

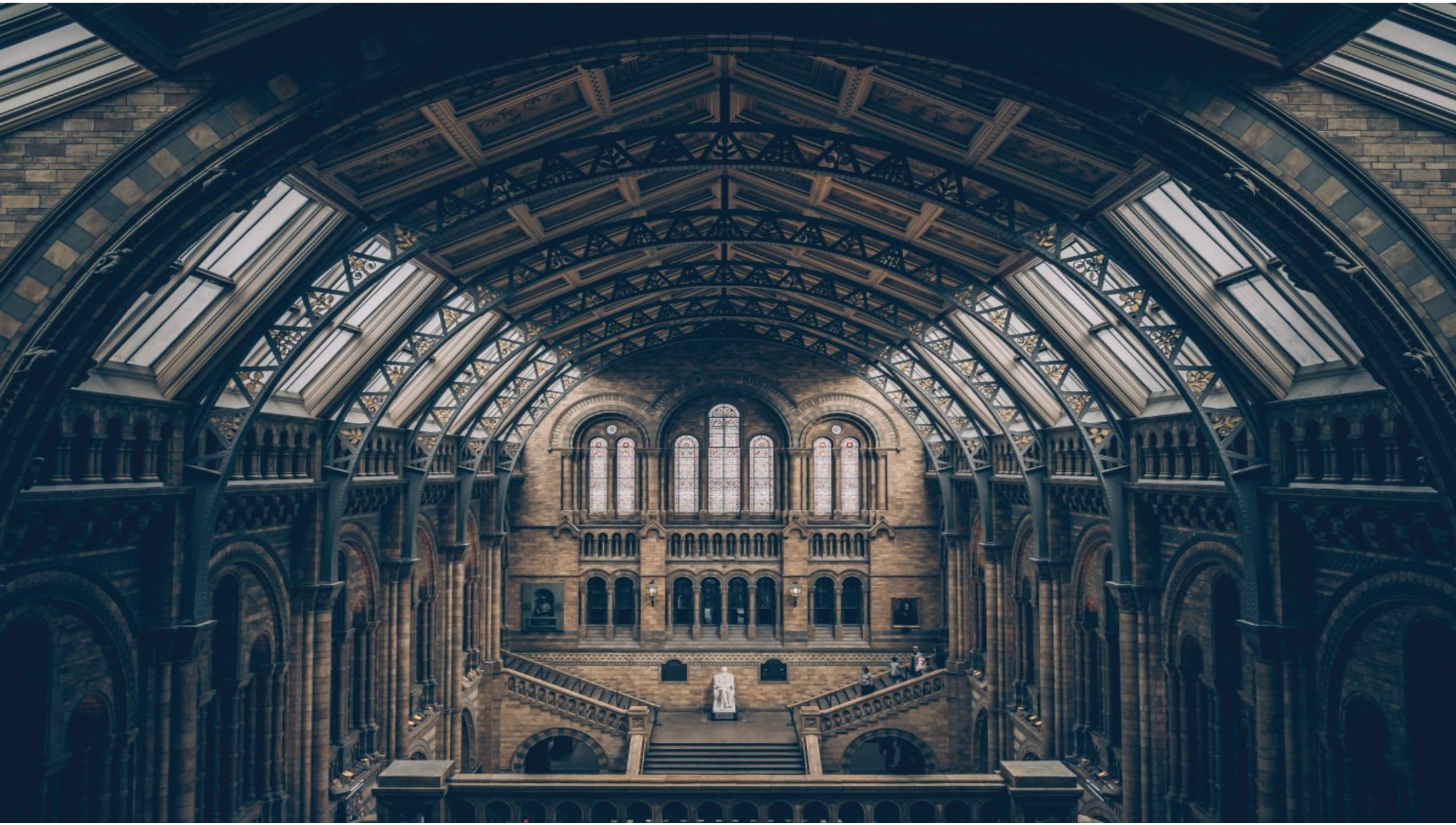


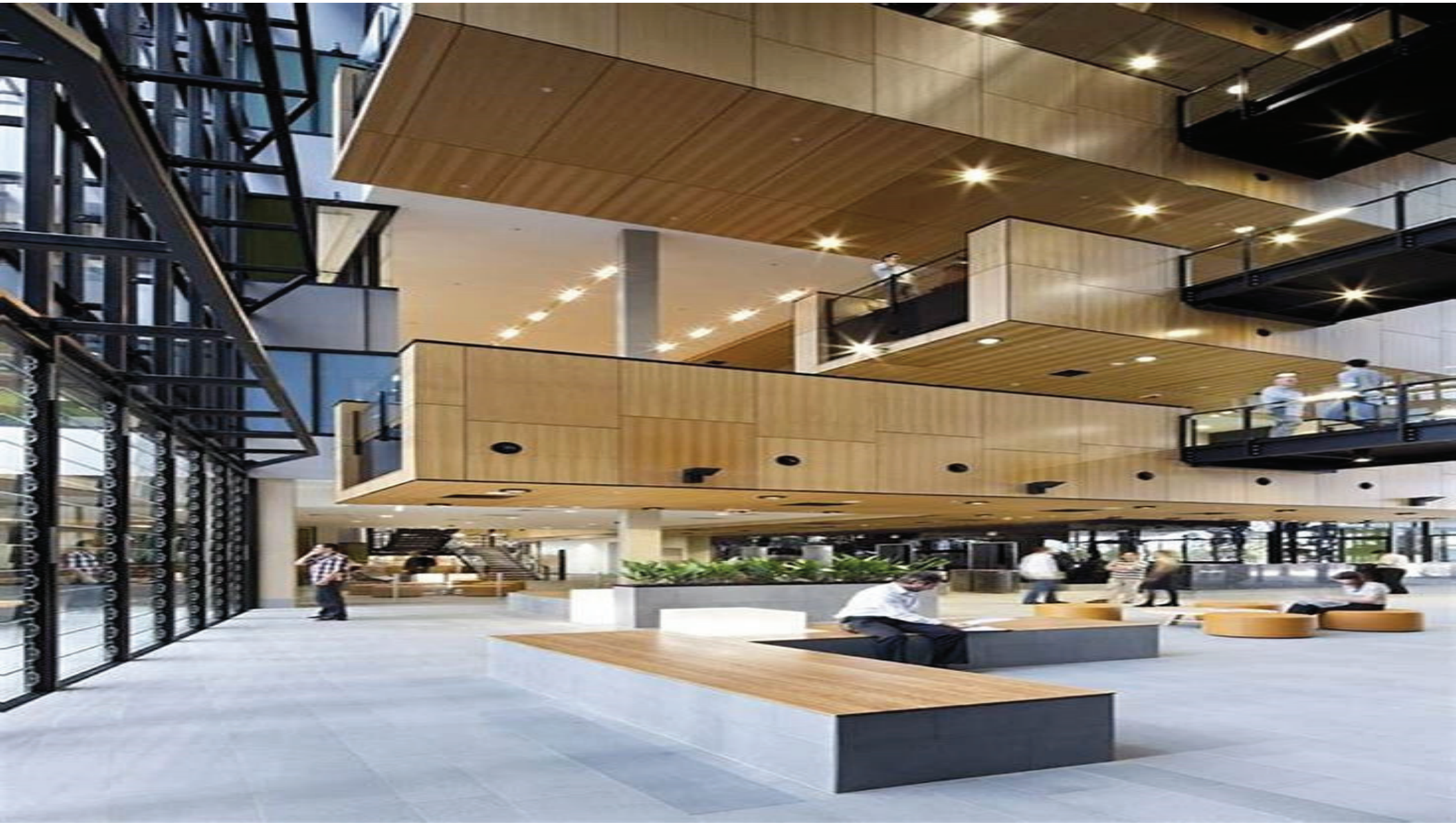
Architects are Special

1555

Will good design alone satisfy the owner ?

What can spoil a beautiful Building ?





Bad indoor Environment

Common Problems

Too Cold

Too Hot

Too Humid

Stale air

(c) Copyrights Reserved

I.A.Q.
What makes an Indoor Environment comfortable?

- Temperature
- Humidity
- CO2 level
- Fresh Air
- Air distribution

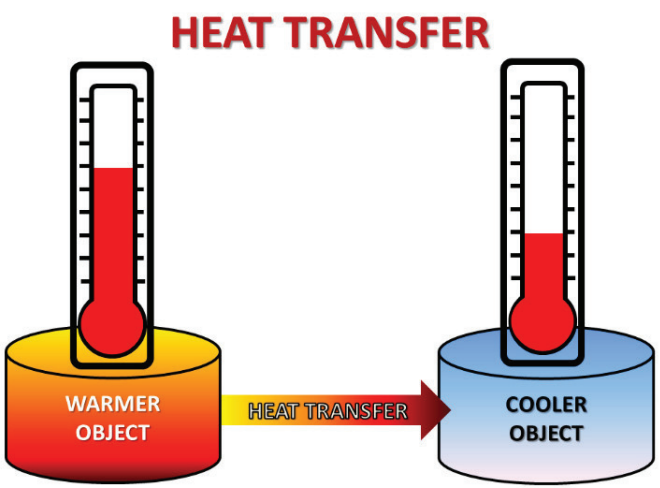
3 Strategies to air-conditioning a building

Centralized Chiller System

Modular Direct Expansion System

Hybrid System

(c) Copyrights Reserved

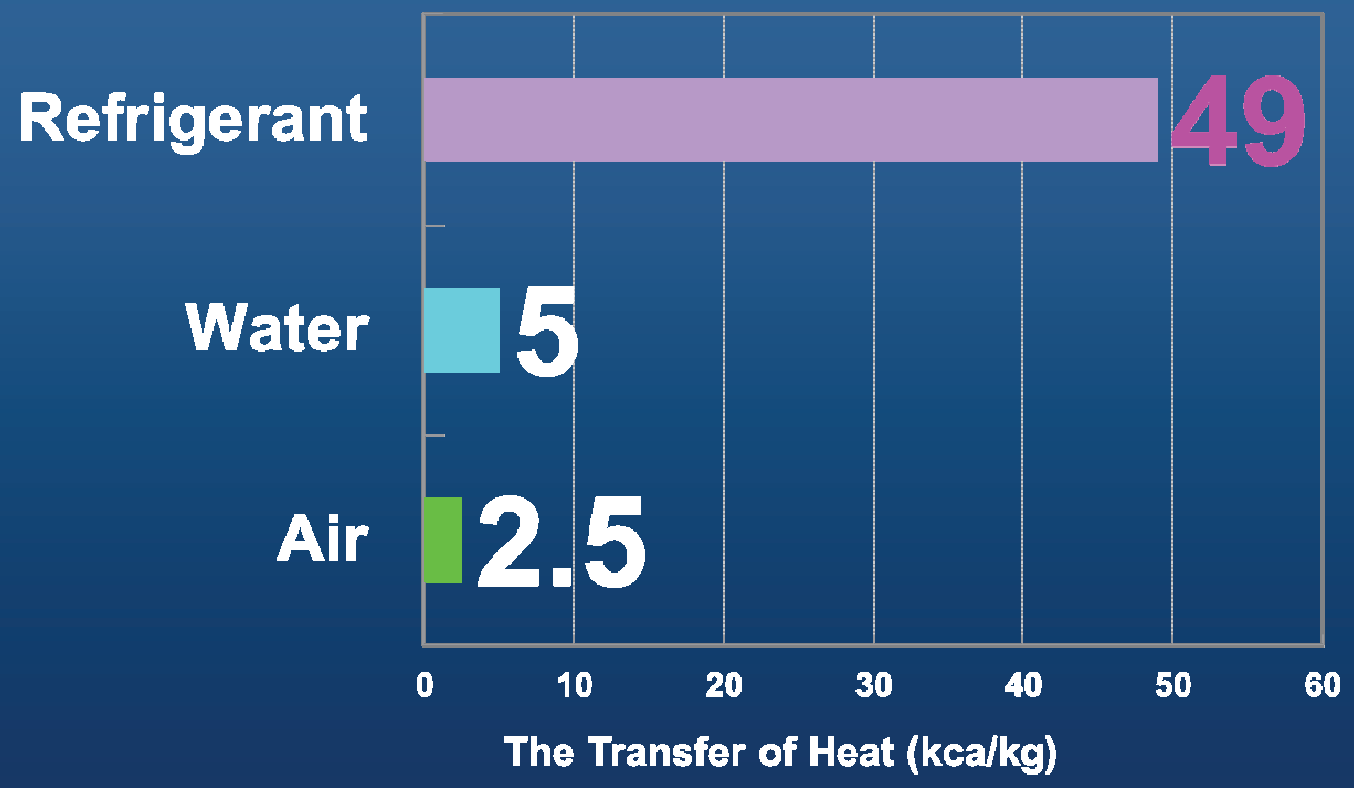


Importance of understanding the fundamentals of Heat Transfer Medium.

重點：了解傳熱介質的基本原理

1. Air
2. Water
3. Refrigerant

The Transfer of Heat (Under typical conditions)



The
Chilled Water System
comprises of

3

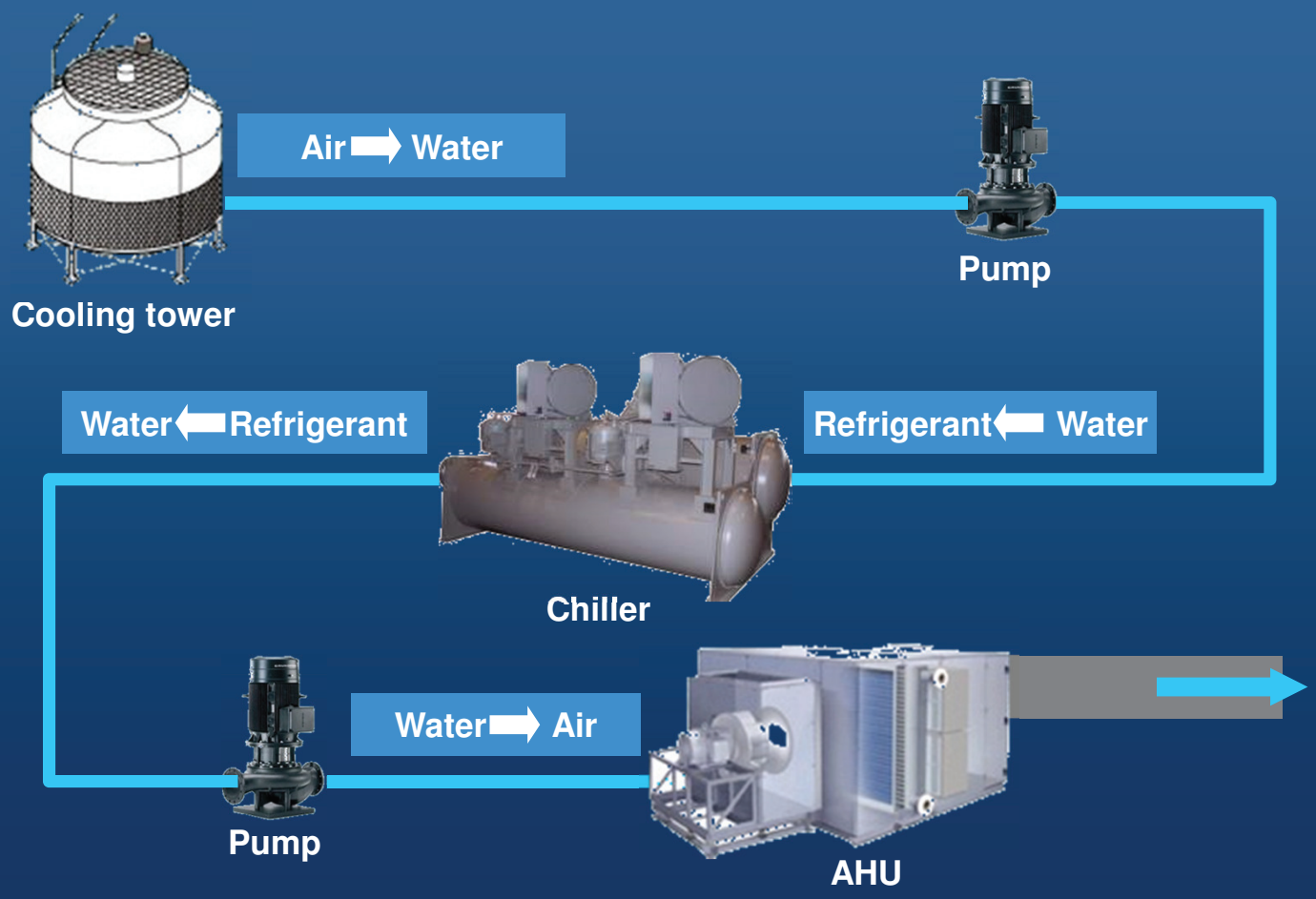
major components

Cooling tower

Water Chiller

Air Handling Unit

Heat transfer in chiller system



和泰-大金冰水機 大型實績

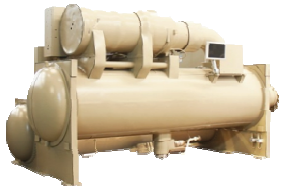
台北南港車站綜合大樓

共採用 3,300RT

定頻高效螺旋機 350RT x 6台

定頻離心冰水機 600RT x 2台

和泰-大金冰水機 大型實績



共採用 4,150RT

定頻高效螺旋機

360RT x 4台

定頻高效螺旋機

330RT x 2台

定頻高效螺旋機

250RT x 1台

定頻高效離心機

900RT x 2台

Hotai-Daikin WC Chiller

Taipei Nangang Station Complex

<u>Capacity: 3,300RT</u>

Fixed Speed High Efficiency Screw 350RT x 6 units

Fixed Speed High Efficiency Centrifugal 600RT x 2 units

Hotai-Daikin WC Chiller

Taipei Songshan Station Complex

Capacity: 4,150RT

Fixed Speed High Efficiency Screw 360RT x 4 units

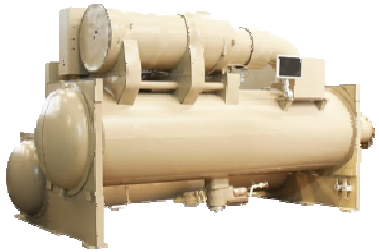
Fixed Speed High Efficiency Screw 330RT x 2 units

Fixed Speed High Efficiency Screw 250RT x 1 unit

Fixed Speed High Efficiency Centrifugal 900RT x 2 units

Hotai-Daikin WC Chiller

TAOYUAN TONLIN



Capacity: 3,000RT
Fixed Speed Centrifugal
600RT x 5 units

Hsinchu High-speed Railway Economic and Trade

Capacity: 2,800RT
Fixed Speed Screw Type
400RT x 7 units

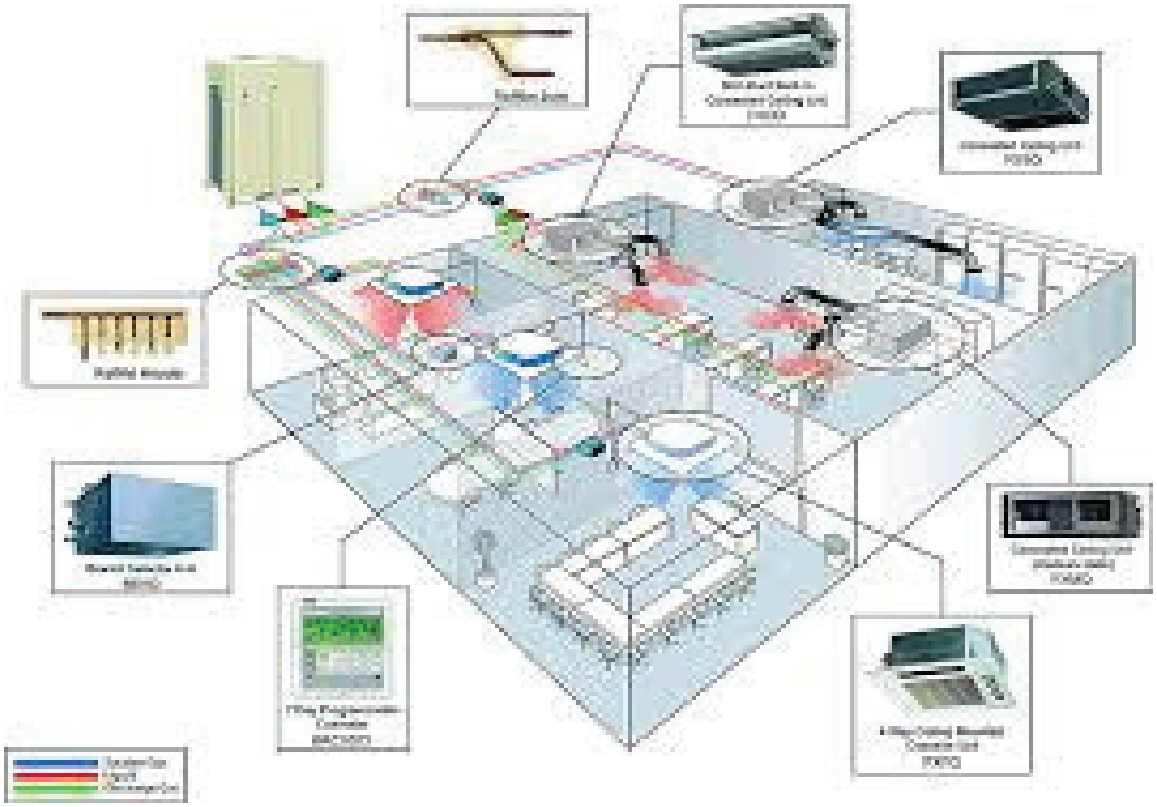
V.R.V. was invented through:

The merging of the different fields of leading edge Technology:

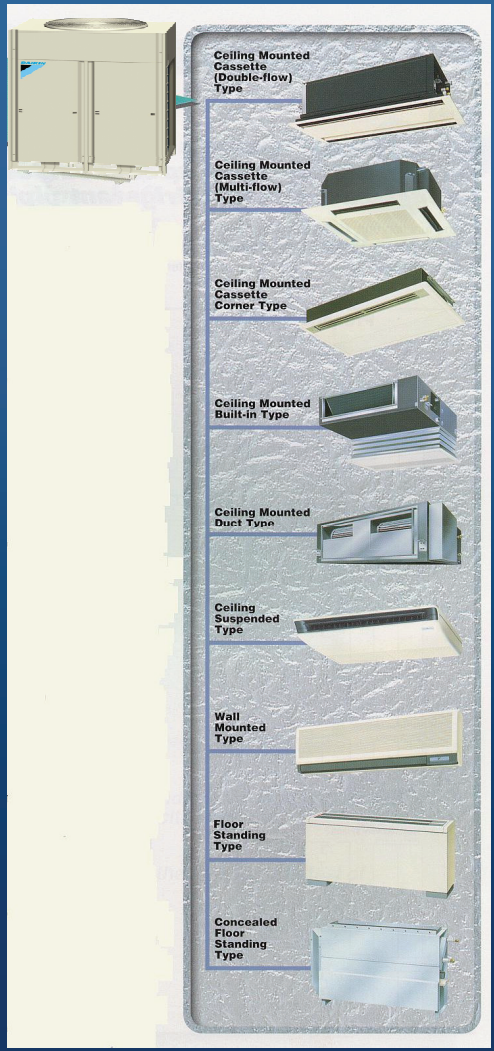
V.R.V. 的研發透過：結合各業界的領先優勢技術

- **Refrigerants.** 冷媒
- **Electronics.** 電子
- **Computer Science.** 計算機科學
- **Mechanical Engineering.** 機械工程
- **Inverter Technology.** 變頻技術

VRV System



90 m vertical piping



VRV Modular AHU Systems

Simplicity

What are the benefits of VRV ?

- Modular
- Fast cooling
- Individual temperature control or master control
- Flexibility
- Substantial Energy saving
- Low sound level

DESIGNER
(FRESH WHITE)

Standard panel with sensing

BYCQ125EEF (Fresh White)

Standard panel

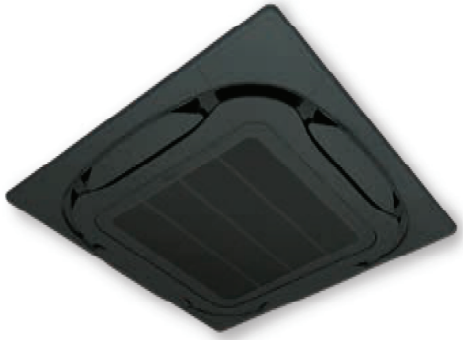
BYCQ125EAF (Fresh White)

Designer panel

BYCQ125EAPF (Fresh White)

Standard panel with sensing

BYCQ125EEK (Black)



Standard panel

BYCQ125EAK (Black)

Auto grille panel

BYCQ125EASF (Fresh White)

Motorized Decoration Panel Lineup (Option)

Auto Grille Panel

- Motorized suction panel
- To raise or lower
- Easy air filter cleaning

Note:
A dedicated wireless remote controller (BRC16A2) for auto grille panel is included for lowering and raising the suction grille

Air – conditioners

use Refrigerants as
a Heat Transfer Medium

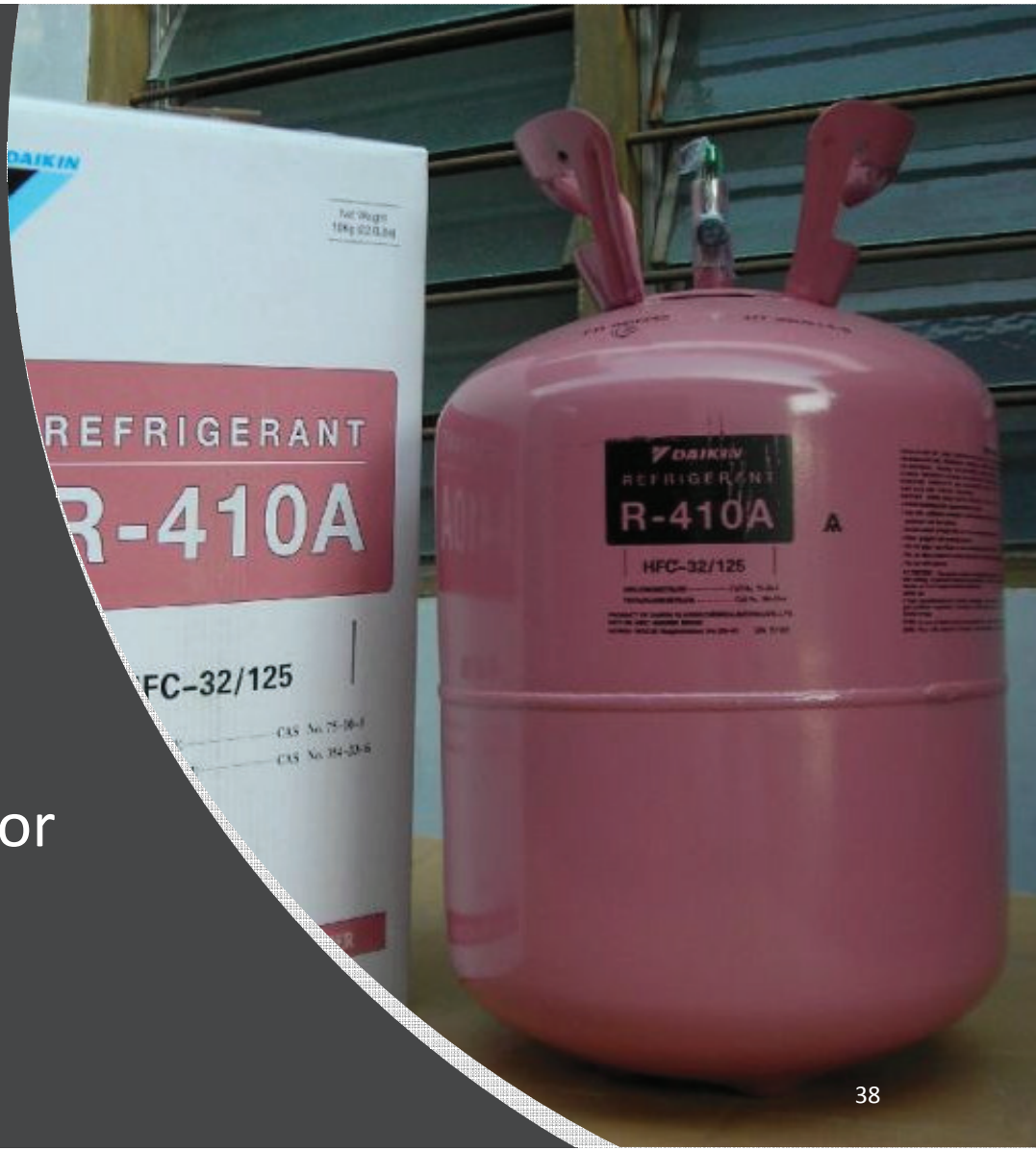
What are two common problems?

Under-charging refrigerant

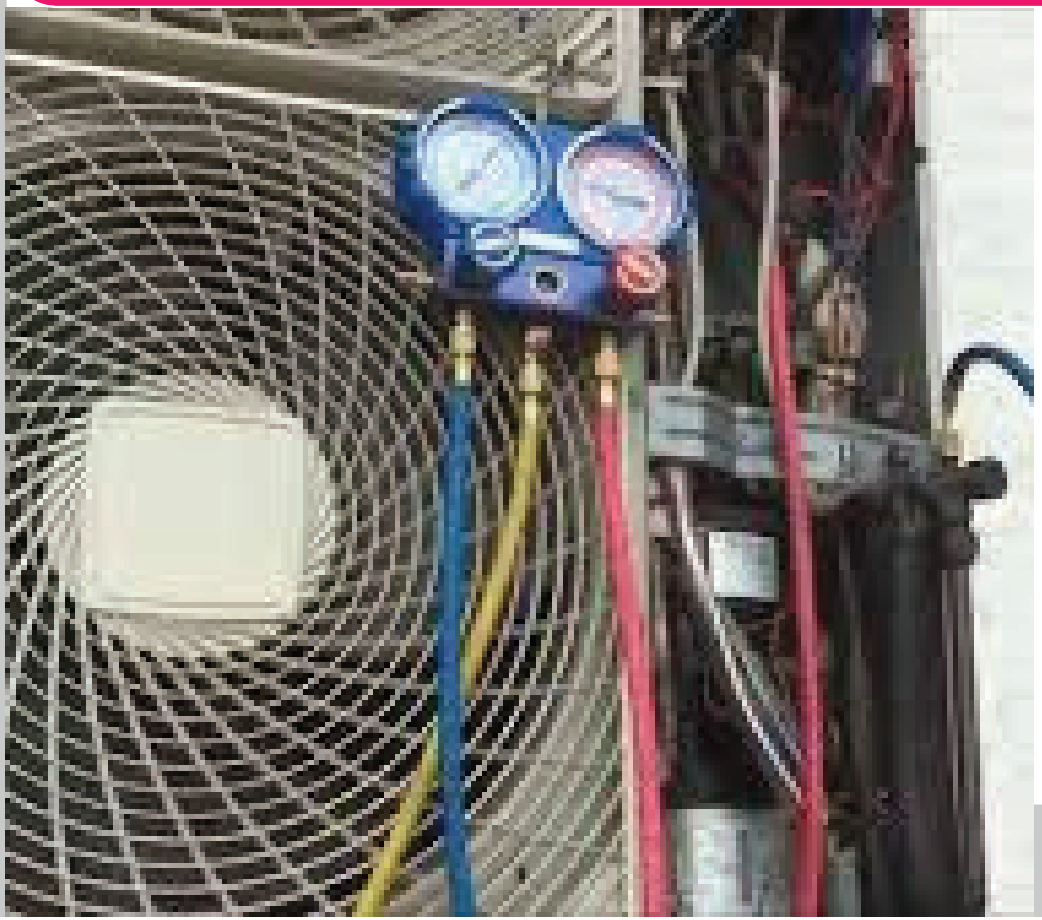
What are the consequences ?

Effects of Under-charging Refrigerant

1. Inadequate cooling capacity
2. Reduced efficiency of system
3. Evaporator coil freezing
4. Over heating of compressor motor
5. Pre-matured Compressor failure



Over-charging Refrigerant



What are the consequences ?

Effects of Over-charging Refrigerant

1. Higher suction pressure
2. Higher discharge pressure.
3. Expansion valve damage
4. Liquid refrigerant flood back
5. Pre-matured Compressor failure due to liquid compression.