

Indian society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE) student's chapter

Organized an Technical talk on “Importance of Cold Storage”

Activity : Technical Talk on Importance of Cold Storage

Venue: Microsoft teams (Online)

Date: 30/06/2021

Time: 1.00 pm to 2.00 pm

Participants: 22

A technical talk was organized on ‘**Importance of Cold Storages**’ under the aegis of ISHRAE G.E.C Bharuch Students Chapter on 30th July 2021. Mr. Jigar Shah Managing Director at Unique Airtech delivered the talk on Cold Chain, he explained the basics cold storage and showed some glimpses of cold room. Then after he explained the necessity of cold room and cold chain in depth.

Students were taught the details of designing a cold storage/cold room. He also showed the Layout plan, sectional view for 5000MT Cold storage. Afterwards Mr Shah explained the heat Load calculation for cold storage. In the end while concluding the session he gave the DOs and DON'Ts while installing the Cold storage/cold room. Some glimpses of the technical talk can be seen below:

Cold Storage & Cold Chain

What is Cold Storage & Cold Room

Introducing the cold room

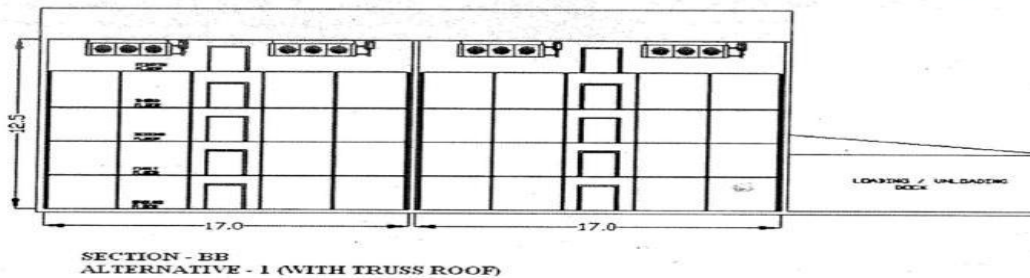
Cold rooms can be termed as large size walk-in coolers for short term storage of perishables like fruits, vegetables, meat and fish, dairy products or special products like medicines, chemicals etc.

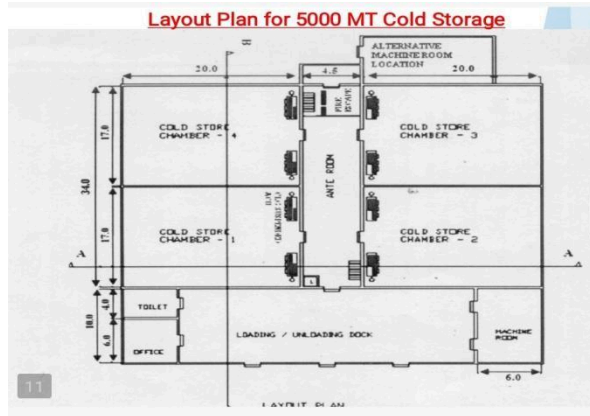
Cold storage and cold room

Cold storages are run as independent industrial units & sizes range from 1000 Ton storage capacity to 20000 Ton or even more in multi- room/multi temperature/multi product configuration with individual room sizes as large as 75' x 40' x 50'. Products are stored in multi level racking arrangement & for loading/unloading, mechanical devices like forklifts are generally used. Frozen or chilled products can be stored in different rooms. The grading, packing, pre-cooling, blanching and other operations are also carried out in processing halls within the same complex.



Sectional View of 5000 MT Cold Storage





Installation & Handling of Cold Storage / Cold Room

Once the design and heat load calculations have been done, it is then down to the process of installing the system. The installation needs to be in an ordered manner and handling the equipment becomes crucial. In this chapter, we'll elaborate on the important facets of installation and handling.

1. Installation

Do's

- Get all details before selecting equipment.
- Plan the size for permissible range or limit. In case of any uncertainty, go for a higher size.
- Calculate load as a counter-check even if quick selection charts are available.
- For a positive temperature room, select indoor unit with a TD of 10°F.
- For a negative temperature room, select indoor unit with a TD of 12°F.
- Though R22 (refrigerant) can be used for both positive and negative temperature rooms, prefer R404A for negative temperature rooms and R134A for positive temperature rooms.
- Provide adequate airflow over product.

Don'ts

- Do not assume any data.
- Do not economise on equipment at the cost of quality.
- Do not rely on quick selection guides as final selection.
- Do not exceed a TD of 14°F for any application.
- Do not recommend only one refrigerant for all applications.



Why Cold Room is Required & What Is Cold Chain

Cold Storage / Cold Room industry is very important and essential industry for today's globalized world where in every body is feeling pinch to save the earth and its valuable product food which we grow on the mother land as the fertile land is becoming less day by day due to growing human population, industrial growth and the vice versa the requirement to feed them increases.

So it is very important to preserve the food from the farm itself to the consumer and this preservation of food by refrigeration media i.e from pre-cooler room at the farm to refrigerated cold storage by refrigerated truck is a complete cold chain cycle to preserve & conserve the food when needed, can be taken from the cold storage and can be made available to consumers very easily. Cold Chain is a vital line between the production and consumption of perishable products. Apart from the conservation of perishables, the cold Chain cycle also help increasing the marketing period of these commodities and ensure availability to the consumer over a long period.



We are thankful to ISHRAE Vadodara Chapter and Mr. JIGAR SHAH for enhancing the technical skills of ISHRAE G.E.C BHARUCH student members.