Safmarine

TRENDS IN CONTAINER TECHNOLOGY AND SUPPLY

- TRENDS IN TECHNOLOGY / SUPPLY

- ISSUES IMPACTING POME INDUSTRY

TRENDS IN CONTAINER TECHNOLOGY AND SUPPLY

- TRENDS IN TECHNOLOGY / SUPPLY
  - UPTO 2010
  - 2011 AND BEYOND

- ISSUES IMPACTING POME INDUSTRY

TRENDS IN CONTAINER TECHNOLOGY AND SUPPLY

- **TRENDS IN TECHNOLOGY / SUPPLY**
  - **– UPTO 2010**

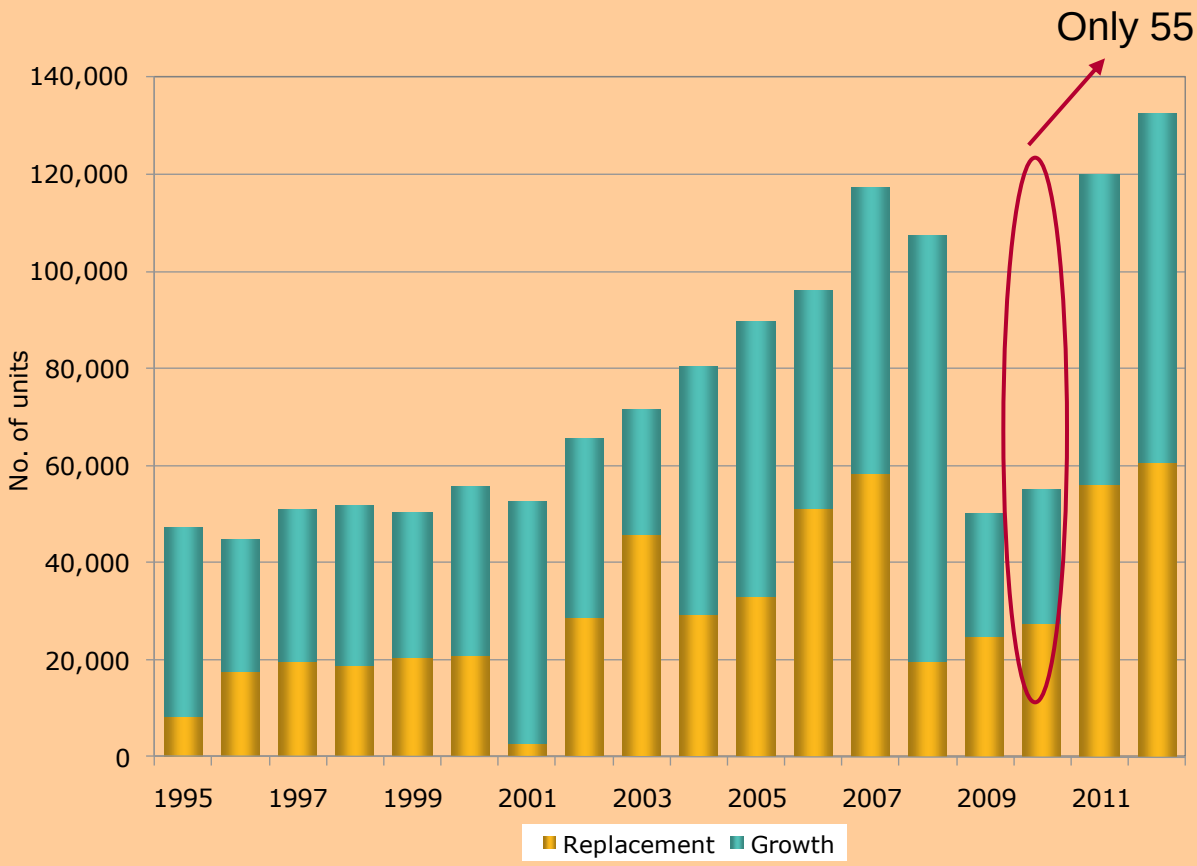
TRENDS IN TECHNOLOGY / SUPPLY UPTO 2010

- **In 2010 Our volume 210,000+Units**

TRENDS IN TECHNOLOGY / SUPPLY UPTO 2010

- **In 2010 Our volume 210,000+Units**
- **Worldwide 1 Mil**

Under investment in reefer containers, created a bottle neck already in 2010



Future still questionable!

- 2007 was an all-time high for reefer production with a total of 117,500 units in total – replacement accounted for 50%
- In the period from 1995-2008 the average replacement share of annual reefer production was 37%
- For 2009-2012 CI projects a replacement share of 50%
- Actual new builds in 2009 was 50,000 units

Source: Containerisation International

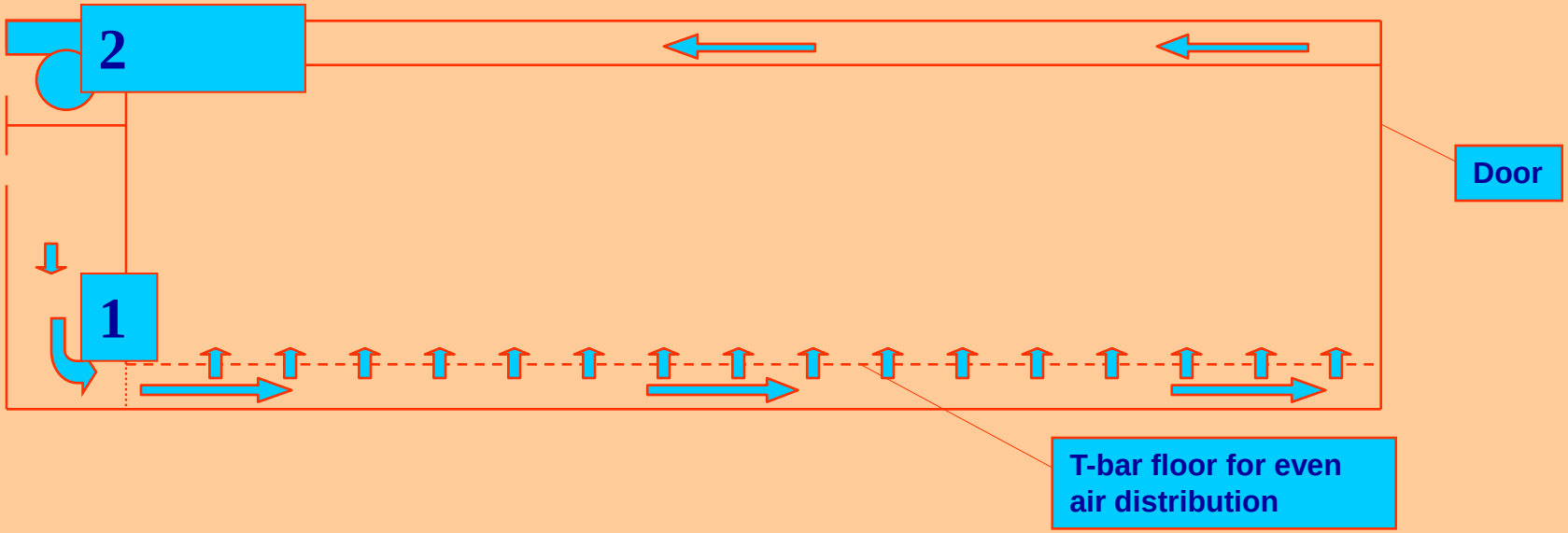
TRENDS IN TECHNOLOGY / SUPPLY UPTO 2010

- In 2010 210,000+Units
- Worldwide 1 Mil
- CO2 emission

TRENDS IN TECHNOLOGY / SUPPLY UPTO 2010

- **In 2010 210,000+Units**
- **Worldwide 1 Mil**
- **CO2 emission**
  - **600,000 ton CO2 emission reduction**

REEFER FACTS



- ALL OUR REEFER CONTAINERS HAS BOTTOM AIR DELIVERY.
- SUPPLY AIR IS MEASURED (PROBE) AT (1) AND RETURN AIR AT (2).
- CHILLED LOADS ARE CONTROLLED BY SUPPLY AIR TEMPERATURE.
- FROZEN LOADS ARE CONTOLLED BY RETURN AIR.

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TRENDS IN TECHNOLOGY / SUPPLY UPTO 2010

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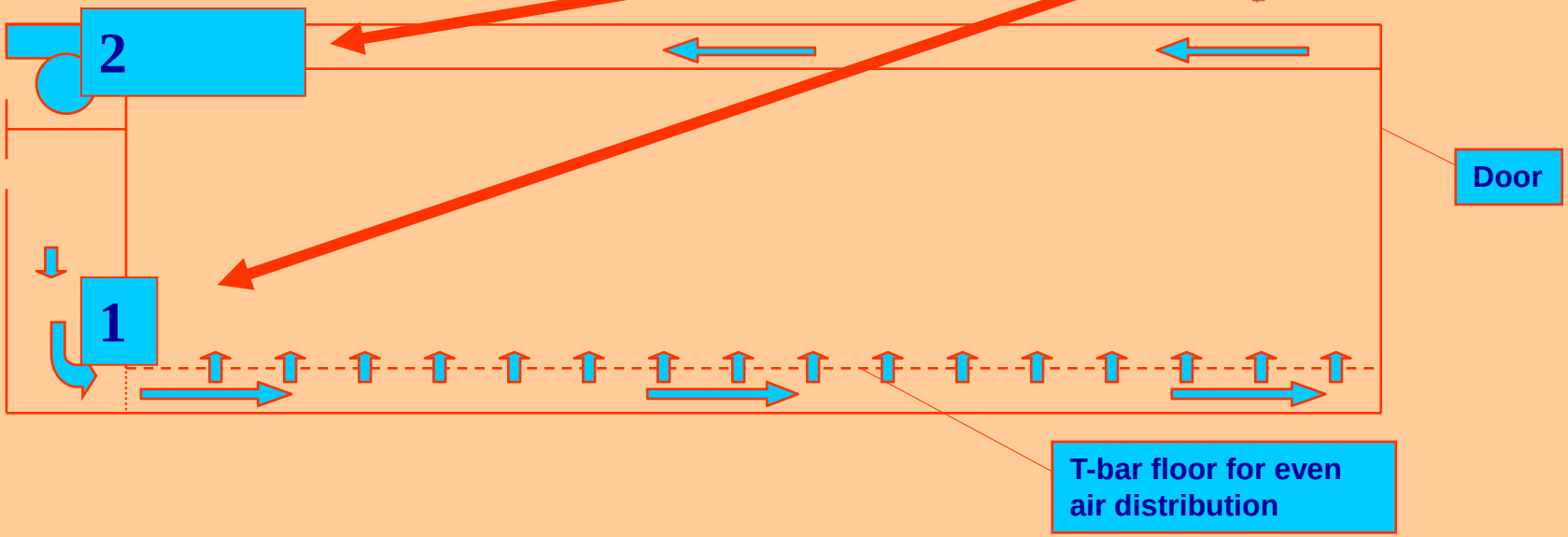
TRENDS IN TECHNOLOGY / SUPPLY UPTO 2010

- In 2012 New builds – 35 000
- Worldwide Order books are dubious
- CO2 emission
  - In 2010 saved 600,000 ton CO2
  - In 2012 aim is 1 mill. ton CO2

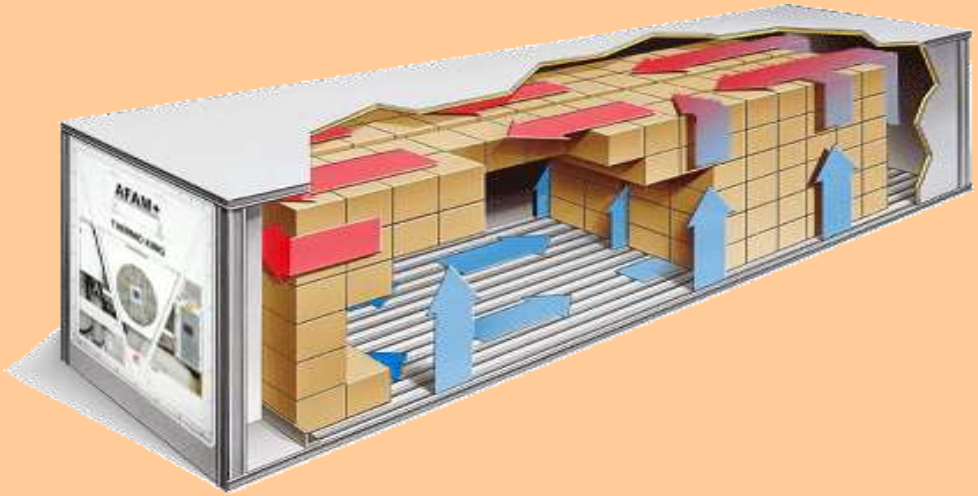
REEFER FACTS



- ALL OUR REEFER CONTAINERS HAVE BOTTOM AIR DELIVERY.
- SUPPLY AIR (1) IS IN CONJUNCTION WITH RETURN AIR AT (2).
- CARGO TEMPERATURE IS KEY – MUCH CLOSER TO SETPOINT

What is QUEST?

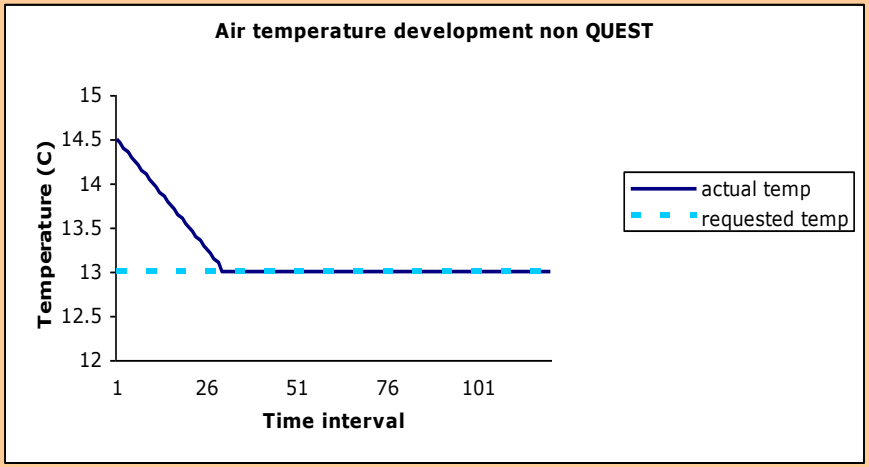
- **QUEST is CO_2 emission friendly software that focuses on maintaining a constant cargo temperature, whereas traditional cooling systems regulate the temperature in the container and not the temperature of the product.**



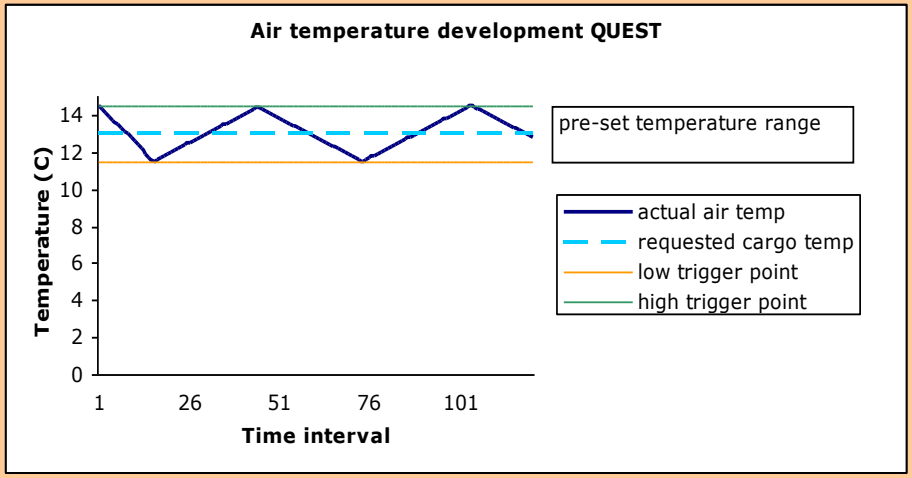
How does it work?

- **In principle, Quest works like a household refrigerator allowing a variation in the air temperature without damaging the cargo**
  - **How much the temperature varies is based on scientific testing, to ensure no damage is done to the product**
- **A non Quest reefer will maintain the air temperature that is being supplied into the container at a constant degree, e.g. 13, °C.**
  - **Doing so wastes energy and does not necessarily give the desired cargo temperature**
  - **It can be compared to driving in your car with the accelerator to the floor, but de-accelerating by applying the clutch**

Air temperature development Non QUEST



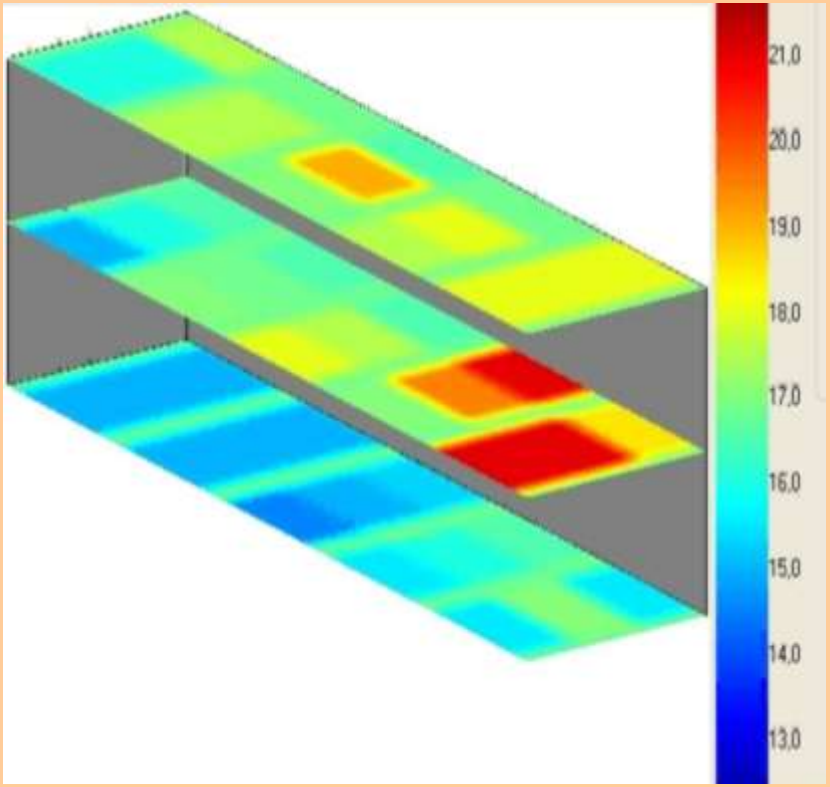
Air temperature development QUEST



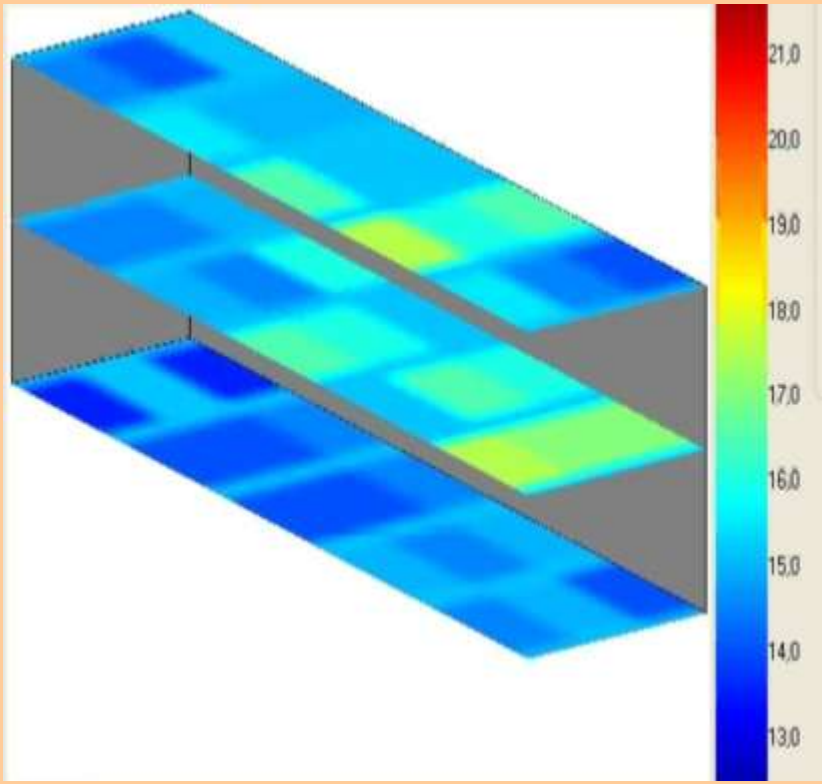
Both air and cargo temperature remain the same

Air temperature various within an acceptable range (commodity specific) while the cargo temperature remains the same

Non Quest reefer on day 3



Quest reefer on day 3



QUEST reefer shows a better temperature spread over the entire container while both containers wee set at 13.5C

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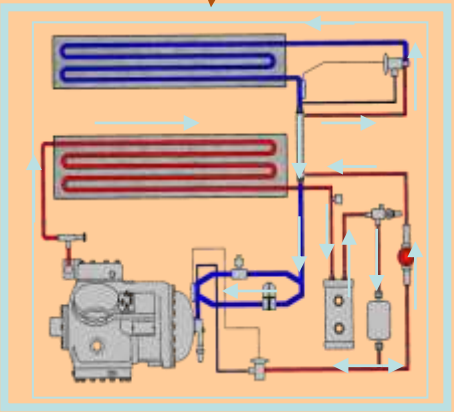
- ISSUES IMPACTING POME INDUSTRY
  - ASC AND ACT
  - POWER SUPPLY
  - TEMPERATURE MANAGEMENT

WITHOUT POWER .....

Refrigeration unit

Refrigeration container

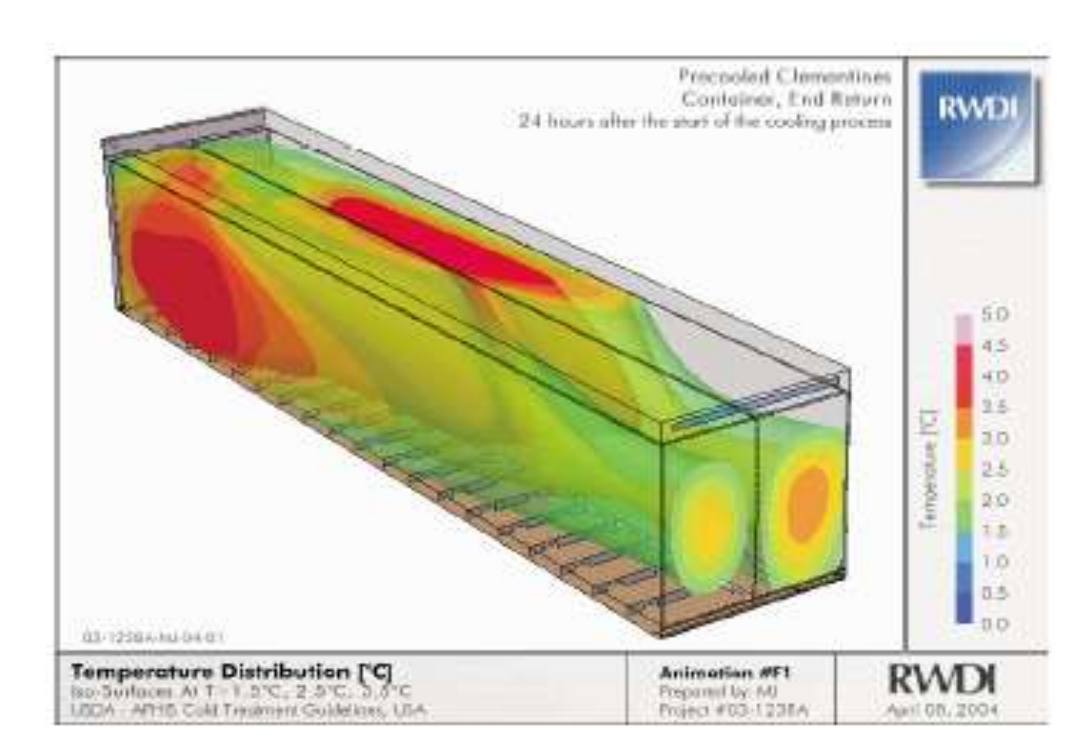


NO AMOUNT OF MODER TECHNOLOGY WILL ASSIST

Precautions when stuffing Reefers

In order to secure a safe transport, it is vital that the Reefer Unit is stuffed correctly securing an optimal airflow and cooling of cargo

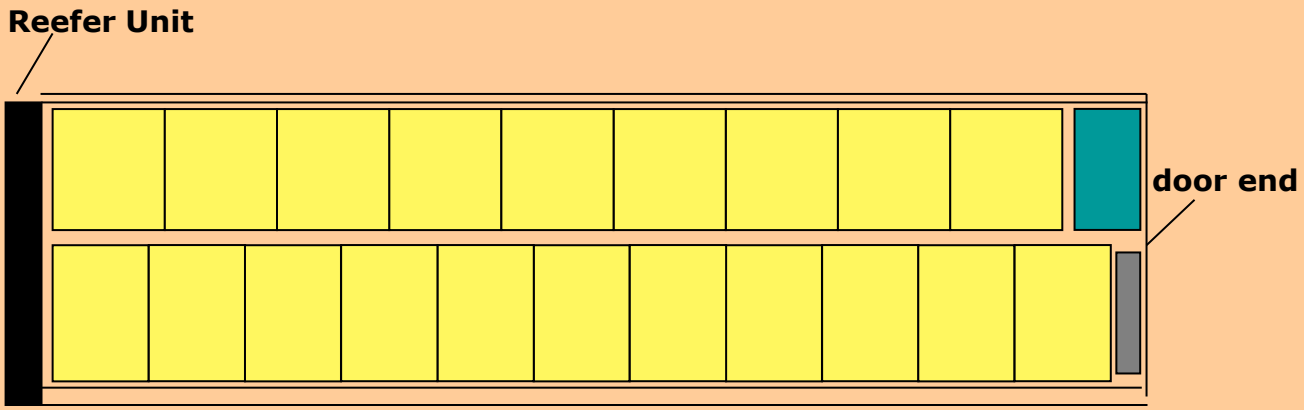
Hot Spots: Containers



Hot spots (red and orange colors) are located near the middle and back doors of the container. The appearance of two hot spots within the container is due to the different pallet arrangements (parallel vs. perpendicular) in this picture.

Stowage guidelines for Reefer Containers

40’ Highcube Reefer :



Stowage :

Free space.

- 2 rows with respectively 11 and 9 pallets.

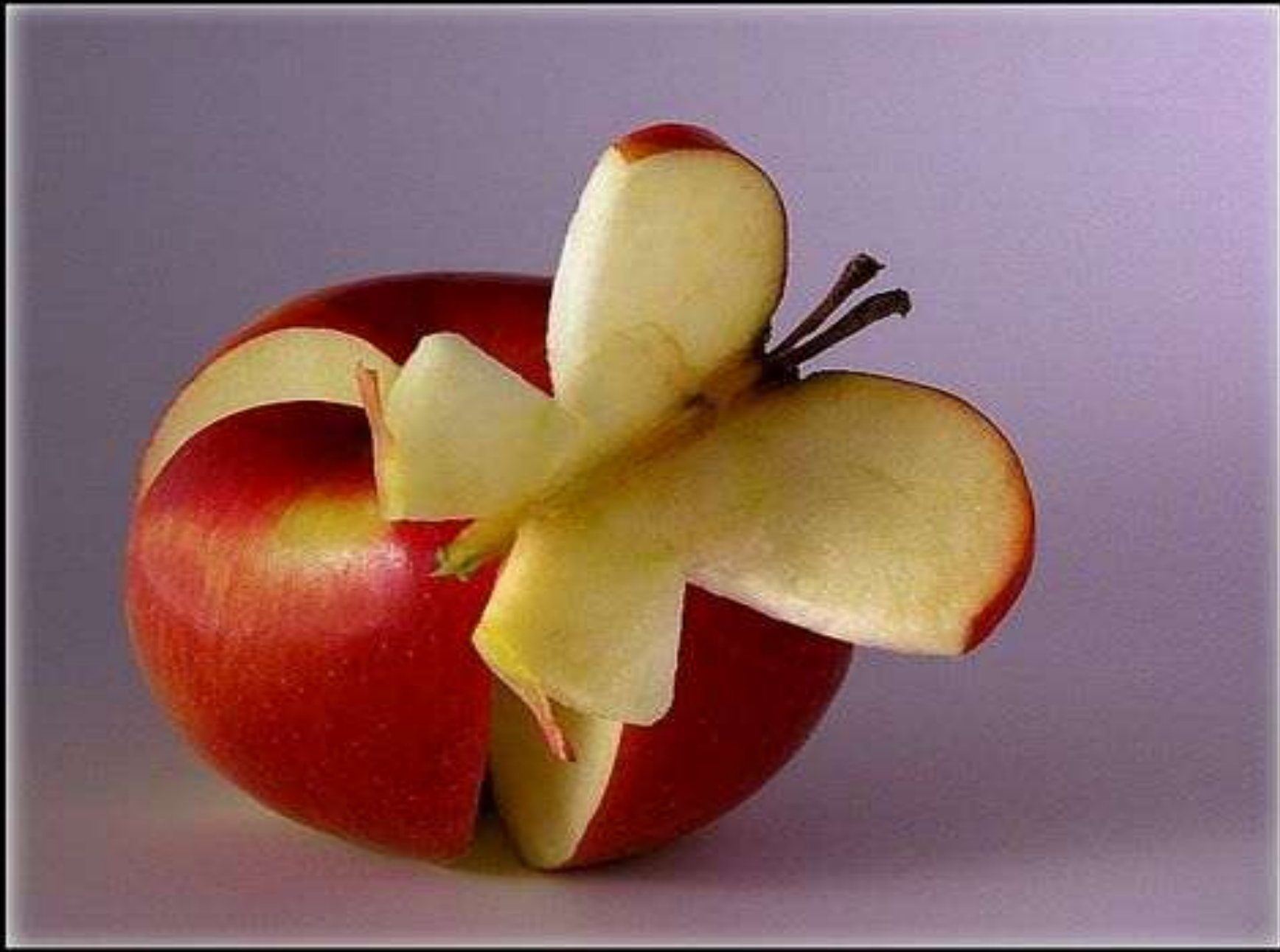
- **Open space at door end must, in order to optimise air-flow, be covered by thick cardboard or plastic.**

Concerns

Responsibility of Shipper

Correct carriage temperature..??????????

DON’T PLAY SECOND FIDDLE



STAY AHEAD OF THE GAME

PLEASE AVOID

……..

WHY …..?

And then some


Thank You