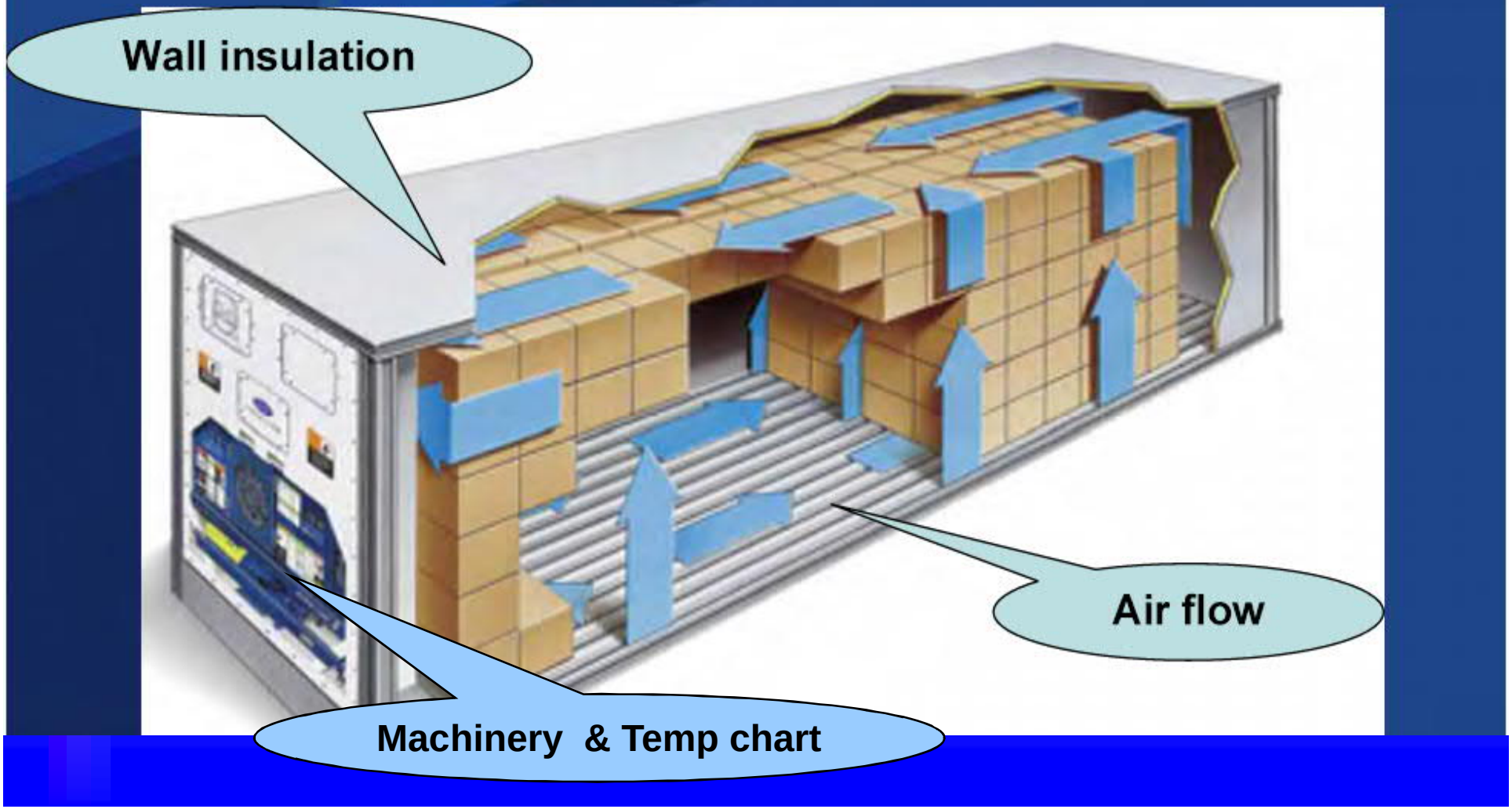
CONTFAM COURSE

PART V

SPECIAL CONTAINERS

Reefer & IMDG Containers

Basic Construction of a Reefer Container



Different Makes of Reefer Containers

Thermo King

Carrier

Daikin

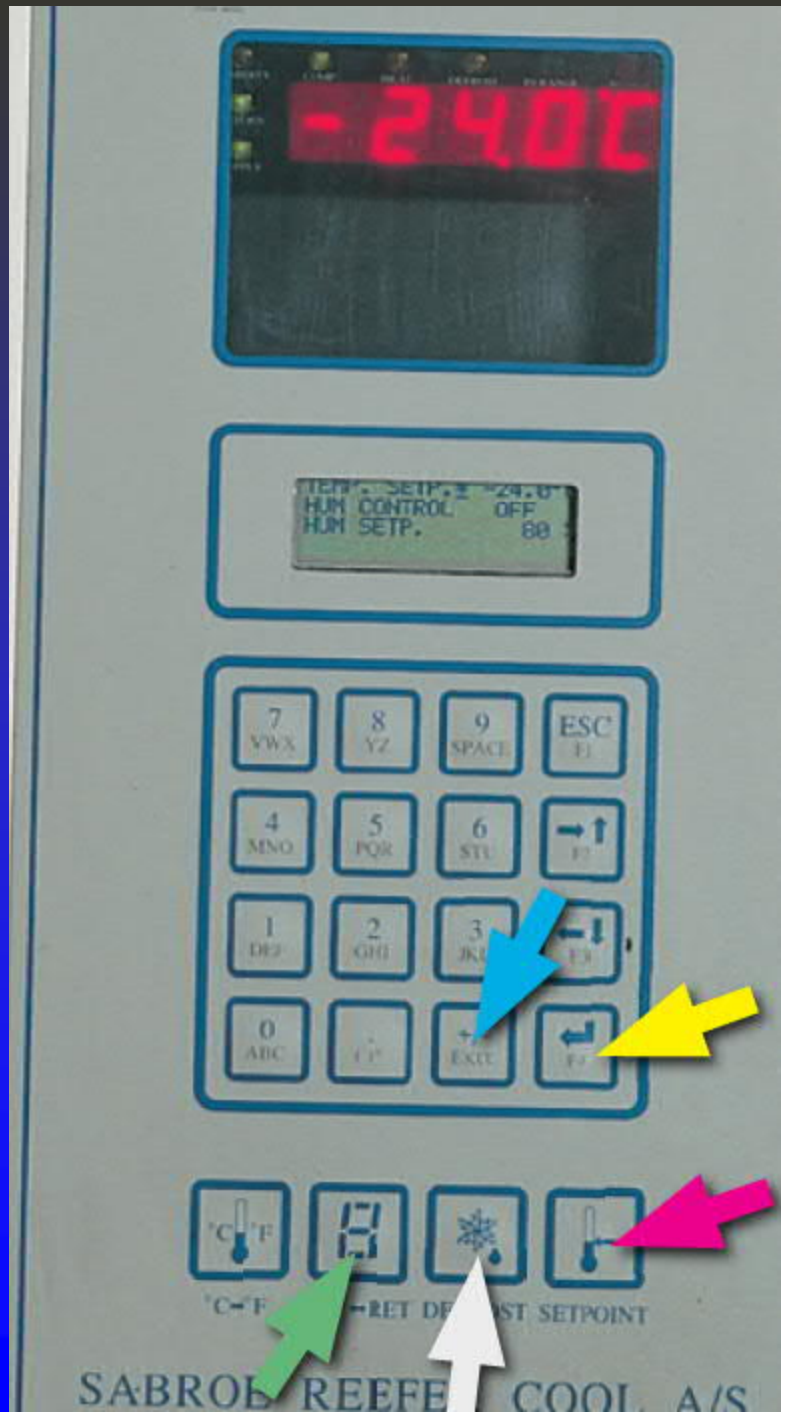
Mitsubishi

Starcool

There are various makes of Reefer Containers and at any time you may find several different types on board.

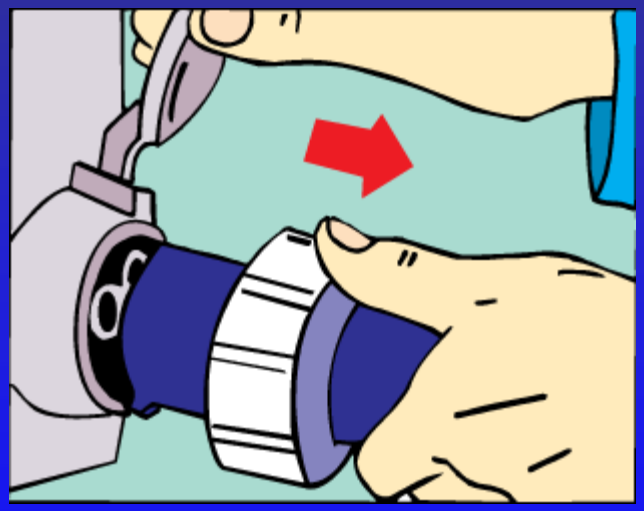
However, for purposes of plugging & checking temperature etc they all have similar procedures

- Digital readouts are also available on most sets with functions defined



Plugging in a Reefer

Reefers usually run on 440V so ensure the socket is safe prior plugging/unplugging



Reefer plug (Male) attached by cable to the container which has to be plugged into the ship's socket

Reefer Ventilation settings

- Vent settings are usually expressed in % at which they must be set
- Ensure this is in accordance with settings as per Manifest/List

Reefer Monitoring

- Reefers must be monitored closely from the moment they are placed onboard, during the voyage and till they are discharged.
- Records are to be maintained properly. ‘Reefer Temperature Record’ is to be maintained and filed by the Chief Officer.
- The temperatures shall be recorded twice daily- in the morning by the Chief Officer and in the evening by the Electrical Officer.

Duty Officer's Responsibilities

- Duty Officer to plug in the reefer and note down its temperature at the time of loading
- Also ensure no warning lights/unusual machinery sounds etc are detected
- Ensure reefer is adequately pre-cooled and not received at a temperature inconsistent with the recorded temperature
- Read the Partlow Chart for temperature settings

Reefer Responsibilities

- The Chief Officer shall provide the Chief Engineer, Electrical Officer and Duty Officer with the reefer manifests and stowage positions of the reefer containers.
- Duty officers are responsible for connection of the reefer container as soon as they are loaded on board and logging down the temperatures.
- The Electrical Officer shall be responsible to report to the Chief Officer and Chief Engineer before departure of the vessel from port that all loaded reefers are operating satisfactorily and temperatures are as per the manifest.
- Any defects in the reefers shall be reported by the Master to the local agent and the situation rectified before departure.
- In case of major malfunctions or substantial delay in repairing the reefer, the Reefer Department (MEDLOG ANTWERP) shall be informed immediately, the Company in copy.

Reefer Containers

- Reefer containers must not be stowed on the outside rows or on bays in the extreme forward of the ship.
- The reefer engines positioned so that daily inspection of the reefer and breakdown maintenance can be carried out.
- The reefer engine should preferably face aft.
- Stowage on 3rd tier and upwards to be avoided and considered only if a fixed inspection platform is provided onboard.

IMDG CONTAINERS

- Containers that are carrying any Dangerous Cargo as defined by the IMDG Code must follow the procedures as laid out in the Code.
- They must be properly labelled
- They must be stowed in accordance with the IMDG Code
- Precautions as described must be taken

Duty Officer to check IMDG labels

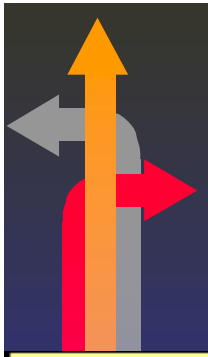
Primary & subsidiary risk (if applicable) placards must be visible on IMDG containers

IMDG Containers - 1

- **Class 5.2 shall not be stowed under-decks.**
- All Deck Officers must have successfully completed the HAZMAT course and possess a valid certificate of the same

IMDG CONTAINERS - 2

- IMDG cargo must be stowed as per ship's Dangerous Cargo Document of Compliance (DOC)
- Segregation/separation to be as per the IMDG code.
- The IMDG containers should not be stowed on the outside rows.
- Proximity of DG cargo to accommodation, engine room bulkhead, bunker tanks and exposure to weather to be considered when planning stowage of the IMDG cargo and in accordance with the DOC for dangerous cargo.



STOWAGE/SEGREGATION TABLE

CLASS		1.1 1.2 1.5	1.3 1.6	1.4	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
Explosives	1.1, 1.2, 1.5	*	*	*	4	2	2	4	4	4	4	4	4	2	4	2	4	X
Explosives	1.3, 1.6	*	*	*	4	2	2	4	3	3	4	4	4	2	4	2	2	X
Explosives	1.4	*	*	*	2	1	1	2	2	2	2	2	2	X	4	2	2	X
Flammable gases	2.1	4	4	2	X	X	X	2	1	2	X	2	2	X	4	2	1	X
Non-toxic, non-flammable gases	2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X
Toxic gases	2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X
Flammable liquids	3	4	4	2	2	1	2	X	X	2	1	2	2	X	3	2	X	X
Flammable solids (including self-active and related substances and desensitized explosives)	4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X
Substances liable to spontaneous combustion	4.2	4	3	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X
Substances which, in contact with water, emit flammable gases	4.3	4	4	2	X	X	X	1	X	1	X	2	2	X	2	2	1	X
Oxidizing substances (agents)	5.1	4	4	2	2	X	X	2	1	2	2	X	2	1	3	1	2	X
Organic peroxides	5.2	4	4	2	2	1	2	2	2	2	2	2	X	1	3	2	2	X
Toxic substances	6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X
Infectious substances	6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X
Radioactive material	7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X
Corrosive substances	8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X
Miscellaneous dangerous Substances and articles	9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SEGREGATION TABLE FOR CONTAINER SHIPS

Table of segregation of freight containers on board container ships

SEGREGATION REQUIREMENT	VERTICAL			HORIZONTAL							
	CLOSED VERSUS CLOSED	CLOSED VERSUS OPEN	OPEN VERSUS OPEN		CLOSED VERSUS CLOSED		CLOSED VERSUS OPEN		OPEN VERSUS OPEN	
					ON DECK	UNDER DECK	ON DECK	UNDER DECK	ON DECK	UNDER DECK
"AWAY FROM" .1	ONE ON TOP OF THE OTHER PERMITTED	OPEN ON TOP OF CLOSED PERMITTED OTHERWISE AS FOR "OPEN VERSUS OPEN"	*NOT* IN THE SAME VERTICAL LINE *UNLESS* SEGREGATED BY A DECK	FORE AND AFT	NO RESTRICTION	NO RESTRICTION	NO RESTRICTION	NO RESTRICTION	*ONE* CONTAINER SPACE	*ONE* CONTAINER SPACE OR *ONE* BULKHEAD
				ATHWART-SHIPS	NO RESTRICTION	NO RESTRICTION	NO RESTRICTION	NO RESTRICTION	*ONE* CONTAINER SPACE	*ONE* CONTAINER SPACE
"SEPARATED FROM" .2	*NOT* IN THE SAME VERTICAL LINE *UNLESS* SEGREGATED BY A DECK	AS FOR "OPEN VERSUS OPEN"		FORE AND AFT	*ONE* CONTAINER SPACE	*ONE* CONTAINER SPACE OR *ONE* BULKHEAD	*ONE* CONTAINER SPACE	*ONE* CONTAINER SPACE OR *ONE* BULKHEAD	*ONE* CONTAINER SPACE	*ONE* BULKHEAD
				ATHWART-SHIPS	*ONE* CONTAINER SPACE	*ONE* CONTAINER SPACE	*ONE* CONTAINER SPACE	*TWO* CONTAINER SPACES	*TWO* CONTAINER SPACES	*ONE* BULKHEAD
"SEPARATED BY A COMPLETE COMPARTMENT OR HOLD FROM" .3				FORE AND AFT	*ONE* CONTAINER SPACE	*ONE* BULKHEAD	*ONE* CONTAINER SPACE	*ONE* BULKHEAD	*TWO* CONTAINER SPACES	*TWO* BULKHEADS
				ATHWART-SHIPS	*TWO* CONTAINER SPACES	*ONE* BULKHEAD	*TWO* CONTAINER SPACES	*ONE* BULKHEAD	*THREE* CONTAINER SPACES	*TWO* BULKHEADS
"SEPARATED LONGITUDINALLY BY AN INTERVENING COMPLETE COMPARTMENT OR HOLD FROM" .4	PROHIBITED			FORE AND AFT	MINIMUM HORIZONTAL DISTANCE OF 24 M	*ONE* BULKHEAD AND MINIMUM HORIZONTAL DISTANCE OF 24 M*	MINIMUM HORIZONTAL DISTANCE OF 24 M	*TWO* BULKHEADS	MINIMUM HORIZONTAL DISTANCE OF 24 M	*TWO* BULKHEADS
				ATHWART-SHIPS	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED

* CONTAINERS NOT LESS THAN 6 M FROM INTERVENING BULKHEAD.

NOTE: ALL BULKHEADS AND DECKS SHALL BE RESISTANT TO FIRE AND LIQUID.

IMDG CONTAINERS - 3

- All fire fighting, chemical spill response equipment for the IMDG cargo containers as per the DOC/ IMDG code to be operational and in a state of readiness.
- The stowage of IMDG containers in close proximity to reefer containers should be avoided.

IMDG Documentation

Master to ensure that the following documents required as per IMDG Code are placed onboard prior loading:

- ***3 copies of Dangerous Cargo manifests.***
  - ***(The manifests must be in 'International/Canadian/US format and stowage position of the container onboard must be mentioned on the DCM.)***
  - ***DG manifests must be signed by the Master or his deputy upon receipt.***
- ***1 copy relevant DC specific certificates or Competent Authority Approvals (CAA) .***
- ***1 copy of MSC Emergency Cards.***
- ***1 copy IMO Bayplan.***

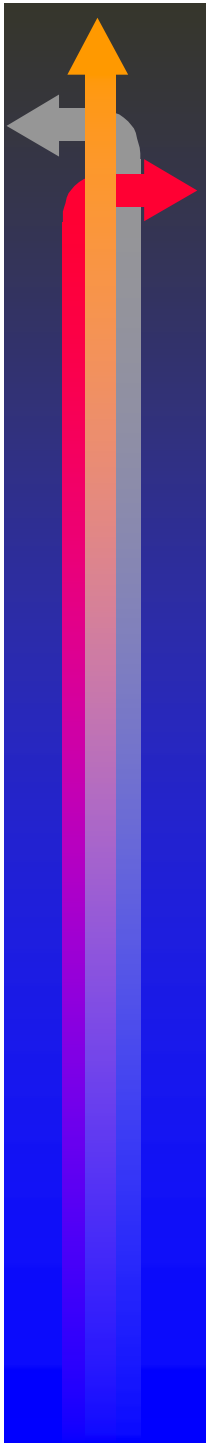
Display of DG Stowage Plan

- Chief Officer should display copies of the dangerous cargo stowage plan in one common alleyway and in the wheelhouse and highlight the risks involved with the cargo.
- A copy of the IMDG cargo stowage plan should be also placed in the designated fire plan boxes.
- The stowage plan should contain the UN no, class and EMS for the IMDG cargo.

Equipment as per DOC

The conditions and equipment printed on the Document of Compliance certificate for IMDG cargo to be maintained in top operational condition at all times. This may include but not limited to:

- fixed smoke detecting and CO2 release system in cargo holds
- integrity of electrical cables and electric fittings in cargo holds
- remote operation of cargo hold ventilation fans and emergency fire pumps
- proper operation and condition of cargo hold vent flaps
- provision of **2** or more extra SCBA sets and spare cylinders
- **4** or more chemical protective clothing sets
- adequate number of fire hoses and dual type fire nozzles
- medicines and medical equipment as per the IMDG Code.



End of CONTFAM course