

- Consignee arranges for delivery of container to warehouse for destuffing and subsequent return of empty container.

*ii. a) Container Yard to Container Freight Station (CY-CFS).* Also known as house-to-pier.

- Same as CY-CY, except ocean carrier destuffs container at discharge port terminal and notifies consignee. Consignee then picks up cargo.

*ii. (b) Container Freight Station to Container Yard (CFS-CY).* Also known as pier-to-house.

- Shipper delivers cargo to ocean carrier's inland terminal. Ocean carrier stuffs container. Service then proceeds as with CY-CY.

*iii. Container Freight Station to Container Freight Station (CFS-CFS).* Also known as pier-to-pier.

- Shipper delivers cargo to ocean carrier's inland terminal. Ocean carrier stuffs, loads and transports container to discharge port where carrier then destuffs container at destination terminal and notifies consignee. Consignee then picks up cargo.

Rail and truck carriers also offer similar services. In the United States, the direct interlining of highway and ocean carriers is somewhat restricted by the country's stringent road weight limitations. As a result, inland containers are operated by some of the highway carriers that service marine container lines entering Canada indirectly via U.S. Eastern Seaboard ports, mainly New Jersey and Baltimore. When, for example, a 12.2 m (40 ft.) container exceeds the U.S. highway maximum, it is transported by rail from the seaport of entry to an inland container terminal at a Canadian border point for pick-up and final delivery by a motor carrier.

These services move marine containers on flat cars and highway trailers. Marine containers are placed on rail cars or trucks at container terminals in major ports and transported to destination terminals or customers for deconsolidation and final delivery of goods.

Air carriers' intermodal services are as well developed as other modes, but the interlining of air and surface (land and marine) transport is not easily facilitated by the use of surface transport containers.

Domestic rail containers, truck trailers and marine containers cannot be used in air transport equipment; they are too heavy and too bulky. Aircraft usually "bulk out" before they "weigh out," but even if these rectilinear steel containers could be used in aircraft, it must be remembered that the maximum weight an air carrier can load commercially is generally below the loaded weight of surface containers.

Air cargo containers are common. They are usually referred to as unit loading devices and are used by air freight or cargo divisions of airliners, or by international freight forwarders which offer air freight services, to consolidate general freight into larger units for loading and transporting. Unit loading devices are designed more to restrain loads than to increase the volume of shipments. Their use in intermodal movements requires consolidation and stuffing of freight at air cargo terminals and usually by air freight personnel rather than the shipper.

New technology has been developed since the 1980s: the sea-air container. The sea-air container is a standard-dimension ISO-size container (20 or 40 ft. units) constructed of durable aluminum with reinforced corners and ribs. They are light enough for air transport and durable enough for handling on ships, trucks or rail flat cars.

One intermodal transport movement that developed because of this technology is a sea-air container service, which interlines long-haul international marine transport with domestic air transport from port of entry to inland destination. This service is popular in the Pacific Rim.

## ***Freight Handling and Stowage***

The safe handling and stowage of export shipments is, of course, a factor vital to all marine, truck, rail and air transport and equipment. Information on this topic is covered in detail in Appendix I and also in *Safe Stowage*, listed in Appendix II.