Title:
Freight Containers Transformed Logistics

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674

Summary:
Freight containers are standardized shipping containers. Shipping containers have standard dimensions, typically 20'x8'x8.5' or 40'x8'x8.5' or 45'x8'x9.5'. They have to be constructed to certain minimum standards of sturdiness to withstand the rigors of long ocean voyages and transfer from one mode of transport to another. Shipping containers meeting the standards can get CSC - Convention for Safe Containers - certification, a must for use in international shipping.

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Article Body:
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Specialized trucks, railcars and handling equipment have been designed to accommodate these standard sized containers. The containers fit neatly into these vehicles (as well ships' cargo holds) and the handling equipment can easily transfer the containers from trucks to railcars to ships and in the reverse direction. The freight containers themselves might have forklift pockets (typically available only for 20' or shorter containers) that facilitate forklift handling.

Standardized freight containers enhanced the speed and efficiency of cargo movement, and expanded world trade. The easy and quick transshipment of the containers from one mode of transport to another - inter-modal transport - is the main factor that makes the efficiency possible. The multi-modal transport facility also enables carrying goods across terrains like water, rail track,

road and air to get from origin to destination without any disruption.

Freight Container Ships

Freight containers are typically shipped in "cellular" container ships, so called because the ships' cargo area is segmented into standard cells to accommodate containers, resembling a honeycomb.

The cargo capacity of ships is expressed in TEUs, or twenty-foot equivalent units. The space occupied by a 20-foot standard freight container is one TEU, and that occupied by a 40-foot container is 2 TEUs. Container ships these days can carry nearly 5000 TEUs.

Freight Containers and Security

Freight containers are designed in a vandal proof manner. They also typically incorporate sturdy locking in the form of one double door that is secured by four locking bars extending to the whole height of the container. The locking bars have additional lockable handles that can be secured by padlocks and sealed.

Packing and locking the whole container at the shipper's premises and thereafter opening it only at the consignee's premises can further increase security. Any required customs inspection and certification are done at the shipper's and consignee's premises.

Considering the security, container-based shipments incur less expense for insurance against theft, pilferage and damage.

Packing Freight Containers

Cartons can come in different odd sizes, and the internal dimensions of containers are less than the outer dimensions. Hence dividing the outer volume of the containers into the carton volumes will not give a correct idea of the number of cartons the container can carry. For example, dividing the outer volume of a 20'x8'x8.5' container (1360 cubic feet) into the volume of a 1.5'x1'x1' carton (1.5 cubit feet) might give the misleading idea that we can pack 906 cartons into the container.

The standard internal dimensions of a 20-foot container is about 19.35'x7.71'x7.83' giving an internal volume of 1168 cubic feet. Dividing this volume into the carton volume of 1.5 cubic feet gives the number 778. Even this figure is wrong because the size of the carton is an odd one.

If you stack the cartons lengthwise across the container length of 19.35', you can accommodate a maximum of 12 rows. A maximum of 7 rows of such 12-row cartons can be accommodated along with width of the container, giving 84 cartons per layer. 7 such layers can be stacked along the height of the container accommodating a grand total of only 588 cartons.

That leaves a lot wasted space. So you change the arrangement. Cartons are arranged lengthwise across the width of the container. That accommodates 5 cartons across the width. 19 such 5-rows can be accommodated across the container length, accommodating 95 cartons per layer. The number of layers remains the same at 7 and so the total number of cartons that can be packed this way is 665, significantly more than the last arrangement. Even now, there is wasted space that cannot be avoided considering the misfit between carton volume and container volume.

Packing freight containers to full capacity thus needs some advance planning.