The Loader's Guide to Truck Loading

Transportation ▪ Warehouse Optimization
Solutions that work. Solutions that save!

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Making loads that please everyone is hard

Keep it Legal

What I ordered, easy to count and unload and is undamaged

Balance the load and don't let it move around

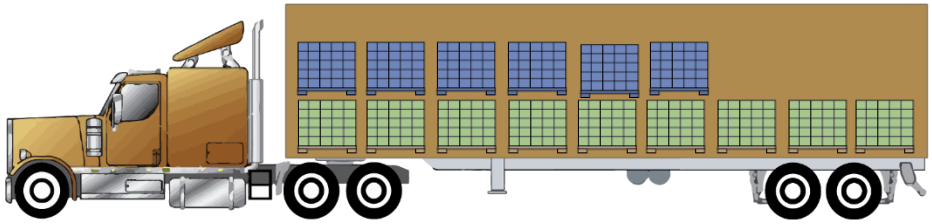
Load it fast and damage free

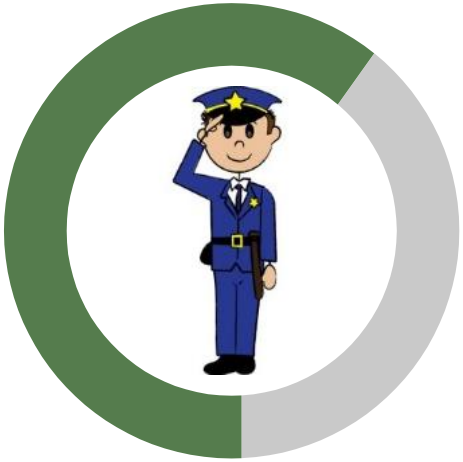
Making loads that please everyone is hard

Must be satisfied

But it is also important to satisfy these guys

The Highway Patrol wants the trucks to be legal





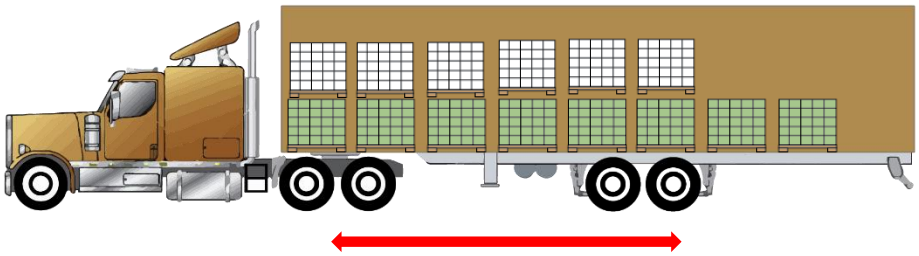
Axle Weight **Axle Weight** **Axle Weight**

12,000 lbs **34,000 lbs** **34,000 lbs**

80,000 lbs

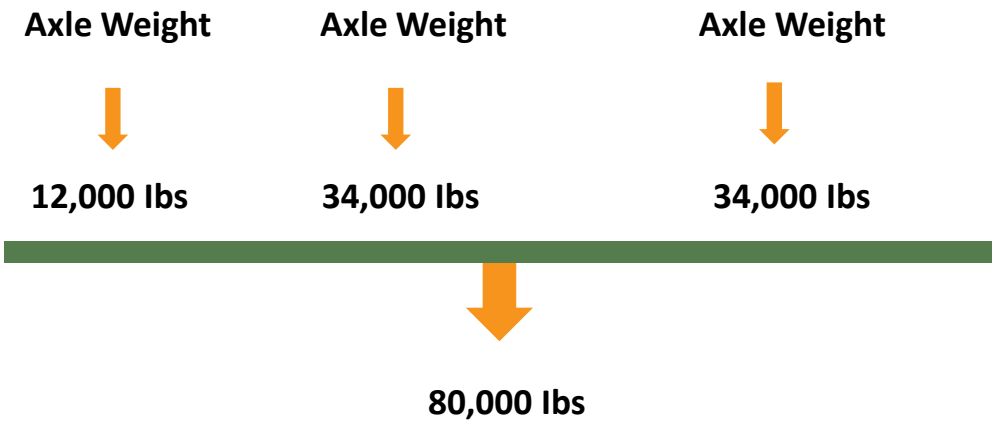
- ✓ Keep axles below 34,000 pounds
- ✓ Keep axles spaced far apart
- ✓ ..and the load must be stable

Loads to certain states need to be have unique trailer set-ups



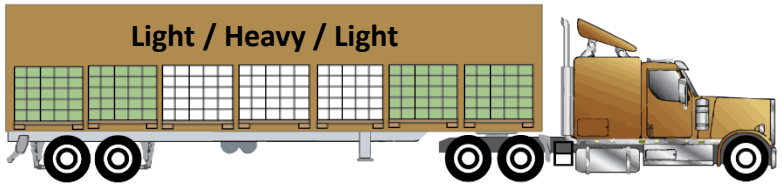
In some states the laws are different

E.g. California limits how far the axle groups can be apart, so you need to load differently

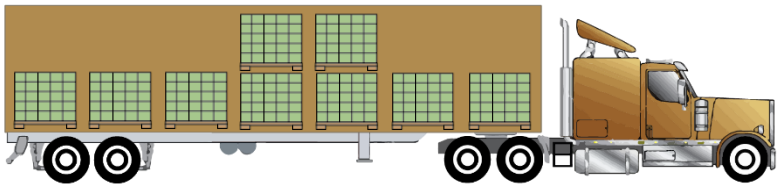


Getting the axle weights right is hard

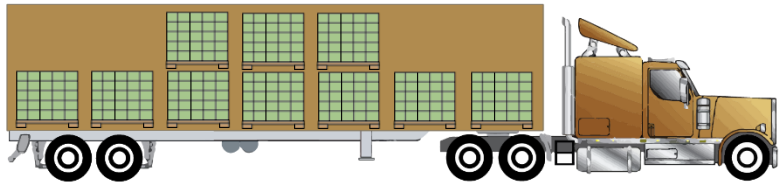
Here are some rules I use.
They work **most** of the time



No more than 2000 pounds per floor spot



Single/Double/Single



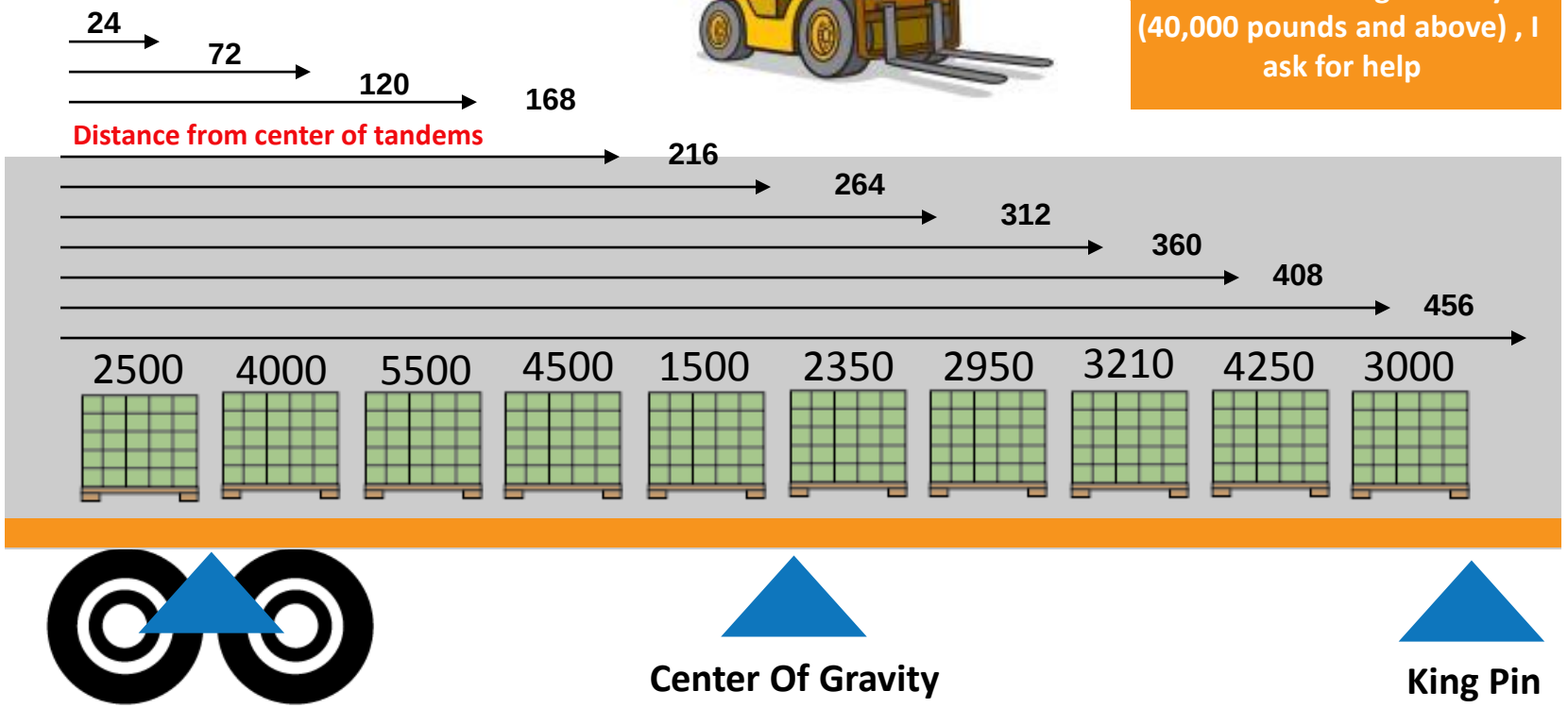
Loading a trailer is like working a seesaw

We all understand a seesaw

And a trailer is like that

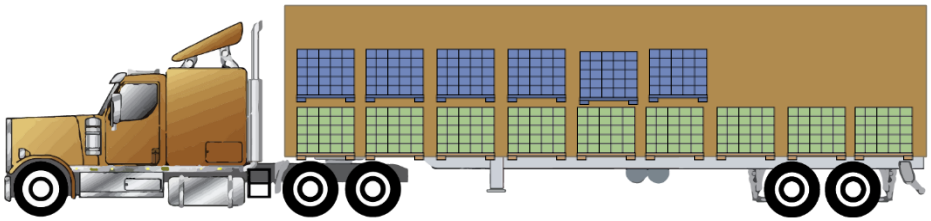
..but it gets tough--and I need help

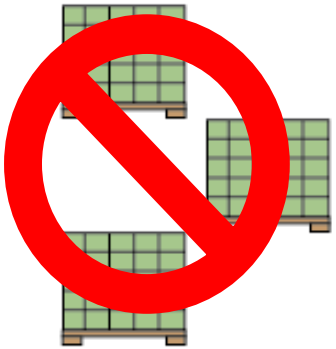
To calculate the weight on the axles and king pin requires a lot of calculations. I can't do them in my head! So when loads get heavy (40,000 pounds and above) , I ask for help

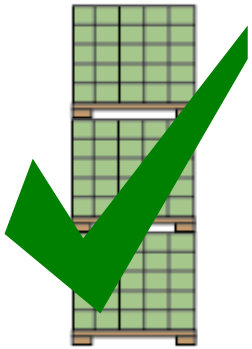


Customers want what they want, when they want it

Where do I put this?

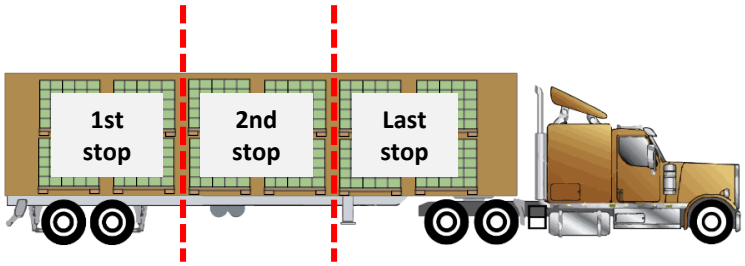




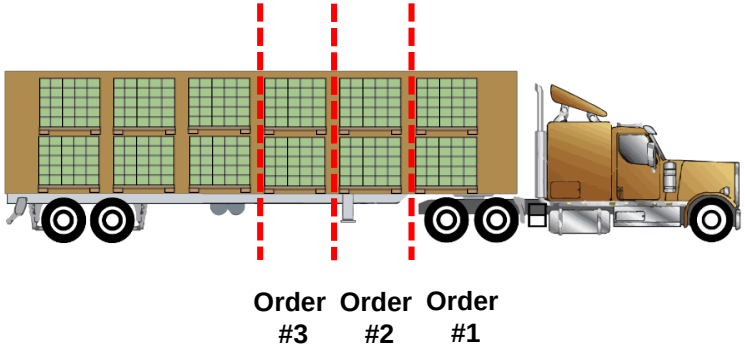


Get **all** the order on the truck, And Make it easy to count

Customers want what they want, when they want it

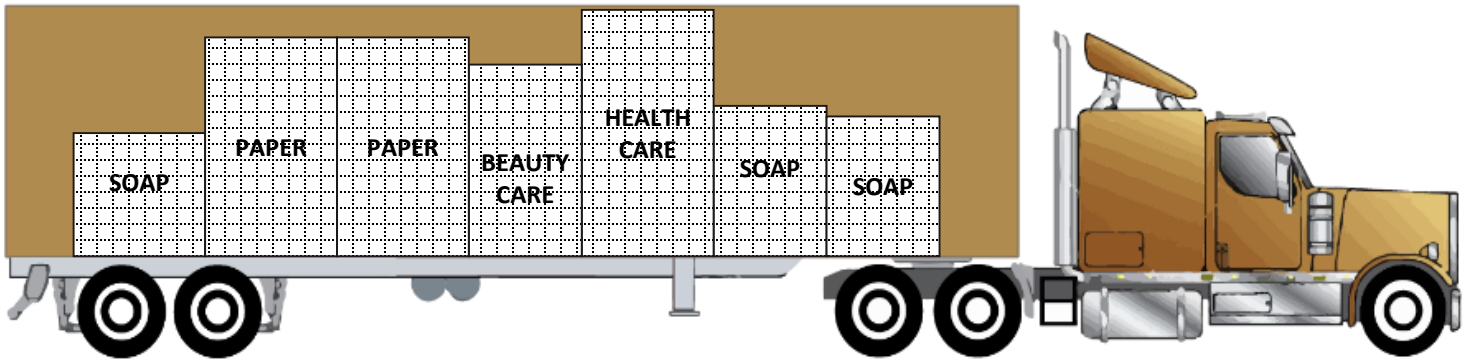


In the right stop sequence
And try to keep the orders together



If keeping orders together makes a load infeasible or creates other problems, then allow the orders to be mixed in the stop.

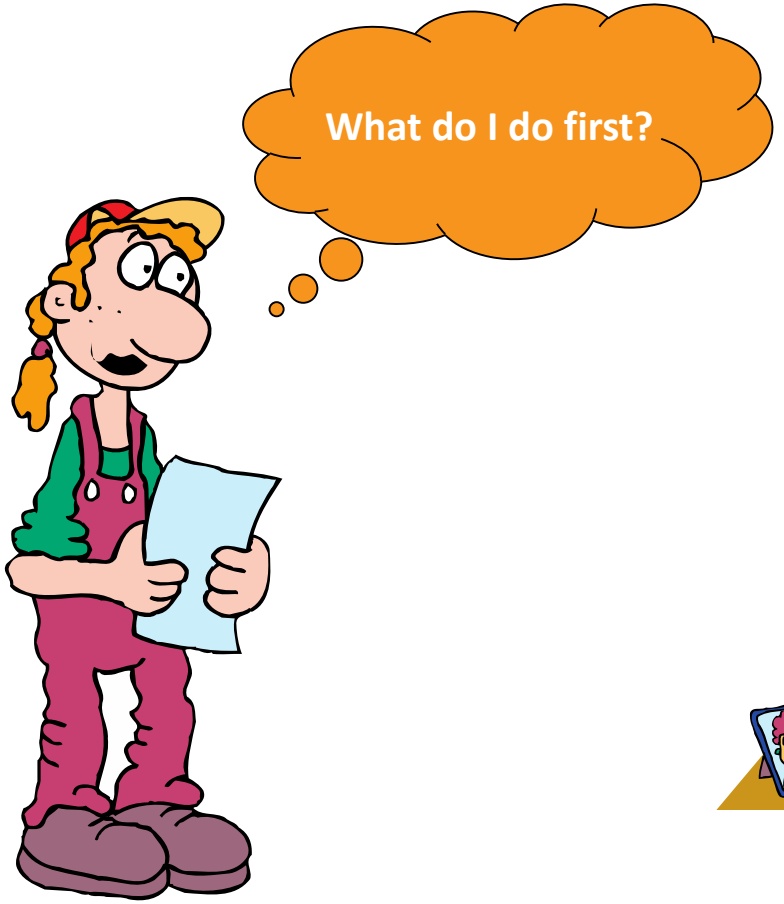
Customers want what they want, when they want it

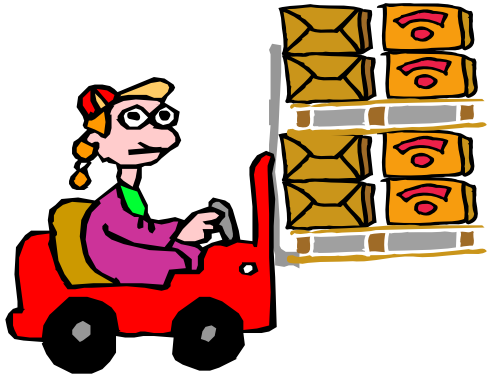


Try to keep product families together
And some of my sites have small dock doors--so make sure we can unload it

If the customer has small doors, make sure that last pallets go
On in the narrow direction.

The Boss wants high productivity and no damage

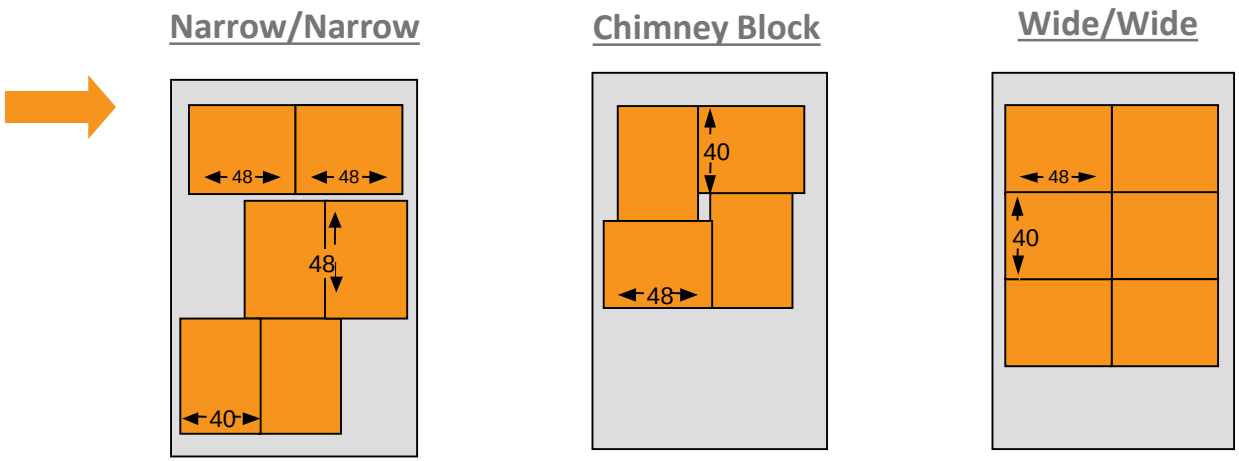




Bring multiple pallets at the same Time and don't waste time thinking

Easy to load: based on how the product is stored in the warehouse

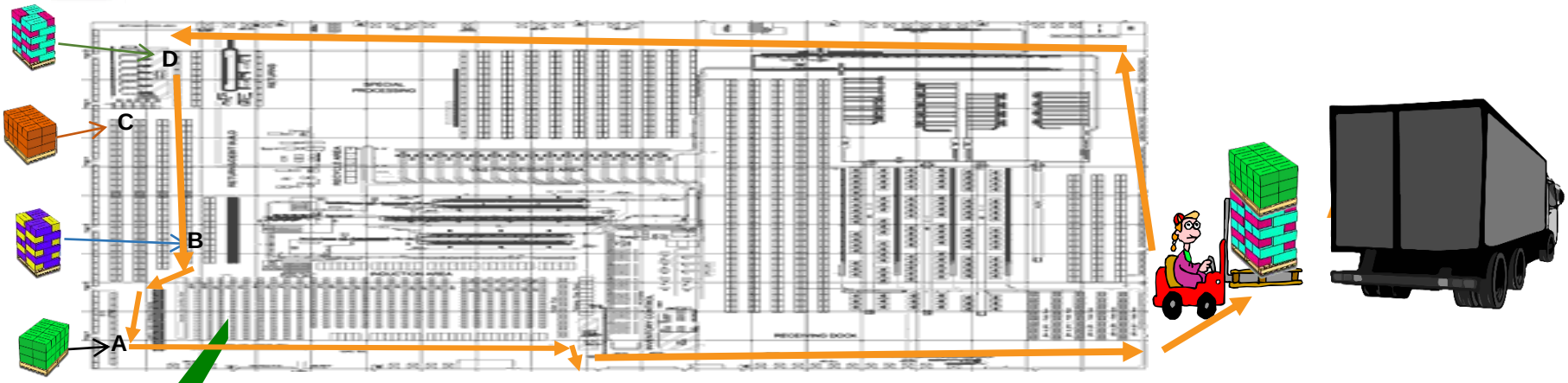
Wide in the nose



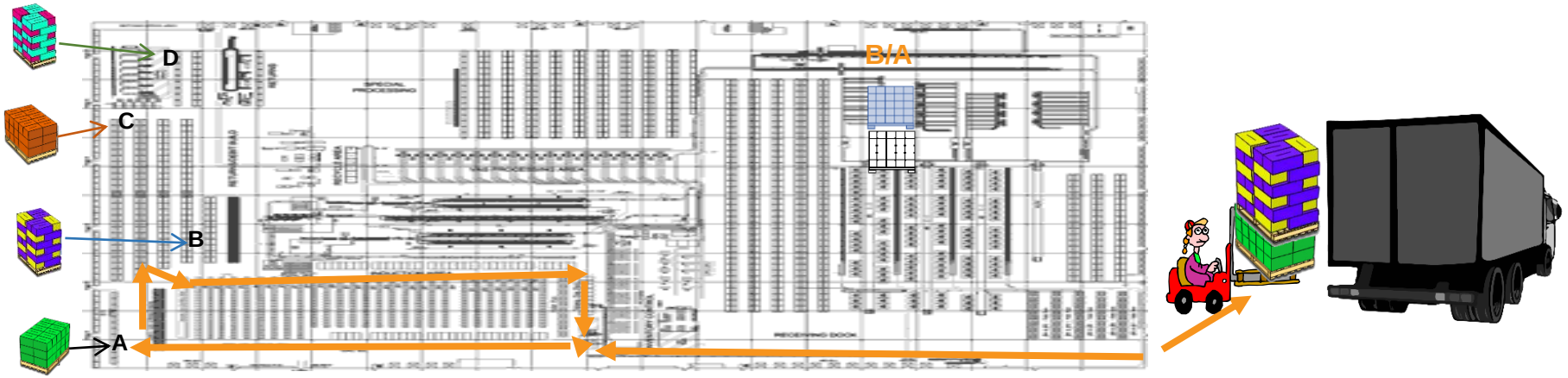
Which is the preferred trailer layout?

To make things fit, this will work ok (if the trailer is wide enough and the product does not overhang the pallet

Minimize warehouse travel



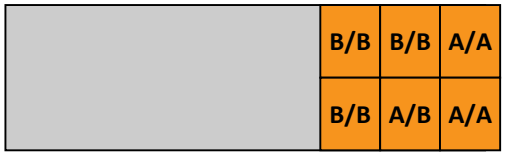
Better



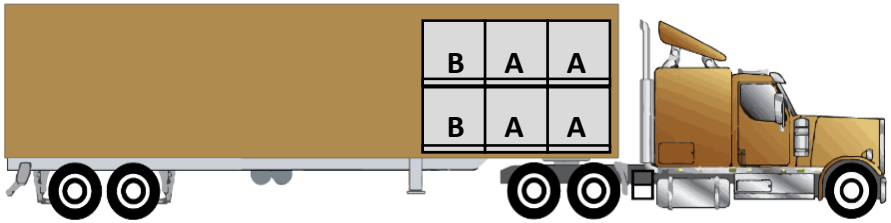
Make products easy to retrieve and touch in the trailer

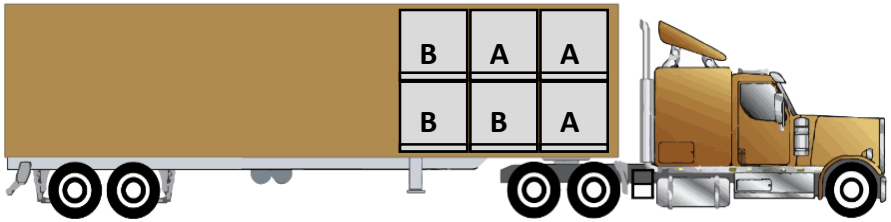
(Same items on top of one another and same families in each grab)

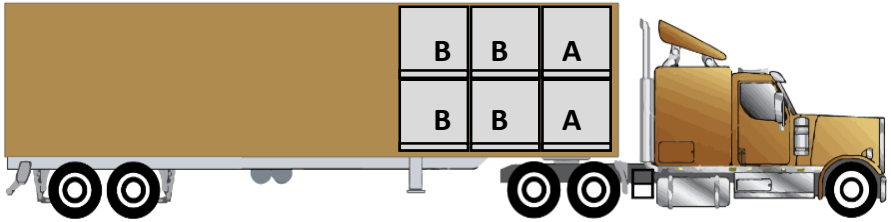
Top View



Side View

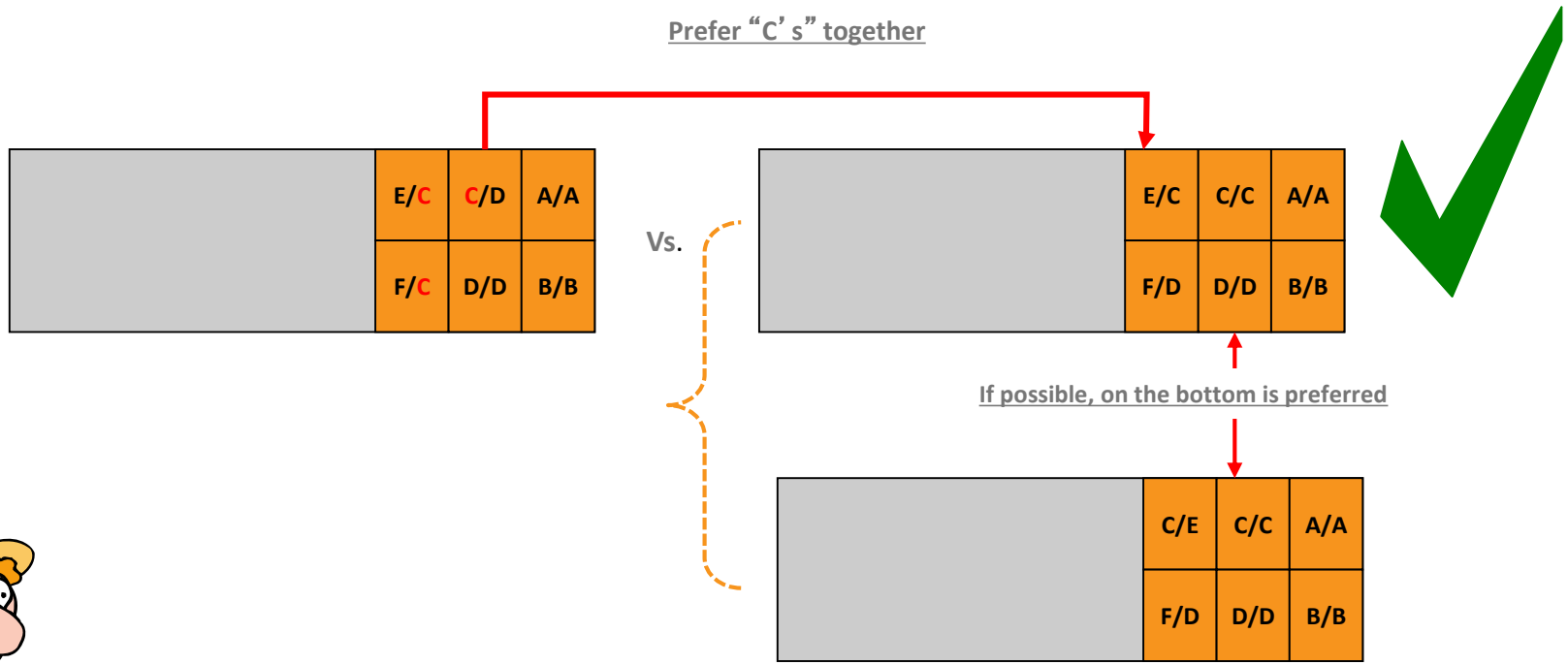






Goal: Support picking up product in double-wide fork trucks.

Make products easy to retrieve

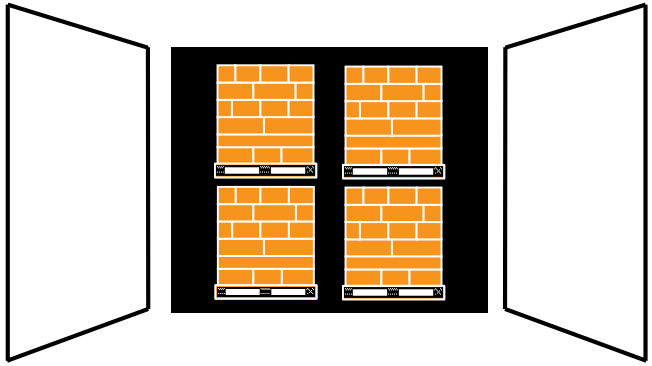


When you do this, you need to Make sure you obey the other rules, like don't double stack

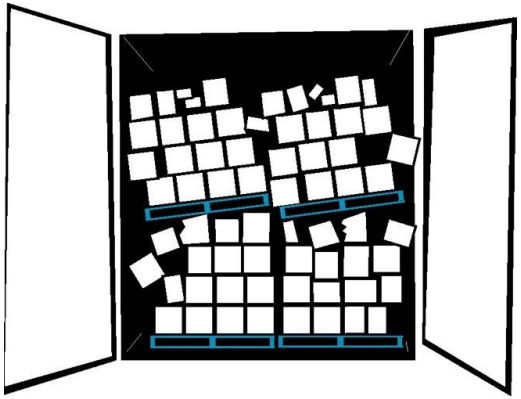
…and don’t damage anything, because we have to pay for it

But what causes damage?

Things that might stack nicely in the warehouse get damaged bumping along the road

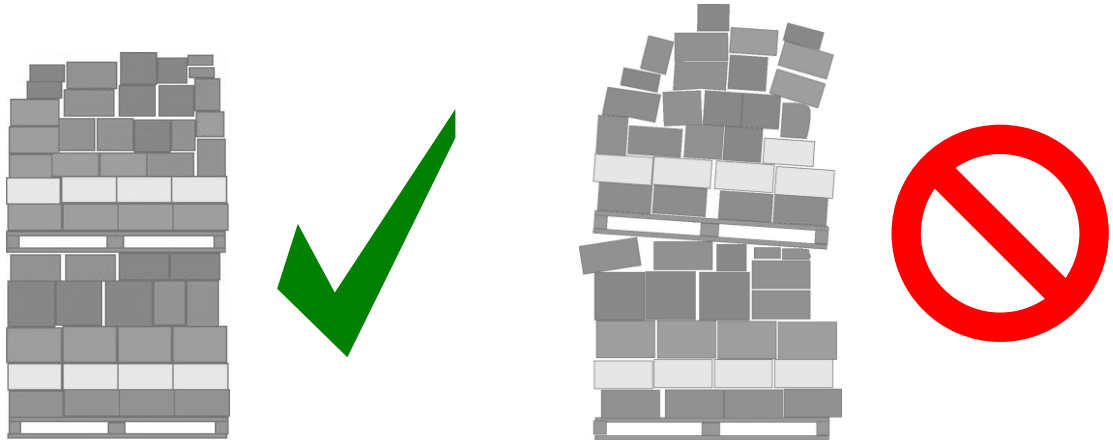


It may look fine when it leaves the dock



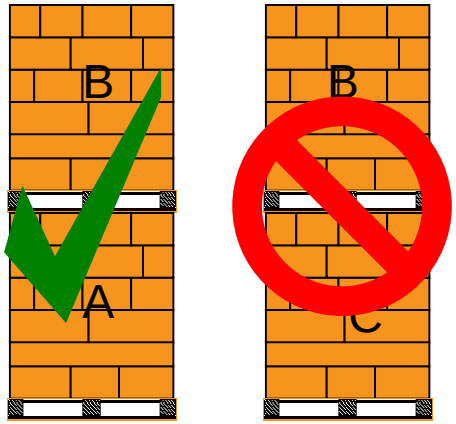
But, if it is not built right, the customer sees a very different load when it arrives

Put strong items on the bottom of stacks

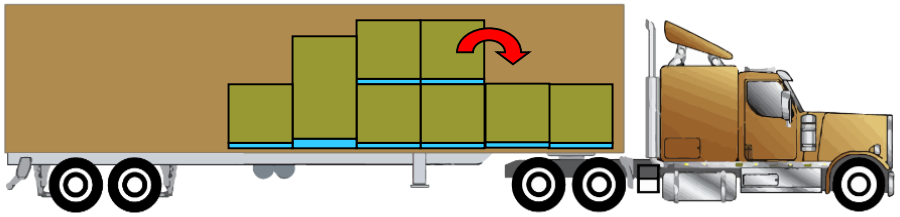


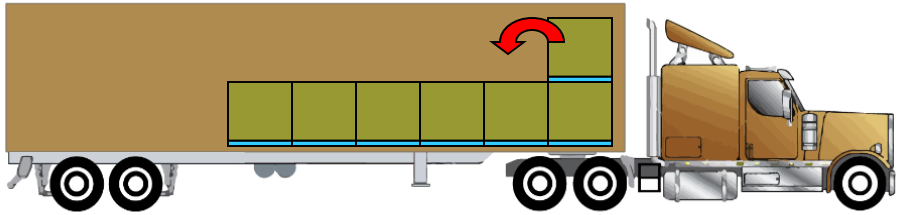
Check to see if product is:

- Kept apart from others
- Always on the bottom or top
- Strong enough to carry other pallets

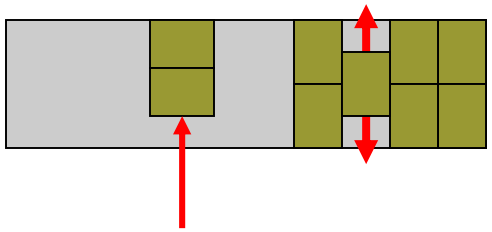


Damage is also caused by pallet movement or falling

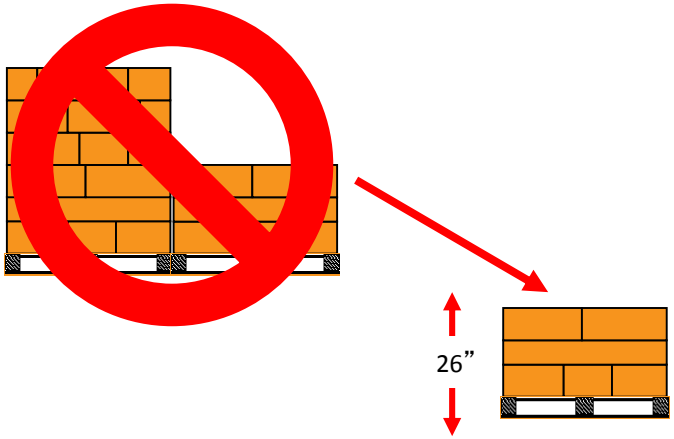




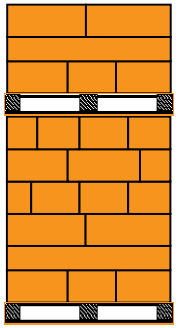
Try to brace forward, backwards and to the side so pallets cant move



Small pallets should not be alone on the floor - make all stacks exceed some minimum height

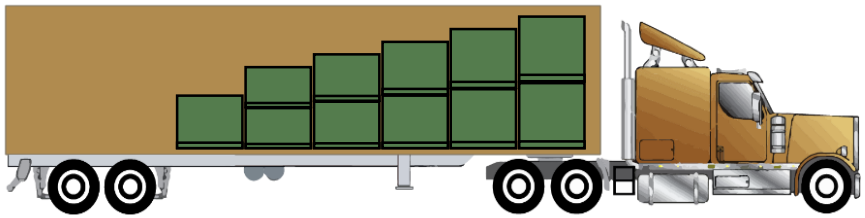
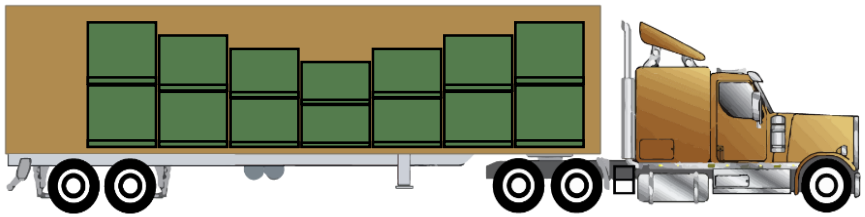


Don’t put short pallets on the floor



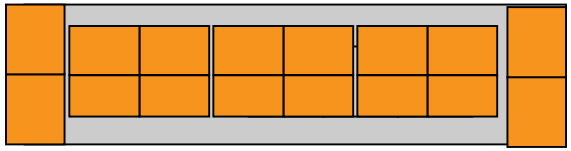
Special loading for intermodal / containers

Be more careful with intermodal

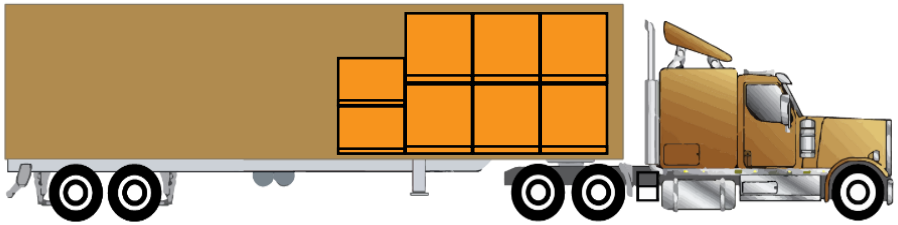
	Over-the-Road	Intermodal
	Good	Requires 2-3 airbags
	Good	Better, but still needs airbags

When bracing, keep singles or unit loads with product severely under-hanging the pallet in non-critical position

Critical points



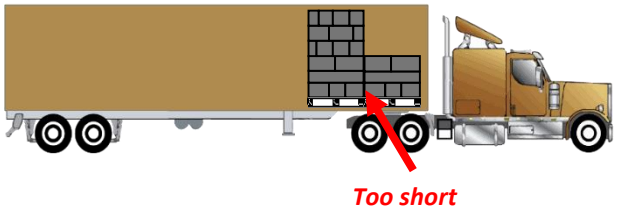
Turn pallets at critical points wide / Wide so the airbag fits tighter -- But you can't do that when the Customer has small docks



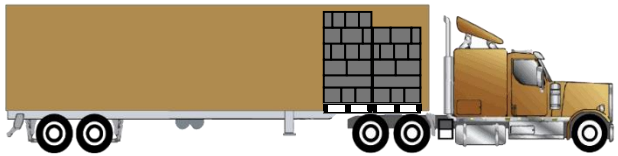
Try not to have singles in a load and definitely not consecutive singles

To minimize damage, minimize the height differential between adjacent pallets and number of consecutive singles

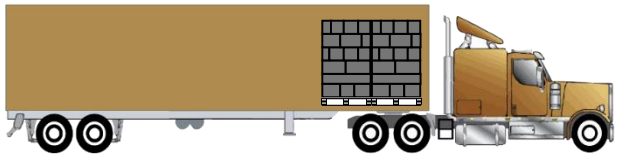
Undesirable



Better

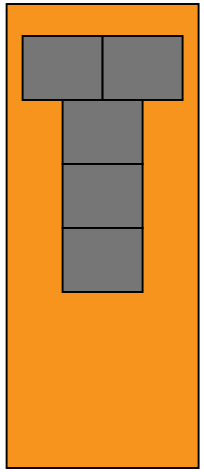


Best

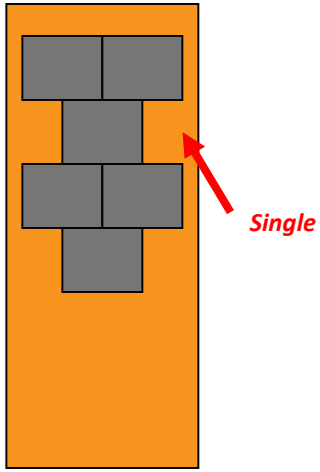


No singles in the nose or tail

Undesirable

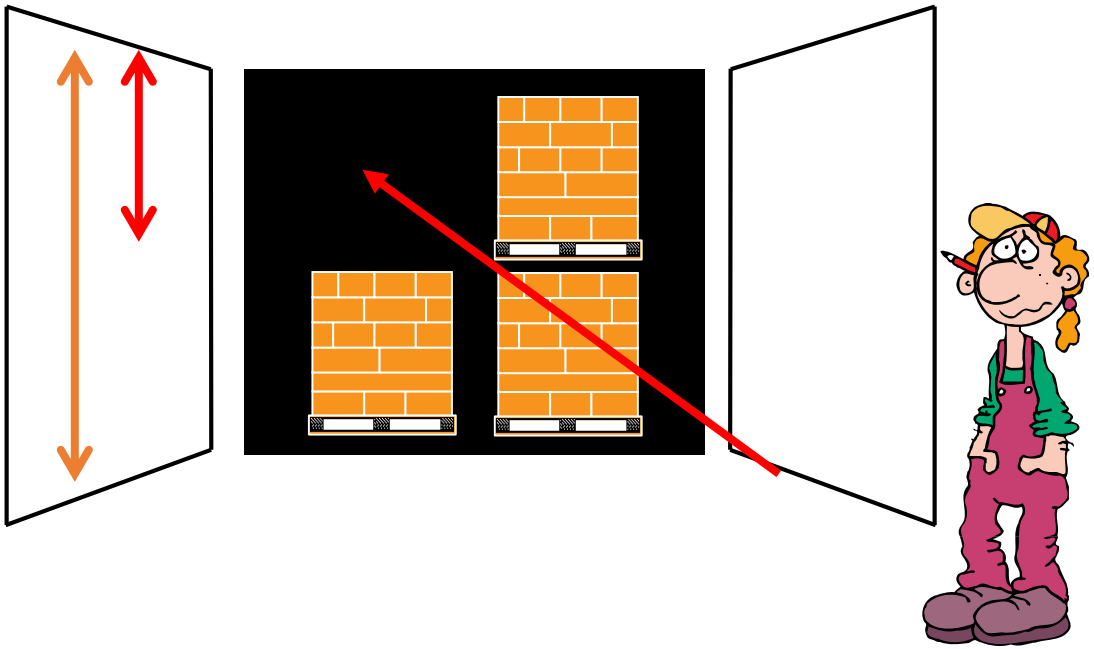


Better



Minimize Side Movement

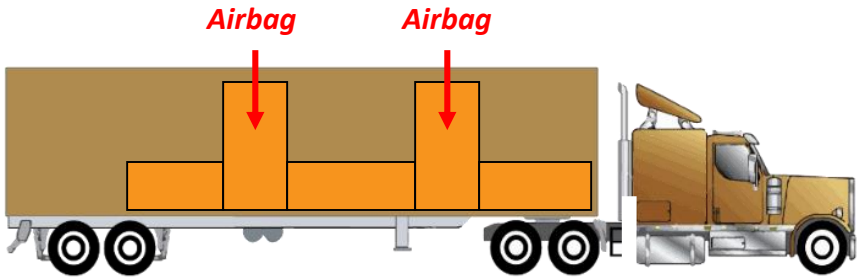
Minimize stack height differential



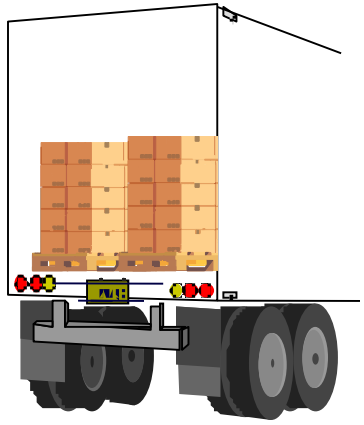
Minimize how often this occurs.
Try to never have this in the last spot in the trailer.
Double stretch wrap and turn pallets
near such a stack

Use dunnage where there are significant areas of un-braced pallets

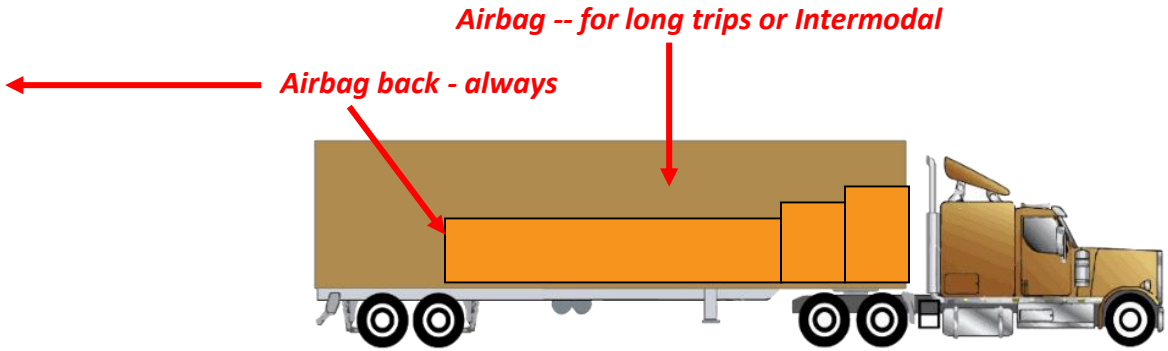
Turn pallets wide at the middle and back of the trailer where you airbag



Airbag where there are significant changes in height

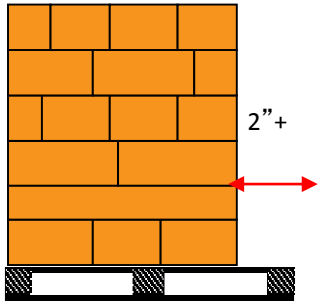


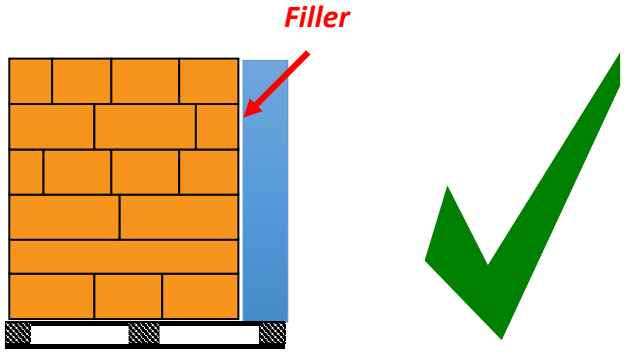
..and make the stacks in the back tall



Use fillers when the product significantly under-hangs the pallet

Use cardboard fillers
Where there is more than 2” of pallet showing…and don’t use airbags when the gap is more than 10 inches





Filler goes against the wall

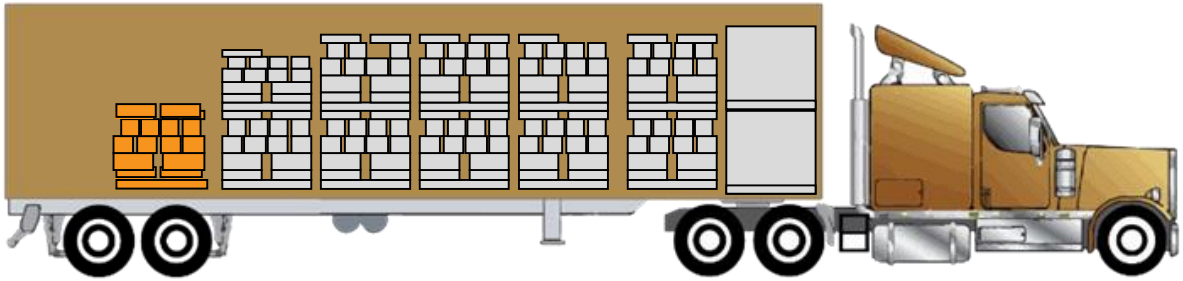
Certain product needs special rules

You have to learn which products must:

- Ride on top
- Always be on the bottom
- Not be turned wide-wide
  (they overhang the pallet too much)
- Must be kept separate

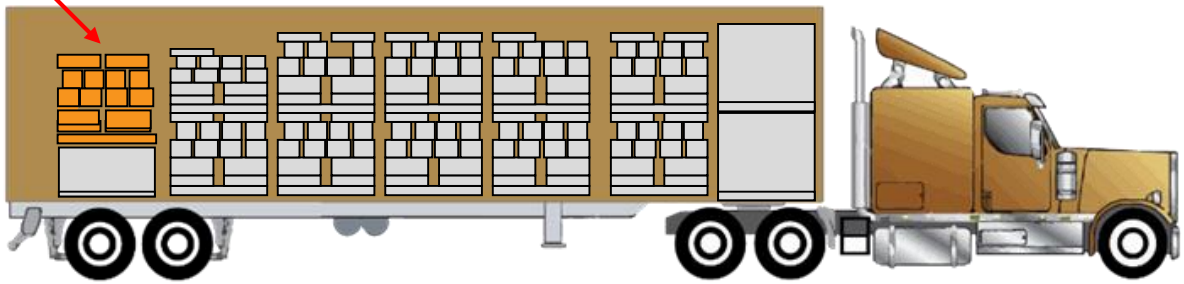
You may need to save space for out-of-stock items (that may become available) at back of trailer

OK



"Phantom pallet"

Best
Stack product



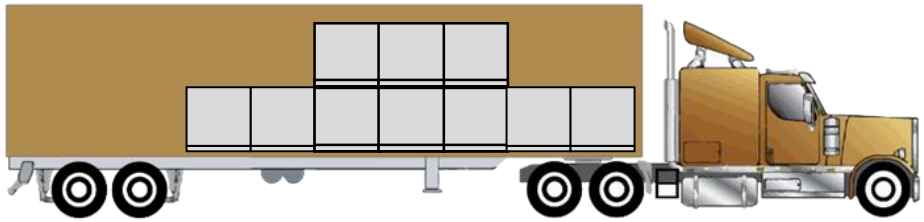
What is more important?

I know you can't keep all the rules all the time.
Here is what I think is most important:

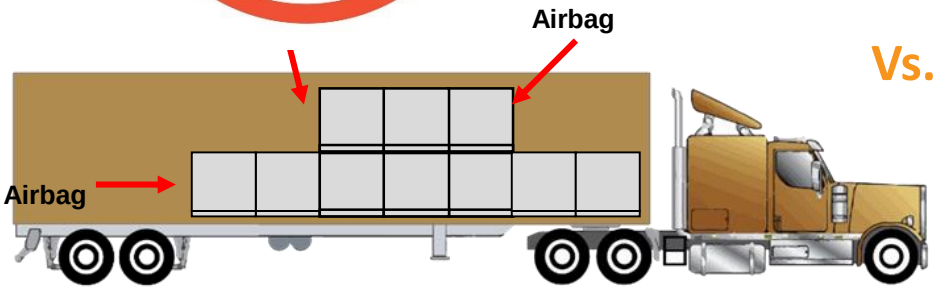
1. Make the axles legal
2. Keep stops separate
3. Brace forward
4. Brace sideways, particularly on second level
5. Keep orders separate (if you can)
6. Turn last 2 pallets (if you can)
7. Meet desired customer loading pattern
8. Keep same items together
9. Brace backwards
10. Keep families together

What they tell you…but it's not true

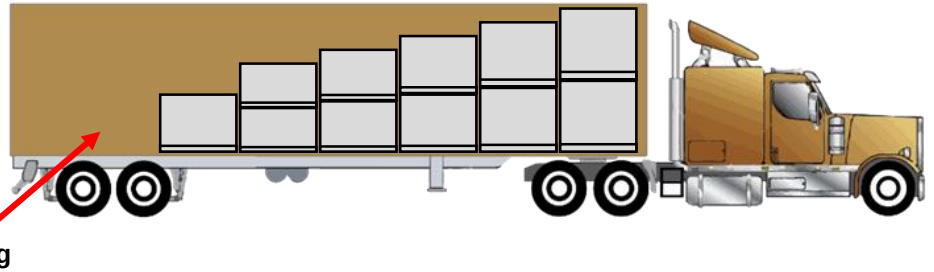
Load short & then tall to get the maximum weight in a trailer



While this works, it requires more airbags

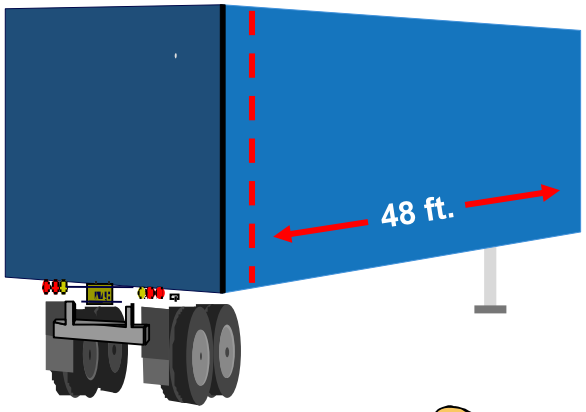


Vs.



What they tell you…but it's not true

Only load to 48 ft. in a 53 ft. trailer.



As long as you can keep the axles Legal, don't worry about the stupid line

Remember, it is hard to load a truck well

When loading a truck, there is a lot to remember
-- and a lot of decisions to make.
Some companies even have sophisticated software
from Transportation | Warehouse Optimization to
help make loading faster
and allow getting more product on the trailer

We Wish You Success

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This document was developed from interviews with loaders in the United States by Transportation | Warehouse Optimization

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