

CLASS Training: Hints & Tips



CLASS Training: Hints & Tips

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CLASS Training: Hints & Tips

Introduction

This document contains hints and tips collected from our collective consultancy experience to help with your Class projects.

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Layout Hints & Tips

In this Section:

Racking:

- How to create a tunnel aisle
- How to create stacked rack types
- How to create a top beam
- How to connect racks

Layers:

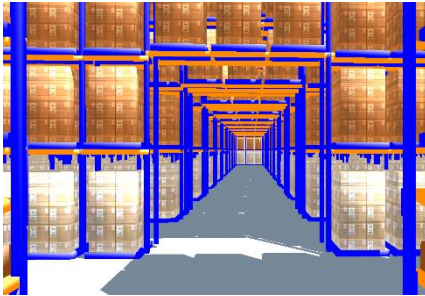
- How to use Layers effectively (*Mezzanine example*)

Racking

How to create a tunnel aisle

Often we will want to use the vertical space above a centre aisle in racking for storage.

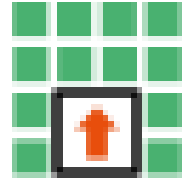
This section explains the steps to create a tunnel aisle in Class.



In Class, we create a rack object and insert the centre aisle. Then we create a new section of rack which will 'float' above the centre aisle to create the tunnel. Using this method creates a tunnel whilst allowing MHE to use the aisle beneath for travel.


TOP TIP:

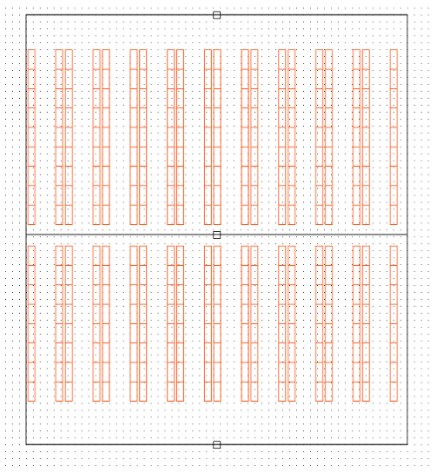
Don't use the Tunnel tool to create a transverse aisle. The Tunnel tool is intended to create emergency exit space in the racking, and as such is not used for travel.



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Step 1: Add a centre aisle to the rack

Using the Add Centre Aisle button  insert a centre aisle into the racking at the position we want the tunnel.



Step 2: Set the width of the centre aisle

Set the width of the centre aisle according to the width of the tunnel.

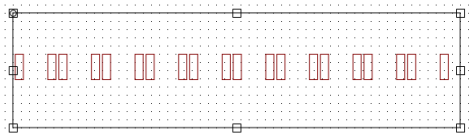
In this example, we have a 3.0m tunnel between 2.7m bays

Static Rack	
Name: Rack with tunnel	
Shelves	P&D's
Tunnels	Borders
Racking	Display
Aisles	Bays
Begin Drawing with	Rack
Beginning Cross Aisle	5.000 m
Centre Cross Aisle	3.000 m
Ending Cross Aisle	5.000 m
Face to Face Aisle Width	3.000 m
Aisle Label	None
Rack Orientation	Vertical
Stretchable?	<input type="checkbox"/>
Rack Connection	None

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Step 3: Create a 'floating' section of rack

It is often easiest to copy the existing rack and reduce the size down to a single bay

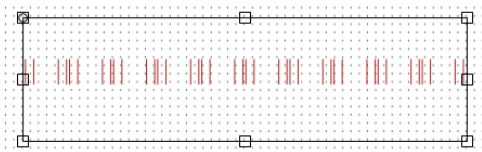


Under the Bays properties, set the bay width to match the centre aisle width, adding on additional width to allow for the missing uprights

e.g. **3.2m**

On the Rack Properties, under Aisles:

set Connected option to 'Full Connection' to remove uprights

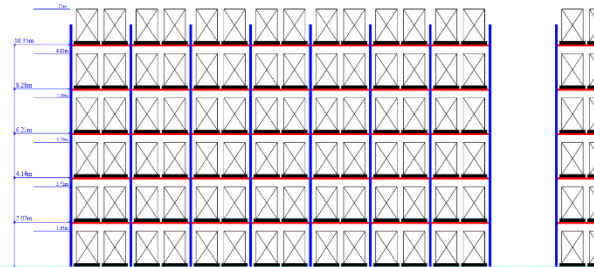


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Step 4: Set Shelf Heights

The tunnel rack needs to be raised to create the tunnel using the Lowest Shelf Offset setting

Use the Elevation View of the main rack to determine the required offset



E.g. 4.14m to make a tunnel 2 levels high.

Then set the Shelves properties:

Lowest Shelf Offset
– sets the height of the tunnel

Number of Shelves
– sets the number of levels above the tunnel

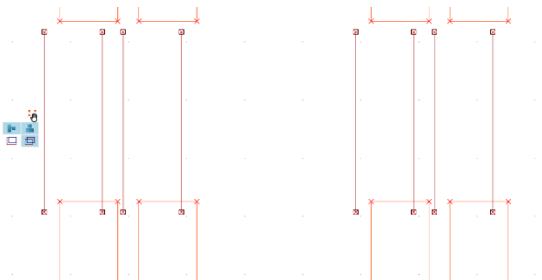
Number of loads per bay - may be different to standard bays.

The screenshot shows the 'Static Rack' configuration window. The 'Name' field is set to 'Rack with tunnel'. The 'Shelves' tab is selected. The 'Shelf Range Configuration' section shows 'Tunnel' selected. The 'Name' field is 'Tunnel', 'No. of Shelves' is 4, 'Clear Height' is 2.000 m, and 'Beam Height' is 0.070 m. The 'Shelf Range Load' section shows 'CHEP Pallet' selected, with 'Rotate Load by 90°' checked. The 'Wide' field is 2, 'Deep' is 1, 'High' is 1, and 'P&D's' is 1. The 'Floor Offset' is 0.000 m, 'MHE Access Level' is 0.000 m, 'Roof Clearance' is 3.000 m, 'Lowest Shelf Offset' is 4.140 m, and 'Post Extension' is 1.000 m.

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Step 5: Position the rack

Use Nudge or Snap to Handle to position new rack precisely over cross aisle:

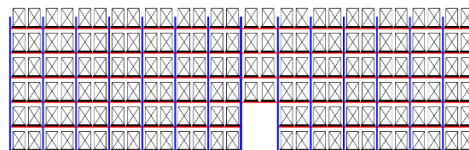


SIMULATION TIP:

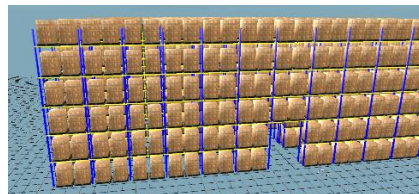
Create a separate Storage Area for the tunnel section of rack to ensure the cross aisle is used

Final Step: Check the Elevation and 3D Views

Use the Elevation View (using Choose Racks to select both sections of rack) to check shelf levels and tunnel position:



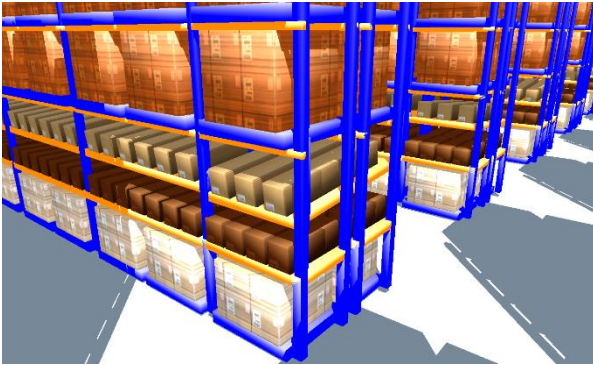
Also check the 3D View:



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How to create a stacked rack type

Often we may require to represent a number of different racking types within the same rack; e.g. Flow rack with bulk reserve above.



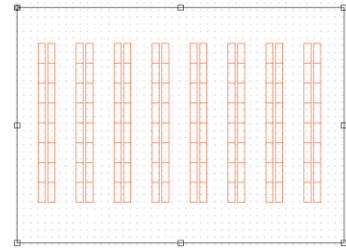
Example of half pallet slots with shelving and flow levels above, and bulk reserve above that.

To stack racks of *different types* in Class, we must create separate rack layout objects of the required type and position them vertically.

Example: Flow rack with reserve pallets above.

Step 1: Create the Static Rack type

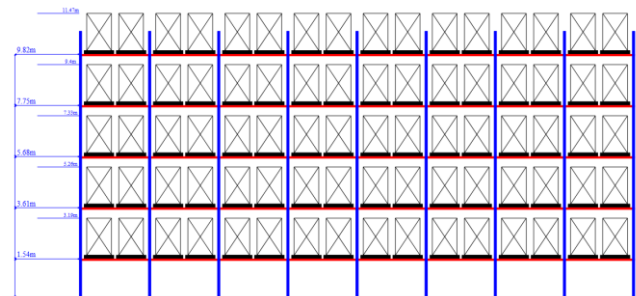
In this example first create the Static rack for the reserve: this will make it easier to configure the flow rack below.



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Step 2: Use the Lowest Shelf Offset to set the rack height

Use the Lowest Shelf Offset (Shelves tab) set to the height the static rack should begin.



This will create space for the Flow rack below.

Static Rack			
Name		Static Rack	
Racking	Display	Aisles	Bays
Shelves	P&D's	Tunnels	Borders
Shelf Range Configuration			
5 levels			
Name	5 levels		
No. of Shelves	5		
Clear Height	2.000 m		
Beam Height	0.070 m		
Shelf Range Load			
CHEP Pallet			
Rotate Load by 90°		<input type="checkbox"/>	
Wide	Deep	High	P&D's
2	1	1	<input type="checkbox"/>
Floor Offset	0.000 m		
MHE Access Level	0.000 m		
Roof Clearance	3.000 m		
Lowest Shelf Offset	1.540 m		
Post Extension	1.000 m		

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Step 3: Copy and Modify the Static rack to create Flow rack

Make a copy of the Static Rack, and then change the Racking Type to be Live.

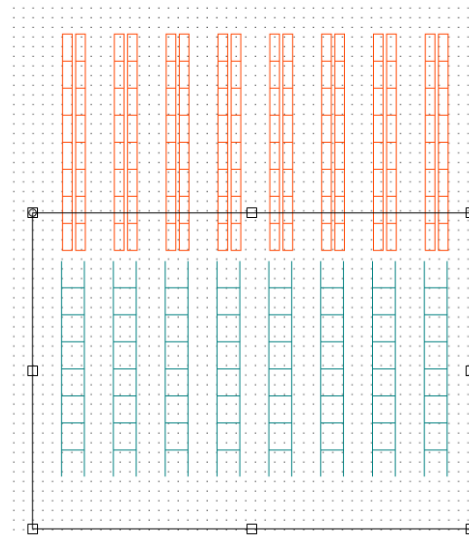
Give it a 5-degree slope (Live Rack tab). And a Lowest shelf offset to move the bottom shelf up, e.g. 0.3m

For Flow rack, set the Bay Configuration to Single Rack Rows.

We then need to set the Bay Depth to match the depth of 2 back to back bays of static (2 x Static bay depth + back to back space)

In this example: $(2 \times 1.0\text{m}) + 0.36\text{m} = \mathbf{2.36\text{m}}$.

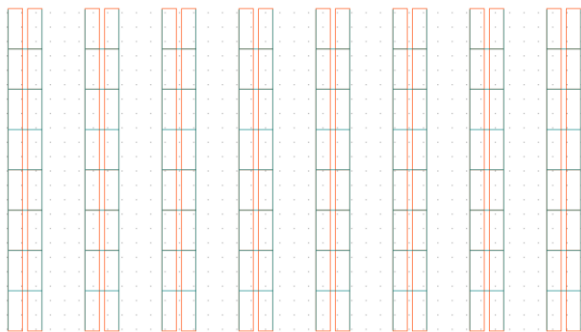
Set the Rack Connection type to *Full Connection* – we will use the uprights of the Static Rack for the Flow also.



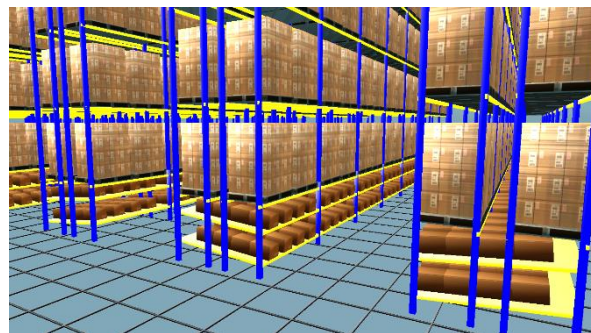
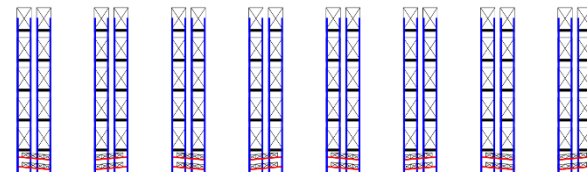
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Step 4: Position the Racks together

Use *Snap To Handle* or *Nudge* to position the racks on top of each other:



Final Step: Check Elevation and 3D Views



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How to create a top beam

Sometimes we may not want to see loads on the top beam of a Racking object.

This illustration shows shelving using the top beam to enclose the last shelf:



This is done in Class using a shelf level configured with Empty Loads.

Empty Loads allow a shelf level to be specified as being empty. See below: on the Top Beam shelf, the Empty Load can be set 0 wide, 0 deep, 0 high.

Shelving Rack			
Name Mezz shelving			
Racking	Display	Aisles	Bays
Shelves	P&D's	Borders	
Shelf Range Configuration			
3 shelves			
Name	3 shelves		
No. of Shelves	3		
Clear Height	0.450 m		
Beam Height	0.070 m		
Shelf Range Load	Case		
Rotate Load by 90°	<input type="checkbox"/>		
Wide	Deep	High	P&D's
2	1	1	
Floor Offset	5.500 m		
MHE Access Level	5.500 m		
Roof Clearance	3.000 m		
	0.300 m		

Shelving Rack			
Name Mezz shelving			
Racking	Display	Aisles	Bays
Shelves	P&D's	Borders	
Shelf Range Configuration			
Top Beam			
Name	Top Beam		
No. of Shelves	1		
Clear Height	0.450 m		
Beam Height	0.070 m		
Shelf Range Load	Empty Load		
Rotate Load by 90°	<input type="checkbox"/>		
Wide	Deep	High	P&D's
0	0	0	
Floor Offset	5.500 m		
MHE Access Level	5.500 m		
Roof Clearance	3.000 m		
	0.300 m		

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How to connect racks

Often we will need to have different bay configurations within a rack aisle.

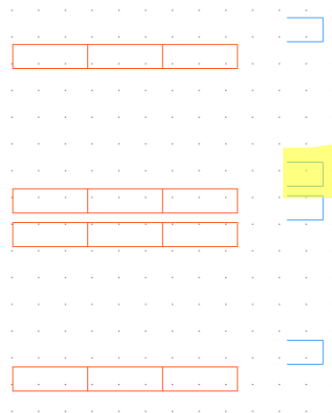
E.g. half-size bay at the end of an aisle.

To achieve this in Class follow these steps:

Step 1: Use the Rack Connection option to remove beams

On the half-bay rack remove the uprights on the connecting side.

This prevents double-counting of uprights on the Storage Summary.

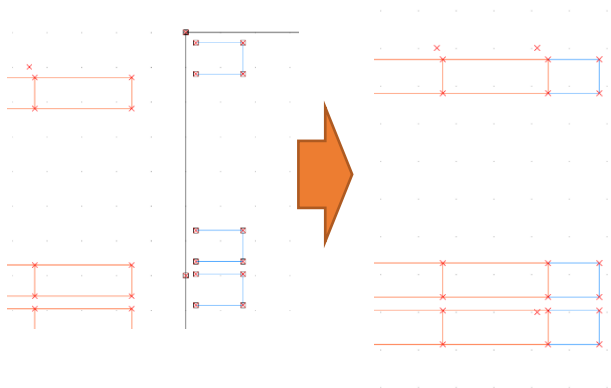


Static Rack	
Name half bays	
Shelves	P&D's
Tunnels	Borders
Racking	Display
Aisles	Bays
Begin Drawing with	Rack
Beginning Cross Aisle	0.300 m
Centre Cross Aisle	3.000 m
Ending Cross Aisle	5.000 m
Face to Face Aisle Width	4.500 m
Aisle Label	None
Rack Orientation	Horizontal
Stretchable?	<input type="checkbox"/>
Rack Connection	Beginning Connec

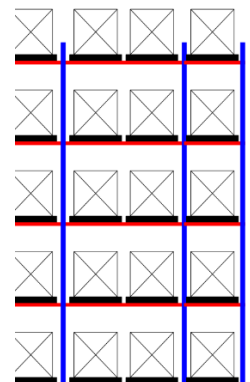
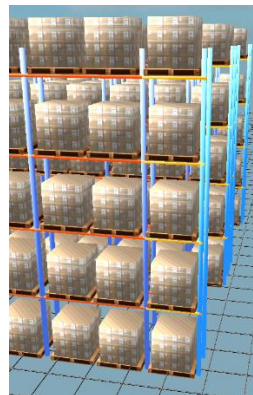
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Step 2: Connect the racks

Use either Nudge or Snap to Handle to connect the half-bays to the end of the main rack:



Final Step: Check Elevations and 3D View



The principle illustrated here can be applied to any rack to insert a different configuration of bays within an aisle.

Layers

Layers are a useful way to organise your Layout in Class.

Layers can be used to hide objects you might not want to be visible all the time: e.g. Static 3D Objects.

Using Layers to show and hide different objects at different times can produce exciting animation sequences for 3D AVIs.

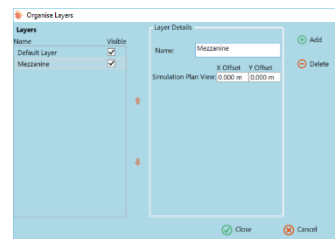
Often Layout objects will be positioned over each other in the 2D View, e.g. a Mezzanine floor, in this case the Mezzanine can be placed on a separate layer and hidden when not required.

In the Simulation, Layers can be given a 2D offset so that you can see the activity on a layer but it is offset so as not to obscure the areas beneath.

Mezzanine Floor Example with Layers

Step 1: Create a new Layer

On the View tab, under Layers, select *Organise*.



Here use the Add button to create a new Layer and give it a name, e.g. Mezzanine

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Step 2: Add a Mezzanine Floor to the Layout

The Mezzanine tool  allows a mezzanine floor object to be drawn onto the layout.

On the 3D properties, the Floor Height of the Mezzanine can be set, e.g. 5.0m. This is the height of the top of the floor.

The Thickness property is the thickness of the floor.

Set the Layer property to the Mezzanine layer created in Step 1.

Support columns will be needed to hold up the floor.

Columns can be added with the  tool.

On the properties for the column, the support type can be set to *Mezzanine*; this will mean that the column height is constrained by the height of any mezzanine above it, not by a roof as in the usual case. Leave the layer property for the columns as the Default.

Step 3: Position racking on mezzanine floors

In most cases the racking on a mezzanine floor will be a different Storage Area to the ground floor racking, because it will require different putaway and retrieval routes.

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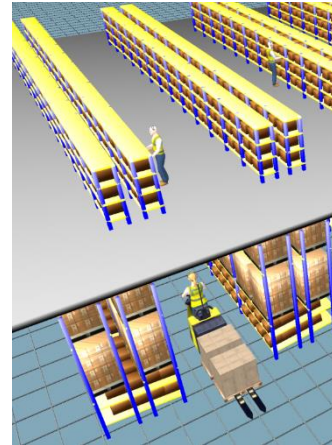
The Floor Offset parameter of the racking (*Shelves tab*) should match the mezzanine floor height. The shelving on the mezzanine should also belong to the Mezzanine Layer.

Shelving Rack	
Name	Mezz shelving
Racking Display Aisles Bays	
Shelves P&D's Borders	
Name	2 levels
No. of Shelves	3
Clear Height	0.450 m
Beam Height	0.070 m
Shelf Range Load	Case
Rotate Load by 90°	<input type="checkbox"/>
Wide	2
Deep	1
High	1
P&D's	<input type="checkbox"/>
Floor Offset	5.500 m
MHE Access Level	5.500 m
Roof Clearance	3.000 m
Lowest Shelf Offset	0.300 m
Post Extension	0.000 m

The MHE Access Level parameter also needs to be set to the height of the mezzanine floor.

This tells the simulation that MHE will be on the mezzanine floor when accessing the racking.

See the following example:



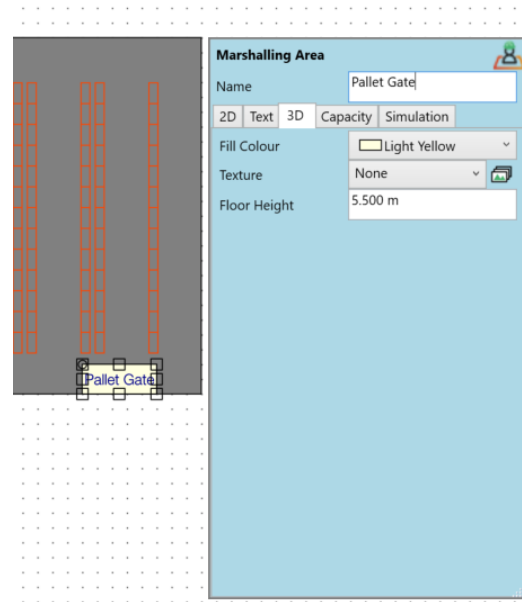
MHE Access level for Shelving on the Mezzanine is set to 5.5m for Operators in the Shelving.

Racking below the Mezz has MHE Access Level = 0.0m.

Creating a transfer buffer for movements to/from mezzanine floor

A marshalling area will be needed on the mezzanine floor to be used for transferring goods between the ground floor and the mezzanine floor.

E.g to represent a pallet gate. This marshalling area will need its Floor Height set such that the marshalling area is shown on the mezzanine floor, e.g. 5.0m. Again the Pallet Gate belongs to the Mezzanine layer.



Simulation implications on activity flows

Additional Putaway and Retrieval Routes

The flow of goods to and from the mezzanine floor racking will need different putaway and retrieval routes from the ground floor racking.

If Inbound vehicles have a mixture of goods for the mezzanine and the ground floor, then a split putaway profile will be required. Alternatively, specific Inbound flows should be setup for the mezzanine flows.

Similarly, for the Outbound movements - if the Outbound vehicles have a mixture of goods from the mezz and from the ground floor then a split retrieval profile will be required, with a % of pallets from each retrieval route.

Multi-stage marshalling to move goods via a transfer buffer to/from mezzanine floor

Putaway and retrieval routes can each have a number of marshalling stages.

Multi-stage marshalling will be needed for routes involving the mezzanine floor storage.

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For putaway routes the mezzanine marshalling area will be the last stage of marshalling (e.g. stage 2 if there is one stage of marshalling on the ground floor). For the retrieval routes the mezzanine marshalling area will be the first stage of marshalling.

TOP TIP:

Retrieval routes specify the marshalling stage at which goods will be held in until complete and the vehicle is ready to load.

Therefore, for a retrieval from the mezzanine floor the waiting to load marshalling stage will be stage 2 (Ground Floor)

Labour Tasks and organisation

Multi-stage marshalling requires additional tasks to be resourced. For two marshalling stages we will need the following additional tasks:

<u>Inbound</u>	
Inbound Marshalling Move Stage 1 to 2	Move goods from stage 1 (e.g. Goods In) to stage 2 (e.g. Mezz).
Inbound Marshalling Process Stage 2	Process in stage 2 Inbound Marshalling Area (Mezz) prior to putaway.

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<u>Outbound</u>	
Outbound Marshalling Move Stage 1 to 2	Move goods from stage 1 (e.g. Mezz) to stage 2 (e.g. Goods Out)
Outbound Marshalling Process Stage 2	Process in stage 2 (Goods Out) prior to loading (<i>Loads held for loading at Stage 2</i>)

You will need to assign MHE types to these additional tasks; and the tasks will also need to be added to the task list for labour teams.

Work Zones

The Mezzanine floor racking may need to be in a different Work Zone to ground floor operations e.g. if a different labour team operates on the mezzanine floor to the ground floor.

See Additional Simulation standard training module for more on Work Zones.

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Ways of moving goods to and from mezzanine floor (MHE or automated material handling system)

There are a number of different ways in which goods could be moved to the mezzanine floor e.g.

<u>Physical method</u>	<u>How modelled in Class</u>
Forklift lifts goods up to a pallet gate on edge of mezzanine floor	Marshalling area on edge of mezzanine floor, which is put into the putaway and retrieval routes. Forklift set as the MHE type to do the transfer between marshalling areas
Conveyor from e.g. Goods in marshalling area to mezzanine floor	Marshalling area on mezzanine floor. Automated System added to do the transfer from Goods in to mezzanine floor. Conveyor (animation path) used to animate the transfer
Lift from ground floor directly up to mezzanine floor	Two additional marshalling areas, at bottom and top of the lift. Automated System added in to do the movement from bottom of lift to top of lift on the mezzanine floor. Conveyor (animation path) used to animate the transfer.

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Simulation Hints & Tips

In this Section:

How to test your model:

- The 'In Use?' flag

- Test Flows (one at a time)

Day 1 for Day 2 Picking

Labour Shift Task Selection Methods

How to Validate your base model:

- Validating Volumes

- Validating Tasks

How to Test Your Model

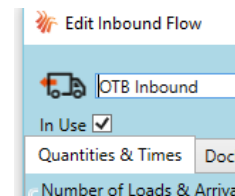
It is important to build your simulation model in stages, and test at each stage. Here are some expert tips for testing your model:

The In Use? Flag

Inbound Flows, Outbound Flows, Transfers, Labour Shifts, and Automated Systems all feature the In Use? Flag. This option allows any of these object types to be temporarily excluded from the simulation.

This can be very useful to allow you to test Flows in isolation.

e.g. if there are delays on an Inbound Flow, you can isolate and run the Flow on its own which will determine if the problem is with the Flow or the combined workload.



Test Flows (one at a time)

e.g. Inbound Flows

In most cases, the Inbound Flows are simpler than the Outbound Flows. We often recommend building the Inbound Flows first.

After the Inbound Flow(s) have been input, you can then add only the Inbound Labour resources to test the Inbound Simulation before beginning work on the Outbound.

This allows you to test the Inbound Flow(s) in isolation and ensure they are functioning as intended before moving on to other areas.

You can also use the In Use? Flag (see previous topic) to switch flows in and out of the simulation.

The same principle applies to any simulation flows – Class doesn't require all flows to be entered before running the simulation – though it will require resources!

Day One for Day Two Picking

A common situation is where an operation is picking a day or more ahead for dispatch on a later day.

In such situations, we require the picked goods to be held somewhere in the warehouse (usually a marshalling area) until it is time to load onto a vehicle.

This section describes the steps required to configure the Class simulation to represent these type of operations.

The key to modelling Day 1 for Day 2 (or later) picking is how we set up the *Outbound Departure Times*, and how we define the *Retrieval Start Times*.



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Outbound Departure Times

We use the extended 24-hour time notation to set up the Outbound Departure Times.

E.g. If we need outbound departures from 06:00 – 13:00 on Day 2, we define the Outbound Departure Time profile as 30:00 – 37:00 on *Day 1*.

3 06:00-13:00 Day 2

Sampling Method: Random

Sequence	Value	Percentage
1	30:00	0.00 %
2	37:00	100.00 %

The Outbound Vehicles are then defined on *Day 1*.

This tells Class that the vehicles should depart on Day 2 (by using the extended 24-hour time profile), but that picking can start on Day 1.

Outbound Flows

No	Name	In Use?	Day 1 Veh	Day 1 Time	Day 1 Load	Day 2 Veh	Day 2 Time	Day 2 Load
1	Day 2 Shipments	<input checked="" type="checkbox"/>	10	1	1	0	0	0

Time Profiles

1 06:00-13:00 Day 2

Sampling Method: Random

Sequence	Value	Percentage
1	30:00	0.00 %
2	37:00	100.00 %

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Retrieval Start Times

Retrieval Start Times determine when the picking may start.

E.g. Picking begins at 12:00 for Day 2
(Earliest Start Time of Day 12:00)

The earliest outbound is scheduled for 06:00 on Day 2 (i.e. 30:00) which gives 18 hours pick ahead window.
(Elapsed Time Before Departure 18:00)

Loading may begin from 05:00 on Day 2 (Loading Start Time of Day 29:00) & then up to 1 hour before departure. (Elapsed Time Before Departure for loading 01:00)

Retrieval Start Time	
Time of day when retrieval starts	12:00
Elapsed time before departure for retrieval	18:00
Retrieval start time of day profile	None

Loading Start Time	
Earliest Loading time of day	29:00
Elapsed time before departure for loading	01:00

The same principle illustrated here for Day 1 for Day 2 picking can be applied for longer pick ahead, e.g. Day 1 for day 3 simply by extending the departure time profile and the Retrieval Start Times.

Different profiles may be combined on a Split Retrieval to simulate a mixture of orders of different order cut-off times

Labour Shift Task Selection Methods

The Task Selection Method for Teams can be used to influence the behaviour of multi-role Teams with a number of different tasks available to them.

The table on the following page describes the different Task Selection Methods available:

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Task Selection Method	Description
Priority then Work Zone	Tasks are chosen according to the highest priority on their task list, in their primary Work zone as a preference, but checking Work Zone priority if no tasks are available in higher priority Work Zones. This is the default.
Same then Priority	Remain on the current task type (e.g. unloading) until no further tasks of that type remain before checking for new tasks (even if a higher priority task becomes available in the meantime). Then check priority for next task. This option aims to reduce task-swapping.
Earliest	Ignores task priority. Operators are assigned to the first available task in their list regardless of priority.
Task Group	Allows a number of tasks to be linked together, e.g. once task type a is done, do task type b; e.g. if a putaway is completed, immediately look for a retrieval task to do. This enables interleaving if there is sufficient work available,

Validation

When using a Class simulation to test different ideas it is important that the model closely matches reality to be confident of the results of the what-ifs.

In the case of an existing operation, the Class simulation results can be validated against operational KPIs from the real-life operation.

In the case of a new operation, where there is no existing operation to base it on directly, it is possible to use information from similar operations for comparison, or validate against a set of standard times.

This section discusses the two main areas of validation: volumes and task rates.

The Class simulation should be doing the correct amount of work (volume) and using the correct amount of hours to do it (task rates).

Volumes

Is the correct amount of work being generated?

Volumes in the Class simulation are driven by the Inbound and Outbound Flows (and Transfers if moving goods between Storage Areas).

Use the Simulation Flow Analyser and the simulation KPI Summary to check the volumes are as expected. Note that the Flow Analyser does not take currently take into account the In Use? Flags.

The table below lists some of the common things to check/adjust to validate your volumes:

CLASS Training: Hints & Tips

Problem	Things to check
Number of vehicles	Inbound/Outbound Flows – vehicles per day If Flows run into following week ensure you run for 2 weeks
Putaway volume	Check inbound vehicles as above Inbound loadsizes correct? Split putaway correct?
Picked items	Check Pick By Order items per outbound unit
Retrieved units	Check Outbound load size Check Outbound vehicles
Loading tasks	Check Outbound vehicles Any outbound break factors?

Task Rates

Are tasks being completed at the correct rate/in the correct time?

Check operational Task Rates against the rates generated by Class under the Task Completion Rate KPI report.

The time logged against each task type can also be checked using the Shift Usage Breakdown report.

The following table lists some of the typical areas where task rates can be checked and adjusted.

CLASS Training: Hints & Tips

Problem	Things to adjust
All task rates require adjustment	MHE Performance Labour Efficiency factor
Specific tasks:	
Unload	Unload Overhead (Dock)
Marshalling	Marshalling process time (Route) Overhead Times (Marshalling Area)
Putaway	Additional Putaway Time (Route)
Retrieval	Additional Retrieval Time (Route)
Picking	Pick By Order profile times
Loading	Load Overhead (Dock)
Replenishment	Consolidation Time (Replen Driver) Displacement distance (Replen Driver)

CLASS Training: Hints & Tips

Data Hints & Tips

In this Section:

Load Size Profile data tables

Loadsize Profiles

Often, a large range of Vehicle Load Size Profiles will be required for the simulation.

If they are added as they are needed, in the Data Editor they can end up being shown in a random order.

If you create a table of load size profiles in a spreadsheet (**hint!** Copy/paste the Loadsize Profile table from Data Editor to get the table format) such that e.g. Profile 1 = 1 unit, Profile 2 = 2 units... Profile 20 = 20 units etc, then the Profile ID you see in the referencing data editor table will effectively show the loadsize; it also makes it easier to find the profile you require from the list of available profiles.

Conclusions

This booklet has covered a number of areas where our Solutions Design Consultants have come up with techniques to model specific situations, or to make projects easier to manage. With experience, you will undoubtedly discover your own hints & tips!

You are encouraged to use the on-line Help facility which comes with CLASS; particularly the “Frequently Asked Questions” in the Layout and Simulation Help which explain how to configure CLASS to model different warehouse situations and also advice on interpreting results. We are also issuing a series of ‘How To’ guides to take you through the steps to modelling particular operations.

You can also attend the next Class user group – check the website for details. This is a great opportunity to see the latest developments in Class, and meet up with other Class users.

CLASS Training: Hints & Tips

Appendix A

Appendix A: Simulation Data Requirements

Goods in Details

- Number of vehicles arriving per day for each day of the week
- Arrival times e.g. 1st arrival 8am, 50% in before 11.00, 75% by 15.00, 100% by 16.00
- Number of unloading bays
- Typical load sizes in units e.g. 20-30 pallets/stills/cases etc. per vehicle
- Checking or breaking activities in goods in

- Where are the pallets or units put away?
E.g. 10% high bay 90% wide aisle
- Other activities e.g. returns/prep work
- Vehicle sizes and types
- Vehicle side or end loaded

Product Location

- Product groupings e.g. fast moves, slow movers, heavy, fragile etc.
- Product zoning (where are product groups stored)
- Reserve/bulk stock locations

CLASS Training: Hints & Tips

Picking

- How many orders per day, lines per order, items per line?
- Speed of pick per item e.g. 15 seconds per line item
- Method of pick e.g. line pick, order pick, bulk pick etc.
- Which levels are picking carried out at?
- Time when orders are released for picking
- Replenishment, how is this done if at all
- Time when orders are due to be despatched (target despatch times)

Resources

- Estimated number of trucks by type (speeds and characteristics if you have them, if not we will use our own standards)

- Estimated manpower numbers and shift patterns
- Task allocation e.g. 10 dedicated to unloaded, 20 picking, 6 loading out etc.

Automation

For each automated system on the site

- capacity in pallets or cases per hour
- task(s) that the system does e.g. sorting picked product, for conveyors – moving from one area to another

Replenishment (if applicable)

- Where is replenishment stock stored?
- How is replenishment carried out?

CLASS Training: Hints & Tips

Goods Out/Despatches Marshalling Area

- Where are goods marshalled?
- Capacity of marshalling area e.g. 200 roll cages/pallets/other
- Which loading bays are used?
- Number of vehicles departing per day
- Typical load sizes
- Departure times
- How many Shunt Units used?
- Gatehouse operations
- Level of Security Checks
- For 3D graphical accuracy, any .bmp or .jpg files of vehicle livery available

Shunting/Yard area (site traffic only)

- Are trailers unhooked from Prime mover?
- Capacity of yard

CLASS Training: Hints & Tips

Appendix B

Appendix B: Animate Data Requirements

When there isn't the time or the data required to complete a proper simulation, you could use the Animate option. This allows you to see movement on a given layout & create a movie file.

Animate requires the following information:

- Set the types of dock on their Simulation tab (inbound, outbound or both)

- Weekly case throughput
 - Shift pattern worked
 - Number of pallets per inbound vehicle
 - Cases per inbound pallet
 - Number of pallets per outbound vehicle
 - Cases per outbound pallet
 - Which storage areas are case pick
- CLASS calculates number of vehicles in & out, estimates labour & MHE requirement

CLASS Training: Hints & Tips

Appendix C

Appendix C: CLASS Quick Reference Guide

The Class Quick Reference Guide is intended as an *aide memoir* for the standard training to help get your projects started.

CLASS Training: Hints & Tips

Layout

Import from CAD if available:

Direct import, or use backdrop

Create Layout:

- + Boundary Wall
- + Vehicle Docks
- + Marshalling Areas
- + Columns
- + Roof

- + Racking

think about Storage Areas and Load types

Check Warehouse Analysis report:

Number of storage locations
Marshalling space
Rack elevations and heights

Simulation

Analyse Data first!

*Create data editor tables in spreadsheets
(optional)*

- + Inbound Flows
*(add Inbound resources – run Inbound
simulation in isolation for testing)*
- + Outbound Flows
- + Labour Resources

Check Flows functioning correctly

- + MHE to Task

Validation

Volumes – Flow Analyser, KPIs
Hours – KPIs, Shift Usage Breakdown
Rates – Task Completion Rates

If you have any questions about CLASS or need further advice, please get in touch with Cirrus Logistics. We can be contacted as follows:

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