

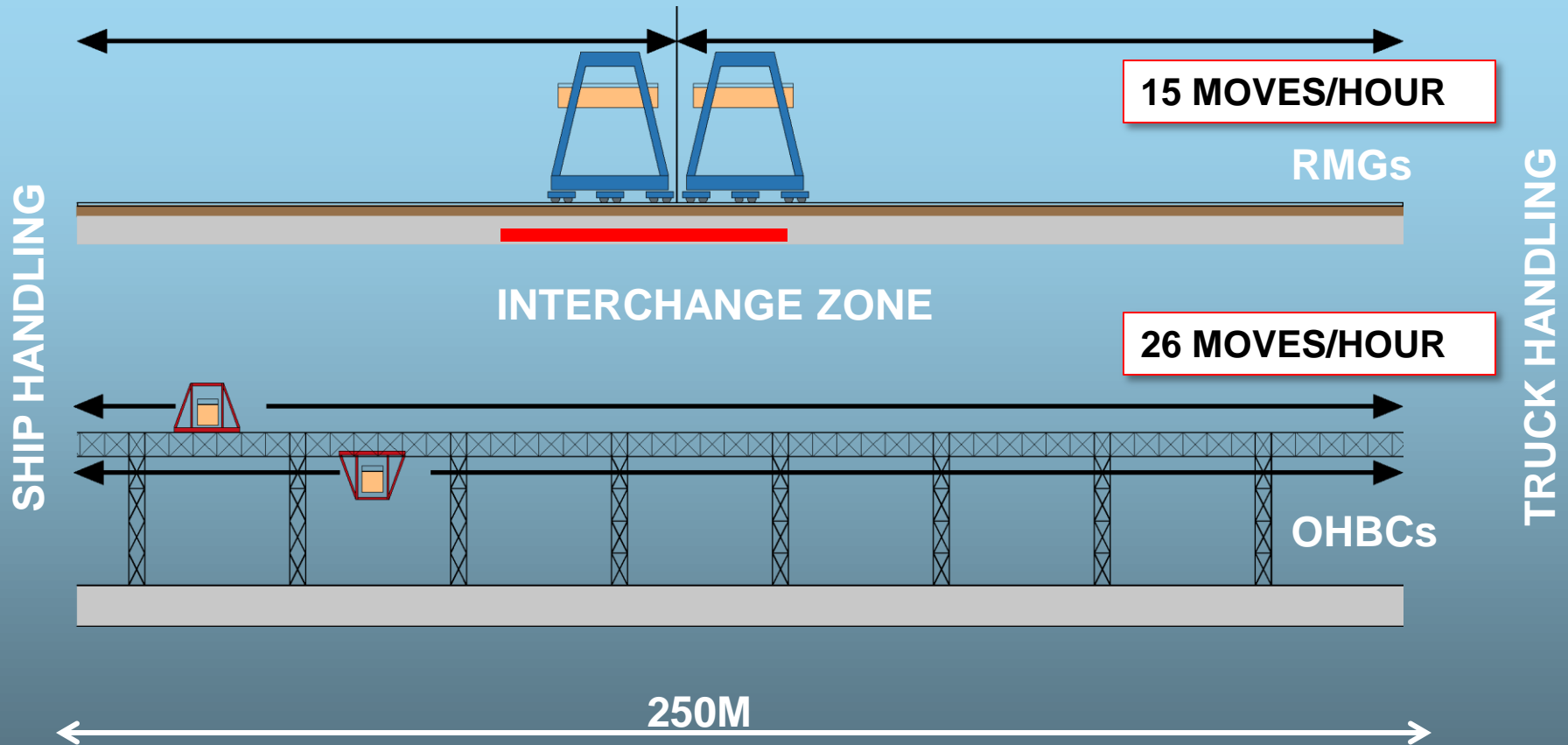
## A NEW APPROACH IN STACK OPERATIONS ON DEEPSEA CONTAINER TERMINALS

LOWER CAPEX, LOWER OPEX  
AND STILL FASTER

15 SPEAR HEADS OF OHBC  
IN MORE DETAIL

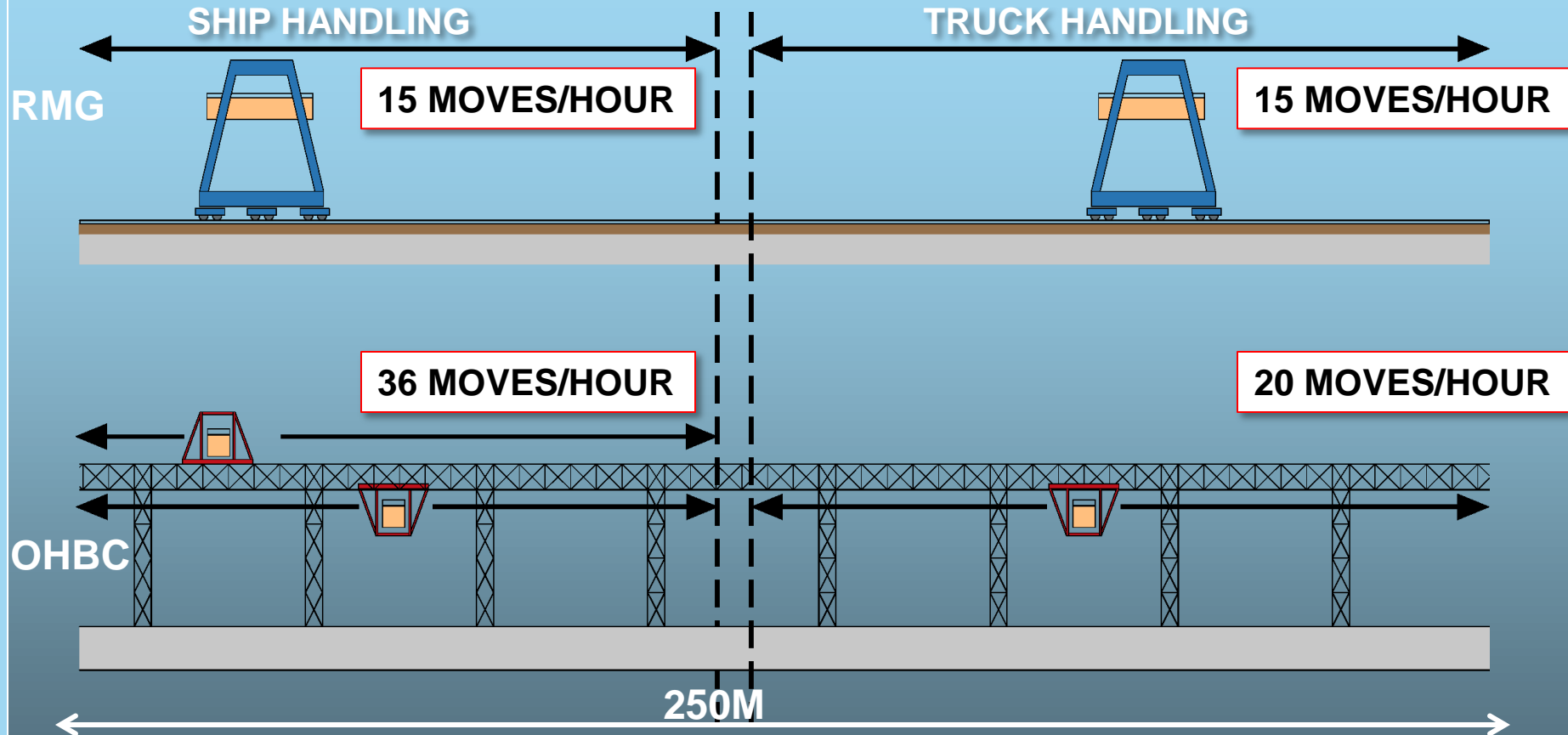


## OHBC IN DETAIL: PASSING CRANES



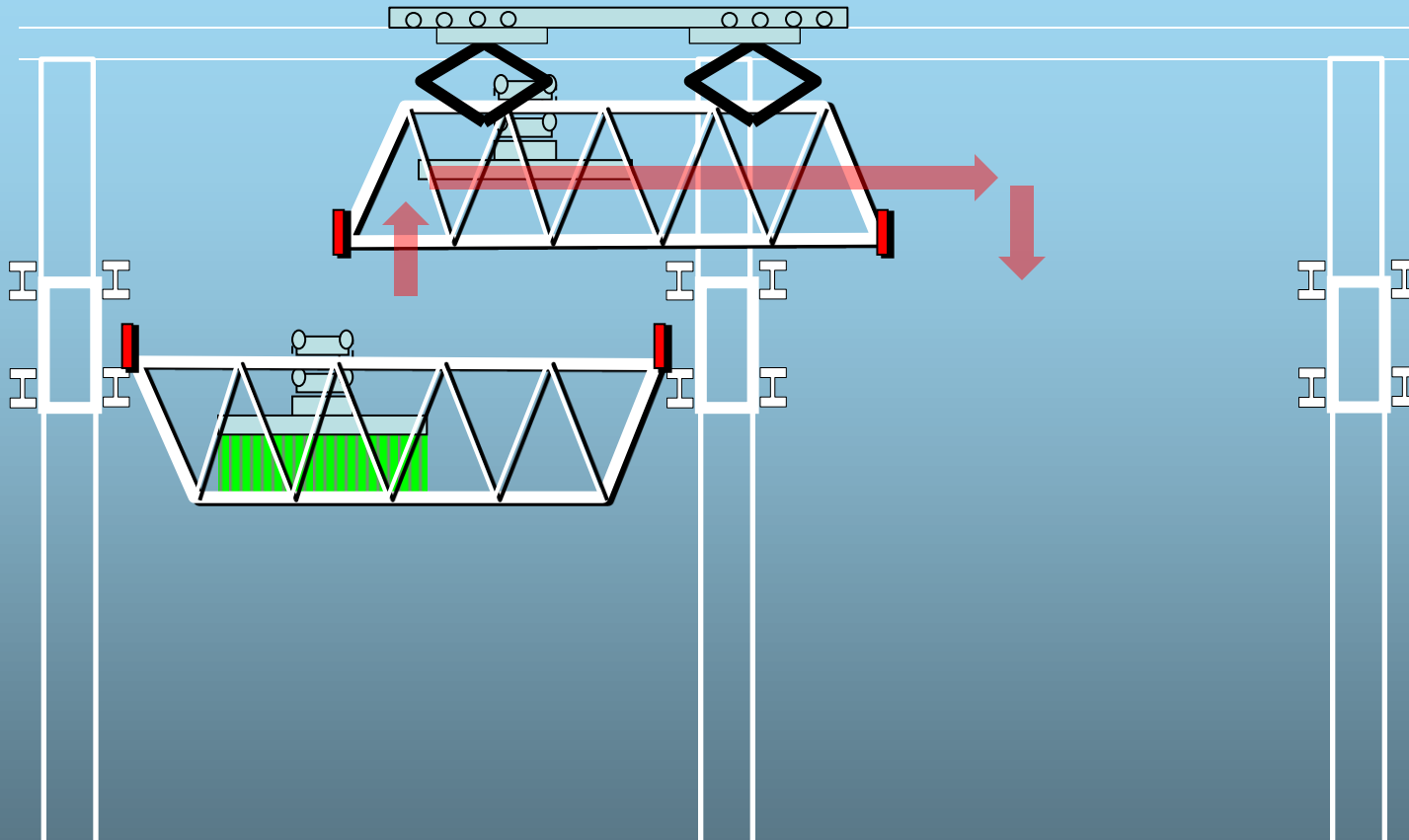
**PASSING CRANES** → **HIGHER PERFORMANCE**  
 → **LESS HOUSEKEEPING MOVES**  
 → **DUAL CYCLING IN STACK OPERATIONS BECOMES ADVANTAGEOUS**

## OHBC IN DETAIL: ONE EXTRA CRANE IN STACK LANE



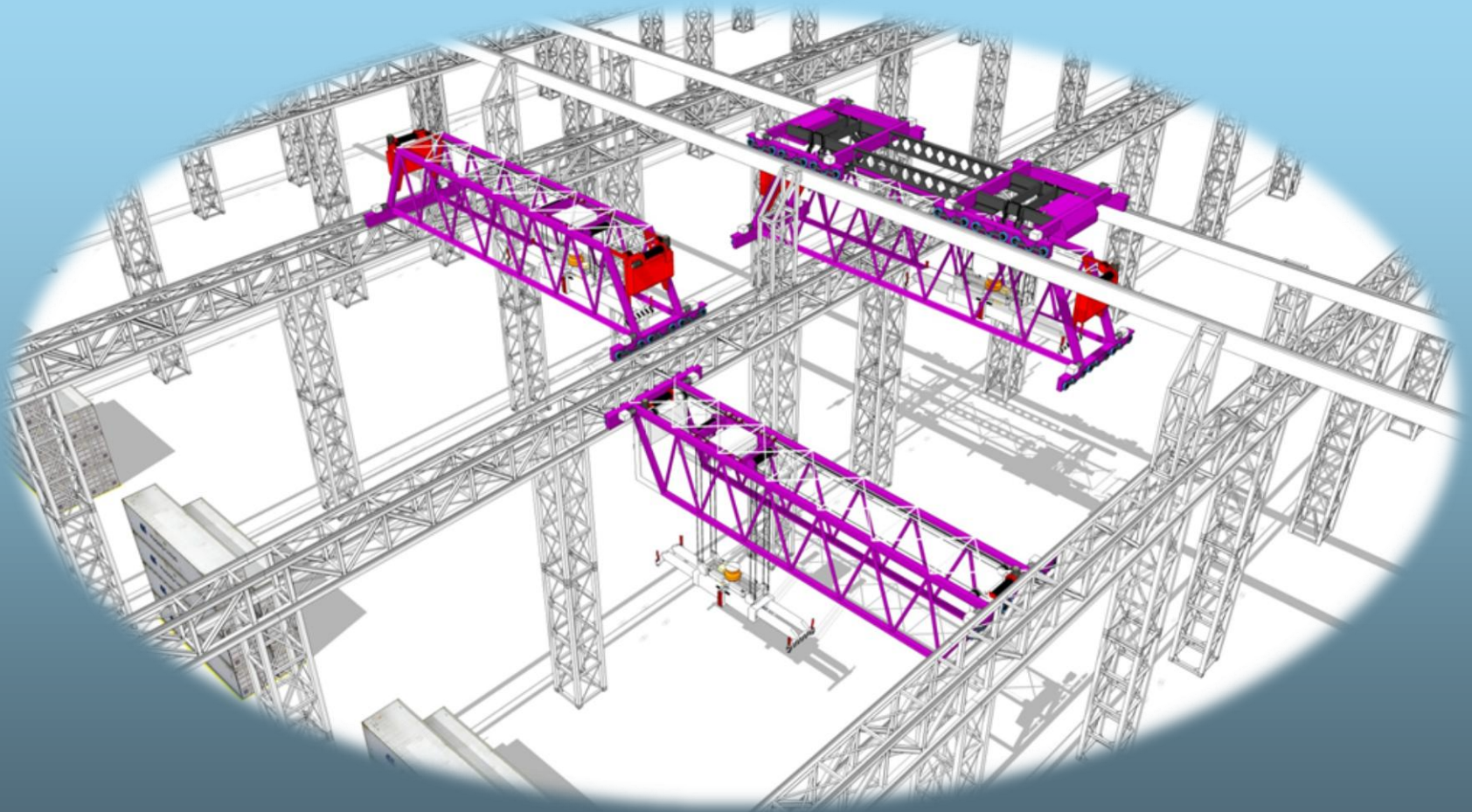
ONE EXTRA OHBC → REDUCTION OF BERTH TIME WITHOUT EFFECTING TRUCK HANDLING  
 → MAX FLEXIBILITY IN BERTH WINDOW PLANNING

## OHBC IN DETAIL: CHANGING STACK LANES



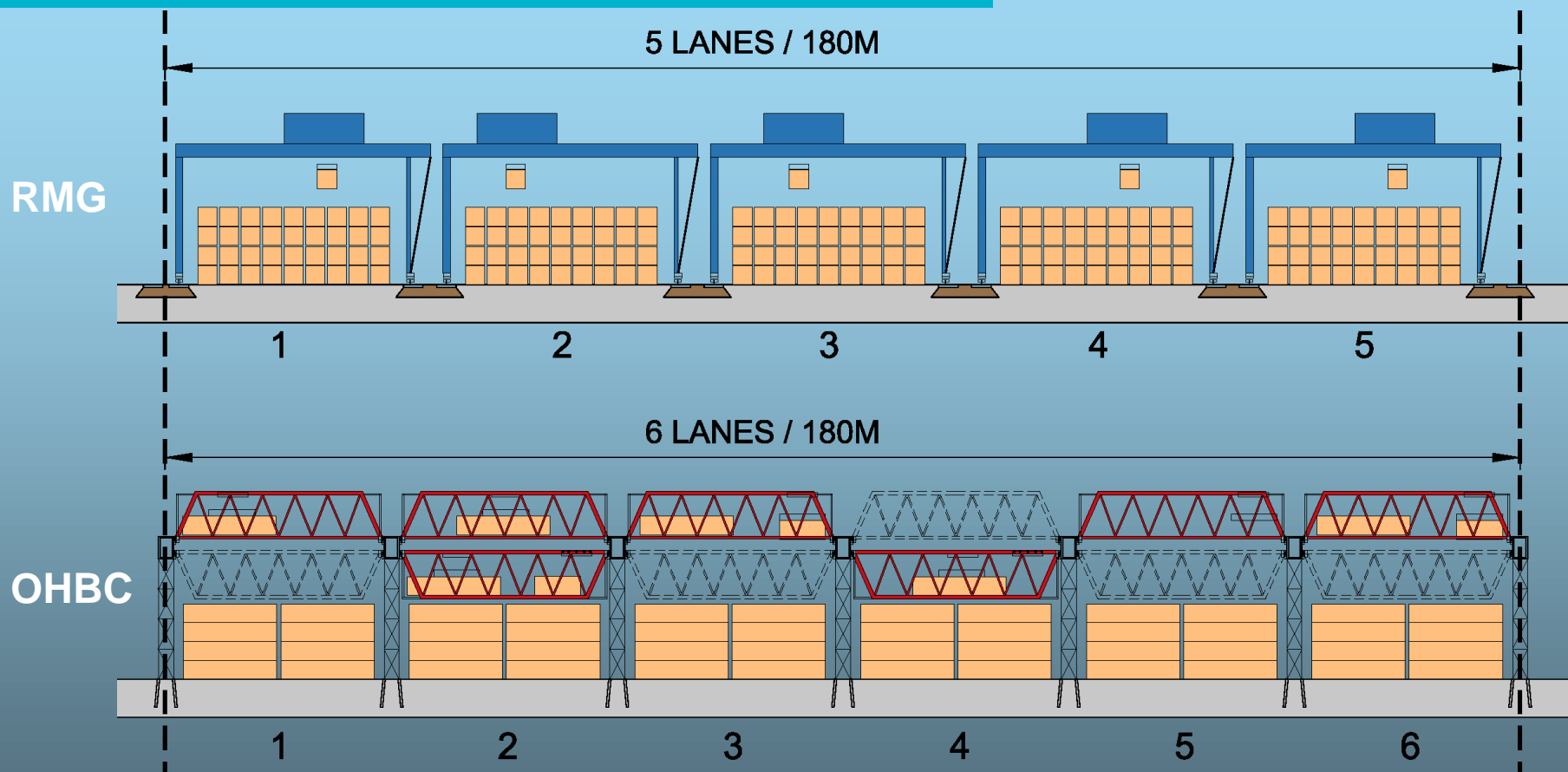
- CHANGING STACK LANES WITHIN 10 MINUTES
- MAXIMUM FLEXIBILITY TO DEAL WITH CONTINUOUS CHANGING CIRCUMSTANCES

## OHBC IN DETAIL: CHANGING STACK LANES



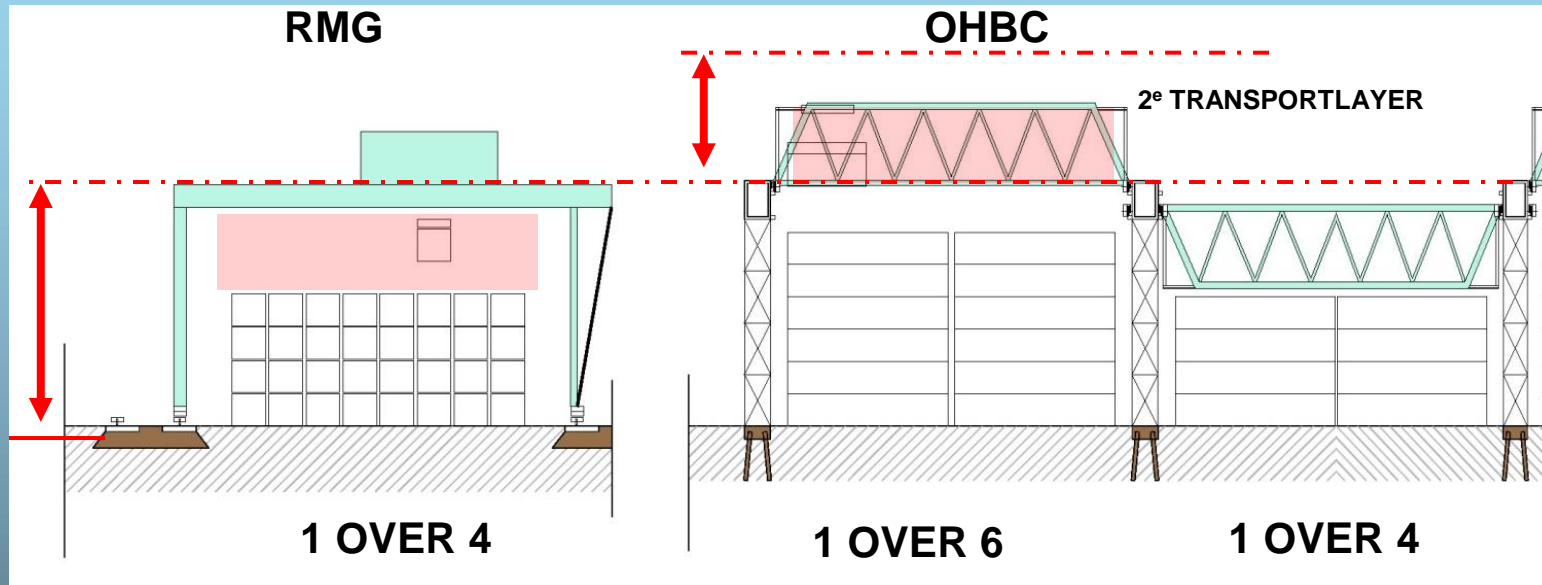


## OHBC IN DETAIL: HIGH DENSITY



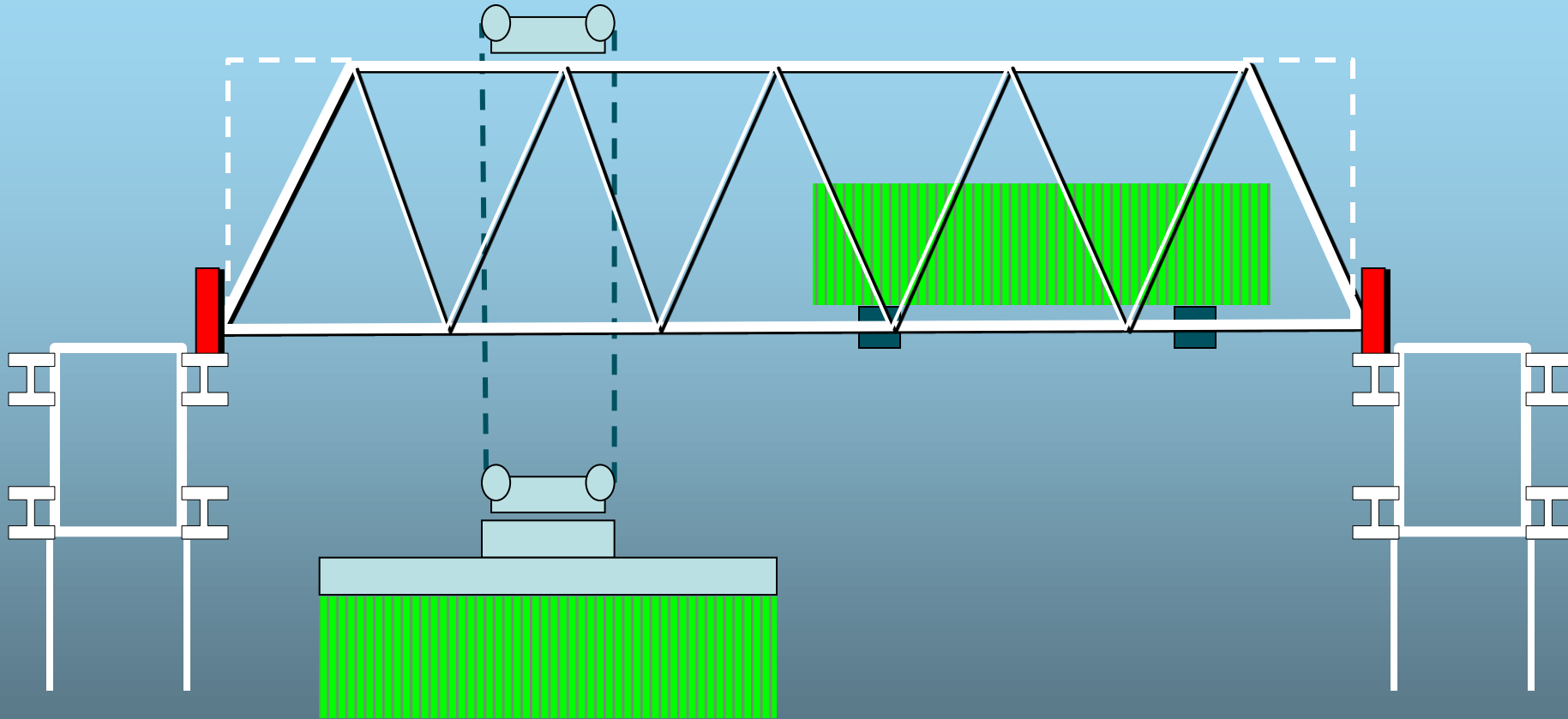
**6 STACK LANES INSTEAD OF 5** → **HIGHER DENSITY (1.400 TEU / HECT)**  
**12 STACK CRANES INSTEAD OF 10** → **FASTER HANDLING SPEED**

## OHBC IN DETAIL: FLEXIBLE STACK HEIGHT



**LOCAL HIGHER STACKING (EMPTY DEPOT?) WITHIN THE SAME CONSTRUCTION HEIGHT**

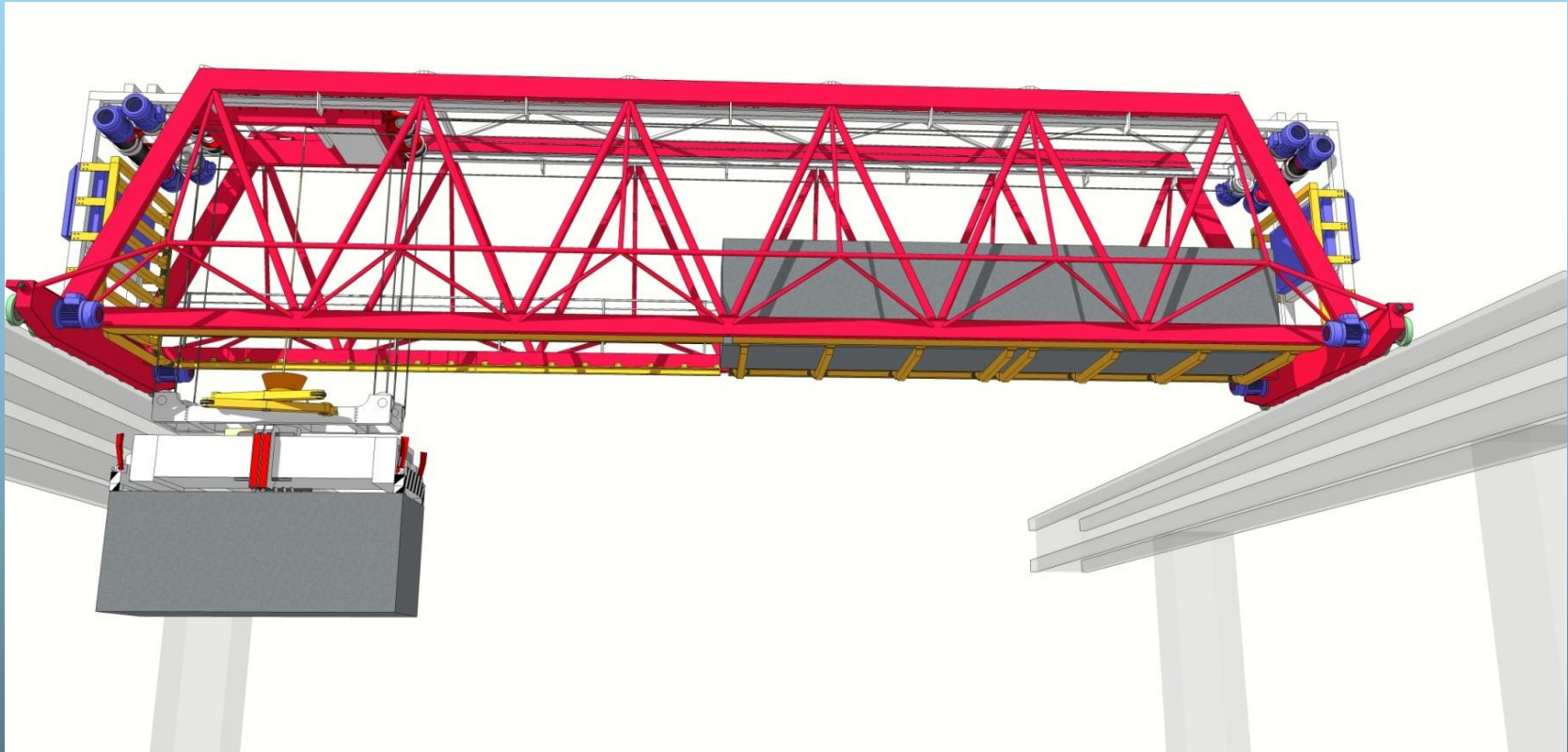
## OHBC IN DETAIL: SUPPORT SYSTEM UNDERNEATH



**SUPPORT SYSTEM BETWEEN BOTTOM MEMBERS MAKES TRANSPORT OF 2x 40' OR 4x 20' AT THE SAME TIME WITH ONE SPREADER POSSIBLE**

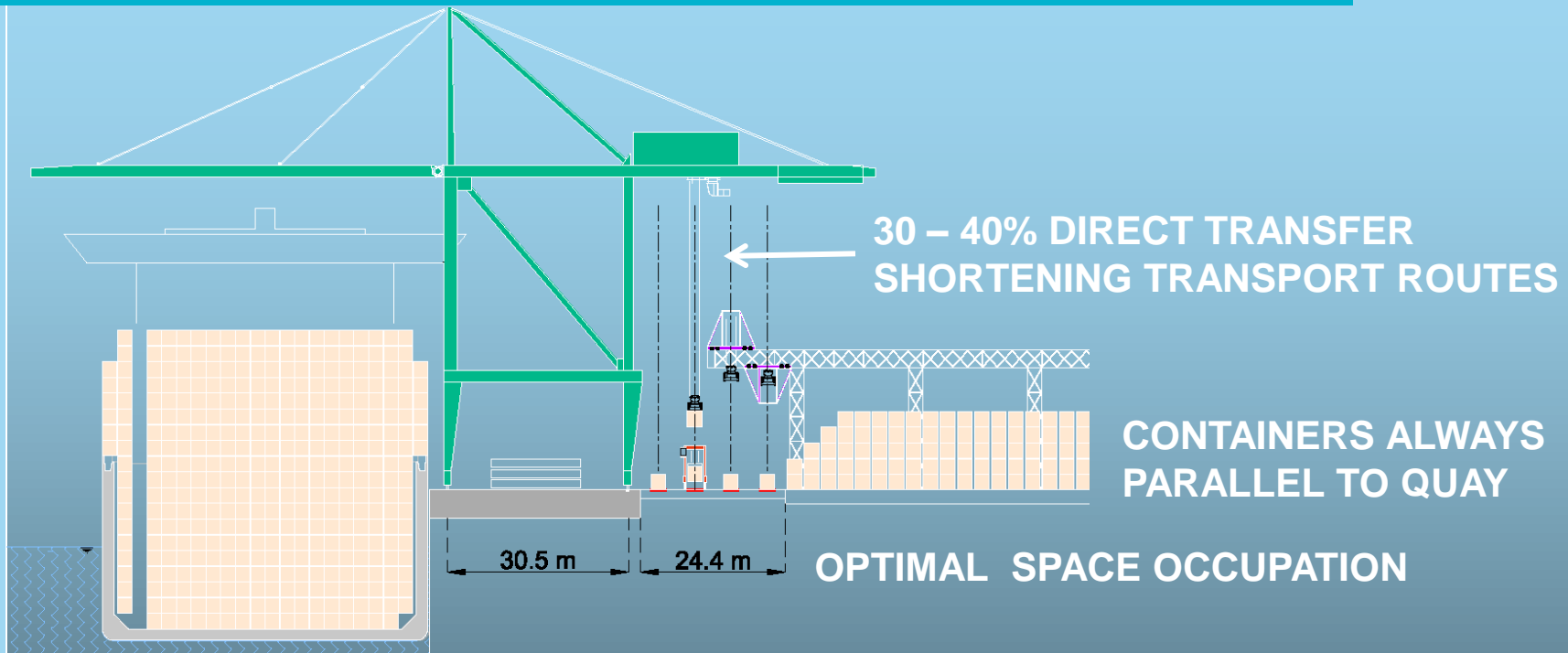


## OHBC IN DETAIL: SUPPORT SYSTEM UNDERNEATH



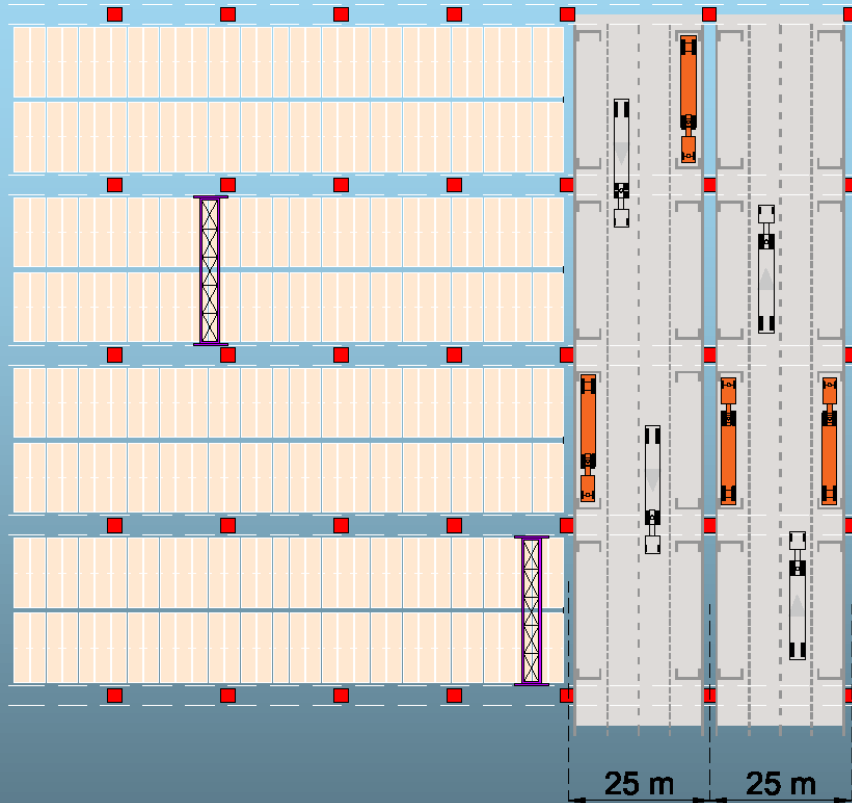
**SUPPORT SYSTEM BETWEEN BOTTOM MAKES TRANSPORT OF  
2x 40' OR 4x 20' AT THE SAME TIME WITH ONE SPREADER POSSIBLE**

## OHBC IN DETAIL: INTEGRATION STS AREA AND STACK AREA

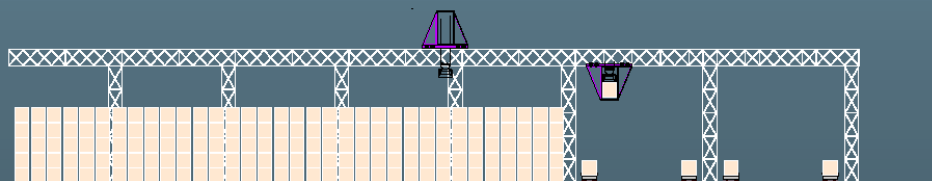


- SIMPLIFICATION INCREASES EFFICIENCY
- LESS HORIZONTAL TRANSPORT DEVICES
- FASTER HANDLING PROCESS
- INCREASE STS CRANE PRODUCTIVITY
- SIMPLIFICATION AUTOMATION PROCESS

## OHBC IN DETAIL: INTEGRATION STACK AREA AND TRUCK HANDLING



- OPTIMAL SPACE OCCUPATION
- SHORTENING TRANSPORT ROUTES
- FASTER HANDLING PROCESS
- EVERY STACK LANE CAN SERVE 2 TRUCKS AT THE SAME TIME
- REDUCTION OF TRUCK TIME ON TERMINAL
- NEVER BACKWARDS DRIVING (3 CT POSSIBLE)
- CONTAINERS ARE ALWAYS PARALLEL TO THE QUAY

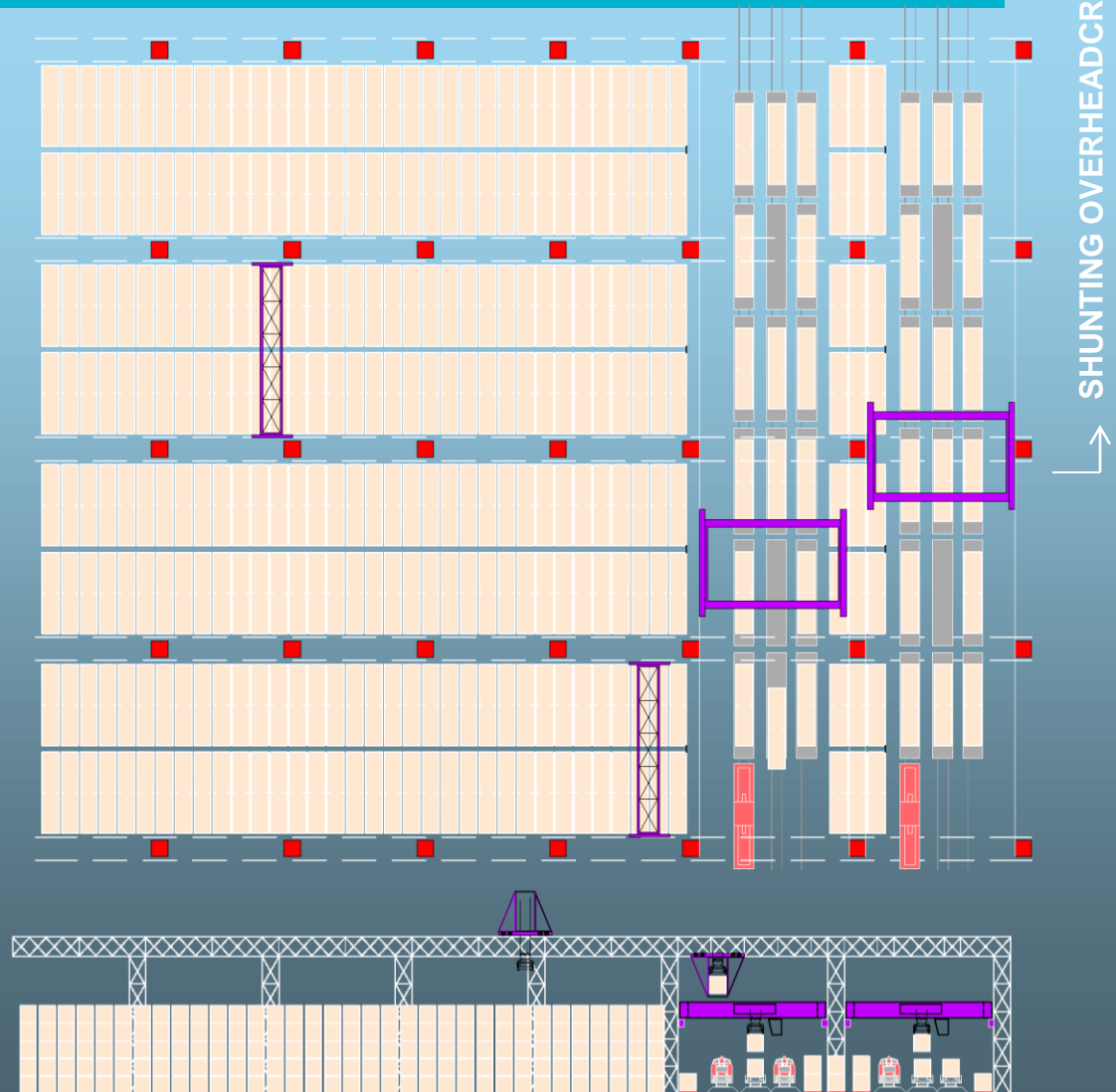


## OHBC IN DETAIL: INTEGRATION STACK AREA AND TRAIN HANDLING

**70% DIRECT LOADING  
BY OHBCs IN  
STACK LANES**

**30% INDIRECT LOADING  
BY LONGITUDINAL  
SHUNTING CRANE  
ABOVE TRAIN**

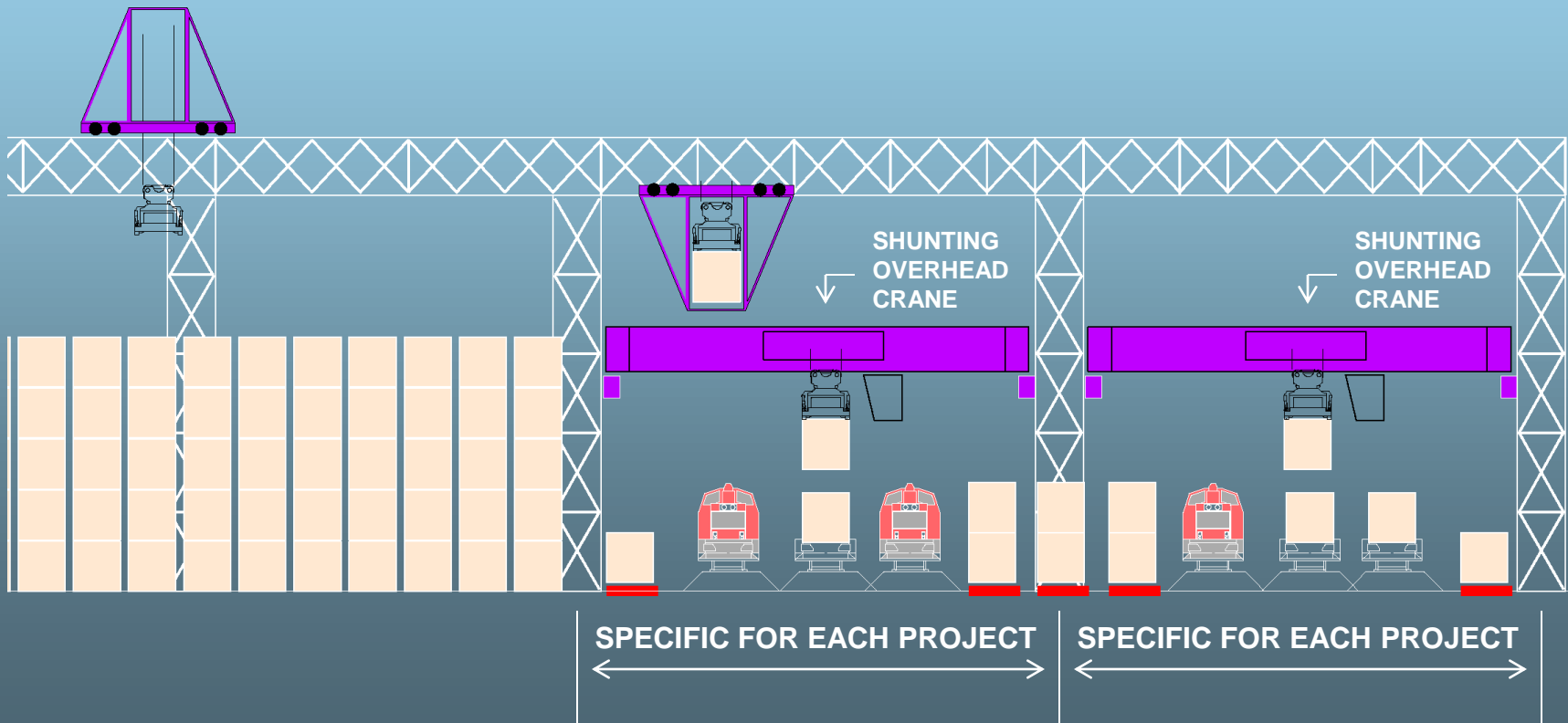
- LESS SPACE OCCUPATION
- FASTER HANDLING
- SHORTER TRANSPORT ROUTES



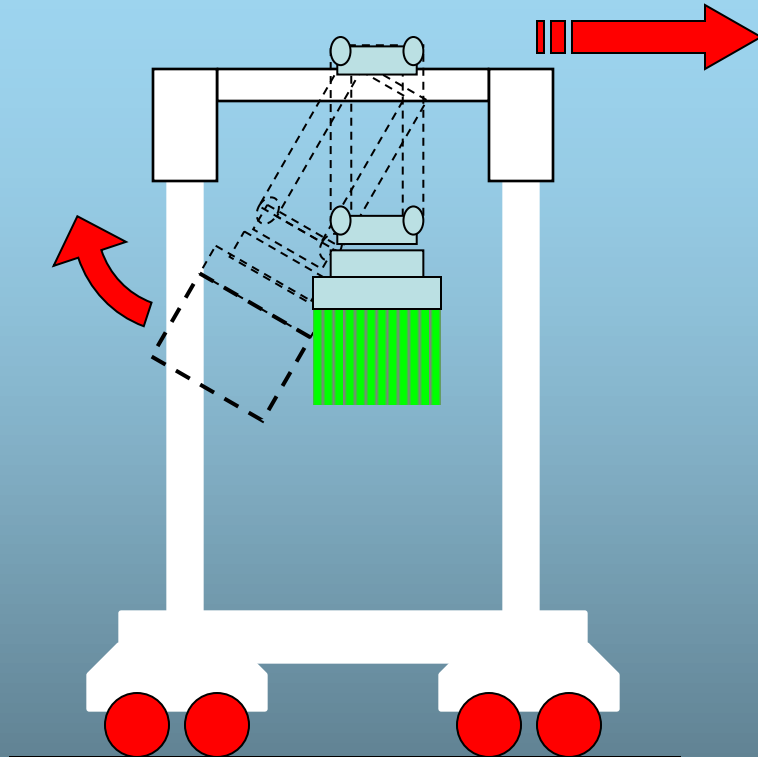
## OHBC IN DETAIL: INTEGRATION STACK AREA AND TRAIN HANDLING

70% DIRECT LOADING BY OHBCs IN STACK LANES

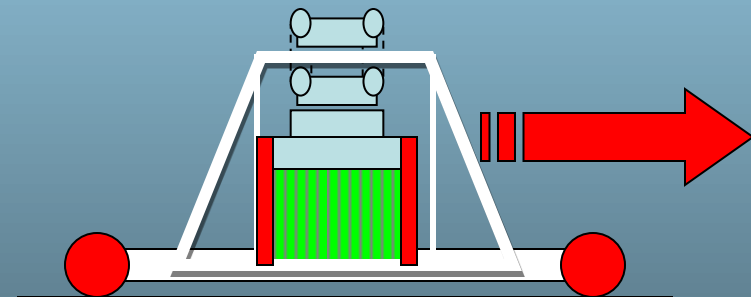
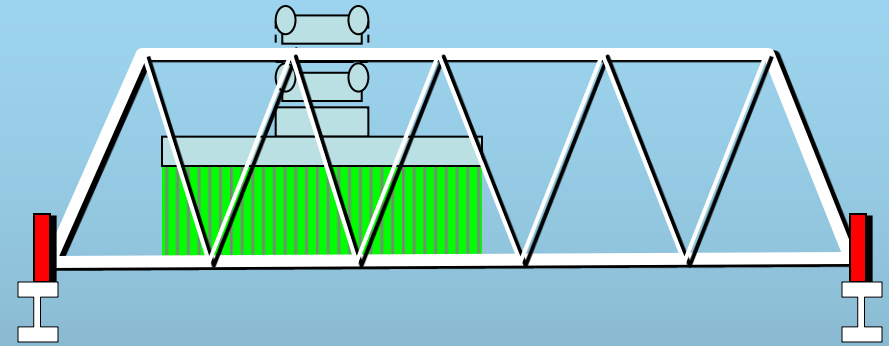
30% INDIRECT LOADING BY LONGITUDINAL SHUNTING OVERHEADCRANE



## OHBC IN DETAIL: SWING EFFECT



**RMG**

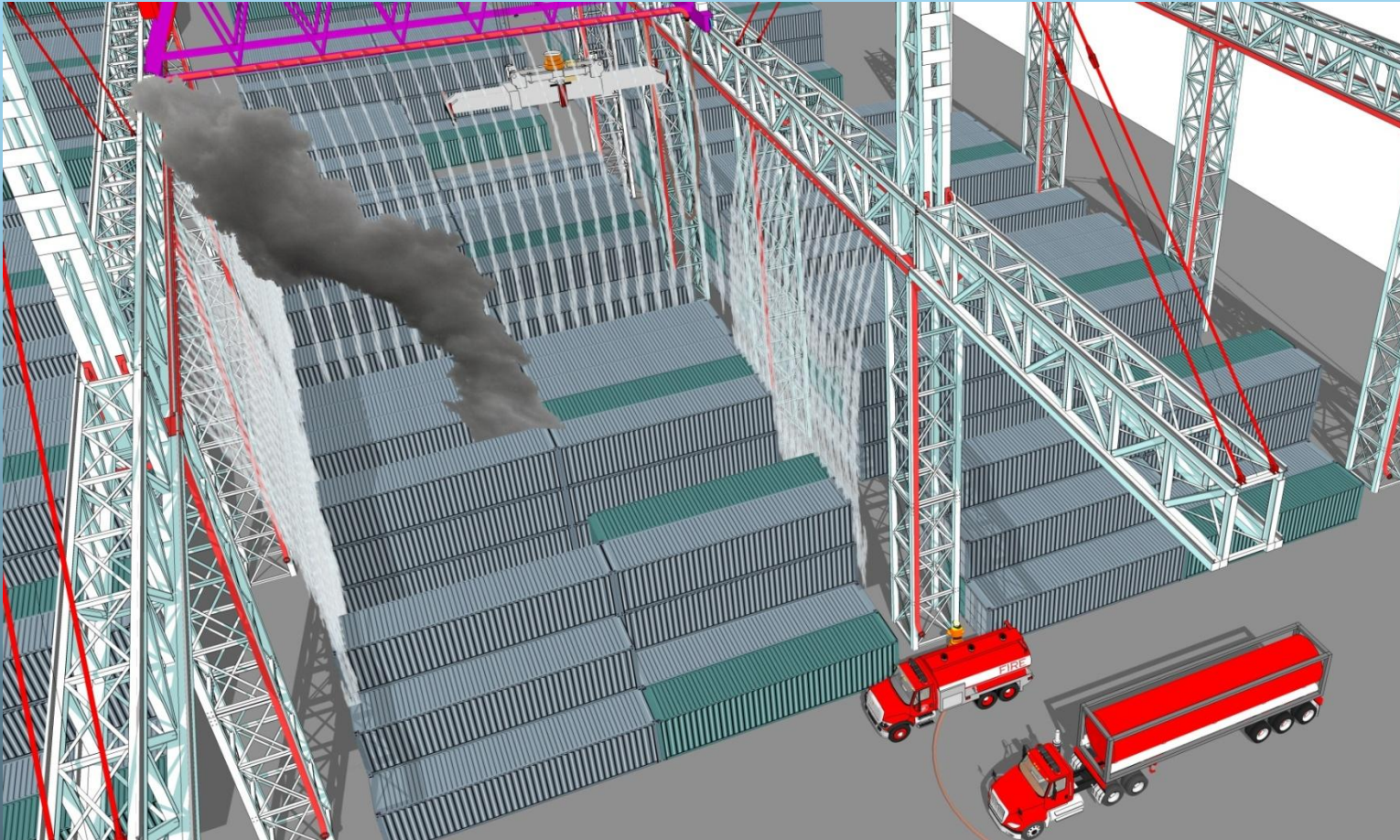


**NGICT OHBC**

**OHBC “SPRINTER” CAN BE EQUIPED WITH ANTI-SWING SUPPORTS FOR HIGHER TRAVELLING SPEED**

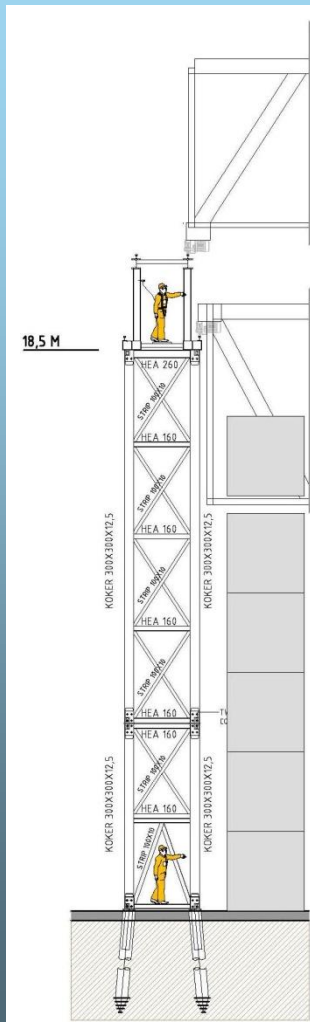


## OHBC IN DETAIL: FIRE SAFETY (RISK FULL AREAS)



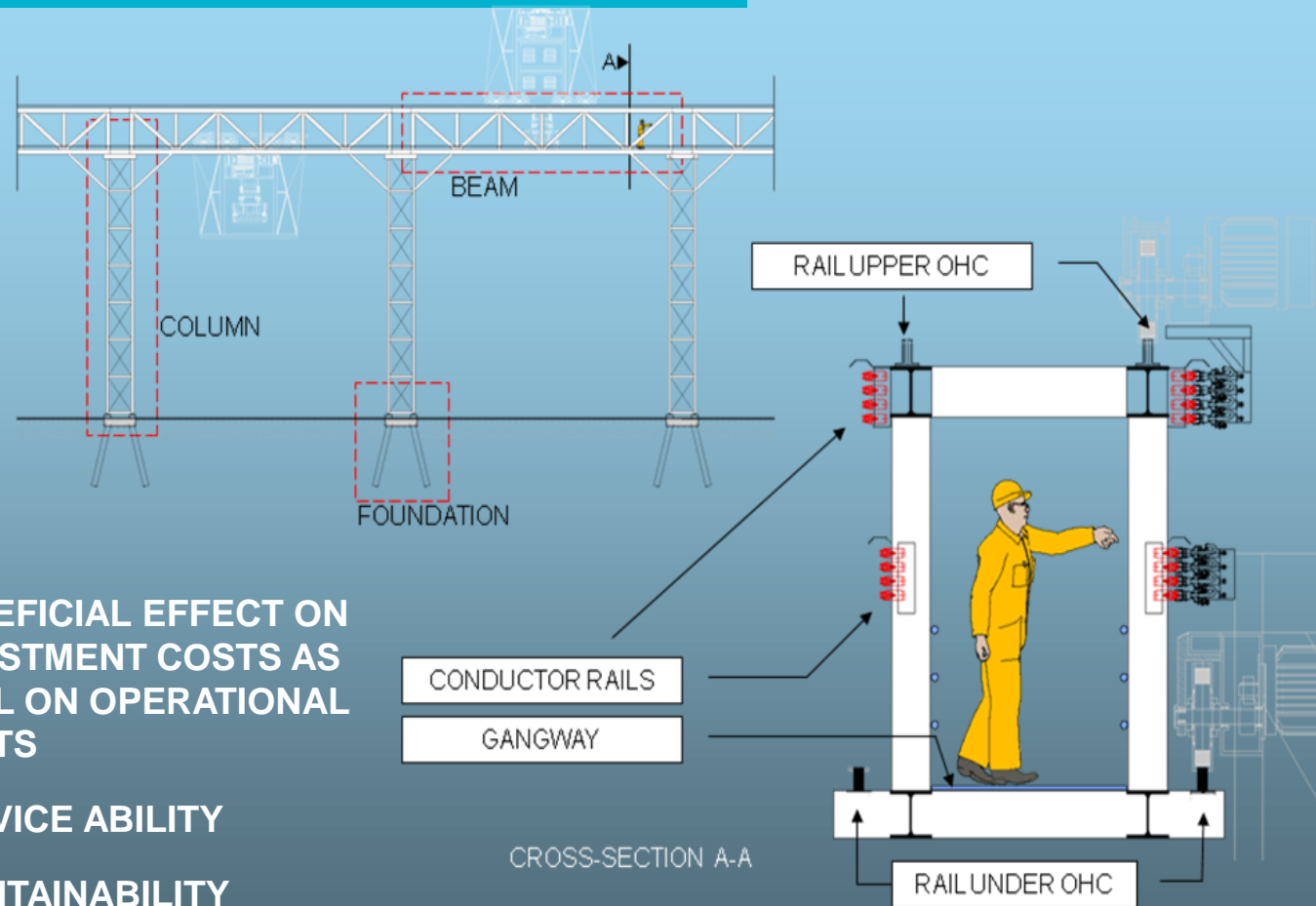
**DRY FIRE EXTINGUISH DUCTS → WATER CURTAINS**

## OHBC IN DETAIL: MODULAR BUILDING SYSTEM

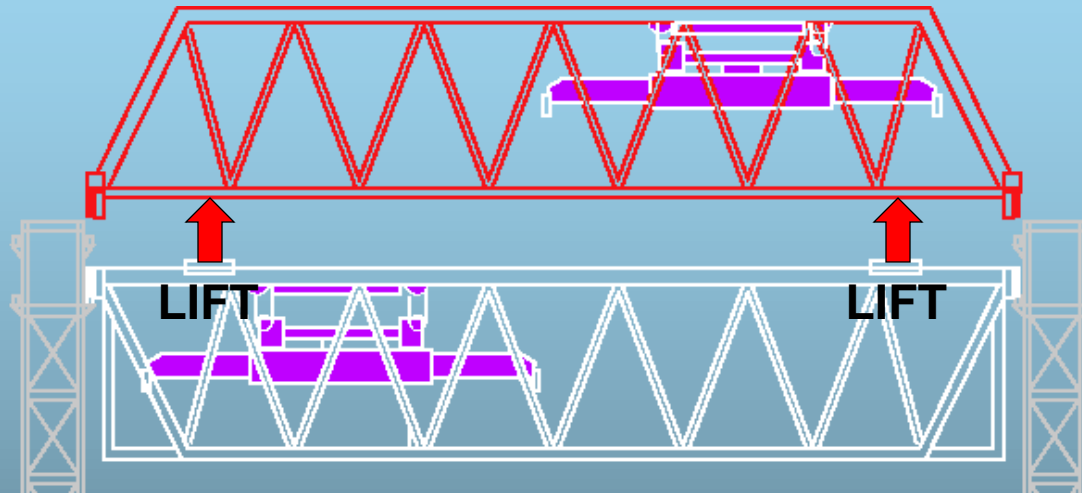


STANDARD COLUMN

- BENEFICIAL EFFECT ON INVESTMENT COSTS AS WELL ON OPERATIONAL COSTS
- SERVICE ABILITY
- MAINTAINABILITY
- PEDESTRIAN SAFETY



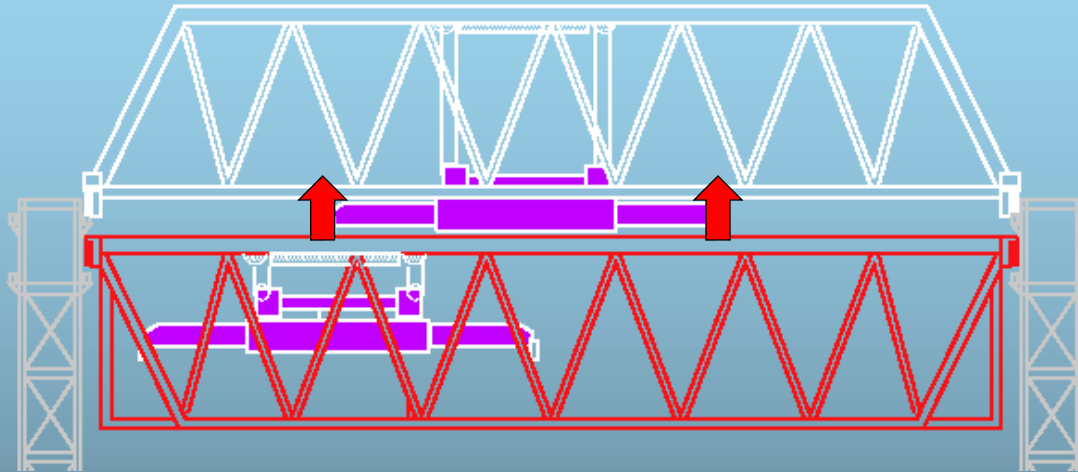
## OHBC IN DETAIL: REDUNDANCY



**UNDER OHBC LIFTS AND TRANSPORTS  
UPPER OHBC IN CASE OF BREAKDOWN**

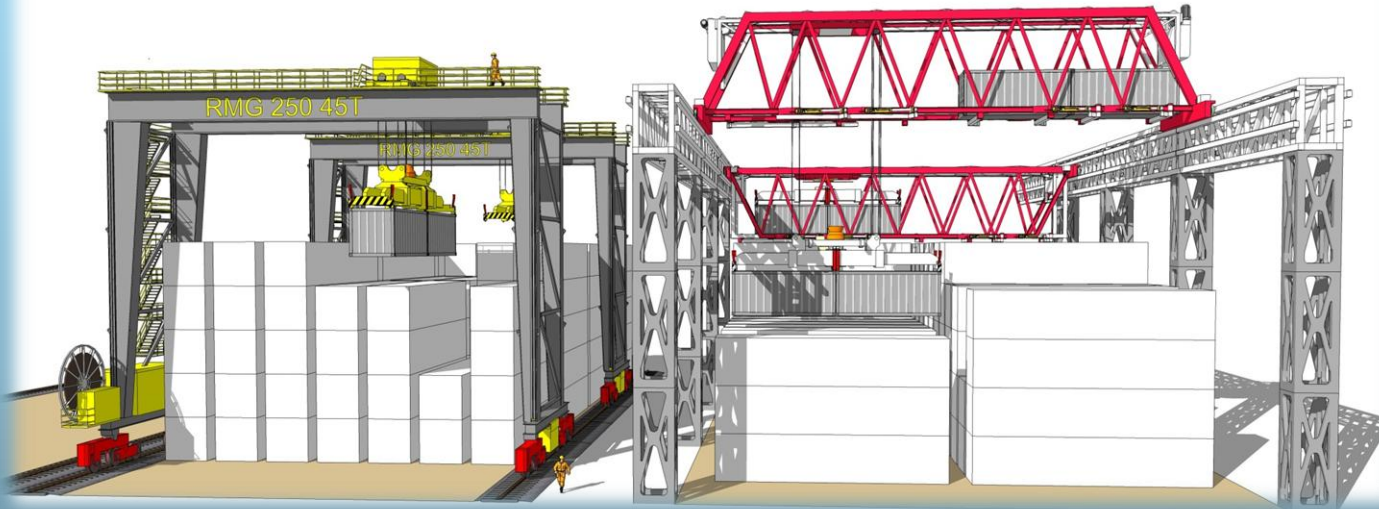


## OHBC IN DETAIL: REDUNDANCY



**UPPER OHBC LIFTS AND TRANSPORTS  
UNDER OHBC IN CASE OF BREAKDOWN**

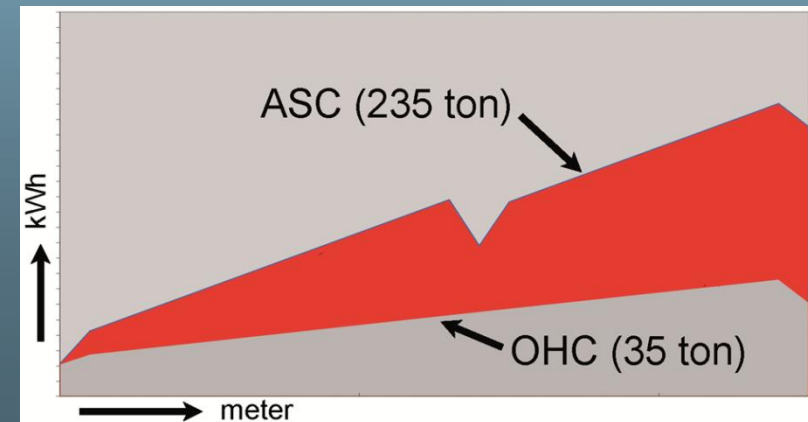
## OHBC IN DETAIL: ENERGY SAVINGS



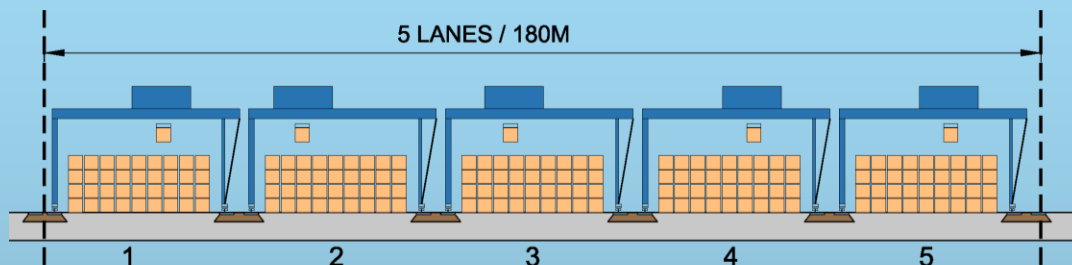
**RMG OWN WEIGHT**  
**200-250 TONS**

**OHBC OWN WEIGHT**  
**30-40 TONS**

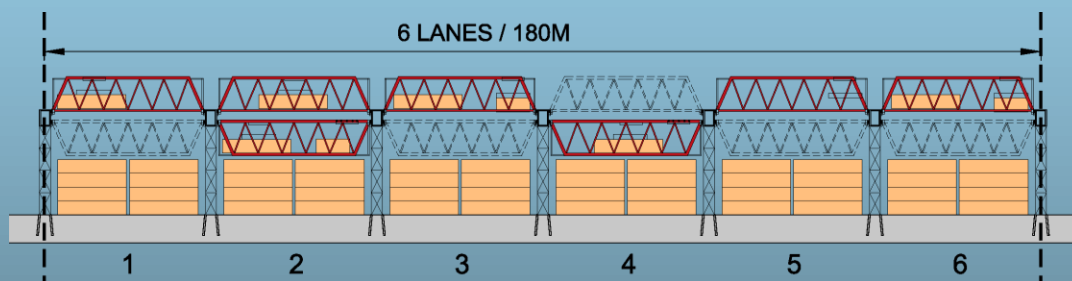
- ENERGY SAVING UP TO 25-40%
- TRANSITION TO “GREEN” TERMINAL



## COSTS COMPARISON (STACK OPERATIONS ONLY)



**BLOCK OF 5 STACK LANES LENGTH 300 M 10 RMGs STACK CAPACITY 8.000 TEU**



**BLOCK OF 6 STACK LANES LENGTH 300 M 12 RMGs MAX STACK CAPACITY 9.408 TEU**

| STACK OPERATIONS | RMGs | OHBCs |                               |
|------------------|------|-------|-------------------------------|
| CAPEX            | 1,0  | ± 0,8 | MORE .....FOR LESS MONEY      |
| OPEX             | 1,0  | ± 0,7 | CHEAPER .....AND STILL FASTER |

### Explanation on figures:

- Both systems under equal conditions.
- Capex based on: land surface / foundations / pavement / sewerage / rails + sleepers (RMG) / rails + support structure (OHBC) / electrical installation / 10 RMGs / 12 OHBCs.
- Opex based on: depreciation costs / maintenance / insurance / energy consumption / labour costs / interest and repayment / exclusive savings by faster processing (reduction of berth time and truck time).



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**FOR MORE INFORMATION**

**[www.ngict.eu](http://www.ngict.eu)**

**[www.kochadviesgroep.nl](http://www.kochadviesgroep.nl)**