



INTERNATIONAL
**CRANES &
TRANSPORT**
MIDDLE EAST CONFERENCE



AMCS
technologies

Abdelrahman SAAFIN
A and Z technologies



AandZ
technologies

Anti-collision & zoning systems to ensure safety



SUMMARY

- 1 Who are we ?
- 2 Dubai Creek Harbour
- 3 What is an anti-collision system and how does it works?
- 4 How to maximise productivity?
- 5 Conclusion

ABOUT US

Abdelrahman SAAFIN
A and Z technologies

Exclusive dealer of AMCS
technologies for the Middle East

Specialised in safety equipment
for lifting equipment since 1994

Universal products
International market
Famous projects

DUBAI CREEK HARBOUR

+ 10 000 workers



9 contractors



59 cranes



+ 6 brands of cranes





32

EMAAR

EMAAR

WHAT IS AN ANTI-COLLISION SYSTEM ?



ZONING



ANTI-COLLISION



DATA LOGGER

ZONING

Limit the area
which a hook or
the jib can enter
or flight over

Associate
geometric shapes
with prohibited
overflight areas

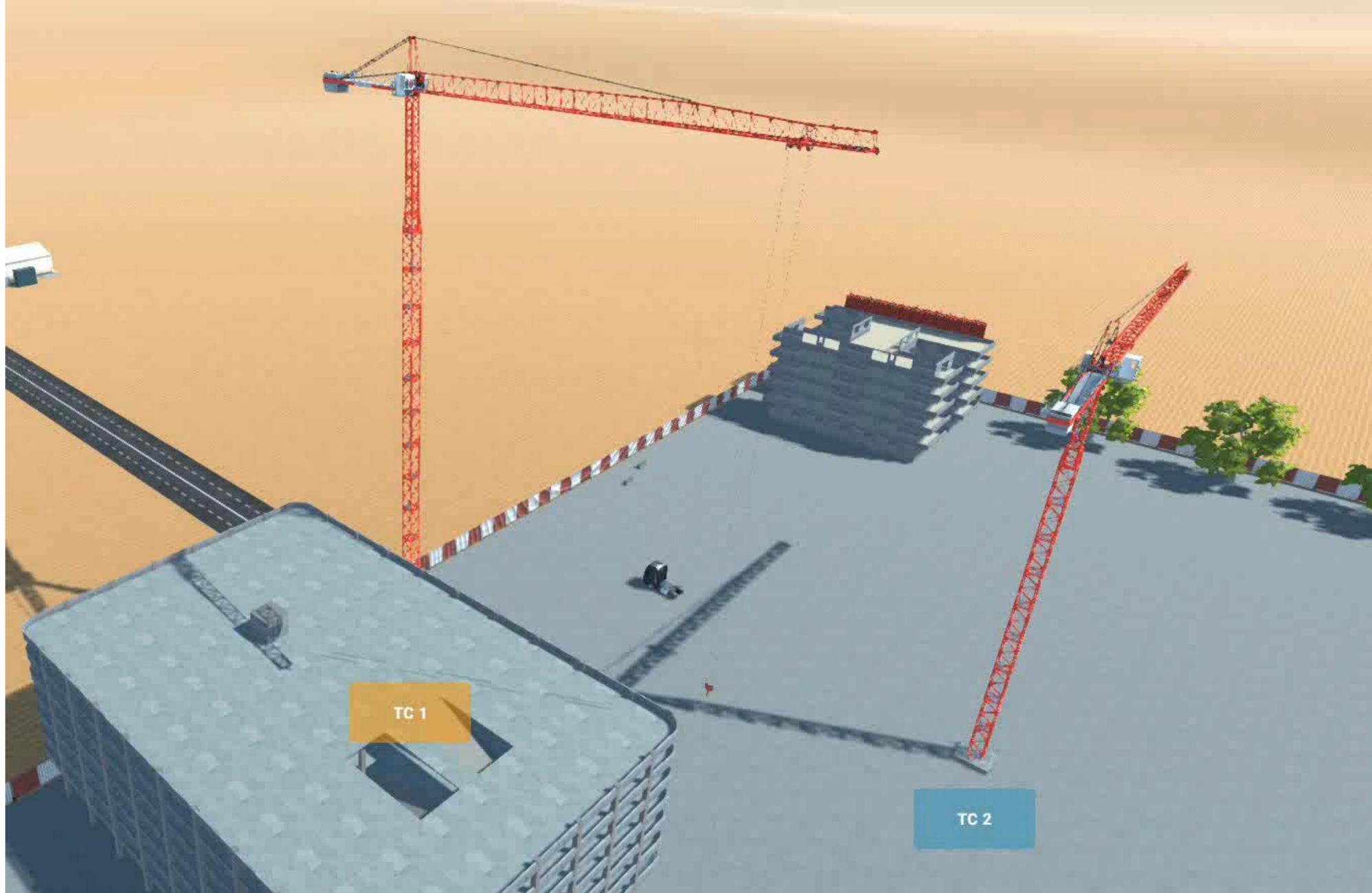
Neutralise
selectively some
areas

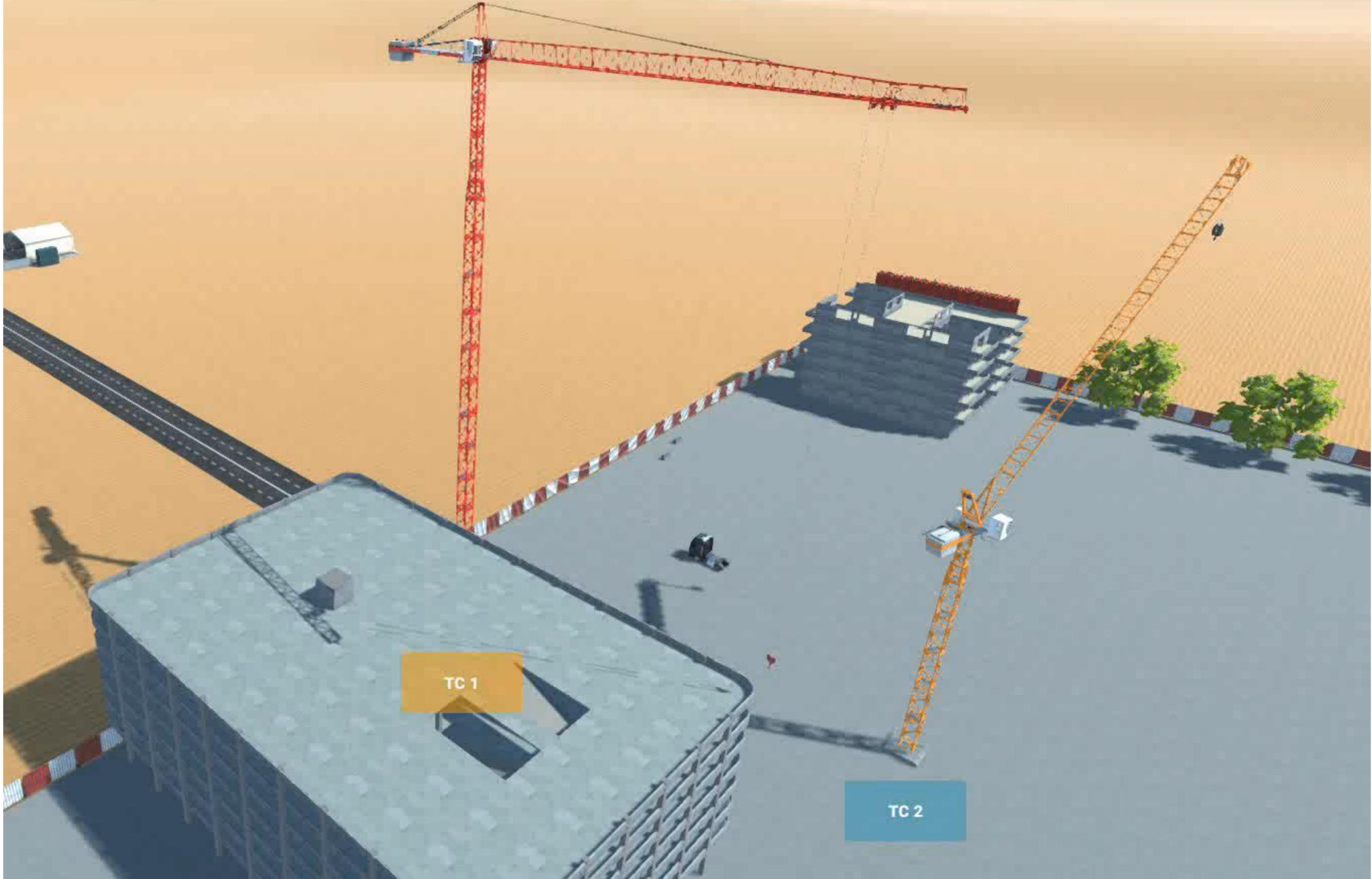
ANTI-COLLISION

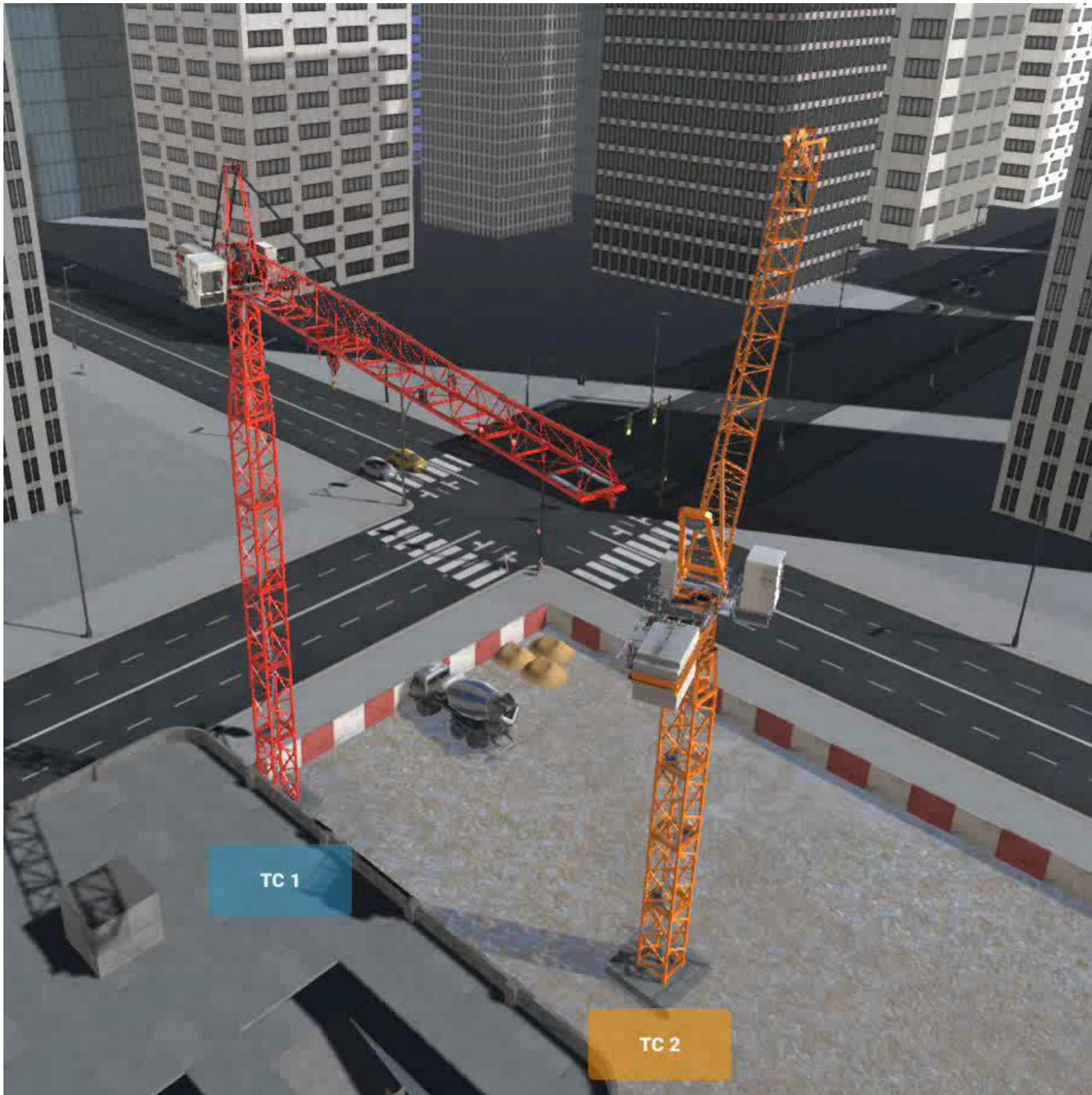
Prevent collisions
between cranes

Detect the
position of each
crane in 3D and in
real time

Ensure complete
immobilization
of the crane at a
pre-set distance
from a static or
dynamic obstacle

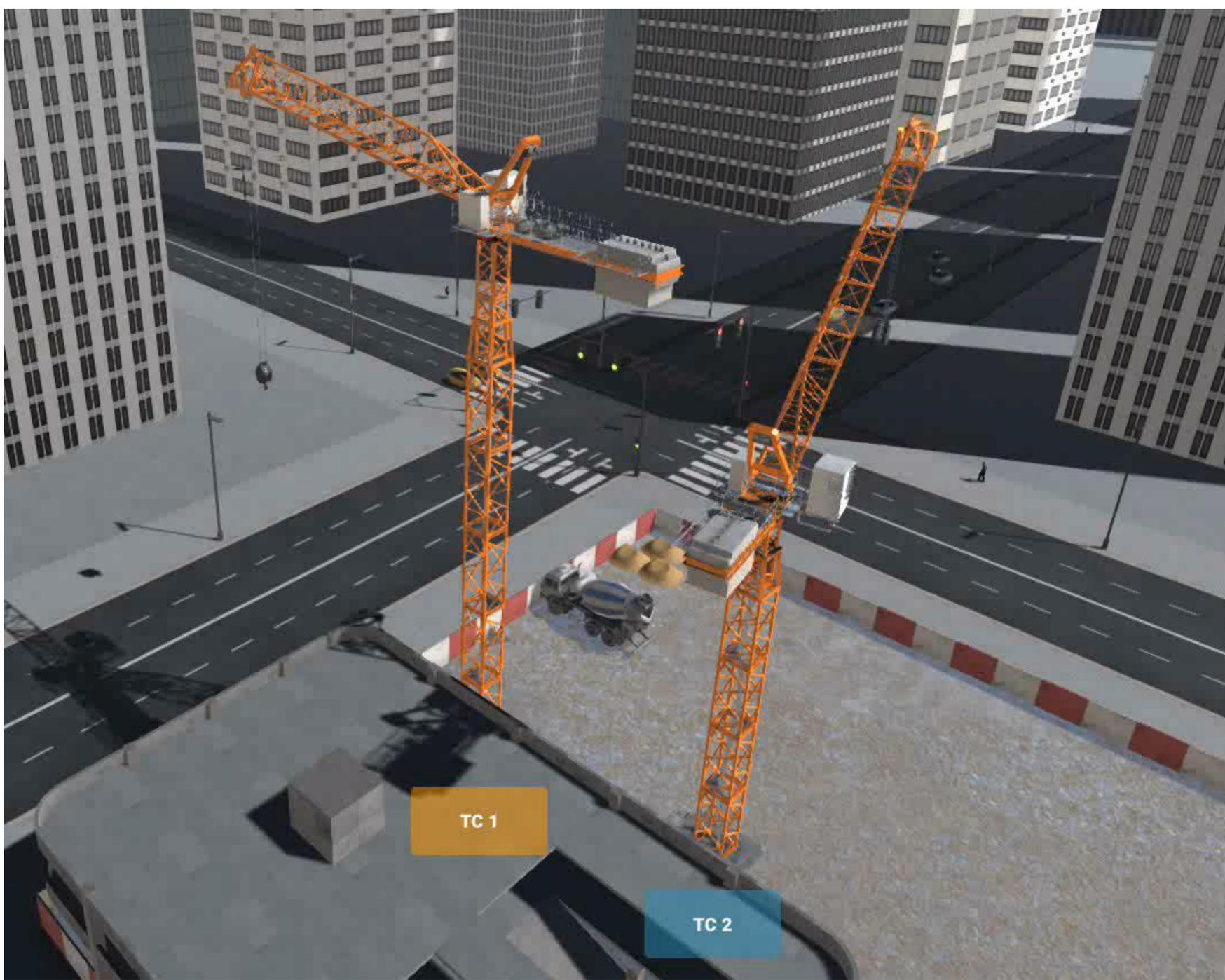






TC 1

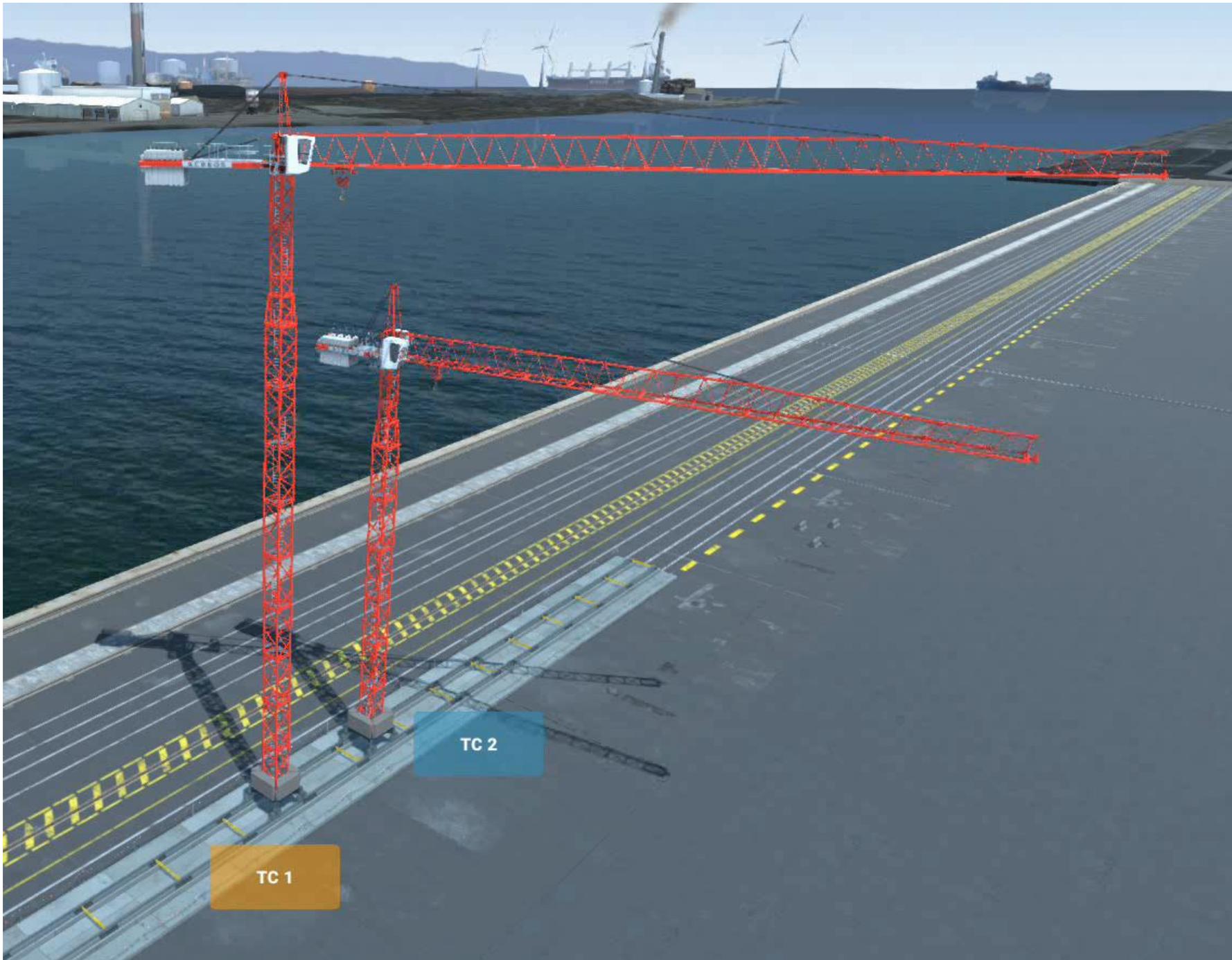
TC 2

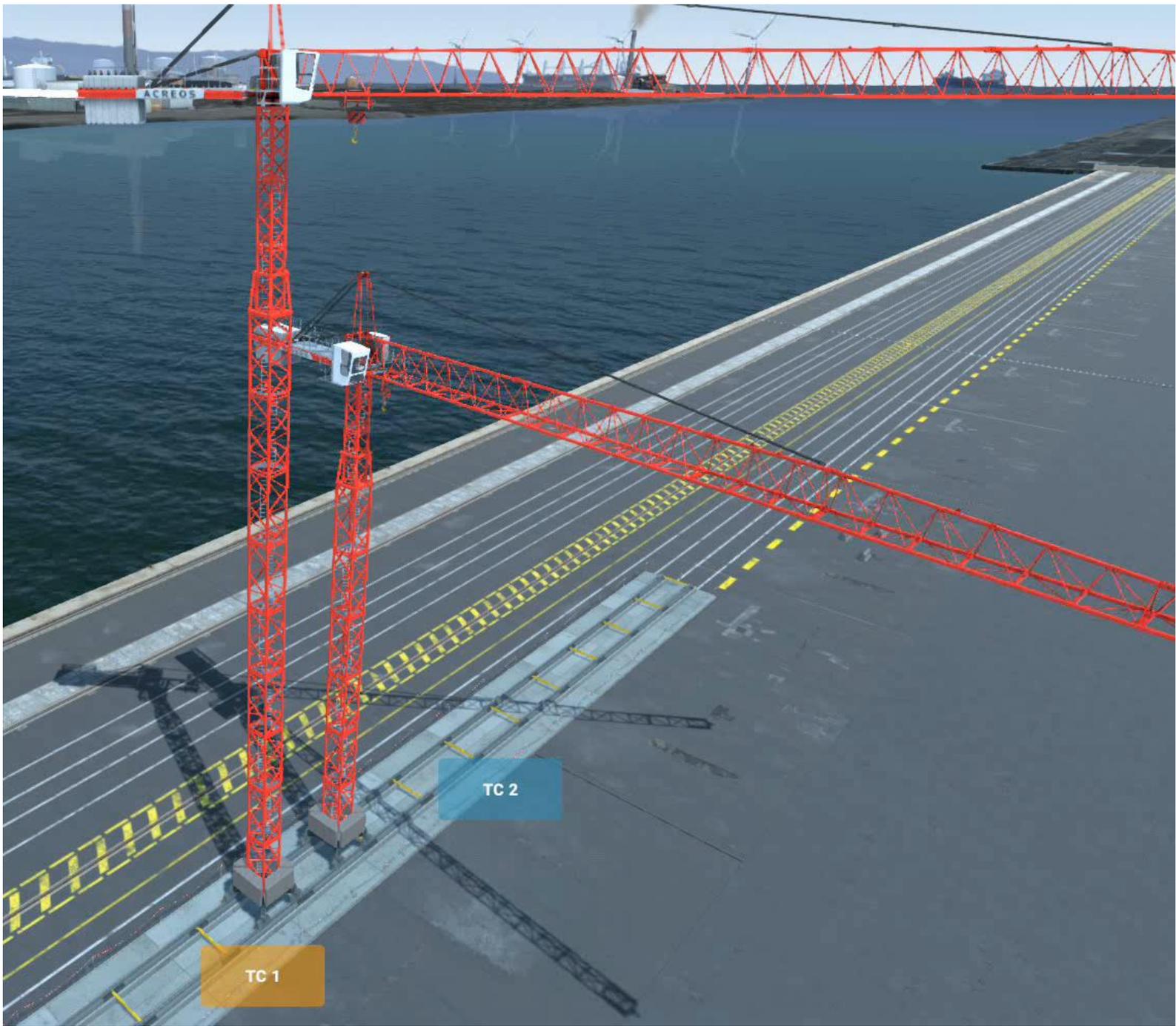


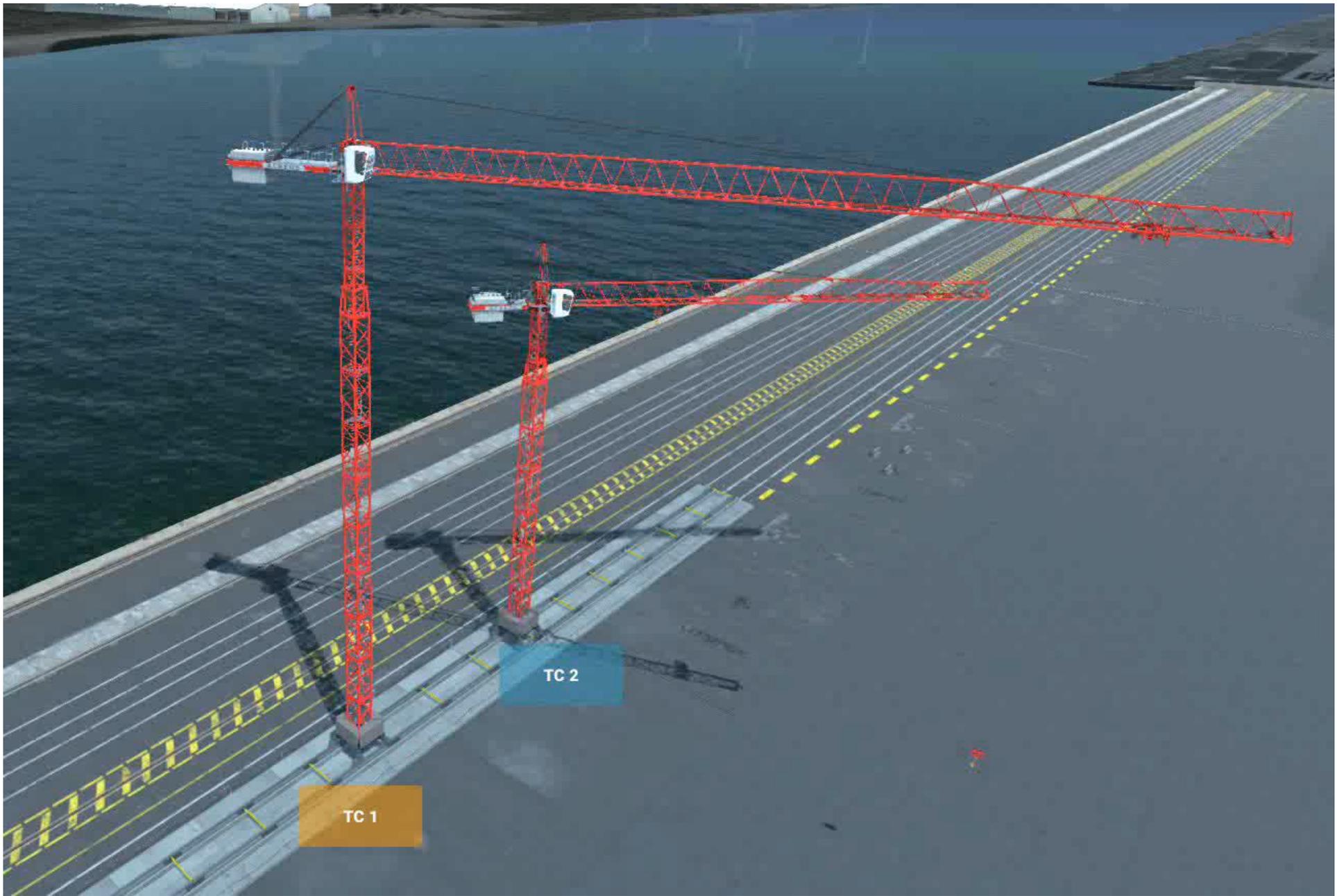
TC 1

TC 2





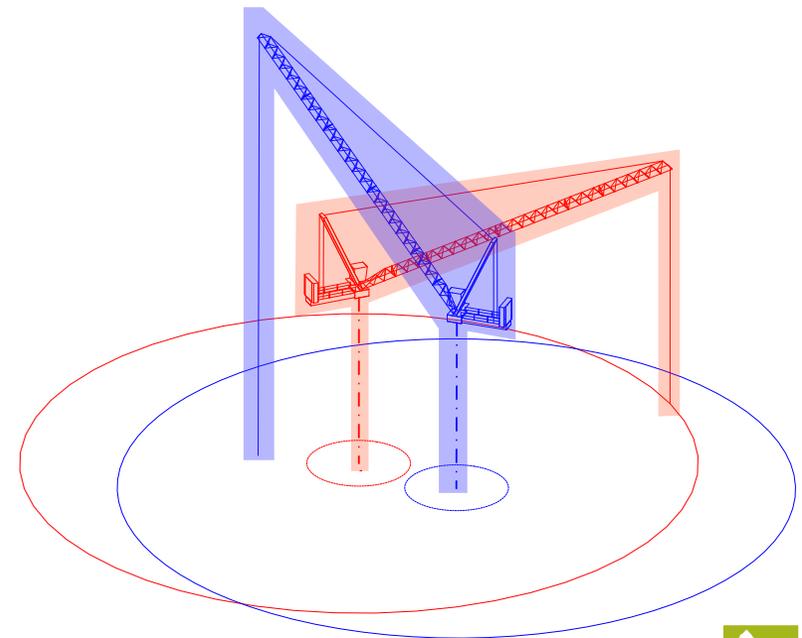
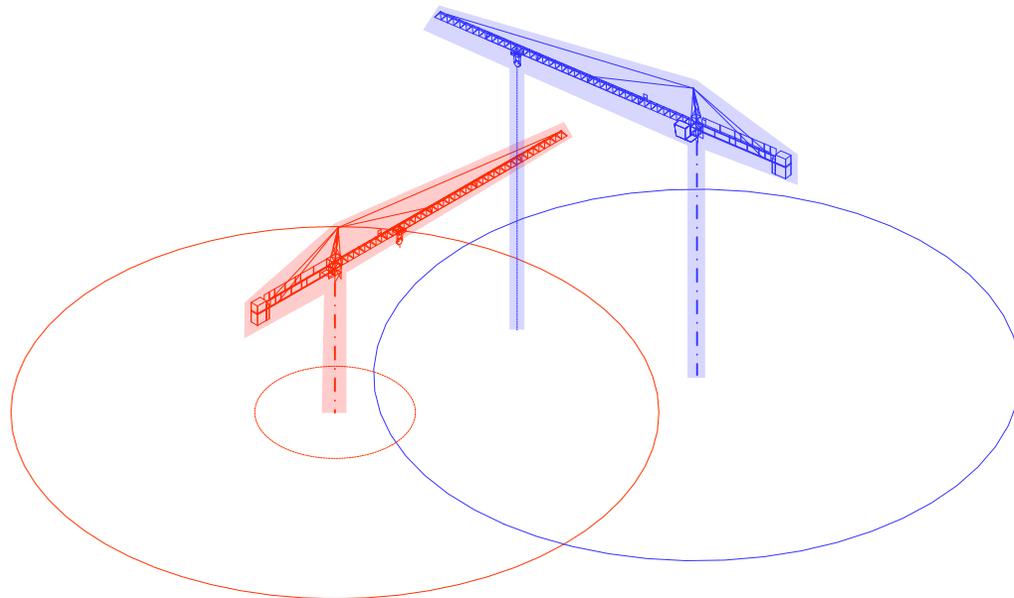




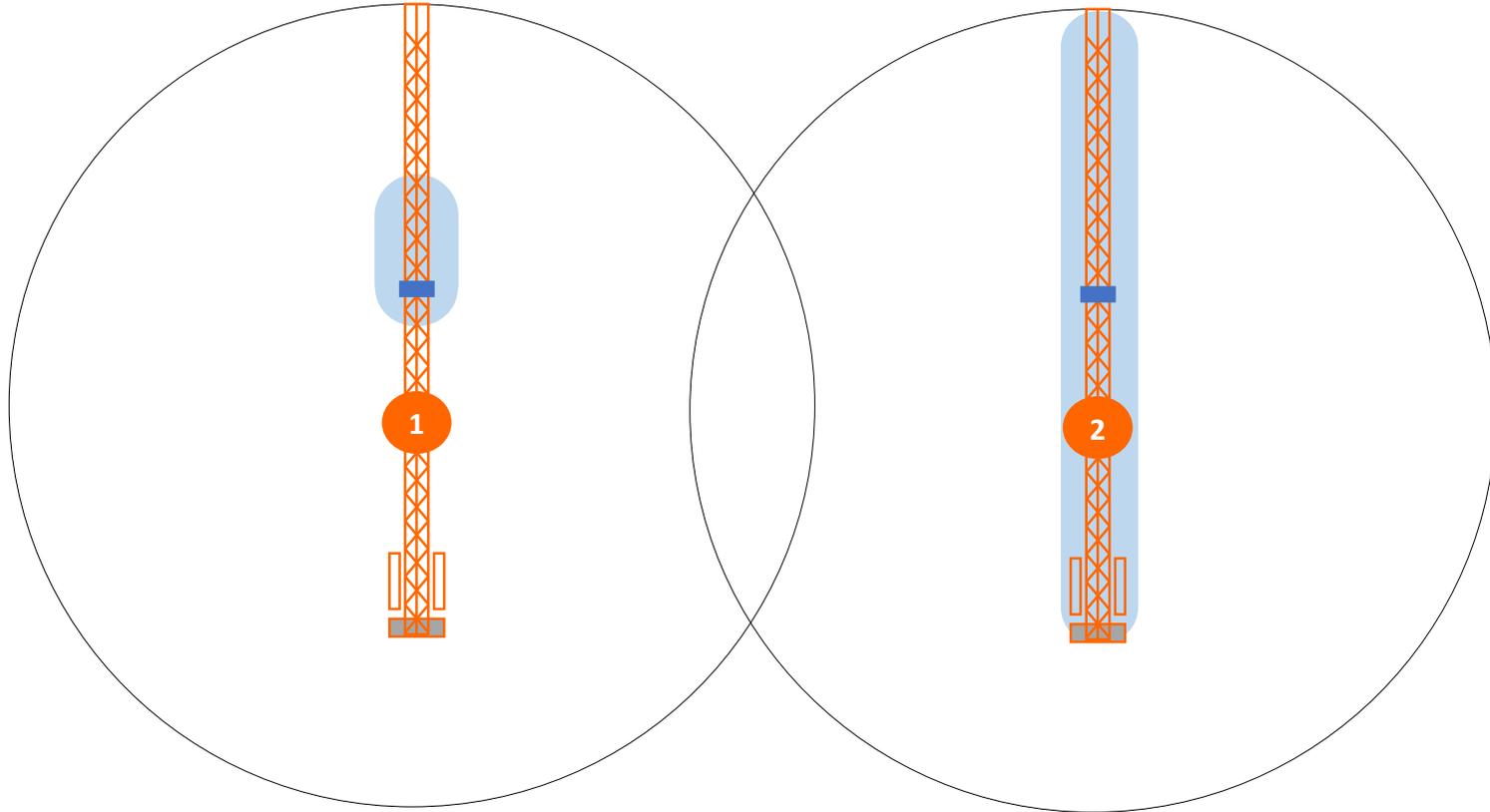
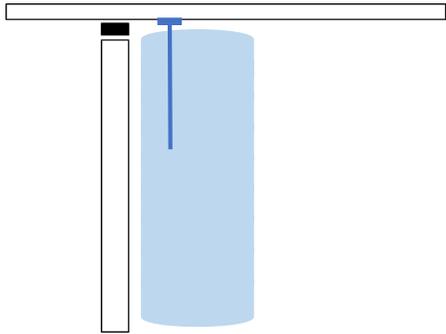
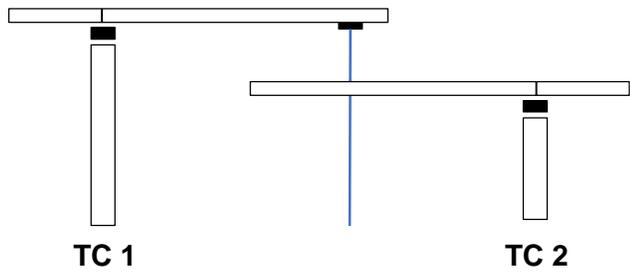
HOW DOES IT WORKS ?

The system applies “adjustable” safety coverage to all of the machines sections

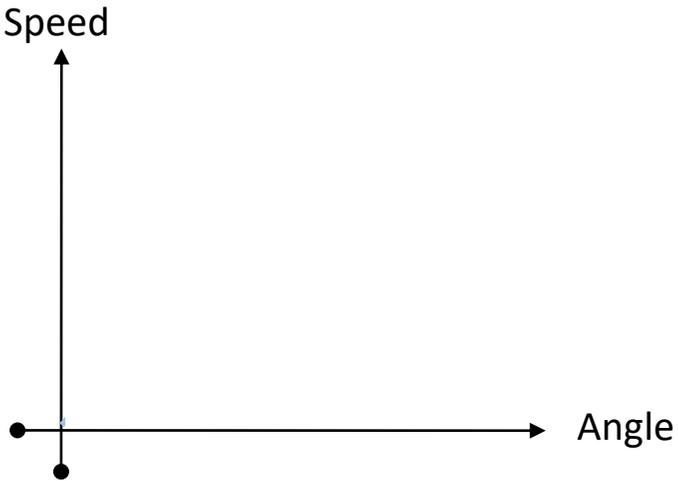
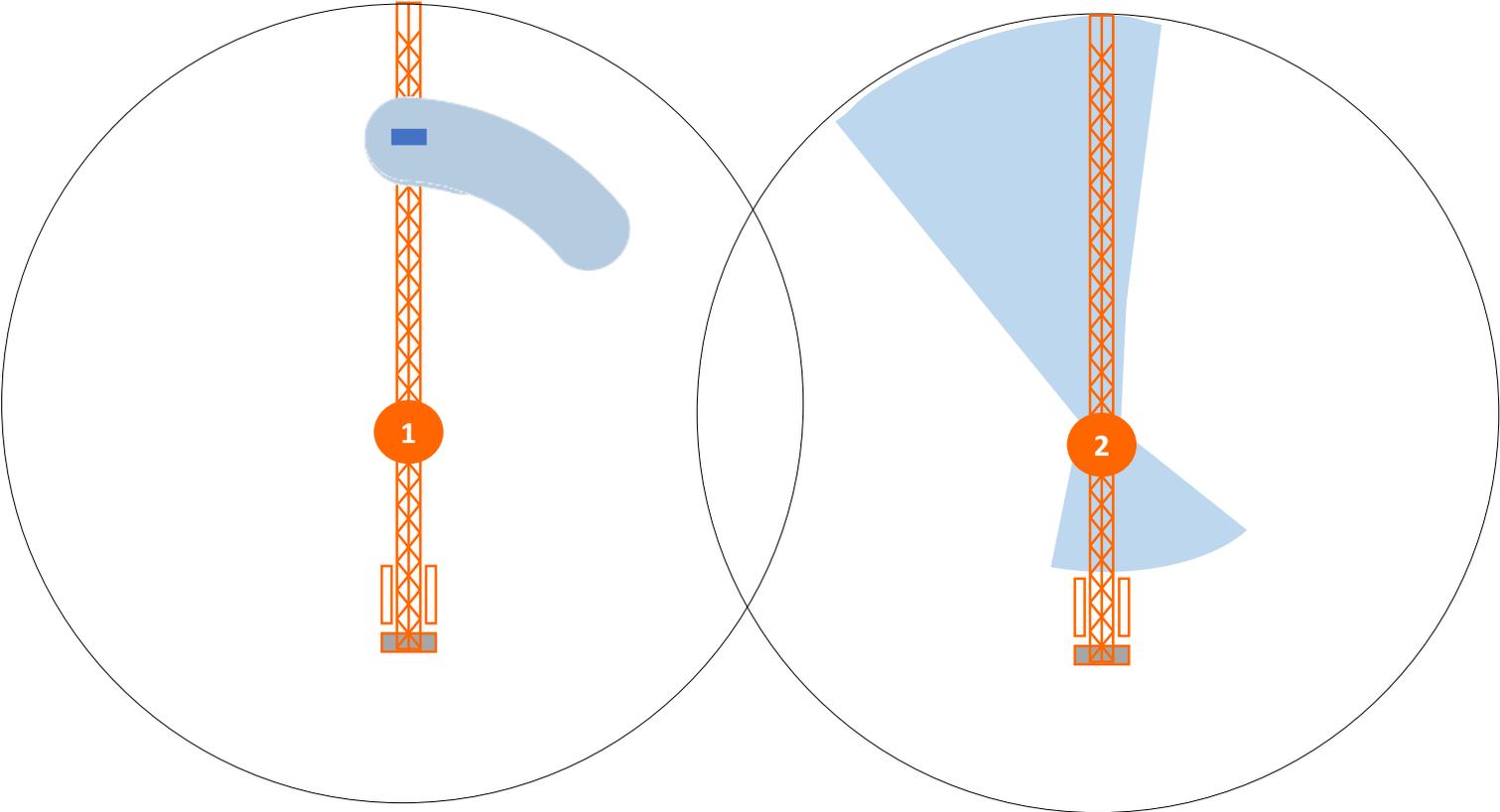
This safety envelope incorporates the jib, counter jib, mast, tower head, tie bars and rope



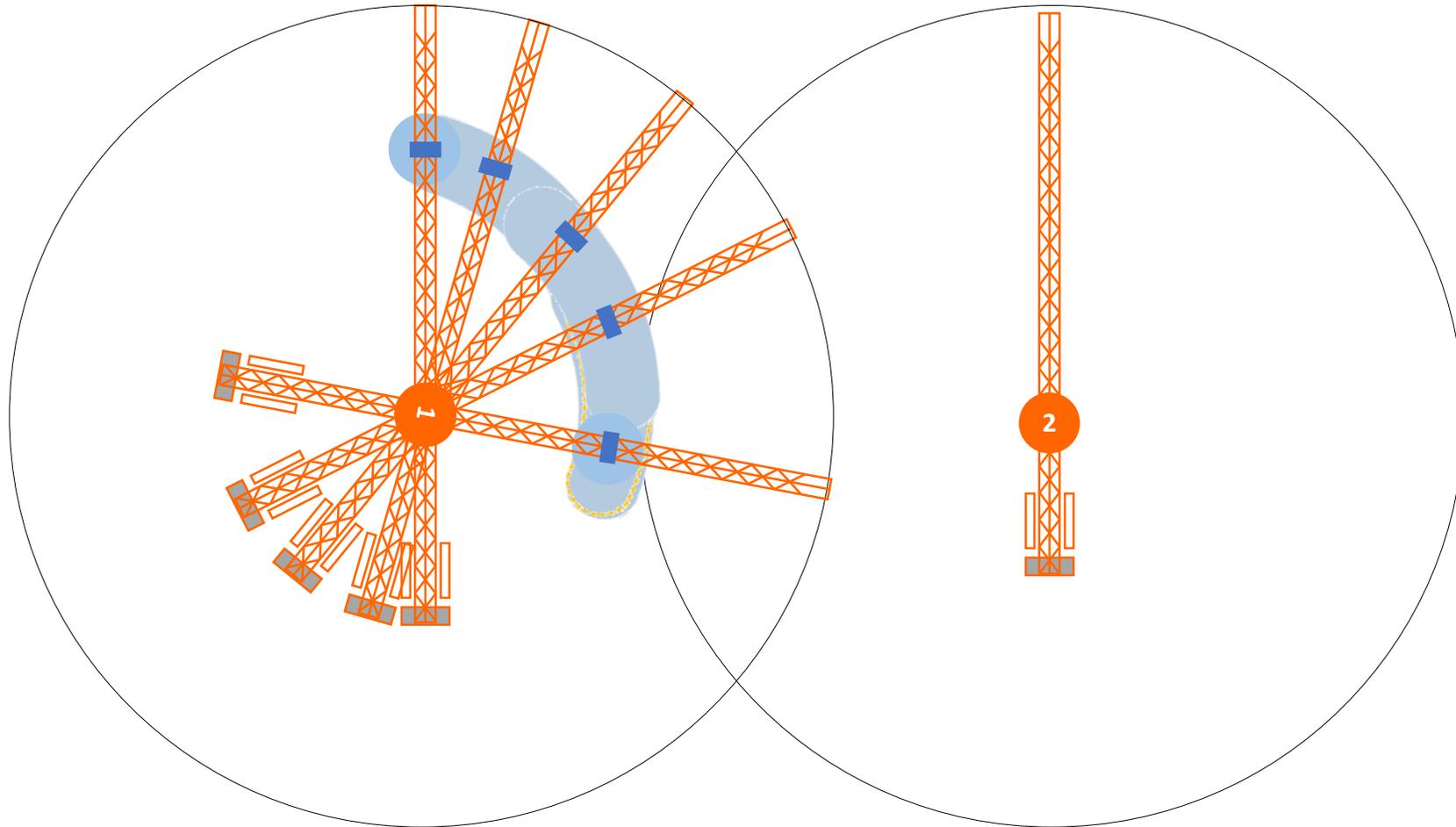
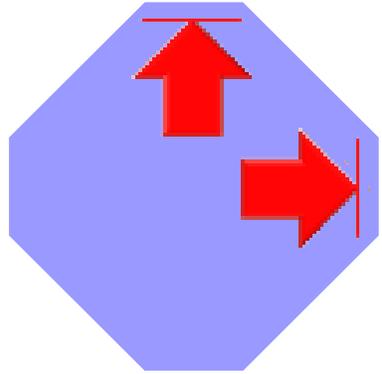
Example



THE SAFETY ENVELOPE IS PROPORTIONAL TO THE SPEED



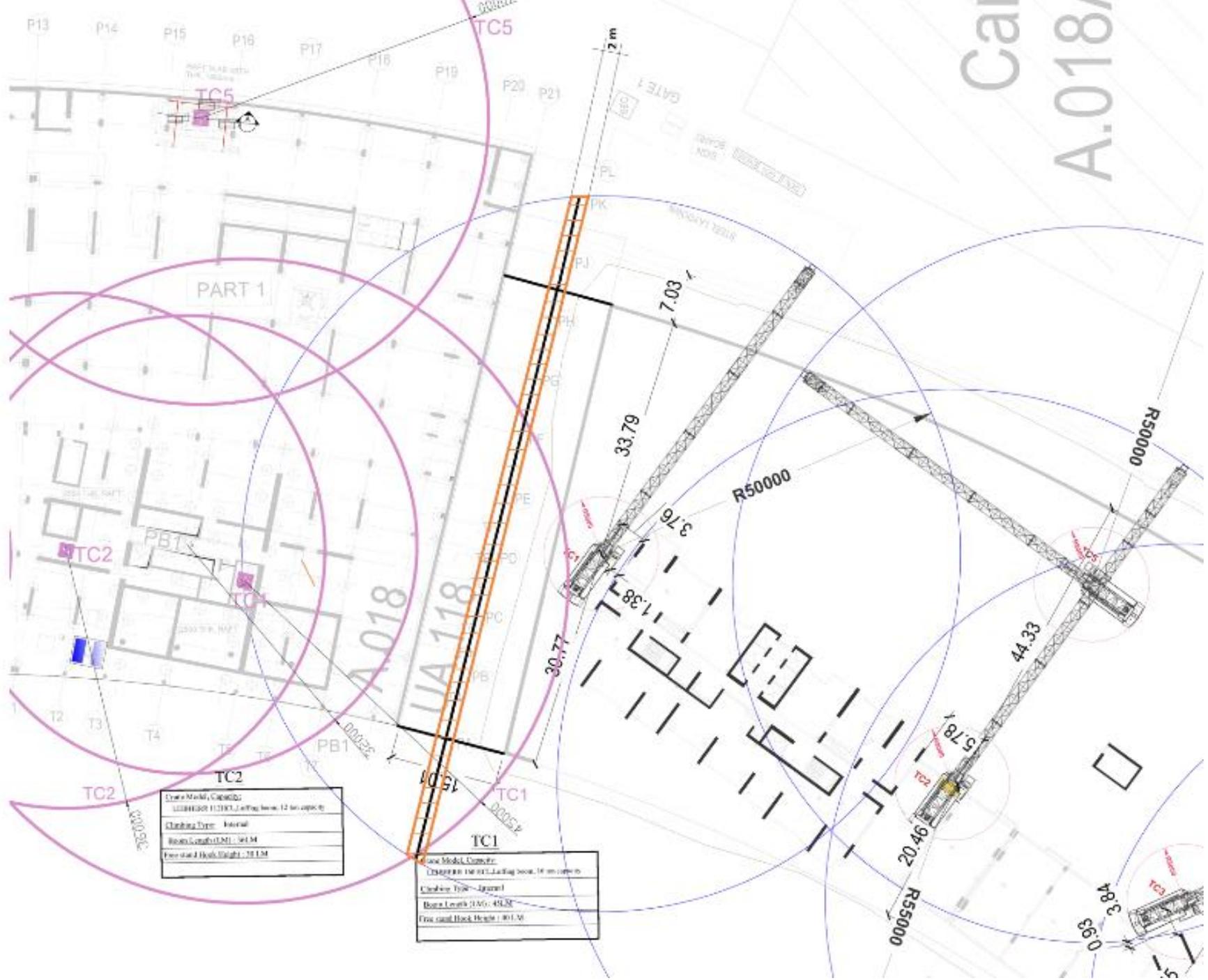
FROM SLOWDOWN... TO STOP THE CRANE



An aerial photograph of a city skyline, likely Dubai, featuring a prominent skyscraper (Burj Khalifa) and a body of water. The sky is blue with some clouds. A semi-transparent orange banner is overlaid across the middle of the image, containing the text "HOW TO MAXIMISE PRODUCTIVITY?".

HOW TO MAXIMISE PRODUCTIVITY?

Car
A.018

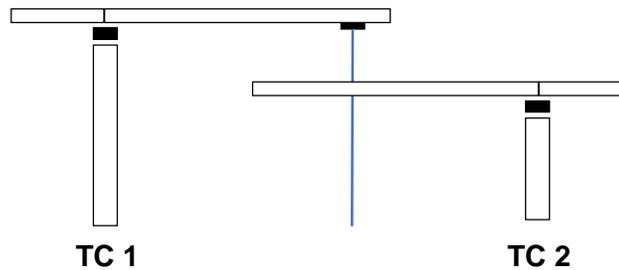
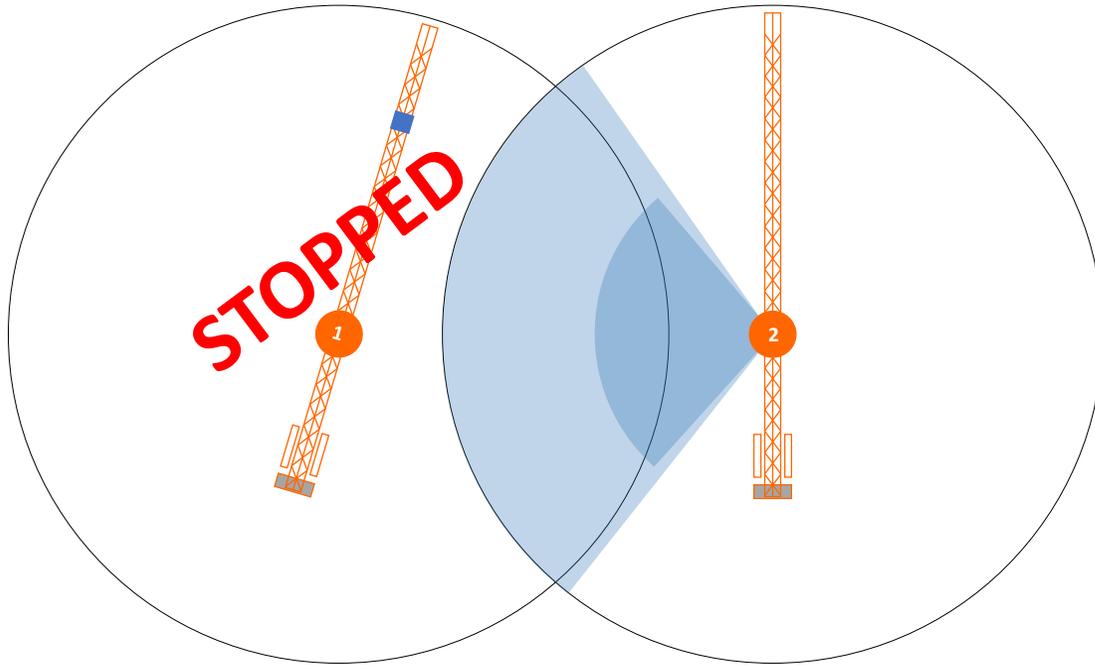


TC2
Crane Model, Capacity: L2200000 112000, Lifting boom, 12 ton capacity
Climb type: Jib
Boom Length (ML): 94.34
Free reach Hook Height: 28.13M

TC1
Crane Model, Capacity: L2200000 112000, Lifting boom, 12 ton capacity
Climb type: Jib
Boom Length (ML): 94.34
Free reach Hook Height: 28.13M

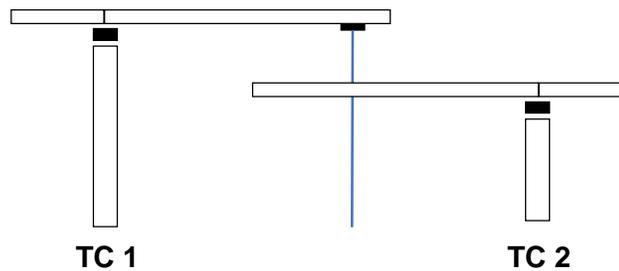
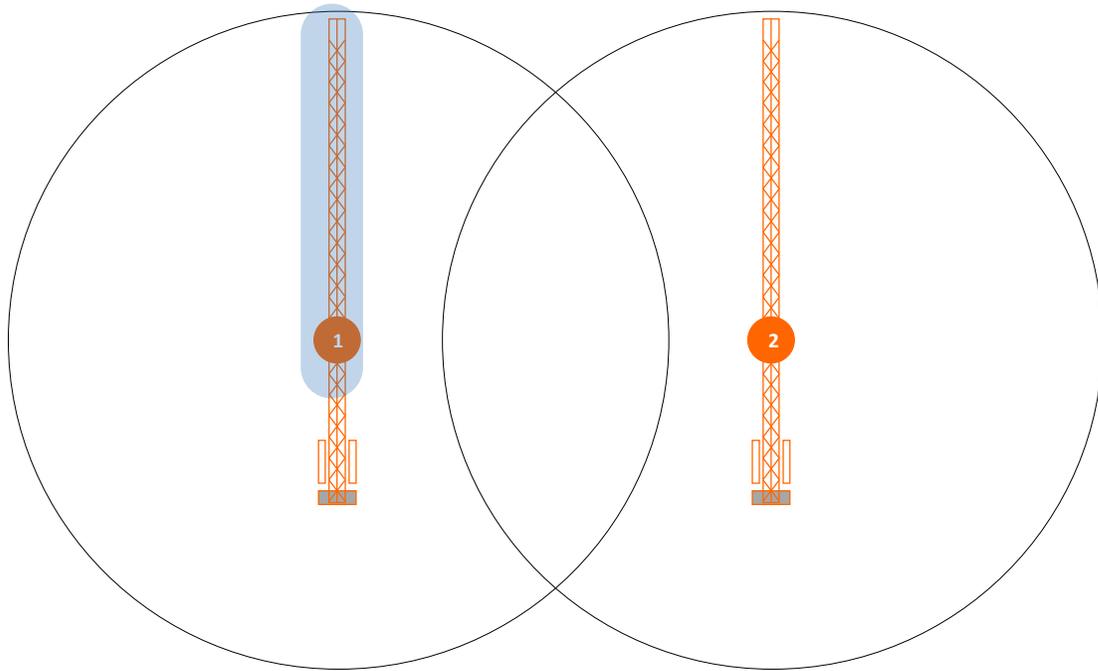
CASES OF POSITIVE SAFETY

— Internal fault on the higher crane



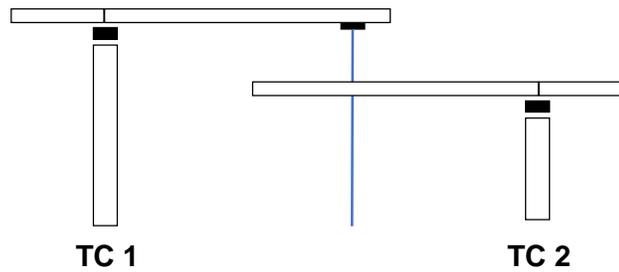
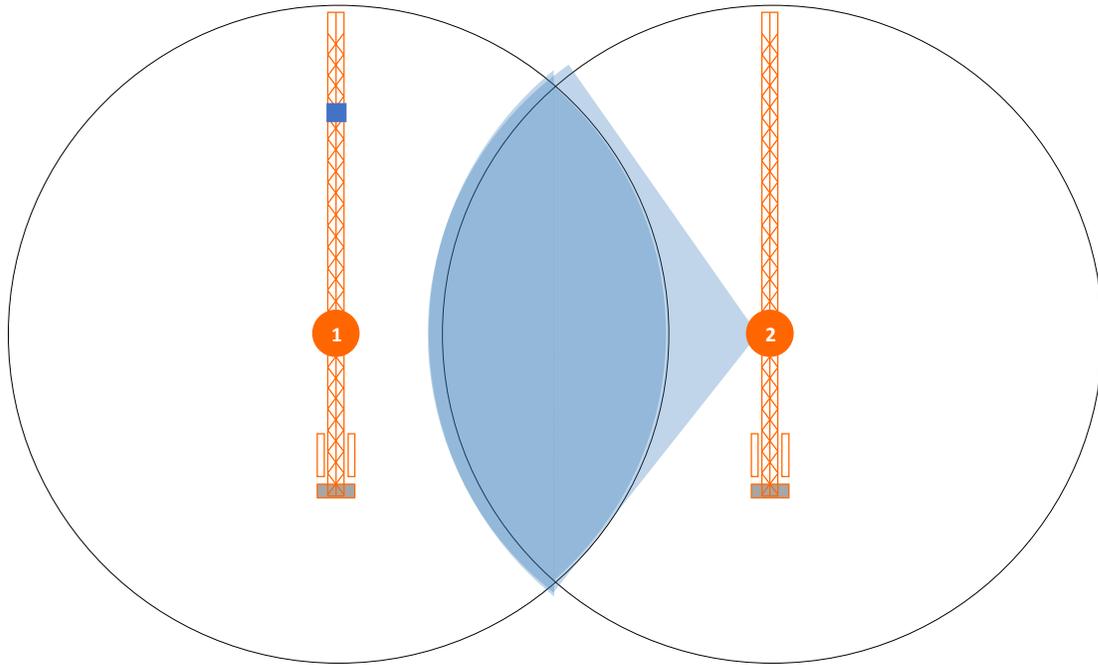
CASES OF POSITIVE SAFETY

— Trolley sensor fault on the higher crane



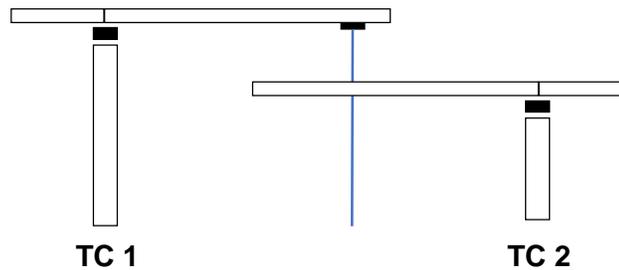
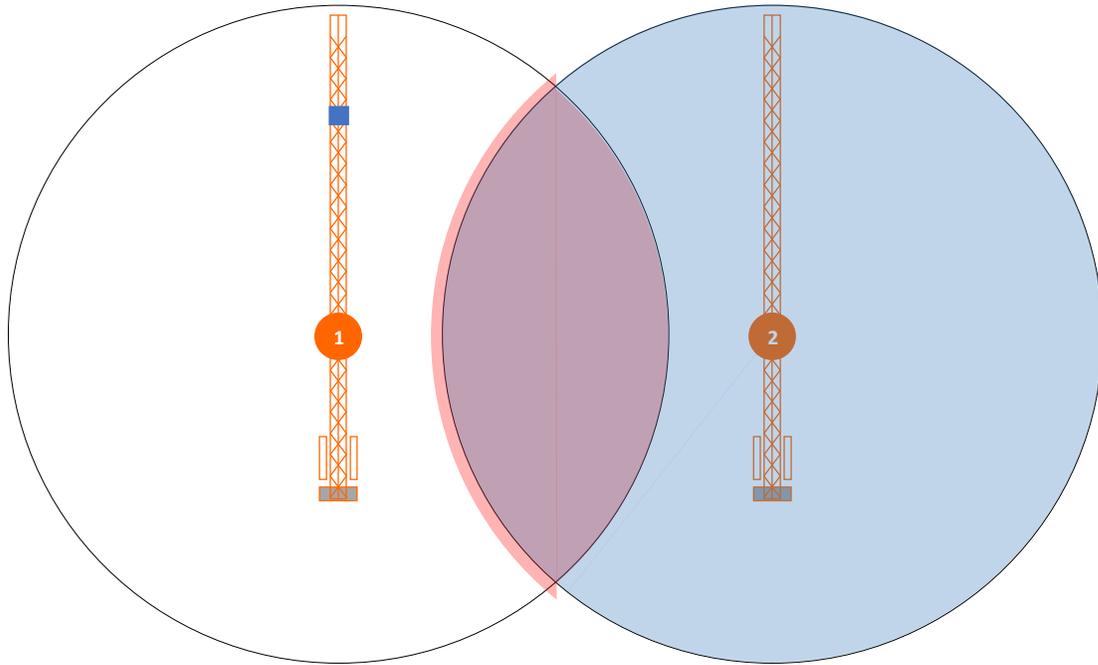
CASES OF POSITIVE SAFETY

External fault



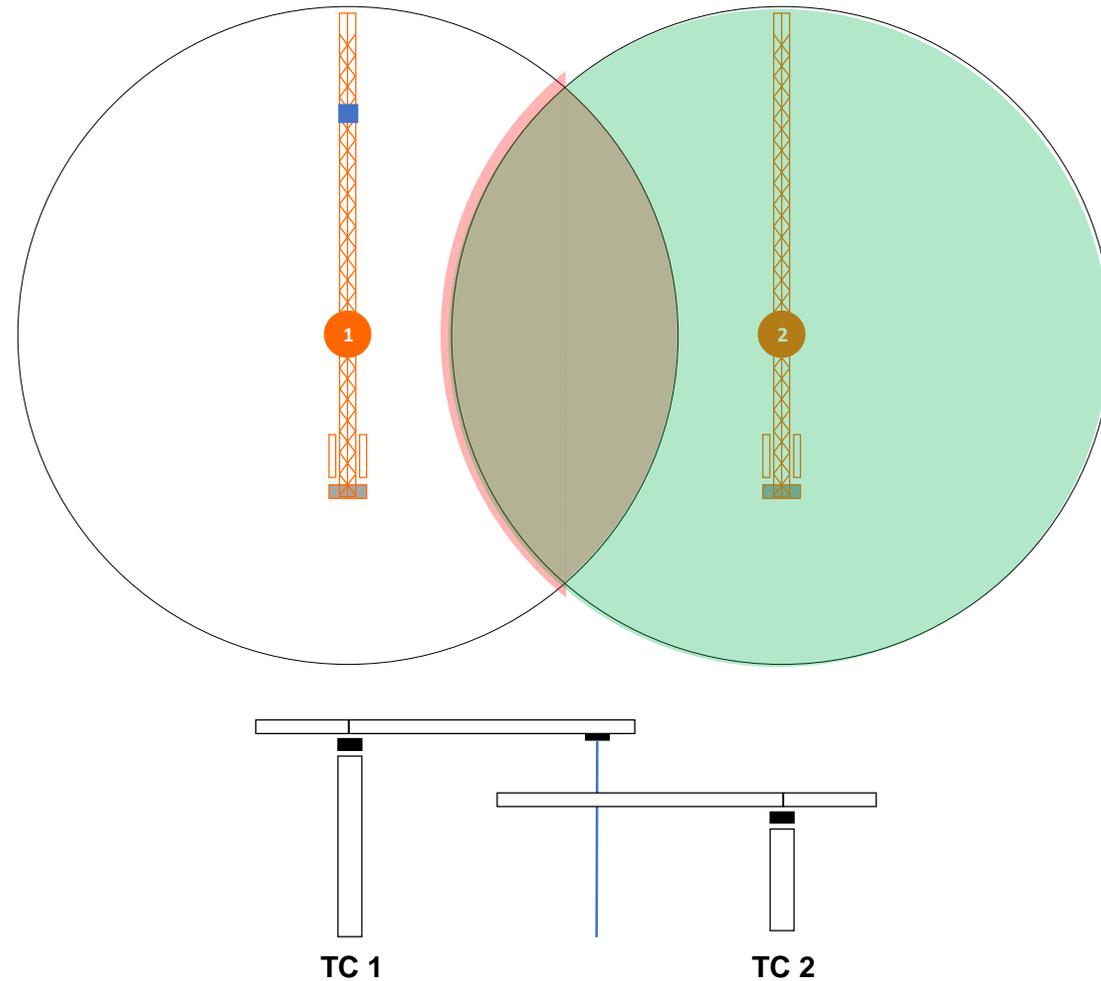
CASES OF POSITIVE SAFETY

Lower crane set to weathervane



CASES OF POSITIVE SAFETY

System on the lower crane bypassed





WHY USE THESE SYSTEMS?

HUMAN LOSS

PRODUCTIVITY LOSS



COLLISION

BAD REPUTATION

FINANCIAL LOSS

DRIVER ASSISTANCE
SYSTEMS

AWARENESS

STATISTIC OF THE
PERFORMANCE

IT IS REGULATED IN MANY COUNTRIES

FRANCE *LABOUR CODE*

R. 4323-38

When two or more cranes are on the same job site and it is creating interferences zones, measures are taken to avoid collisions between the loads or the lifting equipments.

UAE

EHS RI - CoP 34.0
Since February 2012

3.6.8

In the case of tower cranes working within the same radius employers shall consider the use of an appropriate electronic anti-collision device as far as practicable.

SINGAPORE

SS 559
Since 2010

8.3.3

An anti-collision device may be used to prevent a fixed load attachment and cranes or parts of cranes from colliding when they are manoeuvred simultaneously in the same space.

EUROPE

EN 14439
Since January 1st 2010

5.4.2.8

Every tower crane must be equipped with anti-collision systems.

UK

CPA - TIN 010
Since July 2007

15.2

In multiple tower crane installations it is essential to have an "anti-collision radio" system installed.

NEXT STEPS FOR THE MARKET?

- SAFETY CRANES
 - SAFETY ANTI-COLLISION SYSTEMS
 - SAFETY PROTOCOLS OF COMMUNICATION

CONCLUSION

It is a **real challenge** to manage anti-collision between so many different types and brands of cranes

Choosing an anti-collision **system is becoming a decisive and strategic choice**

In more and more countries it is **regulated by the law**

Save time, less maintenance, increase productivity and safety



THANK YOU