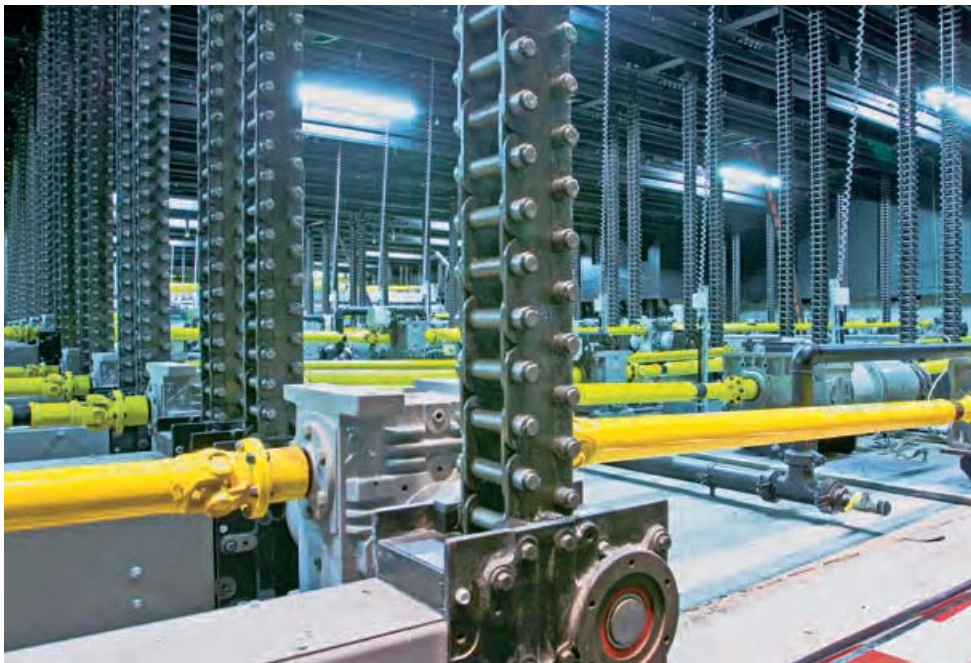


# Building Dynamics

The Art of Moving Structures







## Serapid Building Dynamics

### The Art of Moving Structures

Serapid has been specialising in horizontal and vertical motion through the use of our Rigid Chain Technology for over 40 years. Rigid chain is a telescopic mechanical actuator that is flexible in one direction and rigid, like a steel beam, in the other ideally suited for moving heavy structures over long distances.

Built on the experience of thousands of linear actuation systems, Serapid has the technology to provide unique moving features in buildings. With systems able to push and pull structures weighing in excess of 200 tonnes and lifting capability in excess of 300 tonnes, Serapid has the systems and knowledge to make movement in buildings a reality.

## Dubai Mall

Five large lifts, one with an integral revolve, make up a catwalk covering some 155m<sup>2</sup> allowing a variety of configurations, including provision for direct access from changing rooms to catwalk. The lifts all use

Serapid *LinkLift* technology to provide a compact but powerful lifting solution. The catwalk elevators, completely covered in LED screens, provide a flexible, high tech, retail centre piece in the mall.



Image: Dubai Mall

## Typhoon Theatre

As part of the experiential Typhoon Theatre at Resorts World Sentosa in Singapore, Serapid has supplied a high specification lifting platform measuring some 15 metres diameter and carrying 140 people over 6.5 metres. *LinkLift* 100 columns are used to smoothly and silently lower the audience to the 'bottom of the sea'.



## Foundation Louis Vuitton

A complex system of Serapid *LinkLifts* and rotating floor modules allow fast and fully automatic transition of the FLV Theatre from flat timber floor to 320 seats with variable rake at the push of a button. The system, finished to a very high specification, allows the venue to host multiple events maximising occupancy and revenue.

Image: © Foundation Louis Vuitton



## Rising Tide Bar

The Rising Tide bar is the first seagoing, travelling bar in the world and carries 35 passengers, staff and a fully serviced bar serenely up and down through the atriums in Royal Caribbean's flagship cruise liners.

The bars operate throughout the day providing one of the 'must do' on board experiences. RCCL were looking for a 'wow' factor and this certainly fits the bill



Image: Royal Caribbean International

## Sky Boxes

Located 103 floors above the sidewalk in Chicago, Serapid rigid chains are used to push and pull the four 'Sky Boxes', part of the Skydeck experience, safely and smoothly in and out of the iconic Willis (Sears) Tower.



Image: Skydeck Chicago

## Heron Tower Lighting Mast

Serapid technology was used to overcome the problem of maintaining the aircraft warning beacon on top of a narrow 34 metre spire mounted on the Heron Tower in the City of London. All other means of safely accessing the light had been ruled out but Serapid's unique lifting technology was able to be used to raise and lower the light 47 metres to be worked on in a plant room below.



## Singapore Sports Hub Concourse Lifting System

To overcome problems with capacity and the connectivity of the crowd, the Singapore Sports Hub has installed a flexible concourse seating system allowing the seating arrangements to be changed depending on the sport. Apart from allowing increased capacity for events such

as football and rugby the system also means that the crowd is sitting close to the action. At the centre of the system is the Serapid concourse lifter which is used to lift 43 sections of concourse 9 metres and pin them in to place. The sections weigh up to 110 tonnes and present the problem of being different sizes and having highly eccentric load distributions.



Image: Singapore Sports Hub Pte Ltd



## Campo Pequeno Retractable Roof

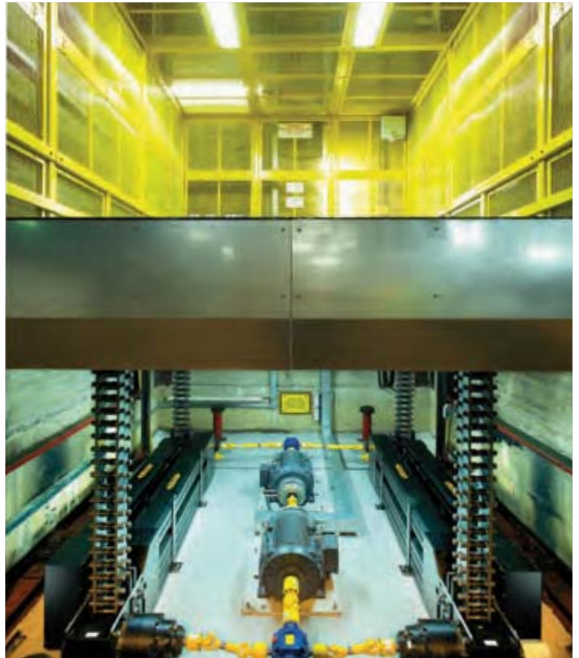
The Campo Pequeno was the premium bull ring in Lisbon and an architectural icon. By the year 2000 it was starting to fall in to disrepair and it was decided to redevelop the arena to allow it to be used not only for bull fighting but also for concerts, circus and shows

As part of the renovation a roof was fitted. While closed for the majority of events, it needs to be opened for bull fighting. Serapid supplied its rigid chain technology to operate 8 roof segments which, when retracted, provide a 36 metre diameter opening in the centre of the roof.



## Production Goods Lifts at General Motors

Recurring problems with reliability and the inherent problem of hydraulic lifts moving when heavy loads enter or leave them, was resulting in damage to both the entrance sills and the forklifts at General Motors' IBC plant in the UK. Serapid *LinkLifts* were chosen for the retrofit for their reliability, low maintenance requirement, short installation time and the fact that *LinkLift* columns are incompressible and hence there is no movement of the car when loads enter or leave the lift. The *LinkLift* units are operating every few minutes and carry 10 tonnes of components between floors for almost 24 hours a day.



Serapid is uniquely placed to design and provide systems and components for:

- **Special design lifts and lifting systems**  
*(bespoke lifts for any application where a conventional lift does not fit)*
- **Moving rooms**
- **Moving roofs**
- **Moving walls**
- **Flexible venues and stadia**
- **Entertainment and performance lifts**
- **High capacity and special purpose lifts**  
*(up to and over 300 tonnes)*
- **Goods and car lifts**
- **Construction lifting systems**
- **Building Maintenance Unit lifts**

Choose **SERAPID** for our quality, cutting edge technology, expertise and commitment to customer service.

In the words of one of our clients:

*"I don't remember how we came across Serapid; possibly when hunting around for a technical precedent for what we wanted to propose, which existed, as far as we knew, only in theatre staging systems. What the Serapid team brought first was an incredible openness to taking on what, to most people, would have sounded like an impossible challenge: to make a piece of public space move. Where we would have expected every other company on earth to say 'no, it's not possible', Serapid simply brought solid technical expertise and immediately set about demonstrating how it could not only be made possible, but completely plausible and reliable."*

David Saxby **OO:/** Architects



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The logo for SERAPID, featuring the word 'SERAPID' in white, bold, italicized capital letters, enclosed in a white double-headed arrow shape, set against a dark red background.

**SERAPID**