

XS

MAGAZINE

Presenting you with work-at-height safety solutions and projects by XSPlatforms

ISSUE 2 | 2018

FACADE ACCESS AND FALL PROTECTION for the Grand Egyptian Museum



HOW TO REPLACE GLASS
on high-rise buildings?



6 TIPS for preventing slips,
trips and falls



ODIN LIFELINE CALCULATION TOOL

Precise calculations for a
horizontal lifeline system

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DEAR READERS,

This issue of our XSMagazine is once again filled with the latest news, interesting articles about our projects worldwide and updates about XSPlatforms products.

We have been busy, aiming to help our clients create a safe work environment at any height. Therefore we have introduced an improved XSGuardrail product range and launched the innovative Horizontal XSRail system. Both systems offer not only safety at height, but also ease of use and an aesthetically pleasing design.

As seen in our product developments, our engineers never avoid a challenge and take up any project with a can-do attitude. Another good example is the Grand Egyptian Museum, set to open midway 2018. An impressive building for which we designed several custom solutions for facade maintenance, ensuring that visitors of the museum see as little of the maintenance work/facade cleaning as possible and the building stays in pristine condition.

Reading this magazine you will see that the solutions we offer are an ideal combination between standard equipment and custom-built solutions. We listen intently to our customers and provide solutions for their true needs.



Geert Cox
CEO XSPlatforms

Enjoy!

A handwritten signature in black ink that reads "Geert Cox." The signature is written in a cursive, flowing style.

Geert Cox
CEO XSPlatforms

COLOPHON

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NEWS

IN THE WORK AT HEIGHT INDUSTRIES

UK: EMPLOYEES MUST ALSO COMPLY WITH WORK AT HEIGHT SAFETY STANDARDS

While companies are mostly seen as the instigator in citations for work at height, employees also have a duty to take reasonable measures for their health and safety and the health and safety of others.

Two HSE investigations in the UK concluded that workers had failed in using their provided fall protection equipment properly. The employees in question received fines and hefty suspended prison sentences for breaching working at height regulations. In both cases no action was taken against the employer, because they had taken reasonable steps to avoid working unsafely at height. Employees had been properly trained and were given the correct personal protective equipment to carry out the job safely. ■

SGP: FACADE INSPECTION TO BE MADE MANDATORY

Building owners in Singapore will soon be required to conduct facade inspections for buildings taller than 13 meters and older than 20 years. To ensure they are well-maintained inspections have to take place every 7 years. Currently there are no requirements for building owners to inspect facades.

The Building and Construction Authority (BCA) aims to finalize the legislation for the inspection by the end of the year. The new regime will most likely consist of two stages - a full visual inspection to check for deterioration such as corrosion and cracks. Stage two consists of a hands-on inspection of at least 10% of the building facade.

The Second Minister for National Development, Desmond Lee, said, on March 6th 2018, that building owners will be given about a year to get ready before the requirements are taken into effect. ■



EU: NEW PPE REGULATION ADAPTED

As of April 21st 2018 the European Union has adapted the new Personal Protective Equipment (PPE) regulation (EU) 2016/425. Main changes flowing from the regulation are that all PPE certificates get a validity period; manufacturers must provide copy of Declaration of Conformity to the end-user and all PPE must be tested according to the latest safety standards. The regulation will apply directly to all EU member states without transition into national legislation.

All XSPlatforms PPE is conform the new EU PPE regulation. ■ [Click here to read an related article](#)

NL: FALLS FROM HEIGHTS #1 WORKPLACE ACCIDENT

New statistics show that falls from height hold the first place in the top 5 serious workplace accidents in the Netherlands. Being hit by a falling object is mentioned as a separate category and can be found on the third spot on this list. This shows our work is far from done, creating safe work environments at any height. — Source: Ministry of Social Affairs and Employment ■

US: NEW ENTRY TO OSHA'S TOP 10 MOST CITED VIOLATIONS

OSHA's top 10 most cited safety and health violations rarely alters. However the list over fiscal year 2017 showed a completely new entry; OSHA 1926.503 Fall protection – training requirements. It is concerning to see that so many employers do not give their employees the appropriate training for working at height in the United States. ■ [Click here to read an related article](#)



SOLAR PANELS AND ROOFTOP SAFETY

Studies show that sustainability isn't only good for the planet, it's also good for business. So it isn't surprising to see more and more businesses going solar.

But with roofs filled with solar panels, there is hardly any room left for maintenance personnel to do their job. To ensure that workers have safe access to the PV-solar panels all fall hazards have to be taken away which can be done by a collective safety solution, such as a flexible guardrail system. However, shading can affect the efficiency of the PV system. The advantage of a flexible free-standing guardrail is that it can be **folded down when not in use**. This guarantees maximum required safety on the roof, and the lowest amount of efficiency loss. ■ [Click here to read an related article](#)

GLOBAL MARKET OF FALL PROTECTION EQUIPMENT GROWS

The global and regional Fall Protection market will grow from USD 2.13 Billion in 2017 to USD 3.49 Billion before the end of 2023. The Fall Protection market is estimated to register a compound annual growth rate of 8,60% between 2017 and 2023. — Source: Global Fall Protection Market Survey ■

DID YOU KNOW?

XSPlatforms has created a set of 3D objects containing anchor points, horizontal lifeline systems and guardrails for Building Information Modeling (BIM).

By integrating fall protection measures into your BIM model you can ensure that conflicts with other equipment, such as rooftop installations, are prevented. ■

Learn more at:

fallprotectionxs.com/bim-objects



NBK



Image courtesy of Probuild and XSPlatforms Australia

Marina Tower



SNAPS FROM THE FIELD

NBK

Remember the Crown BMU we created for the National Bank of Kuwait (NBK), which was featured in our latest magazine?

During testing we snapped a great picture of the process when the BMU was at its highest point.

[Click here](#) for more information

Marina Tower

The Marina Tower in Melbourne, Australia is an amazing three-tower project and a new architectural masterpiece.

This building required an integrated solution that does justice to the buildings architecture. ■

[Click here](#) for more information



XSRAIL AND XSGUARDRAIL

BY OUR FIVE CORE VALUES

At XSPlatforms we work towards a world where working at height is simple and safe. In order to provide safety for all those working at height we come up with innovative products, improve already existing products and design custom made solutions.

The first half of 2018 marked the introduction of the redesigned XSGuardrail and the launch of the newly developed XSRail system. Both products make work at heights safer and easier and both were developed in line with the XSPhilosophy. All our actions and decisions are guided by our five core values.

Safety above all

"Every solution we provide meets or exceeds the highest safety standards to ensure that users can fully rely on the equipment they are working with."

Our XSGuardrail product range has received a make-over in order to improve stability and sturdiness and thus increase safety. Guardrails provide ultimate safety for those who work or walk at height, because the risk of falling off a roof is eliminated.

To ensure the safety of our products we test our products according to the highest international safety standards.

Focus on the customer

"By making the demands and requirements of our customer our top priority we often surpass expectations."

The wishes of the customer are always central to our product development. Improvements to our XSGuardrails can in part be attributed to questions from customers. We increased ease of installation, resulting in a shorter installation time and reducing installation costs. Furthermore we increased the maximum distance between uprights, without compromising safety, so that less uprights are needed for longer distances. Thus saving costs on materials. And last, but not least we increased stability and sturdiness to increase safety.

Simplicity defines quality

"Every addition needs to contribute to the performance, ease of use and /or safety of our equipment."

We want to guarantee safety and ease of use to anyone who uses our products. Our XSRail, for example, can be installed on (flat/low sloped) concrete roofs, walls and ceilings or (rigid) overhead structures. Once installed workers can effortlessly attach an XSRail runner to the rail system to which they attach their retractable fall arrest device, or lanyard.

The best isn't good enough

"XSPlatforms strives to provide world class solutions for each project, whether it concerns (temporary) facade access equipment, fall protection or scaffolding."

We set the highest standards because only the very best is good enough for us. Therefore we are always open to improvements on our products.

As was the fact for increasing stability and sturdiness to the XSGuardrails, or the creation of the XSRail runner, a smooth and detachable slider that can be attached to the XSRail at any point of the trajectory.

There is no such thing as a problem

"If we wouldn't think in possibilities, the innovative solutions we offer would never see the light of day."

Our engineers always come up with solutions, because we prefer to think in possibilities.

These five core values make up our XSPhilosophy. Leading us to deliver our solutions to the world's most unique buildings and structures, providing safe work environments at any height; whether you are working on the roof of a two-story building or washing the windows of the world's most iconic skyscrapers. ■

Want to learn more about **XSRail**, **XSGuardrail** or our other fall protection solutions? Please, visit fallprotectionxs.com

“ We set the highest standards because only the very best is good enough for us. ”

THE GRAND EGYPTIAN MUSEUM

FACADE ACCESS AND
FALL PROTECTION FOR ONE OF THE
WORLD'S LARGEST MUSEUMS



Images courtesy of Heneghan Peng Architects, Krzysztof Chabier and XSPlatforms

Situated between modern Cairo and the ancient pyramids of Giza, the new state of the art Grand Egyptian Museum (GEM) arises. Upon completion, in mid-2018, it will be the world's largest museum complex dedicated to a single civilization. The immense scale of the project is worthy of a Pharaoh and gets referred to as Egypt's fourth pyramid.





From Museum of Egyptian Antiquities to Grand Egyptian Museum

The Museum of Egyptian Antiquities is best known for its large collection of artifacts from ancient Egypt. The collection includes several world renowned objects, such as the golden death mask of King Tutankhamun and the mummy of Queen Hatshepsut. As the museum grew out of its location in the center of Cairo, a plan was made for a brand new museum build just outside the Egyptian capitol.

The Grand Egyptian Museum (GEM), designed by Heneghan Peng Architects, is erected about 2 kilometers (1.2 miles) west of the Giza pyramid complex. It will cover approximately 3,000 years of Egyptian history and houses over 100,000 artefacts. The GEM will span an area almost 9 times the size of the Great Pyramid of Giza. Next to a large area for permanent exhibition, the GEM will also include a children's museum, conference center, education facilities, a large conservation center and extensive gardens.

Characteristic of a GEM among museums

The GEM pays tribute to the nearby pyramids by replicating and modernizing their triangular shape. This shape can be found in nearly every aspect of the building. Next to this, the GEM is defined by a 50 meter (164 feet) level difference, following the contours of the Egyptian desert, formed by the Nile. This is also reflected in the open interior design of the museum, existing of a large corridor system, all connected by one main stairway.

The GEM is characterized by its extensive glass facade and translucent stone wall, providing visitors an excellent view of the iconic pyramids. To guarantee visitors with a view that is clear at all times, it is of utmost importance to have the windows of the museum maintained and clean.

Maintaining the GEM

Following the wishes of our client the FacadeXS solution(s) provide perfect access to the extensive glass facades (interior and exterior), without impeding on the visitors' experience while exploring the museum.

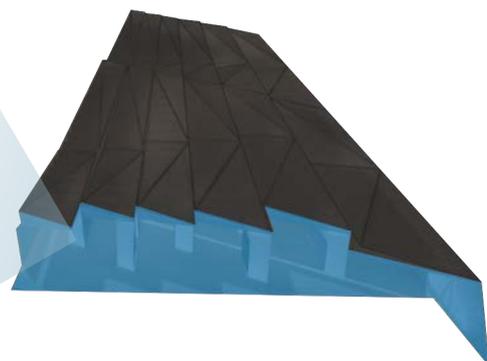
XSPatforms has designed a variety of interior and exterior facade access equipment solutions for the various segments of the buildings. As well as custom roof safety solutions for fall arrest purposes. ■

[Read more in our blog](#)



GEM covers approximately 3,000 years of

Egyptian history and houses over 100,000 artefacts.





HOW TO REPLACE GLASS WINDOWS

OF HIGH-RISE BUILDINGS

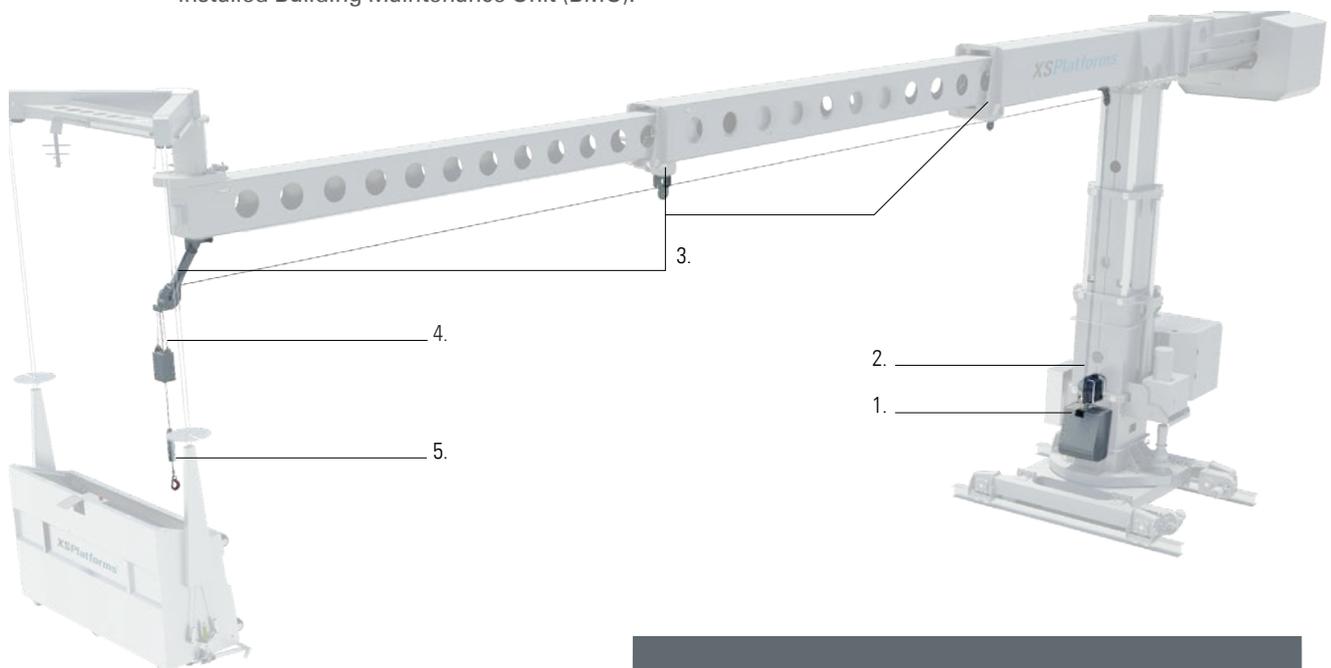
Although glass panels used for high-rise buildings are thick and strong, extreme weather conditions and other factors can damage or crack a panel, in which case the glass panel needs to be replaced.

A decent sized glass panel weighs quite a lot, so installing or replacing a window of a glass facade often requires heavy duty equipment. If the glass panels can't be transported inside the building and a crane can't reach the level where glass replacement is needed, another solution is using the already installed Building Maintenance Unit (BMU).

Using a BMU for glass replacement

A Glass Replacement Unit (GRU) consists of a winch incorporated in the BMU with wire rope running from the base via pulleys to the end of the jib. A snap-hook is attached to the wire rope and is suspended in front (or at the back) of the gondola. The hook can carry various tools, including a special suction tool that can hold heavy glass panels.

Equipping a BMU with a GRU facilitates easy glass replacement at any height and for any size of glass panel.



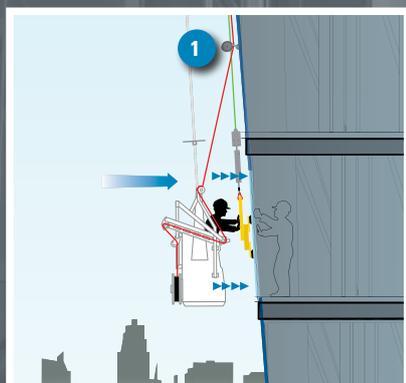
*BMU of Fountain View Hotel,
Dubai, United Arab Emirates*

What are the different elements of the GRU:

1. Winch unit with wire rope storage
2. Hoist to ascend/descend the snap-hook
3. Pulleys to guide the wire rope
4. Anti-collision safety mechanism
5. Snap-hook (or glass hook) to attach equipment to

REPLACING WINDOWS IN HARD-TO-REACH FACADE AREAS

Contemporary architectural design, however, makes some facade areas hard to reach due to protruding or twisting parts and other design elements. However, special equipment has been developed to also be able to replace glass panels in these hard-to-reach areas



Working on inclining facades

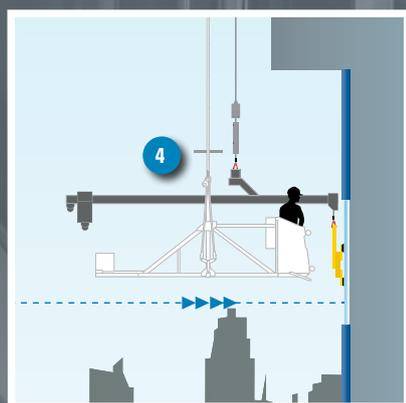
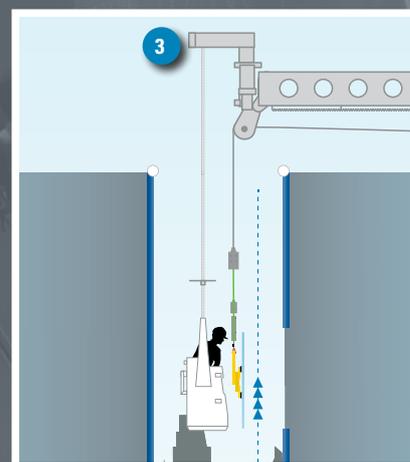
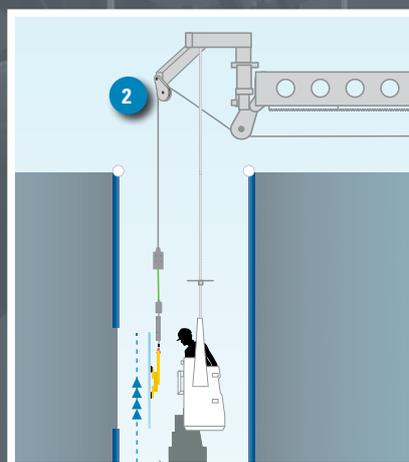
Replacing a glass window in an inclining facade can be done with a GRU pulley and GRU pulley bar (1). These tools make sure that the snap-hook and the glass panel can be suspended close to the facade. The soft rope system keeps the gondola close to the facade and the pulley bar does the same for the GRU, ensuring the glass panel can be installed.



GRU pulley bar

Replacing glass panels at the frontside or backside of the gondola

There are areas where the glass panel that has to be replaced is located at the backside of the gondola. Thus, a temporary GRU guiding wheel (2) is installed on the spreader (3) to relocate the position of the glass hook.



Glass replacement beneath protruding areas

To replace windows beneath a protruding area a GRU balancer (4) is installed. This is a steel beam with a hook and/or suction tool at one end and a movable counterweight on the other end to balance the system. The beam reaches over the gondola and holds the glass panel in front of it. The GRU balancer and the gondola ascend to the level where the glass needs to be replaced.

The jib of the BMU withdraws, or the roof car drives backwards, to move both the GRU balancer and the gondola towards the facade below the protruding area. The angle of the suction tool can be manually adjusted to position the glass panel according to the angle of the facade, simplifying the installation.

Added value of a GRU

Equipping a BMU with a GRU will facilitate easy glass replacement at any height and for any size of glass panel; even for hard-to-reach areas. And a BMU can easily be transformed to help carry the glass panels to the required level. ■

[Read more in our blog](#)



ODIN | FOR THE PROFESSIONAL ENGINEER

Making a precise calculation for a horizontal lifeline system, or engineered system, demands a lot of specific knowledge, for example about the relevant safety standards, energy absorbers, lumping factors, lanyards, etc.

At XSPlatforms we want to make working at height safer, this also encompasses the installation of fall protection systems. As such we have developed a tool that makes calculating horizontal lifeline systems a breeze. When you fill in the parameters ODIN calculates the entire system for you, including documentation showing conformity to safety standards. ODIN makes effective calculations for each section of the lifeline system.



Certifications

ODIN can test lifeline setup compliance with the following standards:

- EN795:2012 & CEN/TS16415 (EUR)
- ANSI Z359.6:2009 (USA)
- CSA Z259.16-04:2009 (CAN)

Eliminate miscalculations

System calculations are mandatory, but there are a lot of factors that influence the performance of a lifeline system, for example the surface on which the system is mounted and the number of simultaneous users. Together with the variables of the configuration (span length, number of spans, maximum arrest force etc.) these factors complicate the calculation of a lifeline system. Additional difficulty stems from the fact that each project is unique. Calculating a project manually therefore isn't only time consuming, but also increases the risk of miscalculation. Using ODIN these are things of the past. You simply fill in the required information and after calculation ODIN provides a pass or a fail on the system.

Complete safety documentation

Fill in the variables for your (client's) project, choose the applicable standard (EN, ANSI or CSA) and ODIN calculates the custom lifeline system for you. ODIN also calculates if the solution meets the selected safety standard. If it does ODIN generates the complete safety documentation needed to prove conformity to the standards and guidelines and provides the customer with a unique system certificate.

Product specifications will not suffice as proof of conformity for a lifeline configuration. Therefore ODIN is the easiest way to guarantee that the custom lifeline configuration you offer complies with the applicable safety standards, without relying on manual calculations.



ODIN IN PRACTICE

Fall protection measures had to be installed on the roof of a factory location in The Netherlands.

First we completed a risk analysis to see what fall protection measures were needed, where employees would enter the roof and what installations were on the roof etc. The information from this risk assessment and the measurements of the roof form the basis for the ODIN calculation.

All project information was then put into ODIN. Because we were dealing with different lifeline system configurations different calculations had to be made.

After calculation, ODIN's report showed that the system complied

with the given standard and the proposed system passed five safety checks; maximum arrest force (MAF), maximum load on intermediate (MIL); maximum arrest load (MAL), maximum cable force and fall clearance. Meaning the system is safe, and the documentation ensures the end-user of such.

In total 10 different lifeline systems, overall about 660 meters (1968 ft) of steel wire-rope, were installed. As ODIN also calculates the minimum fall clearance it turned out that part of the system could only be used as a restraint system.

In other areas the minimum clearance was high enough for work with a fall arrest system. In these areas extra XSGlobe anchor points were installed to protect employees from a possible pendulum, or swing-fall effect in case of a fall. ■

ODIN[®]
Lifeline calculation tool

ODIN is exclusively available to our Partners. Want to know more about ODIN or about becoming Partner of XSPlatforms? Contact us via partnersupport@xsplatforms.com

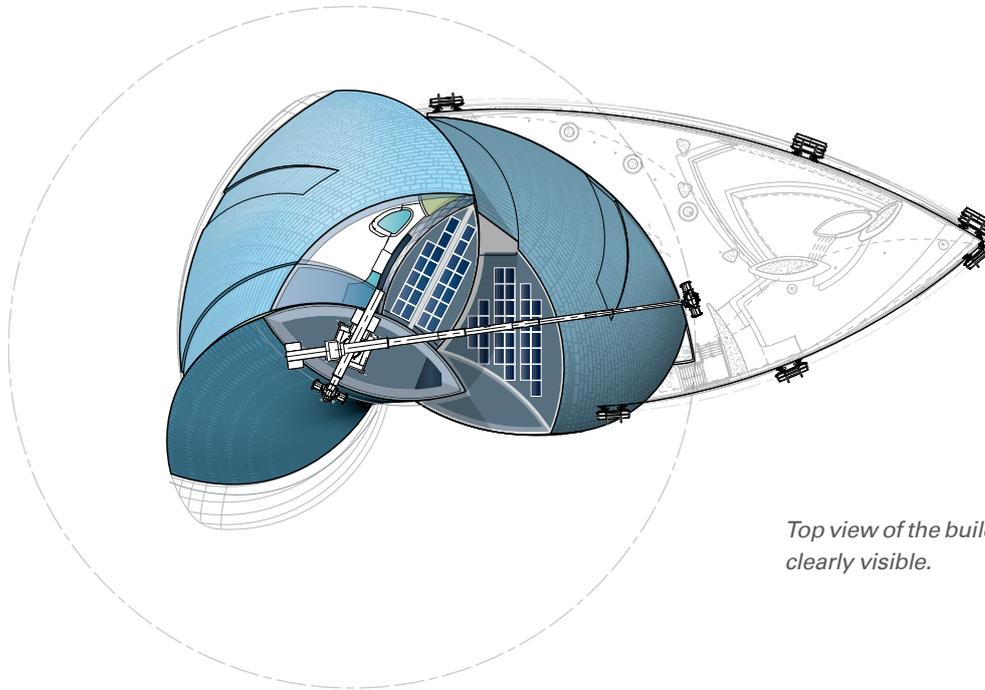
CROWN SYDNEY HOTEL

NEW FACADEXS PROJECT IN AUSTRALIA

Image courtesy of Kieferle & Partner

The complex design that makes Crown Sydney so unique, also made it more challenging when it comes to accessing the facade. Inspired by nature, three petals twisting and rising together form an artwork with a complex geometry.

Located at Barangaroo precinct, Crown Sydney plays an important role in enhancing Sydney's position as one of the most spectacular harbour cities in the world. Its striking design will be the epitome of a unique experience at the waterfront. XSPlatforms will provide the facade access system for this new landmark in cooperation with Crown Resorts and WilkinsonEyre architects.



Top view of the building. The 60° twist is clearly visible.

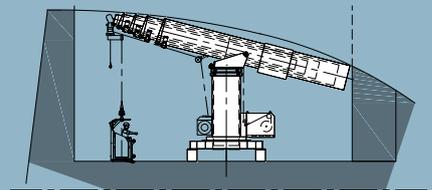
Providing a facade access solution that enables maintenance workers to safely cover every part of the building's exterior required a combination of innovative design and proven technology.

With a 60° twist in the outer skin of the building, a flared glass facade and a protruding podium, Crown Sydney has driven our team to come up with an innovative facade access solution that facilitates short cleaning cycles, without affecting the building's design.



Integrated into the design

Another important aspect of this project was to keep the aesthetical value of Crown Sydney intact when the BMUs are in parked position. All machines used in the facade access solution are all integrated into the building and out of sight when not in use. This way, the curvilinear form of the building is not compromised.



In order to efficiently maintain the glass facade four times a year and keep Crown Sydney in top condition the facade access solution comprises a BMU on roof level and a monorail system at the protruding podium. ■



6 TIPS FOR PREVENTING SLIPS, TRIPS AND FALLS

The spring season is ideal for inspecting rooftops for any weather-damage, performing maintenance on rooftop installations and for cleaning out drains. While performing a rooftop inspection, do not forget your own safety. Always ensure that you use the proper personal fall protection equipment and that you are careful.

Slips and trips may result in falls

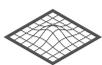
A lot of accidents on rooftops can be traced back to slips and trips. Both slips and trips can cause injury in themselves, but both can also cause a worker to fall from height as well. Therefore we have compiled 6 tips for preventing slips, trips and falls.



Wear proper footwear — For work at height safety shoes with steel toes are often compulsory. Footwear contributes a great part in preventing falls, so wear the right shoes at all times. Keep shoes free from mud and grease, and make sure that shoelaces are always tied.



Clean surfaces — Contaminants, such as water, dead leaves, oil, dust or plastic can make the surface slippery. Preventing floor contaminants means preventing slips. Prompt attention to spills and clean-up is therefore crucial. Also, mind your step at all times.



Ensure flat and secured surface — Trips often occur because of uneven or loose flooring. Ensure that roofing material lays flat and that additional mats are anchored so they cannot slide when stepping on them. If the roofing material has come loose or if you don't trust a situation, bring in an expert. Don't put yourself into an unsafe situation.



Remove obstacles — Keep work areas and walkways free of obstacles, clutter and equipment, so that no one can trip over them. Also avoid stringing cords or cables across walkways on the rooftop surface.



Proper lighting — Poor lighting increases workplace accidents. Although rooftops are generally out in the open and work is executed in daylight, work areas such as ladders, stairs and walkways may be dimly lit. Ensure proper lighting everywhere to prevent incidents.



Never block your vision — Never carry so much equipment that you block your vision, or look at your cell phone while walking on a surface at height. Always look at where you are going, so you can spot possible hazards in time.

Falls from slips and trips are common workplace occurrences that can be prevented. When hazards are present try to take them away and if you can't, notify the building's supervisor. [Click here to read the article and the Infographic](#)

Any questions or requests in relation to XSMagazine? Maybe you'd like to receive more copies in the future, provide feedback or request a subject to incorporate in our next issue. If so, please contact our marketing department.