Case Study 1: Waterproofing

Marseilles Apartments, Section 8 Housing - New York City, NY

Contractor: BSK Restoration

Project Scope:
Install waterproofing and ice shield protection to the building’s exterior

Challenges:
The older, historical building style with a steeply pitched roof posed several access problems:
- It was not possible to position outrigger beams on any portion of the pitched roof.
- The distance between the parapet wall and the edge of the roof was in excess of 13 ft (4 m).
- The pitch on the corners of this building also wrapped the ends of the building, preventing access from 15 ft (4.6 m) of each end of the building.

Solution:
Spider engineered two modular platforms 51 ft (15.5 m) long with 15 ft (4.6 m) of cantilever and walk through stirrups to overcome the access challenges. The platforms were powered by four SC1000 traction hoists with pendants.

Spider’s New York team set the customer’s mind at ease by helping them file the drawings and cantilever charts with the NYC DOB to secure their permits and being on-site to set up the equipment and ensure the contractors were comfortable with the operation.

Spider’s cantilevered solution enabled BSK Restoration to complete their project on time and within budget, compared to their only other viable option of pipe scaffolding which was expected to extend the project an additional 4-6 months.

Check out the products featured in this case study:
Modular Platforms - pages 70-71
Walk Thru Stirrup Assy - page 73
SC1000 Hoist - pages 26-32
Case Study 2: Glass Installation

Revolution Tower - Panama City, Panama

Contractors: Estructuras Y Remodelaciones

Project Scope:
Glass installation on both the vertical face and the underside of 48 projecting floor levels.

Challenges:
- The only level landing surface existed at the 15th floor level.
- The spiral configuration did not allow lowering the platform more than 2 stories from each rigging point and demanded that vertical moves be carried out with the use of transfer wires. Additionally, once the windows were installed at level, outriggers could no longer be installed at that level.
- The contractor required a successful on-site trial run of Spider’s innovative, labor-intensive rigging plan.
- Budget constraints did not allow for custom equipment design.
- The tight 4-month project left little margin of error for delays.

Solution:
In addition to ST-180 Electric Spider work baskets already in customer’s fleet, Spider rented a 40 ft (12.2 m) platform powered by two SC1000 electric hoists and equipped with two outrigger beams positioned one floor above the working floor level. A transfer wire was connected to the platform via a cross beam to facilitate moving from the underside area of the floor to the next vertical face. Spider trained the operators to transfer the hoists to the new suspension points in mid-air to move the platform into the next working position. The operators made a total of 192 mid-air transfers – 4 upward runs of the platform were required with 48 transfers per run.

Few projects ever require this quantity of mid-air transfer of a 40 ft (12.2 m) stage onto new suspension wires. Spider was onsite for the training and then the operators took over. Performing 192 mid-air transfers safely and without incident under time-pressured conditions demonstrates the quality of Spider’s training and our equipment, as well as the caliber of Estructuras y Remodelaciones’ project execution team.

Check out the products featured in this case study:

- ST-180 Electric Spider - pages 54-55
- Modular Platforms - pages 70-71
- SC1000 Hoist - pages 26-32
- Outrigger Beams - pages 94-95
Case Study 3: Curtain Wall Installation

The Cosmopolitan Resort Casino - Las Vegas, NV

Contractor: Far East Aluminum

Project Scope:
Installation of curtain wall and glass on sheer walls

Challenges:
- The type of curtain wall being installed required attachment at both the uppermost and lowermost locations on the panel.
- Initiating curtain wall installation before completion of the roof required upper floor rigging positions.
- Frequent moves of the rigging position and tight project timelines required a fast rigging method for sheer walls.

Solution:
5 double-deck platforms, varying from 25 ft (7.6 m) to 30 ft (9.1 m) long, powered by SC1500 and SC40 traction hoists; sheer wall brackets with double eyes; 16 ft (4.9 m) beam sets rigged with post shores to eliminate counterweights.

Check out the products featured in this case study:

- Modular Platforms - pages 70-71
- SC1500 Hoist - pages 26-32
- SC40 Hoist - page 33
- Post Shore System - page 107
Case Study 4: Rolling Blind Installation

Vancouver Convention Center - Vancouver, BC Canada

Contractor: PCL Constructors Westcoast, Inc.

Project Scope:
Provide access for the installation of rolling blinds above escalator.

Challenges:
- Extremely tight timeframe required to minimize impact on guests staying at the convention center
- No power on site for electric hoists
- Structural conditions made it difficult to access rigging points for the swingstage
- Glass panels and a decorative wood ceiling demanded a safe yet delicate solution

Solution:
A 31 ft (9.5 m) platform powered by manual hoists was installed and rigged on a Saturday morning and dismantled just three days later with no disruption to the busy convention center’s guests. Prior to rigging, wood planking was installed to create a walkway to access structural supports. After Spider’s swift mobilization, the contractor was able to get to work the same day.

Spider’s solution saved PCL over $2,500 off their original budget, and enabled the work to be completed within the carefully planned timeframe with little to no disruption to the convention center’s business.

Check out the product featured in this case study:
Modular Platforms - pages 70-71
Case Study 5: Sign Installation

US Capitol - Washington, DC

Contractor: The Architect of the Capitol (AOC)

Project Scope:
Provide training and access expertise for the installation of the American flags that served as the background for President Obama’s 2009 inaugural platform

Challenges:
- The sandstone cornice that had been used for the rigging point for the previous inaugurations was recently deemed insufficient for rigging a stage.
- Extensive security measures were implemented due to the unique nature of this inauguration.

Solution:
Modular platforms powered by SC40 traction hoists provided access to the Capitol’s exterior. This equipment was rigged with 5x5 beams supported by Outrigger Beam Support Frames (OBSF) to transfer the load to the roof structure and custom-engineered 36 in. (914 mm) cornice hooks to bypass the sandstone cornice. Hoists were mounted on crossbeam assemblies to allow for adjustments in the spacing between rigging points. AOC workers completed Spider’s Competent Person Training course. Spider delivery and rigging personnel passed FBI background checks to access the site and performed more rigorous onsite equipment inspections to ensure safety and security on this sensitive project.

Check out the products featured in this case study:
- Modular Platforms - pages 70-71
- SC40 Hoist - page 33
- Outrigger Beams - pages 94-95
- Outrigger Beam Support Frame - page 102
- Cross Beam Assembly - page 85
- Competent Person Training - pages 216-217
Case Study 6: Stadium Renovations

University of Michigan - Ann Arbor, MI

Contractors: Curtis Glass, Lansing Glass, & Turner Brooks

Project Scope:
Provide access to increase handicap-accessible seating, replace bleachers, widen individual seats and aisles, and add a new press box as well as luxury boxes and club seats to the Wolverine Football Stadium

Challenges:
• Nine degree incline of a wall under renovation required workers to continually pull work stages inward to stay flush to the wall.
• All rigging had to clear the 15 ft (4.6 m) parapet wall.

Solution:
Multiple swing stages and SC1000 hoists – throughout the three year project, Spider was the sole swing stage provider to these three contractors, with up to 10 stages and 20 hoists in action on any given day. Spider’s Counterweight Beam Sling (701878-1) eliminated the need to lift weights higher than waist level, saving the contractors significant rigging time and effort. Spider held on-site Competent Person Training for all 35 people who operated the equipment. The versatility of Spider’s equipment and on-site training enabled the contractors to complete their work on time, on budget, and more importantly: without incident.

Check out the products featured in this case study:

Modular Platforms - pages 70-71
SC1000 Hoist - pages 26-32
Counterweight Beam Sling - page 103
Competent Person Training - pages 216-217
Case Study 7: Offshore Access

Adriatic IX Triangular Platform - Gulf of Mexico

Contractor: Resource Rig Supply, Inc - Houston, TX

Project Scope:
Provide complete access for maneuvering up and down the interior and exterior of a 400 ft (121.9 m) jack up leg on the Adriatic IX offshore drilling rig for offshore repair, blasting and painting.

Challenges:
• Confined areas inside and outside of the legs that support the hull of the rig
• No other means to safely access while keeping the rig in operation.

Solution:
A custom triangular platform to meet the structural needs for the rig's interior and a straight platform for the exterior.

Custom engineered solution
Call Spider if your project requires more than standard equipment.
Case Study 8: Bridge Work

Burlington Bristol Bridge – Philadelphia, PA

Contractor: Pennoni Associates Inc.

Project Scope:
Renovations to truss bridge’s trolley system

Challenges:
• Minimal existing walkways to work points
• Working at height with active roadway and river below
• Swift de-rigging of equipment on bridge’s active lift-span required to maintain flow of waterway traffic

Solution:
Spider provided ST-17 Air Spider work baskets, which allowed access to all areas of renovation and required a single rigging point that could be cleared in just fifteen minutes to keep waterway traffic flowing. Flydecks were added to increase the working swath, eliminating repositioning of equipment and saving valuable time. A series of needle beams, fall protection, and a scaffold hand controlled system at the tower’s top level also enabled the work to be completed safely and within the customer’s time frame.

Check out the products featured in this case study:

ST-17 Air Spider - pages 44-47
Flydecks - page 68
Case Study 9: Bridge Work

Spences Bridge - BC Canada

Contractor: Buckland & Taylor, Ltd. – Bridge Engineering

Project Scope:
Provide access for inspection of the entire underside of the 700 ft (213.4 m) bridge including all trusses both longitudinally and across the span. In addition, each pier of the bridge was inspected down to the water level.

Challenges:
- Working over fast flowing river
- Working over and near an active railway
- Extreme weather conditions including high winds, rain, and cold
- No permanent power or lighting supply on bridge
- Severely sloping, rocky terrain on both ends of the bridge making stage building difficult.
- Small time frame to get the project completed. The well-traveled bridge was closed by Canada’s Ministry of Transportation for this inspection project, so time was of the essence.

Solution:
With the expertise of four Spider riggers, two 30 ft (9.1 m) modular swing stages powered by 1,000 lb (453.6 kg) hoists were moved across the entire 700 ft (213.4 m) span of the bridge, enabling two on-site engineers to inspect the underside of the bridge and piers. Two rolling Outrigger Beam Support Frame towers were engineered to support both stages simultaneously, and on-site generators powered the stages through the absence of a readily-available power supply.

The project was completed in just 10 days, 4 days ahead of schedule, resulting in a 30% labor reduction and significant onsite savings to the contractor.

Check out the products featured in this case study:
Modular Platforms - pages 70-71
Outrigger Beam Support Frame - page 102
Case Study 10: Bridge Work

CN Rail Second Narrows Swing Bridge - Vancouver, BC Canada

Contractor: Hymach Industries

Owner: Canadian National Railway

Project Scope:
Throughout the projects two month duration Spider provided access for Hymach Industries to service the roller guide wheels for the lift mechanism on the four columns of the bridge towers. The Second Narrows bridge is immediately east of the Lions Gate Bridge and connects North Vancouver to Vancouver over the Burrard Inlet 150 ft (45.7 m) below. This active waterway is manned 24/7 to enable vessel traffic to pass unimpeded through the inlet.

Challenges:
- Because this is an active railway bridge that raises every hour to allow boats to pass underneath, the platform needed to move with the swing bridge and be independent of the main structure.
- This frequent activity also required workers to secure the swingstage and all equipment to the moving bridge section, with just ten minutes notice.
- Confined rigging space posed challenges as well, including limited access, small openings and ladder openings.

Solution:
A 6 ft (1.8 m) knock-down modular platform powered by electric traction hoists provided a lightweight, easily transportable access solution that could pass down through the small access points.

Spider engineered a specialized beam clamp assembly attached to the bridge’s moving walkway system to allow the swingstage, which was attached to the walkway, to travel with the swing deck itself on its regular 30 minute raise and lower cycle. This custom system required no backspan, tieback or projection into the active rail lines across the bridge, enabling complete project access with no rail traffic interruption along this busy corridor.

Spider’s access professionals performed the initial rigging services and moved the platform to each of the new tower positions as needed. Because safety is key when working at height Spider performed Competent Person Training and an equipment orientation with all individuals who would be using the products prior to the start of the job.

Check out the products featured in this case study:
- Modular Platforms - pages 70-71
- Competent Person Training - pages 216-217
Case Study 11: Stack Access

Internal Stack & Chimney Access

Contractor: Tampa Electrical Company (TEC)

Project Scope:
Provide access to internal surface of the stack

Challenges:
• Stack bottom was unusually sloped at 45 degree angle and was severely rusted.
• The stack was 300 ft (91.4 m) above grade and the only access to the stack was at elevation 200 ft (61 m) from catwalk.

Solution:
Spider engineered a circular float with custom rigging star, powered by six 1,000 lb. (453.6 kg) hoists and rated for 4,000 lb. (1,814.4 kg) capacity. Spider’s solution came in under budget and saved the customer $150,000 compared to built-up scaffolding options.

Custom engineered solution
Call Spider if your project requires more than standard equipment.

Call or click for more information
1-877-774-3370
www.spiderstaging.com
**Case Study 12: Stack Access**

*Oak Grove Power Plant - Waco, TX*

**Contractor:** Hadek Protective Systems BV – a Dutch company doing its first US project ever

**Project Scope:**
Installation of a Pennguard® ceramic brick liner to a 450 ft (137.2 m) tall stack

**Challenges:**
- Providing a platform that was large enough and had enough capacity to provide support and access through all of the stages of work - blasting, cleaning, brick laying, and inspection.
- Contractor new to US safety codes

**Solution:**
Custom engineered 31 ft (9.5 m) round float platform equipped with nine SC-1500 hoists with 13,500 lb (6,123.5 kg) capacity for worker and brick loads. The precise 31 ft (9.5 m) platform diameter put the mason at the lining wall.

The platform was pre-assembled offsite, then broken down, numbered and tagged prior to shipping to the job. Then each piece was hoisted to the 150 ft (45.7 m) level for assembly in the 33 ft (10.1 m) wide stack.
- Grated decking sped up abrasive debris removal during blasting
- Top of stack rigging to attach the 18 suspension wire ropes

A 4 ft (1.2 m) square access hole in the platform's center was designed in to take a work basket from ground level to the elevated platform throughout the work shift. This transit basket brought workers, bricks and the adhesive, which was mixed in small batches for quick application. This critical feature shaved weeks off the production schedule.

*Custom engineered solution*
Call Spider if your project requires more than standard equipment.
Case Study 13: Tank Access

Gulf Power/Crist Plant - Pensacola, FL

Contractor: SealTech

Facility Owner: Gulf Power

Project Scope:
Provide access to the jet bubble reactor’s upper tank wall and beams for sanding, joint finishing, and joining beams to tank wall, and to beams to install piping for the cooling process

Challenges:
• The fiberglass tank restricted load capacities.
• To minimize effects on the plant’s production, quick and efficient installation times were required.

Solution:
Spider’s engineering experts designed a circular platform that could be separated into quarters to increase the load capacity. The platform was rigged with corner adapters and Spider’s 702396-1 Extended Parapet Clamps. Eight 30 ft (9.1 m) modular platforms powered by SC1000 traction hoists and equipped with 5x5 beams and H-plates were rigged between the reactor’s beams.

Superintendents, foremen and key team members completed Spider’s Competent Person Training course at the Pensacola Operation Center to ensure safe, efficient operation of the equipment.

Spider’s custom engineered design solution saved SealTech six project days for its entire crew due to the ease and efficiency of Spider equipment, compared to the ground-based scaffold solution the company considered.

Check out the products featured in this case study:
Corner Adapters - page 78
Extended Parapet Clamp - page 116
Modular Platforms - pages 70-71
SC1000 Hoist - pages 26-32
Beams - pages 94-95
H-plates - page 99
Competent Person Training - pages 216-217
Case Study 14: Processing Plant Access

ThyssenKrupp USA Steel Processing Plant - Calvert, AL

Contractor: LPR

Facility Owner: ThyssenKrupp USA

Project Scope:
Provide access for the installation of steel girder beams on the 175 ft (53.3 m) wide, 234 ft (71.3 m) tall hot dip galvanizing line structure of the steel processing plant.

Challenge:
- Extremely efficient installation, equipment relocation, and dismantling were required to minimally impact the ThyssenKrupp plant’s production.

Solution:
Six 40 ft (12.2 m) platforms powered by electric traction motors, rigged with truss outriggers enabled the contractor to work two columns simultaneously, increasing their productivity. After Spider's swift mobilization, the contractor was able to get to work the same day. The truss outriggers then allowed for quick and easy relocation of the rigging, enabling the workers to move from one drop to the next in just 30 minutes.

Twenty-five LPR employees completed Spider’s Basic User Training and mastered the use of Spider’s rigging checklist to ensure safe ongoing use of the equipment. LPR demonstrated safe operations that exceeded ThyssenKrupp’s facility requirements.

Spider’s solution saved LPR over $50,000 and 10 days of set up and tear down time compared with the built-up scaffolding option LPR considered.

Check out the products featured in this case study:
- Modular Platforms - pages 70-71
- Truss Outriggers - page 118
- Training - pages 216-217
Case Study 15: Power Plant Maintenance

AEP Cardinal Station Unit 3 Cooling Tower - Brilliant, OH

Contractor: Cannon Sline Inc.

Project Scope:
Inspect, repair and coat entire interior surface of cooling tower with dimensions 200 ft (61 m) in diameter and 424 ft (129.2 m) high

Challenges:
- Required custom parapet clamp to work on sloped surface
- Custom design of a platform that could be pulled in using change of direction sheave to allow platform to follow wall slope
- Required winch system and anchor plan to utilize change of direction sheave
- Design topside rigging system around existing lightning protection
- Ensure system was easy to use and relocate to keep to the 11 week outage schedule

Solution:
Designed and built a custom parapet clamp to work on a sloped parapet wall, a platform utilizing a primary and secondary wire rope system with a horizontal lifeline running the length of the platform, and a winch system and sheave system that allow the platform to follow the sloped contour of the tower walls to give access to the underside of the slope. Incorporated standard rental equipment with customized devices to reduce the overall cost of the project. Completed all design, manufacturing and delivery onsite in five weeks.

Custom engineered solution
Call Spider if your project requires more than standard equipment.
Case Study 16: Nuclear Plant Work

TVA Watts Bar Nuclear Plant - Spring City, TN

Contractor: Bechtel Power Corp.

Project Scope:
Customer needed to remove and replace a section of the steel spray containment vessel and concrete containment vessels to allow the replacement of the steam drum.

Challenge:
- Provide a solution that allowed the contractor to replace and weld the spray containment vessel without causing any obstructions that would affect critical path work or interfere with the use of the polar crane.

Solution:
Custom double wide modular stirrups with modular platform and 220V Zmac/1000® hoists.

Check out the products featured in this case study:
Modular Platforms - pages 70-71
Zmac/1000® Hoist - pages 35-36
Case Study 17: Material Lifting

Eli Roth’s Goretorium - Las Vegas, NV

**Contractor:** Gist Décor working under Forte Construction

**Project Scope:**
Eli Roth’s Goretorium is a haunted chapel on the Las Vegas strip. After couples pronounce their marriage vows, a decorative wall of zombies rises in the background. The contractor required a permanent material hoist to repeatedly lift and lower the 8 ft (2.4 m) x 10 ft (3.1 m), 750 lb (340.2 kg) wall as part of the theatre’s production.

**Challenge:**
- The customer required a discrete, custom mounting solution that blended into the set.

**Solution:**
Spider sold one Beta Max Leo 220V material hoist and developed the custom mounting solution - a squeeze clamp constructed of steel angle iron and painted black to blend in with the set.

*Due to the nature of the project, photography was not allowed on-site. Shown is the Beta Max Leo material hoist.
Case Study 18: Leading Edge Protection

Naval Air Station, Building 3823 Pool & Gym - Pensacola, FL

Contractor: R. L. Burns, Inc.

Project Scope:
The exterior of the pool area needed to be completely secured so that when it was drained for an HVAC system replacement, people on site were protected from injuries or falls into the empty pool.

Challenges:
- Being on board a Navy base, there were strict requirements that the pool area was 100% protected and without mishap.
- They also had a tight 21 day timeline.

Solution:
500 ft (152.4 m) of Spider's NEW SpiderRail™ system

Check out the product featured in this case study:

SpiderRail™ - pages 166-167
Case Study 19: Wind Turbine Access

Hackberry - Albany, TX

Turbine: Siemens 2.3MW

Contractors: Lankford Company Inc.

Project Scope:
Access for blade inspection and repair work for Siemens 2.3 MW turbines

Challenges:
• 360 degree access needed to perform repairs at multiple locations on blade surface
• Extremely hot site conditions for uptower rigging and installation work required more active health monitoring
• Limited time schedule for the work

Solution:
• Spider provided a 5 x 10 ft (1.5 x 3 m) configured 360 Blade Access Platform (BAP) with independent lifeline.
• With Spider’s expertise in safety, rigging and training, Lankford Company was able to bring in the 360 BAP closer, could simply adjust to the larger blade tip with the manual winch, and could easily access the blade repair area.
• With the 360 BAP assembled on the ground, workers engaged the blade tip in less than 8 minutes to start the work.
• Storage buckets positioned the workers’ tools at waist height for added productivity.
• With both a primary and secondary suspension wire rope to each hoist, the workers were able to attach their fall protection lanyards directly to the engineered PFAS safety anchor device on the walk-thru stirrup. This point is also engineered for use with a descent device, if users choose not to use the hoists’ no-power controlled descent system.
• Compared to other equipment options, the Lankford crew was able to get working very quickly.
• Siemens recognized this platform system in its national newsletter for ingenuity in wind farm maintenance.

Check out the product featured in this case study:

360° Blade Access Platform - page 191
Case Study 20: Wind Turbine Access

Costa Rica

Turbine: Neg Micon 750 KW

Contractor: CR Corporation

Project Scope:
Entire blade tip replacement and additional blade repair work on Neg Micon 750 KW turbine

Challenges:
• 360 degree access required with high load rating to support workers and tools
• No rigging points available on the nacelle
• Very short nacelle, making rigging points also very close to the tower
• Small tower with tight clearance
• Remote location in Costa Rica
• Crew unfamiliar with swing stage platforms

Solution:
Spider custom designed the blade access solution to ensure user productivity. The 360 Blade Access Platform (BAP) was powered with three SC1500 hoists allowing faster mobilization and more load capacity. The platform featured an alternative stirrup design to improve platform stabilization and reduce the load on the hoists. In collaboration with CR Corporation, Spider installed engineered slings on the blade root and hub to provide the rigging solution. Spider performed multiple onsite training sessions.
Case Study 21: Wind Turbine Access

Los Vientos Wind Farm - Lyfor, TX

Contractor: Lankford Company

Project Scope:
Installation of VG rails to blades

Challenge:
- Siemens 108 3.2 MW turbine with an extremely large blade length of 171 ft (52 m) means the point of capture was over 40 ft (12.2 m) from the tower

Solution:
360 Degree Blade Access Platform with special Siemens' steel sub frame, enabling the platform to traverse far enough away from the tower to capture the blade tip. Spider’s solution provided better ergonomics, greater safety, and a higher quality final product compared to alternative solutions.

Check out the product featured in this case study:
360° Blade Access Platform - page 191