



# THE CURRENT CURVE OF SCAFFOLDING EVOLUTION: WORK PLATFORM NETS

Work platform nets offer benefits that complement traditional scaffolding. This article builds a case for their use.

By Russ Nieman

Scaffolding systems have been in use for as long as humans have decided to build above arm's reach. Ancient Eastern and Egyptian builders, for example, developed elaborate, multi-tiered systems of bamboo and wood to construct towers, monuments, and pyramids at which we now marvel. Fast forward a few millennia to the dawn of metal scaffolding, replacing natural support systems in response to the industrial age. Not too long afterward, mechanical lifts and aerial devices were introduced to complement sophisticated side-mounted and suspended scaffold decking as the exponential curve of evolution pointed increasingly upward.

Worksite safety has also evolved throughout the years. Maintaining site safety, particularly at high elevations, is paramount. As worksites continue to reach new heights and require ever-challenging scaffold placement, the competing parameters of time and budget within that requirement

of safety remain substantial obstacles. Overcoming these obstacles are the absolute dictate of progress.

Industrial outliers from any era will attest that fruition of their ideas relies upon technology intersecting their departure from the norm. Such is true of the collaboration between architecture and scaffolding. Any architect whose concept raises the bar in height and complexity must believe scaffolding systems will adapt and safely and effectively meet the challenge.

Enter work-platform netting systems, a safe, structurally, and fiscally strategic evolution in scaffolding. Within key applications, work-platform netting systems not only present solutions of dramatically reduced installation/dismantling times, minimal weight/storage volume, access, and enhanced fall safety but also accommodate architectural freedom.

Constructed from modular net panels, work-platform nets (WPNs) attach

between existing structural members and allow workers to move about in an unobstructed fashion, albeit tethered to structural components by safety rope. Web straps are secured or interwoven within the net panels, which are ratcheted to pre-determined anchor points, providing tension and stability to the platform system. WPNs can be installed with a mechanical lift, or, in instances outside of boom extension, trained personnel can install the netting systems via industrial rope access.

WPN systems have become the industry standard in Europe and are now building momentum across North America, gaining widespread acceptance as an effective and innovative option. While WPNs are clearly advantageous within select applications, it's important to note that each mode of industry-adopted scaffolding, traditional or otherwise, maintains its own superior access applications.

### Three Common Work Environments

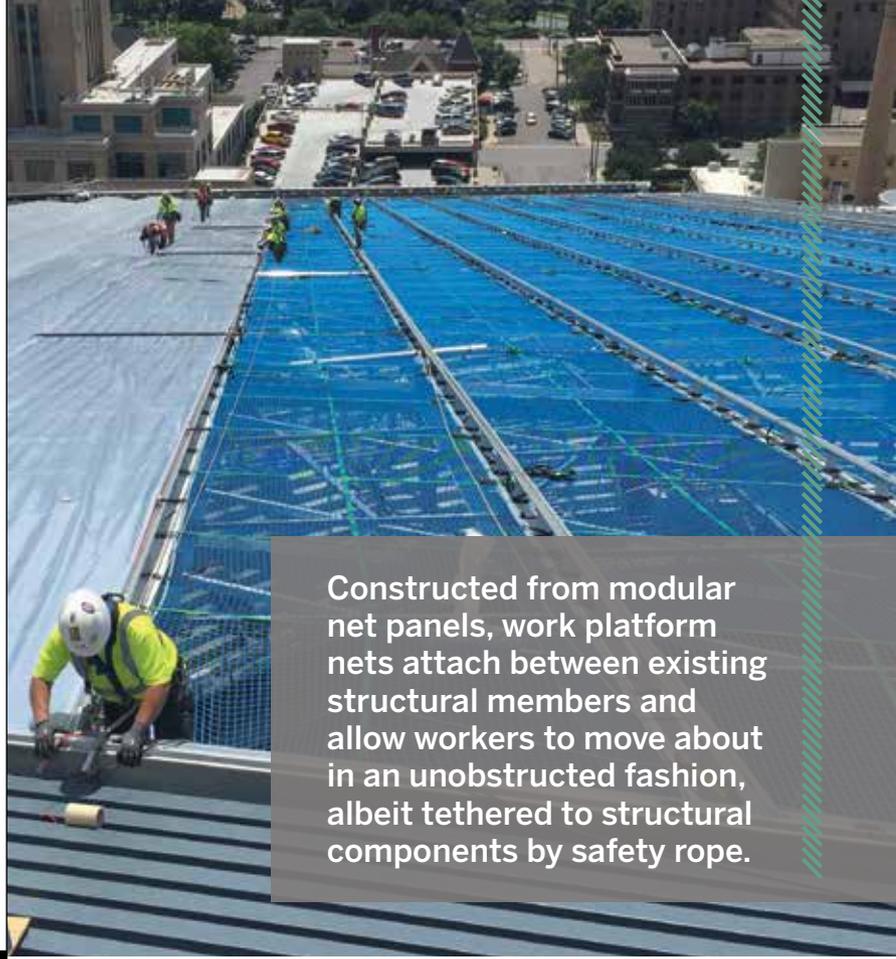
#### Bridge Underdeck

With bridge height and ground clearance as primary deciding factors between traditional ground-based or suspended scaffolding for bridge work, extensive installation times and substantial weight loads are among the standard expectations for either of these scenarios. WPNs can reduce installation labor to a fraction of traditional scaffolding. As well, installers can expect a hung-weight reduction of approximately 1 to 30, netting to traditional scaffold ratio – a particularly important factor when considering

the potential fragility of bridge restoration and historic structures.

#### High Elevation Roofing

The modern pursuit of taller structures and floating rooflines can often create an insurmountable dilemma for any ground-based scaffolding design. A stadium-shade overhang hundreds of feet above an unstable environment, for example, might be unfeasible for conventional access. Using existing structural components, WPNs can be effectively installed safely and quickly, within close proximity of the worksite, to create an extensive, high-elevation safety network and provide total area access simultaneously,



Constructed from modular net panels, work platform nets attach between existing structural members and allow workers to move about in an unobstructed fashion, albeit tethered to structural components by safety rope.

## VECTOR FOILTEC AND INCORD CASE STUDY: BOOMLIFT VS. WORK PLATFORM NET

**PREFACE:** The use of work platform nets (WPNs) was implemented as an afterthought on this project, introduced late as a solution to mounting access issues. Best results would occur if WPN implementation was designed into the access strategy during the planning phase before project start. The following information compares production rates of identical work performed by area, with two competing means of access: Boomlift vs. WPN.

**THE PROJECT:** A Prominent NFL Stadium Retrofit

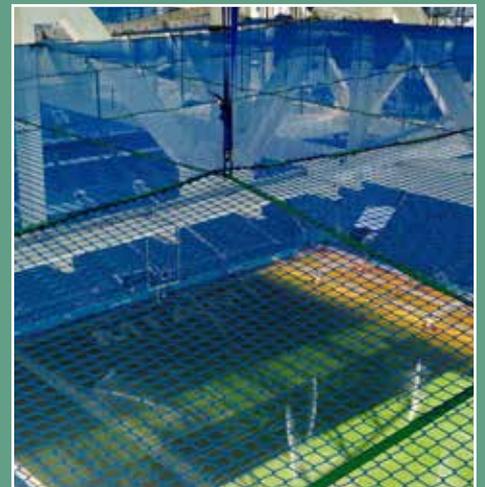
Objective: Provide safe access for painters to clean, prepare surfaces, and paint structural connections of steel trusses and ceiling after erection was completed. The majority of the trusses and ceiling (190,000 square feet, roughly 60 percent) was inaccessible by conventional boomlift.

**METHOD:** Four sizes of WPNs were selected based on the common dimensions of the structure. The nets were deployed; then, as the painting in each area was completed, the nets were removed and redeployed ahead of the ongoing work.

**RESULTS:** All work was safely completed in three working months from the start of nets deployment. From nets, roughly twice the work was performed by twice the staff in half the duration:

- 35 percent of area was completed with boomlifts over six months duration with an average staff of 12.
- 65 percent of area was completed from nets over three months duration with an average staff of 25.
- Each painter was more efficient from the nets by a factor of 1.9.

If the work was completed entirely from WPNs, without boomlifts, with the same staff, total duration would have been 4 months. If the work could have been completed by boomlift, without WPNs, with the same staff and equipment, the total duration would have been 17 months.



The case study was created by Andreas Olson of Vector Foiltec.



without the need to reset or reposition platforms. As well, maintaining clearance underneath the WPN site will allow for continued, ground-level workflow under protection from any falling objects.

**Offshore Sites**

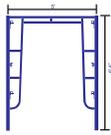
Offshore sites, such as oil rig facilities, present the challenge of extreme element exposure, not to mention the

obvious complications of scaffolding over deep sea. WPNs can be highly resistant to ultraviolet rays, sea spray, and other corrosive agents synonymous with oceanic environments that can quickly degrade standard materials of traditional scaffolding. Netting is also far less likely to become slippery and offers a virtual elimination of wind load interference.

**The Drawback**

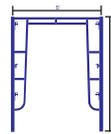
Although work-platform netting systems can facilitate an unbarred workspace, its primary drawback is deflection, which can cause the net to sag underfoot and impair walking speed. Most workers have reported rapid acclimation to this environment, as they have to any other adjustments posed by high elevation worksites.

**Walk Through Frames**



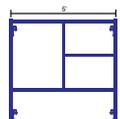
WTF H6'4" x W5'  
Powder Coating Blue and Hot Dip Galvanized  
WTF H6'4" x W42"  
WTF H6'4" x W3"

**Heavy Duty Walk Through Frames**



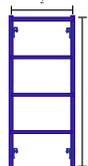
HWTF H6'4" x W5'  
Powder Coating Blue

**Mason Frames**



MF H6'4" x W5'  
MF H5' x W5'  
MF H4' x W5'  
MF H3' x W5'  
MF H2' x W5'

**Narrow Frames**



NF H6'4" x W2'  
NF H5' x W2'  
NF H3' x W2'

**Ladders Frames**



LF H6'4" x W3'  
LF H3' x W3'

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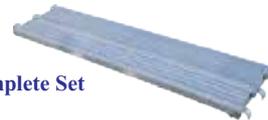


**Scaffolds Aluminum Plank**

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**Scaffolds Stairway With Right & Left Hand Rails, Complete Set**

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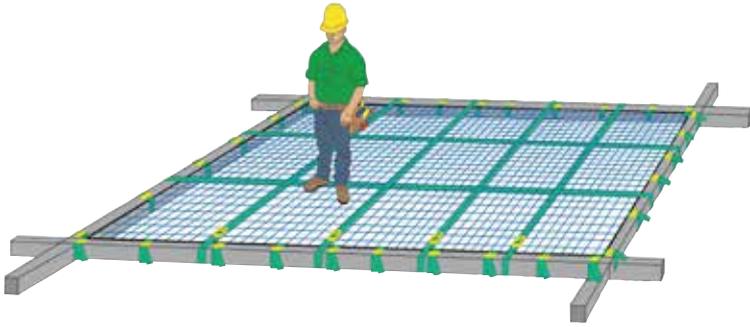
Size: 4' x 150' Black and Orange,

5'6" x 150' Orange Only,

8'6" x 150' Black, Orange, Blue and White



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#### Part of the Team

The solutions provided by WPNs are specific within an integrated scaffolding design. As alluded to earlier, expectations for WPNs fall within complementary terms rather than full replacement of traditional scaffolding. If one can accept this evolution of

access and the bottom line possibilities it proposes, the benefits of work-platform netting systems quickly gain clarity. •

#### About the Author

Russ Nieman is Senior Marketing Strategist of InCord, Ltd. Contact him at [mieman@incord.com](mailto:mieman@incord.com).

## GUEST EDITORIAL

Continued from page 6

- The Leadership Academy Scholarship. The SAIA EF awarded three full scholarships to this program this year. If you've learned about this program, you know it is paramount in the development of our future leadership.
- Competent Person Training (CPT) for Supported Scaffold content update and Train the Trainer Course modernization. This is our most recent grant request, ensuring that the rejuvenation of both of these programs will have wide-reaching impact within our industry. The new Train the Trainer program will be introduced during the Montreal Convention. The Supported CPT will follow.

If you are wondering how to support our cause, please talk to us. Visit our website. Send us scholarship applications and fantastic grant requests. And, please continue to be generous with your donations so we can meet or exceed our \$100,000 fundraising goal.

To the numerous SAIA members who have already supported our Benefactor Drive this year, we say "thank you!" You make this progress within our industry possible. •

# SAIA Committee Week

**FEBRUARY 18-21, 2018**  
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**We're headed back to Galveston for Committee Week 2018!** Galveston's rich history, lively entertainment and many attractions will add to the enjoyment of the occasion. We will build upon the success of Committee Week 2017 and **come ready to collaborate and tackle new initiatives.**