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Contact Jeff Rogers at WOC or at:

phone 757.624.2121 • fax 757.624.2128 • email dipstick@faceco.com

FOUR WORLD RECORDS SET IN 2018 GOLDEN TROWEL® COMPETITION

(LAS VEGAS) Four World Records were among the twelve Golden Trowels that were awarded to nine contractors from four continents at the 2018 Golden Trowel® ceremony held today at the World of Concrete in Las Vegas. One contractor from Spain and three from the United States produced World Record F-Numbers in their respective categories.

Presented by The Face® Companies of Norfolk, Virginia, Golden Trowels are given annually in recognition of the flattest and most level floor slabs produced in the world. Golden Trowel® Gold Plates are awarded to the winner in each category – while Golden Trowel® Silver Plates recognize outstanding entries that did not win their category.

World Records

The biggest story of this year's awards is the more than 1.2 million square foot Somero Laser Screed installation made by Prosisistemas S.A. of Porrino, Pontevedra, Spain. This is one of the largest floors ever measured and had the best FL Numbers and total (sum of FF + FL) Numbers ever on any floor over 110,000 ft². Not only that, the design included 502 tons of dry shake as well. This was Prosisistemas's fourth Golden Trowel®.

American Concrete Construction, Inc. of Trinity, North Carolina, established a new World Record by constructing what is, by far, the flattest and most level drag strip ever made. It measured FF 142.3 / FL 135.8. They took home two Golden Trowels this year, bringing their all-time total to six.

George J. Shaw Construction Co. of Olathe, Kansas, also claimed two Golden Trowel® awards for 2018, which were their first ever. Shaw set a World Record of FF 60.5 for a Hand Screed, Unshored 80-ft Wide Slab on Metal Deck.

Barton Malow of Southfield, Michigan, claimed a World Record for a single pour 257,000 square-foot Somero Laser Screed installation. which was 380-foot wide, with 23 pounds of fibers per cubic yard. They achieved an FF 56.2 / FL 42.1, while leading a team of contractors including Lloyd Concrete and Unlimited Concrete Solutions as subs to Barton Malow, which won its first Golden Trowel®.

Additional Golden Trowel® Winners

Another first-time winner for 2018 was DPR Construction Self-Perform Concrete of Holly Springs, North Carolina, which recorded the second highest Fmin Numbers ever reported on any floor – on a project that was hand-screeded.

Rogers Concrete of Perth, Western Australia, claimed their second Golden Trowel®, achieving the second highest total F-Numbers ever in the Somero Laser Screed 17m Wide Bay category.

Concrete Strategies claimed its second Golden Trowel® in this year’s competition. The St. Louis, Missouri, contractor’s project encompassed some three miles of aisles.

Alphapiso Tec. em Pisos LTDA of Sao Paulo, Brazil, earned their seventh and eighth Golden Trowel® awards for projects in the Wet Screed/Hand Screed and Somero Laser Screed 22m Wide Bay categories.

And in the contest year 2018, Ace/Avant Concrete Construction of Archdale, North Carolina, became the biggest winner ever in the history of Golden Trowel® awards – claiming their 26th Golden Trowel® in the Somero Laser Screed category.

Fmin (Defined Traffic) Awards

Fmin is quite different from FF and FL. For one thing, the Fmin Numbers are based on the *worst* part of the floor, not the average. Fmin floors are judged by their Fmin Numbers and by the number and length of the aisles. The longer the aisle, the more chances it has to fail, and of course, the greater the number of aisles, the more chances there are to fail.

Fmin floors actually have 4 different specifications to meet or achieve:

- **Fmin Longitudinal Levelness** is the fore-and aft tilt, or pitch, of the floor.
- **Fmin Longitudinal Flatness** is the rate of change of pitch angle. This could be described as the “bumpiness” of the floor.
- **Fmin Transverse Levelness** is based on the very worst side-to-side roll angle of the floor, or how far to the side it tilts at the worst case.
- **Fmin Transverse Flatness** is based on the roll rate, or the rapidity at which the roll angle changes.

Details of all the winning entries for 2018 follow on Pages 3 through 5.

Golden Trowel® Asia Awards for 2018

The Face® Companies were proud to join with the World of Concrete Asia for the first-ever Golden Trowel® Asia Awards held this past November in Shanghai. The news release reviewing the winners of that competition is reproduced as Pages 6 through 9.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Prosistemas S.A.
Somero Laser Screed 33m Wide Bay • **F_F 98.7 / F_L 95.2** **World Record FL & Total**
114,000 m² w/4 kg/m² Shake • Nave de Telas – A Laracha • A Coruña, Spain **FACE®**

This is one of the largest floors ever measured, over 1.2 million ft², and has the best FL Numbers and total (Sum of FF + FL) Numbers ever on any floor over 110,000 ft². The bays are 33m (108 ft) wide. Not only that, but with 502 tons of dry shake too.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
George J. Shaw Construction Co.
Hand Screed Unshored 80 ft Wide Slab on Metal Deck • **F_F 60.5** **World Record**
180,000 ft² • Garmin Warehouse • Olathe, KS **FACE®**

This is a world record FF for unshored metal decks over 100,000 ft². Before this year, only two floors had ever measured in the 50s.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
American Concrete Construction, Inc.
Somero Laser Screed Dragstrip • **F_F 142.3 / F_L 135.8** **World Record**
2876 Linear ft • Virginia Motorsports Park • Dinwiddie, VA **FACE®**

This is by far the flattest and most level drag strip ever made. Nothing else comes close.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Barton Malow/Lloyd Concrete/UCS Team
Somero Laser Screed 380 ft wide w 23 lb/yd³ fibers • **F_F 56.2 / F_L 42.1**
World Record size 257,000 ft² single pour • GM Arlington • Arlington, TX **FACE®**

This is an amazing floor. They were driven by scheduling to producing a single slab in one day using multiple placing and finishing crews from three different concrete companies working in shifts using 5 lasers and 4 Somero Laser Screeds. Concrete supplied by 4 different batch plants was used to produce one continuous 8" steel fiber reinforced slab of 257,000 ft² with a placement area 380 feet in width and 680 feet long.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
George J. Shaw Construction Co.
Somero Laser Screed **F_{min}: L_{Level} 99.2 L_{Flat} 102.9 T_{Level} 85.9 T_{Flat} 112.9**
66 Aisles, 14,454 lf • Garmin Warehouse • Olathe, KS **FACE**®

The average of all four Fmin Numbers is 100.2. There are about 2.75 linear miles of aisleways in this project. This project had the highest Fmin Numbers for placements 40 ft wide or wider and the third highest ever Fmin Numbers for a project this size including narrow strip slabs. This is the new standard for large Fmin projects.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Concrete Strategies LLC
Somero Laser Screed **F_{min}: L_{Level} 82.2 L_{Flat} 75.2 T_{Level} 75.3 T_{Flat} 74.3**
72 Aisles, 15,700 lf • Harbor Freight Tools • Dillon, SC **FACE**®

This project encompassed almost exactly 3 miles of aisles. This project had the highest Fmin Numbers for placements 45 ft wide or wider. Before this year, there were only 3 projects this size that had higher Fmin Numbers.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
DPR Construction Self-Perform Concrete
Hand Screed **F_{min}: L_{Level} 218.9 L_{Flat} 171 T_{Level} 209.6 T_{Flat} 154**
5 Aisles, 340 lf • Seqirus Warehouse Expansion • Holly Springs, NC **FACE**®

Although this project is quite small, the Fmin numbers are amazing. They are the second highest Fmin Numbers ever reported on any floor. And this project was hand-screeded.

Golden Trowel® *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Ace/Avant Concrete Construction
Somero Laser Screed **F_{min}: L_{Level} 168.9 L_{Flat} 102.4 T_{Level} 117.7 T_{Flat} 118.3**
26 Aisles, 3,432 lf • Woodstock Furniture • Ackworth, GA **FACE**®

The total aisle length for this floor was .65 mile. The average Fmin Number was 126.8, making this one of the best ever of this size.

Golden Trowel[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**

Rogers Concrete

Somero Laser Screed 17m Wide Bay • F_F 123 / F_L 92.4

7163 m² • Packing and Warehouse Stage 1 Accolade Wines • Perth, WA

FACE[®]

Only one floor this size, a World Record, has ever had higher total F-Numbers.

Golden Trowel[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**

Alhaphiso Tec. em Pisos Inds. LTDA

Wet Screed/Hand Screed • F_F 93.3 / F_L 55.2

18,440 m² • Sanca CLG Aeroporto – Bloco 100 • Guarulhos, SP Brasil

FACE[®]

This is the largest Wet Screed floor on record, with nearly the best ever F-Numbers. The world record was produced by this same company on a smaller floor in 2013.

Golden Trowel[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**

Alhaphiso Tec. em Pisos Inds. LTDA

Somero Laser Screed 22m Wide Bay • F_F 109.3 / F_L 74.8

32,860 m² • Sanca CLG Aeroporto – Bloco 200 • Guarulhos, SP Brasil

FACE[®]

This floor would have been a world record in 2015. As it is, it is the best ever floor ever in its category.

Golden Trowel[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**

American Concrete Construction, Inc.

Somero Laser Screed Dragstrip • F_F 112.9 / F_L 91

1660 Linear ft • Darlington Dragway • Hartsville, SC

FACE[®]

Before this year, there had never been a flatter or more level dragstrip than this one. It would have been a world record, save for the other dragstrip produced this year by this same company.

Golden Trowel[®] Asia Awards for the 2018 Contest

Contact Jeff Rogers at WOC Asia booth #W5B42 or at:

Dipstick@faceco.com

FIVE GOLDEN TROWELS AWARDED IN ASIA

**IRS SHANGHAI CONSTRUCTION (CHINA) WINS TWO GOLDEN TROWELS
CHANNAKORN (THAILAND) WINS FOR LARGE COPPERHEAD FLOOR JILIN
DESHI (CHINA) WINS FOR ITS TOPPING ON ELEVATED SLAB ZACKLIM
SRQ (MALAYSIA) WINS ITS 3RD GOLDEN TROWEL**

(Shanghai) Five **Golden Trowel[®] Asia** Awards were made to four different contractors from three countries in Asia at the Golden Trowel awards ceremony held at the World of Concrete Asia in Shanghai. This more than doubles the total number of Golden Trowel Asia awards made before this year.

Presented by The Face[®] Companies of Norfolk, Virginia, USA, Golden Trowels are given annually in recognition of the flattest and most level floor slabs produced in the world. **The Golden Trowel Asia** is a special award available only to contractors in Asia, for producing the flattest and most level floors in all of Asia, excluding the rest of the world. Golden Trowels are awarded in several different categories, based on how the floor was initially struck off, how wide the floor castings are, how much shake-on hardener or steel fibers are used, and other factors that influence the flatness and levelness of the floors. The first Golden Trowel Asia was awarded in 2015 to Zacklim Group of Companies from Malaysia and three more were awarded last year, in Thailand, Singapore, and Malaysia. Three Golden Trowel Asia awards were made this year to contractors from China, but the largest number of Golden Trowel Asia awards won is still in Malaysia, with a total of three. The Golden Trowel Asia award is a 24 Karat Gold-Plated Marshalltown concrete trowel, mounted on a polished granite base with a brass plate describing the project. The granite base rests on a walnut stand. Only one Golden Trowel is awarded in each category. Golden Trowel Gold Plates are awarded to the winner in each category; Golden Trowel Silver Plates recognize outstanding entries that did not win their category.

Shanghai IRS Construction Co., Ltd., from Songjiang District, Shanghai, broke into the ranks of Golden Trowel winners in a big way, with an Asian Record Fmin average in the Narrow Strip Truss Screed Defined Traffic category. (with 5.5 Kg/m² dry shake) The average Fmin was a truly outstanding 149.3, the highest ever recorded in Asia. This is an unusual project. For floors in a high-bay narrow-aisle warehouse like this, flatness and levelness are critical. The lift trucks can reach very high stack heights even over 15 m high, and there is only a few cm of clearance between the racks and the lift truck moving down the aisle. For this kind of floor, we measure using a special “Vehicle Simulator” software that tells us how the lift truck will behave as it moves down the aisle. We measure the vehicle’s side-to-side roll motion, its forward-and-backward pitch or tilt, and we also measure its reaction to bumps or dips in the floor by measuring the rate of change of tilt in both axes. For all F-Numbers, higher numbers are better. The average floor has a Flatness of FF 25, and a levelness of FL 20. F-Numbers are linear, so an FF 50 is twice as flat as an FF 25. This floor had an average Fmin Number of 149.3, nearly 6 times flatter and more than 6 times more level than the average industrial floor in the USA.

Shanghai IRS Construction Co., Ltd. also won a Golden Trowel Asia for another Narrow Strip Truss Screed project, this time in the Random Traffic category. (also with 5.5 Kg/m² dry shake) This floor was more than 5 times as flat and level as an average industrial floor in the USA. Shanghai IRS is also the only contractor in Asia to win two Golden Trowels in the same year.

Channakorn Engineering Co., Ltd. from Bangkok, Thailand, was also a first-time Golden Trowel Asia winner, in the Copperhead Laser Screed[®] 12 m wide bay Large Project category. This was a large project, and it is quite difficult to maintain a very high quality level for many weeks with changes in the weather. The concrete castings were large and 12 m wide, also adding to the difficulty of making the floor flat and level. This project included 22 Kg/m³ steel fibers. Channakorn is the second company from Thailand to win a Golden Trowel Asia award.

Jilin Province Deshi Construction Engineering Co., Ltd., of Jilin, China, is one more first-time Golden Trowel Asia winner. Their winning project was a Laser Screed topping over an unshored elevated structural slab, with 5 Kg/m² dry shake added. Any time you place concrete on an elevated slab, it is difficult to achieve very high F-Numbers. Because of this, this process is not done very frequently in the USA.

Zacklim SRQ Concrete Floor SDN. BHD. from Selangor, Malaysia, won its 3rd Golden Trowel Asia award for a project in Malaysia in the Narrow Strip Large Project category. This was quite a large project, taking many weeks to complete. Zacklim holds the greatest number of Golden Trowel Asia awards of any contractor in Asia, and is also the only Asian contractor to also win a Golden Trowel in the worldwide Golden Trowel contest.

Before this year, there were only four winners of the Golden Trowel Asia. The first was in 2015, and the last three were in 2017. The five awarded this year make a total of only nine Golden Trowel Asia awards ever given. By contrast, in the international (worldwide) Golden Trowel contest, a total of 337 Golden Trowels have been presented since the first Golden Trowels were awarded in 1989.

The images below show the brass plates that are attached to the winning Golden Trowel Asia trophies.

2018 Golden Trowel® Asia Awards – Gold Plates

First-Time Winner (and first contractor to win two Golden Trowel Asia awards the same year)

This floor is more than 5 times flatter and more level than the average commercial or industrial floor in the USA.

Golden[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Trowel Asia **Shanghai IRS Construction Co., Ltd.**
Narrow Strip F_F 132.5 / F_L 112.4 • 6,824m²
With 5.5 Kg/m² dry shake • Taikoo Warehouse Shanghai, China **FACE**[®]

First-Time Winner (and first contractor to win two Golden Trowel Asia awards the same year)

This is an Asian record for F_{min} – the highest ever recorded in Asia

Golden[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Trowel Asia **Shanghai IRS Construction Co., Ltd.**
F_{min}: LLevel 163 LFlat 206 TLevel 106 TFlat 123 • 7 Aisles, 303 m
With 5.5 Kg/m² dry shake • Lilly Warehouse Suzhou, China **FACE**[®]

First-Time Winner

Golden[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Trowel Asia **Jilin Deshi & GC - Cscec 5b3**
Topping on Elevated Slab F_F 61.9 / F_L 49.7 • 9,749 m²
With 5 Kg/m² dry shake • JD Asia No.1 Park Tianjin, China **FACE**[®]

First-Time Winner

Golden[®] *In Recognition of Excellence in Construction of Flat & Level Concrete Floors* **2018**
Trowel Asia **Channakorn Engineering Co. Ltd.**
Copperhead Wide Bay F_F 76.7 / F_L 59.3 • 16,700m²
With 22 Kg/m³ steel fibers • MDC 19-20 Amphur Muang, Thailand **FACE**[®]

2018 Golden Trowel® Asia Awards – Silver Plate

This is their 3rd Golden Trowel Asia Award, (4th overall including one “Worldwide” Golden Trowel)

Golden [®]	<i>In Recognition of Excellence in Construction of Flat & Level Concrete Floors</i>	2018
Trowel Asia	Zacklim SRQ Concrete Floor SDN. BHD.	
Narrow Strip	• F_F 74.3 / F_L 56.1 • With 4 Kg/m² dry shake	FACE [®]
21,214 m²	• Lam Soon Warehouse Selangor, Malaysia	