


**PFEIFER**



**The Erection of the Roof Structure  
of the Moses Mabhida Stadium in Durban**

22.10.2011 Seite 1

**PFEIFER**

**The way it started**

- PFEIFER Cable Structures participated in pre-qualification and tender process for the stadiums in Durban and Cape Town in 2006-2007.
- In May 2007 PFEIFER has been awarded with the contract for supply and installation of the complete roof structure in Durban.

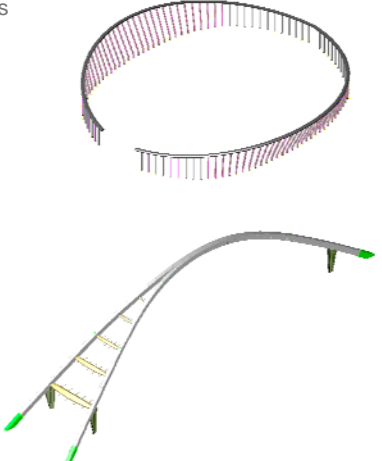


LSAA-conference 2011

**PFEIFER**

**Scope of Works**

- Compression Ring and Columns
  - ◆ 2.800 t of steel
  - ◆ 830 m circumference
  - ◆ 104 columns
  - ◆ 52 compression ring elements
- The Arch
  - ◆ 2.700 t of steel
  - ◆ 350 m span
  - ◆ 106 m height
  - ◆ 1.200 t of temporary steel

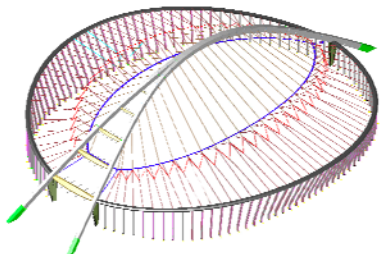


LSAA-conference 2011

**PFEIFER**

**Scope of Works**

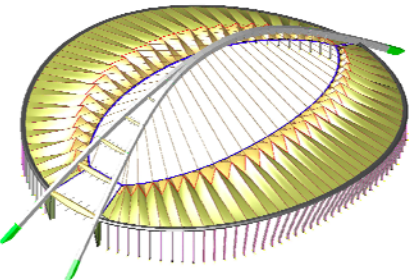
- The Cable Structure
  - ◆ 18.000 m of PFEIFER PV cables (fully locked cables)
  - ◆ Cable sizes 24 – 90 mm
  - ◆ 150 to of casted steel parts for connections



LSAA-conference 2011

**Scope of Works** **PFEIFER**

- The Membrane Cover
  - ◆ 48.000 m2 of PTFE-glassfibre-fabric
  - ◆ 42.000 m2 of covered area



LSAA-conference 2011

**Scope of Works** **PFEIFER**

- The Catwalks (for Flood lights and Services)
- The Cladding of Compression Ring and The Arch
  - ◆ 10.000 sqm of aluminium sandwich panels
- The Sky Car
  - ◆ A Cable Car operating on top of the Arch brings visitors to the viewing platform on the Arches crest in a height of 106 m.

LSAA-conference 2011

**The Installation of the Compression Ring** **PFEIFER**



- Requirements
  - ◆ Tolerances below  $\pm 50$  mm in 3d.
  - ◆ Trial assembly of all Compression Ring Elements in the shop

◆ The Compression Ring is not self supporting during installation.

◆ Bearing brackets for columns had to be surveyed and welded individually in order to minimize tolerances of concrete works.



LSAA-conference 2011

**The Installation of the Arch** **PFEIFER**

- The Arch Elements
  - ◆ 56 elements and 6 rungs
  - ◆ Spliced arch 3,10/1,50 m wide, 5,00 m high.
  - ◆ Single arch 5,00/3,40 m wide, 5,00 m high.




LSAA-conference 2011

**The Installation of the Arch** **PFEIFER**

- Requirements
  - Tolerances below  $\pm 50$  mm in 3d.
  - Trial assembly of all elements in the shop.

- Cantilever installation up to 4 elements.
- Installation of the higher Arch elements only permitted under considerably reduced wind loads.

LSAA-conference 2011  
9

**The Installation of the Arch** **PFEIFER**

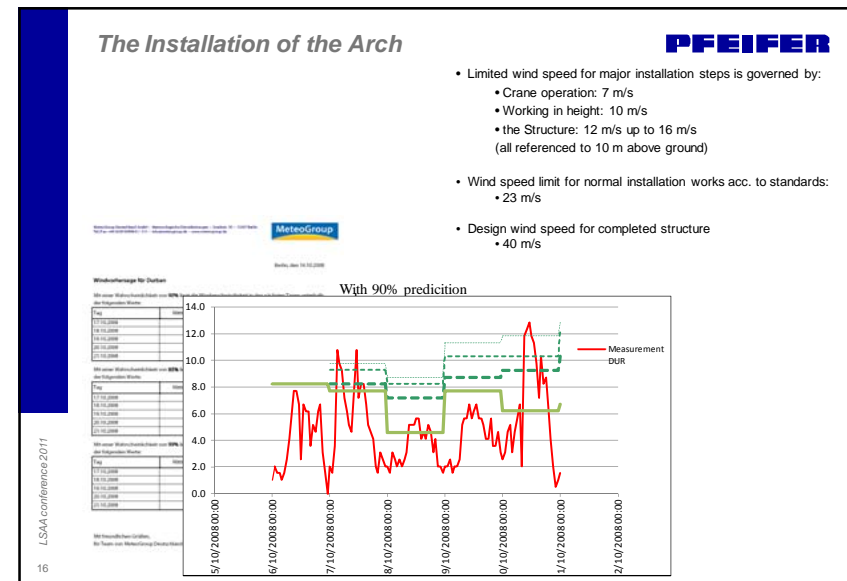
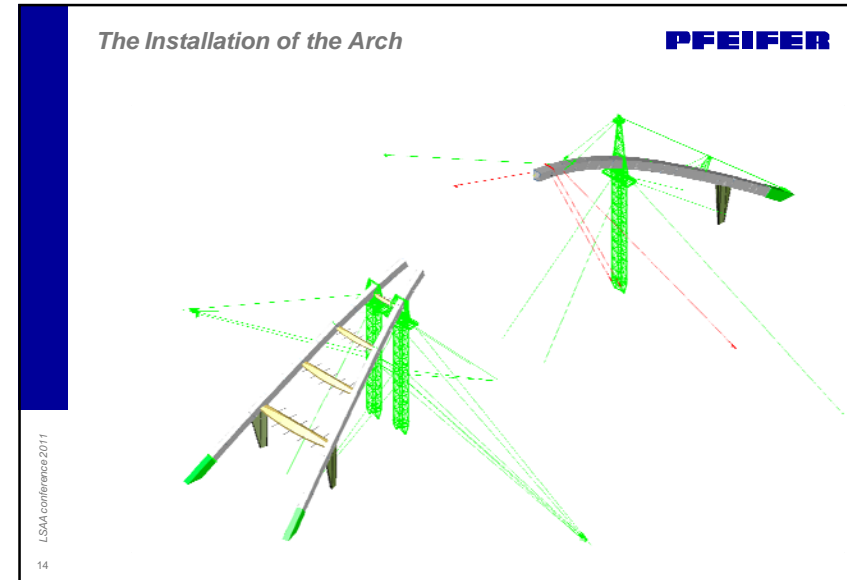
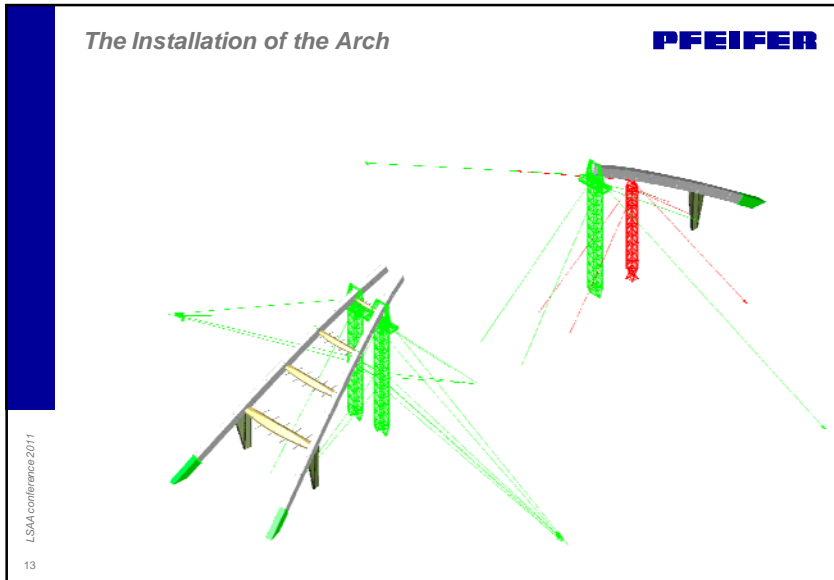
LSAA-conference 2011  
10

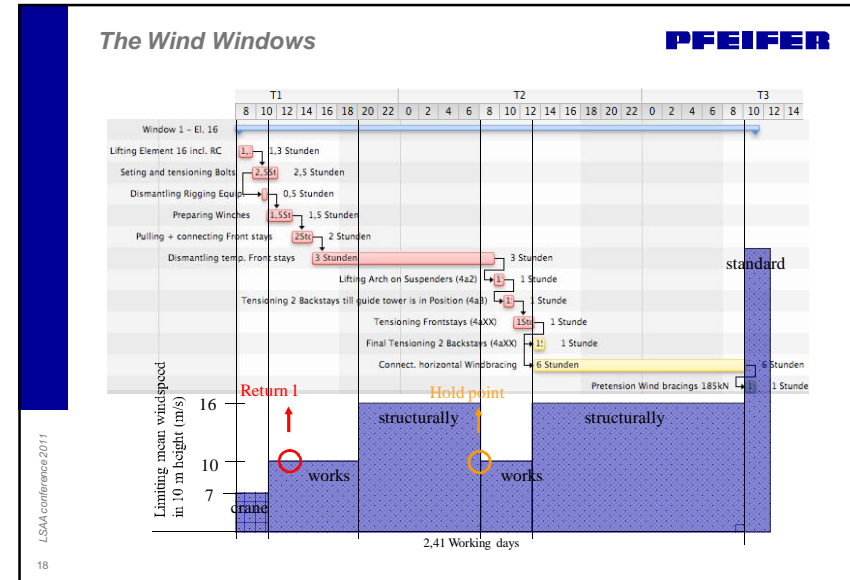
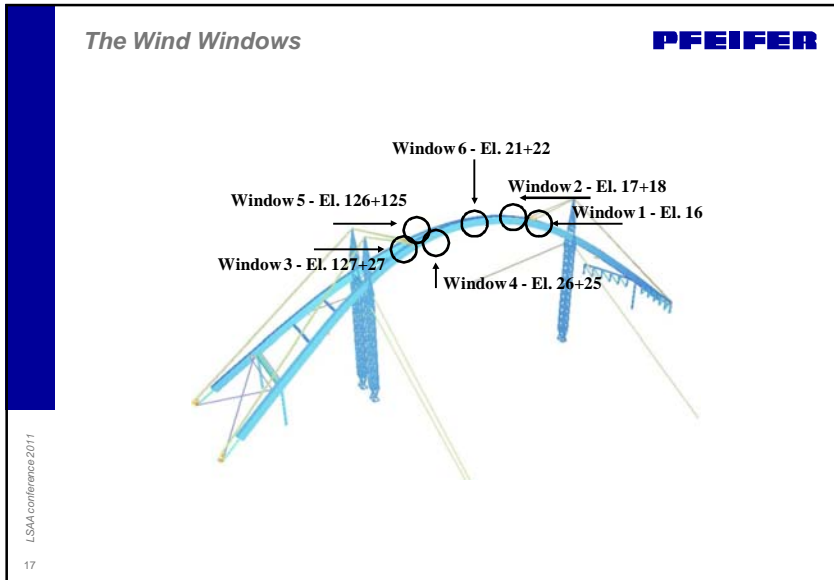
**The Installation of the Arch** **PFEIFER**

LSAA-conference 2011  
11

**The Installation of the Arch** **PFEIFER**

LSAA-conference 2011  
12





**The Cable Structure** **PFEIFER**

LSAA conference 2011  
21

**A Variety of Customary Casted Connections** **PFEIFER**

LSAA conference 2011  
22

**The Cable Structure** **PFEIFER**

LSAA conference 2011  
23

**The Cable Structure** **PFEIFER**

LSAA conference 2011  
24

**The Cable Structure** **PFEIFER**

LSAA conference 2011  
25

**The Cable Structure** **PFEIFER**

LSAA conference 2011  
26

**The Membrane Cover** **PFEIFER**

- Fabric panels
  - ◆ PTFE-glassfibre fabric
  - ◆ 208 elements
  - ◆ max. 400 sqm size of individual panels

LSAA conference 2011  
27

**The Membrane Cover** **PFEIFER**

LSAA conference 2011  
28

*The Membrane Cover* **PFEIFER**

LSAA-conference 2011  
29

*The Membrane Cover* **PFEIFER**

LSAA-conference 2011  
30

*Sealing and drainage* **PFEIFER**

Upper pick-up point  
inner rain water gutter

LSAA-conference 2011  
31

*Cladding of The Arch and Compression Ring* **PFEIFER**

10.000 m2 Aluminium-Sandwichplatten

LSAA-conference 2011  
32

*The Highlight - The Sky Car -* **PFEIFER**

LSAA conference 2011  
33

*The Lightness of the Structure* **PFEIFER**

LSAA conference 2011  
34

*The Team* **PFEIFER**

LSAA conference 2011  
35

*Ready for the FIFA World Cup 2010* **PFEIFER**

LSAA conference 2011  
36

South African Steel Award 2009 **PFEIFER**



LSAA-conference 2011

37


Parties involved **PFEIFER**

- The Client
  - ◆ Ethikwini Municipality (City of Durban)
- The Architect
  - ◆ gmp Gerkan Marg und Partner
- The Engineer
  - ◆ sbp Schlaich Bergermann und Partner
- General Contractor for the Stadium: Joint Venture of
  - ◆ Group Five
  - ◆ WBHO
  - ◆ Pandev
- **General Contractor Roof Structure**
  - ◆ **PFEIFER Cable Structures**

LSAA-conference 2011

38

South African Steel Award 2010  
German Steel Award 2010 **PFEIFER**




LSAA-conference 2011

39

Greenpoint Stadium, Cape Town  
Roof Structure realised by PFEIFER Cable Structures

**PFEIFER**



*Thank you for your attention.*

Thomas Hermeking  
 Sales Manager Cable Structures  
 Pfeifer Seil- und Hebetchnik GmbH  
 Memmingen, Germany

22.10.2011 Seite 40