Micropile Market!

Concrete Road in Wroclaw

Modern Kerosene Lamp

Arc Welding
Market Development of Micropiles
Previous ISM Events

- Seattle, USA 1997
- Ube, Japan 1999
- Turku, Finland 2000
- Venice, Italy 2002
- Seattle, USA 2003
- Tokyo, Japan 2004
- Schrobenhausen, Germany 2006
- Toronto, Canada 2007
- London, UK 2009
- Washington, USA 2010
- Milan, Italy 2012
- Krakow, Poland 2014
Managing Risk & Developing Markets

K’s
KNOWLEDGE
“In order to deal with any matter it is essential to deeply know the way already covered by others...that is the State-of-the-Art...In Theory and Practice

Ignorance does not pay. Beyond what has been already done there is probably something better to do.

This is based on knowledge, but sometimes is stimulated by Fantasy, by the Imagination...”

- Lizzi
KOMUNIKAÇÃO

Kommunication
KOLEZENTSWO
Kamaraderie
KNOWLEDGE
KOMMUNICATION
KULTUR
KAMARADERIE
“An Industry begins with the customer and his or her needs, not with a skill.”

Ted Levitt 1960

“The customer rarely buys what the business thinks it sells him.”

Peter Drucker 1964
“Root” Support
Hanshin Expressway (Hyogo Ken – Nanbu Earthquake 1995)
Turku, City Centre

Aura River
Figure 4: Soil profile in Turku city centre.
The Grand House
The Consolidation of a Monument Placed at the Limit of a Land Sliding Zone
Building Stilts
Pyritic Shales

Cracked floor slab, displaced concrete walls and spread footing

ISM – Toronto, Canada 2007 (Hoover)
Karst Terrain

**Adjacent Rotary Kiln**

- Residual Overburden
- Competent Limestone

**Diagram**

- Pile Cap
- Bearing/Tension Plate
- Residual Soil
- Carbonate Bedrock
- Casings
- Grout
- Spacers
- Reinforcement
- Bond Zone

ISM – London, UK 2009 (Hoover)
First, Do No Harm - Hippocrates
NO WAY!
Piles of these dimensions and your system
...will never work in this country.
“Our Best Friend is an Educated Client”

Donald Bruce
Market Survey Analysis
Where is Most of Your MP Work Carried Out?
Types of Companies

- Consultant: 36%
- Contractor: 36%
- Supplier: 14%
- University: 7%
- Owner: 7%
Decade Companies Entered MP Market

- 1970's: 2 companies
- 1980's: 4 companies
- 1990's: 10 companies
- 2000's: 14 companies
% of Revenue from MP Work

<table>
<thead>
<tr>
<th>% of Revenue</th>
<th># of Responses</th>
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<tr>
<td>&lt; 10%</td>
<td>9</td>
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<td>10 - 20%</td>
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<td>30 - 40%</td>
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<td>&gt; 40%</td>
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How many Micropile Jobs does your Company Complete Per Year on Average?
The Product Life Cycle

Sales

Time

Introduction | Growth | Maturity | Decline
Which Stage of the Product Life Cycle do Micropiles fall into Within Your Market?
Most Common Application of Micropiles

- Foundation - Buildings: 93%
- Seismic Retrofitting: 7%
Where are Micropiles Most Effective in Your Market?

- **Foundations - Buildings**: 8 responses
- **Foundations - Bridges**: 13 responses
- **Slope Stabilisation**: 6 responses
- **Seismic Retrofitting**: 6 responses
- **Other**: 4 responses
How Much does Your Company Fund/Support R&D for Micropiles Annually? (% of Revenue)
Factors that Promoted Growth:

- More limited access jobs
- Previous Project Successes
- Improved technology
- Standards - awareness & acceptance
Factors that Inhibited Growth:

- Lack of knowledge (micropile Mystique)
- Cost per KiloNewton
- Governments – Slow to adapt
- Structural engineers (Buckling – Ghost)
Factors Affecting Price:

- Production Improvements
- Price of steel
- Competition
- Site location & access
- 80% said micropile prices are going down
Growth? YES, because...

- As limited access jobs increase, MP jobs increase
- Seismic retrofitting & underpinning suited to MP
- Increased awareness
- Prices going down – 80%
- Continuing R&D and improvements
- Design code improvements/acceptance
Knowledge Transfer

- Information easily available – 85%
- Trade organizations (ADSC, DFI, etc) -100%
- ISM helped with MP technology – 100%
The Future
KNOWLEDGE
KOMMUNICATION
KULTUR
KAMARADERIE
Change is the only Constant

Heraclitus
“Imagination is Better than Knowledge says Einstein”
“The Best Way to Predict The Future Is To Create It.”

- Drucker
“There is an open future for Micropiles”