

# **PILING & FOUNDATION SPECIALISTS FEDERATION**

## **INCIDENT STATISTICS REPORT**

### **Final report for 2008 – 2009**

In early 2007 the Members of the Federation endorsed a proposal to introduce a new reporting system for its members so that it could better understand the nature of incidents occurring within the piling and foundation engineering sector of the industry. This system was intended to be as simple as possible to encourage participation but detailed enough to provide meaningful information – it was never intended to replace existing systems for record keeping required under law in each state.

The system adopted followed very closely the similar system used successfully by the European Federation of Foundation Contractors (EFFC) in Europe since 1995. Their system is in operation in 13 countries and they have a database of over 3,500 accidents!

The essence of the system is to use a simplified “tick a box” type format with minimal additional writing required. ALL incidents are reported whether they are time lost or no time lost incidents or involve damage to equipment only. This gives a much broader coverage than the statutory requirements. The system was introduced as from July 2007 and last year we published the results of the first 12 months of the study. We have now updated the results to the end of June 2009 thus completing 2 years of study.

A total of 186 reports were received in 2007 – 2008 and an additional 194 reports for the year 2008 - 2009 from all states of Australia. This is a relatively low database for comparison purposes with the European information but it provides us with a positive start which can only be improved upon in the future.

It is estimated that the companies that provided data for this report would have undertaken well in excess of 60% of the specialised foundation work covered by our membership in Australia in the period studied so it is a good sample to commence the investigation with. It should be noted however that all of the companies listed are based in the Eastern and Southern States – we have no reports from Western Australia based companies, so the report will naturally be skewed accordingly.

A brief summary of the most significant results from the study are attached with some initial comments. Members are encouraged to review their own experience and offer their comments and suggestions for improvement of the reporting system and their thoughts on how to use the information collected.

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### Severity of injury:

One of the most gratifying finding of this year's figures would appear to be a reduction in the severity of the injuries reported, with resulting lost time reduced:

|                                  | 2007-08 | 2008 - 09 |
|----------------------------------|---------|-----------|
| Greater than 2 weeks lost time   | 8       | 1         |
| 3 days – 2 weeks lost time       | 8       | 11        |
| Less than 3 days lost time       | 12      | 9         |
| No lost time                     | 126     | 132       |
| Damage to plant & equipment only | 32      | 41        |
| <b>Total</b>                     | 186     | 194       |

### Age of persons injured:

Our figures indicate a similar age distribution in general as EFFF with some small differences probably again due to the small database that we have.

### Time of incident:

There does not appear to be any specific “most common” time for an incident – they can happen at any time during the day and normally do! The figures relate to the European experience quite closely considering the small database that we have.

### Place of incident:

This year the percentage of all incidents reported that took place in the yard or workshop was 18% of all incidents (07-08 = 27%). This compares with about 16% in EFFF. Incidents occurring on site comprised 46% of all incidents and in travelling 3%. but with 33% of the incident reports NOT including the actual location of the incident – so the actual final figures for each category could have been in excess of this.

It should also be noted that several of the site incidents also involved mechanics, welders and electricians working on equipment. This continues to be an obvious area of concern that should be examined by all members.

### Injured parts of the body:

The nature of injuries to various parts of the body follows the EFFF very closely already even with a low database. *Injuries to Fingers, Eyes and Feet are a standout representing 33% of all injuries.*

### Foundation activity:

In 2008-09 Bored piles and cfa piles were once again the basis for 55% (cf 07-08 =55%) of the incidents reported in Australia ( compared with only 31% in Europe). The driven piling component was 31% (07-08 =36%) compared with 15% in Europe. EFFF figures included a much wider range of activities such as anchoring, diaphragm wall underpinning and ground improvement works. This year appears to have seen an increase in incidents involving diaphragm wall activity in Australia.

### Incident description:

Again very similar experience to Europe. Most common cause of incident is “Slipping, tripping or falling on same level” – 16% in 08-09 compared with 22% last year; ‘Lifting &

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wrong movement” associated with manual handling activities approx 19% (cf 21% last year); “Struck by falling object” 10% (cf 14% last year); “Damage to eyes” – 5% (cf 9% last year). Many of these could point to poor housekeeping on site, and the need for more emphasis and training in relation to awareness around site and manual handling techniques.

### **Activity of the injured person at time of incident:**

16% of all incidents occurred when “Walking around site or climbing on equipment” ( cf 23% last year) and “manual handling” incidents accounted for 20% ( same as last year). It is interesting to note however that this year we have seen an increase in incidents involving maintenance & manufacturing ( eg in precasting yards) upto 24% of all incidents and operating equipment upto 24% which are significant increases from last year.

### **General comments:**

The results obtained appear to follow quite closely to those recorded in Europe in the same industry sector but with a few exceptions. The following specific comments appear to be relevant and it is suggested that they be used discussion points within individual members’ organisations. Individual members are encouraged to respond to this report with their comments on the findings and the relevancy that they attach to them considering their own in house experiences:

- *In 2008 – 2009 one in 9 incidents reported resulted in a lost time injury to personnel. This compares with one in 6 incidents reported in 2007 – 2008 – a much better performance.*
- *The severity of injuries to personnel appears to have reduced this year with fewer injuries resulting in time lost in excess of 2 weeks.*
- *Incidents resulting in injuries to leading hands, driver/operators, foremen and engineers are collectively of similar frequency as incidents to general site labourers. This is the same experience as last year.*
- *More incidents appear to be occurring with specialised equipment both in the workshop/yard and on site whilst assembling/disassembling or undertaking maintenance. There appear to be a high percentage of incidents involving welders/mechanics/fitters on site – presumably working on equipment. The frequency of all such incidents has increased significantly this year.*
- *Damage to eyes, and injuries resulting from manual handling activities rate very highly in the reports.*
- *Injuries resulting from falling, slipping, tripping etc whilst walking around site, or climbing on equipment continue to be one of the most common incidents reported.*

**August 2009**



## INCIDENT ANALYSIS BY AGE GROUP:

| Age range | EFFC<br>1999 - 2007 | PFSF<br>2007-08 | PFSF<br>2008 - 09 | PFSF<br>2 years<br>cumulative |
|-----------|---------------------|-----------------|-------------------|-------------------------------|
|           | %                   | %               | %                 | %                             |
| < 20      | 4                   | 9               | 5                 | 7                             |
| 21-30     | 22                  | 20              | 20                | 20                            |
| 31-40     | 33                  | 38              | 37                | 37                            |
| 41-50     | 24                  | 16              | 15                | 16                            |
| 51-60     | 15                  | 15              | 21                | 18                            |
| >60       | 2                   | 2               | 2                 | 2                             |

## INCIDENT ANALYSIS BY TIME OF DAY:

| Time of Day      | EFFC<br>1999 - 2007 | PFSF<br>2007-08 | PFSF<br>2008 - 09 | PFSF<br>2 years<br>cumulative |
|------------------|---------------------|-----------------|-------------------|-------------------------------|
|                  | %                   | %               | %                 | %                             |
| Before 6am       | 2                   | -               | -                 | -                             |
| 6am – 8am        | 5                   | 15              | 6                 | 10.5                          |
| 8am – 10am       | 16                  | 23              | 23                | 23                            |
| 10am – Noon      | 26                  | 20              | 28                | 24                            |
| 12 noon –<br>2pm | 13                  | 11              | 9                 | 10                            |
| 2pm – 4pm        | 17                  | 20              | 21                | 20.5                          |
| 4pm – 6pm        | 15                  | 10              | 13                | 11.5                          |
| After 6pm        | 6                   | 1               | -                 | 0.5                           |

- It should be noted that the EFFC figures in both tables above are calculated using a database of over 3,500 incidents whereas the PFSF figures are based on only approx 400 incidents.
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## SEVERITY OF INCIDENT – AUSTRALIAN RESULTS ONLY

|                          | 2007 - 2008 | 2008 – 2009 |
|--------------------------|-------------|-------------|
| FATAL                    | 0           | 0           |
| > 2 WEEKS LOST           | 8           | 1           |
| >3DAYS < 2WEEKS LOST     | 8           | 11          |
| < 3 DAYS LOST            | 12          | 9           |
| NO LOST TIME             | 127         | 132         |
| PLANT ONLY – NO INJURIES | 31          | 41          |
| TOTAL INCIDENTS REPORTED | 186         | 194         |

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- We are aware of one horrendous fatality in 2008 – 2009 involving a piling operation in North Queensland by a non Federation member whilst pitching precast concrete piles ( refer Federation website). This also involved an extremely serious injury to the rig operator resulting in the loss of his legs.

## LOCATION OF INCIDENTS REPORTED BY STATE

|                          | 2007 - 2008 | 2008 – 2009 |
|--------------------------|-------------|-------------|
| QUEENSLAND               | 112         | 100         |
| NEW SOUTH WALES          | 41          | 52          |
| VICTORIA                 | 27          | 33          |
| SOUTH AUSTRALIA          | 3           | 4           |
| WESTERN AUSTRALIA        | 2           | 4           |
| ACT                      | 1           | 0           |
| TASMANIA                 | 0           | 1           |
| TOTAL INCIDENTS REPORTED | 186         | 194         |

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## INCIDENT ANALYSIS BY PARTS OF BODY INJURED:

|  | <b>EFFC<br/>1999 - 2007</b> | <b>PFSF<br/>2007-08</b> | <b>PFSF<br/>2008 -09</b> | <b>PFSF<br/>2 years<br/>cumulative</b> |
|--|-----------------------------|-------------------------|--------------------------|--|
|  | <b>%</b>                    | <b>%</b>                | <b>%</b>                 | <b>%</b>                               |
| <b>Head</b>                                | <b>19</b>                   | <b>23</b>               | <b>19</b>                | <b>21</b>                              |
| <b>Hand &amp; arms</b>                     | <b>37</b>                   | <b>32</b>               | <b>41</b>                | <b>36</b>                              |
| <b>Thorax / Upper<br/>body (incl neck)</b> | <b>13</b>                   | <b>13</b>               | <b>12</b>                | <b>13</b>                              |
| <b>Legs &amp; feet</b>                     | <b>31</b>                   | <b>32</b>               | <b>28</b>                | <b>30</b>                              |
| <b>Total</b>                               | <b>100%</b>                 | <b>100%</b>             | <b>100%</b>              | <b>100%</b>                            |
| <b>Specific sensitive<br/>Areas:</b>       |                             |                         |                          |  |
| <b>Eyes</b>                                | <b>8</b>                    | <b>10</b>               | <b>9</b>                 | <b>9</b>                               |
| <b>Fingers</b>                             | <b>16</b>                   | <b>13</b>               | <b>18</b>                | <b>16</b>                              |
| <b>Back (incl neck)</b>                    | <b>8</b>                    | <b>n/a</b>              | <b>9</b>                 | <b>9</b>                               |
| <b>Feet</b>                                | <b>9</b>                    | <b>7</b>                | <b>6</b>                 | <b>6</b>                               |
| <b>Legs</b>                                | <b>7</b>                    | <b>n/a</b>              | <b>6</b>                 | <b>6</b>                               |
| <b>Knees</b>                               | <b>7</b>                    | <b>n/a</b>              | <b>16</b>                | <b>16</b>                              |

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**ACTIVITY OF INJURED PERSONNEL AT TIME OF INCIDENT:**

|  | <b>EFFC<br/>1999 -<br/>2007</b> | <b>PFSF<br/>2007-08</b> | <b>PFSF<br/>2008 -<br/>09</b> | <b>PFSF<br/>2 years<br/>cumulative</b> |
|--|---------------------------------|-------------------------|-------------------------------|--|
|  | <b>%</b>                        | <b>%</b>                | <b>%</b>                      | <b>%</b>                               |
| <b>MANUAL HANDLING</b>                       | <b>31</b>                       | <b>20</b>               | <b>20</b>                     | <b>20</b>                              |
| <b>WALKING AROUND SITE &amp; ON<br/>EQPT</b> | <b>12</b>                       | <b>23</b>               | <b>16</b>                     | <b>20</b>                              |
| <b>HANDLING CONSTRUCTION<br/>MATERIALS</b>   | <b>11</b>                       | <b>9</b>                | <b>5</b>                      | <b>7</b>                               |
| <b>OPERATING EQUIPMENT</b>                   | <b>10</b>                       | <b>12</b>               | <b>24</b>                     | <b>18</b>                              |
| <b>ASSEMBLING / DISMANTLING<br/>EQPT</b>     | <b>8</b>                        | <b>13</b>               | <b>8</b>                      | <b>10</b>                              |
| <b>MAINTENANCE</b>                           | <b>8</b>                        | <b>9</b>                | <b>24</b>                     | <b>17</b>                              |
| <b>TRAVELLING</b>                            | <b>5</b>                        | <b>2</b>                | <b>0.5</b>                    | <b>1.5</b>                             |
| <b>MOBILISATION/DEMOBILISATION</b>           | <b>4</b>                        | <b>3</b>                | <b>1.5</b>                    | <b>2</b>                               |
| <b>SCREWING RODS AND PIPES</b>               | <b>11</b>                       | <b>1</b>                | <b>0.5</b>                    | <b>0.5</b>                             |
| <b>OTHER</b>                                 |                                 | <b>8</b>                | <b>0.5</b>                    | <b>4</b>                               |
| <b>TOTAL</b>                                 | <b>100</b>                      | <b>100</b>              | <b>100</b>                    | <b>100</b>                             |

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**DESCRIPTION OF INCIDENT:**

|   | <b>EFFC<br/>1999 - 2007</b> | <b>PFSF<br/>2007-08</b> | <b>PFSF<br/>2008 -09</b> | <b>PFSF<br/>2 years<br/>cumulative</b> |
|---|-----------------------------|-------------------------|--------------------------|--|
|   | <i>%</i>                    | <i>%</i>                | <i>%</i>                 | <i>%</i>                               |
| <b>Slip, trip or fall on same level</b> | <b>22</b>                   | <b>22</b>               | <b>16</b>                | <b>19</b>                              |
| <b>Struck by falling object</b>         | <b>13</b>                   | <b>14</b>               | <b>10</b>                | <b>12</b>                              |
| <b>Struck by moving object</b>          | <b>10</b>                   | <b>10</b>               | <b>7</b>                 | <b>9</b>                               |
| <b>Struck by moving machinery</b>       | <b>10</b>                   | <b>3</b>                | <b>3</b>                 | <b>3</b>                               |
| <b>Struck something fixed</b>           | <b>8</b>                    | <b>8</b>                | <b>11</b>                | <b>9</b>                               |
| <b>Fall from height</b>                 | <b>7</b>                    | <b>3</b>                | <b>4</b>                 | <b>4</b>                               |
| <b>Damage to eyes</b>                   | <b>6</b>                    | <b>9</b>                | <b>5</b>                 | <b>7</b>                               |
| <b>Contact with moving machinery</b>    | <b>6</b>                    | <b>1</b>                | <b>1</b>                 | <b>1</b>                               |
| <b>Traffic incident</b>                 | <b>3</b>                    | <b>0</b>                | <b>1</b>                 | <b>0.5</b>                             |
| <b>Trapped by overturning equipment</b> | <b>3</b>                    | <b>1</b>                | <b>1</b>                 | <b>1</b>                               |
| <b>Exposure to harmful substances</b>   | <b>2</b>                    | <b>0</b>                | <b>3</b>                 | <b>1.5</b>                             |
| <b>Lifting / wrong movement</b>         | <b>2</b>                    | <b>21</b>               | <b>19</b>                | <b>20</b>                              |
| <b>Splash</b>                           | <b>1</b>                    | <b>2</b>                | <b>1</b>                 | <b>1.5</b>                             |
| <b>Equipment failure</b>                | <b>1</b>                    | <b>3</b>                | <b>4</b>                 | <b>3.5</b>                             |
| <b>Electrical discharge</b>             | <b>1</b>                    | <b>1</b>                | <b>2</b>                 | <b>1.5</b>                             |
| <b>Other ( incl explosion/fire)</b>     | <b>5</b>                    | <b>2</b>                | <b>12</b>                | <b>7</b>                               |
| <b>TOTAL</b>                            | <b>100</b>                  | <b>100</b>              | <b>100</b>               | <b>100</b>                             |

