

February 2001

Safe erection of Scaffolding Presentation by John Locke, SGB Services,

John prefaced his talk by saying that the erection method he was about to describe was a radical departure from the old Risk Assessment approach which had achieved only a limited degree of success. He emphasised that it was intended only for the steel tube and fittings type of scaffolding and not for system types. On the subject of 'other types', he reminded members that Aluminium scaffold tubes should never be used for anchorage points, because they would not withstand the shock loading of a fall.

John went on to say that relatively few accidents did take place to scaffolders but, when they did, they could be fatal. He also pointed out that in the 1996 Regulations, in the hierarchy of risk control measures, use of harnesses was the lowest priority in the flow chart. He admitted that the new **NASC Code of Practice, SG4 - 00** (the 00 stands for 2000), **The Use of Fall Arrest Equipment whilst Erecting, Altering and Dismantling Scaffolding** did not comply entirely with Regulation 6 of **The Construction (Health, Safety and Welfare) Regulations 1996**, because of the nature and anomalies of scaffolding. Nevertheless, he said that the book contained a written note of support from the HSE who said that "... this guidance represents a major step forward is practicable and when properly implemented will significantly reduce the risk of falls."

At this point, **Ray Cooke, Principal Inspector Construction, HSE Midlands Region** interrupted to point out that the HSE's note **definitely** fell short of being an '**endorsement**'. He added, however, that it certainly represented 'best available practice' at the moment and his inspectors would be using it to set the "minimum acceptable" standard for safe working!

John continued by saying that it was important that proper records of training in SG4:00 should be kept to prove a person's competence. In addition, it is vital to record that a person has been issued with PPE and uses it!

In devising SG4 - 00, NASC had attempted to satisfy the following Elements: -

- **WHO** *should wear harnesses?*
The NASC recommends that all employees working at height erecting, altering or dismantling scaffolding must wear and use a safety harness. Prio to use scaffolders must have received appropriate training on **equipment knowledge, storage, maintenance, daily inspections, withdrawal of defective equipment and bans on modifications.**
- **WHAT** *type of fall-arrest system should they use?*

- Full body harness (**BSEN 361**) with rear dorsal ring for attachment of lanyard.
 - 1.75m fixed length lanyard **BSEN 362**)
 - Shock Absorbing device (**BSEN 355**)
 - 55mm opening scaffold hook (**BSEN 362**) for one-handed operation.
- **WHEN** *should they use it?*

HSG33 Health and Safety in Roofwork states that "In order for a fall arrest system to work correctly there must be adequate clearance below. Using a 2m lanyard and energy absorber anchored at foot level a clearance height of 6.25m would be required." After careful consideration of the factors involved and testing the NASC recommend that scaffolders use the first available anchorage point which is at 4m or above. This accepts the fact that in a fall, injuries may occur, but they will be minimised to lower legs and body and NOT the head, neck and spine. This compromise position takes account of the fact that existing fall arrest technologies are just not suitable for working conditions faced by scaffolders.

John added that the NASC considers that scaffolders are most at risk of a fall when traversing along the elevation to construct the structure. To reduce this risk to a minimum a single guardrail should be installed to all lifts at all locations where falls could occur. Where scaffolding is erected against a steel frame structure, a guardrail is needed **on both faces of the scaffold**. When working within the single guardrail and on a minimum of **600mm** of boarding (a Protected Area) **there is no need to clip on. BUT** scaffolders need to stay clipped on when: -

- Not working in the Protected Area.
- Moving the working platform
- Climbing up, or down, the structure.
- Working directly off the scaffolding structure.

Scaffolders are particularly at risk when receiving or lowering materials. NASC recommends two options for safe working: -

- Work clipped on at all times OR
- Work within a safe handling platform, fully boarded with a double guardrail.

The selection of which option to use will probably be down to company policy, unless the client specifically requests that safe handling platforms are used.

- **WHERE** *should they clip on to?*

- Always clip on to the structure itself, making sure that it is to BS5973 and that all components are sufficiently tightened.

- Although anchor points should be above waist height, it is not always possible as the structure is built upwards, therefore, it is recommended that the ledgers at foot level are used.
- The preferred anchor points are, in priority: -
 - a) Ledgers supported with load bearing couplers.
 - b) Guardrails supported by load bearing couplers.
 - c) Transoms supported by the ledgers in the lift above, fixed at both ends by single couplers.

THEY SHOULD NOT clip to: -

- Standards.
- Ledgers or guardrails supported with a putlog or half couplers.
- Ledgers or guardrails within a bay where it has a joint
- Transoms below foot level.
- Transoms when underslung below ledgers.
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- **HOW** *will the use of harnesses affect working methods?*
 - Scaffolding must be completed progressively, with a single guardrail installed at the earliest opportunity (as soon as a 4m anchorage point is available) on all lifts to provide protection whilst traversing and at work.
 - Scaffolders must be clipped on when installing components outside the guardrail
 - Traversing outside the guardrail must be limited to the maximum length of materials used (6.4m or 21 feet).
 - Scaffolders should board out the first lift from below, with a minimum of three boards (600 mm)
 - Ladders should be included as early as possible into the erection process and removed as late as possible during dismantlement. This is to reduce the need to climb the scaffold structure.
 - The structure should be progressively constructed horizontally, installing a guardrail (to a maximum scaffold length of 21 feet).
 - Within this guardrail, all transoms, ledgers and bracing may be fitted.
 - When a section has been completed, scaffolders can then move to the next section, with a maximum length of 6.4 m, and may then repeat the procedure to full height.
 - Alternatively, a single guardrail may be fitted progressively to the whole elevation, prior to fitting the lifts above. The advantage of this latter alternative is that once the guardrail is fitted along the whole elevation, scaffolders can move freely to install the lift above, **without being clipped on.**

There is a particularly high risk of fall when **moving materials** from the point of receipt to the point of work. The choice of the following

risk control options may be limited by company policy and the amount of manpower available: -

- Working in teams of three or more, with two scaffolders on the top lift.
Scaffolder 'A' raises a scaffold pole to **Scaffolder 'B'** who is already on the lift under construction, within the guardrail.

'B' transfers the materials to **Scaffolder 'C'** who is already clipped on within the unprotected area waiting to install them
- Working in pairs, **Scaffolder 'B'** is clipped on ready to receive at the point of work to install and there is no need for him to traverse with materials.
- Again, working in pairs, **'B'** is clipped on because there is no safe handling platform. He puts down the materials to **'clip-off'** picks the materials up, walks them along and puts them down to clip on again, prior to installing them.

Safety harnesses only work if scaffolders use them and good supervision is vital to ensure compliance. Failure to comply could result in the issue of improvement notices, OR WORSE!

If the SG4 - 00 is seen to fail on a wide scale then HSE will insist that more stringent measures are introduced.

When **Altering Scaffolding** the single guardrail should remain and a minimum of three boards should be used as a working platform.

When **Dismantling Scaffolding** , the erection process should be reversed. Guardrails should be removed from the section and only then should boards be removed from the lift below. Scaffolders **should not remove guardrails from the *whole elevation*** before lowering the boards.

Rescue planning is another essential element to this procedure. Hanging in even a full-body harness for prolonged periods can be dangerous because of the risk from restricted circulation and breathing. It is important that a person is rescued without delay after a fall - and that needs planning and practice to make sure that it happens effectively **'in the heat-of-the-moment'**. There will be emergency services to call, special manoeuvres to carry out on complex structures with an unconscious person. It is

important to recognise that the fire service cannot rescue over a certain height.

The NASC SG4 - 00 code is just a beginning, and is aimed **at Clients, Planning Supervisors and Principal Contractors**, as well as scaffolders, in an attempt to raise standards of fall protection. NASC is committed to reviewing the guidance every 12 months in order to take advantage of any new technologies which will improve scaffolders' safety.

John concluded by saying that the one good give-away sign about whether scaffolders were using SG4:00, was the presence, or lack, of the single guardrail on the structure.

Members' Questions

Mike Robertson of Costain asked if the use of inertia reel devices was suitable. **John** replied that there had been problems with the mechanism 'locking up and **Andy Chappell** added that there was also the 'pendulum effect' to be considered when the scaffolder traversed some distance, horizontally, from the anchor point.

Mike then asked if gangs were not complying, because they did not want to change their culture, what could be done to cure the problem? **John** replied that compliance must be monitored closely from the start. **Chris Gammon of Mitie Generation** added that NASC were vigorously promoting the guidance and that any non-compliance should be reported. **Ray Cooke** repeated his earlier statement that inspectors would be treating it the '**minimum standard**' of work.

Gerry Mulholland of Barratt Developments asked what could be done about HSE Inspectors using no-standard interpretations between Principal Contractors and Sub-contractors. **Ray Cooke** said that they know the minimum standards, but it was difficult to change habits of a lifetime in an industry which is particularly 'Macho' in its attitude to safe working. He added that it is important to reach **non-NASC** members as well as Principal Contractors.

Shabir Hussain of Robinson Low Francis commented that Planning Supervisors and Designers can get involved in raising standards and **John** replied that all they had to do was ensure that work was done to SG4:00.

John Kessell asked if SG4:00 could be made into an ACOP. **Ray Cooke** said that it was considered but he was not aware of any intention to do so. But he added that if non-compliance was widespread - it may happen.

Mark Hoare of Birmingham University made the very valid point that often scaffolding design and methods of erection were wrong, anyway. **John** replied that

it was easy to check if the SG4:00 training was on CITB cards. Mike Robertson asked how long it took to give SGB scaffolders the SG4:00 training? John said it was about two hours.

Dave Manton of Birmingham City Housing Department asked about the use of harnesses on Aluminium Towers. John answered that the shock load of approximately 80 kgs in a typical fall arrest incident would pull the tower over. He repeated his previous comments about selection of adequately strong anchorage points

Warwick Closed the meeting at this point and asked the members to thank John for making such an interesting presentation, at such short notice.

The BHSEA has moved!

At long last – the day has arrived and we left Gaywood Croft on Thursday 1st March 2001 to go to our new premises. The new address is: -

721 Hagley Road West, Quinton, Birmingham B32 1DJ

The telephone number, Email address and Website address are *all unchanged!*

We will be easier to find as we are at the city end of the Quinton Expressway, only about one mile from Junction 3 on the M5 Motorway. The premises were originally built as a shop and were converted to offices many years ago. There is a barber shop next door and a bus-stop right outside the front door, so we are easy to find. Why not drop in on your way to get a haircut, have a read of HSG 65 while you wait and borrow a video from our excellent safety library – *for the weekend?*

The map on the reverse side of the March Meeting advance notice should be an even better guide!!!

Payment of Subscriptions in Arrears

There are now 62 members in arrears with their Annual Subscriptions, which were due on the 1st June - *last year!* If you have **not** received a **membership certificate - you have not paid.** We have not increased the membership subscriptions for at least six years, although we are faced with increased costs for the HSC Newsletter which would now cost you £15 if you subscribed to HSE Books for a single copy for one year! So, *please*, start on the *bottom* of your pending tray and pull out that bright, pink BHSA invoice (yes - it still was **BHSA** in those mediaeval times!) and send in those pounds of the realm - while we still have a **£ound**, that is! If you are lucky enough to have an accounts department, don't forget to remind them (- whilst

jogging their memory about the very *existence* of the pink paper) that our address has just changed!!!

New RIDDOR Accident Reporting system.

It's good news for those people (and there are many!) who cannot remember who their enforcement authority is in the panic-stricken aftermath of an accident. From 1st April 2001 (No - this isn't a wind-up!) RIDDOR reports can be made to one point, the Incident Contact Centre (ICC), regardless of which office or enforcing authority is involved.

In addition to making reports in the existing way, reports may also be made by the following links:-

- By post to: **Incident Contact Centre
Caerphilly Business Park
Caerphilly
CF83 3GG**
- Via the Internet on www.riddor.gov.uk OR the link in www.hse.gov.uk
- By telephone on **0845 300 9923**, at local call rate.
- By FAX on **0845 300 9924**, at local call rate.
- By Email on **riddor@natbrit.com**.

If you use the internet or telephone service you may not have your own copy of the F2508 to show a visiting officer, as required under the Regulations. To help you with this, you will be sent a copy of your own report and given the chance to correct any errors on it. All these details may be found on free leaflet **MISC310**.

Regional Action West Midlands (RAWM)

In their second issue of *Action News*, RAWM included an article on the new Learning and Skills Council (LSC) and the Local Learning and Skills Councils (LLSC) which have replaced the TECs. In this article they mention an **Action Briefing** on the LSCs, which is available from **Helen Thomas on 0121 616 4721, or email helen@rawm.co.uk**. Anyone remotely interested in reducing safety training costs might learn something to their advantage by contacting Helen.

Birmingham Area Fire Protection Association.

The next meeting is about means of escape, covering changes to Part B1 of the Building Regulations and the fitting of non-slip surfaces to escape routes such as old, exposed external staircases. There will also be a demonstration of mobile fire training equipment.

The meeting is at 12.30 pm on Tuesday 13th March 2001, at the Shooting Star public house, 1741 Coventry Road, Yardley. Anyone interested should FAX Moss Haden on 0121 3807011 by 8th March.

•Date of the next Meeting

- 2.00pm, Monday 12 March 2001

- **We are back at the Birmingham Medical Institute! **

- ***"Asbestos – the new Regulations and ACOP"***

- *Presentation by Ray Cooke, Principal Inspector, HSE Midlands Region*

- *The long-awaited new Regulations and the ACOP are about to be enacted. There will be significant changes in the requirements and Ray Cooke has been at the centre of the consultation process and will be able to give us the news – hot from the press – **almost before it's printed!***