

Scottish Construction Safety Group

Minutes of the meeting of October the 19th 2017

There were 19 members and guests present. Roddy Introduced Dennis O'Neill of SGB who was presenting on the topic of mast climbers.

Dennis provided some background on the company of SGB which had been formed in 1916 as a scaffolding specialist and had grown and increased its range of access offerings to eventually include mast climbers.

SGB is now an operating company within Harsco which is a global organisation.

Mast climbers are available as temporary or permanent installations and can be powered or manually operated. Available height is limited to 100m in the UK. Mast climbing work platforms have increased in popularity and usage with a particular increase in use for bricklaying operations due, in part, to recognition of the platform being well suited to providing an optimal working height for bricklayers as the height of the work increases thus reducing potential for Musculo Skeletal Disorders and Work Related Upper Limb Disorders. Aside from bricklaying mast climbers are also very well suited to cladding tasks; Rain screen installation and glazing operations.

The main configurations available are Single mast, double mast, mobile chassis and freestanding.

Freestanding types are limited to 20m. For fixed mast types, the masts are fixed at predetermined intervals – typically at the floor slabs of the building. The loadings likely to be placed on the building are calculated and these loadings need to be acceptable to the building owner. Where the façade of the building steps in and out, ties of various lengths can be utilised to provide the necessary securing to the structure. In calculating the likely imposed loads the type of platform required will be dictated by a number of factors such as proposed task(s) and methodology. Available platform lengths are 3 to 13m for single mast, 8 to 30m for double masts although 30m is not commonly seen or used. Safe working loads range from 500 to 2000kg and 2 workers for single masts and 1000 to 5000kg and up to 4 workers for double masts. Vertical distances between ties can vary with first floor level typically being the first location and then can increase in spacing up to a likely maximum of 15m between ties. In relation to fixings to the structure, significant factors of safety are included in the design calculations and fixing specification and pull tests are carried out on additional redundant ties to a representative ten percent of the total number required. Operation in wind speeds of up to 28mph for single mast devices and 38.5mph for doubles. However there are some platforms which can operate beyond these speeds. There is considerable communication and site visits to ensure appropriate planning and selection of equipment.

In relation to point loadings on the platform, the greatest bearing capacity for these is close to the mast but must always be considered in the initial design and specification. It is vital to consider the bearing area at the base of the mast which is relatively small and the potential for services below ground which may be affected. Typical applications for mast climbers include multi storey buildings and bridges where traditional scaffold solutions may be prohibitively expensive or represent significantly increased time scales for assembly and removal. Novel solutions have been developed where there was no possibility of bearing onto adjacent structures or to the ground. Cantilevered brackets were designed and connected to the structure being worked upon and then the mast climber was installed above, and bearing onto these.

Masts can be inclined or declined where the structure is not vertical and the working platform be canted to maintain a level footing. The minimum clearance between the platform and the structure is 150mm and this is not considered a fall risk for personnel. Any gap of 250mm would need additional fall protection measures.

For all mast climbing operations it is necessary to implement and maintain an exclusion zone below and extending 3m beyond the footprint of the platform. Where the platform is operating above accesses into buildings it is necessary to construct crash decks to protect those passing below the work area.

There are stringent training requirements for those assembling and installing mast climbing platforms to a formally documented scheme. There is also training for mast climber operators and users, in the UK this is typically IPAF. This training is supplemented by induction / familiarisation training for users at handover, additional visits can be arranged for subsequent users although these may be charged for. After installation and in use the platform represents a safe working platform with edge protection and therefore there is no requirement for harness wearing and use by those working from the platform. However some locations or premise controllers may have their own specific requirements which must be observed. In respect of routine checking there is a requirement for daily (user) checks pre use which will include edge protection, controls, ties etc. which will be visual or functional checks; Weekly more thorough checks may include checking tie fixings for security. It is considered good practice to record daily checks but is a requirement for weekly checks to be formally recorded and copies retained.

Routine and periodic maintenance can be at intervals determined by the likely exposure and possible deterioration of the installation – likely to be considerably shorter e.g. coastal locations where winds and salt

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air may cause issue. These factors will be considered during the specification / design stages and intervals will be specified by the manufacturer or supplier. This period is typically 6 weekly for SGB equipment. Thorough examinations will be carried out at intervals not exceeding 6 months. For thorough examinations at the installed location, there will be a handwritten handover certificate which will be followed up within 30 days of the full test certificate. All mast climbers are thoroughly examined when returned to the depot from hire locations.

Golden rules for mast climbers include - checking before every use – visual and functional; Always have a minimum of two workers on any platform to ensure ability for descent should one worker become unwell; Ensure that the safe working load is never exceeded; Always check there are no obstructions to operation – projections from the building etc.; Ensure that power supply cables are not snagged. Where manually controlled descent or brake release is required, care must be taken to lower slowly. Otherwise the over speed descent auto brake will engage which cannot be released by users. Mast climbers must not be used to transfer people from mast to structure or vice versa and must not be used as a hoist for materials other than those being installed directly from the platform. For larger components such as cladding and glazing, attachments are available which can assist in reducing manual handling.

Roddy thanked Dennis and introduced Nicola Mulvenna of the HSE who presented on some findings from the recent refurbishment intensive inspection campaign which took place between the 2nd and 13th of October. The main locations visited by construction inspectors from the East of Scotland office included Edinburgh, Dunfermline, Dundee and Perth. Concentration was on smaller sites which typically were not notified via F10 and the campaign focussed significantly on health hazards. Some of the standards encountered varied from disappointing to shocking. 44 sites were visited by 3 inspectors and 66% of these received enforcement action.

Many instances of work at height were encountered where there were inadequate fall protection measures with instances of access ladders not secured, complete lack of edge protection / guard rails, no toeboards, inappropriate boards as work platforms, incomplete alloy towers and unprotected gaps between scaffold and the building. There were instances where there was no suitable access to sites and work areas for those working there. A question was asked from the floor about confirmation of corrective action, Nicola advised that there can be follow up checks but it is fairly simple in this day and age to have photographs submitted which show that issues have been corrected and that compliance has been demonstrated.

It appears clear from the concerns identified and practices observed that there seems to be a considerable lack of skills, knowledge, experience, and training in the small scale section of the industry.

The issue of Improvement notices appeared to be most common in relation to welfare issues including lack of provision of washing facilities. INs were also issued in relation to lack of supervision and management of works, lack of appropriate segregation between pedestrian and vehicles / plant. There was at least one Prohibition Notice issued due to a required asbestos survey not being available.

On some sites there was a lack of clarity or knowledge as to who was in charge or how to contact those in charge when they were known. There were some sites encountered where the attitude was actually 'thank goodness you've turned up'. Overall there were some very low standards encountered and it appears that smaller sites are seriously in need of improvement. The next specific intensive inspection refurbishment campaign is planned for May 2018.

Roddy thanked Nicola and introduced Chris Steel a noise and vibration inspector of the HSE. Chris described his role as including providing information for field inspectors on the various aspects of recognising and controlling noise and vibration and guidance on what type of action should be taken when controls were not being effectively implemented. Hand breaking rather than pile cropping will likely result in a Prohibition Notice being issued. Under protection due to in-ear plugs not being properly inserted or lack of available hearing protection equipment could result in an Improvement Notice.

As with other hazards the aim in relation to noise and vibration should be to apply the hierarchy of controls with elimination of the hazard being the most favoured control. This can be by means such as ensuring good design information and being in possession of it early enough – BIM may help in terms of reducing potential for subsequent need to cut or break out; ensuring consideration of alternate methods – ensure you get what you specify such as surface mount rather than chasing out; cast in holes / inserts to reduce need for drilled fixings; alternative work methods such as chemical bursting rather than breaking

The HSE expect there to have been consideration of alternative equipment or processes to reduce noise or vibration production. Purchasing policy will demonstrate an aim to replace equipment with better equipment in terms of noise and / or vibration and to place greater expectations on suppliers such as specifying built in isolation between the engine and the handle(s) to prevent users being subject to vibration or finding alternatives which don't require the user to hold the tool directly – remote control equipment or jig or machine mounted tools.

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Specific to noise the rule of thumb of having to shout at 2m distant or 1m distant were a reasonable indicator of the need to provide or enforce the use of hearing protection. Over ear protection may not necessarily be better than in-ear as seals can be compromised by the legs of glasses etc. If using protection then employers also need to carry out OH surveillance to ensure that the equipment is protecting the worker(s).

In relation to Hand Arm Vibration, employers should be estimating usage and considering probable magnitudes based on available information and making reasonable estimation as to whether the supplied information is credible. HSE have some online resources which can assist.

Tool maintenance and job rotation are important controls to protect workers. Whilst there are some claimed protections available via anti vibration gloves it is a complex area to try and prove what protection might be given, gloves do however help circulation by assisting in keeping hands warm.

Dates of forthcoming meetings are

23/11/17 Information Commissioners Office - Data Protection

18/1/18 15/2/18 22/3/18 19/4/18 24/5/18

Topics including – lifting, legal update, occupational health (physicians view), toxicological information on drug and alcohol testing and fire risk assessment, will be matched to dates shortly.