

21003 **Safe kiln access and inspection project****Mansfield Sand Co Ltd > Brick Division** 1 3 5**DESCRIPTION**

The brickworks at Mansfield Sand have a large curing chamber for the bricks consisting of racking configured into 9 lanes, each containing room for 30 stacks of pallets, each stack is 19 pallets high. As a result, this is deemed a critical structure and must be maintained in good condition to remain structurally sound.

Access to the kiln for inspection is across a pit approximately 750mm deep that carries the mother and finger car used to load and empty the kiln racks. This means it is not easily accessible for pedestrians or to get MEMPS into the kiln area for access at height to inspect or repair the structure.

Unsafe behaviours were identified where personnel were walking across the mother car to cross the pit, this did not have a walkway, there were trip hazards and no fall protection. Following an incident where someone fell and was injured, Mansfield recognised that it was necessary to improve both pedestrian and machine access to the kilns. At the same time, a more frequent inspection policy was introduced making the provision of good access even more critical.

A team was set up to review this issue including the operatives who were involved in operating and maintaining the system. The solution they proposed was that platforms should be added to the mother car that would allow safe access across the pit for pedestrians and provide a deck for the scissor lift to be carried between lanes of the kiln. A platform was added that included some steps down into the pit. Although decking was provided for the scissor lift, there was no easy way to get the scissor lift onto the platform. The scissor lift was placed onto the decking using a forklift as there was no safe access point to enable it to be driven on. Ramps were provided to give the scissor lift safe access into each kiln. These ramps were heavy and required two people to lift and lower them between lanes. Further work was identified as being needed to make the task safer and more efficient.

A safe access point was required that would allow the scissor lift to be driven onto the mother car avoiding the lifting operation. The solution to this problem was to cut a hole in the wall of the kiln and install a new roller shutter door with an interlocked guard inside the kiln. This provided both a safe access allowing the scissor lift to be driven onto the platform, and the option to view operations from behind the closed guard. The ramps were changed to lightweight aluminium versions that were hinged to the mother car platform. These ramps could be lifted and lowered more easily and avoided the need to be carried.

Mansfield Sand also purchased a dedicated scissor lift instead of hiring one, ensuring easy access at any time and reducing the risk of unsafe behaviours because equipment was not available.

A short video of how the process works was produced by the site for use as a primary training tool.

**BENEFITS**

- Easier and safer access to the kiln
- Inspections have significantly less impact on production
- Critical structural inspections can be completed in a few days
- Elimination of potentially hazardous lifting operations
- Reduced exposure to the risk of being struck by moving objects
- Elimination of climbing/use of ladders – reduced working at height risks
- All access to kilns at height by a Mobile Elevated Moving Platform (MEMP)
- Safer emergency response if individual injured at height
- Safe access across the mother car – reduced risk of fall from height
- Safe access via ladder to the bottom of the pit
- Elimination/reduction in manual handling of ramps
- Reduced exposure time to hot and humid kiln environment
- More efficient maintenance – operatives can assist engineers with the kiln inspection process
- Operatives' skills have been enhanced
- Process has helped enhance safety culture at Mansfield Sand.

**TRANSFERABILITY AND DEVELOPMENT**

- The kiln access project is complete and has been proven over the last year. The idea is readily transferable to all brick and block plants requiring working at height within a kiln but by its nature, would need to be made site and plant specific
- The system has been shared with the original equipment supplier partners.



Before mother car adaption



MEMP in kiln lane



Ramp



Crossing mother car