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| **Topic** | Safer maintenance and housekeeping |
| **Entry number (MPA Ref)** | 202447 |
| **Title of Entry** | Dust extraction during Pre-cast Mould cleaning |
| **Name of Company** | Mansfield Sand Co. Ltd. |
| **Location** | Mansfield Brick |
| **Video**  **(if yes, please include URL for video)** | No |
| **Other resource X (if yes, please include description)** | 5 images |
| **Fatal Theme (tick boxes that are applicable) 1  2  3  4 X 5  6** | |
| **BACKGROUND** | |
| As part of our pre-cast block manufacturing process, we use a variety of different moulds which are changed out as required by production demands. To ensure our process runs as efficiently as possible once a mould has been removed from the press it undergoes a thorough clean down prior to being put back to storage.  When the mould comes out of service it has a build-up of concrete product and a degree of oxidisation, both of which require removing. Hand held abrasive wheels are used to carry out this cleaning process, resulting in the generation of airborne dusts including Respirable Crystalline Silica (Fatal 6) and Ferric Oxide – both of which are hazardous to health, the former leading to Silicosis and the latter Pulmonary Siderosis, a form of Pneumoconiosis.  Employees wear appropriate RPE, but as the dusts became airborne this potentially put others sharing the workplace at risk of exposure to them. | |
| **MANAGEMENT OF PROCESS** | |
| With the problem identified, the brickworks lead engineer researched a suitable solution for controlling the hazardous dust at source and with the brickworks manager sourced a suitable extraction unit.  The issue and solution were discussed at HSE committee meetings involving employee representatives and at weekly production meetings attended by site management, engineers and supervisors. The leadership team identified a significant health issue during the mould cleaning process and committed time, effort and resources into finding and implementing a solution to mitigate the hazard.  Following a thorough analysis of the selected unit’s specifications, it was deemed to be suitable to remove RCS and other harmful dusts at source. The unit contains a HEPA 13 filter which removes airborne particles down to 0.3 Microns and has the highest filtration efficiency rating of F9 EN779:2012.  The equipment supplier visited the site to understand the requirements and worked together to provide a suitable unit to remove hazardous dusts at the point they were generated, whilst providing the flexibility to move the unit around to where the work was being carried out, as opposed to having a fixed extraction system.  The effectiveness of the extraction unit in our application led to a request from the supplier to create a promotional video on our site, involving our staff, which is now on their website and used to promote their product.  This entry reflects the MPA’s Vision Zero Values by:-  Empowerment – company personnel have a voice, and it was a member of staff who identified the issue of hazardous dusts being generated during the mould cleaning process and remaining airborne and brought it to the attention of the leadership team.  Engaged – through consultation and collaboration with employees and discussion at site H&S committee meetings, a suitable solution was identified.  Visible & consistent leadership – through the allocation of time, effort and resources to investigate and provide a solution to improve the health and safety of staff and site visitors alike.  High quality implementation – the standard of unit selected is of the highest specification providing HEPA filtration that meets medical grade standards and the highest efficiency rating.  Collaboration and sharing – collaboration with the supplier to identify a suitable unit and share with a wider audience through their promotional channels.  Compliance – by the provision and use of this unit in on-site applications i.e. mould cleaning, other ad hoc activities creating hazardous dusts elsewhere in the factory, the business is ensuring compliance with the requirements of the COSHH Regulations and HSE’s EH40 on Workplace Exposure Limits. | |
| **BENEFITS** | |
| The primary benefit of introducing the portable extraction system is that it removes hazardous respirable dusts including Crystalline Silica and Ferric Oxide at source. This has a dual benefit as it protects the person carrying out the mould clean down activity and protects others in the workplace i.e. employees, contractors, visitors from exposure to hazardous airborne dusts.  In addition to the extraction unit, personal RPE has been improved through the purchase and use of battery-powered respirators now worn by all persons carrying out this activity.  The benefits are clearly demonstrable as the airborne dust made by the cleaning activity is removed at source by the extraction unit. This will be further evidenced in the next programme of personal airborne dust sampling due later this year.  Removing the dust at source has significantly mitigated one of the high potential Fatal 6 hazards in the form of exposure to Respirable Crystalline Silica created by this activity to all persons in the workplace.  By engaging and consulting with employees throughout the whole process, it has clearly demonstrated the management teams’ visible leadership in promoting a healthier and safer workplace providing a positive impact on H&S culture across the site.  Through a significant reduction in airborne dust in the workplace it’s had a positive impact on all employees health and wellbeing by removing exposure to potentially hazardous substances, which can cause Silicosis and Siderosis as well as other respiratory health conditions. This is backed up by the company health surveillance programme which includes annual spirometry testing and scheduled chest x-rays for those exposed to RCS | |
| **INNOVATION** | |
| This entry clearly reflects both an enhancement and adaptation of previous working practices, previously the only protection for employees was the provision and use of suitable Respiratory Protective Equipment in the form of FFP3 dust masks.  Through a process of continuous improvement, the company first introduced battery powered respirators to provide protection for the individuals carrying out the mould cleaning process.  After identifying that the resultant airborne dust still posed a risk after completion of the task, it was apparent that a means of controlling the dust and preventing it from becoming airborne was required.  The introduction of battery powered respirators and the portable dust / fume extraction unit not only provides greater protection to employees during the mould cleaning process but in other applications across the site. | |
| **DEVELOPMENT & TRANSFERABILITY** | |
| Consideration is being given as to whether there is any similar requirement at our silica sand quarry for a portable means of controlling hazardous dusts.  This solution for preventing hazardous dusts and fumes from becoming airborne could be implemented in a variety of applications across the industry and other sectors.  The use of the mobile extraction unit at our site has been shared with a wider audience through the Suppliers on their various media channels.  With entry into this competition, it is hoped that the use of this extraction unit in this application shall also be shared across the MPA membership and wider industry sectors. | |
| **NB if document has embedded images try and include these**  **If other documents provided say additional information available.** | |