The Design of Changing Rooms and Washing Facilities for Lead Smelters, Mines and Battery Manufacturers

The Lead Industry, represented by the International Lead Association, is committed to the safe production and use of lead, enabling society to continue to benefit from its particular properties whilst safeguarding human health and minimizing the impact of our operations on the natural environment.

Members of the ILA subscribe to a set of Principles embodied in the LA21 Charter (http://www.ila-lead.org/responsibility/la21-charter). In the spirit of that Charter, a series of Guidance Notes has been produced to help inform employers and workers around the world on how to work safely with lead and protect the environment. This Guidance Note forms part of the series being produced under LA21.
Aim of the Guidance Note

This guidance note provides details of how to properly design male and female changing rooms and washing facilities for a lead smelter or manufacturing plant in order to reduce occupational exposure.

There are three main principles to consider when planning the design of changing room and washing facilities for lead smelters, lead mines and battery manufacturers:

1. **Location**
2. **Segregation and**
3. **Containment**

### Location

- It is important to ensure that access to the 'leaded areas' of a plant is through a lead-free area. Ideally, all employee facilities, including changing rooms, work clothing storage (work clothing is clothing worn in leaded areas), safety equipment, washing facilities and the canteen, should be housed in a single building on the perimeter of the plant so that personnel do not enter or leave the operating areas without passing through the changing rooms and administrative staff do not have to enter the leaded operating areas.

### Segregation

- The changing rooms should be segregated so that there is one section for employees starting work and one for employees finishing work. Access from the 'clean' side to the plant, mine or factory should be through a corridor that uses a one-way door, which means employees entering the plant cannot leave without going through the plant side washroom.

- Employees preparing to start work should leave all their own clothes in designated lockers in the 'clean' side changing room. The lockers should be equipped with coded locks to remove the need to take keys into the plant. The changing room should include wash basins and toilets.

- The corridor leading to the plant side changing room should take employees past the clothing and equipment store where they can collect clean overalls and any necessary safety equipment.

- Disposable or washable sandals or socks should be available in the clothing store to be worn on the feet for hygiene purposes. At the end of a shift, this footwear should be collected in a covered bin for disposal in the furnace or other suitable disposal system.

- Only when employees have changed into work clothing and are wearing the appropriate safety equipment should they leave the changing room by a single exit to the plant.
Containment

- At the end of a shift, or to take a meal break, employees should enter the plant side changing room to clean their boots/shoes.

- Once their boots or shoes are clean, employees should enter the lobby area of the changing room to remove all work clothing including boots and shoes. All used clothes are then left in a dedicated sealed bin in the lobby.

- More than one collection bin can be used to segregate overalls, gloves, socks etc. The bins can also be lined with water soluble bags, or similar, to reduce the risk of the personnel working in the laundry being exposed to lead dust.

Employees should then pass through another one-way door into an automatic shower and washroom area equipped with soap dispensers, clean towels, toilets and automatic, electronic sensor controlled or foot pedal controlled taps. From this shower area, another one-way door leads employees back into the 'clean' side changing room where they can put on their own clothes at the end of a shift or to go for a meal break.

The washrooms, changing rooms and canteen facility should be air conditioned and have a positive air pressure to reduce the risk of the ingress of dust from the plant, mine or factory.

- Ample clean drinking water should be freely available throughout the plant.

- Safety equipment must be returned to the safety store at the end of each shift for cleaning.

- For best results, access to and from the canteen and laundry must be carefully considered. Similar facilities should be built side by side for men and women, if both sexes work in the plant.

An example of a suitable design for a changing room (This is not to scale)

1Two examples: [www.win-health.com/soluble-laundry-bags.html](http://www.win-health.com/soluble-laundry-bags.html) - Bags can be placed directly into the washing machine. During washing, the water soluble transparent bags dissolve, releasing the contents into the wash.

Remember*

This strategy and plant changing room design minimises the risk of lead exposure for everyone who works in the plant. However, there are a number of points to bear in mind:

**Checklist:**

- The entire washroom, changing rooms and canteen facility should be air conditioned but the air pressure in the plant changing room should be less than elsewhere in the complex so that lead dust cannot enter the clean areas.

- Ample clean drinking water must be freely available throughout the plant.

- Safety equipment must be returned to the safety store at the end of each shift for cleaning.

- Smoking must be banned – the segregation strategy will be undermined if personnel are allowed to take cigarettes into the plant and then bring them back into clean areas.

- To maintain the highest level of segregation, access to and from the canteen and laundry must be carefully considered.

- Similar facilities should be built side by side for men and women, if both sexes work in the plant.

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