

Ergonomics 2

Ergonomics

Ergonomics is the study of the body's movements and postures to the performance of a certain task.

The ergonomic analysis of work activities among bricklayers and mason tenders focused on working in awkward postures, lifting, and wrist and arm movements in trowelling.

High-risk Factors

In the masonry trade, conditions that carry a high risk of work-related musculoskeletal injuries were identified through site observations and ergonomic analysis.

- Workers often perform more than 1000 forward bending tasks per shift and are therefore at risk of developing low-back disorders.
- Workers who have to lay brick and block above shoulder height increase their risk of developing shoulder, arm, and wrist problems.
- Masonry workers are exposed to environmental factors such as wind and excessive heat and cold. Walking or working on uneven, muddy, or icy surfaces exposes bricklayers and mason tenders to the risk of slips, trips, and falls.
- Workers generally use large trowels (12-inch) that enable them to lay more mortar per application but also increase the risk of elbow and wrist injuries.
- Many workers wear gloves when lifting and placing block. Gloves *reduce* grip strength.
- Mortarboards are typically positioned at or below knee level. This forces workers to bend forward repetitively -- a contributing factor to low-back disorders.
- Bricklayers often work in restricted spaces where their freedom of movement is limited. As a result, they must adopt awkward, twisting movements when lifting and laying brick and block. This increases the risk of musculoskeletal injury.
- The stress of maintaining the expected production rate (about 200 blocks or 600 bricks per day) can lead to muscle tension and a greater likelihood of injury.

Recommendations:

- Implement a pre-job exercise program and improve work/rest cycles to reduce fatigue and injury.



- Plan and organize sites to facilitate access, reduce unnecessary materials handling, and avoid work in constricted spaces that force workers into awkward postures and twisting movements.
- Use height-adjustable mortarboards to reduce forward bending. Similarly, keep platforms for stocking brick and block no lower than knee height.
- Educate workers regarding the importance of using a trowel suited to their size and strength.
- These recommendations are meant to help eliminate or reduce risk factors surrounding work-related musculoskeletal disorders in the masonry trade.