



## Health & Safety At Work

### **PACKAGED BRICKS HANDLING & COSHH INFORMATION**

The Health & Safety At Work Act, Consumer Protection Act and other dependant legislation require us to provide relevant information regarding our products in respect of handling, processing, storage, transportation or disposal without risk to health.

#### **HANDLING & STORAGE**

Fired clay brick is an inert material, which presents no risk to health and safety through handling or use, subject to good site practice being followed.

The use of safety clothing such as safety hats, boots and industrial gloves is strongly recommended whenever practicable, to minimise the risks associated with falling objects and sharp edges.

If bricks are hit with a trowel, bolster, scutch, etc., eye protection should be worn as sharp vitrified clay chips may fly.

Individual bricks are grouped together into packs. Packs are heavy and great care should be taken in their handling. Equipment used for lifting packs must be adequate for the weight involved. The weight of the pack varies according to the size of the product and quantity per pack, but the maximum weight of each standard pack from Ibstock Brick Limited factories is 1.67 tonnes approximately.

These packs may be delivered on disposable wooden pallets with the bricks contained by plastic shrink-wrap or they may be held together as a unit by plastic or steel bands, which may be contained by a plastic shrink-wrap,

All personnel involved in the handling of packs should be made aware that steel straps could snap in certain circumstances, allowing the products to fall:

- **AVOID** abnormal shocks to the packs
- **AVOID** sliding one pack against any face of another pack
- **NOTE** straps can deteriorate over a period of time

Packs should be placed on dry level ground.

## **TRANSPORTATION**

Packs must never be lifted by the strapping, if provided. Only use the holes in the packs or pallets provided. It is recommended that suitable handling forks should have a width of 90mm and be 1100mm long; it is also recommended that grabs should only be used on solid packs.

Some pack configurations (typically a 500 brick all header pack) can be split into 5 @ 100 brick legs. These legs are only stable if stored or moved around while laid flat on a pallet - they must not be moved in the vertical position.

Where packs are lifted more than storey height, a safety cage of adequate dimensions around the pack should be used. All personnel must stand well clear of packs when they are being lifted or moved.

If it is considered necessary to store a brick pack above ground level, it should only be placed on a suitably designed staging with guard rails and brick nets of appropriate height to prevent any bricks falling to lower working areas.

## **PROCESSING**

Straps should be cut by wire cutters and not burst by the application of levered pressure. When cutting straps, the operative should stand to the side of the strap being cut and not in line with that strap. Highly tensioned straps can spring away from the package when tension is released. In accordance with the Personal Protective Equipment At Work Regulations 1992, persons cutting wire strapping under tension MUST wear suitable eye protectors (reference: BS EN 166, 167 & 168).

When straps are cut, protective footwear, gloves and overalls should also be worn because bricks may fall from the pack, particularly if the pack has been subjected to irregular handling or storage.

## **DISPOSAL**

Redundant packing materials should be gathered together daily and placed in a waste disposal skip for removal to an approved tip.

If wooden pallets are burned, great care must be exercised to ensure that environmental pollution controls are not contravened.

## **COSHH**

In general, fired clay brick products contain 50 - 70% silica. If powered tools are used to cut this product, substantial amounts of dust may be produced. Depending on the environment and the method of cutting, it is possible that some respirable silica may be generated.

The Maximum Exposure Limit (MEL) for respirable silica is currently 0.3mg/m<sup>3</sup>. The only reliable way to ascertain the levels of individual exposure during cutting is to carry out detailed personal monitoring.

Persons carrying out a dry cutting operation MUST wear suitable respiratory protection. A suitable respirator or disposable mask meeting BS EN 149 (Specification For Filtering Half Masks To

Protect Against Particles) is recommended. The use of appropriate respiratory protection by those working near to the dry cutting operation should be considered.

Our advice would be to avoid dry cutting of bricks wherever possible. Wet cutting reduces the amount of dust generated and is a preferable method of cutting.

During the cutting operation, the brick should be firmly held by a mechanical clamp or similar device to prevent movement.

### **MANUAL HANDLING**

An individual standard brick typically weighs 2 to 3 kg (special bricks may weigh more) and presents low risk of a manual handling injury. We recommend that the HSE Information Sheet Guidelines (Construction Sheet Number 37 - 'Handling Building Blocks') be followed.

**IT IS THE CUSTOMERS RESPONSIBILITY TO OBTAIN TECHNICAL  
DATA ON ALL MATERIALS TO BE USED WITH OUR BRICKS.  
NO LIABILITY CAN BE ACCEPTED IN RESPECT OF OTHER  
MATERIAL USED IN CONJUNCTION WITH OUR BRICK PRODUCTS**



## **IBSTOCK BUILDING PRODUCTS**

### **MAINTENANCE OF BRICKWORK**

The following general comments relate to the maintenance and cleaning of brickwork.

1. **Mortar**  
Well-built clay brickwork is virtually maintenance free. The brick colour will not fade and the only obvious reparation maybe that after a number of years, the joints face may deteriorate. However, if the correct mix proportions are specified, being aware of the exposure factor, this is highly improbable. We make this point because brickwork repointing is an obvious maintenance factor.
2. **Graffiti**  
Keeping the brickwork free of graffiti can now be accomplished by the use of a range of anti graffiti materials, which will not harm the brick or the joint. Such materials are readily available from most builders' merchants, and although they are not able to deter potential graffiti artists, it does enable such masonry to be cleaned down effectively.
3. **Efflorescence, Algae, Lichen**  
Persistent efflorescence, extensive salt staining from within the brickwork and vegetable growth on the brickwork are due to excessively wet conditions, and, unless the basic problem of water penetration is cured, the staining will repeatedly reappear. In such cases, it is necessary to overhaul faulty flashing and damp proof courses, repair leaking rainwater down-pipes, renew copings, etc.

Particular areas of masonry that can encourage lichen, moss, etc. are free standing boundary walls, adjacent to trees. Low dwarf walls and retaining walls where there is likely to be a constant source of water, can also encourage both seed and algae to adhere to the walling. If this does occur, then the application of a proprietary weedkiller will not harm the brickwork, and will rid those areas of masonry which are likely to become saturated, such as below expanses of window, parapets and copings.

4. **General Staining, i.e., dirt**  
Staining in brickwork is generally due to external causes but sometimes may result from salts in the brickwork itself. Staining can mar the appearance of brickwork but incorrect cleaning techniques can

cause permanent damage. Consequently, any proposed method of cleaning should be tried out in a small unobtrusive area and left for as long as possible, (at least a week or so) to judge the results, before the whole job is tackled.

The techniques given below are intended for 'do-it-yourself' work in removing relatively small areas of staining. A specialist contractor should be engaged for cleaning large areas of brick, for example, general cleaning of industrial grime from a building.

Where chemicals are to be used, the brickwork should always be saturated with clean water, to prevent it absorbing the chemicals, and washed down thoroughly with clean water afterwards.

Normally it is preferable to employ wooden scrapers and stiff fibre brushes to avoid damaging the bricks. Adjacent features, such as metal windows and the area at the foot of the wall should be protected from splashing with the chemicals. In places where this is not possible, or where the stain is very localised, most of the cleaning liquids can be applied as a poultice by thickening with inert filler such as talcs, bentonite or powdered chalk.

Many of the chemicals recommended are caustic or poisonous so care should be taken and protective clothing and goggles should be worn. Volatile solvents should only be used indoors under conditions of good ventilation.

Rain splashes at low level can dirty masonry, but the careful use of a weak acid cleaner followed promptly by washing with water, will soon restore rich colour of the individual bricks. Wire brushing is not recommended, as most bricks can become badly scratched and therefore over vigorous cleaning is not recommended, as it can sometimes be to the detriment of the general appearance of the building.

These comments refer to general maintenance and whatever brick is used, if the correct brick type and mortar is specified, in accordance with the durability Table 13 of BS5628:Part 3, then maintenance should be limited and therefore a minimal cost item in the general upkeep of the property.

Additional information is contained within BS6270, which refers to general cleaning of building materials with a useful reference on brick masonry repair and BDA Note 2 on cleaning of brickwork.



# Silica

## Construction Information Sheet No 36 Revision 1

### Introduction

Silica occurs as a natural component of many materials used or encountered in construction activities. This information sheet deals with crystalline silica which can cause lung disease.

Crystalline silica is present in substantial quantities in sand, sandstone and granite, and often forms a significant proportion of clay, shale and slate. It can also be found in chalk, limestone and other rock and soil, though this is unusual. Products such as concrete and mortar also contain crystalline silica.

### Exposure to silica

The health hazards of silica come from breathing in the dust. Activities which can expose workers or members of the public to the dust include:

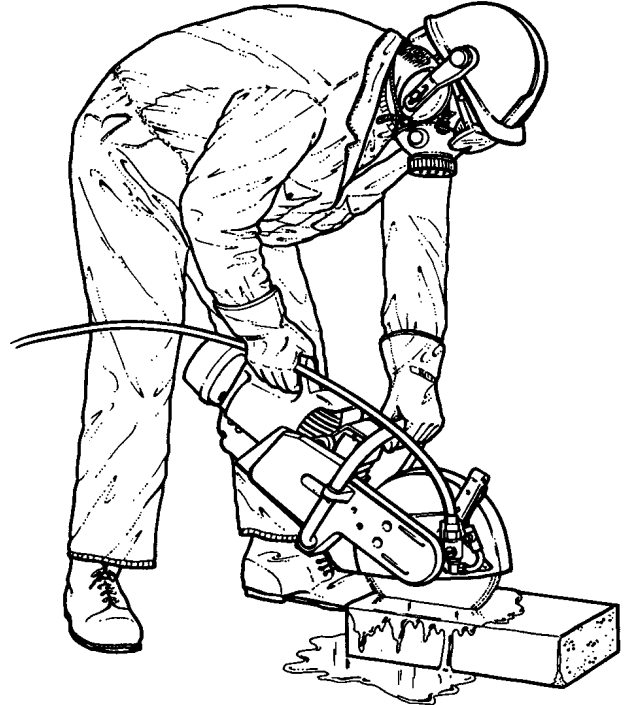
- stone masonry;
- facade renovation;
- blast cleaning of buildings, especially using sand;
- many demolition processes;
- concrete scabbling, cutting or drilling;
- tunnelling.

The use of power tools to cut or dress stone will lead to high exposures throughout the work. For other activities, exposure will often depend upon how confined the working space is, the presence or absence of ventilation and how near the worker's breathing zone is to the source of the dust. Tunnelling through dry, silica-bearing rock will always lead to high exposures for workers at or near the cutting face.

### Health effects

Breathing in the very fine dust of crystalline silica can lead to the development of silicosis. This involves scarring of the lung tissue and can lead to breathing difficulties. Exposure to very high concentrations over a relatively short period of time can cause acute silicosis, resulting in rapidly progressive breathlessness and death within a few months of onset. Similarly, accelerated silicosis, which can progress to death within a decade, has been associated with high exposures to silica in sand blasting.

More common is progressive silicosis, usually because of exposure over a longer period. This causes fibrosis (hardening or scarring) of the lung tissue with a consequent loss of lung function. Victims are likely to suffer severe shortness of breath and will find it difficult



or impossible to walk even short distances or upstairs. The effect continues to develop after exposure has stopped and is irreversible. Sufferers usually become house- or bed-bound and often die prematurely due to heart failure.

Silica may be linked to lung cancer. If this is the case it is most likely that it occurs as a progression of lung fibrosis. Precautions taken to control the risk of fibrosis will serve to control the risk of lung cancer.

### Legal requirements

Silica has been assigned a maximum exposure limit (MEL) of  $0.3 \text{ mg/m}^3$ , expressed as an 8-hour time weighted average (TWA). This means that exposure to respirable crystalline silica should be reduced so far as is reasonably practicable and, in any case, below the MEL.

### Precautions

#### Assessment

Activities which may expose workers to silica are subject to the Control of Substances Hazardous to Health Regulations 1999 (COSHH) which require the health risk to be assessed and then prevented or controlled. In most cases, when it is reasonable to expect dust levels to be significant, you should consider the need for atmospheric sampling of respirable dust and respirable silica.

As a general rule, levels greater than 0.1 mg/m<sup>3</sup> can be regarded as significant. In cases of doubt it should usually be assumed that levels will be significant unless sampling from very similar work has shown otherwise. Results of sampling may be needed to find out the control measures that will be appropriate for a particular activity. As well as evaluating the risk and describing the precautions, the assessment should set out in detail the way in which the control measures are to be monitored, supervised and maintained.

## **Prevention and control**

### ***Elimination and substitution***

First of all, try to get rid of silica dust from your work. Sometimes silica can be eliminated by substituting other materials, for instance, using non-silica grits for blasting. Those who specify materials have a duty under the Construction (Design and Management) Regulations 1994 (CDM) not to use hazardous materials and processes. Where this is not possible they should specify the least hazardous products which perform to an acceptable standard. It may be possible to get rid of or reduce the need for scabbling, cutting or drilling concrete through design.

### ***Control of dust***

If you cannot get rid of silica dust, you should reduce exposure. In most cases it is feasible to control respirable silica by dust suppression techniques or local exhaust ventilation. Exhaust ventilated tools which remove the dust at source, and tools fitted with a water supply for dust suppression, are widely available. Capturing or controlling the dust at source is nearly always better than attempting to control exposure by ventilating the whole area.

### ***Personal protective equipment (PPE)***

These control techniques may not always be appropriate or they might not reduce exposure sufficiently, so

respiratory protective equipment (RPE) often has to be provided as well. You will need to select RPE very carefully as different types can give widely varying standards of protection. Surveys of respirable dust and respirable silica levels are usually necessary to ensure correct selection. For the dustiest processes, positive pressure or airline breathing apparatus will probably be necessary. Remember that filtering facepiece or half-mask respirators give little or no protection to men with beards and that even a minor growth of stubble can severely reduce the effectiveness of RPE. Guidance on the selection and use of RPE is contained in the HSE booklet: *The selection, use and maintenance of respiratory protective equipment: A practical guide* (see *Reference* section). Further information can be obtained from RPE manufacturers who should provide information on approval and suitability. Remember that workers need to be properly trained in the use of RPE and that a high standard of supervision, inspection and maintenance will also be needed. Suitable protective clothing should be provided to prevent contamination of worker's own clothing.

Those who need to wear PPE should be trained in its proper use and in its limitations. Store the equipment in clean, dry conditions away from chemicals - a locker would be suitable. PPE should be maintained and kept clean and fit for wear.

Facilities for washing and changing should be available on site and workers should wash their hands before eating, drinking, smoking and going to the toilet. Eating, drinking and smoking should take place away from the work area.

### **Health surveillance**

Where workers are regularly exposed to respirable crystalline silica levels greater than 0.1 mg/m<sup>3</sup>, 8-hour TWA, then health surveillance which includes a respiratory questionnaire, lung function testing and chest X-rays should be provided. HSE Guidance Note *Respirable crystalline silica* describes health surveillance requirements in more detail (see *Reference*

Please see the table on page 3 for examples of typical levels of silica exposure in some common construction activities

### Examples of typical levels of silica exposure in some common construction activities

<i>Activity</i>	<i>Control measures</i>	<i>Exposure</i>	<i>Improvements required *</i>
Drilling in poorly ventilated undercroft	<ul style="list-style-type: none"> <li>● no dust suppression</li> <li>● no extraction</li> <li>● no forced ventilation</li> <li>● inadequate respiratory protective equipment (RPE)</li> </ul>	<b>HIGH - 300 times the MEL</b>	<ul style="list-style-type: none"> <li>● fit water suppression or dust extraction to drilling equipment</li> <li>● provide appropriate RPE</li> <li>● ensure correct use of RPE</li> </ul>
Drilling into brickwork under arch blocked at one end	<ul style="list-style-type: none"> <li>● primitive extraction by fan and airbag</li> <li>● disposable face masks worn</li> </ul>	<b>HIGH - 5 times the MEL</b>	<ul style="list-style-type: none"> <li>● fit water suppression or dust extraction to drilling equipment</li> <li>● provide appropriate RPE</li> <li>● ensure correct use of RPE</li> </ul>
Using jackhammers to break out concrete in large open indoor area	<ul style="list-style-type: none"> <li>● limited ventilation</li> <li>● no dust suppression</li> <li>● no local exhaust ventilation</li> <li>● no RPE in use</li> </ul>	<b>MEDIUM - within the MEL but double the level regarded as reasonably practicable</b>	<ul style="list-style-type: none"> <li>● wet down concrete and rubble</li> </ul>
Chasing out cracks in screeded cement floor in large open indoor area	<ul style="list-style-type: none"> <li>● RPE provided but not worn properly</li> <li>● breathing zone of worker crouching over grinder very close to source of dust</li> </ul>	<b>HIGH - 6 times the MEL</b>	<ul style="list-style-type: none"> <li>● attach dust extraction to grinder</li> <li>● wet down ahead of the chasing</li> <li>● provide appropriate RPE</li> <li>● ensure correct use of RPE</li> </ul>
Chasing out mortar between bricks prior to re-pointing	<ul style="list-style-type: none"> <li>● ineffective extraction fitted to hand-held electric grinder</li> <li>● RPE correctly worn but not to correct standard</li> </ul>	<b>HIGH - 21 times the MEL</b>	<ul style="list-style-type: none"> <li>● attach dust extraction to grinder</li> <li>● provide appropriate RPE</li> <li>● ensure correct use of RPE</li> </ul>
Cutting paving kerb (33% silica) in open area	<ul style="list-style-type: none"> <li>● petrol driven saw not fitted with water spray or local exhaust ventilation</li> </ul>	<b>HIGH - 12 times the MEL</b>	<ul style="list-style-type: none"> <li>● provide effective water suppression system to saw</li> </ul>
Cutting blue brick (32% silica) in open area	<ul style="list-style-type: none"> <li>● petrol driven saw not fitted with water spray or local exhaust ventilation</li> </ul>	<b>HIGH - 5 times the MEL</b>	<ul style="list-style-type: none"> <li>● provide effective water suppression system to saw</li> </ul>
Cutting breeze block (3% silica) in open area	<ul style="list-style-type: none"> <li>● petrol driven saw not fitted with water spray or local exhaust ventilation</li> </ul>	<b>HIGH - twice the MEL</b>	<ul style="list-style-type: none"> <li>● provide effective water suppression to saw</li> </ul>
Cutting window openings in concrete wall with wall saw/ Cutting concrete with floor saw	<ul style="list-style-type: none"> <li>● water suppression on saw used</li> </ul>	<b>LOW - well below the MEL and also below the level regarded as significant</b>	
General clearing and removing rubble	<ul style="list-style-type: none"> <li>● hand sweeping with brush</li> </ul>	<b>HIGH - twice the MEL</b>	<ul style="list-style-type: none"> <li>● damp down rubble before clearing</li> <li>● use mechanical means to sweep up</li> <li>● provide appropriate RPE</li> <li>● ensure correct use of RPE</li> </ul>
General clearing and removing rubble	<ul style="list-style-type: none"> <li>● use of mechanical sweeper with rotating brushes and vacuum extraction</li> </ul>	<b>MEDIUM - within the MEL but double the level regarded as significant</b>	<ul style="list-style-type: none"> <li>● provide appropriate RPE</li> <li>● ensure correct use of RPE</li> </ul>
Concrete crushing from demolition job for use as hard core	<ul style="list-style-type: none"> <li>● machine with enclosed cab</li> <li>● water jets fitted</li> </ul>	<b>LOW - well below the MEL and also below the level regarded as significant</b>	

\* To reduce exposure to below the maximum exposure limit (MEL) and so far as is reasonably practicable.

section).

## References

*Respirable crystalline silica* EH59 HSE Books 1997  
ISBN 0 7176 1432 8

*The selection, use and maintenance of respiratory protective equipment: A practical guide* HSG53  
HSE Books 1998 ISBN 0 7176 1198 1

*COSHH: the new brief guide for employers* INDG136  
HSE Books 1996 ISBN 0 7176 1189 2

*Silica dust and you* MSA15 HSE Books 1997

*Provision of welfare facilities at fixed construction sites* CIS18 HSE Books 1996

*Provision of welfare facilities at transient construction sites* CIS46 HSE Books 1997

The future availability and accuracy of the references listed in this publication cannot be guaranteed.

## Further information

HSE priced and free publications are available by mail order from: HSE Books, PO Box 1999, Sudbury, Suffolk CO10 6FS, Tel: 01787 881165; Fax: 01787 313995.

HSE priced publications are available from good booksellers. For other enquiries ring HSE's InfoLine, Tel: 0541 545500, or write to HSE's Information Centre, Broad Lane, Sheffield S3 7HQ.

HSE home page on the World Wide Web:

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

<http://www.open.gov.uk/hse/hsehome.htm>

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## Handling building blocks

Construction Industry Advisory Committee

Construction Sheet No 37



### Introduction

This guidance by the Construction Industry Advisory Committee (CONIAC) covers the safe handling of building blocks, by which the committee means all masonry units and blocks including those made of clay, concrete, and reconstituted stone, or any similar manmade or natural material.

Handling of building blocks can give rise to a wide range of injuries, including serious injuries where the damage is gradual and progressive over a substantial period of time.

To reduce the risk of injury the block work design, site conditions and the way the work is organised should be

properly planned. This guidance contains practical advice on these matters and should help designers and specifiers, those managing work on site and those who handle blocks.

### Risk assessment

1. To minimise the risk of injury:
  - (a) all the hazards involved need to be identified;
  - (b) the significant risks estimated; and
  - (c) suitable precautions to avoid or reduce these risks incorporated into a safe system of work.
2. The main hazards are:
  - (a) **heavy loads and poor posture:** excessive stress and strain causing injury to muscles and tendons, particularly where handling involves bending, twisting or other difficult postures;
  - (b) **slips, trips and falls:** including damage caused by 'dropped blocks';
  - (c) **sharp edges:** cuts and abrasions to the skin;
  - (d) **skin hazards:** dermatitis, burns and similar conditions caused by contact with mortar (see HSE construction information sheet No. 26 cement).
3. With block handling, the risk of injury is largely determined by the weight of the block the heavier the block, the higher the risk of injury.
4. After taking account of expert opinion and the long history of complaints over handling heavy blocks, **CONIAC has concluded that there is a high risk of injury in the singlehanded, and repetitive manual handling of blocks heavier than 20 kilograms (44 lbs).**
5. If single person handling is needed, either blocks of 20 kilograms or lighter should be specified and used or other precautions should be taken to reduce the risk by, for example, the provision of mechanical handling. This would contribute to the risk assessment required under the Manual Handling Operations Regulations 1992.
6. With blocks weighing less than 20 kilograms, manual handling risks are still significant and suitable precautions should be taken to minimise these risks as much as possible.

## Precautions

7. **Designers and specifiers** should take the weight guideline into account at the design and specification stage of the project. Where it is not reasonably practicable to avoid specifying blocks heavier than 20 kilograms, provisions should be made for mechanical handling or for handling and laying by two people.

8. **Project planners and contractors** should follow the weight guideline and ensure that precautions listed below are taken into account when planning the work and when devising safe systems of work. Contractors should also give instruction and exercise supervision to ensure that workers follow these plans and systems of work.

## The task

Handle and lay building blocks in accordance with the following:

- Plan to stack blocks close to where they will be used
- Stack on a level, firm base and wherever possible without double stacking of block packs
- Keep man handling of blocks to a minimum and use mechanical lifting and handling aids as much as possible, such as cranes, fork-lift trucks with pallets, and trolleys and telescopic handlers

(Note: ensure that the landing area of scaffolding is adequate for the temporary loading of blocks)

- Always use mechanical lifting and handling or operate a two person system for blocks weighing more than 20 kilograms
- Arrange work so that blocks can be handled close to the body. Access around all sides of the block stack enable the closest blocks to be selected
- Arrange work to avoid over reaching or twisting when handling blocks
- Ensure good grip and secure support placement in the work area when handling blocks

Arrange the work so that blocks only need to be handled up to shoulder height. Go higher by using staging, for instance. (**Note:** further protection against falls may be necessary if the effective height of guard-rails is reduced.) Particular care and attention is needed for higher risk block laying such as when head room is restricted, under soffits, or below working platform level.

## The work environment

Prepare road and hard standing first and before blocks are on site. In areas where blocks are carried or handled, keep the site clear of obstacles or tripping hazards, such as discarded block wrappings or stack ties. Uneven, slippery or unstable ground conditions increase the risk of injury. The blocks should be protected from the weather to avoid them getting wet and increasing in weight.

### Training

Workers should be given information and training on the systems of work procedures to be used on that site to ensure safe manual handling of blocks. Suitable training will also be necessary for designers, specifiers and those managing contracts.

### Personal protective equipment

When handling blocks the normal protective equipment needed for use on building sites should be provided by employers and worn by individual workers: in particular, safety helmets, safety footwear equipped with protective toe caps and suitable gloves.

### Wall ties

Serious injuries have occurred during block work when building double skin walls due to contact with the sharp ends and edges of some types of wall ties. The exposed sharp edges should be covered or safer wall ties used.

### References and reading list

*Manual Handling Guidance* L23 HMSO 1992 ISBN 0 11 886335 5

BS 6073: 1981 *Specification for pre-cast concrete masonry units*. British Standards Institution (BSI)

BS 3921: 1985 *Specification for clay bricks*. BSI

BS 5628: 1985 *Code of practice for use of masonry*. BSI

Contemporary Ergonomics 1989: *Block laying in the construction industry* Tracy MF and Gray MI Proceedings of the Ergonomics Society's 1989 Annual Conference: Ergonomics - *designing progress* Mesaw, ED, Taylor and Francis 1989 ISBN 085 066 484

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