

# Health and safety expert panel - Designing for health - Guidance for designers

## Designing for Health: Paving Slabs

### Introduction

This note is produced for Designers.

It supplements the example given in L153 (para 87a) *Managing health and safety in construction* which does not explain how the 'elimination/mitigation' of risk is implemented in a real situation.

The use of paving slabs in footpaths and other hard landscape situations is long established. They provide a robust surface, are easily replaceable, and are economic.

However the laying of these items can cause harm to health through their weight and from cutting (noise, vibration and dust).

Having identified these issues the designer is obliged to consider elimination or mitigation of the risks. The following sets out what is considered to be a reasonable approach.

It is based on the supposition that paving slabs should not be ruled out per se, but instead used with appropriate caution.

## Design Related Issues

### Issue 1: Weight

#### *General comments*

Large slabs, which as a result cannot be lifted by operatives eg heritage kerbs and slabs, are often beneficial, as this reduces the temptation to manually handle.

Standard sized slabs (600 x 400) weighing 30kg present the most significant problem as the weight is seen by many operatives as manageable, despite being unsafe in absolute terms, and also presenting a musculoskeletal problem due to the manner of handling if done by one operative.

Smaller slabs reduce the weight, but increase the frequency of laying actions which may remain a problem.

Importantly, there is no readily available data for Designers on these issues and hence there is no ready means of the designer eliminating or mitigating risk.

### *Designer actions*

It is reasonable for the chosen size of slab to be based on aesthetics and cost, providing the contractor engaged to do the work has the capability and is supervised.

For large slabs the Designer should highlight the need for mechanical lifting/laying

For standard (600 x 400) slabs, or equivalent, the Designer should require, as part of the PCI, the engagement of the sub-contractor by the PC to include a specific check on the sub-contractor's capability for this work, the method of working and supervision, including the adoption of contemporary good practice. It should be made clear that laying of these slabs by one operative will not be acceptable.

*NOTE It would not normally be recommended that the Designer makes comments on common, well-known site activities with no unusual aspects. However in the case of slab laying it is known to remain a health problem on many sites.*

### **Issue 2: Weight**

Minimising the cutting of slabs, through consideration of layout, will bring cost benefits in addition to a reduction in health risk. Silica dust is carcinogenic. Cutting is noisy.

Notwithstanding, it is reasonable for the layout of slabs to reflect a desired visual effect or cost minimisation based on size.

If the layout results in any significant need for cutting the Designer should:

- Highlight this in the PCI
- Require the PC, when engaging the paving sub-contractor, to ensure the latter has the capability to work to contemporary good practice and for the PC to obtain explicit confirmation of the proposed method of work (covering noise, dust and vibration) and supervision. The PC needs to be satisfied that the proposals are satisfactory.

*NOTE It would not normally be recommended that the Designer makes comments on common, well-known site activities. However in the case of slab laying it is known to remain a health problem on many sites.*

### **Issue 3: Weight**

In order that the contractor may take mitigating measures in respect of Issue 1 in particular, it is necessary that the design allows sufficient access to the work areas for predictable plant and materials.

Where this is likely to be restricted the designer should discuss feasible options with a competent paving contractor, and provide an indicative method in the PCI.

### **References**

Some background information is provided at [www.paving.org.uk](http://www.paving.org.uk) on handling and cutting which will assist the designer gain a broader understanding of the issues.

Author: John Carpenter