

**HIGHER TECHNICAL INSTITUTE  
CIVIL ENGINEERING DEPARTMENT**

**DIPLOMA PROJECT**

**DESIGN OF AN ACCESS RAMP IN STEEL  
(ACCORDING TO BS5950)**

*By*  
**STAVROU ELENI  
(C/819)**

**JUNE 1997**

**HIGHER TECHNIKAL INSTITUTE**

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**DESIGN OF AN ACCESS**

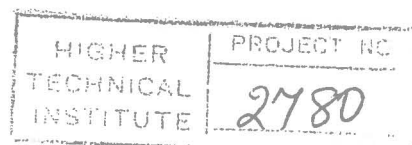
**RAMP IN STEEL**

**(according to BS5950)**

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**(C/819)**

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# **DESIGN OF AN ACCESS RAMP**

**IN STEEL (according to BS5950)**

**by**

**STAVROU ELENI**

**Project Report  
Submitted to  
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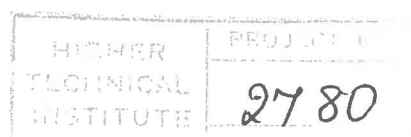
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**I dedicate this project to my friend  
Vasilis Kyriacou for his valuable  
help and support during the  
preparation of this project.**

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**Stavrou Eleni**

## Design of an access ramp in steel C/819

### Summary:

The object of this project is:

1. To make a survey of the various types of access ramps available in Cyprus.
2. To design and detail an access ramp that is required for dumper vehicles to travel down to basement of a building from an adjacent road.
3. To estimate the cost of the ramp according to current prices.

The ramp dimensions are : 22.20m long x 3.30m height x 3.00m wide.  
dimensions and gradients required of the inclined ramp as shown in  
Figures (1) & (2).

For the construction of the ramp were used concrete planks , supported by  
steel beams and stanchions.

Design is according to BS5950.

## **Introduction :**

Structural steel is widely used nowadays in construction field. It replace concrete where is possible ,like in multi-storey buildings , workshops , bridges. The main factors which enable the use of steel sections for such constructions are the following :

- a) Cost of building is minimized .
- b) Long spans can be easily succeeded .
- c) Construction time is minimized .
- d) Steel properties such as tension , compression , shear capacity can easily be determined .

For the construction of the ramp the sections used are :

- a) UB , 203x133x25 kg
- b) UC , 203x203x52 kg

The precast concrete planks are place on the surface of the ramp . The dimensions of the planks are : 375mm wide x 150mm deep x 3000mm long capable of carrying 10 KN/m<sup>2</sup> over a span of 2m .

Based on the last statement , the ramp is designed as shown in Section A-A, allowing the plank acting as a 2000 mm beam with two 500 mm cantilevers at both sides .

The design of the structure should serve both functional and aesthetic requirements . Therefore the design of the access ramp is prepared in regard to:

- a) SAFETY : is established by providing sections which withstand the internal stresses developed by the imposed load .
- b) ECONOMY : by not providing excessive strength .
- c) UTILITY : the structure must meet performance requirements .
- d) APPEARANCE : for aesthetic reasons the structure must have good appearance .