

# Design software package

## Introduction

Halfen provides a comprehensive and simple to use software package for the design, scheduling and detailing of HDB punching shear reinforcement. It is available to download from the Halfen website [www.halfen.co.uk/hdb](http://www.halfen.co.uk/hdb) and we are happy to provide design guidance in the use of this calculation package.

## System requirements

- Windows 98, Me, 2000, XP
- 800 x 600 screen resolution
- Printer (optional)

## Input

The main screen allows the user to input the necessary data to calculate the HDB punching shear reinforcement design (fig.1).

*Column type, e.g. internal, edge or corner column (a).*

*Slab thickness, effective depth, column dimensions, applied punching load, reinforcement ratio, cover and concrete strength, (b).*

Once complete the designer simply clicks on 'New calculation' to produce the design. The design output is then illustrated in the window on the top right whilst the HDB specifications are given in the results window bottom right (c). If this design is acceptable it can be saved into the project data list by clicking on 'Take into data list'. It is important that a unique reference is entered into the 'Location' field (d) as the programme stores all the calculation information for a particular column under this reference.

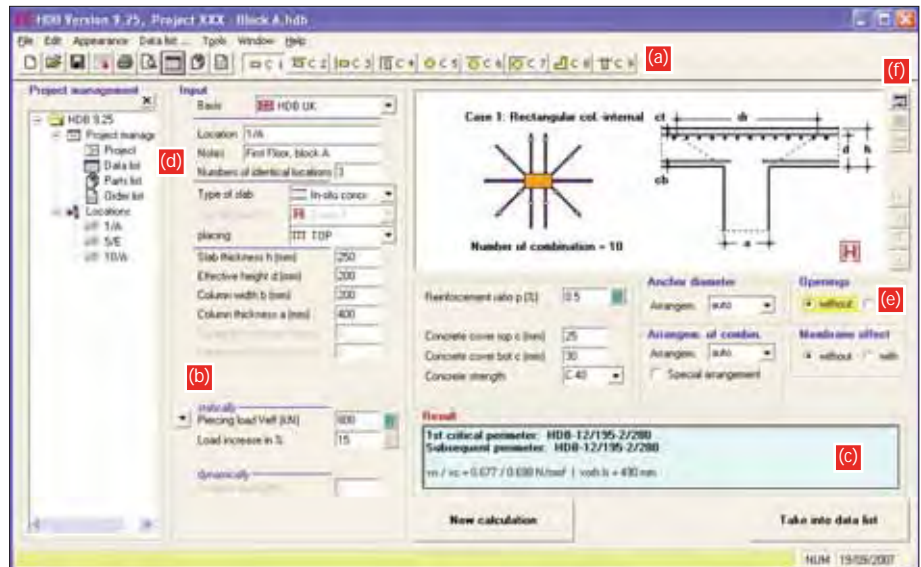


Fig. 1 Main input screen

## Slab openings

Up to five openings can be located around the column. These can be entered by clicking on 'openings' (e) to bring up the openings window (fig. 2). It may also be of assistance to click on the 'view edit' button (f) to bring up a graphical illustration of the column and proposed opening; this window can also be used to drag the openings to the appropriate location. After entering the data, click on 'Transfer' to take the information back to the main calculation. When carrying out a new calculation the software will automatically deduct the appropriate amount of the shear perimeter due to the presence of the openings.

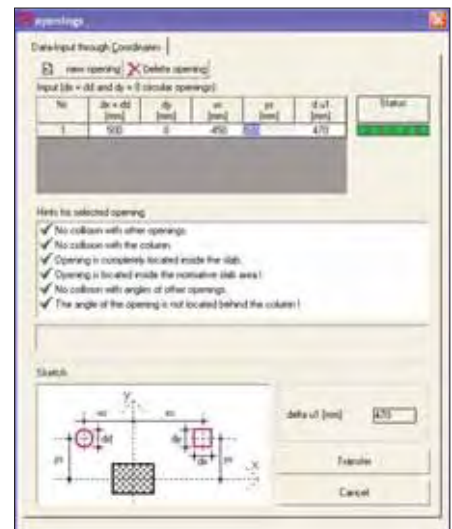
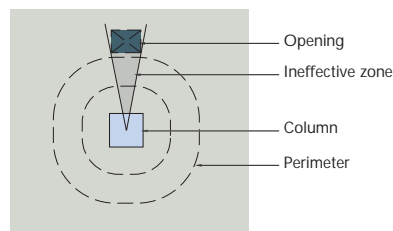


Fig. 2 Openings

## Output

For each column location, a calculation output is produced and can be printed out. This consists of a main calculation page (fig. 3) showing the input and output data of the software and the HDB specification for the column. Page two of the output shows a plan drawing and section of the HDB arrangement for the location (fig. 4).



Fig. 3 Main calculation output page (part shown)

The software contains a useful tool that allows this graphical output to be exported as a dxf file to create fully detailed HDB layout drawings, enabling simple and accurate placement of the HDB units on site.

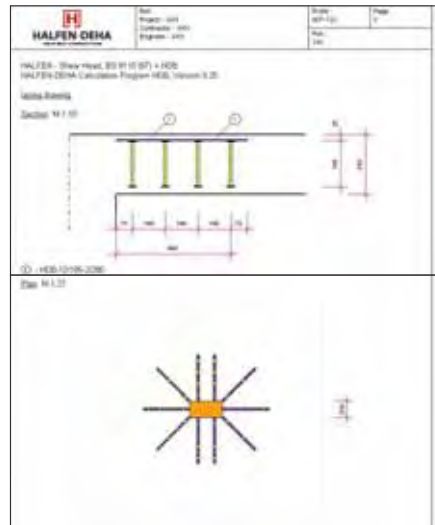


Fig. 4 Output showing HDB arrangement (part shown)

## Scheduling

The software allows the user to easily produce HDB schedules for the project. The first schedule lists the HDB required for each column whilst the second schedule gives the total quantities of each type of HDB unit. From these schedules the designer can look to rationalise the diameters of the HDB studs therefore minimising the number of different components requiring storage and installation.

The schedules can be printed, alternatively the data file for the HDB calculations can be easily emailed to Halfen for scheduling and pricing.

Location	No. Columns	Load	Reinforcement Location	HDB Unit	No. Units	Load
1A1	3	10	HEB 12195-2000	HEB 12195-2000	30	30
1A2	3	10	HEB 12195-2000	HEB 12195-2000	30	30
1A3	3	10	HEB 12195-2000	HEB 12195-2000	30	30
1A4	3	10	HEB 12195-2000	HEB 12195-2000	30	30

Fig. 5 Schedule of HDB units for each column (part shown)

## Technical assistance

Please consult Halfen for further design assistance on the HDB program. We can provide advice over the phone, or alternatively one of our technical representatives can visit your offices to provide advice and guidance on using the HDB software package.

Halfen can also provide designs and quotations for typical columns at tender stage, designs for typical floors post contract award and a full design service upon placement of an initial order. If you require such a design please complete the 'input data form for HDB' which can be downloaded from our website and send this together with an engineers general arrangement drawing (preferably in dwg format).

## Input information sheet

**Input data form for HDB**

Project name: \_\_\_\_\_ Elevation: \_\_\_\_\_ Engineer: \_\_\_\_\_  
 Floor level/area: \_\_\_\_\_ Hdb: \_\_\_\_\_ Hdb: \_\_\_\_\_  
 Halfen reference: \_\_\_\_\_ Hdb: \_\_\_\_\_ Hdb: \_\_\_\_\_

Column location: \_\_\_\_\_ Concrete layer top: \_\_\_\_\_ Concrete layer bottom: \_\_\_\_\_

Column position	Column type	Column width / dia.	Column height	Edge distance	Reinforcement	Reinforcement	Reinforcement	Reinforcement

Legend: C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100, C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118, C119, C120, C121, C122, C123, C124, C125, C126, C127, C128, C129, C130, C131, C132, C133, C134, C135, C136, C137, C138, C139, C140, C141, C142, C143, C144, C145, C146, C147, C148, C149, C150, C151, C152, C153, C154, C155, C156, C157, C158, C159, C160, C161, C162, C163, C164, C165, C166, C167, C168, C169, C170, C171, C172, C173, C174, C175, C176, C177, C178, C179, C180, C181, C182, C183, 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