# ICODE

## Interactive Component Designer

SHEAR3D CONSULTING

CREATE | ANALYZE | DESIGN

www.shear3d.com

Welcome to Shear3D Consulting. Home to Structural Engineering Professionals.

# Product Information Brochure

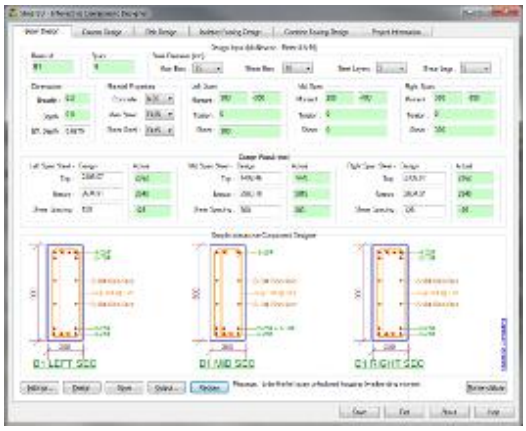
Interactive Component Designer (ICODE™) is a software application designed to enable engineers to carry out design of common structural engineering components on Windows operating systems. It provides modules for design of structural components as per latest IS456 standards. The interface is designed as a single dialog based application with separate tabs for each design module. All modules provide common features.

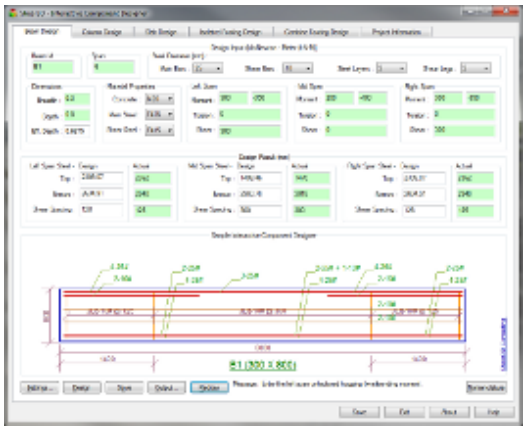
- Intuitive and easy to use user interface
- Separate sections for Input, Results and Drawing
- Ability to input data, design and get detailed drawings in one tool
- Input date validation to avoid input error and save time
- Display of results as numeric values and design drawings
- Ability to save design results to file for reference and reporting
- Design drawing print capability for site reference

Refer to appropriate design module sections below for overview and product documentation for more details on each module.

## Beam Design

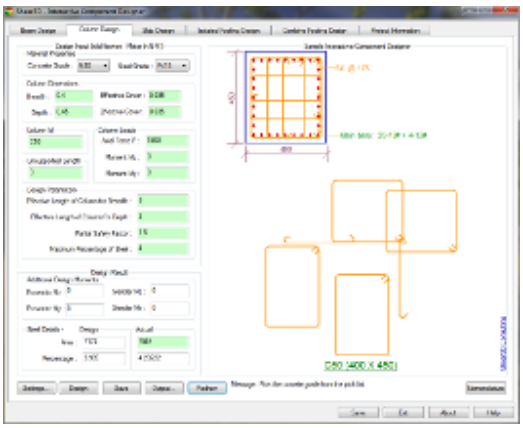
ICODE Beam design module is a comprehensive and completely interactive program. Beam provides the structural engineer the ability to design and evaluate the results in an interactive environment. It is structured to accept design loads, and other relevant design parameters through user interaction. The module provides options to design Rectangular, T, and L beams. The design is carried out in accordance to IS456-2000 code provisions.

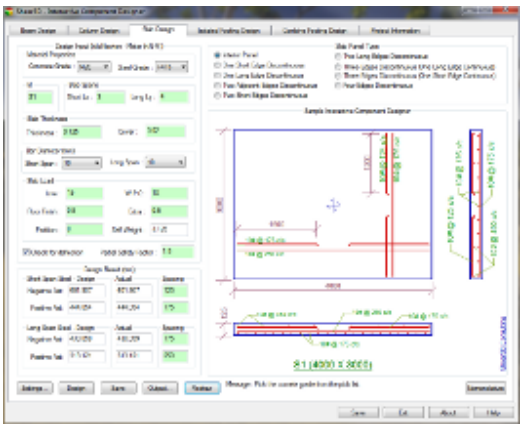




## Column Design

ICODE Column design module is a comprehensive and completely interactive program. Column provides the structural engineer the ability to design and evaluate the results in an interactive environment. It is structured to accept design loads, and other relevant design parameters through user interaction. The module provides option to design Uniaxial and Biaxial design. It also provides the ability to design slender columns. The design is carried out in accordance to the latest IS456 code provisions.



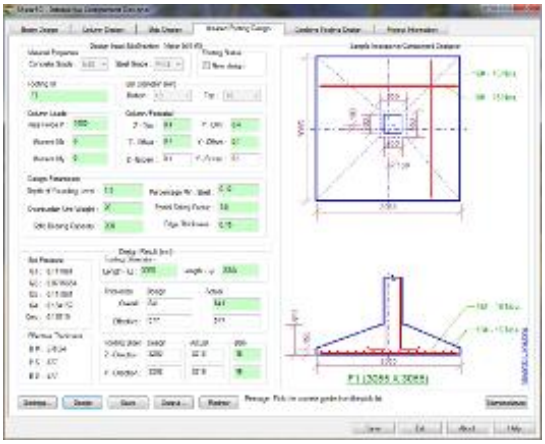


## Slab Design

ICODE Slab design module is a comprehensive and completely interactive program. Slab provides the structural engineer the ability to evaluate the design results in an interactive environment. It is structured to accept design load, and other relevant design parameters through user interaction. The module provides options to design slabs with various support conditions. The design is carried out as per the latest IS456 cod provisions. Slabs are designed for vertical loads for One-way and two-way slab designs. Design includes provisions relating to deflections. Moment coefficients for evaluated for defined panel type. It also provides reinforcement details along with cross section views.

## Isolated Footing Design

ICODE Isolated Footing design module is a comprehensive and completely interactive program. Isolated Footing provides the structural engineer the ability to evaluate the design results in an interactive environment. It is structured to accept design axial load, bending moments and other relevant design parameters through user interaction.

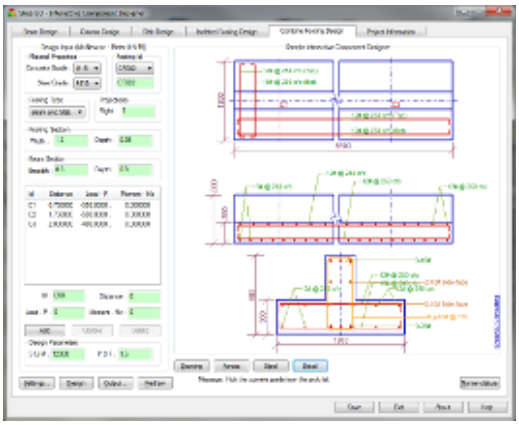


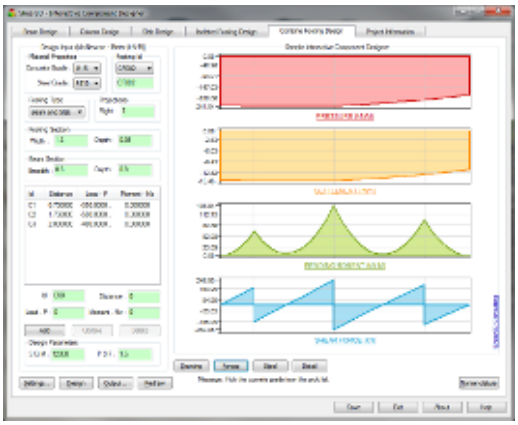
The module will automatically proportion either square or rectangular and flat or tapered slab footings. The design is carried out in accordance to latest IS456 code provisions. Module handles axial loads, biaxial moments and eccentrically located column footing design. Design of tapered footing is based on the exact evaluation of the moment of resistance of the trapezoidal cross section. It also provides reinforcement details with plan and cross section view.

## Combined Footing Design

ICODE Combined footings become necessary where external columns of the structure are close to the boundary of an existing structure and also where the footings of

Individual columns overlap one another. ICODE treats a footing that supports more than one column/pedestal as a combined footing. Such foundations are to be proportioned to resist the design loads and individual reactions, in accordance with appropriate design requirements.





Finite element procedure is adopted for the analysis of combined footing using the concept of subgrade reaction. Reinforced concrete combined footing designs are carried out in accordance to the latest IS456 Code provisions. Module supports both flat slab and slab-beam type footing. Beam on elastic foundation criteria is used for analysis. Also provides the option to display elastic curve, pressure, bending moment and shear force diagrams.

## Solution Package

ICODE is released as part of Structural Component Package. This package includes applications that provide user friendly interface to design, verify and detail individual structural components in an interactive environment. This package is very useful for everyday quick design and checking.

## About Software Products

We share decades of experience in consulting and software development, in the form of convenient and efficient structural engineering software applications, to solve every day structural engineering challenges with ease and confidence. These applications help to take a structural engineering problem from conceptual creation to engineering analysis to final design and drawings. They have been proven by use in modeling, analysis and design of small to large projects by practicing structural engineers in-house and other reputed consulting companies.

All applications are designed to help structural engineers and provide:

- End to End solution for structural engineering problems
- Easy to use user interface with least learning curve
- Detailed online help documentation access
- Eliminate monotonous tedious tasks and eliminate errors
- Analyze and Design structures with ease and confidence
- Reduce turnaround time and provide timely service to clients

## Software Products

Shear3D Consulting has a full set of comprehensive structural engineering applications. Overviews of some of the products that are currently being made available are given below.


Dialog based interactive application to quickly design /verify / detail individual structural components. BEAM, COLUMN, SLAB, ISOLATED FOOTING and COMBINED FOOTING. -- FREE Design Modules –


Application to model general structures for structural analysis. Leverages DXF format to convert CAD model to structural models. Provides pre-processing features to verify accuracy of modeling.


Finite element method based solver to analyze structural models. Provides Truss, Beam, Spring, Plate/Shell elements needed to simulate and analyze normal structures by structural engineers


Application to post-process structural analysis data. Provides extensive set of features to understand the behavior of structures. Designed to work with with other 3rd party structural model and analysis tools using neutral format.


Application to model multi-level RC frame-slab building structures subject to static and seismic load conditions as per IS code requirements. Provides features for easy and accurate modeling, with reduced modeling time.

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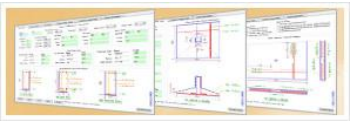
Application to design and detail RC structure as per IS code in an interactive or automated environment. Provides features to post-process analysis data to understand the behavior of structure, design and generate detailed drawings.

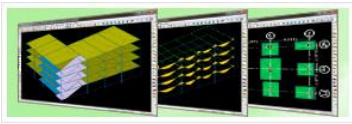
## Software Solutions

We provide software solutions to the needs of structural engineers. Our solutions are packaged in three convenient forms catering to the various levels of solution required by structural engineers.



This package inludes applications that provide user friendly interface to design, verify and detail individual structural components in an interactive environment. Very useful for everyday quick design and checking..

This package includes applications that provde user friendly interface that enable engineers to model, preprocess, analze and postprocess general structures. Provides DXF interface to leverage CAD data as input for modeling and output for reporting..



This package includes applications that provide user friendly interface that enable engineers to model, analyze, design and detail RC multilevel structures with ease and efficiency, increasing accuracy, confidence and reducing overall time..

## Contact

Please visit us on the web at www.shear3d.com for more details on comprehensive solutions offered by Shear3D Consulting. If you have questions, please contact us through email at info@shear3d.com.