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Planning, Analysis and Design of Museum Building using Staad Pro

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Abstract—

The project is about the planning and design of a museum building at Mannampanthal, Mayiladuthurai, Nagai district with framed structure. The museum building is planned with two floors. Each floor is having a large hall, a common staircase, common bath rooms and toilets were planned. The following features such as a ticket counter, restroom, office, power room, bathroom was also planned. The building design was done as per code IS 456 - 2000 and SP 16. The project is proposed to be built at Mannampanthal, Mayiladuthurai, Nagai district. Themuseum building was analysed using Stadd- pro software and also 3Dimensional drawing elevation was rendered using Revit software.

Key words – Revit, Stadd - pro , limit state method , IS 456 – 2000 , SP 16, IS 875 (PART2) -198

I. INTRODUCTION

We have decided to do a project in the title of "Design and analysis of museum building using STADD Pro. ". The whole area of this project is 12007 square feet. We have planned to design this museum buliding with (G +2) floor.

In the ground floor of this museum we suppose to provide images , documents , newspapers , articles , literatures , coins , post stamps and journals related to the culture and tradition of our tamil society .

In the first floor of this museum we suppose to provide an art gallery in which many historical statues, sculptures that are representing our tradition are going to be placed.

In second floor of this museum building we suppose to provide a seminar hall with a capacity of 1000 peoples , for it purpose of conducting discussions and lectures of many gentleman related to our culture history and art .
We supposed to provide two emergency exits in this museum building as per the NBC codal provisions for the purpose of ensuring the s safety of the visitors during the emergencies like fire.

NECESSITY OF ANALYSIS AND DESIGN

Analysis is an integral property of the design. The primary objective of the Structural Engineering is to provide a designed structure.

To design structure, one must know how it will respond to a given loading. The member properties play an important role in analyzing the response of a given structure.

Conversely in the design member properties are chosen to result in special structure and the designer may often have to readjust his selection of properties in order to get the desired response from the structure.

STAAD PRO

STADD.Pro v8i is the leading Structural Analysis and Design software from Bentley. STADD.Pro is the professional's choice for steel, concrete, timber, aluminium and cold-formed steel design of virtually any structure including culverts, petrochemical plants, tunnels, bridges, piles and much more.

The "I" in the new v8i version for: intuitive, interactive, intrinsic, incredible, and interoperable. Bentley calls v8i the most comprehensive and significant release in its history.

II. LITERATURE REVIEW

SARA SELWOOD had written a journal in the topic of "Role of museum in society" at the year of 2012. . He concluded his journal with the following word. "Attitude of the public towards a thing is not consistent. In the case of a museum, it varies from time to time, person to person and location to location."

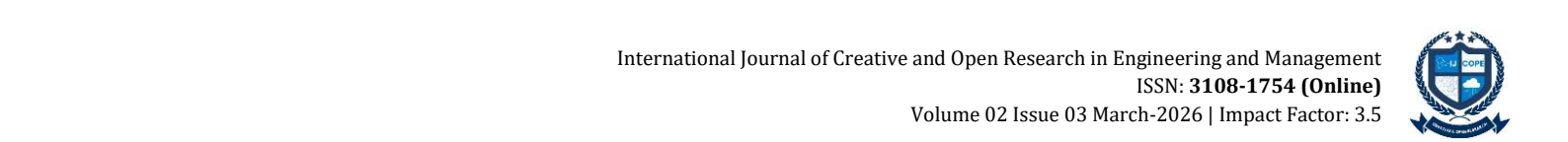
DAN NIMER had written a journal in the topic of "Role of prices in a museum" at the year of 2002. He concluded his journal with the following words. "Most museums could open their doors to the public without charge because they were sufficiently funded by donor groups and government agencies".

RICHARD BARTH had written a journal in the topic of "importance of strategic planning of a museum" at the year of 2001. He concluded his journal with the following words. "Strategic planning and marketing planning are platforms for reviewing a museum's challenges and planning its performance".

MIHALYI CSIKSZENTMIHALYI had written a journal in the topic of "expectations of visitors of museum" at the year of 2001. He concluded his journal with the following words. "Visitors do not expect intellectual thrills from attending a museum. They are, rather, hoping for surprise and excitement as they escape temporarily the predictable confines of existence".

GARY EDSON had written a journal in the topic of "Developing Marketing Budgets for museum" at the year of 2000. He concluded his journal with the following words. "Marketing planning requires budget planning. Marketing activities set out objectives and goals, incur costs, and require monitoring and evaluation".

MARC PACHTER had written a journal in the topic of "Need for museum in recent days" at the year of 2000. He concluded his journal with the following words."Need for museum. A question for museums is how best to organize the museum - going experience so as to offer a deeper level of meaning than theme parks yet also make it inviting, orienting".



NEIL .G. KOTLER, PHILIP KOTLER AND WENDY .I. KOTLER had written an article in the topic of "Museum marketing and strategy" at the year of 1998. In that article they deeply discussed about the factors influencing museum development of a museum building.

IV. RESULTS AND DISCUSSION

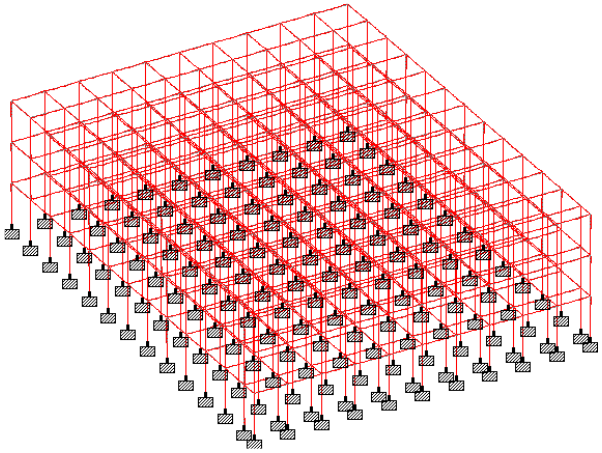
Modern reinforced structures are mostly complex and they are assembled as structure comprising of structural elements namely beams, columns, slabs, walls, and pile foundation. These elements are subjected structural loads of various combinations and for these structures have to be analysed and designed after.

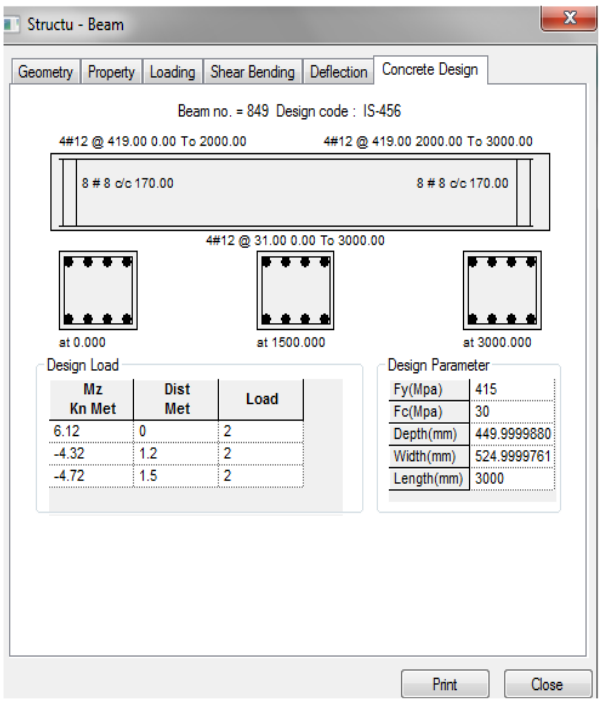
ANALYSIS OF A STRUCTURE

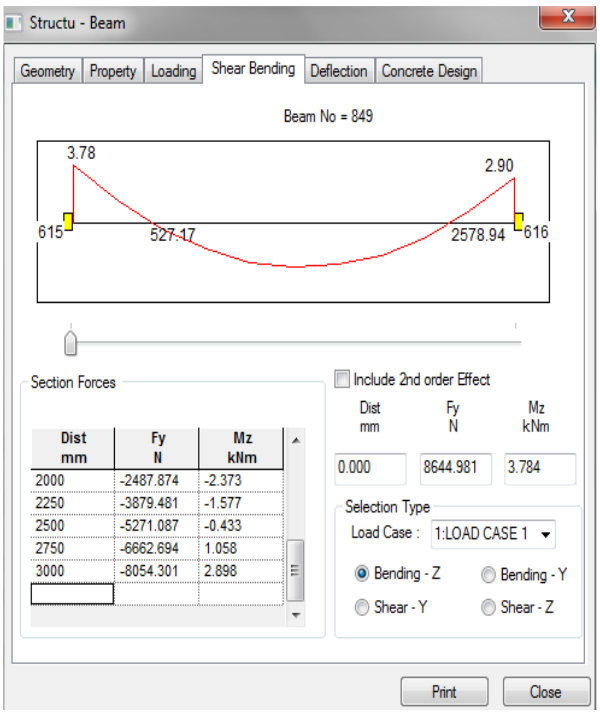
The prime motive of analysis of a structure is to find out, what magnitude of force acts on the structure, what sort of forces will tend to act on the structure, how will the structure react when the load begins to act, will the structure safely withstand the load etc., the solution for all these can be obtained from of load analysis and frame analysis.

FRAME ANALYSIS

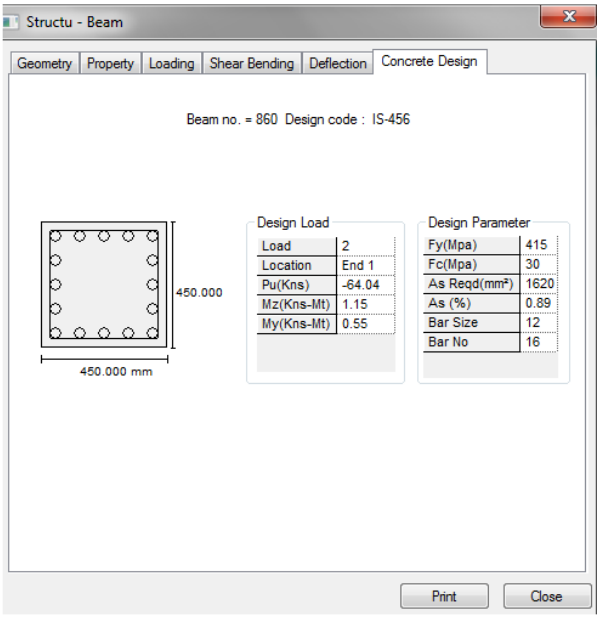
A building frame contains a number of continuous beams and columns. For design purposes bending moments, shear forces and direct thrust in beams and columns at critical sections are required to be obtained. The structure being highly inderminate, an exact analysis becomes tedious. In fact the assumptions involved even in exact analysis lead to considerable error and thus approximate method of analysis can be considered as reasonably accurate for practical purposes. Such approximate methods of analysis are preferred because of simplicity.







V. CONCLUSION



The design and analysis of museum building (G+2) was done by using Auto Cadd, and Staad Pro V8i software. The NBC was referred to fulfill the basic requirements of the building.

We had taken our design project as museum building to ensure the safety our culture, tradition and art and to give it in the hands of the next generation safety, we had done a detailed a manual design of the entire structure by limit state method and analyzed it using the staad pro software. In future if we construct this museum building in the mentioned location it will be very useful for school students, college students ,Artist, tourist and Archeologist to develop their knowledge.

Practice without theory is not wise and theory with out practice is purpose less. A judicial level of theory and practice is what matters. This project design and analysis of museum building (G+2) by using Sttad pro software.

All the design in this project were done as per the national building code. Museum buildings are most important connection between the past and future. Museum is a cultural link between the generations, and that principles.

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