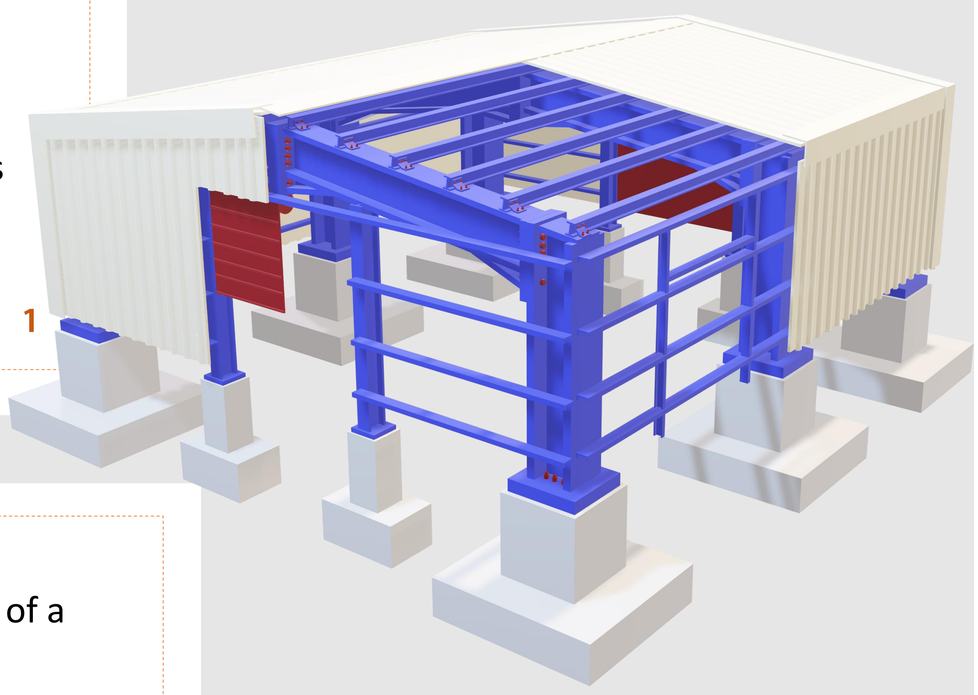
University of Kasdi-Merbah Ouargla
Faulty of applied sciences
Department of Civil Engineering and Hydraulics
Sector: Civil Engineering - Specialty: ECBR

Study Of a Metal Shed For Parking

Supervisor: Lokmane Abdeldjouad
Presented by: Abdelkarim Khelfaoui

Abstract

The end of studies project represents the last phase of my training, it allowed me on the one hand to put into practice the knowledge acquired during my course and to deepen it.
In addition, this study allowed us to reach certain conclusions:.
The modeling must be as close as possible to reality, in order to approach the real behavior of the structure and obtain better results. In metallic structures the wind's effects are frequently the worst, although seismic research is important. A critical stage for proper scaling is the examination of the steel frame for instabilities. The stability of metal structures depends on effective assembly design.



1

Introduction

Metal sheds are a perfect solution for a quick, affordable, and easily build
The project, the subject of this study, consists of "a metal frame shed consisting of a large space for parking".
There are two entrances through gates on the main facade’s.

The structure is located in the commune of In Amenas, daïra of In Amenas, wilaya of “Illizi”.
The structure has a surface area of 192.00 m2, and is 12.00 m wide, with a bay of 16.00 m long with a spacing between the frames of 4.00 m, which makes a total of five (05) frames.

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Materials And Methods

The regulations used for the realization of this study are:

- Design and calculation rules for steel structures (CCM97), regulatory technical document D.T.R-B.C-2.44.
- Algerian paraseismic rules (RPA99 version 2003) D.T.R-B.C-2.48.
- Permanent loads and operating overloads D.T.R-B.C-22.
- Snow and wind rules (RNVA2013) D.T.R-C2.47.
- Eurocode 1, Eurocode 2 and Eurocode 3.
- Shallow foundation calculation rules D.T.R-B.C-2.33.
- Rule of the study of the infrastructure according to the "BAEL91".
- The software used is autodesk robot structural analysis

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Loads

The deferent type of loads applied structure are:

- Wind loads
- Dead weight
- Maintenance workers
- Cladding
- Dropped ceiling
- Doors and windows

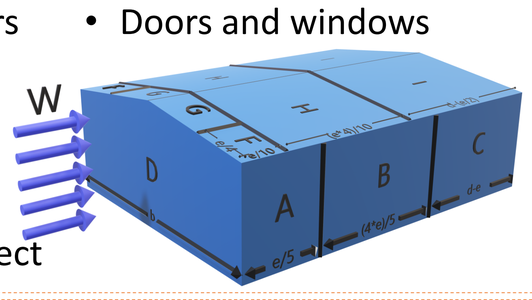

Figure 1 : The wind effect

The dead load of the element of the structure :

1. Purlin
2. Purlin shoe
3. Rafter
4. Girt
5. Window jamb
6. Post
7. Foundation

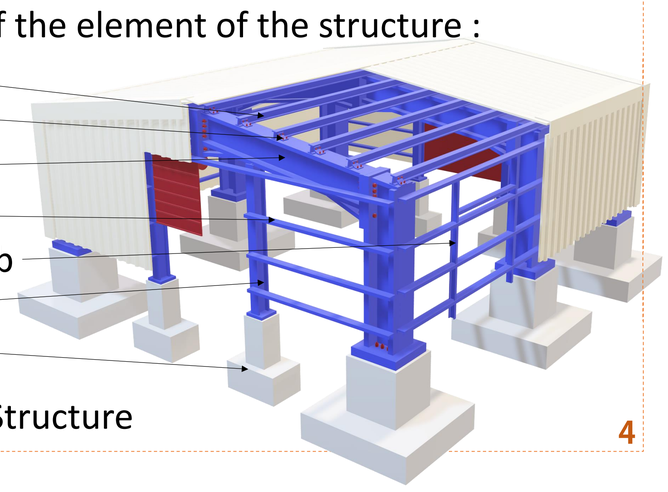

Figure 2 : Steel Structure

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Loads Effect

The wind effect on the building is high and we calculate it with Cpi & Cpe which are pressure coefficient, and the are related to the wind direction and dimensions of the building

The secondary element of the building are exposed to distortion due to dead loads and live loads, like buckling, banding, and Lateral-Torsional buckling which called spillage

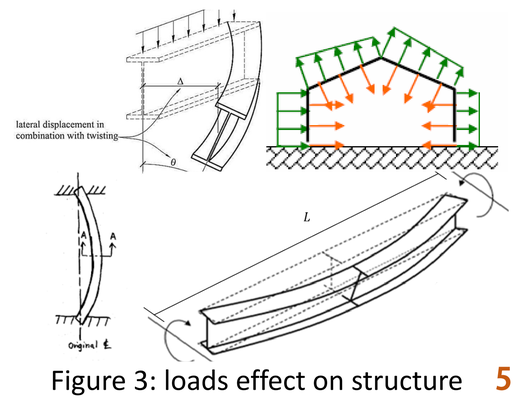

Figure 3: loads effect on structure

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Technical Description

In this study, I calculated the various loads and determined the dimensions of the secondary elements manually, and then determined the structural elements of the building and verified their resistance to the various deformations mentioned earlier.

6

Conclusion

In the end, the effect of the wind on the buildings may be catastrophic and may collapse under its influence, but in our case the effect of the wind on the building is weak and the building can bear it. The loads that had a significant impact on the building are live loads, and after calculations and verifications, we conclude that the building is able to withstand All different campaigns that can be exposed to.

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References

For references, visit the following website

http://bit.ly/3zU34VW

Or scan the following code

Contact:
khelfaoui.abdelkarim@univ-ouargla.dz