

Square Denims Limited (Garments Unit)

Dubalipara, Zamirdia, Habirbari, Bhaluka, Mymensingh
(24.29630, 90.37580)

1st November 2021



Building Information

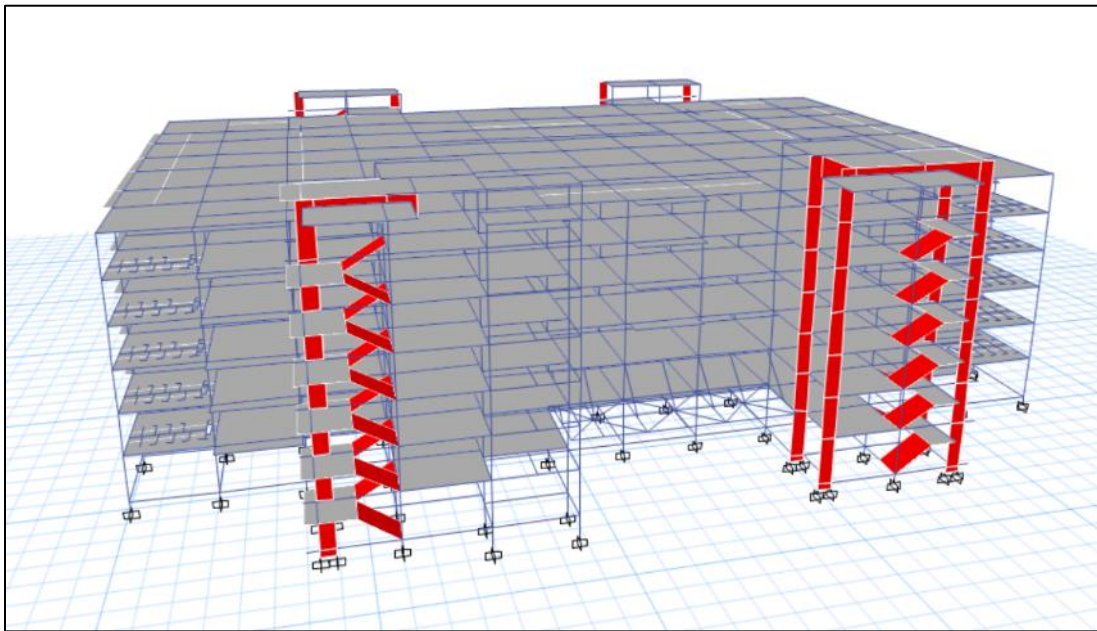
1. **Building 1** is a proposed 6-storied (G+5) reinforced concrete building currently the building is constructed up to the 3rd floor.
2. **Building 2** is a proposed 6-storied (G+5) reinforced concrete building currently the building is constructed up to the 3rd floor.
3. **Building 4** is a proposed 2-storied (G+1) reinforced concrete building only ground floor is constructed.
4. **Gate House 1** is a single storied reinforced concrete building.
5. **Gate House 2** is a single storied reinforced concrete building

Observations

Material strength of steel canopy not confirmed

Construction materials	Concrete with stone chips for foundation, column, grade beam, floor beam and slab.
	Concrete with 4000 psi for foundation, column beam and slab.
	Rebar with 60 ksi yield strength for all structures.
	The steel of Fy=50 ksi for all members of the canopy.

Material property in provided Design Report



FEM Model with Canopy

General Data	
Material Name	Steel_50 ksi
Material Type	Steel
Directional Symmetry Type	Isotropic
Material Display Color	 Change...
Material Notes	Modify/Show Notes...
Material Weight and Mass	
☒ Specify Weight Density	☐ Specify Mass Density
Weight per Unit Volume	489.02 lb/ft ³
Mass per Unit Volume	15.187 lb-s ² /ft ⁴
Mechanical Property Data	
Modulus of Elasticity, E	29000000 lb/in ²
Poisson's Ratio, U	0.3
Coefficient of Thermal Expansion, A	0.0000065 1/F
Shear Modulus, G	11153846.15 lb/in ²

Material specification in FEM

Steel strength has been considered 50 ksi (345 MPa) for canopy, but no material test report has been found regarding that value. Building engineer is required to review the design (either considering minimum grade of steel or verify the steel strength) of the canopy and prepare the design report in compliance with section 1.9.1.1 and section 1.9.1.2 of BNBC.

Construction materials	Concrete with stone chips for foundation, column, grade beam, floor beam and slab.
	Concrete with 4000 psi for foundation, column beam and slab.
	Rebar with 60 ksi yield strength for all structures.
	The steel of Fy=50 ksi for all members of the canopy.

Material property in provided Design Report

General Data

Material Name: Steel_50 ksi

Material Type: Steel

Directional Symmetry Type: Isotropic

Material Display Color:  Change...

Material Notes: Modify/Show Notes...

Material Weight and Mass

☒ Specify Weight Density ☐ Specify Mass Density

Weight per Unit Volume: 489.02 lb/ft³

Mass per Unit Volume: 15.187 lb-s²/ft⁴

Mechanical Property Data

Modulus of Elasticity, E: 29000000 lb/in²

Poisson's Ratio, U: 0.3

Coefficient of Thermal Expansion, A: 0.0000065 1/F

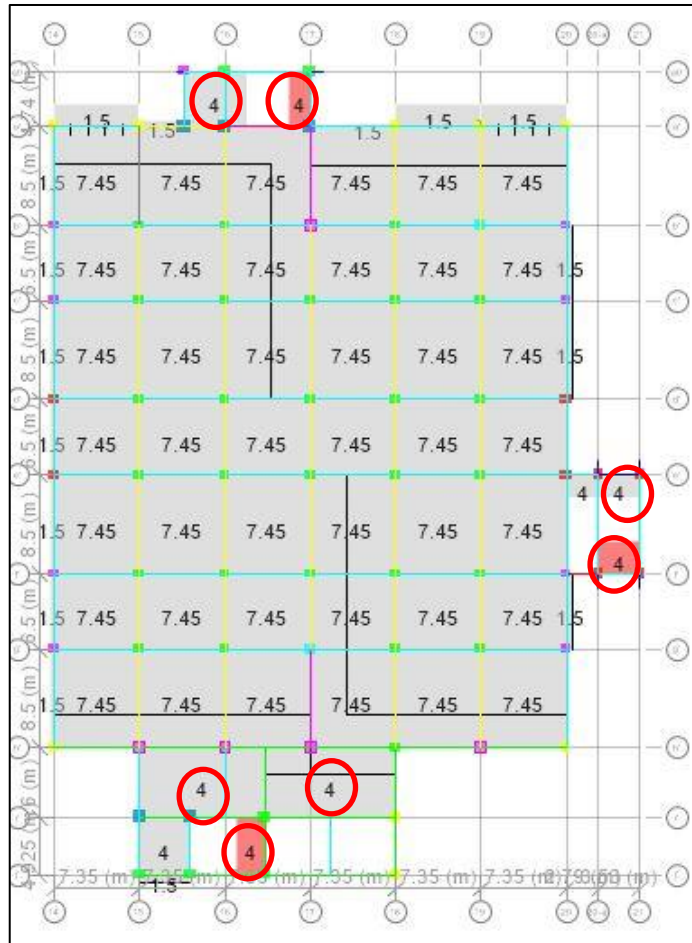
Shear Modulus, G: 11153846.15 lb/in²

Material specification in FEM

Steel strength has been considered 50 ksi (345 MPa) for canopy, but no material test report has been found regarding that value. Building engineer is required to review the design (either considering minimum grade of steel or verify the steel strength) of the canopy and prepare the design report in compliance with section 1.9.1.1 and section 1.9.1.2 of BNBC.

Stair live load consideration in design

Observations: Building-2



1st floor load plan in FE model

TYPICAL FLOOR LOADING CHART				
NO.	TYPE	ITEM	MAX. LOAD IN PSF	DESCRIPTION
01	LIGHT	RELAXING AREA	155	TYPICAL FABRIC RELAXING AREA
02	LIGHT	CUT PANEL STORE	155	TYPICAL CUTTING FABRIC AREA
03	LIGHT	FABRIC STORE	155	TYPICAL FABRIC STORE
04	LIGHT	FREE SPACE	155	TYPICAL FREE SPACE
06	LIGHT	TOILET AREA	42	
07	LIGHT	STAIR & LOBBY	100	

Typical floor loading chart in provided load plan

Construction materials

Concrete with stone chips for foundation, column, grade beam, floor beam and slab.

Concrete with 4000 psi for foundation, column beam and slab.

Rebar with 60 ksi yield strength for all structures.

The steel of $F_y=50$ ksi for all members of the canopy.

Material property in provided Design Report

In provided load plan 100 psf has been considered at stair & lobby area, but 4 kN/m² (84 psf) has been assigned in FE model. Building engineer is required to revise the stair live load plan & review the design in compliance with section 1.9.1.1 and section 1.9.1.2 of BNBC .

Exposed rebar at roof



Water ponding on roof

Water ponding on roof



Building engineer is required to remove construction debris and develop proper drainage system on roof with adequate slope or apply water proofing compound on roof slab to resist water ingress.

Observations: Building-2

Problems Observed

Building-1 & 2

Item 01: Material strength of steel canopy not confirmed.

Building-2 (Store Building):

Item 01: Stair live load consideration in design.

Item 02: Exposed rebar at roof.

Item 03: Water ponding on roof.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Material strength of steel canopy not confirmed. (Building-1&2)	Building engineer is required to review the design (either considering minimum grade of steel or verify the steel strength) of the canopy and prepare the design report in compliance with section 1.9.1.1 and section 1.9.1.2 of BNBC.	6-weeks
02	Material strength of steel canopy not confirmed. (Building-1&2)	Complete remedial works if required from design report.	6-months
03	Stair live load consideration in design. (Building-2)	Building engineer is required to revise the stair live load plan & review the design in compliance with section 1.9.1.1 and section 1.9.1.2 of BNBC.	6-weeks
04	Stair live load consideration in design. (Building-2)	Complete remedial works if required from design report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Exposed rebar at roof. (Building-2)	All exposed reinforcement is to be protected from corrosion which may cause degradation of the concrete.	6-weeks
06	Water ponding on roof.(Building-2)	Building engineer is required to remove construction debris and develop proper drainage system on roof with adequate slope or apply water proofing compound on roof slab to resist water ingress.	6-weeks