

M/s COSMOS CLEANING SYSTEMS, BANGALORE	PROPOSED BAGMANE ANGKOR AND APOLLO CENTRE AT BANGALORE	
	CLIENT: M/S BAGMANE DEVELOPERS PVT LTD. ARCHITECTS: M/S GENSLER, BANGALORE FAÇADE CONSULTANTS: M/S FAÇADE TECHNIK, BANGALORE	
PROJ/DESIGN STR/2/2022	STRUCTURAL CALCULATIONS FOR THE PROPOSED MS HIGH STRENGTH EYE BOLTS, STABILITY FOR FAÇADE CLEANING APPLICATIONS.	JULY 2022

## **INDEX SHEET**

- A. CODES AND SPECIFICATIONS.**
- B. MATERIAL SPECIFICATIONS.**
- C. PROJECT SUMMARY SHEET**
- D. DESIGN CRITERIA AND LOADING ASSUMPTIONS.**
- E. STABILITY CALCULATIONS FOR THE MS HIGH STRENGTH EYE BOLTS , MS  
BASE PLATE, WELDS STABILITY FOR FAÇADE CLEANING APPLICATIONS.**
- F. REFERENCE DRAWINGS AND DOCUMENTS.**

### **A. CODES AND SPECIFICATIONS**

**The Structural calculations were Performed in accordance with the following codes or specifications mentioned in the Tender document.**

- IS 800 - 2007: Indian code for Structural steel design
- Torsteel HandBook for Structural Steel Design.

### **B. MATERIAL SPECIFICATIONS**

- HIGH STRENGTH MS EYE BOLTOF GRADE C45/EN8

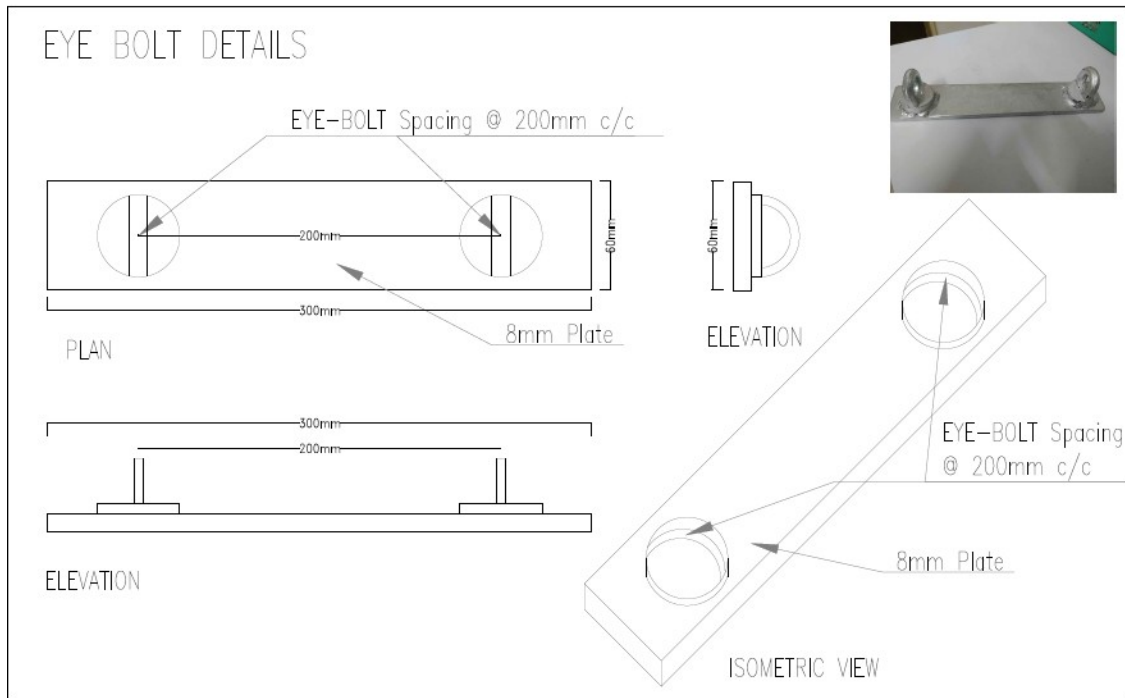
### **C. PROJECT SUMMARY SHEET**

This structural design report is prepared to evaluate the structural performance of the **MS HIGH STRENGTH EYE BOLTS FOR FAÇADE CLEANING APPLICATIONS** and to ensure the total stability of the entire system.

M/s COSMOS CLEANING SYSTEMS, BANGALORE	PROPOSED BAGMANE ANGKOR AND APOLLO CENTRE AT BANGALORE	
	CLIENT: M/S BAGMANE DEVELOPERS PVT LTD. ARCHITECTS: M/S GENSLER, BANGALORE FAÇADE CONSULTANTS: M/S FAÇADE TECHNIK, BANGALORE	
PROJ/DESIGN STR/2/2022	STRUCTURAL CALCULATIONS FOR THE PROPOSED MS HIGH STRENGTH EYE BOLTS, STABILITY FOR FAÇADE CLEANING APPLICATIONS.	JULY 2022

**D. DESIGN CRITERIA AND LOADING ASSUMPTIONS.**

This structural design report is prepared to evaluate the structural performance of the **MS HIGH STRENGTH EYE BOLTS FOR FAÇADE CLEANING APPLICATIONS** and to ensure the total stability of the entire system.



M/s COSMOS CLEANING SYSTEMS, BANGALORE	PROPOSED BAGMANE ANGKOR AND APOLLO CENTRE AT BANGALORE	
	CLIENT: M/S BAGMANE DEVELOPERS PVT LTD. ARCHITECTS: M/S GENSLER, BANGALORE FAÇADE CONSULTANTS: M/S FAÇADE TECHNIK, BANGALORE	
PROJ/DESIGN STR/2/2022	STRUCTURAL CALCULATIONS FOR THE PROPOSED MS HIGH STRENGTH EYE BOLTS, STABILITY FOR FAÇADE CLEANING APPLICATIONS.	JULY 2022

**CHECK FOR THE MS HIGH STRENGTH EYE BOLTS STABILITY FOR FAÇADE  
CLEANING APPLICATIONS**

**THE MS HIGH STRENGTH EYE BOLT OF M16 X 180 L OF C45/EN8 GRADE IS  
SPACED AT EVERY 1.2M C/C FIXED TO THE MS FRAME TO TAKE UP A LOAD OF  
1000 KGS.**

- Design Load = 1000 kgs
- Tensile stress in the MS Eye Bolt =
- $(1000)/3.14/4 \times 1.6 \times 1.6 \times 0.75 = 663 \text{Kg/sqcm} < 1000 \text{ kg/sqcm}$
- Allowable Permissible Shear stress in the S.S Bolts = 1000 kg/sqcm
- Tensile stress in the MS Eye Bolt =
- $(1000)/3.14/4 \times 1.6 \times 1.6 \times 0.75 = 663 \text{Kg/sqcm} < 1500 \text{ kg/sqcm}$
- Bearing stress =  $1000/1.6 \times 1.2 = 521 \text{ kg/sqcm} < 3000 \text{ kg/sqcm}$
- Where permissible shear and Tensile stress as per IS 800-2007
- Is mentioned as 150 Mpa for Tension , 100Mpa for shear, 300Mpa

**Therefore MS High Eye Strength Bolts of M16 x 180L of C45/ EN8  
Grade at every 1.2m c/c fixed to the MS Frame is safe in Tensile , Bearing  
& Shear stress criteria.**