

SUR YAPI VİTRİN PROJESİ

1.GİRİŞ

Bu statik hesap raporu SUR YAPI VİTRİN projesi seramik alt profilleri için yapılan statik hesapları kapsar.

Rapor kapsamında,

- Statik rüzgar yükü altında seramik alt profillerinde meydana gelen deplasman değerleri incelenmiştir.
- Statik yük altında mesnet reaksiyonları, gerilme ve moment diyagramları bulunmuştur.

a)MALZEME ÖZELLİKLERİ

ALUMİNYUM

Elastisite Modülü $E=70000 \text{ N/mm}^2$

Kayma Modülü $G=27000 \text{ N/mm}^2$

Poisson Oranı $V=0,3$

Uzama Katsayısı $=23 \times 10^{-6} / ^\circ\text{C}$

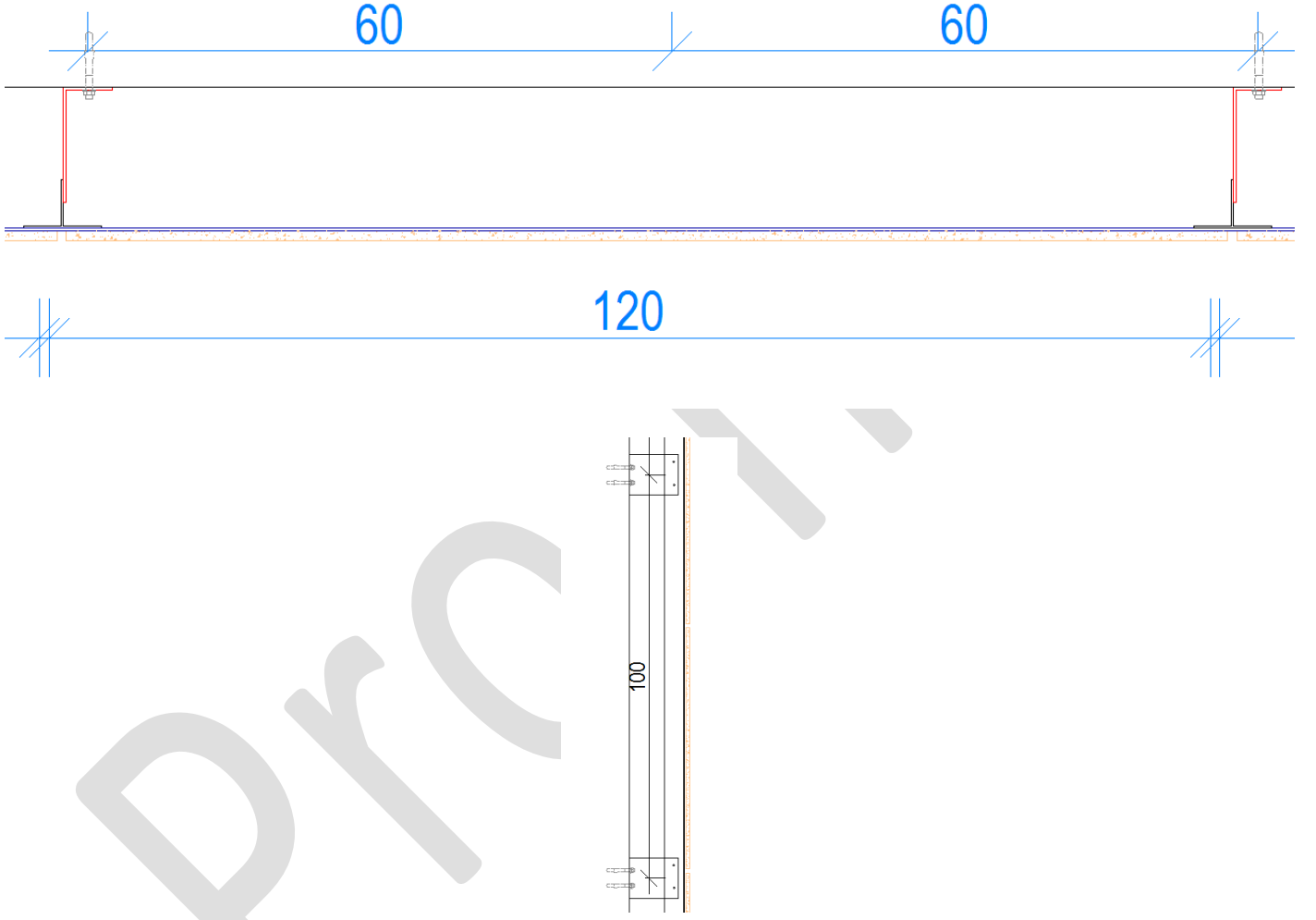
Alloy EN- AW	Product form	Temper	Thick- ness t mm 1) 3)	f_o 1)	f_u 1)	A 5) 2)	$f_{o,haz}$ 4)	$f_{u,haz}$ 4)	HAZ-factor 4)		BC 6)	n_p 7)
				N/mm ²		%	N/mm ²		$\rho_{o,haz}$	$\rho_{u,haz}$		
	Çekme Mukavemeti [MPa]	215		Uzama [%]		10 (A10)						
	Akma Mukavemeti [MPa]	170		Yoğunluk[kg/dm ³]		2,7						
	Brinell Sertliği [HB500]	70										

b)YÜKLER

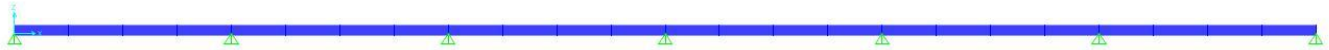
Rüzgar yükü TS498'e göre hesaplanmıştır.

Rüzgar Yükü = 132 kg/m^2

Rüzgar yükü değeri $1.32 \text{ kN/m}^2 \times 1.2\text{m} = 1.58 \text{ kN/m}$ rüzgar yükü bir seramiğe gelen rüzgar yükü



Sistem Planı Ve Kesiti



Sistemin Statik Modeli

Tee Section

Section Name: 50x80x3mm

Section Notes: Modify/Show Notes...

Properties: Section Properties...

Property Modifiers: Set Modifiers...

Material: + 6063T6

Dimensions:

Outside stem (t3): 5

Outside flange (t2): 8

Flange thickness (tf): 0.3

Stem thickness (tw): 0.3

Display Color:

OK Cancel

Property Data

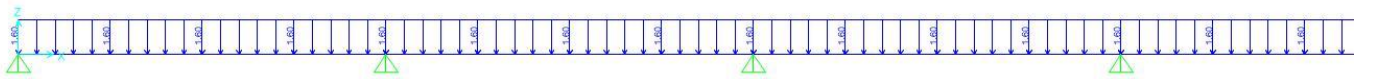
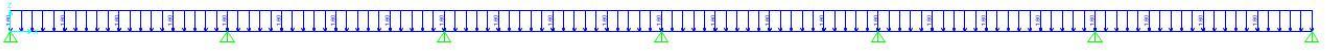
Section Name: 50x80x3mm

Properties:

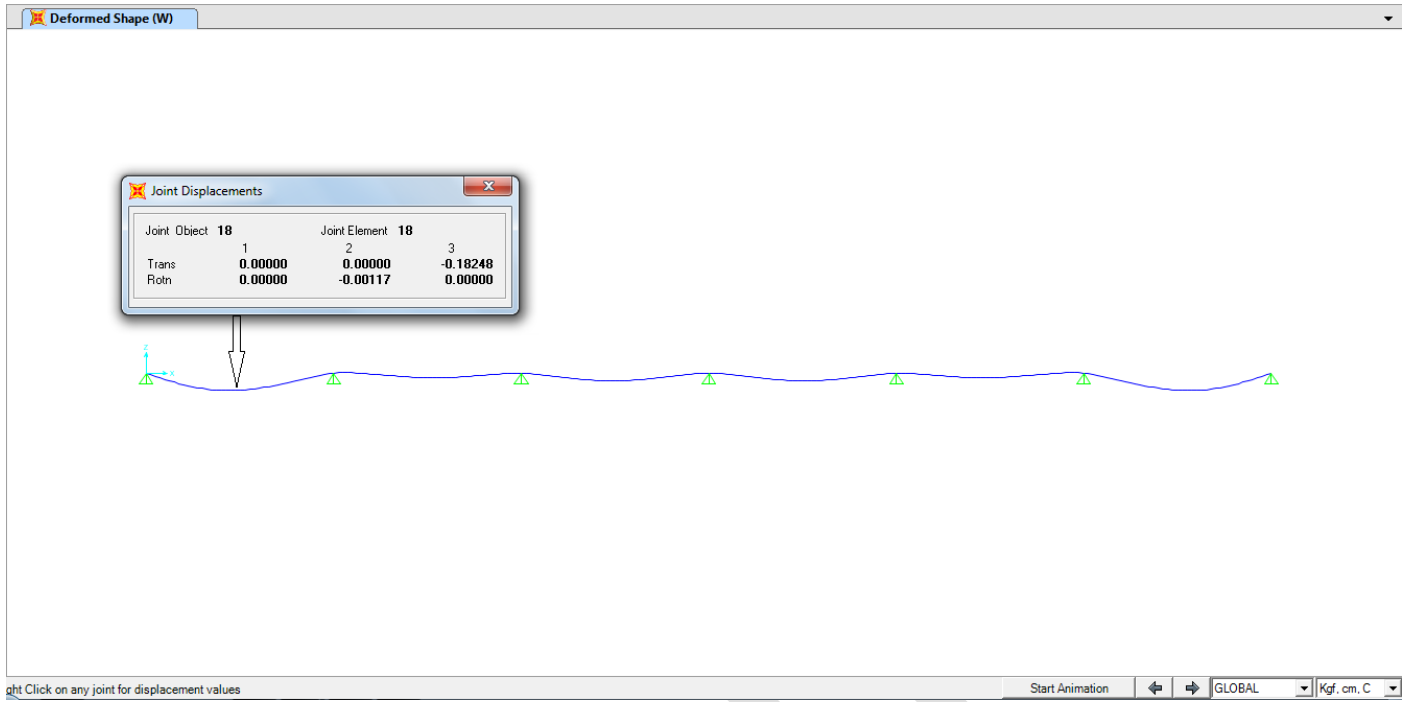
Cross-section (axial) area	3.81	Section modulus about 3 axis	2.0803
Torsional constant	0.113	Section modulus about 2 axis	3.2026
Moment of Inertia about 3 axis	8.1648	Plastic modulus about 3 axis	3.6429
Moment of Inertia about 2 axis	12.8106	Plastic modulus about 2 axis	4.9058
Shear area in 2 direction	1.5	Radius of Gyration about 3 axis	1.4639
Shear area in 3 direction	2	Radius of Gyration about 2 axis	1.8337

OK

Kullanılan Kutu Profilin Mekanik Özellikleri



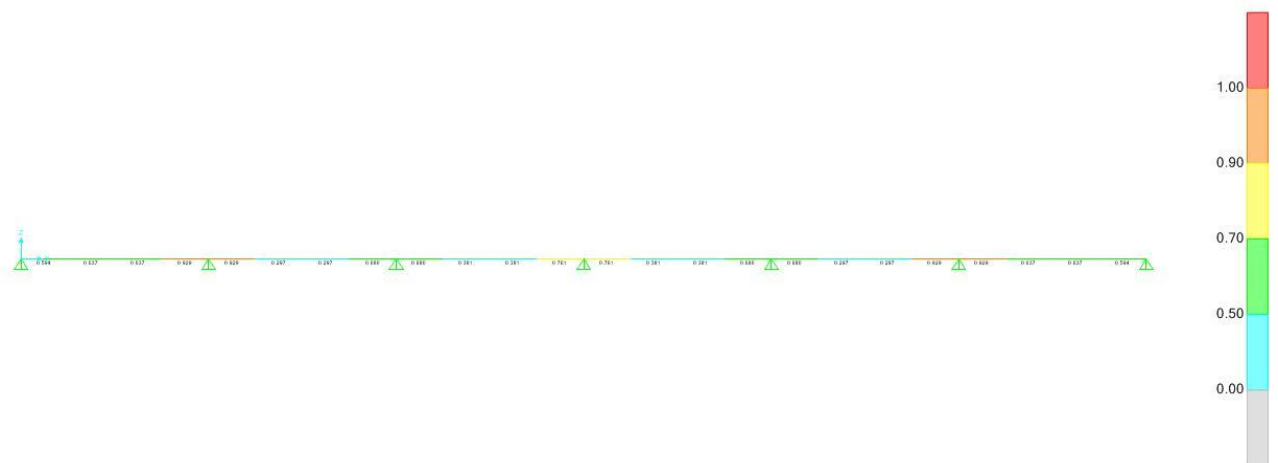
Rüzgar yüklemesi(Basınç)



Max Yatay Deplesman

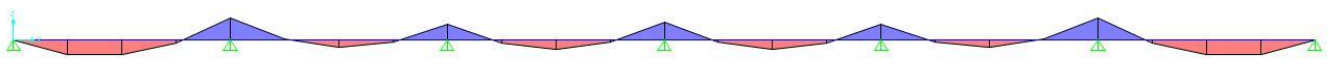
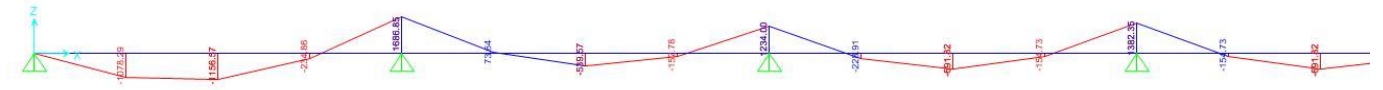
$$L/200 \geq \Delta_{\max} = 1.8 \text{ mm}$$

$$1000 \text{ mm} / 200 = 5 \text{ mm} \geq 1.8 \text{ mm}$$

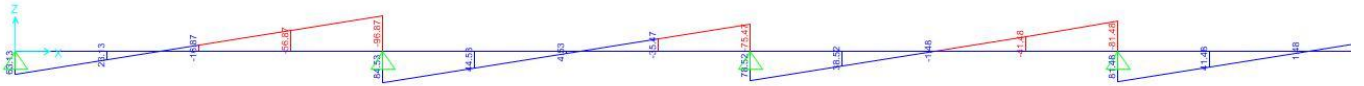
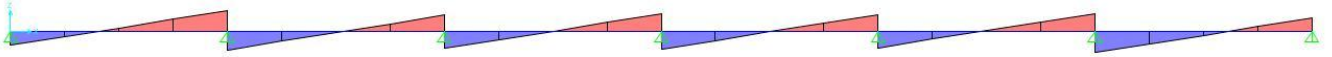


Gerilme Diyagramı

Görüldüğü üzere çubuklarda gerilme sınırı aşan bir bölge bulunmamaktadır.



Moment Diyagramı



Kesme Kuvveti Diyagramı



Mesnet Reaksiyonları