

## GÖZTEPE SPOR KOMPLEKSİ PROJESİ

### 1.GİRİŞ

Bu statik hesap raporu Göztepe Spor Kompleksi projesi seramik alt profilleri için yapılan statik hesapları kapsar.

Rapor kapsamında,

-Statik rüzgar yükü altındaseramik 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  $=23 \times 10^{-6} / ^\circ\text{C}$

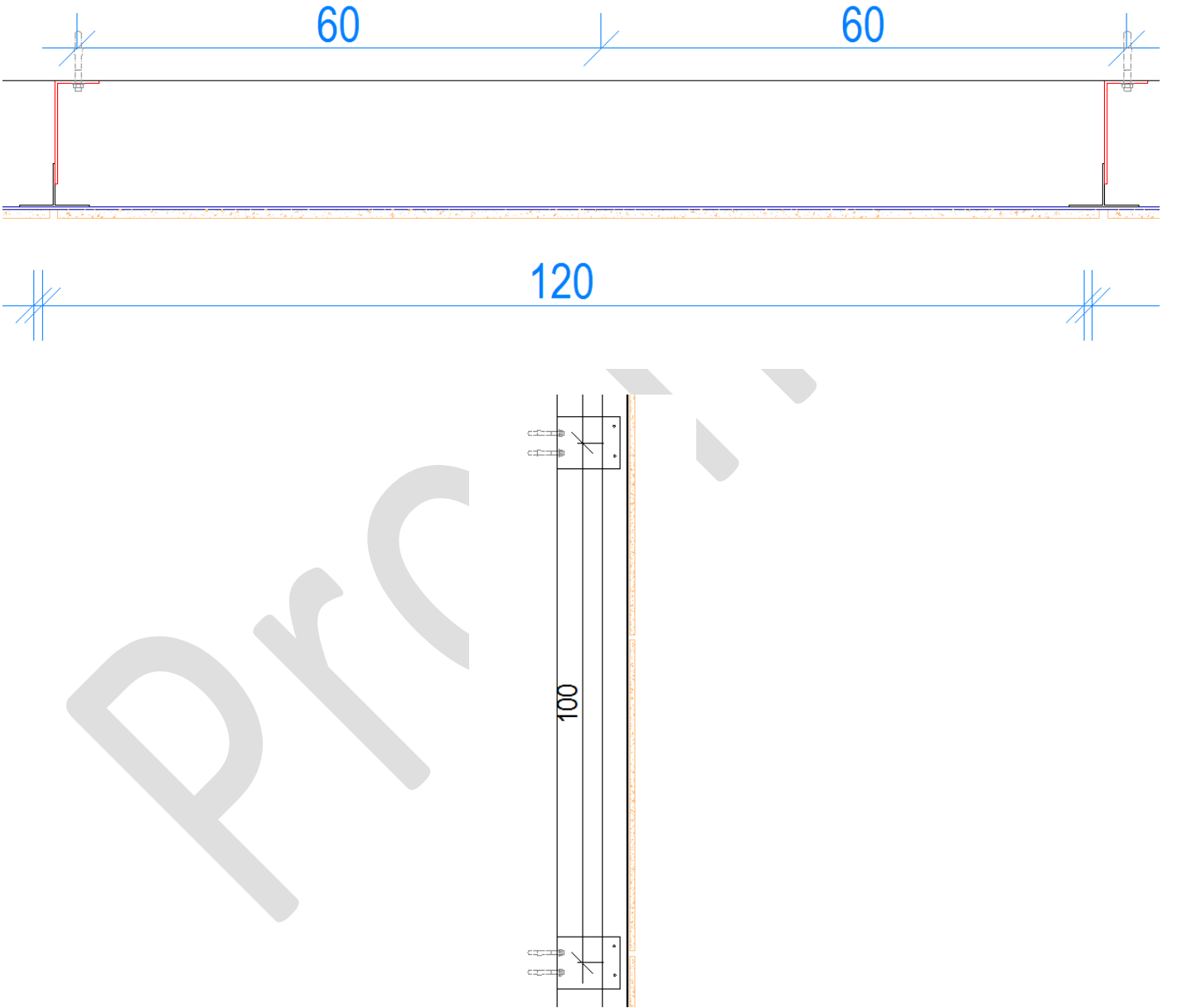
Alloy EN- AW	Product form	Temper	Thick- ness $t$ mm 1) 3)	$f_o$ 1)	$f_u$ 1)	$A$ 5) 2)	$f_{o,haz}$ 4)	$f_{u,haz}$ 4)	HAZ-factor 4)		BC 6)	$n_p$ 7)
				N/mm <sup>2</sup>		%	N/mm <sup>2</sup>		$\rho_{o,haz}$	$\rho_{u,haz}$		
	Çekme Mukavemeti [MPa]	215		Uzama [%]		10 (A10)						
	Akma Mukavemeti [MPa]	170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

### b)YÜKLER

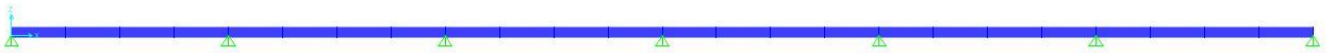
Rüzgar yükü TS498'e göre hesaplanmıştır.

Rüzgar Yükü =  $96 \text{ kg/m}^2$

Rüzgar yükü değeri  $0.96 \text{ kN/m}^2 \times 1.2 \text{ m} = 1.15 \text{ kN/m}$  bir profile gelen rüzgar yükü değeri



**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: + 8063T6

Dimensions:

Outside stem ( t3 )	5.
Outside flange ( t2 )	8.
Flange thickness ( t1 )	0.3
Stem thickness ( tw )	0.3

Display Color:

OK Cancel

**Property Data**

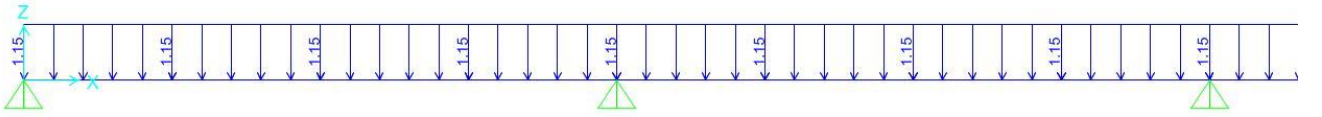
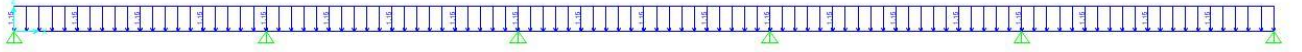
Section Name: 50x80x3mm

Properties:

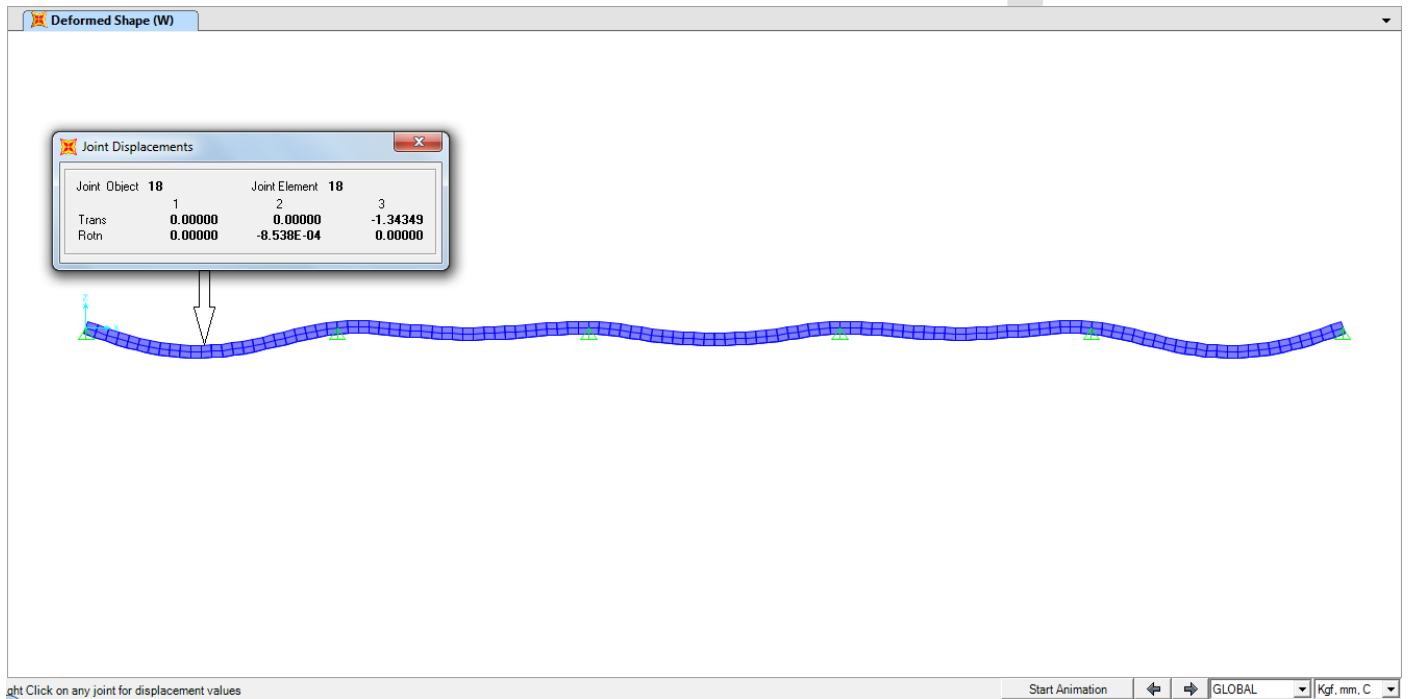
Cross-section (axial) area	3.81	Section modulus about 3 axis	2.0803
Torsional constant	0.113	Section modulus about 2 axis	3.2026
Moment of Inertia about 3 axis	8.1648	Plastic modulus about 3 axis	3.6429
Moment of Inertia about 2 axis	12.8106	Plastic modulus about 2 axis	4.9058
Shear area in 2 direction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

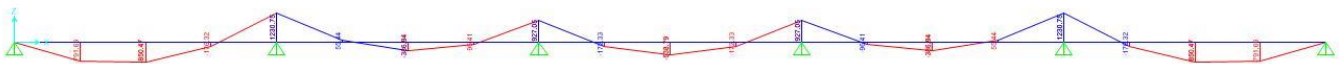
$$L/200 \geq \Delta_{\max} = 1.34 \text{ mm}$$

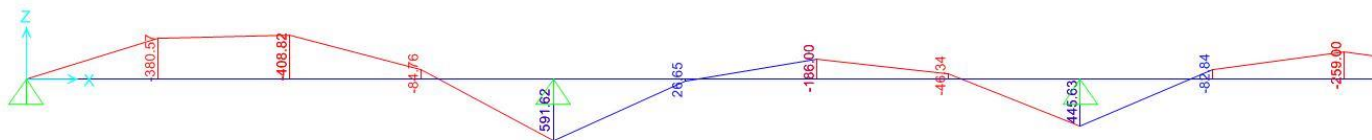
$$1000 \text{ mm} / 200 = 5 \text{ mm} \geq 1.34 \text{ mm}$$



### Gerilme Diyagramı

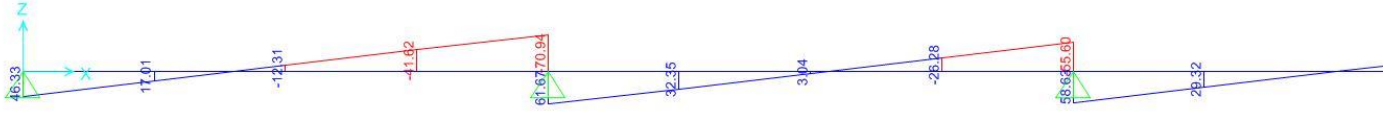
Görüldüğü üzere çubuklarda gerilme sınırı aşan bir bölge bulunmamaktadır.



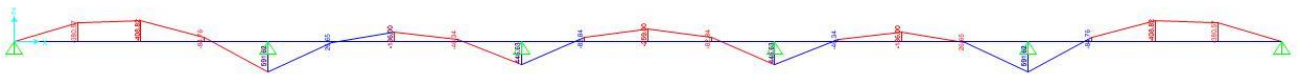


Moment Diyagramı

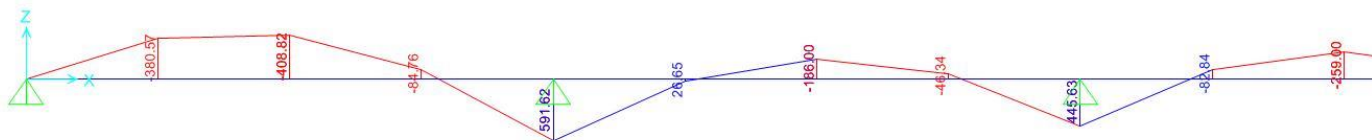




### Kesme Kuvveti Diyagramı







### Gerilme Diyagramı





Mesnet Tepkileri

PRO-NA