

**Test Performed by:** Dr. M. Irfan UI Hassan

China Communication Construction Company Limited  
Consultant: Techno Consult International  
Client: Gwadar Port Authority

Project: China Communication Construction Company Limited  
East Bay Exressway Project Gwadar (CCCC-EBEW Project)

**Reference No.:** Nil

Dated: Nil

**SOM Lab Ref:** CED/SOM/4273(Page-1/1)

Dated: 09-08-2021

**Test:** Tensile Test, Elongation at Break, , Comp Set Test & Hardness Test.

**Sample Type:** ALFEN GENDEX. Aluminum Alloy Expansion Joint Woxd-50 Imported

**TENSILE STRENGTH AND ELONGATION TEST. (AS PER ASTM-D-412)**

S. No	Sample Size (mm)	Ultimate Load (kN)	Tensile Strength (Mpa)	Elongation at Break(%)
1	6.0 x 3.0	0.33	18.33	530

**- COMPRESSION SET TEST (AS PER ASTM-D-395)**

S. No.	Thickness of Sample (mm)	Final Thickness (mm)	Compression set (%)
1	4.0	3.95	1.666

**- HARDNESS TEST (AS PER ASTM-D-2240 )**

S. No	Sample Type	Hardness (Shore A)
1	Expansion Joint	48.83

Tahir Khalil Ahsan

Test Performed By:

Dr. /Engr. S. Asad Ali Gillani

General Manager (Project) Development Consultancy Services (Pvt) Ltd. Islamabad

Client Reference: DCS/RE/GCUF/2021/0803/265

SOM Lab Ref: 4764(Page-1/1)

Dated: 03-08-2021

Dated: 09-08-2021

Test: Tension Test & Bend Test

Test Specification:

ASTM-A-615

Gauge Length: 8 inch

Sample Type:

Deformed Bar

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.637	8	0.993	0.79	0.775	23.31	33.28	65090	66350	92920	94710	1.60	8.0	20.0	
2	2.632	8	0.992	0.79	0.773	23.16	33.15	64660	66080	92550	94580	1.70	8.0	21.3	
3	1.349	6	0.710	0.44	0.396	13.71	19.22	68730	76360	96320	107020	1.20	8.0	15.0	
4	1.462	6	0.740	0.44	0.430	13.73	19.24	68830	70430	96420	98660	1.10	8.0	13.8	
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**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Six Samples Received and Tested
# 6	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Taimur Hassan  
Resident Engineer, Fort Munro Cadet College, D. G. Khan

**Test Performed By:** Dr. /Engr. s. Asad Ali Gillani

**Client Reference:** AHQ/74260/2/52/Trg/FMCC

**SOM Lab Ref:** 4766 (Page-1/1)

**Dated:** 06-08-2021

**Dated:** 09-08-2021

**Test:** Tension Test

**Test Specification:**

ASTM-A-615

**Gauge Length:** 8 inch

**Sample Type:**

Deformed Bar( Moiz & FF Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	0.602	4	0.475	0.20	0.177	5.88	8.48	64860	73290	93530	105680	1.20	8.0	15.0	Moiz
2	0.606	4	0.476	0.20	0.178	5.86	8.48	64640	72630	93530	105080	1.30	8.0	16.3	Moiz
3	0.605	4	0.476	0.20	0.178	5.88	8.51	64860	72880	93860	105460	1.30	8.0	16.3	Moiz
4	0.596	4	0.472	0.20	0.175	6.03	8.18	66550	76050	90150	103030	1.20	8.0	15.0	FF
5	0.594	4	0.472	0.20	0.175	5.90	8.05	65090	74380	88800	101490	1.30	8.0	16.3	FF
6	0.599	4	0.473	0.20	0.176	6.01	8.15	66320	75370	89930	102190	1.30	8.0	16.3	FF
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**BEND TEST:**

# 4(Sr.1&2)	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Twelve Samples Received and Tested
# 4(Sr. 3)	Sample bend through 180 degrees Satisfactorily without any crack	
# 4(Sr.4&5)	Sample bend through 180 degrees Satisfactorily without any crack	
# 4(Sr. 6)	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Engr. Muddasir Tahir  
Construction Manager, Zameen Aurum, Lahore

**Test Performed By:** Dr. /Engr. S. Asad Ali Gillani

**Client Reference:** ZD/ZA/STR011

**SOM Lab Ref:** 4767(Page-1/1)

**Dated:** 09-08-2021

**Dated:** 09-08-2021

**Test:** Tension Test & Bend Test

**Test Specification:** ASTM-A-615

**Gauge Length:** 8 inch

**Sample Type:** Deformed Bar (Pak Steel)

ASTM-A-615

Deformed Bar (Pak Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.543	6	0.759	0.44	0.453	17.13	22.04	85840	83380	110470	107300	1.30	8.0	16.3	
2	1.534	6	0.758	0.44	0.451	14.39	20.51	72150	70390	102800	100300	1.50	8.0	18.8	
3	0.698	4	0.511	0.20	0.205	8.02	9.63	88470	86310	106230	103640	1.00	8.0	12.5	
4	0.670	4	0.501	0.20	0.197	5.50	7.10	60700	61630	78350	79540	1.10	8.0	13.8	
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**BEND TEST:**

# 6	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Six Samples Received and Tested
# 6	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Wajid Ali Shah  
GM - Works, FF Steel Lahore

Test Performed By: Dr. /Engr. S. Asad Ali Gillani

Client Reference: Nil

SOM Lab Ref: 4768(Page-1/1)

Dated: 04-08-2021

Dated: 09-08-2021

Test: Tension Test

Test Specification:

ASTM-A-615

Gauge Length: 8 inch

Sample Type:

Deformed Bar(FF Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.485	6	0.745	0.44	0.436	15.46	21.66	77510	78220	108580	109570	1.20	8.0	15.0	
2	1.492	6	0.747	0.44	0.438	15.14	21.41	75880	76220	107300	107790	1.20	8.0	15.0	
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**BEND TEST:**

--	No Bend test performed	<b>Note:-</b>  Only Two Samples Received and Tested

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Major Muhammad Azeem (Ret) Resident Engineer, ACES (Pvt) Ltd. Site Office - DHA, Mattital Road, Multan

Test Performed By: Dr. /Engr. S. Asad Ali Gillani

Client Reference: RE/Sec-T & B-I/Material/22

SOM Lab Ref: 4769(Page-1/1)

Dated: 04-08-2021

Dated: 09-08-2021

Test: Tension Test & Bend Test

Test Specification:

ASTM-A-615

Gauge Length: 8 inch

Sample Type:

Deformed Bar

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.727	8	1.010	0.79	0.801	27.49	35.27	76750	75700	98470	97110	1.50	8.0	18.8	
2	2.700	8	1.005	0.79	0.793	26.32	34.25	73480	73200	95620	95260	1.40	8.0	17.5	
3	1.500	6	0.749	0.44	0.441	15.04	20.74	75370	75200	103980	103740	1.30	8.0	16.3	
4	1.498	6	0.748	0.44	0.440	14.80	20.66	74190	74190	103570	103570	1.20	8.0	15.0	
5	0.681	4	0.505	0.20	0.200	7.14	9.60	78690	78690	105890	105890	1.20	8.0	15.0	
6	0.677	4	0.503	0.20	0.199	7.14	9.60	78690	79080	105890	106420	1.20	8.0	15.0	
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**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Nine Samples Received and Tested
# 6	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Maj Adnan khalid®

**Test Performed By:** Dr. /Engr. S. Asad Ali Gillan

Dy Dir MTL, Const. of Infra Works at Sector - KK, Phase IV (NBPOCHS) - (M/S Reliable)

**Client Reference:** 408/241/E/Lab/O. H-12/116

**SOM Lab Ref:** 4770(Page-1/1)

**Dated:** 09-08-2021

**Dated:** 09-08-2021

**Test:** Tension Test & Bend Test

**Test Specification:**

ASTM-A-615

**Gauge Length:** 8 inch

**Sample Type:**

Deformed Bar ( Kamran & AF Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.659	8	0.997	0.79	0.781	26.61	34.61	74280	75130	96620	97730	1.30	8.0	16.3	
2	2.676	8	1.000	0.79	0.786	25.56	36.34	71350	71710	101450	101970	1.40	8.0	17.5	
3	1.515	6	0.753	0.44	0.445	14.34	21.12	71890	71090	105870	104680	1.30	8.0	16.3	
4	1.510	6	0.752	0.44	0.444	14.34	21.17	71890	71250	106130	105170	1.20	8.0	15.0	
5	1.056	5	0.628	0.31	0.310	9.63	13.83	68540	68540	98410	98410	1.60	8.0	20.0	
6	1.047	5	0.626	0.31	0.308	9.63	13.78	68540	68980	98050	98690	1.60	8.0	20.0	
7	0.670	4	0.501	0.20	0.197	5.93	8.66	65420	66420	95550	97000	1.50	8.0	18.8	
8	0.670	4	0.501	0.20	0.197	5.88	8.53	64860	65850	94090	95520	1.30	8.0	16.3	
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**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Twelve Samples Received and Tested
# 6	Sample bend through 180 degrees Satisfactorily without any crack	
# 5	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)