Haris & Company,
Lahore (Project: Edotco B2S Project)

Test Performed By: **Dr. /Engr.** Nauman Khurram

Client Reference: 0009 **Dated:** 14-11-2019
SOM Lab Ref: CED/SOM/1738(Page-1/1) **Dated:** 14-11-2019
Test: Tension Test & Bend Test **Test Specification:** ASTM-A 615
Sample Type: Deformed Bar **Gauge Length:** 200 mm

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)				
	kg/m	mm	mm	mm^2	mm^2	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	3.903	25	25.16	491	497	270.00	345.70	550	544	704	696	32.5	200	16.3	
2	2.207	20	18.92	314	281	140.50	189.70	447	500	604	675	27.5	200	13.8	
3	1.560	16	15.91	201	199	95.70	139.20	476	482	692	701	35.0	200	17.5	
4	0.882	12	11.96	113	112	52.50	74.70	464	468	660	666	25.0	200	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

BEND TEST:

25mm	Sample bend through 180 degrees Satisfactorily without any crack
20mm	Sample bend through 180 degrees Satisfactorily without any crack
16mm	Sample bend through 180 degrees Satisfactorily without any crack
12mm	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Eight Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Malik Sohaib **Test Performed By:** **Dr. /Engr.** Nauman Khurram

Lab -Incharge, Transtech Engineering Corporation, Haveli Bahadar Shah, Jhang,

Client Reference: TEC/UET/19111301 **Dated:** 14-11-2019

SOM Lab Ref: CED/SOM/1739(Page-1/1) **Dated:** 14-11-2019

Test: Tension Test & Bend Test **Test Specification:** ASTM-A 615

Sample Type: Deformed Bar (City Steel) **Gauge Length:** 200 mm

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)				
	kg/m	mm	mm	mm^2	mm^2	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	3.967	25	25.36	491	505	219.70	333.00	448	436	678	660	42.5	200	21.3	16105
2	3.948	25	25.31	491	503	220.20	334.00	449	438	680	665	37.5	200	18.8	16105
3	1.527	16	15.74	201	195	95.50	131.50	475	491	654	676	27.5	200	13.8	16104
4	1.537	16	15.79	201	196	97.20	133.70	483	497	665	683	30.0	200	15.0	16104
5	0.988	12	12.66	113	126	60.70	91.50	537	483	809	727	27.5	200	13.8	16103
6	0.993	12	12.69	113	127	59.70	90.50	528	472	800	716	30.0	200	15.0	16103
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

BEND TEST:

25mm	Sample bend through 180 degrees Satisfactorily without any crack
16mm	Sample bend through 180 degrees Satisfactorily without any crack
12mm	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Nine Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Zia-Ul-Islam Khan Suri **Test Performed By:** **Dr. /Engr.** Nauman Khurram

Assistant Executive Engineer - IV, Central Civil Division-II, Pak PWD, Lahore

Client Reference: AEE -IV/ LCCD-II /43 **SOM Lab Ref:** 1731(Page-1/1)

Dated: 11-11-2019 **Dated:** 13-11-2019

Test: Tension 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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.630	8	0.992	0.79	0.773	27.47	35.47	76700	78380	99030	101210	1.50	8.0	18.8	
2	2.638	8	0.993	0.79	0.775	27.29	35.07	76180	77660	97900	99790	1.30	8.0	16.3	
3	1.460	6	0.739	0.44	0.429	13.61	19.11	68210	69960	95800	98260	1.30	8.0	16.3	
4	1.459	6	0.739	0.44	0.429	13.73	19.22	68830	70590	96320	98780	1.30	8.0	16.3	
5	0.647	4	0.492	0.20	0.190	6.39	8.43	70480	74190	92960	97860	1.30	8.0	16.3	
6	0.652	4	0.494	0.20	0.192	6.60	8.66	72730	75760	95550	99530	1.20	8.0	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

BEND TEST:

--	No Bend test performed

Note:-

Only Six Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Test Performed by: Dr Syed Asad Ali Gillani

Nasir Ahmed Chishty
Chief Resident Engineer
Osmani & Co. (Pvt) Ltd.
Sawat Motorway Project

Client Reference No.: 350/CRE/QAT/SMP/2019 Dated: 11-11-2019

SOM Lab Ref: CED/SOM/1740(Page-1/1) Dated: 14-11-2019

Test: Tensile, Elongation at Break, Tear Strength, Hardness Test & Comp Set Test

Sample Type: Expansion Joint – EJN80 (Interbona)

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

S. No	**Sample Size(mm)**	**Ultimate Load (kN)**	**Tensile Strength (Mpa)**	**Tensile Strength(kg/cm²)**	**Elongation at Break**(%)
1	6.5 x 2.8	0.76	41.76	425.81	460

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

S. No.	**Thickness of Sample (mm)**	**Final Thickness (mm)**	**Compression set (%)**
1	**2.80**	**2.75**	**1.785**

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

S. No	**Sample Type**	**Hardness (Shore A)**
1	**Expansion Joint**	**48.5**

Test Performed By: Dr Asad Ali Gillani

Solat Tabbusan
Project Manager
Al-Tariq Construction Pvt. Ltd.
Project: Construction Phase – II, Parco Machike

Client Reference: Nil Dated .11-11-2019
SOM Laboratory Reference: CED/SOM/1741(Page-1/1) Dated 14-11-2019
Test: Tensile Strength, Yield Strength & Elongation
Sample Type: HDP Geo Membrane Sheet (1.4mm)

TENSILE STRENGTH AND ELONGATION TEST. (AS PER ASTM-D-638)

S. No	Sample ID	Yield Strength (Kn/M)	Tensile Strength at Break (MPa)	Elongation at Break (%)
1	**Sample # 1**	16.0	20.1	280
2	**Sample # 2**	15.45	19.32	250

-- TEAR STRENGTH (AS PER ASTM-D-624)

S. No	Sample Size (mm)	Ultimate Load (kN)	Tear Strength (N)
1	19.0 x 1.4	0.43	307.14
2	19.0 x 1.4	0.33	235.71