



**STRUCTURAL ENGINEERING DIVISION**  
**Test Floor Laboratory**  
**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
M/S Defence Housing Authority.  
Lahore Cantt  
(Infra Dev Works of Ph-IX, (Pkg-VI), DHA Lahore)(M/s FWO)

Reference # CED/TFL **34345** (Dr. M Rizwan Riaz)

Dated: 19-12-2019

Reference of the request letter # 408/241/E/Lab/803/3340

Dated: 18-12-2019

**Tension Test Report** (Page -1/1)

Date of Test 24-12-2019

Gauge length -----

Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A496

Sr. No.	Weight (Kg/m)	Diameter/ size		Area (mm <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (Mpa)		Ultimate Stress (Mpa)		Remarks
		Nominal (in)	Actual (mm)	Nominal	Actual			Nominal	Actual	Nominal	Actual	
1	0.162	3/16	5.12	19.35	20.60	1200	1600	608	571	811	762	
2	0.159	3/16	5.09	19.35	20.31	1200	1600	608	580	811	773	
3	0.255	1/4	6.43	32.26	32.47	1800	2100	547	544	639	635	
4	0.254	1/4	6.42	32.26	32.34	1700	2100	517	516	639	637	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only four samples for tensile and two samples for bend test</b>												
Bend Test												
3/16" Dia Bar Bend Test Through 180° is Satisfactory												
1/4" Dia Bar Bend Test Through 180° is Satisfactory												

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

Note:

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**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
 Resident Engineer  
 Al-Imam Enterprises (Pvt) Ltd  
 Construction of Penta Square, Phase-V, D.H.A, Lahore  
 (Kamran Steel)

Reference # CED/TFL **34347** (Dr. Qasim Khan) Dated: 20-12-2019  
 Reference of the request letter # Al-Imam/746/PS-1/DHA/LHE/1019 Dated: 09-12-2019

**Tension Test Report** (Page -1/3)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (mm)		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	4.249	32	32.03	1.25	1.249	43200	58800	76191	76230	103704	103800	1.50	18.8	
2	4.201	32	31.85	1.25	1.235	41800	55400	73722	74610	97708	98900	1.50	18.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
Bend Test														
32mm Dia Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
 Resident Engineer  
 Al-Imam Enterprises (Pvt) Ltd  
 Construction of Penta Square, Phase-V, D.H.A, Lahore  
 (Kamran Steel)

Reference # CED/TFL **34347** (Dr. Qasim Khan) Dated: 20-12-2019  
 Reference of the request letter # Al-Imam/746/PS-1/DHA/LHE/1022 Dated: 16-12-2019

**Tension Test Report** (Page -2/3)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (mm)		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	4.061	32	31.31	1.25	1.194	37800	54600	66667	69790	96297	100900	1.60	20.0	
2	4.093	32	31.44	1.25	1.203	38000	53800	67020	69620	94886	98600	1.50	18.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
Bend Test														
32mm Dia Bar Bend Test Through 180° is Satisfactory														

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**UET Lahore, Pakistan.**

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**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
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To,  
 Resident Engineer  
 Al-Imam Enterprises (Pvt) Ltd  
 Construction of Penta Square, Phase-V, D.H.A, Lahore  
 (Kamran Steel)

Reference # CED/TFL **34347** (Dr. Qasim Khan) Dated: 20-12-2019  
 Reference of the request letter # Al-Imam/746/PS-1/DHA/LHE/1021 Dated: 12-12-2019

**Tension Test Report** (Page -3/3)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (mm)		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	4.239	32	31.99	1.25	1.246	41600	59800	73369	73590	105468	105800	1.50	18.8	
2	4.217	32	31.91	1.25	1.240	41800	60000	73722	74330	105821	106700	1.50	18.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
<b>Bend Test</b>														
32mm Dia Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
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**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
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To,  
M/S Modern Wire & Cable Industries  
Karachi

Reference # CED/TFL **34350** (Dr. Waseem Abbass)  
Reference of the request letter # Nil

Dated: 20-12-2019  
Dated: 20-12-2019

**Tension Test Report** (Page – 1/3)

Date of Test 24-12-2019  
Gauge length 640 mm  
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E"	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)			
1	12.70 (1/2")	775.0	781.0	19200	188.35	20200	198.16	199	>3.50	xx
2	15.24 (0.6")	1102.0	1119.0	25900	254.08	28000	274.68	198	>3.50	xx
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
<b>Only two samples for Test</b>										

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

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**UET Lahore, Pakistan.**

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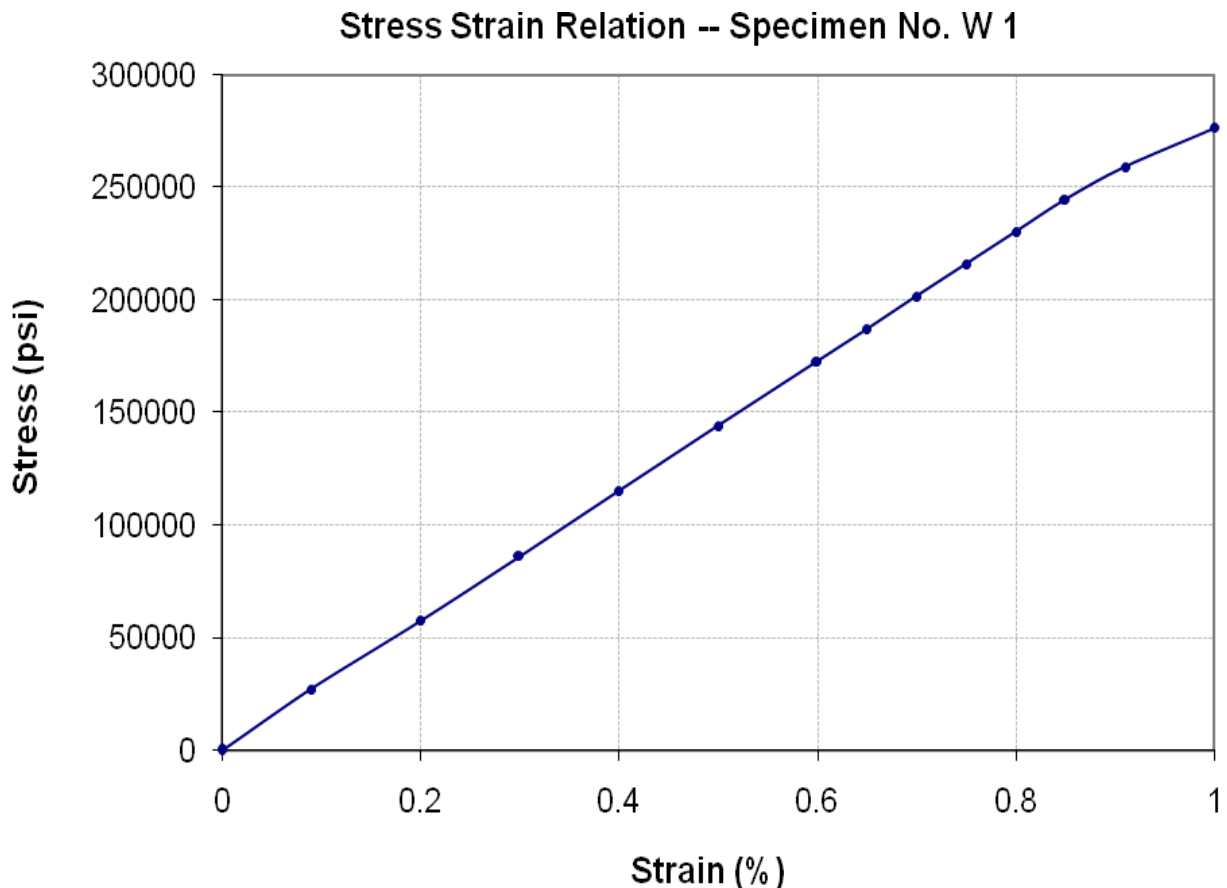
To,  
M/S Modern Wire & Cable Industries  
Karachi

Reference # CED/TFL **34350** (Dr. Waseem Abbass)  
Reference of the request letter # Nil

Dated: 20-12-2019

Dated: 20-12-2019

**Graph** (Page – 2/3)



**I/C Testing Laboratories**  
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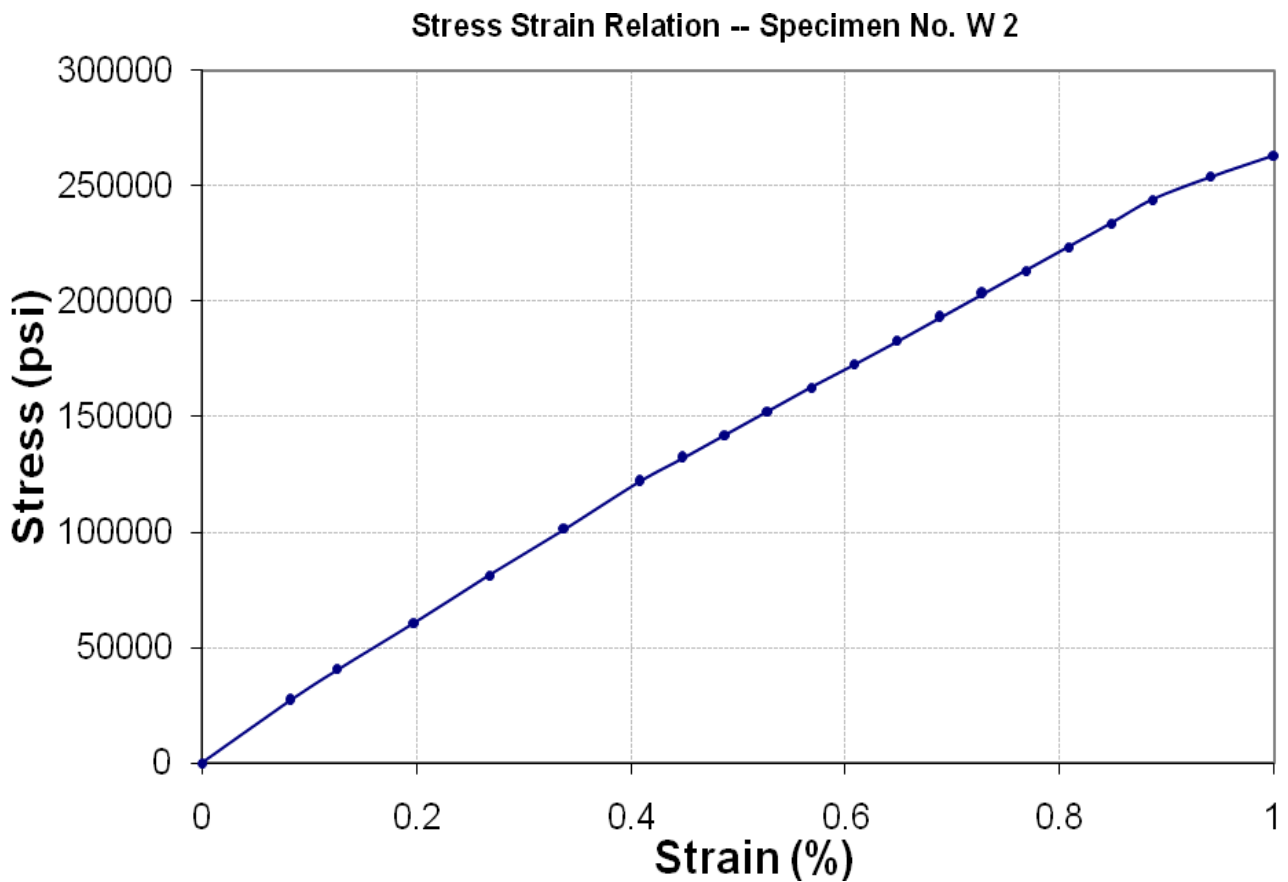
To,  
M/S Modern Wire & Cable Industries  
Karachi

Reference # CED/TFL **34350** (Dr. Waseem Abbass)  
Reference of the request letter # Nil

Dated: 20-12-2019

Dated: 20-12-2019

**Graph** (Page – 3/3)



**I/C Testing Laboratoires**  
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To,  
M/S ZHN Contracting Corporation (SMC-Private) Limited  
Lahore

Reference # CED/TFL **34352** (Dr. M Rizwan Riaz)  
Reference of the request letter # ZHN/033/2019

Dated: 20-12-2019  
Dated: 19-12-2019

**Tension Test Report** (Page -1/2)

Date of Test 24-12-2019  
Gauge length 8 inches  
Description MS Plain Wire Tensile Test

Sr. No.	Weight	Diameter/ size		Area (mm <sup>2</sup> )		Yield load	Breaking Load	Yield Stress (MPa)	Ultimate Stress (MPa)	Elongation	% Elongation	Remarks
	(kg/m)	Nominal (mm)	Actual (mm)	Nominal	Actual	(kg)	(kg)	Actual	Actual	(inch)		
1	0.151	5	4.95	-----	19.2	800	1100	408	561	0.25	3.1	
.	.	.	.	.	.	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	.	.	.	.	
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.	.	.	.	.	.	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	.	.	.	.	
<b>Note: only one sample for tensile test</b>												
Bend Test												

**I/C Testing Laboratories**  
**UET Lahore, Pakistan.**

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**STRUCTURAL ENGINEERING DIVISION**  
**Test Floor Laboratory**  
**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
M/S ZHN Contracting Corporation (SMC-Private) Limited  
Lahore

Reference # CED/TFL **34352** (Dr. M Rizwan Riaz)  
Reference of the request letter # ZHN/033/2019

Dated: 20-12-2019

Dated: 19-12-2019

**Tension Test Report** (Page -2/2)

Date of Test 24-12-2019  
Gauge length 640 mm  
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)		
1	9.53 (3/8")	432.0	437.0	9100	89.27	11500	112.82	>3.50	xx
2	11.11 (7/16")	582.0	585.0	12400	121.64	15000	147.15	>3.50	xx
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
Only two samples for Test									

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**STRUCTURAL ENGINEERING DIVISION**  
**Test Floor Laboratory**  
**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
 Manager Construction Projects  
 Allied Bank Limited  
 Construction of ABL Building at 3-Babar Block, Lahore

Reference # CED/TFL **34356** (Dr. M Rizwan Riaz)  
 Reference of the request letter # HOL/ENGG.C.P./SM/2019/

Dated: 23-12-2019  
 Dated: 20-12-2019

**Tension Test Report** (Page -1/1)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (inch)		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.364	3/8	0.369	0.11	0.107	3600	4800	72200	74250	96200	99000	0.80	10.0	
2	0.399	3/8	0.386	0.11	0.117	3700	4900	74200	69580	98200	92200	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
Bend Test														
3/8" Dia Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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To,  
 Manager C/R & M  
 Engineering Cell Multan  
 Allied Bank Limited  
 ABL Construction Project of New Building at Main Khanewal Road Multan

Reference # CED/TFL **34357** (Dr. M Rizwan Riaz)  
 Reference of the request letter # Nil

Dated: 23-12-2019  
 Dated: 16-12-2019

**Tension Test Report** (Page -1/1)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (inch)		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.359	3/8	0.366	0.11	0.105	3200	4500	64200	66910	90200	94100	1.00	12.5	
2	0.359	3/8	0.366	0.11	0.105	3200	4600	64200	66890	92200	96200	0.60	7.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile test</b>														
Bend Test														

**I/C Testing Laboratoires**  
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**Test Floor Laboratory**  
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**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
 Civil Engineer  
 Sadaqat Limited  
 IE Complex, Khurrianwala, Faisalabad

Reference # CED/TFL **34358** (Dr. M Rizwan Riaz)  
 Reference of the request letter # Civil-C-3

Dated: 23-12-2019  
 Dated: 23-12-2019

**Tension Test Report** (Page -1/1)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (inch)		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.378	3/8	0.376	0.11	0.111	3300	4800	66200	65480	96200	95300	1.30	16.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
Bend Test														
3/8" Dia Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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To,  
 M/S M. Saleem Construction Company  
 Sheikhupura  
 (Project :- Kohistan Stand Faisalabad)

Reference # CED/TFL **34360** (Dr. M Rizwan Riaz)  
 Reference of the request letter # Nil

Dated: 23-12-2019  
 Dated: 23-12-2019

**Tension Test Report** (Page -1/1)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (inch)		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.372	3/8	0.373	0.11	0.109	3200	5000	64200	64430	100200	100700	1.40	17.5	
2	0.374	3/8	0.374	0.11	0.110	3300	5000	66200	66220	100200	100400	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile test</b>														
Bend Test														

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

Note:

- 1- You can See your reports On Internet in the following web site  
[http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing\\_reports](http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports)
- 2- The above results pertain to sample /samples supplied to this laboratory.
- 3- Sealed sample / Unsealed sample / Marked sample/Signed Samples



**STRUCTURAL ENGINEERING DIVISION**  
**Test Floor Laboratory**  
**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
 Resident Engineer  
 AZ Engineering Associates  
 Construction Supervision of Scheme Pertaining to "Naya Pakistan Manzilyen Asan" Rural  
 Accessibility Programme (RAP) Phase-I for The Year 2018-19 Pertaining to Highway Circle  
 Lahore (District Kasur)  
 Reference # CED/TFL **34363** (Dr. M Rizwan Riaz)      Dated: 23-12-2019  
 Reference of the request letter # RE/LHR-131      Dated: 20-11-2019

**Tension Test Report** (Page -1/1)

Date of Test                  24-12-2019  
 Gauge length                8 inches  
 Description                   Plain Steel Bar Tensile and Bend Test

Sr. No.	Weight (kg/m)	Diameter/ size		Area (mm <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (MPa) Actual	Ultimate Stress (MPa) Actual	Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (mm)	Nominal	Actual							
1	0.558	3	9.52	-----	71.1	3700	4800	510	662	1.40	17.5	
-	0.559	3	9.52	-----	71.2	3700	4800	510	661	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>												
Bend Test												
#3 Bar Bend Test Through 180° is Satisfactory												

**I/C Testing Laboratories**  
**UET Lahore, Pakistan.**

**Note:**

- 1- You can See your reports On Internet in the following web site  
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2. The above results pertain to sample /samples supplied to this laboratory.
- 3- Sealed sample / Unsealed sample / Marked sample/Signed Samples



**STRUCTURAL ENGINEERING DIVISION**  
**Test Floor Laboratory**  
**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
 Markhore Develpoers Pvt Ltd  
 75-Shadman, Lahore

Reference # CED/TFL **34367** (Dr. M Rizwan Riaz)  
 Reference of the request letter # Nil

Dated: 24-12-2019  
 Dated: 24-12-2019

**Tension Test Report** (Page -1/1)

Date of Test 24-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in <sup>2</sup> )		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.372	3	0.373	0.11	0.109	3200	5200	64200	64530	104200	104900	1.20	15.0	
2	0.370	3	0.372	0.11	0.109	3200	5200	64200	64880	104200	105500	1.10	13.8	
3	4.227	10	1.258	1.27	1.242	48000	61400	83400	85150	106600	109000	1.50	18.8	
4	4.260	10	1.263	1.27	1.252	50000	68400	86800	88010	118800	120400	1.10	13.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only four samples for tensile and two samples for bend test</b>														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														
#10 Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

Note:

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- 2- The above results pertain to sample /samples supplied to this laboratory.
- 3- Sealed sample / Unsealed sample / Marked sample/Signed Samples