

Test Performed by: S. Asad Ali Gillani

Muhammad Nadeem Akhtar
Resident Engineer
Nespak Lahore
(Lahore Ring Road Southern Loop (SL-3) Project)
Client Reference No.: Nespak/LRRA/MNA/SL-3/127
SOM Lab Ref: CED/SOM/3799(Page 1a/1)

Dated: 07-03-2024

Dated: 13-03-

2024

Test Type: Tensile Test

Test Specification : ASTM-A 36

Sample Type: 1-MS Base Plate Strips 2- MS Strip for Electric Pole Sheet (4.5mm)

Tensile Test Results

| Sr. No. | Sample Type | Size of strip (mm) | X Section Area (mm ²) | Yield Load (kN) | Ultimate Load (kN) | Yield Stress (MPa) | Ultimate Tensile Stress (MPa) | Elongation (inch) | % Elongation |
|---------|-----------------------------|--------------------|-----------------------------------|-----------------|--------------------|--------------------|-------------------------------|-------------------|--------------|
| 1 | MS Base Plate Strips (20mm) | 13.4 x 19.75 | 264.65 | 73.00 | 112.50 | 275.84 | 425.09 | 0.90 | 45.00 |
| 2 | MS Strips (4.5mm) | 12.7 x 4.80 | 60.96 | 23.70 | 29.20 | 388.78 | 479.00 | 0.90 | 45.00 |

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

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| Sr. No. | Sample Type | Size of strip (mm) | X Section Area (mm ²) | Yield Load (kN) | Ultimate Load (kN) | Yield Stress (MPa) | Ultimate Tensile Stress (MPa) | Elongation (inch) | % Elongation |
|---------|-----------------------------|--------------------|-----------------------------------|-----------------|--------------------|--------------------|-------------------------------|-------------------|--------------|
| 1 | MS Base Plate Strips (20mm) | 26.10 x 20.00 | 522.00 | 146.70 | 229.20 | 281.03 | 439.08 | 0.80 | 40.00 |
| 3 | MS Strips (4.5mm) | 26.7 x 5.20 | 138.84 | 30.00 | 39.50 | 216.08 | 284.50 | 0.80 | 40.00 |

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

Adnan Jamil (Civil Engineer)

Test Performed By:

Dr. /Engr.

Nauman Khurram

National Management Foundation Lhr.(Const. of Yusaf Shirazi Complex at Lums Campus)

Client Reference: NMF/GM/C-39/854

Dated: 12-03-2024

SOM Lab Ref: CED/SOM/3797(Page-1/1)

Dated: 13-03-2024

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 | 3.974 | 25 | 25.38 | 491 | 506 | 247.70 | 329.20 | 505 | 490 | 671 | 651 | 37.5 | 200 | 18.8 | |
| 2 | 3.940 | 25 | 25.28 | 491 | 502 | 251.50 | 331.00 | 512 | 502 | 674 | 660 | 37.5 | 200 | 18.8 | |
| 3 | 2.181 | 20 | 18.81 | 314 | 278 | 145.00 | 178.50 | 462 | 522 | 568 | 643 | 35.0 | 200 | 17.5 | |
| 4 | 2.179 | 20 | 18.80 | 314 | 278 | 142.70 | 177.20 | 454 | 515 | 564 | 639 | 37.5 | 200 | 18.8 | |
| 5 | 0.979 | 12 | 12.60 | 113 | 125 | 63.70 | 84.20 | 563 | 511 | 744 | 676 | 30.0 | 200 | 15.0 | |
| 6 | 0.989 | 12 | 12.66 | 113 | 126 | 64.00 | 84.00 | 566 | 509 | 743 | 667 | 22.5 | 200 | 11.3 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

BEND TEST:

| | | |
|------|--|--|
| 25mm | Sample bend through 180 degrees Satisfactorily without any crack | Note:- Only Nine Samples Received and Tested |
| 20mm | Sample bend through 180 degrees Satisfactorily without any crack | |
| 12mm | 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

Mirza Muhammad Shahzad,RE

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

Nespak Lahore.(Const Of Flyover at Shahdra Morr & Const of Bridge Over River Ravi,Lahore)

Client Reference: 4537/03/MSA/09/213

SOM Lab

Ref: 3798 (Page-1/1)

Dated: 12-03-2024

Dated: 13-03-2024

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar (Aziz 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 ² | in ² | Tons | Tons | psi | psi | psi | psi | in | in | % | |
| 1 | 0.671 | 4 | 0.501 | 0.20 | 0.197 | 5.86 | 8.97 | 64640 | 65620 | 98920 | 100430 | 1.00 | 8.0 | 12.5 | H # 15 |
| 2 | 0.673 | 4 | 0.502 | 0.20 | 0.198 | 5.96 | 8.92 | 65760 | 66430 | 98360 | 99350 | 1.10 | 8.0 | 13.8 | H # 117 |
| 3 | 0.666 | 4 | 0.500 | 0.20 | 0.196 | 5.86 | 8.89 | 64640 | 65960 | 98020 | 100020 | 1.20 | 8.0 | 15.0 | H # 118 |
| 4 | 0.669 | 4 | 0.501 | 0.20 | 0.197 | 5.91 | 8.99 | 65200 | 66190 | 99150 | 100660 | 1.10 | 8.0 | 13.8 | H # 119 |
| 5 | 0.664 | 4 | 0.498 | 0.20 | 0.195 | 5.91 | 8.94 | 65200 | 66870 | 98580 | 101110 | 1.00 | 8.0 | 12.5 | H # 120 |
| 6 | 0.674 | 4 | 0.502 | 0.20 | 0.198 | 6.03 | 9.12 | 66550 | 67220 | 100610 | 101620 | 1.10 | 8.0 | 13.8 | H # 122 |
| 7 | 0.669 | 4 | 0.501 | 0.20 | 0.197 | 6.01 | 9.07 | 66320 | 67330 | 100050 | 101570 | 1.20 | 8.0 | 15.0 | H # 515 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

BEND TEST:

| | | |
|------------|--|--|
| Sr.# (1-7) | Sample bend through 180 degrees Satisfactorily without any crack | Note:- Only Fourteen Samples Received and Tested |
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Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

M.Waqas Anwar,RE

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

Nespak Lahore.(Dev Of a Controlled Access Corridor Facility From Niazi Interchange to Babu Sabu)

Client Reference: 3772/103/NBI(P-II)/MWA/04/307

SOM Lab

Ref: 3800 (Page-1/2)

Dated: 01-03-2024

Dated: 13-03-2024

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar (Aziz 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 ² | in ² | Tons | Tons | psi | psi | psi | psi | in | in | % | |
| 1 | 0.674 | 4 | 0.502 | 0.20 | 0.198 | 6.07 | 9.09 | 66890 | 67560 | 100270 | 101280 | 1.10 | 8.0 | 13.8 | |
| 2 | 0.673 | 4 | 0.502 | 0.20 | 0.198 | 5.93 | 8.66 | 65420 | 66090 | 95550 | 96510 | 1.20 | 8.0 | 15.0 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

BEND TEST:

| | | |
|-----|--|---|
| # 4 | Sample bend through 180 degrees Satisfactorily without any crack | Note:- Only Three Samples Received and Tested |
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Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

M.Waqas Anwar,RE

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

Nespak Lahore.(Dev Of a Controlled Access Corridor Facility From Niazi Interchange to Babu Sabu)

Client Reference: 3772/103/NBI(P-II)/MWA/04/308

SOM Lab

Ref: 3800 (Page-2/2)

Dated: 01-03-2024

Dated: 13-03-2024

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar (Aziz 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 ² | in ² | Tons | Tons | psi | psi | psi | psi | in | in | % | |
| 1 | 1.077 | 5 | 0.635 | 0.31 | 0.317 | 9.12 | 14.19 | 64910 | 63480 | 100950 | 98720 | 1.10 | 8.0 | 13.8 | |
| 2 | 1.061 | 5 | 0.630 | 0.31 | 0.312 | 8.51 | 13.61 | 60560 | 60170 | 96820 | 96200 | 1.10 | 8.0 | 13.8 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

BEND TEST:

| | | |
|-----|--|---|
| # 5 | Sample bend through 180 degrees Satisfactorily without any crack | Note:- Only Three Samples Received and Tested |
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Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

M.Waqas Anwar,RE

Test Performed By: Dr. /Engr. Nauman Khurram

Nespak Lahore.(Dev Of a Controlled Access Corridor Facility From Niazi Interchange to Babu Sabu)

Client Reference: 3772/103/NBI(P-II)/MWA/04/283

SOM Lab

Ref: 3801 (Page-1/2)

Dated: 13-02-2024

Dated: 13-03-2024

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar (AK Supreme)

| 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 | 0.647 | 4 | 0.492 | 0.20 | 0.190 | 5.88 | 9.25 | 64860 | 68280 | 101960 | 107320 | 1.10 | 8.0 | 13.8 | |
| 2 | 0.651 | 4 | 0.493 | 0.20 | 0.191 | 5.86 | 9.38 | 64640 | 67680 | 103420 | 108290 | 1.10 | 8.0 | 13.8 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

BEND TEST:

| | | |
|-----|--|---|
| # 4 | Sample bend through 180 degrees Satisfactorily without any crack | Note:- Only Three Samples Received and Tested |
| | | |
| | | |
| | | |

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

M.Waqas Anwar,RE

Test Performed By: Dr. /Engr. Nauman Khurram

Nespak Lahore.(Dev Of a Controlled Access Corridor Facility From Niazi Interchange to Babu Sabu)

Client Reference: 3772/103/NBI(P-II)/MWA/04/284

SOM Lab

Ref: 3801 (Page-2/2)

Dated: 13-02-2024

Dated: 13-03-2024

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar (AK Supreme)

| 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 | 1.060 | 5 | 0.630 | 0.31 | 0.312 | 8.66 | 13.97 | 61650 | 61250 | 99360 | 98720 | 1.00 | 8.0 | 12.5 | |
| 2 | 1.048 | 5 | 0.626 | 0.31 | 0.308 | 9.89 | 15.72 | 70350 | 70810 | 111830 | 112560 | 1.00 | 8.0 | 12.5 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

BEND TEST:

| | | |
|-----|--|---|
| # 5 | Sample bend through 180 degrees Satisfactorily without any crack | Note:- Only Three Samples Received and Tested |
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| | | |
| | | |

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