ANSI A118.15 Evaluation

for

US MIX Co.

AMX 485 Ultimate Bond Stone Veneer Mortar

US MIX Co.
112 South Santa Fe Drive
Denver, CO 80223

December 7, 2019
December 7, 2019

US MIX Co.
112 South Santa Fe Drive
Denver, Colorado 80223

REPORT OF TESTS

SUBJECT: Physical Analysis of Stone Veneer Mortar

PROJECT: US Mix – AMX 485 Ultimate Bond Stone Veneer Mortar

SPECIFICATION: A118.15, “American National Standard Specifications for Improved Modified Dry-Set Cement Mortar”

MATERIALS: Delivered by US Mix to NTL in September 2019

ntl project #: 19-1320

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TEST DATA

Material: US Mix – AMX 485 Ultimate Bond Stone Veneer Mortar

water addition rate: 1.5 gallons of water per 50 lbs. of material
### TEST RESULTS

**A118.15 – Section 5.3 – Open Time**

<table>
<thead>
<tr>
<th>Material:</th>
<th>AMX 485 Ultimate Bond Stone Veneer Mortar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast Date:</td>
<td>October 2019</td>
</tr>
<tr>
<td>Specimens:</td>
<td>Material applied over concrete, left open for 20 minutes, then bonded with four Type B tile specimens. The specimens were then cured 28 days at 73 deg F. until testing.</td>
</tr>
</tbody>
</table>

Test Results: **PASS** *(Specification – 75 psi minimum)*

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>251 psi</td>
</tr>
<tr>
<td>B</td>
<td>361 psi</td>
</tr>
<tr>
<td>C</td>
<td>445 psi</td>
</tr>
<tr>
<td>D</td>
<td>384 psi</td>
</tr>
</tbody>
</table>

**AVERAGE** 360 psi

**A118.15 – Section 6.0 – Sag**

<table>
<thead>
<tr>
<th>Material:</th>
<th>AMX 485 Ultimate Bond Stone Veneer Mortar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Date:</td>
<td>October 2019</td>
</tr>
<tr>
<td>Specimens:</td>
<td>Material applied over four Type E tile specimens</td>
</tr>
<tr>
<td>Test Duration:</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>

Test Results: **PASS** *(Specification – less than 0.02-in)*

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.00-in</td>
</tr>
<tr>
<td>B</td>
<td>0.00-in</td>
</tr>
<tr>
<td>C</td>
<td>0.00-in</td>
</tr>
<tr>
<td>D</td>
<td>0.00-in</td>
</tr>
</tbody>
</table>

**AVERAGE** 0.00-in
TEST RESULTS

A118.15 – Section 7.1 – Shear Strength to Glazed Wall Tile

Material: AMX 485 Ultimate Bond Stone Veneer Mortar
Cast Date: October 2019
Specimens: Material applied over four Type A-1 tile specimens

7.1.2 – Seven-Day Shear Strength

Curing: 7 days at 73 deg F. before testing
Test Results: PASS (Specification – 450 psi minimum)

Specimen A 499 psi
Specimen B 467 psi
Specimen C 432 psi
Specimen D 431 psi

AVERAGE 457 psi

7.1.3 – Seven-Day Water Immersion Shear Strength

Curing: 7 days at 73 deg F. then 7 days immersed in water before testing
Test Results: PASS (Specification – 250 psi minimum)

Specimen A 237 psi
Specimen B 249 psi
Specimen C 338 psi
Specimen D 291 psi

AVERAGE 279 psi
TEST RESULTS

A118.15 – Section 7.1 – Shear Strength to Glazed Wall Tile (continued)

Material: AMX 485 Ultimate Bond Stone Veneer Mortar
Cast Date: October 2019
Specimens: Material applied over four Type A-1 tile specimens

7.1.4 – Twenty-Eight Day Heat Aging Shear Strength

Curing: 14 days at 73 deg F., then 14 days at 158 F. before testing

Test Results: PASS (Specification – 450 psi minimum)

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Shear Strength (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen A</td>
<td>699</td>
</tr>
<tr>
<td>Specimen B</td>
<td>828</td>
</tr>
<tr>
<td>Specimen C</td>
<td>814</td>
</tr>
<tr>
<td>Specimen D</td>
<td>701</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>761 psi</td>
</tr>
</tbody>
</table>
TEST RESULTS

A118.15 – Section 7.2 – Shear Strength to Porcelain Mosaic Tile

Material: AMX 485 Ultimate Bond Stone Veneer Mortar
Cast Date: October 2019
Specimens: Material applied over four Type C tile specimens

7.2.2 – One-Day Shear Strength

Curing: 1 day at 73 deg F. before testing
Test Results: PASS (Specification – 100 psi minimum)

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Shear Strength (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen A</td>
<td>163 psi</td>
</tr>
<tr>
<td>Specimen B</td>
<td>183 psi</td>
</tr>
<tr>
<td>Specimen C</td>
<td>147 psi</td>
</tr>
<tr>
<td>Specimen D</td>
<td>201 psi</td>
</tr>
</tbody>
</table>

AVERAGE 174 psi

7.2.3 – Seven-Day Shear Strength

Curing: 7 days at 73 deg F. before testing
Test Results: PASS (Specification – 300 psi minimum)

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Shear Strength (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen A</td>
<td>264 psi</td>
</tr>
<tr>
<td>Specimen B</td>
<td>358 psi</td>
</tr>
<tr>
<td>Specimen C</td>
<td>303 psi</td>
</tr>
<tr>
<td>Specimen D</td>
<td>364 psi</td>
</tr>
</tbody>
</table>

AVERAGE 322 psi
TEST RESULTS

A118.15 – Section 7.2 – Shear Strength to Porcelain Mosaic Tile (continued)

Material: AMX 485 Ultimate Bond Stone Veneer Mortar
Cast Date: October 2019
Specimens: Material applied over four Type C tile specimens

7.2.4 – Seven-Day Water Immersion Shear Strength

Curing: 7 days at 73 deg F. then 7 days immersed in water before testing
Test Results: PASS (Specification – 200 psi minimum)

Specimen A 207 psi
Specimen B 189 psi
Specimen C 210 psi
Specimen D 226 psi
AVERAGE 208 psi

7.2.5 – Four-Week Shear Strength

Curing: 28 days at 73 deg F. before testing
Test Results: PASS (Specification – 400 psi minimum)

Specimen A 324 psi
Specimen B 488 psi
Specimen C 431 psi
Specimen D 458 psi
AVERAGE 426 psi
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TEST RESULTS

A118.15 – Section 7.2 – Shear Strength to Porcelain Mosaic Tile (continued)

Material: AMX 485 Ultimate Bond Stone Veneer Mortar
Cast Dates: October 2019
Specimens: Material applied over four Type C tile specimens

7.2.6 – Four-Week Freeze-Thaw Shear Strength

Curing: 28 days at 73 deg F. then 20 cycles of freeze-thaw before testing
Test Results: PASS (Specification – 250 psi minimum)

Specimen A 358 psi
Specimen B 290 psi
Specimen C 322 psi
Specimen D 295 psi

AVERAGE 316 psi

7.2.7 – Twenty-Eight Day Heat Aging Shear Strength

Curing: 14 days at 73 deg F., then 14 days at 158 F before testing
Test Results: PASS (Specification – 400 psi minimum)

Specimen A 407 psi
Specimen B 371 psi
Specimen C 402 psi
Specimen D 447 psi

AVERAGE 407 psi
TEST RESULTS

A118.15 – Section 7.3 – Shear Strength to Quarry Tile

Material: AMX 485 Ultimate Bond Stone Veneer Mortar
Cast Date: October 2019
Specimens: Material applied over four Type D tile specimens

7.3.2 – Four-Week Shear Strength

Curing: 28 days at 73 deg F. before testing
Test Results: PASS (Specification – 150 psi minimum)

Specimen A 441 psi
Specimen B 317 psi
Specimen C 378 psi
Specimen D 282 psi

AVERAGE 355 psi

7.3.3 – Four-Week Freeze-Thaw Shear Strength

Curing: 28 days at 73 deg F. then 20 cycles of freeze-thaw before testing
Test Results: PASS (Specification – 100 psi minimum)

Specimen A 223 psi
Specimen B 302 psi
Specimen C 184 psi
Specimen D 175 psi

AVERAGE 221 psi
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US Mix – AMX 485 Ultimate Bond Stone Veneer Mortar
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Respectfully submitted,

NELSON TESTING LABORATORIES

Mark R. Nelson
President

Notes: The results listed within this report relate only to the materials submitted for testing. This report shall not be reproduced, except in full, without written approval of this laboratory. The test materials not consumed in this testing will be discarded 14 days from the date of this report unless we receive written notification requesting otherwise.