DESIMONE

Project:

Dulles Metro Silver Line Concrete Panel Assessment
Innovation Center Station Precast Inspections
Herndon, Virginia

Notice to Proceed Date:

March 10, 2020

[redacted]
Washington Metropolitan Area Transit Authority

Prepared for:

Washington Metropolitan Area Transit Authority - Office of Inspector General (RFQ #0000007258)

DeSimone Consulting Engineers
DeSimone Project No. 200130.00
Report Issued: August 24, 2020

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1 EXECUTIVE SUMMARY

DeSimone Consulting Engineers (DeSimone) has been retained by the Washington Metropolitan Area Transit Authority (WMATA) Office of Inspector General (OIG) to investigate existing conditions at the precast concrete panels and precast elements at Innovation Center Station and Pavilions. This report presents DeSimone's findings for cracking observed in the precast panels at the Innovation Center Station location. DeSimone notes that the observations and data presented in this report specifically refer to precast panels and elements that have not been previously replaced and are of the original make i.e. manufactured by Universal Concrete Products (UCP).

Overall, DeSimone was able to visually inspect approximately 95% of the precast panels from both the interior and exterior sides. The remaining 5% of the precast panels were visually inspected for evidence of cracking from one side only due to lack of accessibility. Details of the condition of individual precast panels are described and included in Appendix A of this report and generally can be categorized as follows:

- 257 precast panels/elements were inspected both interior and exterior sides
- 14 precast panels/elements could only be inspected partially, from only one side
- 32 precast panels/elements were noted to exhibit signs of cracking
- Repaired cracks were noted at eight (8) out of the 32 cracked precast panels/elements
- 24 precast panels/elements out of the 32 cracked panels were noted to have at least one crack $\geq$ 0.005 inches (equal to 5 mil) in width

2 INTRODUCTION

Innovation Center station is the third of six (6) new Metro Rail transit stations being constructed as part of Phase 2 of the 'Dulles Corridor Metrorail Silver Line Extension' project. Construction of all stations is managed by the Metropolitan Washington Airports Authority (MWAA). The Washington Metropolitan Area Transit Authority (WMATA) is the future owner, upon its acceptance of the project. The station is rectangular in shape with North and South Pedestrian Bridges leading to the North and South Pavilion entrances. See Figure 1 for the location of the new stations under construction as part of the Phase 2 extension and Figure 2 for an architectural outline of Innovation Center Station.

As part of project construction, precast concrete elements were used at all stations. A significant portion of the precast concrete elements used throughout construction were manufactured and supplied by Universal Concrete Products (UCP). Precast elements produced by UCP were used at all stations except for Dulles Airport Station. Innovation Center Station features a total of 191 precast elements used at the station, 96 precast elements used at the South Pavilion, and 14 precast elements used at the North Outbuilding for a total of 301 precast elements.

DeSimone notes that a total of 30 precast elements at the Innovation Center Station were replaced during construction, leaving 271 precast elements in place that were originally manufactured and supplied by UCP. This report presents DeSimone's observations of these 271 precast concrete panels/elements. See Figure 3 for overall views of typical exterior precast panels at Innovation Center Station and Figure 4 for typical precast elements used at stairs. Note that Figure 4 was taken at Reston Station, which is similar to precast stair elements at Innovation Center Station.

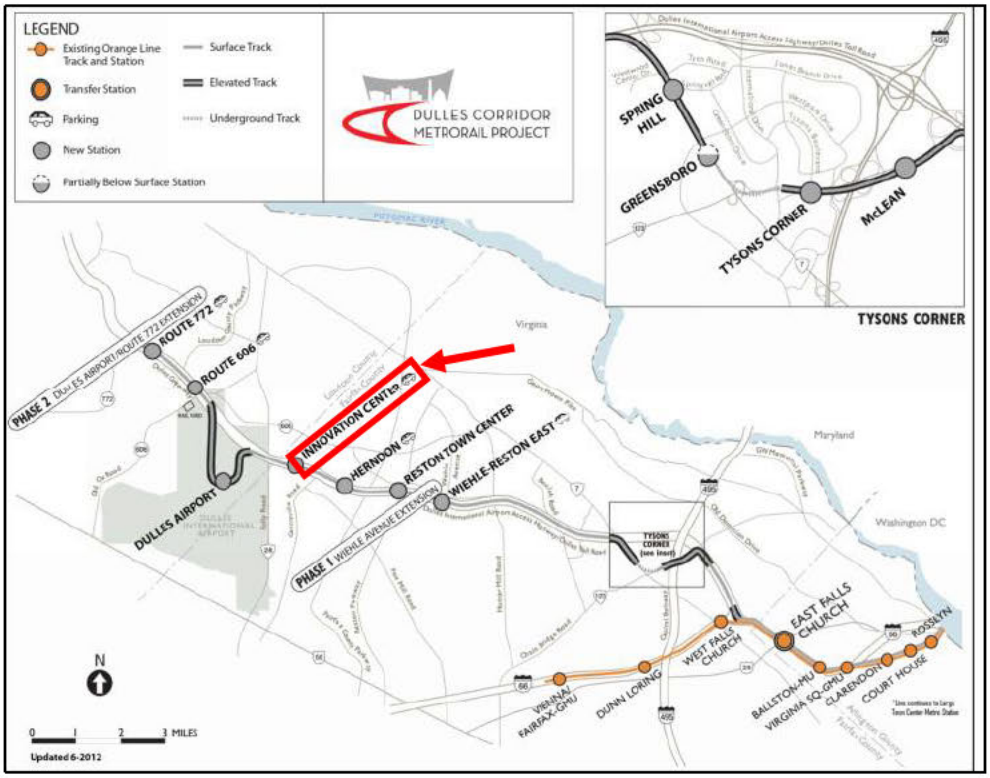

Figure 1. Dulles Metro Silver Line extension stations.
Image source: Dulles Metro; annotations: DeSimone.

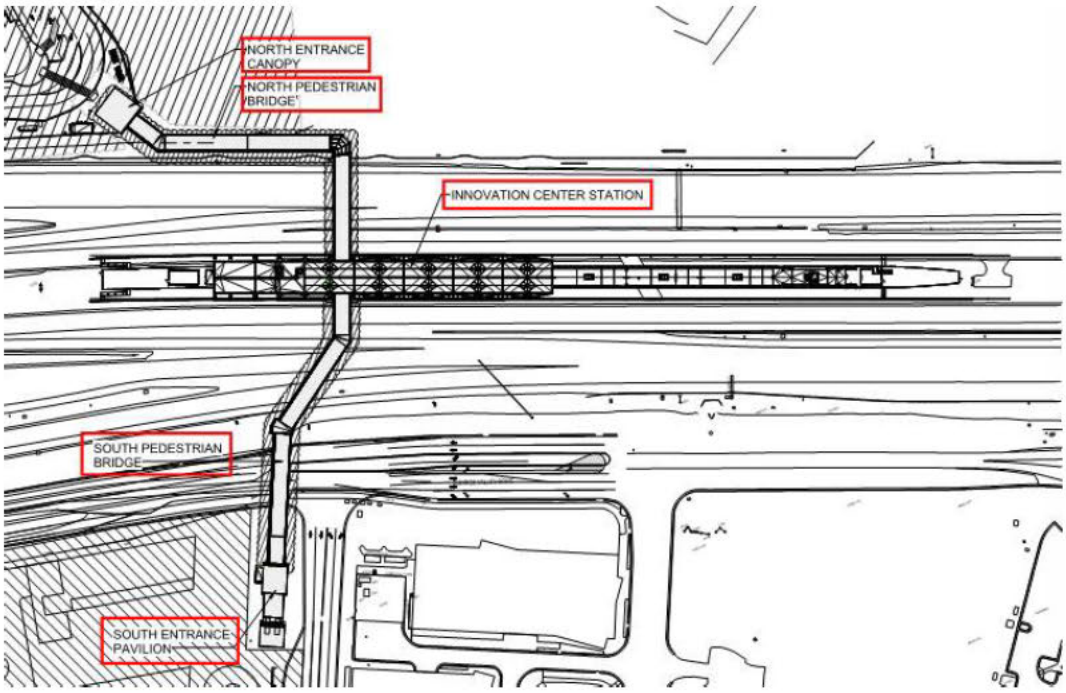

Figure 2: Outline of Innovation Center Station.
prepared by Dewberry Dated 03/06/2015; annotations: DeSimone.

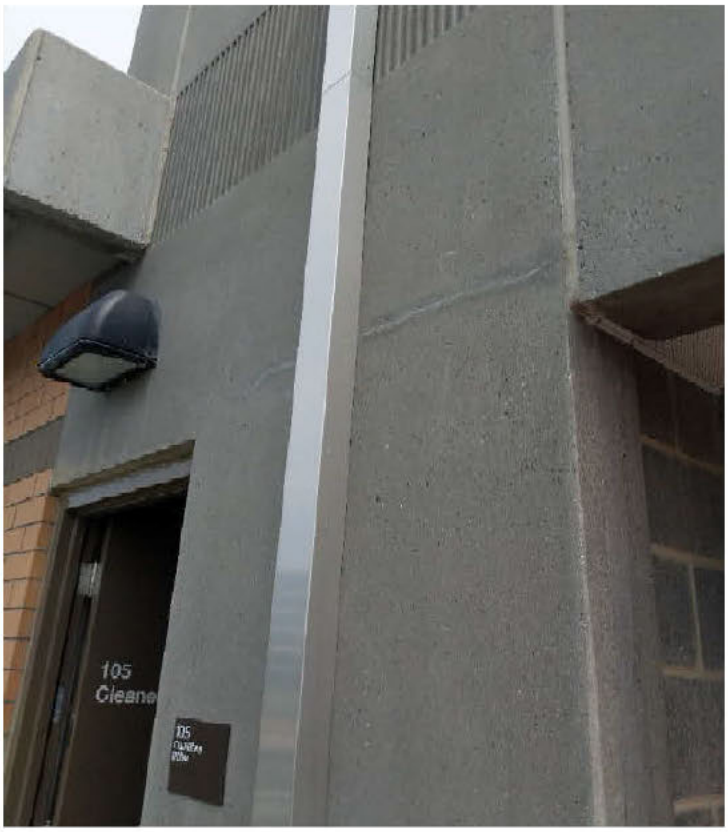

Figure 3: Typical Exterior Precast Concrete Panel. Source: DeSimone

Figure 4. Typical Stair Precast Concrete Element. Source: DeSimone.

During the ensuing construction at Innovation Center station, cracks of precast elements were observed at multiple locations; however there did not appear to be a comprehensive inspection of the precast panels at Innovation Center station and the four additional stations that had precast panels and elements manufactured and supplied by UCP for the project. As a result of this discovery, and to provide a level of confidence of the condition of and a baseline of the panels and elements which WMATA would be responsible for maintaining upon completion and acceptance of the project, DeSimone was engaged by WMATA OIG to independently inspect all precast elements provided at Innovation Center Station for instances of cracking, corrosion, and other visual defects.

3 INSPECTION LOCATIONS AND DOCUMENTS RECEIVED

Precast panels/elements inspected by DeSimone were located on site using shop drawings provided by WMATA OIG (provided in turn to WMATA OIG by MWAA). The following shop drawings were referenced by DeSimone during the site inspections:

- SP01012.5 Item No. 12430.5 – Innovation Center Station West Service Room
- SP01169.5 Item No. 14237.5 – Innovation Center Station South Pavilion
- SP03879.1 Item No. 22565.0 – Innovation Center Station North Outbuilding
- SP01091.4 Item No. 14121.4 – Innovation Center Station Phase 3 (East Service Building)
- SP01169.4 Item No. 14237.4 – Innovation Center Station South Pavilion
- SP01179.2 Item No. 14259.2 – Innovation Center Station Phase 2 (Mezzanine Level Framing, Stair 3, and Stair 4)
- RFI No. DT1543.1 – Innovation Station North Pavilion Sill Details

In addition to the above shop drawings, Desimone also received the following spreadsheets from WMATA:

- Final PSI DCMP – II Sealer log Updated on 02-28-2020
- Piece Reconciliation to CRC 2-27-20 to WMATA

4 ON-SITE EVALUATION AND INVESTIGATION

DeSimone's methodology for assessing the precast concrete elements consisted of the following:

- Visual survey of the precast elements from visible/accessible sides, noting instances of cracks larger than 0.005 inches (equal to 5 mil) in width, including previously repaired cracks, and their locations.
- GPR scanning of a representative sampling of precast panels to validate rebar cover, targeting areas of anchorage points and/or crack locations.
- Visual survey of all precast elements noting presence of a waterproofing coating.

DeSimone conducted investigations of Innovation Center Station and Pavilions on the following dates:

[redacted]

[redacted] concrete panels/elements exhibited signs of cracking in multiple locations, and in some locations signs of previous repairs were observed. See Section 8 of this report for relevant figures of cracking

noted in precast panels. All figures from Section 8 are also provided as magnified full-size photographs in Appendix C. A summary of typical conditions observed during DeSimone's investigation is outlined below:

4.1 DeSimone was able to perform complete (interior and exterior, as applicable) visual inspection of 257 UCP precast panels/elements throughout the station and pavilions. Partial visual inspections, where only one side was observed, were performed at 14 UCP precast panels/elements.

4.2 DeSimone also observed the 30 replaced panels/elements with Piece ID #s WP-1217, WP-1218, WP-1228, WP-1232, WP-1201, WP-1203, WP-1230, WP-1205, WP-1207, WP-1270 (10 pieces), WP-1271 (2 pieces), WP-1225, WP-1209, WP-1211, WP-1223, WP-1255, WP-1256, WP-1257, WP-1258, and 1459-R; Evidence of cracking was not observed at any of the replaced panels.

4.3 DeSimone spot-checked precast panels that were visually exposed to the public with GPR scans and determined the typical rebar cover to be approximately 3/4 to 2 inches from the accessible face of concrete. These locations were mostly focused on the mezzanine parapets at the main ticketing and passenger entry floor and comprised 2 panels, or 1% of the total panels. None of the panels exhibited visible cracking.

4.4 DeSimone observed a total of 32 panels with visible cracking. Eight (8) of the panels were noted to have cracks repaired from previous repair efforts. See additional descriptions in section 5 of this report.

4.5 Brick spalling was observed at the exterior face of Panels 205 and 219 at the exterior face of the West Service Room elevation; See Figure 9.

4.6 DeSimone noticed efflorescence at Panel 100 at an interior face of the West Service Room elevation; See Figure 6.

4.7 DeSimone noted the edge of Panel 200 being outboard of joint and not being flush with the adjacent Panel 201 at the exterior face of the West Service Room elevation; See Figure 7.

4.8 DeSimone observed voids in the mortar joints/pointing of the exterior face of the West Service Room elevation; See Figure 8.

4.9 DeSimone noticed spider cracks and regions of propagating cracks at Panels 412 at an interior elevation of the West Service Room, Panels WP-1328-R!, WP-1321-R!, WP-1324, WP-1329 at the East Service Building parapets, and WP-1239 at the Stair 4 elevation.

5 DISCUSSION

Overall, DeSimone observed instances of cracking, efflorescence, and brick chipping/spalling in the precast panels/elements during the inspections. The presence of cracking/spalling was noted in 32 of the precast panels/elements observed by DeSimone, nearly 12.5% of the total count (257). Eight (8) of the 32 cracked panels were noted to have previous repairs performed prior to DeSimone's survey.

The results of DeSimone's assessment of all UCP precast panels/elements, as well as the 30 replaced panels, are included in Appendix A. Below is a summary of the cracked/corroded/spalled conditions observed at the site:

5.1 The eight (8) out of the 32 precast panels/elements with previously completed cracking repairs are 101, 206 (see DeSimone comments in Section 5.7 regarding the repaired crack at this panel), 232, 402, 404, WP-1307-R!, WP-1313 (see DeSimone comments in Section 5.7 regarding the repaired crack at this panel), and WP-1315. Panel 100 also contains a previously repaired crack, however, there is also a crack at a separate location on this panel, so it was included in the count of cracked panels. DeSimone noted the length of cracks observed at the panels however, since the cracks had been repaired, the width of the original cracks in the precast panels/elements could not be determined.

5.2 24 of the 32 precast panels/elements were noted to have unrepaired cracks. DeSimone notes that the length and width of the cracks at two (2) of the 24 unrepaired precast panels could not be documented due to the cracks not being reachable. These two (2) panels are the undersides of ST-2 and ST-4.

5.3 17 of the 24 total unrepaired precast panels/elements were measured for the length and width of all cracks found. DeSimone notes that all 17 panels/elements exhibited cracking (at least one crack) that met or exceeded the threshold of 0.005 inches (equal to 5 mil). The remaining panels are either not reachable to measure crack length and width, or exhibit chipping/spalling.

5.4 Three (3) of the 32 cracked precast panels/elements were noted to have been panels classified as 'Recast Panels'. These include panels WP-1328-R!, WP-1321-R!, and WP-1307-R!. Note, 'Recast' panels are not the same as replaced panels.

5.5 After the initial inspections conducted on June 15, DeSimone conducted follow up inspections at Innovation Center station with a boom lift on June 17 and July 8. A total of 61 precast panels/elements were observed with a boom lift.

5.6 Superficial discoloration was observed by DeSimone at cracked Panel 100 (See Page 9), which was noted to exhibit signs of efflorescence.

5.7 Two (2) cracks that appear to previously have been repaired at Panel 206 and Panel WP-1313 appear to have a new crack that has formed in the repair material (See Pages 14 and 27, respectively).

6 CONCLUSIONS

In order to classify the condition of the precast panels/elements, Desimone has divided the crack observation into groups where precast panels/elements were inspected completely or partially. See Table 1 for a breakdown of cracking observed in the precast panels/elements. The designation for each individual precast panel/element is included in Appendix A. Further breakdown of all cracks observed by DeSimone at the precast panels/elements is included in Appendix B.

Table 1. Summary of UCP Precast Panel/Element Conditions

Observation Status	*No. of Panels / Elements*	*Total Cracked*	*% with Cracks*	*Cracks ≥ 0.005 in.*	*% Cracks ≥ 0.005 in.*
Complete	257	31	12.06	23	8.95
Partial	14	1	7.14	1	7.14

DeSimone notes that the above data is based on the inspections conducted at Innovation Center Station to date. As indicated in Table 1, approximately 12% of the panels completely inspected exhibited signs of cracking. In addition, 14 precast panels/elements were inspected partially due to limited access from panel cladding or finishes. Of the panels inspected partially, only one (1) exhibited signs of cracking.

7 LIMITING CONDITIONS

DeSimone Consulting Engineers' professional services have been performed in accordance with the standards of skill and care generally exercised by other professional consultants acting under similar circumstances and conditions at the time the services were performed.

DeSimone's findings, conclusions and opinions are based on the visual observations, professional experience, interviews with those knowledgeable with the conditions pertinent to the subject investigation, evaluation of documentation including, but not limited to engineering and material testing reports, and sound investigation practices.

While DeSimone's findings are summarized as of the date of issuance, should new information or additional documentation become available, DeSimone may amend or revise its opinions and recommendations accordingly.

No other warranty, expressed or implied, is made as to the findings presented in this report.

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Project Engineer

8 FIGURES

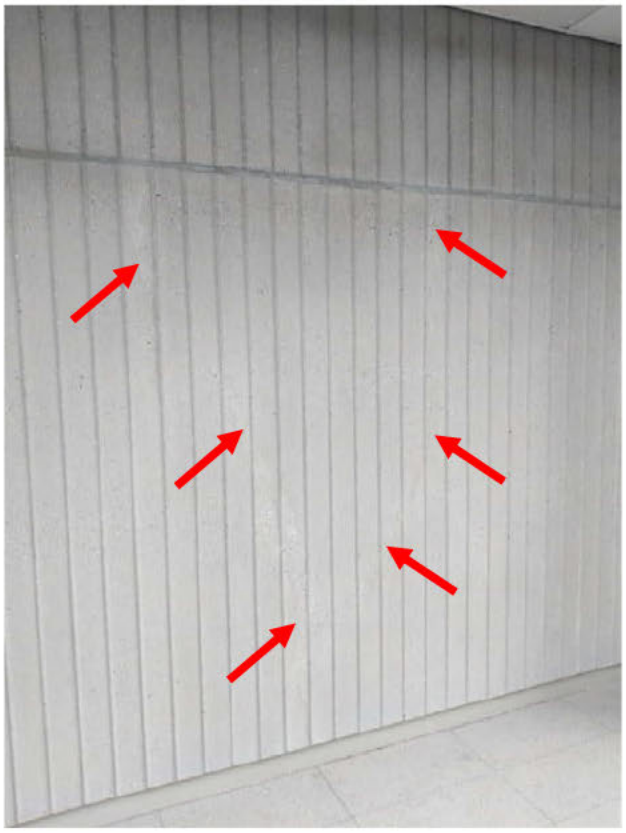

Figure 5: Repaired cracks at Panel 101. Source: DeSimone.

Figure 6: Efflorescence observed at Panel 100. Source: DeSimone.

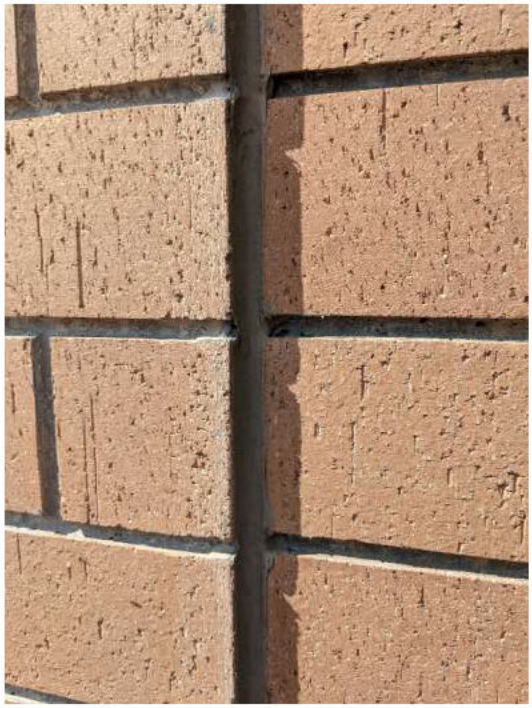

Figure 7: Edge of panel outboard and not flush with adjacent panel at Panels 200, 201. Source: DeSimone.

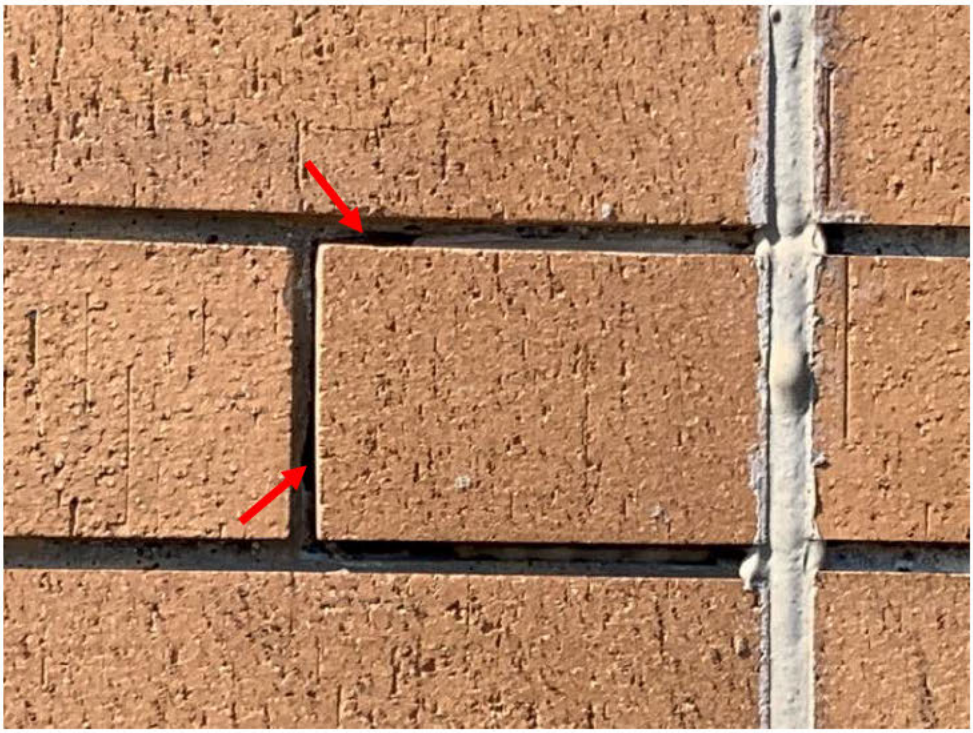

Figure 8: Voids in mortar joints at Panel 201. Source: DeSimone.

Figure 9: Spalling of brick masonry noted at Panel 205. Source: DeSimone.

Figure 10: Spalling of brick masonry noted at Panel 219. Source: DeSimone.

Figure 11: Crack at ticketing booth side of Panel 100. Source: DeSimone

Figure 12: Crack at interior of Panel 219. Source: DeSimone

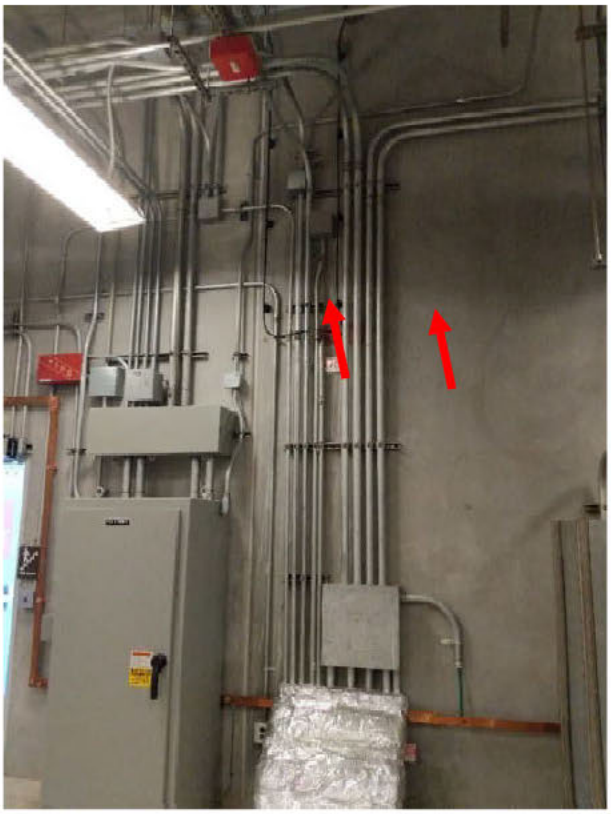

Figure 13: Interior face of Panel 231. Source: DeSimone.

Figure 14: Repaired crack at exterior face of Panel 232. Source: DeSimone.

Figure 15: Interior face of Panel 220. Source: DeSimone.

Figure 16: Interior face of Panel 206. Refer to Appendix C for photo showing location of cracking at previous repair. Source: DeSimone.

Figure 17: Interior face of Panel 412. Source: DeSimone.

Figure 18: Interior face of Panel 412. Source: DeSimone.

Figure 19: Exterior face of Panel 402. Source: DeSimone.

Figure 20: Exterior face of Panel 404. Source: DeSimone.

Figure 21: Exterior face of Panel 107. Source: DeSimone.

Figure 22: Underside of Panel ST-4. Source: DeSimone.

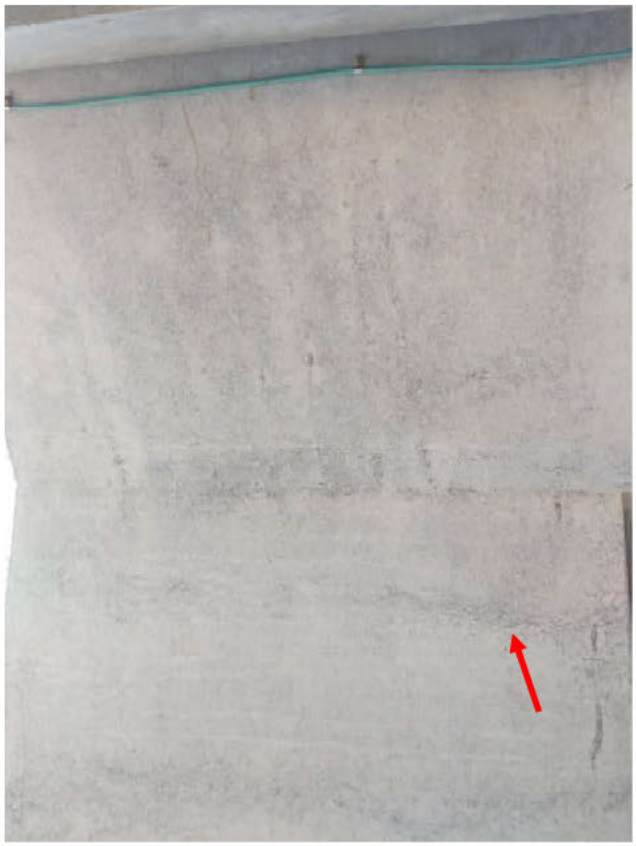

Figure 23: Underside of Panel ST-2. Source: DeSimone.

Figure 24: Interior face of Panel 1404. Source: DeSimone.

Figure 25: Interior face of Panel 1404. Source: DeSimone.

Figure 26: Interior face of Panel 1421 (Four cracks at this panel). Source: DeSimone.

Figure 27: Interior face of Panel 1421. Source: DeSimone.

Figure 28: Interior face of Panel 1420. Source: DeSimone.

Figure 29: Interior face of Panel 1901. Source: DeSimone.

Figure 30: Interior face of Panel 1904. Source: DeSimone.

Figure 31: Interior face of Panel 1904. Source: DeSimone.

Figure 32: Interior face of Panel 1904. Source: DeSimone.

Figure 33: Interior face of Panel 1904. Source: DeSimone.

Figure 34: Interior face of Panel 1904. Source: DeSimone.

Figure 35: Interior face of Panel 1904. Source: DeSimone.

Figure 36: Interior face of Panel 1904. Source: DeSimone.

Figure 37: Interior face of Panel WP-1328-RI. Source: DeSimone.

Figure 38: Interior face of Panel WP-1328-RI. Source: DeSimone.

Figure 39: Interior face of Panel WP-1321-RI. Source: DeSimone.

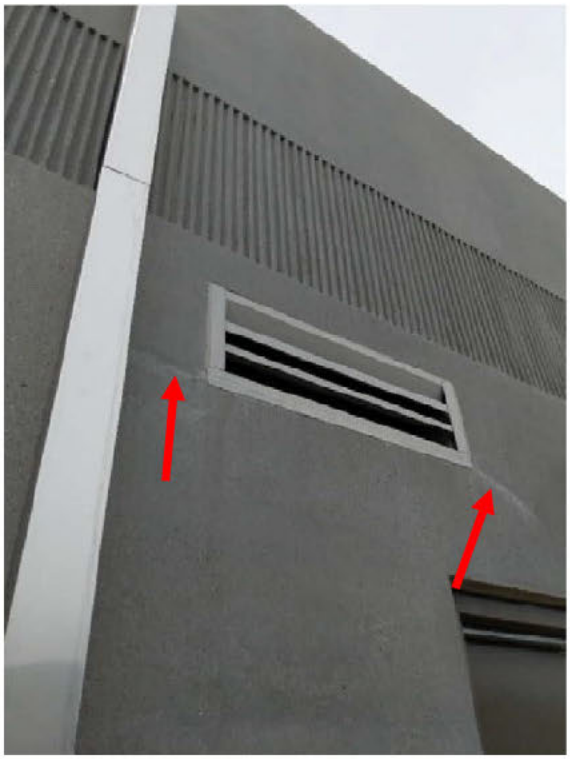

Figure 40: Exterior face of Panel WP-1307-RI. Source: DeSimone.

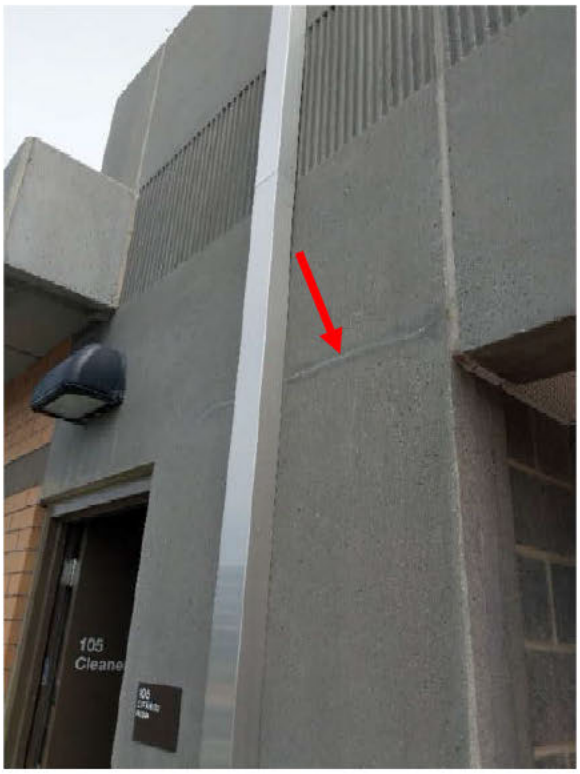

Figure 41: Exterior face of Panel WP-1313. Source: DeSimone.

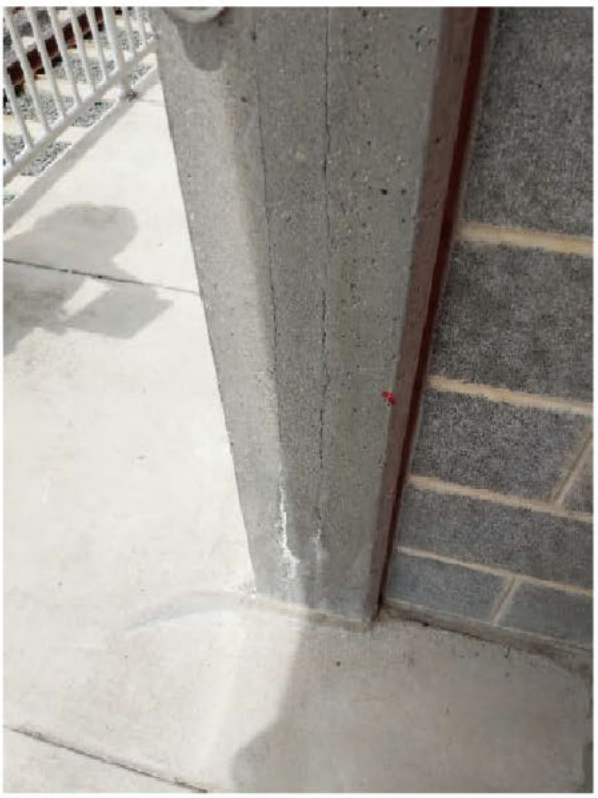

Figure 42: Exterior face of Panel WP-1313. Refer to Appendix C for photo showing location of cracking at previous repair. Source: DeSimone.

Figure 43: Exterior face of Panel WP-1315. Source: DeSimone.

Figure 44: Interior face of Panel WP-1324. Source: DeSimone.

Figure 45: Interior face of Panel WP-1329. Source: DeSimone.

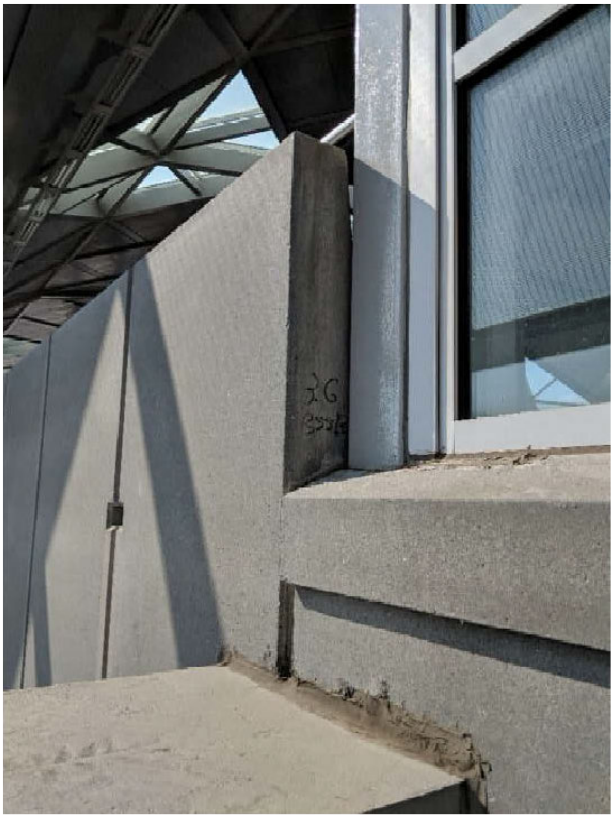

Figure 46: Exterior face of Panel WP-1206. Source: DeSimone.

Figure 47: Top face of Panel WP-1235. Source: DeSimone.

Figure 48: Interior of Panel WP-1233. Source: DeSimone

Figure 49: Interior face of Panel WP-1233. Source: DeSimone.

Figure 50: Interior of Panel WP-1239. Source: DeSimone.

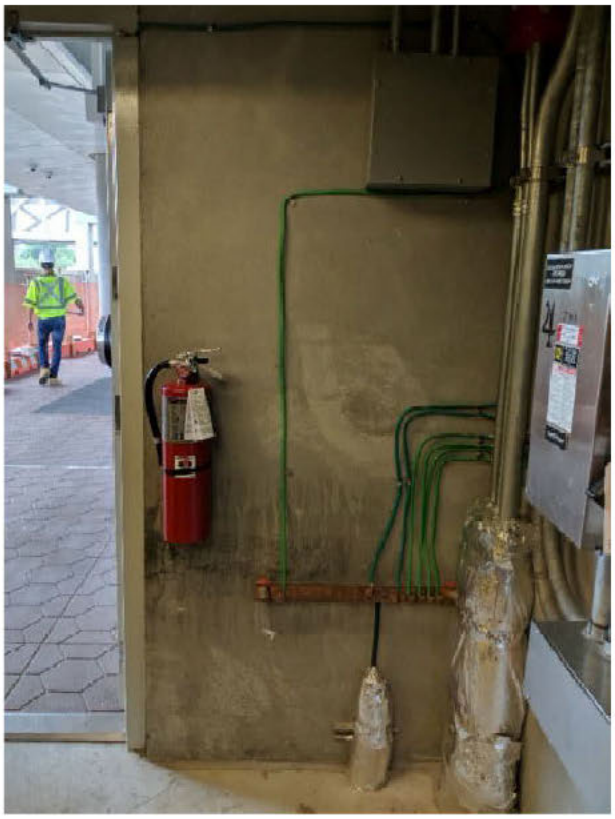

Figure 51: Interior face of Panel WP-1239. Source: DeSimone.

Figure 52: Top face of Panel ST-1264 at top of stair. Source: DeSimone.

9 APPENDIX A: PANEL INSPECTION STATUS

Log of inspections completed at Innovation Center Station

KEY

3XXX	Denotes original numbered precast pieces
3XXX-R/3XXX-R!	Denotes original numbered precast pieces recast
3XXX/3XXX-R!	Count Discrepancies, Red font Denotes pieces that were found in shop drawings and later added to list
	Denotes precast pieces inspected with Boom Lift

Please refer to WMATA Piece Reconciliation spreadsheets for an in-depth explanation of piece terminology

Location	Pavilion (if applicable)	Piece #	Piece Type	Observed Status	Cracked
Innovation Precast Tracking		100	Formboard	Complete	Yes
Innovation Precast Tracking		101	Formboard	Complete	Yes
Innovation Precast Tracking		102	Formboard	Complete	
Innovation Precast Tracking		103	Formboard	Complete	
Innovation Precast Tracking		104	Formboard	Complete	
Innovation Precast Tracking		105	Formboard	Complete	
Innovation Precast Tracking		106	Formboard	Complete	
Innovation Precast Tracking		107	Formboard	Complete	Yes
Innovation Precast Tracking		108	Formboard	Complete	
Innovation Precast Tracking		200	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		201	Arch. Wall w/ Brick	Complete	Yes
Innovation Precast Tracking		202	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		203	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		204	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		205	Arch. Wall w/ Brick	Complete	Yes
Innovation Precast Tracking		206	Arch. Wall w/ Brick	Complete	Yes
Innovation Precast Tracking		207	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		208	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		209	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		210	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		211	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		212	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		213	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		214	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		215	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		216	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		217	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		218	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		219	Arch. Wall w/ Brick	Complete	Yes
Innovation Precast Tracking		220	Arch. Wall w/ Brick	Complete	Yes
Innovation Precast Tracking		221	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		222	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		223	Arch. Wall w/ Brick	Complete	
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Innovation Precast Tracking		226	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		227	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		229	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		230	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		231	Architectural Wall	Complete	Yes
Innovation Precast Tracking		232	Architectural Wall	Complete	Yes
Innovation Precast Tracking		233	Architectural Wall	Complete	
Innovation Precast Tracking		234	Architectural Wall	Complete	
Innovation Precast Tracking		235	Architectural Wall	Complete	
Innovation Precast Tracking		300	Architectural Wall	Complete	
Innovation Precast Tracking		301	Architectural Wall	Complete	
Innovation Precast Tracking		302	Architectural Wall	Complete	
Innovation Precast Tracking		303	Architectural Wall	Complete	

Location	Pavilion (if applicable)	Piece #	Piece Type	Observed Status	Cracked
Innovation Precast Tracking		400	Architectural Wall	Complete	
Innovation Precast Tracking		401	Architectural Wall	Complete	
Innovation Precast Tracking		402	Architectural Wall	Complete	Yes
Innovation Precast Tracking		403	Architectural Wall	Complete	
Innovation Precast Tracking		404	Architectural Wall	Complete	Yes
Innovation Precast Tracking		405	Architectural Wall	Complete	
Innovation Precast Tracking		406	Architectural Wall	Complete	
Innovation Precast Tracking		407	Architectural Wall	Complete	
Innovation Precast Tracking		408	Architectural Wall	Complete	
Innovation Precast Tracking		409	Architectural Wall	Complete	
Innovation Precast Tracking		410	Architectural Wall	Complete	
Innovation Precast Tracking		411	Architectural Wall	Complete	
Innovation Precast Tracking		412	Architectural Wall	Complete	Yes
Innovation Precast Tracking		413	Architectural Wall	Complete	
Innovation Precast Tracking		414	Architectural Wall	Complete	
Innovation Precast Tracking		415	Architectural Wall	Complete	
Innovation Precast Tracking		500	Window Sill	Complete	
Innovation Precast Tracking		B-1 R	Arch Beam	Complete	
Innovation Precast Tracking		B-3	Arch Beam	Complete	
Innovation Precast Tracking		B-2	Arch Beam	Complete	
Innovation Precast Tracking		ST-1	Egress Stair & Landing	Complete	
Innovation Precast Tracking		ST-5	Egress Stair & Landing	Complete	
Innovation Precast Tracking		ST-4	Egress Stair & Landing	Complete	Yes
Innovation Precast Tracking		ST-3	Egress Stair & Landing	Complete	
Innovation Precast Tracking		ST-2	Egress Stair & Landing	Complete	Yes
Innovation Precast Tracking		ST-1263 R	Stair Stringer	Partial	
Innovation Precast Tracking		ST-1267 R	Stair Stringer	Partial	
Innovation Precast Tracking		ST-1265 R	Stair Stringer	Partial	
Innovation Precast Tracking		WP-1236-R!	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1231A-R!	Parapet	Complete	
Innovation Precast Tracking		WP-1231B-R!	Parapet	Complete	
Innovation Precast Tracking		WP-1231C-R!	Parapet	Complete	
Innovation Precast Tracking		ST-1261 R!	Stair Stringer	Partial	
Innovation Precast Tracking		ST-1260	Stair Stringer	Partial	
Innovation Precast Tracking		ST-1262	Stair Stringer	Partial	
Innovation Precast Tracking		ST-1264	Stair Stringer	Partial	Yes
Innovation Precast Tracking		ST-1266	Stair Stringer	Partial	
Innovation Precast Tracking		WP-1261	Parapet	Complete	
Innovation Precast Tracking		WP-1262	Parapet	Complete	
Innovation Precast Tracking		WP-1219	Parapet	Complete	
Innovation Precast Tracking		WP-1233	Parapet	Complete	Yes
Innovation Precast Tracking		WP-1217	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1218	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1215	Parapet	Complete	
Innovation Precast Tracking		WP-1220	Parapet	Complete	
Innovation Precast Tracking		WP-1228	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1232	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1235	Parapet	Complete	Yes
Innovation Precast Tracking		WP-1234	Parapet	Complete	
Innovation Precast Tracking		WP-1201	Mezz Guardrail Infill	Complete	

Location	Pavilion (if applicable)	Piece #	Piece Type	Observed Status	Cracked
Innovation Precast Tracking		WP-1202	Parapet	Complete	
Innovation Precast Tracking		WP-1203	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1229	Parapet	Complete	
Innovation Precast Tracking		WP-1230	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1204	Parapet	Complete	
Innovation Precast Tracking		WP-1205	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1216	Parapet	Complete	
Innovation Precast Tracking		WP-1227	Parapet	Complete	
Innovation Precast Tracking		WP-1206	Parapet	Complete	Yes
Innovation Precast Tracking		WP-1252	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1207	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1208	Parapet	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1270	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1271	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1271	Curb/Sill Infill	Complete	
Innovation Precast Tracking		WP-1240	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1225	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1224	Parapet	Complete	
Innovation Precast Tracking		WP-1248	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1226	Parapet	Complete	
Innovation Precast Tracking		WP-1209	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1210	Parapet	Complete	
Innovation Precast Tracking		WP-1211	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1221	Half Piece - Parapet	Complete	
Innovation Precast Tracking		WP-1268	Ped Bridge - Parapet	Complete	
Innovation Precast Tracking		WP-1213	Ped Bridge - Parapet	Complete	
Innovation Precast Tracking		WP-1214	Half Piece - Parapet	Complete	
Innovation Precast Tracking		WP-1212	Ped Bridge - Parapet	Complete	
Innovation Precast Tracking		WP-1260	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1222	Ped Bridge - Parapet	Complete	
Innovation Precast Tracking		WP-1223	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1238	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1253	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1249	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1246	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1243	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1255	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1256	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1257	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1258	Mezz Guardrail Infill	Complete	
Innovation Precast Tracking		WP-1254	Architectural Wall	Complete	

Location	Pavilion (if applicable)	Piece #	Piece Type	Observed Status	Cracked
Innovation Precast Tracking		WP-1245	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1237	Architectural Wall	Complete	
Innovation Precast Tracking		S-1257	Slab (ceiling)	Complete	
Innovation Precast Tracking		WP-1247	Architectural Wall	Complete	
Innovation Precast Tracking		S-1259	Slab (ceiling)	Complete	
Innovation Precast Tracking		WP-1239	Architectural Wall	Complete	Yes
Innovation Precast Tracking		WP-1241	Architectural Wall	Complete	
Innovation Precast Tracking		S-1258	Slab (ceiling)	Complete	
Innovation Precast Tracking		WP-1242	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1259	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1244	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1250	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1251	Architectural Wall	Complete	
Innovation Precast Tracking		S-1256	Slab (ceiling)	Complete	
Innovation Precast Tracking		S-1255	Slab (ceiling)	Complete	
Innovation Precast Tracking		WP-1307-R!	Architectural Wall	Complete	Yes
Innovation Precast Tracking		WP-1303-R!	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1321-R!	Parapet	Complete	Yes
Innovation Precast Tracking		WP-1326-R!	Parapet	Complete	
Innovation Precast Tracking		WP-1328-R!	Parapet	Complete	Yes
Innovation Precast Tracking		WP-1312	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1311	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1309	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1329	Parapet	Complete	Yes
Innovation Precast Tracking		WP-1308	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1324	Parapet	Complete	Yes
Innovation Precast Tracking		WP-1302	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1313	Architectural Wall	Complete	Yes
Innovation Precast Tracking		WP-1322	Parapet	Complete	
Innovation Precast Tracking		WP-1327	Parapet	Complete	
Innovation Precast Tracking		WP-1301	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1320	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1310	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1317	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1319	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1314	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1318	Arch. Wall w/ Brick	Complete	
Innovation Precast Tracking		WP-1315	Architectural Wall	Complete	Yes
Innovation Precast Tracking		WP-1305	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1304	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1323	Parapet	Complete	
Innovation Precast Tracking		WP-1316	Architectural Wall	Complete	
Innovation Precast Tracking		WP-1306	Architectural Wall	Complete	
Pavilion Precast Tracking	Innovation North Outbuilding	1901	WALL PANEL - ELEV 1 - BRICK	Complete	Yes
Pavilion Precast Tracking	Innovation North Outbuilding	1902	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation North Outbuilding	1903	WALL PANEL - ELEV 3 - BRICK	Complete	
Pavilion Precast Tracking	Innovation North Outbuilding	1904	WALL PANEL - ELEV 4 - BRICK	Complete	Yes
Pavilion Precast Tracking	Innovation North Outbuilding	1905	Solid Roof Plank - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation North Outbuilding	1906	Solid Roof Plank - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-1	Sill Cap (Column Base)	Complete	

Location	Pavilion (if applicable)	Piece #	Piece Type	Observed Status	Cracked
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-2	Sill Cap (Column Base)	Complete	
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-3	Sill Cap (Column Base)	Complete	
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-4	Sill Cap (Column Base)	Complete	
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-5	Sill Cap (Column Base)	Complete	
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-6	Sill Cap (Column Base)	Complete	
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-7	Sill Cap (Column Base)	Complete	
Pavilion Precast Tracking	Innovation North Entrance	NW Cap-8	Sill Cap (Column Base)	Complete	
Pavilion Precast Tracking	Innovation South	1400	WALL PANEL - ELEV 1 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1401 R	WALL PANEL - ELEV 1 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1402	WALL PANEL - ELEV 1 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1403	WALL PANEL - ELEV 1 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1404	WALL PANEL - ELEV 1 - BRICK	Complete	Yes
Pavilion Precast Tracking	Innovation South	1405	WALL PANEL - ELEV 1 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1406	WALL PANEL - ELEV 1 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1407 E RR	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1411 W	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1411 E	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1412 W	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1413 E	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1414 E	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1414 W	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1415 E	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1415 W	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1416 W	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1416 E	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1417 W	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1417 E	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1418	WALL PANEL - ELEV 3 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1419	WALL PANEL - ELEV 3 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1420	WALL PANEL - ELEV 3 - BRICK	Complete	Yes
Pavilion Precast Tracking	Innovation South	1421	WALL PANEL - ELEV 2 - BRICK	Complete	Yes
Pavilion Precast Tracking	Innovation South	1422	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1423	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1424 R	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1425	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1426 R	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1427	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1428	WALL PANEL - ELEV 4 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1429	WALL PANEL - ELEV 4 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1430	WALL PANEL - ELEV 5 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1431 R	Solid Ceiling Plank - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1432	Solid Ceiling Plank - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1433	Solid Ceiling Plank - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1434R	WALL PANEL - ELEV 6 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1435	WALL PANEL - ELEV 6 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1436	WALL PANEL - ELEV 6 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1437	WALL PANEL - ELEV 7 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1438	WALL PANEL - ELEV 7 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1439	WALL PANEL - ELEV 7 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1440	WALL PANEL - ELEV 7 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1441	WALL PANEL - ELEV 7 - BRICK	Complete	

Location	Pavilion (if applicable)	Piece #	Piece Type	Observed Status	Cracked
Pavilion Precast Tracking	Innovation South	1442	WALL PANEL - ELEV 7 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1443	WALL PANEL - ELEV 6 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1444	WALL PANEL - ELEV 6 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1445	Solid Roof Plank - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1446R	Stair - ELEV 10 - NO BRICK	Partial	
Pavilion Precast Tracking	Innovation South	1447	Stair - ELEV 10 - NO BRICK	Partial	
Pavilion Precast Tracking	Innovation South	1448R	Stair - ELEV 10 - NO BRICK	Partial	
Pavilion Precast Tracking	Innovation South	1449R	Stair - ELEV 11 - NO BRICK	Partial	
Pavilion Precast Tracking	Innovation South	1450-RR	Stair - ELEV 11 - NO BRICK	Partial	
Pavilion Precast Tracking	Innovation South	1451R	Stair - ELEV 11 - NO BRICK	Partial	
Pavilion Precast Tracking	Innovation South	1452-R	Stair - ELEV 12 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1453R	Stair - ELEV 12 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1454-R	Stair - ELEV 12 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1455	WALL PANEL - ELEV 6 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1456	WALL PANEL - ELEV 1 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1457	WALL PANEL - ELEV 2 - BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1458	Solid Ceiling Plank - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1459-R	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1460	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1408 W R	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1408E R	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1409E R	SILL CAP - ELEV 1 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1409W R	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1410-R3	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1410W R	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1412-RR	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	1413-RR	SILL CAP - ELEV 2 - NO BRICK	Complete	
Pavilion Precast Tracking	Innovation South	CP10 RR	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP19 RR	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP4 RR	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP7 R	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP14 R	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP2-D R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP1-D R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP2-C R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP3 R	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP8 R	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP11 R	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP1-C R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP2-B R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP1-B R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP2-A R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP9 R	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP15 R	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP1-A R	SILL CAP - LOW CANOPY	Complete	
Pavilion Precast Tracking	Innovation South	CP12	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP13	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP6	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP5	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP18	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP17	SILL CAP - MEZZANINE	Complete	
Pavilion Precast Tracking	Innovation South	CP16	SILL CAP - MEZZANINE	Complete	

10 APPENDIX B: CRACK LENGTH AND WIDTH DATA

Log of Crack length and width data at Innovation Center Station

KEY

Denotes panels with at least one crack with width at least 0.005 inches

Piece #	Piece Type	Repair Status	No. of Cracks	Crack Length	Crack Width	Notes
100	Formboard	Unrepaired	2			
			C1	9 in.	0.01 in.	
			C2	NA	NA	Crack previously repaired
101	Formboard	Repaired	2			
			C1	84 in.	0.005 in.	
			C2	83 in.	NA	Crack previously repaired
107	Formboard	Unrepaired	1			
			C1	9 in.	0.02 in.	Exterior
201	Arch. Wall w/ Brick	Unrepaired	1			
			C1	NA	NA	Voids in mortar joint/pointing
205	Arch. Wall w/ Brick	Unrepaired	1			
			C1	NA	NA	Brick chip/spall
206	Arch. Wall w/ Brick	Repaired	2			
			C1	40 in.	0.025 in.	Interior; Crack requires further repair
			C2	55 in.	NA	Interior
219	Arch. Wall w/ Brick	Unrepaired	2			
			C1	NA	NA	Brick chip/spall; exterior
			C2	40 in.	0.01 in.	Interior
220	Arch. Wall w/ Brick	Unrepaired	1			
			C1	38 in.	0.005 in.	Interior
231	Arch. Wall	Unrepaired	1			
			C1	114 in.	0.01 in.	Interior
232	Arch. Wall	Repaired	1			
			C1	58 in.	NA	Exterior
402	Arch. Wall	Repaired	1			
			C1	56 in.	0.03 in.	Exterior
404	Arch. Wall	Repaired	1			
			C1	21 in.	NA	Exterior
412	Arch. Wall	Unrepaired	2			
			C1	NA	0.075 in.	Region of propagating cracks; Interior
			C2	NA	0.035 in.	Region of propagating cracks; Interior
ST-4	Egress Stair and Landing	Unrepaired	1			
			C1	48 in.	NA	Crack not reachable
ST-2	Egress Stair and Landing	Unrepaired	1			
			C1	NA	NA	Crack not reachable
1404	WALL PANEL - ELEV 1 - BRICK	Unrepaired	2			
			C1	2 in.	0.02 in.	Interior
			C2	7 in.	0.005 in.	Interior
1420	WALL PANEL - ELEV 3 - BRICK	Unrepaired	1			
			C1	3 in.	NA	Chipped concrete at EMR interior

Piece #	Piece Type	Repair Status	No. of Cracks	Crack Length	Crack Width	Notes
1421	WALL PANEL - ELEV 2 - BRICK	Unrepaired	4			
			C1	16 in.	0.01 in.	Interior
			C2	20 in.	0.005 in.	Interior
			C3	16 in.	0.005 in.	Interior
			C4	16 in.	0.01 in.	Interior
1901	WALL PANEL - ELEV 1 - BRICK	Unrepaired	1			
			C1	NA	NA	Chipped concrete at interior adjacent to precast connection
1904	WALL PANEL - ELEV 4 - BRICK	Unrepaired	7			
			C1	21 in.	0.01 in.	Interior
			C2	2.5 in.	0.005 in.	Interior
			C3	8.5 in.	0.01 in.	Interior
			C4	15 in.	0.04 in.	Interior
			C5	4.5 in.	0.015 in.	Interior
			C6	10.5 in.	0.01 in.	Interior
			C7	13.5 in.	0.01 in.	Interior
WP-1328-R!	Parapet	Unrepaired	2			
			C1	NA	NA	Spider cracks; parapet interior
			C2	5 in.	0.005 in.	Parapet interior
WP-1321-R!	Parapet	Unrepaired	1			
			C1	NA	NA	Spider cracks; parapet interior
WP-1307-R!	Arch. Wall	Repaired	2			
			C1	8 in.	NA	Exterior
			C2	12 in.	NA	Exterior
WP-1313	Arch. Wall	Repaired	2			
			C1	40 in.	NA	Exterior
			C2	90 in.	NA	Exterior; Crack requires further repair
WP-1315	Arch. Wall	Repaired	1			
			C1	20 in.	NA	Exterior
WP-1324	Arch. Wall	Unrepaired	2			
			C1	NA	NA	Spider cracks; parapet interior
			C2	NA	NA	Spider cracks; parapet interior
WP-1329	Parapet	Unrepaired	2			
			C1	NA	NA	Spider cracks; parapet interior
			C2	NA	NA	Spider cracks; parapet interior
WP-1206	Parapet	Unrepaired	1			
			C1	NA	NA	Chipped concrete at mezzanine panel exterior
WP-1235	Parapet	Unrepaired	1			
			C1	3.5 in.	0.02 in.	Crack on top of panel
WP-1233	Parapet	Unrepaired	2			
			C1	3 in.	0.025 in.	Interior
			C2	2 in.	0.025 in.	Interior

Piece #	Piece Type	Repair Status	No. of Cracks	Crack Length	Crack Width	Notes
WP-1239	Arch. Wall	Unrepaired	2			
			C1	NA	NA	Spider cracks; Machine room interior
			C2	NA	NA	Spider cracks; Machine room interior
ST-1264	Stair Stringer	Unrepaired	1			
			C1	6 in.	0.005 in.	Top of stair stringer at railing attachment

11 APPENDIX C: PHOTOGRAPHS OF CRACKS AND DEFICIENCIES OBSERVED

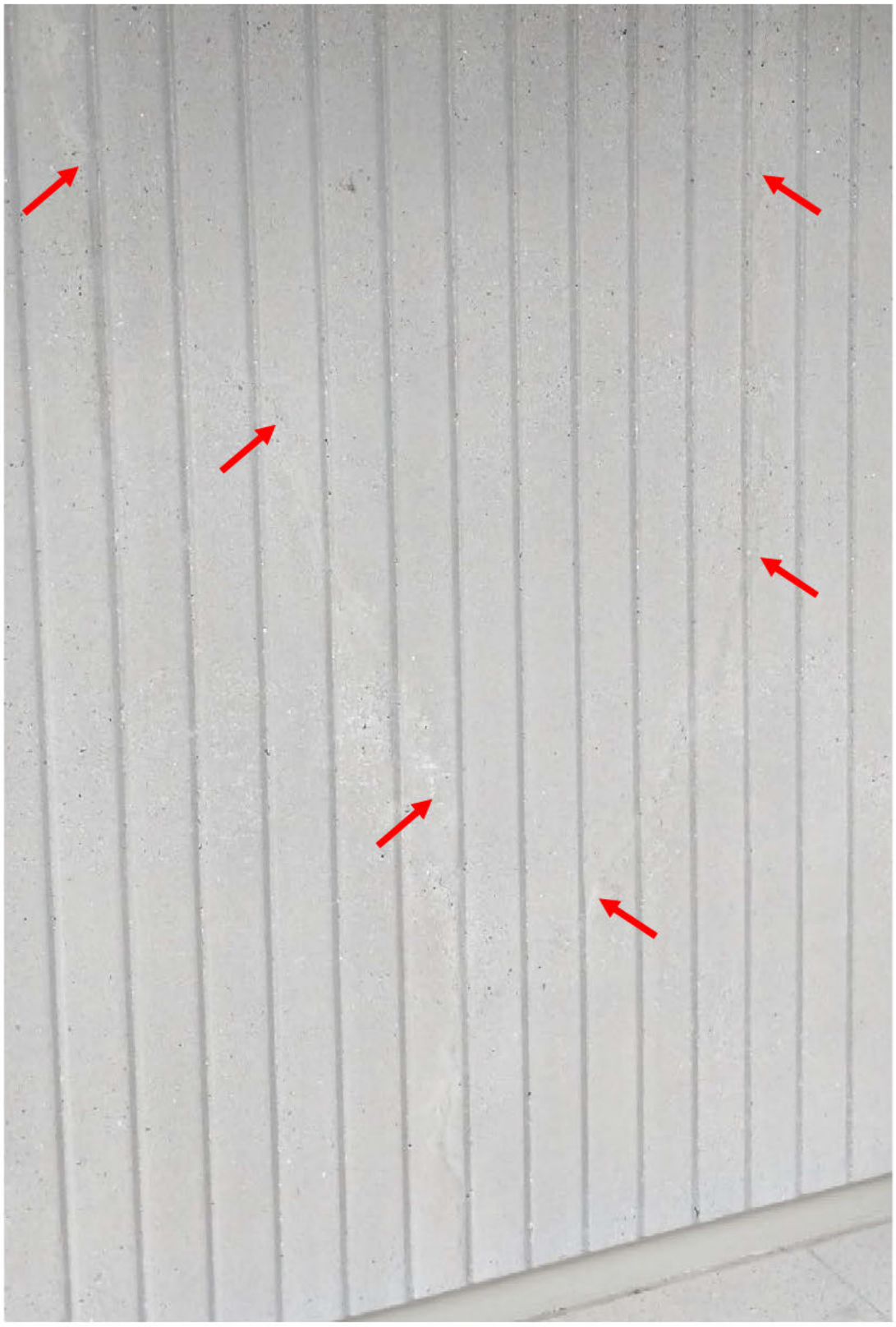

Figure 1: Repaired cracks at Panel 101. Source: DeSimone.

Figure 2: Efflorescence observed at Panel 100. Source: DeSimone.

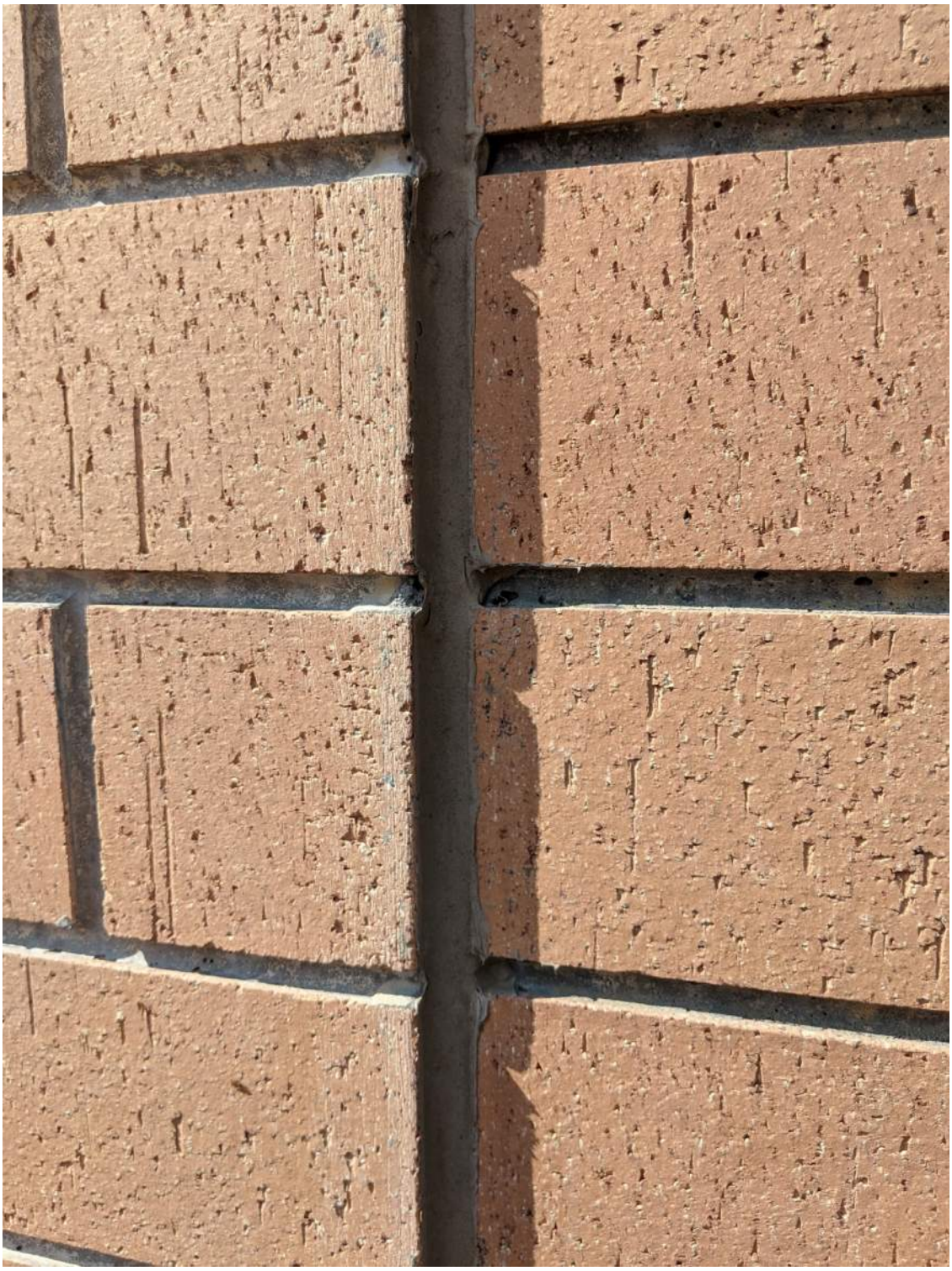

Figure 3: Edge of panel outboard and not flush with adjacent panel at Panels 200, 201.
Source: DeSimone.

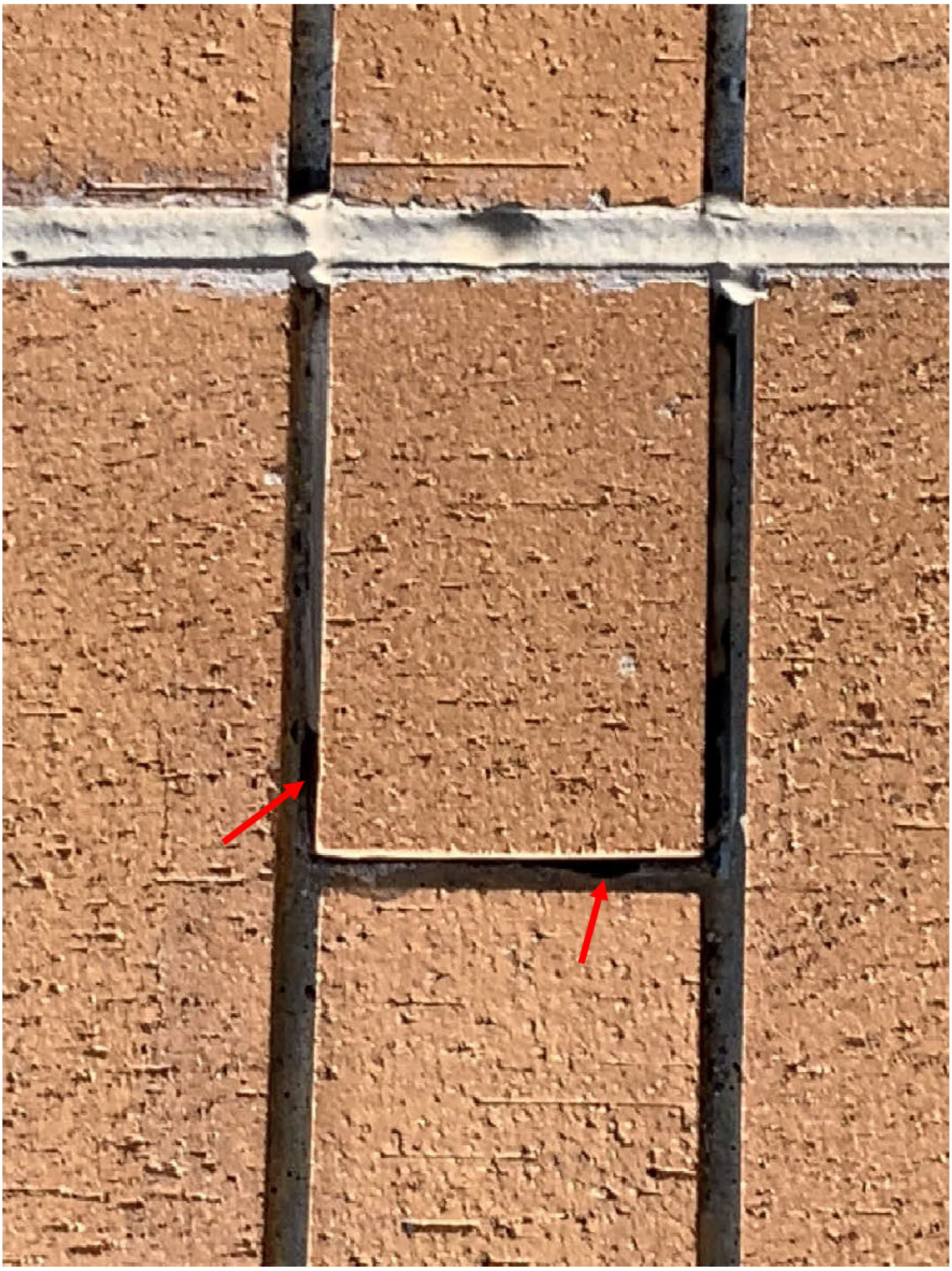

Figure 4: Voids in mortar joints at Panel 201. Note Photo is rotated 90° for clarity. Source: DeSimone.

Figure 5: Spalling of brick masonry noted at Panel 205. Source: DeSimone.

Figure 6: Spalling of brick masonry noted at Panel 219. Source: DeSimone.

Figure 7: Crack at ticketing booth side of Panel 100. Source: DeSimone.

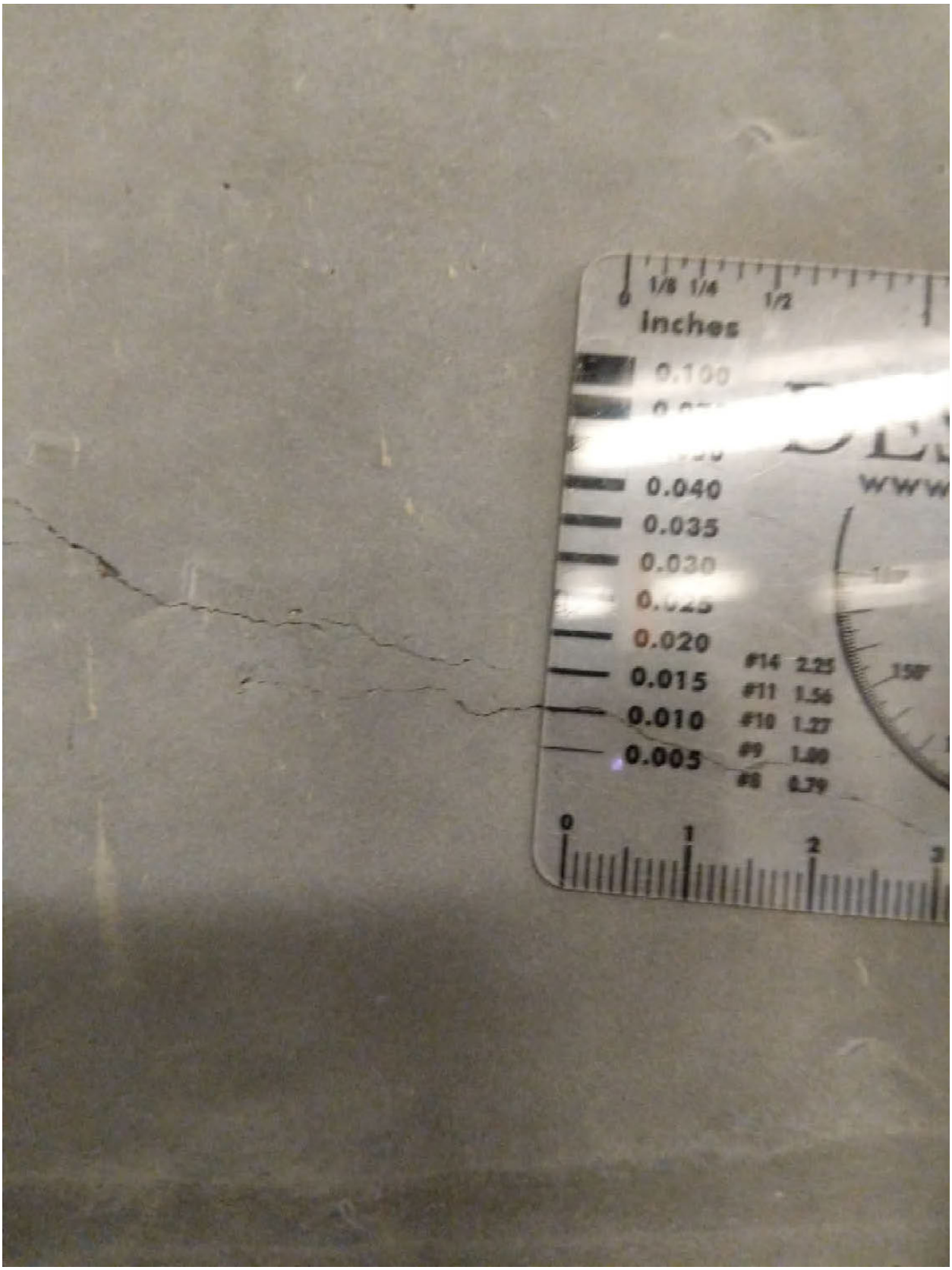

Figure 8: Crack at interior of Panel 219. Source: DeSimone.

Figure 9: Crack at interior face of Panel 231. Source: DeSimone

Figure 10: Repaired crack at exterior of Panel 232. Source: DeSimone

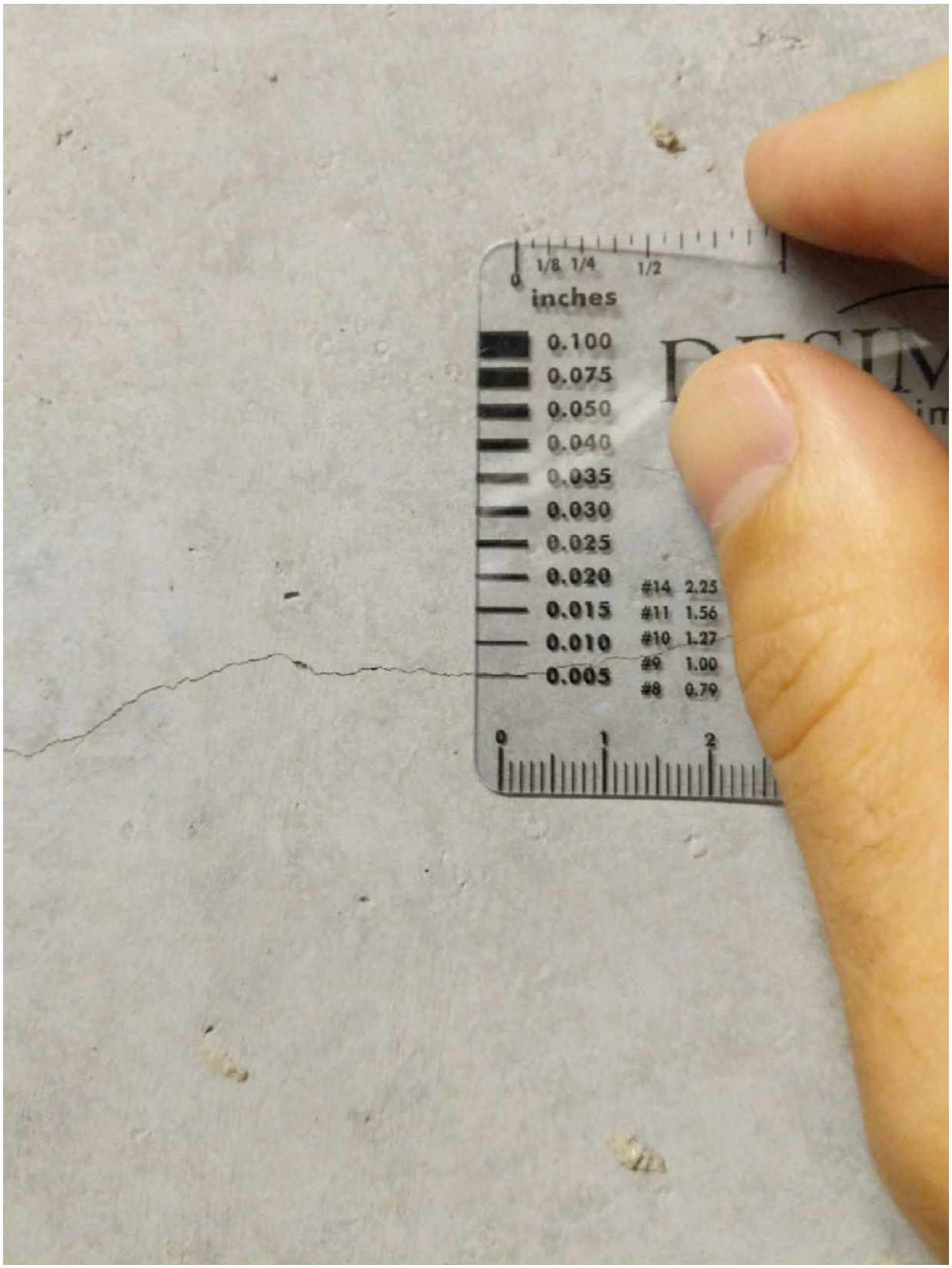

Figure 11: Crack at interior face of Panel 220. Source: DeSimone.

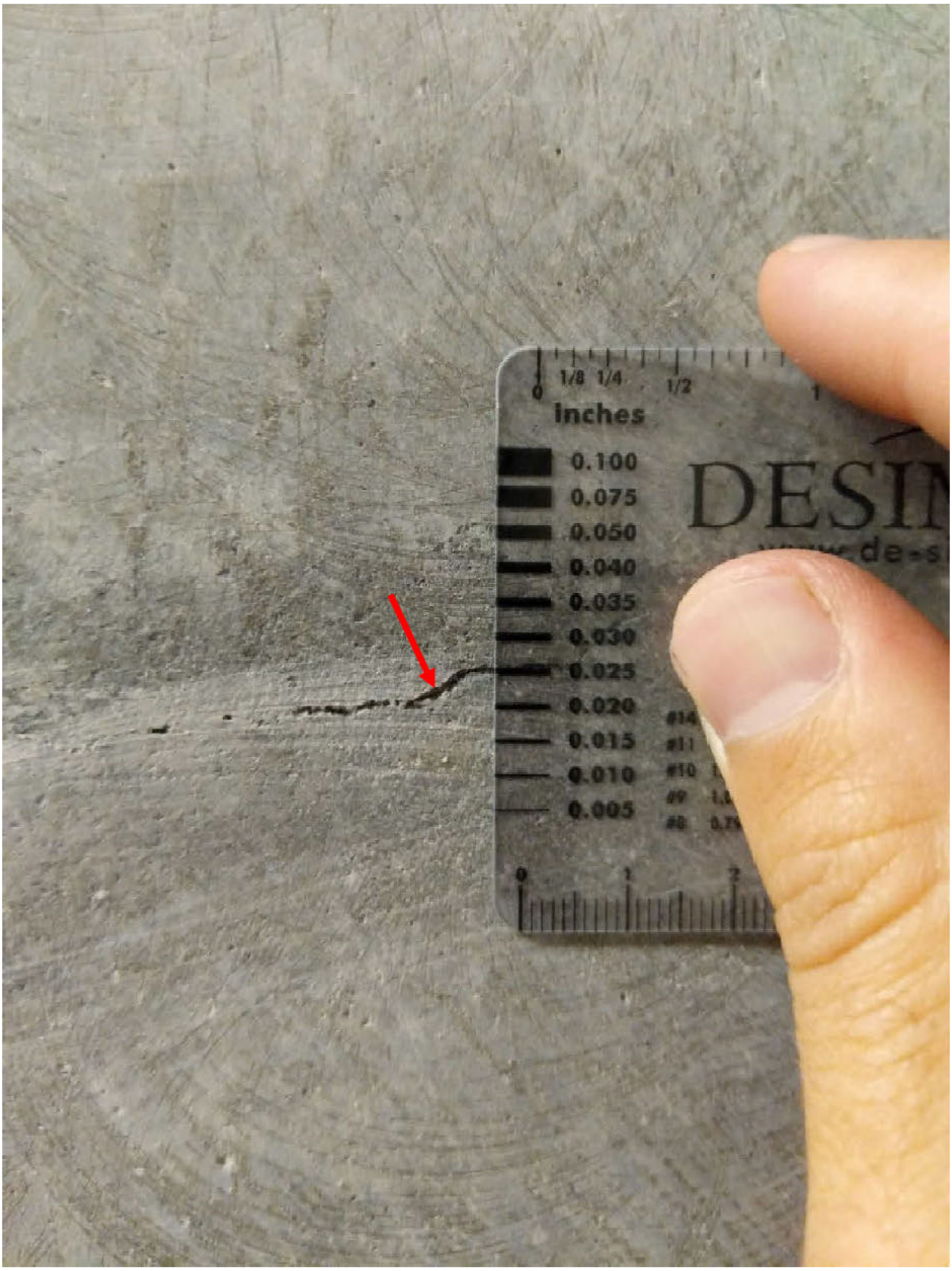

Figure 12: Crack at previous repair location at interior face of Panel 206. Source: DeSimone.

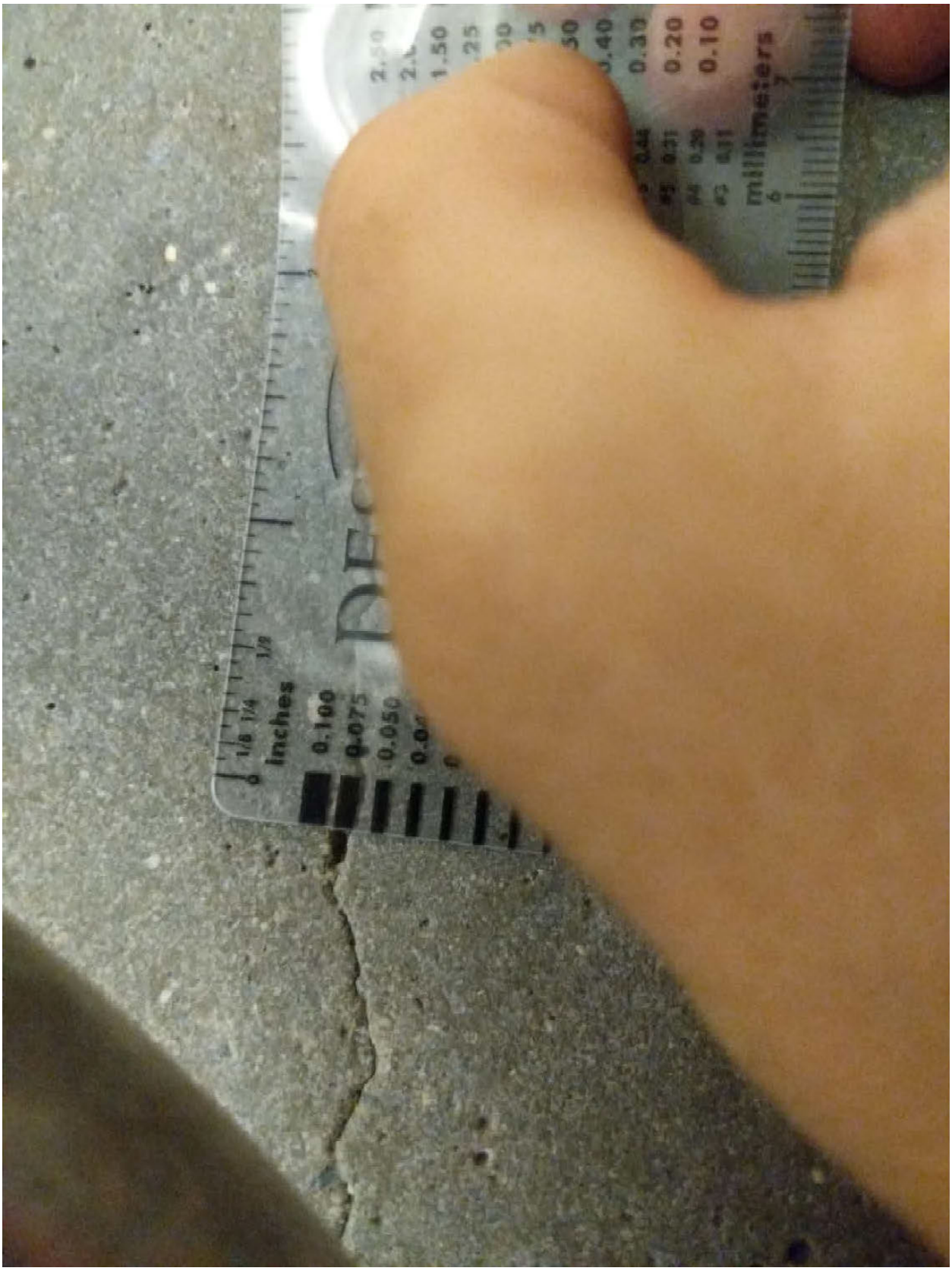

Figure 13: Spider cracks at interior of Panel 412. Source: DeSimone.

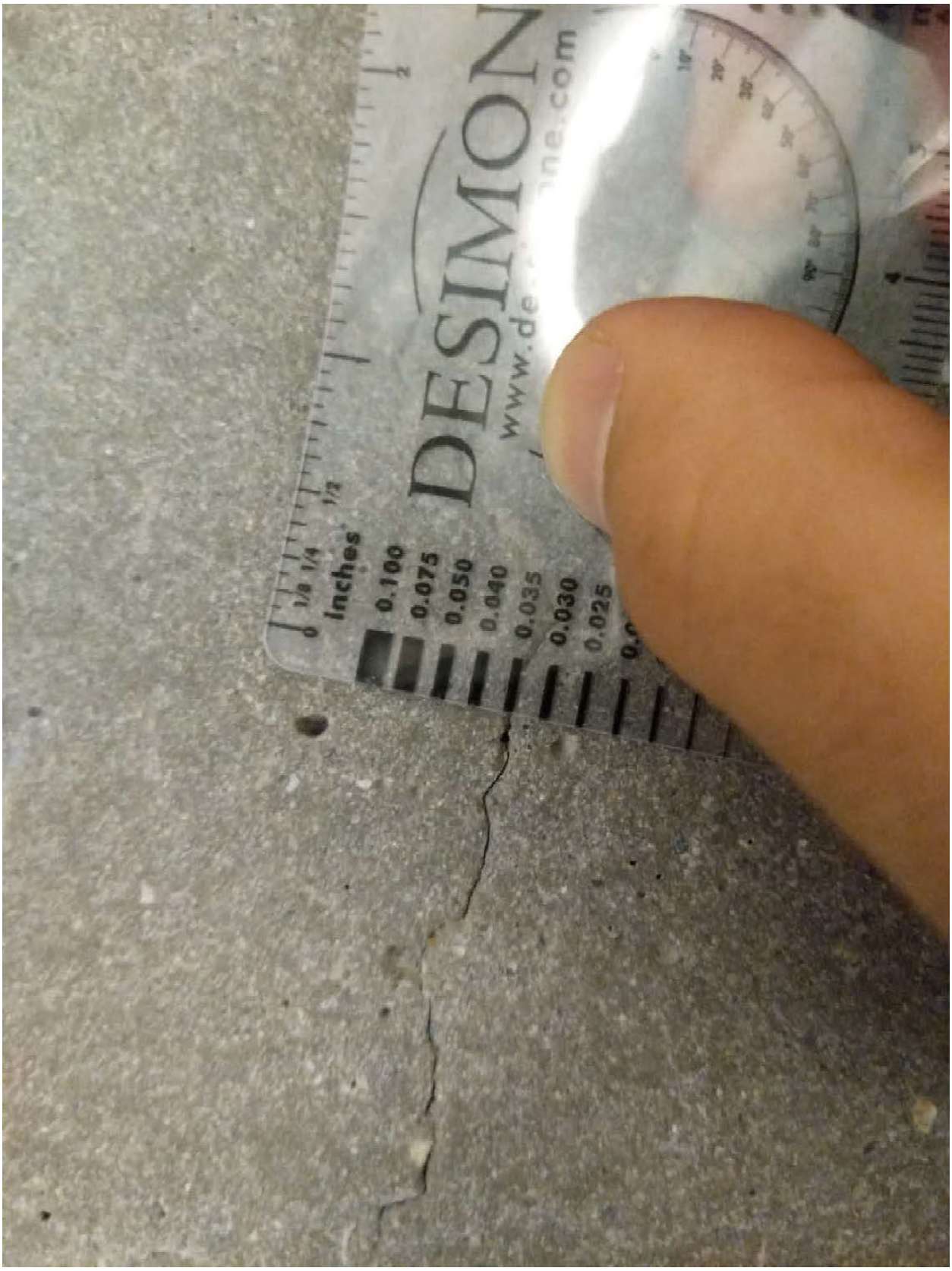

Figure 14: Separate region of spider cracks at interior of Panel 412. Source: DeSimone.

Figure 15: Repaired crack at exterior face of Panel 402. Source: DeSimone.

Figure 16: Repaired crack at exterior face of Panel 404. Source: DeSimone.

Figure 17: Crack at exterior face of Panel 107. Source: DeSimone.

Figure 18: Crack at underside of Panel ST-4. Source: DeSimone.

Figure 19: Crack at underside of Panel ST-2. Source: DeSimone.

Figure 20: Crack at Interior face of Panel 1404. Source: DeSimone.

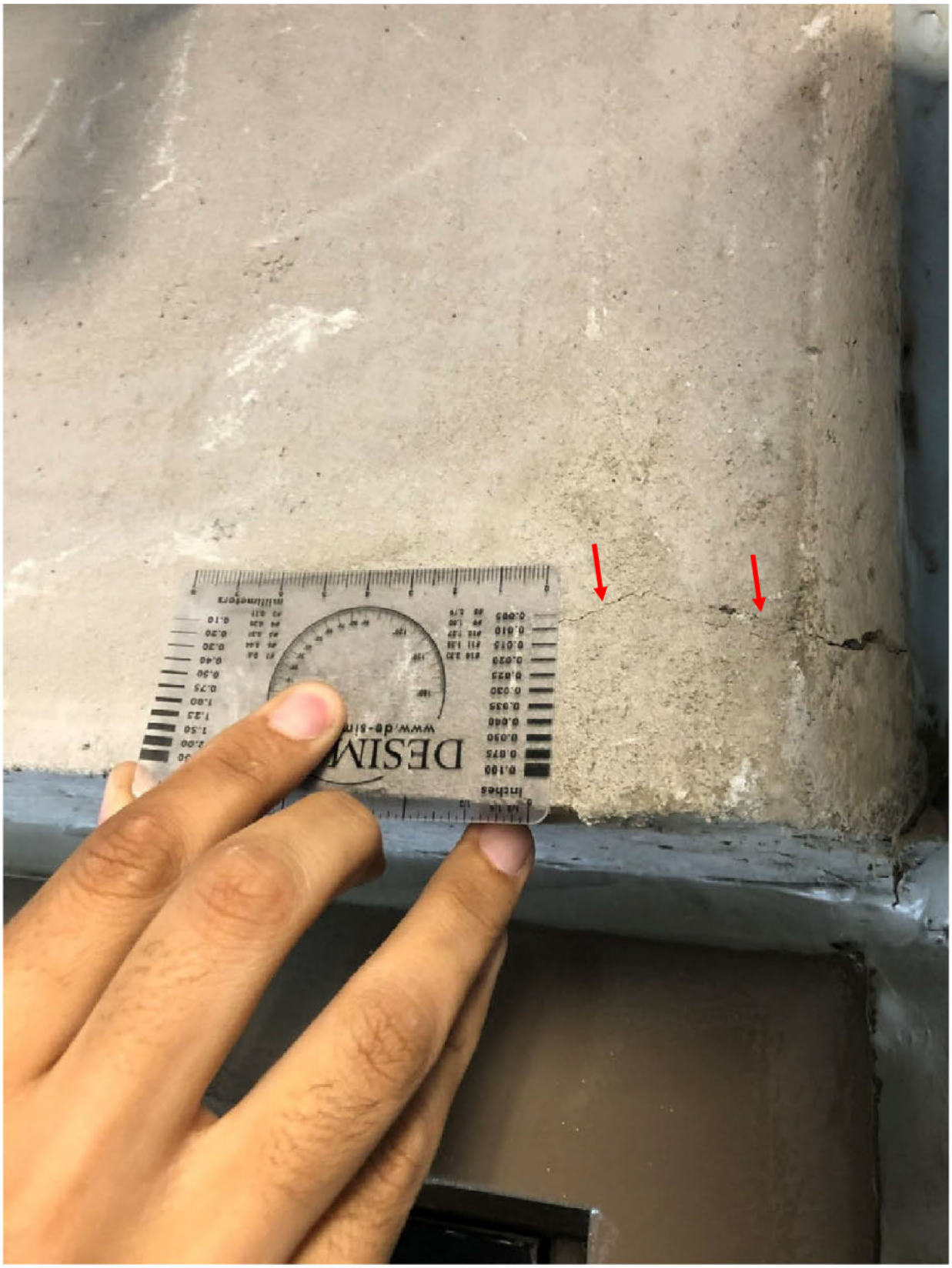

Figure 21: Crack at separate region of interior face of Panel 1404. Source: DeSimone.

Figure 22: Crack at interior face of Panel 1421. Source: DeSimone.

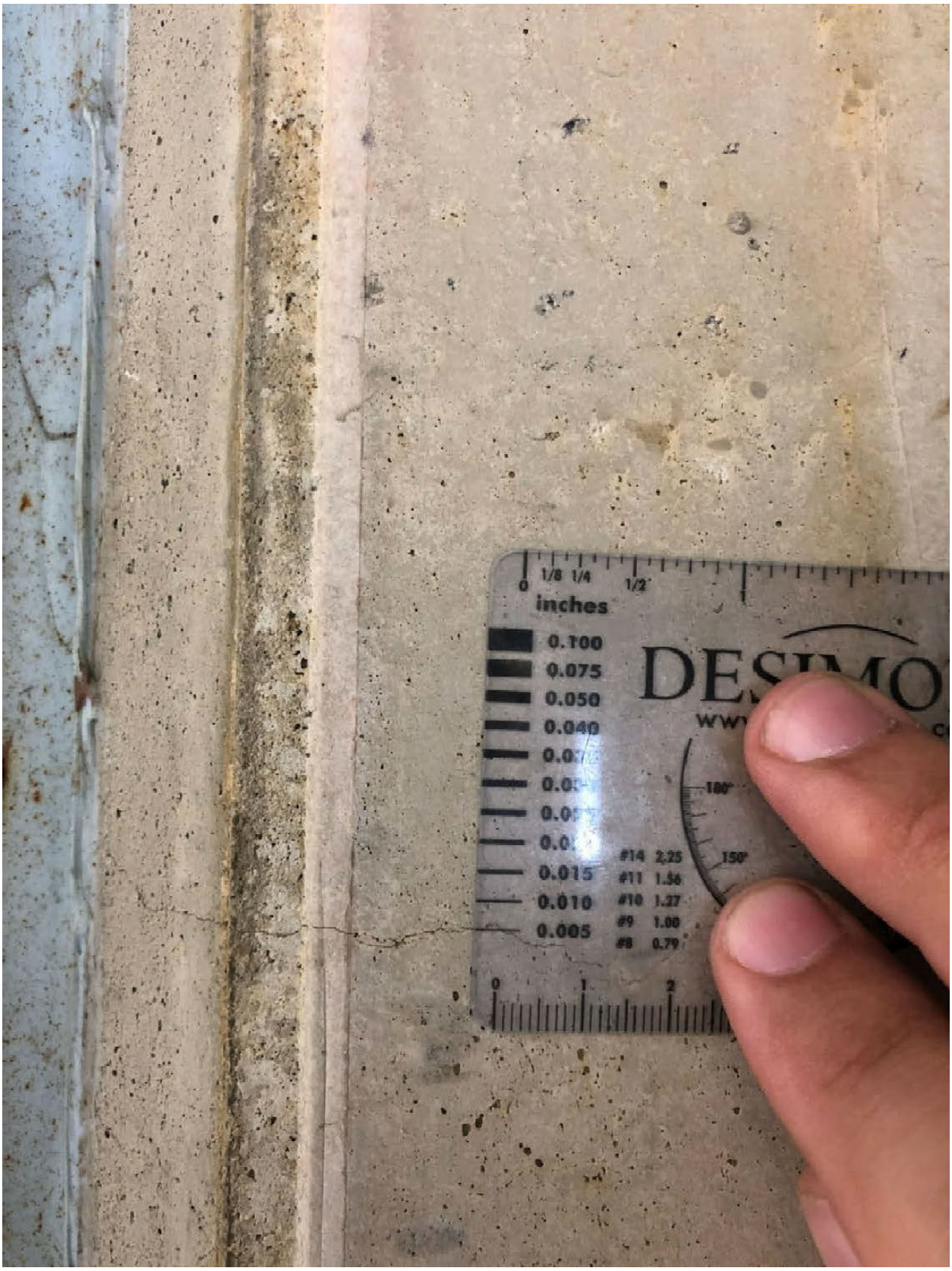

Figure 23: Crack at interior face of Panel 1421. Source: DeSimone.

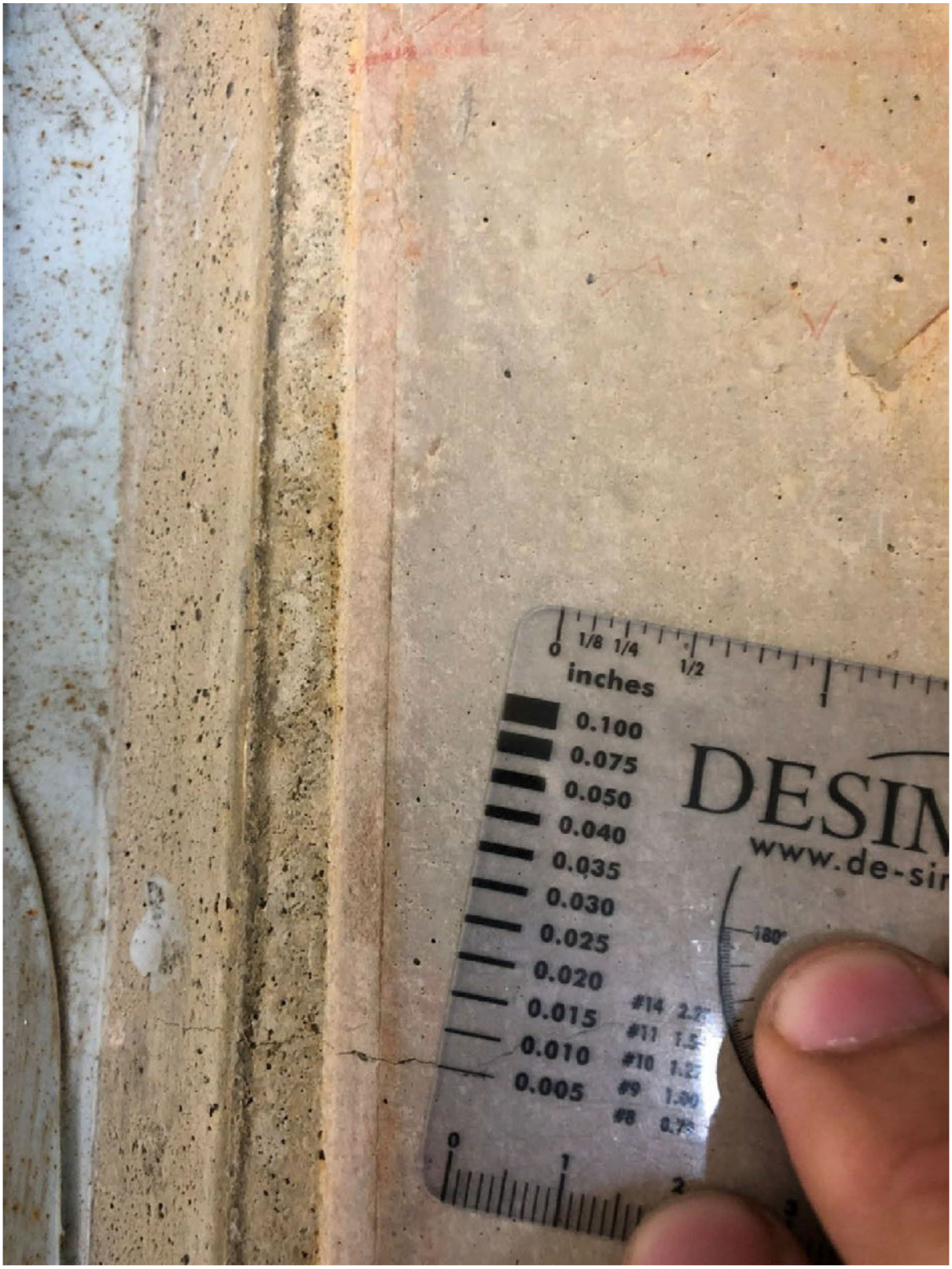

Figure 24: Crack at interior face of Panel 1421. Source: DeSimone.

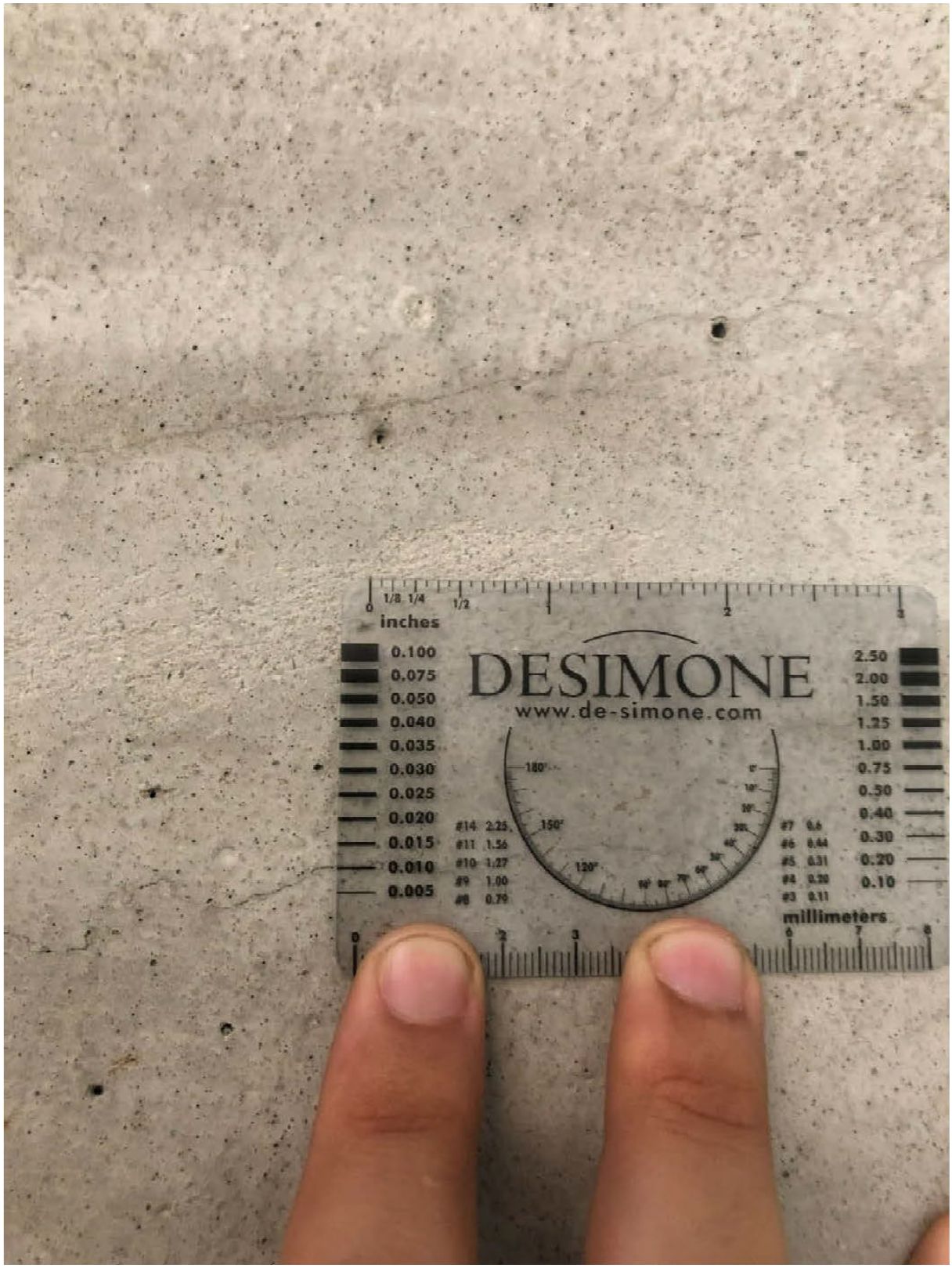

Figure 25: Crack at interior face of Panel 1421. Source: DeSimone.

Figure 26: Chipped concrete at interior face of Panel 1420. Source: DeSimone.

Figure 27: Chipped concrete at interior face of Panel 1901. Source: DeSimone.

Figure 28: Crack at Interior face of Panel 1904. Source: DeSimone.

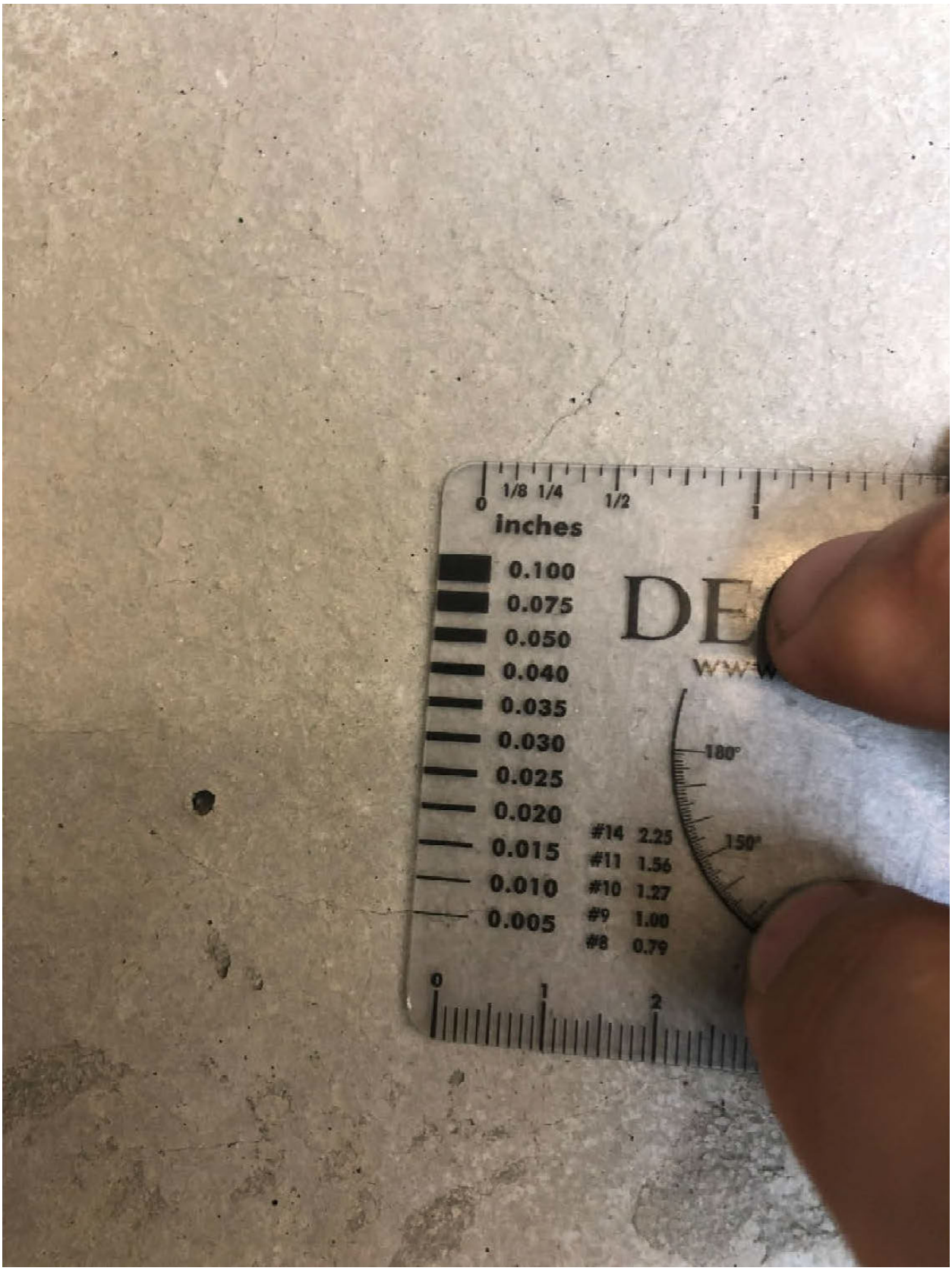

Figure 29: Crack at interior face of Panel 1904. Source: DeSimone.

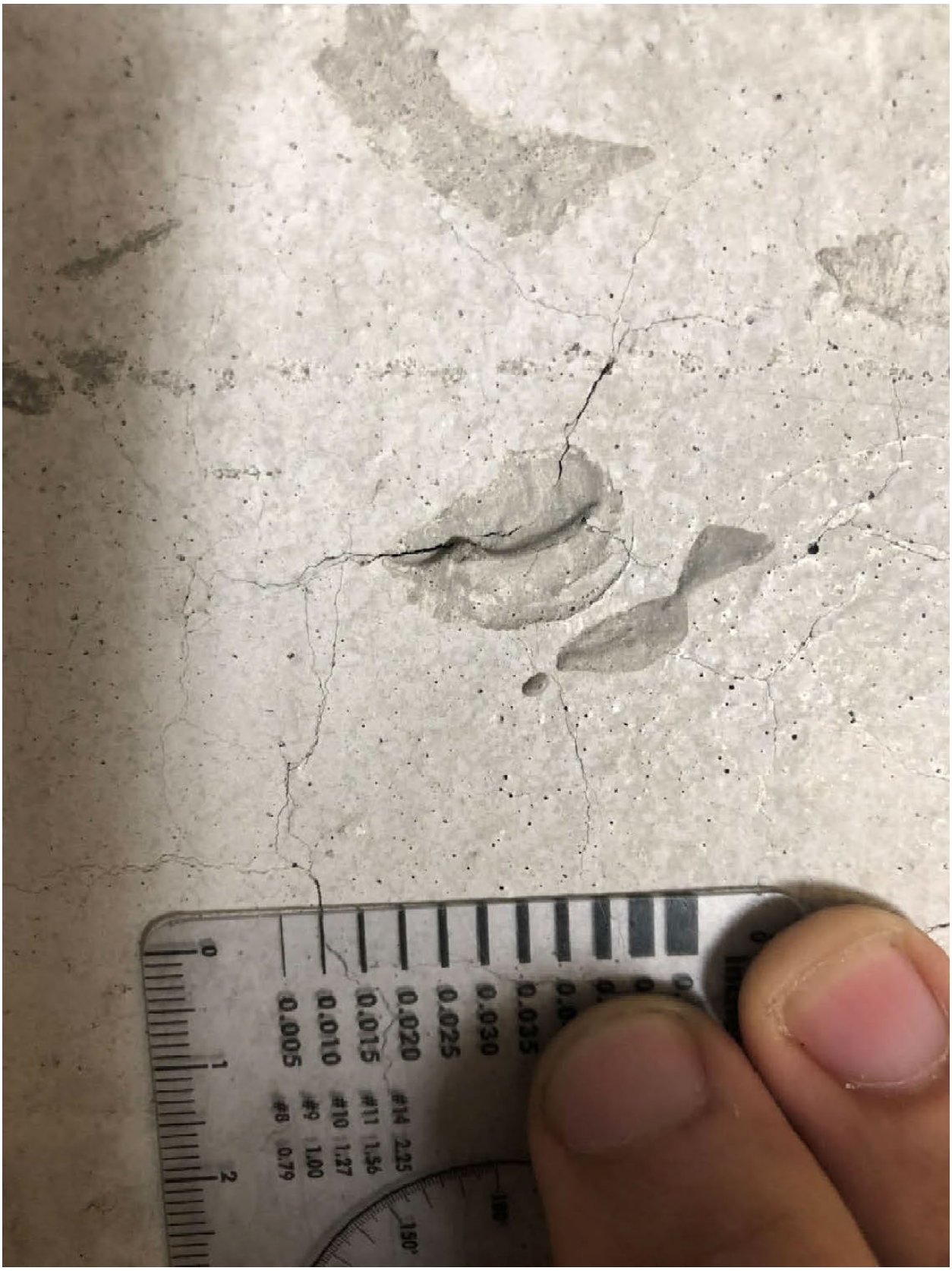

Figure 30: Crack at interior face of Panel 1904. Source: DeSimone.

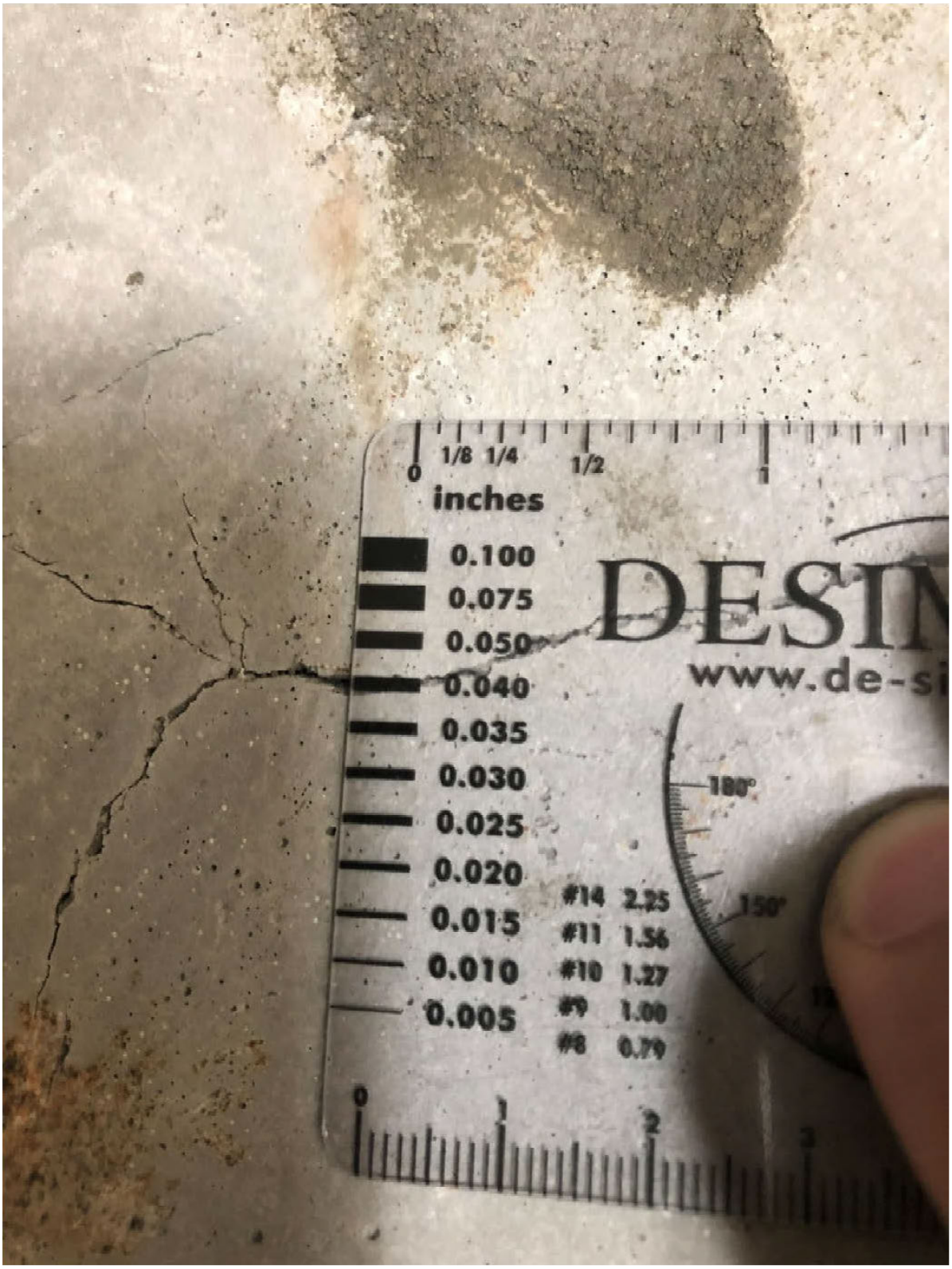

Figure 31: Crack at interior face of Panel 1904. Source: DeSimone.

Figure 32: Crack at Interior face of Panel 1904. Source: DeSimone.

Figure 33: Crack at interior face of Panel 1904. Source: DeSimone.

Figure 34: Crack at interior face of Panel 1904. Source: DeSimone.

Figure 35: Spider cracks at interior of Panel WP-1328-RI. Source: DeSimone.

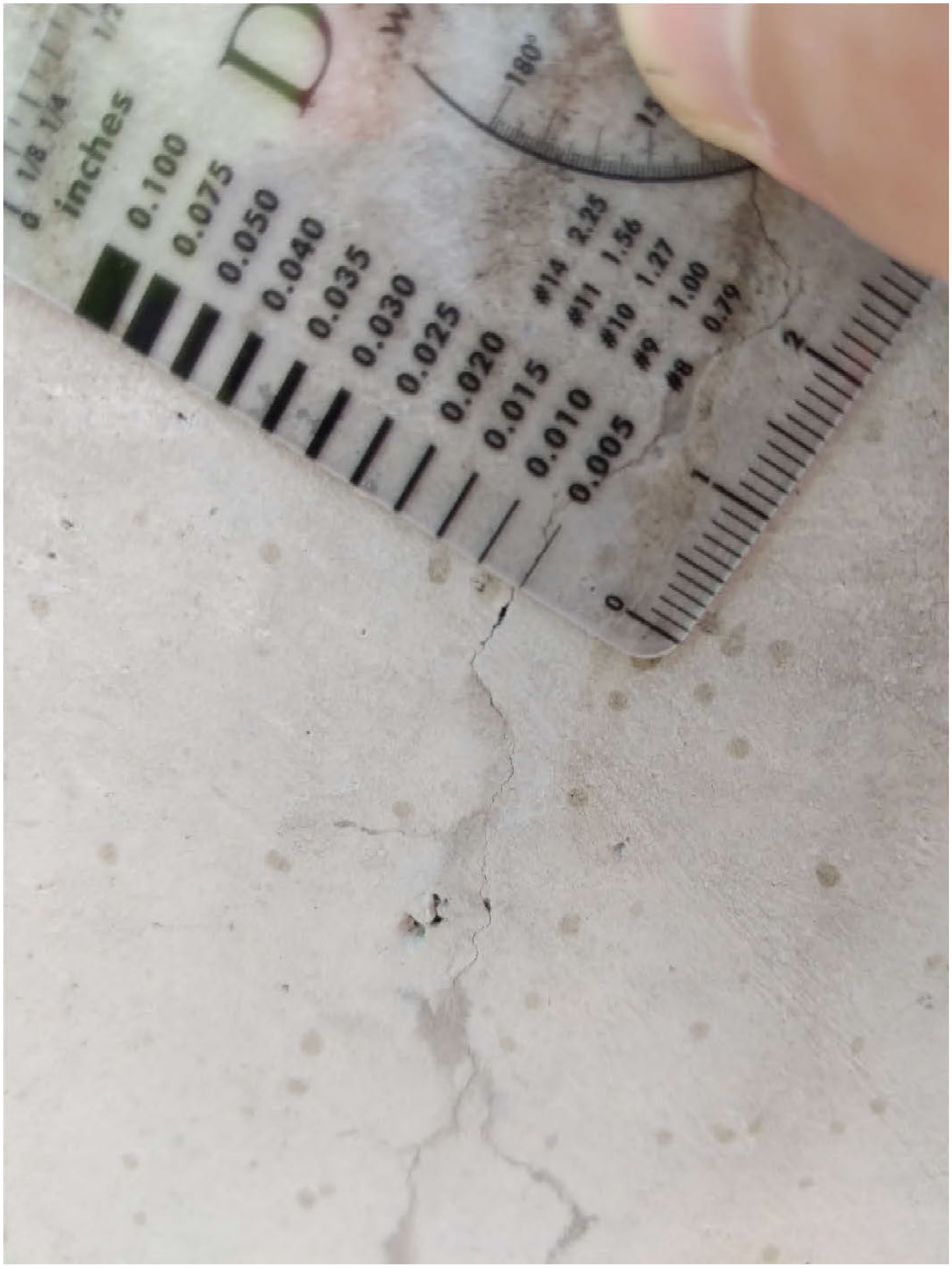

Figure 36: Crack at Interior face of Panel WP-1328-R!. Source: DeSimone.

Figure 37: Spider cracks at interior of Panel WP-1321-R!. Source: DeSimone.

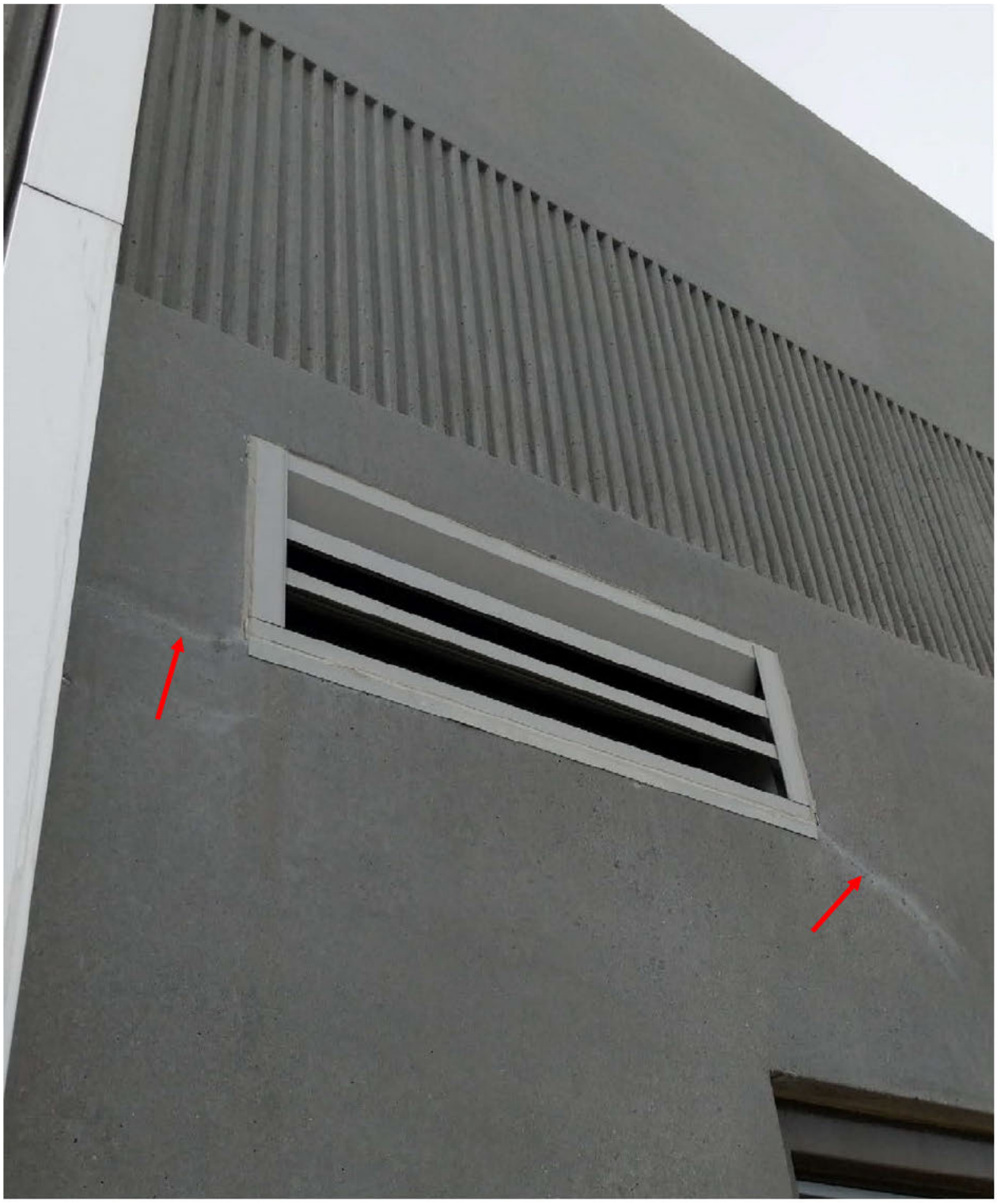

Figure 38: Previously repaired cracks at exterior face of Panel WP-1307-RI. Source: DeSimone.

Figure 39: Previously repaired crack at exterior face of Panel WP-1313. Source: DeSimone.

Figure 40: Crack at previous repair location at exterior face of Panel WP-1313. Source: DeSimone.

Figure 41: Previously repaired crack at exterior face of Panel WP-1315. Source: DeSimone.

Figure 42: Spider cracks at interior face of Panel WP-1324. Source: DeSimone.

Figure 43: Spider cracks at interior face of Panel WP-1329. Source: DeSimone.

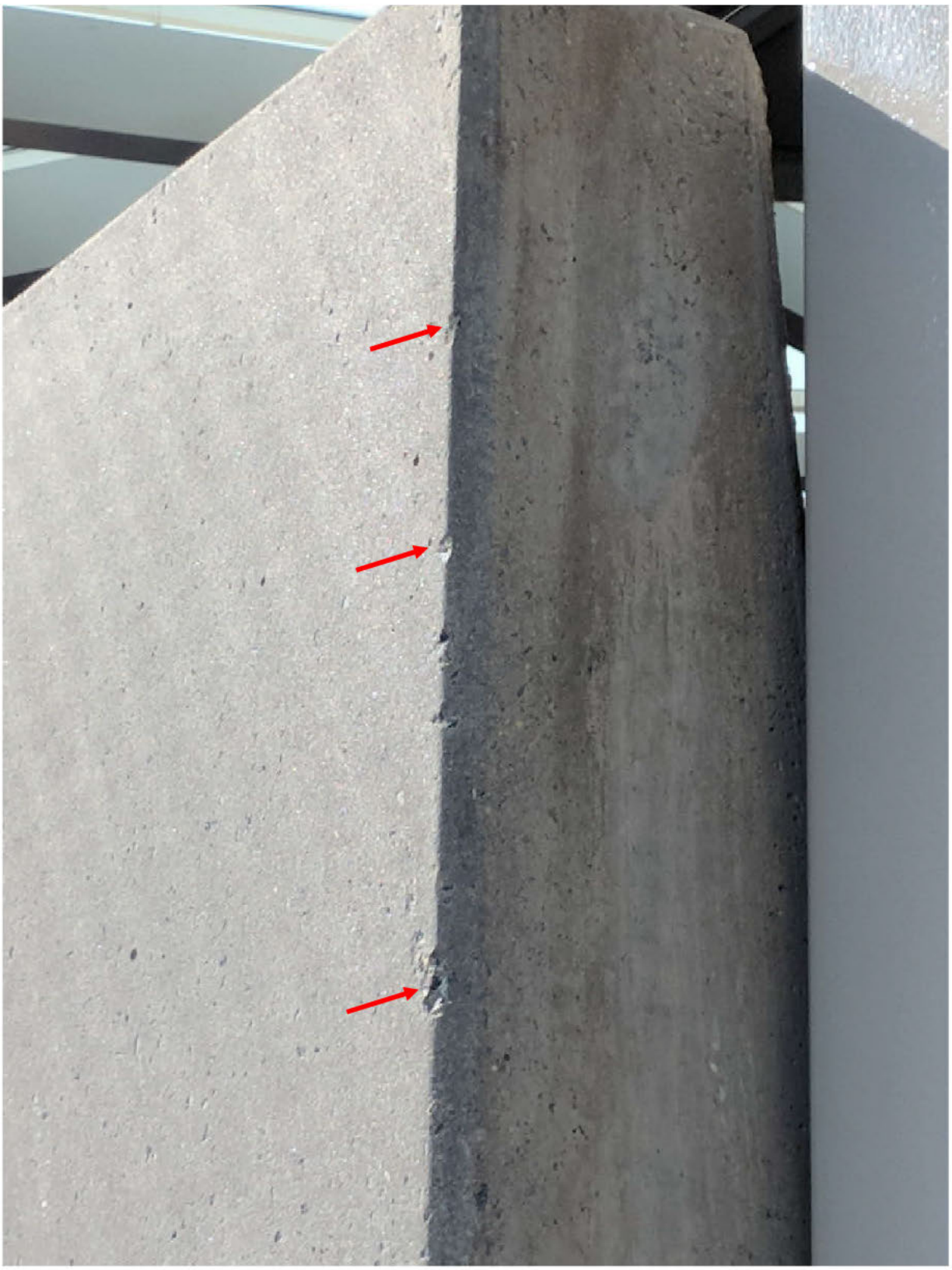

Figure 44: Chipped concrete at exterior face of Panel WP-1206. Source: DeSimone.

Figure 45: Crack at top face of Panel WP-1235. Source: DeSimone

Figure 46: Crack at interior face of Panel WP-1233. Source: DeSimone.

Figure 47: Crack at interior face of Panel WP-1233. Source: DeSimone.

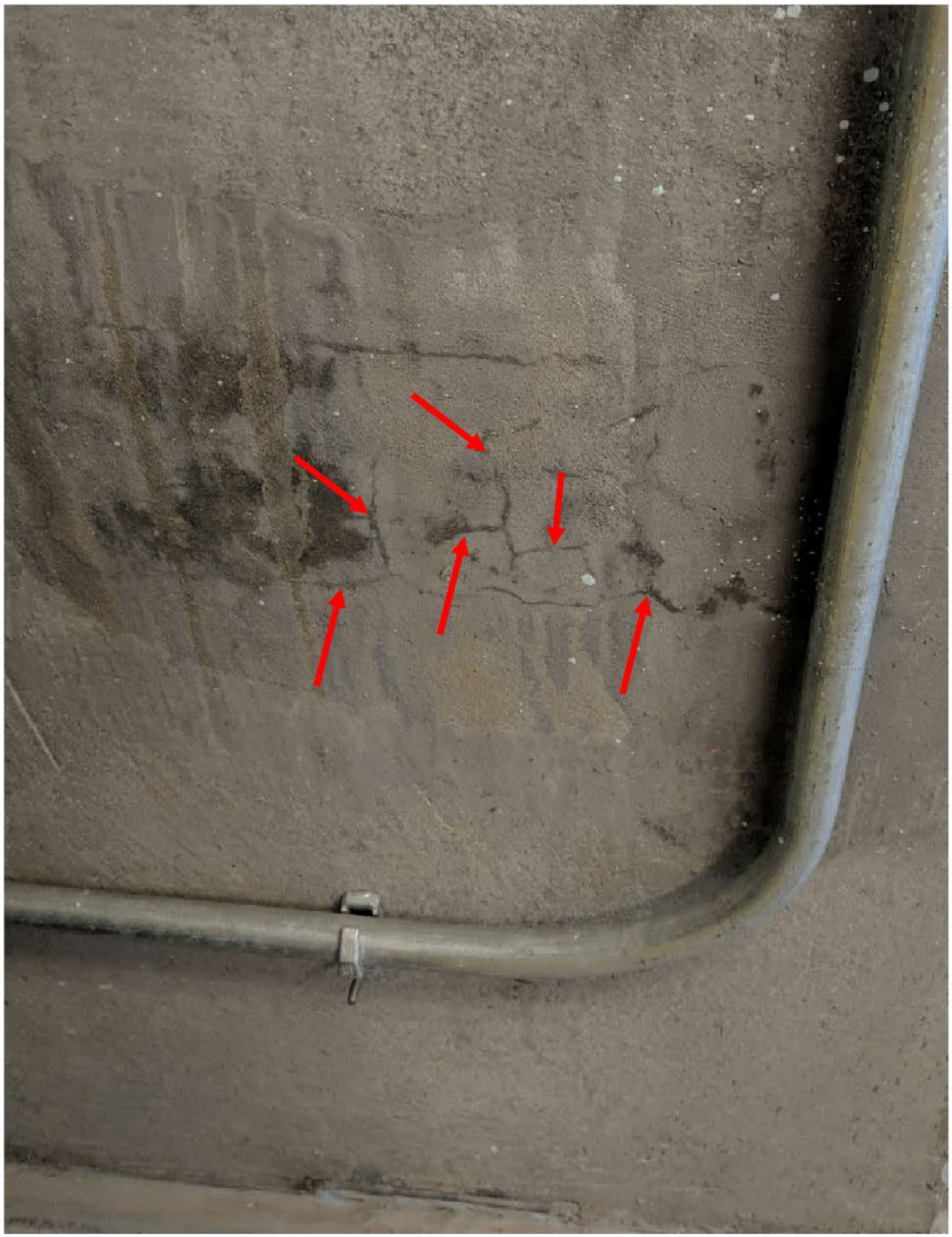

Figure 48: Spider cracks at interior face of Panel WP-1239. Source: DeSimone.

Figure 49: Spider cracks at interior face of Panel WP-1239. Source: DeSimone.

Figure 50: Crack at top face of Panel ST-1264. Source: DeSimone.