

Tomah VA Medical Center  
500 E. Veterans Street, B408/Rm 3800  
Tomah, WI 54660

September 18, 2015

Attn: James Plimpton, Project Manager

VIA Email: Jim Plimpton

**Re: Floor Flatness Test Results**

**Construct Building 405 for 75 MH RRTP Beds, VA Project #676-322** AE Project # 13316

Dear Jim,

We have reviewed the Floor Flatness Test Results for the ground level slab as documented in the report prepared by Chosen Valley Testing, Inc. dated August 28, 2015 (attached). Three (3) test sections were done on the main floor area (West Wing, East Wing, and North Wing), with a fourth test area for the tramway link between Building 405 and 404.

A. The project specifications require the following:

- 1) The minimum acceptable overall values for finished slab flatness (FF) is 36 and the minimum levelness (FL) is 20. Minimum local values are FF-24 and FL-15. Test results at or above these numbers represent acceptable floor flatness and floor levelness of the slab.
- 2) The specifications also require level tolerance such that 80 percent of all points fall within a 20 mm (3/4 inch) envelope +10 mm, -10 mm (+3/8 inch, -3/8 inch) from the design elevation.
- 3) If individual slab section measures less than either of specified minimum local FF/FL numbers, that section shall be rejected and remedial measures shall be required. Sectional boundaries may be set at construction and contraction (control) joints, and not smaller than one half bay.
- 4) If composite value of entire slab installation, combination of all local results, measures less than either of specified overall FF/FL numbers, then whole slab shall be rejected and remedial measures shall be required.

B. The test results indicate the following:

- 1) The combined FF of the slab on grade for the main building pour areas is 27.11, and the combined FL is 19.75. Both of these are lower than the specified overall values of 36 and 20, respectively, and require remedial measures to bring the slab within specified tolerances. Remedial measures to correct the slab areas are detailed in the project specifications and include grinding, planing, surface repair with underlayment compound or repair topping, re-topping, or removal and replacement of entire rejected slab areas. We recommend that a corrective plan of action be submitted by SEEDJV for approval by the VA.
- 2) Test results were also included for the tramway. As a significant area of the tramway is sloped the test results in this area were not incorporated into the combined FF/FL calculations. This area has an overall FF value of 11.64, which does not meet the minimum local FF value of FF-24. A corrective plan for this area should also be submitted. Note: Because of the sloping floor in this area FL requirements are not applicable.

- 3) 80% of all points fall within a  $\frac{3}{4}$ ' envelope of the design floor elevation. This meets the specified requirement.

Please contact me if you have any questions about our review of the test results.

Sincerely,



Bill Beaupre, RA, LEED AP  
Senior Project Architect  
Direct: 763-412-4051  
Email: [bbeaupre@ae-mn.com](mailto:bbeaupre@ae-mn.com)

# Chosen Valley Testing, Inc.

135 Buchner Place, La Crosse, WI 54603 Phone (608) 782-5505 Fax (608) 785-2818

Mr. Tim Bentley  
Master Design Build  
4706 N. Ravenswood Avenue  
Chicago, IL 60640  
[tim@masterdesignbuild.com](mailto:tim@masterdesignbuild.com)

August 28, 2015

Re: **Floor Flatness Test Results**  
**Tomah VA – Building 405**  
**Tomah, Wisconsin**  
**CVT Project# 6383.14.WIL**

Dear Mr. Bentley,

As requested, we have been performing floor flatness testing on the ground level slab of the Tomah VA – Building 405, in Tomah, Wisconsin. The slab was poured on various days in August, 2015. The specified  $F_F$  is 36 and the specified  $F_L$  is 20, with minimum local values of  $F_F$  24 and  $F_L$  15 for topping slabs which are exposed or receive thin-set tile or resilient flooring. Test results at or above these numbers represent acceptable floor flatness and floor levelness of the slab. In addition to the flatness and levelness numbers, the level tolerance must be such that 80% of all points fall within a  $\frac{3}{4}$ " envelope ( $\pm \frac{3}{8}$ "') from the design elevation. The start point of each of our testing runs was assigned the assumed final floor elevation (100').

The test was performed in general accordance with ASTM E 1155, Determining  $F_F$  Floor Flatness and  $F_L$  Floor Levelness Numbers. A Face Construction Technologies Dipstick 2272 Floor Profiler was used to obtain the test data.

## **Pour 8/6/15 - West Wing**

The data was obtained in 4 runs using a zig-zag layout. The results of each run, as well as the overall results, are tabulated below. The approximate locations are shown on the attached sketch.

| Run Number              | $F_F$        | $F_L$        |
|-------------------------|--------------|--------------|
| 1                       | 26.59        | 19.12        |
| 2                       | 25.81        | 12.59        |
| 3                       | 26.71        | 28.51        |
| 4                       | 33.21        | 22.97        |
| <b>Overall – 8/6/15</b> | <b>27.68</b> | <b>18.08</b> |
| <b>Specification</b>    | <b>36</b>    | <b>20</b>    |

## **Pour 8/12/15 - East Wing**

The data was obtained in 6 runs using a parallel and perpendicular layout. The results of each run, as well as the overall results, are tabulated below. The approximate locations are shown on the attached sketch.

| Run Number | $F_F$ | $F_L$ |
|------------|-------|-------|
| 1          | 28.69 | 52.15 |
| 2          | 26.16 | 18.03 |
| 3          | 27.04 | 33.57 |

Chosen Valley Testing, Inc.

La Crosse, WI

Rochester, MN

Mankato, MN

St. Cloud, MN

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|                          |              |              |
|--------------------------|--------------|--------------|
| 4                        | 28.79        | 28.18        |
| 5                        | 22.76        | 14.07        |
| 6                        | 20.84        | 19.07        |
| <b>Overall – 8/12/15</b> | <b>25.16</b> | <b>21.13</b> |
| <b>Specification</b>     | <b>36</b>    | <b>20</b>    |

**Pour 8/26/15 - North Wing**

The data was obtained in 6 runs using a parallel and perpendicular layout. The results of each run, as well as the overall results, are tabulated below. The approximate locations are shown on the attached sketch.

| <b>Run Number</b>        | <b>F<sub>F</sub></b> | <b>F<sub>L</sub></b> |
|--------------------------|----------------------|----------------------|
| 1                        | 32.47                | 14.56                |
| 2                        | 38.22                | 22.28                |
| 3                        | 24.09                | 25.19                |
| 4                        | 38.91                | 24.90                |
| 5                        | 30.37                | 27.68                |
| 6                        | 50.13                | 30.82                |
| <b>Overall – 8/26/15</b> | <b>31.31</b>         | <b>21.10</b>         |
| <b>Specification</b>     | <b>36</b>            | <b>20</b>            |

**Tramway**

The data was obtained in 19 runs using a zig zag layout. The results of each run, as well as the overall results, are tabulated below. The approximate locations are shown on the attached sketch.

| <b>Run Number</b>        | <b>F<sub>F</sub></b> | <b>F<sub>L</sub></b> |
|--------------------------|----------------------|----------------------|
| 1                        | 12.09                | 10.42                |
| 2                        | 17.07                | 9.90                 |
| 3                        | 8.83                 | 2.92                 |
| 4                        | 14.62                | 2.67                 |
| 5                        | 14.72                | 12.15                |
| 6                        | 9.7                  | 6.46                 |
| 7                        | 8.36                 | 2.16                 |
| 8                        | 19.45                | 2.35                 |
| 9                        | 15.40                | 2.49                 |
| 10                       | 9.35                 | 2.20                 |
| 11                       | 13.07                | 7.99                 |
| 12                       | 12.31                | 7.01                 |
| 13                       | 9.45                 | 2.86                 |
| 14                       | 11.00                | 2.88                 |
| 15                       | 11.62                | 3.57                 |
| 16                       | 15.51                | 4.42                 |
| 17                       | 11.10                | 5.12                 |
| 18                       | 13.39                | 4.26                 |
| 19                       | 10.69                | 2.70                 |
| <b>Overall – 8/26/15</b> | <b>11.64</b>         | <b>3.38</b>          |
| <b>Specification</b>     | <b>36</b>            | <b>N/A</b>           |

**Summary**

The combined F<sub>F</sub> of the slab on grade is 27.11, with a combined F<sub>L</sub> of 19.75. The F<sub>F</sub> and the F<sub>L</sub> are lower than the specified overall value, though each pour meets the minimum local value.

The attached graphs show that 80% of all points fall within a ¾” envelope of the design floor

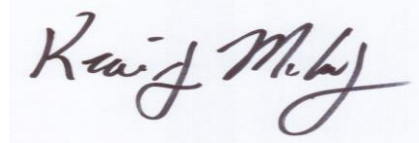
elevation.

The ground level tramway was also tested. Because of the sloping floor, the test results were not incorporated into the overall results.

**Remarks**

We appreciate the opportunity to provide our services to you. If you have any questions, or need additional services, please call us at (608) 782-5505.

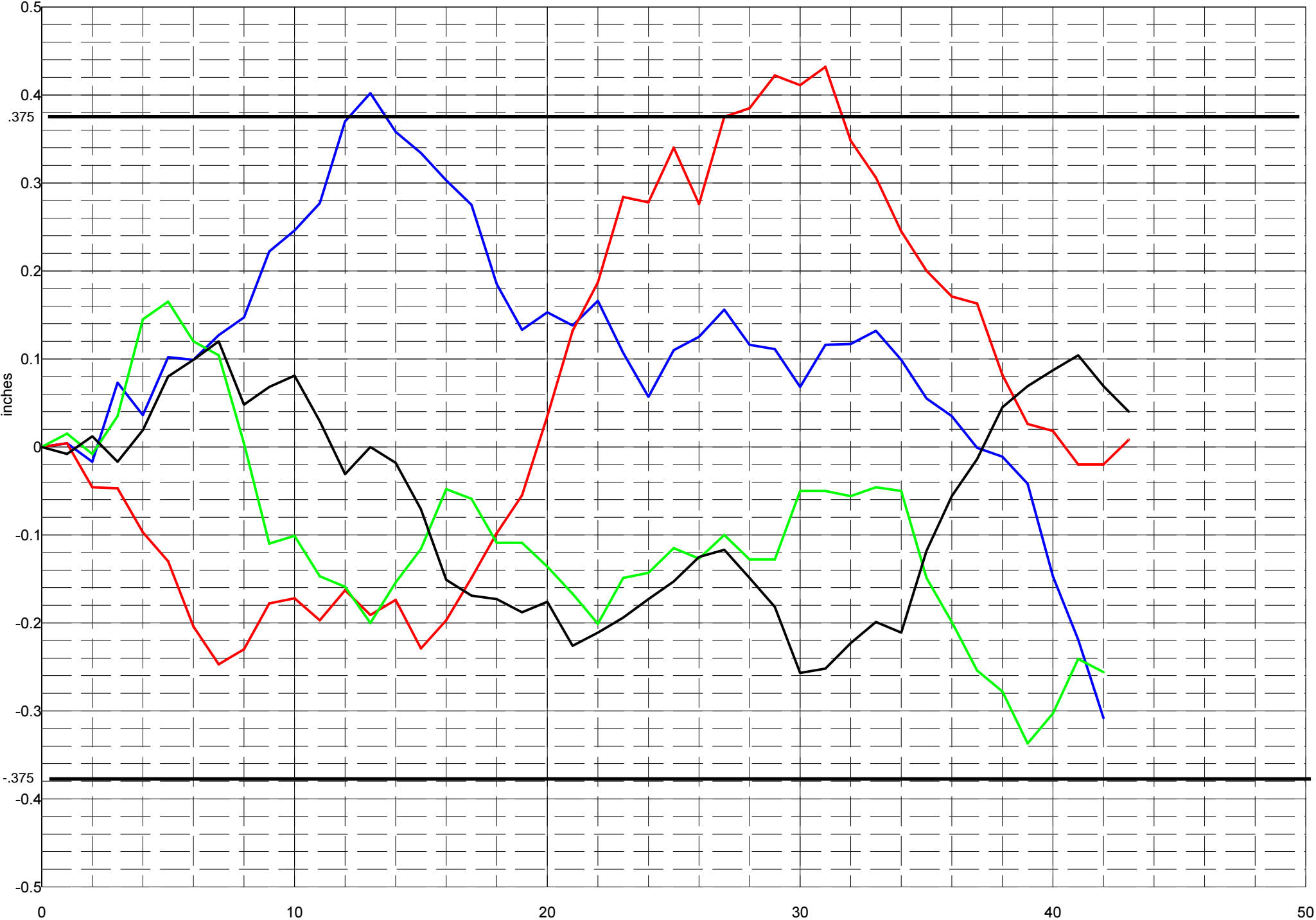
Sincerely,  
Chosen Valley Testing, Inc.

A handwritten signature in dark ink, appearing to read "Kraig McCoy", is written over a light blue rectangular background.

Kraig McCoy  
Laboratory Manager

Pour 8/6/15

Elevations



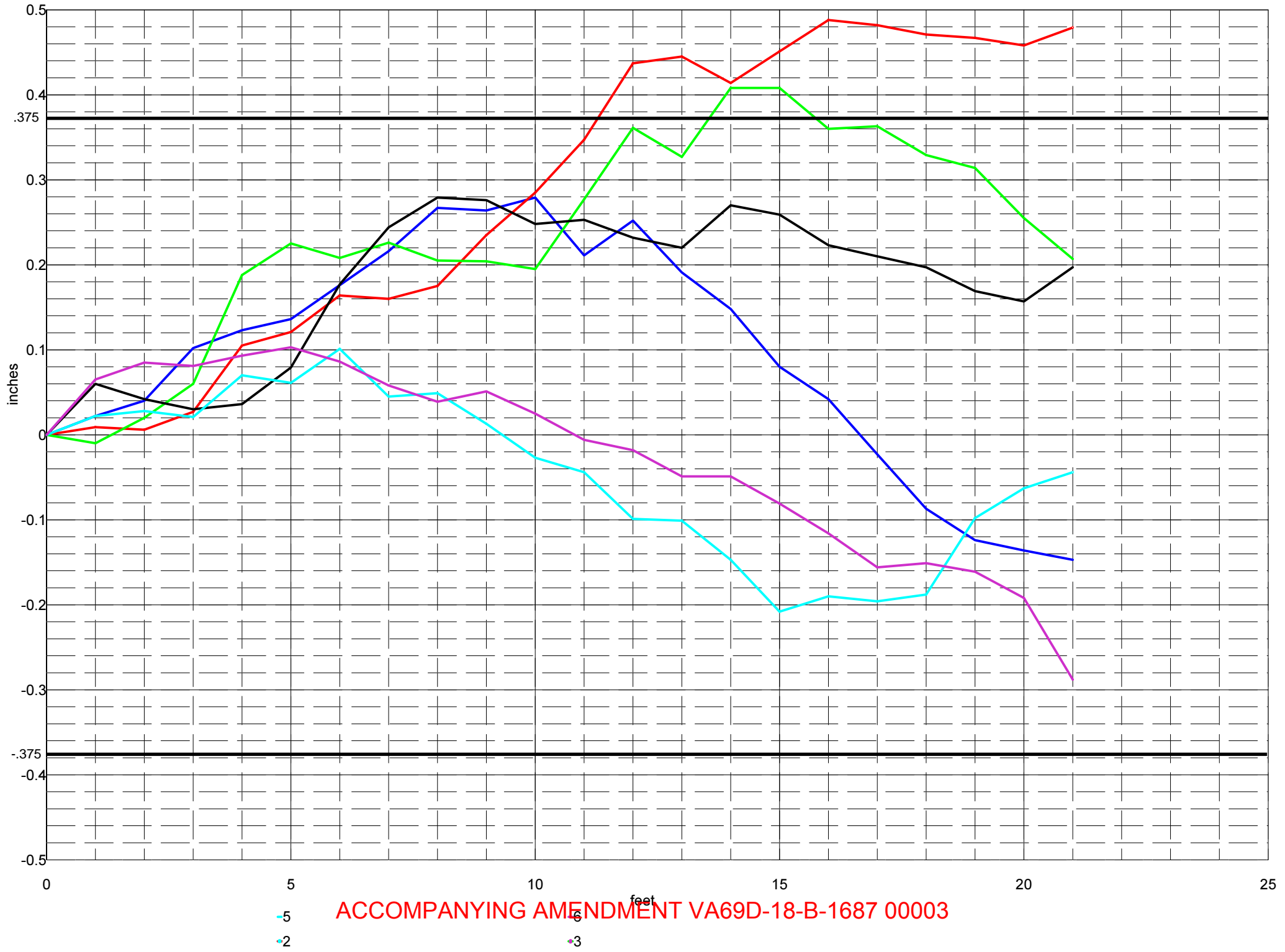
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Pour 8/26/15

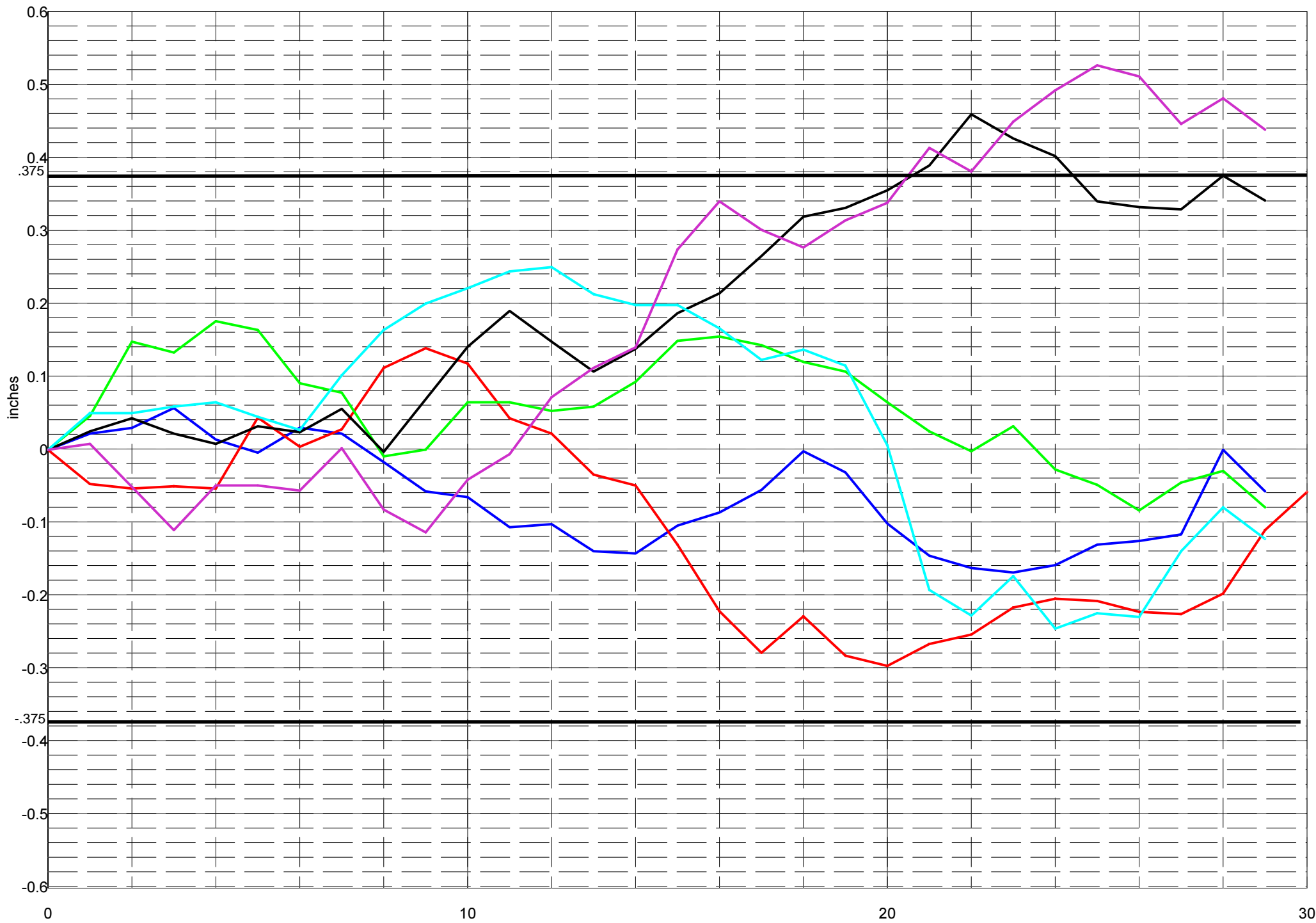
Elevations



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Pour 8/12/15

Elevations



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DEDUCT ALTERNATE No. 4 DELETE TRAMWAY LINK SCOPE WITHIN ENCLOSED BOX, OMIT FOOTING/FOUNDATION, FLOOR, FINISHES, INTERIOR/EXTERIOR WALLS, CEILINGS, DOORS, ROOF AND CAP FLASHING, ETC. EXISTING OPENING IN BUILDING B404 TO REMAIN. INFILL EXTERIOR WALL OPENING AT DOOR 1C03.1 WITH REMOVABLE EXTERIOR APC WALL PANEL.

