



MIKE CAUSEY, INSURANCE COMMISSIONER & STATE FIRE MARSHAL  
BRIAN TAYLOR, CHIEF STATE FIRE MARSHAL

January 6, 2022

Kenneth Michael  
Womble Bond Dickinson (US) LLP  
One West Fourth Street  
Winston-Salem, NC 27101

**RE: Stepped Aisle and Stairway Riser Uniformity  
2018 NCBC, Sections 1029.13.2.2.1 and 1011.5.4**

Mr. Michael:

This letter is in response to your request for formal interpretation dated December 16, 2021 that was received in NCDOI by email on that same date. Your request for formal interpretation states:

“Please confirm the following:

1. Stepped Aisles

- a. Please identify which runs of steps labeled A-W on Exhibit D are “Stepped Aisles”.
- b. To the extent there are Stepped Aisles on the Project, the applicable Code reference is the following:

**1029.13.2.2.1 Construction Tolerances**

“The tolerance between adjacent risers on a stepped aisle that were designed to be equal height shall not exceed 3/16 inch (4.8 mm). Where the stepped aisle is designed in accordance with Exception 1 of Section 1029.13.2.2, the stepped aisle shall be constructed so that each riser of unequal height, determined in the direction of descent, is not more than 3/8 inch (9.5 mm) in height different from adjacent risers where stepped aisle treads are less than 22 inches (560 mm) in depth and 3/4 inch (19.1 mm) in height different from adjacent risers where stepped aisles treads are 22 inches (560 mm) or greater in depth.”

- c. Even though the tolerance for adjacent riser heights is 3/16 Inch per Section 1029.13.2.2.1, a tolerance of 3/8inch is deemed to be in compliance with Code.

2. Stairways

- a. Please identify which runs of steps labeled A-W on Exhibit D are “Stairways.”
- b. To the extent there are Stairways on the Project, please confirm the applicable Code reference is Section 1011.5.4 Dimension Uniformity, to which: “Stair treads and risers shall be uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and the smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any flight of stairs;” with Exception 1 whereby: “Stairways connecting stepped aisles to

cross aisles or concourses shall be permitted to comply with the dimensional nonuniformity in Section 1029.13.2.”

3. Curved Steps at Stage (labeled O through W on Exhibit D)
  - a. Based on as-built survey (Exhibit C), please identify which runs of steps are not in compliance with 2018 NC Building Code.
  - b. For purposes of Code compliance, is it proper to assess all runs labeled O through W on Exhibit D, or just the ends with handrail (labeled O through W on Exhibit D)?”

**Remarks:**

Code sections noted in this letter are referring to the 2018 edition of the NC Building Code unless otherwise noted.

Attachment A is comprised of the request for formal interpretation as well as all supporting information and exhibits submitted with the request.

Attachment B is a drawing of the section through the site as requested by Carl Martin on December 28, 2021. The drawing was provided on December 30, 2021.

Attachment C is a photograph of the seating area of the “as-built” condition taken from the viewpoint of the performance area. The photo is of the left side of the seating area but portrays the condition of the entire seating area.

Attachment D is a photograph of the performance area taken from the viewpoint of the seating area.

Attachment E is a photograph of the walkway passing behind the seating area and providing access to the seating area as well a path of travel not related to the seating area. The seating (steps) seen to the left of the walkway appear to have been existing prior to the project in question.

3/16 inch equals 0.015625 feet.

3/8 inch equals 0.03125 feet.

**Code Analysis:**

Chapter 2 defines “Aisle” as follows:

**Aisle.** An unenclosed exit access component that defines and provides a path of egress travel.

*Comment: Normally all paths of egress within an assembly seating area would be an aisle.*

Chapter 2 defines “Exit Access” as follows:

**Exit Access.** That portion of a means of egress system that leads from any occupied portion of a building or structure to an exit.

*Comment: Aisles used for egress would be exit access aisles. Steps A through N on Exhibit C are, therefore, “stepped aisles” and Section 1029.13.2 will apply.*

The text of Section 1029.13.2.2.1 is included in the request for formal interpretation shown above.

*Comments: 1029.13.2.2.1 references Section 1029.13.2.2, exception #1.*

Section 1029.13.2.2 reads in part as follows:

**1029.13.2.2 Risers.** Where the gradient of stepped aisles is to be the same as the gradient of adjoining seating areas, the riser height shall be not less than 4 inches (102 mm) nor more than 8 inches (203 mm) and shall be uniform within each flight.

**Exceptions:**

1. Riser height nonuniformity shall be limited to the extent necessitated by changes in the gradient of the adjoining seating area to maintain adequate sightlines. Where nonuniformities exceed 3/16 inch (4.8 mm) between adjacent risers, the exact location of such nonuniformities shall be indicated with a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers. Such stripe shall be not less than 1 inch (25 mm), and not more than 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the contrasting marking stripe.

*Comments: Based on Attachment B below it does not appear that a 3/8 inch riser tolerance is needed for this site to “maintain adequate sightlines”.*

Chapter 2 defines “Stairway” as follows:

**Stairway.** One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

*Comment: The steps from the performance area to the cross aisle are for egress or convenience and therefore qualify as an exit access stairway and not a “stepped aisle”. Steps A, G, H and I provide access from a walkway down to the seating area and therefore appear to also be exit access stairways.*

Section 1011.5 states in part:

**1011.1 General.** Stairways serving occupied portions of a building shall comply with the requirements of Sections 1011.2 through 1011.13.

*Comment: Steps labeled A, G, H, I and O through W on Exhibit D would qualify as stairways and require compliance with Section 1011.5.*

Section 1011.5.4 states in part:

**1011.5.4 Dimensional uniformity.** Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any flight of stairs.

*Comment: Steps labeled O through W on Exhibit D can have a tolerance of 3/8 inch between the largest and smallest riser. With a curved stair the intent is to meet the uniformity in any likely path of travel which, in the case of the plan shown in Exhibit D of Attachment A, would be any path directly down the steps at a 90 degree angle to the top or bottom landings.*

**Conclusions:**

- 1a. Steps labeled B through F and J through N on Exhibit D appear to be “stepped aisles”.
- 1b. Section 1029.13.2.2.1 is the correct reference for addressing allowed riser height tolerance for stepped aisles.

- 1c. Section 1029.13.2.2.1 limits the riser height uniformity tolerance for stepped aisles to 3/16 inch unless an increase to 3/8 inch is required to “maintain adequate sightlines” for adjacent seating served by the stepped aisle. Attachment B below does not demonstrate a need for a 3/8 inch tolerance to maintain adequate sightlines for adjacent seating; therefore, the uniformity tolerance is limited by Section 1029.13.2.2.1 to 3/16 inch for the plan shown in Exhibit C.
- 2a. Steps labeled O through W on Exhibit D appear to be stairways providing egress and convenience for the performance area. Steps labeled A, G, H and I appear to be stairways providing access from an adjacent walkway to the seating area.
- 2b. Section 1011.5.4 is the applicable code section for steps labeled A, G, H, I and O through W on Exhibit D. The allowed maximum tolerance from the smallest to the greatest riser height is 3/8 inch.
- 3a. Any riser difference greater than 0.03125 feet (3/8 inch) of the smallest to the largest riser is not compliant with the applicable code requirement (ref. Section 1011.5.4).

Steps O are in compliance.

Steps P are in compliance.

Steps Q are not compliant because the difference in riser height from 0.50 to 0.56 is 0.06 feet which exceeds the allowed 0.03125 feet.

Steps R are not compliant because the difference in riser height from 0.49 to 0.54 is 0.05 feet which exceeds the allowed 0.03125 feet.

Steps S are not compliant because the difference in riser height from 0.51 to 0.57 is 0.06 feet which exceeds the allowed 0.03125 feet.

Steps T are not compliant because the difference in riser height from 0.49 to 0.56 is 0.07 feet which exceeds the allowed 0.03125 feet

Steps U are not compliant because the difference in riser height from 0.50 to 0.54 is 0.04 feet which exceeds the allowed 0.03125 feet.

Steps V are not compliant because the difference in riser height from 0.49 to 0.53 is 0.04 feet which exceeds the allowed 0.03125 feet.

Steps W are not compliant because the difference in riser height from 0.50 to 0.54 is 0.04 feet which exceeds the allowed 0.03125 feet.

Summary:

- Steps O and P comply with Section 1011.5.4.
- Steps Q thru W do not comply with Section 1011.5.4.
- Steps S, T and V could be made compliant if the bottom riser is marked as required by Section 1011.5.4.1.
- Steps U could be made compliant if the top riser is marked as required by Section 1011.5.4.1.

- 3b. Because steps O through W are all available to be traversed, Steps O through W must all comply with Section 1011 – Stairways.

Please call if you have comments or questions.

Sincerely,



Carl Martin, RA  
Deputy Commissioner  
Division Chief of Engineering

cc: File  
Bridget Herring, Chair – BCC  
Danny Priest, Vice-Chair – BCC  
Jason Shepherd, Chairman – BCC Fire Code Standing Committee  
Thomas O’Kelley, Director, Rowan County Bldg Inspections  
Scott Lowder, Sr. Inspector, Rowan County Bldg Inspections  
Jonathan Chamberlain, Chief Officer, RCCC  
Jim Atkinson, Project Manager, RCCC  
James Bernier, Jr., Special Deputy Attorney General, NCDOJ  
Jeff Hinkle, NC SCO Monitor  
Russell Killen, counsel for McAdams  
Nick Lowe, RLA McAdams  
Robert Attardo, counsel for Labella  
Andrew Chapin, counsel for WC Construction  
Bryan Badeaux, Surety Claims Counsel, Philadelphia Insurance

## **ATTACHMENT A**

womblebonddickinson.com

December 16, 2021

***Via Electronic Mail***  
[Mike.causey@ncdoi.gov](mailto:Mike.causey@ncdoi.gov)

Marshal Mike Causey  
Commissioner of Insurance  
Engineering Section of the North Carolina Department of Insurance  
430 North Salisbury Street  
1201 Mail Service Center  
Raleigh, NC 27699-1201



One West Fourth Street  
Winston-Salem, NC 27101

t: 336.721.3600  
f: 336.721.3660

Kenneth R. Michael, Esquire  
Partner  
Direct Dial: 336-721-3644  
E-mail: [Ken.Michael@wbd-us.com](mailto:Ken.Michael@wbd-us.com)

Re: **Appeal (Request) for Formal Interpretation (N.C. Gen. Stats. § 160D-1127)**  
Rowan Cabarrus Community College Outdoor Classroom Phase II  
1333 S. Jake Alexander Blvd., Salisbury, NC

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Commissioner Causey,

Womble Bond Dickinson is counsel for Rowan Cabarrus Community College. Pursuant to N.C. Gen. Stats. § 160D-1127, Rowan Cabarrus Community College ("Owner"), submits this appeal or request for a Formal Interpretation of the Rowan County Building Inspection Department's interpretation of the NC State Building Code relating to the as-built construction compliance of steps and stairs at the Rowan Cabarrus Community College Outdoor Classroom Phase II project in Salisbury, NC ("Project"). Please find attached the following key documents:

- Exhibit A Inspection Worksheet (INSP-420557-2021) by Scott Lowder of the Rowan County Building Inspection Department, dated December 7, 2021;
- Exhibit B December 15, 2021 11:44 AM clarification email from Thomas O'Kelly, Director of Rowan County Building Inspections;
- Exhibit C As-built spot elevation survey, dated August 24, 2021, by Douglas Surveying, PLLC, with subsequently added text of calculations in red font by the Designer, Nick Lowe, of McAdams; and
- Exhibit D For reference purposes only, Location Key for Stair Runs labeling on the as-built spot elevation survey all the runs of stairs on the project with letters A-W.

The Project is to comply with 2018 NC State Building Code. The Owner is concerned that the spot elevations on the as-built survey (Exhibit C) reveal steps and stairs with risers that do not comply with the tolerance between adjacent steps (we think 3/16") and run of steps which are labeled A-W on Exhibit D (we think 3/8").

**Please confirm (or clarify) the following:**

1. Stepped Aisles
  - a. Please identify which runs of steps labeled A-W on Exhibit D are "Stepped Aisles."
  - b. To the extent there are Stepped Aisles on the Project, the applicable Code reference is the following:

Womble Bond Dickinson (US) LLP is a member of Womble Bond Dickinson (International) Limited, which consists of independent and autonomous law firms providing services in the US, the UK, and elsewhere around the world. Each Womble Bond Dickinson entity is a separate legal entity and is not responsible for the acts or omissions of, nor can bind or obligate, another Womble Bond Dickinson entity. Womble Bond Dickinson (International) Limited does not practice law. Please see [www.womblebonddickinson.com/us/legal-notice](http://www.womblebonddickinson.com/us/legal-notice) for further details.

**1029.13.2.2.1 Construction Tolerances**

"The tolerance between adjacent risers on a stepped aisle that were designed to be equal height shall not exceed 3/16 inch (4.8 mm). Where the stepped aisle is designed in accordance with Exception 1 of Section 1029.13.2.2, the stepped aisle shall be constructed so that each riser of unequal height, determined in the direction of descent, is not more than 3/8 inch (9.5 mm) in height different from adjacent risers where stepped aisle treads are less than 22 inches (560 mm) in depth and 3/4 inch (19.1 mm) in height different from adjacent risers where stepped aisle treads are 22 inches (560 mm) or greater in depth."

- c. Even though the tolerance for adjacent riser heights is 3/16 Inch per Section 1029.13.2.2.1, a tolerance of 3/8 inch is deemed to be in compliance with Code.

2. Stairways

- a. Please identify which runs of steps labeled A-W on Exhibit D are "Stairways."
- b. To the extent there are Stairways on the Project, please confirm the applicable Code reference is Section 1011.5.4 Dimensional Uniformity, to which: "Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any flight of stairs;" with Exception 1 whereby: "Stairways connecting stepped aisles to cross aisles or concourses shall be permitted to comply with the dimensional nonuniformity in Section 1029.13.2."

3. Curved Steps at Stage (labeled O through W on Exhibit D)

- a. Based on the as-built survey (Exhibit C), please identify which runs of steps are not in compliance with 2018 NC Building Code.
- b. For purposes of Code compliance, is it proper to assess all runs labeled O through W on Exhibit D, or just the ends with handrails (labeled O and W on Exhibit D)?

Please note this Appeal (Request) is separate and apart from any independent professional duty of the design professionals on the Project, McAdams and Labella Associates. Please do not hesitate to let us know if you need any additional documents or information by contacting our design professional of record for the Project:

Nick Lowe RLA, ASLA, NRPA  
McAdams  
direct 980.729.6072 mobile 704.239.5088  
[nlowe@mcadamsc.com](mailto:nlowe@mcadamsc.com)  
3430 Toringdon Way, Suite 110, Charlotte, NC 28277

Thank you for your attention to this matter.

Sincerely,

WOMBLE BOND DICKINSON (US) LLP



Kenneth R. Michael

KRM: kwb

cc: Thomas O'Kelly, Director, Rowan County Bldg Inspections, [Thomas.okelly@rowancountync.gov](mailto:Thomas.okelly@rowancountync.gov)  
Scott Lowder, Sr. Inspector, Rowan County Bldg Inspections, [Jessie.Lowder@rowancountync.gov](mailto:Jessie.Lowder@rowancountync.gov)  
Jonathan Chamberlain, Chief Officer, RCCC, [jonathan.chamberlain@rccc.edu](mailto:jonathan.chamberlain@rccc.edu)  
Jim Atkinson, Project Manager, RCCC, [jim.atkinson@rccc.edu](mailto:jim.atkinson@rccc.edu)  
James Bernier, Jr., Special Deputy Attorney General, NCDOJ, [JBernier@ncdoj.gov](mailto:JBernier@ncdoj.gov)  
Jeff Hinkle, NC SCO Monitor, [Jeffrey.Hinkle@doa.nc.gov](mailto:Jeffrey.Hinkle@doa.nc.gov)  
Russell Killen, Esq., counsel for McAdams, [russellkillen@parkerpoe.com](mailto:russellkillen@parkerpoe.com)  
Nick Lowe, RLA, McAdams, [nlowe@mcadamsco.com](mailto:nlowe@mcadamsco.com)  
Robert Attardo, Esq., counsel for Labella, [RAttardo@LaBellaPC.com](mailto:RAttardo@LaBellaPC.com)  
Andrew Chapin, Esq., counsel for WC Construction, [AChapin@cgspllc.com](mailto:AChapin@cgspllc.com)  
Bryan Badeaux, Esq. Sr. Surety Claims Counsel, Philadelphia Insurance, [Bryan.Badeaux@phly.com](mailto:Bryan.Badeaux@phly.com)

Attachments:

- Exhibit A Inspection Worksheet (INSP-420557-2021) by Scott Lowder of the Rowan County Building Inspection Department, dated December 7, 2021;
- Exhibit B December 15, 2021 11:44 AM clarification email from Thomas O'Kelly, Director of Rowan County Building Inspections;
- Exhibit C As-built spot elevation survey, dated August 24, 2021, by Douglas Surveying, PLLC, with subsequently added text of calculations in red font by the Designer, Nick Lowe, of McAdams; and
- Exhibit D Location Key for Stair Runs labeling on the as-built spot elevation survey all the runs of stairs on the project with letters A-W.
-



**Exhibit A**  
**Inspection Worksheet (INSP-420557-2021) by Scott Lowder**  
**of the Rowan County Building Inspection Department, dated December 7, 2021**



INSPECTION WORKSHEET (INSP-420557-2021)		
Rowan County Building Inspections 402 North Main Street Suite 207 Salisbury, NC Phone: (704) 216-8619 Fax: (704) 216-7986		
Case Number:	COMM-04-20-073118	Case Module: Permit
Inspection Date:	Tue Dec 7, 2021	Inspection Status: Failed
Inspector:	Lowder, Scott	Inspection Type: Bldg Final - Res
Job Address:	1333 S JAKE ALEXANDER Blvd LVL 1 Salisbury, NC, 28146	Parcel Number: 063 068
Contact Type	Company Name	Name
Owner	ROWAN COUNTY	
Contractor General	*WC Construction Company, LLC	Cockerham, Jr, William
Owner	RCCC	
Checklist Item		Status
Inspector Comments - Inspector Comments		Failed
<p>1. No changes from previous inspection. Sections of steps in the stepped Aisles are not to code . 1 set on the left , 2 on the right looking down to the stage. These Aisle steps are designed to be equal with the gradient sealing areas. The seating areas are all uniform. The construction tolerances per 1029.13.2.2.1 for a design of equal tolerances ,needs to be meet .</p> <p>2. Need to test egress fighting in the aisles per the the previous inspection report.</p> <p>3. Need to have engineers data for bottom plate sealing not installed per previous inspection.</p>		
 _____ Lowder, Scott		
Dec 07, 2021 <span style="float: right;">Page (1)</span>		

Exhibit B  
December 15, 2021 11:44 AM clarification email from  
Thomas O'Kelly, Director of Rowan County Building Inspections

**From:** O'Kelly, Thomas <Thomas.O'Kelly@rowancountync.gov>  
**Sent:** Wednesday, December 15, 2021 11:44 AM  
**To:** Lowe, Nick <nlowe@mcadamsco.com>  
**Cc:** Lowder, Jessie Scott <Jessie.Lowder@rowancountync.gov>; Jim Atkinson <jim.atkinson@rccc.edu>; Danny Carpenter <danny.carpenter@rccc.edu>; David Malcolm <malcolm@mcadamsco.com>; Samuel Bush <samuel@wconstructionco.com>; William Cockerham <william@wconstructionco.com>  
**Subject:** RE: RCCC OLC Phase II

Gentlemen,

Good morning I hope all is well. After several correspondences email and phone with you all concerning the riser heights at the RCCC Outdoor Learning Center we have received from Land Surveyor Russell Douglas a more accurate measurement of the stair riser which show risers exceeding the tolerances of 3/8". Rowan County has field measured with tape measures and determined the stairs exceed 3/8" if you feel this Rowan County inspection is incorrect you may contact the Department of Insurance Building Division for a formal interpretation.

**ROWAN COUNTY**  
NORTH CAROLINA  
*Be an original.*

Thomas O'Kelly | Director  
Rowan County Building Inspections  
402 N. Main St. Salisbury, NC 28144  
[p] 704-216-8612 [c] 704-202-4132 [f] 704-216-7986  
[Thomas.okelly@rowancountync.gov](mailto:Thomas.okelly@rowancountync.gov)  
[www.rowancountync.gov](http://www.rowancountync.gov)

**From:** Nick Lowe <nlowe@mcadamsco.com>  
**Sent:** Tuesday, December 14, 2021 3:59 PM  
**To:** O'Kelly, Thomas <Thomas.O'Kelly@rowancountync.gov>  
**Cc:** Lowder, Jessie Scott <Jessie.Lowder@rowancountync.gov>; Jim Atkinson <jim.atkinson@rccc.edu>; Danny Carpenter <danny.carpenter@rccc.edu>; David Malcolm <malcolm@mcadamsco.com>; Samuel Bush <samuel@wconstructionco.com>; William Cockerham <william@wconstructionco.com>  
**Subject:** RCCC OLC Phase II

Thomas

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I hope you have been doing well. Upon review of the most recent inspection report dated December 7<sup>th</sup>, 2021 for the above mentioned project, we would like to clarify whether particular sets of stairs are approved or disapproved or whether there was a general determination that the stairs do not meet code. Also, I understand that you may need a copy of the survey elevations for the stairs that were taken by WCCC. I have attached that for your convenience.

Thanks,



Nick Lowe RLA, ASLA, NRPA  
senior landscape architect, planning + design

direct 980.729.6072 mobile 704.239.5088  
[nlowe@mcadamsco.com](mailto:nlowe@mcadamsco.com)  
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E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.  
(NCGS.Ch.132)

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Exhibit C

As-built spot elevation survey, dated August 24, 2021, by Douglas Surveying, PLLC, with subsequently added text of calculations in red font by the Designer, Nick Lowe, of McAdams

[See attachment]

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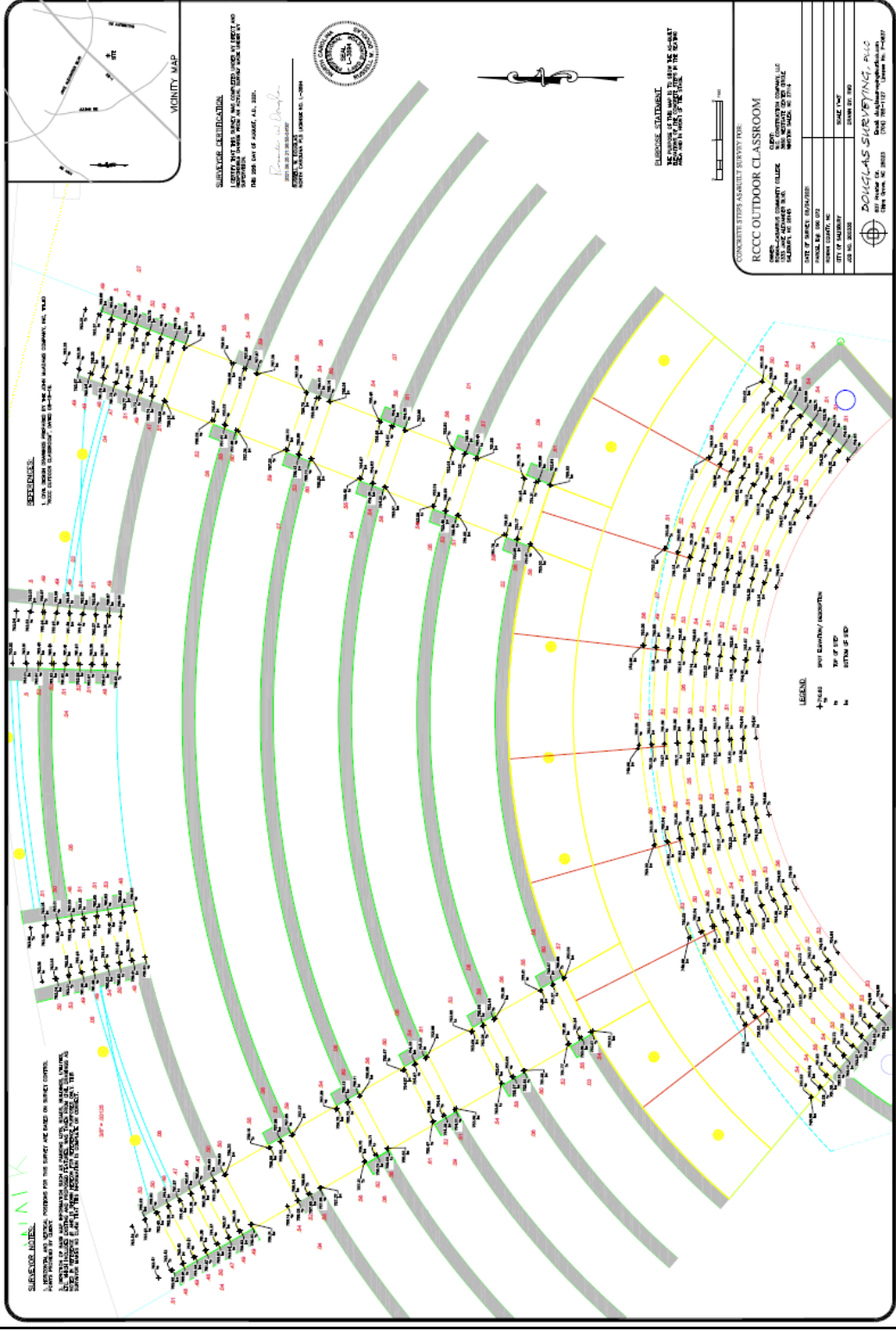
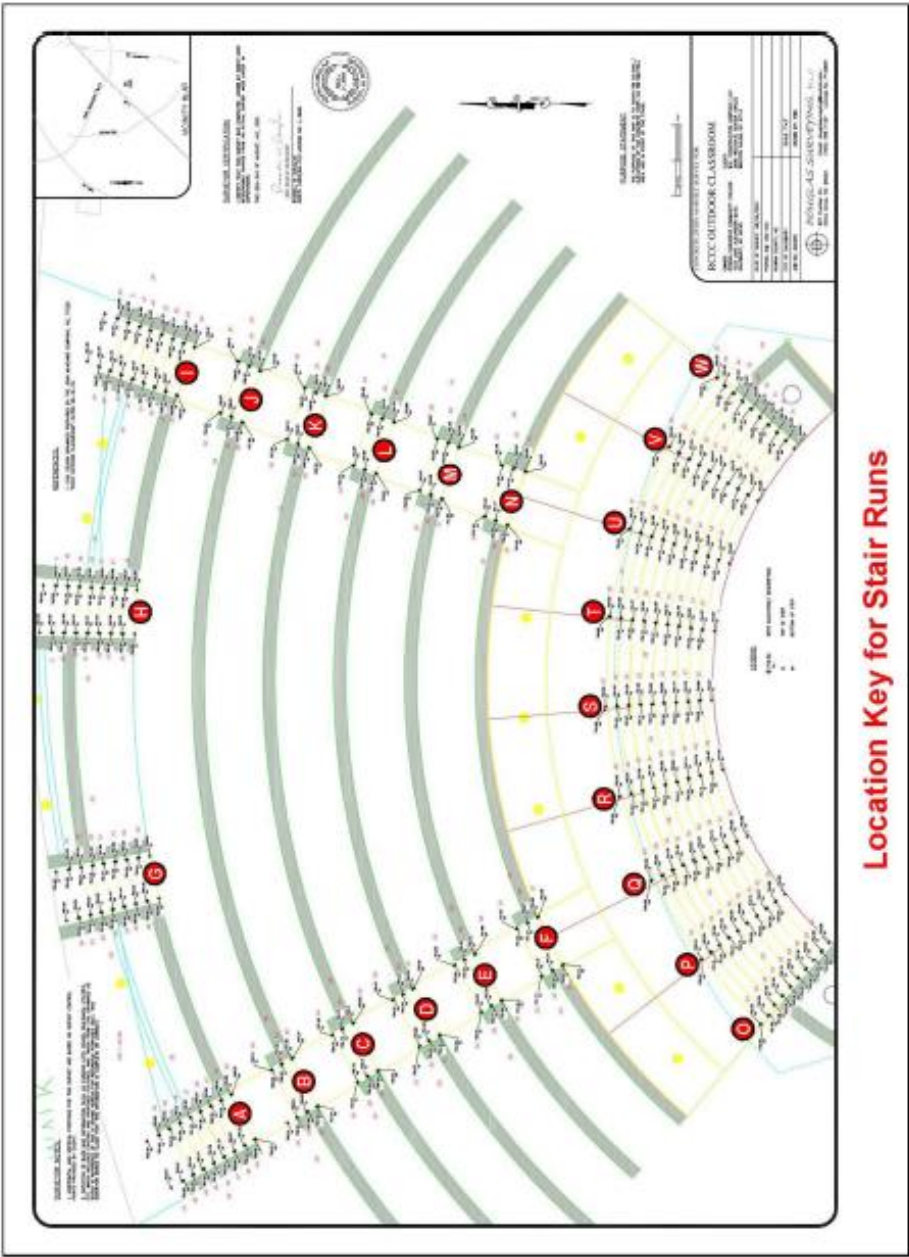
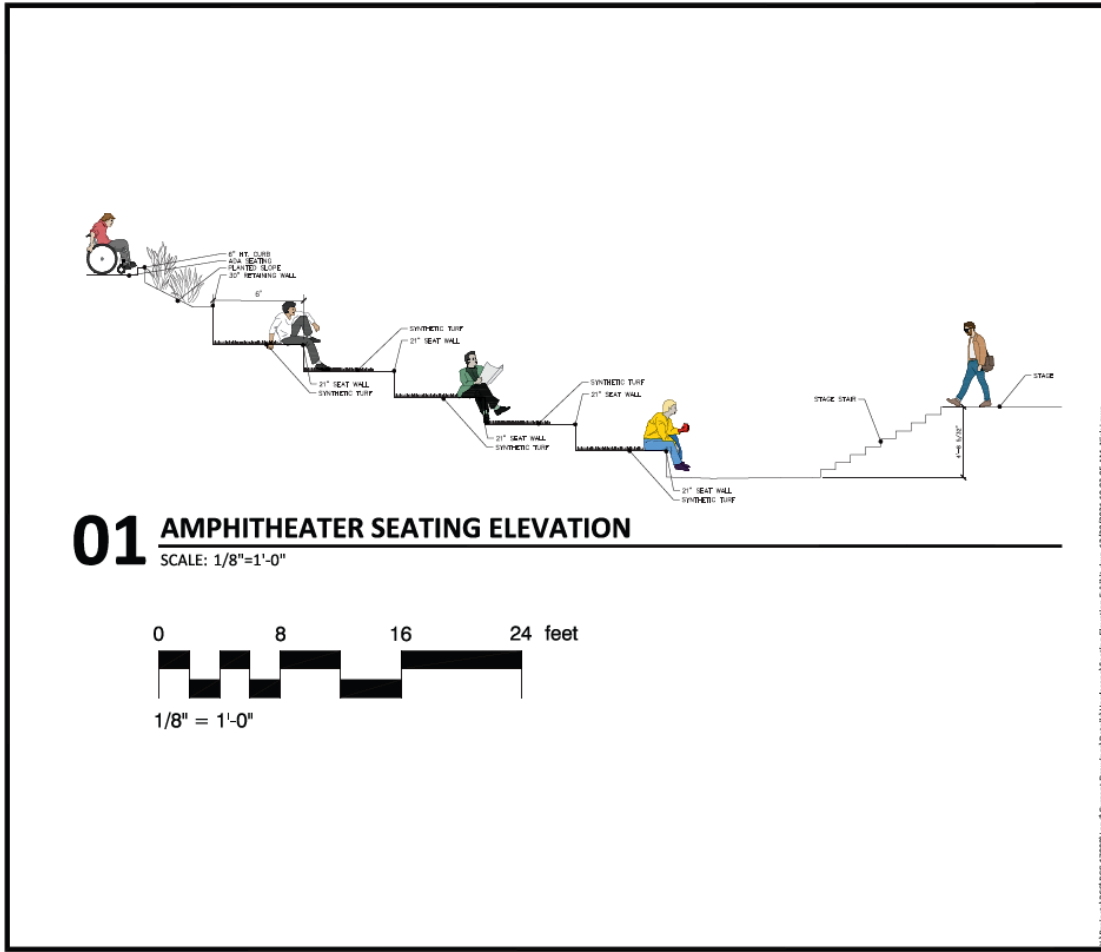


Exhibit D  
Location Key for Stair Runs labeling on the as-built spot elevation survey all the runs of stairs on  
the project with letters A-W  
(for reference purposes only)



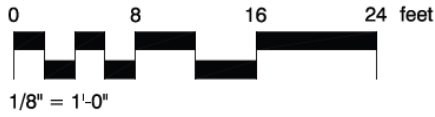
Location Key for Stair Runs

# ATTACHMENT B



## 01 AMPHITHEATER SEATING ELEVATION

SCALE: 1/8"=1'-0"



**PLAN INFORMATION**  
 PROJECT NO. RCC-17000  
 EXHIBIT  
 FILENAME ANL  
 CHECKED BY ANL  
 DRAWN BY ANL  
 SCALE 1/8" = 1'-0"  
 DATE 12.28.2021

**RCCC OLC PHASE II**  
**AMPHITHEATER SEATING**  
**ELEVATION**  
 1333 JAKE ALEXANDER BLVD.  
 SALISBURY, NC

N:\Projects\RCCC\17000\Land\Current Drawings\Details\Hardscapes\Seating Elevation Exhibit.dwg, 12/20/2021, 10:02:09 AM, Nick Lowe

The John R. McAdams Company, Inc.  
 2105 Parkside Avenue  
 Durham, NC 27713  
 Phone 919.361.5000  
 Fax 919.361.2269  
 License number: C-0293, C-187  
 www.mcadamsco.com



**ATTACHMENT C**





**ATTACHMENT D**



**ATTACHMENT E**

