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National Institute of Building Sciences | Provider Number: G168

BECx, Construction, and the Kick-Off Meeting Success Via Vigilance Breaks

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BURNS  **MCDONNELL**

Course Number

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.





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Learning Objectives

At the end of this course, participants will be able to:

- 1 Explain the purpose of the BECx process through the lens of the pre-construction kick-off meeting.
- 2 Describe how to prepare for an effective pre-construction kick-off meeting.
- 3 Identify where in the specifications the pre-construction kick-off meeting should be specified and what divisions should be referenced.
- 4 Assess how to coordinate building enclosure components and why it's important to coordinate them.





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Outline

- Definitions
- Poll audience / word cloud questions
- Introduce Idea of vigilance breaks
- Q+A / examples / dialogue
- Successful pre-construction kick-off meetings
- Close with any additional questions / dialogue





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Definitions = Ground Rules

- Pre-con kick-off meeting
- Building enclosure
- Building Enclosure Commissioning (BECx)





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Pre-Construction Kick-Off Meeting

Conducting a pre-construction kick-off meeting serves to outline the objectives of the BECx process as well as the team member roles and responsibilities.

Who is each person

What does each person care about

Why is each person here

When will each person do the thing they are getting paid to do

Where does each person's work take place

No job is completely defined until the pre-con meeting is conducted.





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The Building Enclosure

What is the building enclosure?

Materials,
Components,
Systems, and
Assemblies...

Intended to provide shelter and environmental separation between interior and exterior, or between two or more environmentally distinct interior spaces in a building or structure. (from ASTM E2813-12)

Its purpose is to keep in IN and out OUT.





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Building Enclosure Commissioning

What is BECx?

Building Enclosure Commissioning is a process that begins with the establishment of the Owner's Project Requirements (OPR) and endeavors to ensure that the exterior enclosure and those elements intended to provide environmental separation within a building or structure meet or exceed the expectations of the Owner as defined in the OPR. (from ASTM E2813-12)

A program ideally running concurrently with the project as it moves from design through construction to occupancy with focus on the performance of the enclosure systems as required by the Owner



Designation: E2813 – 12

Standard Practice for Building Enclosure Commissioning¹

This standard is issued under the fixed designation E2813; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.



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NIBS Guideline 3-2012

Building Enclosure Commissioning Process BECx

*This Guideline is for Use with ASHRAE Guideline 0-2005:
The Commissioning Process*





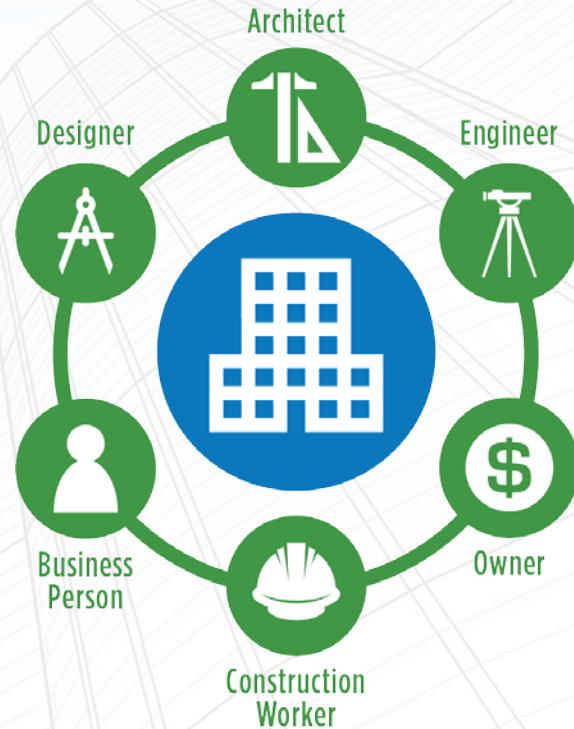
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Introductions and Audience Poll

We come from different backgrounds and have different responsibilities on each project in which we are involved.

What are the roles and responsibilities you have on projects, particularly on the job site, when the construction is taking place?





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Audience Poll

Q U E S T I O N S



What is your role in
the industry?



Word cloud: what is one
word that describes your
experience at pre-con
kickoff meetings?



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Vigilance Breaks in Surgery

TIME-OUT + CHECKLIST

Anesthesiologists used this approach at University of Michigan Medical School led by Dr. Tremper to improve surgical procedures. Presented in Daniel Pink's book *When*.

Simple 3 minute break before surgery translated into

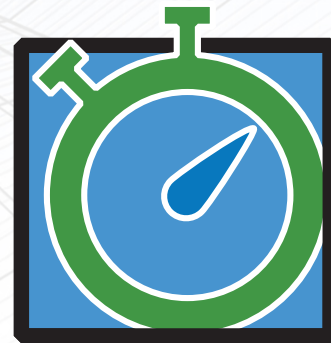
- Increased quality
- Declined complications
- More ease among doctors and patients

Creating a moment to

- Pause
- Regain focus
- Then undertake the next milestone

This is a BIG deal!

Let's see how it applies in our industry.





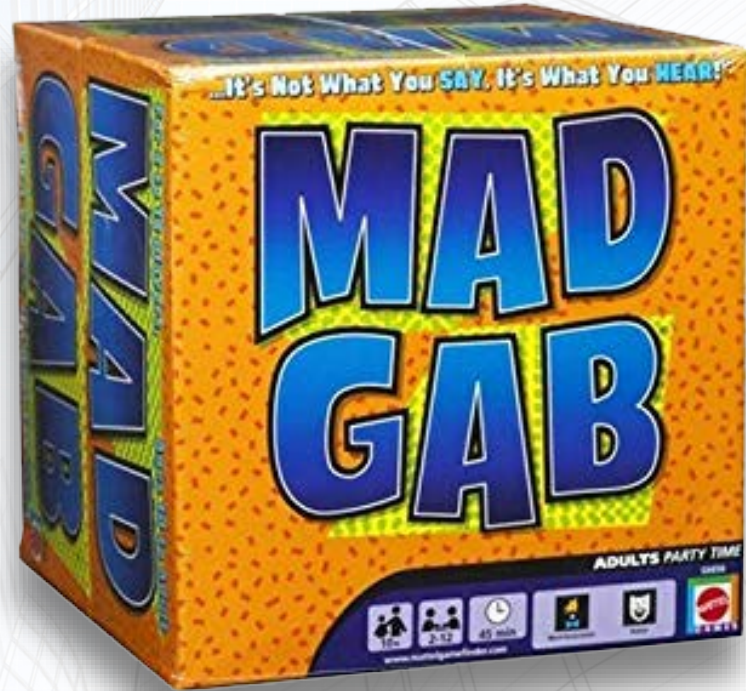
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Communication is Key

Have you
ever played
MAD GAB?





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Communication is Key

Aid Are Crank Loud





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Communication is Key

Sometimes what you say doesn't come out in a way that others can understand.



Hearing
is not the
same as
listening!





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Communication is Key

A Dark Rain Cloud





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Vigilance Breaks in Construction

Success of the building enclosure relies on cross-disciplinary communication

Invest the time in bringing teams together at intervals throughout the process

Critical in this process is the pre-construction kick off meeting – the pivotal point in the project between concept and reality

We will talk about how to prepare for an effective pre-con kick off meeting

What can happen when you don't





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Q&A

- Why are building enclosures so hard to design?
- Why are building enclosures so hard to construct?
- What risks in construction are potentially mitigated by the involvement of a building enclosures specialist?
- Do you feel it is beneficial to have the Mechanical engineer and/or the Mechanical contractor present at the pre-construction kick-off meeting?





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Q&A

- What is critical information to include in the specifications for submittals related to the building enclosure?
- What is the difference between a pre-construction meeting and a pre-installation meeting?
- What are some compatibility issues to look out for and cover in the pre-con meeting?
- What is the most obvious thing you saw go wrong?





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The Building Enclosure

Coordination of building enclosure components – how to do it and why it's important

Define the building enclosure – 6 sided and not all the same material.

Transition details are critical.

99% of the building envelope will typically function properly, but the 1% is what can undermine it – and create a magnitude of problems.

Time and money can be saved by getting the enclosure right the first time, and not having to come back for issues down the road.

The 1-10-100 rule.





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How to Prepare

Who should be present at pre-con kick-off meeting?

- Design Team (Architect, Engineers, Consultants)
- Owner
- Contractor
- Subcontractors
- Manufacturer Representatives



Why?

- The 6 blind men and the elephant parable

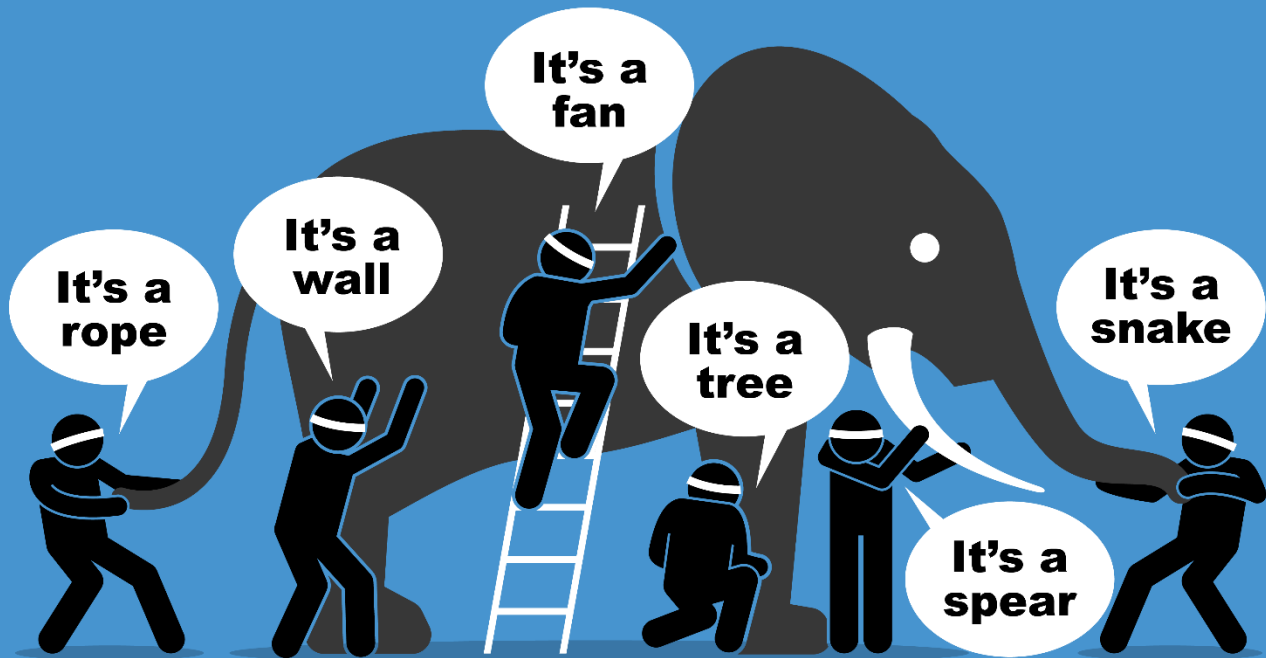


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Perspective is Everything





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Coordinating Components

Coordination of the building enclosure components:

- Coordinated shop drawings for addressing adjacent systems. Subcontractors can typically obtain from the manufacturer, but don't let this happen in a vacuum – foster appreciation for adjacent work to create plans for continuity of materials
- Well developed Construction Documents
 - Continuity and integrity of
 - Air control
 - Thermal resistance
 - Water (liquid and vapor) control
- Mock-ups





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Pre-Construction Kick-Off Meeting

This meeting will not happen unless it is **SPECIFIED** in the project manual. It must be prioritized for it to happen. Make it a “party” with all subs included – open the conversation, allow dialogue to happen, questions to be asked.

Set expectations that are based in reality, and can incorporate potential challenges for when something doesn't go as planned.





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How to Prepare

SPECIFY a pre-con kick-off meeting

- 01 40 00 – Quality Requirements
- Pre-Construction Meetings
- Pre-Installation Meetings

Address PERFORMANCE requirements

- Functional Performance Testing
- Quantity
- Location(s)
- Pass/Fail Criteria
- Non-Conformance





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Pre-Construction Kick-off Meeting Agenda Items

Specific topics should be covered including but not limited to:

- Introductions, including roles and responsibilities,
- Different parts and pieces of BECx for this project,
- Description of BECx activities, including scheduling and sequencing,
- Site Visits, Mockups, Inspection, Testing,
 - Checklists, Contractor site specific QA/QC plan,
 - Performance requirements,
- Expectations (documentation and communication),
- Deficiencies (non-conformance issues and resolutions log),
- Deliverables at close-out,
- Lessons Learned from previous BECx projects.





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Pre-Construction Kick-off Meeting

Additional Topics to Cover

Additional topics should be covered including but not limited to:

- Sequence of installation where different systems interact
- Compatibility of different systems and materials
- Weather restrictions for materials being used
- Coordinating inspections for items that get 'covered up'





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The Building Enclosure

Let's dive into some of the enclosure parts that are so complicated we've decided to focus on it today.



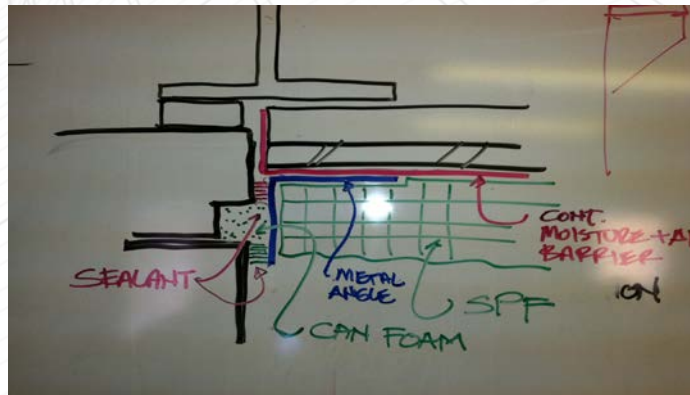


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Are the Products Compatible?





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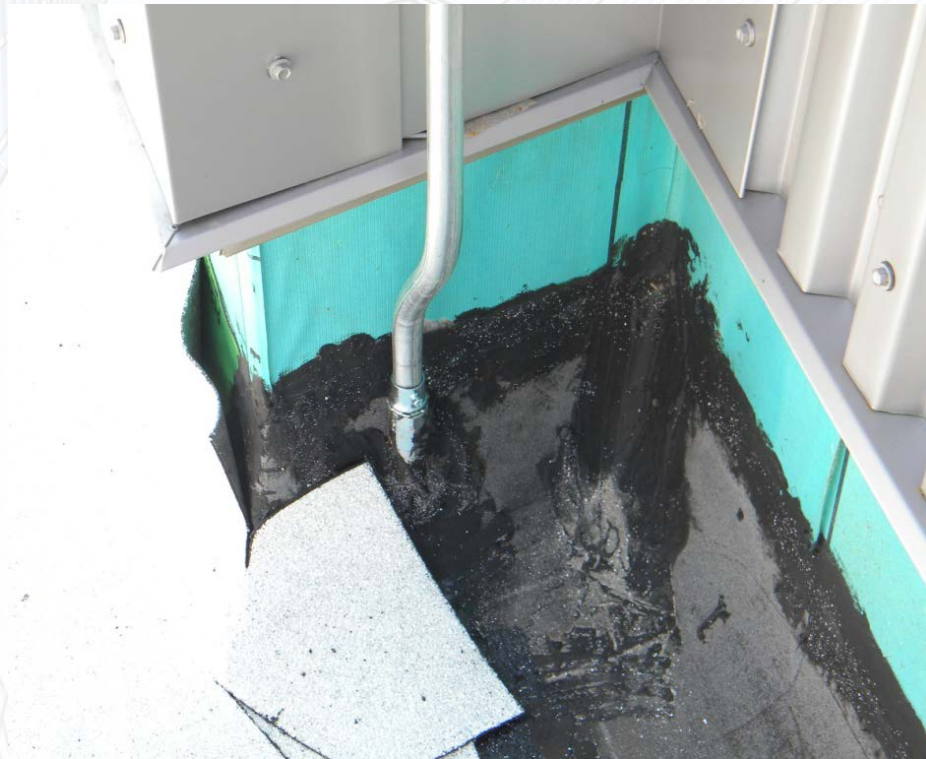
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Importance of Coordination





Importance of Timing



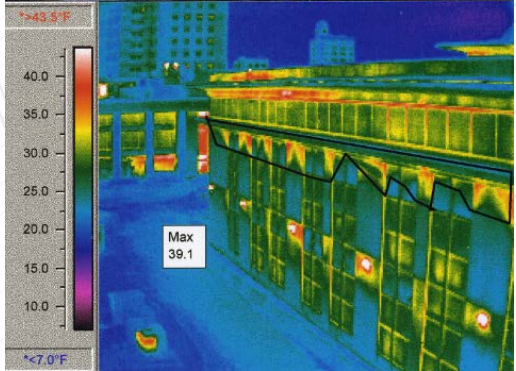
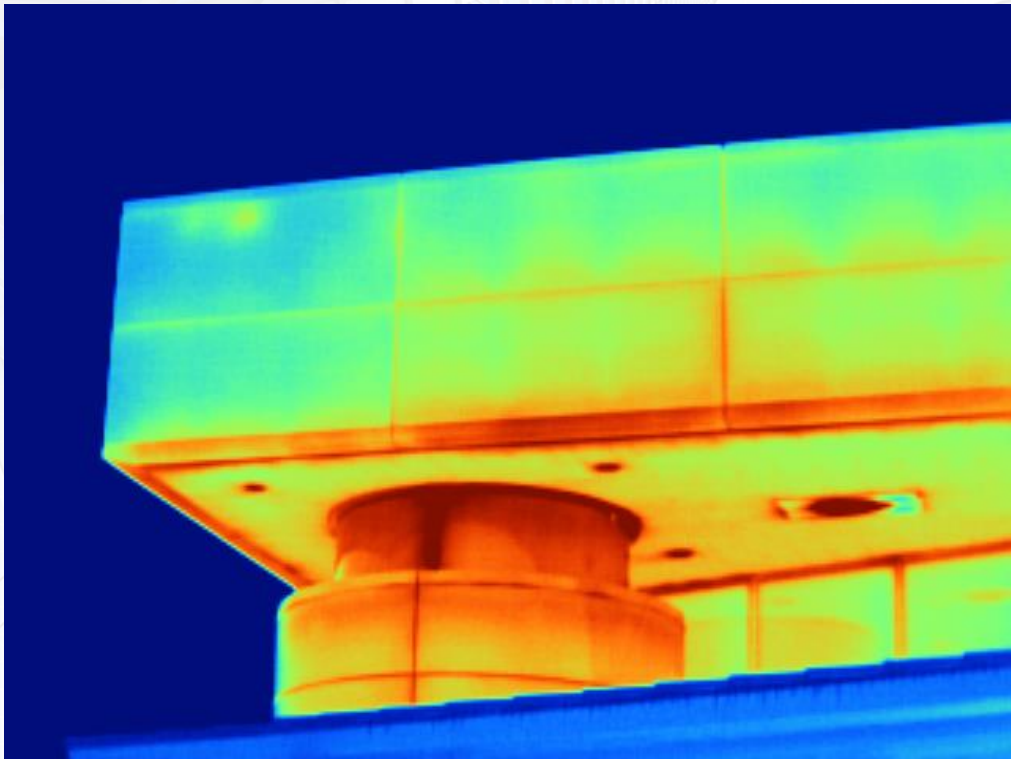


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Looks Can Be Deceiving...



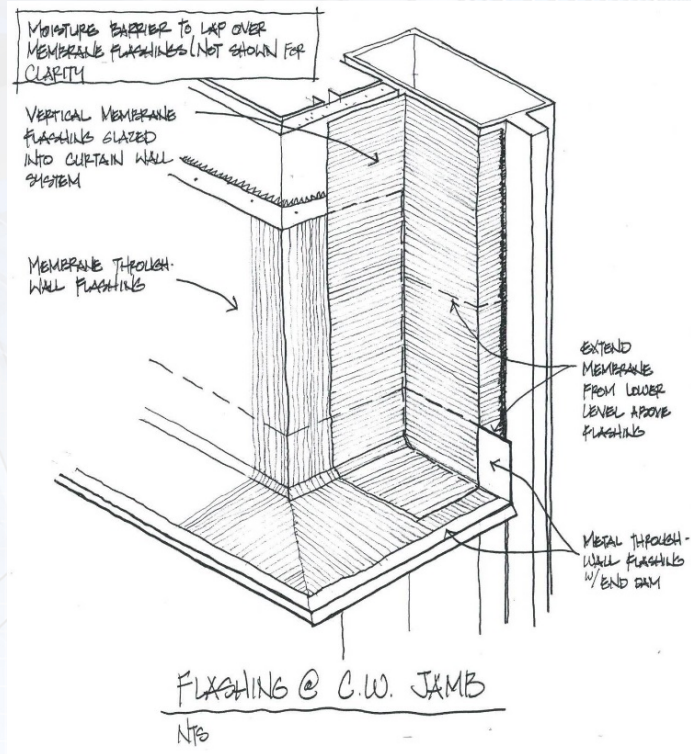


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Details are Never Typical





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Project Example





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Project Example





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