



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Design Memorandum No. 20-22

October 8, 2020

TO: All Design, Operations, and District Personnel, and Consultants

FROM: /s/ Katherine Smutzer
Katherine Smutzer
Acting Director, Standards & Policy Division
Engineering Department

SUBJECT: Mass Concrete

REVISES: *Indiana Design Manual (IDM) Section 405-1.08 (new) and Figure 405-1D, Mass Concrete (new)*

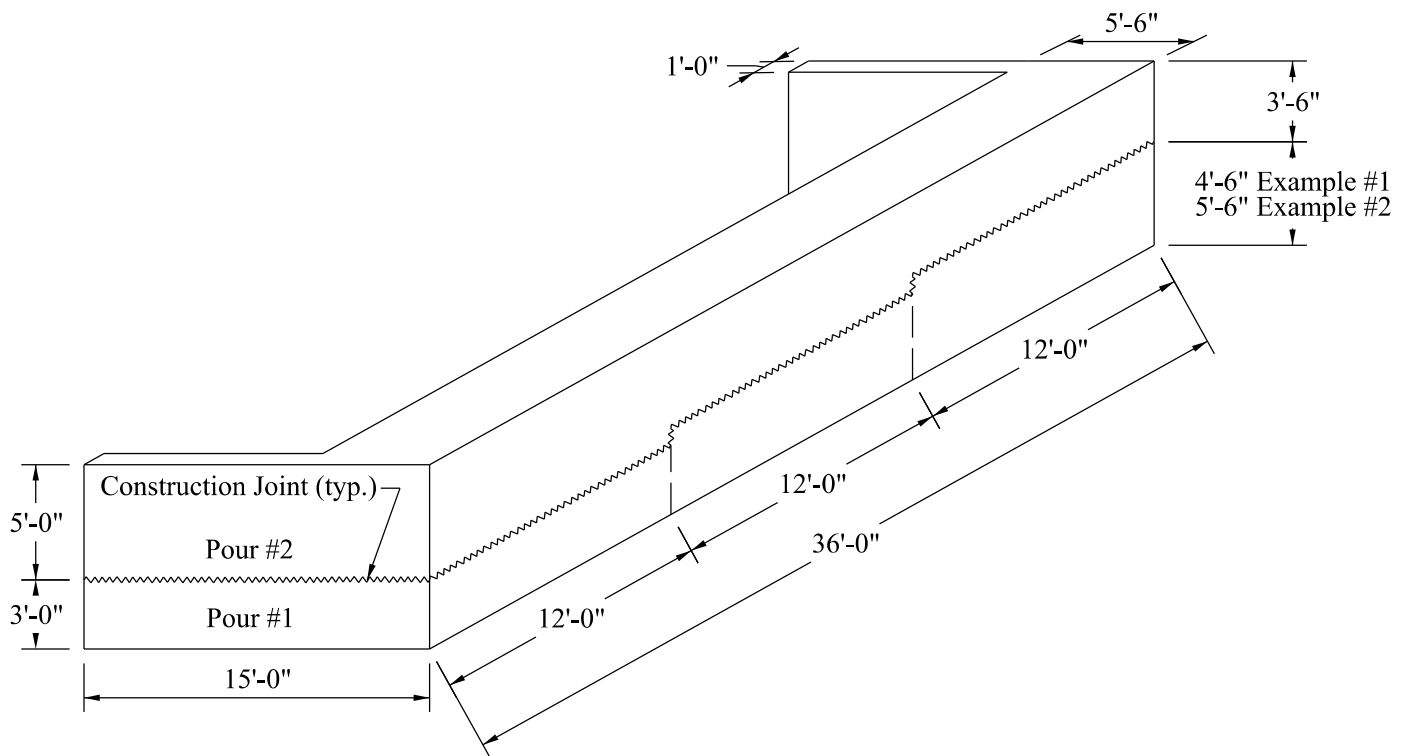
EFFECTIVE: Stage 3 Submittal on or after October 8, 2020

The referenced section of the IDM has been added to provide guidance on when concrete pours should be considered mass concrete, which will require coordination with the Office of Materials Management.

IDM Revisions

405-1.08 Mass Concrete [New Oct. 2020]

Large volumes of concrete require special materials or placement procedures to limit thermal cracking and other risks associated with high heat of hydration. Concrete elements with least dimensions greater than 5 ft should be considered mass concrete and the designer should coordinate with the Office of Materials Management to develop a Unique Special Provision for mass pour requirements. Figure 405-1D, Mass Concrete, provides examples.



INTEGRAL END BENT ISOMETRIC VIEW

MASS CONCRETE DEFINITION - EXAMPLES

EXAMPLE #1: The portion of Pour #1 with the largest least dimension is the tallest step in the end bent cap, with dimensions of 4'-6" x 5'-6" x 12'-0". Since the least dimension of 4'-6" is less than or equal to 5'-0", Pour #1 would not be considered mass concrete. The portion of Pour #2 with the largest least dimension is above the lowest step in the end bent cap, with dimensions of 5'-0" x 5'-6" x 12'-0". Since the least dimension of 5'-0" is equal to the limit of 5'-0", Pour #2 would not be considered mass concrete. Therefore, this end bent would not be considered mass concrete.

EXAMPLE #2: The portion of Pour #1 with the largest least dimension is the tallest step in the end bent cap, with dimensions of 5'-6" x 5'-6" x 12'-0". Since the least dimension of 5'-6" is greater than 5'-0", Pour #1 would be considered mass concrete. Therefore, this end bent would be considered mass concrete and the Designer should coordinate with the Office of Materials Management to develop a Unique Special Provision for mass pour requirements.

EXAMPLE 3#: Using the dimensions shown in Example #1, assume the Construction Joint between Pour #1 and Pour #2 has been noted as "Optional" on the plans. The Contractor may elect to place both pours at the same time, which would result in a least concrete dimension of 5'-6" x 8'-0" x 12'-0". Therefore, this end bent would need to be considered mass concrete due to the potential for a single pour with a least dimension greater than 5'-0", and the Designer should coordinate with the Office of Materials Management to develop a Unique Special Provision for mass pour requirements, should the Contractor elect to omit the optional construction joint.

MASS CONCRETE

Figure 405-1D
[New October 2020]