

ENGINEERING MEMORANDUM

TO	Brandi Sweeney, Morrow County School District				
FROM	Jeff Schott, P.E.				
PROJECT	Irrigon Jr/Sr. High School				
SUBJECT	Structural Observations				
DATE	12/23/2025	PROJECT #	2025-053	MEMO #	EM-01

On the afternoon of Monday, December 22, 2025, I visited the Irrigon Junior/Senior High School to observe the condition of some building damage previously identified in 2023. In 2023, we determined that several structural elements were compromised to the extent that shoring was recommended (and installed). Further, we recommended that the building be replaced due to some fundamental shortcomings in the design, construction and condition of the structure. The fundamental shortcomings involved the details of construction, and specifically the design of the roof diaphragm, lateral system, and connection details. Due to poor detailing, at several locations the attachments of roof structure to the wall panels or beams have been damaged or ruptured.

I met Quentin Wares, the head custodian, and we did a brief walk-through of the facility and the areas that had previously been inspected and/or shored. The most severe and obvious damage is near the main building entrance at panel P6, and beams B10 and B11. There is concern that the damage observed in 2023 may be getting worse and that there is further displacement between building elements.

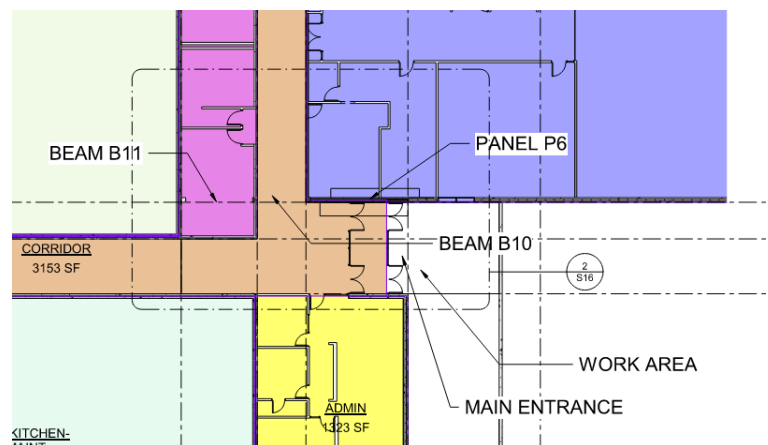


Figure 1 Vicinity Map

We compared pictures and notes taken in late 2023 to the current condition, and it appears that the condition of the damaged elements has not changed materially. We noted no damage to additional elements.

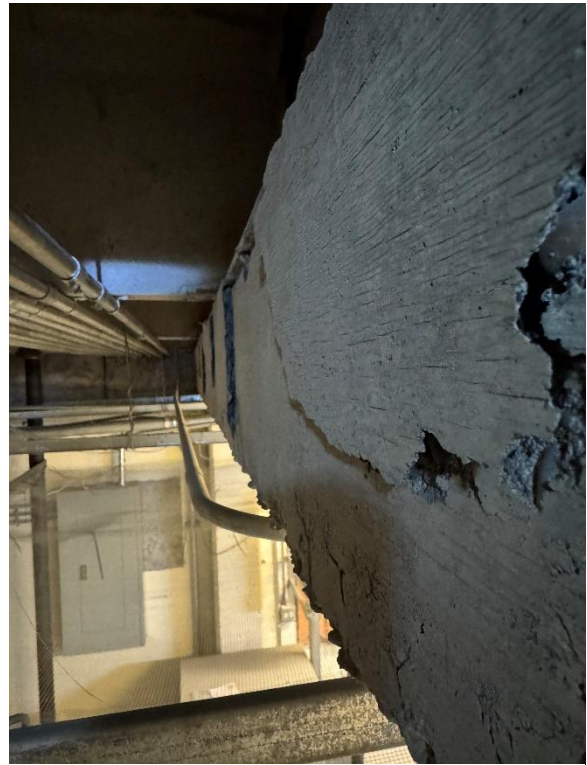
Our opinion established in 2023 is that the damage observed at P6, B10 and B11 is primarily due to the double-tee roof panels being welded and rigidly connected at both ends of the panels. This restrains expansion and contraction along the length of the roof panel that may occur due to changes in temperature, changes in roof loads (rain/snow), changes in moisture content and/or creep. The force required to restrain the change in length is substantial, and it is greater than the connections can resist. The result is that “something must give” and in this case it’s a rupture of the connections at P6, B10 and B11.

Current detailing of similar connections between pre-cast roof panels and supporting elements typically involves anchoring one end with a rigid connection and then placing the other end on a composite bearing connection that allows for some movement (expansion or contraction) of the roof panel.

Based on our observations, the connections have ruptured, but in doing so it relieved the stress on the panels and connections. This new state of equilibrium appears to be relatively stable with respect to panel end position.

There are other shortcomings of the structural system identified in the 2023 observations, but these did not directly cause damage to the subject elements. Previous observations noted that the roof panels south of P6, B10 and B11 had shrank or displaced, on average, about $\frac{3}{8}$ " – $\frac{1}{2}$ " to the south. This is consistent with the measurements taken on December 22, 2025.

There is also cracking near the bearing plates of some of the double-tee roof panels over the maintenance storage mezzanine. These are cracks and not full ruptures but may be indicative of unintended axial stresses in the panel.



Picture 1: B11 South Face



Picture 2 South Face Panel P6

To better monitor future displacement, we placed 8 crack monitoring gauges near the location of the damage to monitor movement of the roof panels relative to the supports at P6, B10 and B11 and over the mezzanine. The pictures below indicate the location, and the status of the crack gauges. Attached drawing S16 shows the location of the gauges.

The installation of these gauges is a bit unusual because most crack gauges are configured to monitor in-plane cracking and not out-of-plane movement (movement perpendicular to the line of support). The gauges were anchored with either fast-curing epoxy or cyanoacrylate (super glue). In some cases, supplemental angle irons were used to support gauges along the axis of measurement perpendicular to the support.

Our intent is to periodically monitor the gauges for any movement. We anticipate that under normal conditions there will be little movement, but that under a snow load the panels will temporarily lengthen a bit.



Picture 3 P6- Rule type



Picture 4 B11 Corner type



Picture 5 B10 North side, corner type.



Picture 6 B10, North side



Picture 7 B10, South side



Picture 8 Mezzanine t/panel



Picture 9 Mezzanine, m/panel



Picture 10 Mezzanine, b/panel

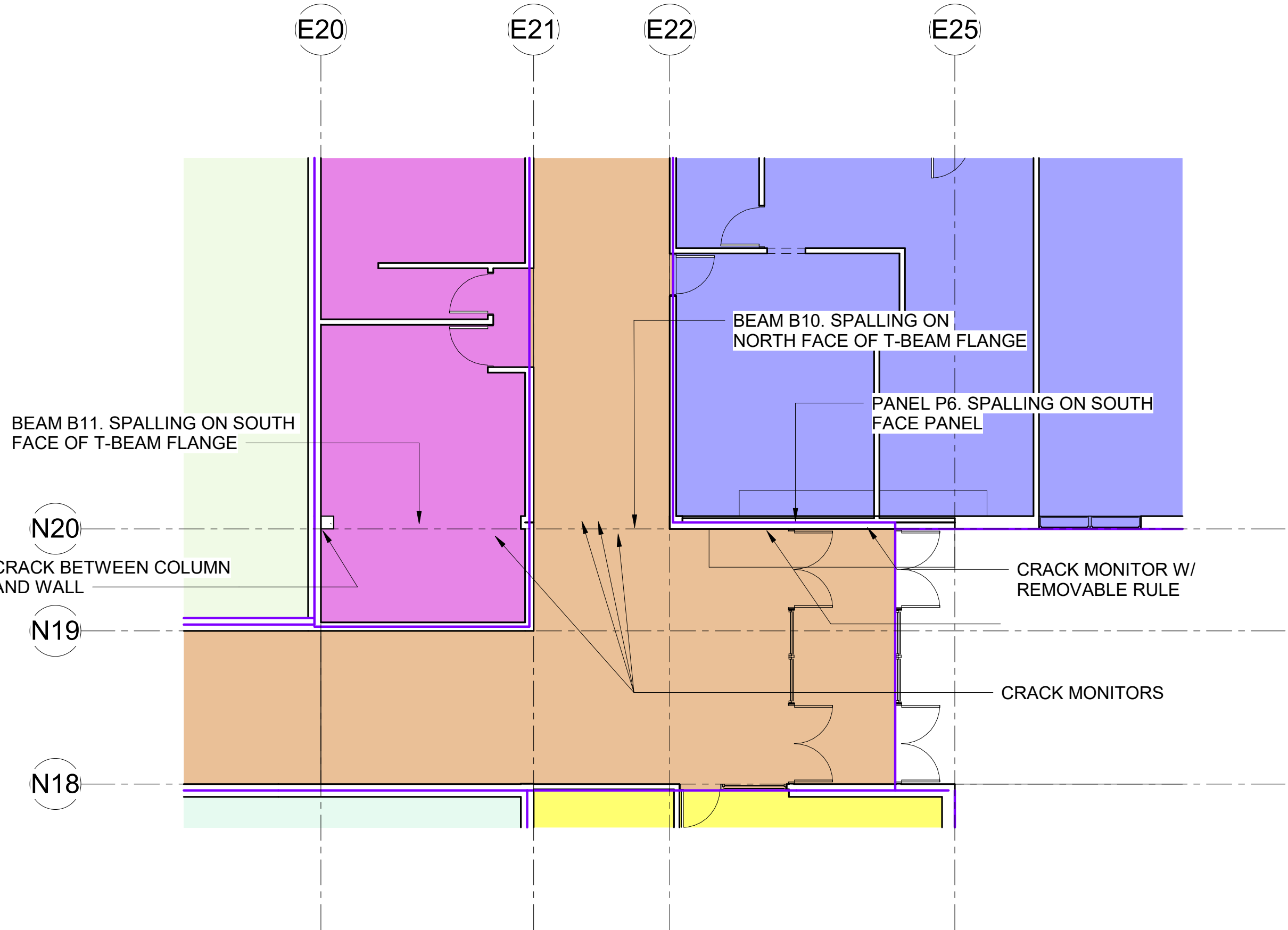
CRACK MONITOR LOCATIONS
IRRIGON JR. - SR. HIGH
MORROW COUNTY SCHOOL DISTRICT

**FOR
REFERENCE**

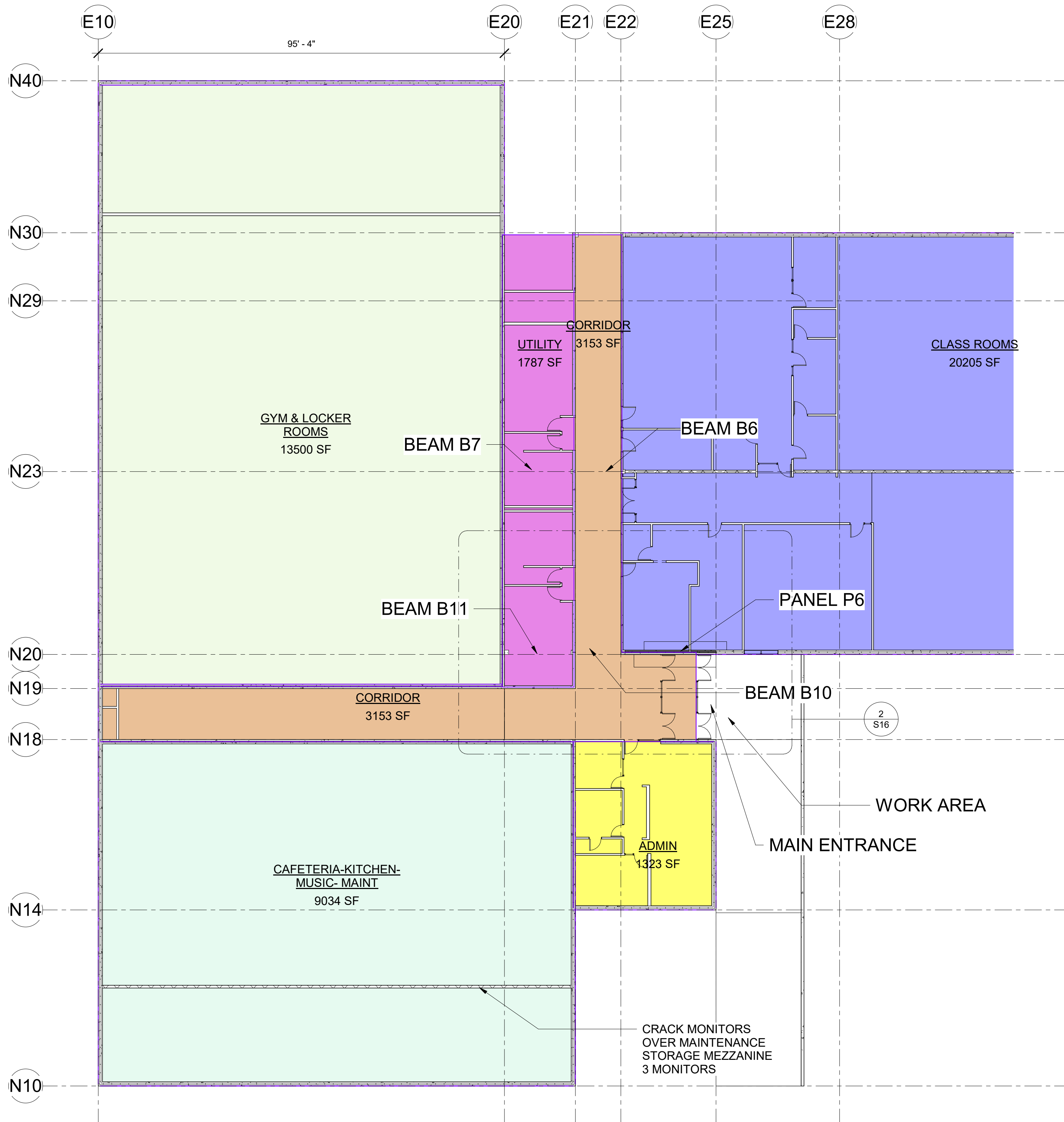
Project number	2025053
Date	12/23/25
Drawn by	Author
Checked by	Checker

S16
Status:

12/23/2025 10:34:35 AM



2
S16
CRACK MONITOR LOCATION ENTRY
1/8" = 1'-0"



1
S16
BUILDING AREA PLAN MONITORING
1/16" = 1'-0"