



July 29, 2022

Mr. Dan McKechnie
Facilities Planning
Los Rios Community College District
3753 Bradview Drive
Sacramento, CA 95826

Subject: American River College – Davies Hall
Lift Slab Construction/Structural Review
4700 College Oak Drive
Sacramento, CA 95841

Dear Dan,

It is our understanding, Brian King, Chancellor, Los Rios Community College District was contacted by Ida Antonioli Clair, AIA, State Architect, regarding the construction type of Davies Hall at American River College. It is our further understanding the Division of the State Architect (DSA) has design concerns related to structures of lift slab design/construction and the possibility of progressive collapse during a lateral seismic/wind event.

At your request, we performed a site visit on Thursday, June 30, 2022, to subject building at American River College to observe existing construction and determine if the facility is of lift slab construction. We invited Richard Dreyer with Holmes, a structural engineer we have worked with on previous projects, to attend. With your involvement and the Division of the State Architect's office, we were able to locate copies of the original construction documents including the building's structural design and the lift slab design to assist in our review.

Having reviewed the existing structural and lift slab construction documents, observed areas of the existing structure during the site observation, and consultation with Mr. Dreyer, the building appears to be of lift slab construction. Attached is a letter from Mr. Dreyer, addressed to our office, with his opinions and recommendations.

Please do not hesitate to call with any questions.

Sincerely,

A handwritten signature in blue ink that reads 'William D. Bevier'.

William D. Bevier, SE
President

Attachment:

July 14, 2022

Jeff Kovach
Bevier Structural Engineering
2479 Sunrise Blvd.
Gold River, CA 95670

RE: DSA A#26784 Davies Hall, American River College

Dear Jeff,

At your request, we have performed an investigation to determine if the subject building is of “lift-slab” construction. Lift Slab Construction is a form of construction, popular in the 1960’s and 1970’s, where floor and roof slabs are cast on grade and then lifted into place and connected to either precast concrete or steel columns with welded steel plate inserts on the columns and steel collars cast into the concrete slabs. Our investigation to date consists of the following actions by Holmes:

1. Perform a site visit to observe the interface between the concrete slabs and the reinforced concrete columns.
2. Review of “as-built” structural working drawings dated 12/6/1965 by Barovetto and Thomas Architects.
3. Discussions about the building construction with both yourself and Mr. Bill Bevier

Observations

1. Site Visit: On Thursday June 30, we made a visit to the subject building at American River College. Present were Bill Bevier and Dan, the campus facilities personnel. We were able to find a column at the corner of a classroom, on the second floor, where we could pull back the suspended ceiling tile and observe a portion of the apparent precast concrete column and its interface with the concrete floor slab above us. We were able to observe spray-on fireproofing over what was likely the connection between the steel lifting collar and the column. Unfortunately, the steel was not readily visible due to being covered by the fireproofing. The presence of fireproofing over a steel component between the slab and column would suggest that the building is of lift-slab construction.
2. As-Built Drawings: during the subsequent week, we reviewed the plans and details referenced above. The drawings are organized as S sheets S1 thru S16. These generally depict the general structural

configuration of the building, the foundations, the design of the lateral force resisting system and the attachment of the exterior precast elements, etc. there are then the L sheets that range from L1 to L8. These drawings generally depict the post-tensioned design for the floor and roof slabs, the design of pre-cast reinforced concrete columns as well as the details for the lifting collars and the interface between the lifting collars that are cast into the slabs and the interface with the column. Below are the details that we believe are the most indicative of lift-slab construction:

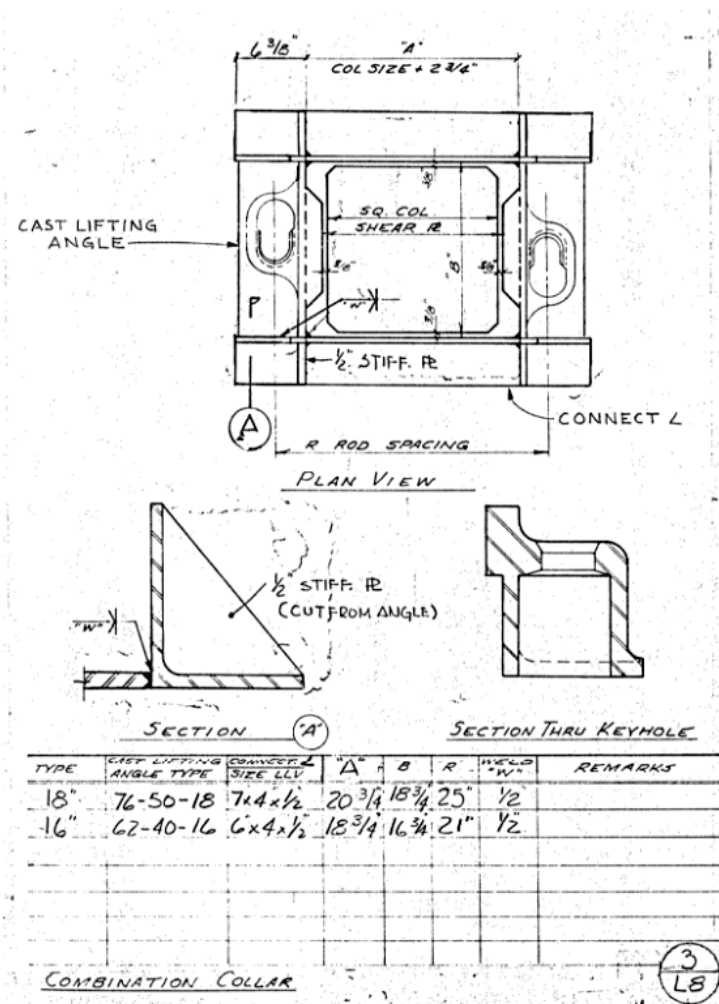


Fig. 1: Plan View of Lifting Collar, Detail 3/L8

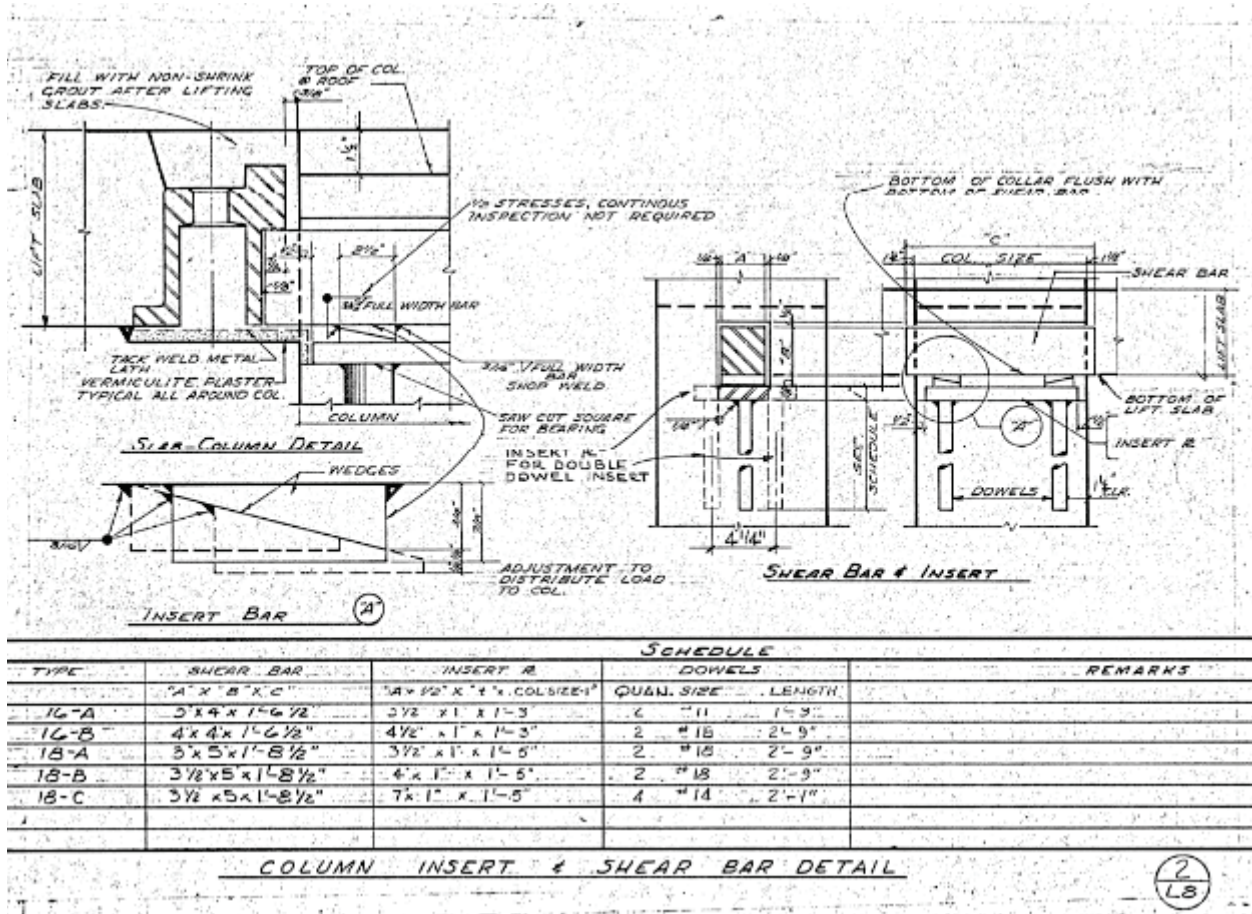


Fig. 2: Sections Through Lifting Collar and Column Interface

Conclusions and Recommendations

Based upon our observations in the field and on the drawings, it is our opinion that the subject building is of lift-slab construction. The fireproofed collar observed in the field suggests that there is a steel component adjoining the slabs to the columns that is vulnerable to fire. This would not be the case with conventional reinforced concrete flat-slab construction. Observing the details both in the "S" sheets and the "L" sheets of drawings marked "as built," lift slab construction was used unless, for some unlikely reason, these drawings are not correct.

Because the building is of lift-slab construction, it may be in danger of progressive collapse during a seismic event. It is therefore potentially a DSA Category 2 building which is defined as a building that will not perform well during a seismic event and may pose life safety concerns.

We recommend the following actions:

1. Verify the existing construction of the lifting collar and column interface with non-destructive testing and removal of some of the fireproofing. It will be very important to understand this connection to understand the fragility of the building with respect to lateral forces.
2. Perform a lateral analysis of the existing building structure using modeling techniques that will capture the flat-slab and column frame action and the ability of the column slab connections to sustain these actions. Looking at the buildings lateral force resisting system, we do not believe the current system is very stiff and there may be significant interaction with the slabs and columns.

Yours very truly,
HOLMES US

A handwritten signature in black ink, appearing to read 'R. Dreyer', with a long horizontal stroke extending to the right.

Richard C. Dreyer SE Architect
SR. PRINCIPAL