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# Final summary report, March 1971

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FINAL SUMMARY REPORT

by

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March 1970

Fritz Engineering Laboratory Report No. 346.7

ABSTRACT

The following report is a final summary report of the work done on Project 346 by Sung-Woo Kim from September 1967 to March 1971.

All materials are placed in binders and labelled in sequence.

1. LIST OF FILE

- Book 346.1 Calculation for selection of restrained column test specimens, RC-1, RC-2 and RC-3. Design of test setup and related drawings.
- Book 346.2 Details of instrumentation used in RC-1, RC-2 and RC-3 and Test Data
- Book 346.3 Printout of strain data. Data reduction. Graphs for theoretical predictions and test results
- Book 346.4 Computer program for data reduction (RC-1, RC-2 and RC-3) and reduced data from computer
- Book 346.5 Computer output for column deflection curve of test specimen
- Book 346.6 Work order blanks
- Book 346.7 Drawings
- Book 346.8 Material property tests and calibrations
- Book 346.9 Photo and slide book
- Book 346.10 Correspondence of Project 346. Technical Proposal No. 2 (F.L. Report No. 346.2). F.L. Report No. 346.3
- Book 346.11 Trial calculations for selection of one-story assemblage test specimens
- Book 346.12 Design and test setup for one-story assemblage tests, SA-1 and SA-2
- Book 346.13 Generation of theoretical predictions for SA-1 and SA-2
- Book 346.14 Test data and strain output. Data reduction. Graphs for test results
- Book 346.15 Computer program and output for prediction curves of SA-1 and SA-2
- Book 346.16 Computer program for data reduction (SA-1 and SA-2) and reduced data from computer

- Book 346.17      Basic trial for the concept of sway increment;  
1) second-order elastic analysis (1-bay 2-story frame)  
2) second-order elastic-plastic analysis (1-bay 2-story  
    frame)  
3) one-story assemblage analysis (up to 6 bays)
- Book 346.18      Literature survey for development of sway increment  
    method and general theoretical development of the method
- Book 346.19      Computer programs and flow charts for sway increment  
    method and one-story assemblage method
- Book 346.20      Frame analysis with computer programs of sway increment  
    method and one-story assemblage method (materials for  
    numerical analysis in Report 346.5)
- Book 346.21      Computer program and output of frame analyses (sway  
    increment analyses of Frames 2, 3, 4, 5 and 6 in Report  
    346.5)
- Book 346.22      Computer program for a frame with hinge bases and output  
    of frame analyses (Frames 3 and 5 in Report 346.5)
- Book 346.23      Computer program for one-story assemblage method and  
    output of analyses (Frames 4, 5 and 6 in Report 346.5)
- Book 346.24      Computer program for analysis of Tarimci's test frames  
    with sway increment method and output for the analyses.

## 2. MATERIALS LEFT IN STOCK

The following materials, which were purchased or used for Project 346, are in stock as of March 1971. All materials were properly marked with yellow paint.

### 2.1 Unused Materials

1. An 11' length of W8 x 24 marked with 346-8W24-C5
2. A 15'-9" length of W8 x 40 marked with 346-C3
3. A 23'-9" length of M12 x 22 marked with 346B1  
A 21'-5" length of M12 x 22 marked with 346B6  
A 12'-7" length of M12 x 22 marked with 346B5

### 2.2 Used Materials

1. Two 15 -ft. beams of M12 x 22 saved after restrained column tests, marked with 346-12B22
2. Four 9-ft. columns of W8 x 24 saved after one-story assemblage tests, marked 346-8W24
3. Two 9-ft. columns of W8 x 40 saved after one-story assemblage tests, marked 346-8W40

### 3. LIST OF COMPUTER PROGRAM

The following computer programs have been developed for the work on Project 346. Those programs are documented in the related files presented in List of File in this report. The program decks are stored at Dr. J. H. Daniels' office.

1. Computer program for data reduction of restrained column tests, RC-1, RC-2 and RC-3
2. Computer program for data reduction of one-story assemblage tests, SA-1 and SA-2
3. Program for sway subassemblage analysis of frames with concentrated beam loads
4. Program for sway increment analysis of frames with distributed beam loads and fixed bases (presented in Report 346.6)
5. Program for sway increment analysis of frames with distributed beam loads and hinge bases
6. Program for sway increment analysis of frames with concentrated beam loads
7. Program for one-story assemblage method (using sway increment)

4. LIST OF PUBLICATIONS

1. Kim, S. W., Daniels, J. H. and Lu, L. W.  
TECHNICAL PROPOSAL NO. 1 - RESTRAINED COLUMN TESTS, Fritz Engineering Laboratory Report No. 346.1, Lehigh University September 1967.
2. Kim, S. W., Daniels, J. H. and Lu, L. W.  
TECHNICAL PROPOSAL NO. 2 - COMPARATIVE BEHAVIOR OF TWO, ONE-STORY ASSEMBLAGES, Fritz Engineering Laboratory Report No. 346.2, Lehigh University, June 1969.
3. Kim, S. W. and Daniels, J. H.  
EXPERIMENTS ON RESTRAINED COLUMNS PERMITTED TO SWAY, Fritz Engineering Laboratory Report No. 346.3, June 1970.
4. Kim, S. W. and Daniels, J. H.  
EXPERIMENTS ON UNBRACED ONE-STORY ASSEMBLAGES, Fritz Engineering Laboratory Report No. 346.4. (In preparation)
5. Kim, S. W. and Daniels, J. H.  
ELASTIC-PLASTIC ANALYSIS OF UNBRACED FRAMES, Fritz Engineering Laboratory Report No. 346.5, March 1971.
6. Kim, S. W. and Daniels, J. H.  
COMPUTER PROGRAM FOR ELASTIC-PLASTIC ANALYSIS OF UNBRACED FRAMES, Fritz Engineering Laboratory Report No. 346.6, March 1971.
7. Kim, S. W.  
ELASTIC-PLASTIC ANALYSIS OF UNBRACED FRAMES, Ph.D. Dissertation, March 1971.

5. ADDRESS AND FUTURE EMPLOYMENT

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