

Repairing & Maintenance of Building

Engr. M A Wahed

Senior Research Engineer

HBRI

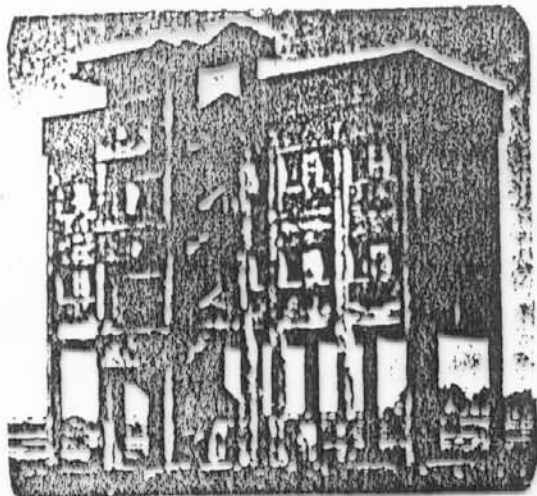


Photo 1. General view of poor condition

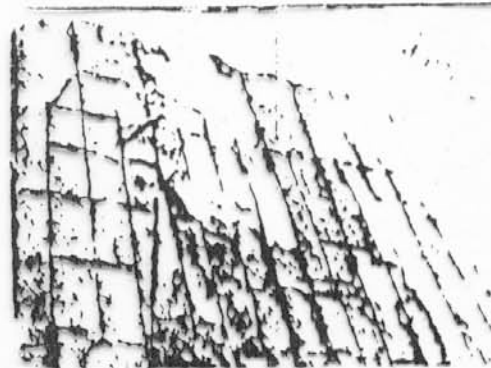


Photo 2. Slab reinforcement exposed due to spalling of concrete

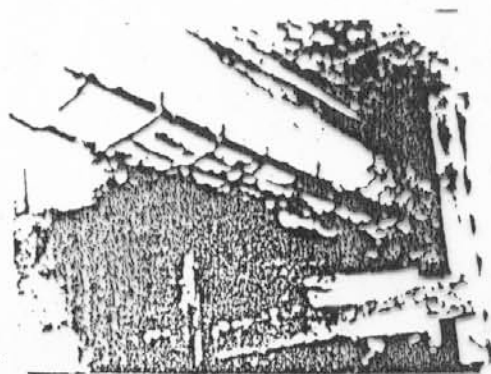


Photo 3. Beam reinforcement exposed due to spalling of concrete



Photo 4. Spalling of concrete in column and slab



Photo 5. Cracks in columns



Photo 6. Spalling of concrete in column

Causes of Deterioration of Concrete Structures

1. Occurrences incident to construction operations

- a. Localized settlements of the subgrade
- b. Movements of the formwork
- c. Vibrations
- d. Internal settlement of the concrete suspension
- e. Setting shrinkage
- f. Premature removed of shores

2. Temperature stresses

- a. Variations in atmospheric temperature
- b. Variations in internal temperature

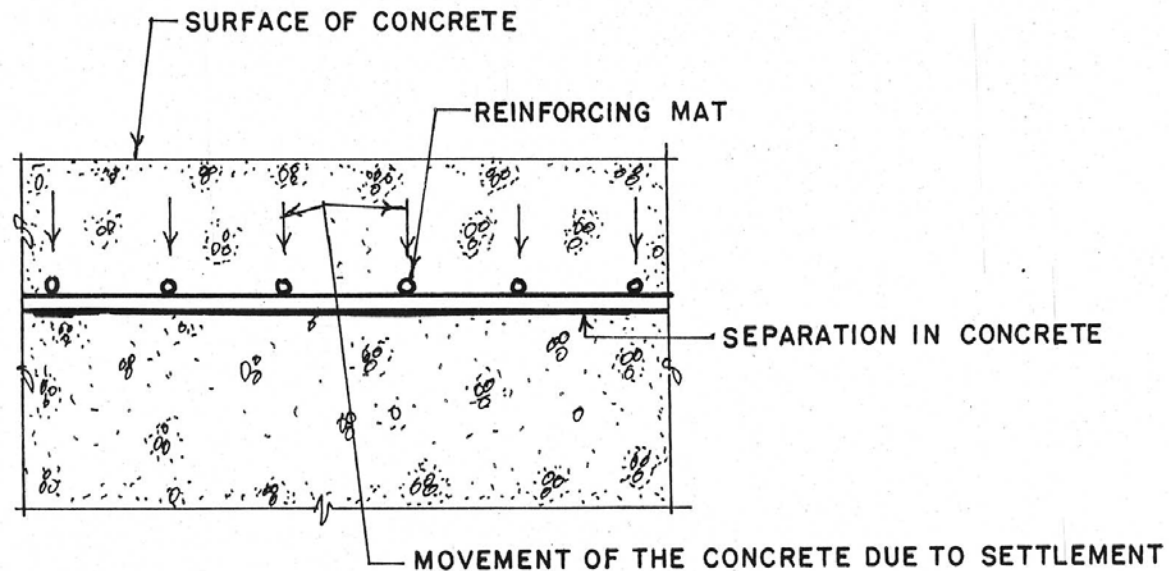
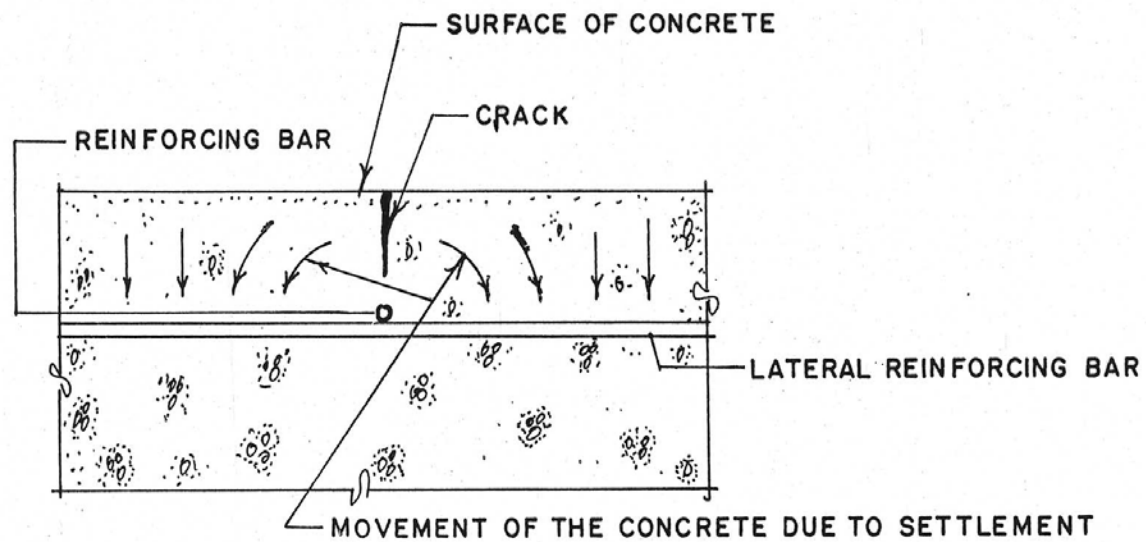
3. Absorption of moisture by the concrete

4. Corrosion of the reinforcement

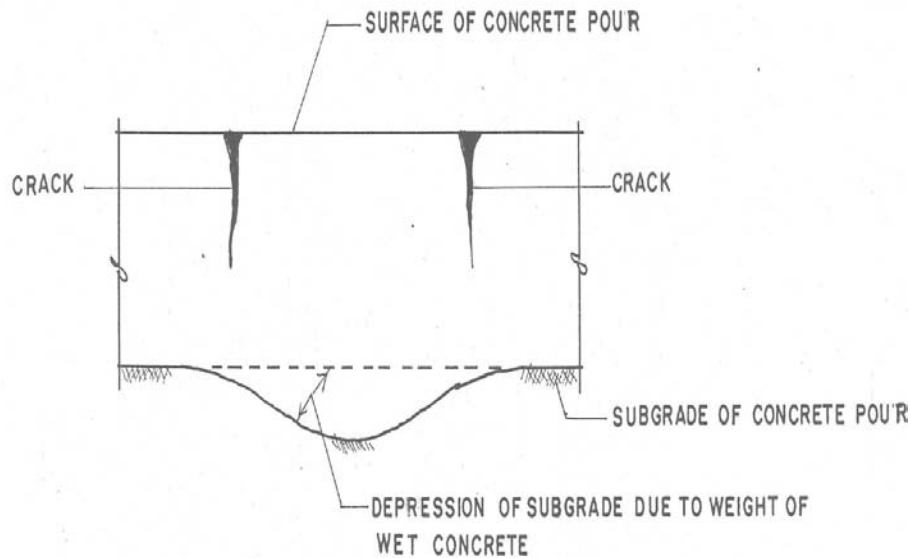
5. Erosion

6. Poor design details

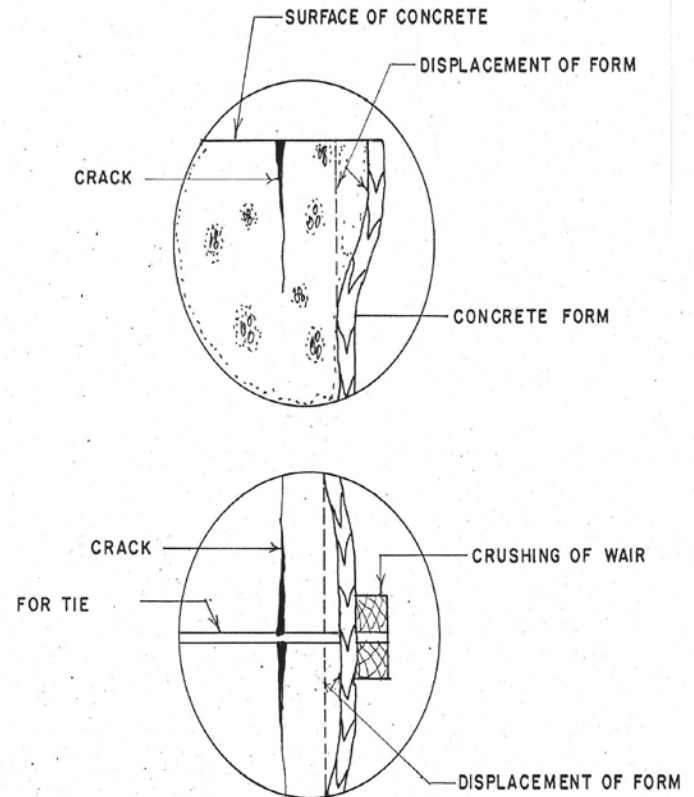
7. Errors in design



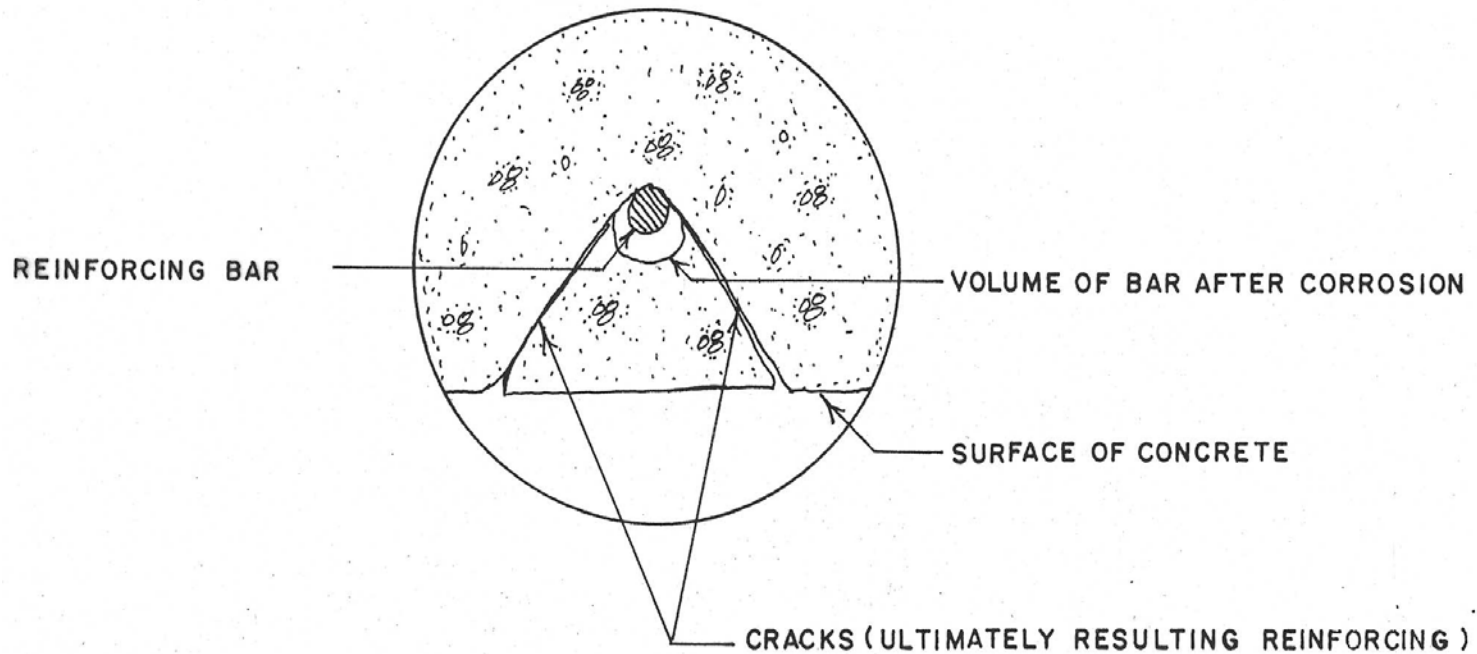
**CRACKING OF CONCRETE DUE TO SETTLEMENT OF THE CONCRETE
SUSPENSION**



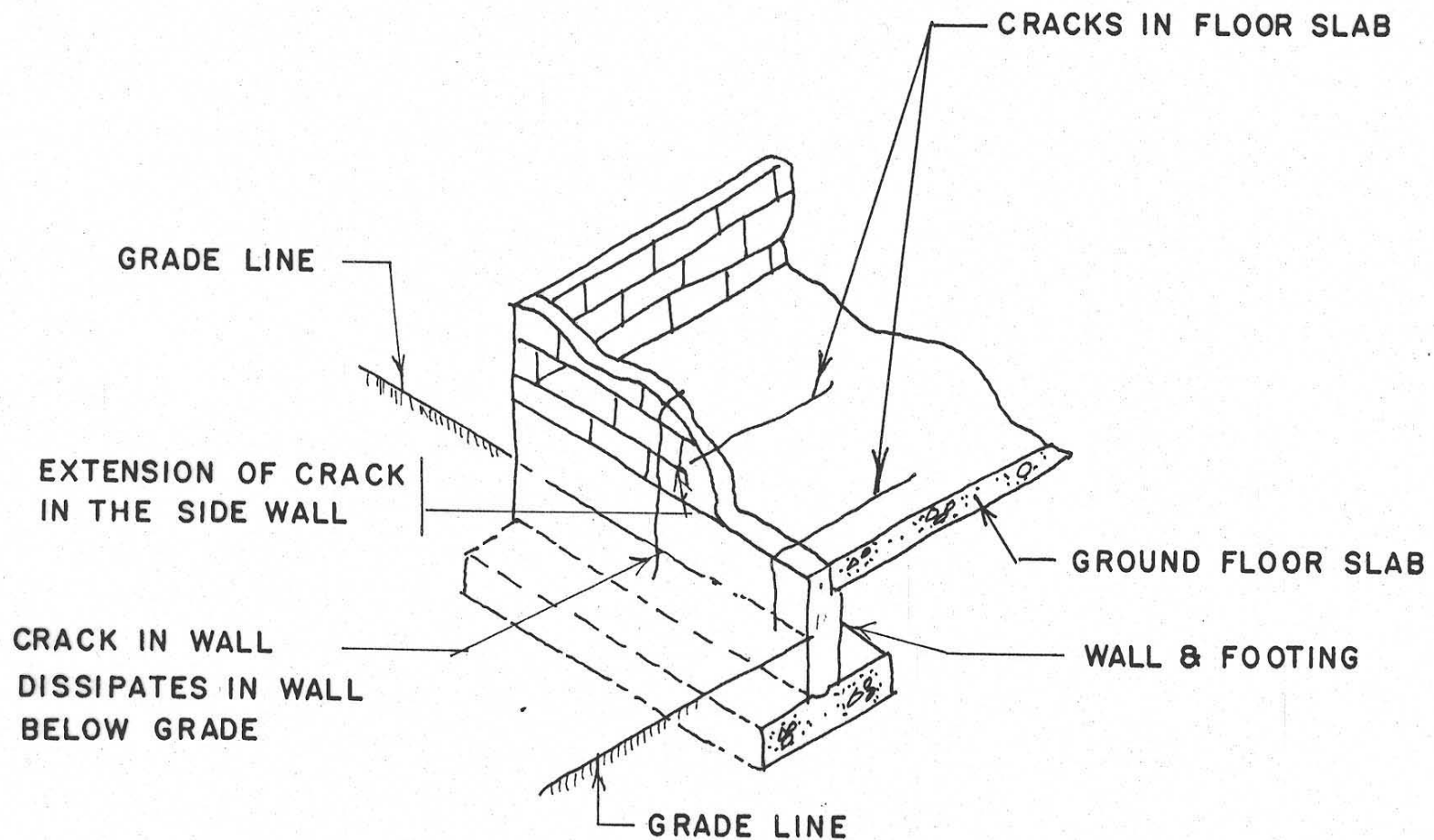
CRACKING DUE TO SETTLEMENT OF SUBGRADE DURING CONSTRUCTION



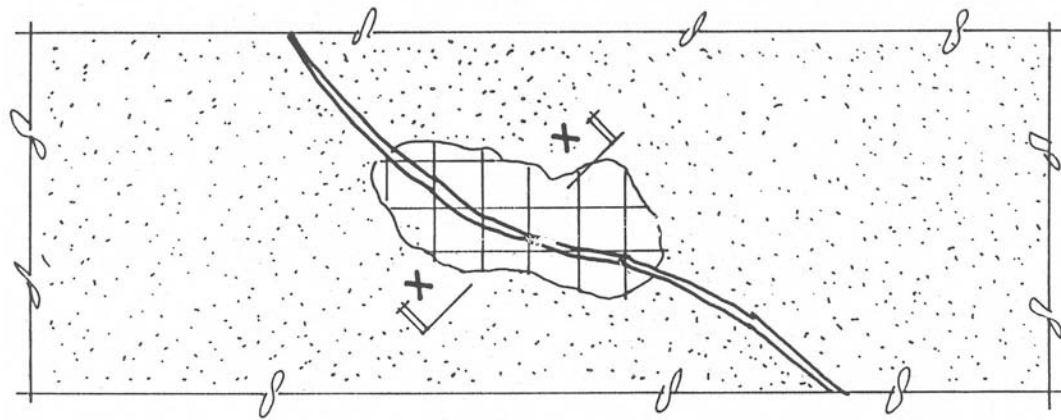
CRACKING DUE TO MOVEMENT OF THE FORMS DURING SETTING THE CONCRETE.



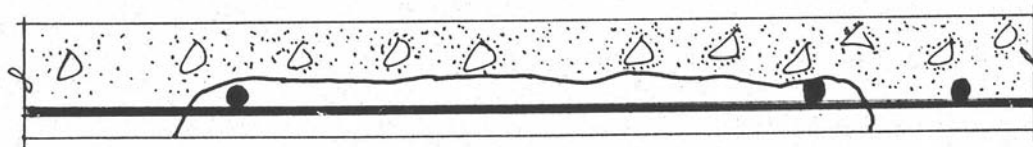
**CRACKING AND SPALLING OF CONCRETE DUE TO CORROSION
OF THE REINFORCEMENT .**



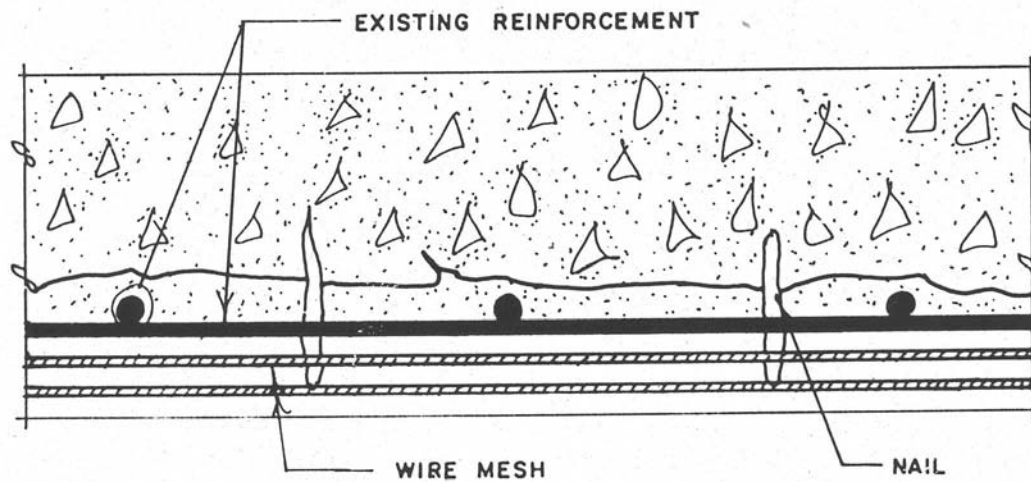
TEMPERATURE CRACKING IN A BUILDING

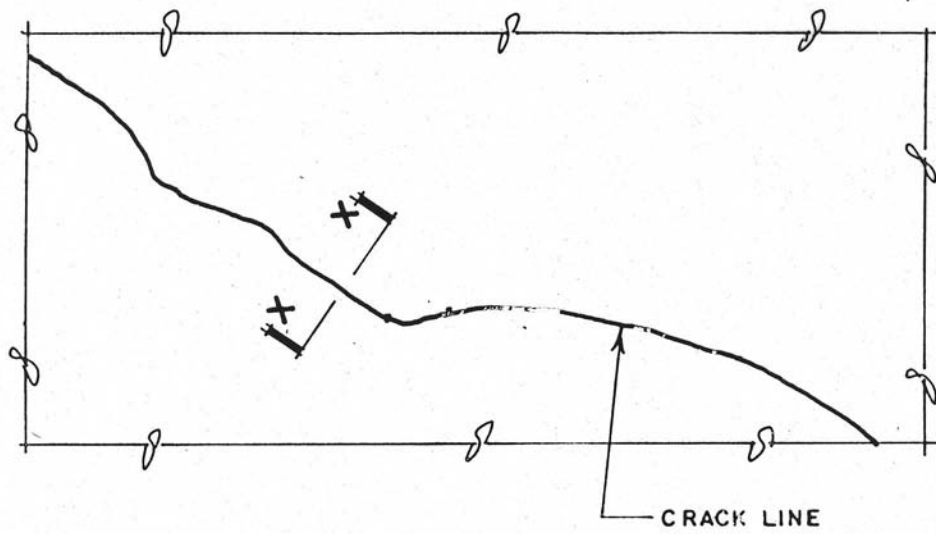


BOTTOM VIEW OF A SLAB

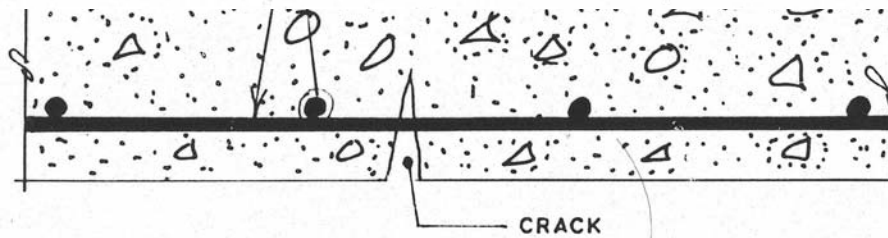


SECTION X-X

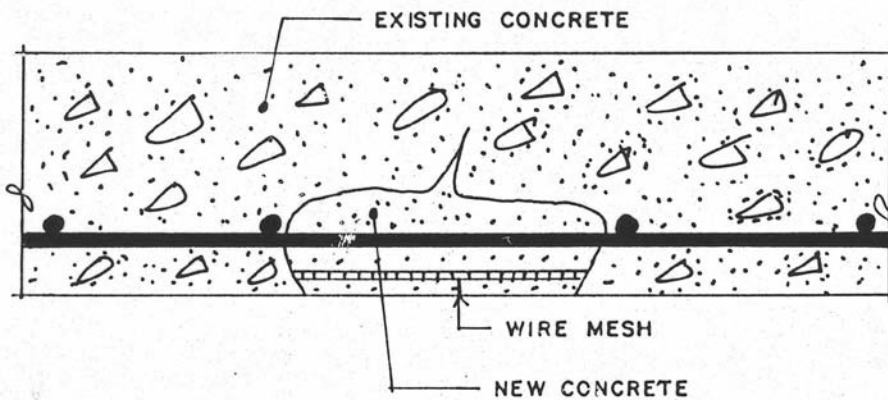


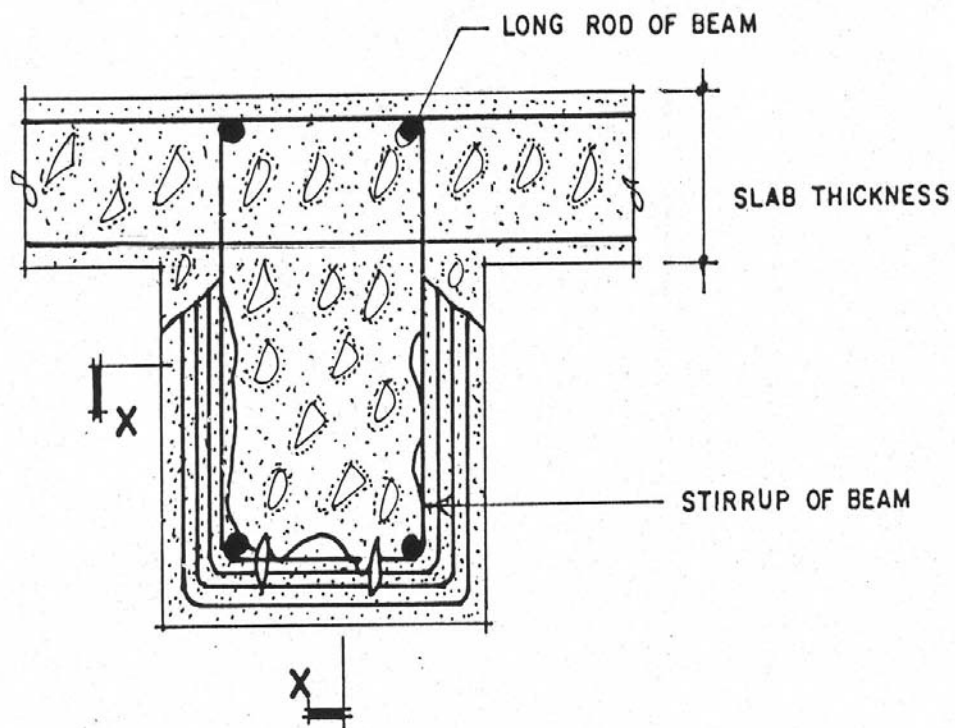


BOTTOM VIEW OF A SLAB

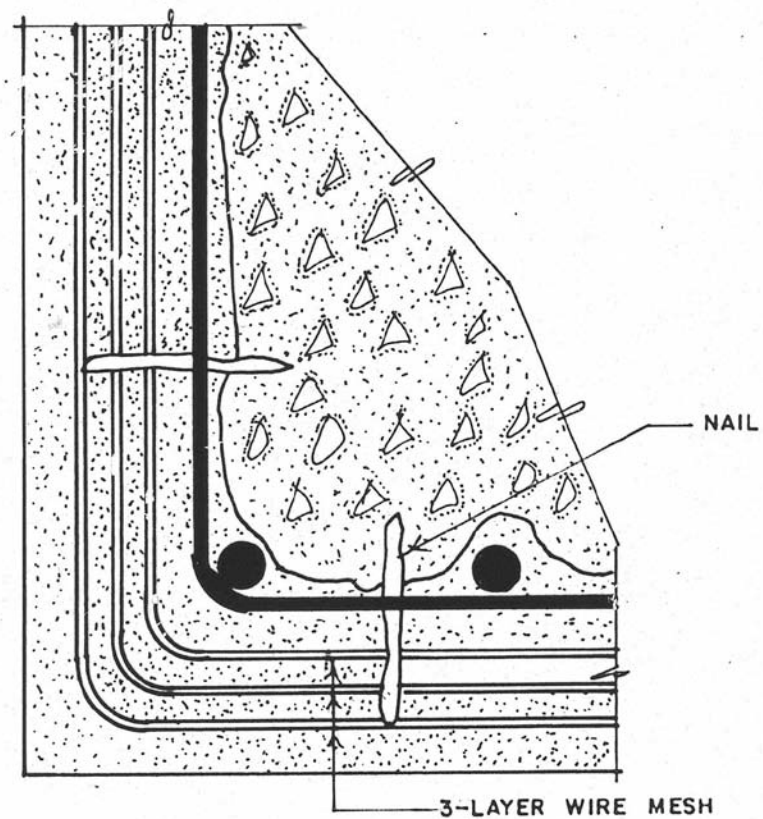


SECTION X-X

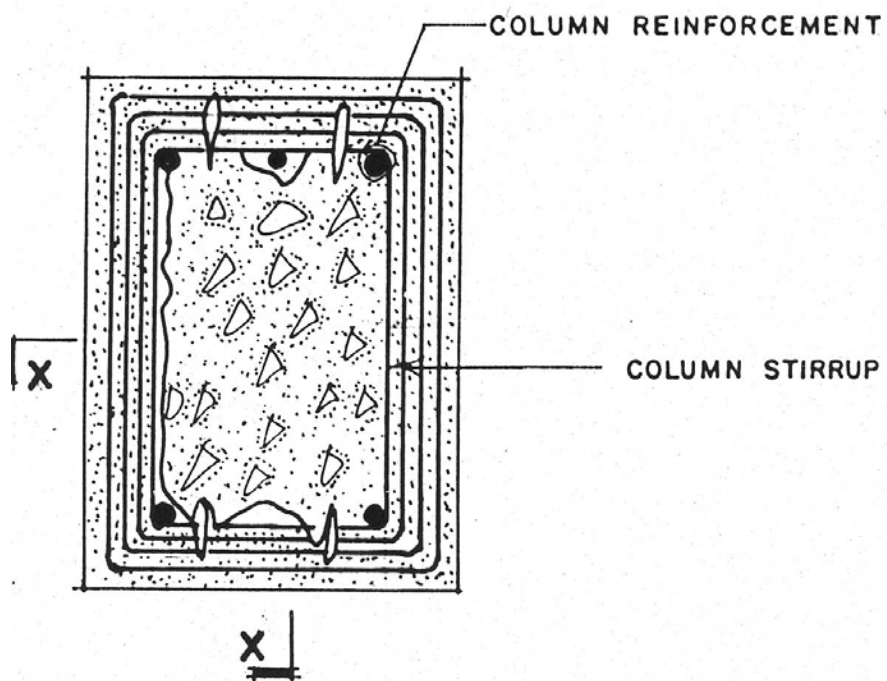




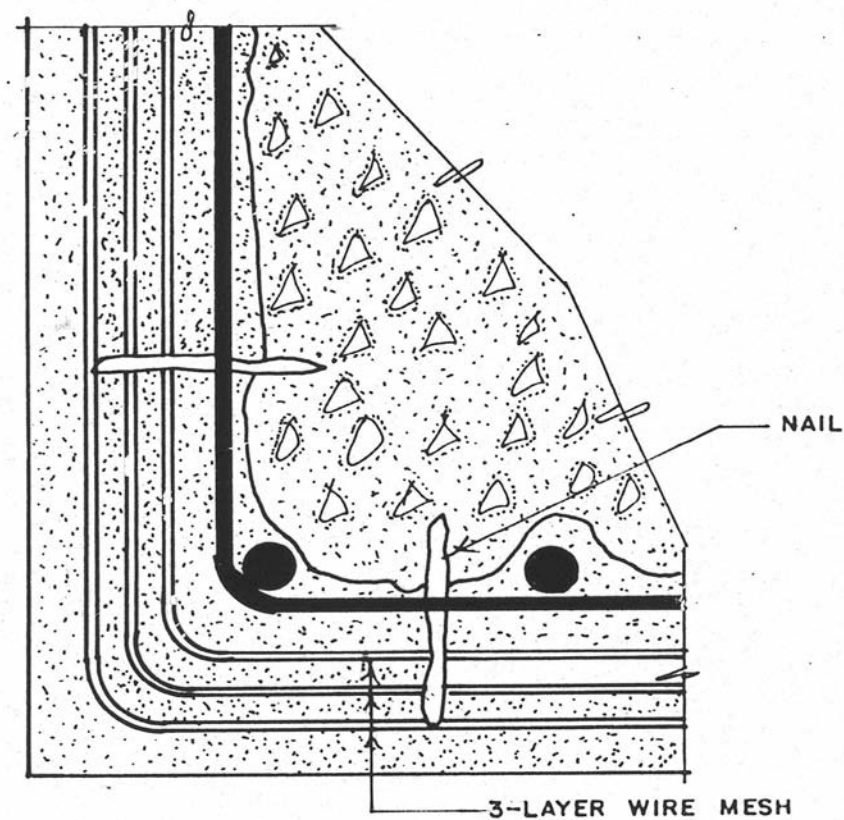
CROSS-SECTION OF A BEAM



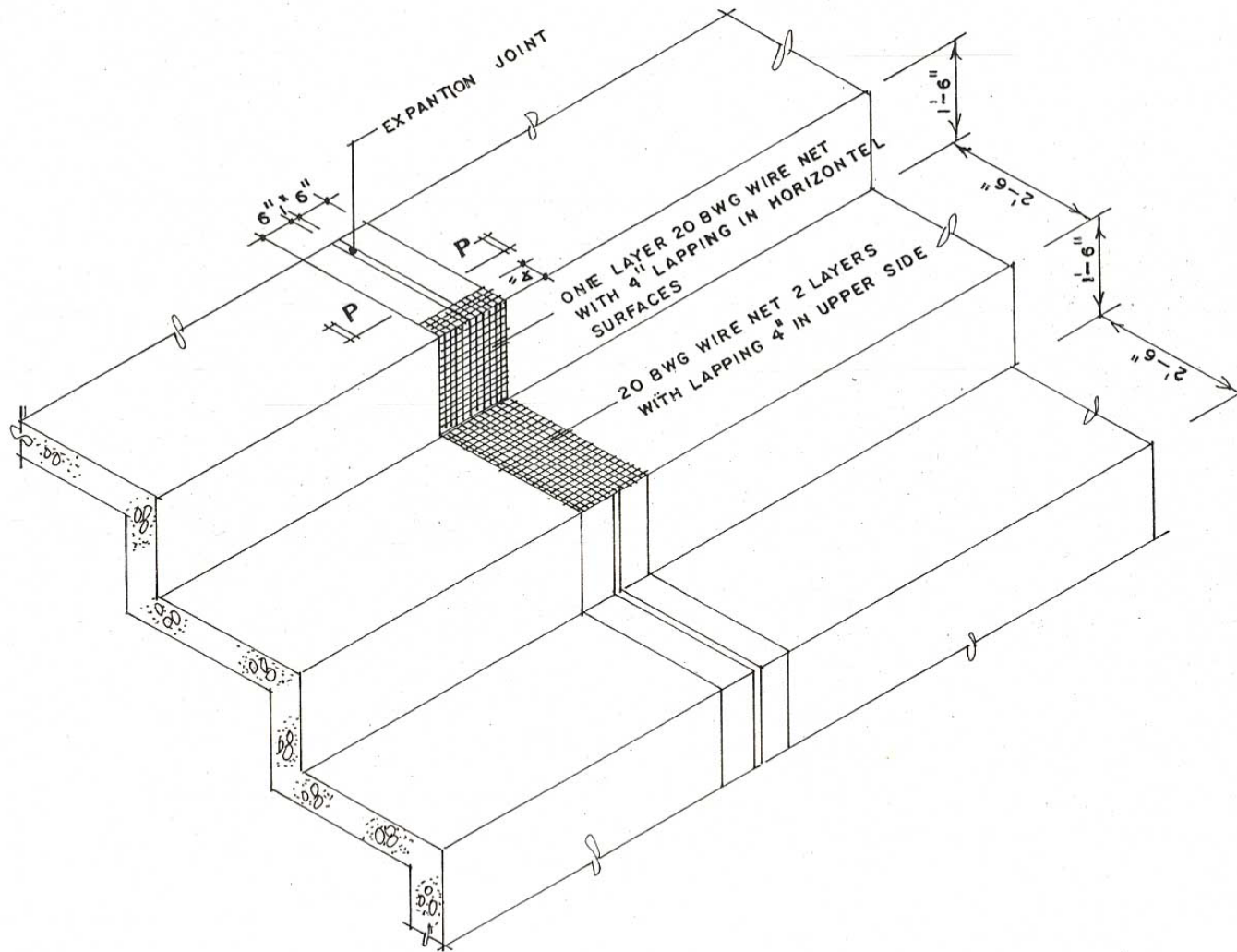
SECTION X-X



CROSS-SECTION OF A COLUMN



SECTION X-X



REPAIRING WORK OF INDOOR STADIUM