10.1.2 *Case Study 2*

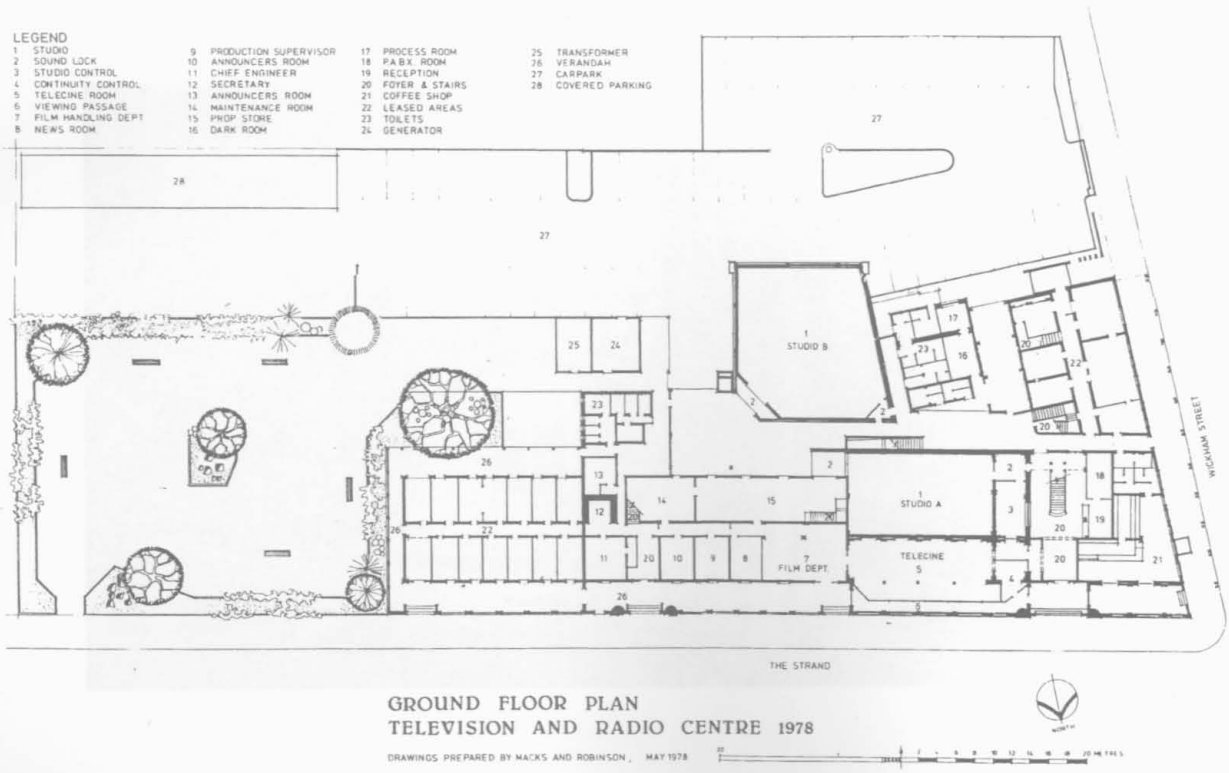
- *Television Studios & Offices*

This Queen's Hotel building in Townsville, Australia, erected between 1896 & 1920, which was, in 1976 recycled to a Television Studio Complex, suffered in a 1971 cyclone (as it did also in 1903).

The historic building showed weakness in the roof truss framing, the holding down mechanism to the top bearing plates, in the stability of some of the brick walls to the top floor and in transfer of loads down to first floor level where adequate dead weight was available to counteract the uplift wind forces.

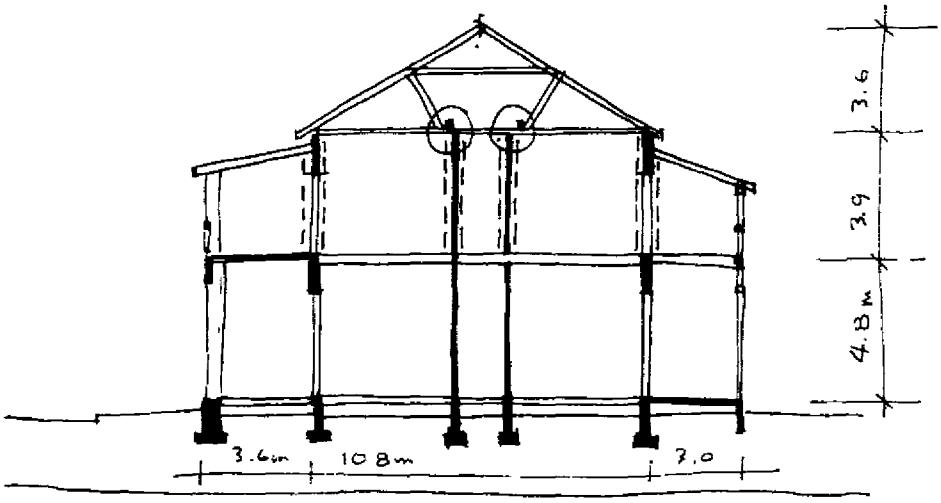
Actions taken by the architects included:

- installation of steel stiffening to the existing traditional roof trusses;
- metal strap connections from roof battens to trusses;
- new roof sheeting, installed in stages;
- special tie down details to first floor brick walls;
- the whole of the work done without interrupting the operation of the Station.



GROUND FLOOR PLAN
TELEVISION AND RADIO CENTRE 1978

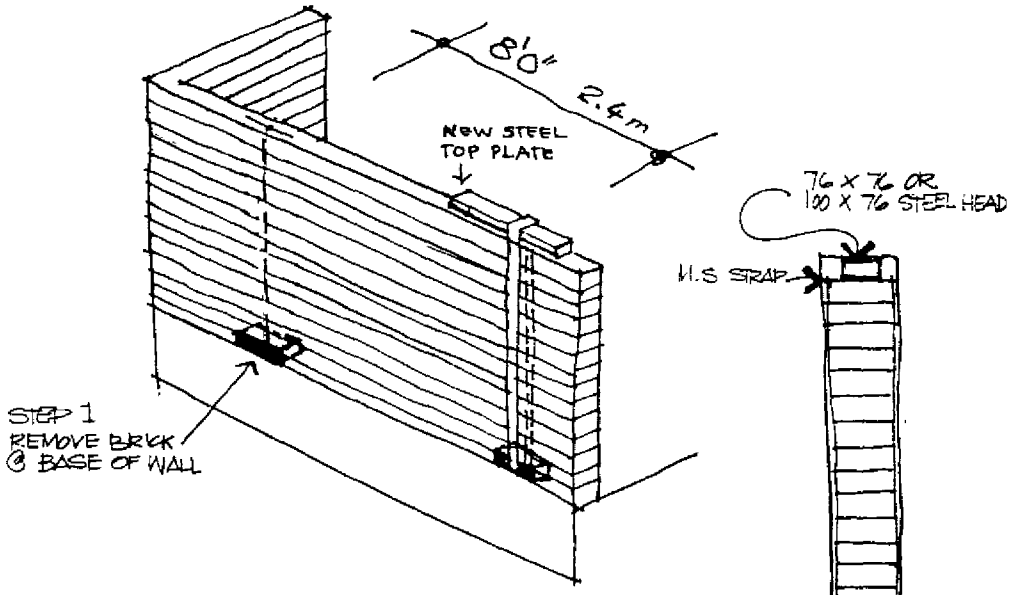
DRAWINGS PREPARED BY MACKS AND ROBINSON, MAY 1978

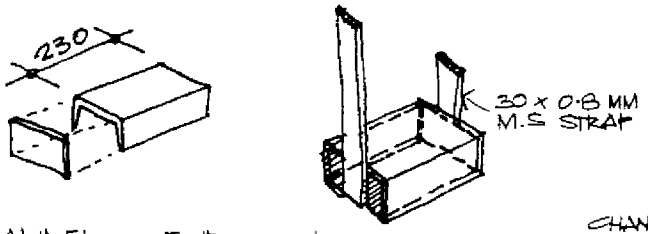


SECTION

LOCATIONS OF TIE DOWN POSTS OR STRAPS ----

POSITIONS OF NEW TOP PLATES (STEEL)





CHANNEL & END PLATE

SECTION

STEP 1 - REMOVE BRICK
STEP 2 - INSERT CHANNEL SECTION
STEP 3 - WELD ON HOLDING DOWN STRAPS

IF WALL IS 9'0" HT (2.7M)
AND IF STRAPS ARE FITTED @ 8'0" CNTS. (2.4M)

AREA BRICKWORK 72 SF - 6 SF = 56 x 90 # = 5040 #
ALTERNATE USE 76 x 76 RHS IN LIEU OF STRAP.

NOTE
STRAP CAN BE CONCEALED BEHIND ARCHITRAVES IF INSTALLED BESIDE DOORWAYS IN HERITAGE BUILDINGS

10.1.3 ***Case Study 3***

Motor Hotel (Motel) Building

The motel building illustrated lost its roof in a cyclone due to very poor connections from walls to roof.

The connections were so weak that the roof blew off cleanly early in the cyclone leaving little damage to the walls and structures which, with lesser loads to contend with, mostly survived.

When the owners decided to reconstruct, after some years exposed to the weather, the architects decided to retain the existing unreinforced brick walls on the upper levels.

They imposed at each end a steel post fixed to the concrete floor, bolted at regular centres to the existing brick walls and connected to a timber and steel framing structure in the roof which collected and transferred the wind forces to the new columns.

The illustrations show the steel posts at the front, on the face of the brick wall, and the post on the rear, in the line of the dividing brick wall, the posts were anchored to the first floor slab and beams.

New Steel Post
Fixed to Concrete Beams and to New Top Plate in New Roof Structure

View of Motel
Note New Steel Posts at Brick Nib Walls