

**Consulting Engineers
Structural and Civil**

Sherman Oaks Fashion Square, Los Angeles.

Winner of the International Design
and Development Award for
Design Innovation.

Maintaining uninterrupted retail trading without endangering shoppers in an earthquake prone zone was a challenge posed for MPN during the extension of Sherman Oaks Fashion Square.

The structural brief for the project was to add a completely new trading floor over the existing shopping centre located in Los Angeles, a city high in seismicity.

Since the existing steel columns supporting the roof were all far too weak to support any additional load, MPN elected to suspend the new floor on large steel trusses spanning up to 202ft across the existing building. To comply with the statutory height limits for the building, the existing roof structure had to be removed to make way for the additional level.

The buildability of this unconventional structure was made possible by the meticulous design and step by step detailing of the construction sequences, resulting in an almost trouble-free completion.

Each roof truss, weighing up to 80 tons, was delivered to the site in two half sections and assembled on temporary working platforms above the existing buildings.

After assembly, the trusses braced in pairs were winched sideways into their final position on steel rollers mounted onto a temporary gantry.

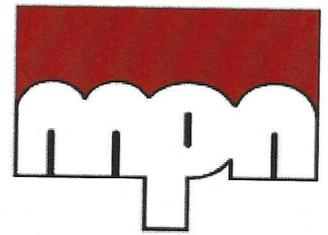
The steel framing for the new second floor was temporarily suspended above the old roof and about 1 metre under the new trusses. The new roof was then placed on top of the trusses.

In the next stage, the weight of the ceiling system was transferred to the trusses by installing temporary tension rod hangers from the truss bottom chord.

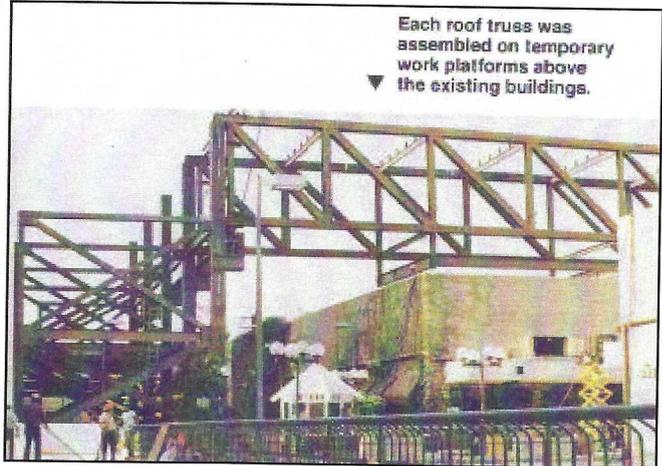
To eliminate any distortion and damage to the ceiling structure and panelling, the tension rod lengths were adjusted to compensate for the deflection of the roof trusses at all stages of construction.

The existing roof was removed in the next stage of construction and the steel framing for the second floor lowered into its final position, hanger columns secured and the new floor concreted.

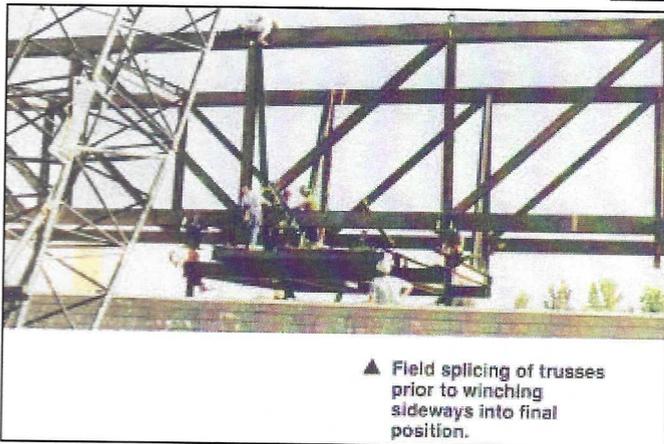
After the completion of the floor slabs, the tension rods were cut above the floor and thus the ceiling load was transferred to the new floor slab.



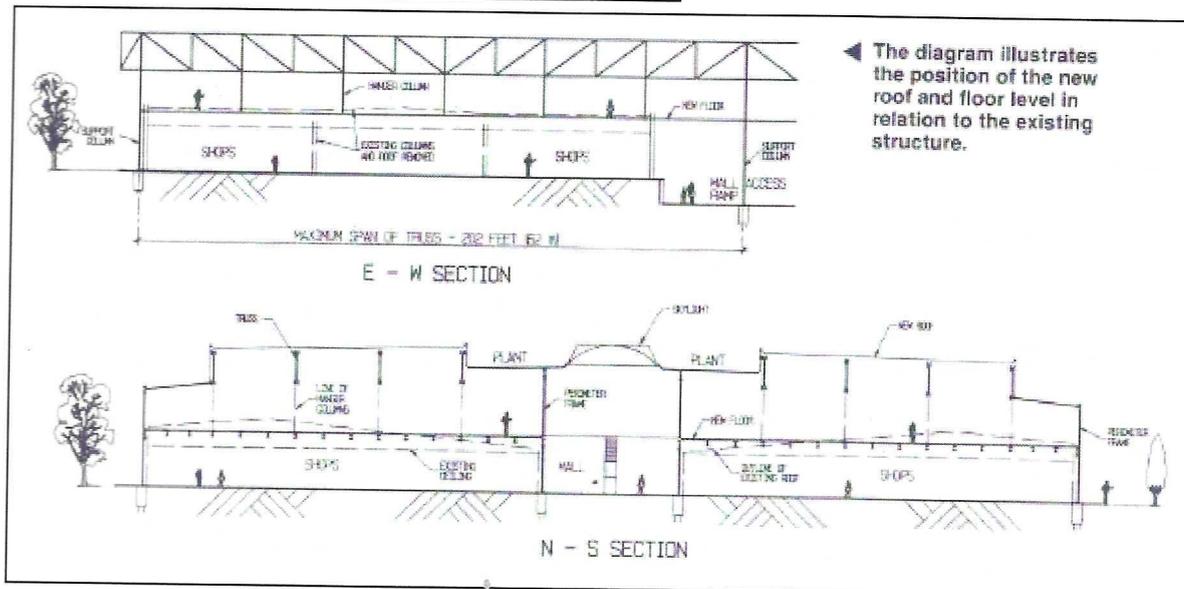
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Each roof truss was assembled on temporary work platforms above the existing buildings.



▲ Field splicing of trusses prior to winching sideways into final position.



◀ The diagram illustrates the position of the new roof and floor level in relation to the existing structure.

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