Zeitschrift: IABSE structures = Constructions AIPC = IVBH Bauwerke

Band: 9 (1985)

Heft: C-34: Telecommunication towers

Artikel: Microwave tower, Kimberley (Rep. of South Africa)

Autor: McMillan, C.M.

DOI: https://doi.org/10.5169/seals-19424

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Siehe Rechtliche Hinweise.

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. <u>Voir Informations légales.</u>

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. See Legal notice.

Download PDF: 06.05.2025

ETH-Bibliothek Zürich, E-Periodica, https://www.e-periodica.ch



4. Microwave Tower, Kimberley (Rep. of South Africa)

Owner: Department of Posts & Telecom-

munications

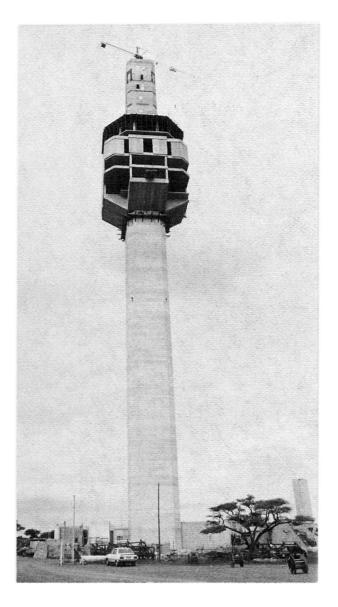
Architect: Joubert Owens Van Niekerk &

Watt

Engineer: Ove Arup Incorporated
Contractor: Ovcon (Pty) Limited

Works duration: 21 months Service date: 1985

The Microwave Tower currently under construction at Kimberley is the largest capacity microwave tower to be built for the South African Department of Posts & Telecommunications. It is an important link in the national network of towers for automatic telephone exchanges and has to accomodate 48 antennae dishes as well as equipment rooms. The tower is 129 m high and has four technical and equipment floors as well as four antenna platforms.



The shaft of the tower is a basic 9 m square shape with chamfered corners providing a seven-cell structure to accomodate a lift shaft and lobby, stairwell and four service ducts at each corner. At the 75 m level is the base of the major cantilever structure which supports the technical floors. Above that are the four cantilevered octagonal antennae platforms and the VHF room.

The tower, though not very tall, presents an interesting sculptural form of high quality concrete elements which efficiently accommodate the functional requirements.

The main shaft was constructed by slipforming. The main slide to 75 m was completed in 14 days. At that level the outer wall thickness changes from 700 mm to 300 mm and details for connecting in the eight main cantilever beams on the corners are incorporated. Openings hat to be left at the corners to allow for the heavy reinforcement.

The second 50 m slide was completed in nine days. A good quality finish was achieved throughout. An important feature which facilitated efficient construction was the internal steel staircase which was fixed as the slide progressed to provide safe and efficient access for workmen and cut down on travelling time.

The eight tapering cantilever beams at the corners are 800 mm wide \times 4,6 m deep at the shaft. The beams cantilever 8 m and carry the columns supporting the three floors above. To avoid excessive supporting structure underneath the beams which would have had to be removed subsequently under difficult access conditions and which could have damaged the finish of the tower, the beams were supported during construction from above by inclined Dywidag bars tied back into the tower. These bars supported steel joists under the soffit. A carefully designed steel bracket at the corners enabled the two temporary joists meeting at the corner to be supported on the recess in the shaft at that level and readily removed after construction.

Between the corner, beams are precast panels laid at a slope to form the finished underside of the cruciform-shaped supporting brackets.

The walls of the equipment floors are clad with plain offshutter precast concrete panels which were manufactured on site.

(C. M. McMillan)



