

# New National Opera House

## Oslo, Norway

Product used: Barchip 'Kyodo' 48mm

### The Project

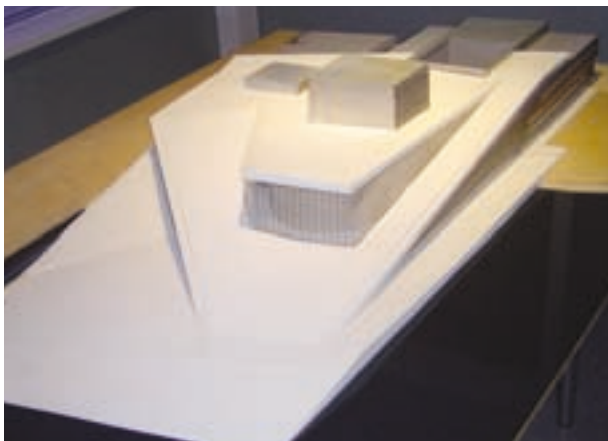
Construction of the New Opera House began in mid 2002. Commencement of the foundations using Barchip Kyodo was in November 2004.

The new Opera House will be situated partly on land and partly over water. This has significant consequences related to the foundation design, handling of polluted soil, control of moisture and, not least, the building's water tightness.

The foundations required some 28,000 lineal metres of piles to act as supporting elements for the building above. The piles vary in length and can reach up to 55 metres below the water surface before meeting stable bedrock.

**Barchip Kyodo was chosen for this significant project to provide a cost effective solution to the insitu pile reinforcing** offering high performance and long term durability to combat the demanding marine environment.

Over 3000m<sup>3</sup> of concrete were reinforced with Barchip Kyodo.



### Project Specifications

Size:	36,000 m <sup>2</sup>
Client:	Statsbygg
Contractor (foundations):	Veidekke Entreprenor AS
Budget (as of 15/01/02):	300 million Euro

#### Essential numbers of the new opera house:

PUBLIC AREAS:	11,200 m <sup>2</sup>
STAGE AREAS:	8,200 m <sup>2</sup>
REHEARSAL ROOMS, WORKSHOPS, ADMIN:	19,100 m <sup>2</sup>
GROUND PLAN FOOTPRINT:	15,590 m <sup>2</sup>
LENGTH, INCLUDING PLAZA:	242 m
LENGTH OF BUILDING:	207 m
WIDTH OF BUILDING:	110 m
SEATS IN LARGE AUDITORIUM:	1,350
SEATS IN SMALL AUDITORIUM:	400
HEIGHT OF FLY TOWER:	54 m
DEPTH OF STAGE BELOW SEA LEVEL:	16 m

*"The building shall stand as a representative institution presenting both Norway's cultural traditions and the Norwegian National Opera and Ballet's significance in the nation's culture and society."*

Government proposal to Parliament number 48 (2001-2002)



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### Site pictures



Steel cassetions ready to receive Barchip reinforced concrete



Concrete decking in place.



**Background:** Completed insitu piles  
**Foreground:** Insitu piles complete with concrete beams ready for decking.