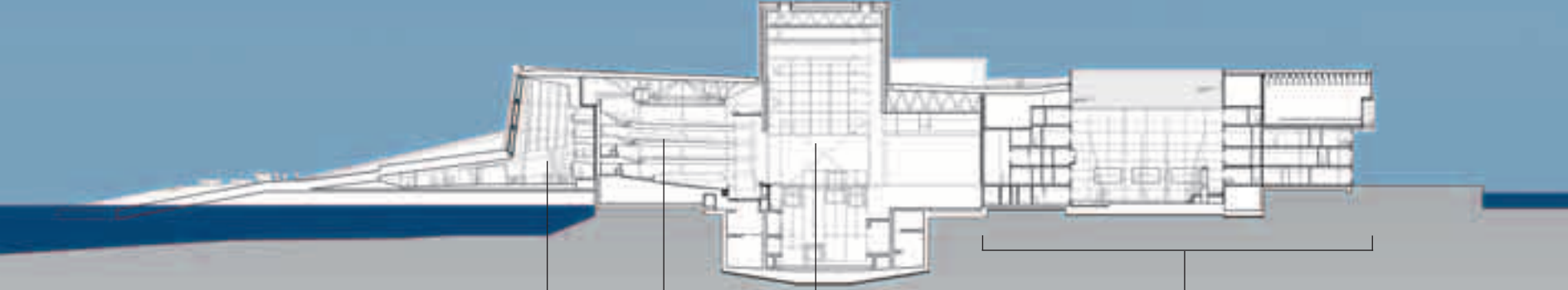


NEW OPERA HOUSE

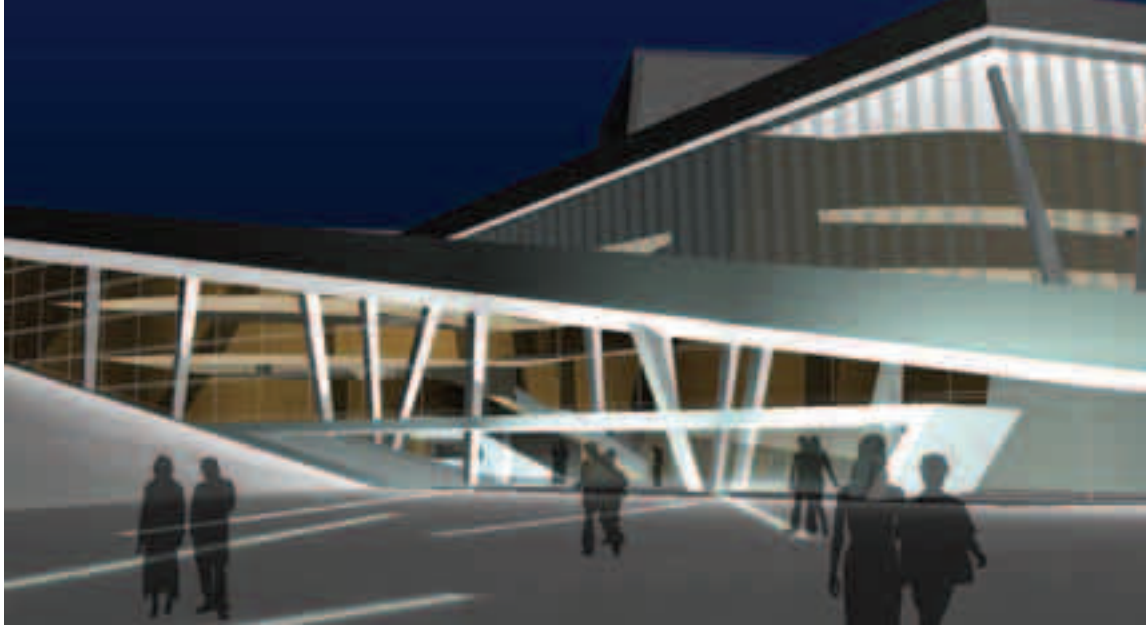


Foyer

Main Auditorium

Flytower with understage areas

Production Area



The Opera Plaza towards the front entrance.

KEY FIGURES, THE NEW OPERA HOUSE

GROSS AREA	38.500	m ²
PUBLIC AREA	11.200	m ²
STAGE AREAS	8.300	m ²
REHEARSAL ROOMS, ADMINISTRATION, WORKSHOPS	19.100	m ²
BASE AREA	15.590	m ²
LENGTH INCL. PLAZA	242	m
LENGTH OF BUILDING	207	m
WIDTH OF BUILDING	110	m
SEATING CAPACITY IN THE MAIN AUDITORIUM	1.350	
SEATING CAPACITY SCENE 2	400	
MAXIMUM CEILING HEIGHT OVER STAGE	54	m
DEPTH OF STAGE UNDER SEA LEVEL	16	m

THE OPERA HOUSE

The construction of the new Opera House is the largest single culture-political initiative in contemporary Norway. The Opera House, which is the largest cultural building to be raised in Norway since Nidarosdomen, shall be an important symbol of what modern Norway represents as a nation, and express the role opera and ballet shall have in society.

The base area of the Opera House is the same as the total area covered by four international standard football fields.

The building has 1100 rooms grouped in a number of sections. These are:

The public area lies in the west wing, with access from the area adjacent to Oslo Central Station.

The public area encompasses the foyer, the Main auditorium with seating for up to 1350, Scene 2 with seating for up to 400, and a rehearsal room that seats 200. The Main auditorium is a classic horseshoe shaped opera theatre with a high-level ceiling designed to strict acoustic requirements, affording excellent sight lines from all seats. The Main auditorium is capable of catering for the whole range of classic and modern opera and ballet, as well as concerts and musicals. Scene 2 will accommodate several more forms of artistic expression, as well as opera and ballet repertoire more suitable for a smaller stage due to its form and format. The foyer area will be a large, open room with varied natural lighting and fine views of the fjord and Hovedøya. In addition to the intermission area, cloakrooms and toilets, the foyer also houses ticket sales, an information- and arrangements centre, coming attractions exhibits, an opera shop, restaurant, cafe and bars. The room will be designed with a limited number of materials and minimalist detail solutions. The main feature attracting the eye is a high, wave-curved wall of oak separating the foyer and the theatres.

The stage area The Opera House has one of the most modern and technologically advanced opera stages in the world. Covering a large surface area, in addition to the main stage, there are side stages, back stages and an understage allowing nine metre high scenery sets to be prepared under the main stage and elevated during performances. Electric motors ensure that the stage turntable revolves noiselessly. The main stage has an area of 16x16 metres, which comprises of 16 individual elements that can be elevated, angled, or rotated so that landscapes can be constructed on the stage. The 35-metre high stage tower is located above the main stage, allowing for complicated theatre-technical solutions. Moveable prosceniums on both sides of the main stage can reduce or increase the stage front opening for best possible adaptation and utilisation of acoustics and stage area. The orchestra pit is adjustable in height and seating capacity dependent on the size of the orchestra and the scenography of the performance.

Production section.

This is where the workshops, stores, rehearsal rooms, cloakrooms, offices and audition rooms are located, all facilities that are necessary for the production of an opera or ballet. The building has four floors plus a basement floor. The production section is designed for flexibility and hard usage, so that changes can be introduced if necessary in the course of time. The architecture and choice of materials are both typified by tending towards the technical, with an extensive use of metal.

The roof landscape will be open to the public. The horizontal and sloping roofs express monumentality, and give the building a dramatically different appearance than its neighbours. The expression of openness and accessibility both indoors and out will result in the building appealing to a wide range of users. The roof landscape will be clad in artistically formed white Italian marble.



The Opera House seen from Havnelerget.

THE OPERA HOUSE IN THE CITY

The Opera House functions as a link between the historic quadratura of downtown Oslo to the west and the Ekeberg hills to the east, and will be a cornerstone in the development of a completely new borough. For decades now Bjørvika has been typified by harbour activities, heavy traffic and extensive railway activities. The objective is to convert this part of the City into a vibrant and attractive area for commercial use, dwellings and cultural activities. A premise for this development is that the E18 motorway is led through a subsea tunnel under Bjørvika. The tunnel will be completed by 2010, while the work of removing Bispelokket and Nylandsbroen is scheduled for completion in 2012. Although it will take many years to complete the new borough, work is well under way.

MATERIALS

With its slope rising from the water and the large roof area, the Opera House will appear more as an element of nature than a building. The Architects Snøhetta have reinforced this impression through a careful choice of materials. The choice of white stone was of particular importance here. A comprehensive test programme of various types of stones was carried out on behalf of Statsbygg. After an assessment of prices, technical and aesthetic qualities and the ability of suppliers to guarantee supplies, the stone chosen was the Italian Carrara marble, La Facciata. 35,000 marble slabs will be used to cover the roof, forecourt and foyer floor – a total of 25,000 square metres. The granite stone “Ice Green” from Rennebu in Sør-Trøndelag is used to clad vertical surfaces, i.e. the north wall and the zone down towards the sea. Materials used in the public areas will be of the highest quality. On entering the foyer, the public will meet an extensive and massive curved wall of oak. In the Main auditorium the floor, inner and outer walls, balcony fronts and a circular ceiling element will be clad in oak. The production section, stage tower and technical tower will be clad in aluminium sheets. The sheets have been artistically designed with a pattern that plays light and shadow, bringing life to the surfaces.



The Main auditorium with seating for 1350.



Steel constructions carry the balconies.

ACOUSTICS

The acoustics are the most important criteria for success for the new Opera House. It has therefore been a primary objective that the acoustics in the **Main auditorium** shall be at least as good or better than the best of comparable auditoriums in Northern Europe. Experience shows that a horseshoe form is the best design for achieving optimum acoustics in an opera theatre, which is why the design was adopted for the Main auditorium. Materials are also important for tone and timbre. Modern preference is for timbre, where music is prioritised over song and speech. In the Main auditorium, the objective is to achieve a resonant solution that meets requirements of reverberance, early decay time and loudness. This will not preclude the adaptability of the auditorium to meet other acoustic requirements in settings such as musicals and concerts. In order to achieve these objectives, all acoustic conditions have been subjected to in depth studies using physical and digital models.

Scene 2 will be more flexible, both with regard to acoustics and locating of the stage and audience. It will be possible to reduce the auditorium's reverberance period from what is required for a traditional acoustic pattern in operas/concerts to the level required for electronically amplified music, modern opera or rock opera. The auditorium will be the most flexible acoustic auditorium in Norway.

ARTISTIC EMBELLISHMENTS

A dedicated committee has been appointed to work on the artistic embellishments with the objective of creating a dynamic relationship between art and the Opera House. Work is concentrated to the public area, the exterior of the building and the external environment and is based on the desire to contribute to reinforcing what the building gives back to the City and its people.

Two of the building's most important exterior elements are the large stone roof and the metal-clad facades. The artistic group responsible for the artistic forming of the plaza and roof is made up of Sculptor Kristian Blystad, textile artist Jorunn Sannes and Painter Kalle Grude, while Astrid Løvaas and Kirsten Wagle have designed the metal facades and stage tower – both projects in close co-operation with the Architects, Snøhetta. The Committee invited entries in a competition for the design of the foyer and stage curtains in the Main auditorium. Olafur Eliasson won the competition with his integrated art in the foyer. The artist Pae White won the competition for the stage curtains with the proposal MetaFoil. The final competition for artistic embellishment will be the away from the opera house building itself, namely in the adjacent waters. The Committee will implement a closed competition for this feature. The area in question will be the Opera House's south and west sides, and the ships barrier can be used as a base.



White, inclined concrete columns carry the weight of the roof in the foyer.

Scene 2 with seating for 400.

FOUNDATION WORKS

A major part of the Opera House lies under sea level. This posed major challenges with regard to the foundations; the handling of polluted excavated masses, pumping to reduce groundwater level and last but not least the full waterproofing of the building foundations. To obtain a dry working area, a total of 12,000 m² of sheet piling was sunk to seal off the excavation for the building, which at its deepest is 16 metres below the surface of the water.

The buildings foundations include 28 kilometres of piles to bedrock. The piles vary in length, some of them reaching as far down as 60 metres under the water surface before connecting with bedrock. The support structures of the Opera House is designed for a lifetime of 300 years.

POLLUTED MASSES

The Norwegian Pollution Control Authority (SFT) imposed strict rules for the handling of the polluted masses.

The dredged area was fenced in to prevent the masses seeping into the fjord. The approximately 12,000 cubic metres of polluted mass that were removed were sorted in accordance with degree of pollution and disposed of accordingly. In addition, an area of approximately 20,000 square metres of polluted ground was sealed off by a minimum of 50 centimetres of clean sand filling.

A total of 90,000 tonnes of polluted mass was excavated and transported to the approved receiving depot on Langøya near Holmestrand.

SHIPS BARRIER

The ferry terminal at the nearby Vippetangen will be retained, allowing cruise ships to continue to call at Revierkaia, a few hundred metres from the Opera House. With this in mind, a shipping traffic risk analysis was carried out. Det Norske Veritas concluded that there was a risk that a ship could collide with the Opera House between every 70 and 100 years, and that the acceptable protection would be to establish a ships barrier.

The barrier lies due south of the Opera House, and rises from the fjord bed to two metres under the surface. The barrier is 70 metres wide at its base, 10 metres wide at the top, and will effectively stop any vessel that may stray off course.

ARCHAEOLOGY

Bjørnvika is filled with a several metre thick layer of sawdust and chippings from the sawmills that operated along the Aker River as far back as the 1500's. This has provided excellent protection helping to conserve any objects that may have been lying on the bottom. In addition, the sea once reached further inland, and as years passed the land mass increase pushed the sea back. Thus boats and other artefacts dating back several centuries may lie under what is now dry land.

An important premise for the building permit was thus that the site of the building was to be thoroughly inspected and surveyed for archaeological finds. Up to six archaeologists were present at the building site, watching over every single grab load removed. 5,000 hours were allocated for monitoring. The monitoring projects were carried out under the auspices of Norsk Sjøfartsmuseum (the Norwegian Maritime Museum).

Among other finds made by the archaeologists, were an admiral anchor from the 1840's, almost untouched by the hand of time, a working barge from the 1760's and rudders. A total of 2000 large and small items were found during this phase of the construction works.

USER EQUIPMENT

Statsbygg has also been commissioned by the Ministry of Culture and Church Affairs to arrange for the purchase of user equipment for the new Opera House. This encompasses the acquisition of non-fixtures from desks to kitchen equipment, make-up mirrors, instruments and IT solutions. The budget framework for this is MNOK 150, in addition to the actual construction work budget.

SHORT HISTORY:

- 1998: Proposal put before Parliament for the building of a new opera house on the Vestbane site. No majority obtained for the proposed site.
- 1999: Three construction sites are proposed: Vestbanen, Bjørnvika and the Folketeater building. On June 15th a parliamentary majority votes to build a new opera house in Bjørnvika.
- 2000: Opening of an international Architect competition. 240 submissions received from all around the world.
On June 22nd the Architect company Snøhetta is declared winner with the project "04321".
- 2001: The pilot project for the new Opera House is prepared.
- 2002: The Government bill on the new Opera House is put before Parliament and approved on June 16th. Preparatory on-site work commences.
- 2003: Foundation works commences on February 17th.
- 2004: The foundation stone is laid by H. M. the King on September 3rd.
- 2005: The Stage Tower, the Opera's highest point is completed on May 11th.
- 2006: Weather-tight building status achieved in February, internal installation work commences.
- 2007: The construction works to be commissioned autumn/winter.
- 2008: Building scheduled for testing, takeover and inaugural performance (autumn).



ABOUT DEN NORSKE OPERA

– ‘THE NORWEGIAN OPERA’

Den Norske Opera is Norway's largest music and stage arts institution. Its key activity is as the national producer and presenter of opera, ballet, music and dance theatre and concerts. The State has declared a very high level of ambition for Norway's new Opera House, both architectonically as a major national building and as a national spearhead for the opera and ballet performing arts. The activities planned include among other things in the region of 300 annual performances played to a total audience of some 250,000. Breadth, variation and quality in the repertoire and genres of the performances will show considerable development and provide rich opportunities for a large number of creative and performing artists to develop and expand their talents. The Opera House will be the workplace for 600 people divided between more than 50 different trades and professions.

ABOUT STATSBYGG

Statsbygg is Norway's largest civil property participant with 650 employees. Statsbygg is the State's primary advisor in building and property matters as well as principal, property manager and property developer. Our objective is to ensure that functional facilities are available, to realise adopted socio-political objectives in relation to architectural and State planning interests, and finally the protection of national cultural monuments and the environment. Statsbygg is an administrative company under the auspices of the Ministry of Modernisation, providing service and support to all Ministries and Departments and civil state organs when they require new facilities. Statsbygg administers and manages 2.2 million square metres of property with a total worth of NOK 18 billions, and has an annual income of NOK 2.3 billions. Each year we invest in the region of NOK three billions in new buildings. Our property portfolio abroad encompasses approximately 90,000 square metres divided between 115 properties in more than 50 countries. In 1999 Parliament ruled that Statsbygg was to act on behalf of the Owner, i.e. the State, for the New Opera House Project. This means that Statsbygg is responsible for the completion of the project with regard to costs, progress and quality. Statsbygg purchases planning and construction services in the private sector, but retains responsibility for the actual coordination and quality-assurance of planning advisors and consultants, construction companies and suppliers.

Our Principal is the Ministry of Culture and Church Affairs

Statsbygg is building the new Opera House on commission from the Ministry of Culture and Church Affairs. The project is being carried out in close cooperation with the User, Den Norske Opera.

- The Management Group for the project is made up of representatives from the Ministry of Culture and Church Affairs, the Ministry of Modernisation, Den Norske Opera and Statsbygg.
- The Architect for the Opera House is Snøhetta AS.
- Other advisors/consultants are:
 Technical trades and professions: RREH, comprising the companies: Ing. Per Rasmussen AS - electrics, Reinertsen Engineering ANS (with NGI-geoteknikk) - building, Erichsen og Horgen, Water, Ventilation and Sewage.
 Acoustics: Brekke Strand Akustikk with Arup Acoustic as supporting consultants
 Theatre planning: Theatre Projects Consultants
 Under stage. Theatre planning: Rambøll Sverige AB (Previously Scandiaconsult Sverige AB)

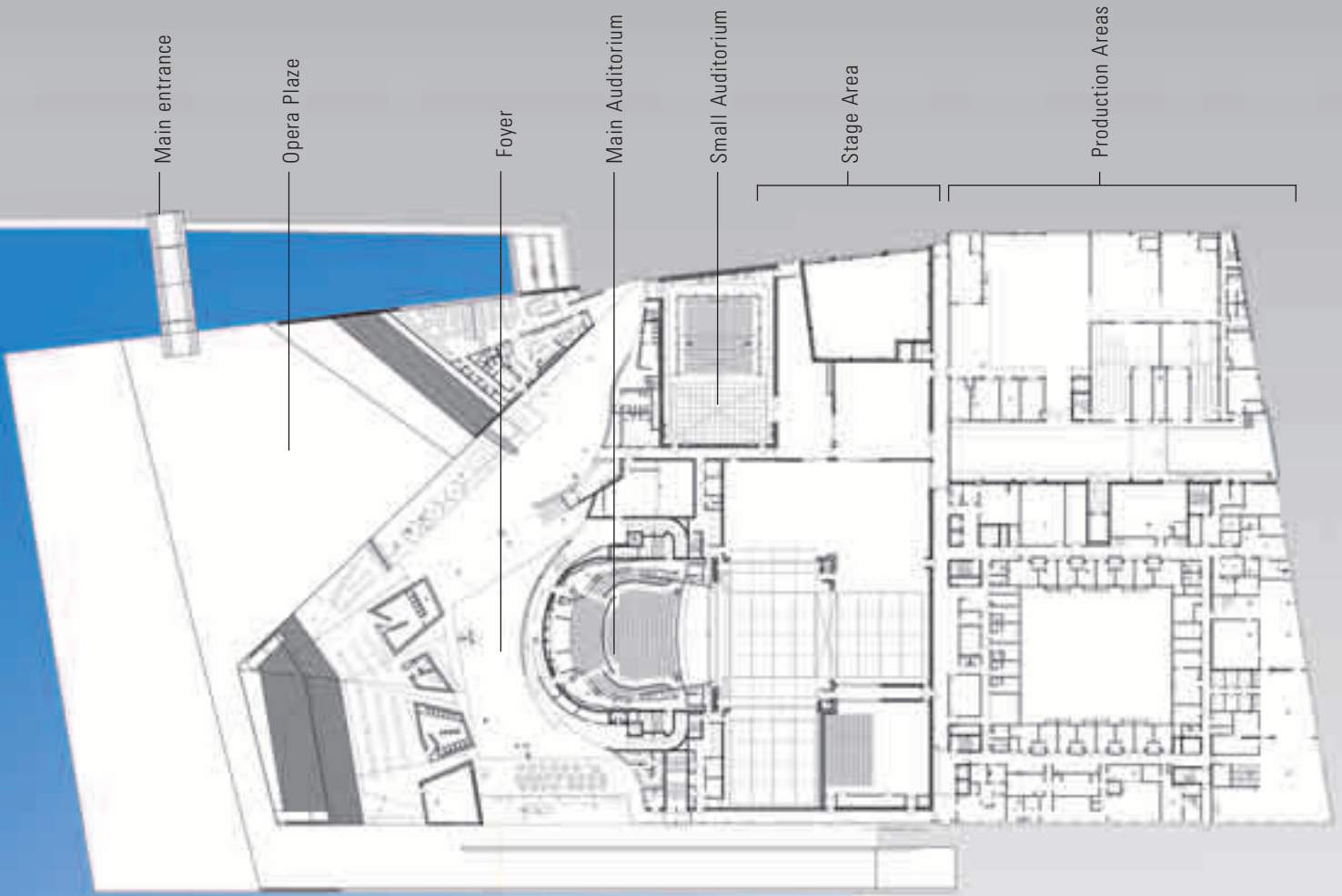
PROGRESS PLAN

	2000	2001	2002	2003	2004	2005	2006	2007	2008
ARCHITECT COMPETITION	◆								
SIGNING OF ADVISORY/CONSULTANCY CONTRACTS	■								
SKETCHES AND PRE-PLANNING WORK		■							
ADOPTION BY PARLIAMENT			◆						
FRAMEWORK PERMITS			◆						
COMMENCEMENT PERMIT			◆						
DETAIL PLANNING			■	■	■	■			
CONTRACTING CONSTRUCTION COMPANIES			■	■	■	■	■		
CONSTRUCTION PERIOD/PRODUCTION			■	■	■	■	■	■	
TESTING AND COMMISSIONING							■	■	
TAKE OVER BY THE USER								■	■
PREMIÈRE									◆

Contract strategy

The Architect Office Snøhetta carries out all design work in connection with architectural matters. The four other advisory/consultancy contracts have been entered into as a result of international bid competitions.

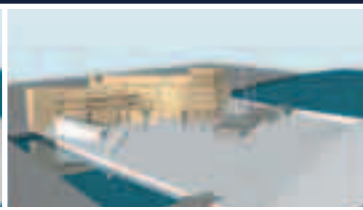
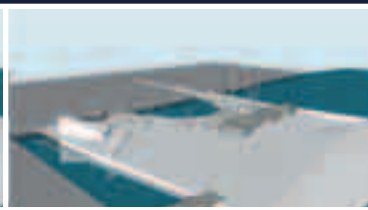
All construction works and supplies in connection with the building of the new Opera House are subject to international competition. Statsbygg has planned for a relatively low number of contracts with clear and concise frameworks in relation to content and progress so that interfaces and dependencies can be controlled.



Plan, Ground floor

“ *The building shall stand as a representative institution presenting both Norway’s cultural traditions and the Norwegian National Opera’s significance in the Nation’s culture and society.* ”

- Parliamentary Bill number 48 (2001-2002)



STATSBYGG

Biskop Gunnerus' gate 6
P.b. 8106 Dep, N-0032 Oslo, Norway

Tel: (+47) 22 95 40 00
Fax: (+47) 22 95 40 01

postmottak@statsbygg.no
www.statsbygg.no

1. edition 2003
edition Nov. 2005