

# MEDIASPACE

## NEW CENTRAL URBAN WATERFRONT AND MEDIASPACE IN AARHUS COMPETITION BRIEF, VOLUME II - CONDITIONS, CONSTRAINTS AND TECHNICAL REQUIREMENTS

Culture and experience ●

Flexible and professional organisation ● Lifelong learning and community ●

Diversity, cooperation and network ● Bridge builder between citizen, technology and knowledge ●

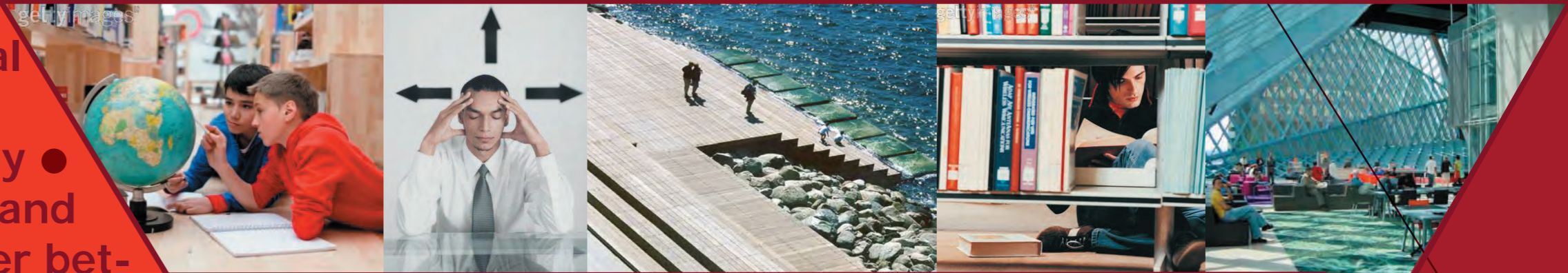
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Bridge builder between citizen, technology and knowledge ● Culture and experiences ● Flexible and professional organisation ● Lifelong learning and community ●

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Lifelong learning and community ● Diversity, cooperation and network ● Culture and experiences ● Flexible and professional organisation ●

Lifelong learning and community ● Diversity, cooperation and network ● Bridge builder between citizen, technology and knowledge ●



City of Aarhus



# NEW CENTRAL URBAN WATERFRONT AND MEDIASPACE IN AARHUS

Competition brief, Volume II

April 2008

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# 1 COMPETITION REGULATIONS

## 1.1 Contracting authority

City of Århus  
Department of Culture and Citizen Service  
City Hall  
8100 Århus C  
Denmark

## 1.2 Competition type

The competition is a design competition organised in accordance with Articles 66-74 of Council Directive 2004/18/EC of 31 March 2004 following prequalification of entrants.

The winner(s) of the competition will subsequently be invited to participate in a negotiated procedure without publication of a contract notice, as set out in Article 31(3) of the Directive.

There will thus be two tendering processes before the City of Århus is able to sign a lead consultant agreement (-s).

The tendering conditions and the negotiation procedure for the second tendering process will be finally determined once the winner or winners of the competition have been selected, as the actual proposals illustrated in the individual entries will influence the conditions and the procedure.

However, the following elements are expected to become part of the negotiated procedure:

- Clarification of any uncertainties with regard to the understanding of the entry submitted, including any further treatment to be carried out in consultation with the client within the framework of the proposal submitted.
- Buildability and provision of satisfactory documentation of compliance with Danish building regulations.
- The proposed design's capability and robustness in terms of complying with the budgetary framework applying to the project, including supplementary surveys, studies and calculations relating to the cost estimate provided.
- Proposals for the future cross-cutting process in connection with realising the project, including specification of how the entrants intend to ensure extensive involvement of stakeholders.
- Proposals for people to work on the assignment, including CVs.
- Fee offer.

If more than one winner of the design competition is selected, the negotiated procedure will be in the form of confidential, parallel negotiations between the contracting authority and the individual winners of the design competition.

The dialogue and consultation phases are intended to determine the teams' ability to provide a competent performance in the subsequent process and will also make it possible - following necessary treatment of the proposals within the framework of the individual winning entries - to assess whether the proposed designs will be able to comply with the budgetary framework for the project.

The construction committee and the client's adviser will be in charge of the dialogue and negotiation procedures and will submit a written statement and report about the negotiations to the assessment panel once the negotiations have been concluded.

### Competition participants

- Consortium IN MEDIO consisting of C.F. Møller (DK), CEBRA A/S (DK) & BB + GG Architectes (E)
- 3xN A/S (DK)
- Mecanoo architecten b.v. (NL)

- Lundgaard & Tranberg Arkitektfirma A/S (DK)
- Consortium A-Team consisting of Arkitema A/S (DK) & AART A/S (DK)
- Schmidt Hammer Lassen K/S (DK)

### Languages

The competition language is English. The negotiation and contract languages are Danish and English, and the working language in the design, planning and execution phases will be Danish.

### Contract tendering

The type of contract tendering to be applied has not been finally determined. The choice will be based on a tendering strategy based on the current market situation, the complexity of the individual project elements and the requirement of budget compliance.

Generally, partnering tenders for combined contracts are likely to be invited for project elements where the executing contractors' competencies and wishes would be beneficial to the project design. Tenders will then be invited on the basis of an extended outline proposal, and the lead consultant will be required to be part of the partnering team.

Tenders for project elements for which the choice of solutions will primarily be based on the consultant's own professional competencies and choices would best be invited in the form of ordinary tenders for single contracts, possibly with an early tendering phase in which prices are obtained.

## 1.3 Competition material

In addition to this brief, the competition material comprises the following annexes, which also are available on a DVD in Annex 24.

1. Aerial photo of the area with indication of the competition site
2. Ordnance survey plan with indication of current dimensions and levels
3. Digital city model of the area
4. Plan and section of existing quay structures
5. Plan illustrating physical constraints at Åboulevarden and Europaplads
6. Outline drawing of existing bridges
7. The River of Århus, existing conditions and technical principles for the opening
8. Canals at the northern bastion
9. Wastewater basin in Havnepladsen (Harbour Square)
10. Plan: future utility constraints
11. Geotechnical note
12. Mandatory photo viewpoints, different angles
13. Floor area form for MEDIASPACE
14. The Core Values of MEDIASPACE
15. Concept Folder – MEDIASPACE
16. Transformation Lab – Prototyping the Future
17. Xperimenterium – workshop for kids
18. Contract law
19. Description of Services
20. Client requirements: digital construction
21. Main time schedule
22. Calculation template for cost estimate
23. Bid schedule
24. DVD with a digital version of the material



## 1.4 Competition secretary

Lars Peder Pedersen  
Senior Project Director  
Rambøll Danmark A/S  
Olof Palmes Allé 22  
8200 Århus N  
Denmark  
Phone: +45 8944 7773  
E-mail: lpp@ramboll.dk

## 1.5 Queries

Questions concerning the competition must be in English and must be sent by e-mail to the competition secretary.

First query round:  
Questions must reach the competition secretariat by 02-05-2008.

Second query round:  
Questions must reach the competition secretariat by 02-06-2008.

In both query rounds all questions and answers will be sent to all competition entrants in anonymised form within one or two weeks after the final deadline for submission of queries.

On the 22nd of April 2008 there will be a citizen's meeting, where all competition entrants are invited to hear more about the visions of the project and meet the client, the citizens and a number of stakeholders. Also entrants are given the opportunity to present themselves to the public and the client.



Break

## 1.6 Material to be submitted by entrants

The competition site is divided into two subsites called Site A and Site B (see section 4.1 in Volume I).

Entrants are requested to prepare a proposal for Site A and Site B together, but the proposal should be such that the assessment panel can select two independent winners (one for Site A and one for Site B) if the panel deems that this would be the best solution for the City of Århus.

Entries should therefore, as a minimum, comprise the following material.

### SITE A AND SITE B TOGETHER:

#### 1. Master plan, scale 1:1000.

The plan should illustrate the layout and organisation of the entire competition site.

#### 2. Visualisations

Entrants are requested to present visualisations of exteriors and interiors, including illustrations of the overall design concept in relation to surrounding areas (see 1.8, digital requirements). A total of 3 mandatory photo viewpoints have been preselected.

#### 3. Explanatory text

A brief text that supplements the drawing with information about the architectural and functional organisation of the proposed design, structural principles, the choice of materials, sustainability, indoor climate, operation and maintenance, and other information that is relevant in relation to the entry, including an account of how integrated design has been applied in the process. The most important points in this explanatory text should be mounted on the display panels.

#### 4. Booklets.

A total of 50 A3 booklets with the contents of the panels in a reduced version or in a reformatted version with the full text.

#### 5. CD-ROM

Entrants are requested to submit a CD-ROM with the material mentioned in items 1-18 exclusive of items 5, 6, 14 and 18 in a digitised form. The material should be suitable for use as illustrations in the assessment panel's report.

#### 6. Identification sheet

A non-transparent sealed envelope containing an A4 format identification sheet with the entrant's name, address and telephone number (day/evening) and the identification number chosen. Write "Identification sheet" and the identification number on the front of the envelope.

The envelope must also contain a list of the members of the participant team and must clearly state who has the copyright to the entry and who is the contact person.

### SPECIAL REQUIREMENTS IN RELATION TO SITE A:

#### 7. Site plan, Site A, scale 1:500.

The plan should give a detailed illustration of the geometrical layout of the bastion and the mouth of the stream, as well as of the location of buildings and their relationship with the surrounding city area. The plan should also illustrate traffic solutions, in particular access routes for pedestrians and cyclists going to the bastion. Finally, the plan should illustrate the organisation and layout of open areas including urban furniture, paving, lighting, etc.

The site plan may be supplemented with typical sections and possibly diagrams that show the concept suggested with regard to interiors and visualisations that illustrate how the concept has been treated.

#### 8. Drawings of buildings, scale 1:200.

Plans, sections and elevations that in an easily understandable way illustrate the functional and architectural layout and organisation of buildings. The material should be sufficiently comprehensive to enable a full understanding of the design proposed, including the distribution of individual functions in relation to each other.

The plans should include proposals for various positions of furniture in library areas, administrative areas and operational areas to demonstrate that the plans are flexible.

As mentioned in item 5, building drawings must be submitted in digitised form on a CD-ROM. In order to enable the checking of the dimensions of areas, these drawings must show the areas as a special theme using closed polylines. It must be possible to convert the format used to DWG format.

#### 9. Plan of parking levels, scale 1:500.

Plan illustrating the overall, preliminary layout of the car park, which in a compelling way shows that there is room for the required number of cars.

#### 10. Facade details, scale 1:50.

The drawings should illustrate the choice of materials, structures and architectural idiom. Facade details should also substantiate that the building envelope is suitable for local climate conditions and illustrate how the envelope helps to make the design sustainable.

#### 11. Diagram

Diagram providing an overview of flows in buildings and the distribution of functions.

#### 12. Floor area statement

Floor area statement setting out both gross and net floor areas.

#### 13. Complete calculation for cost estimate

Entrants are requested to include a cost statement for the proposed design for Site A (see section 2 in Volume II).

#### 14. Bid schedule

Entrants are requested to fill in and sign the bid schedule for Site A, using the identification number chosen, and submit it in a sealed envelope with "Bid schedule, site A" and the identification number on the front. No reservations may be made in relation to the agreement.

## SPECIAL REQUIREMENTS IN RELATION TO SITE B:

### **15. Site plan, Site B, scale 1:500, plan extractions in 1:200.**

The plan should give a detailed illustration of the geometrical layout of the Harbour Square including proposals for full or partial removal of Pier 1. The plan should also illustrate the location of existing buildings and their relationship with the new surrounding public square as well as any smaller buildings introduced to support the future use of the area. The plan should illustrate traffic conditions and the recreational connections going through the area, and it should show how open areas are otherwise treated. The last-mentioned point includes urban furniture, paving, lighting, etc.

The site plan may be supplemented by typical sections and possibly diagrams illustrating the basic concepts and visualisations of the proposed treatment of those concepts.

### **16. Activity plans, Site B**

Proposals for the layout and use of the Harbour Square at various times of the year, including the location of any movable pavilions, stages or other elements proposed.

### **17. Complete calculation for cost statement**

The entry should include a cost statement for the proposal presented for Site B (see section 2 of Volume II).

### **18. Bid schedule**

Entrants are requested to fill in and sign the bid schedule for Site B, using the identification number chosen, and submit it in a sealed envelope with "Bid schedule, site B" and the identification number on the front. No reservations may be made in relation to the agreement.

## **1.7 General requirements**

Entries must be anonymous. All drawings and other documents must be provided with the five-digit identification number chosen at random by the entrant (in the lower right-hand corner).

All texts, including texts on drawings, must be in English.

All drawings must be made using a technique that facilitates a clear understanding of the proposal. They must not be mounted on hardboard but only on cardboard or a similar material. Drawings must be provided with a schematic illustration of the order in which the boards are to be displayed.

The maximum allowable dimensions of entries are six A0 boards. Entries must be flat when submitted and protected by cardboard or a similar material. Formats exceeding 60 x 84 cm must be folded to this format. Drawings may not be submitted in rolls. The packaging must be provided with the identification number and information about the number of drawings submitted.

Entrants should only submit copies of original material, as no compensation will be paid in the case of damage to or loss of the material submitted.

## **1.8 Requirements concerning digital material**

The competition promoter wishes the entire project to be carried out in compliance with the requirements set out in the publication entitled "Digital Design". ProjectWeb is mandatory, and entrants are required to use 3D models and to submit digital data for operation and maintenance. Additional information about digital design is available online at [www.detdigitalebyggeri.dk](http://www.detdigitalebyggeri.dk), and the competition promoter's specific requirements concerning digital design are enclosed as Annex 20.

As a minimum, a number of still images should be submitted to illustrate the proposed design. Entrants are free to choose any technique they want to produce the still images, provided that the building(s) proposed and the surrounding buildings and urban furniture are illustrated in correct proportions in relation to each other. It is up to each entrant to choose a graphic style for the images. Still images may be submitted in JPG or PDF format on a CD/DVD/Flash disk.

Entrants who prefer to submit videos showing the proposed design may submit video clips in AVI or MOV format. If compression is used, the technique applied must be stated.

The bidders are requested to produce a KMZ-file as the competition project will be published on Google Earth. The file may comprise an overall 3D-geometry of the competition area and a simplified representation of the exterior of the Mediaspace. The digital urban model that has been released may be advantageously included in the KMZ-file. For a start the model will be presented to the jury, but it may at a later stage be included in a publication addressed to the public.

Entrants who wish to illustrate their designs by means of interactive computer visualisation must enclose the software needed for such interaction. For the purposes of this competition, interactive visualisation means visualisation where the user can navigate freely and is able to choose his/her own routes or highlight special elements in the material.

Entrants are welcome to supplement illustrations with geometrical models of building information models in IFC2x3 format.

In the design, planning and execution phases and on the handover of the building, the winning entrant must be willing to pass on digital data, including building information models (BIM) to various parties involved in the project and designated by the client. The client would generally like entrants to use building models in their design and would like the models to be transferred via IFC and original format to the parties designated by the client. Entrants will be required to correct any inconsistent data, for example geometric collisions, in the digital models in the design and planning phase before starting the actual construction of the buildings.

It must be possible as a minimum to install and use any viewers applied from the Windows XP platform. The assessment panel/client may decide to disregard digital material that requires special software to be viewed if difficulties arise in connection with the installation or use of either software or compression techniques.

The client reserves his rights to publicise the material from the competition vis-à-vis the public and other persons without paying a specific fee to the competitors.

## 1.9 Submission

Entries must be handed over to a post office or express delivery service by 25-06-2008, addressed to

Aarhus Kommune  
Borgmesterens Afdeling, Indkøb og udbud  
Indkøbskonsulent Eva Dyberg Jensen  
Raadhuset, vaerelse 489  
8100 Aarhus C  
Denmark

and clearly marked "Design competition – MEDIASPACE", or they must be handed over to Aarhus Kommune by 2.00 pm on the same date. When entries are handed over, which must be done anonymously, a receipt will be issued.

If the entry is handed over to a post office or an express delivery service, a copy of the receipt must immediately be sent by registered mail to Eva Dyrberg Jensen.

The identification number chosen must be stated as sender, together with a telephone number that can be used to contact the entrant if the package does not reach the competition promoter or if something is missing, eg the explanatory text or the envelope containing the identification sheet. The telephone number must not break the anonymity.

## 1.10 Assessment

The entries submitted will be assessed by an assessment panel composed as follows:

- Nicolai Wammen, mayor, City of Århus
- Flemming Knudsen, alderman, Culture and Citizens' Services Administration
- Peter Thyssen, alderman, Technical and Environmental Administration
- Dorthe Laustsen, councillor, Århus City Council
- Keld Hvalsø Nedergaard, councillor, Århus City Council
- Niels Brøchner, councillor, Århus City Council
- Henrik Vestergaard, councillor, Århus City Council
- Hans Peter Svendler, director, Realdania
- Peter Cederfeld, director, Realia
- Partner/architect MAA, Bo Lautrup, partner appointed by the Architects' Association of Denmark
- Partner/architect MAA, Martin Wienberg Morgensen appointed by the Architects' Association of Denmark
- Architect MAA, Stig Lennart Andersson appointed by the Architects' Association of Denmark
- Civil Engineer, appointed by the Danish Association of Consulting Engineers

A number of advisers will assist the assessment panel and will attend all assessment meetings.

The following advisers have been appointed:

- Carl Nielsen, director, Technical and Environmental Administration
- Gøsta Knudsen, city architect, Planning and Building
- Niels Schmidt, head of roads planning, Traffic and Roads, Technical and Environmental Administration
- Christian Mølgaard, head of legal services, Mayor's Office
- Kirsten Jørgensen, Director, Culture and Citizens' Services Administration
- Rolf Hapel, head of administration, Citizens' Services and Libraries, Culture and Citizens' Services
- Niels M Poulsen, head of building projects, Building and Planning Administration
- Knud Schultz, director, Main Library, Citizens' Services and Libraries, Culture and Citizens' Services Administration
- Marie Østergård, project manager, MEDIASPACE Secretariat, Citizens' Services and Libraries, Culture and Citizens' Services Administration
- Karen Skou, project manager, Realdania
- Peter Kjølby, assistant director, Realea A/S
- Jens Lauridsen, library director, Tårnby public libraries
- Ib Laursen, partner, architect MAA, PLH Architects
- Lars Peder Pedersen, Senior Project Director, Rambøll Danmark A/S

In addition, the following specialist team will assist in the assessment of entries:

- Knud Fladeland, architect MAA
- Lisbeth Errboe Svendsen, head of the Urban Planning Department, Technical and Environmental Administration
- Niels-Peter Mohr, senior architect, Municipal Planning
- Michael Kirkfelt, senior engineer, Traffic and Roads, Technical and Environmental Administration
- Jakob Vedsted Andersen, chief emergency incident officer
- Michael Friis Nielsen, financial advisor, Accounts Department, Mayor's Office
- Alice Johnsen, head of section, Culture and Citizens' Services Administration
- Henrik Traberg, head of secretariat, Citizens' Services and Libraries, Culture and Citizens' Services Administration
- Preben Nørgaard, client advisor/architect MAA, Planning and Construction Administration, Culture and Citizens Service's Administration
- Lene Hartig Danielsen, head of Citizens' Services, Citizens' Services and Libraries, Culture and Citizens' Services Administration
- Majja Berndtson, library director, Helsinki City Library
- Bo Fristed, IT & Communication
- Specialist on interactivity
- Specialist on office environments designing
- Specialist on child-related aspects
- Artist

Based on their specific competencies, the members of the specialist team will typically be associated with one or more main themes in connection with the assessment.

The assessment panel may call in additional experts.



### **1.11 Assessment criteria**

The winners of the design competition will be selected on the basis of the following criteria, which are not listed in any order of priority:

- Overall architectural, aesthetic, functional and technical assessment of the response to the requirements set out in the competition brief.
- The use of integrated design, including integration, synergy and cohesion between the architectural concept, load-bearing structures, sustainable measures and principles governing the technical installations.
- Cost estimate, including the proposed design's robustness in terms of compliance with the budgetary framework. A specific assessment will be made of the way in which integrated design has been used from a point of view of construction costs and building technology.
- Fee budget.

The floor areas will be measured in connection with the assessment.

As mentioned above, the assessment panel reserves the right to select independent winners of Site A and Site B. If the panel decides to do so, the subsequent negotiated procedure will be divided into two separate procedures: one for Site A and one for Site B.

In the event of such a division, a competition entrant may be selected for participation in a negotiated procedure for both sites, but the negotiations will be conducted in two separate procedures.

### **1.12 Fee**

All competition entrants who submit a thoroughly prepared and compliant proposal will receive a fee of € 75,000 exclusive of VAT, which will be paid once the design competition has been concluded.

Each of the winners of the design competition will also receive an additional amount of € 60,000 exclusive of VAT for participation in the negotiated procedure for Site A and € 15,000 exclusive of VAT for participation in the negotiated procedure for Site B.

If a joint negotiated procedure for Site A and Site B is conducted, each participant will receive € 75,000 exclusive of VAT.

The competition promoter will also reimburse documented travel expenses incurred in connection with meetings in the negotiated procedure.

The fees mentioned will be considered on account payments which will be deducted from the fee for the services provided by the winning entrant who eventually sign a service provision contract with the City of Århus.

If the project is stopped before a contract has been signed with the winning entrant, or if the winning entrant is not commissioned to carry out the design work with a period of two years after conclusion of the competition, the Site A winner will be entitled to compensation in the sum of an additional € 100,000 exclusive of VAT, and the Site B winner will be entitled to an additional sum of € 25,000 exclusive of VAT.

If only one winner is selected for Site A and Site B together, a compensation of € 125,000 exclusive of VAT will be paid.

If the winners are subsequently commissioned to provide the services, the compensation amounts paid will be considered on account payment of the consultancy fee.

### **1.13 Rights**

The competition promoter will acquire ownership of all entries submitted, including the right to use them. However, copyright to an entry will always remain with the entrant.

The City of Århus and Realdania are entitled to publish the entries submitted. The name of the entrant will be stated in connection with such publication.

### **1.14 Insurance**

Entries will not be insured, as the organisers assume that entrants keep the originals of the materials submitted.

### **1.15 Return of entries**

Entries will not be returned.

### **1.16 Exhibition and publication**

Immediately after the announcement of the outcome of the negotiated procedure, the entries will be displayed. The time and venue will be announced later.

Third parties are entitled to reproduce the entries submitted, for instance in newspapers and electronic media, provided that the names of entrants are stated.

## 2 FINANCIAL ASPECTS AND TIMEFRAMES

### 2.1 Budgetary framework

The client's budgetary framework for the project as a whole is DKK 1.325 million (€ 177 million), broken down as follows:

	DKK million
<b>Site A</b>	
• Base (Bastion structure, car park(s), traffic corridors, basement functions, tracks and paving, outdoor urban furniture, etc)	435
• Building exclusive of basement facilities (MEDIASPACE, optional area and arrival centre)	600
• River mouth and conversion of the Europaplads square including bridges	110
Total in DKK million exclusive of VAT	1.145
<b>Site B</b>	
• Conversion of the Harbour Square including full or partial removal of Pier 1	140
• Change of road and railway trajectories	40
Total, DKK million exclusive of VAT	180

All amounts are based on the January 2008 price level.

The delimitation of sites appears from section 4 of Volume 1.

The budgetary framework includes all construction costs (contractor costs, design and planning costs, fixed furniture and equipment, etc) incurred in connection with the transformation of the site from its current state into the completed project, with the following exceptions:

- The land
- The client's secretariat
- Non-fixed furniture and equipment, including shelving, counters, etc
- IT and AV equipment, including telephony equipment
- Technical stage equipment
- Sorting equipment
- Setting out costs charged by land surveyor plus supplementary geotechnical and environmental surveys and studies
- Local plan, building permit fee and insurance
- Charges for connection to utilities, tip costs, etc

Furthermore, the cost of establishing the light railway and the cost of appointing the light railway station are not to be included.

In addition, the City of Århus will set aside 1% of the construction cost for artistic decoration. This amount is not included in the budgetary framework either.

### 2.2 Financial statement

Compliance with the budgetary framework is essential for the realisation of the project and will be a pivotal point in all project phases.

Transparency and credibility in budget planning will therefore be a decisive criterion in the final selection of project and consultant.

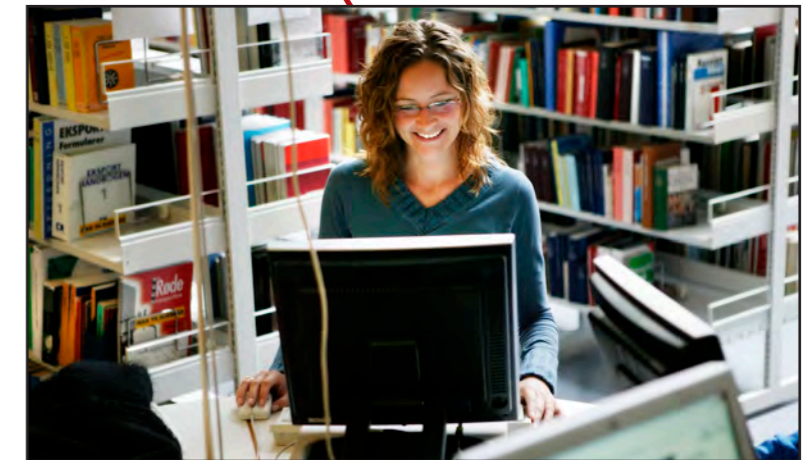
In connection with the design competition entrants are requested to use the enclosed calculation template (Annex 22), which can successively calculate project costs on the basis of area statements and unit prices. Entrants are welcome to enclose documentation for the unit prices applied. The complete calculation must be submitted in a paper version as well as digital. A complete calculation for site A as well as a complete calculation for site B must be submitted.

The completed calculation template will not only be used to assess the financial aspects of the proposed design, but also to assess the entrant's ability to price building projects of this type. Both aspects will be taken into consideration in the assessment of the entries submitted; see the assessment criterion called "cost estimate".

Project costs will be one of the main themes in the negotiated procedure.

As mentioned above, the actual tender conditions will not be determined until after the selection of the winner(s) of the design competition. However, the project's likelihood of complying with the budgetary framework will probably, as a minimum, be given the same weight as the architectural solution in the final assessment of entries.

Entrants should therefore, even at the design competition stage, keep construction costs in mind as an important aspect of their responses to the competition brief. Furthermore, entrants should be prepared to enter into an intense dialogue with the competition promoter about the buildability of the project, the principles proposed and the pricing of the solutions, should they be selected for participation in the negotiated procedure.



Search



Internet access

### 2.3 Anticipated time schedule for realisation of the project

The anticipated time schedule for the realisation of the project is enclosed as Annex 21 to this competition brief.

If the project is realised as a partnering project combined with an early invitation to tender, construction is expected to begin in the early spring of 2011 and the first day of operation is scheduled for late 2014. However, the Harbour Square will not be opened to the public until late 2015.



## 3 SUSTAINABILITY

The competition promoter expects entrants to integrate sustainability as a natural element in the project and that sustainability will be an important part of the integrated design. Sustainability should be an integral aspect both of the building complex and the surrounding areas.

The building complex should thus be an icon of sustainability: a low emissions/ low use building complex. Since people are becoming increasingly aware of the need to protect the environment, partly because of the current focus on climate change and global warming as well as the resolution adopted by the city council of Aarhus which states that the Municipality of Aarhus as a society is committed to being carbon neutral by the year 2030, it is crucial that public buildings take the lead in terms of new approaches to energy consumption. One of the themed exhibitions in the new MEDIASPACE may very well be about global issues such as energy consumption and pollution. For this reason, the new building complex must be designed and structured in a way that makes it a good example or perhaps even a forerunner of the new building regulations that are likely to be introduced in 2015, with stricter requirements concerning reduced energy consumption in buildings. As mentioned above, sustainable solutions should not only be applied in actual buildings, but also in the surrounding areas, particularly the harbour square.

Generally it is desirable that entries anticipate possibilities that are not yet commonly known rather than simply being based on rules and regulations that are already well incorporated into current legislation.

### 3.1 The client's general environmental requirements

The client gives top priority to the following environmental aspects:

- Energy consumption in the operations phase
- Indoor climate for people who work in and otherwise use the building
- The use of hazardous substances, eg glues, joint sealants and surface treatment materials

This does not mean that entrants can disregard other instances of environmental impact caused by the construction and operation of MEDIASPACE and the surrounding areas. When choosing construction methods and materials, entrants should take environmental aspects into account and should in particular endeavour to minimise the use of scarce, non-renewable resources. Furthermore the social aspects of sustainability must be considered in the choice of materials, which should be extracted and processed under conditions that are acceptable from a point of view of health and safety.

### 3.2 Sustainable design

Even in the competition phase, entrants are requested to present suggestions that are environment- and energy-friendly and can later form the basis for sustainable design and planning.

Entrants are requested to ensure environmental optimisation of the project in terms of architecture, fitting up of interiors, structural principles, installation systems and materials. Environmental aspects should be taken into consideration and integrated into the overall planning, design and execution, also with due consideration of the aesthetic, functional, structural and operational requirements formulated in relation to the project.

It should in particular be noted that the client sees good architecture (the exterior and interior appearance of the building and its functional properties, including flexibility in terms of layout and use) as an important environmental factor, as good architecture will prolong the actual life of the building and reduce the need for later remodelling. This will in itself mean lower resource consumption.

At the start of the design and planning stage, the actual environmental impact of the project must be identified and mapped. The purpose of this environmental mapping is to obtain an overview of the project type and its environmental effects, the client's own environmental objectives and positions, the environmental objectives of various public authorities, and local conditions. Furthermore, financial opportunities, limitations and priorities will be mapped.

This mapping will cover all phases of the building's lifetime.

It will also result in a list of environmental and other effects associated with MEDIASPACE and the surrounding areas.

A proposal for prioritisation of environmental measures and initiatives will be prepared based on this list. The prioritisation will be determined within the framework of a dialogue between the client, the client's advisers and the design and planning team.

### 3.3 Energy consumption

Energy consumption in the building should be minimised by means of passive measures such as passive solar heating, active seawater cooling, heat accumulation and cooling accumulation in building structures, the use of daylight, etc. Active measures such as heating, cooling and lighting systems should only be used when passive measures are inadequate.

Outdoor lighting at and around the building as well as lighting in the harbour square and other areas included in the project should be designed with a view to reducing power consumption. In addition to using energy-saving light fixtures it would also be possible use a hierarchical lighting system, so that it will not be necessary to switch on and off all light at the same time but rather to graduate lighting so that is always matches actual needs – just like the character and intensity of daylight changes during the day and over the course of the year.

### 3.4 Indoor climate

When designing the building and its installations, entrants are requested to ensure that the indoor climate will be good and healthful for the users of the building, for example in terms of the intake of daylight.

The indoor climate should be felt as being neutral in relation to the activities that take place in the individual rooms.

In this connection the great significance of the building envelope as regards both indoor climate and energy consumption should be borne in mind. The design of the building envelope should thus reflect not only aesthetic considerations but also optimisation of the indoor climate and energy consumption. Glazed elements in facades and possibly the roof should be designed so that glass areas and solar screening are optimised/minimised and an optimum balance achieved between the intake of daylight and solar heat entering the building.



Reflection

## 4 PLANNING CONSTRAINTS

### 4.1 2001 Municipal Plan

"The Quality Manual for Urban Areas Close to the Harbour: Supplement 58 to the 2001 Municipal Plan" sets out the overall framework for conversion of the areas from industrial dockland areas to contemporary urban harbour areas serving various purposes in the city.

The main structural part of the Quality Manual describes the overall attractions and structural correlations, views, overall urban qualities, etc to which importance is attached in relation to the conversion of the harbour areas and their integration and interplay with the rest of the city, the commercial harbour and the bay. It also gives an account of the qualities associated with various sites in the harbour areas in terms of views and urban environment and fundamental architectural qualities. Finally, the Quality Manual defines the municipal plan framework for the individual new city areas.

Below are a number of relevant excerpts from the Quality Manual.

#### The interplay between city, harbour and bay:

"The location of Århus in the bay and the interplay between city, harbour and surrounding landscapes help give the city a unique quality and character. The overall vision for the city is that this interplay between buildings, functions and recreational facilities will be maintained in the ongoing development of the city and the harbour areas.

The conversion of the urban harbour areas provides opportunities for a distinctive extension of the city centre, including the creation of a completely new city district bordering the waterfront towards the bay, and for strengthening the interplay between existing city centre areas, the harbour and the bay.

The master plan for the urban harbour areas is based on two main pillars, which are to ensure this interplay: the recreational connection and the urban harbour space."

The plan states the following about the recreational connection:

"The first pillar is a recreational north-south connection through the urban harbour areas, intended to serve as a link between the city centre, the harbour and the bay and to connect the various new city districts and attractions.

The governing principle is for the connection to be a path for pedestrians and cyclists that runs in parallel with a canal or a 'canal theme', which could be created by mirror ponds, water stairs or a special pattern in paving."

#### The urban harbour space:

"The second pillar defined in the master plan is a large, coherent urban harbour space with a central location in the area in front of the cathedral. The urban harbour space must be linked with the shopping streets and squares in the city centre and must be visually connected with the expanse of water in the bay and with the Mols peninsula, and vice versa.



Urban harbour space – after removal of all of Pier 1

On the city side, the urban harbour space is delimited by the waterfront buildings in the Havnegade, Skolebakken and Kystvejen streets, towards the bay by the active commercial harbour area in Mellemarmen, to the north by Pier 2, and to the south by Mindet at the mouth of the river."

"The urban harbour space will be created by adaptation of the quays in the inner harbour basins, which are currently divided by Pier 1, and the establishment of two distinctive bastions and a uniting harbour square in front of the cathedral.

The plan present two equal alternatives: complete or partial removal of Pier 1. In one of these alternatives, which is based on the prize winning entry in an urban planning ideas competition held in 1999, a large open water expanse is created by the removal of all of Pier 1. In the other alternative, Pier 1 is partially removed, which makes it possible either to extend the harbour square as an island without buildings or to create new building sites that would contribute financially to the conversion of the urban harbour areas."

#### NOTE:

The City Council later decided that the option of building on Pier 1 should no longer apply, which means that the framework for an overall design competition – including a competition for the design of the southern bastion, the harbour square and the mouth of the river from the Mindebroen bridge to the harbour – is that full or partial removal of Pier 1 should be stated as options in the competition brief and that no actual buildings will be allowed in the pier area.

"The urban harbour space will be one of the most important spaces in the city and, because of its location close to the city centre and the mouth of the river, it will be a distinctive link between the city and the bay.

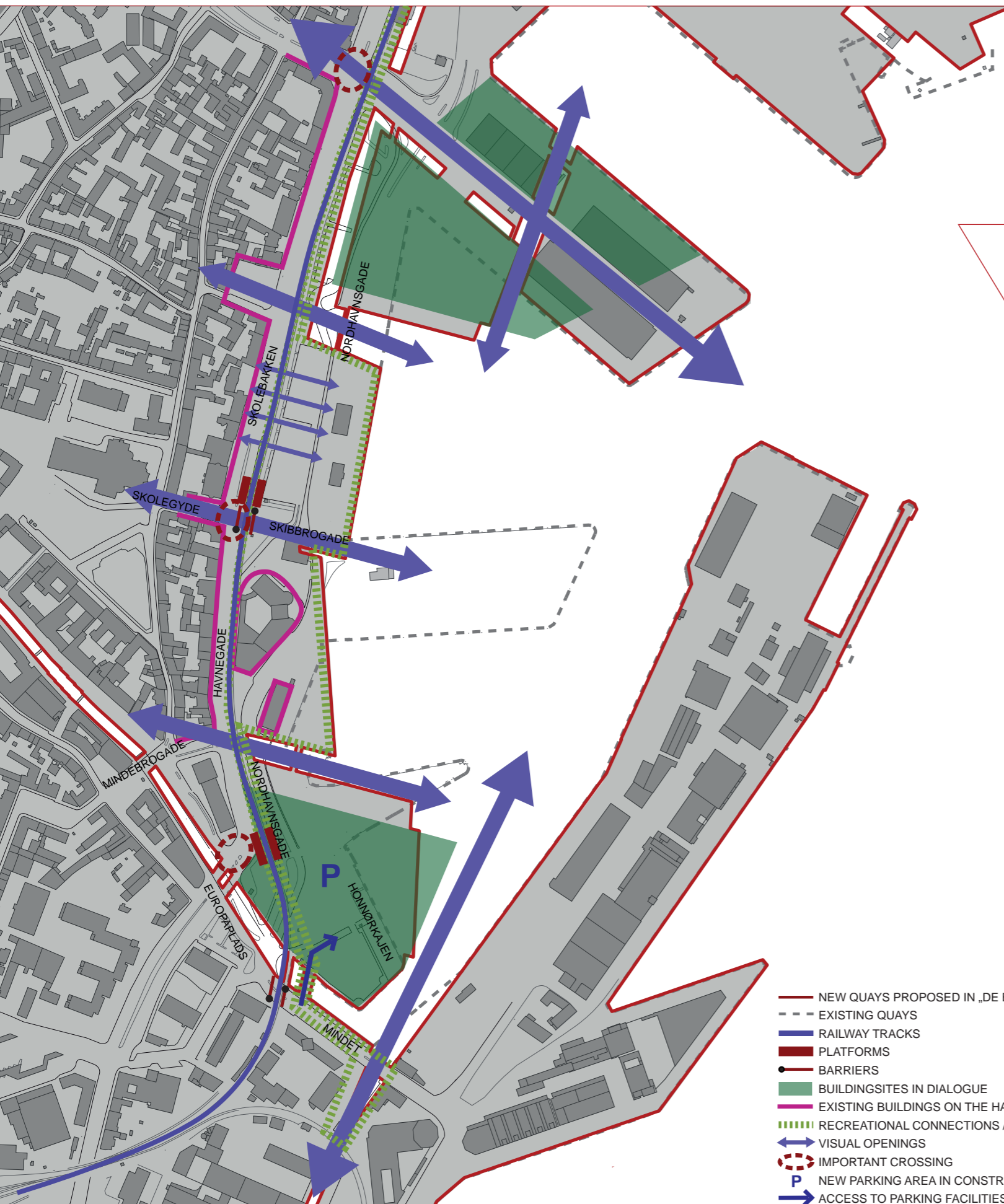
The functions of the buildings must generate activity in the entire area and create an active space in the city centre. The urban harbour space will be a parallel to the cultural institution area at the Rådhusparken, Musikhusparken and Mølleparken parks, and the two areas will be linked by the river promenade and the central pedestrian street (Strøget)."

Based on a situation where Pier 1 is completely removed the illustration shows the most essential conditions which has to be respected in case of building in the urban harbour space.



The overall idea from the harbour competition





- NEW QUAYS PROPOSED IN „DE BYNÆRE HAVNEAREALER,
- - - EXISTING QUAYS
- RAILWAY TRACKS
- PLATFORMS
- BARRIERS
- BUILDINGSITES IN DIALOGUE
- EXISTING BUILDINGS ON THE HARBOUR SITE
- RECREATIONAL CONNECTIONS / RELATED AREAS
- ↔ VISUAL OPENINGS
- ⊕ IMPORTANT CROSSING
- P NEW PARKING AREA IN CONSTRUCTION
- ACCESS TO PARKING FACILITIES

This illustration, which is based on complete removal of Pier 1, shows the important elements that entrants are requested to respect in relation to new buildings in the urban harbour space.

**Northern and southern bastions:**

“The new buildings should be distinctive, sculptural buildings with unique architectural qualities and, together with the existing waterfront buildings, they should make up the new skyline towards the bay. Through their harmonious volumes and well-balanced architectural design, these buildings are to frame the urban harbour space to the north and the south, and the character-creating, dominant buildings on either side of the harbour basin should communicate with each other across the basin.

This architectural dialogue can also be strengthened by letting the buildings open up towards each other and the harbour basin and by establishing outdoor recreational areas, stairs and similar facilities close to the water, offering fine views of the urban harbour space.

The unique location where the city meets the water and the spatial cohesion between the two buildings should be reflected in the design of the buildings. The buildings should be easily accessible and should allow new visual experiences of the city, the harbour and the bay both indoors and outdoors. The lowest floors should be used for functions that can contribute to the creation of vibrant life in the nearby city scene.

Public car parks must be established in building basements or dedicated underground car park facilities.”



Dialogue between existing urban areas and the new bastion buildings is crucial for the spatial quality of the urban harbour space as a whole



### Special requirements concerning the southern bastion

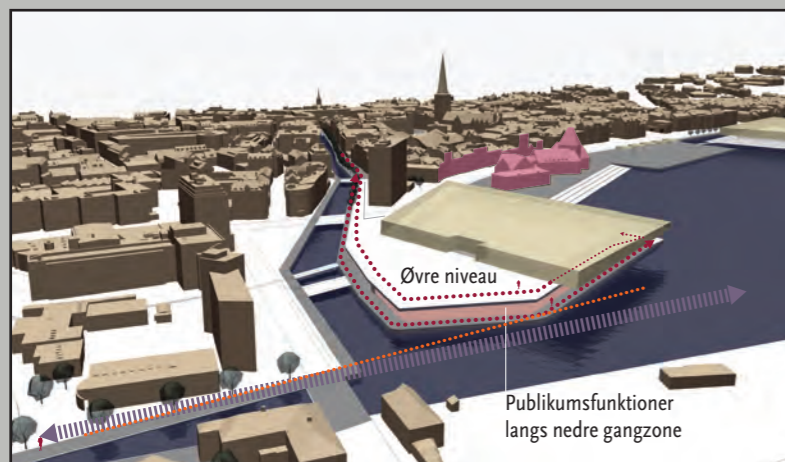
Special attention should be paid to the buildings' relationship with the place where the river runs into the harbour. With the new buildings, the uncovering of the river on its last stretch before the harbour basin and the closing down of the internal harbour road, the area will be a new and important link between the city and the harbour. The building zone borders must respect important sight lines from the city towards the harbour basin and the bay.

A crossing without shifts in levels may be established between the building and Åboulevarden so that pedestrians will be able to go above the traffic at the Europaplads square to the new building and, from there, to the harbour areas. This connection could, for example, be a ramp that starts at the Mindebrogade street and follows the river until it reaches the building. There must be access to it from ground level and there must be public access to the area along the river, as well as around the building along the quay.

The design of the new building must be coordinated with the uncovering of the river from Mindebrogade to Mindet so as to ensure that the river will connect with the harbour in a distinctive and aesthetically pleasing way that forms a harmonious whole with the new buildings.

The trajectory of the Grenå railway line will remain in its current position, which necessitates a design of the new buildings that allows the incorporation of the trajectory and a railway stopping area."

In 2005, Århus City Council approved the principles of a plan for a light railway, according to which the first phase of a light railway running from Århus city centre to the Lisby urban development is to be established. From the central station to Nørreport, this new light railway line will follow the trajectory of the Grenå line. Since then, the plan has been further developed to include two tracks for the Grenå line/the light railway line and a station integrated in the 'arrival centre' of MEDIASPACE.



In this illustration the river promenade has been continued on the two main levels of the southern bastion, both of which lead to the harbour square. The Grenå railway line and the recreational connection go under the upper deck of the bastion building.

### 4.2 Local plan

A new local plan for the area will be prepared on the basis of the winning entry plus possible modifications agreed on in the subsequent negotiation procedure.

Existing local plans will be withdrawn or amended accordingly.

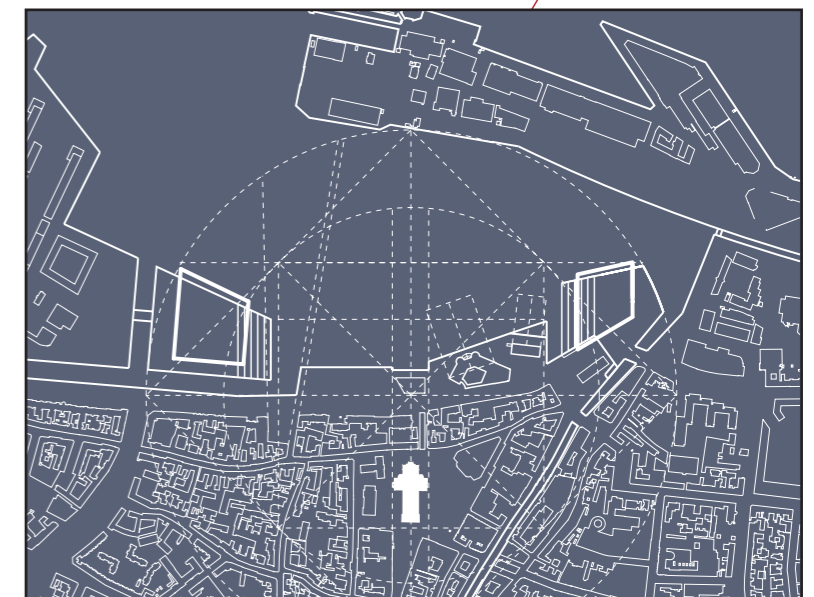


Illustration from the competition about the Harbour area

### 4.3 Policy on high-rise buildings

#### Building height

Århus City Council has adopted a policy on high-rise buildings under which the height of new buildings in the city centre generally may not exceed 20-25 metres above ground level (six storeys), the intention being to preserve the traditional city profile with the historical city and the tower of the cathedral at the end of the low river valley against the background of the nearby forests. However, the harbour areas have been designated as areas where high-rise buildings are not entirely ruled out from the start. Consequently, the maximum height of buildings is 25 metres in principle. It cannot be ruled out that buildings could be higher if justified by architectural or visual aspects.

The number of storeys and buildings heights in the building zone is calculated on the basis of a ground level at + 2.5 m, which means that any storeys in a bastion structure above this level must be included in the total floor area of the building complex.

## 5 TRAFFIC

### 5.1 Overall structure

The plan for the future traffic structure in Århus city centre introduces a more differentiated classification of roads than was previously the case. The initiatives taken in relation to this traffic plan are aimed at reducing through traffic in the city centre and ensuring that a larger proportion of all traffic in the city centre is in the form of cyclists and public transport.

People's choice of transport is best influenced by improving the physical conditions for buses and cyclists, so that these alternatives become more attractive.

The traffic connection along the harbour is one of the strategic conversion projects intended to play a key role in the initiatives taken to make traffic in Århus city centre lighter. The vision for the area is a traffic system dominated by light road users, pedestrians and public transport and limited through traffic.

The conversion will also play an important role in initiatives to reduce the

barrier effect of traffic and in this way link the urban harbour areas with the city centre. The initiatives set out in the traffic plan thus support the development of the urban harbour areas.

The road along the harbour is currently made up of two main traffic arteries with heavy traffic (30,000-40,000 vehicles a day, a large proportion of which are heavy vehicles). In the future, the inner section of Nordhavns-gade street will be closed, and the character of the Havnegade street will be changed completely. The future road profile will be designed to cater to light traffic across the district: two lanes with low maximum speed. In addition, paths for light road-users will be established, as will two lanes for public transport.

Between Nørreport and Sønder Allé, the road profile will be different. Instead of a road with many straight lanes and turning lanes, an attractive connection must be established here, with clear-cut lines and an unambiguous architecture. Starting at the edge of the quay, the urban harbour space should run across the converted Havnegade street and the train tracks all the way up to the existing building facades on the city side.

The principles governing the layout of roads leading to and from the urban harbour areas are shown in Figure 5.1. The Nordhavns-gade street will be closed, and in future the primary vehicular access will be from Nørreport to Nordhavnen and the northern bastion and from Mindet to the MEDIASPACE buildings and the southern bastion with parking facilities and, from there, to the harbour square.

In 2005, Århus City Council decided that a light railway should be established in Århus at some future date. This light railway was to be the backbone of a vision of creating a larger, coherent network of public transport in Århus. The first stage of this light railway would include the harbour area, where some of the existing trajectory of the Grenå line could be reused. According to the plan, the light railway is also to go to the future urban development area in the northern harbour (Nordhavn). In order to ensure maximum flexibility, it was decided in connection with the launching of this competition that space must be set aside for a dual-track light railway trajectory along the harbour.

As mentioned earlier in this brief, the recreational connection and the harbour space are the two fundamental elements of the master plan for the area. Parts of the route of the recreational connection are shown in Figure 5.2 together with the most important crossings for light road users. The locations of future light railway stations are also shown in the figure.

At MEDIASPACE, the recreational connection should be taken through and around the building. In addition it must be possible for light road-users to go from the recreational connection to Åboulevarden via Europaplads.

The crossings at Skolegyde, Skolebakken, Skibbrogade and Havnegade are very important in terms of linking the central harbour square with the old city centre around the cathedral.

Entrants are requested to present proposals for the creation of a cohesive, well-functioning environment within the competition site. Entrants in the design competition are not to prepare any detailed traffic plans but should submit a number of plans with different detail levels (see the competition regulations).

Traffic constraints in the area appear from Annex 10.



Light rail example

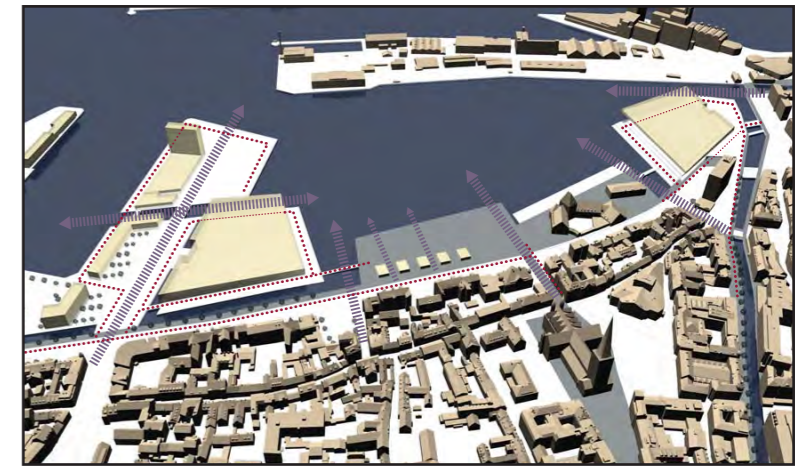


Figure 5.3 Important sight lines for adjacent urban spaces and principle for ensuring access and circulation areas for the public along all quays [illustration from the Quality Manual for the Urban Harbour Spaces].



The harbour area reaches from the quays in the east to the existing houses towards west. Seen from north to south.

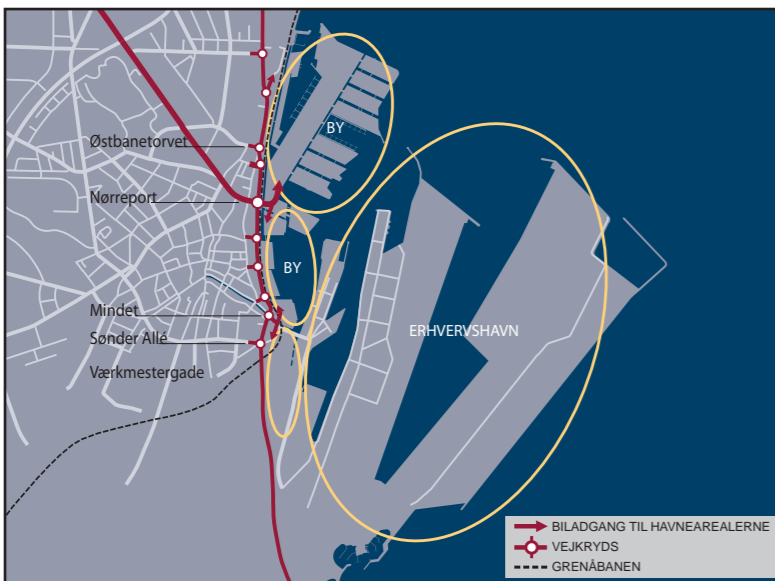


Figure 5.1 Detail of principles governing vehicular access to the urban harbour areas as set out in the Quality Manual for the Urban Harbour Areas [illustration from the Quality Manual].

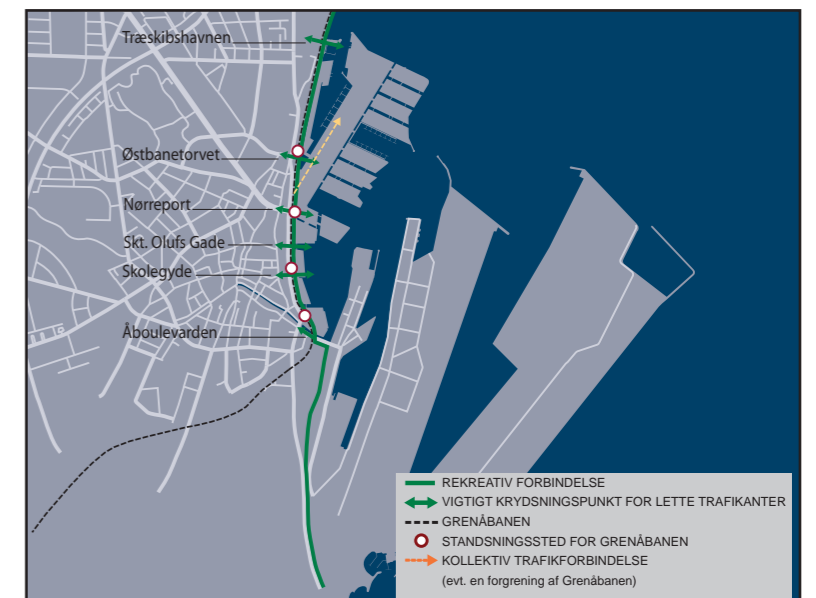


Figure 5.2 Detail of the trajectory of the recreational connection. The arrows indicate the most important crossings for light road-users. The circles indicate future light railway stations [illustration from the Quality Manual].





## 5.2 Railway line and stations associated with the competition site

Two overall principles apply to the future railway line along the harbour. The railway constraints relating to the individual scenarios are the most locked geometrical elements of the competition site.

One of the principles is two tracks running in a corridor that is at least 9.75 metres wide and has room for light rail trains, regional trains and freight trains. The design of these tracks must follow applicable rules for regional and national railway tracks. This implies that crossing of the tracks is only allowed where there are level-crossing barriers or at a level different from that of the tracks. For this reason, the stretch of tracks along the harbour must be screened off by some kind of barrier.

The other option is a dual-track layout designed on the basis of the rules and regulations applying to light rail systems. The most important differences are that the width of the profile as a whole can be reduced to 7.25 m and that crossing of the tracks is allowed at the same level and without level-crossing barriers. This means that no screen or barrier is required along the tracks.

If the light rail rules are applied, it will be possible to have profile that is desirable from a point of view of urban planning, traffic and architecture. However, because of a national decision to maintain goods transport to the port of Grenå, it is a requirement in this competition brief that the track corridor is 9.75 m wide and that level crossing of the tracks will not be possible unless there are barriers. Between these barriers, there must be fencing along the tracks.

The figure below shows the location of barriers and the two tracks in the 9.75-metre-wide corridor and of platforms and level-crossings.

Both tracks are located in a trajectory determined by the existing Grenå line. Vertically, the tracks must also follow the existing track on the ground. The location of stops as shown in the above figure is also fixed.

The following is a description of the railway corridor from south to north.

The tracks cross Mindet, where the existing level-crossing installation must be enlarged because of the additional track. Currently, trains cross the river on a relatively old railway bridge, which is described in section 7 of Volume I.

A station or stop must be established on the southern bastion at MEDI-ASPACE/the arrival centre. The location, length and straight design of the platform must comply with the guidelines set out in the following section and in Annex 10. Entrants are requested to suggest an urban and safe design of platform areas.

Further to the north, the tracks are separated from the Havnegade street and the harbour square by a low fence. Immediately to the north of the crossing at Skolegyden, a railway stop must be built.

- NEW QUAYS PROPOSED IN „DE BYNÆRE HAVNEAREALER„
- - - EXISTING QUAYS
- RAILWAY TRACKS
- PLATFORMS
- BARRIERS

Figure 5.4 Railway tracks at the competition site.



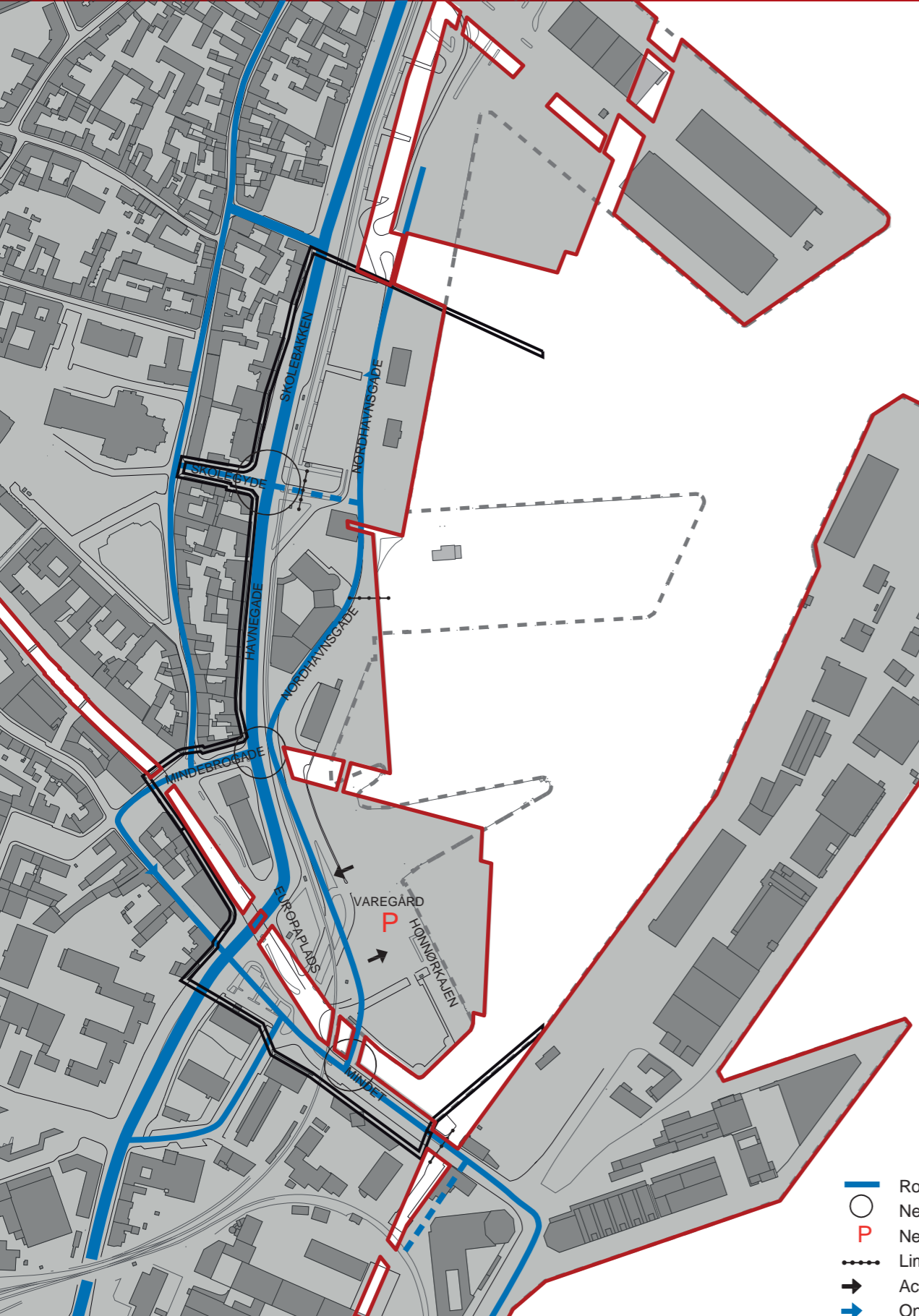


Figure 5.6 Roads around MEDIASPACE and the harbour square.

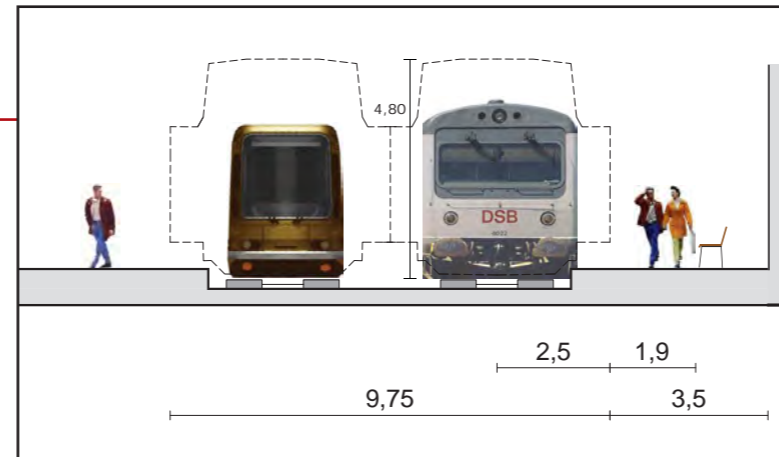


Figure 5.5-a Cross-section showing two regional trains, clearance, platforms and escalators. The clearance is at least 9.75 m wide at its widest.

### 5.2.1 Clearance and platform design

For reasons of safety, there must be free space around rolling stock and cargo called "clearance". All elements in the competition site must allow two regional trains or freight trains to pass each other at the same time. To make this possible, the total clearance must be at least 9.75 m wide and 4.80 m high.

For platforms, there must be a minimum distance of 3.5 m from fixed elements to the outer edge of the train clearance. This distance may be reduced to 1.9 m in connection with certain fixed elements, but only along very short stretches of the tracks.

An example of a cross-section is shown in Figure 5.5-a.

It is important that sufficient room is provided between the tracks and the road through the building complex to obtain the required platform width and to accommodate structures and possibly also stairs, etc. Although the competition promoter wants an urban design, entries may not have door systems between the edge of the platforms and the train (the train clearance).

### 5.3 Road structure in and around the competition site

The road structure in and near the competition site is shown in Figure 5.6.

Road access to the MEDIASPACE building, the car park, the storage yard and the central harbour square should be from Mindet. Traffic lights will be installed in the crossroads at Mindet, whose location will remain unchanged as shown with the southern circle on Figure 5.6. From there the road will run across the river on a new road bridge.

The roadway must be at least seven metres wide. There must be separate entrances to and exits from the car park and the storage yard in order to avoid mixing different traffic flows.

The road going through the MEDIASPACE building/the bastion must have a clearance height of at least 4.5 m. There must be at least one turning area at the southern end of the harbour square where articulated lorries and tourist coaches can turn and drive back through the building/bastion. Thus the road can be adapted – within the limitations set by the adjacent railway installations – to the desired design of the MEDIASPACE building and the southern bastion.

A possible cross-section of the road through the MEDIASPACE building/the bastion is shown in the figure below.

The harbour street (Havnegade) must be included in the competition at a level of architecture and environmental description that is conducive to the realisation of the visions for the road and the urban spaces. The same applies to the smaller streets in the area: Mindegade, Mindebrogade and Skolegyden. There must be an area in Mindebrogade for the loading and unloading of goods to shops and restaurants along the river.

It should be noted that the Toldbodgaden street will be maintained with two-way access to Mindet, but only one-way access from Spanien. Furthermore, it has been suggested that Mindegade be a one-way street in the direction towards Havnegade. The turn at Mellemarmen will be closed to through traffic in order to reduce traffic loads along the southern continuation of the recreational connection.

More detailed requirements and descriptions of parking conditions within the competition site are given in section 9 ("Parking") in Volume I.

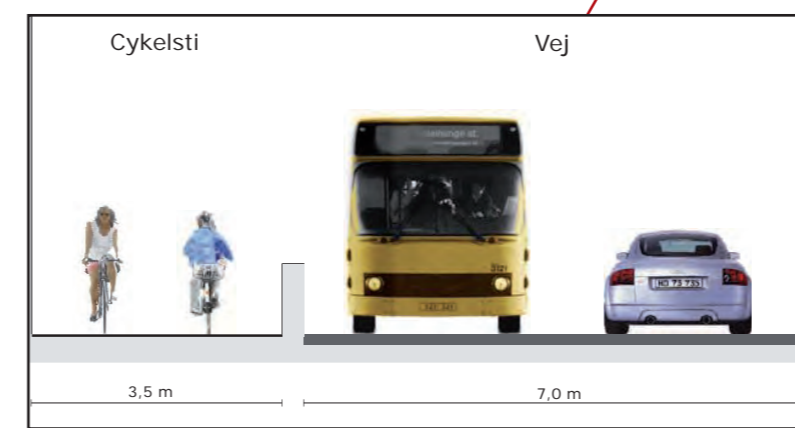


Figure 5.5-b Suggestion to cross section



#### 5.4 Bicycle routes in and around the competition site

The bicycle paths in the area are shown in the figure below, which shows both primary routes and secondary routes, including ordinary bicycle paths. Important crossings and desirable accesses to the bicycle facilities in the arrival centre also appear from the figure.

One of the important primary routes is the bicycle path in the recreational connection running from the north across the harbour square and to the south along Mindet. Entrants are requested to extend this two-way bicycle path from the recreational connection through the MEDIASPACE building/the bastion, but the path for pedestrians should be taken round the building along the edge of the quay. The two-way bicycle path must be at least 3.5 m wide and, where it passes through the MEDIASPACE building/bastion, must have a clearance height of at least 2.8 m. No specific bicycle path should be established in the harbour square, but it should be possible to cycle in the square on the paving suggested with a view to creating an attractive natural solution.

Entrants are requested to suggest bicycle paths at the MEDIASPACE building that create safe and attractive connections. Cyclists coming from the south along Mindet and cyclists coming from the harbour square must have a safe out-of-level crossing (crossing on two levels) that can bring them to the other side of the railway track to the bicycle parking facilities at the arrival centre. The principle is illustrated in Figure 5.8.

In order to ensure that the bicycle path is safe, it should be located on the side of the road opposite the car park and storage yard entrances in the MEDIASPACE building.

At the arrival centre, there should be one or more clearly visible and logical bicycle connections to bicycle paths in adjacent areas.

Figure 5.7 Bicycle routes in and around the competition site.





- NEW QUAYS PROPOSED IN „DE BYNÆRE HAVNEAREALER,“
- - - EXISTING QUAYS
- RECREATIONAL PATH
- ..... PROPOSED WALKWAYS
- ○ ○ ○ ○ IMPORTANT CROSSINGS

Figure 5.8 Pedestrian routes.

### 5.5 Pedestrian paths and connections

The intention is to establish access to the southern bastion on two levels via the current Europaplads square. Entrants are requested to present a proposal for an attractive elevated pedestrian route from the river promenade and the current Europaplads square across the road and railway track and possibly also across Havnegade, leading to an elevated forecourt on the southern bastion, from which there should be access to MEDIASPACE and to the harbour square to the north. From the elevated forecourt there should be fine views of the urban harbour spaces and adjacent city districts. Entrants are also requested to present proposals showing how ground level access to MEDIASPACE/the arrival centre can be created from the Europaplads square and how public access to areas along the river and along the quays around the building complex can be ensured.

Finally entrants are requested to illustrate how an attractive pedestrian connection can be created at ground level from Skolegyde across Havnegade/Skolebakken in a way that provides a clear connection between the Harbour Square and the Bispetorvet and Store Torv squares.

### 5.6 Area at the arrival centre

The building requirements relating to the arrival centre are set out in section 7 of Volume II.

The following facilities should be established in the arrival centre area:

- Bus stops for city buses
- A "Kiss and Ride" drop-off area
- Taxi stands

When designing this area, entrants should bear in mind that the basement area will be constrained by the mouth of the river to the south and by the large utility pipelines to the south and west. Section 6.5 in Volume I contains a more technical description of these aspects, as well as an overview of the areas available under the current Europaplads square.

As part of their entry, entrants are requested to submit a layout plan illustrating both the ground level and the basement level of the arrival centre.

All elements must comply with the accessibility requirements set out in section 10 of Volume II.

### 5.7 Bicycle parking

The building requirements relating to bicycle parking are set out in section 9.1.5 of Volume I.

There must be connections to the bicycle parking facilities from the city centre, MEDIASPACE and the arrival centre and from the bicycle path in the recreational connection. Railway crossings should not be level-crossings but run either above or below the tracks. Cyclists are very sensitive to detours, so to avoid problems of unlawful bicycle parking, it is important that there are direct connections from existing paths to the building complex.



### **5.8 Traffic elements in the harbour square**

The harbour square should be an attractive, flexible and robust urban space. The layout and organisation of the square must be such that many different activities can take place there. In terms of traffic, the square can be divided into a southern part, a central part and a northern part.

The southern part of the harbour square up to the old Customs House (Toldboden) should include a turning area for semi-trailer trucks, a drop-off area for coaches and taxis (and possibly a taxi stand for a few vehicles) and a goods delivery area for the Customs House and Warehouse 13 (Pakhus 13), all of which should be accessed via the road through MEDIASPACE/the bastion. Facilities for long-term parking of coaches will be located outside the competition area.

It must be possible to cordon off the central and northern parts of the square using bollards at the Customs House and at the Havnegaden crossroads to prevent vehicles from entering those areas, but it should also be possible for both city buses and tourist coaches to drop off passengers. In connection with special events such as concerts and major sports tournaments, it must be possible to lower the bollards to provide access to the public. Entrants should therefore take into account that there must be access for heavy vehicles such as semi-trailer trucks, mobile cranes and firefighting vehicles, possibly via special trajectories or areas with special paving.

The recreational connection must go through the entire competition site and should provide a high degree of comfort for cyclists, rollerskaters and others, just as it must be accessible to people with walking impairments.

## 6 TECHNICAL CONSTRAINTS: BUILDING BASE

### 6.1 Harbour structures

To establish the southern bastion, it will be necessary to reclaim new land and to redo the quaysides. Once a final winning entry has been selected, the City of Århus will submit an application to the Danish Coastal Authority to obtain permission for the reclamation of land.

The current harbour front at the competition site includes quays built between 1930 and 1985. All these structures are sheet piling (quay structure under water), a hammer beam (quay structure above water) and anchoring in the ground behind these structures. The anchoring will create constraints on the design and foundations of the future buildings if this structure is retained without changes. Entrants must take into account that it will be necessary to remove or change some or all of the existing quay structures in connection with this project.

The City of Århus has commissioned a report on the state of repair of the quay structures in the area where the southern bastion is to be established. It is up to entrants to assess, on the basis of this report and the specific design proposed, whether it would be financially advantageous to maintain parts of the existing quay structures in the new building structure. Annex 4 contains sections of the individual quay structures.

Quays 1-3 are from 1954 and in such a state of disrepair that they cannot be preserved.

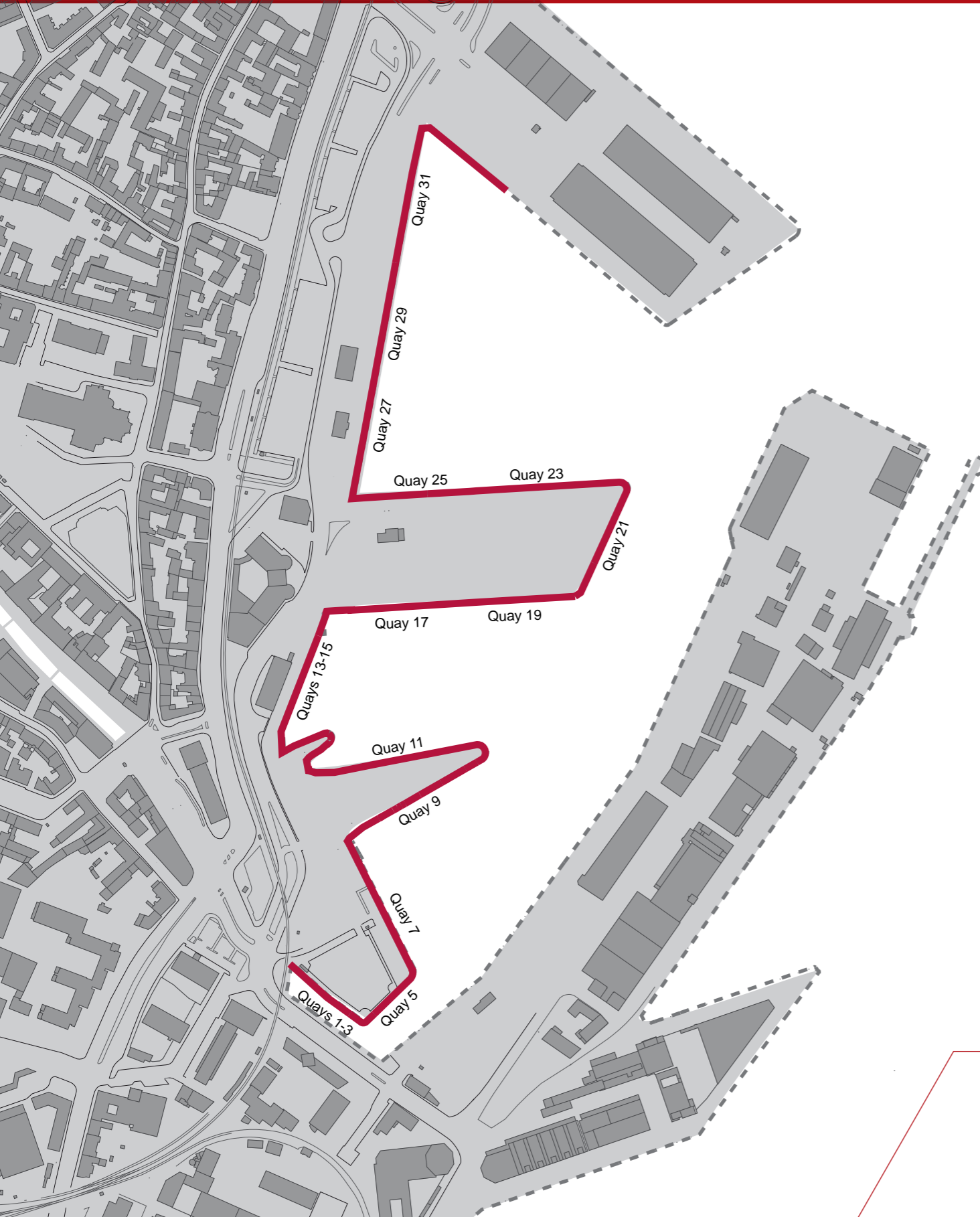
Quays 5-7 and the innermost part of Quays 9-11 (2x90 m) are also from 1954. According to the state-of-repair report, the pile sheeting has not deteriorated since the time of construction, but the concrete hammer beam needs repair. The structure is concrete pile sheeting (concrete piles driven down close to one another so that they form a wall). Along the entire stretch, there is a 6.5 m wide relief plate of reinforced concrete as well as anchor frames. It is believed that a watertight quay structure will require exterior sealing if the current concrete sheet pile wall is retained.

The outermost part of Quays 9-11 (2x50 m) dates from 1985, and it can be presumed that cathodic protection has kept the steel pile wall in more or less in the same condition as at the time of construction. The concrete hammer beam is damaged and will most likely have to be replaced. The anchoring consists of a relief plate spanning between Quays 9 and 11 and of anchor frames. It is believed to be possible to protect the pile wall against the ingress of water.

Quays 9 and 11 were previously used as ferry berths, which means that there are remnants of ramps, fenders and seabed protection.

No report has been made on the state of repair of Quays 13-15, but in terms of age and structure they are similar to Quays 5-7 and the innermost part of Quays 9 and 11. It can therefore be expected that this part of the quays is in the same condition as Quays 5-7 and the innermost parts of Quays 9-11. Consequently, it may be difficult to obtain a watertight quay structure here, too.

Pier 1 was built around 1950. A previous report showed that it was in a very poor state of repair because no anti-corrosion coating was applied originally. The Port of Århus previously advised against heavy loads at distances of less than ten metres from the quay.



Existing quays



Quays 27-31 date from the 1930s and are pile wall structures. Behind them are the remnants of the old quay structure: an anchoring structure with anchor frames and crane rail foundations resting on piles. These structures go about 15 metres into land. No state-of-repair report has been made on this part of the quay front.

All costs of changing/removing the existing quay structures, piles, etc, including the clearing of the ground, will be included in the budgetary framework and must therefore be included in the entrants' cost calculations.

## 6.2 Soil conditions

A number of geotechnical borings have been made in connection with previous projects in the area. Some supplementary borings were made in preparation for this competition brief: one in the harbour basin.

Most of the existing land area at the competition site is the result of land reclamation, ie soil and other materials from the seabed filled in up to ground level. These landfill activities took place over many years. The westernmost area was thus reclaimed before the 1870s. The original seabed consists of tertiary clay, while the filling material is either sand or a mixture of sand and clay. Locally, there are minor mud layers between the filling layer and the tertiary clay. The top of the tertiary clay is found at levels ranging from -3 m to the west to -9 m to the east.

The competition ground is currently at elevations of 1.8 m to 2.2 m.

It is recommended to use sand as filling material in future land reclamation in order to minimise the risk of building subsidence. Given that there may be layers of mud and/or silt, dredging of the seabed is recommended before filling begins.

## 6.3 Foundation and groundwater conditions

On the basis of the geotechnical surveys it is concluded that all buildings must rest on pile foundations in the form of driven reinforced concrete piles going down to the tertiary clay. The load-bearing capacity and strength parameters required appear from the geotechnical note (Annex 11).

Along the eastern side of Nordhavnsgrade, following a straight line through the competition site, there used to be a mound of rubble. Entrants must anticipate removal of this mound to ensure that there will be no obstacles in connection with excavations and pile foundations in this area.

It will be possible to establish basement structures without any significant groundwater problems, provided that the excavation pit is secured by a watertight sheet wall. The sheet wall must go down to the tertiary clay and be so tight that there is no ingress of water. Permanent drainage of the excavation pit is possible without any major risk of damage to nearby buildings, which will for instance make it possible to build the lowest deck in the basement as an ordinary floor structure/road structure, provided that the deck is below the water level.

Expected increases in water levels mean that all buildings must be protected against the ingress of water up to an elevation of + 2.5 m.

## 6.4 Contamination

The competition site is part of a former harbour area, which means that there is a risk of contamination from industrial enterprises.

The initial studies carried out showed no sign of any presence of volatile ionisable compounds, but environmental conditions must be assessed in connection with the design and planning to ensure that the indoor climate in buildings will be acceptable.

Entrants may count on surplus earth from basement excavations being usable as fill in areas to be reclaimed. The earth thus removed will come from landfills carried out in the 1870s and 1950s. Any contamination components that may have existed are believed to have broken down considerably or to be leached out over the many years they have been in the marine environment in the harbour.

Both excavation and any reuse of the soil will require the submission of notifications and the grant of approvals. Before permission is granted to reuse the soil, it must be tested and classified as Class 1, Class 2 or Class 3 soil.

The client will pay all costs incurred in connection with soil testing outside the budgetary framework. Any cost incurred in connection with the disposal of contaminated soil falls outside the scope of the overall budgetary framework.

## 6.5 Utilities

The design of the river mouth and any basement structures to be established must take into account that there are a number of existing large outfalls.

Under the Europaplads square there is a large gravitation main for wastewater connected with two large structures:

- An overflow weir connected to the river box
- A structure comprised of two subterranean chambers which ensure that wastewater runs under the river through two submerged pipes on its way to the Marselisborg wastewater treatment plant.

Entrants may assume that the wastewater pipe can be relocated and that the overflow weir can be replaced with another similar structure. This would free up a large underground area for use in the design of the new building complex. The cost of relocating the wastewater line and re-establishing the overflow structure must be included in the budgetary framework for the project.

The other building structure should be maintained as is.

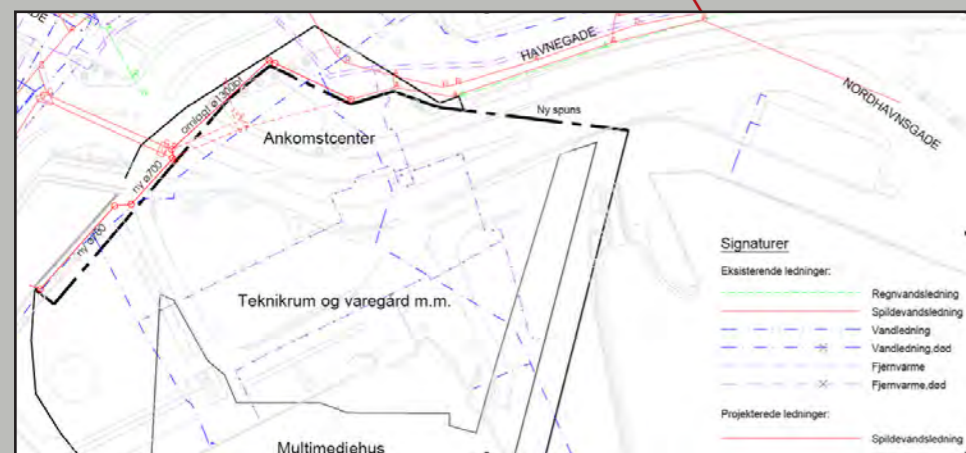
There are also a number of smaller utility lines for electricity, water, telephony, etc at the competition site. All of these lines may be relocated in connection with the construction of a foundation for a possible new basement structure.

It is mandatory for all new buildings to be supplied with district heating.

The budget is based on the assumption that all utility lines go into the building zone.



Clay layer's upperside and placement of the drilling



Relocation of wastewater

## 7 GENERAL TECHNICAL REQUIREMENTS RELATING TO THE BUILDING COMPLEX

### 7.1 General

It is important that the building design is determined in an integrated process in which architectural and engineering solutions are mutually supportive so that optimum synergy effects will be achieved.

It is thus essential that load-bearing structures, sustainable measures and installation principles enter into a well-considered interplay with the architectural concept.

Entrants are requested to opt for building technology and materials which ensure that all important building elements for the building carcass, the building envelope and the fitting out of the building interiors. The durability of materials and building components should match the degree to which they are integrated into the building, the anticipated user loads and the climate impact anticipated where they are used.

It is particularly important to use cleaning-friendly, robust solutions for public areas.

### 7.2 Materials

The choice of materials should take the budgetary framework into consideration, just as the following aspects should be considered in relation to any materials chosen:

- Appearance and atmosphere-creating properties
- Practical in daily use
- Attractive patination
- Aesthetic aspects and surroundings
- Sustainability and lifetime
- Wear and tear
- Safety

Naturally, the competition promoter expects the building to be made of materials that take its location in an aggressive marine environment into account and that those materials have environmental certification.

Please also see section 3 ("Sustainability") of Volume II.

### 7.3 Load-bearing structures

A layout adaptable to future needs and requirements in terms of functions and services is crucial in a building complex of this type.

This means that the load-bearing structures must be designed in such a way that they will present a minimum of constraints in relation to future use and layout of the building interiors.

Furthermore, the principles applied in the load-bearing structures must be optimum with respect to construction costs in the Danish market.

### 7.4 Installations

The building should be laid out and organised in such a way that installations can be incorporated that are economical in terms of construction costs, energy consumption and service.

To minimise the need for ducts, ventilation rooms should be located close to areas in the building where ventilation is particularly necessary. Installation shafts and plant rooms should have relatively large floor areas so as to facilitate subsequent changes in or extensions of plant. Particularly noisy plant rooms such as the central cooling room should be located appropriately relative to noise-sensitive rooms.

Horizontal ducts, for example ducts above suspended ceilings, should also be installed so that there will be room to carry out minor changes to the installations if required as a result of new room divisions or changed use of some rooms.

There should be easy access to both horizontal and vertical ducts and shafts.

Air intake devices should be located where there is a minimal risk of taking in polluted air emitted by vehicles close to the building.

Installation floors should be established where specified in the space requirements set out in this competition brief.

Wireless LAN and hotspots providing access to the Internet and to the library's intranet with IT services and databases should be installed in all public areas in the building. In this connection it should be remembered that a large number of power outlets are required.





## 7.5 Acoustics

The building zone has a very central location in the city. However, after relocation of traffic routes, the building complex will be better protected against uncomfortable exterior noise than the area is now. Advantage should be taken of this in relation to the location of outdoor facilities. The noise level at the arrival centre and nearby areas will be higher than noise levels elsewhere, and this should be taken into account in the design.

The railway, light rail and access routes to the car park should not cause any inconvenient noise or vibrations in the building. To avoid this, the tracks and roads for heavy vehicles should have surfaces that are structurally separate from the building. Particularly noise-sensitive rooms in the building (concert hall, music room, reading rooms, etc) should not be located close to these noise sources.

Inside the building, incorporated noise-absorbing surfaces should generally be used in areas where people gather, take breaks or work, so that there will be no areas with unpleasantly long reverberation times and reduced speech sound quality. Reverberation times should generally be short. The specific limitations of reverberation times will be determined in subsequent project phases, once the size and function of the different rooms are known. In offices and work areas for which acoustic requirements are defined by the Danish Working Environment Authority, there must be compliance with those requirements.

Premises and areas in the building used for educational activities or as day-care facilities must meet the noise requirements stated in section 6.4.3 of the Danish Building Regulations.

Rooms to which these regulations do not apply must be acoustically regulated as best suited to the functions of these rooms. The multi-purpose hall will be used for various purposes with different needs in terms of acoustic regulation. It would be consistent with the MEDIASPACE concept if the need for variable room acoustics is satisfied by means of an electronic reverberation time regulation system and the hall being fitted out with adjustable acoustic panels and sound baffles that make it possible to feature both abated acoustics during the showing of films and more sonorous acoustics for music events and performances. Alternatively, the hall could be fitted out with variable acoustic panels.

Walls and decks between levels should have sound-insulating properties as needed: extensive sound insulation around particularly noise-sensitive rooms and around rooms in which noise levels may be high. The specific requirements for sound insulation will be determined at a later project stage, once the actual design of the building is known. If any regulatory requirements apply to sound insulation (for example in rooms used for educational purposes), such requirements must be the minimum.

Floors and slabs between levels must be designed so that impact noise will not spread to adjacent rooms and is not loud in the room itself. This is particularly important in the library area.

Technical installations in the building should emit as little noise as possible, so that they do not cause noise pollution inside or outside the building. The specific threshold values will be determined later.

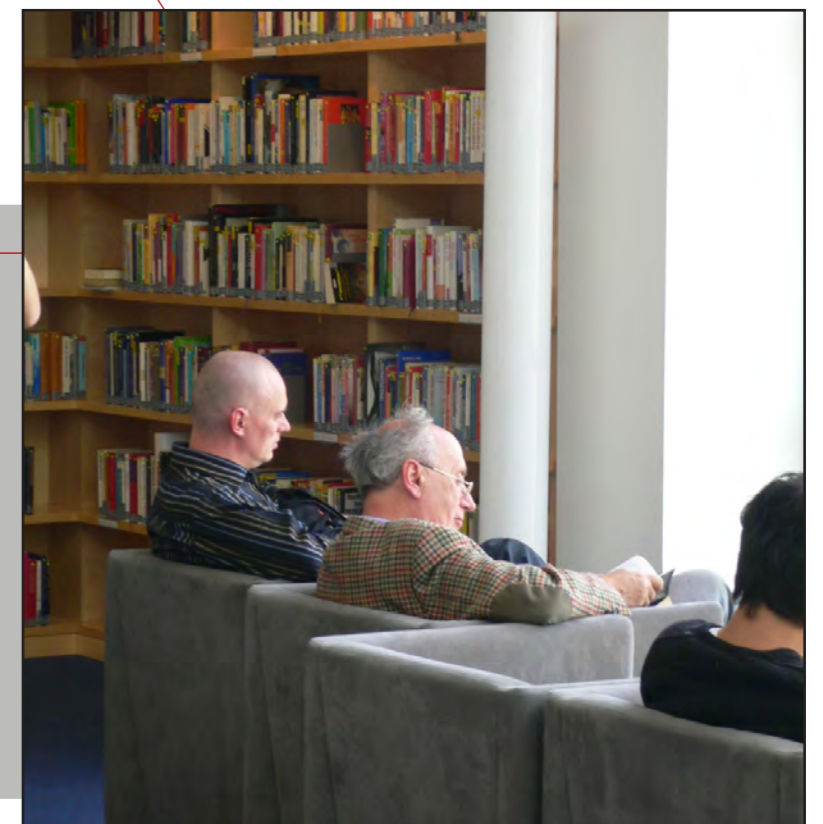
## 7.6 Fire

Entrants are requested to take fire protection measures into account as part of their integrated design. Entries should thus illustrate the following general aspects:

- Access routes for firefighters and rescue workers ensuring the shortest possible distances for entry into the building.
- How the design and layout of the building could cause smoke and fire to spread, including the possibility of smoke ventilation. Entrants are requested to provide descriptions of areas where many people gather and/or there is a particular fire hazard.
- How the buildings can be evacuated along escape routes, including possible rescue through special rescue openings. It would be appropriate to use the escape routes for general foot traffic in the building as well. Likewise, the building's primary access routes should also be used as escape routes.
- Active and passive fire protection systems in the buildings. Entrants are also requested to consider connecting protective systems with the operation of the building.



Direction oriented sound



Quietness





