

THE CITY OF COPENHAGEN'S

WATERFRONT DESIGN CATALOGUE

SOURCE OF INSPIRATION FOR ENCOURAGING
MORE WATERFRONT ACTIVITY





Thanks to the Interreg IVC-program AQUA ADD for financing of translation from Danish to English and the print of the english version.



The Waterfront Design Catalogue was developed as a collaborative effort involving the City of Copenhagen (CPN, CBD, CTR, KFF), PK3 Landskabsarkitekter, TREDJE NATUR and COBE.

The catalogue was prepared by PK3 Landskabsarkitekter and TREDJE NATUR.

The catalogue was prepared in continuation of “Basic Analysis of the Port of Copenhagen, 2011”, commissioned by the City of Copenhagen.

The catalogue can be ordered from the Centre of Urban Design, City of Copenhagen.

PURPOSE

The purpose of the Waterfront Design Catalogue is to inspire the development of a versatile, varied harbour.

For this reason, the illustrated sections should not be regarded as specific solutions, but as ideas for the design of waterfronts, promenades/esplanades, activities and areas for gathering at and on the water.

The catalogue is intended as a source of inspiration, a catalogue of solutions for local planning, and as a basis for engaging in dialogue with consultants, investors, landowners, etc. The catalogue is also intended for project owners to help them develop their own interpretation of the ideas and principles in this catalogue in dialogue with the City of Copenhagen.

The catalogue describes various waterfronts – from promenades or public areas on shore, to the transition for land to water and the water's edge along the waterfront. The catalogue features various cross-section examples within six categories: the classic waterfront; access to the water; public waterfront areas; routes and connections; temporary use; and activities. Each category is illustrated with a variety of cross-sections and reference photos.

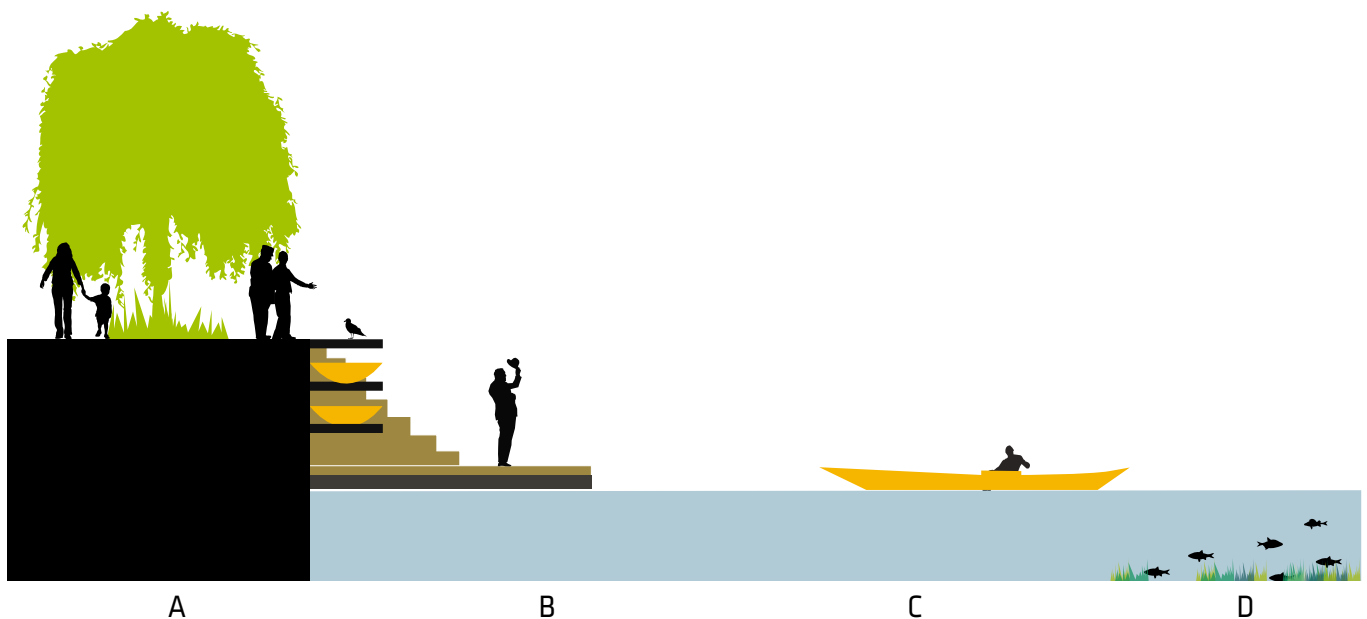
PRINCIPLE

OVER THE EDGE

The following should be considered for the development of each urban waterfront:

- A. What is the intended use of the waterfront promenade?
- B. What should the waterfront/transition to the water look like and what function should it serve?
- C. What should or can take place in the water and possibly on the water surface/underwater/on the seafloor?
- D. What is happening on the sea floor?

Each of these four elements can serve many purposes or solutions. Therefore, the following initiatives could be considered in a specific project: a promenade or waterfront, or whether to make a combination of solutions for the promenade, waterfront, and on and in the water. The cross-sections were envisioned as flexible solutions – different colours illustrate the elements, such as those that can be added to the waterfront: temporary (brown), or permanent (black).



OVERVIEW

THE CLASSIC WATERFRONT

1



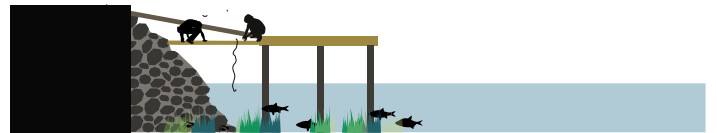
ACCESS TO THE WATER

2



PUBLIC WATERFRONT AREAS

3



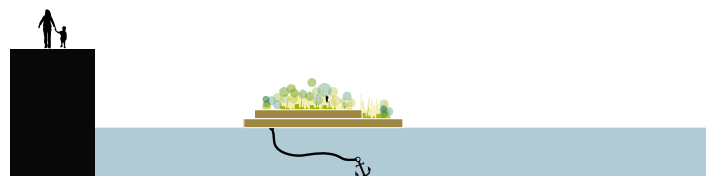
ROUTES AND CONNECTIONS

4



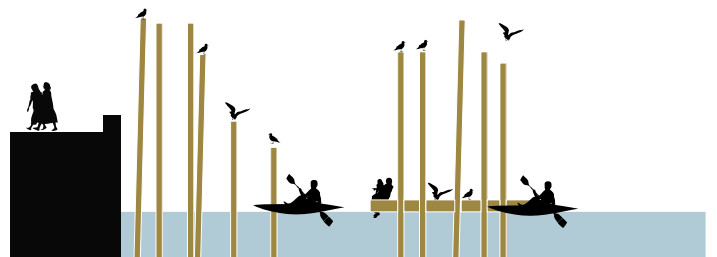
TEMPORARY USE

5



ACTIVITIES

6





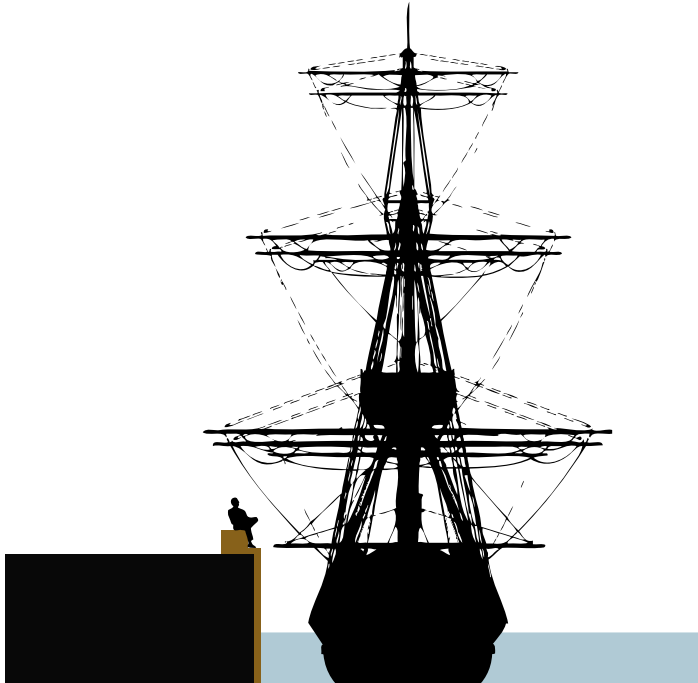
Nordre Toldbod
Stone Edge

THE CLASSIC WATERFRONT 1

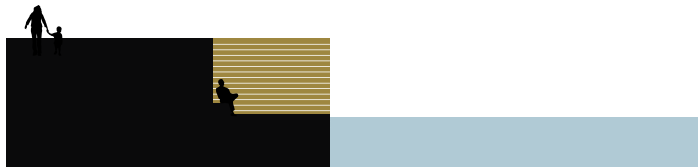
The existing waterfronts of the Harbour of Copenhagen are traditionally designed for the purpose for which they were originally intended: landing and mooring areas for large sailing boats and cargo ships. The edge of the quays are primarily made of stone or steel piles capped with granite or, in some places, wood. This helps to show the original function of the harbour. The rustic, durable design enhances the harbour ambience and functionality for navigation in the harbour.

The classic waterfront can be varied by increasing the use of wood instead of stone and by taking greater account of smaller boats.

1 THE CLASSIC WATERFRONT



1.1 Nyhavn and Christianshavn Canal



1.2 Stairs and plateau
e.g. Gammel Strand



1.3 Steel edge/plates
e.g. Havnegade



1.4 Wooden edge
e.g. Sluseholmen



Port of Copenhagen

1.F Nyhavn



Port of Copenhagen

1.A Stone edge



Port of Copenhagen

1.B Wooden edge



Port of Copenhagen

1.C Bulwark, Nyhavn



Port of Copenhagen

1.D Stone edge



Port of Copenhagen

1.E Stone edge



Lyon
Access to the water

ACCESS TO THE WATER

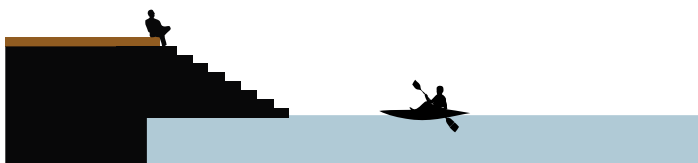
2

The harbour's most important attraction is the water. The distance from the waterfront to the water surface can be reduced and/or varied and direct access can be facilitated. This can take place by converting the waterfront edges into stairs, ramps or slipways, or by constructing stone piers, floating jetties and walkways along the waterfront/on the water surface.

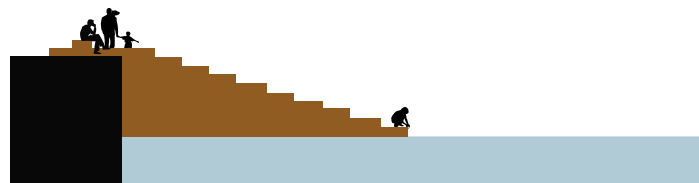
2 ACCESS TO THE WATER



2.1 Promenade stairs



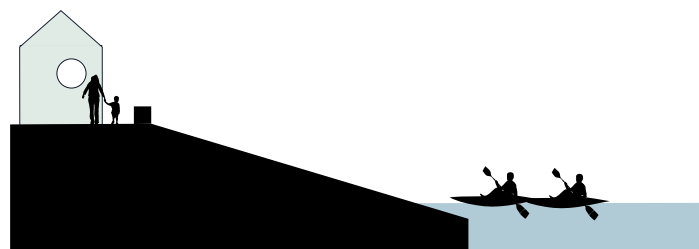
2.2 Wooden deck and stairs



2.3 Wooden stairs
Harbour element connected to promenade and waterfront



2.4 Slope



2.5 Slipway, waterfront building, kayak, sailing facilities



2.6 Reef and slope



2.7 Waterfront as windbreak



Malmö

2.A Wooden stairs



Letten Areal - Zürich

2.C Promenade stairs



Copenhagen

2.B Stairs and deck



Oslo Opera House - Oslo

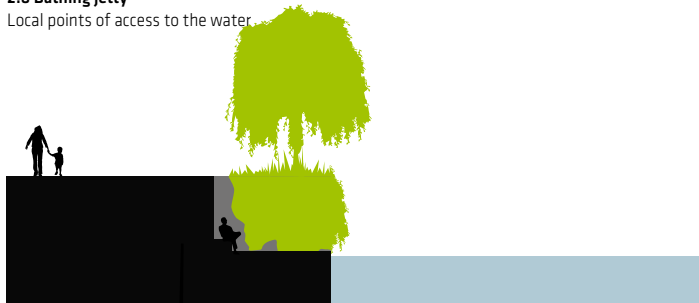
2.D Slope

2 ACCESS TO THE WATER

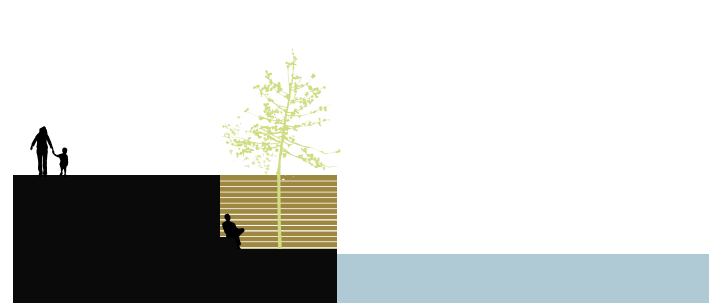


2.8 Bathing jetty

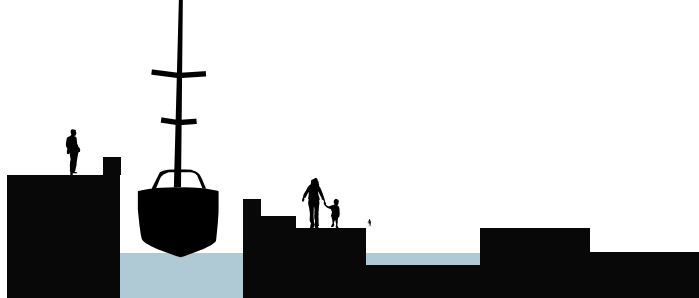
Local points of access to the water



2.9 Green areas with water access



2.10 Step/ramp along the waterfront



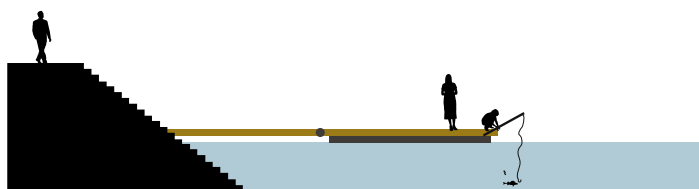
2.11 Canals

Access to different activities side by side

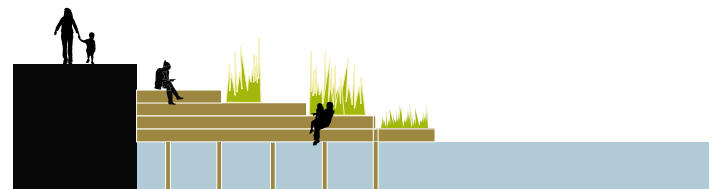


2.12 Lighting

Illumination of water access areas



2.13 Stairs and floating docks/jetties



2.14 Wooden wharfs



Port of Copenhagen

2.E Floating docks/jetties



Stockholm

2.F Bathing jetties and stairs for sitting



Lyon

2.G Integrated promenade and stairs



Berlin

2.H Sheltered waterfront areas



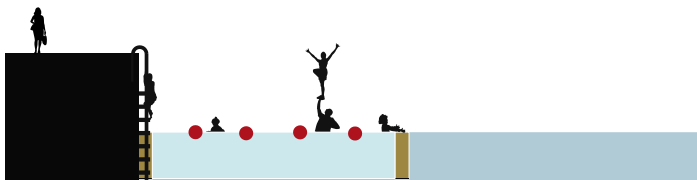
Amsterdam

2.I Green wharfs Canals

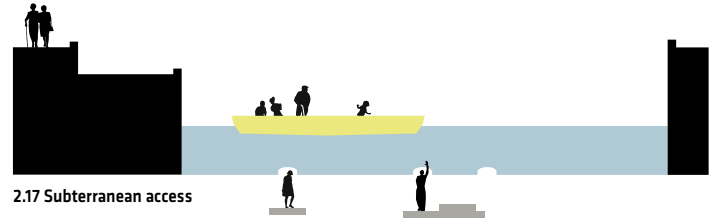
2 ACCESS TO THE WATER



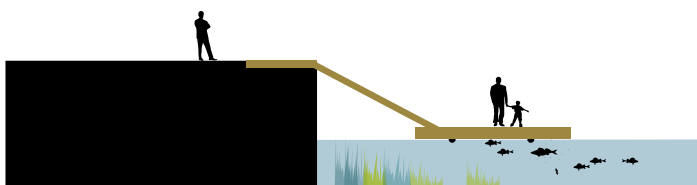
2.15 Close contact with marine flora and fauna



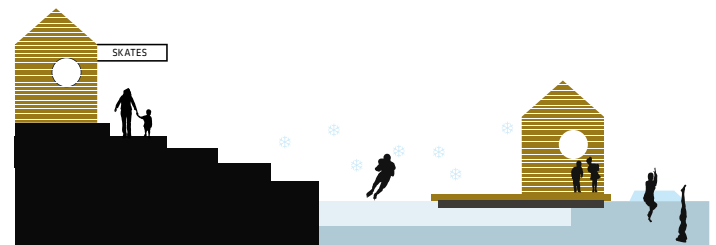
2.16 Access to harbour bath



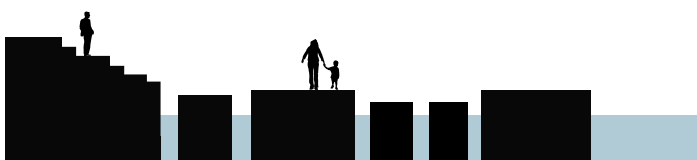
2.17 Subterranean access



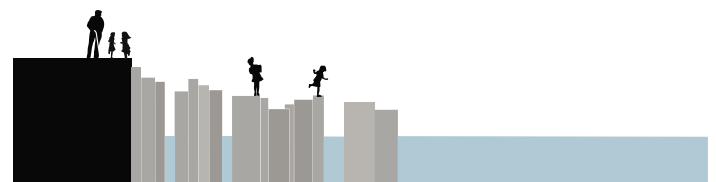
2.18 Floating docks/jetties
Special purposes and special sites



2.19 Access to activities



2.20 Sluices



2.21 Piles



2.J Wooden jetty

Sydney



2.K Different levels

Letten Areal - Zürich



2.L Subterranean access

Shanghai



2.M Wooden dock

Stockholm



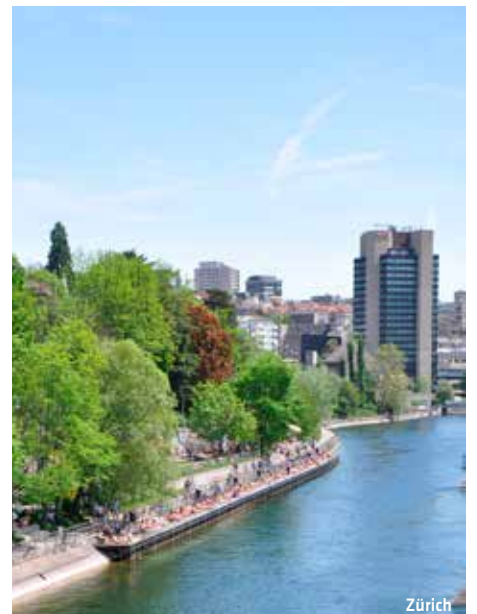
2.N Wooden deck

Aarhus



2.O Slope

Zürich



2.P Wooden wharf

Zürich

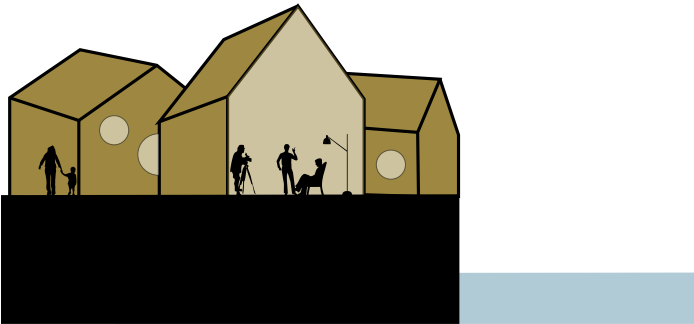


Islands Brygge
Public waterfront areas

PUBLIC WATERFRONT AREAS 3

Visitors are invited to relax in public waterfront areas with seats on wooden facilities, in recessed “pockets”, as on Gammel Strand, in parks or aquatic spaces on the esplanade or on wooden decks and wharfs on the waterfront. The effect of the wind on the specific locality should be assessed and evaluated in terms of whether sheltered areas need to be established. Orientation/mood lighting or safety lighting should be included in the considerations.

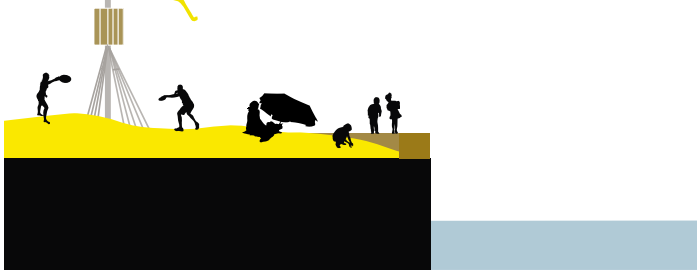
3 PUBLIC WATERFRONT AREAS



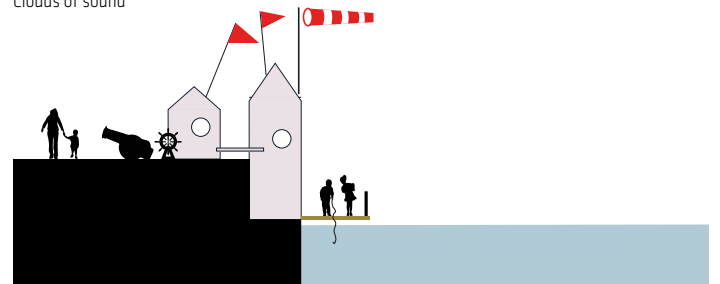
3.1 Waterfront shelter
Cultural venue and gathering area



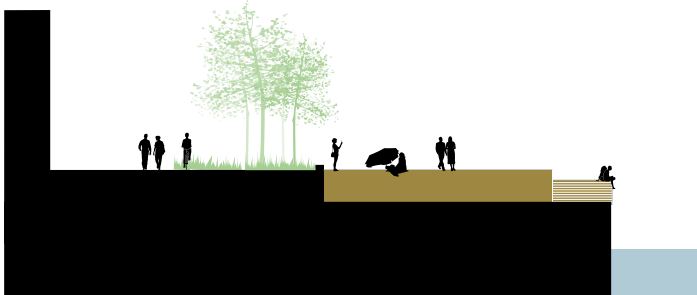
3.2 Esplanade
Clouds of sound



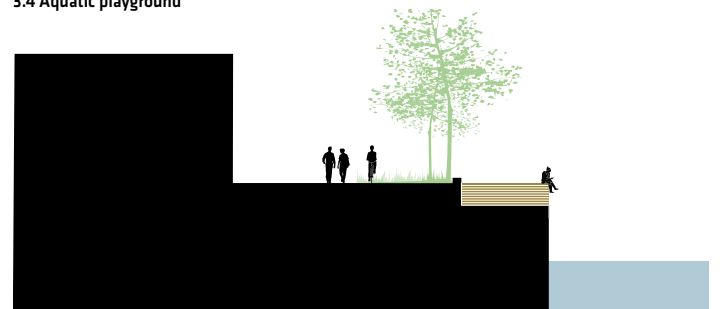
3.3 Beach park



3.4 Aquatic playground



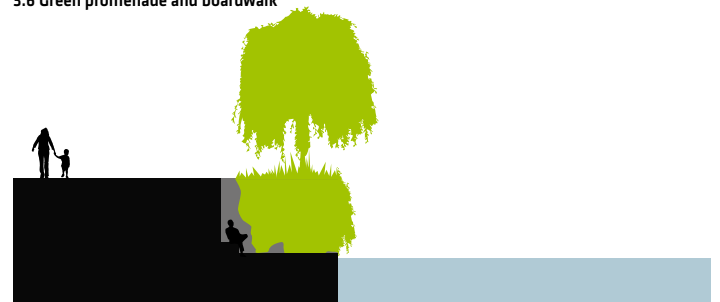
3.5 Wooden deck and boardwalk



3.6 Green promenade and boardwalk



3.7 Recessed shelters at the water's edge



3.8 Green walls and sheltered recesses



Punggol - Singapore

3.A Canopy



Tessinerplatz - Zürich

3.B Public facility



Sundholm - Copenhagen

3.C Waterfront shelter



Nøkken - Copenhagen

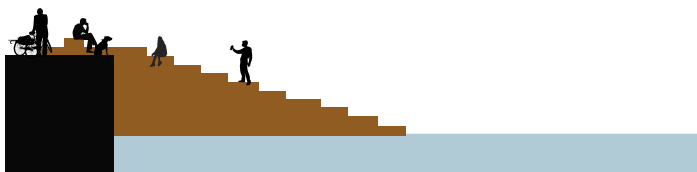
3.D Waterfront wildlife area



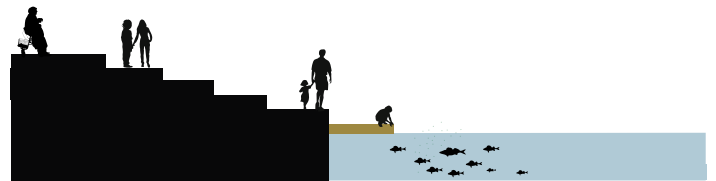
Berlin

3.E Beach park

3 PUBLIC WATERFRONT AREAS



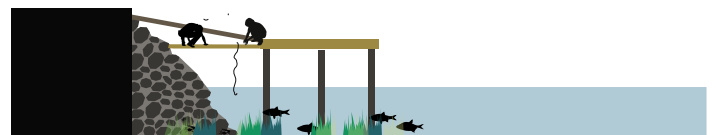
3.9 Wooden wharf
Public waterfront close to the water's edge



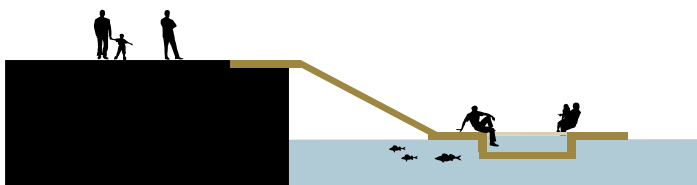
3.10 Stairs
Multi-level public area



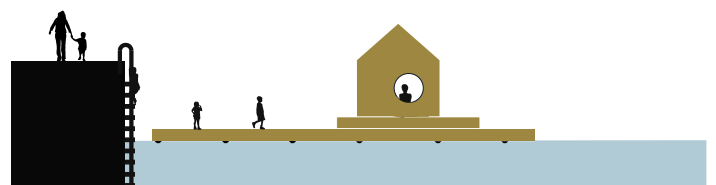
3.11 Boulders and blocks
Stone blocks form a dramatic waterfront



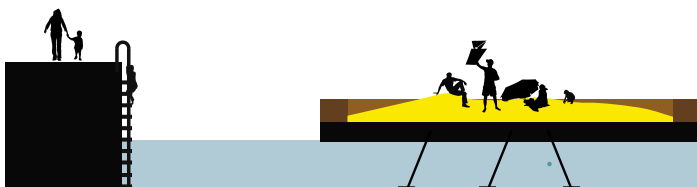
3.12 Wooden jetty
Enables angling and nature studies



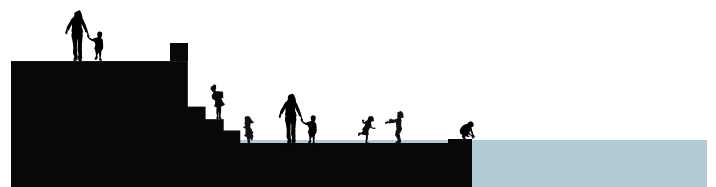
3.13 Wading pool



3.14 "Floating shelter/waterfront deck"
Movable floating island



3.15 Beach island
Public area surrounded by water



3.16 Embankment for rising sea levels
(enlargement/reduction of waterfront profile)



Vinaros - Spain

3.F Seating



Thisted

3.G Aquatic square



Bornholm

3.H Pier for landing catches



New York

3.I Taking a break on the esplanade



Nordre Toldbod - Copenhagen

3.J Gathering area

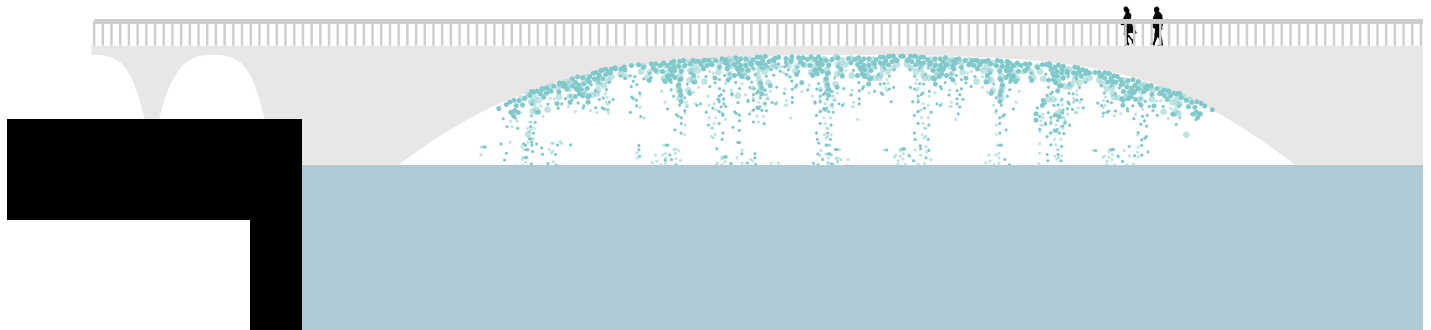


Brygge Bridge
Connection

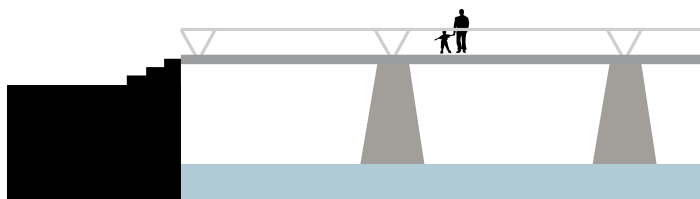
ROUTES AND CONNECTIONS 4

Bolstering the interconnectedness of the harbour enables continuous, rewarding and circular patterns of movement within the harbour area. Some of the ways to accomplish this are by creating dynamic, varied promenades in continuation of the harbour's four upcoming cycling bridges and footbridges; by reworking waterfront to intensify the experience of how water interacts with the shore; or by constructing new links across harbour basins to generate activity and movement across the fairway.

4 ROUTES AND CONNECTIONS



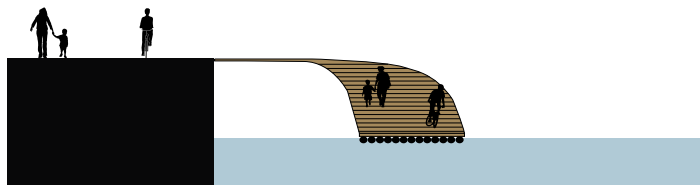
4.1 Langebro bridge with water curtain



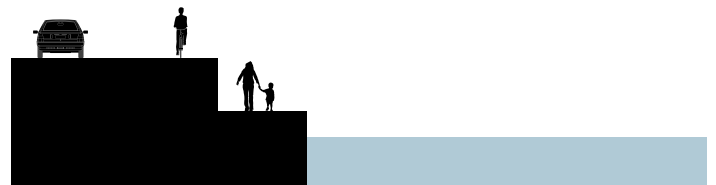
4.2 Stairs for the bridge
Stairs as a transition between street and bridge



4.3 Bridge link
Level-free access across the water



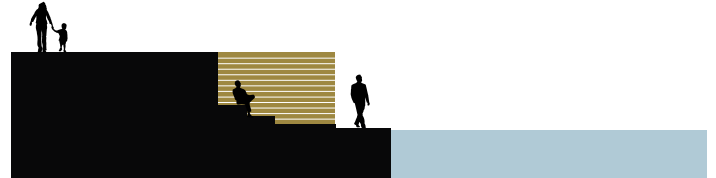
4.4 Wooden wharf
Transition between waterfront and open wooden wharf



4.5 Separation of traffic
Multilevel separation of motorists, cyclists and pedestrians



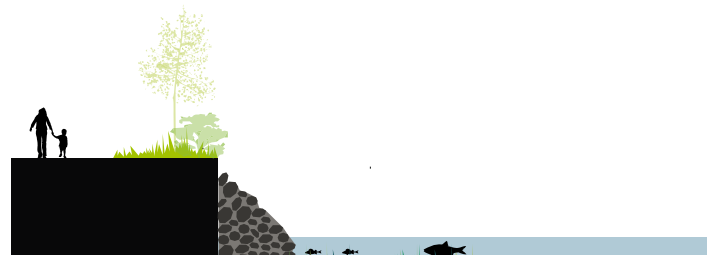
4.6 Varied styles
A diversity of visual experiences



4.7 Wharf
Recessed wharf with promenade close to the water's edge



4.8 Willow trees and walls of vegetation
Low-lying promenade/green passageway



4.9 Vegetation and marine biotopes along the promenade and waterfront



Beijing

4.A Willow trees as iconic vegetation



Stockholm

4.B Green promenade



Kastrup Søbad

4.C Open boardwalk



Port of Copenhagen

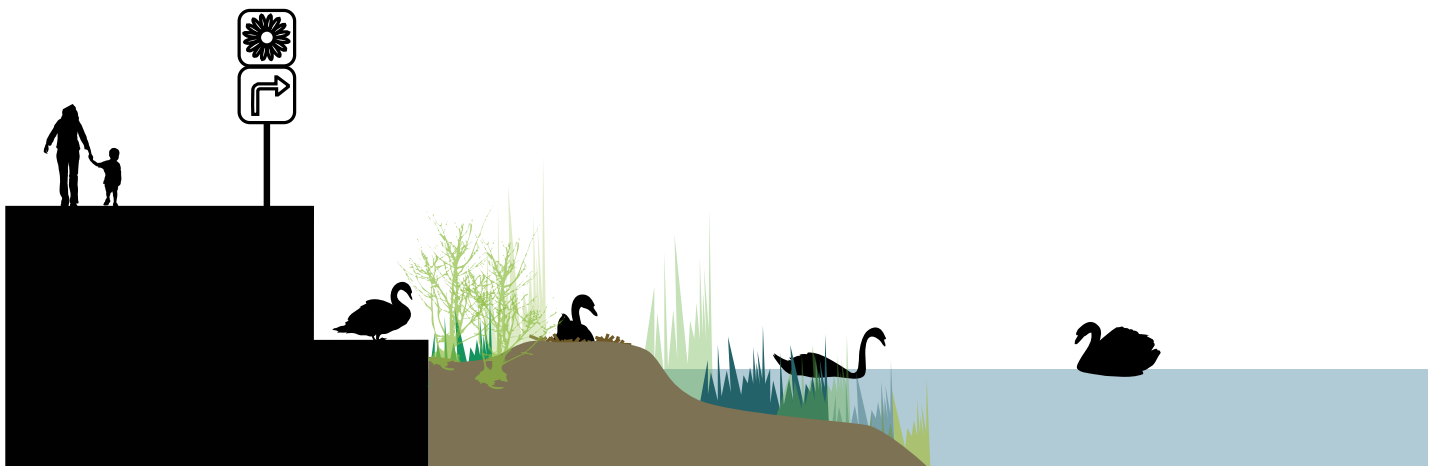
4.D Waterfront boardwalk



Kastellet - Copenhagen

4.E Green and aquatic biotopes

4 ROUTES AND CONNECTIONS



4.10 Sights of interest
Signposting along the waterfront
"Harbour of Copenhagen's Marguerite Route"



4.11 Green promenade
Promenade with vegetation



4.12 Green boardwalk at the water's edge



4.13 Rainwater bed
Filtering runoff water from roofs before discharge into the harbour basin



4.14 Green umbrella
Shade provided by vegetation-covered canopies



4.15 Encountering the water before you know it!
Drawing in water to biotopes on the promenade



4.16 Light
Visual route in the evening and at night



Stockholm

4.F Wooden wharf



Amsterdam

4.G Wharf



Amsterdam

4.H Bridge



Ørestaden district, Copenhagen

4.I Multifaceted design



B001 - Malmö

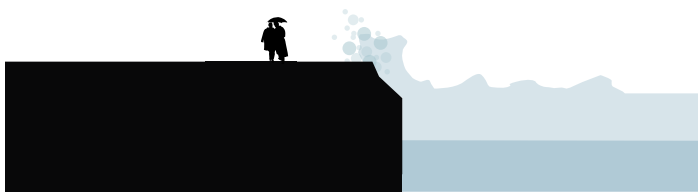
4.J Water curtain



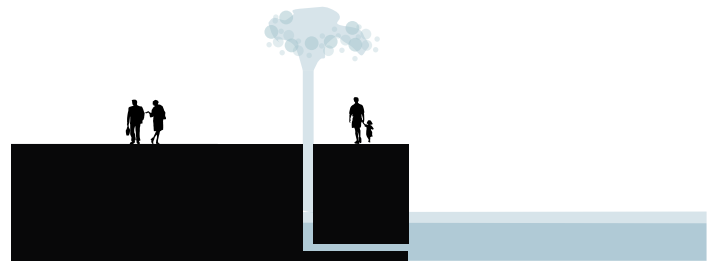
High Line Park - New York City

4.K Green and aquatic biotopes

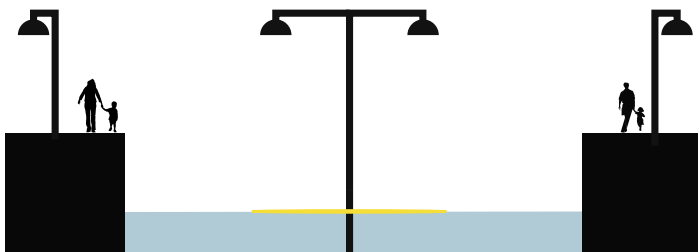
4 ROUTES AND CONNECTIONS



4.17 Sea spray
Sea spray allowed to come all the way up on the waterfront



4.18 Geyser
Water as an active element within the promenade



4.19 Illuminating the water surface
Visual experience across the canals



4.20 Waterfront as a windbreak



4.21 Underwater light
Underwater elements



4.22 Underwater light
Underwater sculpture



4.23 Biotope
Green biotope on the water



4.24 Harbour environment
Underwater biotope of interest to divers and yachters



Zürich

4.L Boardwalk along the water's edge



Kastrup Søbad

4.M Light in the boardwalk



Toldboden, Port of Copenhagen

4.N Underwater lights



Brygge Bridge, Port of Copenhagen

4.O Bridge as gathering point



Slotsholmskanalen - Port of Copenhagen

4.P Underwater sculpture



Porthcawl Harbour - UK

4.Q Sea spray

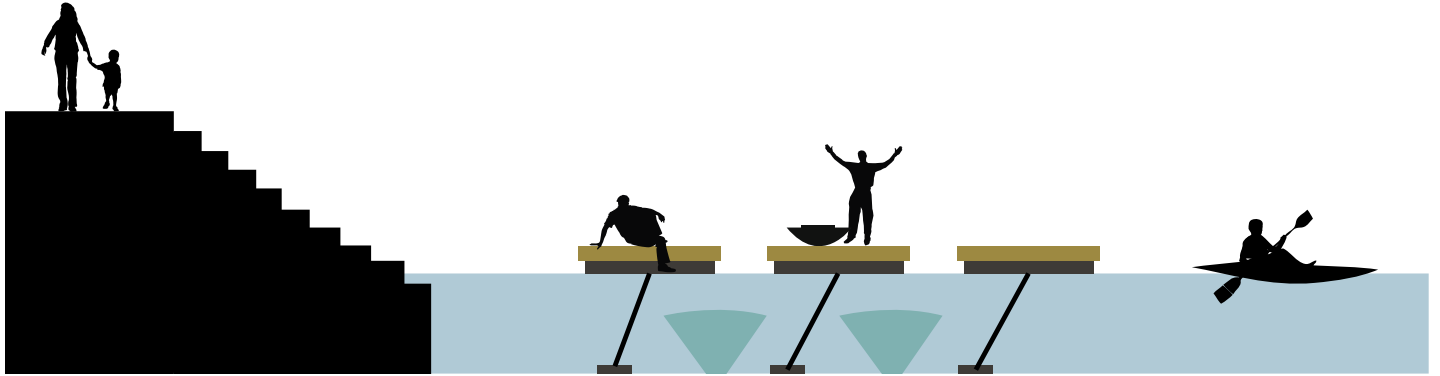


Zürich
Removable bench

TEMPORARY USE 5

In areas undergoing development, temporary urban elements can help to encourage people to visit the area and provide access to the water. These elements can be movable, such as rafts and floating docks/jetties, or activities that are easy to relocate.

5 TEMPORARY USE

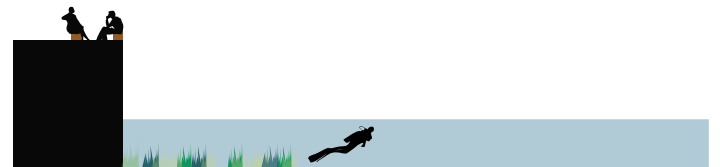


5.1 Permanent facilities switch programmes
The setting up of temporary facilities

An alterable waterfront promenade enables experiences and a host of possibilities



5.2 Urban space furnishings
 Relaxing on flexible outdoor furniture



5.3 Groups of furnishings
 Permanent or movable furniture



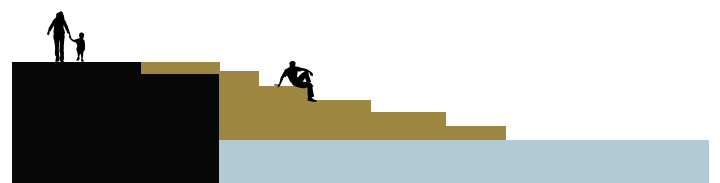
5.4 Illuminated equipment
 Security and experiences in the evening



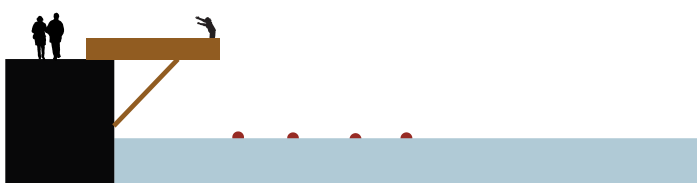
5.5 Hammerhead
 Flexible design and interpretation



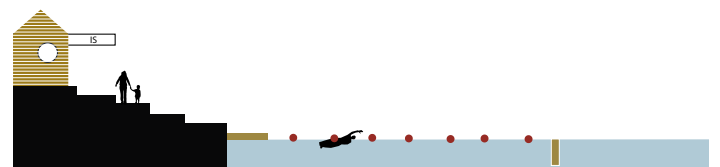
5.6 Raised seats
 Furniture as a light element along the promenade



5.7 Stairs
 Informal relaxation at the water's edge



5.8 Diving into or views of the harbour
 Harbour baths and vantage points



5.9 Bathing in the harbour
 Waterfront park with swimming basins and public areas



5.A Access to water from floating dock

Port of Copenhagen



5.B Floating pontoon

Bergen, Norway



5.C Urban furnishings

Copenhagen



5.D Bench

Zürich



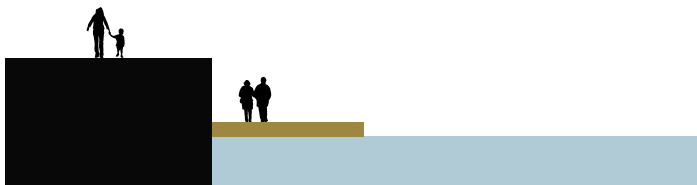
5.E Stairs

Malmö

5 TEMPORARY USE



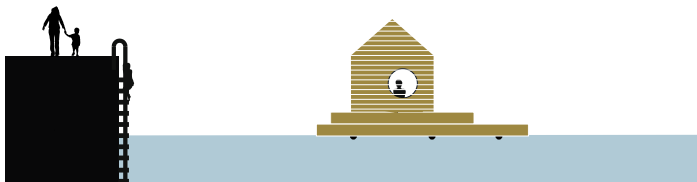
5.10 Floating park
Park with vegetation floating on the water



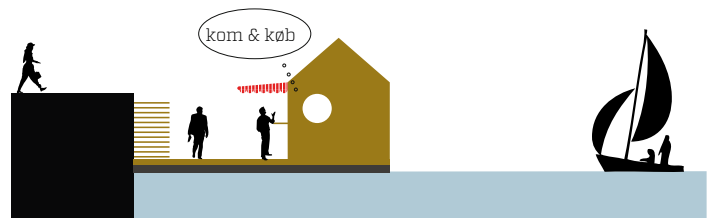
5.11 New promenade
A new promenade is laid out on top of the waterfront



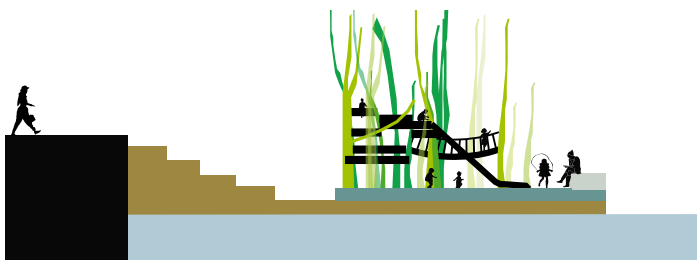
5.12 Different stairs and relaxation options



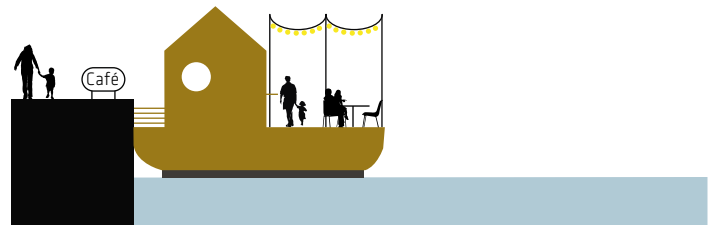
5.13 "Floating shelter/deck"
Public area in the middle of the water



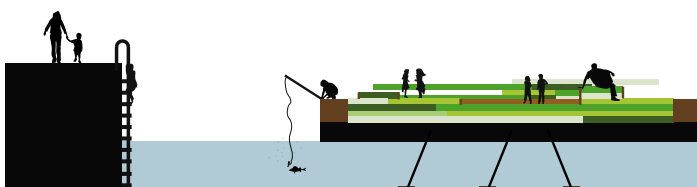
5.14 Waterfront bazaar
Come and Shop - Shopping on the water...



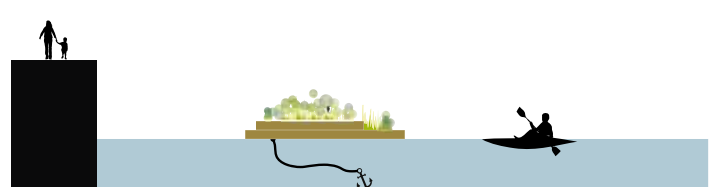
5.15 Floating playground
An aquatic playground at the water's edge



5.16 Café boat
Restaurants and cafés as in Copenhagen's Nyhavn area



5.17 Floating island
Green waterfront feature for recreational purposes and accessing the water



5.18 Waterfront facility for kayakers
Floating deck, for taking a break from paddling



Amsterdam

3.F Waterfront building



Amsterdam

3.G Floating playground



Amsterdam

3.H Floating gardens



Zürich

3.I Recycled materials



Copenhagen

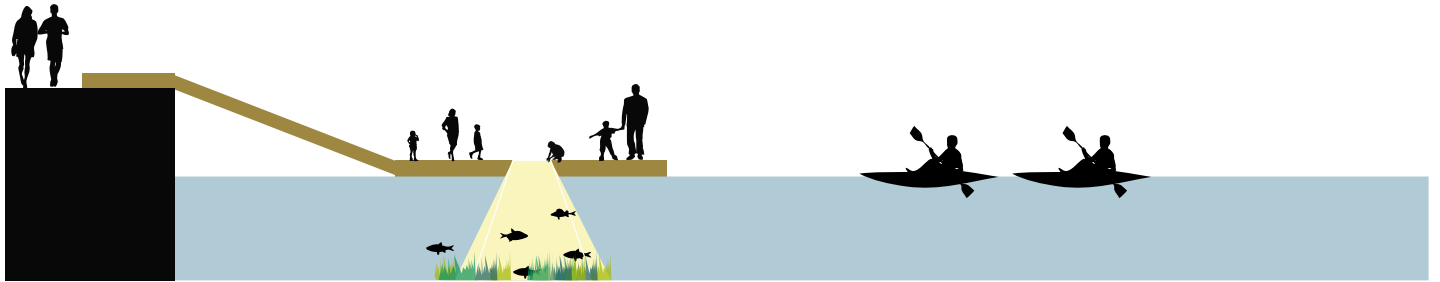
3.J Floating café



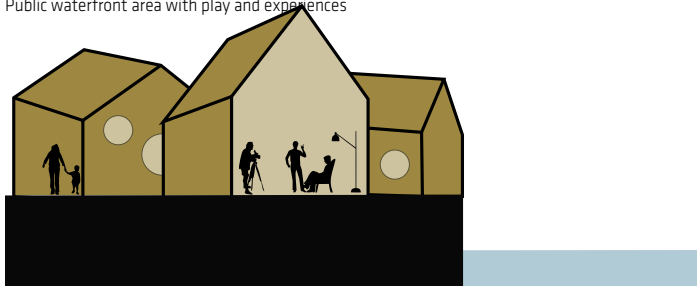
ACTIVITIES 6

A key element of the Waterfront Design Catalogue is to create possibilities for interacting with the water by creating security and space for a wide variety of aquatic activities and experimental offerings. Activities such as the boosting of swimming and sailing activities; an active museum for the navy; underwater biology classes; a maritime nature space based on a Swedish model; facilities whose use can change with the seasons (like at Blågårds Square); or taking activities associated with an adjacent building and drawing them into the urban space, as we experience on Ofelia Beach.

6 ACTIVITIES



6.1 Looking at fish
Public waterfront area with play and experiences



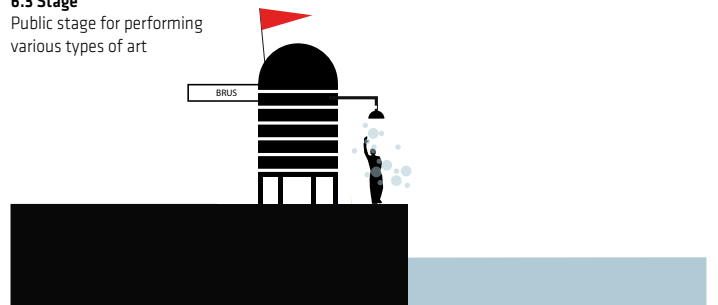
6.2 Waterfront building, information on cultural events and local wildlife (nature space)
Digital playground and information centre



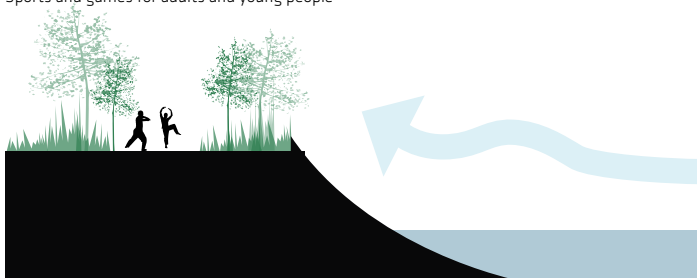
6.3 Stage
Public stage for performing various types of art



6.4 BMX
Sports and games for adults and young people



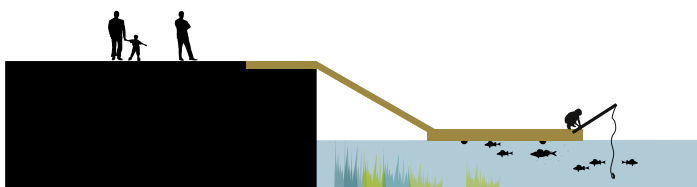
6.5 Solar-powered shower, weather station, nature space
Multifunctional installations



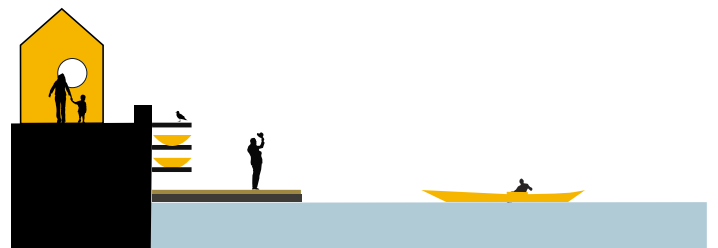
6.6 Sports along the promenade
Green alcoves with physical activities like tai-chi and yoga



6.7 Wind park
With the wind as an attraction on the promenade



6.8 Waterfront deck
Angling



6.9 Waterfront building, boat facilities, kayak
The waterfront as a base for aquatic sports



Sluseholmen - Port of Copenhagen

6.A Boat club



Lyon

6.B Skateboarding park



Billund

6.D Looking at fish



Søerne - Copenhagen

6.C Floating park



Manhasset Bay - Washington

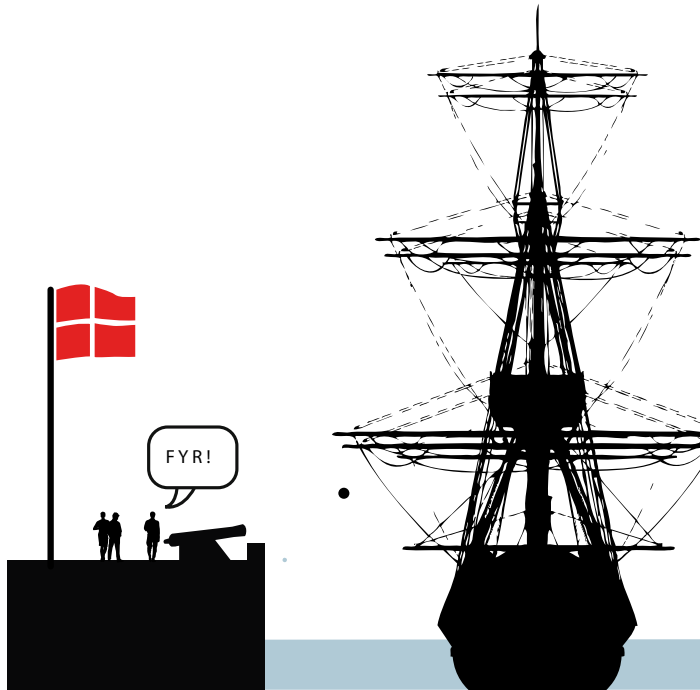
6.E Kayak dock



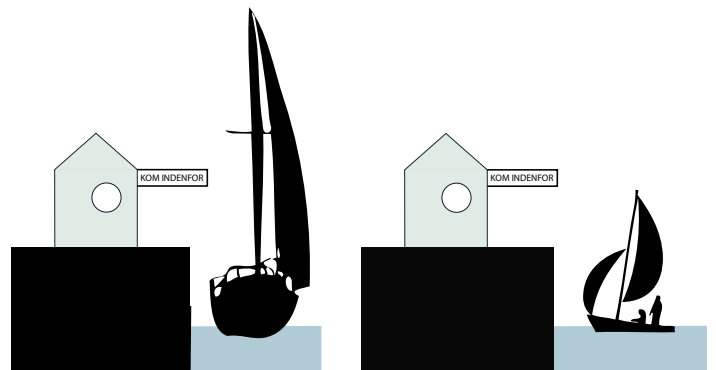
Barcelona

6.F Stage

6 ACTIVITIES

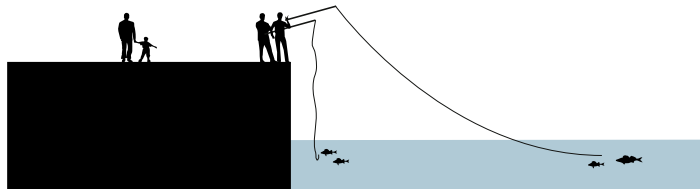


6.10 Enacting naval battles
Historical ships and events

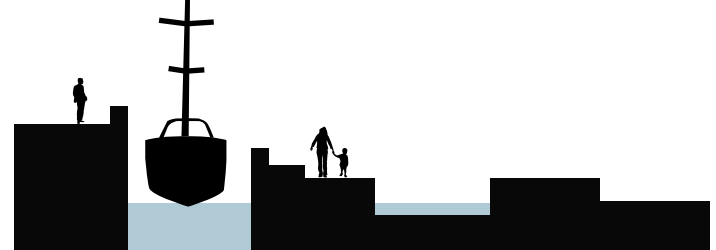


6.11 8 am – 4 pm Business
Navigation and yachts

6.12 4–10 pm Recreational activities
Everyone is permitted to sail, row or paddle in the water



6.13 Fishing net
Angling



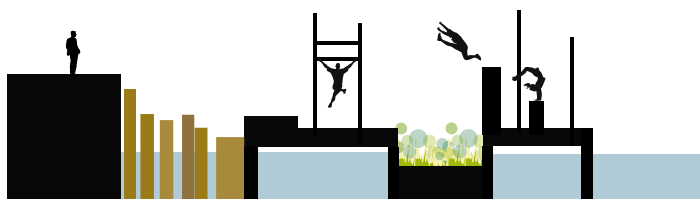
6.14 Canals
Maritime environment with several activities side by side



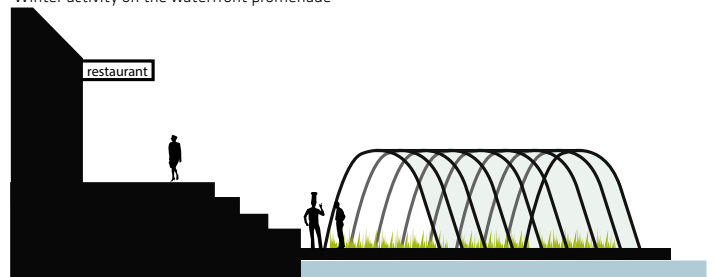
6.15 Water level
Recessed basin (rainwater) and treatment of harbour water



6.16 Skating rink
Winter activity on the waterfront promenade



6.17 Parkour
Sports at the water's edge
restaurant



6.18 Aquafarming
Hydroponic horticulture



Port of Copenhagen

6.G Historical ships



Letten Areal - Zürich

6. Sports on the waterfront



Bordeaux

6.I Holding basin



United Kingdom

6.J Aquafarming



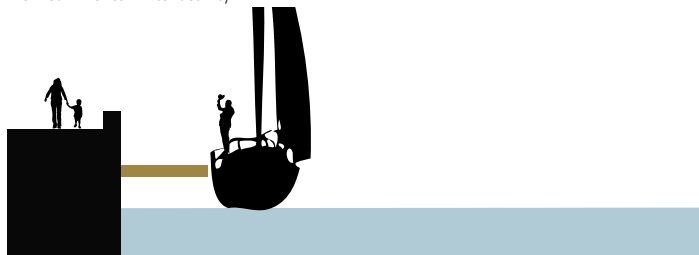
Burano - Italy

6.K Dock

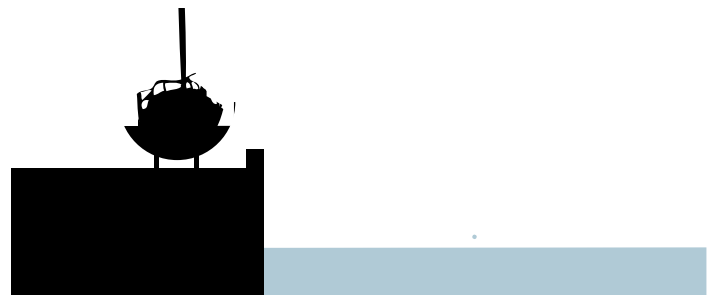
6 ACTIVITIES



6.19 Permanent facilities change their programme
The setting up of temporary facilities
 From summer to winter activity



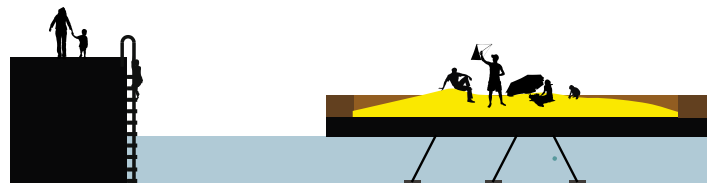
6.20 Wharf for boats
 Gangway



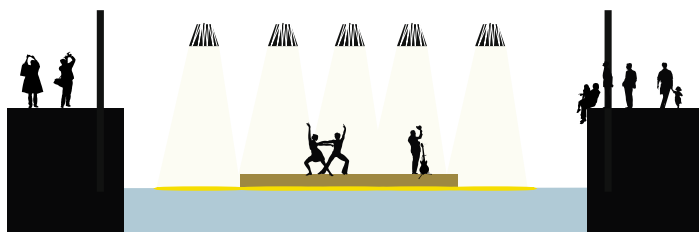
6.21 Winter storage
 Boats are part of the waterfront all year round



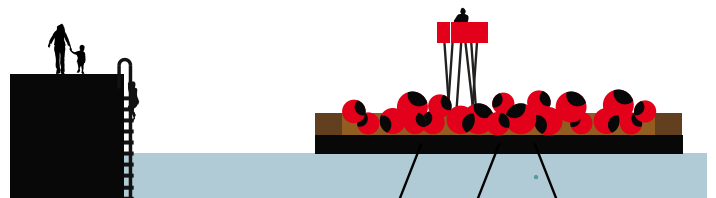
6.22 Versatility
 Activity and relaxation



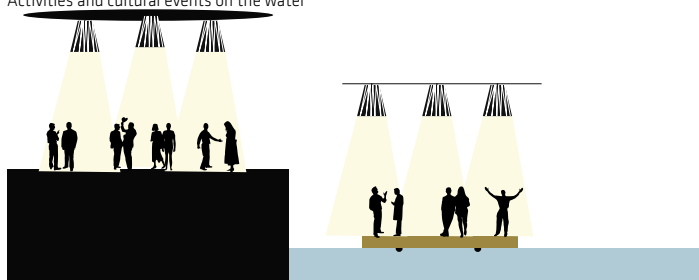
6.23 Waterfront beach
 Sunbathing surrounded by water



6.24 Stage
 Activities and cultural events on the water



6.25 Waterfront deck
 Waterfront element



6.26 Gathering areas
 Events on the promenade and the water



6.27 The wind as an attractive element
 Use changes depending on wind and weather



Amsterdam

6.L Sailing ships, barges and small boats



Rørvig

6.M Angling



Stockholm

6.N Views and tranquility



Copenhagen

6.O Sports



Winnipeg - Canada

6.P Shelter and changing cubicle



Bryggebadet - Port of Copenhagen

6.Q Harbour bath



Sweden

6.R Waterfront shelter



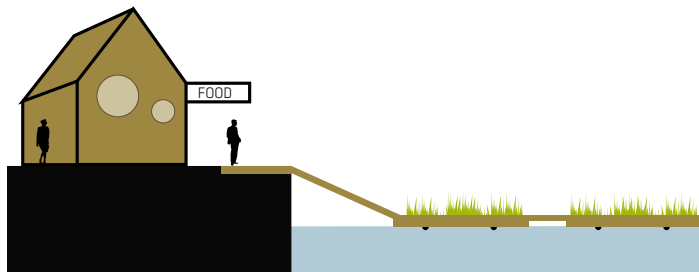
Yokohama - Japan

6.S Sunny park

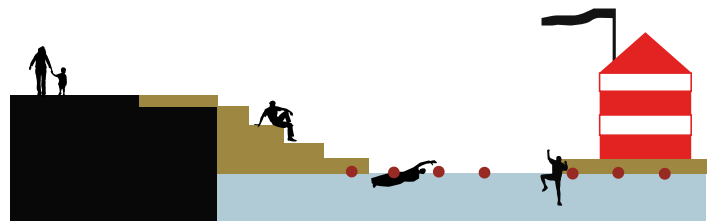
6 ACTIVITIES



6.28 Cultural jetty
Festivals and other cultural events



6.29 Hydroponic gardening
Public gardening on the water – from aquatic farm to fork



6.30 Open-air baths
Mobile harbour bath equipment



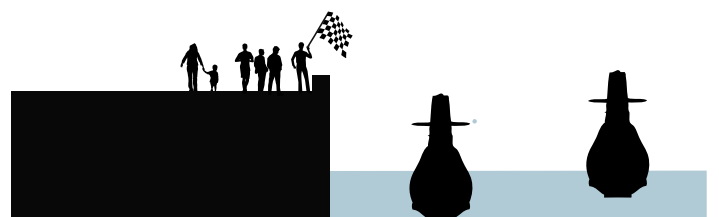
6.31 Pound-net posts
Visual elements and docking site



6.32 Sounds of fish and boats



6.33 Sounds
Aquatic sculpture as visual attraction and audio experience



6.34 Submarine rides
Plays and events



Harbour of Copenhagen

6.T Harbour of Culture



Zürich

6.U Aquatic sports, canal



Harbour of Copenhagen

6.V Aquatic sports



Monticello Dam - California

6.X Installation and sound



Børsgraven - Copenhagen

6.Y Mediterranean atmosphere



Bryggebadet, Harbour of Copenhagen

6.Z Open-air bath

PHOTOS

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