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Revitalizing the Schie Waterfronts in Delft
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Three Characters of Delft

100,000 Inhabitants, 18,000 students and 647 knowledge companies

Technical institutions

Delft University of Technology

Art

Delft Blue pottery is spread-out over the world, visible in museums, today the Porceleyne Fles is the only pottery company left from 1653.

Urban Artifacts

Market square with the New Church behind.

Three Characters of Delft

These technical institutions represents Delft worldwide with high-tech research, education, normalisation, products and solutions

The Painter Johannes Vermeer (1632 - 1675) with his face of Delft

Prinsenhof, former cloister and residence of Willem van Oranje.
Origin of Delft: a market city

- Delft is located in the middle of the polder without major natural elements as rivers and dams.

- Clay and sand plate (ganteldek) surrounded by peat-lands. This soil was suitable to build on.

- Crossing the Delf and river the Gantel made it an ideal trade location.

- Peat lands where higher than clay/sand areas, rainwater fluid in.

- To drain the rainwater away the Delf was connected to the river Maas by a canal named de Schie in 14th century.

Delft around 1246,

- The first buildings appears along the Delf (Schie)

- Bypass to extend waterfronts in the city

- Market square is the connection bypass and Gantel

Delft is a typical market city, the foci of the surrounding area to trade goods.

- The market square is the connection between the Schie and Gantel

- The market is of unusual large size in that period

- To give importance to the market square and to make Delft manifest the Town hall and New Church are build.

The Schie became the mayor trade route towards the Maas
Manifestation of Delft

View over the Schie towards Delft, the oude kerk marks the view and makes Delft manifest.
Schie history

- The Schie connected Delft with river the Maas in the 13th century.
- A dyke was build to prevent water from the Maas overfuing the landscape.
- Dams where build along the dyke, here goods where transhipped from the Maas to the Schie.
- First at Schiedam and Rotterdam, later Delft established Delfshaven to avoid tolls.
- Delfshaven was a satelite city under control of Delft contained a chamber of the VOC in the golden age. This harbour city was national and global connection for this regional market city.

Map

Schie: the aorta between Delft and Delfshaven
Schie history

South-gate of Delft, the most important gate of the city, painter Johannes Vermeer (1632 - 1675)
Schie use today

-Cargo shipment (turning point nieuwe haven)
-Cruises (overnight stops in Delft)
-Yacht (overnight stops in Delft)
-Watersport (mostly row clubs)
The maas connection by the Schie was important for the city of Delft:

- Shipment of goods produced in Delft
- Shipment of trading goods towards Delft
- The chamber of VOC in Delfshaven connected Delft with the world.

Today the Schie is largely surrounded by industrial areas.

- Most of the industry lost its connection with the Schie because main transport is over land
- These industrial back walls give not the importance and status to the Schie what it belongs.
Masterplan Schie

Municipality of Delft

Masterplan area; Schie waterfron
Vision Schie waterfronts:
- a livable, vital and attractive urban area.
- the waterfront as urban attraction
- a mixture of creative industry, dwellings, culture and recreation.
- an area which attracts people all times a day.
Masterplan Schie

Fragmented city with strong borders: Railway, highway and Schie.

Opening borders to make the waterfront deeply connected inside surrounding city

Orienting the urban morphology towards the Schie.
Public Promenade

Variety of activities

Public route along the Schie Waterfront

Section promenade

Plan promenade

Schie  Promenade  Bicycle path  Road  Sidewalk  Dwelling  shop  Nursery
Focus area: Schie East-side
Nicolaes Krukius (1678 - 1754) made this map in 1712. Map shows South of Delft (kolk is in the right top).
Area used as garden for Delft

Height map of the area, the land between the schie and Rotterdamseweg is higher than the polder. The area forms a dyke between polder and the Schie.
Historical Morphology Schie East side

Map 1830
Use of the land: Gardens / trees / bleach fields / vegetables and earth washer

Map 1912
1832, buildings where Schie frontline Large villa’s outside Delft for wealthy citizens facing the Schie. Land used for fruits and vegetables.

Map 1960
1912 buildings at both sides, the Rotterdamseweg gains importance
1960 Large buildings erected turning their back towards the Schie, facing Rotterdamseweg.

Map 1995
Use of the land: Industry
Orientation Schie East side: View through

1. View at polder, Schie and Rotterdamseweg are together

2. View at beginning of Delft, Schie still visible

3. View at corner Lijm & cultuur with Caravan store, Schie water is not visible, Schiehalen are visible as reference

4. View at Aleid van Malsenlaan opening between apartment buildings orients the view in between towards the Schie

View through from Rotterdamseweg towards the Schie:
- Start together and separates inside Delft
- Views are important for orientation and identification
- Schie connects location to the polder outside Delft
Urban analyses

Area south of city center

Airplane photo area with Nieuwe Haven

Two mayor elements Schie and Rotterdamse Weg

Three cultural historic important buildings:

1. Royal Delft 1930
2. Industrial hall 1950
3. Storage building 1890
Urban design

1. Promenade along waterfront

2. Urban blocks to connect scale new buildings with large buildings surrounding the site.

3. Streets connecting Promenade with Rotterdamseweg; Visual connections for orientation

4. Shortcuts through area

5. Chosen building RMIT graduation project: Industrial hall
Masterplan

- Streets connects Schie with R'damse weg
- Street orientation in direction of old land borders
- Urban blocks to connect new plan with surrounding large buildings
- Promenade makes a turn into the shoppingstreet Wipmolensloot
- Bring back water as reference of old Wipmolensloot
- Large volume of industrial hall contains a smaller block due to 20 meter span
- Park connects Schie promenade with R'damse weg through industrial hall

- Hall visible from both sides Schie and Rotterdamse weg
- Hall at corner promenade - shoppingstreet strengthen its manifestation
**Masterplan Facades**

Schie Facade
20m height limit connects Schiefacade with existing buildings further north along the Schie

Rotterdamseweg Facade
12m height limit follows Industrial hall and Royal Delft height
Industrial hall 1950 - 2010

Photo 1950 (KLM)  
Photo 2008 (www.bing.com)
Value Assessment

**Cultural historic representation.**
- Building shows an important part of the history of the location.
  - The century of large industrial boxes.
- It is a leftover of the post WWII rebuild period
- Client was the NKF, still located in Delft, an important company for employment in Delft

**Architectural qualities:**
- Details of the facade
- Original size of the hall
- Interior space of 20m wide 110m long 10m high at north part
- Strong rhythm in facade fills

<table>
<thead>
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<th>Value Assessment</th>
<th>Value</th>
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<tr>
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<td>Location</td>
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Open part of the hall 20m wide, 110m long.

East Facade - facing R’damseweg

West facade - facing Schie. Demolition summer 2010
Originate the ensemble

Start situation

Removing extensions: no added value

Original volume of hall
Original hall build 1950

Architectural properties:
- Empty box: roof structure with skin
- Build in a cheap method: thin and light
- Facade is placed between roofstructure
- Parts changed due to new demands

Dimensions 110x70x12m
Area 10010 m²
Content 120120m³
 Constructed 1950
Demolished 2010
Construction method: steel structure, filled with brick and windows.
Grid size: 10x10m
Output Value Assessment

Industrial hall expresses the industrial history of the location, this adds meaning and value to the site.

Property of industrial hall is a rain and wind skin, build in industrial method.

Main quality of hall is empty box: The experience of large empty space.

Strategy:
- Maintain industrial Character: tells history of the site
- Experience total length of hall inside and outside (Size does matter)
- Use function of rain and wind cover in new program
- Hall is during history adapted to new needs, this can be continued in new design
- Steel facade system expresses industrial character
- Fill with glass and brick is typical for 1950’s but can be re-filled to make new program suitable
- Existing interior design of no value

Source:
Christian Norberg-Schulz, Genius loci, towards a Phenomenology of architecture, Academy editions, London, 1979
Transformation Industrial hall into hybrid urban block with office street

New program:
Incubator
Dwellings
Shop
Cafeteria
Hall is part of urban transformation of an industrial area to a mixed area with offices and dwellings.

Large urban blocks are introduced as typology to redevelop the area in harmony with surrounding urban morphology.

Property of industrial hall is a rain and wind skin build in industrial method.

Main quality of hall is empty box: The experience of large empty space out of human scale.

Industrial hall expresses the industrial history of the location, this adds meaning and value to the site.

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Office street
- 20m span is left free as covered office street, public from 7h till 22h, closed at night.
- Experience the space of old hall: 110m long 20m wide, 12m heigh.

Urban block inside the hall
- Introduced typology from urban scale in harmony with large buildings along Rotterdamseweg.

Covered innerpart urban block by industrial hall.
- Innerpart of the block is covered by the hall providing collective space for incubator.

Hybrid urban block: people in hall at all times a day.
- Incubator
- Companies
- Dwellings
- Shop
- Cafeteria

Keep industrial history visible
- Express the hall, not hiding behind new design.
Project overview

- Urban Block
- Growth-center
- Office street
- Hybrid urban block with incubator
- Existing hall
Existing hall
New Office street
Office street

Street as connection Schie and promenade with Rotterdamseweg

Hall as rain and wind skin, no thermaical skin

Open during day and evening closed at night to avoid unpleasant dead office streets.

Entrances to Incubator, Growth center and parking garage.

Vegetation to soften hard industrial area

Bike parking next to entrances

Meaning for Delft:
- Public accessible area during the day
- Wind and rain cover makes it a pleasant area to be in spring and autumn.
- Street can cover a variety of public activities such as markets, expositions, stage, large art projects, etc.

References: concrete and cor-ten steel, seats with vegetation
Office street entrance schie
Design Office street

Character: industrial

Thema: Experience the full length and height of the hall

Materials

Walls
Aluminum facade system with glass
Metal mesh plates to soften the walls with industrial materials.

Floor
Stelcon concrete plates 2x2m and 2x1m
Steel and concrete walls for vegetation

Roof
Existing bimsconcrete cassette plates
New aluminum rooflight for daylight and ventilation

References of soft facades with steel mesh

Entrances to feed the street

Bicycle stands
Section Office street
Facade incubator
Facade Growth center
Hybrid urban block
Incubator

Startup companies which are related to TU Delft:
Mix of hightech and creative startup companies to facilitate graduates from all faculties of the technical university.

YES!Delft - the Young Entrepreneurs Society – inspires, educates, coaches and supports students, professionals and researchers interested in starting a creative or high-tech company or further developing an early stage high-tech company.

- Location next to university campus, companies use facilities University (wind tunnel, laboratoria etc.)

- Startup companies strengthen each other:
  - Dealing with the same sort of problems
  - Learnings from each other mistakes and strategies
  - Using each others network
  - Using each others knowledge in project teams
  - Each succes of a company will positive influence its neighbours.
  - Sharing facilities inside incubator save investments from the companies
Theory Incubator

- Inspiration is the creativity of new ideas
- Interaction of creative production to develop the ideas
- Transaction binds creativity with the market.

The three rings overlap each other and exchange to each other to work together in developing new creative ideas into reality.

Creative economy divided by axis introvert - extrovert and experiment - market

Sources:
Saris, Jeroen, Dommelen, Simon van, Metze, Tamara, Nieuwe ideeën voor oude gebouwen. Nai Publishers, Rotterdam 2008
Program

**Users:**
Startup companies which are related to TU Delft:
Mix of high-tech and creative startup companies to facilitate graduates from all faculties of the technical university.

**Demands:**
Companies need cheap rents (subsidized) and large flexible offices which grow with the size of the company.

Informal meeting between companies

Formal meeting between companies and external persons

Introvert company spaces (trial and error)

Extrovert company spaces (market ready)

Flexible office spaces (growth and failure companies)

Production workplaces collective and private

Lecture room

Workshops and group projects

Lunch area as focus of the incubator (collective lunch is largest informal meeting moment of the day)
Concept

Hybrid block as urban strategy

Introvert incubator:
- Orientation towards each other
- Innerpart covered by industrial hall
- Providing collective space for incubator.

Additional program in edges towards the city:
- Company and atelier
- Cafeteria
- Shop
- Dwellings

Subdividing innerpart:
- Meeting atrium (lunch)
- Workplace atrium
Incubator with 2 atriums:

Work-atrium:
- Private workingplaces with connection to office
- Temporary working places
- Collective working place
- Workshop dek

Informal meeting atrium
- Slope that connects all levels with meeting terraces.
- Pond to relax around
- Focus for companies offering a service

Atriums are divided by more formal meeting blok
- Coffee bar
- Lecture room
- Business lounge
- Meeting room
- Group room
Program Hybrid block
Groundlevel program

- Workshops temporary rentable
- Workshops connected to office 1st level
- Atelier units with street connection
- Growth offices with large public connection
- Cafeteria
- Shop with reception and exhibition exploited by reception
- Coffebar
- Lecture room
1st Level program

- Offices
- Office connected to Workshops groundfloor
- Atelier units with street connection
- Growth offices with large public connection
- Formal meeting area
2nd Level program

- Offices
- Office with extra floor above
- Maisonette dwellings
- Portiek Dwellings
- Formal meeting area
Meeting atrium

Program:
- Informal meeting in collective area surrounded by offices
- Lunch together at terras hill
- Relax at pond with cup of coffee from coffeebar

Terrasses can be used for audience at larger events:
- Product presentations
- Network events
- Larger drinks
- New years buffet

Size:
30x40x10m

Holes in the roof for daylight (see detail drawing)

Hill made from wood with meeting terrasses, ramp and stairs that connects all levels.

Kitchen cafeteria and toilets underneath the terrases at groundlevel.
Meeting Atrium

Daylight for sunny lunchbreaks
Meeting atrium
Terras hill

L shaped steps grapping into each other. This gives a more gentle slope towards the length of the atrium and a steeper slope with larger platforms in the side directions.

**Toilet ladies**

**Toilet Gentlemen**

**Kitchen with Cafeteria**

**Construction area**

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**Groundlevel meeting atrium**

**Underlayment 22mm**

**L shapes in plan**
Meeting Atrium

Character:
Warm meeting area with industrial materials.

Materials:
- Concrete with epoxy hars light brown
- Terras made of underlayment construction plates with dark brown transparent lacquer
- Railings metal transparent lacquer
- Gallery concrete with epoxy hars red
- Railings gallery steel red

Formal meeting block Cor-ten steel

Holes in the roof for daylight (see detail drawing)

Kitchens and toilets underneath
Working Atrium

Program:

Groundlevel
- all workplaces connected to the atrium
- large in-between space between private and public

Collective workplace in middle of atrium
- Workshop dek above
- Connected with bridges and stairs to gallery

Character:
Fresh production area with industrial materials.

Materials:
- Concrete with epoxy hars in grey and blue
- Gallery concrete with epoxy hars blue
- Railings gallery steel blue

Formal meeting block Cor-ten steel
In between area

- Usable for the collective during events
- Traffic zone in transparent epoxy.
- Flex zone in blue

Companies can use it for:
- a place to stall their prototypes,
- work on their products
- extension of the office
- Coffee area
- Sports (table tennis)

An area to lower the boundaries between the entrepreneurs and make them interacting with each other.
Working Atrium

Program:

Groundlevel
- all workplaces connected to the atrium
- large in-between space between private and public

Collective workplace in middle of atrium
- Workshop dek above
- Connected with bridges and stairs to gallery

Character:
hard industrial materials.

Materials:
- Concrete with transparent epoxy hars and blue
- Gallery concrete with epoxy hars blue
- Railings gallery steel blue

Galvanized steel sliding doors offices and workplaces to accentuate the industrial link.

Formal meeting block Cor-ten steel

Amount of light controlled by percentage pv cells.
Old and new in atria

Keep industrial history visible
- Express the hall, not hiding behind new design
- Existing used as quality and new design elaborated on existing.

Expression of the existing hall inside
- New build walls placed behind the existing construction
- The galleries grasp the columns with the railings in front
- Two layers one in front and one behind columns

New design in harmony with rough empty building
- Offices have no lowered ceiling, all installations visible
- Walls offices in line with columns just as existing facade
- Top offices has ceiling as extra space
- Show that construction continues behind facades offices

Harmony and contrast

Inspiration from the existing:
- Strong facade system with one exception in office corner
- Facade system: load bearing structure HEB 300 HEB 200 visible in facade.
- Facade constructed with framework UNP 120
- Facade filled with glass and brickwork
- Small vertical lines (300mm) in front of wide horizontal lines (glass 1800mm)

Use the existing to create new environment, existing as starting point for the new.
Build further on the existing situation, remove existing when new program requires more space.

Harmony:
- Grid system new construction
- Industrial materials
- Size openings facades
- Renovation facade windows with insulated profiles.

Contrast:
- Introduction of new materials
- Large glass openings vs small windows
- Concrete solid structure vs thin profiled steel
Company space types

Variety of company spaces an introvert start stage and a more public exposed location for further growth.

- Startup offices with connection to collective
- Offices connected to workplace
- Atelier offices for public and collective connection
- Growth offices for mainly public connection
- Office over two layers facing the Schie
- Growth center for larger companies connected to incubator.
Introvert companies space types

-orientation towards atrium (collective)

-Atrium side
Large openable doors towards overflow space.

Low level interior finish; construction and installation in sight
Atelier spaces

- Both sides orientated

- Streetside:
  - Large openable doors
  - Manifestate inbetween zone.
  - Sign for open

- Atrium side
  - Large openable doors towards overflow space.

Public
Public / private
Private
Private / Collective
Collective
Public company spaces

- Public orientated
- 140m²
- 3 cells

-Streetside:
- Large openable doors
- Manifestate inbetween zone.
- Sign for open

-Atrium side
- Small door.

-High level interior finishing

-Two levels for one company
Company spaces principle

2 facades:
- Outside facade for fresh air
- Interior facade towards the incubator with entrance.

Outside facade has openable windows and sun screen
Is more closed than interior facade.

Inside facade is transparant glass in aluminium frames.
  - Introvert program = open towards each other
  - Group feel needs visibility, lower the boundaries between companies
  - Daylight from both sides.

Gallery as neutral meeting place.
  - extra width to provide space for tables and small seats
  - provide additional meeting space
  - phone places
  - extra temporary working places

Exterior facade, windows are renovated, walls are insulated

Section and interior facade towards atrium
Gallery

Working and meeting gallery
in front of company spaces
Incubation example: company Epyon

Epyon starts a company with technology from the TU Delft to recharge batteries in 10 minutes.

Stage one: Yes! Delft is welcome the company and gives nice location on 2nd floor, the company developes the technology for a specific market.

Stage two: the company grows outside its space, two temporary desks are situated on the gallery.

Stage three: Epyon received a mayor order to provide technology for Linde Heftrucks, the company is scaled up almost three times.

Stage four Epyon is grown further outside the incubator.
Formal meeting block

IBlock divides the atria
Volume doesn't touch the edges and roof: space continues besides block.

Character:
Heavy block, solid walls of corten steel with high quality finish inside of birch wood

Central location inside Incubator for central functions

Groundfloor:
Lecture hall
Coffeebar with terrasses around

1st level
Business lounge for professional presentations with clients
Meeting spaces

2nd level
Meeting spaces
Dwellings

3 types:

**Wipmolensloot orientation**
Wipmolensloot = living working street, needs dwellings for social security
It is a street with small apartments for starters

- **8 portiek dwellings**
  Between small atelier companies two portiek entrances are situated

- **7 Galley maisonettes**
  Above larger companies connected by gallery

**Schie orientation**
Along the Schie a higher wall is needed to define an urban profile

- **9 Apartments facing the Schie are added in a box shape. Luxury appart-ments along living gallery for families.**
Galley maisonettes

size: 7x 69m²

target: 2 person starters dwelling

Maisonettes connected by gallery

Gallery and kitchen provides distance between collective incubator and private dwelling.

Living with extra height due to existing facade.
visual connection
Portiek apartments

two portiek staircases
size: 8 x 57m²
target: 2 person starters dwelling

- Kitchen with sight to incubator
- 2nd floor with extra height due to existing facade.
- Internal balcony behind old facade
- Staircase with sight to incubator
Schie apartments

Gallery connection by two stairs one elevator
9 apartments
size: 117, 137 and 164m²
target: 4 person families

Main orientation towards the Schie
Living gallery
Growth Center

An office building which can be rented from one to six companies. Designed for companies which grewed outside the incubator but still stay connected.

From public to introvert concentration zoning:
- Public park
- Collective corridors
- Group work at corridor facade (south)
- Concentration space at north facade

Special glass boxes deep inside the building
- Diagonal interaction between different floors
- For extra daylight in middle part
- Used as meeting areas.
Urban facades:

- Renovation existing facade for insulation
- Close gabs of earlier extentions
- Make new interventions visible
- Interventions needed to provide entrees

Industrial hall needed large interventions due to its expression in facade.

Large doors activating the facade, define an open / closed entrance and provide semi private places along the street.
Company expressions

Yes!Delft als collective brandname on urban facade

Companie express themselves at entrance and inside atrium

Main entrance : wall with logo’s behind reception.
Construction

Solid concrete in contrast with light steel structure to define clear difference old and new:
- Round columns 300mm vs HEB 300 profile

Columns placed in 5m grid of existing hall.
Columns separated by gallery in atria

- New construction is kept separate from the existing,
- Facade is connected with new construction
- Existing steel structure stabalized with new concrete structure.

System:
Columns and walls with stiff concrete cerns (emergency stairs).

Prefab columns every 5m with beam

Canalplate floors 200mm with pressure layer 70mm to create a stiff plate.

Terral hill selfstanding structure

Workshop dek stabalized by stiff walls
Climate

Two climate systems:

-Atria
-Offices

System:
Floor heating / cooling
with additional air heating / cooling on ventilation system

Use office street as preheater for fresh air in winter.

Atria:
Floor heating and cooling, connected to Schie with warmth pump.
-Hot air for fluctuations in weather
-Recycle ventilation to bring hot air back down (reference RDM Campus Rotterdam)
-WTW unit with ventilation air

Offices

Use office street as preheater for fresh air in winter.

-Floor heating and cooling, connected to Schie with warmth pump.
-Temperature controlled ventilation system for fluctuations in weather
-WTW unit on ventilation air

-Summer cooling:
-Atria with sunscreens above meeting hall
-Floor cooling
-Openable roof windows for maximum ventilation.
-Airco in ventilation system
Building technology: Facade fragment

Insulating the existing facade.

Place Interventions backwards
Entrees marked with openable doors
Use facade frame for openings

Profile Classic Iso insulated window which comes close to original design.

Insulating the brickwork with additional wall
Details old facade and new design

DETAIL 23 old

DETAIL 23 new
Revitalizing the Schie waterfronts:

Single program (Industry) with back towards the Schie
Hybrid program with front towards the Schie
A new vital part for the city of Delft
The End

Questions?