TALL BUILDING TOOL v1.0

Unfortunately Rotterdam lacks coherent urban city planning.
The last ‘decade of stand alone’ delivered a series of hit and run projects.
This makes Rotterdam a good test area to define urban criteria for tall buildings.
Architects operating in Rotterdam need stronger urban criteria
to compensate the absense of an urban framework, in order to
design projects that fit this chaotic city in continuous reconstruction.
In these circumstances Rotterdam is very vulnerable
for tall buildings that do not perform.
As an assistant we have built this instrument.
We hope it will increase the strength and robustness of
architectural design and projects.

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HOW TO REVIEW AND LEARN FROM ROTTERDAM TALL BUILDINGS?
We made an instrument through the use of active criteria. It is meant as 1. an auto-critical reference and bridge to architecture for urban designers, in order to over-come the absence of a coherent urban framework in Rotterdam, 2. as a pro-active mind frame for designers to improve architectural design of tall buildings and 3. as a tool to reduce subjectivity in architectural critique.
It should deliver more objective insight in the urban and architectural qualities of tall buildings. To build this instrument we first had to get insight into criteria.

WHAT ARE CRITERIA FOR TALL BUILDINGS IN ROTTERDAM?
In Rotterdam as anywhere, we need urban criteria to make architecture succeed in an urban way. Just architecture is simply not strong enough.
We deliberately searched for non-descriptive criteria. Architectural style, for ex-ample, is not a criterion as it labels -instead of explains- the content of architecture. Neither materials, detailing and colour use are directly effective. Instead, criteria like site consideration, foot quality, internal layout, visual aspects, and sustainability are defining. We applied criteria that are roughly speaking opposites in order to avoid a rating from very bad to outstanding. Only in the end we applied rating, but then as output and not as a point of departure. This requires a more serious approach, as we are used to like or dislike buildings right from the first look as spectators and even as critics. In short, we tried to avoid the normal behaviour which is jumping onto the subject through direct critique. I would describe our approach as 'conscious valuation'.

TALL BUILDINGS IN ROTTERDAM, A CRITICAL REVIEW
To build and test our instrument, we have reviewed a mix of nine Rotterdam tall buildings, from the past and the present: Beurs WTC (1986), Willemswerf (1989), Nationale Nederlanden (1991), Hoge Heren (2001), Hoge Erasmus (2006), Coopvaert (2007), Wijnhaven (2009), Red Apple (2010) and Maastoren (2010).

It is important to realise that completely bad buildings do not exist. Many criteria lead to various low and high qualities for each building. 'Total monsters' might exist at first sight, but did not emerge in our test results, as the ratings are between qualities. We addressed 18 criteria, grouped in five: site consideration, foot quality, internal layout, visual aspects and sustainability. Unfortunately the last criterion is not measurable for the older buildings, so we could not include this.
In our approach the quality levels located around the centreline are neutral. If qualities are extreme it does not mean they are good or bad. For example, tall buildings can be internally focussed and in one particular situation it can be a very good quality but in another it can be very bad. The same counts for mono functional versus mixed use, visually silent versus visually expressive, pragmatic navigation versus inefficient distribution, etc, etc.

Because we are used to diagrams that display the good, the bad and the ugly, our instrument is difficult to read. We found a way to translate this into one diagram (p3) that displays the quality behaviour of the assessed buildings together. The average and extreme qualities of each building are now easy to detect and we can learn from this. Looking at the diagram it is still difficult to distinguish the quality levels of buildings. Probably Beurs WTC (purple line) has the highest quality and Wijnhaven (red line) the least.

The Maastower (green line) has extreme qualities, from very good to very bad. The Hoge Heren (pale blue) and Red Apple (bleu) have a more balanced quality.
If we look closer in each group we can distinguish specific qualities and possible improvements right away. Some examples:

In SITE CONSIDERATION (p5)
we can see a positive quality in position A: 'clarity of concept' versus 'vague con-cept': where Willemswerf scores high with its diagonal split that displays a simple and crystal clear mark of its position at the river curve. It acts as a landmark that explains what happens at its foot.
In position B, 'respect for vernacular' versus 'alien to area', Nationale Nederlanden has no intention of portraying the vernacular and could be sited in any city. It does not have any formal connection with Rotterdam, except for the void between its volumes over the metro tube. Wijnhaeven is a desperate attempt to be nostalgically connected to early 20th century American skyscrapers. It displays no reference to its context in terms of history, material, scale or shape.
In position C: the bad foot qualities tell us that Maastoren is built on the wrong location. It has a high level of arrogance towards its context. The only reference to its location is the close proximity of public transport, which makes the large parking (that dominates the complete foot) monstrous. Wijnhaeven makes no effort at all to connect to its context as it is fenced off at all sides.
In position E 'sensitive versus harmful microclimate', Maastoren is very harmful by its sheer scale, its placement next to the Venturi shaped neighbouring tower and its lack of protection for airflow, it creates a disastrous and dangerous wind tunnel at public ground level for pedestrians and cyclists. Coopvaert: despite allowing a view on the monumental Chamber of Commerce, the north oriented cut-out results in a lack of human scale, heavy overshadowing and bad wind effects in and around the square. Wijnhaeven creates bad wind effects and shadowing on most if its own site.
Red Apple
A1. Internal program is readable from the exterior, its building volume completes the city block and the division of the mass mediates between surrounding building heights.
A2. Colour and material use make reference to current architectural decade with web- and vector-like facade lay-outs.
A3. The project has references with surroundings in terms of grid, site history and volume.
A4. The volume of the plinth is consistent with neighbouring blocks. The separation of towers creates river views past Willemswerf for as many apartments as possible. The passage links with surroundings and makes shortcut between the station and riverfront, but is still dependent of foot bridges to be constructed.
A5. The main tower meets the pavement directly with too little relief given to shading or wind.
A6. The volume is broken up dramatically, but it still relates to surrounding building heights and maintains the coherence of the city block.

If we look at FOOT QUALITY (p6)
position A 'visual connector versus barrier at ground level', the large fenced off footprint of the Wijnhaeven is detrimental to the interaction and permeability at ground level. The lower extension on the north turns its galleries towards the most public side.

In position D, 'closed and unwelcoming versus permeable and welcoming', all three buildings, Wijnhaeven, Maastoren and Nationale Nederlanden, fail to deliver an adequate foot in terms of public interaction and permeability. The Maastoren and the Nationale Nederlanden are particularly poor in terms of their location in highly public zones where a more animated plinth would be more suitable.
Red Apple
A7. Despite the large footprint, a visual link is maintained through the public foyer. The foyer (passage) also has an internal cross view that locates the residential tower.
A8. The foot has public functions with public passage and activities possible at lower level.
A9. Although the residential tower has a separate entry, the foot is welcoming with the spacious public passage that makes a shortcut between Boompjes and station. The pedestrian bridges in this link have to be built yet. The foot has a considerable surface of mixed program.

In INTERNAL LAYOUT (p7)
position A 'unclear navigation versus intuitive circulation', Wijnhaeven has unclear movement between the entrance and the gallery circulation at the back. The use of the gallery circulation doesn't seem understandable given the climate and its public face within the design. The use of the cheaply looking marble facade behind the cut-out in De Coopvaert seems counter productive as it hides the lower floor layouts, why is it not glazed? The three openings confuse where people should enter.
In position B, Beurs WTC is assisted very well by the original Beurs building of architect Staal. The centrally located core, contained within the open conference hall, results in intuitive circulation.
Nationale Nederlanden in position D 'integrated structure versus incidental structure', is not consistent because the structure within has no parity with its aesthetic. A standard concrete slab with formal openings hides behind the glazed curtain façade.
Red Apple
A10 both tall volumes are organised around central circulation cores with shared parking space, serving as a link between the two. The link between passage and public parking is not made.
A11. Oversized public communal spaces suggest that a more efficient use of the footprint may have been possible. The thin tower has pragmatic layouts of apartments.
A12. The building caters for a mixed use programme, residence is mixed with parking, public space and rental accommodation are suitable for office or commercial use. The project is intended to incorporate a hotel.
A13. The bracing structure within the scheme is incidental, used in a way that is detrimental to the internal spaces. The cladding system expresses dimensions of the concrete structure behind. Reasons behind swaying of ribbons are unclear.

In VISUAL ASPECTS (p8)
Hoge Erasmus is problematic, because in position C 'aesthetically uninspiring versus inspiring', the many facade treatments display desperate attempts to be contextually linked to river on the south side and the street axis on the north side.
In position F 'city marker versus low key', despite its loud mix of styles and materiality, its lack of city axis and the more imposing surroundings (Erasmus Bridge, Hoge Heren) detract from its status as a city marker that potentially would link over the river.

Red Apple
A14 Colour and manner in which facade material is applied is very expressive in nature.
A15 Playfull material placement and mix of horizontal and vertical ribbons make for an aesthetically engaging expression, although the reason of change in direction of ribbons, vertical and horizontal, is unclear.
A16 A visual connection between the Willemswerf and Hogeschool is maintained through the separated tower volumes. Best use of river views is achieved. At the same time it makes the project fall apart. The black horizontal ribbon has to tie the parts together.
A17 Colour and dramatic volumetric behaviour create a striking contrast with surroundings allowing the project to become a focal point for the area.

RATING (p9)
If we allow rating after this, it can be through equal weight of each criterion. A surprising review emerges, with top quality for the Beurs WTC (73 points) and high quality for Red Apple (46) and Hoge Heren (42). In the medium range is Willemswerf (28). Neutral quality is for Hoge Erasmus (-3), Coopvaert (-4) and a disappointing Maastoren (-5). The lowest scores are for Nationale Nederlanden (-23), and Wijnhaeven building (-56).

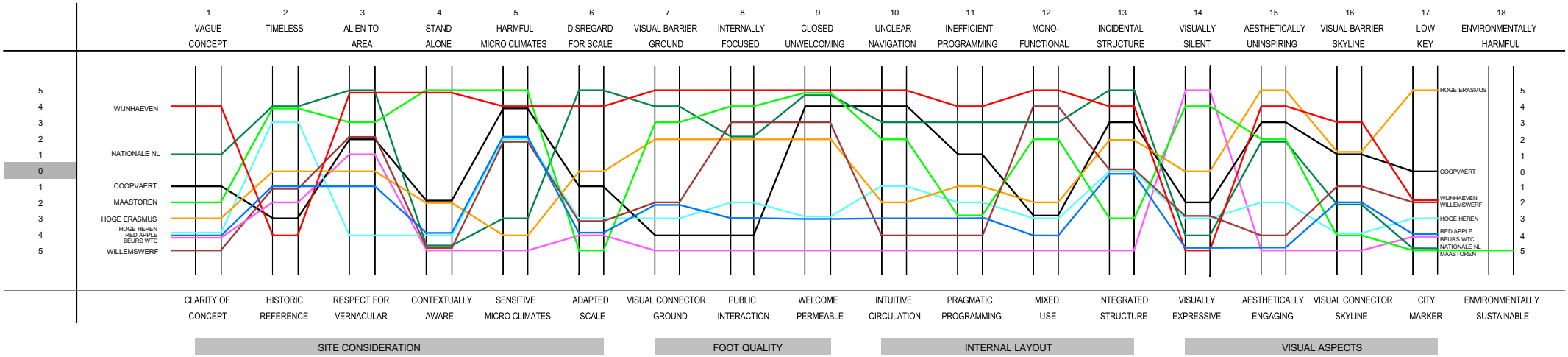
If we look at outcomes, all buildings together have high scores for 'clear concept'. Also the score for ‘contextual awareness’ are high, despite Maastoren and Wijnhaeven. The scores for ‘visual connectors in the skyline’ and ‘city markers’ are high. Disappointing are ‘vernacular behaviour’ and ‘welcoming characteristics’.

Beurs WTC is very successful, Red Apple scores particularly high on visual aspects, which could mean it is probably more expressive than the rest of its qualities would imply. Maastoren has a disappointing score, but it scores high on visual aspects. Wijnhaeven performs very badly, definitely on foot quality. But this aspect in general has a low score in Rotterdam.

As the rating is equal for all aspects, it is clear that the outcomes would be very different if foot quality would get a larger weight .

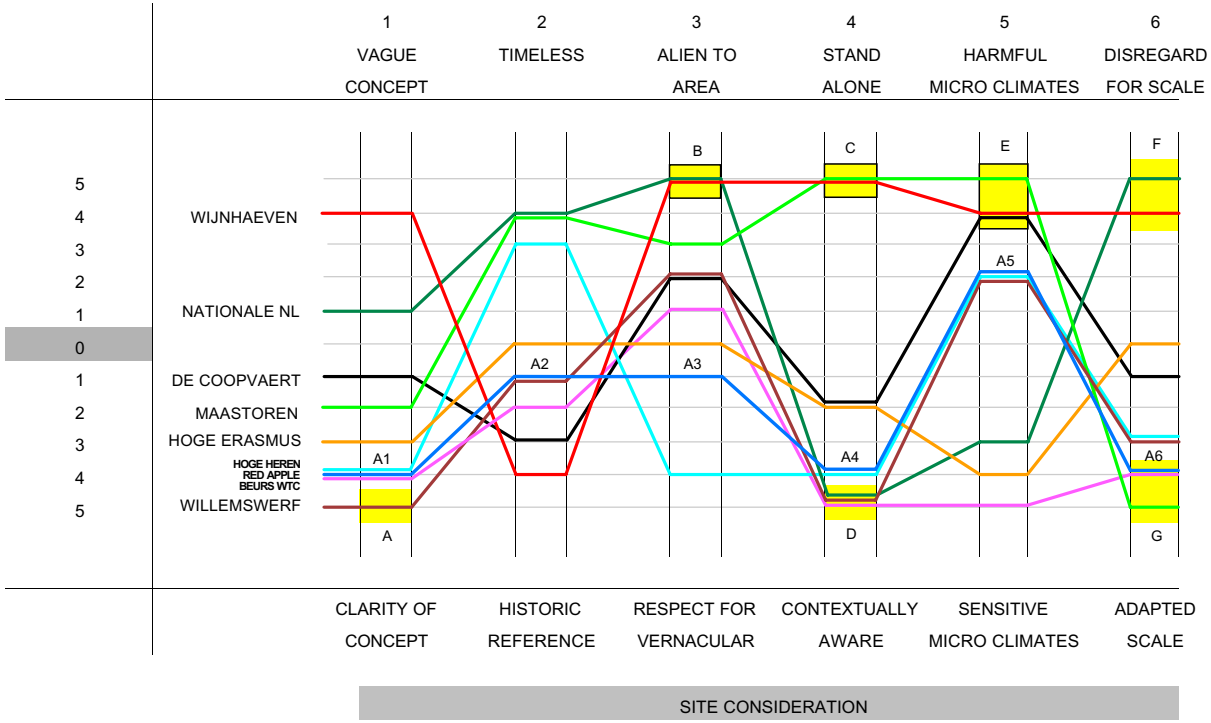
Jan Willem van Kuilenburg, MONOLAB, february 10, 2010

The approach that led to this instrument has been lectured for AIR Foundation at De Unie in Rotterdam on febr. 10, 2010. The instrument in this document is our first attempt. Criteria and accuracy are to be improved through intense benchmarking of more projects.



1. is a clear concept apparent in the design, or is it a generic solution?
2. is there a reference to an historic architectural style or period or is it historically un-placeable?
3. does the building take guidance from the surrounding architecture or could the project be sited anywhere in terms of materiality, scale, construction or form?
4. does the building show consideration of its urbanism or is it stand-alone?
5. does the building consider its context in terms of providing adequate light and privacy to neighbouring streets, properties and open spaces and by limiting negative shadowing and wind conditions?
6. is the scale of the building ignoring of adapting to its context?
7. does the building successfully interact at street level, providing links between and maximising public spaces, or is it disconnecting itself from its surroundings / architectural quality of base?
8. is the building open to the public, does it allow for a public through-route or public amenities, and/or is it very much targeted for the end user?
9. what is the atmosphere of the building, are people encouraged to enter, or made feel unwelcome?
10. upon entering the building, is there a clear and readible circulation route through the building or is navigation unclear?
11. is the programming of the building logical and pragmatic, has space been used efficiently?
12. does the building house a range of functions and amenities or is it mono functional?
13. is the structure integral to the design or is it incidental?
14. is the building visually expressive in its form or materiality, does it communicate something or is it visually silent and understated?
15. is the aesthetic of the building engaging, does it stand out from its surroundings or is it uninspiring, blending into the built environment?
16. does the building compliment and enhance the cityscape by creating connections and vistas or does it have a counterproductive effect on the existing conditions?
17. does the building act as a marker for its location within the city or does it merge into the built environment?
18. has there been an obvious consideration of environmental sustainability in the design, in material use, construction, running cost or energy consumption of the building?

BEURS WTC — WILLEMSWERF — NATIONALE NL — DE HOGE HEREN — HOGE ERASMUS — DE COOPVAERT — WIJNHAEVEN — RED APPLE — MAASTOREN



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6. is the scale of the building ignoring of adapting to its context?

A. WILLEMSWERF: the diagonal split displays a simple and crystal clear concept that marks its position at the river curve.

B. NATIONALE NL: has no intention of portraying the vernacular and could be sited in any city. It does not have any formal connection with Rotterdam.
WIJNHAEVEN: is a desperate attempt to be nostalgically connected to early 20th century American skyscrapers. It displays no reference to its context in terms of history, material, scale or shape.

C. MAASTOREN: the bad foot qualities tell us that Maastoren is built on the wrong location. It has a high level of arrogance towards its context. The only reference to its location is the close proximity of public transport, which makes the large parking, that dominates the complete foot, monstrous.
WIJNHAEVEN: makes no effort at all to connect to its context as it is fenced off at all sides.

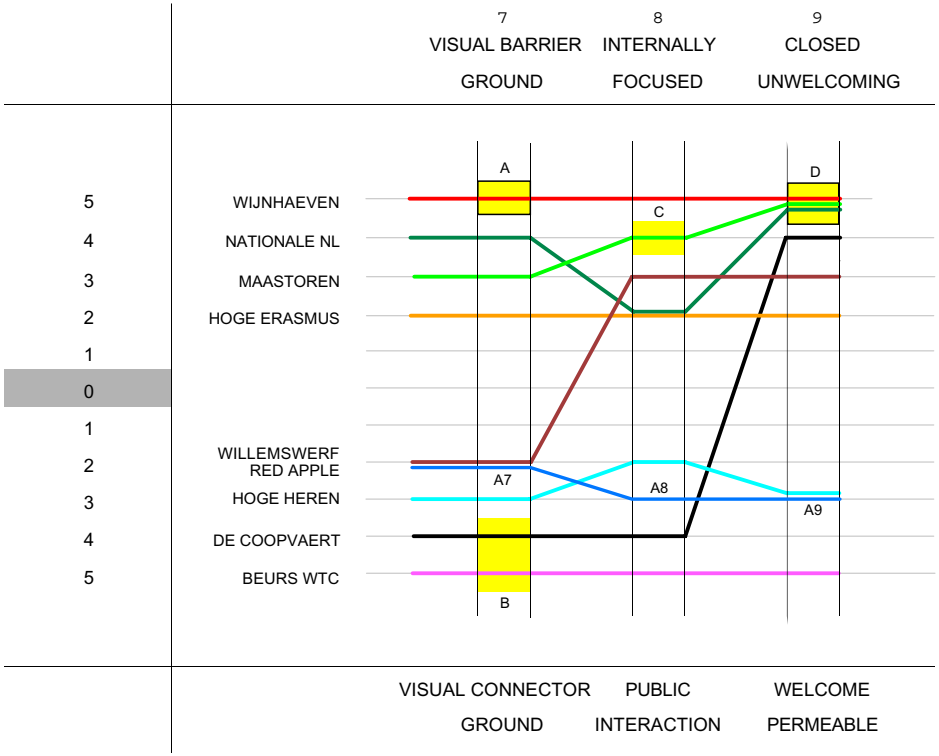
D. WILLEMSWERF: the total integration of infra at ground level of the Willemswerf and the slice referencing the river bend embeds the project within its context.
BEURS WTC: an almost non existent foot, a placement within an already successful existing building, and its humble presence through its slender blade form together with the reflective materiality, allows for a dialogue between the Beurs and its busy context.

E. MAASTOREN: the sheer scale, its placement next to its venturi shaped neighbouring tower and its lack of protection for airflow, create a disastrous and dangerous wind tunnel at public ground level for pedestrians and cyclists.
COOPVAERT: Despite allowing view on the monumental Chamber of Commerce, the north oriented cut-out results in a lack of human scale, overshadowing and bad wind effects around the square.
WIJNHAEVEN: creates bad wind effects and shadowing on most if its own site.

F. NATIONALE NL: the substantial footprint of the Nationale Nederlanden dominates the site, creating a large internally focused mass.
WIJNHAEVEN: given the size of the footprint, the tower could have been reduced. No consideration was given towards permeability at the foot.

G. MAASTOREN: operates in two ways to reduce its presence. To suppress the height, it has a facade which gradually fades from grey to white in order to evaporate towards the summit. To suppress its mass, it is cut up in several co-operating volumes.
BEURS WTC: even while it is positioned on top of another building, its set back position, the blade form and the dissolving reflecting facade reduce its mass.

RED APPLE
A1. Internal program is readable from the exterior, building volume completes city block and division of the mass mediates between surrounding building heights.
A2. Colour and material use make reference to current architectural use of vector-like facade lay-outs.
A3. The project has references with surroundings in terms of grid, site history and volume.
A4. The volume of the plynth is consistent with neighbouring blocks. Separation of towers creates river views past Willemswerf for as many appartments as possible. The passage links with surroundings and makes shortcut between the station and riverfront, but is still dependent of foot bridges to be constructed.
A5. The main tower meets the pavement directly with too little relief given to shading or wind.
A6. The volume is broken up dramatically, but still relates to surrounding building heights and maintains the coherence of the city block.



FOOT QUALITY

A. WIJNHAEVEN: the large fenced off footprint of the Wijnhaeven is detrimental to the interaction and permeability at ground level. The extension on the north side turns its galleries towards the most public side.

B. BEURS WTC: through the intelligent use of the existing building, the Beurs minimises its footprint and retains a connection with its urban fabric.
COOPVAERT: the large cut-out of De Coopvaert adapts to allow a visual connection to the Chamber of Commerce building and retains the existing axis of the boulevard.

C. MAASTOREN: Although a private office building, due to its location the foot should have allowed for a greater public interaction. The parking issues clearly overshadow all other potential qualities.

D. WIJNHAEVEN, MAASTOREN, NATIONALE NL: all three of the buildings fail to deliver an adequate foot in terms of public interaction and permeability. The Maastoren and the Nationale Nederlanden are particularly poor in terms of their location in highly public zones where a more animated plinth would be more suitable.

RED APPLE
A7. Despite the large footprint, a visual link is maintained through the public foyer. The foyer (passage) also has an internal crossview that locates the residential tower.
A8. The foot has public functions with public passage and activities possible at lower level.
A9. Although the residential tower has a seperate entry, the foot is welcoming with the spacious public passage that makes a shortcut between Boompjes and station. The pedestrian bridges in this link have to be built yet. The foot has a consideral surface of mixed program.

7. does the building successfully interact at street level, providing links between and maximising public spaces, or is it disconnecting itself from its surroundings / architectural quality of base?
8. is the building open to the public, does it allow for a public through-route or public amenities, and/or is it very much targeted for the end user?
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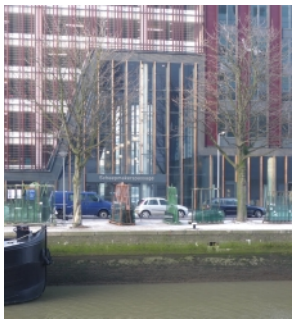

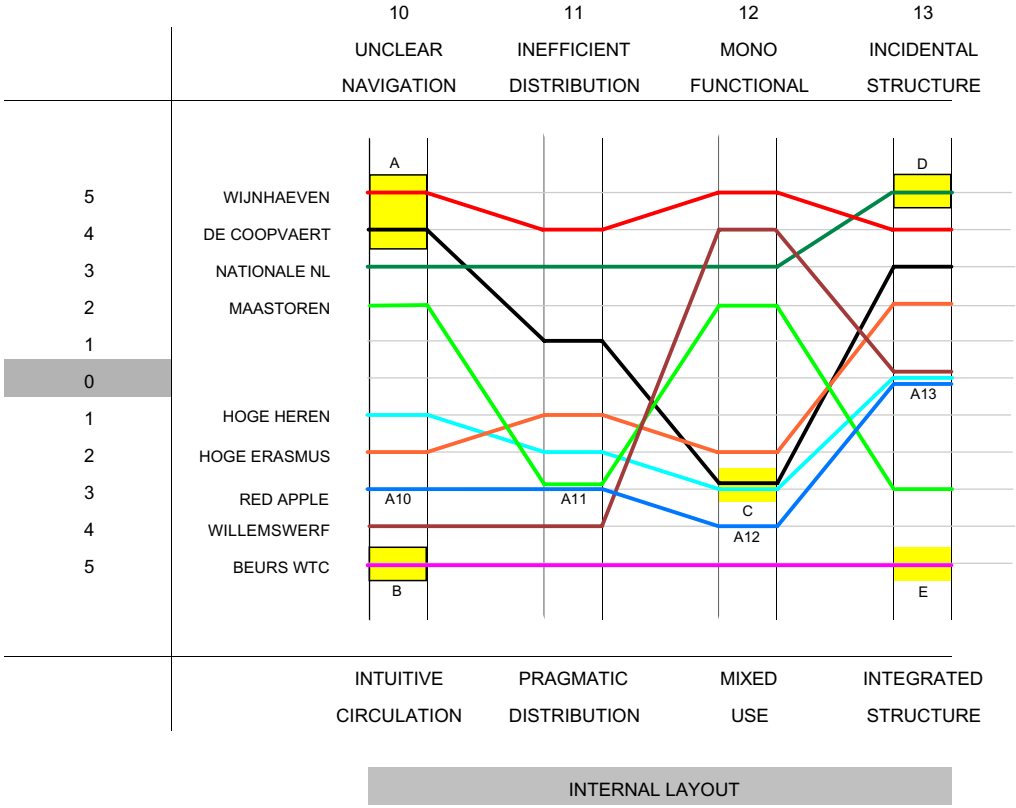

A. WIJNHAEVEN: the movement between the entrance and the gallery circulation at the back is unclear. The use of the gallery circulation doesn't seem understandable given the climate and its location within the design.
COOPVAERT: the use of marble facade behind the cut-out in De Coopvaert seems counter productive as it hides the lower floor layout. The three openings confuse where people should enter.

B. BEURS WTC: the building is assisted very well by the earlier built original Beurs building. The centrally located core, contained within the open conference hall, results in intuitive circulation.

C. COOPVAERT: features a cafe facing on to the public space which is not functioning, because of the lack of human scale and wind effect due to the large scale of the cut-out.

D. NATIONALE NL: the structure within is a cover-up, it has no parity with the envelopes. A standard concrete slab with formal openings hides behind the glazed curtain facade.

E. BEURS WTC: uses the existing Beurs building as a plinth with eight large columns penetrating the existing building. This allows for a minimal footprint, directly integrated program and efficient structure and design.

RED APPLE
A10. Both tall volumes are organised around central circulation cores with shared parking space, serving as a link between the two. The link between passage and public parking is not made.
A11. Oversized public communal spaces suggests that a more efficient use of the footprint may have been possible. The thin tower has pragmatic layouts of appartments.
A12. Building caters for a mixed use programme, residence is mixed with parking, public space and rental accommodation are suitable for office or commercial use. The project is intended to incorporate a hotel.
A13. Bracing structure within the scheme is incidental, used in a way that is detrimental to the internal spaces. The cladding system expresses dimensions of the concrete structure behind. Reasons behind swaying of ribbons is unclear.

10. upon entering the building, is there a clear and readible circulation route through the building or is navigation unclear?
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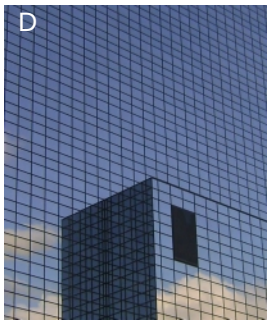

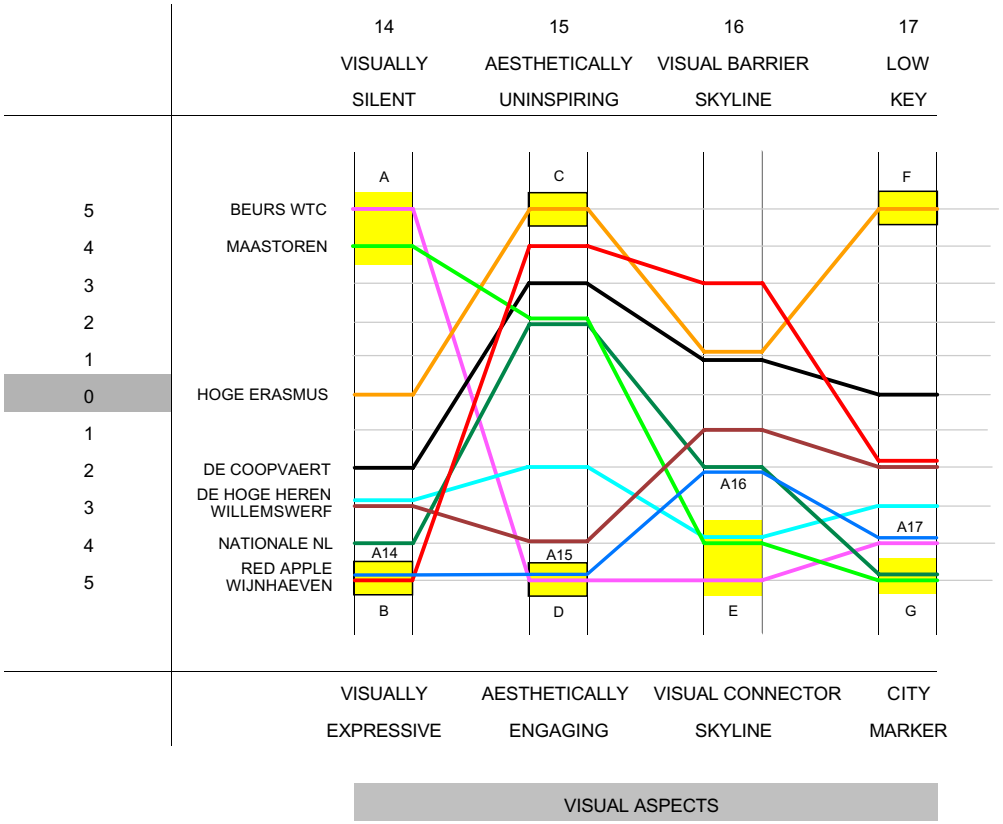

A. BEURS WTC: the blade form minimises its impression along the Coolsingel, with the materiality reflecting light and the set back position reducing its mass.
MAASTOREN: as a strategy to reduce the scale of the building, it is broken up in three volumes and its façade fades from grey to white in order to reduce its height.

B. WIJNHAEVEN: its large and inefficient footprint and imported aesthetics give the building an overbearing impression on the site.

C. HOGE ERASMUS: the many facade treatments display desperate attempts to be contextually linked to river on the south side and the street on the north side.

D. BEURS WTC: the reflective and animated facade of the Beurs WTC tower, its setback position and its elegant form enhance the aesthetic quality.

E. HOGE HEREN: its axial placement acts as a connector between the city and the docklands and its split acts as a gateway from the Erasmus bridge.
MAASTOREN: scale and prominence on the docklands act as a visual connection over the Maas linking the city to the docklands through building height.
BEURS WTC: the blade is directed north south in coherence with its position along the main boulevard. Despite its small scale, the green color makes it stand out.

F. HOGE ERASMUS: despite its loud mix of styles and materiality, its lack of city axis and the more imposing surroundings (Erasmus Bridge, Hoge Heren) detract from its status as a city marker that potentially would link over the river.

G. MAASTOREN: The height of the Maastoren in particular relation to its surroundings on the Kop van Zuid propel it as a city marker.
NATIONALE NL: its location next to the central station, its international aesthetic and large scale and omnipresence make a legible marker within Rotterdam. Both buildings make the city readible by marking the main center corridor of Rotterdam and linking north and south.

RED APPLE
A14 Colour and manner in which facade material is applied is very expressive in nature.
A15 Playfull material placement and mix of horizontal and vertical ribbons make for an aesthetically engaging expression. Although the reason of change in direction of ribbons is unclear.
A16 A visual connection between the Willemswerf and Hogeschool is maintained through the separated tower volumes. Best use of river views are achieved. At the same time it makes the project fall apart. The black horizontal ribbon has to keep parts together.
A17 Colour and dramatic volumetry create a striking contrast with surroundings allowing the project to become a focal point for the area.

14. is the building visually expressive in its form or materiality, does it communicate something or is it visually silent and understated?
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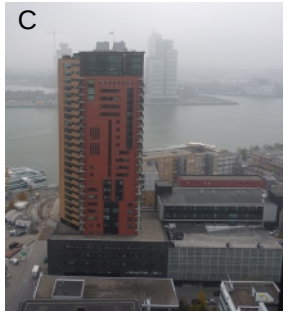

	1 VAGUE CONCEPT	2 TIMELESS	3 ALIEN TO AREA	4 STAND ALONE	5 HARMFUL MICRO CLIMATES	6 DISREGARD FOR SCALE	7 VISUAL BARRIER GROUND	8 INTERNALLY FOCUSED	9 CLOSED UNWELCOMING	10 UNCLEAR NAVIGATION	11 INEFFICIENT PROGRAMMING	12 MONO-FUNCTIONAL	13 INCIDENTAL STRUCTURE	14 VISUALLY SILENT	15 AESTHETICALLY UNINSPIRING	16 VISUAL BARRIER SKYLINE	17 LOW KEY	TOTAL
BEURS WTC	4	2	-1	5	5	4	5	5	5	5	5	5	5	5	5	5	4	**73**
RED APPLE	4	1	1	4	-2	4	2	3	3	3	3	4	0	5	5	2	4	**46**
DE HOGE HEREN	4	3	4	4	-2	3	3	2	3	1	2	3	0	3	2	4	3	**42**
WILLEMSWERF	5	1	-2	5	-2	3	2	-3	-3	4	4	4	0	3	4	1	2	**28**
HOGE ERASMUS	3	0	0	2	4	0	-2	-2	-2	2	1	2	-2	0	-5	1	-5	**-3**
COOPVAERT	1	3	-2	2	-4	1	4	4	-4	-4	-1	3	-3	-2	-3	1	0	**-4**
MAASTOREN	2	-4	-3	-5	-5	5	-3	-4	-5	-2	3	-2	3	4	2	4	5	**-5**
NATIONALE NL	-1	-4	-5	5	3	-5	-4	-2	-5	-3	-3	-3	-5	4	-2	2	5	**-23**
WIJNHAEVEN	-4	4	-5	-5	-4	-4	-5	-5	-5	-5	-4	-5	-4	-5	-4	-3	-2	**-65**
	CLARITY OF CONCEPT	HISTORIC REFERENCE	RESPECT FOR VERNACULAR	CONTEXTUALLY AWARE	SENSITIVE MICRO CLIMATES	ADAPTED SCALE	VISUAL CONNECTOR GROUND	PUBLIC INTERACTION	WELCOME PERMEABLE	INTUITIVE CIRCULATION	PRAGMATIC PROGRAMMING	MIXED USE	INTEGRATED STRUCTURE	VISUALLY EXPRESSIVE	AESTHETICALLY ENGAGING	VISUAL CONNECTOR SKYLINE	CITY MARKER	
	SITE CONSIDERATION						FOOT QUALLITY			INTERNAL LAYOUT				VISUAL ASPECTS				
total score per criterion	**18**	**6**	**-13**	**17**	**-7**	**11**	**2**	**-2**	**-13**	**1**	**10**	**11**	**-6**	**17**	**4**	**17**	**16**	

displays the success of all rated buildings together in the Rotterdam context