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#### **Publication date**

2004

#### **Document Version**

Accepted author manuscript

#### **Published in**

CIB world building congress 2004

#### **Citation (APA)**

Geraedts, RP., & van der Voordt, T. (2004). The vacancy risk meter: An instrument for defining the lower end of the office premises market. In CIB world building congress 2004 (pp. 1-11). Toronto.

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## **The Vacancy Risk Meter**

### **An instrument for defining the lower end of the office premises market**

Rob P. Geraedts, Theo van der Voordt

#### **ABSTRACT CIB T2 S1**

In the study '*Transformation of Office Buildings*', also published in CIB World Building Congress 2004, an instrument was developed for measuring the potential of transforming empty office premises into homes. As a follow-up, this survey looks explicitly at the lower end of the office premises market. The office premises in question have been vacated by organizations that have moved to new premises of a higher quality and in a better location. Depending on the prevailing market conditions, a number of the vacated premises will remain empty. This is particularly true of premises that offer the least quality, whose location is less desirable, or whose price/quality ratio is unattractive. This study introduces an instrument known as the Vacancy Risk Meter (VRM), which allows the so-called lower end of the office premises market in a particular urban district to be defined at an early stage.

The Vacancy Risk Meter (VRM) indicates at an early stage which office buildings at which locations are likely to be vacated first due to changes in the market as the current tenants relocate to higher quality premises. This allows the potential and risks for the preservation of the office premises market to be determined for the selected buildings and locations. The VRM therefore allows the lower end of the office premises market to be defined for a particular urban district.

#### **Key words**

Vacancy Risk Meter, Transformation, lower end of the office premises market, structurally vacant office buildings

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## 1. INTRODUCTION

### 1.1 Problem

New, high-quality premises are being offered at many different locations as office space. However, a high percentage of the new premises are not due to the need for expansion, but rather because of the desire to relocate. Increasing quality demands are driving organizations to new premises that offer better quality and that have a more attractive location. Some of the vacated premises remain empty, as would be expected. This is particularly true of premises which offer the least quality in terms of the building itself or the location, or whose price/quality ratio is unattractive: *good buildings drive out bad buildings*. There is a need for an instrument that can, at an early stage, identify office premises that will be vacated and determine the potential and risks for the preservation of the office premises market. The study presented here on the lower end of the Rotterdam office premises market aims to contribute to the development of this instrument: *the Vacancy Risk Meter (VRM)*. When the risk of maintaining the building as office premises is too high, alternatives such as demolition and replacement with new premises or transformation for other functions such as housing can be considered. For an instrument to determine the transformation potential of empty office premises into housing, we refer to the so-called Transformation Meter focusing on *Transformation of Office Buildings* (Geraedts and Van der Voordt, 2003).

### 1.2 Objectives

The study *Vacancy Risk Meter* aims to answer the following questions:

- Which office buildings in Rotterdam will be at greatest risk if the current tenants relocate to new, higher-quality premises or if the market becomes saturated again?
- Which aspects of the market, location and the building itself play an important role here?
- How can a multi-stage approach, ranging from quick and dirty to thorough and detailed, be implemented to scan the potential lower end of the market, with the focus on indicating imminent vacancy of premises at an early stage and determining the potential and risks of maintaining the premises for use as office space?

This paper is principally concerned with answering question 2 (characteristics) and question 3 (instrument). A choice has been made to determine risk classifications on the basis of a multi-stage instrument, using the analogy of the previously mentioned instrument for determining the transformation potential of empty office premises (Geraedts and Van der Voordt, 2003). By means of veto criteria or gradual criteria, this instrument can carry out a quick scan or a detailed analysis respectively.

## 2. DATA COLLECTION

By studying developments in Rotterdam between 1996 and 1999 it became apparent which location characteristics reduced the chance of office premises being reused after they had been vacated. A questionnaire was given to approximately 50 people involved in the Rotterdam office premises market, and interviews were held with experts in real estate. Using this information, important factors relating to the building and location were determined that made the premises less suitable for reuse as office space, and that therefore meant the premises belonged in the lower end of the market. For statistical material on the current office premises market, vacancy rates, the lower end of the market and market developments, considerable use was made of the annual report *De Rotterdamse kantorenmarkt* (Dienst Stedenbouw en Volkshuisvesting/OBR) and the *Structureel aanbod van kantoorruimten* survey (Neprom). Important information was also found in *De Nederlandse Vastgoedmarkt; City Reports* (Jones Lang Wootton) and *Sprekende Cijfers Kantorenmarkten* (Dynamis Research Amersfoort). During development of the Vacancy Risk Meter (VRM), that indicates at an early stage which office buildings are likely to be vacated first and determines the potential and risks for reuse as office premises, use was made of both the previously-developed Transformation Meter and related instruments such as *Real Estate Norm* (Stevens et al, 1992) and the simplified *Quick Scan* (Stevens et al., 1994).

### 3. MARKET FACTORS

There are three important factors that influence the likelihood of office premises being sublet:

- Market factors
- Location factors
- Building factors

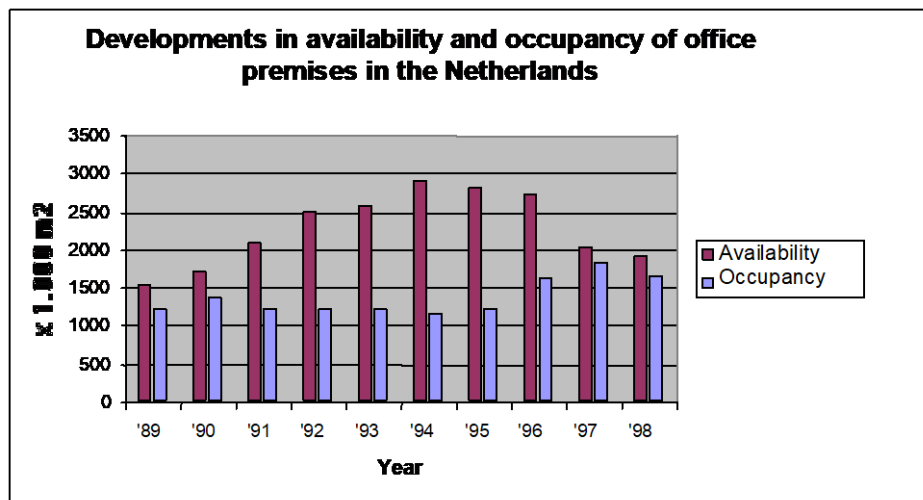
The influence of the market, location and building on structurally vacant office premises is periodically estimated by the NEPROM (Dutch Association of Project Developers) using opinions of appropriate experts. Location factors that lead to an increasing risk to vacancy are for instance poor reachability or deterioration of the neighborhood. Building factors increasing vacancy risk are for instance a poor accessibility, poor thermal comfort by bad installations, or back maintenance. When empty office premises are not given a negative score regarding the quality of the location and/or the building, the market is judged to be the decisive factor in the absence of any other discernible cause. It is worth noting that, in general, market factors are predominantly determined by developments in supply and demand and trends in this sector.

#### 3.1 The lower end of the office premises market

A number of the premises currently available can be found in the lower end of the market. According to real estate experts, this applies to premises rented for between € 70 and € 90/ m<sup>2</sup> per year (1999 prices). Within this segment there is a clear gap between the quality of the premises on offer and the demand for office premises on location and building level. A repetitive cycle plays an important role: the so-called 'pig cycle'. During a period of high demand for new office premises and limited availability, many new building projects are launched (see figure 1). Because a considerable length of time is required for development and construction, the demand can drop considerably in the meantime due to conjunctural factors. As a result, the new premises have no tenants upon completion. The rise in empty premises leads in turn to reduced demand, the effects of which only become apparent in the long-term.

FIGURE 1

The supply and demand cycle for office premises larger than 500 m<sup>2</sup> in the Dutch open market (FGH Vastgoedbericht 2000)



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Figure 1 shows how the supply cycle is out of synchronization with the demand cycle. When the demand drops due to conjunctural factors, the supply still continues to grow for several years.

#### 3.2 Trends in the market

Many recent plans for new developments have been characterized by their inclusion in a larger, so-called 'area-oriented' approach. Public and private organizations work together to carry out integrated urban (re)development of a particular area in order to create a more desirable climate in

which to live and work. This type of development not only strengthens the image of the area in question, but also has a positive influence on the image of the entire city. Until new office buildings are included in these developments, office-based organizations have to rely on their current premises or the availability of existing office space. However, this last option only seems of interest to most companies when the premises on offer have an attractive location and the office space is of high quality.

### **3.3 Market demand**

The demand for office space in urban Rotterdam comes mainly from the banking and insurance sector, and from business and other service providers. The demand is predominantly for small- to medium-sized high-quality office space with an attractive location, such as can be found on the outskirts of Rotterdam. There is growing demand for small offices or units close to access roads or on the periphery of the urban area. Apart from this, the demand is mainly for small- to medium-sized high-quality office space in central locations. The preference is for sites with good public transport connections or for sites that are easily accessible by car. If this combination is not possible, locations close to motorways are chosen instead.

## **4. LOCATION FACTORS**

As far as location is concerned, there are 12 factors primarily used by experts to characterize the lower end of the office premises market:

1. *The geographical location*  
In municipalities with less than 50,000 inhabitants, the potential for using office premises for alternative purposes is considered small.
2. *Location in a specific urban district*  
There can be a concentration of chronically empty premises in certain areas, e.g. because of a bad reputation or because of deterioration of the whole area.
3. *Rental price*  
An abundance of premises with low rent (€ 70 to € 90/ m<sup>2</sup> per year, 1999 prices), indicates that lettability of premises in this area is poor.
4. *Concentration of ageing premises*  
Areas with a high percentage of ageing premises, built between 1960 and 1980, are perceived to have a higher risk on vacancy.
5. *Local council policy*  
The office premises may be situated in a municipal priority area that has been earmarked for new housing.
6. *Mono functional areas*  
Monofunctional areas and locations without an integrated design make it more difficult to let office space.
7. *Accessibility by car or public transport*  
The absence of motorways and railways or other public transport facilities in the immediate vicinity significantly decreases the ability to let office space.
8. *Parking*  
Poor parking facilities (insufficient space, too far away, unsafe) for personnel and visitors increase risk on vacancy.
9. *Lack of facilities*  
The absence of facilities such as restaurants, banks, post offices, shops and recreation centers for personnel in the immediate vicinity is a risk-increasing factor.
10. *Public order*  
Evidence of vandalism, litter and graffiti in the vicinity, and the presence of undesirables are connected with a high level of vacancy.
11. *Discomfort due to the surroundings*  
Inconvenience caused by adjacent buildings (shadow), noxious smells, noise, excessive wind are risk increasing, too.
12. *Spatial and visual quality of surroundings*  
A negative image of the area (socially backwards, poor state of public areas), and the absence of other modern office premises in the vicinity are perceived as risk factors as well.

## 5. BUILDING FACTORS

Based on the questionnaire, interviews with experts, and two methods that may help organizations to find the best match between demand and supply - the *Real Estate Norm* or *REN* (Stevens et al, 1992) and the *Quick Scan REN* (Ministry of Housing and Urban Development, 1994), both endorsed by many specialists - the following building characteristics have been defined as typical for the lower end of the office premises market:

1. *Rental price*  
The lower end of the office premises market is characterized by a rent of € 70 to € 90/ m<sup>2</sup> per year (1999 prices).
2. *Year of construction*  
The ability to let office premises is evidently affected by the year of construction of the building. Despite the growing demand for office space, the number of empty office premises built between 1960 and 1980 is conspicuously high.
3. *Spatial-visual quality*  
An antiquated (dated) appearance, the absence of a unique identity or differentiation between other buildings or users, an exterior with a simple finish, a poorly visible or barely recognizable entrance, large office blocks with a communal entrance, and a building mass that is too massive or colossal increase risk on vacancy..
4. *Image, identity*  
A negative identity or a bad aura, unrepresentative, barely recognizable, absence of (monumental) image, dilapidation of building, evidence of vandalism, and graffiti on outer walls are all risk increasing factors.
5. *Technical quality of exterior (outer walls and roofs)*  
Poorly maintained façades and roofs or coverings increase risk on vacancy as well.
6. *Technical quality of supporting structure and built-in elements*  
The same holds true for a poor condition of supporting structures (columns, walls, floors and foundations) and built-in elements (inner walls, door/window frames, doors, and kitchen and bathroom areas
7. *Technical and environmental quality of installations*  
Out-of-date installations (heating, air-conditioning, air treatment, lighting, communication, security, building management systems, infrastructure) decrease lettable.
8. *Environmental quality*  
Poor energy efficiency and environmental performance, combined with climatic conditions (absence of double glazing, air-conditioning, awnings, heat-and sound insulation, air treatment) and the use of environmentally unfriendly materials (tropical hardwood, asbestos etc.) are connected with a higher risk on vacancy.
9. *Functional quality*  
Not being able to meet the requirements currently demanded of office premises: lack of flexibility in rearranging rooms (horizontally and vertically); inefficient use of space, poor accessibility (limited vertical and horizontal transport), low total/usable ratio of available space are all risk increasing factors.

## 6. THE VACANCY RISK METER

The Vacancy Risk Meter (VRM) that has been developed in order to define the lower end of the office premises market, consists of a number of different decision-making and assessment steps, from global to detailed. This allows it to be used for both a quick scan and detailed analysis. The construction of the VRM, from global to detailed, includes the following steps (see Figure 2):

FIGURE 2  
The various steps in the Vacancy Risk Meter

VACANCY RISK METER			
Step	Action	Level	Result
Step 1	Assess available offices using veto criteria	Location Building	Fast selection of offices; determine whether they are suitable for further research
Step 2	Assess available offices using gradual criteria	Location Building	Gradual assessment of the Vacancy Risk potential of the building
Step 3	Determine the Vacancy Risk Class	Location Building	Vacancy Risk Class of the office building
Follow Up	Detailed scan with REN of <i>Transformation Meter</i>	Location Building	Re-destination as office or transformation to other functions

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### 6.1 Step 1: first and fast assessment using veto criteria

The VRM offers the user the possibility of initially conducting a fast scan based on three veto criteria that requires little effort or information input. Veto criteria are the criteria used for the first rough scan to determine the potential presence of high-risk buildings. The aim is to quickly differentiate between what belongs in the lower end of the market and what doesn't. The part of the market identified by the initial quick scan is then subjected to a more detailed analysis. A total of three veto criteria have been formulated, of which two are on location level and the other is on building level (see Figure 3).

FIGURE 3  
Three veto criteria for determining the lower end of the office premises market

STEP 1: VETO ASSESSMENT OF AVAILABLE OFFICE PREMISES				RG/07-07-2003
<p>If the event that the verdict is 'yes' and the adjustability = 1 (nil) then the building in question will not be considered for reuse as office premises, and consequently belongs in the lower end of the market. Further gradual or detailed assessment is therefore not required. If none of the criteria defined by the VRM are judged to be a veto by a user, the process then moves on to the gradual criteria in step 2 and vice versa.            GFA = Gross Floor Area            A = general criteria, also applicable in Rotterdam            B = general criteria, not applicable in Rotterdam            C = specific criteria for Rotterdam</p>				
VETO CRITERIA LOCATION				Verdict
ASPECT		CRITERION	DETAILS	Yes No
1	Local Authority policy	A 1 The building is located in a priority area earmarked for housing	Local Authority policy	<input type="checkbox"/>
2	Parking	C 1 Cap. of own park. facilities/direct vicinity = 1 place/200 m <sup>2</sup> GFA	Locally, estate agents	<input type="checkbox"/>
VETOCRITERIA GEBOUW				
3	Rental price (concentration low rental buildings)	A 1 Rental price <sup>2</sup> 90,- euro/m <sup>2</sup> GFA	Literature, estate agents	<input type="checkbox"/>

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#### Verdict

In the event that one of these criteria is applicable (the answer is 'yes'), then the building in question will not be considered for reuse as office premises, and consequently belongs in the lower end of the market (high Vacancy Risk). Further gradual or detailed assessment is therefore not required.

#### Veto criterion 1: Local authority policy

The Rotterdam city council has assigned priority areas for office space and for living. Office premises located in office parks that become vacant will retain their function. For other locations in the city centre and in residential areas, transformation to other functions will be encouraged.

#### Veto criterion 2: Parking

Insufficient parking space i.e. a parking capacity of private facilities or in the direct vicinity that is less than 1 parking space per 200 m<sup>2</sup> GFA is not tolerated on the Rotterdam office premises market. This is unlike Amsterdam, where office premises in a desirable location but without sufficient parking facilities are more easily let. There are many office buildings in other locations in the city centre that used to be empty for considerable periods due to a lack of parking facilities.

#### Veto criterion 3: Rental price

Although the rent can also be considered as a building-related factor, it should be noted that many locations are characterized by a concentration of office premises with similar rent levels. The lower

end of the office premises market turns out to have an average rent level of € 70 to € 90 per m<sup>2</sup> of Gross Floor Area (GFA) per year at 1999 prices.

#### Adjustability of the veto criteria

All three veto criteria mentioned above are more or less non-adjustable. If it would be possible to carry out relatively simple adjustment without incurring significant costs, then the argument to use these aspects as veto criteria would be fatally undermined. If, for instance, the local authority policy regarding priority areas for office space and living would change, or if it would be relatively straightforward to create new parking facilities in the immediate vicinity, then these aspects would no longer be veto criteria, and would be shifted to the gradual assessment in step 2. The choice of these aspects as veto criteria is therefore a default setting.

## 6.2 Step 2: A second and more in depth assessment using gradual criteria

When the results of the veto scan in step 1 point to possible suitability for reuse as office space (none of the questions was answered with 'yes'), then a detailed scan using so-called gradual criteria can be carried out during the following phase to determine more accurately the actual potential the buildings in question have to end up in the lower end of the market. Gradual criteria means that individual assessment of a criterion does not lead to acceptance or rejection of a property, but that the sum of all criteria forms a gradual picture of the lower market end potential (Vacancy Risk Potential) of a building.

#### Relative importance of the various criteria

Not all criteria are equally important. This applies equally when comparing the various location and building criteria with each other as it does when comparing all location criteria with all building criteria. That is why the possibility has been created in the Vacancy Risk Building Meter to apply a weighting factor for both levels (1 = not important, 2 = neutral, 3 = very important). The user can choose to apply a different assessment than the default setting. Another possibility when applying the weighting factor is for instance to remove the assessment aspects that are considered to be less important. This means the assessment list becomes shorter so more emphasis is given to important or very important aspects.

#### Adjustability of the gradual criteria

The conclusion drawn for the veto criteria was that they were more or less non-adjustable. This is not the case for gradual criteria. Some aspects can produce negative results at the moment of assessment, yet could be improved relatively easily. There is also an element of timing in the assessment. Maybe the criterion in question is currently not being addressed, but will be in six months' time. For this reason there is a 'correction' column on the form used to present the final assessments, which allows such factors to be taken into consideration. 1 = no adjustability, 2 = limited adjustability, 3 = easy adjustability.

FIGURE 4  
The gradual assessment criteria on location level

GRADUAL CRITERIA LOCATION			Verdict		
ASPECT		CRITERION	DETAILS	Yes	No
1 Geographical location	B	1 City <sup>2</sup> 50.000 inhabitants	Ass. of Dutch Municipalities	<input type="checkbox"/>	<input type="checkbox"/>
2 Location in a specific urban district	C	2 Rotterdam North, South, West, periphery of Centre Vlaardingen, Wijnhavenkwartier, Spaanse Polder Marconiplein, Hofplein, Pendrecht	Literature, research survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3 Concentration of low-rent premises	A	3 Numerous premises in the vicinity for rent at <sup>2</sup> 90,-/m2 GFA	Literature, estate agents	<input type="checkbox"/>	<input type="checkbox"/>
4 Spatial and functional quality	C	4 Locations without integrated design (monofunctional)	Street map, locally	<input type="checkbox"/>	<input type="checkbox"/>
5 Accessibility by car or public transport	A	5 Car: distance to motorway <sup>3</sup> 5 km.	City street map	<input type="checkbox"/>	<input type="checkbox"/>
	A	6 Intercity train station: distance <sup>3</sup> 2 km.	City street map	<input type="checkbox"/>	<input type="checkbox"/>
	A	7 Suburban train station: distance <sup>3</sup> 1 km.	City street map	<input type="checkbox"/>	<input type="checkbox"/>
	A	8 Bus/Tram/Metro stop: distance <sup>3</sup> 1 km.	City street map	<input type="checkbox"/>	<input type="checkbox"/>
6 Accessibility of facilities	A	9 Restaurants for business lunches and dinners: distance <sup>3</sup> 500 m.	Street map, locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	10 Bank or Post offices: distance <sup>3</sup> 500 m.	Street map, locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	11 Recreational facilities: distance <sup>3</sup> 500 m.	Street map, locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	12 Shops for daily requirements: distance <sup>3</sup> 500 m.	Street map, locally	<input type="checkbox"/>	<input type="checkbox"/>
7 Public order	A	13 Evidence of vandalism in the immediate vicinity	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	14 Graffiti on outer walls	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	15 Litter in immediate vicinity	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	16 Undesirables present in immediate vicinity	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
8 Discomfort due to surroundings	A	17 Shadow from adjacent buildings during <sup>3</sup> 50% of office hours	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	18 Noxious smells <sup>3</sup> 100 days/year	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	19 Excessive wind <sup>3</sup> 50 days/year	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	20 Noise pollution <sup>3</sup> 2 hrs. During office hours	Information locally	<input type="checkbox"/>	<input type="checkbox"/>
9 Spatial and visual quality	A	21 Surroundings: industrial estate, office park	Estate agents, locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	22 Image: uninteresting surroundings, lack of trees, plants and cohesion	Estate agents, locally	<input type="checkbox"/>	<input type="checkbox"/>
	A	23 Appearance of the site: simple, tiles, grass, gravel, etc.	Estate agents, locally	<input type="checkbox"/>	<input type="checkbox"/>



*Gradual criteria on location level*

In Figure 4 there is an overview of the gradual criteria on location level. This covers nine assessment aspects, which include a total of 23 criteria. The 'details' column shows where the necessary information can be found to make an assessment.

When the verdict on one of the assessment criteria is 'yes', this has a negative influence on the possibility of reusing the premises as office space, and is an indicator of the lower end of the office premises market (Vacancy Risk). The total number of 'yes' verdicts ultimately determines the score for the lower end of the market (Vacancy Risk Score).

FIGURE 5  
Gradual assessment criteria at building level

GRADUAL CRITERIA BUILDING			Verdict Yes No	
ASPECT		CRITERION		DETAILS
10 Year of Construction	C	1 Built between 1960 and 1980	Literature, estate agents	
11 Spatial and visual quality	A	2 Antiquated (dated) appearance	Photographs, info locally	
	A	3 No unique identity compared to other buildings or users	Photographs, info locally	
	A	4 Simple finishing of exterior (concrete, panels)	Photographs, info locally	
	A	5 Poorly visible or barely recognisable entrance	Photographs, info locally	
	A	6 Simple finishing of entrance	Photographs, info locally	
	12 Image, identity	A	7 Evidence of vandalism to building	Photographs, info locally
A		8 Graffiti on outer walls	Photographs, info locally	
A		9 Dilapidated building	Photographs, info locally	
A		10 Building is unrepresentative	Photographs, info locally	
A		11 Building was specially for (semi) government	Estate agents	
13 Technical quality of exterior		A	12 Poor quality of closed outer walls	Photographs, info locally
	A	13 Poor quality of open outer walls	Photographs, info locally	
	A	14 Poor quality of roofs (coverings)	Photographs, info locally	
14 Technical quality of supporting structure and infill elements	A	15 Poor condition of supporting structures (columns, walls, floors)	Estate agents, photos, locally	
	A	16 Poor condition of infill elements (inner walls, doors, cells)	Estate agents, photos, locally	
15 Technical quality of installations (ageing)	A	17 Heating system <sup>3</sup> 10 years old	Estate agents, owner, plans	
	A	18 Air conditioning <sup>3</sup> 10 years old (or absent)	Estate agents, owner, plans	
	A	19 Ait treatment <sup>3</sup> 10 years old (or absent)	Estate agents, owner, plans	
	A	20 Plumbing <sup>3</sup> 12 years old	Estate agents, owner, plans	
	A	21 Lighting <sup>3</sup> 10 years old	Estate agents, owner, plans	
	A	22 Communication infrastructure <sup>3</sup> 5 years old (or absent)	Estate agents, owner, plans	
	A	23 Security installation <sup>3</sup> 7 years old (or absent)	Estate agents, owner, plans	
	A	24 Building management system <sup>3</sup> 5 years old (or absent)	Estate agents, owner, plans	
	A	25 Infrastructure <sup>3</sup> 10 years old	Estate agents, owner, plans	
	16 Environmental quality	A	26 Poor energy efficiency (single glazing, insufficient insulation)	Estate agents, owner, plans
A		27 Poor noise insulation	Estate agents, owner, plans	
A		28 Environm.-unfriendly/hazardous material use (trop.hardwood, asbes)	Estate agents, owner, plans	
17 Functional quality	A	29 Poor vertical arrangeability (height <sup>2</sup> 2.60 or <sup>3</sup> 3.70 m)	Estate agents, owner, plans	
	A	30 Poor horizontal arrangeability position of walls <sup>3</sup> 3.60 m)	Estate agents, owner, plans	
	A	31 Unit size for expansion/downsizing <sup>3</sup> 900 m2	Estate agents, owner, plans	
	A	32 Possibilities for rearranging minimal (no flexibility infill elements)	Estate agents, owner, plans	
	A	33 Number of lifts <sup>2</sup> 1 per 1350 m2 GFA	Estate agents, owner, plans	
	A	34 Corridor width <sup>2</sup> 1.70 m	Estate agents, owner, plans	
	A	35 No independent access for disabled persons	Estate agents, owner, plans	
	A	36 Useful floor loading <sup>2</sup> 3.5 kN/m2	Estate agents, owner, plans	
	A	37 No flexible facilities for electricity and communication	Estate agents, owner, plans	

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*The gradual criteria at building level*

In the table above (see Figure 5) an overview is given of the gradual criteria at building level. There are nine assessment aspects that include a total of 37 criteria. Here too, the total number of 'yes' verdicts contributed to the classification of premises as belonging to lower end of the market.

**6.3 Step 3: Determining the Vacancy Risk Class of office premises**

After the gradual assessment, a final verdict can be given on the so-called Vacancy Risk Class of the office premises in question. This is carried out by assigning a value from 1 to 5, which indicates the degree to which such a building will be difficult to let as office premises when market conditions change, and therefore the likelihood that it will end up in the lower end of the market. 1 = high potential for reuse as office premises, and therefore belongs in the higher end of the market. 5 = negligible potential for reuse as office premises; belongs in the lower end.

*Determining the Vacancy Risk Score*

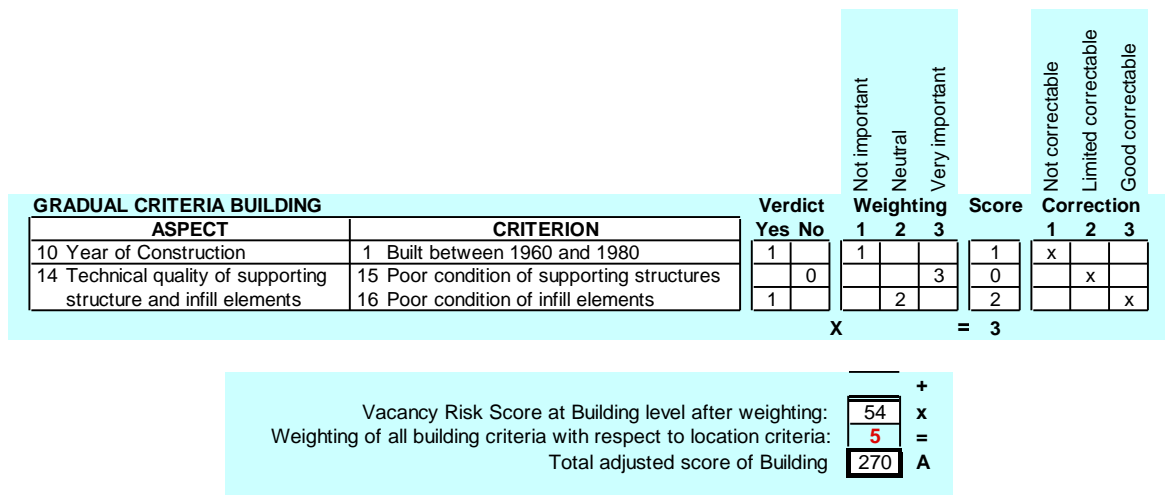
The Vacancy Risk Class (see Figure 6) is determined in two steps: firstly by arriving at the total score, and then by finding the appropriate class for the score in the relevant table. The score is determined by multiplying the number of 'yes' verdicts by the weighting factor of the relevant assessment criteria (1, 2 or 3). This gives the Vacancy Risk Score, both at location and building level. The maximum Vacancy Risk Score at location level = (23 x 'yes') x (maximum weighting of 3) = 69. The maximum Vacancy Risk Score at building level = (37 x 'yes') x (maximum weighting of 3) = 111.

*Comparing the two levels*

In addition to the previously mentioned comparison of the various gradual criteria with each other, an extra comparison can be carried out on a higher level, namely a comparison between combined location and building aspects. The Vacancy Risk Meter has a default comparison (weighting) setting for this: location = 5 and building = 3. This means that the maximum location score (with respect to the building level) is  $69 \times 5 = 345$ , and the maximum building score (with respect to the location level) is  $111 \times 3 = 333$ . The maximum theoretical total adjusted score is therefore  $345 + 333 = 678$ .

FIGURE 6

Example of how to determine Vacancy Risk Score at Building level; Above: verdict x weighting of two assessment aspects gives a score of 3; possibility of different correct levels; Down: the Vacancy Risk Score at Building level (270) after weighting of all building criteria with respect to location criteria giving a total adjusted score of building.



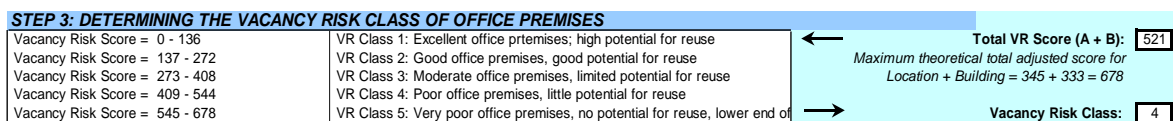
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*Table with various Vacancy Risk Classes*

The previously mentioned maximum theoretical adjusted scores for the Location (345) and building (333), making 678 in total, and the theoretical minimum score of 0, determine the total bandwidth of the 5 Vacancy Risk Classes.

FIGURE 7

Determining the Vacancy Risk Class in step 3 using the Vacancy Risk Score table.



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By looking up the Vacancy Risk Score in the table, the Vacancy Risk Class of the office premises in question can be determined (see Figure 7). It should be noted that the various Vacancy Risk Classes and the associated scores alter when the comparisons between the various assessment aspects change, when the comparison between the location and building aspects changes, or when a number of the assessment aspects are dropped because they are deemed irrelevant or unimportant.

*Subsequent steps*

After determining the Vacancy Risk Class using the Vacancy Risk Meter, a number of subsequent steps can be carried out:

- When the vacancy risk is quite low, a more detailed check on the possibility of reuse as office premises is appropriate, for instance using the Real Estate Norm (REN)
- When the building in question is in a high Vacancy Risk Class (and therefore belongs in the lower end of the office premises market), a further check on the possibility of transforming the office building in question into housing is appropriate, for instance with the help of the Transformation Meter (Geraedts and Van der Voordt, 2002).

## 7. REFLECTION AND CONCLUSIONS

The Vacancy Risk Meter (VRM) can indicate at an early stage at location or building level which office premises are most likely to be vacated when market conditions change. This may support our understanding of the potential and the risks of maintaining the premises as office space. The VRM gives an insight into which locations and buildings in a particular urban district are most at danger if the current tenants relocate to more high-quality premises. The VRM therefore allows the lower end of the office premises market to be determined for a particular urban area. The VRM can be used for both the supply and demand side of the market: individual and organizations of building users, building owners (pension funds, investors, insurance companies) and professional advisers such as real estate and facility managers, project developers and architects. By determining the so-called Vacancy Risk Class for many different buildings, it then becomes possible to create a clearer picture of the quality of each building in relation to the others. At supply level a complete overview can be generated per urban area or district of the potential of ending up in the lower end of the market.

## REFERENCES

- Dynamis Research. 1998. Sprekende Cijfers Kantorenmarkten, Amersfoort.
- Geraedts R.P., Van der Voordt D.J.M.. 1998. FGH Transformatieonderzoek, Delft: TUD BMVB.
- Geraedts R.P., Van der Voordt D.J.M.. 1999. Good buildings drive out bad buildings, Markt-, locatie- en gebouwkenmerken van de onderkant van de Rotterdamse kantorenmarkt, Delft: TUD BMVB.
- Geraedts R.P., Van der Voordt D.J.M.. 2003. Transformation of Office Buildings; an instrument for measuring the potential for transforming office buildings into homes.
- Jones Lang Wootton. 1997-1998. De Nederlandse Vastgoedmarkt, Rotterdam City Reports .
- Neprom; 1995-1998. Structureel aanbod van kantoorruimten, Rotterdam: Neprom
- OBR Ontwikkelingsbedrijf Rotterdam. 1998. De Rotterdamse kantorenmarkt, Rotterdam, OBR
- Stadswonen. 1998. Jaarverslag 1997, Rotterdam: Stadswonen
- Stevens, R. et al. 1994. Quick Scan Real Estate Norm, Den Haag, MVRM

## VACANCY RISK METER - VRM

### STEP 1: VETO ASSESSMENT OF AVAILABLE OFFICE PREMISES

RG/07-07-2003

If the event that the verdict is 'yes' and the adjustability = 1 (nil) then the building in question will not be considered for reuse as office premises, and consequently belongs in the lower end of the market. Further gradual or detailed assessment is therefore not required. If none of the criteria defined by the VRM are judged to be a veto by a user, the process then moves on to the gradual criteria in step 2 and vice versa.

GFA = Gross Floor Area

A = general criteria, also applicable in Rotterdam

B = general criteria, not applicable in Rotterdam

C = specific criteria for Rotterdam

#### VETO CRITERIA LOCATION

ASPECT	CRITERION	DETAILS	Verdict	
			Yes	No
1 Local Authority policy	A	1 The building is located in a priority area earmarked for housing		
2 Parking	C	1 Cap. of own park. facilities/direct vicinity = 1 place/200 m2 GFA		

VETOCRITERIA GEBOUW			Verdict	
			Yes	No
3 Rental price (concentration low rental buildings)	A	1 Rental price <sup>2</sup> 90,- euro/m2 GFA		

### STEP 2: GRADUAL ASSESSMENT OF AVAILABLE OFFICE PREMISES

Verdict = 'Yes' (= 1) is bad for reuse as office building and is an indicator of the lower end of the office premises market.

Verdict = 'No' (= 0) is good for reuse as office building

The total number of 'yes' ultimately determines the score for the lower end of the market (vacancy Risk Score)

Weighting the different criteria are compared to each other by a weighting factor: 1, 2 of 3.

Correction: to determine the possibility of correcting or improving certain assessment aspects

If one of these criteria by users is considered to be a veto, then this becomes a veto criterion in Step 1 and vice versa

#### GRADUAL CRITERIA LOCATION

ASPECT	CRITERION	DETAILS	Verdict		Weighting			Score			Correction				
			Yes	No	1	2	3	1	2	3	1	2	3		
1 Geographical location	B	1 City <sup>2</sup> 50.000 inhabitants													
2 Location in a specific urban district	C	2 Rotterdam North, South, West, periphery of Centre Vlaardingen, Wijnhavenkwartier, Spaanse Polder Marconiplein, Hofplein, Pendrecht													
3 Concentration of low-rent premises	A	3 Numerous premises in the vicinity for rent at <sup>2</sup> 90,-/m2 GFA													
4 Spatial and functional quality	C	4 Locations without integrated design (monfunctional)													
5 Accessibility by car or public transport	A	5 Car: distance to motorway <sup>2</sup> 5 km.													
	A	6 Intercity train station: distance <sup>2</sup> 2 km.													
	A	7 Suburban train station: distance <sup>2</sup> 1 km.													
	A	8 Bus/Tram/Metro stop: distance <sup>2</sup> 1 km.													
6 Accessibility of facilities	A	9 Restaurants for business lunches and dinners: distance <sup>2</sup> 500 m.													
	A	10 Bank or Post offices: distance <sup>2</sup> 500 m.													
	A	11 Recreational facilities: distance <sup>2</sup> 500 m.													
	A	12 Shops for daily requirements: distance <sup>2</sup> 500 m.													
7 Public order	A	13 Evidence of vandalism in the immediate vicinity													
	A	14 Graffiti on outer walls													
	A	15 Litter in immediate vicinity													
	A	16 Undesirables present in immediate vicinity													
8 Discomfort due to surroundings	A	17 Shadow from adjacent buildings during <sup>2</sup> 50% of office hours													
	A	18 Noxious smells <sup>2</sup> 100 days/year													
	A	19 Excessive wind <sup>2</sup> 50 days/year													
	A	20 Noise pollution <sup>2</sup> 2 hrs. During office hours													
9 Spatial and visual quality	A	21 Surroundings: industrial estate, office park													
	A	22 Image: uninteresting surroundings, lack of trees, plants and cohesion													
	A	23 Appearance of the site: simple, tiles, grass, gravel, etc.													

Maximum score for the Location = 23 times 'Yes' x max. weighting 3 = 69

Maximum realizable Location Score (compared to Building) = 69 x 5 = 345

Vacancy Risk Score at Building level after weighting:

Weighting of all building criteria with respect to location criteria:

Total adjusted score of Building:

#### GRADUAL CRITERIA BUILDING

ASPECT	CRITERION	DETAILS	Verdict		Weighting			Score			Correction				
			Yes	No	1	2	3	1	2	3	1	2	3		
10 Year of Construction	C	1 Built between 1960 and 1980													
11 Spatial and visual quality	A	2 Antiquated (dated) appearance													
	A	3 No unique identity compared to other buildings or users													
	A	4 Simple finishing of exterior (concrete, panels)													
	A	5 Poorly visible or barely recognisable entrance													
	A	6 Simple finishing of entrance													
12 Image, identity	A	7 Evidence of vandalism to building													
	A	8 Graffiti on outer walls													
	A	9 Dilapidated building													
	A	10 Building is unrepresentative													
	A	11 Building was specially for (semi) government													
13 Technical quality of exterior	A	12 Poor quality of closed outer walls													
	A	13 Poor quality of open outer walls													
	A	14 Poor quality of roofs (coverings)													
14 Technical quality of supporting structure and infill elements	A	15 Poor condition of supporting structures (columns, walls, floors)													
	A	16 Poor condition of infill elements (inner walls, doors, cells)													
15 Technical quality of installations (ageing)	A	17 Heating system <sup>2</sup> 10 years old													
	A	18 Air conditioning <sup>2</sup> 10 years old (or absent)													
	A	19 Ait treatment <sup>2</sup> 10 years old (or absent)													
	A	20 Plumbing <sup>2</sup> 12 years old													
	A	21 Lighting <sup>2</sup> 10 years old													
	A	22 Communication infrastructure <sup>2</sup> 5 years old (or absent)													
	A	23 Security installation <sup>2</sup> 7 years old (or absent)													
	A	24 Building management system <sup>2</sup> 5 years old (or absent)													
	A	25 Infrastructure <sup>2</sup> 10 years old													
16 Environmental quality	A	26 Poor energy efficiency (single glazing, insufficient insulation)													
	A	27 Poor noise insulation													
	A	28 Environm.-unfriendly/hazardous material use (trop. hardwood, asbestos)													
17 Functional quality	A	29 Poor vertical arrangeability (height <sup>2</sup> 2.60 or <sup>3</sup> 3.70 m)													
	A	30 Poor horizontal arrangeability position of walls <sup>2</sup> 3.60 m)													
	A	31 Unit size for expansion/downsizing <sup>2</sup> 900 m2													
	A	32 Possibilities for rearranging minimal (no flexibility infill elements)													
	A	33 Number of lifts <sup>2</sup> 1 per 1350 m2 GFA													
	A	34 Corridor width <sup>2</sup> 1.70 m													
	A	35 No independent access for disabled persons													
	A	36 Usefull floor loading <sup>2</sup> 3,5 kN/m2													
	A	37 No flexible facilities for electricity and communication													

Maximum score for the Building = 37 times 'yes' x max. weighting 3 = 111

Maximum realizable score for the Building (compared to Location) = 111 x 3 = 333

Vacancy Risk Score at Location level after weighting:

Weighting of all location criteria with respect to building criteria:

Total adjusted score of Location:

### STEP 3: DETERMINING THE VACANCY RISK CLASS OF OFFICE PREMISES

Vacancy Risk Score = 0 - 136	VR Class 1: Excellent office premises; high potential for reuse	←
Vacancy Risk Score = 137 - 272	VR Class 2: Good office premises, good potential for reuse	
Vacancy Risk Score = 273 - 408	VR Class 3: Moderate office premises, limited potential for reuse	
Vacancy Risk Score = 409 - 544	VR Class 4: Poor office premises, little potential for reuse	
Vacancy Risk Score = 545 - 678	VR Class 5: Very poor office premises, no potential for reuse, lower end of	→

Total VR Score (A + B):   
Maximum theoretical total adjusted score for Location + Building = 345 + 333 = 678

Vacancy Risk Class: