World SB08 Melbourne

Solaris Retail Complex, Opole

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Building Type	- Retail Complex
Originally built	- 1969
Project Type	- Extension
Country	- Poland
City	- Opole
Client	- COUCAL sp.z oo.
Developer	- IDG
Architect	- J.S.K. Architekci
Phase	- Project
IDP	- *EAA INTEND

Location

Building is located in the very center of the Opole city. The project incorporates existing cinema building. Opole is an important regional administrative centre with population of 128 000 within city borders and 267 000 in the agglomeration. The building is excellently serviced by public communication, road network and municipal technical infrastructure.

The building

Designed building contents commercial, service, office, garage and restaurant occupancies. The building has 1 floor below grade and 6 floors above grade. The building has an L-shaped footprint, with two parts of the building adjoining the existing two-storey (one underground) building, where cinema is located. Both parts of the building have similar height, however the number of floors is different, since in one part the retail area is located, while the other contains garages. There are four retail floors and four garage floors (4 garage floors corresponding with 2 retail floors). The top garage floor is uncovered. The parts of the building are 87m and 100m long; 40m and 35m wide respectively. The building interior is functional, offering a high range of adaptability.

- Foundation: slab deck and raft slab.
- External walls: 20cm, 24cm reinforced concrete / masonry
- Floors: BUBLEDECK system
- Columns: cast reinforced concrete

Thermal properties of building envelope

Envelope	U-value
Walls	0.45
Flat roof	0.30
Floor above the basement	0.30
Windows	1.80

Heating

The building uses local district heating network as a heat source (2600kW), therefore no emissions are generated at the site. The building is equipped with standard hydronic pump heating system. The hydronic system is supported with air-heating (ventilation system) and fan coils.

Cooling

Four chillers (850kW each) with wet cooling towers deliver cold for cooling purposes. The cooling energy is delivered to central ventilation system and partly to fan coils cooling user spaces.

Ventilation

Mechanical ventilation system with heat recovery from exhaust air will operate in the building. The separate ventilation units/systems will serve different occupancies: communication areas, food court, retail area, toilets, machinery.

Lighting and electrical appliances

The building was designed to maximize views and daylight. Energy efficient lighting systems and electrical appliances will be installed. The building is powered with two independent power supply systems offering uninterruptable power supply during blackouts.

*INTEND programme

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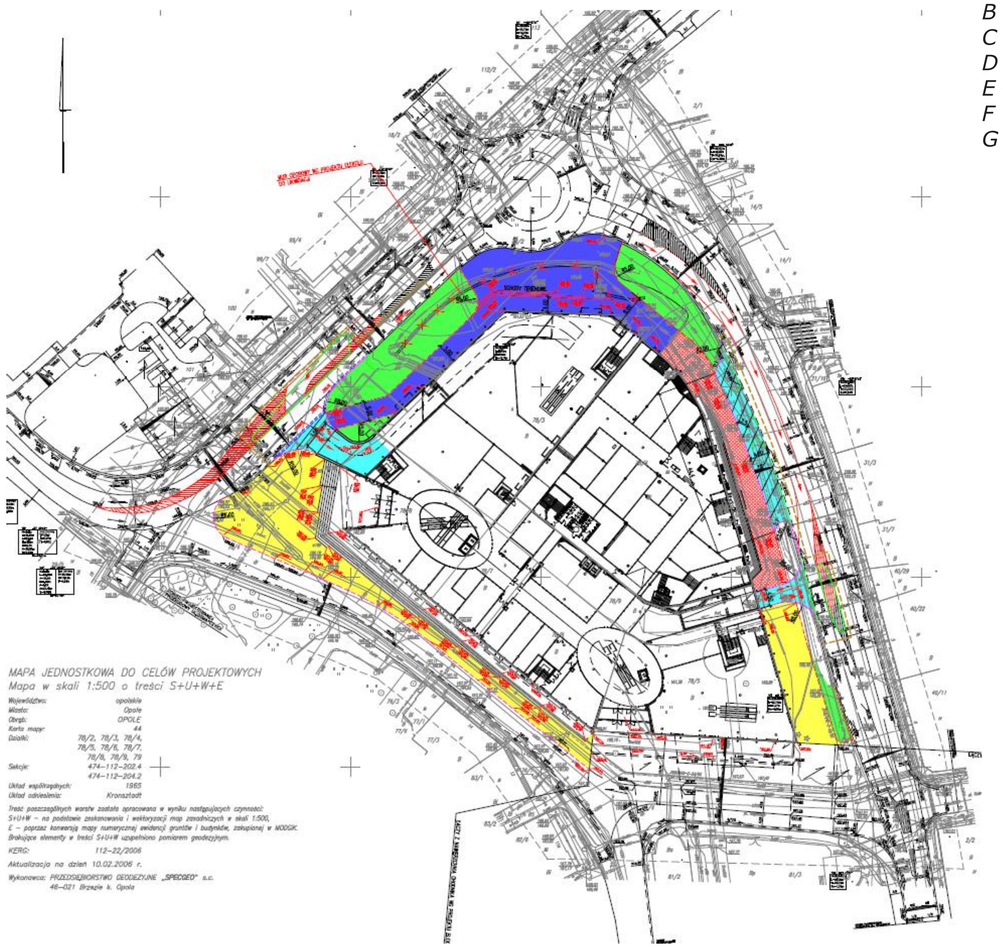
Project data

site area:	8.722 sq.m
building footprint:	8.441 sq.m
gross area above ground:	31.173 sq.m
gross area:	40.877 sq.m
net area:	15.296 sq.m
modernized outdoor area:	2.128 sq.m
Floor area ratio:	3.6
Percent of site built on at grade	96.8%
building height:	6 stories
floors below grade:	1 level

climate zone: moderate, transitional marine-continental,
temperatures: winter: -20°C summer 22-24°C
Urban ASHRAE degree days heating/cooling: 3706/438 K*day
Design ventilation rates: 1-12 ACR per hour
Building population: 6000



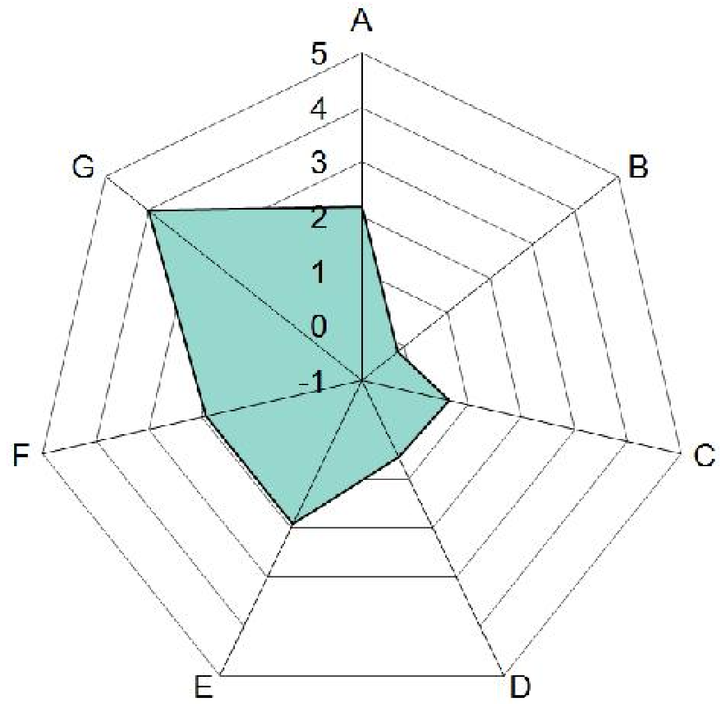
Assessment data

Distance from public transport stop: less than 100m
Predicted travel mileage of personal cars as allowed: 35 000 km/year
Predicted travel mileage of personal cars: 860 000 km/year
Development density as a ratio of surrounding area: 2
Predicted net operating energy consumption: 998 kWh/sq.m*year
GHG emissions: No Data
Embodied energy of materials aggregated: 22GJ/sq.m
New materials mass: 960 kg/sq.m
Number of private vehicle parking places: 403

SBTool Assessment Score polar graph representation

A - Site selection, Project Planning and Development
B - Energy and Resource Consumption
C - Environmental Loadings
D - Indoor Environmental Quality
E - Service Quality
F - Social and Economic Aspects
G - Cultural and Perceptual Aspects

Where:
0 = Acceptable Practice
3 = Good Practice
5 = Best Practice



Absolute Performance Results

	These data are based on the Self-Assessment values	By area	By area & occupancy	
1	Total net consumption of primary embodied energy for structure and envelope, GJ/m2	22	0	GJ/m²*maph
2	Net annualized consumption of embodied energy for envelope and structure, MJ/m2*yr.	220	4	MJ/m²*maph
3	Net annual consumption of delivered energy for building operations. MJ/m2*year	3592	71	MJ/m²*maph
4	Net annual consumption of primary non-renewable energy for building operations, MJ/m2*yr.	0	0	MJ/m²*maph
5	Net annual consumption of primary non-renewable energy per dwelling unit in project, MJ/m2*yr.	N.A.	N.A.	MJ/m²*maph
6	Net annual consumption of primary non-renewable energy per dwelling unit in residential element, MJ/m2*yr.	N.A.	N.A.	MJ/m²*maph
7	Net annualized primary embodied energy and annual operating primary energy, MJ/m2*yr.	220	4	MJ/m²*maph
8	Total on-site renewable energy used for operations, MJ/m2*yr.	0	0	MJ/m²*maph
9	Net annual consumption of potable water for building operations, m3 / m2 * year	1.6	0.0	m³/m²*maph
10	Annual use of grey water and rainwater for building operations, m3 / m2 * year	0	0	m³/m²*maph
11	Net annual GHG emissions from building operations. kg. CO2 equivalent per year	0	0	kg/m²*maph
12	Total present value of 25-year life-cycle cost fot total project, EUR per m2.		2,185	
13	Proportion of gross area of existing structure(s) re-used in the new project, percent		64%	
14	Proportion of gross area of project provided by re-use of existing structure(s), percent		0%	

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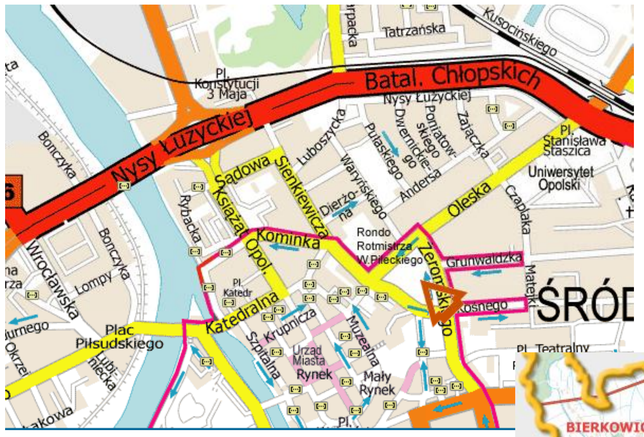
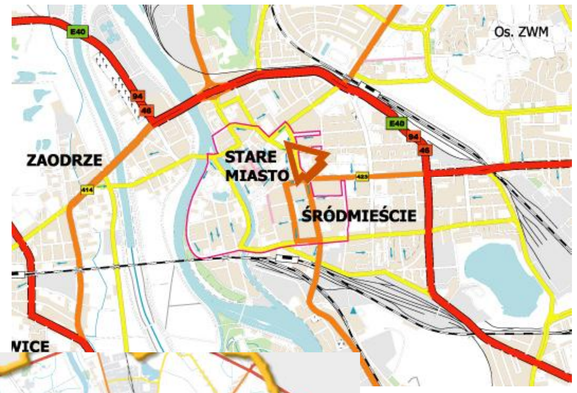
Urban and Regional Context

Location is central to the city of Opole, while the city itself is an administrative centre of Voivodship (Land Government). The city of Opole functionally links European macroregion of Prague - Wrocław - Berlin with post-industrial Katowice metropolis.





Location

Solaris Retail complex is located quite optimally to make best of the city culture. Function is adequate to site selection, helping the city to concentrate it's life in central area rather than letting it into peripheries. It is within walking distance to historical old town and excellently linked with both road and public transport.

Architecture

It is out of Assessment Team competence to evaluate architectural expression, it is however worth noticing, that both building height , facade materials and scale of architectural detail match the character of the city.

Integrated Design

The project developer approved Integrated Design Process procedure on late stage of design. IDP hadn't influence design concept, but as in BAU mode many design decisions are postponed until building contract is dealt, it's still a considerable room for IDP to take place.

3rd floor plan - indoor parking

Key to occupancies:

- *Retail*
- *Retail - special requirements*
- *Storage*
- *Restaurants*
- *Restaurants*
- *Fitness*
- *Cinema (1st floor)*
- *Private vehicle parking (3rd floor)*

Underground floor plan - Retail Area

Ground floor plan - Retail Area

1st floor plan - Cinema, Retail Area

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Assessment Highlights

Function

The Solaris Retail complex is located quite optimally to make best of the city culture. Function is adequate to site selection:
It is recognized that functions of retail complex, all-day recreation and modern urban lifestyle are located in the centre of the city.

Intensity

Intensity of development is seen as correct by assessment team, even with necessary adverse effects on biodiversity and greening.

Some disagreement is provoked by excessive size of private vehicle parking, which allows considerable number of cars into the city centre, thus giving an investor unjust competitive advantage in public road network use. Elimination of bicycle friendly space is found especially adverse to sustainability. There is an excellent connection of the site to the city road network to exacerbate adverse private vehicle traffic effects on possible smooth connection to city historical centre with pedestrian-privileged public space.

Mix of use 24h a day.

It is strongly appreciated that Solaris complex offers both retail and recreation to make it's location vivid with restaurants and cinema to prolong activity into late hours of the day. The negative point however is that there is no space for numerous low-income people to involve into social relationships as they used to, but defensible space of segregation. It is appreciated that the fitness club is provided by design, but the issue of excluding children, elderly and unemployed from exercising their lifestyles on site needs a comment.

Social aspects

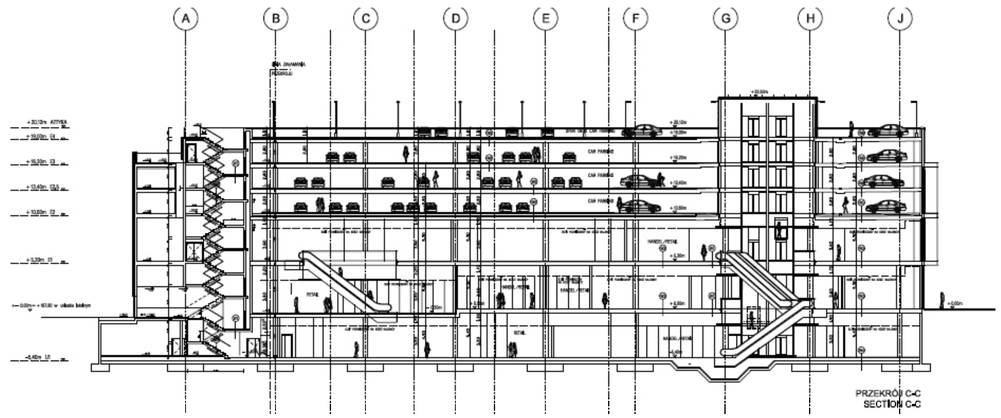
It is proven commercially that people do need a sense of security, luxury and popular entertainment retail centres do offer. The Assessment Team has no insight into the policy of Opole Municipality, and the project itself does not reveal any relation to local culture except excellently selected location. The delicate matter is that most of citizens are not rooted in the city by family tradition. Social aspect of helping citizens to identify themselves with their environment to create the sense of belonging seems not to be present. Both psychology and the rules of good design stress the importance of the feeling of belonging to actual environment. That applies especially to people deprived of the luxury of being global citizens. It seems that Solaris Complex has nothing to offer to those people, thus creating rather dangerous discrepancy in pre-existing social order.

Operation and commissioning

The design itself has been flexible enough to pass much of civil authority to the project developer. However no performance targets were set prior to Integrated Design Process accreditation, the project developer managed to issue official tenants' manual to address the issue of proper use of the building, making a strong link between building design and it's end-use. The operating manual for tenants include both behavioral etiquette, advertising rules to conform with building appearance and detailed operation manual for technical systems operation.

Assessment Team other remarks:

The building heat, power and water consumption is at reference level. The on-site heat source is emission-free. Some emissions are generated by car traffic. The indoor air quality (humidity, temperature, air pollution) meets the requirements set by Polish law. The acoustic comfort and daylight use is convenient. The building is equipped with Building Management System. The building operation is fully monitored, commissioned and controlled which offers efficient and reliable operation.
Energy consumption data are not of proven accuracy, as most retail complexes' managers deliberately refuse to share actual performance data out of fear of not controlling their public relation tactics, therefore reference for the assessment is not as reliable as desired.



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