Case Study Two

M1 Tectonics Fall 2001
Arch 684
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Print Media Academy

Project Name: Print Media Academy
Architect: Schroder Architeckten and Studio Architekten Bechtloff
Client: Heidelburger DruckmaschinenAG
Location: Heidelburg, Germany
Type of Occupation: Office and Conference Centre
Total area of Project: 19166 m sq.

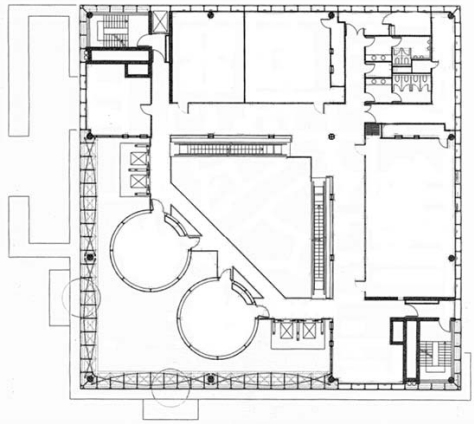
The Print Media Academy building in Heidelberg,Germany utilizes two types of glass facade systems. Both systems are managed through a central building control that monitors the buildings interior,exterior and weather conditions,as well as user variables. The first facade system type, relates to the atrium, the second to the office and lecture and laboratory spaces.

The atrium offers a large common space, extending to the roof, connecting the building with elevators and escalators, that extends up to the roof. Contained with in the atrium is two large cylinders that contain conference spaces. The office and lecture rooms are accessed from the atrium space at each floor by a catwalk. These rooms have floor to ceiling glazing at both the exterior facade as well as at the atrium side, and are divided by wall partitions from each other.

The method in which this project is developed generally treats each facade equally, with the exception of the atrium. This design consideration gives the building a monolithic presence.

Cover image from Area issue 57 pg 82

Atrium Facade
www.journalist.heidelberg.com
image (academy-611



Typical Floor Plan

0 5 10 15 M

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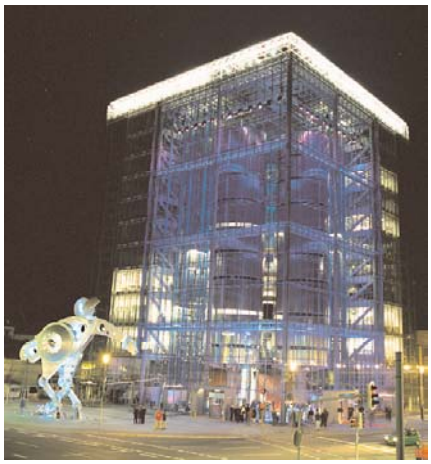
The general orientation of the building at first glance seems not relevant. On further study the atrium becomes more critical, not only in terms of presence and circulation, but also in terms of the environmental practice and building system management.

The atrium is located at the south and western corner. This serves two functions, the first is symbolic since it creates an appropriate entry presence to the street and its relation to the broader context of the city. The second serves to aid in the building environmental systems maintenance.

Locating the atrium to the south west corner of the building is beneficial, since this allows the atrium to be be enclosed by a single skin system of glazing. By placing the atrium away from the eastern facade, it delays solar heat gain that would come with the morning sun. At noon the sun would be sufficiently high enough that solar heat gain would be minimal, since the majority of solar heat is reflected by the glazing. The afternoon and evening solar effect would be brief and minimal, also building occupation would generally decrease as the day passed. Any solar heat gain is controlled utilizing a series of glazed strips that is operable by computer to manage the atrium environment. The glazed upswing units allow for variable exterior and interior air exchange, that result in climate control and fresh air change.



Atrium at night
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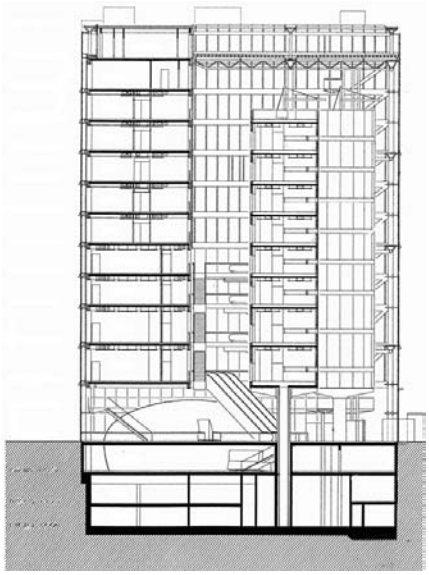
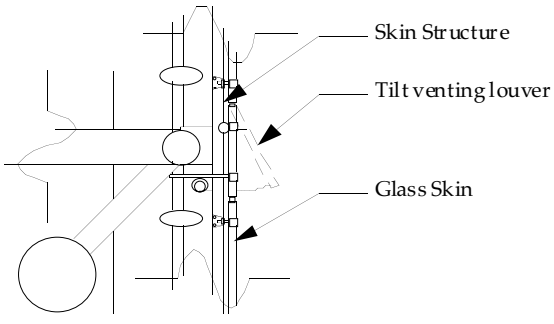


Building Section
from Area issue 57 pg 80



Sketch detail of Atrium Skin
not to scale

The office component of the building facade utilizes a more complex system of cross ventilated double skin glazed unit. The box unit comprised of a single glass pane at the exterior side and a seal double glass pane on the inner side. Between the two panes is a 46 cm air space with a metallic adjustable blind. This design with a few other components offers the user several options, that is complimented with a central building control that manages the general building environment.

The central building control deals almost exclusively with the maintaince of temperature control. The solar heat gain is managed in two methods.

The first system is the cross ventilation control, that moderates the buffer space between the outer and inner glazing. This is done by opening sets of upswing glass louvers to allow outside air flow to pass through and push the heated air in the cavity out, thus cooling the building envelope.

The second system is the mechanical aluminum blind system that controls solar heat gain. These blinds roll down on the inside of the cavity and angle according to the suns angle. The aluminum reflects the solar heat into the box unit heating the buffer space. The louver venting system then manages the cavity to minimize building heatloss and gain.

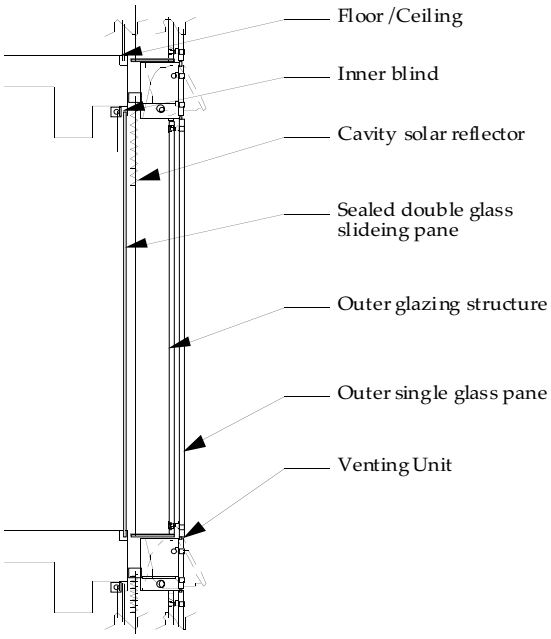
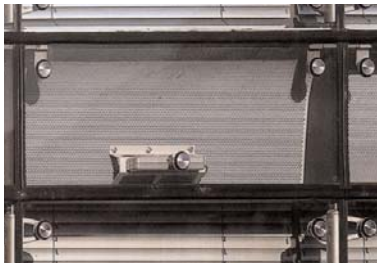
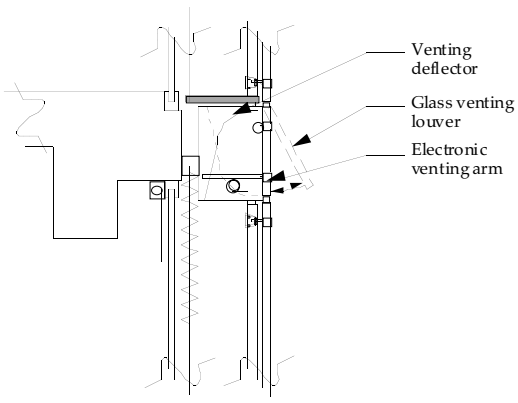


Diagram of Office Skin
not to scale



Glass venting louver
from Area issue 57 pg 83

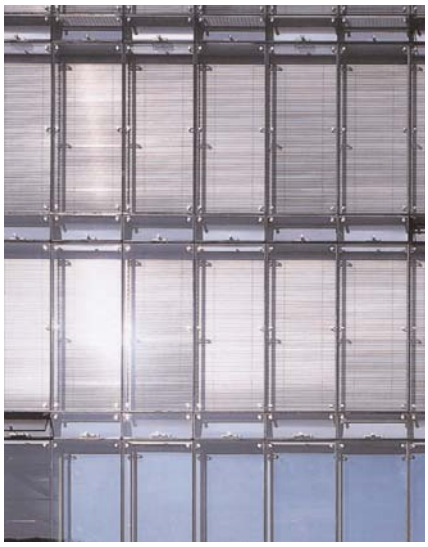


Sketch detail of Venting louver
not to scale

Localized user control of a the box unit, manage only qualities of natural ventilation and lighting.

Fresh air can be gained by operating the inner window slider. The slider allows air from the office and cavity to exchange. The buildings central system then controls the rate of air flow into the cavity space, this is done by adjusting the exterior glass louver to harmonize building pressure and temperature. It also prevents destabilization of the building environment from sever weather conditions. The slider also provides for maintanence access to the inner portion of the skin.

Natural lighting is managed by the occupant, through the use of a roll down screen. This screen is located on the occupant side of the inner window. The blinds are not maintained by the central system.

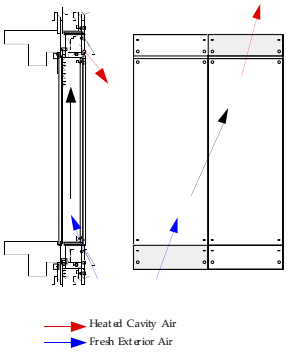


Reflective Metalic blinds
from Area issue 57 pg 76

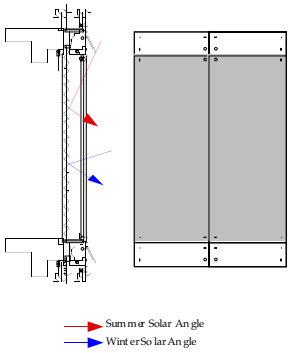
Skin Configurations
from Area issue 57 pg 70

Site Information:
Latitude: 49º27'N Longditude: 11º05'E
Solar Movement

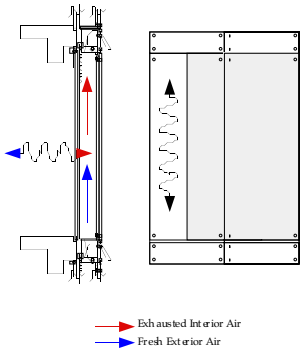
	Spring	Summer	Fall	Winter
Altitude	40.5º	63.8º	41.1º	17.1º
Azumeth	08.1º	08.9º	02.7º	03.2º



Venting Diagram



Solar Relection Diagram



Air Exchange Diagram

The building utilizes a complex system of environmental control. The majority of this control requires complex programming and mechanical devices.

The intentions to create a transparent building with well lit spaces, is offset by the complexity in which it is achieved. This complexity becomes more evident once inside the building space, where the space becomes a matrix of bolts,tubes,devices, and plates.

The designer is obsessed with the mechanics of the buildings environmental control. This obsession avoids more complex architectural dialogue between space, mass, volume and texture. The buildings transparency does not allow the eye to find an internal reference to focus on. This is perhaps further accentuated by the polished steel finish that reflects both light and image.

Atrium Interior
from Area issue 57 pg 73

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