# B. Architecture

# Structure and Architecture (AR6006)

# History of Structural Design in the post Industrial Period

# Lecture - 14

## Inmos Microprocessor Factory - I

The Inmos factory is manufactured of microprocessors, is a building in Newport, Wales, UK which was originally built as a microprocessor fabrication plant for Inmos and is now occupied by international Rectifier.

The architects of the award-winning high-tech building were the Richard Rogers Partnership. Construction began in 1980 and was completed by 1982. This is the image of the building, first look at the building Inmos Microprocessor factory. Here you can see the building with cables on the double side and the building has panels which is fully covered by white on one side and the other side have the panels of black and white.

Inmos Ltd commissioned the Richard Rogers Partnership, now known as Rogers Stirk Harbour & Partners, to design its UK microprocessor manufacturing facility at Newport. The design criteria was for a fast construction, so that it was ready for operation within one year of starting. Here we must understand one thing about architecture factory and industries.

The Architect must understand the business part of the factory and how it works and also the production should be started immediately. So sooner you produce the products the lesser will be the price because the raw materials are costly as day to day progresses. And the other thing is the sooner the factory starts production the company will get the profit. So for these two reasons the factory must be started as early as possible. That means that the total design of the factory and the construction part of the

factory and the commissioning face of the factory should be made in least possible time.

To start working in these project first started to make the individual elements of the factory and then will straight away take the model to the sight assemble them and create as factory like a prefabricated design construction.

Richard Rogers until then was known for designing the centerpompidou in Paris and the Lloyd's building in London. These buildings were designed in his signature "inside-out" style. We need to understand about the inside out style here, it the style which arrived later in the post-modern period of architecture and it is also known as high-tech architecture.

Where in this style the architect put the things inside which is usually in the outside and make the exterior parts to the inside of the building. The technical requirements were that it would house controlled conditions for the production of electronic microchips, a service area for various offices and a staff canteen, all under one roof.

The technical brief demanded highly controlled clinical conditions (protected from dust and vibration) for the manufacture of microprocessors as well as conventional office space and a staff canteen. The technical services run externally above a central 'street' supported by a steel framework from which the roof is suspended. This 'street' is the heart of the scheme, linking the 'clean' (microchip production) and the 'dirty' (office and support) wings of the building.

## Inmos Microprocessor Factory – II

The Inmos factory was designed to be a model factory that could be constructed in a variety of locations. The speed of the designing process and construction time of the building were critical. The 8,900 square meters (96,000 sqft) single-storey building was designed to be fabricated off-site and assembled on the Newport site.

The building is divided into clean and "dirty" areas. The clean room being for microchip production and the dirty area for all others services in the building. The building has a central spine which is 7.2 m (24 ft) wide and 106 m (348 ft) from which all the services and production area emanates from eight bays with the potential to increase this to 20 bays. Suspended

beams span 40m from the central spine with masts along the length of the building allowing for a post-free area, and so providing a flexible interior and the possibility of large work areas.

"In the jargon of business, the plant's demands did indeed dictate the design. But the architecture eventually seized control. From the roof, the factory appears to be ruled by geometry."

The INMOS scheme began as a design for a model microchip factory, which could be built quickly (operational within a year of start on-site)in a wide variety of locations and could be expanded or otherwise adapted without disruption to production.

ReynerBanham, the architecture critic and writer, said of the Inmos factory that it was "the first really challenging building of the 1980s." Although the building was commissioned by Inmos for their use by July 1984 Thorn EMI had taken over Inmos.

Thorn EMI later sold Inmos to SGS-Thomson microelectronics NV in March 1989. A management buyout took over the factory in 1999, renaming the business, European Semiconductor Manufacturing Limited. In March 2002, the factory was sold to International Rectifier Company (GB) Limited, who are the present day owners of the site.

Above the street, an exoskeleton of masks provides support to services and to the two wings, allowing for column-free and extendable space. Off-site fabrication allows for quick assembly, with a flexible system that allows for the use of solid, opaque or transparent panels in cladding. If there be a change if suppose if the place where there is a natural light which is going to be a meeting room with the projection facility. When someone going to project something on the screen it will be decent if it's in a dark room.

This is the building look at the structural elements which has two bays are the most important thing of this buildings because if accident takes place in one bay then the another one is the back of the structure which can help to provide facilities. The space below is known as a street were we can access a area. And above this elements a couple of structures is found on the top which the cables support the roof.

"Architecture has developed from man's need to order the world in space and time, which is a precondition to its being accessible to our

understanding. It is problem solving in the environmental field where logic is transposed into form by art, combining science with art, the practical with the abstractand the measurable with the immeasurable. The science of architecture constantly progress, science which proves more efficient supplements outdated science.

Art in Architecture, however does not make linear progress; it is dependent on symbolism, and develops more randomly through philosophical and visual analysis. Art encompasses our hopes and beliefs beyond the limit of the immediate." – Richard Rogers.

So here you can see the roof and the complex structures which are designed where in the different kind of beams are attaches and created a building.

"The building design evolved as a single-storey steel structure conceived as a kit of rapidly erectable parts, with maximum off-site prefabrication to allow the building to be erected bay by bay. The basic concept of phase 1 of the building is a central linear circulation and service spine with internal street or informal promenade, generous enough in size to contain vending machines, public telephones, eating, meeting places, planted areas and waiting areas for the offices. It provides total visual security control and is intended to link up with other future phase of building on the site, so that all the facilities in all the buildings are readily available to all staff."– Barbie Campbell Cole.

This is the building which is build very beautifully with minimum incision in landscape and the Inmos building facility is a treat for using the factory.