

The Inmos Factory, is it High-Tech or Low-Tech

Introduction

The Welsh building, I have selected to critique in this essay is the Inmos Microprocessor Factory Newport designed by the Richard Rogers Partnership and erected in 1982. The building is an example of the 'high tech' style of modern architecture that utilises advanced technologies and new building materials to combine functionality with aesthetics.

This essay will consider the specifics of the Inmos Factory including its purpose, design and setting as well as the philosophy behind its design in addition to what the building is. Using the Inmos factory as an example it will then consider if 'high tech' is actually low tech and what aspects of its design are relevant to architecture today.



What is The Inmos Factory

The Inmos factory is located on a level site within the district of Tredegar Park, located on the western edge of the city of Newport. The site was once part of the flatland surrounding the Grade 1 listed Tredegar House located just over 500m to the southwest of the Inmos factory. When constructed in the early 1980's the factory sat in a flatland setting with mature woodland screening the site from the west, south and east. Since then, the construction of the Patent offices in the early 1990s and the subsequent extension of the microprocessor factory and associated car parking the parkland setting has changed to a more urban character and these buildings together with the mature woodland now effectively limited public views of the factory to the area around the Pont Ebbw roundabout and A48.

The Factory is an example of the High-Tech Modernist architecture that started in the late 1960s, "it was a concept of design, based on engineering, construction and other aspects, such as the manipulation of space. High Tech was marked by a preference for lightweight materials and sheer surfaces, a readiness to adopt new techniques from engineering and other technologies, and the celebratory display of a building's construction and services."⁵

The Factory itself was erected in 1982 but the construction began in 1980 and it took "about 14 months"⁴, "it was the result of a government-backed commission from British semiconductor company Inmos".³ The government commissioned the "Richard Rogers Partnership, now Rogers Stirk Harbour + Partners, in collaboration with the high-tech engineer Anthony Hunt."³

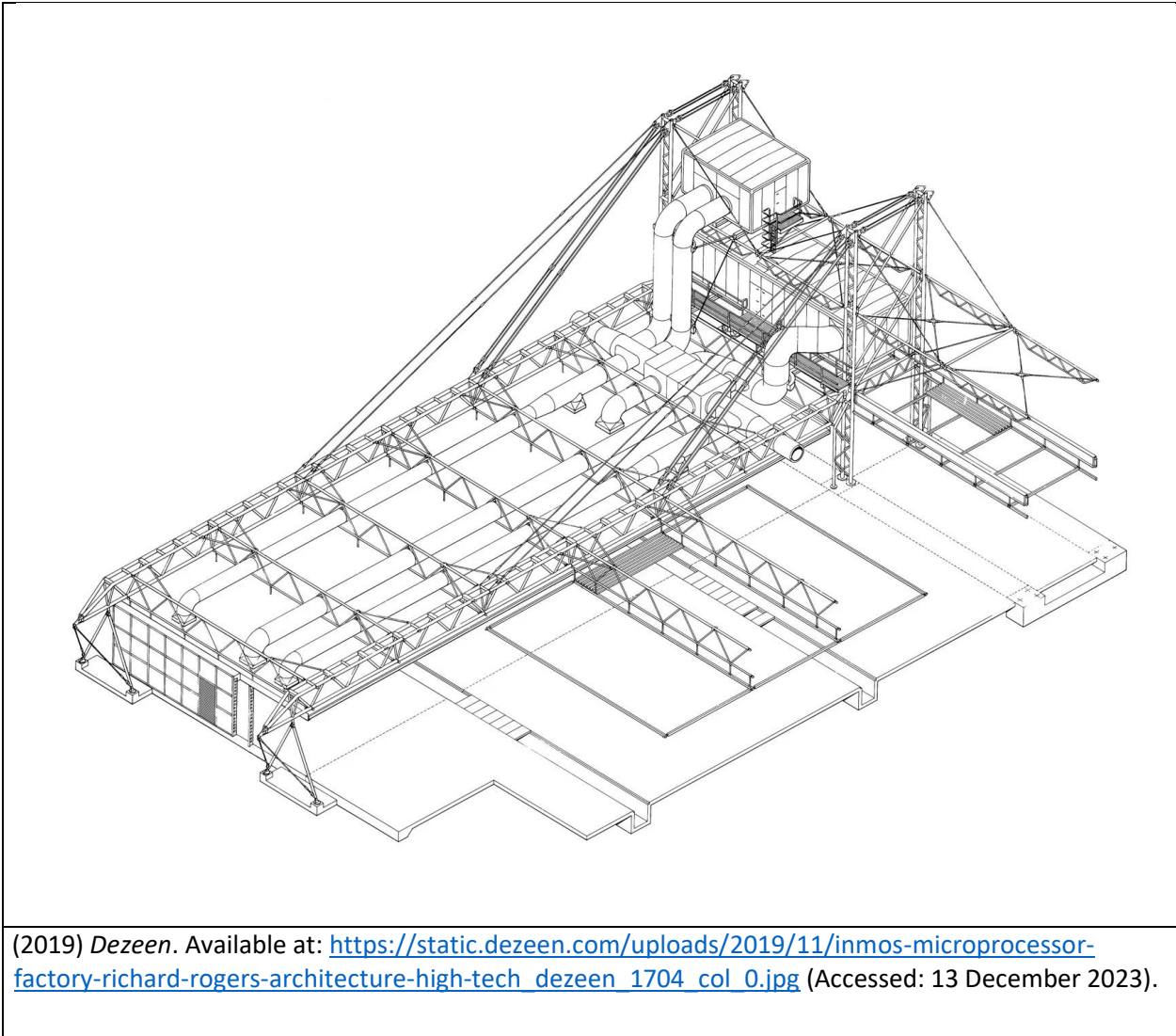
The Inmos Factory has won many awards the first of such awards was "The Structural Steel Design Award, 1982"⁸ it then won the "Eurostructpress Award, 1983".⁸ Also in the same year won the "Financial Times Architecture at Work Award Commendation, 1983"⁸ the final award won was the "Constructa-Preis for Overall Excellence in the Field of Architecture, 1986".⁸

The ownership of the Inmos Factory was changed many times over the years, originally owned and commissioned by Inmos in 1982 but by "July 1984 Thorn EMI took over Inmos"⁶ but Thorn EMI sold Inmos in March 1989 to SGS-Thomson Microelectronics NV, but "in 1999, a management buyout took over the factory and changed the company name to European Semiconductor Manufacturing Limited."⁶ But it was once again sold in March 2002 to the International Rectifier Company (GB), yet it was then acquired by "Infineon Technologies, a subsidiary of IR Newport Ltd., in January 2015".⁶ Yet it sold only 2 years later in September 2017 to "Neptune 6 Limited, a subsidiary of Newport Wafer Fab Limited."⁶ Yet again the site was sold in July 2021 to Nexperia Newport Limited, but is currently in a "judicial review application".⁶

Inmos Factory Design

The Inmos Factory is one of Richard Rogers' high-tech building designs, like other high-tech building designs by Rogers the Inmos Factory, is "identified by the outward expression of its structure and building services".³ The building itself is composed of prefabricated kits which were made off-site and to be put together on-site as this was one of the briefs for it to be flexible. The building had the requirement "to be responsive to any site and capable of being built in a range of sizes."⁸ His philosophy for the services to be on the outside was to have an open internal space only big enough for the essentials as well as increasing the cleanliness of the Factory.

The core design of the Factory is a modernist design with a technological focus and a “column-free flexible and universally serviced”⁸ building. The Factory is a “single storey steel structure”⁸ made of “16 equal-sized bays, each measuring 13 by 36 meters, which were built one by one to form a rectilinear building.”³ The building itself is comprised of three areas; on the North side, the building is classed as the “clean area”³ where the microchips are produced. However, the South side is classified as the dirty area, where the offices and restaurants are located.



(2019) *Dezeen*. Available at: https://static.dezeen.com/uploads/2019/11/inmos-microprocessor-factory-richard-rogers-architecture-high-tech_dezeen_1704_col_0.jpg (Accessed: 13 December 2023).

The resulting 8,900m⁶ rectangular single story steel structure is comprised of a tubular steel assisted span tension structure supported by tension tie rods from “nine blue steel towers”³ which are positioned in line along the central spine of the building with “40-meter-long trusses that extend either side from it”³ to hold up the whole structure. Of a long corridor (“7.2 metres in width and is 106 metres long”³) with partition walls inside the structure while the roof is “fabricated from 6m span steel decking with thermal insulation and a five-layer roof membrane”.⁸

The external walls of the building were designed to be customizable and are based on a system of standardized mullions incorporating various infills, including double glazing, insulation, and translucent or opaque panels. “One of the unique parts of the Factory is that all its services are on the outside of the

building as the design philosophy was to be open plan, modern but also flexible and universally serviced so, the resulting idea was to put all services on the outside, specifically the roof. But this takes away from the idea of the building being high-tech as “high tech is an architectural style that emerged in the UK in the late 1960s, which saw the expression of structural elements and building services usually hidden within buildings”.⁵



(2019) Dezeen. Available at: https://static.dezeen.com/uploads/2019/11/inmos-microprocessor-factory-richard-rogers-architecture-high-tech_dezeen_1704_col_0.jpg (Accessed: 13 December 2023).

Is The Inmos Factory High-Tech or Low-Tech

The Inmos Microprocessor Factory can be classed as a High-Tech building of its time as the techniques used to construct the building were revolutionary for its time, (prefabricated partitions) “The architectural critic and writer Reyner Banham referred to the Inmos Microprocessor Factory as “the first really challenging building of the 1980s.”³

The accompanying reason for it being high-tech is what the building was used for as, “part of the new electronics industry boom”⁴ and the need for spaces to accommodate the production of the new technology. Therefore, there is a need for architecture to keep up with the demands of the changing times “as art and architecture generally reflect on societal progress made”.² Also “High tech was essentially developed in the UK by five British architects: Norman Foster, Richards Rogers, Michael and

Patricia Hopkins and Nicholas Grimshaw"¹ which suggests that the Inmos Factory was one of the buildings that was at the forefront of the high-tech movement.

However, the Inmos Factory could now be classed as a low-tech building as the standards for buildings have changed, and the once high-tech has now "become ordinary in our lives".⁷ The once advanced techniques used such as the prefabricated walls are now commonplace for building an example of how China erected a "57-storey skyscraper in 19 working days",² using prefabricated blocks.

What Worked or Did Not Work in The Design of The Inmos Factory

The Inmos Factory had many design flaws in its build, which hindered the expansion of the type of building design. One of the major flaws was the fact that the design did not account for the UK weather and how it would affect the building, as all the parts were susceptible to rust and decay faster than the average building of that time, resulting in high maintenance cost. But Rogers later fixed the problems in his later design of "The Senedd".

On the other hand, one major design that did succeed was the prefabricated walls, as it is now standard practice to build most of the parts off-site and then put them together in a shorter time on site, this concept has advanced from Rogers's original version.

The concept of splitting the factory into work sections did work as it has been used before in other types of factories as well as after the Inmos Factory was built, as it zones the areas of the building. Such as the planted areas which are commonplace in the modern era.

Conclusion

In conclusion, the Inmos factory has had a positive impact on the high-tech era of architecture and has contributed towards modernist architecture. The architect Richard Rogers's design changed the norm of the techniques used in creating an open-plan building that did not need internal columns in its construction and for it to stay up.

However, in recent times, the Inmos Factory's visibility has diminished, as it has been tucked away in its location which is overshadowed by trees and new modern buildings. Its contemporary relevance may be limited to the area of architectural history, in particular for those who are researching high-tech architecture and early modernism. Nonetheless, its enduring impact on the trajectory of architectural design continues to shape discussions and inspire future innovations in the field of architecture. Finally, the impact that Inmos had on future designs pioneered the use of similar designs such as the Renault Car Factory in Swindon designed by Norman Foster which uses a similar design principle.

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