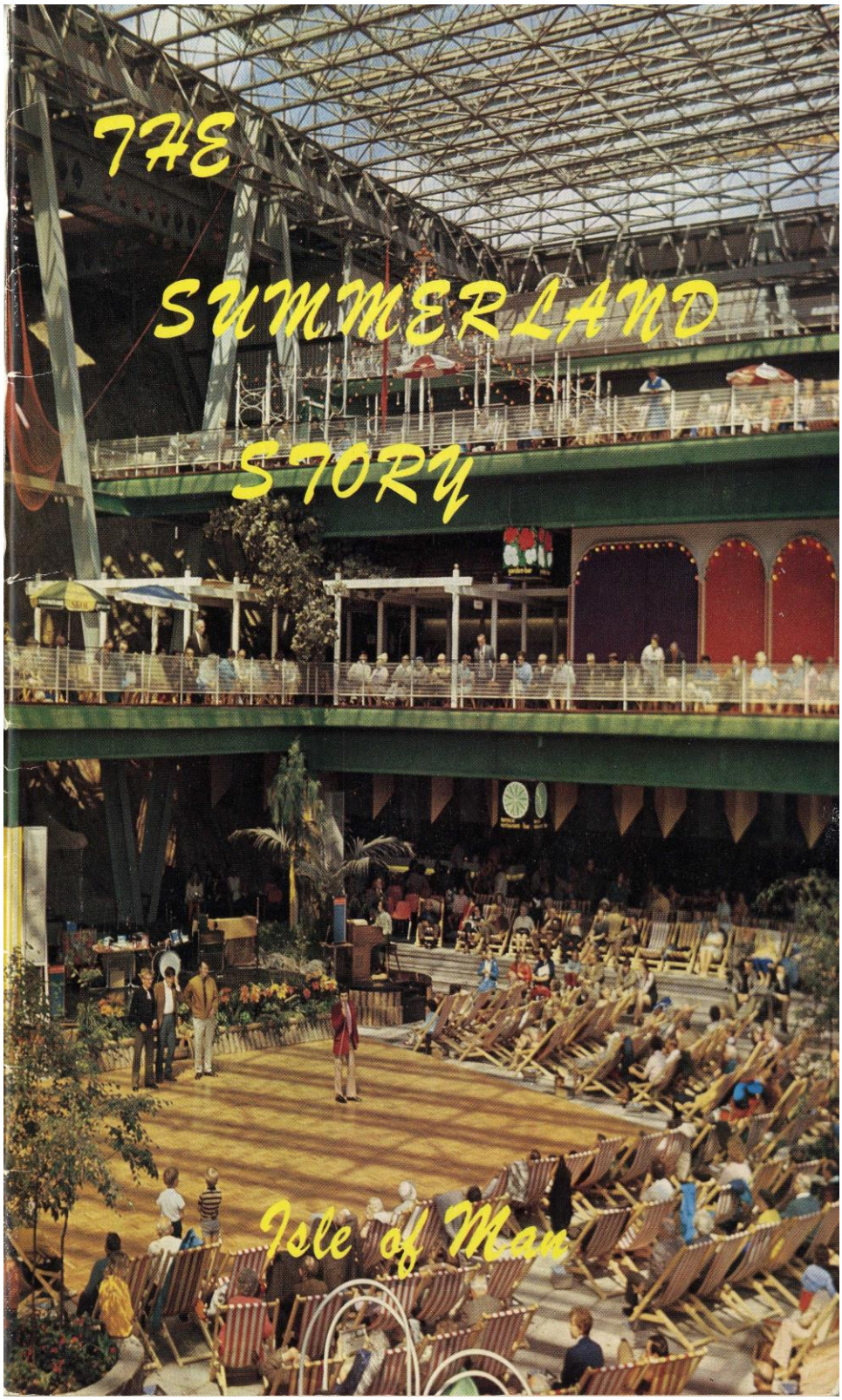
CHAPTER 3
THIS IS TO BE THE DAWN OF A NEW ERA OF BRITISH LEISURE ARCHITECTURE

3.1 The Summerland design concept

If Summerland heralded a renaissance in the British seaside scene for its promoters, the building's architects claimed that its innovative design would set new trends in British leisure architecture. In a promotional booklet produced by the Island's Development Company in 1972 (*The Summerland Story*, 1972, page 25), the architects summarised the rationale behind the design of Summerland:

> "The design presented is based on the idea of creating an environment where the sun always shines – an area in which the weather can be guaranteed and where every activity connected with a seaside holiday can be enjoyed by all ages. The scheme envisages, therefore, the maximum possible area enclosed by a structure designed to admit the maximum sunlight, implemented by artificial means, to create a permanent atmosphere of sub-tropical climate. Within this area it is aimed to produce a sense of being in the open air without the climatic hazards."

The Summerland name symbolised an innovative design construct: the creation of an artificial sunshine centre to mitigate against the Island's changeable weather conditions. The Summerland design concept required "a considerable enclosed volume and a great deal of transparency" (SFC


THE
SUMMERLAND
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Isle of Man

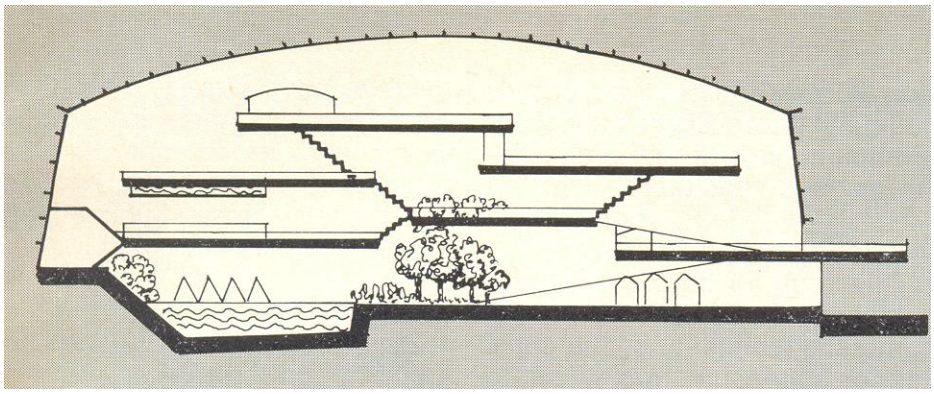

Figure 3.1: The Summerland design concept

The basic idea was to create a transparent seaside village.

Compare with the finished building on the previous page.

(Source: *Royal Institute of British Architects Journal*, July 1974)

Report, Paragraph 10, Page 3). Accordingly, the architects' design objective was to create a climatically controlled indoor leisure space (**figure 3.1** and **figure 3.2**), the transparent walls and roof of which would convince the visitor into believing they were out-of-doors rather than inside a building:

> "Natural sunlight would filter through the transparent walls and roof to add to the illusion and the sheer size of the interior would give such a feeling of space that visitors would forget they were in a building."
>
> (*The Summerland Story*, 1972, Page 25)

Summerland's principal architect Mr. Lomas described the building as a "recreation centre giving under cover amenities associated with a seaside resort".

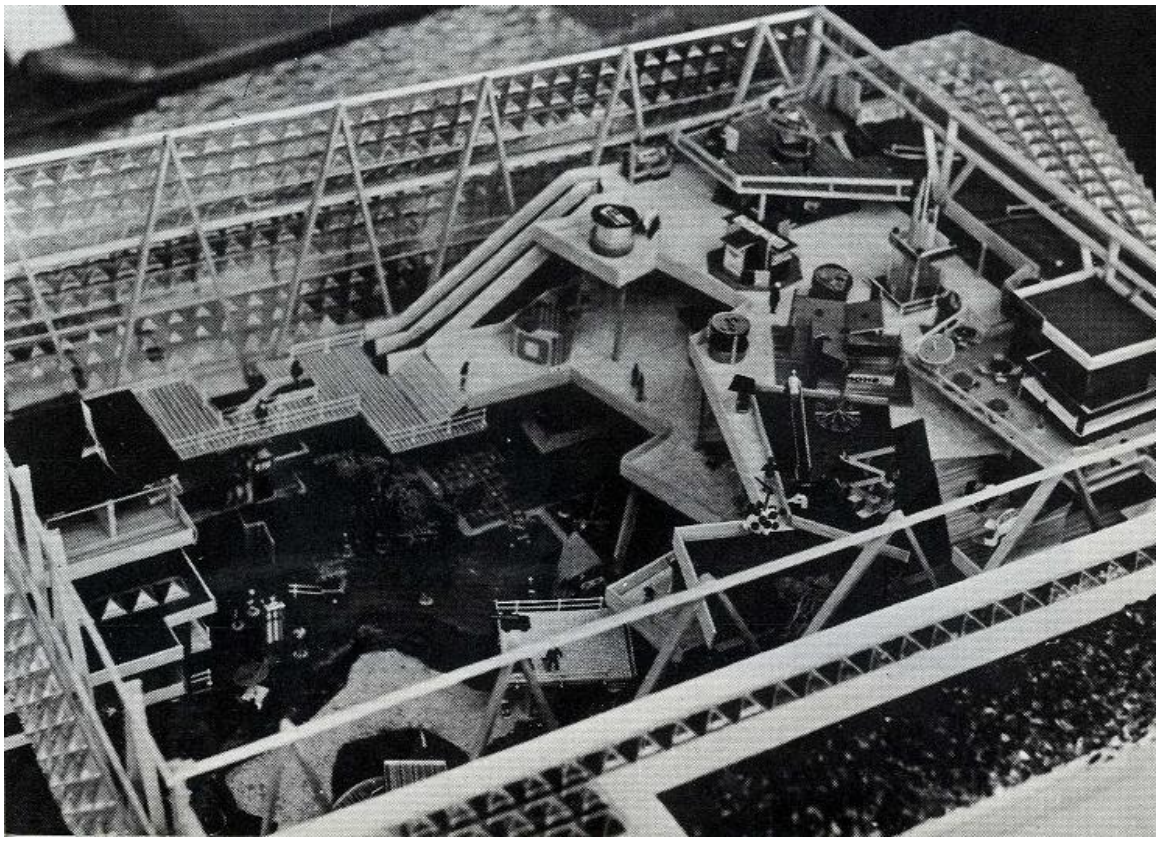

Figure 3.2: A model of Summerland that was made before construction work began. This bird's eye view shows the original design concept of the Solarium and the three receding terraces. Whilst the final building conforms to this general design (Solarium and Terraces), the floor usage and shape of the terraces are markedly different from the model (Source: *The Summerland Story,* 1972)

The Summerland concept was new, and made the Isle of Man complex unique in the British Isles when the building opened in 1971. Only three Solaria existed at the time: Chicago, Japan and Switzerland. The concept was so radical that architect Geoff Ellis came to the Island to work for Mr Lomas. He told *The Isle of Man Examiner* in December 2007: "The design was so revolutionary it brought me here…It was in all the

architecture magazines…The original design was not built, they had a lot of trouble with the rock face. The big domes disappeared and it became a big square". Not only did Summerland's *raison d'être* distinguish the complex from other leisure projects in the British Isles; the method of achieving the concept by using a particular building material was widely questioned after the fire.

3.2 Executing the concept

When work began on developing the site, a £2,500 model of the Aquadrome and Summerland was produced in order to make it easier for islanders to visualise the re-development intended for the Derby Castle site (**figure 2.2** and **figure 2.3**). Members of the Isle of Man Parliament were shown the model on 19th April 1966 and received a briefing from the architects. Later that day in Tynwald, Local Government Board Chairman Mr McFee introduced a debate on the Derby Castle Development Scheme by conveying the unique and innovative nature of Summerland:

> "When discussing this with experts [the architects and surveyors], it was revealed only two other similar imaginative schemes exist like it in the world – one in America and one in Europe…[Summerland] has already stimulated world interest in the Isle of Man…What appears to be worsening weather conditions in this Island – this will provide a complete indoor sunshine resort."

He then explained how the Summerland design concept would be achieved.

> "I want you…to imagine four acres covered with a *glass-like* material, in four or five terraces, with vegetation, walks, children's paddling pool, with circulation of water creating an artificial stream. Constant sunshine effect – built up against the natural cliff background."

Tynwald members had clearly inspected the model carefully, with Mr Nivison querying Mr McFee's earlier statement about four acres being covered by *glass*. Referring to the Aquadrome and the proposed multi-storey car park (chapter 2), he said "there is no such thing as 4.5 acres likely to be covered with *glass*". More than two years later in October 1968, Mr Vereker MHK referred to the building's unique design in a debate in Tynwald:

> "The solarium [Summerland] is of a unique design which I understand includes the whole United Kingdom, and is using a special type of *glass* roof."

Note the use of the word *glass* and *glass-like* material in the above statements, implying that the Summerland design concept would be executed by using *essentially traditional* building materials. Although the upper four floors of Summerland had the physical appearance of a glass greenhouse, the building material used to create Douglas' artificial sunshine centre was completely different to glass both physically and chemically.

Summerland was the first building in Europe to make extensive use of **Oroglas acrylic sheeting** for most of its promenade wall and roof. Summerland was thus an innovative example of plastic leisure architecture.

For the plastic architect, Summerland was a prototype fun-palace that represented in microcosm the unrealised potential of plastics for the ultimate manipulation of the human-thermal environment, with the ultimate aim being to extrapolate the Summerland design concept to the city scale. In doing so, the chaotic myriad of urban microclimates would be replaced by a more logically ordered urban space with a more hospitable climate. An example of this line of thinking can be seen in Buckminster Fuller's proposal for a huge geodesic dome of 3,200m^2 to cover most of Manhattan Island (**figure 3.3**). At the time, there were also plans for enclosed towns in Russia, an example being Frei Otto's Arctic City project (Quarmby, 1974). The plastic architect was not only concerned with climatically re-configuring urban space, but with embarking on a bold sociological experiment that would challenge notions of 'inside' and 'outside' and the need for 'normal' buildings:

> "Perhaps we are simply afraid to try the experiment – afraid of a different way of life where normal standards of inside and outside do not apply, and where normal standards of property, dress and behaviour might undergo radical change."
>
> (Quarmby, 1974, page 163)

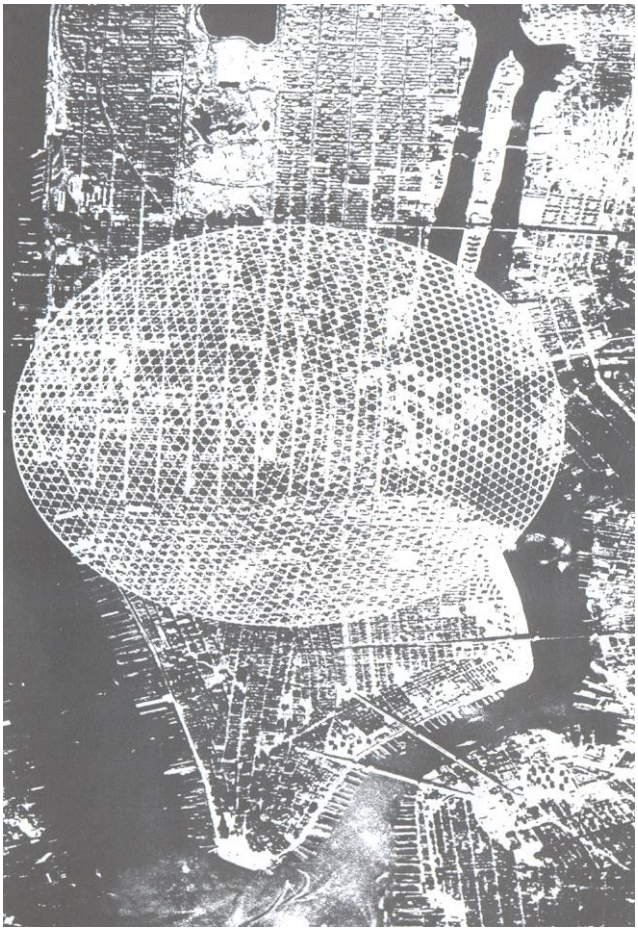

Figure 3.3: Buckminster Fuller's ambitious geodesic dome project for Manhattan Island (Source: Quarmby, 1974)

It could be argued that Summerland's principal architect was thinking along these lines when he described Summerland as "not a building but a weatherproof enveloping structure" (SFC Report, Paragraph 206, Page 69). However, an awareness of Summerland's explicitly plastic design had not permeated to members of the Isle of Man Parliament. There is no mention of Summerland's acrylic or plastic design in transcripts of debates held in the Isle of Man Parliament on the Derby Castle Development Scheme in the 1960s. This is even more surprising, in the light of the fact that Tynwald members had been briefed by Summerland's architects in April 1966. The

joint press statement issued by Douglas Corporation and Trust House Forte in October 1970 also made no mention of the acrylic design, and described Summerland's roof as being "entirely constructed of fibre glass and transparent sheeting on a steel space frame".

Oroglas was the patented product of Rohm and Haas, an American company based in Philadelphia. The material – similar in its properties to Perspex - was developed by Dr Rohm in his laboratory near Frankfurt in Germany in the 1930s, with Dr Rohm later working with the American scientist Dr Haas. The material had been marketed in North America since 1936, but it was not used in Britain until the early 1960s when Rohm and Haas set up a UK manufacturing subsidiary at Jarrow near Newcastle upon Tyne. An advertisement for Oroglas appeared in the Proceedings of a conference held by the Plastics Institute in London in June 1965 (**figure 3.4**). It claimed:

> "Oroglas acrylic sheet is completely weatherproof, easy and economical to mould, and available in an almost unlimited colour range, including a clear form of exceptional clarity. It offers the architect a way of achieving a variety of imaginative effects at moderate cost."

The advertisement was illustrated by a photograph of the swimming pool of the International Inn in Washington DC, which had been enclosed by transparent Oroglas acrylic sheeting cut into more than 400 different trapezoidal shapes. Oroglas had been used for the walls of several entertainment centres in North America before construction work began on Summerland in 1968. The material had also been used in Japan, and for

Figure 3.4: Advertisement for Oroglas acrylic sheet

two-storey buildings in Germany. However, the use of Oroglas as a building's *main* cladding in the US and Canada was strictly limited. Such buildings were only erected on "a very special permit basis" (Herbstein *et al.*, 1973). They included the Shaw Botanical Gardens at St. Louis in Missouri, the Denver Botanical Gardens, the roof of the Houston Astrodome (which was the largest acrylic roof in the world at the time of the Summerland disaster), and the American Pavilion at Montreal's EXPO 1967 designed by Buckminster Fuller and Shoji Sadao (**figure 3.5**). The American Pavilion was visited by Summerland's associate architects Gillinson, Barnett and Partners. The American Pavilion was originally intended to be a temporary exhibition building. However, at a late stage during its design, the decision was taken to weld the joints into the frame rather than bolt them in. This markedly increased the cost of demolition meaning that it made more sense to retain the building for future usage. Ironically, the Pavilion was destroyed by fire in 1976. Thankfully, the building was closed to the public at the time for maintenance work. The fire was probably started by a welder. The frame of the building still survives to the present day and contains a science museum, housed in an essentially separate building.

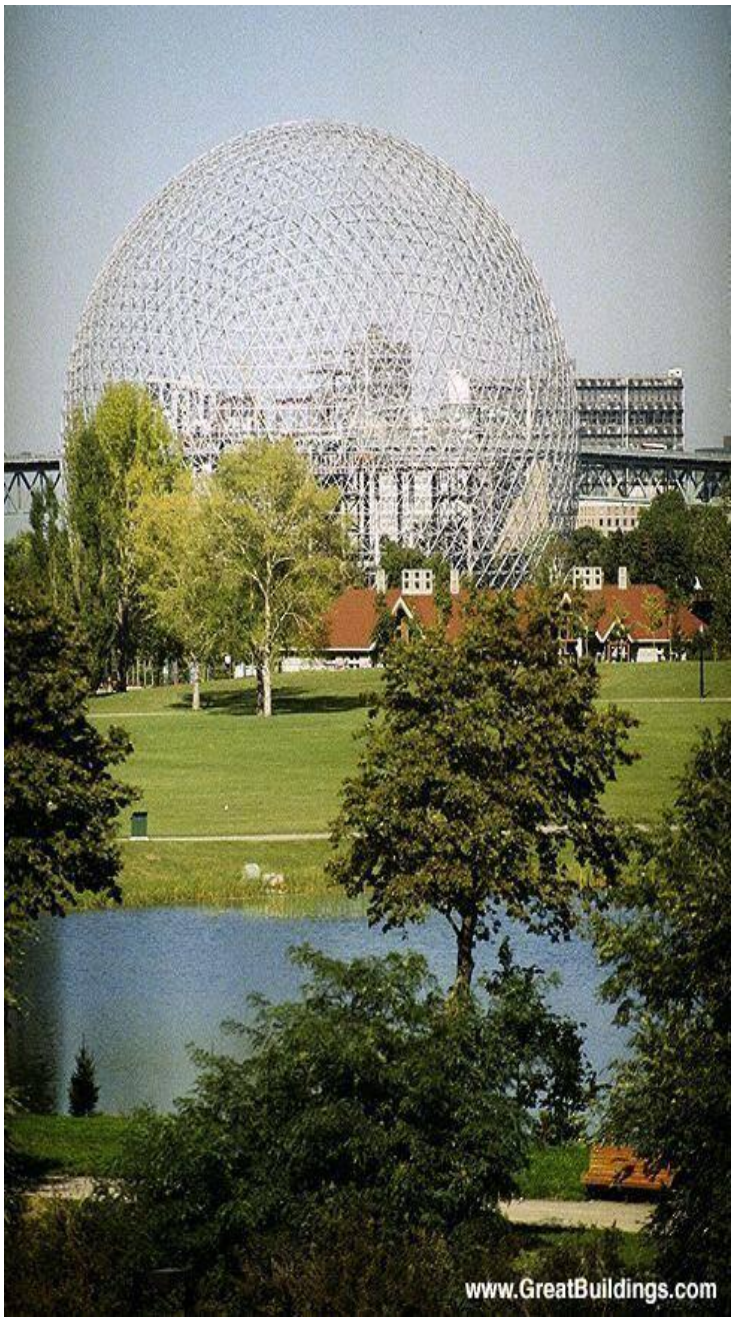

Figure 3.5: The American Pavilion at EXPO 1967 in Montreal

The decision was taken to use Oroglas for Summerland by Mr Clifford Barnett at an early stage, and was confirmed amongst the architects before the Derby Castle Development Scheme brochure was presented to the Finance Committee of Douglas Corporation in August 1965 (chapter 2). Hence, the decision to use Oroglas came from the associate architects in Leeds and not the principal architects on the Isle of Man. Mr Barnett was not only insistent on using acrylic for Summerland; but using a particular type of acrylic sheeting manufactured by an American company that at the time had not been used on an extensive scale in Europe. Mr Barnett subsequently developed a close association with the fabricators (W J Cox of Tring, Hertfordshire) and manufacturers (Rohm and Haas) of Oroglas. He also acted as a consultant to a symposium about *Thermoplastic Glazing for Space Structures* held in London in October 1970 that was organised jointly by W J Cox, Rohm and Haas, ICI Plastics Division and Vickers Ltd (Pym, 1977). His commitment to using Oroglas was picked up in the *Summerland Fire Commission* report (SFC Report, Paragraph 207, Page 69): "He [Mr Barnett] was clearly committed to it [Oroglas]", the report states.

The reasons why Oroglas was used for most of Summerland's roof and promenade wall must now be fully evaluated. Firstly, there is no doubt that innovation was an explicit component of the design process. The architects wanted to create a building that was "unique and compelling" (*The Summerland Story*, 1972, Page 25). In the same brochure, the claim is made that Summerland would "set the architectural world alight for nothing had ever been designed to include so much of the transparent sheeting". The architects were thus partly motivated by their desire to innovate and so set new trends in British leisure architecture. Summerland can also be

interpreted as being a product of its times, as illustrated by the American Pavilion at Montreal's EXPO 1967. The Pavilion was designed in the form of a huge geodesic dome by Buckminster Fuller. Primarily, the architects were motivated by the advantages Oroglas had over standard glass despite its greater cost. As Summerland architect Derrick Byrom wrote, the material was selected "because of its high impact strength and light weight" (*The Architects' Journal*, 1971, page 336). Referring to Summerland, Quarmby (1974: 73) notes that "it is the structural transparency or translucency of plastics materials…which engenders their use". Oroglas is more flexible than glass, and could be moulded into a variety of "visually dramatic" shapes. The panels used for Summerland's roof and promenade wall had a diamond or pyramid profile, and measured 6 feet by 6 feet. The pyramidal panels were produced by W J Cox of Tring in Hertfordshire, who take the Oroglas sheets supplied by Rohm and Haas and mould them into different shapes. Summerland's promenade wall measured 212 feet by 42 feet and was clad with 252 Oroglas panels; each panel was 0.19 inches thick, which is slightly thinner than the original sheet (**figure 3.6**). "Each panel catches the light to provide an interesting and varying pattern on the façade", says the glossy promotional brochure for Summerland. Whilst Oroglas formed the majority of the promenade wall, many commentaries on the fire (including the SFC Report) surprisingly omit the fact the lowest 10 feet of the wall was in fact constructed out of glass windows in hardwood frames and not the acrylic pyramids (**figure 3.7**). Mr Cyril Pearson, the Isle of Man's Chief Fire Officer (CFO), informed the Fire Research Station (FRS) Team investigating the disaster that glass had been used for the lowest 10 feet to avoid the potential for anything at ground level igniting the Oroglas cladding (John Webb, FRS, Personal Communication). Summerland's roof

was almost entirely glazed with Oroglas. The Oroglas panels were tinted in bronze to transform natural sunlight into golden sunrays, and to prevent glare and overheating from the Sun.

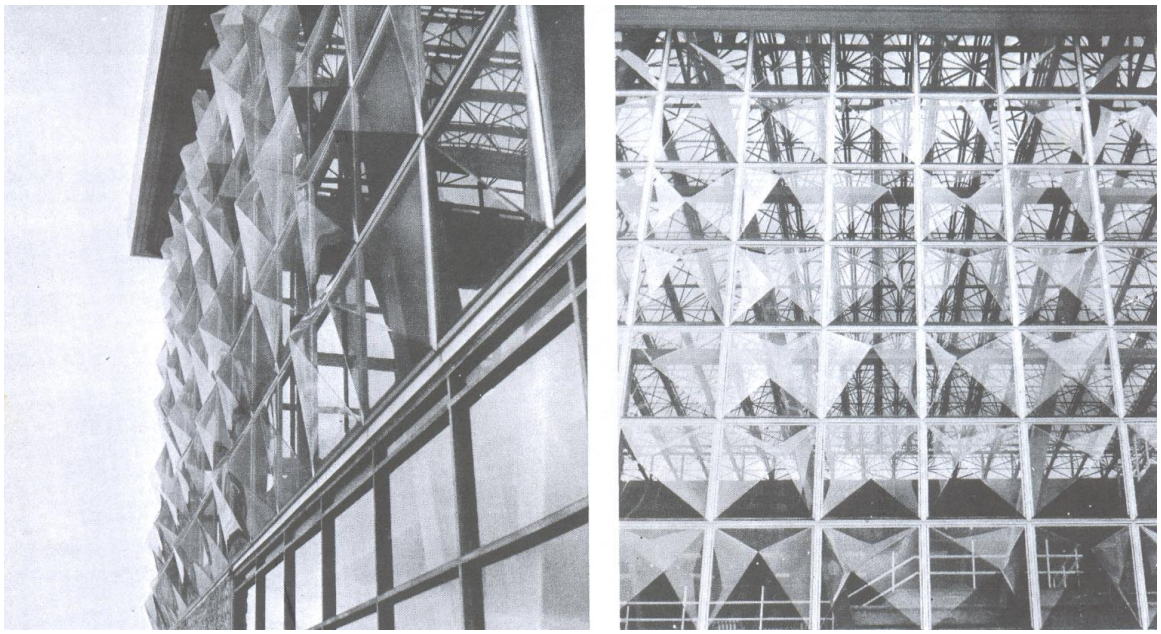

Figure 3.6: Summerland's Oroglas Promenade Wall

(Source: Quarmby, 1974)

Oroglas is around twenty times stronger and far lighter than ordinary glass. The material's strength made it attractive to local authorities experiencing problems with vandalism: for example, Lancashire County Council fitted Oroglas in 1971 to some schools in the south-west of the county where vandalism had been a problem. The Oroglas was swiftly removed after the Summerland tragedy. Oroglas had also been used for the Astrodome at Blackpool Pleasure Beach in 1970, which housed a rollercoaster. Blackpool Fire Chief Len Smith said: "It [the Astrodome] has large openings instead of doorways, so the hazard to life is minimal". Sales of Oroglas acrylic sheeting in Britain reached more than four million square

feet by 1972. Like the US, most of the Oroglas was sold in Britain as an ancillary building material. This reflected Oroglas' poor fire qualities together with the fact the material was expensive (in 1973, around £3 for a 10ft square sheet 3mm thick) and not very durable, being liable to discoloration and marking from scratches. Oroglas' poor fire qualities were evident when Lancashire County Council staged a demonstration in October 1973 during which three buildings made of different materials were set on fire simultaneously. The Oroglas building burnt down the quickest.

Summerland survivor Mr Mark Mitchell (13) commented (personal communication):

> "Up close, the 'glass' clearly wasn't glass. It was scratched and degraded in a way that real glass seldom is. It struck me that plastic was a pretty odd thing to use to cover what was, after all, supposed to be a giant greenhouse."

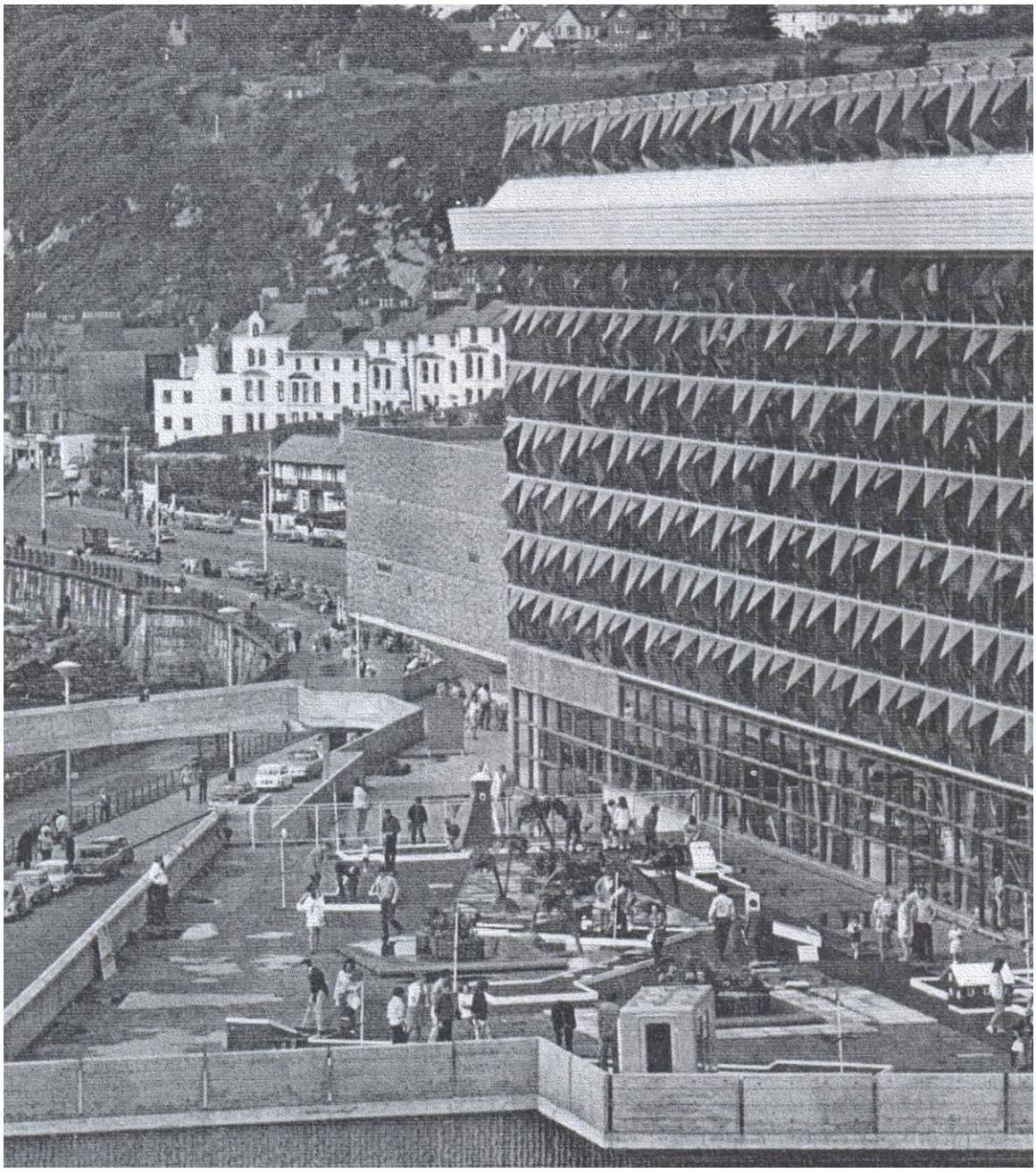

Figure 3.7: Summerland's sea-facing/promenade wall. On this photograph, the glass panels forming the lowest 10ft of the wall can be clearly seen

(Photograph: *The Architects' Journal*, 1971)

When compared to previous usage of Oroglas in entertainment centres in North America, the Summerland complex was unusual because the material was being used as the building's primary cladding. There was no building worldwide that incorporated so much Oroglas as Summerland. Mr Svanda, a spokesman for Oroglas' manufacturers Rohm and Haas, was quoted in the *Manx Star* (6-11th August, 1973) after the fire as saying that Summerland would not have been allowed in the United States.

> "There is no building code in America which would allow it [Oroglas] to be used overall as it was at the Summerland centre. A structure like that would just not have been allowed in America."

In 1967, Rohm and Haas provided its British subsidiary with details of the stringent controls specified by the US National Fire Protection Association that govern the use of Oroglas in buildings in America. In particular, the American company stressed the need for a powerful sprinkler system to be installed whenever Oroglas is used on a large scale, such as at Summerland. However, Mr Ian Tasker, the technical adviser of Rohm and Haas, told the public inquiry into the Summerland disaster that this information was not passed on to Mr Pearson, the Manx Chief Fire Officer since 1962, for two reasons. Firstly, he said it was 'etiquette' to channel such information through the architects. Secondly, he had formed the impression that Summerland was a completely isolated building, which was not exposed to the risk of catching fire from other buildings. When Mr Tasker did talk to Mr Pearson about Oroglas, the general tone of his conversations had been one of reassurance about the use of the material, with Mr Tasker assuming

Mr Pearson knew that Oroglas was combustible. Mr Tasker told the public inquiry:

> "Our understanding at that time was of a solarium with no structure nearby, the main contents consisting of concrete and the floor being covered with sand to a large extent. It was not known that a seven-storey structure built largely of timber and combustible materials with a high level of human occupancy was to be located inside the acrylic clad structure."

Samples of Oroglas were sent by Rohm and Haas to councils in Britain. Mr Charles Alan, a Quantity Surveyor with Warwickshire County Council, remembers seeing samples in his office before the Summerland fire. At the time, Warwickshire County Council was considering whether to use Oroglas as a roofing material for buildings (e.g. school sports halls). In the light of this, a colleague of Mr Alan decided to conduct an *ad hoc* experiment in his office, which involved setting fire to an Oroglas panel with a cigarette lighter. Mr Alan recalled (personal communication):

> "The sample did not have chance to smoulder, as it burst into flames with a ferocity that I had not seen since like all young boys do, set light to a ping-pong ball. It spat and flared, and we got a bit panicked that it would cause problems with the stuffy staff either side of our office."

The results of the experiment were reported to the architects. "It could have been that the product would have been rejected [anyway] – probably on cost

– or on account of the terrible publicity [resulting from the Summerland fire], but I do like to think that may be our 'back of the science lab' experiment may have drawn attention to its unsuitability", said Mr Alan. It is ironic that the construction workers at the Summerland site commonly used to make a fire to keep warm and used scraps of Oroglas for the fuel (Edward Austin, Personal Communication).

In the US, a sprinkler system was even considered essential for temporary Oroglas exhibition buildings such as the American Pavilion at EXPO 1967. This temporary structure was fitted with an automatic sprinkler system. The sprinklers were contained in rings of two-and-a-half inch steel tubing. Special fireguards also constantly patrolled the America Pavilion. Despite the lavish firefighting measures deemed necessary for a *temporary* Oroglas structure in the US, Summerland – a *permanent* Oroglas structure - lacked a sprinkler system when it opened to the public in 1971. An internal letter circulated within Rohm and Haas, and seen by its staff in Britain, admitted that Oroglas could burn "in quite a frightening manner". The letter warned the material might not even fall free from its frame in the event of a fire. The letter continued:

> "The ways in which Oroglas may behave if involved in fire are not easy to predict and you should be cautious in discussions on this problem. The method of installation, size of panel and, in some circumstances, even the colour of material can have some effect."

At the public inquiry, the British sales director of Rohm and Haas denied that this information had not been given to "a single solitary person or

body" involved with the design of the Summerland complex. However, he conceded that the information should have been given to the Isle of Man's Chief Fire Officer and the building's insurers Commercial Union.

Given that the Summerland design *concept* aimed to provide all the activities associated with a seaside holiday, the original plans for the building included an artificial seashore and beach. This would have been achieved by integrating the Aquadrome into Summerland. Rather than creating rectangular pools, the designers wanted to create a large pool with curved edges that would resemble a natural seashore. A beach would be provided, on which sunbathers would tan themselves from ultra-violet (UV) light reflected off a false sky (Kniveton *et al*., 1996). These proposals had to be abandoned for two reasons. Primarily, the use of UV light would have posed legal difficulties, whereby people might have attempted to sue the operators of Summerland if they had bathed for too long in UV light and got burnt. Secondly, a swimming pool disguised as an artificial sea was incompatible with the need for a championship size swimming pool in Douglas. The absence of any safe form of artificial lighting is noted by Quarmby (1974: 169) as the main weakness of the Isle of Man complex together with the Summerland recreation centre in Japan. He asserts that this problem "will have to be overcome if climate control is to develop as it should". Plans for the interior of Summerland were still evolving after the shell of the building had been completed in late 1970. It is interesting to compare the October 1970 Trust House Forte and Douglas Corporation press statement reproduced below with what Summerland actually contained when it opened in July 1971.

PRESS STATEMENT RELEASED JOINTLY BY THE DOUGLAS CORPORATION AND THE TRUST HOUSES FORTE GROUP

SOLARIUM AND ENTERTAINMENTS CENTRE, DERBY CASTLE

Agreement has been reached between the Douglas Corporation and the Trust Houses Forte Group for the joint development of the Solarium and Entertainments Centre at Derby Castle. The Group will be appointed managers and Concessionaires of this project for a period of 21 years.

The first part of the development, comprising a national size swimming pool, a learners [*sic*.] pool and a remedial section, has been open for over a year, and is being managed by the Corporation.

The Solarium and Entertainments Centre is a unique part of the development and is Europes [*sic*.] first building designed to provide all the recreational amenities of a Seaside Resort under ideal atmospheric conditions.

The Main floor is the show piece and contains a free shaped pool [not built], mainly for children's use, a beach [not built] and promenading area, with natural facilities such as a waterfall, living tropical plants, trees and the natural cliff face, all giving an atmosphere of being in the open air. Below the main floor there are two [should read three] floors and there are three terraces overlooking the main floor.

The roof is 90 feet high [in fact it is 96 feet high] and is entirely constructed of fibre glass and transparent sheeting on a steel space frame [note no mention of Oroglas, acrylic or plastic]. Inside there will be a warm comfortable and sunny atmosphere, no matter what the weather conditions are like outside. All kinds of entertainments and amenities will be provided in the building – from a dolphinarium [not built] to an international shopping centre [not built].

There will also be restaurants and bars for the convenience of visitors. For holidaymakers requiring a sun tan, this can be obtained by sun bathing under controlled conditions, which will be as nearly natural as can be devised.

This unique project will provide Douglas and the Isle of Man with an area of guaranteed sunshine and warmth can be obtained, together with a full day's holiday activities to suit all ages.

The Trust Houses Forte Group includes companies with vast experience in the development of new projects. It is one of the most important entertainment and catering groups in the world, with gross assets of over £100 million and profits last year of just under £10 million.

The Group has stated that an 'all-out' effort will be made to have the Entertainments Centre, or part of it, open in time for the 1971 season.

3.3 The Bye Law submissions

During the planning of Summerland, the 1963 Isle of Man Building Bye-Laws were in force. These bye-laws were based on the old model bye-laws of the Ministry of Public Building and Works (Taylor, 1973). In England, these bye-laws were seen as being outdated because they did not cover the internal lining of buildings and accordingly were replaced by updated regulations in 1965. At the time of the Summerland tragedy, the Isle of Man was thus working to outdated regulations that had been replaced on the mainland in the mid 1960s. Nonetheless, just like their updated mainland counterparts, the Manx regulations required the external walls of buildings (excluding small houses) to be non-combustible and have a fire resistance of two hours. This was **Isle of Man Building Bye-Law 39**. This bye-law holds the key to understanding why the disaster happened. It is important to note that there are two requirements of Bye-law 39 relating to combustibility and fire resistance. These properties are defined formally in British Standard 476 (1953).

> **COMBUSTIBLE**: flames are produced or vapours are given off which can be ignited with a flame when the material is placed in an oven at 750^{o}C.
>
> **FIRE RESISTANT**: the material contributes to the integrity and insulation of the building for at least two hours.

The waiver of Bye-law 39 to allow the use of *Colour Galbestos steel sheeting* (and not Oroglas) for the eastern end of the building's promenade wall was the primary cause of the disaster (chapter 6). If the original plans had been followed through and the eastern end of the sea-facing wall erected

out of reinforced concrete or conventional steel sheeting rather than Colour Galbestos, then the disaster would never have happened. Whilst the Galbestos waiver caused the disaster, Bye-Law 39 stood in the way of the architects' design objective of creating an artificial sunshine centre.

The Oroglas waiver

Oroglas is a thermoplastic known as polymethylmethacrylate, whose combustibility is similar to red oak wood. The material is no easier to ignite than most other thermoplastics; however, its combustion can be sustained with relatively little oxygen. Oroglas has an ignition temperature of 460^{o}C. However, the panels used at Summerland were supposedly designed so they would soften and shrink when the temperature reached 90^{o}C. The softening of the acrylic meant that the panels should have fallen from their frames before the ignition temperature was reached.

The planning procedures that led to the waiver of Bye-law 39 to allow the use of Oroglas are contained in the *Summerland Fire Commission* report (Paragraphs 60-3, Pages 20-1). A synopsis now follows. Plans for the building were submitted to Douglas Corporation for Bye-law approval in 1967. At the time, it was appreciated that the use of Oroglas would not comply with Bye-law 39. However, Mr Powell, the Borough Engineer, advised the Corporation's Works Committee that Bye-law 39 should be waived in this case. If Mr Powell had strictly applied Bye-law 39, then plans for the plastic clad Solarium should have been turned down immediately and the whole concept radically re-thought. For most planning applications in the town, Douglas Corporation is the Bye-law authority, and makes the final decision whether or not to waive Bye-law 39. However,

given that the Corporation owned Summerland, the waiver needed to be ratified by the Manx Local Government Board (LGB). Mr Powell's decision was based on information supplied to him about the properties of Oroglas in a letter by Mr Lomas in November 1967.

> "…the enveloping structure is in fact an acrylic glazed space frame, no part of which is combustible, but both the acrylic sheets and the alloy *framing* cannot be regarded as fire resistant."

Mr Powell also told the public inquiry how "he had been orally informed by Mr Lomas [the principal architect]…that Oroglas was non-combustible and that it was not fire resistant because it would soften, melt and fall out if exposed to the heat of fire" (*Summerland Fire Commission*, Paragraph 60, Page 20)". "It is difficult to understand," wrote the Commission, how Mr Lomas left Mr Powell with the impression that Oroglas was non-combustible. This is because Mr Theaker of the Leeds-based associate architects had in February 1967 told Mr Lomas "Oroglas acrylic sheet could never be non-combustible". The Chairman and Deputy Chairman of Douglas Corporation's Works Committee issued a statement after the fire:

> "[Douglas Corporation] places its confidence in [the architects]. Never at any stage did they advise us that there was any danger in the massive use of this Oroglas material. In fact, we were given a written assurance by the architects that it was an absolutely safe material, non-combustible and ideal for the purpose that was envisaged."

At the public inquiry, Mr Lomas denied he had tried to keep Mr Powell "at bay" during Summerland's planning stage. Mr Lomas said: "We were in touch almost daily. We always spoke fully and freely together. We at all times were fully co-operative and have not at any time had any large difference of opinion." Mr Powell said he had "relied completely" on Mr Lomas for information about Oroglas and did not conduct his own enquiries into the suitability of the material.

The non-combustibility statement is repeated in promotional literature for the building:

> "The main structure was ideal, solid concrete and *non-combustible* acrylic sheets. But internal fittings had to be of the same kind. Any outbreak of fire in the future had to be one which could be localised to one room or one machine without any risk of spreading. Again the problems were overcome."
>
> (*The Summerland Story*, 1972, page 26)

Mr Robert Kelly, the Manx journalist who wrote *The Summerland Story*, said the non-combustibility statement was based on information supplied to him by the architects during a tour of Summerland in April 1971 before the building opened to the public. Mr Kelly said:

> "I stood with Mr Green [of the Leeds architects Gillinson, Barnett and Partners] on the top level of Summerland and said to him 'My goodness I wouldn't like to be caught up here if there was a fire'. [Mr Kelly said he was concerned because the only way down he could see was via the open plan (flying) staircase and a balcony adjacent to the Oroglas promenade wall]. Mr Green assured me: 'Don't worry. The worst that could happen if there was a fire would be that the panels would soften and fall out their frames when they got hot'…Mr Green said that the empty window frames would then be ideal escape points. People could walk out or crawl through the window frames and there would be no danger."

The claim that people could have escaped safely through the gaps left by the Oroglas panels is an absurd proposition because the lowest 10 feet of the promenade wall was built out of standard glass and not Oroglas.

Based on the architects' information, "Douglas Corporation proposed to waive Bye-law 39 on the basis that Oroglas was non-combustible but not fire resistant and applied to the Local Government Board for consent" (SFC Report, Paragraph 60, Page 20). In his letter to the Local Government Board, the Borough Engineer included supporting evidence from the architect to justify his decision. Let us remind ourselves about what Mr Lomas wrote in his letter to Mr Powell:

> "…the enveloping structure is in fact an acrylic glazed space frame, no part of which is combustible, but both the acrylic sheets and the alloy *framing* cannot be regarded as fire resistant."

The SFC found Mr Lomas' assertion that this statement referred to the building's steel frame and not the Oroglas panels as 'unconvincing'. "We [the SFC] prefer the evidence of Mr Powell [the Borough Engineer]," it continues.

However, the Architects' Registration Council of the United Kingdom (ARCUK) took the opposite view when Mr Lomas appeared before its disciplinary committee for a six-day hearing in April 1978 on two charges relating to the Oroglas waiver. Mr Lomas lived on his yacht in the Eastern Mediterranean after the fire. The hearing was originally scheduled for February 1977, but Mr Lomas produced a medical note which stated he was receiving medical treatment in Turkey and was unfit to travel to England. The hearing was postponed again in September 1977 and January 1978. The Disciplinary Committee dismissed the charge that the architect had 'intentionally' misled the Borough Engineer by 'falsely representing' the properties of Oroglas:

> "We found difficulty in accepting Mr Powell's evidence that he believed Oroglas to be non combustible and we did not accept his evidence that Mr Lomas told him that Oroglas was non combustible. Although at first sight Mr Lomas' letter…appeared to be some corroboration of Mr Powell's evidence, the letter itself was badly phrased and in

> consequence whether deliberately or by accident we could not say ambiguous and therefore could not be relied upon as sufficient corroboration of Mr Powell, or as a deliberate act by Mr Lomas to deceive Mr Powell."

In written answers to the disciplinary committee, Mr Lomas claimed:

> "The letter referred to, while admittedly ambiguous to a layman, was not ambiguous to a professional in full possession of the facts and well conversant with the custom that the word 'framing' never includes glazing, which always is separately specified."

The second charge relating to the Oroglas waiver accused Mr Lomas of recklessness in using a new material without *personally* investigating its fire behaviour and properties in sufficient detail. Mr Lomas argued Gillinson and Barnett (the associate architects) had "done everything possible to research the subject" and that it would be pointless for him personally to duplicate their research. Gillinson, Barnett and Partners was Mr Lomas' agent and "as it were, an extension of [his] own practice," which entitled him "to rely on their advice" (RIBA, 1979, page 392). Mr Lomas also took issue with the disciplinary committee's assertion that Summerland represented a new use of a new material. Whilst the Committee felt Mr Lomas should have investigated Oroglas more thoroughly, the committee dismissed the second charge:

> "We had it very much in mind that there must always be a first time for the use of every new material and this applies to Oroglas as much as to anything else."

The third charge asserted that Mr Lomas' attitude towards bye-laws and regulations "was casual in the extreme". On this charge, Mr Lomas argued that the disciplinary committee (and by implication the *Summerland Fire Commission*) had given undue weight "to the wording and sentiments in what were, in effect, inter-office [between Lomas and Gillinson] memos" during the planning stage. One of these memos read:

> "I do not think we need worry unduly on this business of fire resistance. The Town Council will have to apply a waiver and I do not think for one moment that they will refuse it."
>
> (SFC Report, Paragraph 206, Page 68)

One memorandum spoke about treating the Theatre (Fire) Regulations "with a pinch of salt", whilst another said "we might get away with it". Mr Lomas said these sentiments did not demonstrate a cavalier attitude to bye-laws and regulations. He claimed that he was merely pointing out that the Manx Theatre Regulations (1923), which were written in terms of the design of a traditional theatre or cinema, were out of date and were difficult to apply to most buildings. Mr Lomas wrote: "My approach in these memos was to indicate to my associates that they should design on the assumption that where a waiver was likely to be necessary then I would be able to obtain it." However, at the public inquiry, Mr Clifford Barnett of Gillinson, Barnett and Partners agreed with the suggestion of Mr Michael Ogden QC, counsel for Trust House Forte, that Mr Lomas was "apt to treat precautions in a

somewhat cavalier fashion". In the light of this, Mr Barnett added that he needed to "watch Mr Lomas like a hawk". Concluding his written submission to the disciplinary committee, Mr Lomas argued:

> "I am being victimised for doing just what architects are expected to do – show originality, creativeness and a readiness to make innovations after due and mature consideration".

An overall charge of "disgraceful conduct" against Mr Lomas was brought before the seven-man ARCUK Committee, and was narrowly defeated by four votes to three. The Architects' Registration Council's assertion that Mr Lomas was conforming to a "general attitude", which regarded Summerland as an economic imperative for the Island, attracted considerable consternation amongst ARC members. The ARC's disciplinary committee stated:

> "But it appeared to us [the ARC Committee] that everybody concerned was determined if at all possible to give the go-ahead to the Summerland project, and Mr Lomas was accordingly conforming to the general attitude."

Mr David Mc Neill QC represented the relatives of the dead and injured at the public inquiry into the Summerland disaster. He told the Fire Commission: "The authorities at both [Douglas] Corporation and [Isle of Man] Local Government Board level were so committed to Summerland in terms of the political and financial decisions already made, that the rules would have to be bent."

Many ARC members believed the body's disciplinary committee had set a dangerous precedent by absolving an architect of responsibility partly because other persons were also at fault (French, 1978). In addition, many members were unhappy that the disciplinary proceedings had been conducted in secret (*New Civil Engineer*, 9th November 1978).

The Oroglas waiver was considered by the Planning Committee of the Local Government Board, which sought the advice of the Island's Chief Fire Officer Mr Cyril Pearson. Mr Pearson told the committee that Oroglas was not fire resistant and was *combustible* as well. In a letter read to the Board on November 17th 1967, he wrote that the material could "assist the spread of fire by forming blazing droplets". Mr Pearson's letter also warned the Oroglas panels were likely to fall out of their frames in a serious fire. Despite Oroglas' combustibility, Mr Pearson raised no objections to the submitted plans because the use of Oroglas would not interfere with the building's means of escape (i.e. exits and staircases). Mr Pearson told the public inquiry that he preferred to deal with an acrylic wall than a glass wall when firefighting.

> "It is easy to control an acrylic fire if you are called quickly enough. Water kills the fire quite quickly whereas in the case of glass if you have a whole wall of glass descending upon you, you can expect fatalities."

The Chief Fire Officer recognised the architects' predicament, in the sense that he could not suggest an alternative building material to achieve the Summerland design concept. Mr Pearson was visited by Oroglas' UK agents Lennig Chemicals on December 7th 1967.

The Local Government Board (LGB) Committee did not communicate further with Douglas Corporation and on November 17th 1967 consented to the waiver of Bye-law 39 with respect to Oroglas:

> "This approval shall have the effect of suspending Bye Law 39 of the Building Bye Laws made under the Local Government Act 1950 to the extent necessary to give effect to this proposal."

Whereas Douglas Corporation had requested the LGB to waiver Bye-law 39 on the basis that Oroglas was non-combustible but not fire resistant, the LGB's Planning Committee had intentionally consented to a waiver of both requirements. In other words, the LGB had waived Bye-law 39 on the basis that Oroglas was *combustible* and not fire resistant. However, the LGB did not inform Douglas Corporation of the fact that Oroglas was combustible. Douglas Corporation thus took the decision to allow the plans for Summerland to go ahead without possessing the knowledge that Oroglas was combustible. If the LGB had informed Douglas Corporation of Oroglas' combustibility, there is evidence to suggest that the plans for Summerland would have been thrown out:

> "Mr Bell, who was Chairman of the Works Committee of Douglas Corporation told us [the Summerland Fire Commission] that he believes that if they had been informed that Oroglas was combustible, the Works Committee would not have agreed to a waiver of Bye-law 39."
>
> (*Summerland Fire Commission*, Paragraph 63, Page 21)

Away from the controversy of the Bye-Law 39 waiver, Douglas Corporation's Planning Committee made more routine stipulations such as outlawing vertical projections on Summerland's roof (e.g. flagpoles) and banning advertisements at the premises.

The Galbestos waiver

In order to reduce costs and make the building quicker to construct, plastic coated steel sheeting known as Colour Galbestos was substituted in place of reinforced concrete (which appeared in the architects' original plans) or conventional steel sheeting for the building's eastern elevation and for around 35 feet of the promenade wall (**figure 3.8**) at Solarium floor level and above. The Galbestos was supported on steel angle rails, which in turn were supported by the building's main steelwork.

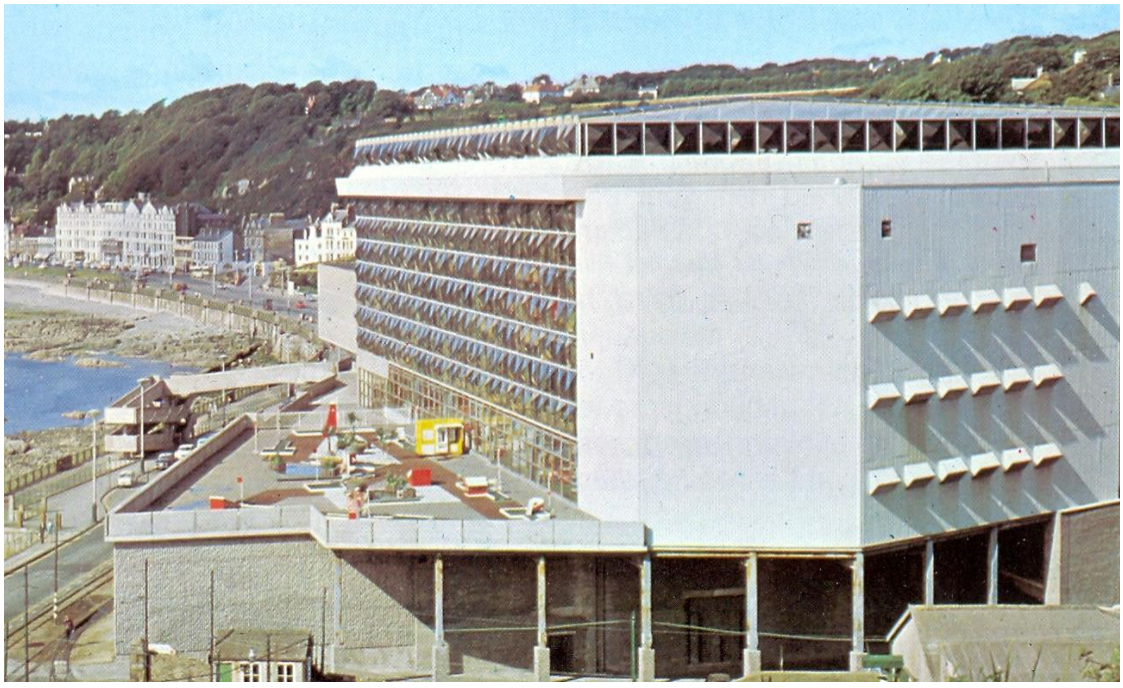

Figure 3.8: The Galbestos wall at the eastern end of the complex (Source: THF Promotional Booklet)

The Borough Engineer knew Galbestos would not satisfy the two requirements of Bye-law 39, but "he considered it an adequate material in all the circumstances" (SFC Report, Paragraph 64, Page 21). Although he advised Douglas Corporation's Works Committee to waiver Bye-law 39 for Galbestos, the Committee's Chairman could not recall making that decision. Douglas Corporation's intention was to seek the LGB's approval of the waiver, but it never did so. The LGB's Planning Committee did, however, receive new plans for Summerland that were submitted by the architects on behalf of Douglas Corporation. Whilst these plans clearly showed the use of Galbestos, the LGB's Planning Committee was unaware of the fact that these plans necessitated a further waiver of Bye-law 39. The Committee accordingly examined the plans from a general planning perspective only, such as the building's physical appearance, and did not consider the fire properties of Galbestos. In the light of this, no advice was sought from the Manx fire chief Mr Pearson, who did not even receive a copy of the revised plans for Summerland that used Colour Galbestos. Several other changes had been made to the design of Summerland (e.g. using softwood instead of concrete for the floors of the terraces) without being approved by the Chief Fire Officer. When Mr Pearson visited the shell of the building in late 1970, he commented:

> "I really thought I had lost my memory. I went back to the office and I checked the plans which I had understood in 1967. They were not in fact the plans which had now been approved."

The decision to use Galbestos was approved by the LGB's Planning Committee on August 16th 1968 without any prior communication with Douglas Corporation. The SFC (Paragraph 65, Page 22) accepted the evidence of the Committee's Chairman that the LGB did not intend to give consent for the waiver of Bye-law 39 for Galbestos, but merely confirm the Oroglas waiver previously granted. However, this restriction was not stated in the document, with Douglas Corporation and the architects concluding that the waiver had been granted for Oroglas *and* Galbestos. Douglas Corporation then issued a notice of Bye-law approval on August 29th 1968, waiving Bye-law 39 by referring to the Planning Committee's decision.

3.4 The opening of Summerland

Summerland opened on Friday, July 9th, 1971. With the exception of the Marquee Showbar and the disco where additional entrance charges were levied, admission to the building between the hours of 10.30am and 7pm was 25p for adults and 15p for children. After 7pm, charges were reduced to 15p and 10p for adults and children respectively. All attractions inside the building were then free. In 1973, weekly tickets were available for adults (£1.20) and children (60p), and the building opened at 10am. Summerland was heavily promoted in the Manx press, with a full-page advertisement appearing in the *Isle of Man Examiner* on 16th July 1971. Bob Emery said: "When Summerland opened it was sensational here on the Isle of Man. There were posters everywhere and everyone was talking about it." The building's promoters claimed:

> "[Summerland] stands as a pulsating memorial to the foresight of its planners and supporters. It can only confound the critics of the controversial scheme when they see for themselves what has been achieved…The result can only be a source of pride to the whole Island...It will undoubtedly attract the widest publicity – not only because it is unique in the western world, but because it caters so ideally for leisure and relaxation in the unreliable climate of the United Kingdom."

Some seaside resorts on the British mainland feared that the opening of Summerland would increase the attractiveness of the Isle of Man as a holiday destination and so damage their own tourist trade. Blackpool was the most concerned, with the town's council sending representatives to inspect Summerland as soon as it opened in July 1971.

Opinion

Despite the understandably lavish promotional literature about the building, Manx journalist Terry Cringle (2000: 108) suggested people's reactions were more mixed, with many feeling that the completed building failed to match up to the hype:

> "What opened, however, was not quite what people had expected. There was no artificial beach and man-made sunshine wasn't everywhere…Despite this, the sensation of being outdoors whilst undercover captured imaginations."

Pym (1977: 70) also commented on how the completed building was different from the original concept: "Instead of the idealised Cornish or Mediterranean village [Summerland] deteriorated into a vast assembly area into which bands, bars, bingo, and amusement arcades could easily be incorporated." Graham Hamer, the Cashier of Summerland in its first season, was clearly impressed with the building:

> "To try to capture the excitement and the sheer joy of visitors to its immense interior would be beyond the ability of anyone who did not witness it for themselves. On the night that the Fairey Band (a brass band) played in the 100ft high main auditorium, Summerland was packed to capacity. The building simply throbbed. There were several restaurants, a sundome and solarium, an amusement arcade, several bars with live entertainment, play areas for kids [*sic*.], an indoor fairground, an underground disco, miniature golf, a sauna and so much more that it was wholly understandable that visitors should come from the North of England just to visit Summerland."

Commenting on the BBC Isle of Man website, Liz wrote: "[Summerland] was so colourful and had such a happy and relaxed atmosphere. There was a lot of excited anticipation before it opened." Carol from Onchan said: "Being in [Summerland] when it was pouring down [of rain] outside was amazing to us kids [*sic*.]. I used to love walking round the place and every time it was just as amazing as the first time". Sharon Bridson, who was 12 at the time of the fire, commented: "Everything about [Summerland] was

magical, everyone had a smile on their face and the atmosphere was exciting." Several contributors to the BBC Isle of Man website remarked on how Summerland not only felt new but also *smelt* new.

John Carter, the travel journalist and TV presenter (*Holiday* and *Wish you were here?*) commented in *The Times* (May 19th, 1973):

> "The centre's glossy brochure claims it has '*Attractions for every taste*', but I must beg to be excused from that generalisation. I do not like motorway restaurants, either, but that is another variation on the theme."

In general, the public was much more positive about Summerland than people in the building trade. Pym (1977:77) wrote:

> "[Technicians in the building industry] felt that architecturally the building was uninspiring and catered for the lowest common denominator of the public's taste in entertainment. However, they granted that Summerland was the first attempt in Britain to build a habitable microclimate and what it lacked in sophistication it made up for in originality."

Architect Warren Chalk made similar comments when he reviewed Summerland for the *Architects' Journal* (1971: 638-648). He wrote:

> "Summerland perpetuates the English traditional working man's holiday: ice creams, roundabouts, cartoons for the kiddies; deck chairs, beer, fish and chips for the mums and dads; pin-ball machines, swimming pools and a disco for the teenagers."

As this is a "predictable formula", Chalk argues, "Summerland falls short, possibly due to insufficient audacity". It does not reach a "magic threshold". Chalk continues:

> "I think that Summerland suffers from rather feeble good intentions…Its second-rateness has, I suspect, real and deep-seated roots in our society and is a 'hang-over' from our slow evaluation and the kind of architecture that happened during the 1951 South Bank Exhibition [The Festival of Britain] – but that was 20 years ago."

Despite its "undistinguished", "unadventurous and dull" architecture (presumably a jibe at the concrete brutalism of the Aquadrome and the lower three floors of Summerland), Chalk felt Summerland was "highly commendable" as a public building and as "a total experience" it gave him "pleasure". However, Chalk felt Summerland lacked a sense of place: "some kind of identity of origin, some iconography" that would add "a new dimension to entertainment". There was certainly nothing inside Summerland about Manx history, culture or legends to cement a sense of place and a feeling of cultural uniqueness. Chalk is in two minds about whether Summerland works describing it both as "a refined cliff hangar" and

saying “it well may” point to “the reinvigoration of the English seaside resort”.

The opening of Summerland was conditional on the granting of a Theatre Licence on the recommendation of Mr Pearson, the Island’s Chief Fire Officer. The 1923 Manx Theatre Regulations stated that an application for a licence must be accompanied by detailed plans and occupancy figures. Despite neither drawings nor figures being supplied with the application, Mr Pearson granted the Licence on July 8th 1971 (the day before the building opened to the public). However, he warned “a good deal of work still [needs] to be done before it can be said that *all* safety requirements have been met” (SFC Report, Paragraph 83, Page 28). Mr Pearson issued the licence on the condition that this work is “completed without delay”. Alarmingly, one of the requirements still to be met was an additional staircase (the Rustic Walkway) that had been requested by the Chief Fire Officer but which had not appeared on the architects’ plans. This staircase, which was built out of logs and timber, was still being constructed when Summerland opened in July 9th. The staircase connected the Garden Bar on the Marquee Showbar floor (Level 5) by means of a bridge to the Solarium floor (Level 4) (**figure 3.9**). As a temporary measure, a builder’s ladder was propped against the bridge until the staircase was completed (Cringle, 2000; *Isle of Man Examiner*, July 23rd 1971).

Figure 3.9: The tower supporting the Rustic Walkway is visible on the extreme left-hand side of the photograph (Source: THF Promotional Booklet)

3.5 The leisure space

The Summerland complex contained seven floors or levels. Architecturally, Summerland's three lower floors were different to the building's four upper floors. Whereas the four upper floors were encased in transparent plastic Oroglas and had panoramic views over Douglas Bay, Summerland's three lower floors were built out of reinforced concrete and had no windows (**figure 3.10**). Consequently, these levels were lit almost entirely by electric lighting. Summerland was thus a building of two halves, with architectural orthodoxy being capped by innovation. Concrete was deemed necessary for the lower three floors because of the site's exposed location. Whilst Summerland was sheltered from the more frequent west to

southwesterly gales from the Atlantic, the site is extremely exposed to onshore easterly gales blowing across the Irish Sea from mainland Britain. Given that the building's lower wall was only 50-125 feet from the sea, a highly resistant building material was required to withstand the intense salt weathering that would occur over the years.

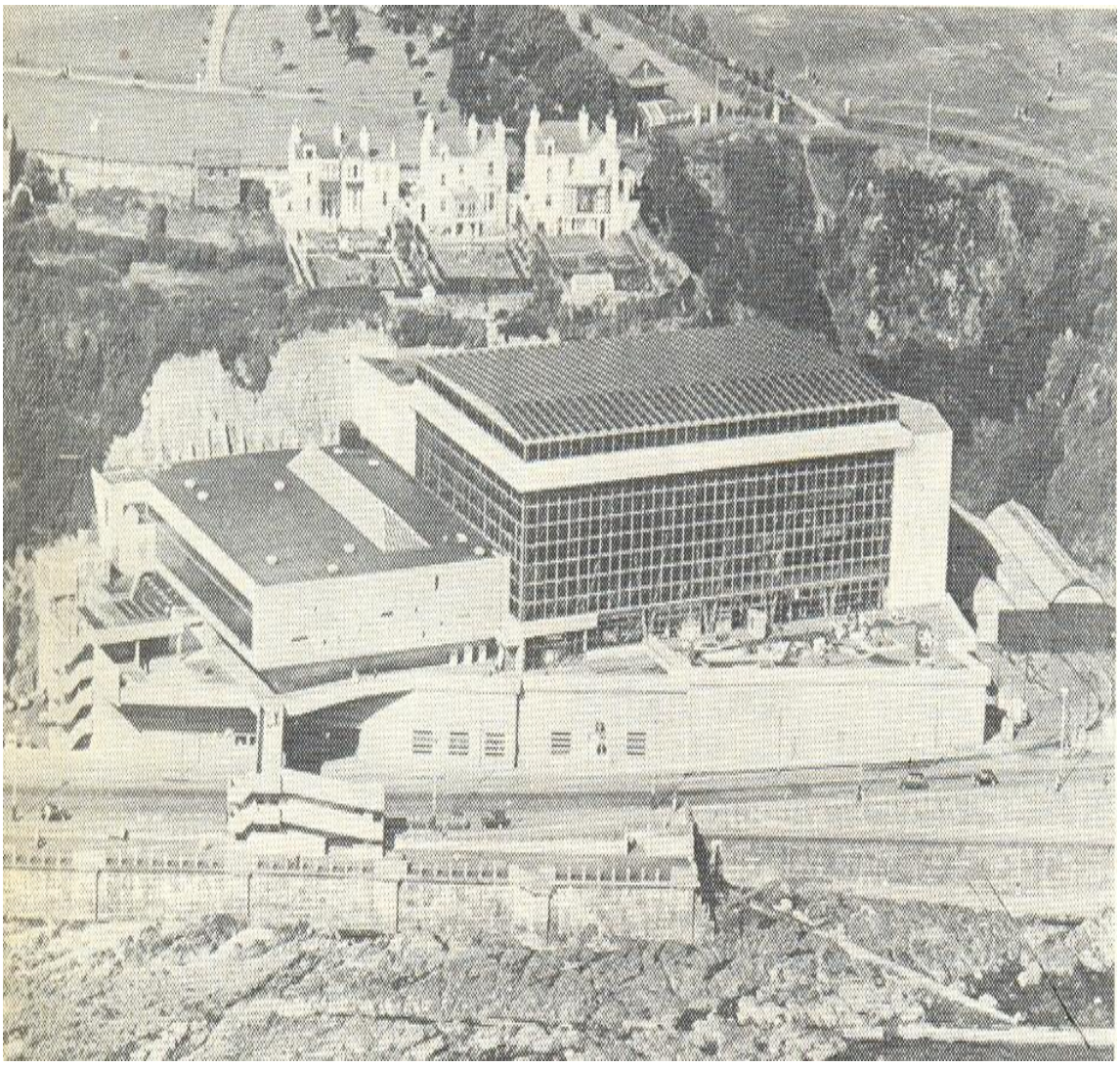

Figure 3.10: Summerland and the Aquadrome

(Source: *Royal Institute of British Architects Journal*, July 1974)

Architectural orthodoxy: the concrete shell

Trust House Forte (THF), the leisure company that ran Summerland, claimed the building would provide attractions "to suit just about every taste" (*The Summerland Story*, 1972, page 11) and age. The same booklet (page 9) claimed:

> "You can forget the children. They are having a gay [happy] time of their own in complete safety under the supervision of people who know how to amuse them."

Summerland "was a blessing when it came to placating fractious children," commented Bill Ireland in the *Belfast Telegraph*. Facilities for children and teenagers were concentrated on the three lower levels in the concrete shell, whereas those used by adults were concentrated on the upper four levels. The distribution of leisure activities inside the complex is important because it created spatial segregation between the different age groups that used the building: a point that will become critical when discussing the fire disaster (chapters 4-6).

The Underground Disco (Level 1)

The building's first level (the basement) contained an underground discotheque whose dance floor measured approximately 65 feet by 55 feet. The disco had its own entrance directly from King Edward Road. Fire regulations permitted a maximum capacity of 350 persons. The disco had a low silver foil ceiling on to which light was projected; there were other

colourful optical effects on the walls (**figure 3.11**). Chalk (1971: 644) wrote:

> "It's all up to the minute, beautifully styled, with psychedelic lights flashing, mind-blowing sounds, offering a complete contrast to the goings-on up above. I could have stayed here all night in its compulsive atmosphere."

With the fire three floors above the Underground Disco and no fire alarm sounding, it took time for news of the fire to filter down to the basement disco. When a person said that there was a fire upstairs, it was met with incredulity and it was thought the person was playing a practical joke. People realised that it was no joke when a person later entered the disco "looking scared" and with singed clothes (Simon Clucas, Personal Communication). Simon's sister Rosemary was working behind the bar in the disco that night. It was fortunate that Rosemary had recently changed her job inside Summerland because she used to work in the Marquee Showbar on the fifth floor until the week before the fire.

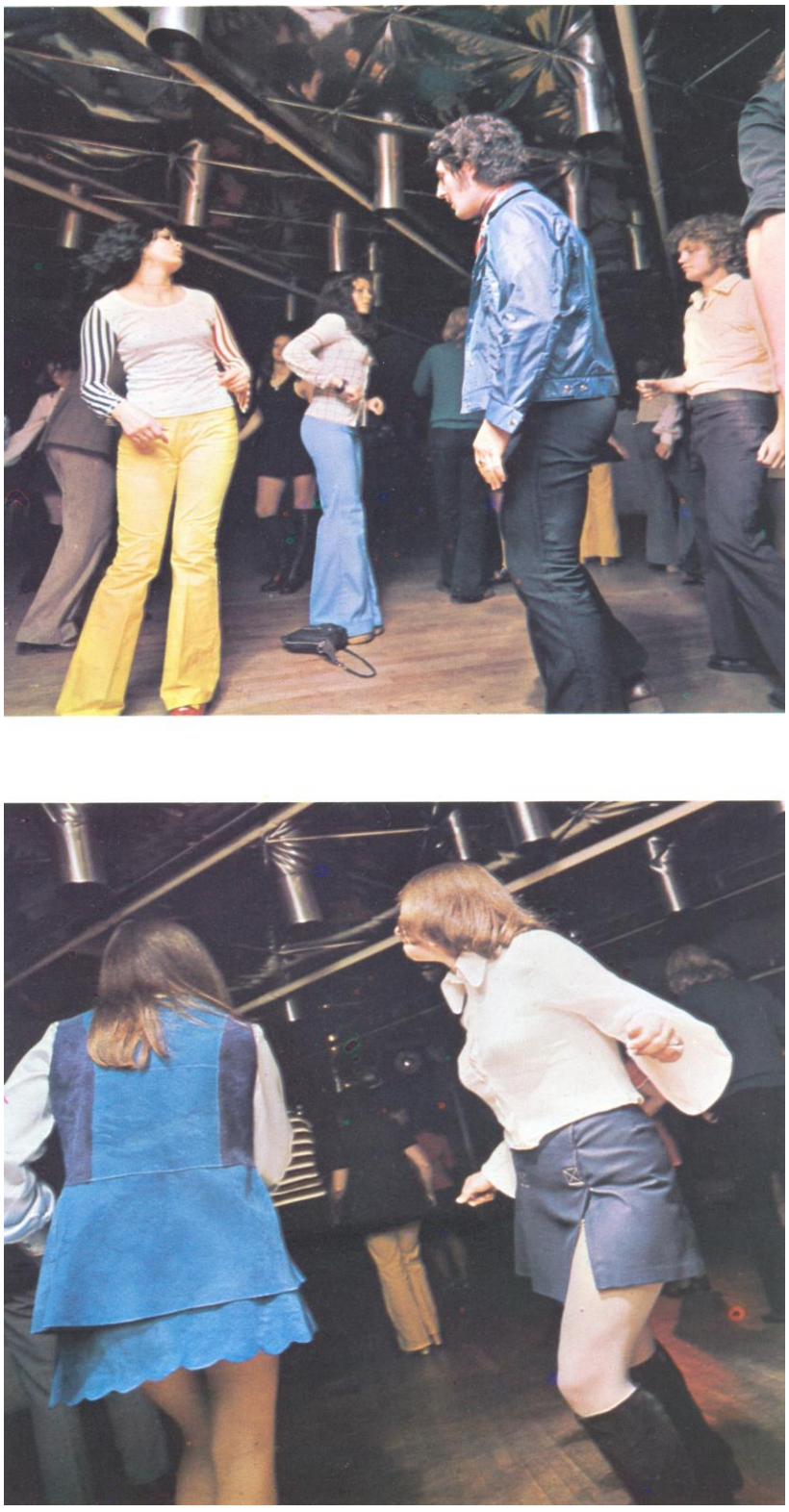

Figure 3.11: Summerland's Underground Disco

(Source: THF Promotional Booklet)

Lower Downstairs (Level 2)

The building's second floor was positioned at street level and catered for children. This floor was known as the Lower Downstairs Level, and consisted of one large undivided space measuring approximately 180 feet by 145 feet. This floor contained a funfair and associated sidestalls, with attractions such as the caterpillar roundabout (**figure 3.12**), the 'moon walk' (a big white type of enclosed bouncy castle) (**figure 3.13**) and a carousel (**figure 3.14**). The fairground was lit by old-fashioned street lamps put up on girders to create the impression of being like an outdoor fairground at night. This floor also contained an area for rollerskating (**figure 3.15**) and astroslides (**figure 3.16**). It was originally intended to use this floor in the winter as a conference centre with room for 2,000 delegates, but this never materialised and the children's amusements remained throughout the year. Instead, the Solarium floor and Marquee Showbar had space for 1,200 and 500 conference delegates respectively in the winter season. Stephen Hughes from Liverpool, whose mother and aunty died in the fire, said (personal communication): "Teenagers would come up from the disco and be sick in front of young children. It was a strange mix of facilities."

Figure 3.12: The caterpillar roundabout

(Source: *The Summerland Story*, 1972)

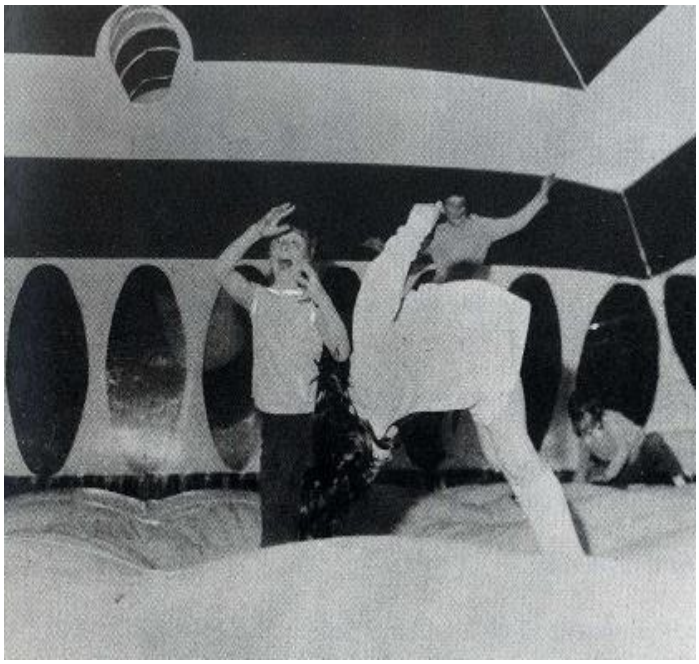

Figure 3.13: The 'moon walk' was designed to give the impression of weightlessness

(Source: *The Summerland Story*, 1972)

Figure 3.14: The children's carousel

(Source: THF Promotional Booklet)

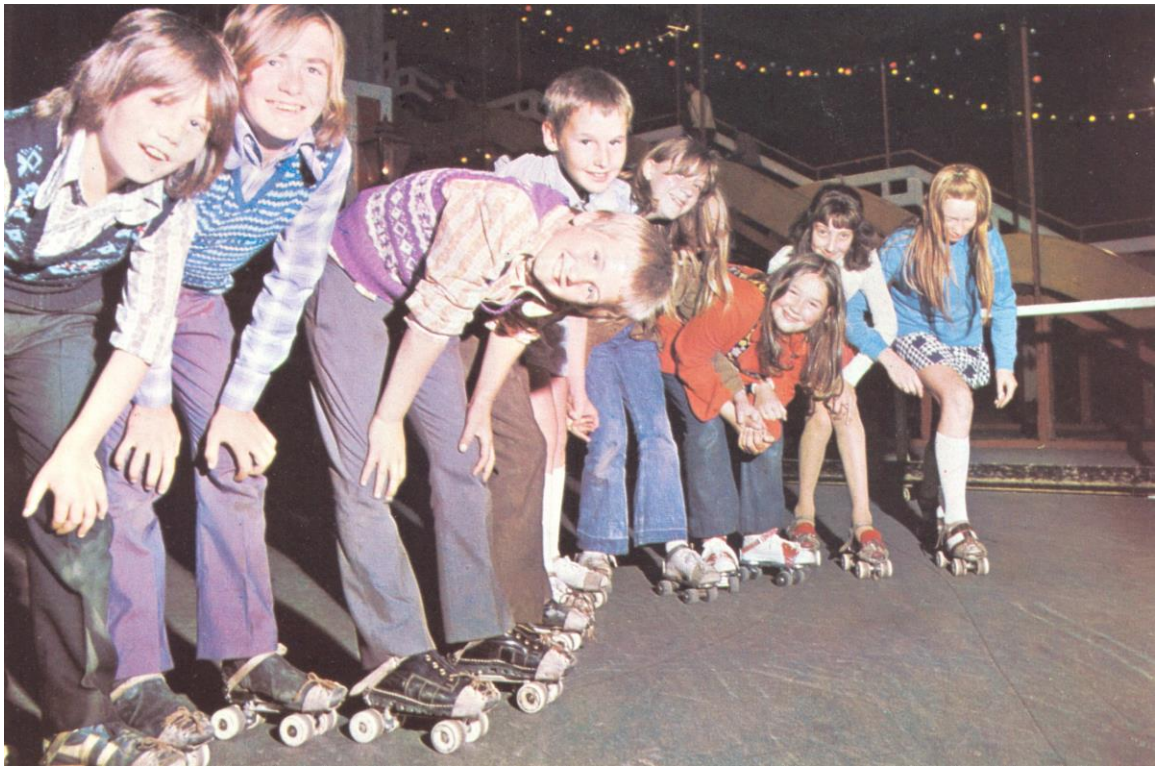

Figure 3.15: The Rollerskating rink. The astroslides can be seen in the background (Source: THF Promotional Booklet)

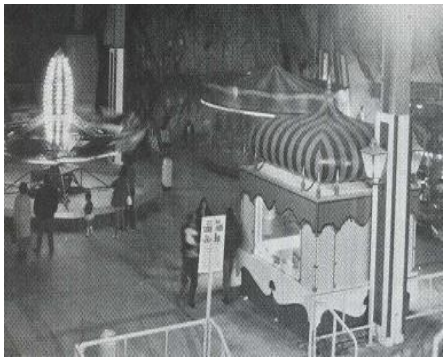

Figure 3.16: The Funfair on the Lower Downstairs Level

(Source: *The Summerland Story*, 1972)

Tony Roberts (10), an only child from the Wirral, was on the Lower Downstairs floor at the time of the fire. It was fortunate that he was using his final ticket for the funfair rides because, immediately afterwards, he intended going to play table tennis on the top floor of Summerland. Hence, if the fire had occurred only minutes later, Tony would have been in the worst possible location. Tony and other children were on an automated roundabout ride. When it became apparent that people needed to leave Summerland, the ride operator exited the building without turning off the ride. Other people had to help the children to get off the ride (Tony Roberts, Personal Communication). "Outside the building, there was intense heat," said Mr. Roberts. Since that day, Tony has had an aversion to fairground rides, possibly because of his experiences that night. He returned to the Isle of Man for the first time after the fire, in 1986, for a job interview. He is now Subject Leader of Business Education at a school in the Isle of Man.

Upper Downstairs (Level 3)

Summerland's third floor (Upper Downstairs Level) was much narrower than the second floor, and contained the Carousel Bar that echoed visually the fairground attractions on the floor below (**figure 3.17**), a children's cinema, cafe, cloakrooms and staff offices. The children's cinema was a modification to the original proposals because this area was labelled as an Aquarium on the September 1967 plans.

Whilst Summerland's lower three floors were unaffected by the fire, these floors suffered extensive water damage (they were soaking wet) from the firefighting above. These floors were now in darkness and fire investigators recall their eerie silence after the disaster.

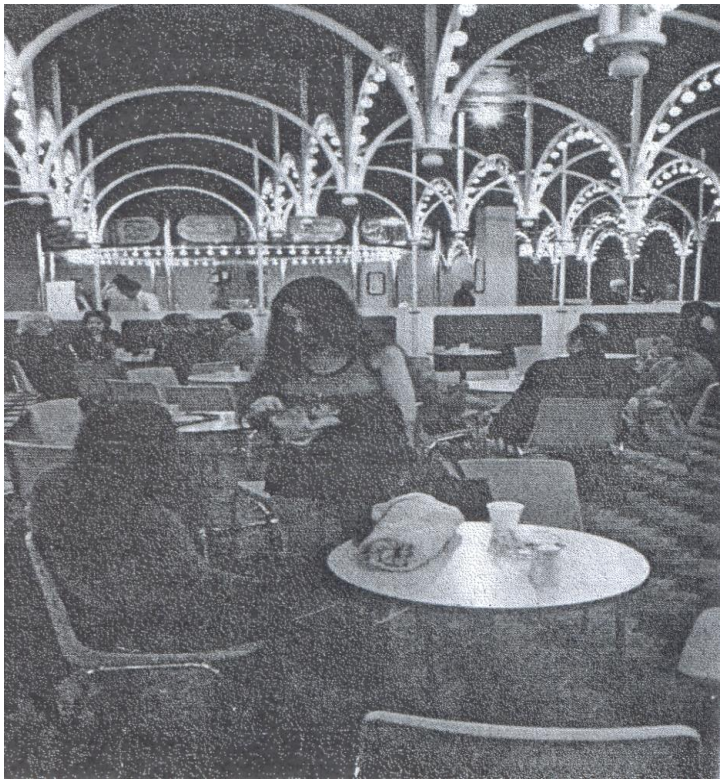

Figure 3.17: The café area (foreground) and Carousel Bar (background) (Source: *Architects' Journal*, 1971, page 646)

Architectural innovation: the solarium and the upper-level terraces

The Solarium (Level 4)

With the exception of the underground disco, all members of the public entered Summerland at Level 4. The building's main entrance was thus not at street level, but was reached by ascending an external staircase by the Aquadrome or by means of a footbridge over King Edward Road (**figure 3.18**). The footbridge was built because public access to Summerland and the Aquadrome was not permitted across the Manx Electric Railway. The footbridge was served by a ramp as well as steps to allow access into the building for wheelchairs and prams.

Figure 3.18: The footbridge providing access to Summerland across King Edward Road and the Manx Electric Railway. People turned right to Summerland and left to the Aquadrome
(Source: *Architects' Journal*, 1971, page 638)

Entry into Summerland was by two sets of double doors (**figure 3.19**); each door measured 5 feet 8 inches wide.

Figure 3.19: The main entrance

(Source: *Architects' Journal*, 1971, page 641)

The visitor would stop at one of two pay boxes before passing through a turnstile to enter the Solarium. Measuring approximately 145 feet by 145 feet, the Solarium (an open area) was Summerland's main floor and was used for live entertainment shows (e.g. brass bands, children's talent contests, old-time dancing, pop bands). Many holidaymakers and islanders alike fondly remember taking part in children's talent competitions in Summerland. Seating in the Solarium usually took the form of deckchairs facing the stage (**figure 3.20** and **figure 3.21**). There were small shop units on the Solarium floor (**figure 3.22**), which sold items such as cards, books and cigarettes. Some children's facilities (**figure 3.23**), such as a cartoon cinema, a tuck shop, nursery play equipment and a sand pit, were to be found between the main entrance doors and the row of glass doors overlooking the Aquadrome's swimming pools. Punch and Judy puppet shows also took place in this area. The Solarium also contained the

Communications Tower – a geodesic space frame structure – that extended to the building's roof (**figure 3.24**).

Figure 3.20: The main entertainment floor of Summerland with a children's talent show in progress (*top*). The Garden Bar on the first terrace is also visible on the top photograph. *Bottom*: Deckchairs facing the stage. Note the luxuriant interior; see also figure 3.24 (*top*) (Sources: *The Summerland Story*, 1972; Isle of Man Tourism Brochure for 1973)

Figure 3.21: The Solarium and the upper-level terraces

Figure 3.22: Shop units on the Solarium floor near the main entrance The escalator giving access to the first terrace can be seen in the top right-hand corner. Note the use of concrete for the Solarium floor.

Figure 3.23: Children's entertainment and play facilities at the western end of the Solarium Floor. The *Dr Who* like blue box on the top photograph is the projection box for the children's cinema (Sources: Isle of Man Tourism Brochure for 1973; Trust House Forte Promotional Booklet)

Figure 3.24: The Solarium floor looking towards the main entrance (*top*); the communications tower (*below*)

(Sources: Isle of Man Tourism Brochure for 1973; *Architects' Journal*, 1971, page 641)

The Solarium was a large enclosed space, which was open to natural daylight (**figure 3.21**). The Solarium's roof was 46 feet high and was mostly glazed with transparent Oroglas acrylic sheeting designed to withstand wind speeds of 120 mph; the same material was used for all but the lowest 10 feet of the building's south facing promenade wall (section 3.2). The pigment intensity of the Oroglas increased towards the roof in order to control for solar heating and glare (Byrom, 1971). A promotional brochure for Summerland claimed the Solarium would "set the architectural world alight for nothing had ever been designed to include so much of the transparent sheeting" (*The Summerland Story*, 1972, page 25).

The architects were equally innovative and ambitious with their plans for the Solarium's north wall. Instead of erecting a conventional wall of brick or concrete, Summerland was 'grafted' into the cliff face "to give the building an exciting novelty" and "an artificial out of doors" feeling (*The Summerland Story*, 1972, page 25). The Oroglas panels did not extend to the cliff face. Instead, the roof adjacent to the cliff consisted of bituminous felt on wood-wool slabs that were on top of steel supports (Silcock and Hinkley, 1974). The same material was also used for a small area of the roof over the Galbestos walling at the eastern end of the building. The cliff face was covered in tropical plants to "add colour and…a tropical aroma to the place". A 40ft man-made waterfall cascaded down the cliff face to add further to the 'naturalness' of the built environment (**figure 3.25**). Given that Summerland's interior heat was fixed at 80^{o}F, the soil used to sustain the plants could dry out very quickly. Kniveton *et al*. (1996) described how this problem was solved by a pipe that pumped water containing plant foods to the top of the cliff before being released through the soil.

Figure 3.25: The man-made waterfall with the Rustic Walkway above (Source: THF Promotional Booklet)

The designers even introduced wild birds into Summerland when the building opened "to give another illusion of being out of doors" (*The Summerland Story*, 1972, page 26). However, the birds were soon removed because they started to eat the foliage.

At the eastern end of the Solarium floor, steps and a shallow ramp provided access to the Terrace Bar, Restaurant (**figure 3.26**) and Amusement Arcade. The Restaurant had a highly decorative ceiling, which consisted of hanging units and light fittings.

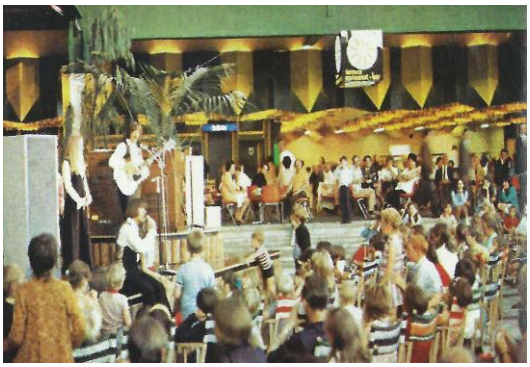

Figure 3.26: The Terrace Restaurant and Bar

(Sources: *The Summerland Story*, 1972; Isle of Man Tourism Brochure for 1973)

Overlooking the sea, the Amusement Arcade contained many slot machines (**figure 3.27**) and a long bench for bingo (**figure 3.28**). The Amusement Arcade had the following dimensions: 107ft long x 57ft wide x 15ft high. It is a shame that the restaurant and bar had not been placed where the Amusement Arcade had been located, so that the areas where people are sitting down and relaxing could have taken advantage of the views over Douglas Bay and the external terrace (Chalk, 1971). Summarising the whole floor, reviewer Warren Chalk comments in *The Architects' Journal*:

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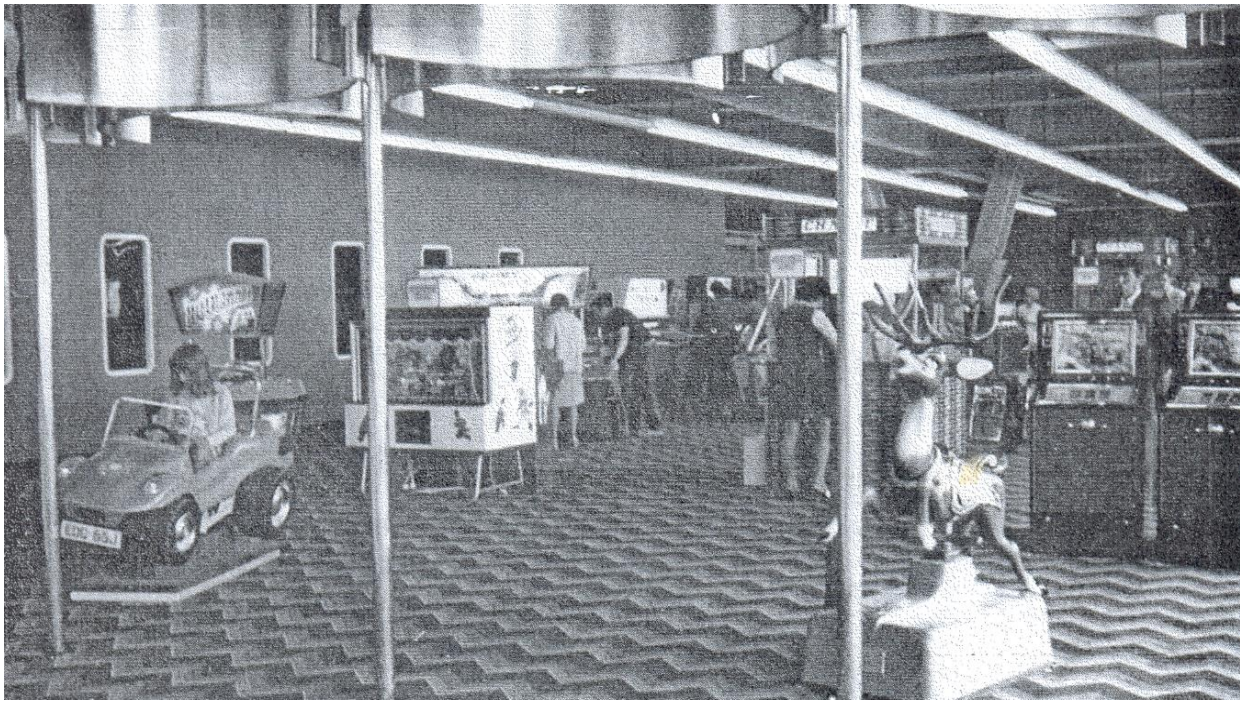

Figure 3.27: The Amusement Arcade

(Source: *The Architects' Journal*, 1971, page 644)

"[The Solarium Level] is all pretty eclectic, arabesque kiosks, rustic split log facings to the bandstand, Tarzan tree-top walkways, deck chairs, what appear to be bits of Festival of Britain surplus and real live birds of the feathered variety…It is a nice, relaxed, willful, but in the end rather timid collage".

Figure 3.28: The Bingo area in the Amusement Arcade
Note the prizes on display on the wooden stands
(Source: THF Promotional Booklet)

In the months after the fire, blackened money from the slot machines was turning up in shops, pubs and banks across the Isle of Man. As Summerland was well guarded by relays of local police around the clock in the days after the blaze (John Webb, Personal Communication), it is more likely the money was recovered from the ruins by those employed to clear the debris away by JCBs as opposed to members of the general public breaking into Summerland to steal it. Another possibility is that the money might have been recovered from wherever the cleared material was dumped. Leisure facilities were found outside the building at Solarium floor level too, with an

external terrace in front of the sea-facing wall being used for a nine-hole crazy-golf course (**figure 3.7** and **figure 3.8**). A dolphinarium was indicated as a future possible usage of this terrace area (see Level 54 plan in Byrom, 1971), although this plan had formally been withdrawn in June 1970.

The Upper-Level Terraces

Summerland's upper three floors (Levels 5, 6 and 7) consisted of open fronted terraces of diminishing width that overlooked the eastern end of the Solarium floor.

The First Terrace: The Marquee Showbar (Level 5)

The first terrace (Level 5) was largely occupied by the Marquee Showbar (**figure 3.29** and **figure 3.30**), which was called the Bavarian Beer Hall on the building's original plans. The Marquee Showbar was used for evening cabaret performances. The Bar measured 85 feet by 55 feet, and took its name from the red coloured marquees that hung from the ceiling. The steel supports of the marquees were camouflaged by plastic chestnut trees. The Showbar contained a portcullis stage, two bars and a cloakroom. People sat at medieval trestle tables lit by electric flaming torches. There was a dance floor in the middle of the room adjacent to the stage. Chalk (1971: 643) commented that the Bar had "swish décor, a nice bit of pastiche, Mississippi-gambler-riverboat-wild-west saloon-bar connotations here, all quietly plush and relaxed".

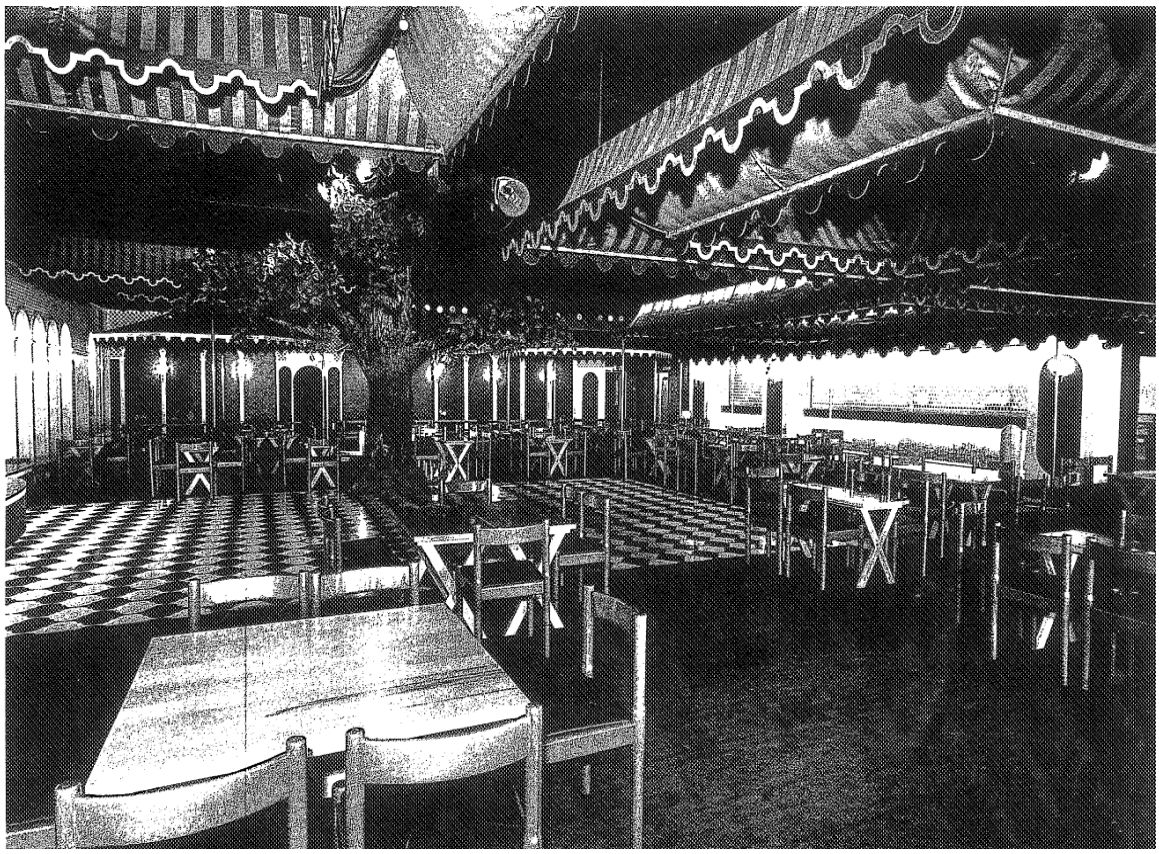

Figure 3.29: The Marquee Showbar

(Source: File of Police Photographs, Isle of Man Public Record Office)

Adjacent to the cliff face, the Garden Bar (**figure 3.31**) was also on the first terrace. With a plastic tree and pergola, people could sit under umbrellas that had "never felt a drop of rain" (*The Summerland Story*, 1972, page 20). The first terrace extended along the building's sea-facing wall as the Spectators' Terrace, which allowed people to sit and have a bird's eye view of the shows taking place on the Solarium floor below. This terrace (20 feet wide) gave access to the Pool Bar at the western end of Summerland that overlooked the Aquadrome (**figure 3.32**).

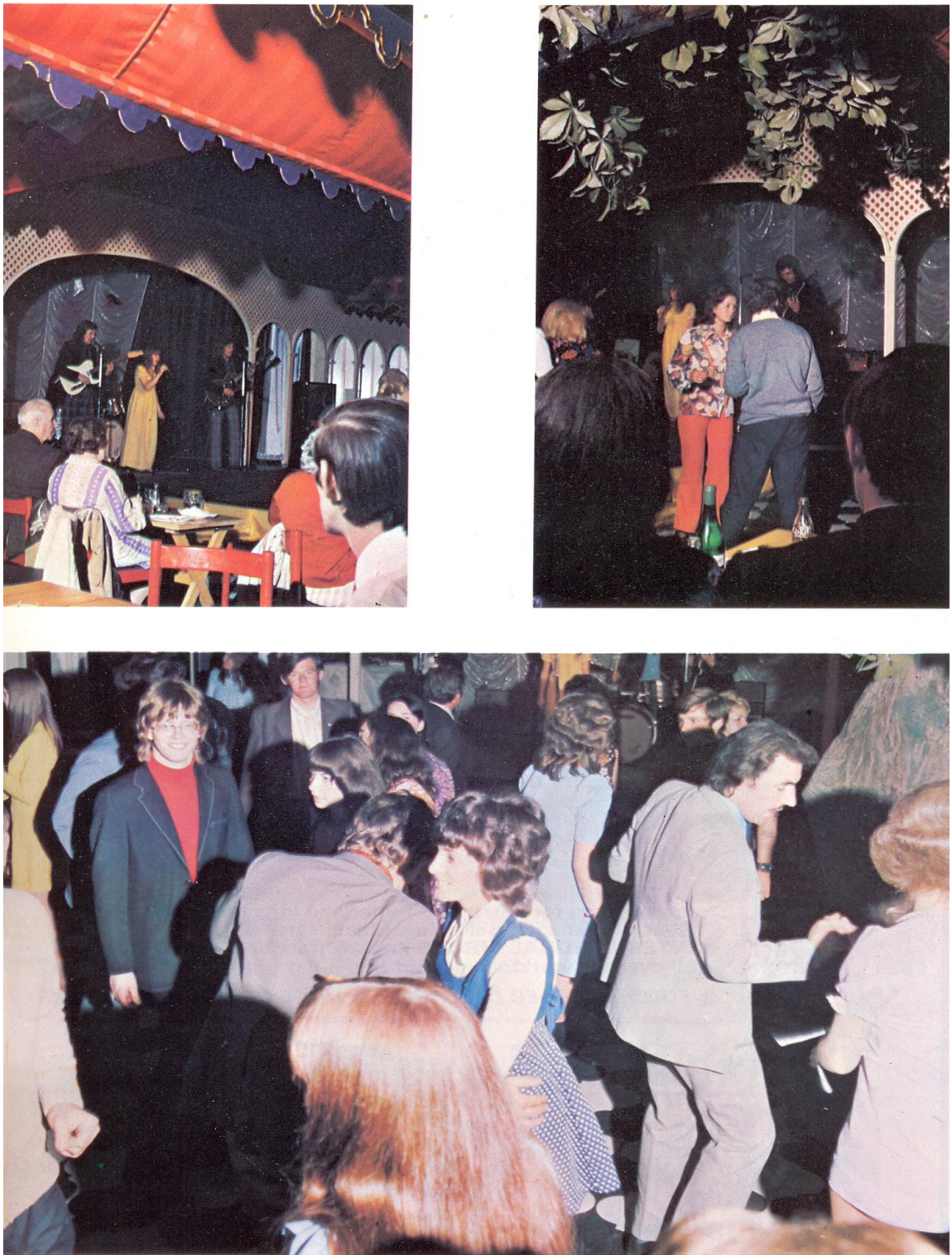

Figure 3.30: Live entertainment in the Marquee Showbar

(Source: THF Promotional Booklet)

Figure 3.31: The Garden Bar on Summerland's first terrace

(Source: *The Summerland Story*, 1972)

Figure 3.32: The Pool Bar overlooking the Aquadrome swimming baths

(Source: THF Promotional Booklet)

The Second Terrace: The Leisure Floor (Level 6)

On the second terrace (known as the Leisure Floor) was a television viewing area, a snack bar and a soft drinks tent. The building's September 1967 plans reveal it was originally planned to use part of the space on the Leisure Floor for carpet bowls. This floor contained a purple-carpeted Sundome (**figure 3.33** and **figure 3.34**), which aimed to provide safe artificial sunbathing, so avoiding the legal problems posed by the original plans involving an artificial beach and false sky (section 3.2). The Sundome was modelled on a sunbathing dome installed on a trial basis in a hotel in Ramsey on the Isle of Man. To ensure that people's bodies were evenly tanned, the original plans for the Summerland dome involved diffusing "the rays by reflecting them on to the ceiling and then bouncing them back on to the bathers" (*The Summerland Story*, 1972, page 23).

Figure 3.33: Summerland's artificial sunshine room – The Sun Dome (Source: *The Summerland Story*, 1972)

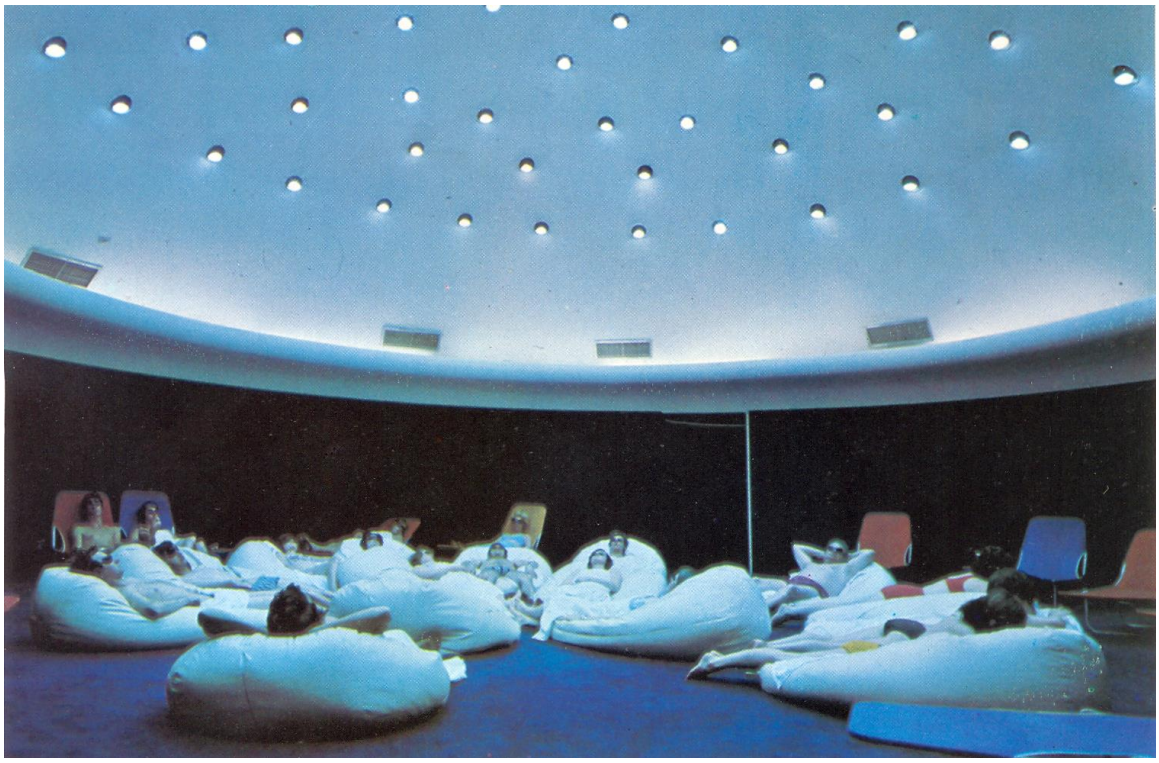

Figure 3.34: The Sundome

(Source: THF Promotional Booklet)

However, this plan had to be shelved after consultation with medical experts. The system finally installed in Summerland consisted of rows of ultra-violet (UV) and infrared (IR) lights that were fixed in the fibreglass convex roof of the Sundome. The carpeted circular Sundome measured 40 feet in diameter and was capable of accommodating up to 50 bathers. People lay on polystyrene filled beanbags and were required to wear special goggles to protect their eyes from the light. Although the sunbathing sessions lasted for one hour, bathers were actually exposed to only 20 minutes of artificial sunlight. Customers were advised not to take a second bathing session on the same day. The Sundome unit also contained male and female saunas (**figure 3.35**) and 'rest areas'. The Sundome came in for harsh criticism from the *Summerland Fire Commission* (Paragraph 76, Page 25):

> "The whole unit with its paybox control was secluded, remote, and from a fire point of view, very suspect."

The partitions in the changing rooms were probably built out of highly combustible polystyrene. When three French girls went into the Sundome naked, it caused a sensation that was picked up by the tabloid press. After the *Daily Mirror's* headline "OOH! LA! LA! Row over NUDE AU PAIR GIRLS', Summerland's manager banned nude sunbathing.

Figure 3.35: The sauna was next to the Sundome on Summerland's second terrace (Source: THF Promotional Booklet)

The Third Terrace: The Cruise Deck (Level 7)

The third terrace was known as the Cruise Deck (**figure 3.36**), so named because this floor was used for games that you would see on the deck of a cruise ship such as table tennis and deck quoits. This usage was different to the September 1967 plans, which showed the floor as being occupied by a lounge area, a TV lounge area, an eating and drinks lounge, pin table machines, a 'chance area' and a jukebox. The top floor of Summerland is occasionally referred to as the Sun Deck.

Figure 3.36: The Cruise Deck

(Source: THF Promotional Booklet)

The Solarium and the three upper-level terraces were almost completely destroyed by the fire. The fire was most intense at the eastern end of the building (the upper-level terraces), although the Pool Bar and Control Room at the Summerland's western end were also severely damaged by the roof fire. However, some parts of the Solarium were little affected; e.g. the area around the main entrance (Silcock and Hinkley, 1974) that was not underneath the Oroglas roof. The building's outer steelwork was unaffected by the blaze, although parts of the roof did sag slightly (Taylor, 1973).

Initial concerns over the cost of Summerland were dispelled by the building's economic success over its first two years. In 1971, the building's operating profit was around £50,000. As the complex did not open to the public until July 1971, Summerland did not have its first full season until 1972. During 1972, over 500,000 people visited the complex, with the building's takings being estimated to account for 13% of the Island's total tourist income (Herbstein *et al*., 1973). The British Tourist Authority also recognised Summerland's innovative nature – calling it "an outstanding tourist enterprise" - and awarded it a special certificate of commendation (**figure 3.37**).

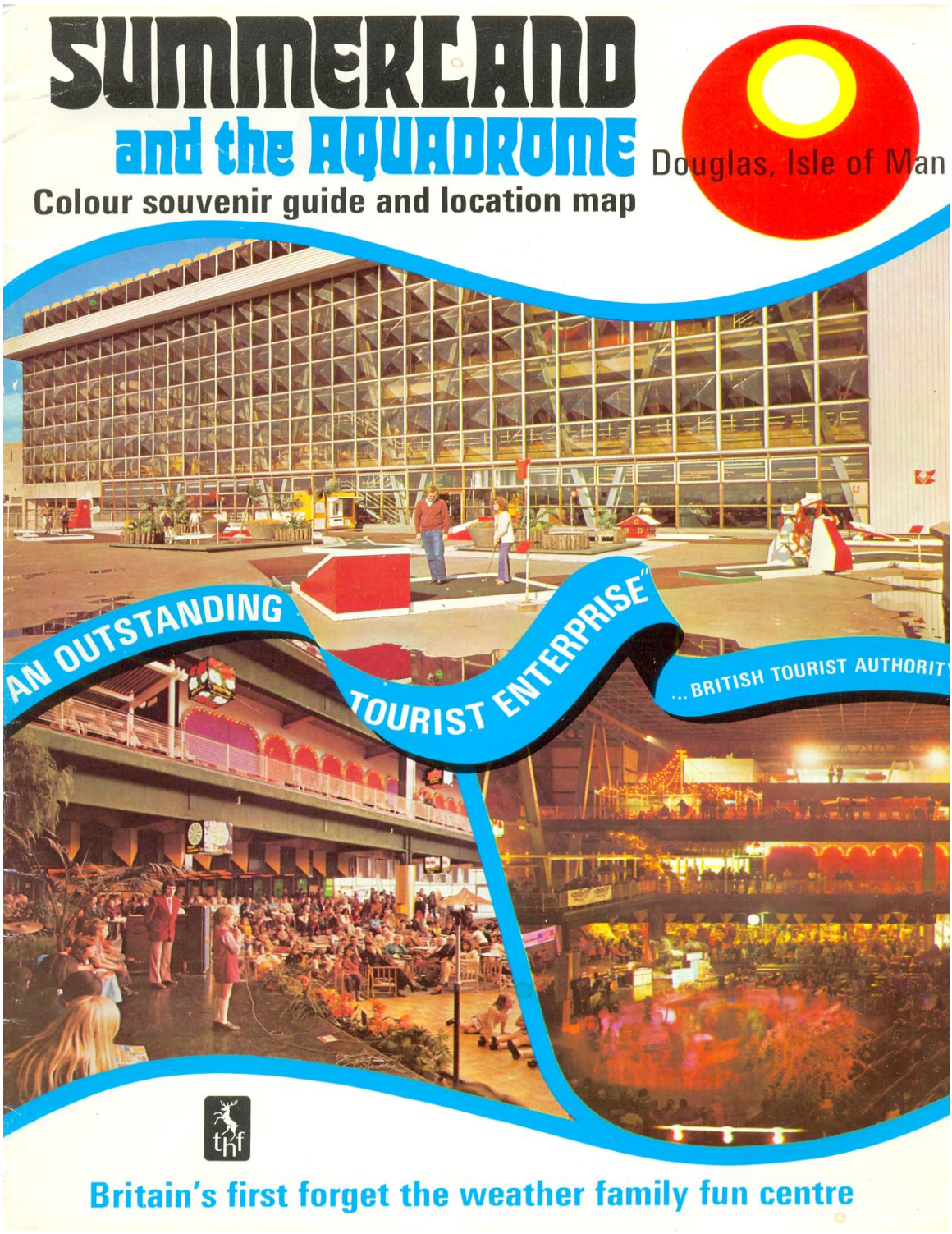

Figure 3.37: Trust House Forte's promotional booklet for Summerland contains the British Tourist Authority's endorsement on its front cover

3.6 Summary

The Summerland complex opened in 1971 and was a building of two halves. The lower three floors were built out of reinforced concrete (hence enclosed). The aim of Summerland was to create an artificial sunshine centre, whose large transparent space would convince people into believing that they were outdoors. This was achieved by grafting the complex into the cliff face (planted in vegetation), and encasing the building's upper four floors (the Solarium and three open-fronted terraces) in Oroglas acrylic sheeting. Oroglas was the product of Rohm and Haas, an American plastics company. The use of Oroglas as a building's main cladding in the US and Canada was strictly controlled (e.g. special permits, sprinkler systems). Oroglas was first used in Britain in the 1960s as an ancillary building material. Oroglas was deemed unsuitable for large-scale use because it was expensive, had poor fire qualities and degraded quickly. Summerland's architects chose the material to achieve the transparent effect because it was more flexible than glass and could be moulded into visually dramatic shapes to concentrate the sunlight. The architects were also reassured by Rohm and Haas' claim that the Oroglas panels would soften and fall out of their frames before ignition. Oroglas did not satisfy Manx Building Bye-Law 39, which requires external walls to be non-combustible and fire resistant. However, Douglas Corporation decided to waiver this bye-law after the architect allegedly told the Borough Engineer that the material was non-combustible; the Local Government Board also failed to pass on information to the Corporation that Oroglas was in fact combustible. Plans for an artificial seashore and beach inside Summerland had to be shelved for practical and

legal reasons, and were replaced by artificial sunbathing on a small scale in the Sundome.