Project Report

**Toby Rainland**

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**Ramsden’s Landing: Why design it like this?**

**Introduction:**

As a business model the hotel is being designed for use by 50% business people, and 50% leisure use.

The overall design aesthetic takes into account the industrial heritage of the site. It uses materials such as metal, glass and wood, but also allows the structure to be exposed in places. The walls of the former building are to be restored where possible. This is especially of importance to the exterior and the internal reception area.

There will also be locally commissioned artwork to produce stained glass for the feature window (North Elevation), wall hangings: reminiscent of Tudor full height halls and of course the metal archway located at the start of the car park. This allows the building to assimilate to its past through local people and enhances a sense of ownership and pride in the community.

**There are two outstanding features to this development, one is sustainability and the other is disability access.**

**1. The Approach**

The entrance to Ramsden’s car park has an archway structure. This is a signposting mechanism to show that your destination has been reached. This creates a walk/drive through barrier giving a sense of enclosure to the space. This will subconsciously herald a space, which is almost by invitation only.

It signals the start of the Ramsden experience. The barrier arch will be commissioned by a local artist to give a sense of heritage to the hotel.

**2. The Car Park**

There will be two disabled/family spaces situated close to the porch entrance. The car park has facilities for 13 cars in total. The overflow car parking will be provided by commercial car parking areas in the proximity. The customer will be reimbursed their fee at reception.

**(a) The surface**

The Tarmac will be replaced by permeable paving for a number of reasons. Tarmac contributes to Urban Heat Island and within this enclosed yard the heat concentration could be considerable. The tarmac will need to be dug out in any case for the ground source heat pump pipes to be laid. Therefore to improve water runoff it is deemed appropriate to lay permeable paving. It is also felt that this enhances the visual impact and improves biodiversity.

**(i)** The car park is also treated as two distinct surfaces, one for cars and one for people. The surface is a different colour and texture used for pedestrian walkways and this is also the cycle path. This provides two functions

**(ii)** It allows there to be a clear distinction of usage, with cars pushed to the perimeter

**(iii)** It signals a visual and tactile pathway, which points to the entrance porch.

**(b) Trees**

There are three trees in the car park, which will be planted when the ground source heat pump has been installed. These serve a number of functions.

**(i)** They assist with the visual signposting to the entrance lobby, as they draw the eye. This psychological function should not be underestimated, as the feeling of being lost or not knowing where one is heading can be very uncomfortable. This is to be avoided if Ramsden is going to be an enjoyable experience.

**(ii)** Very importantly the trees are deciduous which means they provide shade to the building during the summer and allow the winter sun to shine through in the colder months.

**(iii)** The trees are great for biodiversity and visually enhance what other wise may have been a soulless tarmac patch.

**(iv)** The trees also provide a connection to nature from within the building. Again a small but significant impact upon waking is to be able to determine the outdoor climate. The trees and sky allow the occupant to measure the outdoor conditions through observation.

**(c) Car Park Lighting**

This will be lit at night but also on an automatic timer to reduce light pollution. The archway entrance and lobby entrance will have a sensor to detect persons but not cars, as they have their own light source. Low energy lighting will be used.

**(d) Deliveries**

These will be through the main entrance initially. Consisting mainly of laundry to replenish bedding on a daily basis. If this proves to create congestion or compromise the safety of customers then the east access door maybe considered.

**3. The Entrance Lobby**

The entrance lobby has a sedum roof, solid sidewalls and a glass frontage, with electrically operated double glass doors. The entrance lobby serves a particular psychological function of ‘acclimatisation’. This is a small space, which introduces the person to the building allowing them progress to the next set of doors with a feeling of ease rather than anxiety. Retail outlets use the approach in their shops, enhancing the shopper experience.

**(a) The Doors**

They are operated automatically upon sensing a person and or wheelchair user. They are glass so that one can see people who maybe on the other side coming out of the building.

**(b) Bicycle storage**

The glass-fronted porch allows users to see that bike storage is in this lobby. It is also a security measure in that bikes are often stolen when out of sight. There is provision for 6 cycles, 3 of which can be used by customers to cycle along route 66, which is a beautiful cycle path following the canal. This is a perfect form of exercise and stress reliever after possibly hours of driving.

**(c) Bike Supply**

The bikes will be supplied and maintained by a local firm, forging links and keeping money within the local economy.

**(d) Sedum Roof**

The roof to the lobby is sedum, which has minimal maintenance, whilst providing insulation and water attenuation. It is also there to state that this building has green credentials, which we are proud of.

**4. The Reception Hall**

This hall is the main architectural statement of the building. It is designed to take full aesthetic advantage of the two-storey height opening and 12m high apex to the roof.

This is achieved by locating a ‘suspended’ walkway for the first storey landing which leads to the bedrooms, conference room and toilets.

**(a) The Glass doors**

These are electrically operated and open automatically. This ensures that heat is retained in the hall and minimises thermal discomfort. Glass again is used so that people are aware of what is happening on the other side. It also acts as a visual buffer zone to start the appreciation of the interior space.

**(b) Reception desk**

Located immediately to the right, the view from behind reception is 180 degrees, giving excellent vantage point of all entrances, such as stairs, bedroom, conference and the seating area. Behind the desk is ample storage room for the administration of the hotel. This is where the control panel to heat the rooms will be located.

**(c) Toilets**

Located immediately to the left, they can be used before checking in and before leaving the premises. They are both wheelchair accessible and both have baby changing facilities.

**(d) Stairs to first floor**

Located to the left and wrapped around the lift shaft. This proved to be the best option in terms of space optimisation. It is also visually excluded from the reception hall in that it doesn’t eat into the space. This allows the space to be used to its full effect as an open space uncluttered by large architectural elements.

**(e) Elevator**

Hydraulically assisted movement means that less space is taken up with mechanical workings. The small lift will carry up to 6 people, or 2 people and a wheelchair.

**f) Staff storage**

To the right of the stairwell is an under stairs cupboard used for secure storage of belongings from staff.

**(g) Lounge**

This is positioned to the far right corner of the reception hall. It has a large settee and 3 armchairs. The position allows full advantage to be taken of the feature window looking out onto the north garden. It is also opposite the ground floor conference room so acts as an informal meeting area. Tea and coffee making facilities are provided in the very far right corner. This allows some conversational opening, which normally accompanies food and movement.

**5. Reception Hall: Heating & Lighting**

On this innovative design there are essentially two distinct heating zones. The west side of the building will be heated with under floor pipes whereas the east side of the hotel will be heated as individual rooms. This approach is being used as it has considered resident heat capacity alongside Passivhaus principles for the bedrooms. This mix will give the best value for money in terms of construction and running costs.

It is also anticipated that with good airtightness that it may be possible to leave the north & south wall of the Reception Hall as single thickness stone. This will then act as a thermal store. If, through thermal calculations, it is deemed to be below the thermal values required for building regulations then quite simply a skin of hempcrete will be used. This will provide insulation and thermal mass, as well as having the ability to contribute to humidity control.

**(a) Main Heating**

The reception hall will be heated under floor from the ground source heat pump. This type of under floor heating is ideal for this volume of space. The pipes will be laid in concrete, which is in term laid over 300mm of floor insulation. The concrete acts as a thermal store. This type of heating is slow to respond to changes, which is why there is a wood burning stove.

**(b) Wood burning stove**

This atmospheric item will be lit as required. To be used on cold winter days and at night, it creates a cosy and warm atmosphere. It will encourage people to gather and socialise, which is especially appreciated by business travel customers. Informal networking, informal meetings are likely to take place here. This individual heating element will be required for extra heat.

**(c) Ventilation**

Cross flow ventilation is provided via doors and windows on the north and south side of the reception hall.

**(d) Plants**

There are a great many plants, which produce oxygen and absorb pollution; these will be placed throughout the reception hall to increase air quality and humidity.

**(e) Natural lighting**

There is a reasonable amount of light through the feature window, which is double-glazed. However by the reception there is a lack of natural light. There could be the possibility of installing heritage skylights into the roof on the north and south side. This will need to be investigated further. Low energy LED lighting is specified throughout the development.

**6. The Conference Rooms** These have been located in the west wing of the building and are separated from the accommodation area. This is to give privacy to both conference users and customers staying in the hotel.

These of course may well be the same people. However each conference room has been designed to accommodate 25 delegates, which is more capacity than the bedroom accommodation.

It is expected that day visitors, and the local community who would not require sleepovers will also use the conference rooms. This is in addition to being able to provide 16 double en-suite bedrooms, six of which can sleep four people.

**(a) Tea & Coffee** making facilities are provided, along with the usual requirements of a projector + screen.

**(b) Wheelchair friendly:** The design of the room allows for wheelchair access, and is to have a clear corridor of space along the window side.

**(c) Balcony:** In addition to this the first floor conference room has a balcony which is also fully wheelchair compliant giving a turning circle of more than 1500mm. This balcony is also a protected area in case of fire. The exit doors are fire doors.

**(d) Natural lighting and ventilation** via windows, doors and trickle ventilation. Black out heavy-duty thermal curtains block out light for the projector.

**(e) Heating:** the Ground floor will have under floor heating whilst the first floor will have large low heat radiators running below the windows, both supplied from ground source heat pump.

**(f) SIPS:** The rooms will be constructed from SIPs with excellent air tightness and triple glazed windows. But they will not be Passivhaus standard unlike the East wing.

**(g) Toilets:** are located on both floors for use by delegates, staff and customers. There are two on each floor. All are wheelchair friendly and have baby changing facilities.

**7. The bedrooms** These have been designed specifically to take advantage of solar gain and minimise the cold effects of the north facade. This means that in the east wing there are 10 bedrooms on the south and only 6 bedrooms to the north. The linen/laundry room is also on the north side. This means that the design of the corridor is off centre, as opposed to the more traditional approach of locating the corridor down the central spine.

The east wing is also designed to Passivhaus standards. This uses airtightness, MVHR and minimal thermal bridging to minimise heating demand. In addition each room is heated with a very small electric radiator (<0.20 kw is required). This gives individual control and means that unoccupied rooms are not heated.

Excellent Air quality is achieved through air filtration in the MVHR system

The best method to achieve this outcome is to use SIPs. SIPS produce less waste as they are manufactured off site. They have a quicker install time than traditional block and plaster. SIPS have a good airtightness but this can be increased to Passivhaus standards with ease. SIPS also provide the required standard of insulation and fire resistance for a width of 142cm.

**(a) Bathrooms**

Ten bathrooms are wheelchair friendly. The shower tray on the plan indicate that this is actually a wet room. Of these ten bathrooms six have the addition of a bath plus a wet area for a chair.

**(b) Water**

All appliances will be high water efficiency. Toilet flushing maybe provided via rainwater harvesting (to be advised on cost analysis).

Water to be heated via Ground Source.

The bathrooms are supplied as pre manufactured pods. Easy & quick to install, cutting down on commissioning time. The services run behind the pods.

**(c) Layout**

Each double bed is a king-size. All ten double bedrooms are ‘family’ rooms, meaning that a family can occupy them by using the extra sofa bed provided. Please note that these rooms are the wheelchair accessible rooms, which means that families with disabled members can be together.

**(d) Executive rooms**

One room on each floor has a small settee with coffee table

**(e) Furniture**

Every room has a flat screen LED TV, coffee making facility & wardrobe as standard.

**8. The Corridors**

Each corridor has fire doors either end with a double fire door in the middle. The corridor is more than 150cm to enable a wheel chair to turn around. The bedroom doors are all offset from each other to provide privacy.

**(a) Laundry Room**

The laundry/cleaning room is located in the east wing at the end of the corridor. Space needed to be provided for this important and crucial activity. It is located here due to the offset corridor then the logical remaining space, which wasn’t quite big enough for a bedroom. The provision of space as set out by travel lodge is 1m2 per bedroom.

**(b) Lighting**

The only natural light which enters the corridors are from the end fire doors, therefore LED lighting will need to supplement this to achieve required levels of illumination.

**(c) Heating**

Due to the Passivhaus design there will be no need for dedicated heating in the corridors.

**9. The Plant Room**

This is located to the southwest corner of the hotel. This gives it a separation in terms of noise, although the operation of the ground source heat pump is very quiet. Its advantages here are that there is a separate entrance for the maintenance repair people. The commercial waste bin can be stored here alongside the fuel for the wood burner.

Plant rooms generally generate some heat; this means that it can be recovered. It is intended that the heat will be directed to the Reception hall on the stair landing.

**10. The North Garden**

The north garden will be equipped with a pool and will have a mirrored surface attached to the stonewall. This is essential as it creates, intensifies and reflects the much-needed light on to the north façade. The north garden will only receive direct sunlight in the evening and this will only be a relatively small section. It will also provide a view for the six bedrooms and an enclosed space for all hotel users. The increased biodiversity will enhance the site and provide a lovely space to sit out in.

**11. Services**

The services run from the plant room up to the floor of the public toilets, along the underside of the floating walkway and into the corridor floor/ceiling. From here it enters up and down to each room as required. This provides an easy access and short pipe run. There is ample allowance of 600mm in the floor/ceiling/walkway void to enable effective repair/maintenance.

The two MVHR units will be located in the loft space above the bedrooms and ducting will radiate out to the rooms.

**12. Energy Plan**

Energy use in commercial buildings is a significant cost over its lifetime. Then there is the issue of energy price rises due to the peak oil scenario. To ensure the future commercial feasibility of this building, in its state now as a hotel or for a different use, it is imperative that energy consumption is addressed.

The first point of call is to design a building, which has minimal energy use at its source. This means essentially designing to Passivhaus principles of high insulation, airtightness and minimal thermal bridges.

The second line of defence is to design out fossil fuels. The good news is that it can be done on this site. The space required for ground source heating is normally twice the area to be heated. The general rule of thumb is that it takes 1Kw of energy to pump out 4Kw of heat.

Therefore with technical planning, good design and acceptance from the planning department it is possible to secure fuel at an affordable price now and in the future.

The area car park area can only provide enough under floor heating for the Reception Hall and the ground floor conference room. However if further pipes are laid in the north garden then hot water can also be produced for showers etc.

Ground source heat pipes need to be installed 1–1.5m below the surface. This system is cheaper than bore holes. However boreholes, which are on average 100m deep, provide more heat. The cost of each borehole is roughly £5K. Additionally the government ate proposing a Renewable Heat Incentive. This is similar to the feed in Tariff scheme now in place, and could make this already low carbon technology profitable.

However, the pump requires electricity, and the hotel requires lighting and power. At present there seems to be a general move away from electricity as it is seen as a dirty energy form. Indeed the Breeam certification process favors’ gas as a fuel, which produces less co2 emissions than electric.

But this is not the whole story. This building can produce a sizeable amount of KW from PV’s. At this moment in time the feed in tariff is being reviewed. If the building generates electricity from PV then this is clean fuel, and any feed in tariff will create a buffer to rising fuel prices.

A similar approach has been implemented at Baildon Community centre in Bradford. This building is a single storey with very high ceilings and has a floor area of 340m2.

So it’s possible to achieve. The centre estimate that to build with all these extra eco standards cost them 20% more than a standard build.

**Therefore it is proposed that Ramsden landing will be all-electric, with ground source heat. NO gas will be installed.**

To achieve this, even though its an historic building there is a plausible argument to install solar collections on the roof. It maybe that, these will be in the form of tile, however the roof requires replacement to refurbish it. This is the golden opportunity to install PV’s and be an exemplar project.