

Design Studio Analysis Arch8012_21938.

Compliance Report.

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The Killeagh wellness center.

The old Killeagh corn mill,
County Cork.



The Killeagh mill, county Cork.

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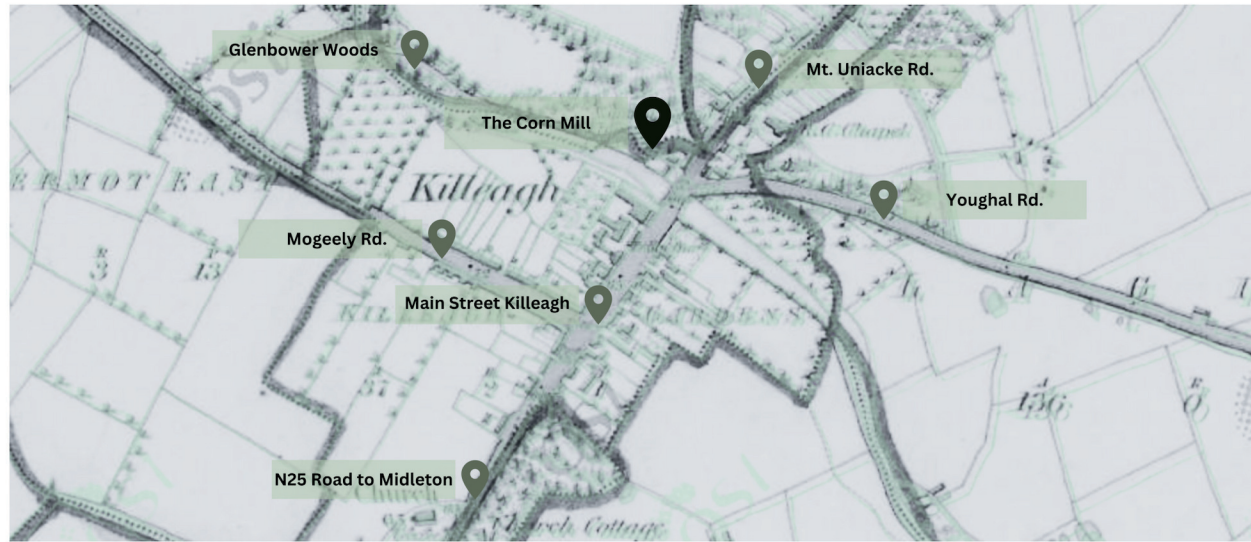
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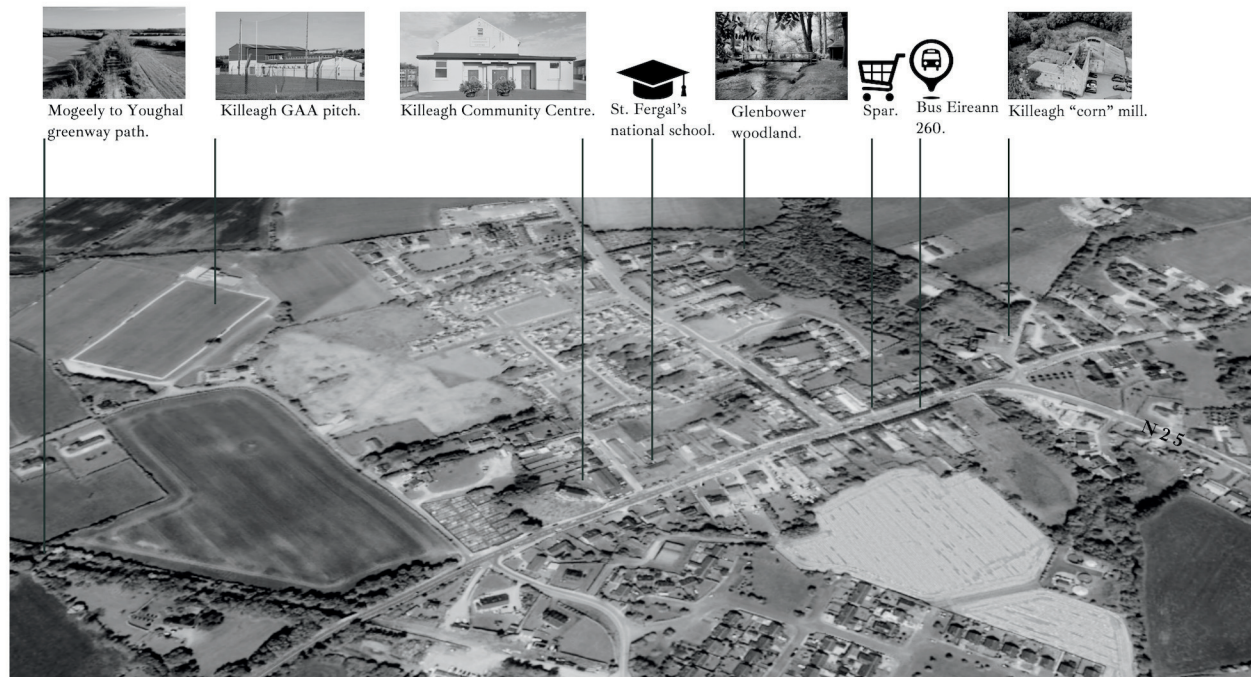
1.0. Compliance report

1.1. Introduction.

This report contains a outlined design proposal for the “Killeagh mill wellness centre” within the old corn mill, Killeagh, county Cork. The report examines the design strategy that will present the complied building regulations with respect to the Irish technical guidance documents (TGD) Part B - Fire, Part K - Stairs and Part M - Access and use. This report will collect data from the British Standards Document BS9999: Code of practice for fire safety, while the sanitary facilities are calculated using the British standards documentation BS 6465.



Killeagh village geohive map layered over the 1842 ordnance survey map:



Killeagh village context including amenities with the main access route N25:

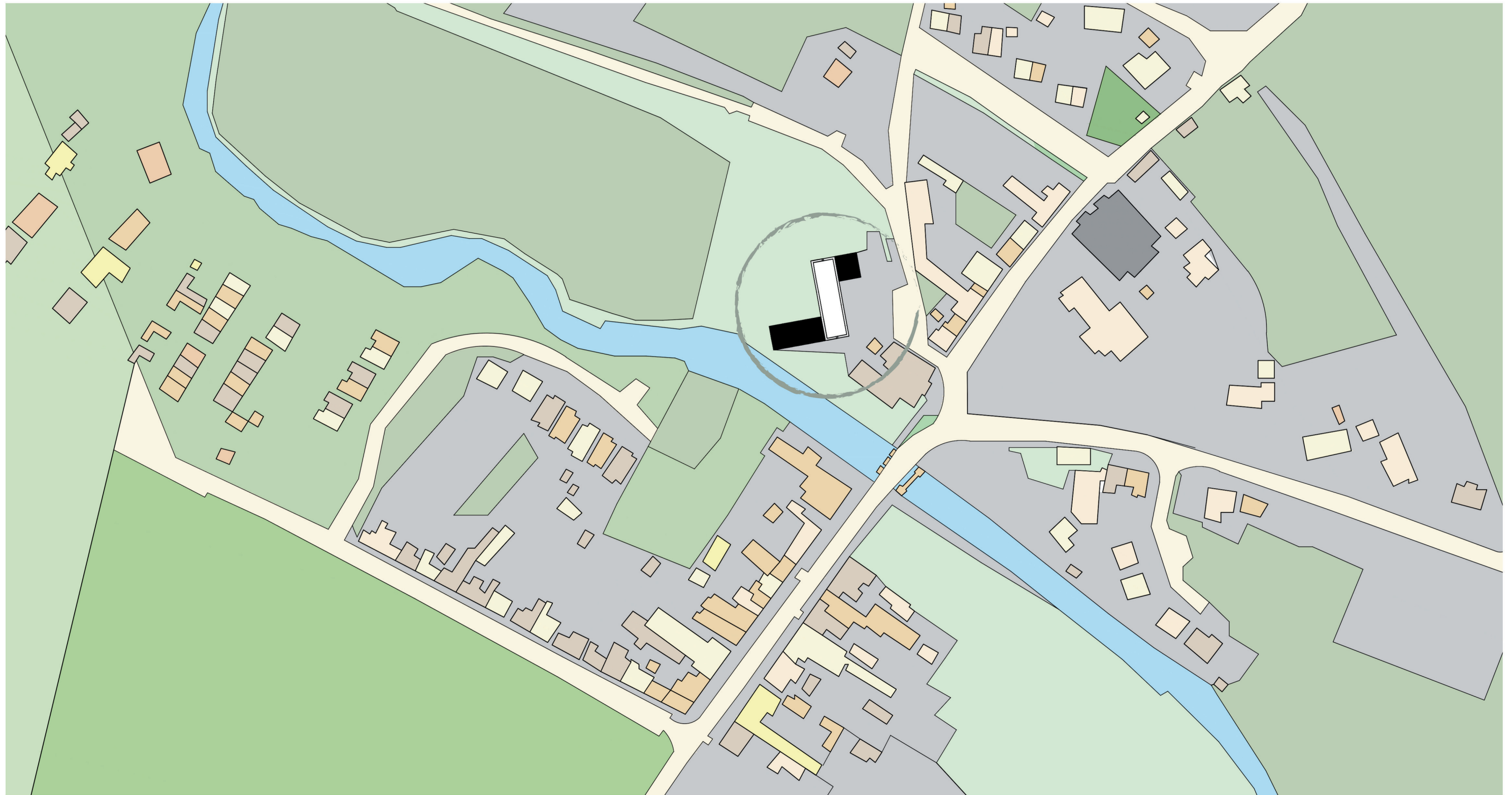
1.2. Site context.

Killeagh is a quant village situated approximately 32 kilometers from Cork city, between the vibrant town of Midleton and the tourism beacon Youghal on the N25. The village is 10Km west of Youghal and east of Castlemayter, you access the site via the river dissour bridge and make a left turn after the thatch inn when travelling east. Killeagh has a population of 899 individuals which was documented in the 2016 census, 87% white Irish, 1% Irish travelers, 10% other white ethnicities, 1% black, <1% Asian. Through research it became evident on the numerous derelict buildings across Ireland and through further analysis a sum of over 10,000 derelict sites across county Cork were discovered. While new construction builds are being developed and the housing crisis worsens, the derelict buildings need to be analyzed and renovated; a new lease of life is needed to add functions to the derelict buildings.

The site of the Killeagh mill is adjacent to the river Dissour and Glenbower woodlands, the main street is clearly visible from the site. The Glenbower woods are towards the north gable of the site spanning over 6.4km. There is a carpark to the east elevation of the site where the trail of the woods begins, further up the path another car park is situated to the south alongside a playground facility. The old thatch is placed to the front south gable of the structure and has been a consistent beacon of history within the village and has been standing since the 1600s. The site begins at the entrance to the infamous Glenbower woodland that is a popular trail for avid walkers and cyclists. Killeagh village has numerous amenities such as restaurants, beauticians, bakers, churches, pubs, chemists, food markets, Gaa pitch, primary school, butchers, graveyard, housing, petrol station and community center. This village may have all of these amenities, but each is of a small scale suited to to the community and not used to its fullest potential to grow to be attractive to the wider communities. There are numerous access points to the village via car, bus services through Waterford, Youghal and Cork city (Bus Eireann 260, expressway 40) and bike (via greenway path). The roads connecting to the village are consistent of the N25, Mogeely road, Mount Uniacke road (L3806) and the Youghal road.



The mill structure is highlighted in the above image travelling east on the N25 Youghal road:



The Killeagh mill existing structure is evident above within the AutoCAD site context map, this highlights the village of Killeagh.

1.3. Existing building description.

The Killeagh Mill dates to the nineteenth century, it is now roofless and ruinous while also being a protected structure (RPS no. 406) in the architectural conservation area (ACA) of Killeagh. A stone-built extension was built to the return of the western elevation in the 1840s, while a large wrap around galvanized structure was added in the 1960s to the 1970s, after the fire in the 1960s which caused extensive damage.

The Killeagh mill presents itself as a distinct architecture structure, a long slender building with a great height of 5 storeys. The original structure from the eighteenth century was an "L shape" floor plan until the 1840s when an extension was built, and the floor plan became a "Z" design. The original plan and extension have an area of 236m² per floor and ascends over 5 storeys in the main structure, 2 storeys on the east structure and 3 Storeys on the extension. The main structure has a total floor area of 142.37m², the east structure spans 39.4m² floor area, while the west extension structure has a floor area of 93.8m². This structure now the main structure stands roofless due to fire damage, no remains of it's pitched roof remain on site. Images from the time and the gable integrity allow us to understand the pitched roofs style, while the extension has a shed slanted roof. The river Dissour is to the west of the structure, running down the Glenbower woods and Killeagh village. The floor to ceiling heights vary within the structures, while missing the internal structure it is not definite on accurate measurements, though the new floor to ceiling heights will be to standard of the TGD Part B regulations.

The mill has stood on site since the 1830s, as in 1837 Lewis wrote of a "bouting mill" on the river dissour. Evidence of the mill has been found on the archeological heritage of Ireland site which dates to the 1766s. Formally a corn mill, but evidence found by locals of a bleach mill in the nineteenth century due to the river dissour having bleaching properties.

There is a corrugated steel shed extension is to the north end of the structure, this was built in the 1960s and provides little structural integrity so I proposed to remove this structure to gain more exterior land. The exterior walls are cobbled with random stone quoins and still hold the original limestone render. The cambered headed window visours are now blocked but still evident in the structure despite holding no function to the building. There are 25 windows on the east elevation, 27 windows on the south elevation, 24 on the north elevation, and 22 on the west elevation.

There is a corrugated steel sliding door at the south gable of the structure, along with an enlarged window opening on the extension. There is a door opening on the east elevation that is left open, there is a corrugated door laying to the side of the structure and it has been damaged. A small blue timber door is on the east elevation of the structure, formally used for the milling process in the eighteenth century.

The interior of the mill is completely overgrown and has been used for dumping of waste, if cleared the visibility of the lime rendered walls is visible within sectioned areas of the building. The extension to the west of the space is full of rubble, timber and waste. While on my site visit, I seen locals dumping food, oil and waste to the west of the structure which added an unpleasant scent to this site. the wheel pit location lies to the north of the building along the western elevation. The floor material is unknown due to debris and waste on the floor. The metal rodding from the floor levels still resins on structure moving parallel through the space and layering over one another. There are a few metal trusts on the floor, they collapsed during the fire, a further expectation needs to take place but due to safety measures this is not currently possible.

Archaeological documentation regarding the site documents the owner in 1766 as Mr. John Murphy. In 1842 Mr. J Johnstone left the building to Mr. Edward Connolly due to a fire. Mr. Connolly built a new corn mill feeding the river dissour from Glenbower lake through the mill. In the 1880s the mill became property of the Royanes then to the Sweeney family. In 1971 a bin of barley caught fire causing extensive damage to the now imposing feature of Glenbower woods. In 1988 the Glenbower lake was breached for safety reasons the extension of the river dissour then stopped running through the mill and rayed out. Most of the external mill structure is still standing to date, with the exception for the pitched roof. This site recognizes weathering, decay, fire damage and antisocial behavior.



Drone aerial view footage of the mill structure within the Glenbower woodland:

1.3. Existing building description.



Figure 1: Window visours.



Figure 2: Aerial view south facing.



Figure 3: Mill wheel location.



Figure 4: South gable.

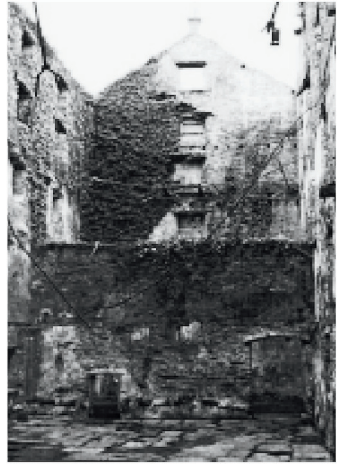


Figure 5: North gable.



Figure 6: North gable.



Figure 7: South gable.



Figure 8: West elevation.



Figure 9: West elevation of the 1844 extension.



Figure 10: East elevation of the main structure.

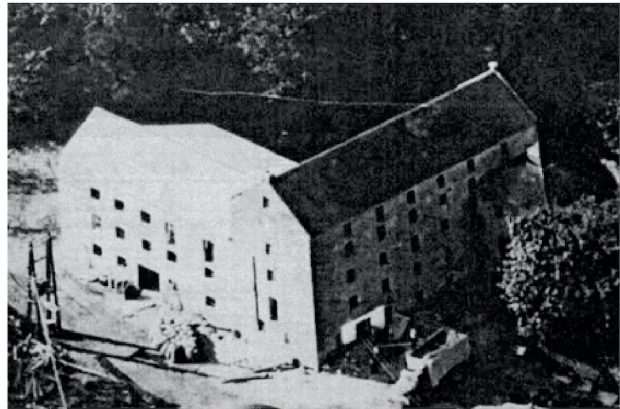


Figure 11: Aerial view of structure in 1844.

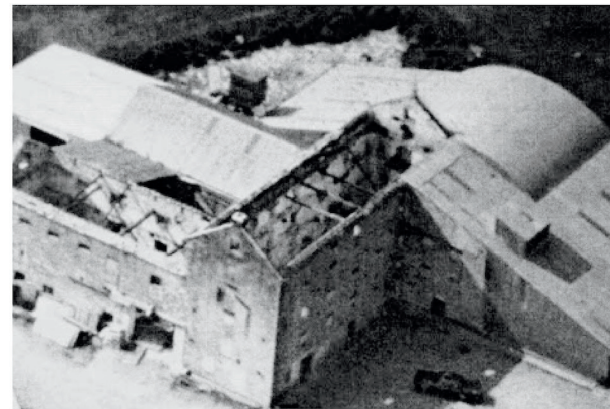


Figure 12: Aerial view of structure after the fire in 1960s.



Figure 13: South gable.



Figure 14: South gable.



Figure 15: East elevation of the main structure.



Figure 16: View of cobbled stone wall on the exterior.



Figure 17: View of window visour.



Figure 18: Interior window.



Figure 19: South gable.

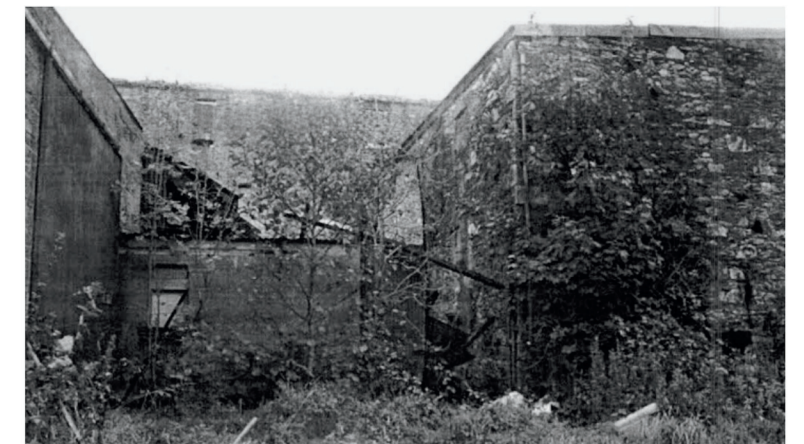


Figure 20: West elevation of the 1844 extension.

1.4. Building intervention.

The proposed design for the Killeagh mill is to encourage wellness through activity, Throughout the past decade health and wellness has become a vital part of life, from the bike to work scheme to competitive exercise to a casual Sunday stroll. We have seen the new greenway path being constructed from county to county, additionally the path passing through Killeagh Co. Cork to Waterford will become a adequate function towards this structure. A proposed design where you can immerse yourself in culture, history, music, and food, This led me towards the proposed use of health and wellness as the Killeagh mill is placed within a path and a strong community surrounds it bursting with traditional Irish roots.

I propose a rest stop situated in the heart of Killeagh village on the edge of the greenway path, an oasis of history, culture, and relaxation, where locals and tourists can gather to enjoy the calm, sustainable and fueled interior. A space for all ages to enjoy refreshments and food, and to listen to music and stories. A pit stops before you can travel onto county Waterford, including a bike repair and rental shop to avoid any distress. Accommodation will be a huge factor within this space, I intend to create a place to lay your head in affordable innovative accommodation that connects the exterior within the interior, accessible for all individuals.

After conducting my site visits of the mill building, Killeagh co. Cork. I observed the site and its surroundings closely, I decided to base my concept on the environment surrounding the mill, this was created by viewing environmental layering of materials found on site. The incorporation of biophilic design will be introduced within this conceptual framework. The exploration of the sites trees, rivers, ground, trails and materials produce a series of layered materials to expose a design development that would correspond with proposed spatial interiors.

The ground floor explores a community space containing a café, stage, games room, gardens, bike shop, bike repairs and tiered seating. This space contains a unique space immersing in a community engagement connecting to the conceptual design of environmental layering. The first floor holds the hostel accommodation and lounge space, This floor is closed for public usage to ensure a safe environment for the residents of the accommodation. The second floor contains hostel usage for the accommodation users to engage with one another, this holds limitations for the public due to personal safety and rights of the hostel user. Lastly the roof floor holds a public bar to immerse the community into a surreal experiences overlooking the community and Glenbower woodlands.

These interesting dynamic spaces encourage communication within the inner and outer community immersing them in wellness and knowledge of their space to aid in the users physical and mental health through design. A void space intersects throughout each floor plate to incorporate natural light throughout to immerse the users into the environment, the void connects to users to the structure by overlapping a view from the roof to the ground floor.

While considering the design opportunities it was vital to surround my design around accessibly and aesthetics, the incorporation of LEAN construction will highlight the importance of costings and management within a design. The opportunity of the site should create a complex design involving the community through knowledge, sustainability and innovation. I will link sustainability into this space by using reclaimed and recycled materials which should lower the cost and contribute to waste management, but may cause limitations on materiality. The inside of the structure has no floor levels due to fire damage and the interior is cleared of rumble just overgrown with foliage this provides little detail on the original floor to ceiling heights along with original materiality.

In consideration of the site context, I hope to incorporate the exterior within the building using natural light, biophilic design and sustainable materials. I hope to incorporate recycled materials for the structure's framework and interior such as hemp installation, reclaimed wood, recycled plastic, Corten steel, recycled stone etc. This will create a leaner construction along with sustainable design.



Conceptual montage of the environmental layering.

1.5. Conservation and structural strategy.

The conservation and structural strategy proposes to protect and renovate the Killeagh mill, located off the N25 national road to Waterford. The protected structure (RPS: No. 406) is in the architectural conservation area (ACA). This development will comply with the conservation guidelines. This building has been unused for numerous years and has been subject to fire, dumping, debris and anti social behavior throughout the years, due to consistent neglect by the previous land owners this structure is now roofless, floorless and decaying, it is essential unsafe to access.

As the pitched roof is now debris, essential work will have to take place to compose a new structured roof, as this floor will be a key function within my design the rework will compliment the corrugated steel structured shed that has been removed to the north of the structure. A well developed roof plan will expose a unique conceptual design that links the structure to its heritage throughout the years with a modern twist.

To aid in the structural strategy of this structure new floor to ceiling heights have been obtained to comply with the regulatory requirements of technical guidance documents. The once 5 Storey structure is now a three Storey structure along with a roof floor to add additional function to the structure. To create an entrance to the structure the window panels was used and enlarged to create an adequate entrance to the main structure, the stone removed for this intervention will be recycled and reuse within the structure to aid in the design. each window and door opening have been analyzed to ensure the compliance within the building regulations and to aid in the instillation of the structure. Each window is triple glazed glass, with a copper panels technology to aid in the exposure of natural light to the interior. This has been done with the up most respect to the structure to avoid any dismay to the original structure.

The floor plate has been enlarged to incorporate overhead facilities to converse across the structure. The structure has an original lime mortar insulation on the exterior or the structure and can be seen on internal images also in the 1844 extension. To comply to the conservation guidelines of the protected structure, I have decided to apply the lime mortar to the exterior to add and regain to the history and heritage of structure.

1.6. Purpose group.

The Killeagh Mill, has multiple functions going on within this building at any given time. Due to these specific functions numerous purpose groups are required.

The Mill is separated within these series of groups:

- Bike repair/rental - Group 4(a).
- Café - Group 5 (part b only).
- Bar – Group 5 (part b only).
- Hostel – Other residential group 2(b) (VS999).
- Community space – Group 5 (part b only).

The table 0.1 below is seen in the Technical Guidance Documents Part B - Fire:

| Table 0.1 Classification of buildings by purpose group | | |
|---|--------------|--|
| Use | Group | Purpose for which a building or compartment of a building is used |
| Other Residential | 2(b) | Hotel, hostel, guest building, residential college, hall of residence, and any other residential purpose not described above. |
| Shop | 4(a) | Premises used for a retail or wholesale trade or business (including retail sales by auction, self-selection and over-the-counter wholesale trading, the business of lending books or periodicals for gain and the business of a barber or hairdresser) and premises to which the public is invited to deliver or to collect goods in connection with their hire, repair or other treatment, or where they themselves may carry out such repairs or other treatments. |
| Assembly and recreation | 5 | Place of assembly ⁽²⁾ or recreation, including the following: (i) a theatre, public library, hall or other building of public resort used for social or recreational purposes, (ii) a non-residential school or other educational establishment, (iii) a place of public worship (iv) a public house, restaurant or similar premises used for the sale to members of the public of food or drink for consumption on the premises. (v) a sports pavilion, stadium, grandstand, or other spectator accommodation. (vi) a terminus, station or other facility for air, rail, road or sea travel. |

These purpose groups are vital to this project to ensure adequate calculations are composed to create the use of spaces in conjunction with Part B, Part K and Part M of the technical guidance documents and the British Standards Document BS9999 and the British standards documentation BS 6465.

1.7. Building floor plans.

The proposed ground floor plan, first floor plan, second floor plan and roof floor plan for the Killeagh mill wellness centre at the “Old corn mill, Killeagh, county Cork”.



The Killeagh mill, Wellness centre.
 Killeagh village,
 Midleton,
 County Cork,
 Ireland.

Drawing title: Ground floor plan

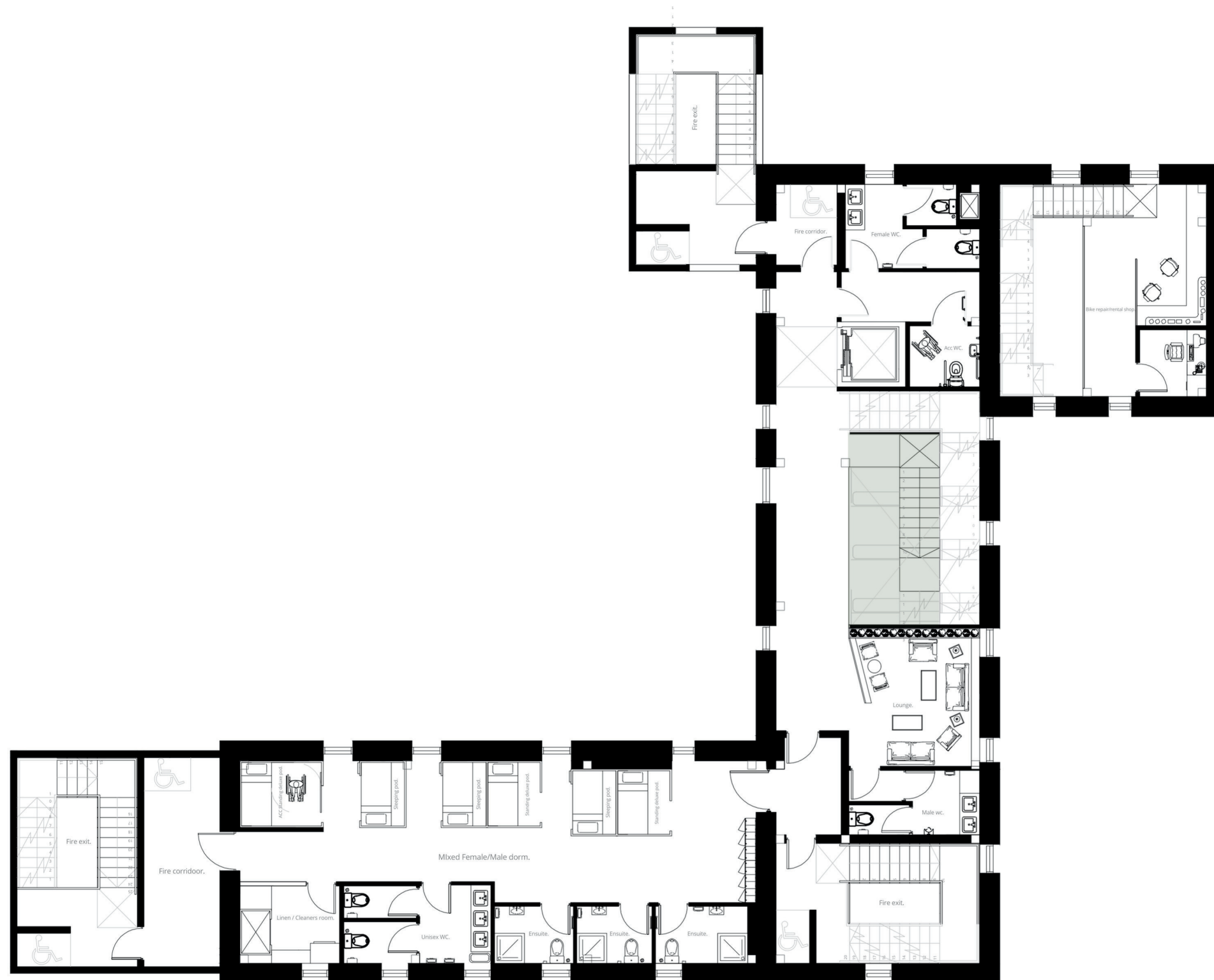
Scale: 1:250

Drawn by: Adelina Corigliano

Drawing number: 001

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre,
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: First floor plan

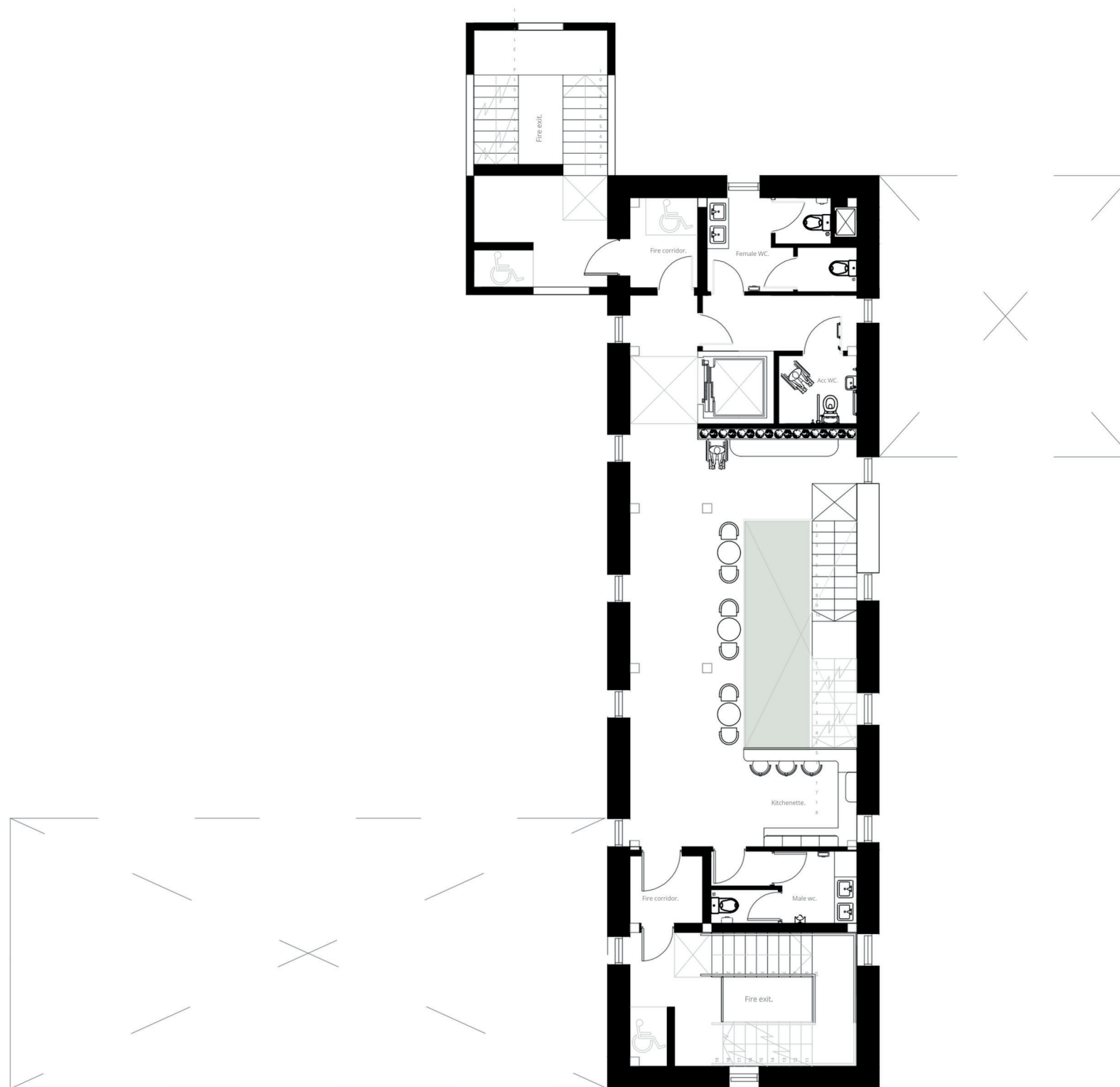
Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 002

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre.
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: Second floor plan

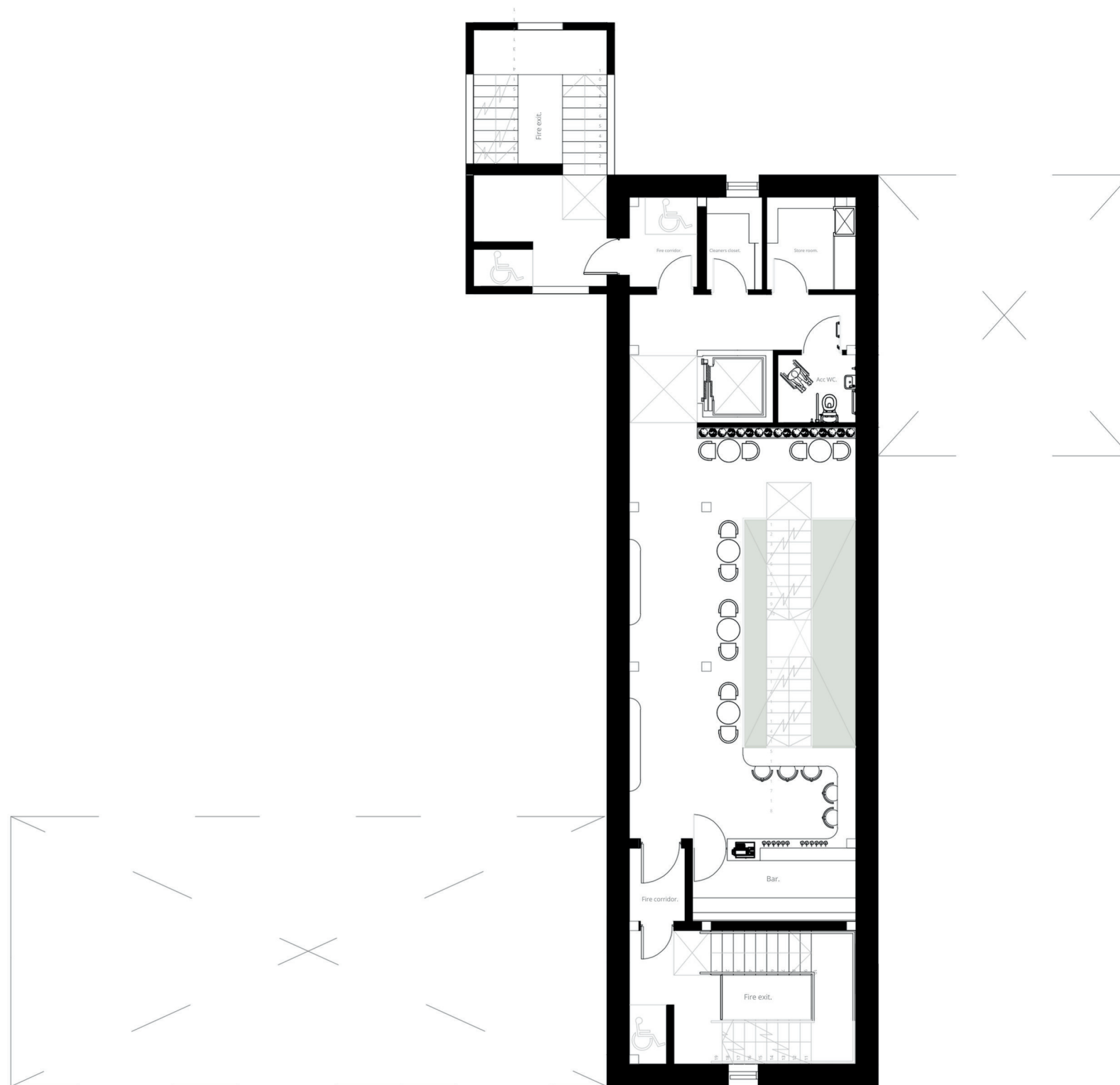
Scale: 1:250

Drawing number: 003

Drawn by: Adelina Corigliano

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre.
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: Roof floor plan

Scale: 1:250

Drawn by: Adelina Corigliano

Drawing number: 004

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

2.0. Fire

2.1. Introduction.

Fire safety is priority for the success and safety of the Killeagh mill, Killeagh co Cork. when considering the buildings history the importance of fire safety is a high priority to enable any future incidents. The building is designed within the regulations to comply with TGD Part B - Fire safety. The building regulations regarding fire will minimize the risk of an incident or accident while protecting the occupants and building.

The incorporation of further information of the British standards document BS9999: code of practice for fire safety will be used when composing the design of the Killeagh mill wellness centre.

2.2. Spatial breakdown.

To calculate the maximum occupancy load of the Killeagh mill wellness centre, I have gathered each of the internal floor area from the ground floor to the roof floor. Each of these floor areas are broken down by the function and facilities provided throughout each space. This calculation provides the maximum occupancy load of each area and each floor.

| Floor Level | Level | Internal Floor Area |
|--------------|---------|---------------------|
| Ground floor | 0.000 m | 281 m ² |
| First floor | 4.500 m | 217 m ² |
| Second floor | 3.500 m | 107 m ² |
| Roof Floor | 3.238 m | 110 m ² |
| Total | - | 715 m ² |

Spatial breakdown chart to expose maximum internal floor area.

2.3. Maximum load capacity.

The maximum load capacity of the killeagh mill wellness centre has been calculated by evaluating each floor level and assessing its facilities and functions within the floor area. The Technical Guidance table 1.1 provides figures used to calculate the occupancy load factor and are used additionally with the British standards document BS9999 (Table 10).

Within my tiered seating, the occupancy load is calculated due to the capacity of the seat total within the fixed seating.

Table 10 Examples of typical floor space factors

| Occupancy | Floor space factor m ² per person | Occupancy | Floor space factor m ² per person |
|--|---|--|---|
| Administration office | 5.0 | Individual seating | 0.4 |
| Amusement arcade | 0.5 | Indoor games/training rooms in schools | 10.0 |
| Archive/library reading area | 5.0 | Kitchen | 7.0 |
| Art gallery | 5.0 | Licensed betting office (public area) | 1.0 |
| Assembly hall | 0.5 | Lobbies | 2.0 |
| Banking hall | 3.0 | Lounge | 1.0 |
| Bar | 0.3 | Machine/printing room | 10.0 |
| Bazaar | 2.0 | Mechanical plant room | 30.0 |
| Bench seating | 0.4 | Meeting room | 1.0 |
| Billiards or snooker room | 10.0 | Museum | 5.0 |
| Bingo hall | 0.5 | Office (closed-plan or less than 60 m ²) | 8.0 |
| Bowling alley | 10.0 | Office (open-plan or exceeding 60 m ²) | 5.0 |
| Business centre | 7.0 | Queuing area | 0.5 |
| Car park (per parking space) | 2.0 | Reading or writing room (seated) | 2.0 |
| Classroom | 2.0 | Reading room (standing) | 1.0 |
| Club | 0.5 | Reception area | 2.0 |
| Committee room | 1.0 | Restaurant | 1.0 |
| Common room | 1.0 | Shop | 2.0 |
| Computer room | 7.0 | Showrooms | 7.0 |
| Conference room | 1.0 | Skating rink | 2.0 |
| Crush hall | 0.5 | Space with loose seating | 0.75 |
| Dance area | 0.5 | Space with loose tables | 1.0 |
| Deposit/strong room | 30.0 | Stadia and grandstands | 0.6 |
| Design studio/drafting office | 7.0 | Staff room | 1.0 |
| Dining room and canteens | 1.0 | Storage and warehousing | 30.0 |
| Dining rooms with loose tables | 1.0 | Studio (radio, television, film, recording) | 1.5 |
| Dormitory | 5.0 | Teaching laboratories | 3.0 |
| Exhibition areas | 1.5 | Venue for pop concerts | 0.5 |
| Factory production area | 5.0 | Waiting area/visitors' lounge | 2.0 |
| Filing room/store | 10.0 | Waiting room | 2.0 |
| Foyers in theatres and cinemas | 0.3 | Workshop | 5.0 |
| Gymnasium – open plan (where fixed machines are used, the occupancy is based on the number of machines provided) | 0.6 | | |

| Accommodation (1) | Occupancy load factor |
|--|------------------------------|
| 1. Standing area in assembly and recreation building | 0.3 |
| 2. Bar, lounge bar | 0.5 |
| 3. Restaurant, dining room, meeting room, committee room, staff room | 1.0 ⁽²⁾ |
| 4. Factory production area, open plan offices | 5.0 |
| 5. Bedroom or study bedroom | 8.0 ⁽³⁾ |
| 6. Offices, kitchen | 7.0 |
| 7. Storage building, car park | 30.0 ⁽⁴⁾ |

The formula below is taken from technical guidance document Part B, section 1.0.10. This information when paired with table 10 and table 1.1. gives an accurate sum of the occupant load capacity is acquired for each individual floor level.

area of room or storey (m²)
occupancy load factor

Each function and facility is analyzed accurately to ensure each floor level has the correct occupancy calculation.

The four floor levels carry unique purposes, and are separated in consideration to design and regulations. When the designed function cannot be calculated using occupancy load the space is broken up by the number of individuals using the space i.e. Tiered seating.

| Ground Floor | | | |
|---------------------------|-------------|------------------------------|---------------------------|
| Function | Area | Occupancy load factor | Occupancy capacity |
| Café (Kitchen) | 24.2 m2 | 1.0 | 25 |
| Tiered (bench) seating | 5.9 m2 | 0.4 | 15 |
| Bike rental/repair store | 32.4 m2 | 2.0 | 17 |
| Loose tables and seating | 26.5 m2 | 1.0 | 27 |
| Queuing area | 7.5 m2 | 0.5 | 15 |
| Reception | 4.8 m2 | 2.0 | 3 |
| Stage | 7.5 m2 | 0.5 | 15 |
| Storage | 8.5 m2 | 30.0 | 1 |
| Keg room | 4.6 m2 | 10.0 | 1 |
| Games room | 13.3 m2 | 1.0 | 14 |
| Cleaning (Hostel) | 7.5 m2 | 1.0 | 8 |
| Total ground floor | | | 141 |

| First Floor | | | |
|----------------------|---------------------|-----------------------|--------------------|
| Function | Area | Occupancy load factor | Occupancy capacity |
| Hostel accommodation | 68.7 m ² | - | 9 |
| Lounge common area | 13.5 m ² | 1.0 | 14 |
| Bike office | 4 m ² | 8.0 | 1 |
| Storage | 35 m ² | 30.0 | 2 |
| Total first floor | | | 26 |

| Second Floor | | | |
|--------------------------|---------------------|-----------------------|--------------------|
| Function | Area | Occupancy load factor | Occupancy capacity |
| Kitchenette | 14.1 m ² | 7.0 | 3 |
| Storage | 2.4 m ² | 30.0 | 1 |
| Loose tables and seating | 11.7 m ² | 1.0 | 12 |
| Total second floor | | | 16 |

| Roof Floor | | | |
|--------------------------|---------------------|-----------------------|--------------------|
| Function | Area | Occupancy load factor | Occupancy capacity |
| Bar (BOH) | 9.7 m ² | 7.0 | 2 |
| Queuing area | 2.8 m ² | 0.5 | 6 |
| Storage | 9.8 m ² | 30.0 | 1 |
| Loose tables and seating | 19.4 m ² | 1.0 | 20 |
| Total roof floor | | | 29 |

| All floor levels | | |
|--------------------------|--------------------|--------------------|
| Floor | Area | Occupancy capacity |
| Ground floor | 281 m ² | 141 |
| First floor | 217 m ² | 26 |
| Second floor | 108 m ² | 16 |
| Roof floor | 110 m ² | 29 |
| Total occupancy capacity | - | 212 |

The total combined occupancy load capacity of the proposed Killeagh mill wellness centre is approximately 212 persons. In the chance there is full capacity the structure is compliant to hold the public comfortably. The sum gathered is now being used to calculate the recommended fire and sanitary requirements for the proposed structure.

2.4. Number of escape routes.

When analyzing the table 1.3. in the TGD Part B - Fire, the minimum number of escape routes required connect to the table documented below 1.2. Limitations on travel distances in groups 2(b), 49(a) and 5. The number of escape routes is calculated by analyzing the floor level occupancy loads.

The proposed design for the Killeagh mill wellness centre requires a minimum of 3 escape routes to aid in the occupancy count of 212, this is visible in the above table 1.3. from the Technical Guidance Document Part B - Fire 2008.

There is 6 main escape routes throughout the structure from reaching from the ground floor to the roof floor. The calculations of these numbers were obtained by analyzing table 1.2 and 1.3 in correspondence with the occupancy load table 10 and 0.1.

Table 11 Minimum number of escape routes and exits from a room, tier or storey

| Maximum number of persons | Minimum number of escape routes/exits |
|---------------------------|---------------------------------------|
| 60 | 1 |
| 600 | 2 |
| More than 600 | 3 |

Ground floor:

This level falls into the '1 to 500' number of persons accommodated, where a minimum of two escape routes are necessary, with an occupancy capacity of 141 people on the ground floor. The actual number of exits on the ground floor is four. Therefore this floor complies with TGD Part B. With an occupant capacity of 212 persons entirely, the ground floor falls under the 1-500 number persons accommodated, meaning a minimum of 2 escape routes are required. At ground floor level there are 5 escape routes provided, therefore it is in compliance.

First floor:

With an occupant capacity of 26 persons, the first floor falls under the 1-500 number persons accommodated, meaning a minimum of 2 escape routes are required. At first floor level there are 4 escape routes provided, therefore it is in compliance. This level falls into the '1 to 500' number of persons accommodated, where a minimum of two escape routes are necessary, with an occupancy capacity of 16 people on the second floor. The actual number of exits on the second floor is two that both lead directly outside the building. Therefore this floor complies with TGD Part B.

Second floor:

This level falls into the '1 to 500' number of persons accommodated, where a minimum of two escape routes are necessary, with an occupancy capacity of 16 people on the first floor. The actual number of exits on the first floor is two that both lead directly outside the building. Therefore this floor complies with TGD Part B. With an occupant capacity of 16 persons, the second floor falls under the 1-500 number persons accommodated, meaning a minimum of 2 escape routes are required. At second floor level there are 2 escape routes provided, therefore it is in compliance.

Roof floor:

With an occupant capacity of 45 persons, the ground floor falls under the 1-500 number persons accommodated, meaning a minimum of 2 escape routes are required. At basement floor level there are 2 escape routes provided, therefore it is in compliance. This level falls into the '1 to 500' number of persons accommodated, where a minimum of two escape routes are necessary, with an occupancy capacity of 29 people on the third floor. The actual number of exits on the second floor is two that both lead directly outside the building. Therefore this floor complies with TGD Part B.

Table 1.2 Limitations on Travel Distance

| Purpose Group(s) ⁽¹⁾ | Use of premises or part of premises | Maximum travel distance ⁽²⁾ related to available direction of escape | |
|---------------------------------|---|---|----------------------------|
| | | In one direction | In more than one direction |
| 2(b) | Other Residential: | | |
| | (a) bedroom ⁽³⁾ | 10 | 20 |
| | (b) bedroom corridor | 10 | 35 |
| | (c) elsewhere | 20 | 35 |
| 5 | Assembly and recreation | | |
| | (a) areas with seating in rows | 15 | 32 |
| | (b) other areas | 18 | 45 |
| | (c) buildings primarily for use by disabled persons | 9 | 18 |

Table 1.3 Minimum number of escape routes

| Number of persons accommodated | Minimum number of escape routes |
|--------------------------------|---------------------------------|
| 1 to 500 | 2 |
| More than 500 | 3 |



The Killeagh mill, Wellness centre.
 Killeagh village,
 Midleton,
 County Cork,
 Ireland.

Drawing title: Ground floor
 plan, fire escapes

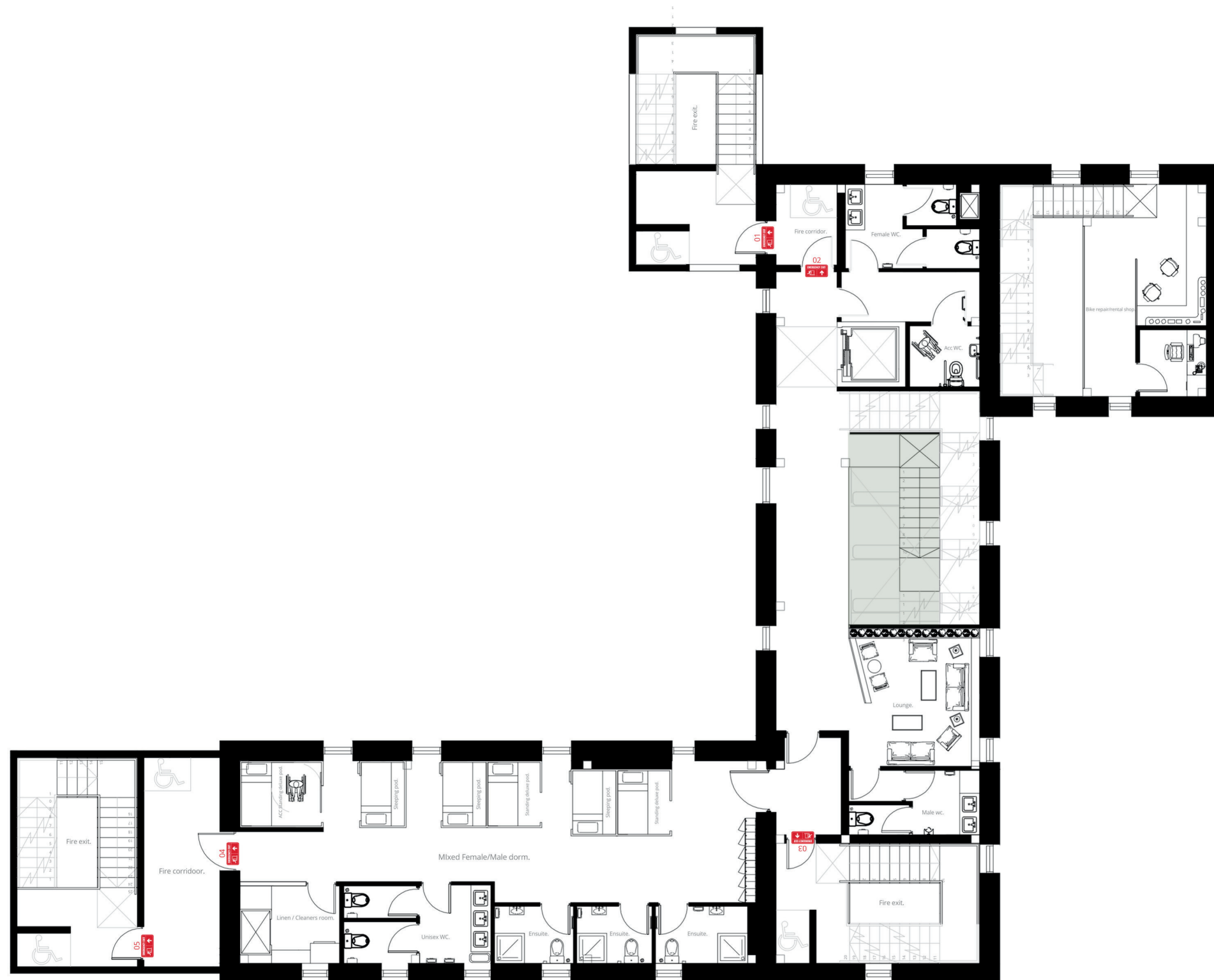
Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 005

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre,
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: First floor
plan, fire escape

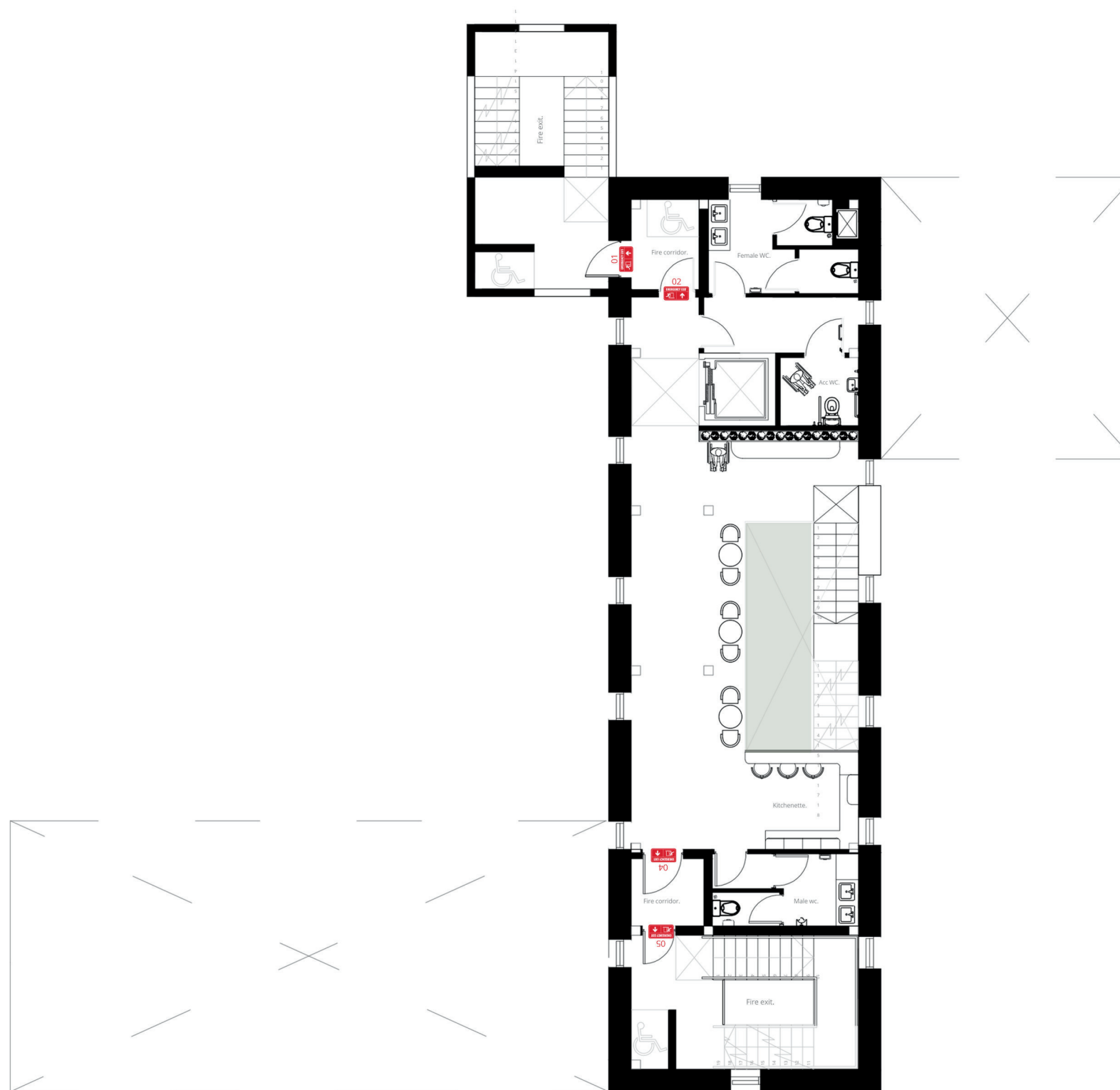
Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 006

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre.
Killeagh village,
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County Cork,
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Drawing title: Second floor
plan, fire escapes

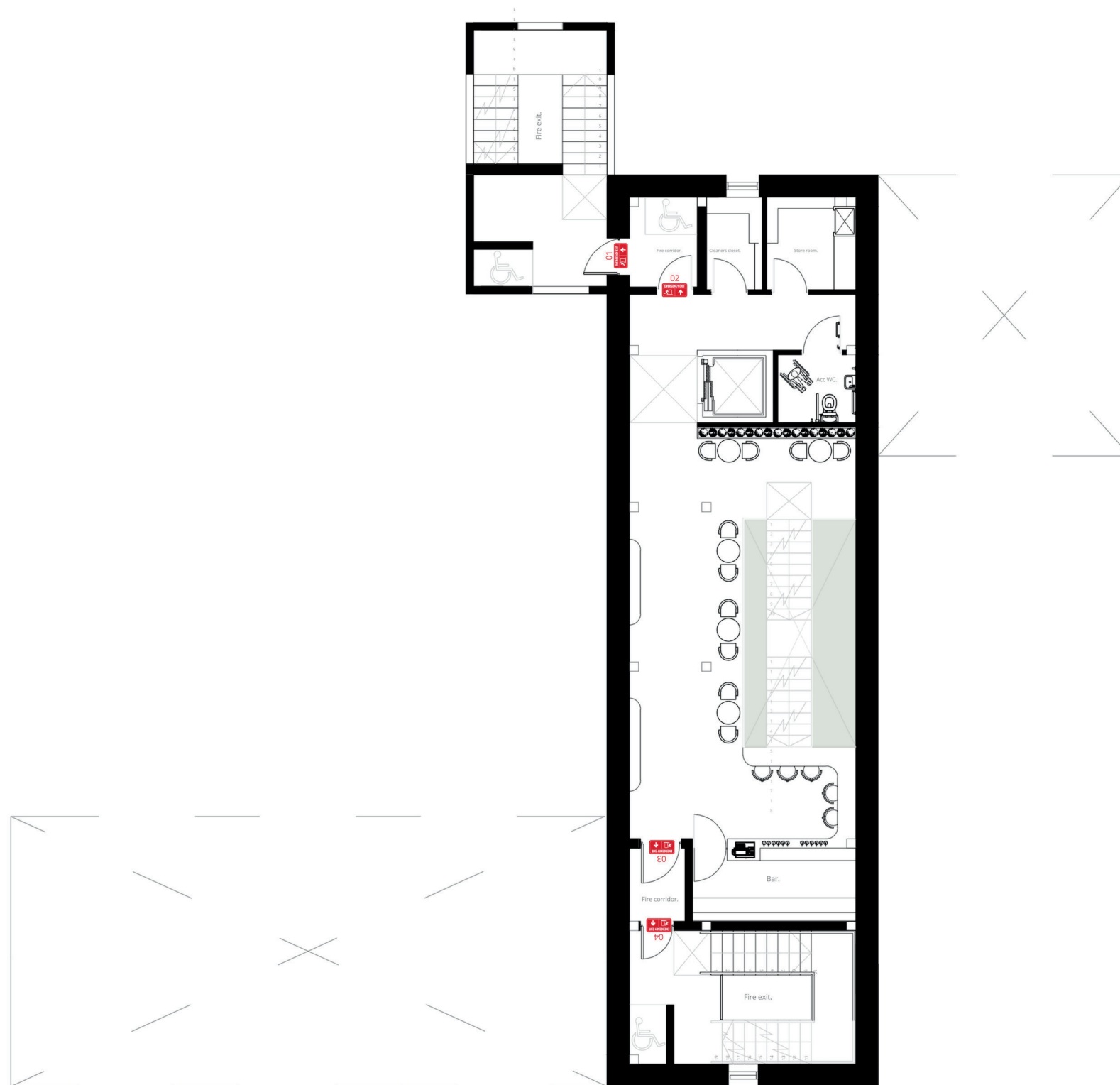
Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 007

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre.
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: Roof floor
plan, fire escapes

Drawn by: Adelina Corigliano

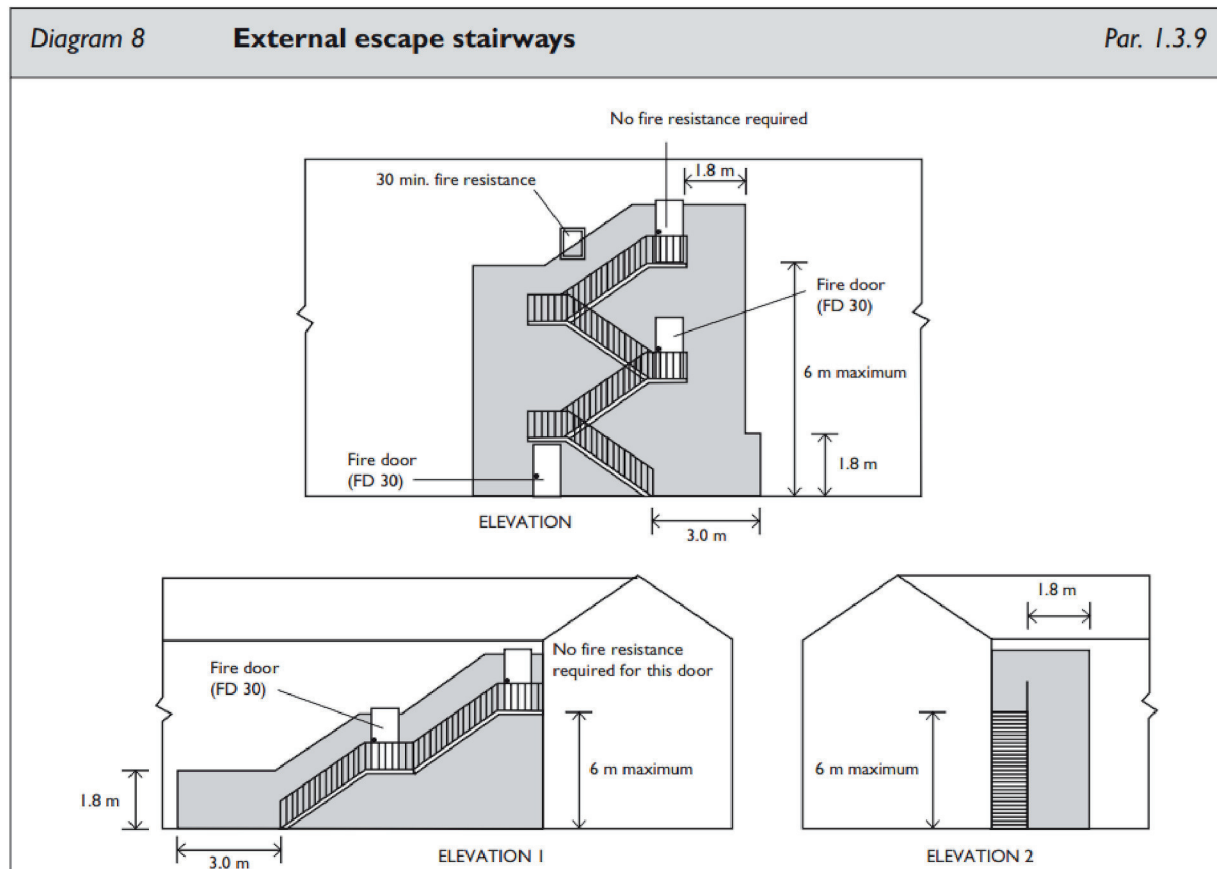
Scale: 1:250

Drawing number: 008

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

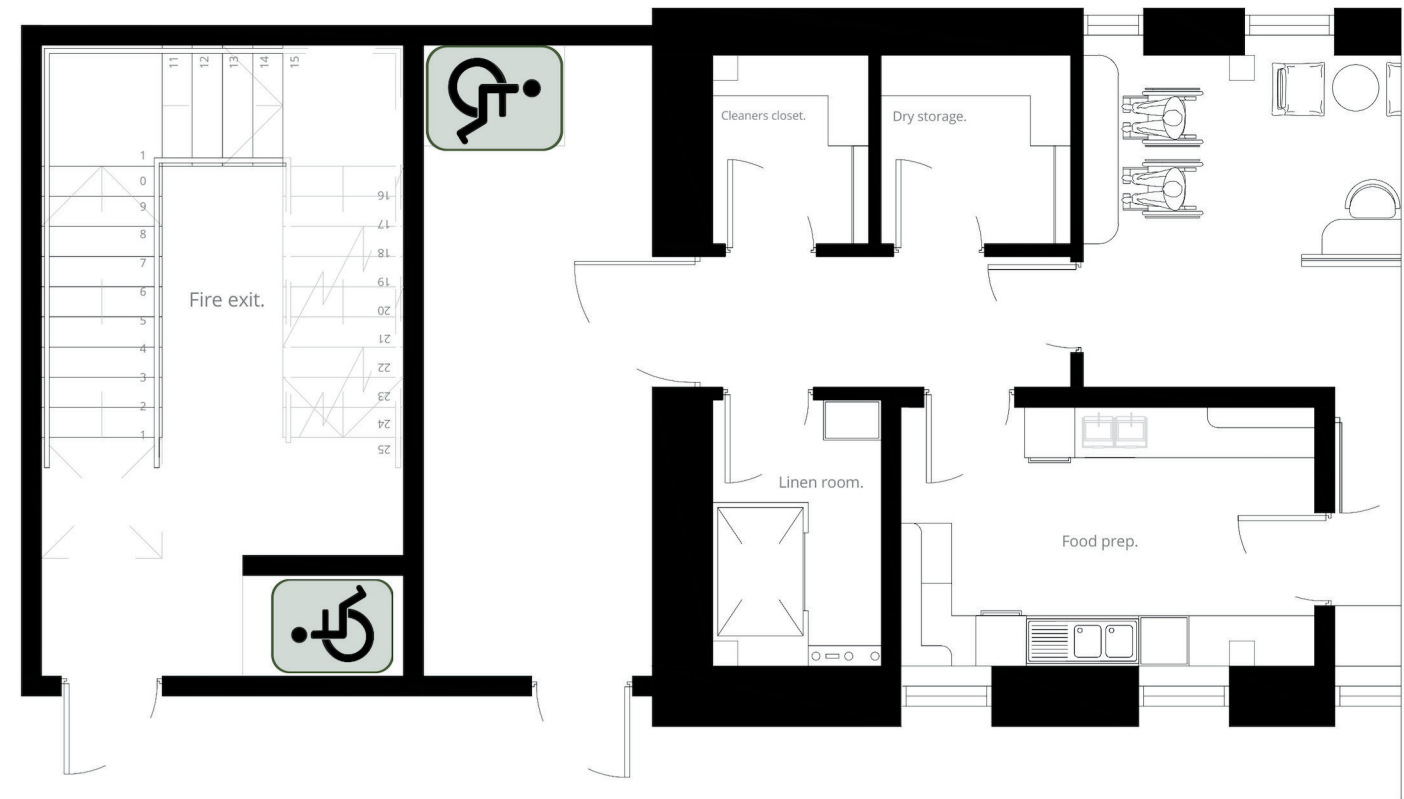
The two external fire escape stairways are in compliance with the technical guidance document Part B as it is fully protected from both fire and weathering. The TGD Part B section 1.3.9. provides an informative diagram. The Killeagh mill wellness centre has an external fire stairs to the western extension, this has a total ground floor to first floor height of 4500mm, while the external northern stairwell has a total height ground to roof floor of 11238mm. Additional safety requirements have been applied through materiality such as perforated steel mesh and fire rated brick to aid in weather and fire protection. All door exits and corridors leading to these structures are fire rated 60 minutes and provide disability refuges that are a safe location within the stairway.



2.5. Wheelchair refuge.

As seen in section 1.4.15 of the Technical Guidance Document Part B - Fire, the first, second and roof have wheelchair refuge spaces in addition to the landings of the fire escape stairways. Each of these wheelchair refuges provide a safe escape route to the exits within the structure in event of a fire and are enclosed by three fire rated surfaces.

All of the wheelchair refuges are separated by a fire resistant wall or within the escape stairwell or additionally stored safely within a protected lobby that is next to the stairway escape route. The wheelchair refuges throughout the structure all comply within regulation TGD Part B - Fire, and meet the minimum requirement of 1400mm x 900mm.



Western external fire escape stairwell and wheelchair refuges.



South gable internal fire escape stairwell and wheelchair refuges.

2.6. Width of exits.

2.6.1. Width of escape stairways.

In accordance to section 10 of the British standard document BS9999:2017, it is vitally important to accommodate alternative escape routes for a structure that holds over 60 individuals.

The addition of escape routes aid in the safety and compliance of a structure, the Killeagh mill wellness centre has a total of 3 fire escapes, 2 external and 1 internal. The use of numerous escape routes allow for optional escape when faced with a Hazardous environment, these routes are controlled by an angle of at least 45 degrees.

The first fire scape is external and is locate don the western extension of the structure adjacent to the hostel accommodation. The second escape route is located internally on the southern gable whilst the third is externally attached to the northern gable, all escape routes are provided with adequate fire corridors and refugees. In my design an ambulant stairway width of 1200mm is provided on each stairway, this can be seen in the table 1.4 and 1.6 front the TGD Part B - Fire.

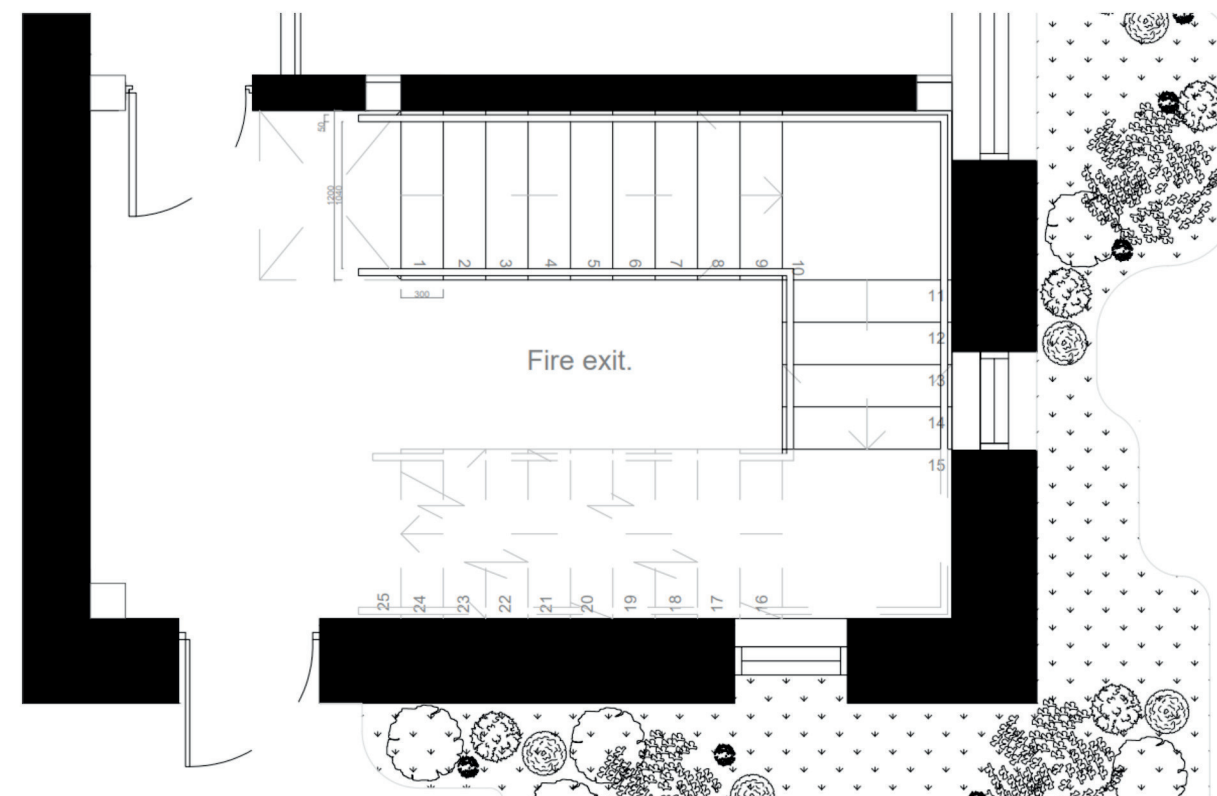
| Maximum number of persons | Minimum width (mm) (1)(2)(3) |
|---------------------------|---------------------------------|
| 50 | 750 ⁽⁴⁾ |
| 100 | 850 |
| 150 | 950 |
| 220 | 1050 |
| More than 220, | 5mm per person ⁽⁵⁾ |

| Number of storeys served | Maximum number of persons accommodated on one stair of width: (mm) | | | | | | | | |
|--------------------------|--|------|------|------|------|------|------|------|------|
| | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 |
| 1 | 150 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 |
| 2 | 190 | 260 | 285 | 310 | 335 | 360 | 385 | 410 | 435 |
| 3 | 230 | 300 | 330 | 360 | 390 | 420 | 450 | 480 | 510 |
| 4 | 270 | 340 | 375 | 410 | 445 | 480 | 515 | 550 | 585 |
| 5 | 310 | 380 | 420 | 460 | 500 | 540 | 580 | 620 | 660 |
| 6 | 350 | 420 | 465 | 510 | 555 | 600 | 645 | 690 | 735 |
| 7 | 390 | 460 | 510 | 560 | 610 | 660 | 710 | 760 | 810 |
| 8 | 430 | 500 | 555 | 610 | 665 | 720 | 775 | 830 | 885 |
| 9 | 470 | 540 | 600 | 660 | 720 | 780 | 840 | 900 | 960 |
| 10 | 510 | 580 | 645 | 710 | 775 | 840 | 905 | 970 | 1035 |

Note: The capacity of stairs serving more than 10 floors may be obtained by the formula at 1.3.5.3.



Width of external western fire stairs NTS.



Width of internal southern gable fire stairs NTS.

2.6.2. Width of escape doors.

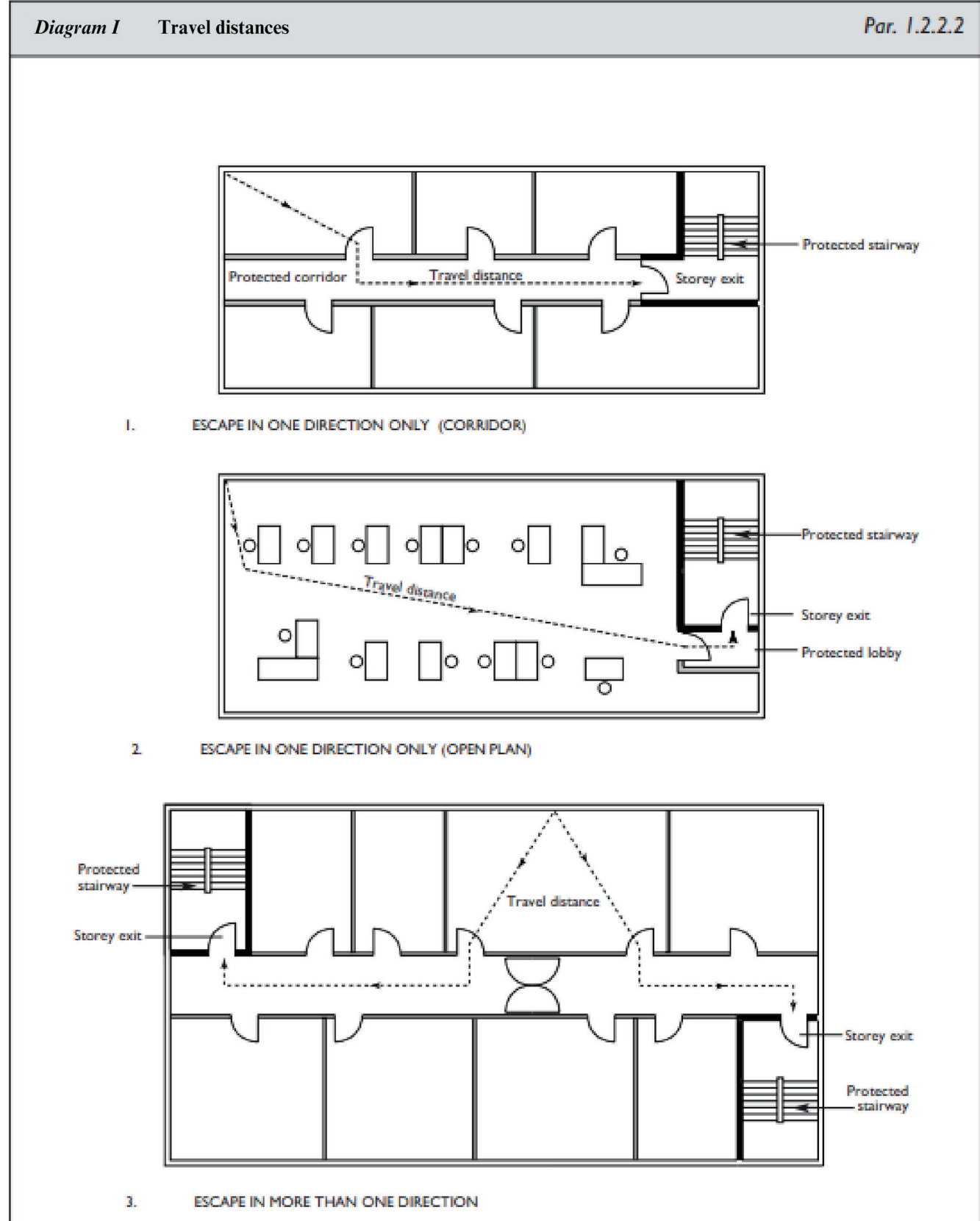
The Technical guidance document Part B provides a table 1.4. Which outlines the adequate escape routes for the Killeagh mill occupancy load of 212., as the ground floor has a load capacity of 141, this allows for an access width of 950mm. The first floors occupancy capacity is a total of 26 users which provides a 750mm width for the escape doors. The second floor occupancy load is 16, which also carries a 750mm escape door width, Lastly, the roof floor holds a occupancy load of 29 individuals which provides an minimum escape door width of 750mm.

All escape door throughout the structure are 1100mm wide and open towards the means of escape, this is provide compliance with the TGD Part B regulations. In accordance to the British standards documentation BS9999 a clear width is essential, and has been provided throughout the Killeagh mill wellness centre of 1000mm x 1000mm. All escape routes are clearly signed and provide clear direction of the routes provided to the nearest fire door. Each door has been commissioned to comply with fire ratings of 30/60 minutes or fire safety, these have been clearly documented of the floor plans within.

2.7. Travel distances.

The table 1.2 of the Technical Guidance document Part B - Fire, outlines the limitations on the travel distances for the escape routes within the structure, the Killeagh mill wellness centre. The purpose group 2(b) and 5 expose the adequate travel distances within the structure. Purpose group 2(b)(a) bedroom allow for a maximum of 10 meters in one direction and a maximum of 20 meters in more than one direction, while purpose group 5(b) other areas allows for a maximum of 18 meters in one direction and a maximum of 45 meters in more than one direction. These distance will be evident within the proposed floor plans provided.

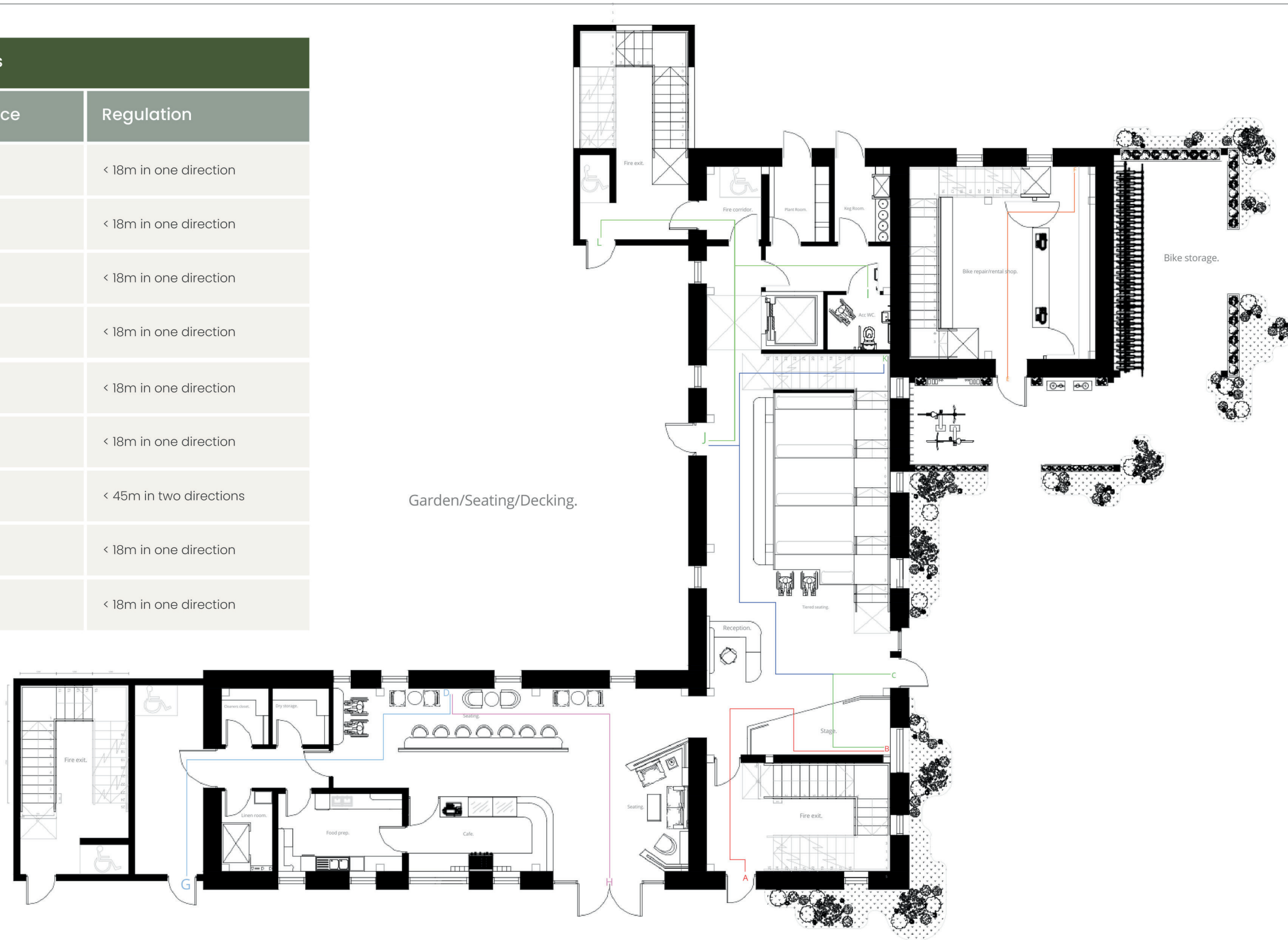
| Purpose Group(s) ⁽¹⁾ | Use of premises or part of premises | Maximum travel distance ⁽²⁾ related to available direction of escape | |
|---------------------------------|---|---|----------------------------|
| | | In one direction | In more than one direction |
| 2(b) | Other Residential: | | |
| | (a) bedroom ⁽³⁾ | 10 | 20 |
| | (b) bedroom corridor | 10 | 35 |
| | (c) elsewhere | 20 | 35 |
| 5 | Assembly and recreation | | |
| | (a) areas with seating in rows | 15 | 32 |
| | (b) other areas | 18 | 45 |
| | (c) buildings primarily for use by disabled persons | 9 | 18 |



The above table dictates the three means of escape within a structure and their possible exit strategies in relation to purpose group 2(b) and purpose group 5. The adequate calculations have been provided and comply with the TGD Part B - Fire, these are expressed below with an infographic insight into the strategies obtained.

Ground floor travel distances

| Points | Distance | Regulation |
|--------|----------|-------------------------|
| B - A | 12.4 m | < 18m in one direction |
| B - C | 6 m | < 18m in one direction |
| E - F | 8.9 m | < 18m in one direction |
| D - G | 14.7 m | < 18m in one direction |
| D - H | 11.3 m | < 18m in one direction |
| K - J | 8.5 m | < 18m in one direction |
| K - C | 18.1 m | < 45m in two directions |
| I - L | 7 m | < 18m in one direction |
| I - J | 10.9 m | < 18m in one direction |



The Killeagh mill, Wellness centre,
 Killeagh village,
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 County Cork,
 Ireland.

Drawing title: Ground floor travel distance

Scale: 1:250

Drawn by: Adelina Corigliano

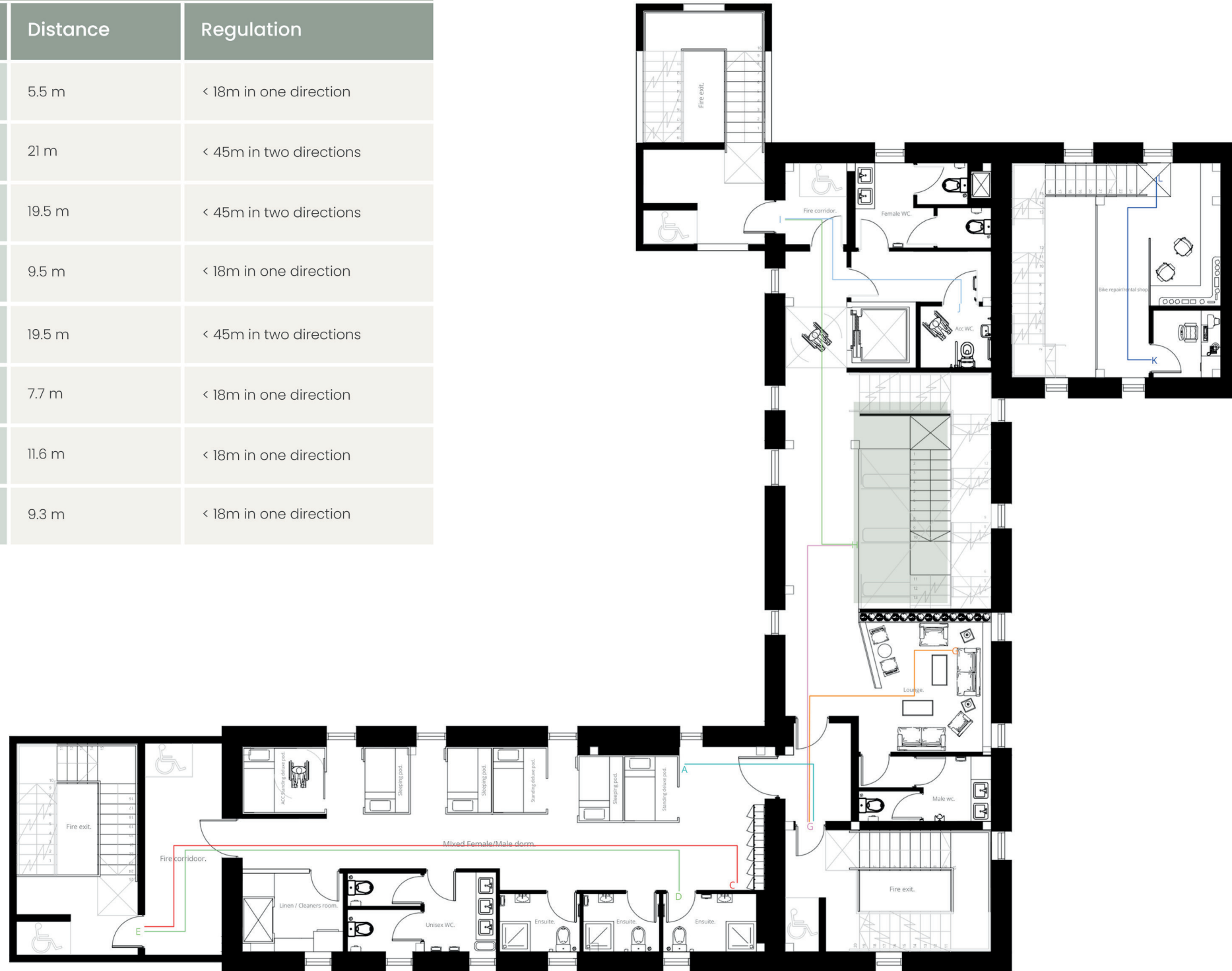
Drawing number: 009

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

First floor travel distances

| Points | Distance | Regulation |
|--------|----------|-------------------------|
| A - G | 5.5 m | < 18m in one direction |
| E - C | 21 m | < 45m in two directions |
| E - D | 19.5 m | < 45m in two directions |
| H - G | 9.5 m | < 18m in one direction |
| K - L | 19.5 m | < 45m in two directions |
| I - J | 7.7 m | < 18m in one direction |
| H - I | 11.6 m | < 18m in one direction |
| G - F | 9.3 m | < 18m in one direction |



The Killeagh mill, Wellness centre.
 Killeagh village,
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 Ireland.

Drawing title: First floor travel distance

Scale: 1:250

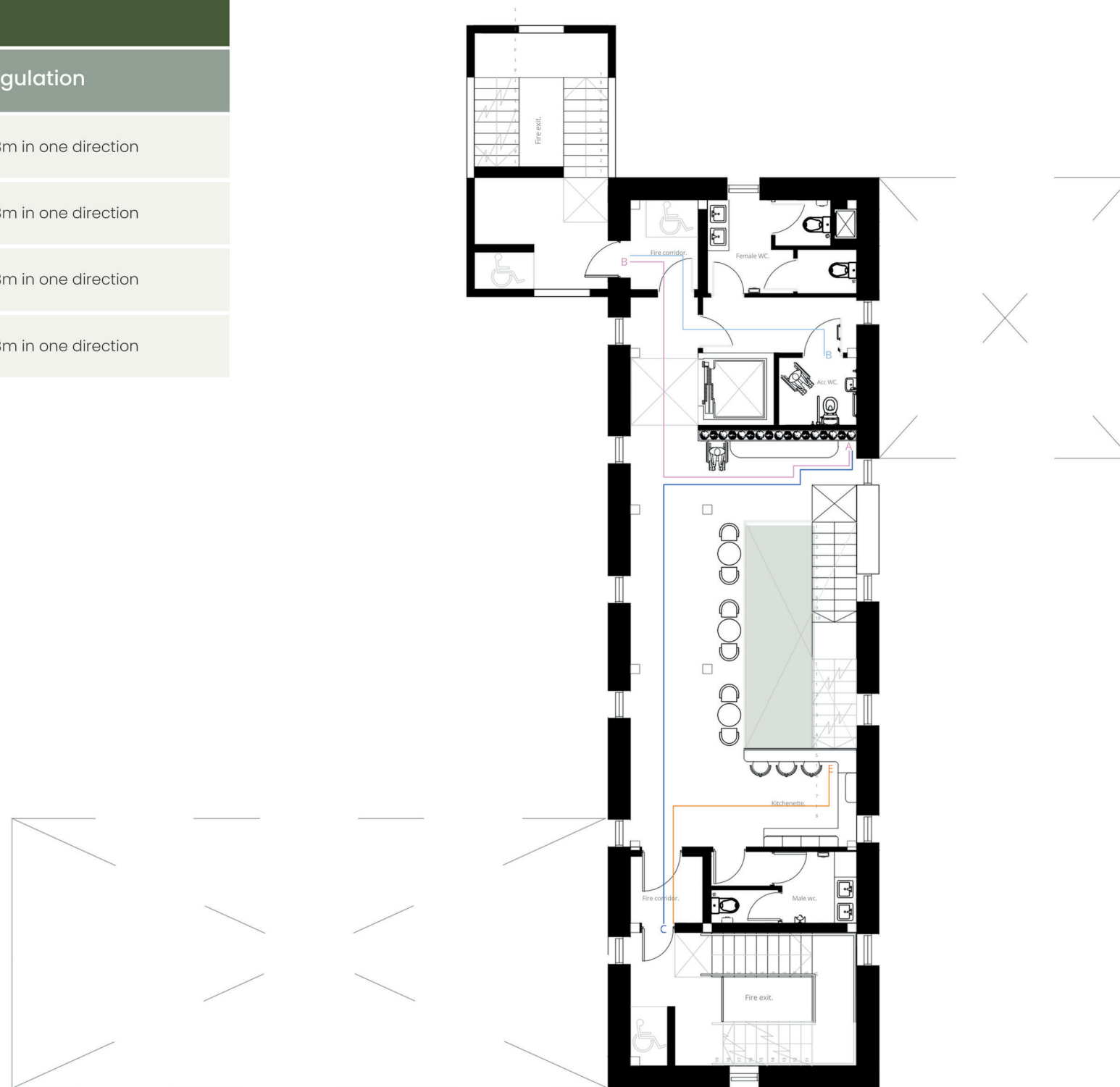
Drawn by: Adelina Corigliano

Drawing number: 010

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

| Second floor travel distances | | |
|-------------------------------|----------|------------------------|
| Points | Distance | Regulation |
| A - B | 12.4 m | < 18m in one direction |
| A - C | 17.8 m | < 18m in one direction |
| D - B | 7.9 m | < 18m in one direction |
| E - C | 8.3 m | < 18m in one direction |



The Killeagh mill, Wellness centre.
 Killeagh village,
 Midleton,
 County Cork,
 Ireland.

Drawing title: Second floor travel distance

Scale: 1:250

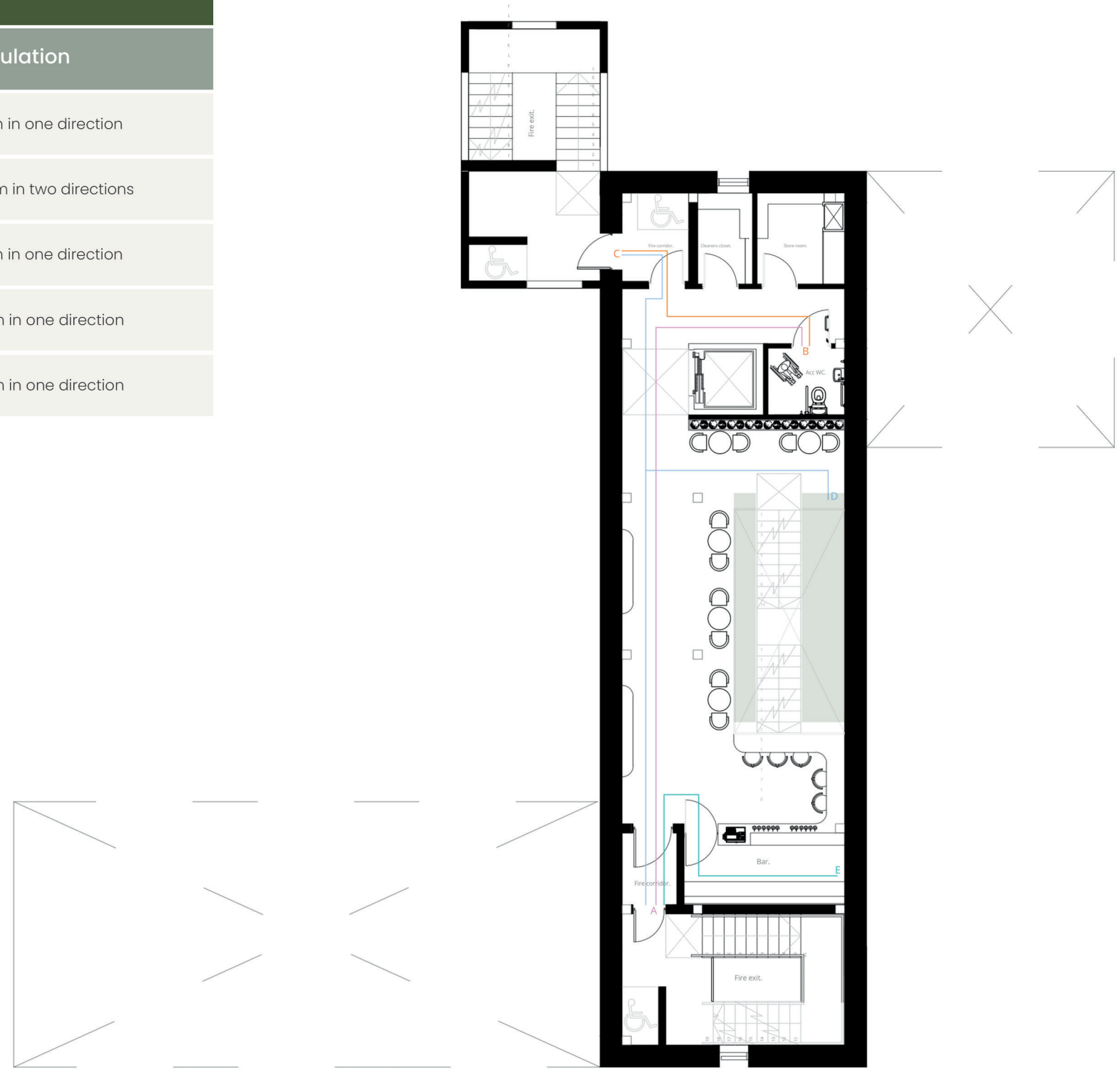
Drawn by: Adelina Corigliano

Drawing number: 011

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

| Roof floor travel distances | | |
|-----------------------------|----------|-------------------------|
| Points | Distance | Regulation |
| A - B | 6.3 m | < 18m in one direction |
| A - C | 20.3 m | < 45m in two directions |
| D - B | 13.3 m | < 18m in one direction |
| D - A | 17.7 m | < 18m in one direction |
| E - A | 9.5 m | < 18m in one direction |



The Killeagh mill, Wellness centre.
 Killeagh village,
 Midleton,
 County Cork,
 Ireland.

Drawing title: Roof floor travel distance

Scale: 1:250

Drawn by: Adelina Corigliano

Drawing number: 012

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

2.8. Compartmentation.

The Killeagh mill wellness centre needs to comply to compartmentalization within section 3.2. of the Technical guidance document Part B. An evident table is provided in 3.1 of the TGD Part B, this specifies the maximum area and capacity of purpose groups 2(b), 4(a) and 5. Each of the floor areas are evidently below the limits. Each floor area is less than 141m², which ensures the compliance with the table 3.1.

In addition, fire resistant sustainable materials have been chosen and implemented at all connections throughout the structure which will enable compartmentation. The fire stairs, Access stairs and lift shafts are protected by fire resistant construction with efficient safety functions implemented, These routes are protected with a 60 minute rating. These measurements have been applied in accordance to the TGD Part B 3.2.4.5 and B 3.2.5. the compartmentation structure has been constructed to compartment walls to provide as a barrier to fire hazard within the café and kitchenette. The walls within this area have been fire rated while also fire rating the walls within the bike rental/repair work shop of the eastern structure. Any hazardous area has been compartmented and constructed in accordance to the TGD part b 1.2.5.1.

Ground floor:

Within the ground floor level all the existing structural walls are fire rated with a 60 minute protection, this will allow for optimum safety when evacuating the ground floor. The café and food prep space has also been provided a 60 minute protection as well as the bike rental workshop space to avoid any hazardous incidents. All fire exits, corridors and lobbies have a 60 minute rating.

First floor:

The first floor carry's on the 60 minute fire rating to the external walls, providing extra safety and security for the occupants of the structure. All fire exits, escape, stairways, lobbies, landings and corridors are also supplied with a 60 minute rating.

Second floor:

The extension of the 60 minute fire rated existing external structure is still evident within this floor. All fire exits, escape, stairways, lobbies, landings and corridors are also supplied with a 60 minute rating. The kitchenette space is also given a 60 minute fire rating to avoid any risks.

Roof floor:

The existing structural wall is providing a safety barrier for the occupants with is 60 minute fire rating. The bar is also provided a 60 minute fire rating to avoid causalities. All fire exits, escape, stairways, lobbies, landings and corridors are also supplied with a 60 minute rating.



The Killeagh mill, Wellness centre.
 Killeagh village,
 Midleton,
 County Cork,
 Ireland.

Drawing title: Ground floor
 compartmentation

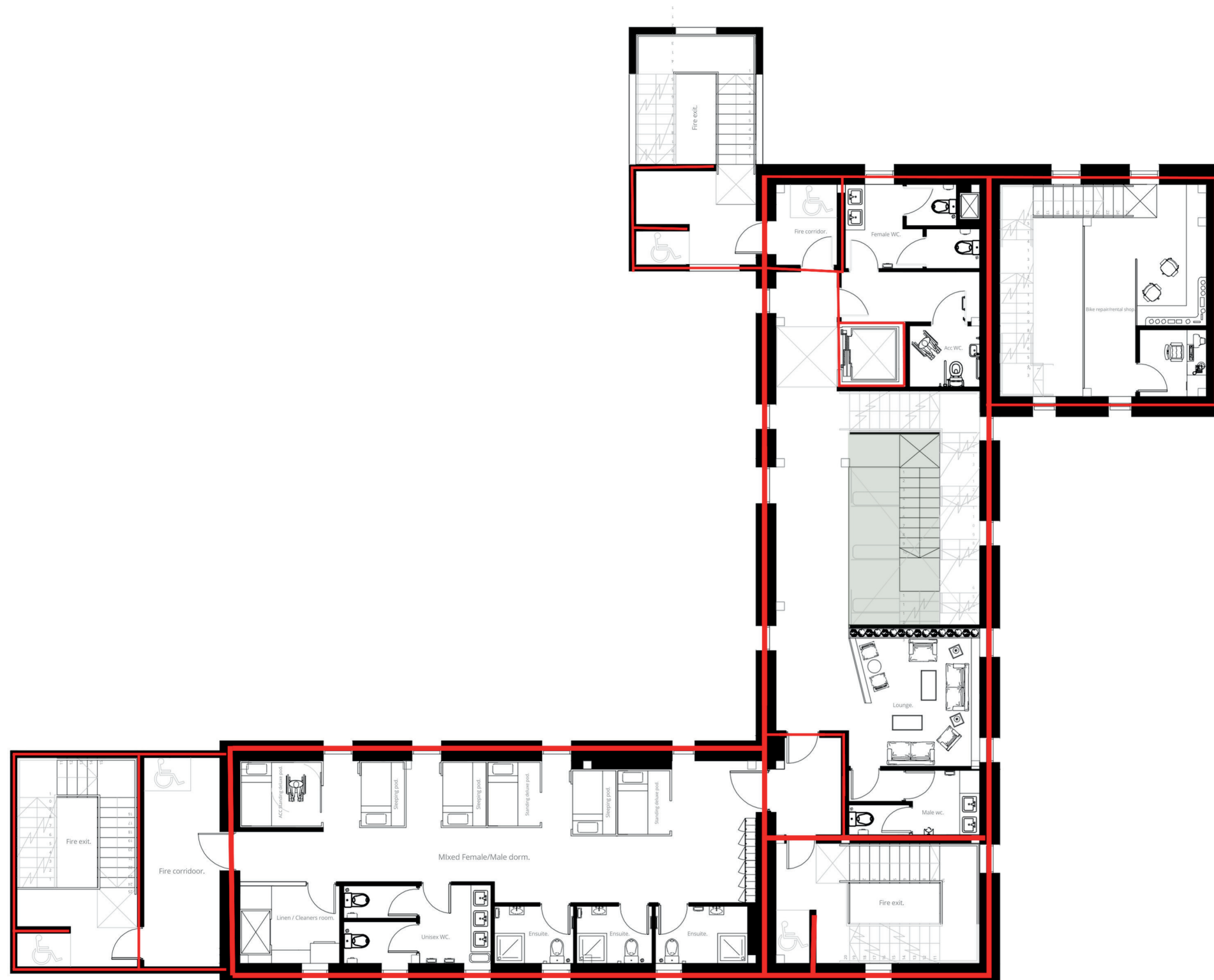
Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 013

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre,
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: First floor
compartmentation

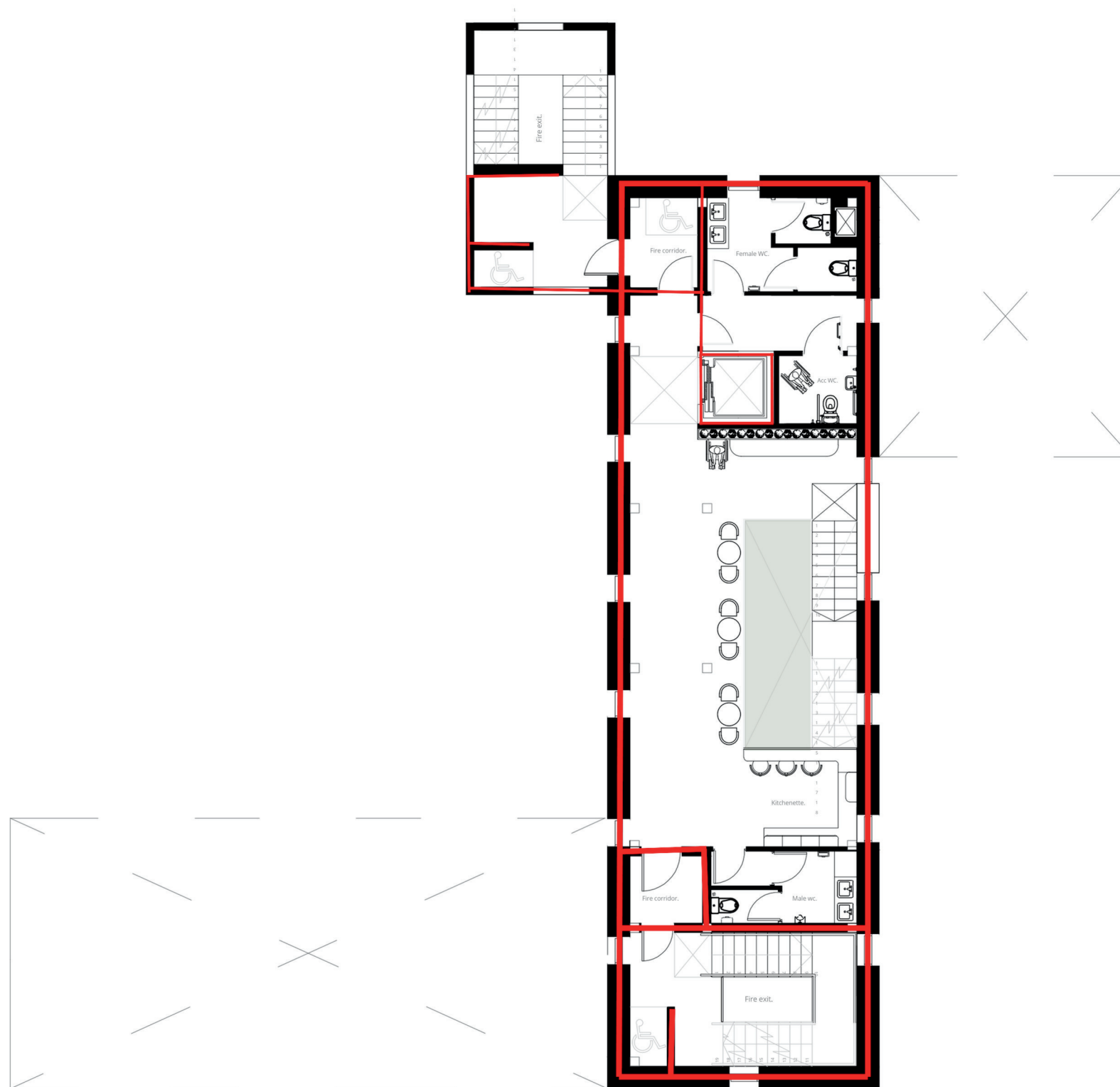
Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 014

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre.
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: Second floor
compartmentation

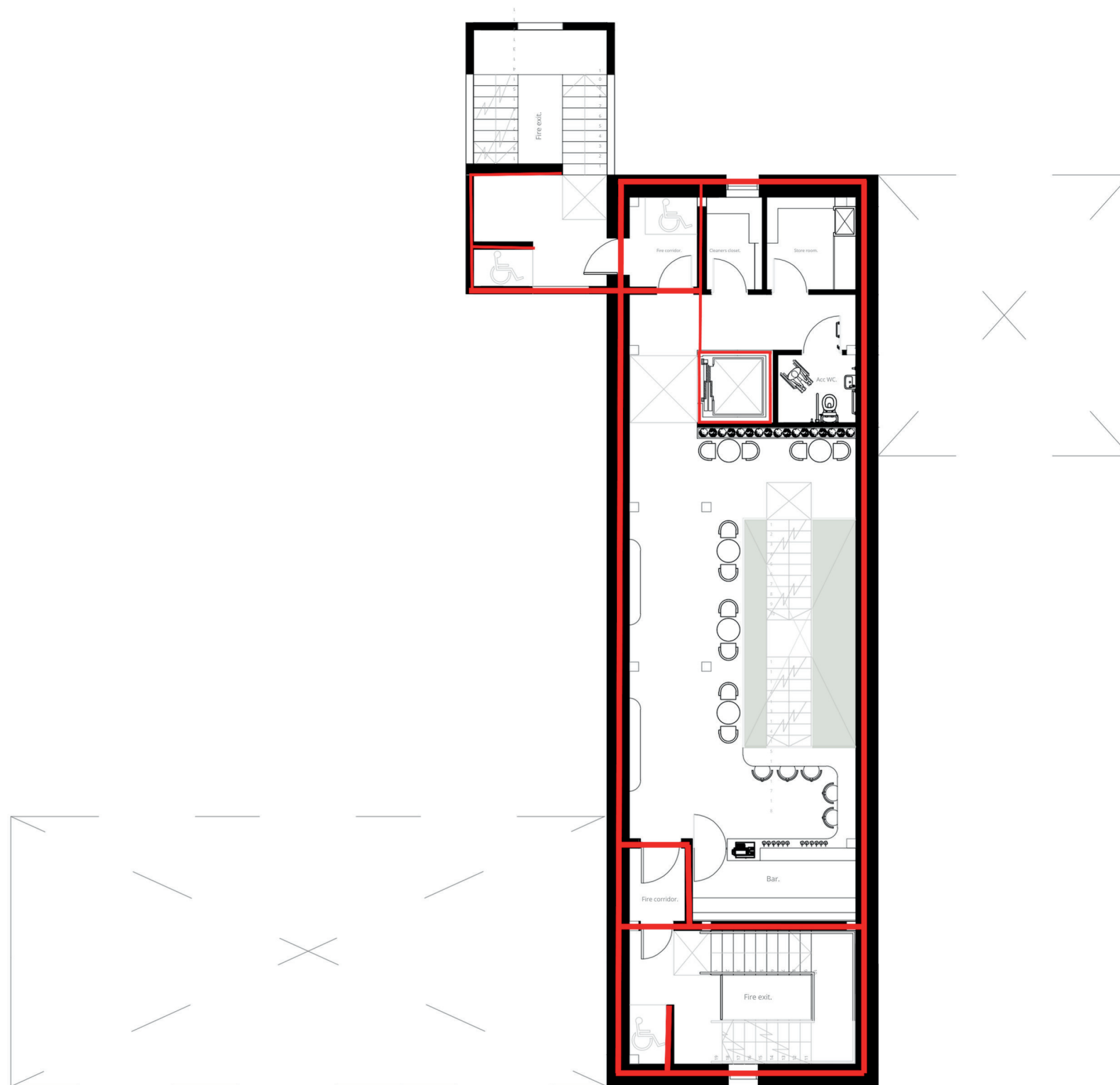
Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 015

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction



The Killeagh mill, Wellness centre.
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: Roof floor compartmentation

Scale: 1:250

Drawn by: Adelina Corigliano

Drawing number: 016

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

2.9. Smoke management.

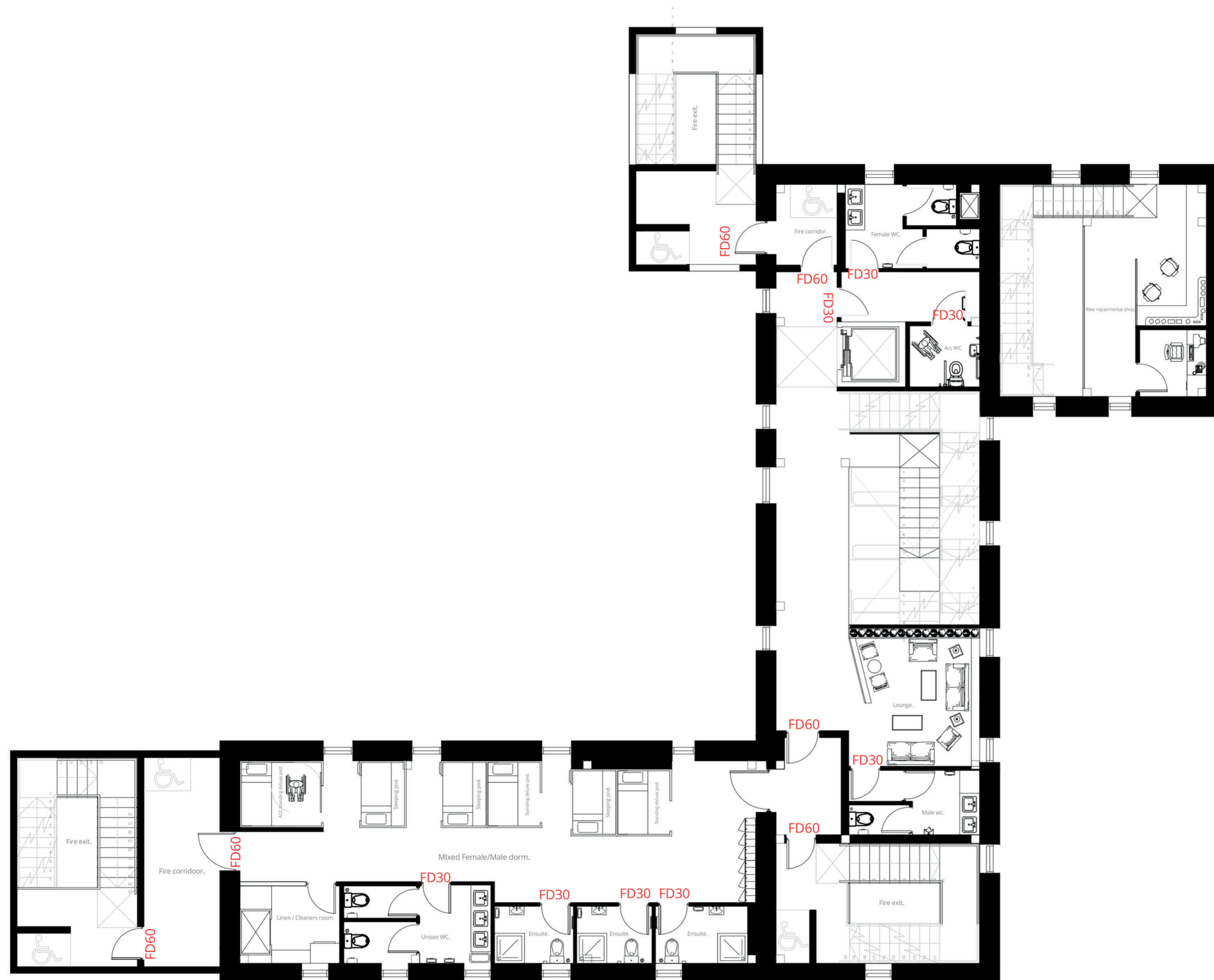
The old Killeagh corn mill will be converted into the Killeagh mill wellness center. A variation of smoke management has been incorporated to limit the spread of the smoke through the structure. The use of balconies are incorporated through the void spaces with partial use of fire curtains on the western side of the void within the first and second floor, this will enable the spread and speed of smoke throughout the floor levels. AOV's are installed above the fire exits while also within the ceiling plates of the ground floor, in the western extension, The ground and first floor have AOV's installed while the second floor hasn't access to this due to the height being too low for use. In addition, The eastern structure has allocated AOV's in the ground floor ceiling plates but unfortunately due to the low height the first floor cannot access this smoke management, while an alternative will be added.

A series of sprinkler systems will be propelled from the ceiling plates to reduce the risk of injury and distraction in the event of a fire, these are strategically paced to cover the most surface area to provide excess fire management.

Smoke management ventilation ducts has been installed within the ground floor café food preparation, the second floor kitchenette and the eastern bike repair store. These ventilation ducts are essential incase of a fire, the ducts will transfer the smoke outward, evidently aiding the dispersion of smoke throughout the structure.

2.10. Escape doors.

All escape doors within the Killeagh mill wellness centre comply with the TGD Part B regulations, Every door within the structure have either a 30 minute or 60 minute fire resistant rating with smoke seals, in company with automatic closing once smoke is detected within the structure. This information is found in the TGD Part B appendix B, B1 provisions for fire doors. All doors open towards the means of escape as it aids in the speed of evacuation, with addition of non heat transferred hardware and ventilation ducts.



The Killeagh mill, Wellness centre.
Killeagh village,
Midleton,
County Cork,
Ireland.

Drawing title: Fire rated
doors ground floor

Drawn by: Adelina Corigliano

Scale: 1:250

Drawing number: 017

Date: 15/03/2024

Note: Design drawings only. Not to be used for construction

3.0. Accessibility

3.1. Introduction.

The Technical Guidance Document Part M - Access and use has been set in place to ensure the Killeagh mill wellness centre complies entirely with the building regulations. This structure has been designed to incorporate universal design to ensure each individual user to feel comfortable while catering for all abilities. The occupants of the Killeagh mill wellness centre have been considered throughout the design process to ensure there is zero discrimination against visual, hearing, learning or mobility individuals.

3.2. Accessible entrances.

The main entrance door has a width of 1850mm, this is visible on the eastern elevation of the structure. The door has a sustainable energy powered push button aiding int he mobility issued individuals can easily access the structure to avoid any discomfort, whilst a push exit button is evident on the interior. Also, the second main entrance on the western extension has entrance doors that cater to mobility users with a width of 2050mm. The Last main entrance is visible on the eastern structure bike repair and rental, this is a sliding function door to connect the heritage and materials of the site, this width is 1400mm. This structure has a mechanical push button to slide the door opening apart.

The door surface is slip resistant to avoid slipping while added in grip for mobility users and the visual impaired. There are steel push panels on the interior of the door design while a handles is located on the exterior to indicate the swing direction of the doorway. These handles are located 1000mm off the ground level, while the push plate is 300mm x 100mm, which comply with the Technical Guidance Document Part M - Access and use, section 1.2.

3.3. Manifestations.

To aid in the safety of all the occupants of the Killeagh mill wellness centre the incorporation of manifestations will reduce damage. The manifestations are located on three levels within the balcony area, visual contrast blocks are located 600mm above floor level and 400mm below the top of glass plane. The glass doorplate at the main entrance has a graphic located 300/600/900/1200/1500/1800mm from the floor. This is in compliance with the Technical Guidance Document Part M - Access and use.

3.4. Slip rating.

The Killeagh mill wellness centre has created a safe space that adheres to the guidelines of the British standards institution (BS8204 and BS7976). All the surfaces have a specified slip rating of above R10, The WC/ Ensuite have a slip rating of R13 which is a high level of safety. The hallway circulation areas/Kitchenette/ café have a slip rating of R12 whilst the rest of the structure has a rating of R10. A slip resistant gripping is located at the entrance of all main entrances to the structure to avoid the risk of slipping to aid in the occupants.



Polished limecrete flooring with a anti slip rating of R12



Chevron timber flooring laminate with an anti slip rating of R10.

3.5. Doors and corridors.

3.5.1. Doors.

The doors within the Killeagh mill wellness centre are all accompanied with mechanical self closing units, a series of doors have magnetic card locks that comply with the Technical Guidance Document Part B. All the door widths are at a minimum of 900mm within the structure and have a head height of 2100mm. The door handles are located 900mm above floor levels which is compliant to the TGD Part - M, whilst door push plates are located 900mm above floor level and are 300mm x 100mm. The doors are a different material and color in comparison to the surrounding walls to avoid any distraction for the route, This complies with the TGD Part M - Access and use, improving the safety for all occupants.

The door entering the hostel accommodation on the first floor has specified access only for the users of the accommodation, This door can be accessed by the internal fire escape stairwell and the feature tiered seating stairwell. Vision panels are located at the entrance to the WC Lobbies, located 600mm above the floor and is 1200mm x 200mm. All doors have a clearly located signage throughout the space to improve visibility, these are located at a viewing location that all occupants are willing to read through locational height and braille. All main entrance points to the structure have a minimum entrance clear width of 1100mm which is exceeding the limit of 100mm, this is evident in section 2.6.1 within this document and is visible in table 1.4.

3.5.2. Corridors.

All corridors within this building have a minimum of 1200mm clear width, within escape routes the minimum clear width provided is 1500mm. These clear widths allow for occupants to pass each other safely along with aiding in the comfortability for wheelchair users. A 1500mm x 1500mm turning circle is allocated throughout the structure to aid in the movement of wheelchair users while comply with the TGD Part M -Access and use. The Killeagh mill wellness centre has met the requirement in the Technical Guidance Document Part M - Access and use, section 1.3.

3.6. Stairs and lifts.

3.6.1 Stairs.

All stairways within this design are ambient and comply with TGD Part M and B, with an exception of the eastern structure of the bike rental and repair store as this is a private stairway with a clear width of 1000mm. The main structures stairways have a clear width of 1200mm and is compliant with the Technical Guidance Document Part B and M. Each stairway has a clear width landing of 1000mm x 1200mm, all landings within the stairways do not exceed the height of 1800mm and a series of 10 risers.

All the stair materials are slip resistant of R12 to aid in the safety of all users, and are provided with a vision strip for the visually impaired. While hand rails are consistently provided on either side of the stairs that are 900mm above floor/step level and are 50mm wide while in accordance with the TGD Part K section 1.1.3.6. The rise and going (300mm) of each step is the same throughout the stairway, while the risers change from floor levels.

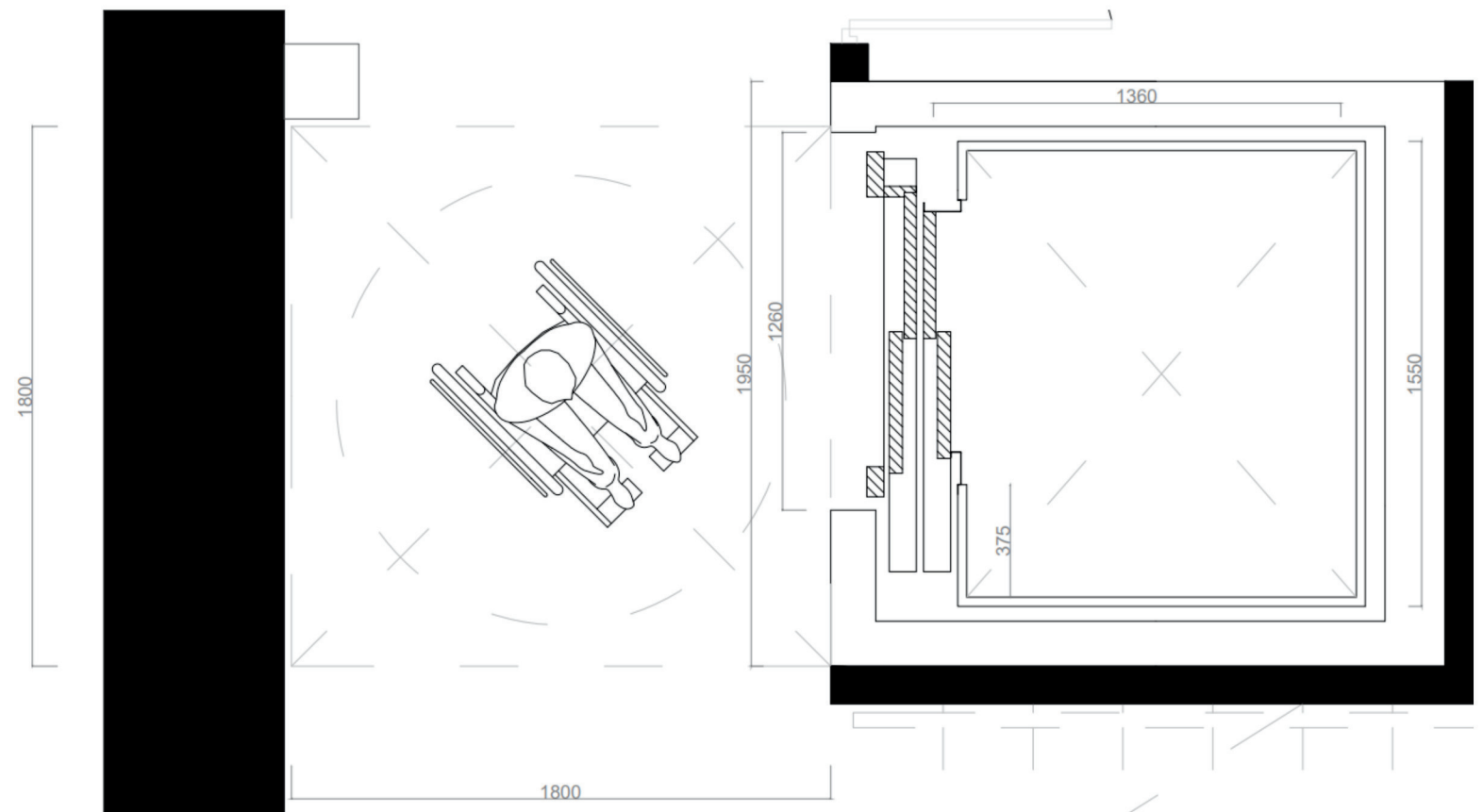
The ground floor to first floor stairs has a height of 4500mm while having a rise of 180 mm while a going of 300mm, The first to second floor has a height of 3500mm while having a rise of 175mm while the going is 300mm, Lastly the second floor to roof floor has a height of 3238mm with a rise of 170.4mm while the going is 300mm. At the top of each stair flight a landing occurs to the minimum of 1200 mm x 1000mm, this allows for a period of rest for individuals, while each stair flight is well illuminated by the thread, with the use of LED lights using 2800 kelvins.

3.6.2. Lifts.

A lift is installed to the northern section of the main structure, this provides access to each floor within the main and western structure. A lift is not required within the bike rental/repair store in the eastern structure due to the first floor being strictly private access only. A series of signage is located across the structure to provide clear guidance on the lift location.

The lift has a total 1260mm opening with a clear width of 1800mm x 1800mm unobstructed on each floor level. The internal dimensions carry a 1550 width and a 1360 depth. An internal handrail is located 900mm above the floor and located on the perimeter wall surface. Additionally, all controls and emergency services are located within reach for all users of the lift shaft.

A pit of 1500mm is provided below the lift on the ground floor, this space complies with the Technical Guidance Document Part M - Access and use and a image is provided below for reference on compliance.



3.7. Wheelchair accessibility.

3.7.1. Accessible surfaces.

The Killeagh wellness centre incorporates a series of accessible designs that connects the disability user to the building while feeling comfortable and wanted. These spaces are in full compliance with the Technical Guidance Document Part M section 1.3., The main spaces provided accommodate standing and mobility users is within the tiered seating, Reception space and café table access.

Reception Space:

A lowered table within the reception desk is 700mm above floor level with a 500mm depth for knee recess, this is accompanied with a standing desk for universal design, this is 1200mm above the floor level. A turning circle of clear unobstructed space 1500mm x 1500mm is evident within the space. The TGD Part M section 1.3. is evident within this design and aided in the creation of an inclusive design.

Tiered seating:

Within the front of the tiered seating a space of 1500mm is allocated for wheelchair usage, as well as seating located next to them for all disability users. The depth of 500mm allows for the parked seating fitting comfortably into the design. The flooring is provided with an anti slip for grips to allow for maximum stability, This complies with the Technical Guidance Document Part - M section 1.3.

Café table:

An allocated table design is situated within the café loose seating area, this has a 700mm height above the floor as well as a 450mm depth to allow for knee recess. A series of numerous seating types are available to ensure all disabilities are catered for within universal design. An accessible route is provided too this table area of a width of 1500mm, this complies with the TGD Part M - Access and use.

3.8. Space communication.

The Killeagh mill wellness centre exposes the importance of spatial communication, this is vital to provide inclusivity to all occupants. The design complies with the Technical Guidance Document Part M - Access and use.

Signage:

Within the design of the Killeagh mill wellness centre, the use of signage is vital to aid all occupants a navigational guide that are in accordance with the Technical Guidance Document Part M- Access and use. All signage is clearly visible while having a braille associated writing under each signage to allow for the visually impaired. The signs text and materiality is clear to avoid confusion for any individuals.

Visual contrast:

The visual contrast are exposed through materiality, this will aid the visually impaired. All surfaces have a visual contrast that comply with the TGD Part - M Access and use section 1.6.4.

Lighting:

The incorporation of maximum natural light is essential to aid in the wellness ideology. The usage of natural light and artificial light is important to communicate materiality and spaces through lighting technologies. the lighting is considered efficiently and comply with adequate regulation with the TGD Part - M. The usage of 2800 kelvins is used with LED lights, as it allows for a good colour render while diffusing it on the spaces.

4.0. Sanitary provisions.

4.1. Introduction.

The Killeagh mill wellness centre complies with the TGD Part M - Access and use building regulations that introduces the importance of disability access. The sanitary provisions have been calculated through detailed research of the TGD Part M documentation while also complying information from the British Documents BS83000 and BS6465 Part 1: Sanitary installations.

4.2. Number of facilities required.

The number of facilities need for the structure has been calculated using the occupancy capacity from section 2.3. of this document. In relation to the Café and bar within the structure it has been assumed that there is a 1:1 female to male ratio, this allows the occupancy capacity to be divided by 2 for the structure minus the Hostel accommodation with the first floor area. The first floor holds the hostel pod accommodation, There is 3 ensembles provided in correspondence with regulations that are unisex, in addition to 2 wc and 3 WHBS to aid in the accurate compliance with the British Standards Document BS6465 Part 1: Sanitary installations.

To calculate the sanitary provisions the occupancy load capacities have been analyzed from each of the 4 floor levels, as the building falls within numerous purpose groups 2(b), 4(a) and 5 which are identified in section 1.6.

In accordance with the Technical Guidance document Part M - Access and use, each floor level with the structure needs to be equipped with an accessible WC facility. There is two toilet blocks located on the first and second floor stacked for service conveniences and to reduce expenses, whilst the addition of an accessible WC is placed in conjunction to these.

| Total Occupant Capacity | |
|-------------------------|------------|
| Ground floor plan | 141 |
| First floor plan | 26 |
| Second floor plan | 16 |
| Roof floor plan | 29 |
| Total | 212 |

Table 9 Minimum provision of sanitary appliances for bedrooms in hotels, hostels, and similar accommodation

| Type of accommodation | Sanitary appliance | Number of sanitary appliances | Remarks |
|---|----------------------------------|-------------------------------|--|
| Cleaners' room | Cleaners' sink | 1 per 30 bedrooms | At least one per floor |
| Bedrooms with en suite accommodation | Bath or shower, WC and washbasin | 1 per bedroom | |
| Bedrooms without en suite accommodation | WC | 1 per 9 persons | |
| | Washbasin | 1 per bedroom | 1 per 4 persons in dormitories |
| | Bathroom | 1 per 4 persons | Containing bath or shower, washbasin and additional WC |

Table 9: British Standards Document BS6465 Part 1: Sanitary installations.

Table 10 Minimum provision of sanitary appliances for restaurants and other places where seating is provided for eating and drinking

| Sanitary appliance | For male customers | For female customers |
|--------------------|--|--|
| WC | 2 for up to 150 males; plus 1 for every additional 250 males or part thereof 2 for up to 50 males if urinals are not provided | 2 for up to 30 females; plus 1 for every additional 30 females up to 120, plus 1 for every additional 60 females or part thereof |
| Urinal | 1 per 60 males or part thereof up to 120 males; plus 1 for every additional 100 males or part thereof | - |
| Washbasin | 1 per WC, plus 1 per 5 urinals or part thereof | 1 per WC |
| Cleaners' sink | As 5.5 | |

Table 10: British Standards Document BS6465 Part 1: Sanitary installations.

Table 11 Minimum provision of sanitary appliances for licensed pubs, bars, nightclubs and discotheques

| Sanitary appliance | For male customers | For female customers |
|--------------------|--|--|
| WC | 2 for up to 150 males; plus 1 for every additional 200 males or part thereof 2 for up to 40 males if urinals are not provided | 2 for up to 25 females; plus 1 for every additional 25 females or part thereof up to 200 females; plus 1 for every additional 35 females or part thereof |
| Urinal | 1 for every 50 males up to 200 males; plus 1 for every additional 70 males or part thereof | |
| Washbasin | 1 per WC, plus 1 per 5 urinals or part thereof | 1 plus 1 per 2 WCs or part thereof |
| Cleaners' sink | As 5.5 | |

Table 11: British Standards Document BS6465 Part 1: Sanitary installations.

4.2.1. Ground floor.

The total occupancy for the ground floor is 141, While considering the British standard documents BS6465 Part 1: Sanitary installations, the main toilet blocks will be located on the first and second floors. An accessible WC is located within the ground floor for convenient access for all users. There is no obstructions within the turning circle of the wheelchair user, the space will be cater to all users with a disability.

| Unisex accessible | |
|-------------------|----------|
| WC | 1 |
| WHBS | 1 |
| Total | 1 |

4.2.2. First floor.

The total occupancy for the first floor is 26, While considering the British standard documents BS6465 Part 1: Sanitary installations, the 1:1 female to male ratio will be taken into account for purpose groups 4(a) and 5. Sanitary provisions have to be considered for 106 for female and 106 for males divided out of the total of 212, as well as a stacked accessible WC. In each of the toilet blocks an ambient stall will be provided for accessible use.

In the hostel pod accommodation there is three ensuite provided with relevant facilities for washing and toilet purposes, aswell as 2 Wc and 3 WHBS in addition to clean drinking water provided. This has been adapted from the purpose group 2(b) and can be seen in table 11 above while referencing the British Stand Documents BS6465 Part 1.

| Unisex accessible | | Unisex hostel | |
|-------------------|---|---------------|---|
| WC | 1 | WC | 2 |
| WHBS | 1 | WHBS | 3 |
| | | Ensuite | 3 |

| Female | | Male | |
|--------|---|--------|---|
| WC | 2 | WC | 1 |
| WHBS | 2 | WHBS | 2 |
| | | Urinal | 1 |

4.2.3. Second floor.

As you move upwards within the structure the floor area decreases. The total occupancy for the second floor is 16, While considering the British standard documents BS6465 Part 1: Sanitary installations, the 1:1 female to male ratio will be taken into account for purpose groups 4(a) and 5. Sanitary provisions have to be considered for 106 for female and 106 for males, In each of the toilet blocks an ambient stall will be provided for accessible use. An accessible Wc is located stacked in conjunction with each floor.

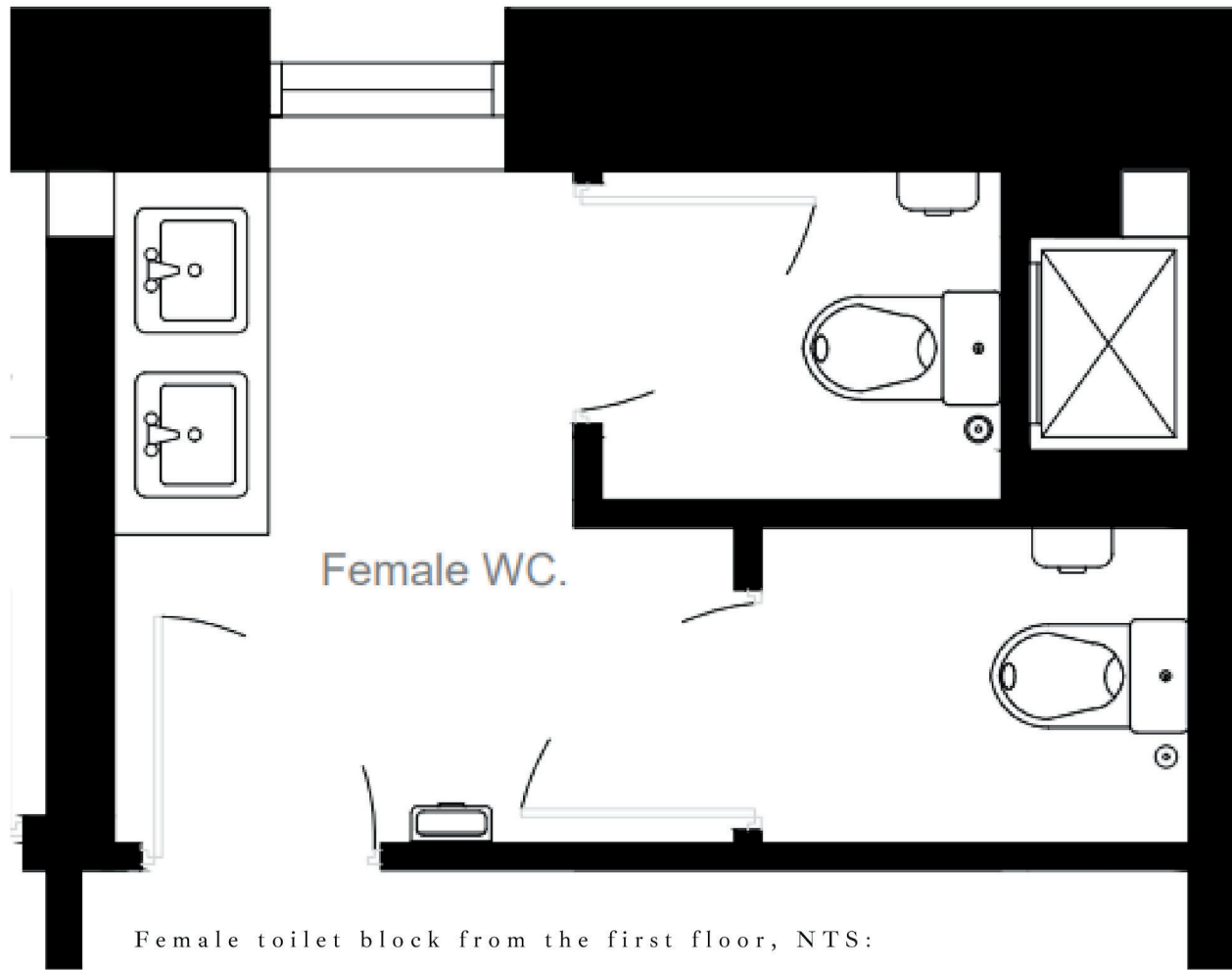
| Female | | Male | |
|--------|---|--------|---|
| WC | 2 | WC | 1 |
| WHBS | 2 | WHBS | 2 |
| | | Urinal | 1 |

| Unisex accessible | |
|-------------------|---|
| WC | 1 |
| WHBS | 1 |

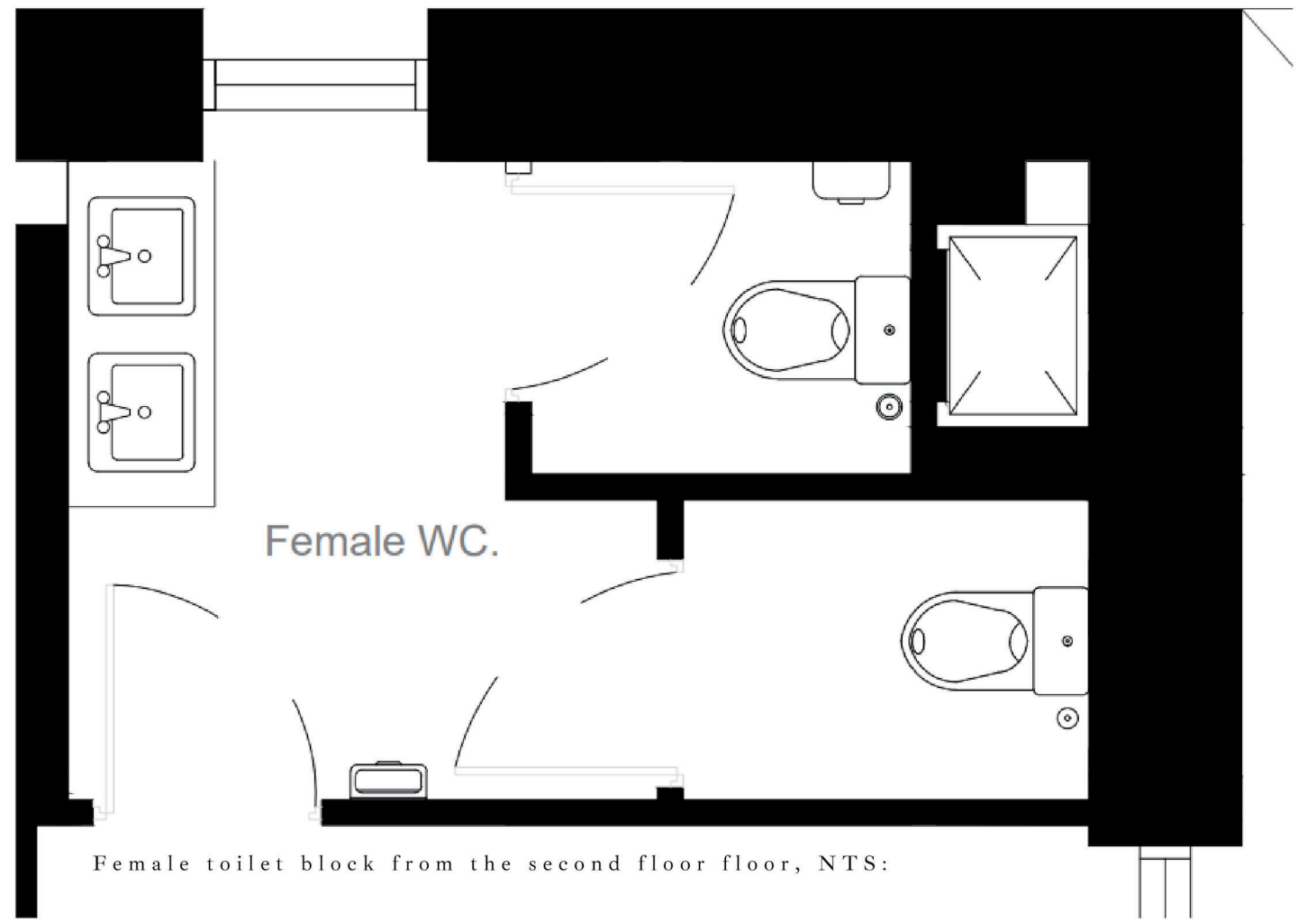
4.2.4. Roof floor.

The calculated occupancy for the roof floor is 29, this is seen in section 2.3. While considering the British standard documents BS6465 Part 1: Sanitary installations, the location of the two main toilet blocks will be located on the first and second floors. This will comply with regulations as the travel distance is no more than one floor level. An accessible WC is located within the roof floor for convenient access for the necessary users. There is no obstructions within the turning circle of the facility.

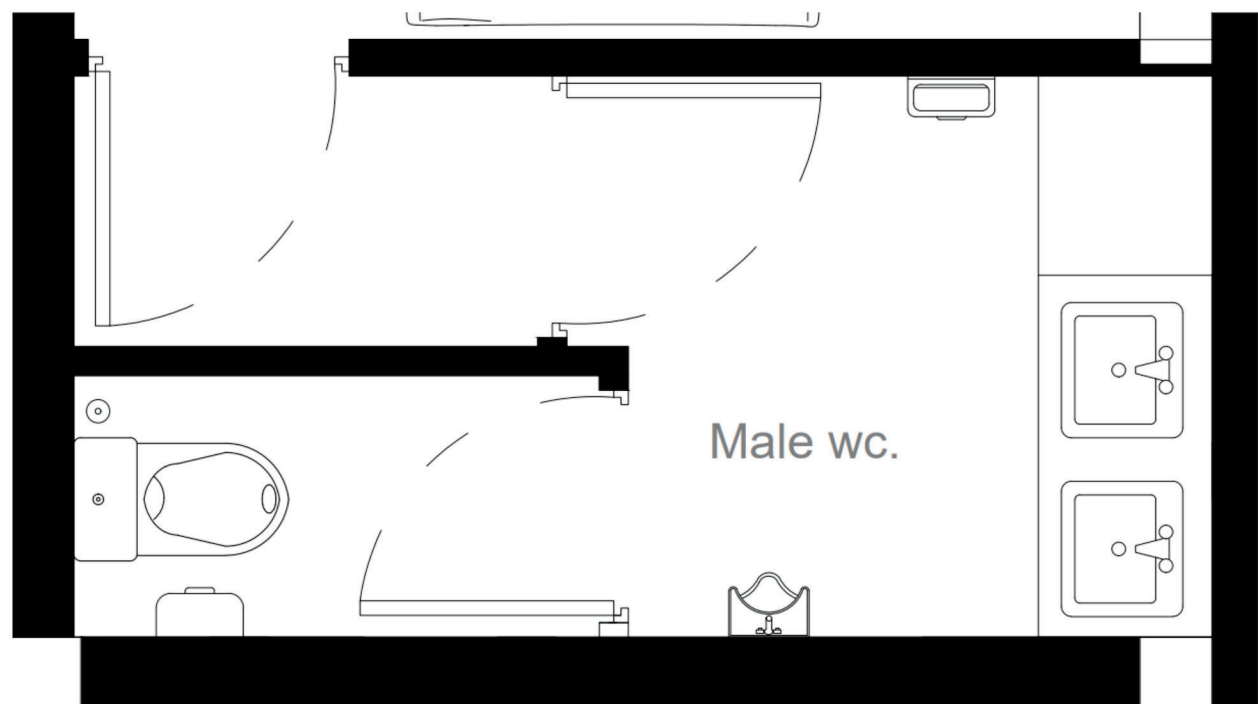
| Unisex accessible | |
|-------------------|---|
| WC | 1 |
| WHBS | 1 |



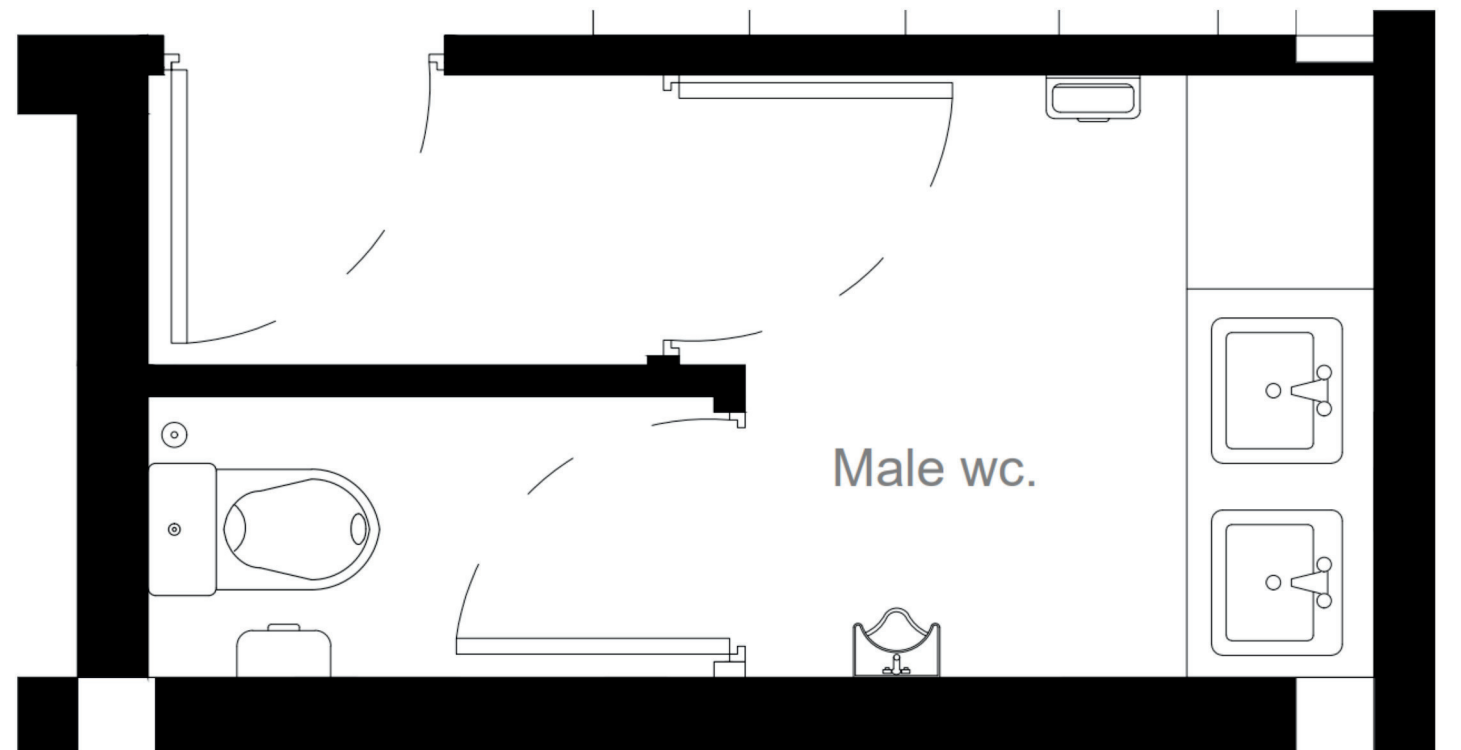
Female toilet block from the first floor, NTS:



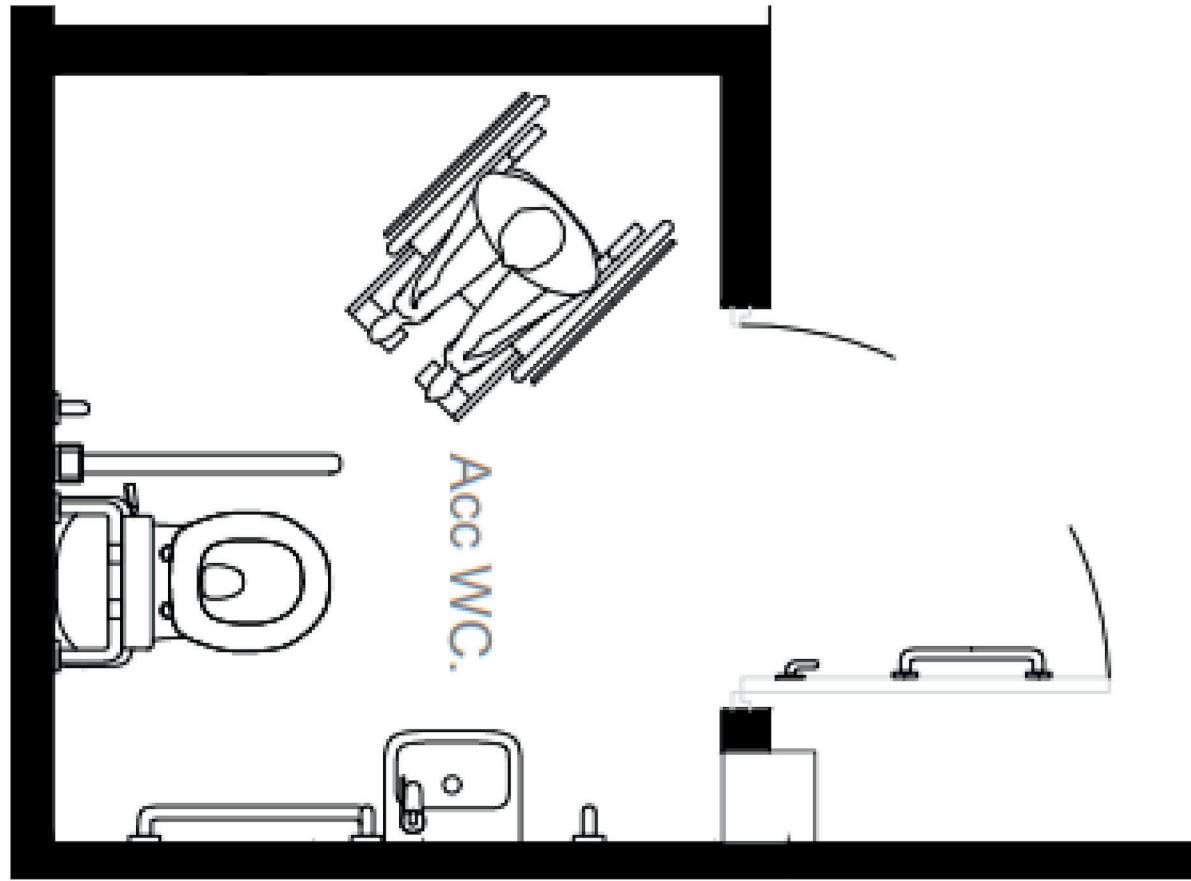
Female toilet block from the second floor floor, NTS:



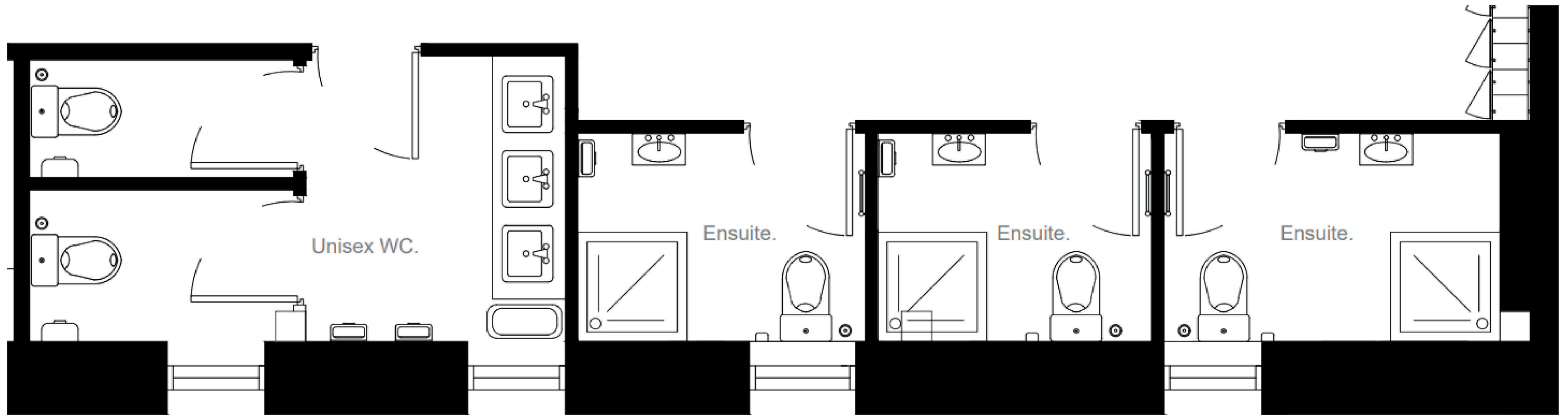
Male toilet block from the first floor, NTS:



Male toilet block from the second floor floor, NTS:



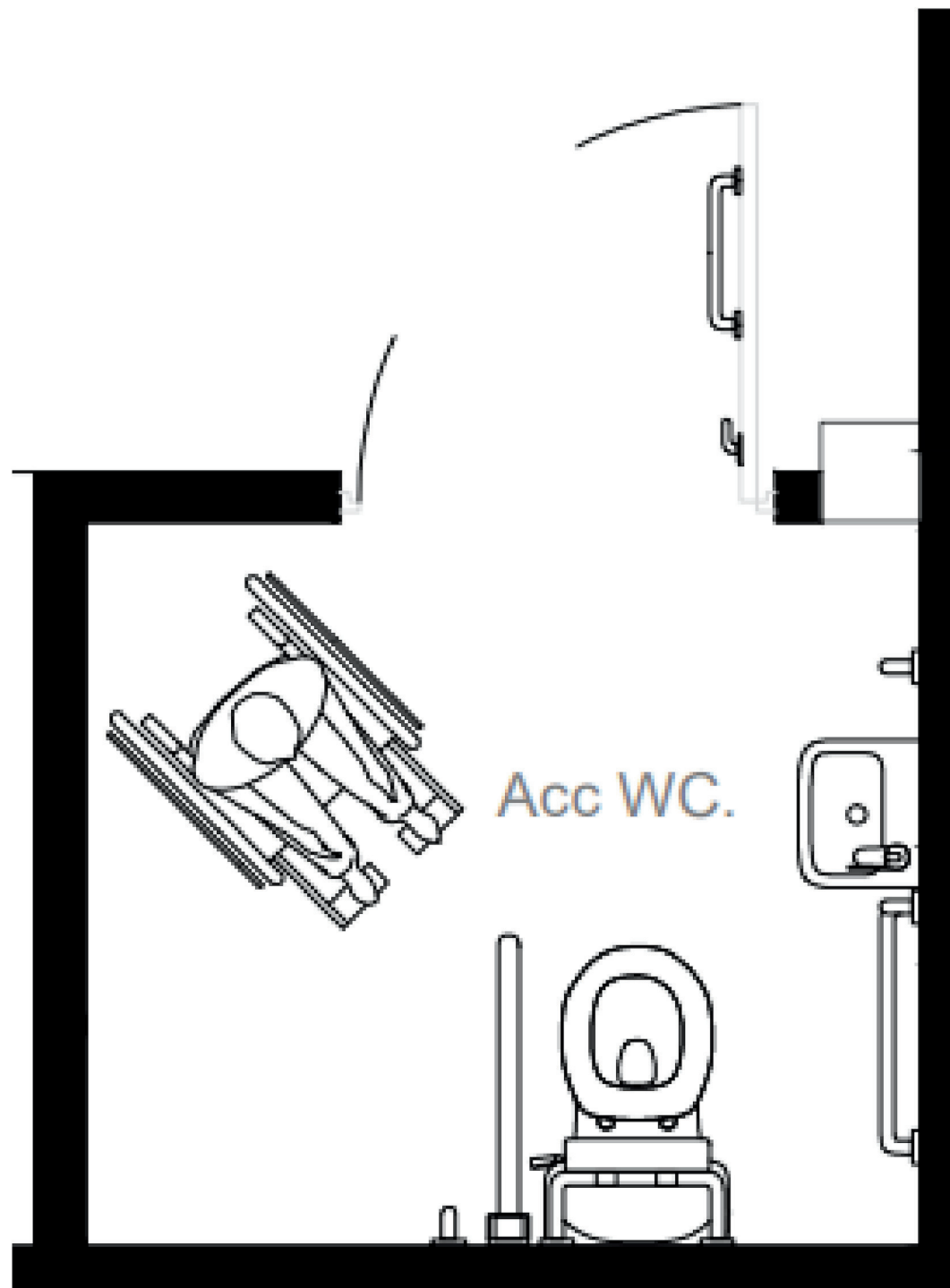
The accessible WC that is located symmetrically stacked on each floor, NTS:



The hostel accommodation WC facilities in accordance to the BS6465, 2 unisex WC provided along with 3 WHBS in addition to 3 ensuite services. NTS:

4.3. Universally accessible provisions.

Throughout the Killeagh mill wellness centre there is 4 unisex accessible WCs, which comply to the regulations of the Technical Guidance Documents Part M - Access and use, a turning circle space of 1500mm x 1500mm is evident within the accessible sanitary provisions. The space is 2100mm x 1825mm and is in accordance to the TGD Part M, the accurate regulations are analyzed and produced. The doors open outwards, the hand rails are at a height of 600mm x 50mm, which are located either side of the WC with drop down technology. Below, a planned layout of the Ground floor accessible WC is provided, this is replicated to each floor plate throughout the structure.



5.0. Sustainability.

5.1. Introduction.

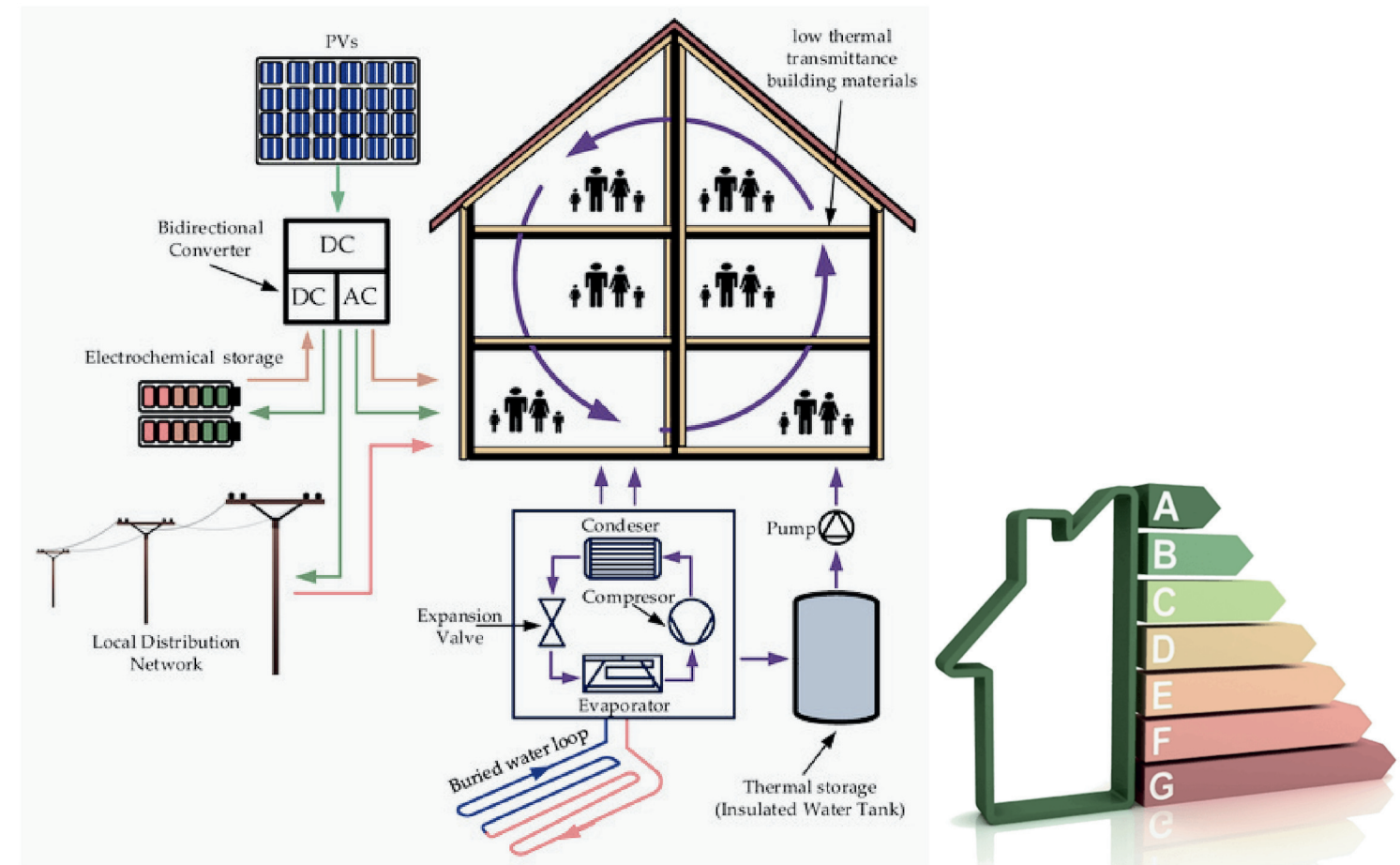
The importance of sustainable design seeks to minimize the negative effects on the environment, as well as the increasing the well-being and satisfaction of building occupants. The Killeagh mill wellness centre has a proposed structure that enhances the overall building efficiency through sustainable energy. The fundamental goal of the sustainable design is to diminish the consumption of non-renewable resources, minimizing waste generation, and to produce healthy environments for both the users mental and physical health.

5.2. Deep retrofit: NZEB.

Sustainability has gained significant attention in the construction industry due to the escalating global warming crisis. This proposed design will comply with accurate building regulations TGD Part L and the nearly zero energy building (NZEB). The term “Nearly zero energy building” (NZEB) is related to a structure that has an exceptional energy conservation and consumption, this term applies to new builds and structures like the Killeagh mill wellness centre that undergoes survive renovations and adaptation. It is vital to prioritize sustainability through materiality, energy consumption, living practices and daily activities. The importance of enhancing a buildings efficiency within building practices is vital in the journey to reduce energy consumption.

The Killeagh mill wellness centre has proposed a retrofit adaptation in compliance with the European energy performance of buildings directive recast 2010. The key to retrofitting is to implement energy upgrades, this a goal to achieve within the Killeagh mill wellness centre, a goal achievement for this structure is to be awarded an A-rated building energy rating. The EU conservation guidelines address the importance of retrofitting, the retrofit within the structure incorporates a series of upgrades to aid in the current global crisis. The incorporation of an external lime render insulation will increase the structures energy efficiency, while pairing this with the vital PV panel system located on the pitched roof of the structure.

The heat to water pump will aid in the structures energy conservation, this will gain energy from the adjacent river disour which is a consistent 8 degrees. In addition, the triple glazed window upgrades will aid in the conservation of heat, while incorporation to the heating and cooling systems will aid in the ventilation of the structure.



5.3. Embodied energy.

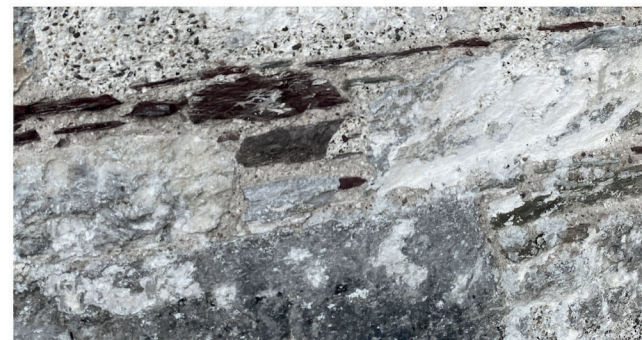
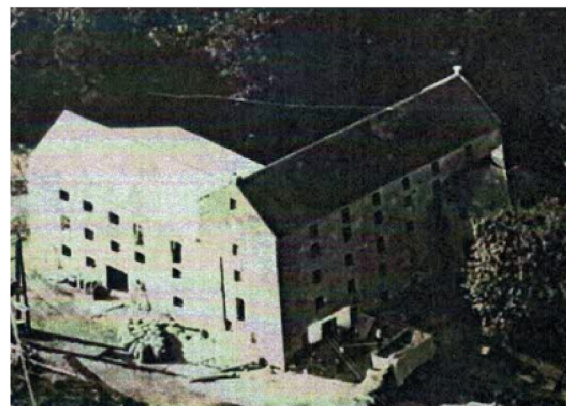
The calculation of all energy used to produce a material or product is called embodied energy, this is produced when mining an manufacturing the products until transportation is required. The proposed design of the Killeagh mill wellness centre will provide sustainable materials with low levels of embodied energy with respect to biophilic design. The choice of these materials aid in the reduction of energy usage within the structure and effectively it positively impacts the environment.

5.4. Building typology.

The Killeagh corn mill, Killeagh county Cork is a derelict structure that stands with no roof and floor plates, it is full of debris and rubble. This structure is home to waste dumping and anti social behavior though being derelict since the 1970s. This structure has seen numerous fires since the 1700s that adds to its rich heritage. The exterior walls are apporximately 600mm in width, the window openings have been enclosed with cement and timber.

The western extension has a shed corrugated steel roof, while the structure has a large corrugated shed attached to the northern gable of the main building spanning largely over the land.

There is soft evidence of lime renders on the exterior cobbled stone though through analysis of imagery a clear lime render is evident on the structures exterior. Evidentially a lime render is clear within the western exterior of 1844 which is still clearly visible behind the moss and debris.

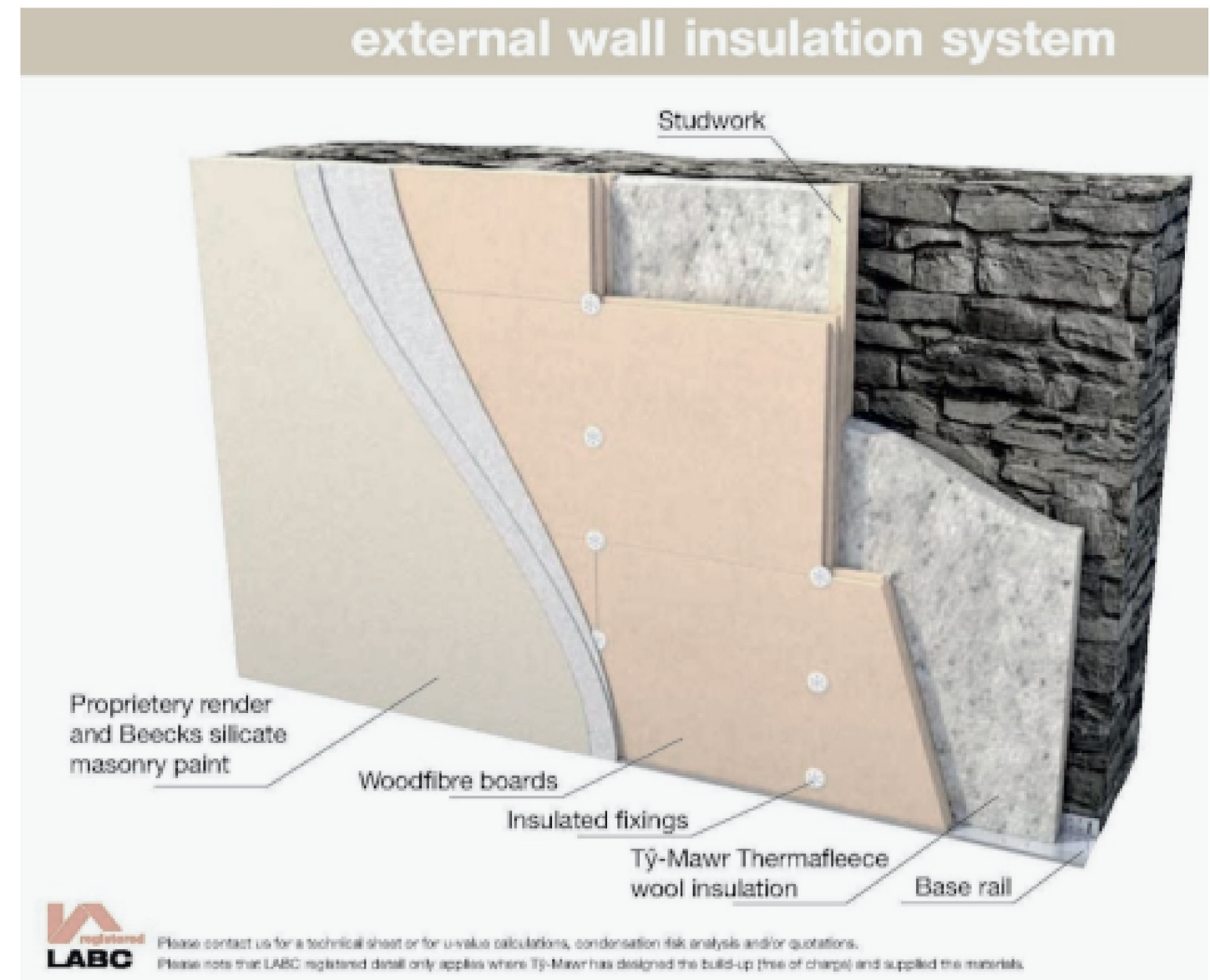


5.5. Breathable insulation.

5.5.1. Wall insulation.

As the Killeagh mill wellness centre has a 600mm cobbled stone wall build up it is holds a limited amount of heat. The addition of thermal resistance and inertia is essential to provide the structure with maximum thermal conservation. The walls will be lime rendered from the exterior to protect the heat insulation and inevitably protect the wall from weather conditions, the insulated wall achieves a U-Value calculation of .30W/m²K.

An eco cell insulation of 16mm will be used internally to insulate as it is energy efficient and sustainable, this material is made locally in county Cork out of local sourced paper and inorganic salts. Eco cell insulation provides a safe addition to the TGD Part B - Fire, as its salts make the cellulose safe in fire conditions while also produces a natural pesticides to warn off unwanted pests. A finish of breathable paint is applied to the internal plaster to ensure a safe dry surface is present. The improvement of insulation will significantly improve the thermal conductivity.



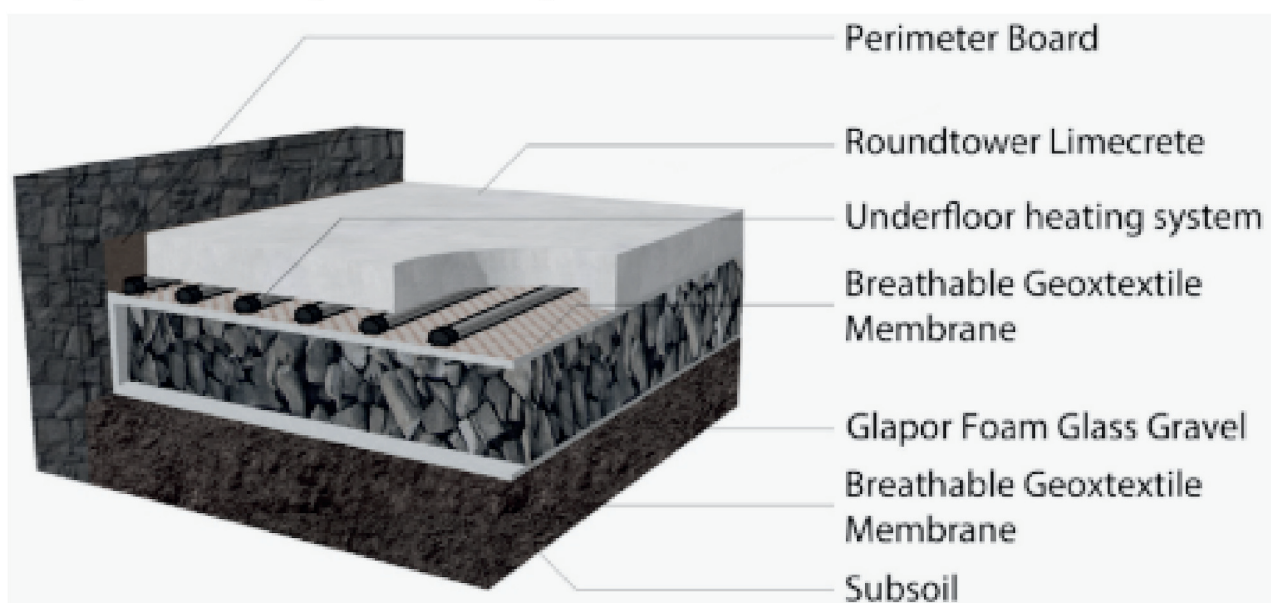


East wall, evidence of lime render on stone work details.

5.5.2. Floor insulation.

The ground floor build up of the Killeagh mill wellness centre has a limecrete sustainable material which is laid on top of an underfloor heating system and a breathable geotextile membrane, a layer of Glapor foam glass gravel insulation is laid underneath this membrane. Lastly a breathable geotextile membrane is placed above the subsoil again, this is evident in the diagram below. This will use a minimum amount of energy consumption in production and is sustainably recyclable for future use.

The Glapor foam glass gravel insulation (SG600P) is a material made up of 100% recycled glass substances. This material is exceptional as it provides a lightweight (125kg/m³) load-bearing insulation for underfloor use only. Glapor is a non-combustible material and is effectively resistant to frost, it is both economical and environmentally sound. Additionally, round tower limecrete is made up of NHL 5 and aggregate and is a DPM material and aids in the absorption of moisture to allow for an escape route through the flooring.

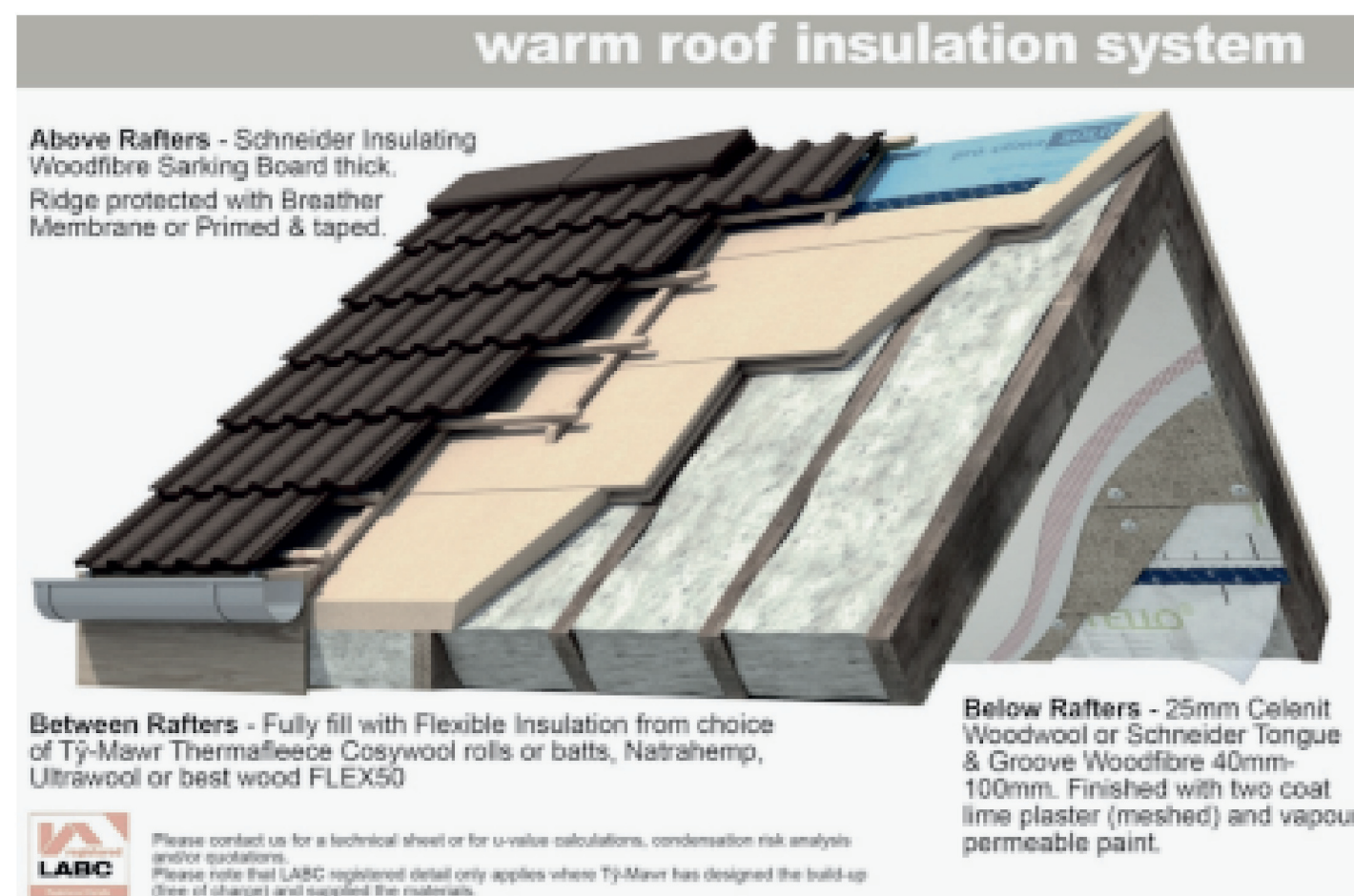


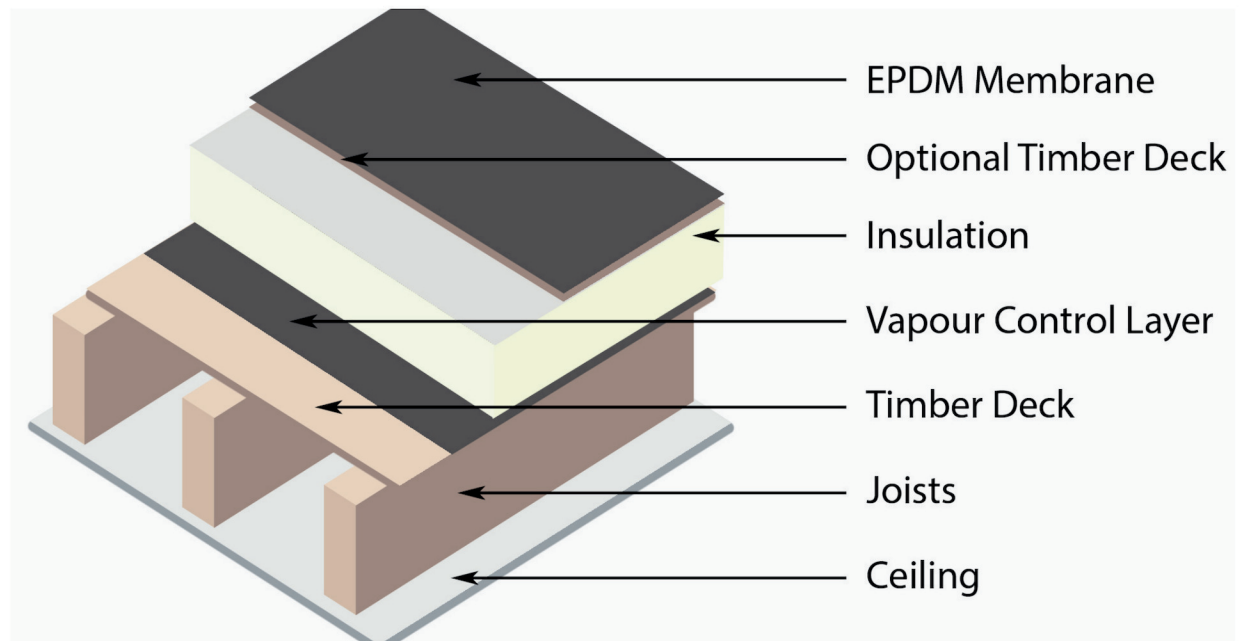
5.5.3. Roof insulation.

The Killeagh mill wellness centre has two main types of roofing, pitched and monopitched. 40% of energy is lost through the roof, this is vital to conserve to capture the energy conservation. The existing building has a southern and northern gable with facilities to hold a pitched roof although it has been lost due to fire damage, while the western extension and eastern structure has monopitched roofing.

The Killeagh mill wellness centre proposes a timber frame pitched and a monopitched roof. The open pitched roof has incorporated a hemp insulation that spans 60mm, this placed between the rafters and then over the rafters along with a gypsum plaster coating, though a 10% gap for breathability has been provided for air circulation.

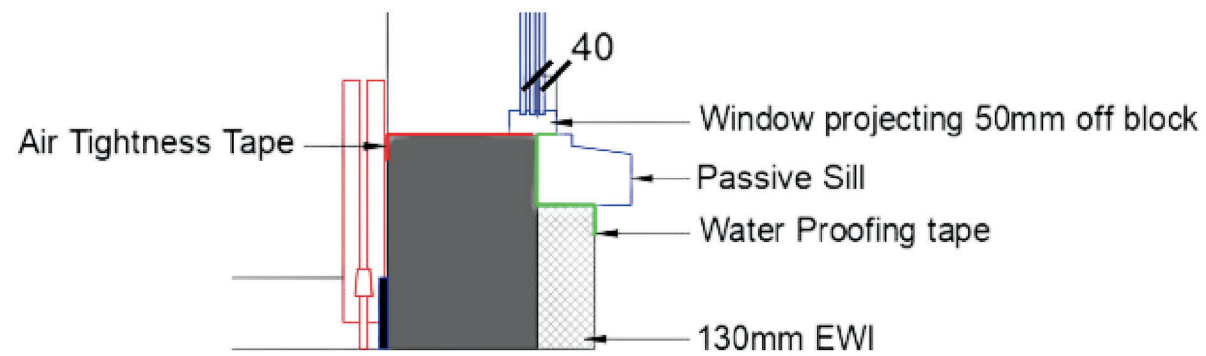
In addition, the monopitched roof carries a series of joists holding a timber decking, followed by a vapor control layer to remove moisture within the roof. The incorporation of hemp insulation is locally incorporated with an above timber decking followed by an EPDM membrane covering the insulation. The thermal conductivity will decrease as the roof insulation increases.





5.5.4. Air and wind tightness.

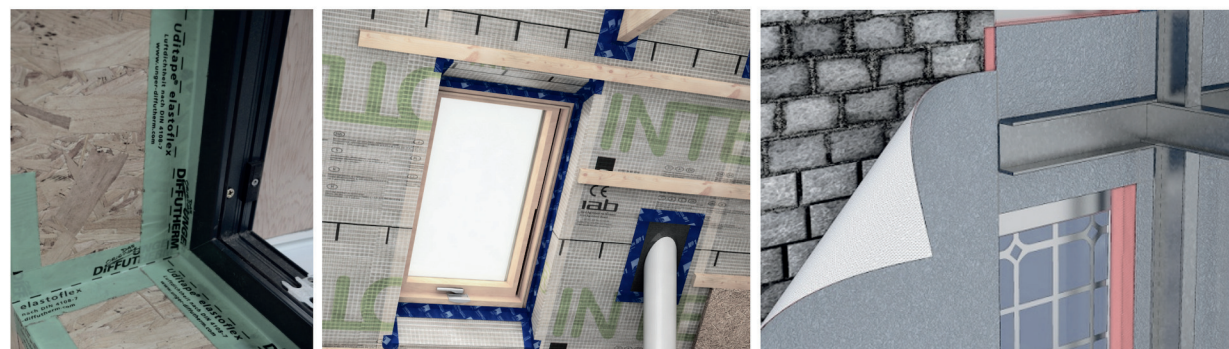
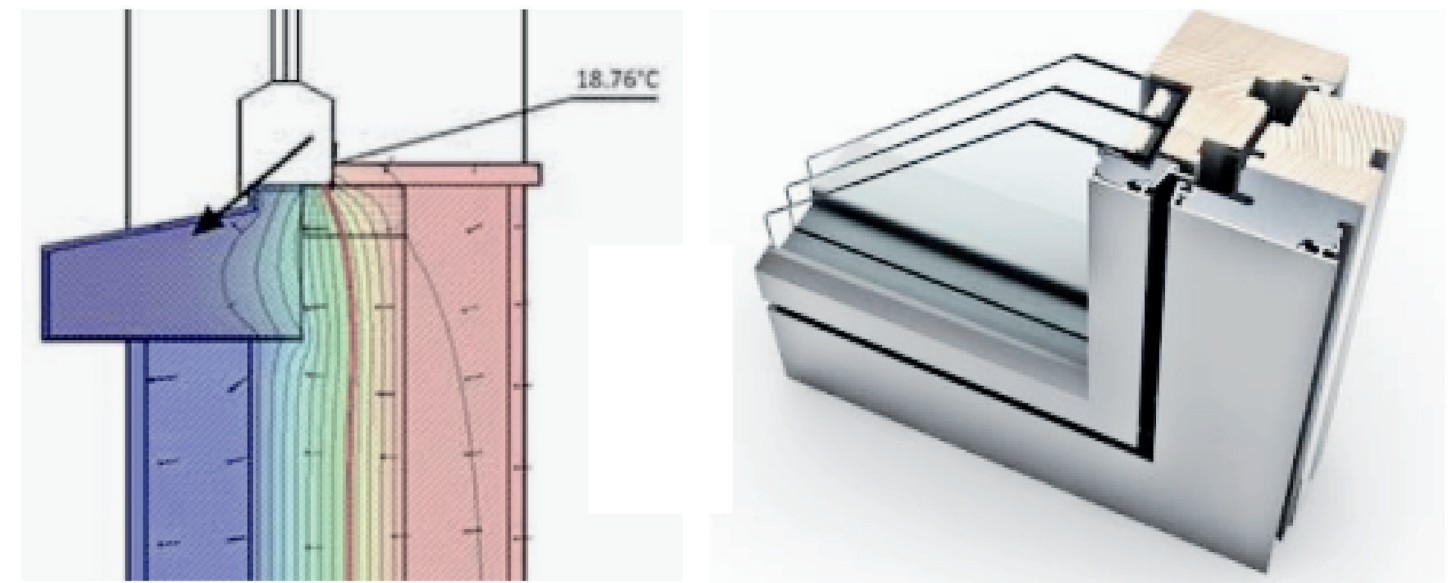
The insulation within the Killeagh mill wellness centre provides additional air and wind tightness to the window sills. The existing windows have been blocked up since the 1970s, considering this it can only be imagined through imagery of the initial window frames and glazing. The proposed windows are triple glazed with a pvc panel, an additional weatherproof tape is applied to the perimeter of the internal and external insulation and below the window sill, this will enable air leakage. This will produce an air and wind tightness if aligned correctly to the insulation.



5.5.5. Windows and sills.

The Killeagh mill wellness centre is specifying passive windows 0.8 w/m²k, in triple glazed aluclad as they are reduced maintenance. The Aluclad windows tend to be 30% more expensive but conserve the temperature more efficiently. Air vents are attached within the frame of the passive window which are manually controlled, the window frame is paired with reflective steel that extrudes out 100mm to the exterior, this will propel the natural light inwards.

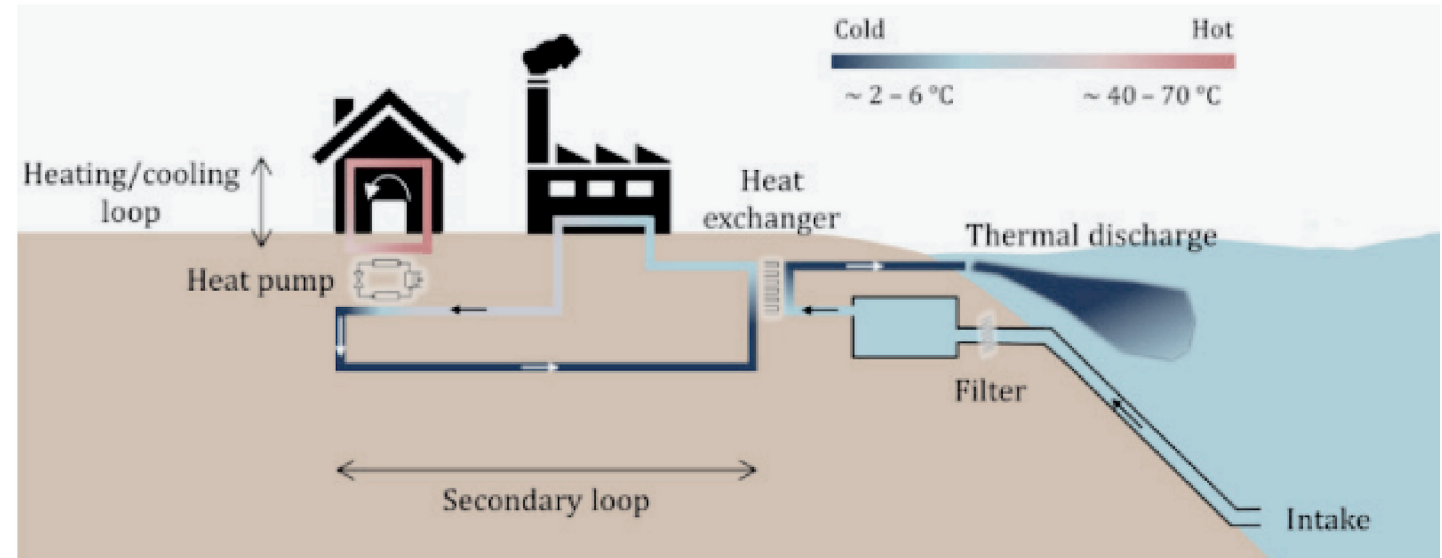
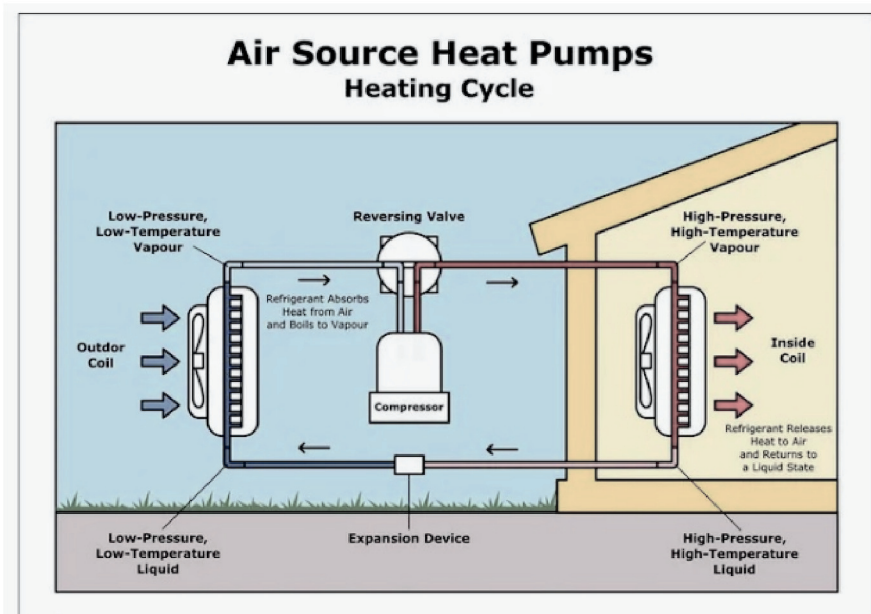
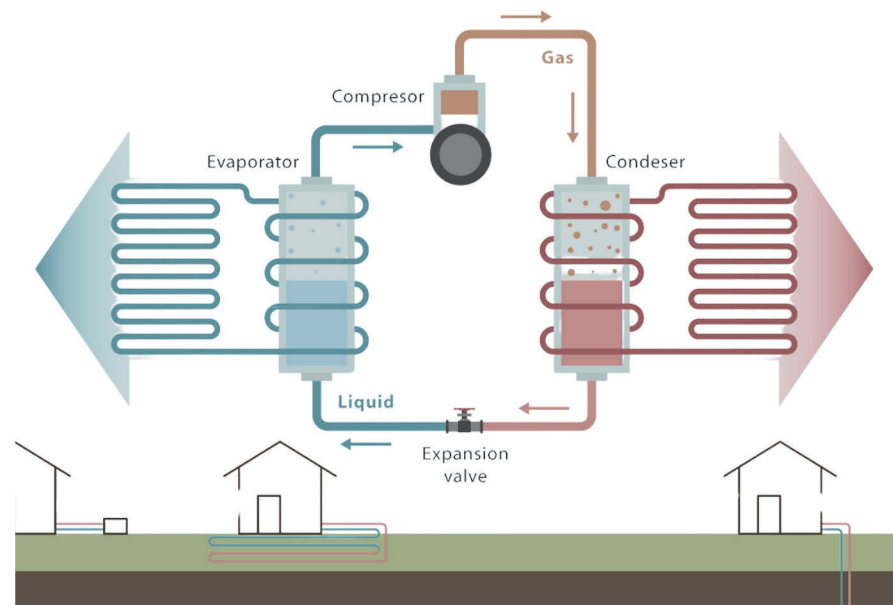
The original windows of the existing structure are all filled up in concrete, within the renovated structure a window using reflective tinted steel will be paired to aid in the proposed design. The window sills are composed of foam that eliminates the penetrations' of weather, these impenetrable sills cut down thermal bridges and mold growth. Three panes are installed and filled with argon gas, the glazing has a thermal conductivity level of 2.50 w/m²-k.



5.6. Active systems.

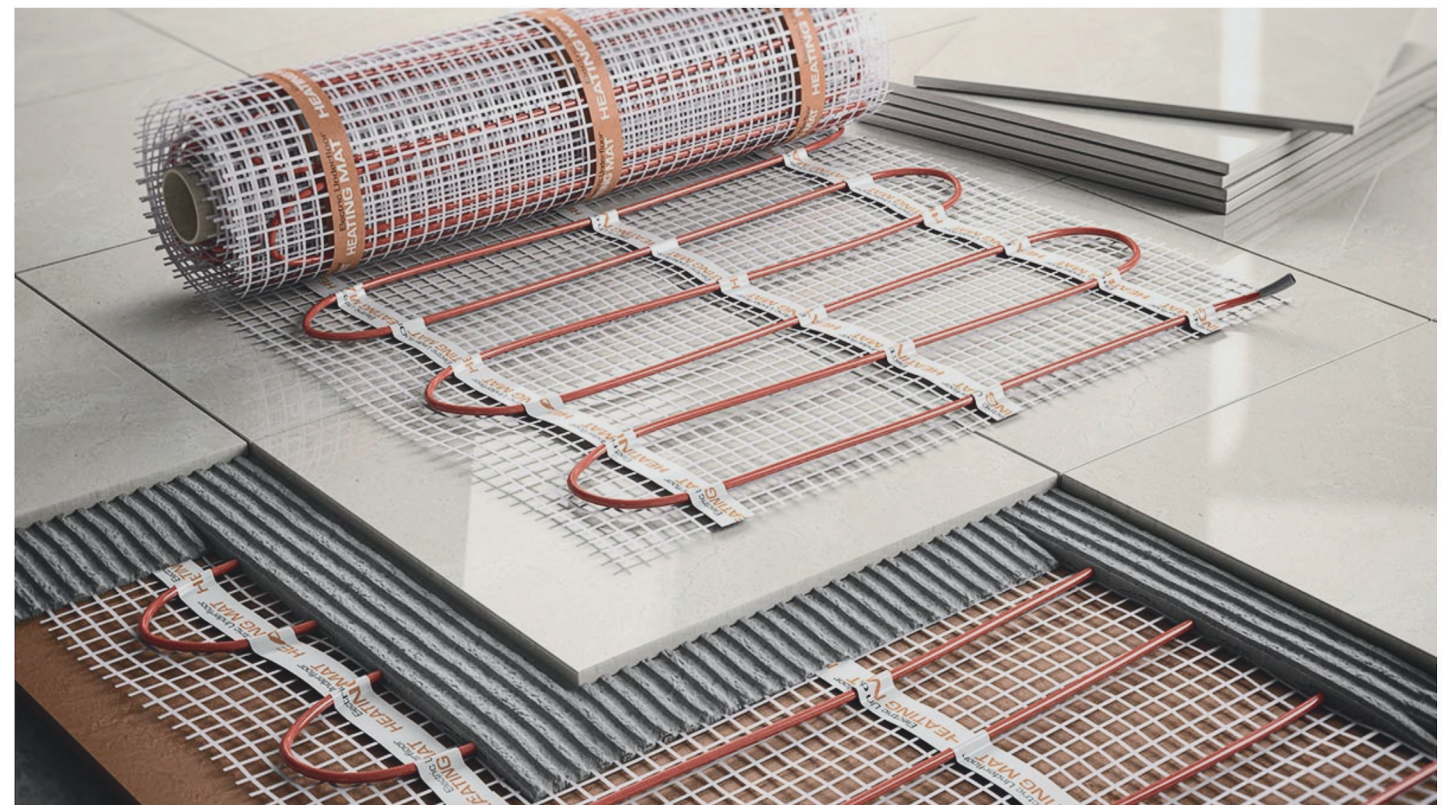
5.6.1. Heat to water pump.

The Killeagh mill wellness centre has installed a heat pump that collects air to water. The cold exterior air is collected to make warm indoor water to pass through the heating system as an efficient sustainable energy unit. This system releases heat during the cooler winter months but can also be reversed to protrude cooler air and water during the summer period. The heat pump is fed through the underfloor heating system and has a 400% efficiency rating, this is a sustainable solution in comparison to oil boilers which are less commonly used.



5.6.3. Underfloor heating.

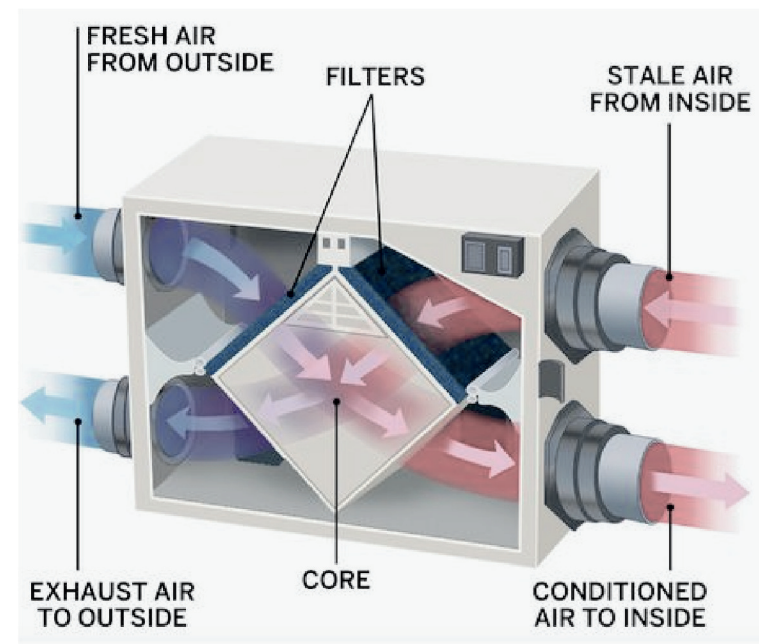
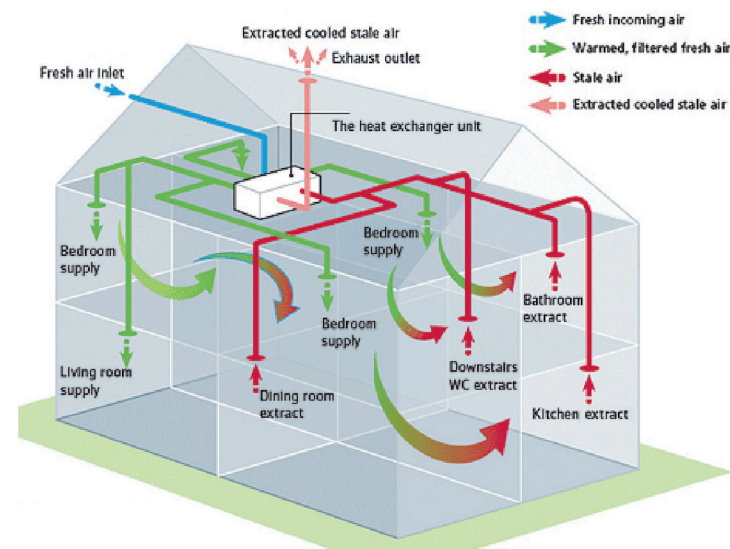
An underfloor heating system has been installed within the proposed design for the Killeagh mill wellness centre within a limecrete, as it is a sustainable alternative. This underfloor heating pairs with the heat pump as this delivers the water at a constant temperature of 8 degrees from the adjacent river disour, once combined the underfloor heating disperses evenly throughout the ground floor within the structure. A vital step within the process is to incorporate an installation below the heating pipes to prevent temperature loss, materiality will aid in the conservation of heat. Within this design materials such as tile will conduct heat more efficiently.



5.6.4. Mechanical heat recovery ventilation.

In the Killeagh mill wellness centre a mechanical heat recovery ventilation system is installed within the roof floor attic space for ventilation purposes. This ventilation system is placed attic box and that installed in the main structure to extract the warm air that rises from within. The filtered air is passed over a metal plate to retain its warmth.

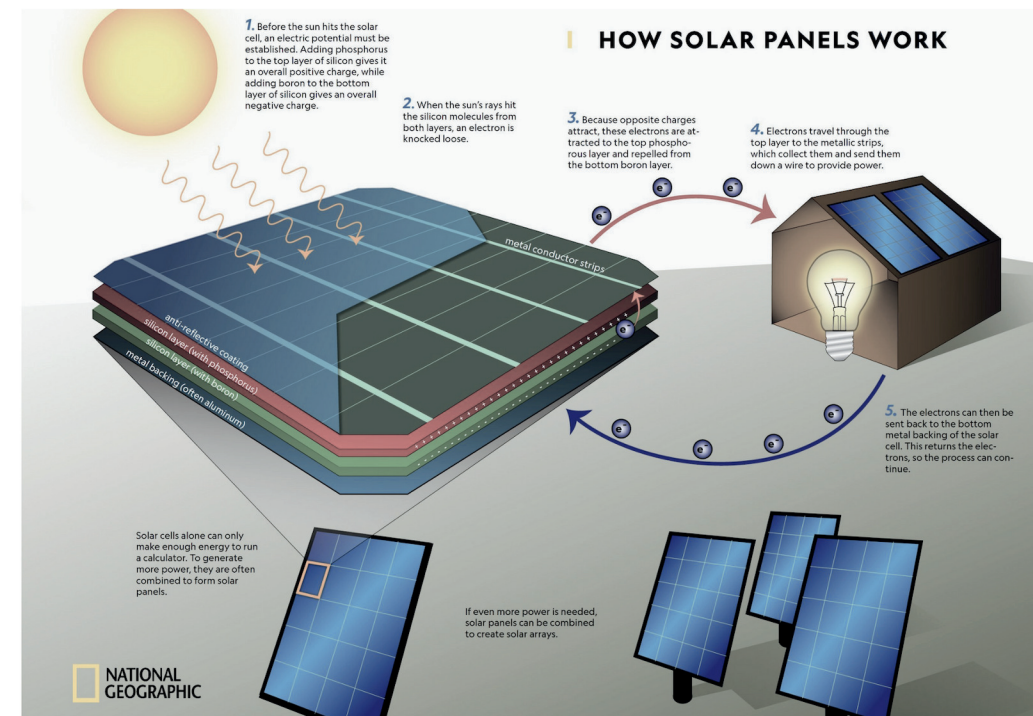
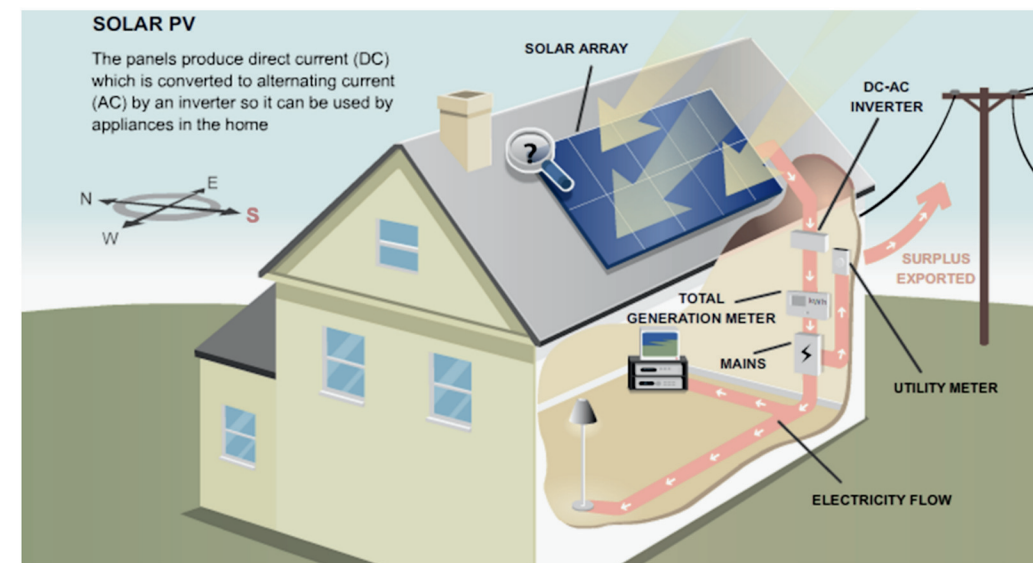
Simultaneously, cold fresh air taken from outside is warmed by the same metal plate. The mechanical heat recovery system can reach temperature's of 21 degrees , In addition, the stale air from areas such as the kitchenette, café, bar, hostel accommodation and WC facilities is extruded to maintain the high air quality of the woodland environment.



5.6.5. Photovoltaic panels.

Photovoltaic panels produce electricity to fulfill a section of a building's energy needs. These PV panels are strategically placed on the Killeagh mill wellness centers pitched roofs to allow for maximize sunlight exposure. There is an electric load center that is in charge of distributing the power generated by the PV panels to the building's energy requirements.

If the Photovoltaic panels do not meet the full demand, the remaining power is drawn from the backup electric grid. In addition, if the building integrated photovoltaic panels generate excess electricity, it can be sent back to the electric grid to be saved for later use, but that will not be common due to the building high running facilities.

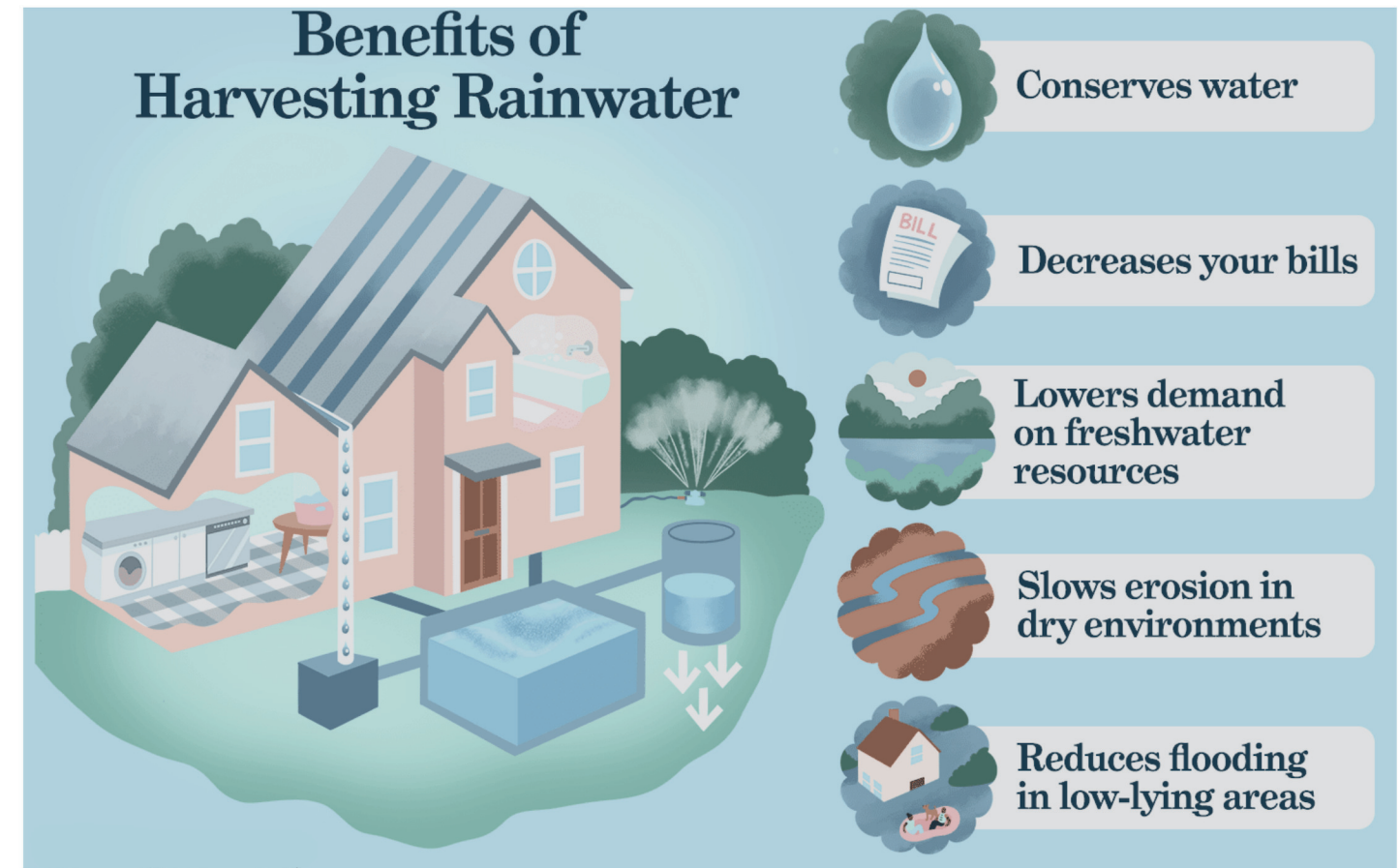


5.6.6. Rainwater collection.

The Killeagh mill wellness centre is located adjacent to the river disour in Killeagh county Cork. The incorporation of water within the proposed design is vital to increase sustainable efficiency.

When rainwater falls it often runs off the streets and roofs into drains and rivers, the proposed design for the structure analyses a system of rainwater collection to store and reuse the processed sum of water. The collected water would be filtered and pumped into the toilet system to avoid excess water wastage along with providing recycled waters system within the WHBS.

The rainwater system would be located within the grounds of the exterior, in a location of easy access if needed aid.

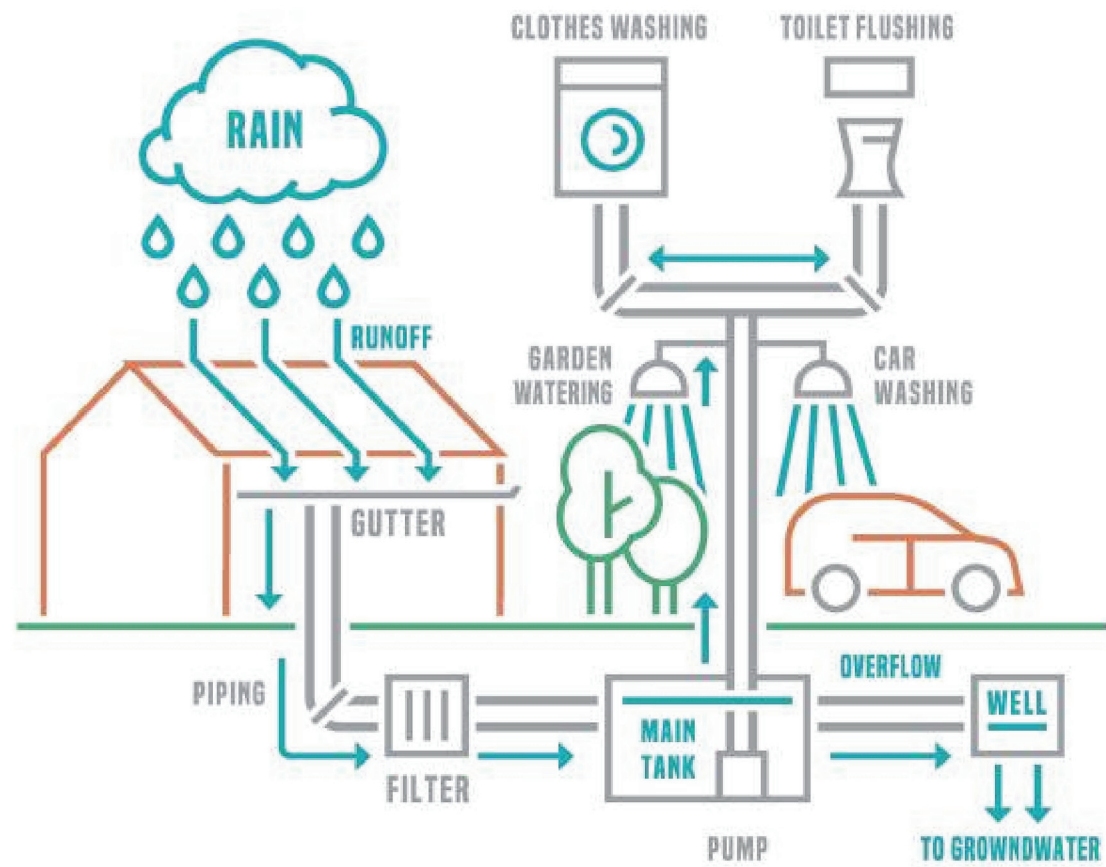


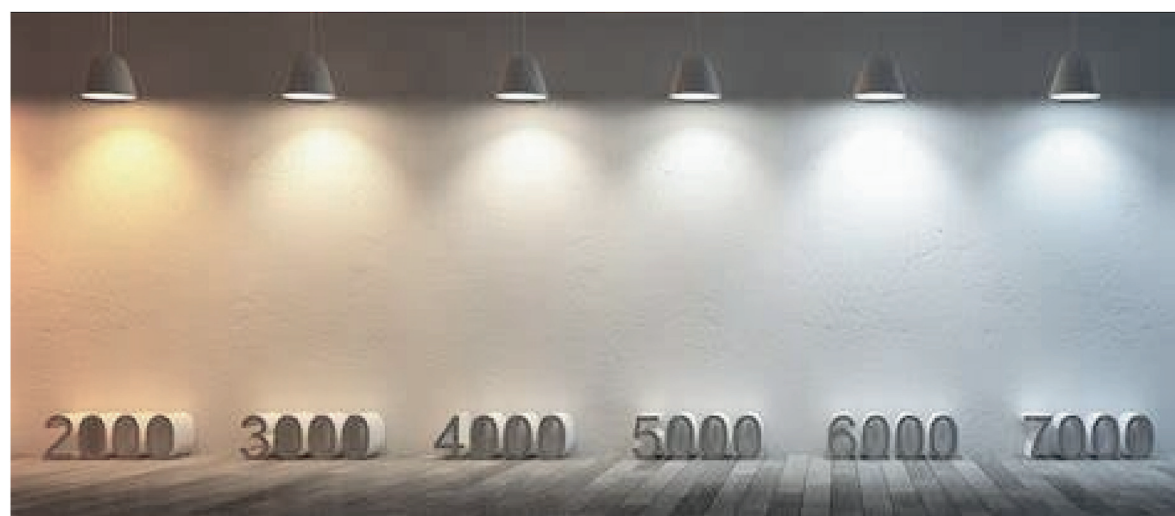
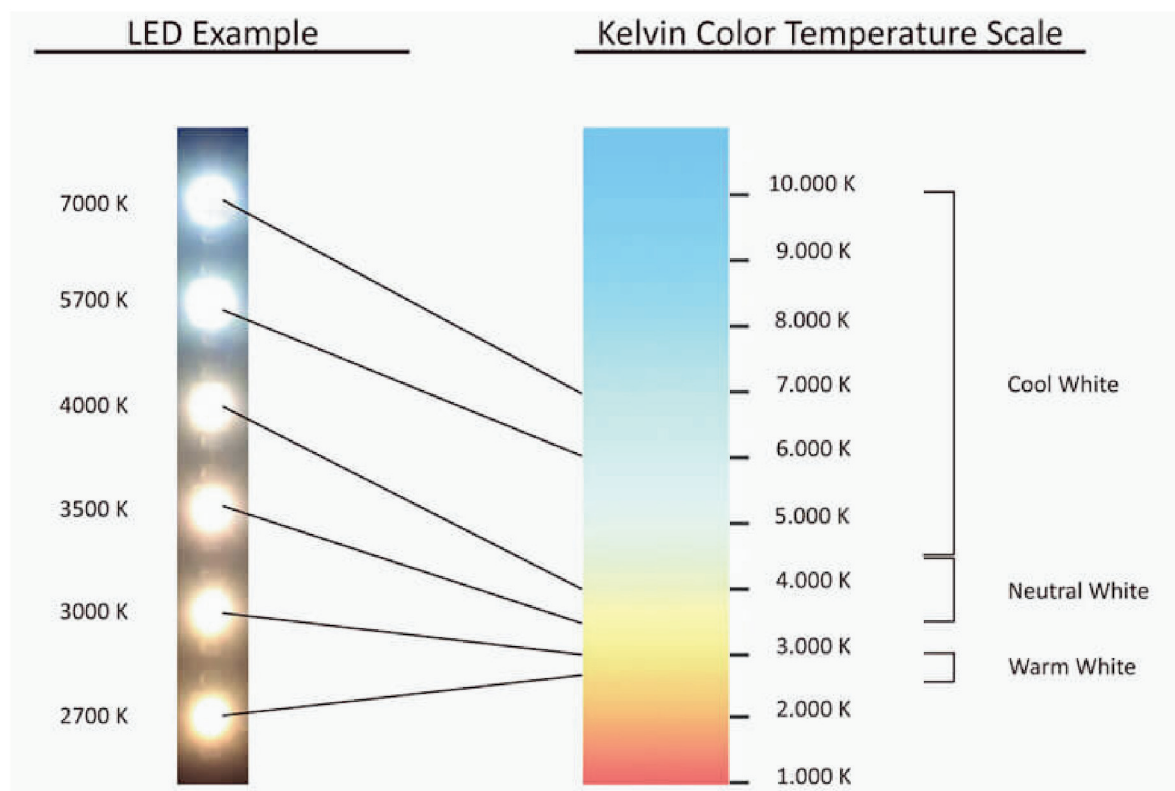
5.6.7. LED lights.

The highly efficient LED lights have been chosen to be placed throughout the Killeagh wellness centre, LED lights are 90% more efficient than traditional lights. The lighting specified for the proposed design has a Lumion level of 60 lumen watts and apporximently 2800 kelvins.

A lighting control system is in place during the daylight period, this controls the mechanism of the overhead lights to dim to increase the daylight illuminance. This mechanism reduces the electric power needed and encourages energy conservation.

The dimmed lights retain their illuminance until the daylight properties decrease, effectively increasing the artificial light. In the areas of no sensor daylight mechanisms, LED lights will be in place to full effect.





| How Many Lumens Do You Need? (120V) | BRIGHTNESS = LUMENS | | | | |
|-------------------------------------|---------------------|------|------|-------|-------|
| | 250+ | 450+ | 800+ | 1100+ | 1600+ |
| Standard | 25W | 40W | 60W | 75W | 100W |
| Halogen | 18W | 29W | 43W | 53W | 72W |
| CFL | 6W | 10W | 13W | 18W | 23W |
| LED | 4W | 5W | 10W | 15W | 20W |

5.7. Reuse of materials and biophilic design.

The Killeagh mill wellness centre has an enlarge entrance way removing material from the original cobbled stone wall, the space is created using a window location to create an entrance way with the most respect to the structural integrity of the space and keeping the TGD Part B - Fire, TGD Part M - Access and use and the British Standard Documentations all inline. The removed stone will be used within the design to connect the character of the structure to the interior inevitably layering the environment as this represents my concept.

The corrugated steel shed attached to the structure provides minimal aid to the functionality and proposed design to the Killeagh mill wellness centre, to connect this removed structure to the history of the structure and new proposed design, a sustainable black galvanized steel structure will be extruded on the roof floor.

As the structure has little materials left to reuse, the use of sustainable recycled materials from the locality can aid in the conservation of energy consumption, which will limit the greenhouse emissions to the community. This will also limit the sum of materials entering landfill which will decrease the Irish carbon emissions.

The introduction of biophilic design will aid in the connection to the environment and its surroundings, considering the mills location this will be beneficial to the structure design and the users wellness.

The incorporation of natural light, the Glenbower woodland, the river disour, foliage and sustainable materials will aid in the users mental and physical health by improving their overall wellness, this will also compliment the structures proposed design. When connecting the design principles of biophilic design and the Killeagh mill wellness centre the incorporation of energy efficient facilities will reduce the structures energy consumption.

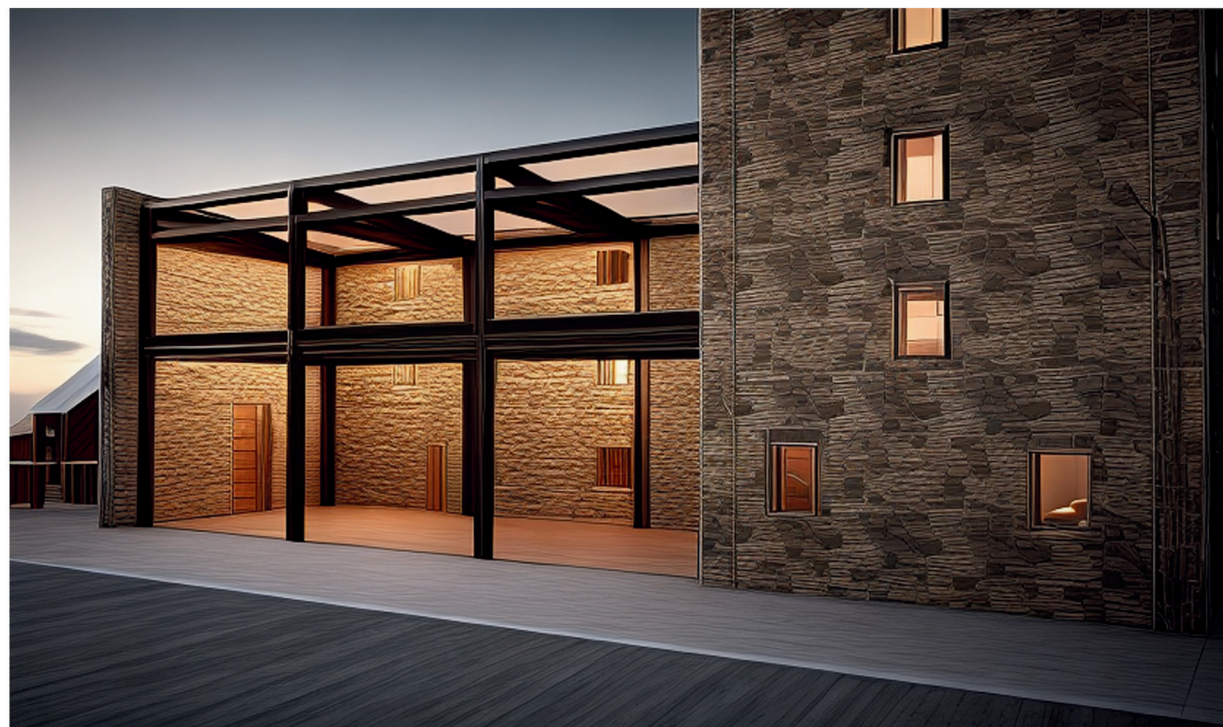
6.0. Structural strategy.

6.1. Introduction.

The structural strategy of the Killeagh mill wellness centre is essential to the success and compliant the design. The guidance of the TGD Part M & K, whilst also learning from the British standard documents BS9999, has proven the importance of design and flow within a space.



Sketch up structural framework, Sustainable steel frame.



render of the structural framework, Sustainable steel frame.

6.2. Internal structure.

The internal structure is the fundamental framework of the the design, to ensure the space is successful with minimum risks and maximum success. The structure lays visible within the design to contrast the industrial style to the old mill structure, this is coated with intumescent fire resistant paint to comply with the Technical Guidance Document Part K - Fire.

The Killeagh mill wellness centre is supported by 250mm x 250mm columns followed by a series of beams and trusses throughout each structure. The TGD Part M - Access and use documentation aids in the guidance of the structural integrity of the building to aid on the spatial awareness of the columns to ensure the space is compliant for all disability users of the wellness centre. The structure is evident within the render below to aid in a visual guide of the structural analysis.

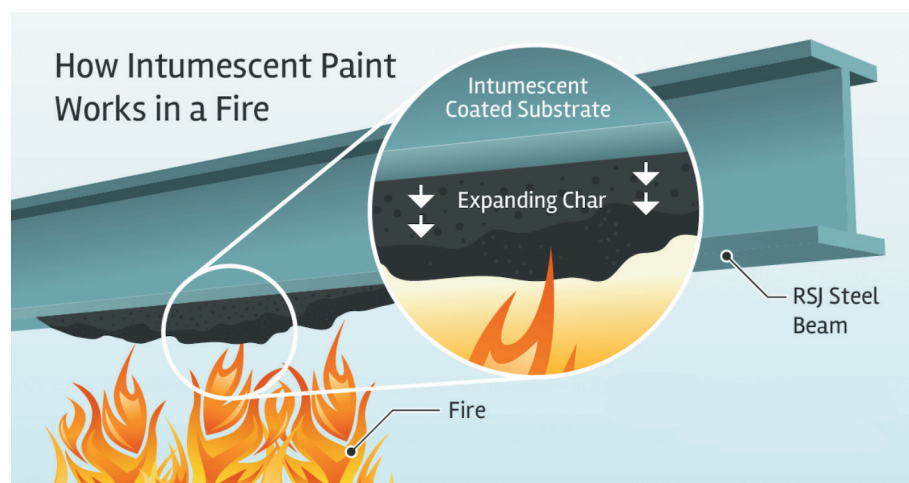
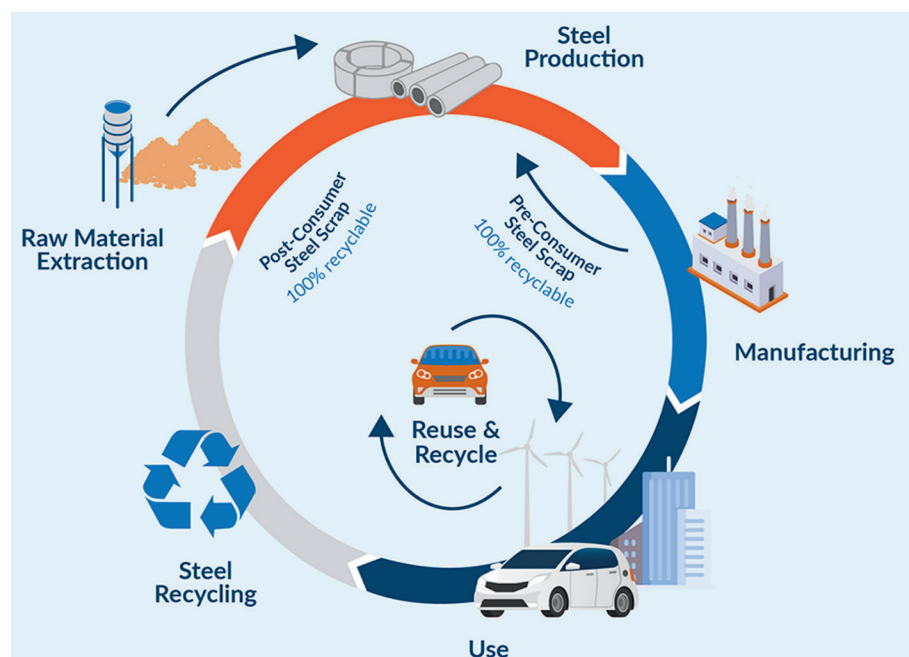


Modelled image of the structural strategy of the framework of the Killeagh mill wellness centre.

6.3. Beams, Joists, and King Post Trusses.

The Killeagh mill wellness center has been constructed around an industrial environmental concept which has aided in materiality choice for this structure. A series of sustainable steel beams, columns and joists are located throughout the structure and compile to hold the fundamental framework of the floor and ceiling plates. These columns comply with the TGD Part K - Fire regulations while spanning a 250mm x 250mm. The steel framework can be reused and recycled at the end of its use, 90% of steel is recycled from building sites.

There is no beam, joist or trusses reach further than 6500mm. The supports run constantly throughout the structure and suspend from the ceiling plates for an exposed industrial design. The supports have a sprayed fire safe intumescent paint to higher the fire rating, the monopitched roof has additional supports in place horizontally whilst also protruding down at an angle.



6.4. Structural Wall.

The existing structural walls of the Killeagh mill wellness centre contain a build up of cobbled stone with a sizeable 600mm thickness. The original stone is full of history relating to the broad lifespan of the structure, the wall is still standing after a series of fires, collapses and new constructions. The original lime render is evident on the exterior of the main structure and interior of the western extension. Also, because of such strong supporting wall frames it allows for additional support of floor and ceilings.

The internal walls range from 125mm to 220mm to aid in the TGD Part M - Fire, These allow for partitional separation of the internal floor area while aiding in the structural integrity of the Killeagh mill wellness centre.

6.5. Modern Structural Intervention.

The entire structure has gone through substantial damage throughout the years which has left the main structural space with no roof, floor levels and ceilings. The western extension also has seen significant damage and has a shed style corrugated rooftop, in addition to missing floor levels and ceilings. The original window have been infilled due to the site becoming derelict since the 1970s, though thankfully the window visours and cobbled stone work has remained untouched.

To connect the structure with its passed heritage a lime wash render will be placed to the exterior walls to impose an efficient installation technique. This improvement will be paired with a modern intervention of triple glazed windows with an extruded PVC-U panels to incorporate natural lighting, this is one of the lighting technologies expected to be used within the structure along with voids, materially, and glazing. This will be respectful to the structure integrity and compliment the space to inherit the wellness properties of the environment surrounding the mill structure.



7.0. Circulation.

Adequate circulation is essential within a space, both vertical and horizontal. To achieve effective circulation I have created a safe and unique space with vital circulation strategies. On the ground floor there are numerous escape route allowing for safe evacuation, these do not obstruct the horizontal circulation within the space while catering for the needs of wheelchair users. Travel distances to these escape doors are adequate and allow for safe access from the building.

Within the main structure there are two evident fire escape stairwell at opposite ends, one internal on the southern gable and one external on the northern gable. There is also one external fire escape on the western extension of the structure. These three escape stairs have an adequate travel distances to aid in an efficient escape route for the users of the structure.

Vertical circulation has been thoroughly assessed for universal design to aid in the users struggling with a disability, while considering this a elevator has been placed as central as possible to aid in their comfort within this space.

In the eastern structure of the Bike rental and repair store a stairwell is produced to allow for adequate escape for users of the private mezzanine area. On the ground floor there is an escape door to the north and south of the structure that'll aid in evacuation of the users.

There is a tiered seating within the centre of the structure that produces adequate stairway throughout the structure that is ambulant to provide a safe travel space for the user.

I have produced optimal circulation both vertical and horizontal, while ensuring a safe, spatial and comforting design is addressed for all occupants.

8.0. Conclusion.

In conclusion, the proposed design for The Killeagh mill building and its wellness centre function provides a space for the inner and outer community. This structure now fully complies with building regulations such as the Irish technical guidance documents (TGD) Part B - Fire, Part K - Stairs and Part M - Access and use. Finally, the design is compliant with the British standard document BS9999 along with the document BS6465.
