**FUNCTION**
- List up the function of a basement internal wall (according to current BR demands)

Attach in separate document

Make research and sketch minimum 3 different construction principles for a basement internal wall, each of which fulfil the functional requirements you have listed above.

<table>
<thead>
<tr>
<th>Component</th>
<th>Appearance</th>
<th>Buildability</th>
<th>Sustainability</th>
<th>Fire resistance</th>
<th>Floor heating</th>
<th>Total score</th>
</tr>
</thead>
</table>
| LEWIS dovetailed sheeting  
Steel plate layer  
Floor heating  
Min 20mm of concrete  
Layers which prevent from moisture  
Floor tiles  
Long durability, easy installing, possible to lay directly on joists,  
Good fire resistant (from 60 to 90 minutes) | 5 | 3 | 5 | 5 | 5 | 23 |
| Novopan kilnagedy  
Chipboard laid directly on joists. Floor heating installed on gaps in chipboard. Steel plates placed between floor heating pipes and chipboard.  
Layers which prevent from moisture  
Floor tiles | 5 | 4 | 4 | 3 | 5 | 21 |
| Wet room floor without floor heating  
19mm of plywood placed directly on trusses  
Layers which prevent from moisture  
Floor tiles | 4 | 5 | 4 | 2 | 0 | 15 |
Project: Single family house
BUILDING COMPONENT: Wooden floor partition

<table>
<thead>
<tr>
<th>Grzegorz Wojciechowski</th>
<th>Date 19/03/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FUNCTION</strong></td>
<td></td>
</tr>
</tbody>
</table>

Make research and sketch minimum 3 different construction principles for a basement internal wall, each of which fulfil the functional requirements you have listed above.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Available in Six Standard Depths</strong></td>
<td></td>
</tr>
<tr>
<td>PS8 202mm</td>
<td>PS9N 225mm PS14N 373mm</td>
</tr>
<tr>
<td>PS10N 253mm PS16N 421mm</td>
<td>PS12N 304mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I-profile joists</th>
<th>Joists with thinner, plywood part in the middle. Available different types depending on span. The joists are lighter than the traditional timber ones. It is easy to make holes for any pipes etc. inside the construction.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strength</strong></td>
<td><strong>Space for installations (pipes etc.)</strong></td>
</tr>
<tr>
<td>Posi-Joist</td>
<td>5</td>
</tr>
<tr>
<td>I-profile joists</td>
<td>4</td>
</tr>
<tr>
<td>Ordinary joists</td>
<td>4</td>
</tr>
</tbody>
</table>

We decided to choose I-profile joists. They are lighter than the traditional one and cheaper than the posi joists. Easiness of making the holes for pipes is another advantage.
**Project:** Single family house  
**BUILDING COMPONENT:** Deck elements

<table>
<thead>
<tr>
<th>Grzegorz Wojciechowski</th>
<th>Date 19/04/2015</th>
</tr>
</thead>
</table>

**FUNCTION**
- List up the function of a basement internal wall (according to current BR demands)

Attach in separate document

Make research and sketch minimum 3 different construction principles for a basement internal wall, each of which fulfil the functional requirements you have listed above.

---

### EXPAN sound slab elements
- **Two different types:**
  - LAC 18/1750 (u-value 0.72)
  - LAC 18/2000 (u-value 0.96)
- **Thickness:** from 140mm to 260mm
- **Length:** max 7.2m
- **Width:** 1.2m
- **Made of lightweight concrete**

- **EXPANDING sound slab elements - the same type of concrete in the entire cross section**

### Hollow core elements
- **Thickness up to 400mm**
- **Length:** max 18m
- **U-value:**
  - 265mm – 0.19
  - 320mm – 0.20
  - 400mm – 0.22
- **This type of deck is used mostly for constructions with a big span.**

### EXPAN sound slab elements with Insulation
- **Additional layer of Insulation**
- **Made of mineral wool.**
- **Thickness of insulation:** up to 100mm (max 300mm total thickness)

---

Evaluate each of the 3 found principles in relation to Appearance, buildability (construction time, delivery time), maintenance, sustainability and (if possible) cost, etc.

These assessment criteria may differ from one building component to another – these are merely examples – use your common sense and list up more (or less).

Rate each component using a scale from 0-5, where 5 is best. Write assessment criteria here:

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Sustainability</th>
<th>Maintenance</th>
<th>Cost</th>
<th>Construction Time</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>18</td>
</tr>
</tbody>
</table>
### BUILDING COMPONENT ANALYSIS

**Project:** Single family house  
**BUILDING COMPONENT:** External door

<table>
<thead>
<tr>
<th>Grzegorz Wojciechowski</th>
<th>Date 15/03/2015</th>
</tr>
</thead>
</table>

**FUNCTION**
- List up the function of a basement internal wall (according to current BR demands)

Attach in separate document

Make research and sketch minimum 3 different construction principles for a basement internal wall, each of which fulfil the functional requirements you have listed above.

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Maintenance</th>
<th>Cost</th>
<th>Quality</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood External doors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handpicked kiln dried genuine mahogany ensures accurate color consistency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineered stiles, rails and Panels prevent warping and splitting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-performance compression weather-stripping resists rot and corrosion while sealing out the weather elements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulated mistlite glass offers high obscurity level 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory prefinished mahogany wood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>17</td>
</tr>
</tbody>
</table>
Steel external door

Top quality galvanized steel with polystyrene core construction provides energy efficiency and security
Interlocking stile edge provides structural rigidity
High performance bronze weather stripping and adjustable mill sill provides a tight seal against drafts
1-Panel design creates a modern style

Fiberglass door
Good, durable quality: fiberglass doors resist denting, rotting, rusting, cracking, and warping.
Provide good security
Easy to install

We decided to choose Wood external door for our house. It has good appearance, price and durability. It will fit perfectly to modern house.
## BUILDING COMPONENT ANALYSIS

**Project:** Single family house  
**BUILDING COMPONENT:** Stairs

### Function
- List up the function of a basement internal wall (according to current BR demands)

Attach in separate document

Make research and sketch minimum 3 different construction principles for a basement internal wall, each of which fulfill the functional requirements you have listed above.

<table>
<thead>
<tr>
<th>BUILDING COMPONENT</th>
<th>Grzegorz Wojciechowski</th>
<th>Date 19/04/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber stairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insitu Reinforced Concrete Stairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precast Concrete stairs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Evaluation Criteria

<table>
<thead>
<tr>
<th>Component</th>
<th>Appearance</th>
<th>Sustainability</th>
<th>Maintenance</th>
<th>Cost</th>
<th>Construction Time</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber stairs</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Insitu Reinforced Concrete Stairs</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Precast Concrete stairs</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>23</td>
</tr>
</tbody>
</table>

Evaluate each of the 3 found principles in relation to Appearance, buildability (construction time, delivery time), maintenance, sustainability and (if possible) cost, etc.

These assessment criteria may differ from one building component to another – these are merely examples – use your common sense and list up more (or less).

Rate each component using a scale from 0-5, where 5 is best. Write assessment criteria here:
---

**BUILDING COMPONENT ANALYSIS**

<table>
<thead>
<tr>
<th>PROJECT: Single family house</th>
<th>G. Wojciechowski group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUILDING COMPONENT: Internal walls</td>
<td>SIGN: SFB NO.:</td>
</tr>
</tbody>
</table>

**FUNCTION**
- Accept and transfer loads from the ground floor
- Dividing room areas

**WHAT ARE THE FUNCTIONAL REQUIREMENTS OF THE BUILDING COMPONENT IN RELATION TO:**

1. **FIRE RESISTANCE?**
   - Internal walls should be R 30. It means that it has to prevent fire from spreading for 30 min.

2. **GROUND MOISTURE AND RADON?**
   - No specific requirements for moisture and radon.

3. **STRENGTH AND STABILITY? (FOR EXAMPLE : LOAD BEARING)**
   - Load bearing walls accept and transfer load from the ground floor

4. **HEAT TRANSMISSION?**
   - If other rooms are heated there are no special requirements for heat transmission.
   - If not, the u-value should be max 0.4
5. DURABILITY AND MAINTENANCE?
BUILDING COMPONENT ANALYSIS

<table>
<thead>
<tr>
<th>PROJECT: Single family house</th>
<th>G. Wojciechowski group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUILDING COMPONENT: Basement deck</td>
<td>SIGN: SFB NO.:</td>
</tr>
</tbody>
</table>

**FUNCTION**
- Load bearing (accept and transfer loads)
- Be fire resistant (REI 60)
- Preventing moisture from damaging the floor

**WHAT ARE THE FUNCTIONAL REQUIREMENTS OF THE BUILDING COMPONENT IN RELATION TO:**

1. **FIRE RESISTANCE?**
   - Basement decks are classified as REI 60. It means that its carrying capacity, integrity and insulation are fulfilled, and it prevents fire from spreading for 60 minutes.

2. **GROUND MOISTURE AND RADON?**
   - DPM is laid over the component to prevent moisture damage of the floor.
   - No special requirements for radon.

3. **STRENGTH AND STABILITY? (FOR EXAMPLE : LOAD BEARING)**
   - Basement decks should accept and transfer loads from the groundfloor

4. **HEAT TRANSMISSION?**
   - If the basement is heated there are no special requirements for heat transmission.
5. DURABILITY AND MAINTENANCE?
<table>
<thead>
<tr>
<th>BUILDING COMPONENT ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project: Single family house</td>
</tr>
<tr>
<td>BUILDING COMPONENT: Joists</td>
</tr>
<tr>
<td>Date: 22/03/2015</td>
</tr>
</tbody>
</table>

**FUNCTION**
What is the function of the building component?
- Accept and transfer loads from upper floors
- Should be fire resistant (REI 30)
- Should prevent from heat losses (if an upper/lower floor is not heated)

**WHAT ARE THE FUNCTIONAL REQUIREMENTS OF THE BUILDING COMPONENT IN RELATION TO:**

**FIRE RESISTANCE?**
- Joists should be REI30, it means that it should prevent fire from spreading to other part of building for 30 minutes.

**GROUND MOISTURE AND RADON?**
- No specific requirements for radon and ground moisture.

**STRENGTH AND STABILITY? (FOR EXAMPLE: LOAD BEARING)**
- Should accept and transfer loads from upper floors
HEAT TRANSMISSION?
No special requirements if the rooms below and above are heated.
If one of them is not u value should be maximum 0.40

DURABILITY AND MAINTENANCE?