ASSESMENT REPORT:

Project name :

Rehabilitation of Development Residential Centre of Vlora

Municipality of Vlora

Program title: ***United Nations Development Program UNDP***

Donated by : ***United Nations Development Program UNDP***

Grupi I Projektimit: ***HT Construction (High Tech Construction) ltd***

TIRANA, MARCH 2022

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Date: 2022.03.24 04:04:26 +02'00'

TECHNICAL REPORT

1. *INTRODUCTION*

1.1. LOCATIONAND GENERAL INFORMATION.

The VDC – Vlora Development Centre is a residential Centre located in Vlora city in a 1956 building (the former orphanage).

The building is located in the city of Vlora, in Lungo Mare.
Constructively, the building is built with vertical supporting structure, stone wall for the ground floor and brick walls on the first floor. The horizontal structures are monolithic slabs.

First of all we must emphasize that the building is located in an area with high humidity content (being located near the sea) and is also built on a formation saturated with humidity.
Based on this, humidity problems have always been present in this building, sometimes visible and sometimes less visible due to the work done there.

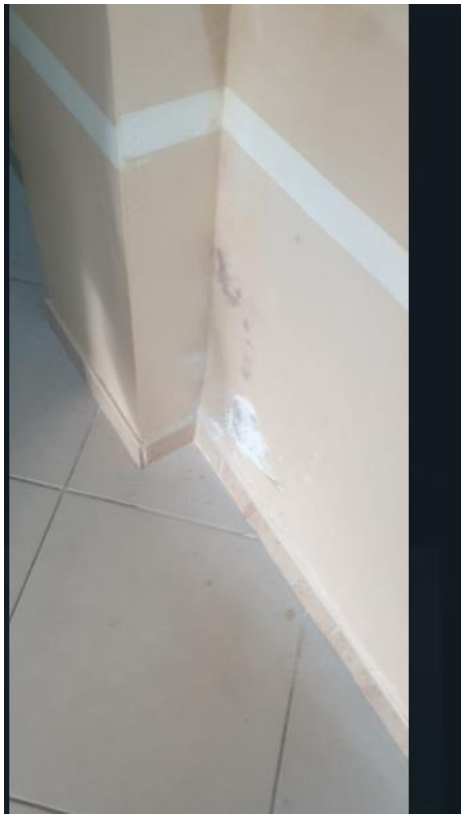
2. *DETECTED PROBLEMS.*

2.1. HUMIDITY AT GROUND FLOOR

Humidity in this building it is present at ground floor, in our opinion humidity in ground floor it is for two reasons

2.1.1. Phenomena of capillarity

Below illustrative photos of phenomenon of capillarity:



2.1.2. Underground water level

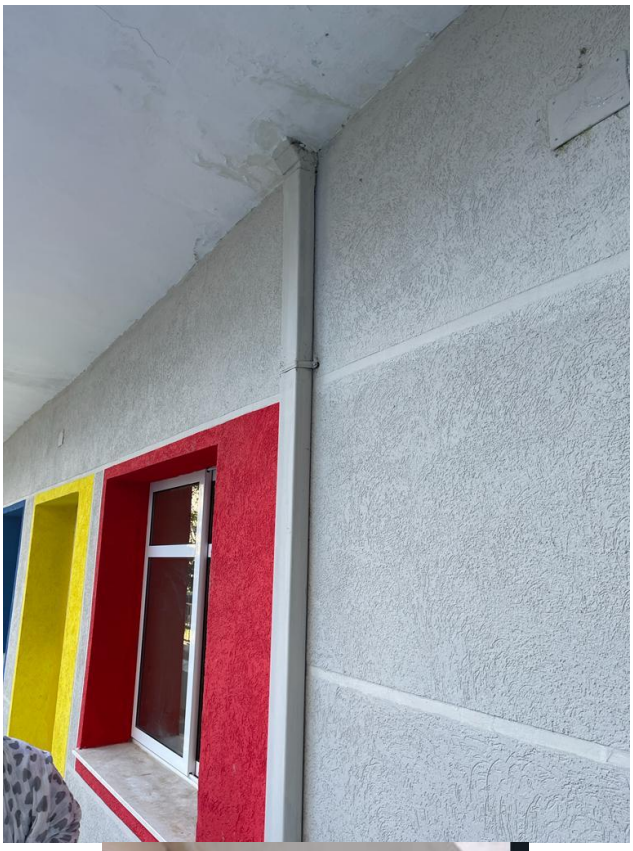
Carefully looking at the exterior of the building, the drainage made on its perimeter was noticed that: At behind at buildings manholes in are almost full of water.
System of sanitation it is problematic, in most cases blocked and needs periodic opening them. The sewage water level in the manholes was very high, and the depth of the manholes is very small, this means that the building is always in presence of water. In our opinion higher level of underground water combined with the sewage it is more sensitive for humidity at ground floor. From the preliminary inspection of the building, excavations have been made which show a high presence of groundwater as illustrated in the following photos. On the ground floor floor from the excavation it appears that the groundwater level is about 15 cm from the floor, but it is important to note that this level has an tendency to grow up to surface.

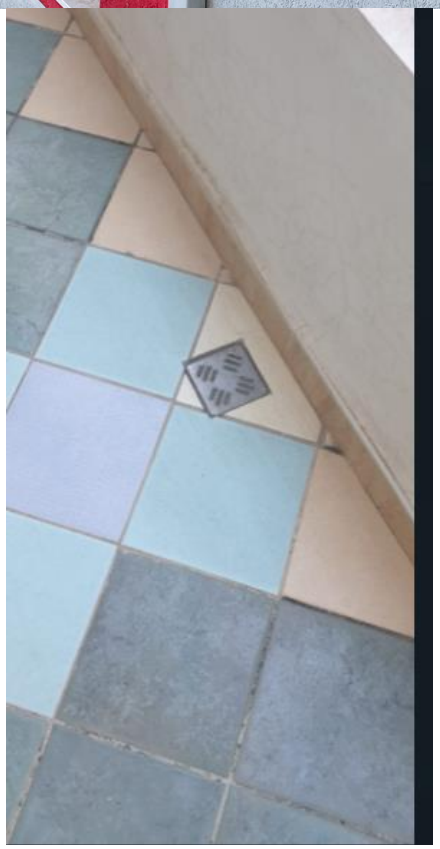
Below illustrative photos of phenomenon of capillarity:

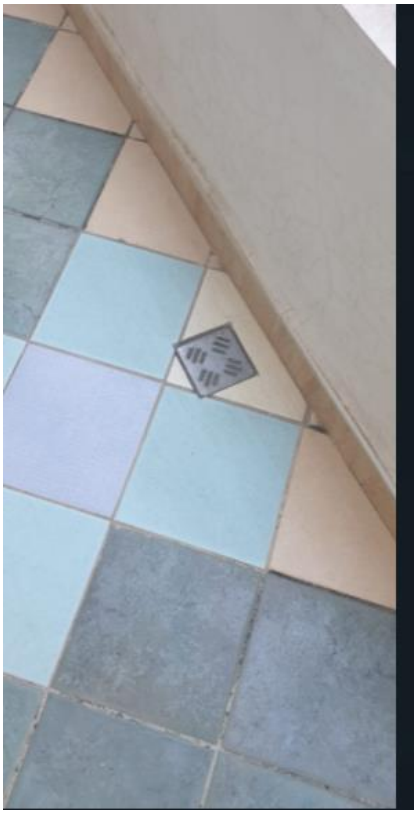
2.2. HUMIDITY AT FIRST FLOOR

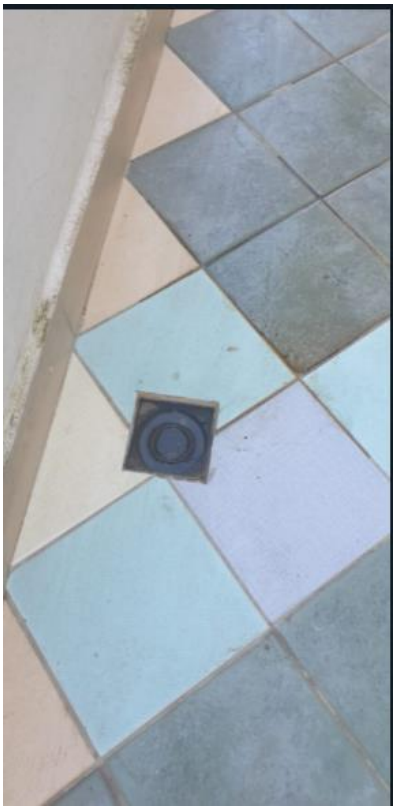
This type of humidity it is present near floor drain and during connection it at main tube, (part from floor drain at main tube).
In our opinion this problem comes from malfunction of floor drains, this malfunction comes from not cleaning them regularly has led to their occasional blockage, introducing water even inside the floor of building. Even now some of them are blocked .

Illustrative photos of this issue :









2.3. HUMIDITY AT SOME WINDOWS

Phenomena of this kind of humidity come at connection of windows and thermal insulation, this problem it is detected in tow windows.

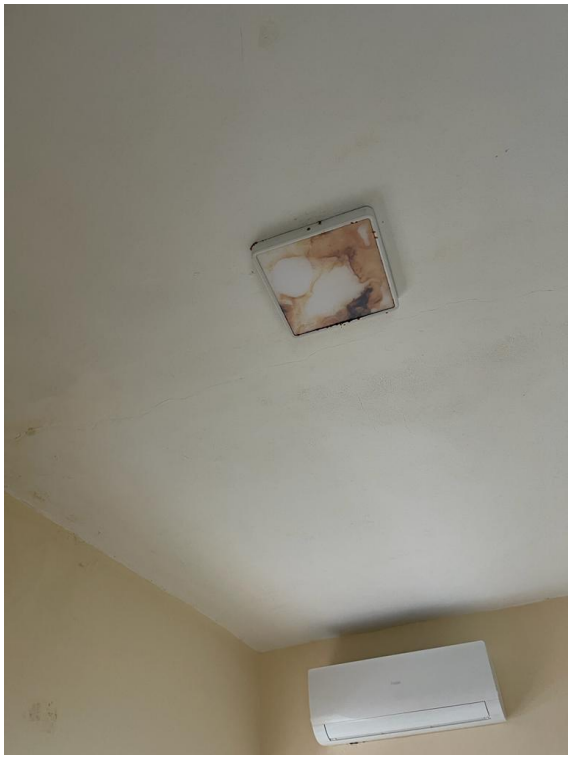
Illustrative photos of this issue :

2.4. ELECTRICAL SYSTEM AND HUMIDITY AT THAT COMES FROM THIS SYSTEM

As we described above in this bulding in most cases humidity comes at ground floor from capillarity and at first floor from problem of floor drains. Those type of humidity in our critical thinking go inside of tube of electricity and damage seriously this system and transmits in some places new presence of humidity.

For those reason electrical installationsdosen't work well in some devices.

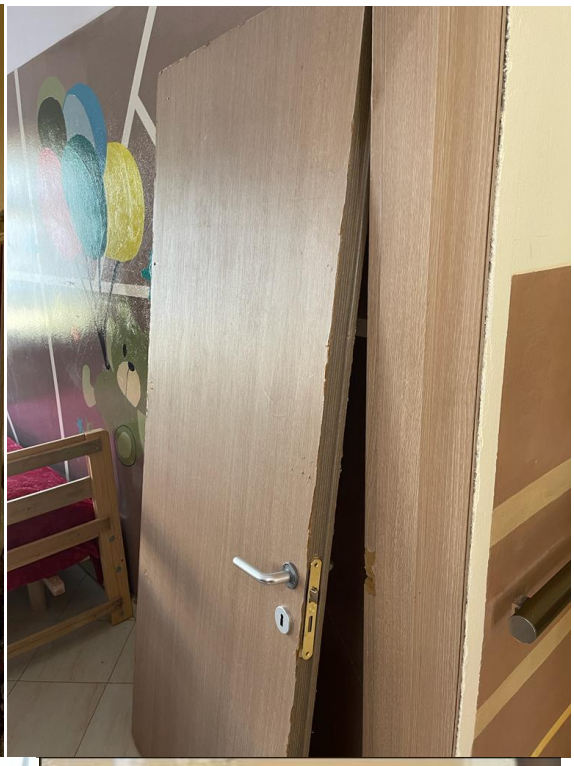
Illustrative photos that rapresent this issue :

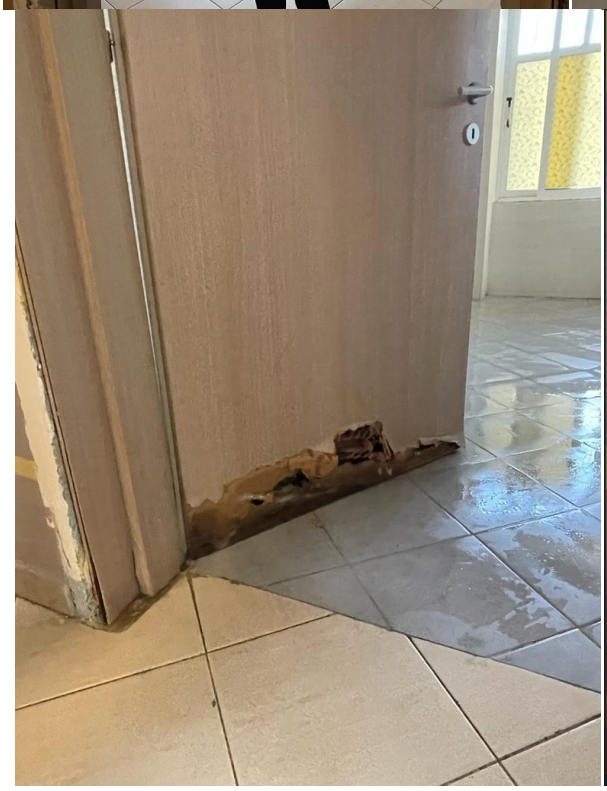


2.5. DAMAGE AT INSIDE DOORS

Almost all the doors of the building are damaged. This is as a result of the humidity present in all rooms. Another reason that has caused the damage of the doors may be the carelessly usage of these items.
Illustrative photos of this phenomenon:


Arkiva





2.6. DAMAGE AT VERANDA TILES

Another problem, according to the careful observation we made, is that the veranda has slipped from the front of the building. As a result the veranda tiles have been removed from each other or difference settlements and detached from the adhesive mortar. This phenomena increase presence of humidity at ground floor.

Illustrative photos of this phenomenon:

2.7. SOME SMALL PROBLEMS AT FACADE

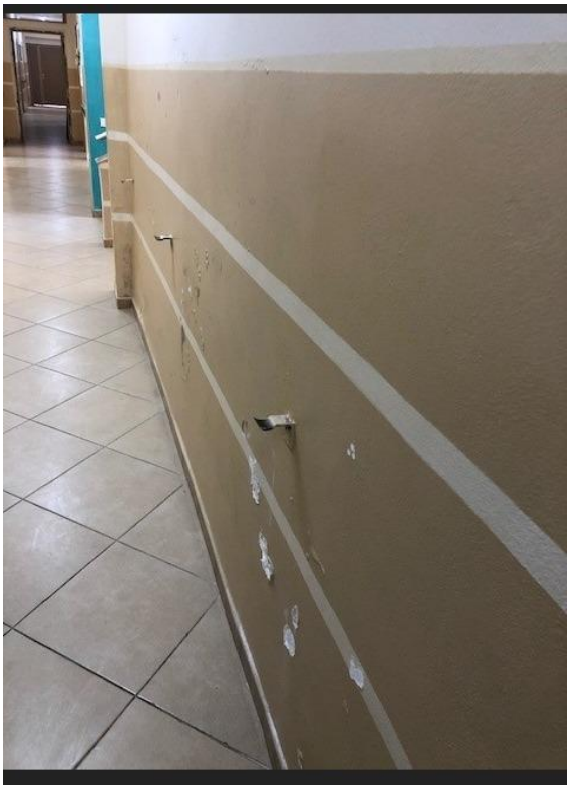
In this case have same small problems in facade that comes from removing same part of old electrical system and ventilation.

Illustrative photos of this phenomenon:

2.8. SOME SMALL PROBLEMS AT INSIDE HANDRAILS

There it is some problems for existing handrails; those handrails are removed, in our opinion

this it caused by poor quality of the joints on handrails. Most of the existing bolts that are used for the handrails are removed.



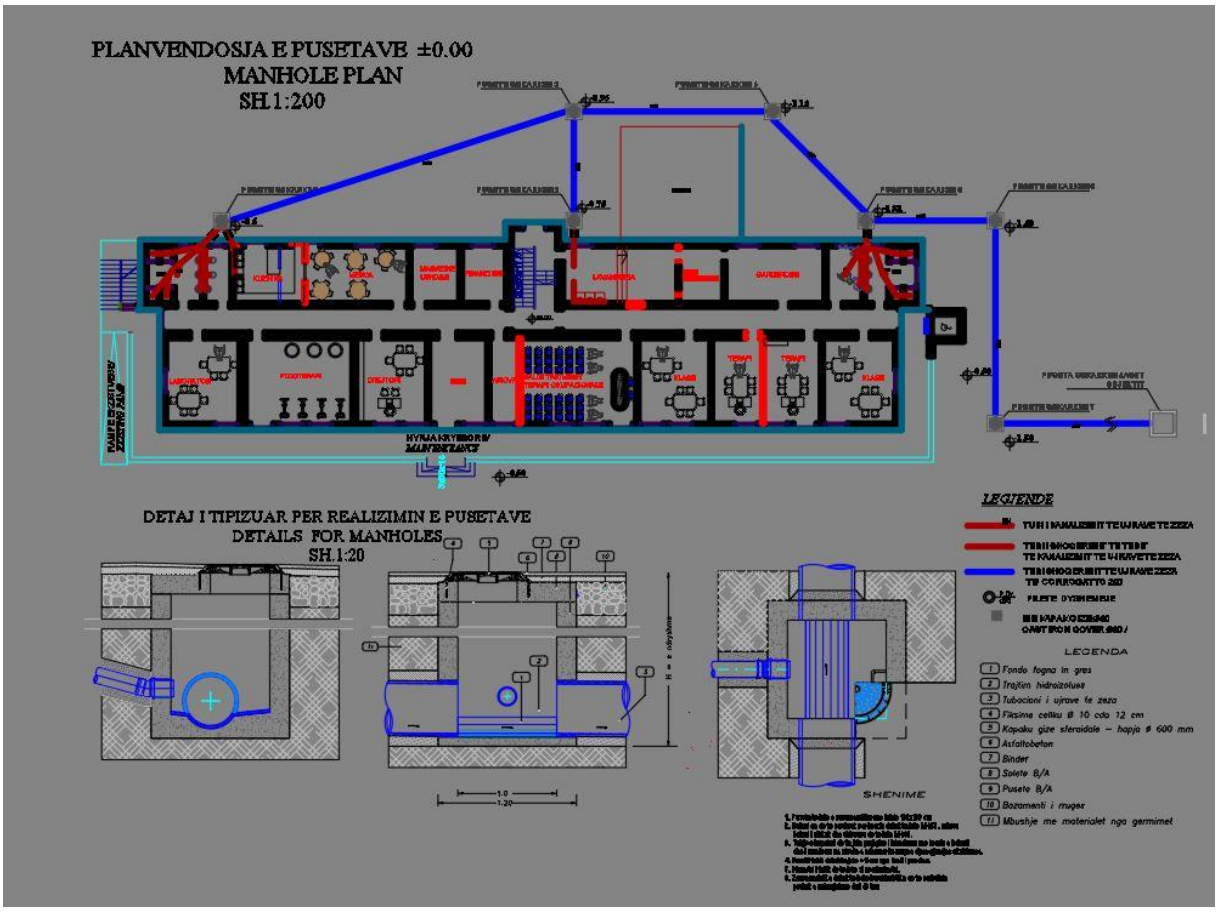
3. CONCLUSION FOR PROBLEM DETECTION

Those are some of the main problems we noticed during our visit to the building.
Solving them certainly requires a well thought out and detailed design, but below we will give a below a proposal how to solve these problems.
The first problem that needs to be solved and that is the reason for most of the problems created is humidity. due to the building and site conditions, the proposed solution will improve and resolve most of the problems related to the waterproofing but cannot be a definitive solution as periodic maintenance has to be done for the drainage system to ensure a normal water flow. As it is indicated from the surveys done, the level of underground water is high and there is observed presence of water close to the foundations which cannot be eliminated but we will ensure the reduction of the capillarity phenomena.
For the solution of this problem we think that it is important to ascertain the cause and then eliminate such causes.
As we pointed out above, our opinion is that the main cause of humidity is the constant precision of water in the building.

4. *PROPOSAL FOR PROBLEM SOLVING*

To resolve the above issues we suggest:

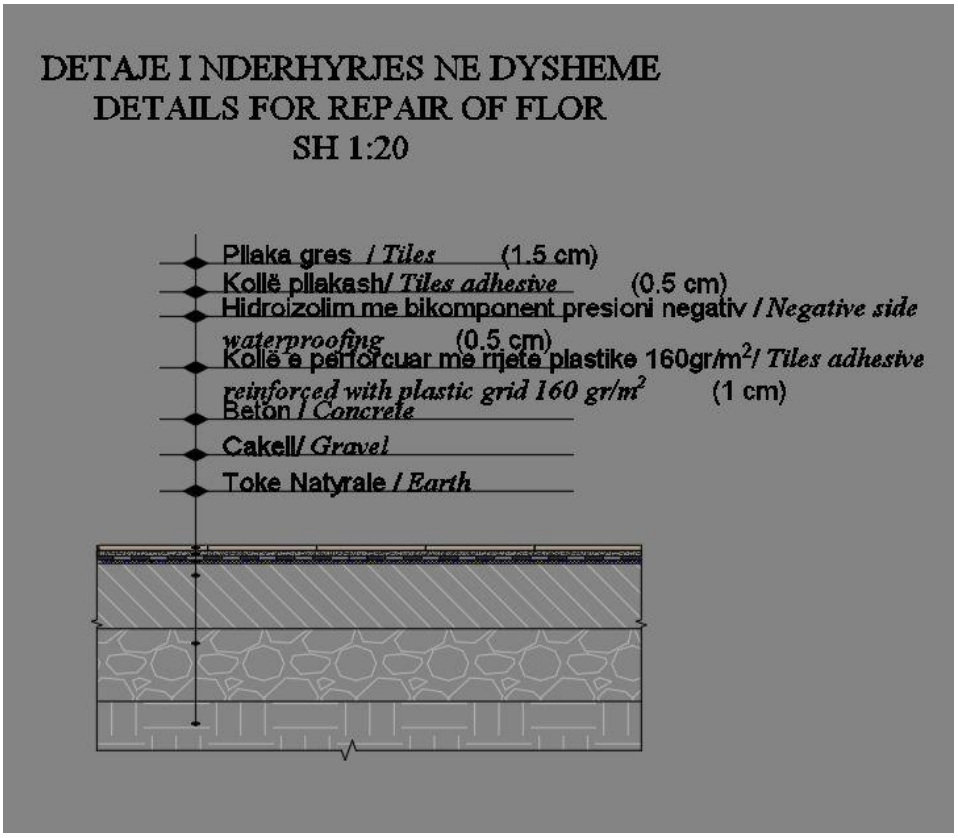
1. To deepen the existing sewage manholes, coming in contact with the nearby building that is adjacent to the building, which has made quite deep manholes, in order to reduce the water level in the sewage manholes, as much as possible and to discharge into the manholes of the sewage public service. In order to solve this issue we think that adding new sewage manholes will help to reduce the charge of water that each of them has to keep away.
   In the following drawings are shown all the particulars and details of this solution.



These new sewage manholes will be made of precast concrete and will be installed on site once the old ones are removed. All manholes will be connected to each other with an PVC

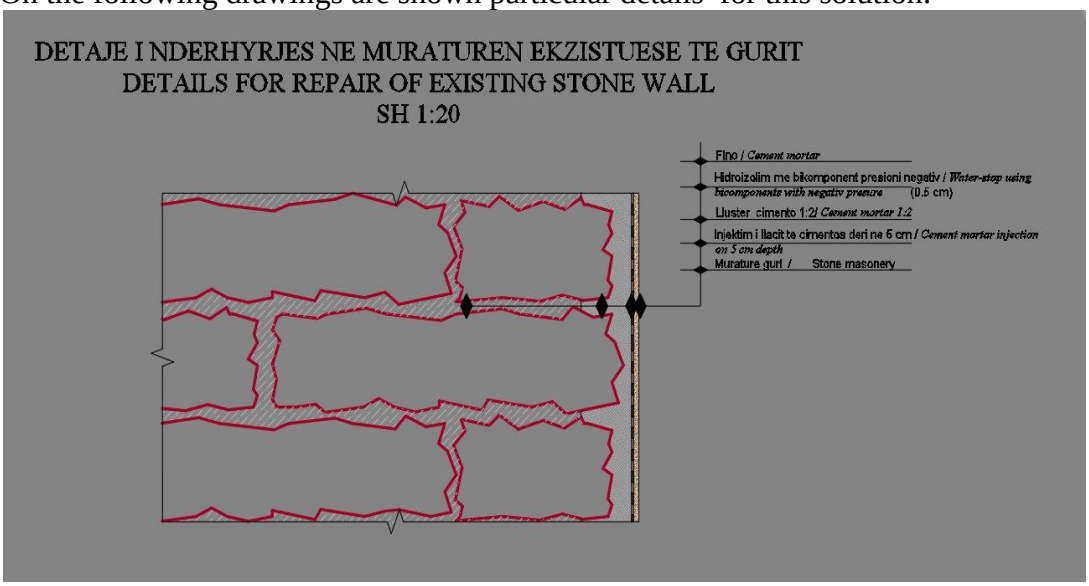
Corrugated pipe that has a cross section diameter of 300mm. To help the flowing on manholes all pipes will have an inclination from the horizontal plane of 1% on their longitudinal axis. To prevent the turn back water from manholes all them will have an altitude difference from the previous one starting from the street manhole that it is located out of facility.

2. Waterproofing the ground floor and the walls of the building, up to the lower level of the windows.
   Considering that most of humidity that comes on ground floor is caused by the capillarity of ground level, we suggest to replace some of the existing layers. In first of all, will be the need to remove the existing tiles and mortar layer that it is used to fix them. Once the tiles are removed all the concrete surface that comes from has the need to be cleaned. In the cleaned surface will be installed an plastic grid that has an surface density 160gr/m^2 . This grid will be fixed using nails and steel or tin belts that keep it fixed to the existing concrete layer. All the surface has to be covered with an 1cm thick layer of cement base mortar. In some areas may be the need to have an thicker surface in order to have an horizontal and clean surface. Once we have reached an perfect horizontal level we will apply the negative side waterproof , that will be made using bi components and will have an thickness of 5 mm. In the floor- wall joints will be the need to use an waterproof band in order to ensure an perfect dry joint.
   In the following drawings are the details for the slab repair.

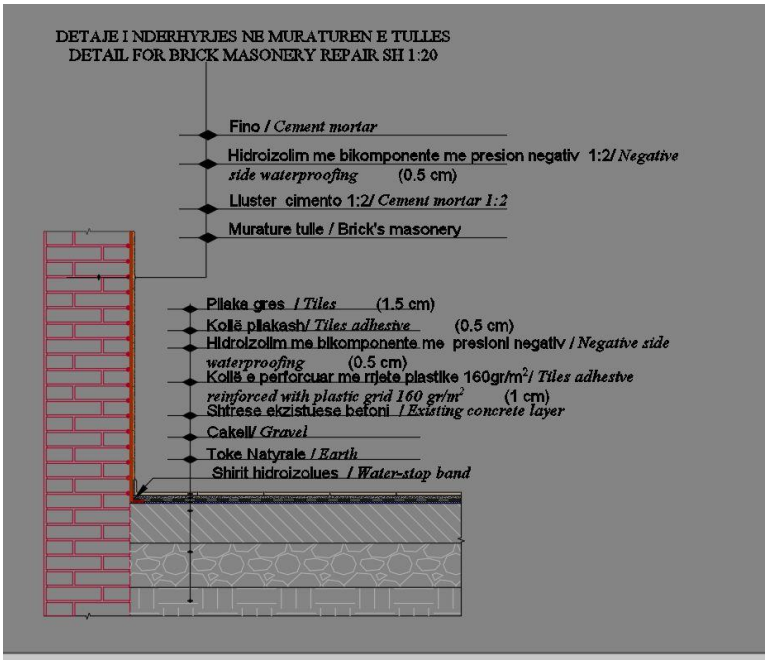


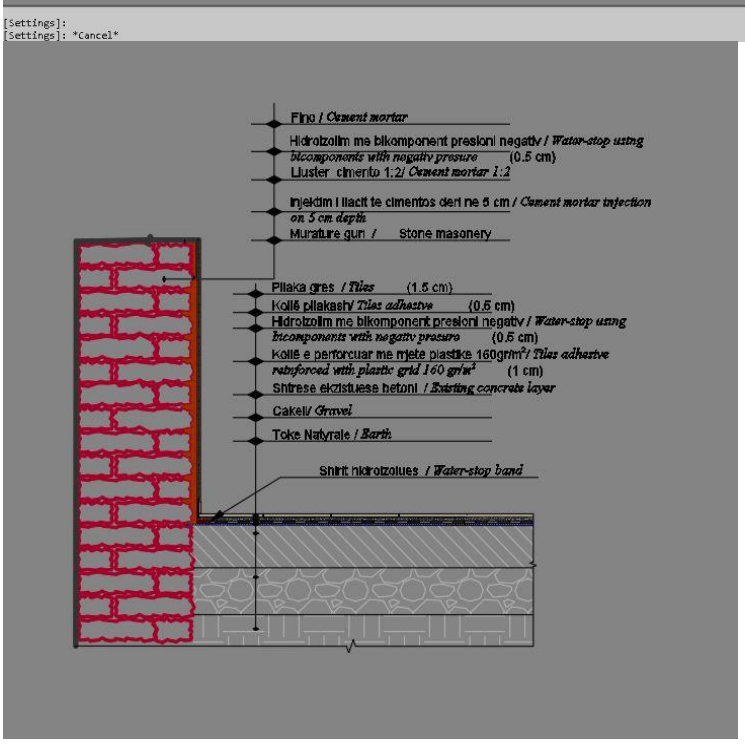
Same logical approach that it was followed for the ground floors will be made even for the walls. All walls surface will be cleaned from the existing mortar layer going on almost 5 cm depth on the wall joints. Once the existing mortar it is cleaned, on the surface of wall will be injected cement mortar on the holes of wall. Once the holes are filled, they will be covered with the same cement base mortar in order to ensure an vertical plain surface , that will be adequate to apply the negative side waterproof. In order to ensure an perfect adhesion of the old mortar of walls, stones or bricks with the new cement mortar will be the need that in the moment that this cement mortar it is applied the wall has to be wee. During the maturing age of mortar layer will be the need to treat it with water sprinklers in order to avoid the shrinkage phenomena of cement. When the maturity of this layer it is reached and fully drained, it will be covered with and negative side waterproof. In the bottom border this layer has the need to be jointed with the floor waterproof, this solution will be ensured using an waterproof band that it is shown on following picture. Of course in this case it is worth noting that this waterproofing guarantees an efficiency of 90-95% no connection with the total waterproofing of all the environment.

On the following drawings are shown particular details for this solution:



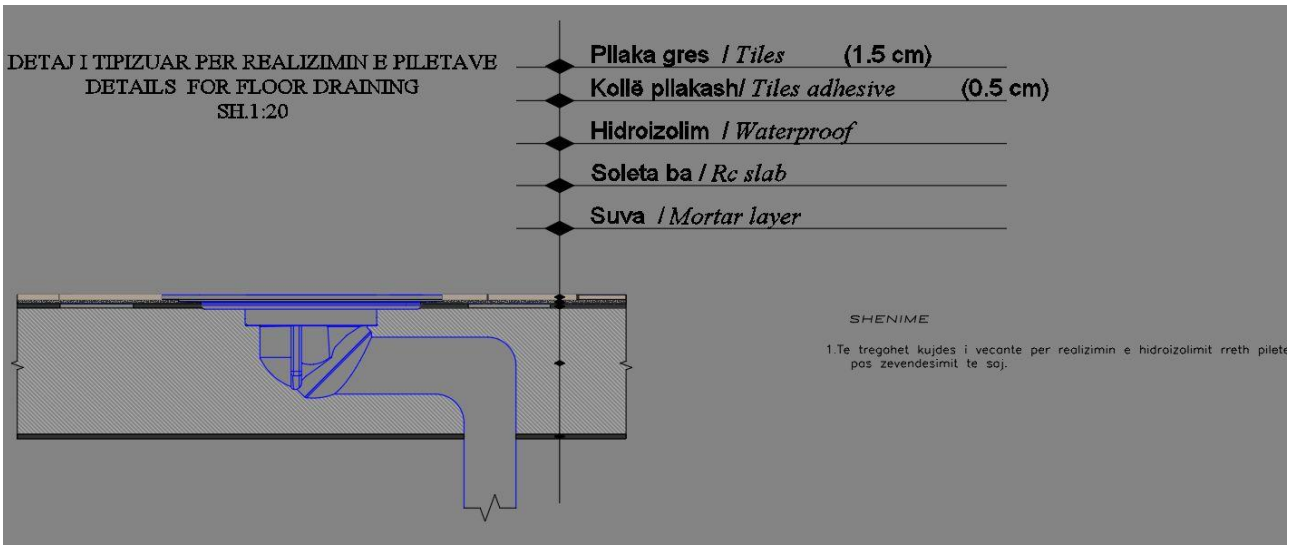
On the above detail of stone wall it is presented the procedure that will be followed for the stone masonry. The same detail will fit even for the brick masonry. It is important to keep in mind that stone walls require special attention on the cleaning procedure, removing accidentally one piece can cause serious damage even to bring collapse of that wall partition.





In fitness area the floor will be made using laminate flooring seen that this will be an fitness area requires special care. This area requires special attention in the joint part, and passing from tiles to laminate flooring.

3.Replace all white water discharge floor drain, and replace their connection node with vertical gutters. All the gutters on the veranda outer part will have the need to be replaced with the new ones. New draining will have an bigger tube to transmit the water on the gathers' that it is connected. All new draining will have the need to have an grid that covers them, in order to avoid the jam of the draining holes. The most important part of the replacement process is to fix the waterproof on the borders of the draining. All the borders require an special attention to have an continue waterproof in order to protect the slab. Also it is important to remember that on the moment that the replacement will be done to ensure the perfect connection of the draining and gutters tube. In the following drawings are shown all the constructive details for the placement of the draining.



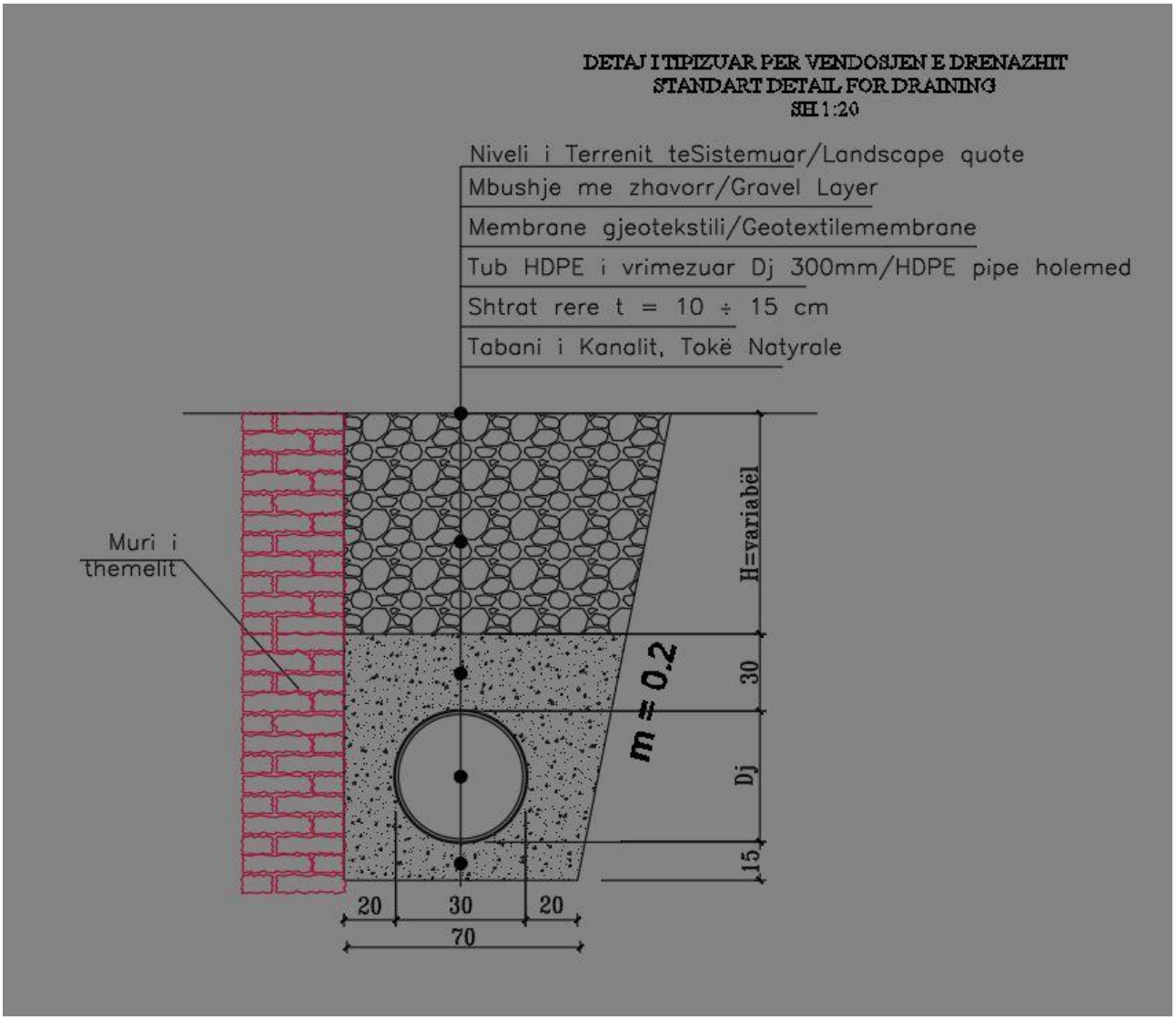
3. Despite the fact that their insulation was broken in a few windows, we think that all windows and exterior doors of the building should be checked and repaired them.
4. To check and repair the electrical system of the building

5. Remove the verandas tile, level the floor, and then install the new tiles.

6. Repairing existing handrail.
   Seen that existing hand rail, are damaged will be the need to repair them and to have the possibility to be again in usage. They will be repaired using bolts to fix them on the wall. All the hand rails should be in accordance for the ussage from the people with special needs. Every handrail should be fixed on the wall.
7. Repairing same small parts at facade.
   In the facade will be the need to repair all the damaged plaster layers and to adapt them with the circular area. Seen that in this structure will be made several construction works will be the need to paint only the areas where we made changes and repairs.

8. To replace all the doors of the building, according to the required standard in accordance with the character of the institution. All the doors should me in accordance with the needs of the users on this area. In order not to affect the functionality of the institution, we advise to start with the replacement of the doors on the first floor of the building, while the other works are carried out on the ground floor.

10. Drainage around the building. Seen that the underground water level it is near the surface, will be the need to pull it down in order to avoid the capillarity of the floor. Drainage will be realized by means of a perforated HDPE pipe which will be wrapped with a geotextile membrane which prevents its filling with fine material. The pipe will be initially covered with a layer of sand which protects the pipe from filling it with clay or several particles.
In the following picture are shown details for the draining:


DETAJ I TIPIZUAR PER VENDOSJEN E DRENAZHIT
STANDART DETAIL FOR DRAINING
SH 1:20
Niveli i Terrenit teSistemuar/Landscape quote
Mbushje me zhavorr/Gravel Layer
Membrane gjeotekstili/Geotextilemembrane
Tub HDPE i vrimezuar Dj 300mm/HDPE pipe holemed
Shtrat rere t = 10 ÷ 15 cm
Tabani i Kanalit, Tokë Natyrale
Muri i themelit
H=variabël
30
Dj
15
m = 0.2
20
30
20
70

United Nations Development Program UNDP

“Rehabilitation of Development Residential Centre of Vlora ”

Municipity of Vlora

Assessment Report

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