Fire Emergency Evacuation Plan

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The fire emergency evacuation plan (**FEEP**) includes the action to be taken by all staff in the event of a fire and the arrangements for calling the fire brigade.

For small premises, this could take the form of a simple fire action sign, posted in positions where staff and relevant people can read it and become familiar with its contents.

High fire risks (or large premises) will need a detailed emergency evacuation plan which takes account of the findings of the fire risk assessment, e.g. the staff that is at significant risk due to their location, kind of work, amount of time they spend in the risk-prone area, etc.

The most important thing needed during this is proper coordination and awareness among the crowd. This can prevent further complications at the site of an emergency. For being more accessible in these situations everyone should be informed about the locations of fire alarms, extinguishers, fire hose, etc.. required during a fire emergency.

FEEP for Parijat Girls Hostel - Block A (similar to Block B & C)

Note: We have made an **application based on pygame**, whose screenshots for different fire points are attached in this document. This application basically gives the nearest and safest exit route to get out of the building in case of a fire.

The following are the layout plans of Ground Floor and First floor in Parijat Block A. Layout for the other floors are similar to that of the first floor. So, the evacuation plan for the other floor can be the same as that of the first floor.

We have used an online drawing tool, **smartdraw.io** to make the following layouts.

Ground Floor Layout:
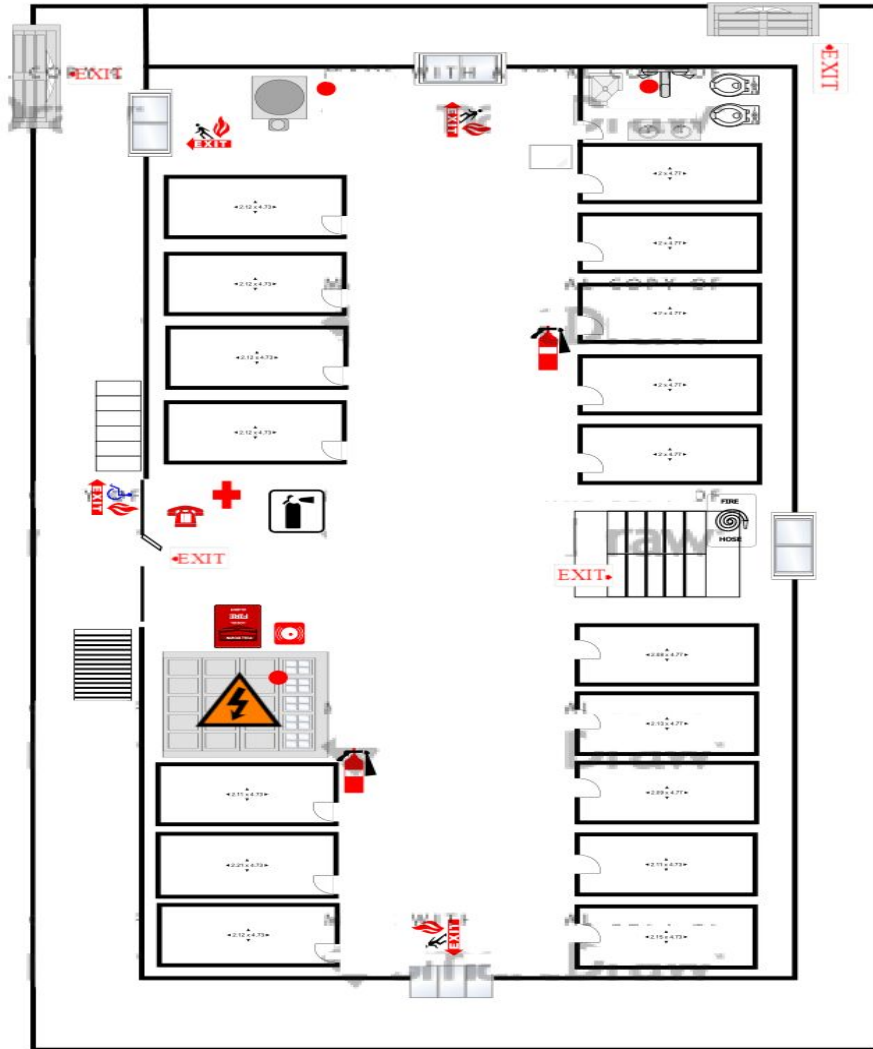
Dry Powder		Fire Hose	
CO2 Gas		High Voltage Zone	
Fire Alarm		Fire Alarm Button	
Handicap Emergency Exit		Incinerator	
Risk Prone Areas			

Other Floors Layout:
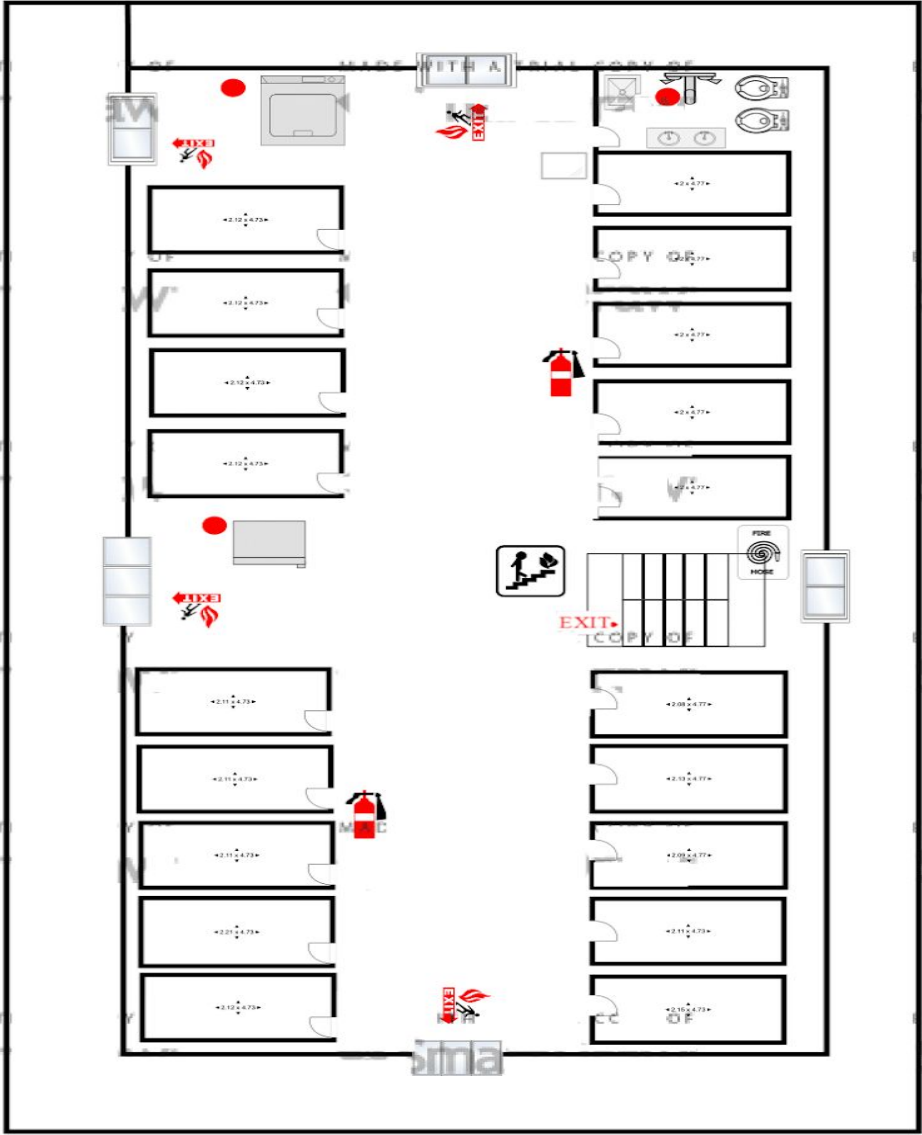
Electric Stove

Washing Machine

Risk Prone Areas

FEEP - Risk prone areas, Possible causes, Emergency exits, Normal exits, Immediate plan of action, Conducting fire drills(use of extinguishing material), Mitigation and Recovery, etc

Risk-prone areas:

1. The fire can be mostly due to a short circuit in the electrical appliances.
2. In the hostel, we considered areas where the washing machine, induction stove, incinerator, and main power supply region as prone to fire accidents.

Fire Points used in the application:
Fire Point 1 - Fire can be due to improper usage or malfunction of the Incinerator in the Washrooms. It may also be due to the excessive use or malfunction of geysers (they are not turned off after usage)
Fire Point 2 - The main power supply and LAN extensions/servers (Danger Zone) also can catch on fire in case of an overload or electrical short.
Fire Point 3 - Fire can be due to a short circuit at the induction stove or washing machines.

Other than these, it is possible that fire can be in any of the rooms, due to the improper usage of electric appliances.

Emergency Exits:

Management should make sure that there are emergency exits that can also accommodate disabled/injured people.

Fire evacuation strategy:

Provide clear and concise instructions of the routine to be followed in case of fire should be prominently displayed.

Arrange the evacuation of the premises, based on the risk assessment.

Follow general fire precautions - If you get caught on a spark, do not run and call for help, etc.

Nominate People who will be the first responders to the incident and to implement the fire action plan. Give them adequate training in fire fighting and evacuation procedures.

Generally, when the fire alarm goes on, evacuation will simply be as - everyone reacting to the warning signal and reaching to a point of safety. This is known as simultaneous evacuation and will normally be initiated by the sounding of the general alarm over the fire warning system.

Keeps signs so that people can reach the point of safety.

Conduct regular fire drills. It can include how to escape in case of fire, to be able to identify possible fire hazards, to prevent a fire from occurring, etc.

We may require one person who acts as a fire marshal on each floor coordinating their actions to make sure all persons are accounted for in the event of a fire. It needs a bit of training.

Action on hearing the fire alarm:

If you discover a fire, ring the nearest fire alarm, i.e, at the main entrance/exit of the Ground floor (Parijat Block A)

Let the instructions on how to turn on the alarm be written near it, for anyone to use it.

In case a fire warden is involved, proceed to predetermined positions to assist other people and staff to leave the building by the nearest safe route.

The assembly point should be far enough away from the building not to put staff in danger of radiated heat and falling debris. Give ample room so you do not interfere with firefighting operations and do not jeopardize the actions of the fire service.

These positions can be set up accordingly, in open areas or such - football ground or Felicity grounds. After ensuring everybody is out, a roll call must be in action to account for everybody.

Do not create panic among people, but make sure every person is alert. Use appropriate signs to direct the students and staff.

Calling the fire brigade:

The Fire Service should also be informed immediately, through mobiles or telephones, or by someone looking for the nearest and fastest help, say the mess office or Kadamb Hostel.

Even if the fire is very small and does not require fire service, make sure that at least at a later time, somebody tends to the cause and recovery of the place that is affected.

Main Fire Risks:

Discarding combustible materials carelessly.

Use of Electrical appliances(in rooms) - leaving them unattended. For example, Hair curlers/straighteners, Heaters/Flasks (particularly, if they are in contact with clothes/fabrics and paper), Use of candles or some such, etc

Induction Stove left unattended or due to an electrical surge

Incinerators in washrooms - not using them properly, or due to an electrical surge

Tradesmen/Electricians on the premises, especially those that use apparatus that is capable of starting a fire, like blow lamps, gas torches, metal angle cutters, etc. Ensure a high degree of supervision during and after their presence. Give the area they have been working in a thorough inspection and make sure no hot spots or small fires have been missed.

Storerooms (one of the unoccupied rooms in the hostel) where bedding, towels, flammable materials, and cleaning equipment are stored. Flammable materials in the presence of chemical cleaner may result in a higher fire risk if not stored correctly. Housekeeping and keeping the store as tidy as possible will reduce the risk.

Working Model - An Application:

We have made an application using **Pygame,** which takes the input of the fire point and outputs the best possible escape path for people in every block.

The paths are provided ensuring that there is no overcrowding at any exit gate and helps in the clean escape of people in an organized way. The segregation is made in such a way that the people are sent to their nearest safety exits.

Usage:
**Requirements:** Python3, Pygame
Run cmd: python3 fire.py
Input: 1 or 2 or 3
Output: Escape Strategy with proper coordination among the people.

Please look at the terminal's output which clearly mentions the exit routes explicitly for each room block.
A room block represents 2 adjacent rooms.

The screenshots of the output for the three possible fire points are provided:

Input: 1 (Fire point - 1)
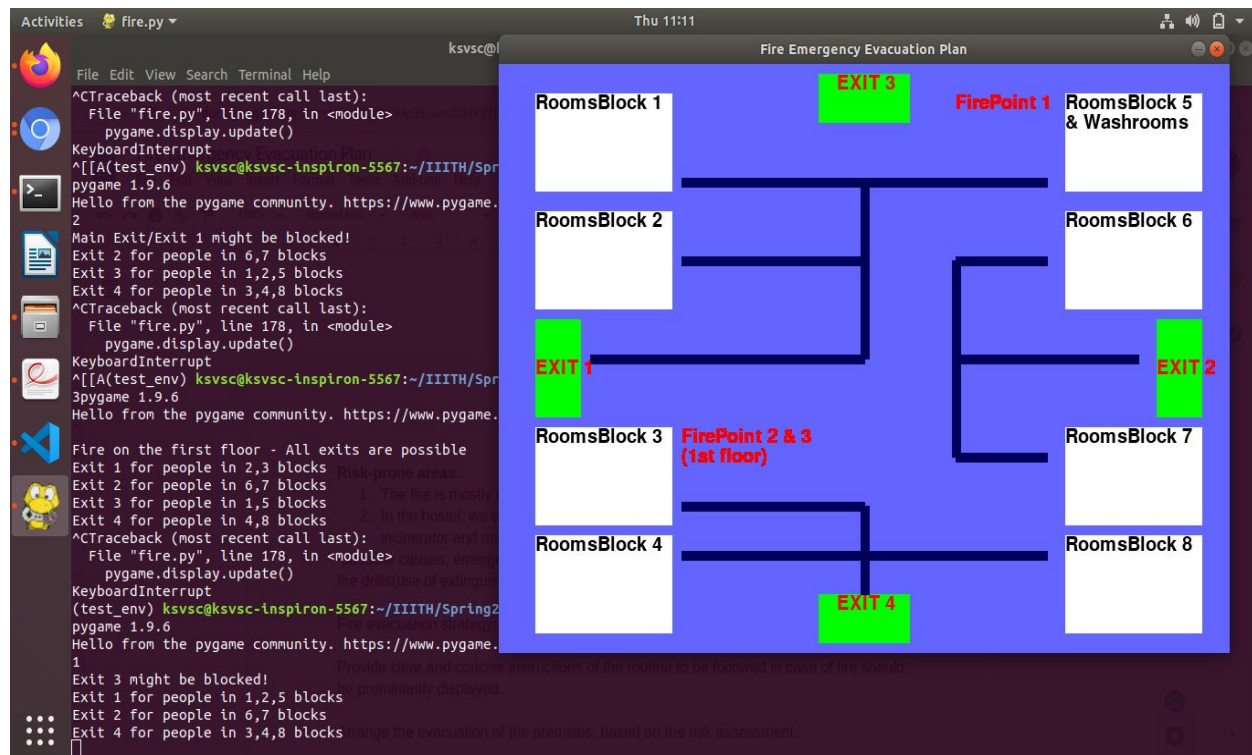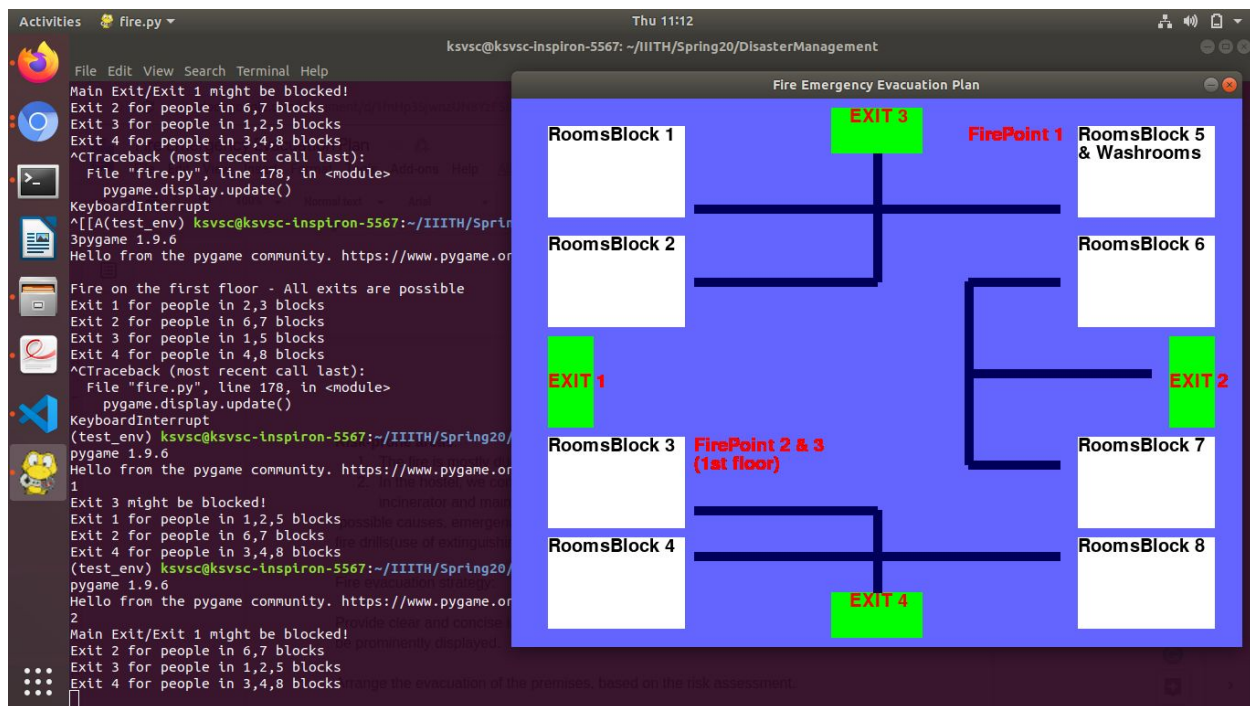
Output:

Exit 3 might be blocked!

Exit 1 for people in 1,2,5 blocks

Exit 2 for people in 6,7 blocks

Exit 4 for people in 3,4,8 blocks
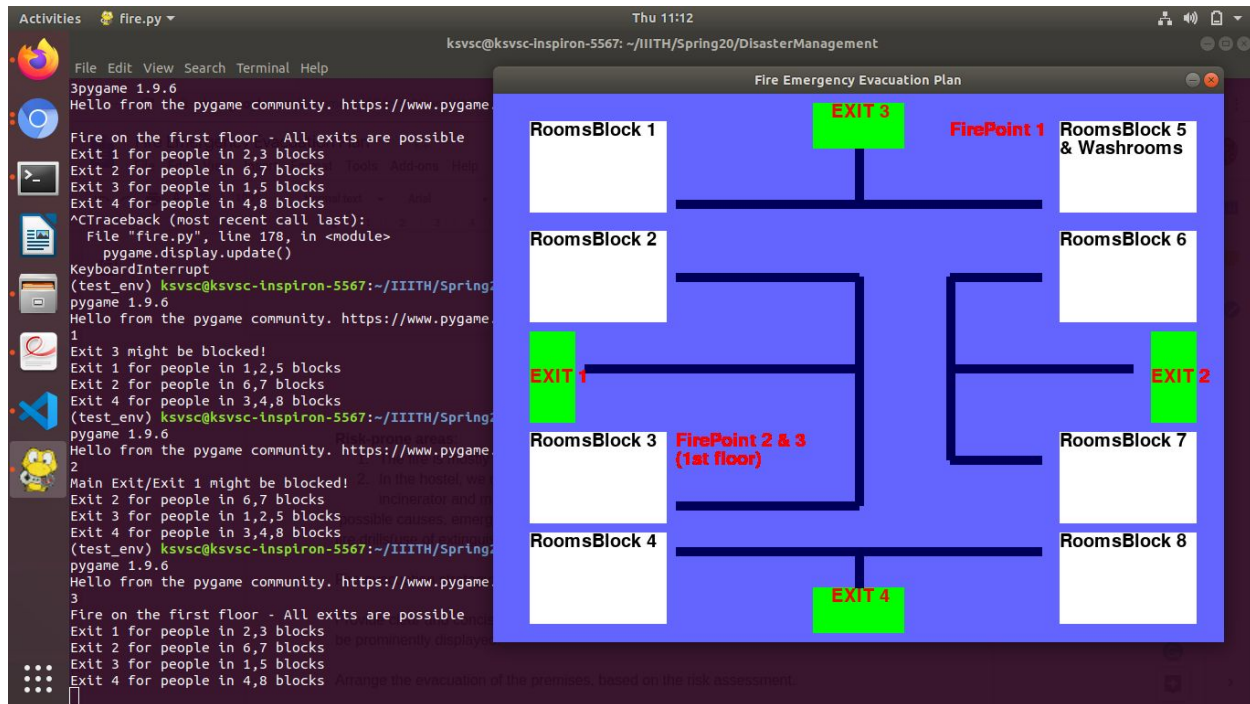
Input: 2 (Fire point - 2)

Output:

Exit 1 might be blocked!

Exit 2 for people in 6,7 blocks

Exit 3 for people in 1,2,5 blocks

Exit 4 for people in 3,4,8 blocks

Input: 3 (Fire point 3)

Output:

Fire on the first floor - All exits are possible

Exit 1 for people in 2,3 blocks

Exit 2 for people in 6,7 blocks

Exit 3 for people in 1,5 blocks

Exit 4 for people in 4,8 blocks