# Accessibility on wheelchair @ IITK


**Report submitted as community service towards CDAP**

(Raw data)

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**Submitted to:**
Cell for Differently Abled Person

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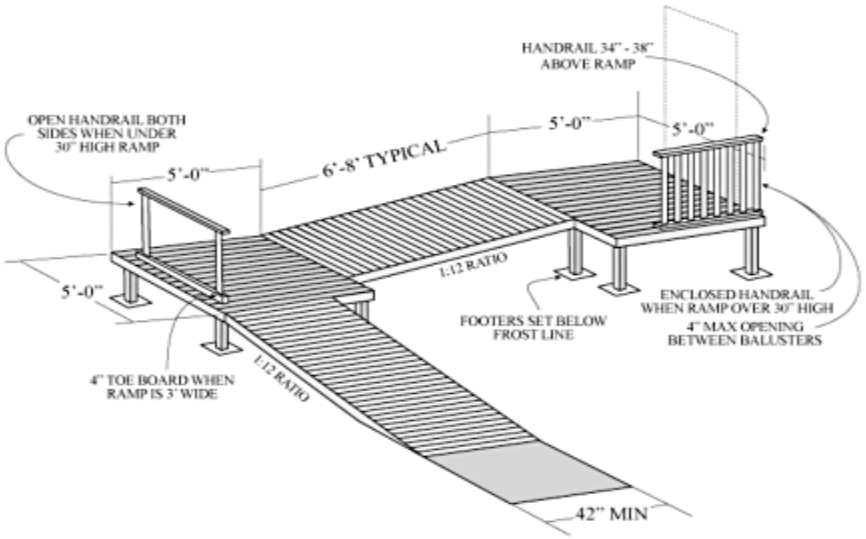
## General issues faced by handicapped people

1. Inaccessible ramps:- Many times we see ramps are not useful for the person needing it. It can be due to various reasons e.g., Steepness, stairs before ramp, narrow ramp.
   Below Picture shows the standard ramp size and steepness which should be used while making it.




2. Narrow Doors:- Not all buildings are constructed with standard size doors. So, if you are in a wheelchair, you are always at the risk of getting stuck in one or the other doorway. Most of the time this happens in toilets of public buildings. Even the lavatories made especially for wheelchair users have such a narrow door that no wheelchair can pass through easily. And if the door is equipped with spring hinges, you cannot even think about getting in or out without help.
   Example:- Hostel rooms, washrooms in hostels, washrooms in LHC.

3. Narrow Lifts:- In today's world we have lifts installed in most of the building but the issue is with the door size and overall lift size is so short that even a single wheelchair can't fit into it. For example:- Faculty building, Library, NCL, etc.,

These above are the general issues faced by people in daily life but this report is concentrated for the IIT Kanpur campus community which includes students in large numbers. So, I will be focusing on the issues with students who use a wheelchair.

## Lift Inaccessibility @ IITK

Most of the buildings in IITK are multi-storage buildings and lifts are installed in these buildings.

Only the presence of lifts doesn't imply that these buildings are accessible or these lifts are accessible to a handicapped person. These lifts have their own issues in particular which makes it inaccessible to handicapped persons in a wheelchair.
These include various issues like narrow doors, manual lifts and etc.,

Why do we need mirrors in the lift?
Sometimes it is not possible to rotate a wheelchair inside the lift and you have to exit by moving backward and for that purpose, one needs a mirror inside the lift. Secondly, to access the buttons inside the lift one can use a mirror easily and can access the lift.

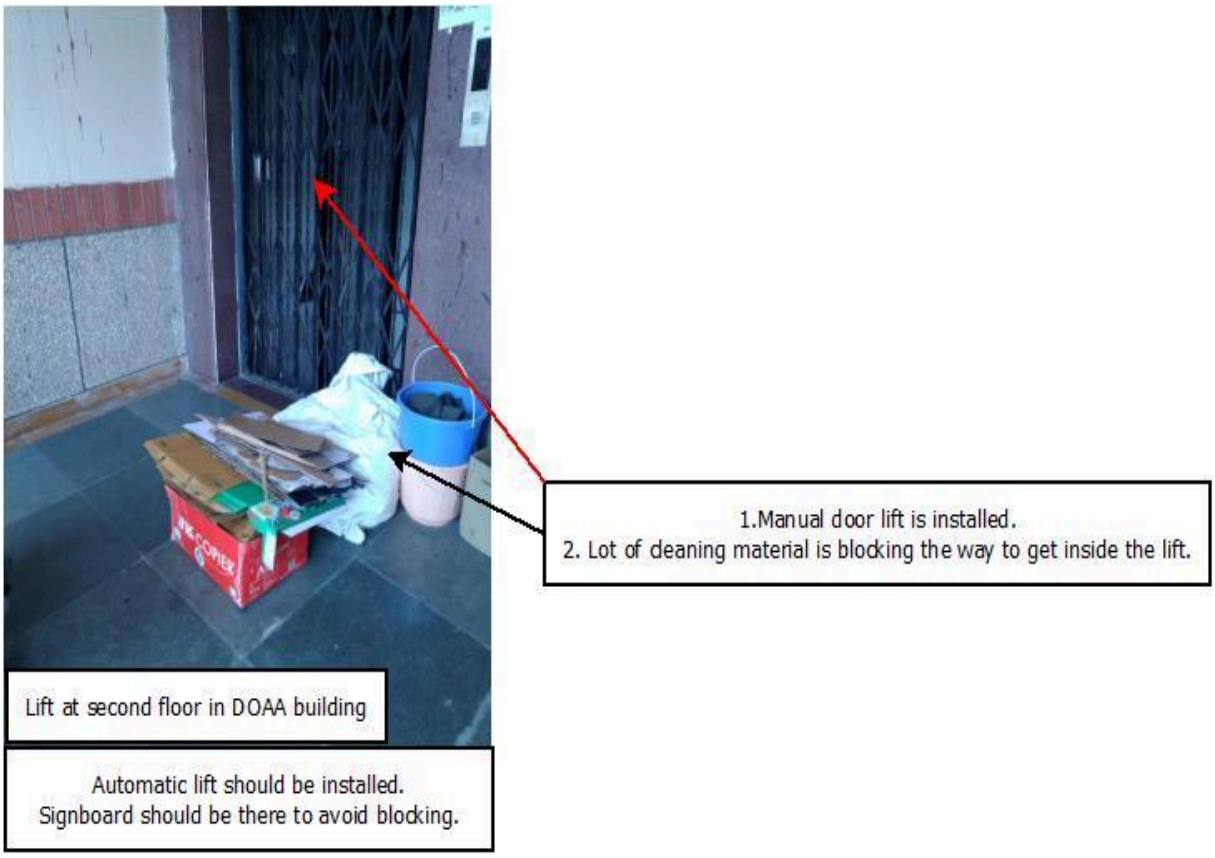
Signboards should be installed in every building indicating two major things which are:-

1. In front of lift mentioning that no items should be kept in front of the lift and don't block the way in any case by anything.

2. Direction sign boards to show where the lift is in the building so that anyone can access it and find it easily.

## DOAA Building

Issue:- In the DOAA building currently a manual lift is installed. This kind of lift gets stuck when it's the gate is left open while leaving it and this issue is frequent.
Secondly, a lot of cleaning material is blocking the way on the third floor of this building.




Solution:- An Automated lift should be installed and the width of the wheelchair must be taken into consideration while construction.
A signboard should be present for avoiding the blockage of Lift by any kind of obstacle as shown in the above picture.

## New Core Labs

Issue:- In New Core Lab lift is installed and this lift has a narrow gate and in which this wheelchair gets inside but with a very less margin and most of the students use an electric wheelchair which is wider than this wheelchair.
Wheelchair can’t be rotated inside the lift and it is required to rotate a wheelchair inside the lift because one needs to exit moving forward not backward.


Solution:- Door of the lift should be wide for comfortable movement and also the area of the lift should be enough for rotation of the wheelchair.
Another solution can be that a mirror is installed inside the lift and using a mirror one can access the button and also can move backward comfortably.

## Faculty Building

Issue:- Wheelchairs get into the lift but very less space is remaining so it's not possible to take electric vehicles inside this lift and in IITK students use electric vehicles.


Solution:- Lift door should be a little wide for an electric wheelchair to get inside comfortably.

Solution:- An alternative solution is that a mechanical wheelchair should be kept at the main entrance at all times so that any person needing it can borrow it and can access

the building and return it at the same place. IITK security guards can take care of this with proper entry in register.

**P.K. Kelkar Library**

Issue:- Issue:- In the building currently a manual lift is installed. This kind of lift gets stuck when it's the gate is left open while leaving it and this issue is frequent.


Solution:- An Automated lift should be installed and the width of the wheelchair must be taken into consideration while construction.

Alternate solution can be a sign board should be pasted near the lift on every floor requesting to close the doors of the lift. Along with that a mirror should be installed inside the lift so that a person can move backwards without any issues.

## ACES

Issue:- In the building currently the lift door is so small that a manual wheelchair can't get inside and this is a multi-storage building and requires lift for accessibility.
Only the ground floor is accessible for a handicapped person rest floors he/she needs to use the lift without a wheelchair.


Solution:- A new and a wider dimensioned lift is needed in ACES in which an electronic wheelchair can also fit comfortably and one can easily access the building.

**Kadim Diwan Building**

Issue:- Wheelchairs get into the lift but very less space is remaining so it's not possible to take electric vehicles inside this lift and in IITK students use electric vehicles.

Point to note:- In this lift a mirror is installed and with the help of this mirror one can easily access the lift without rotating the wheelchair inside it (if enters the lift on wheelchair)


Solution:- Lift door should be a little wide for an electric wheelchair to get inside comfortably or a mechanical wheelchair should be present at all the times in this

building so that a handicapped person can access this facility by using an alternative wheelchair.

## Computer Center

Issue:- Wheelchairs get into the lift but very less space is remaining so it's not possible to take electric vehicles inside this lift and in IITK students use electric vehicles.
Issue:- Lift is inside the computer center and **far from the main entrance** of the building and due to the **unavailability of signboards** it is difficult for anyone to find out where the lift is.

**Solution**:- Lift doors should be a little wide for an electric wheelchair to get inside comfortably or one mirror should be installed in the lift so that the wheelchair need not be rotated for accessing buttons inside the lift.
Sign Boards should be installed in the computer center with proper indication so that anyone can find lift easily.

## IME Building

Issue:- Wheelchairs got into the lift but it was very difficult to get into lift while sitting on it my hands were touching sidewalls. So it's not possible to take electric vehicles inside this lift and in IITK students use electric vehicles.

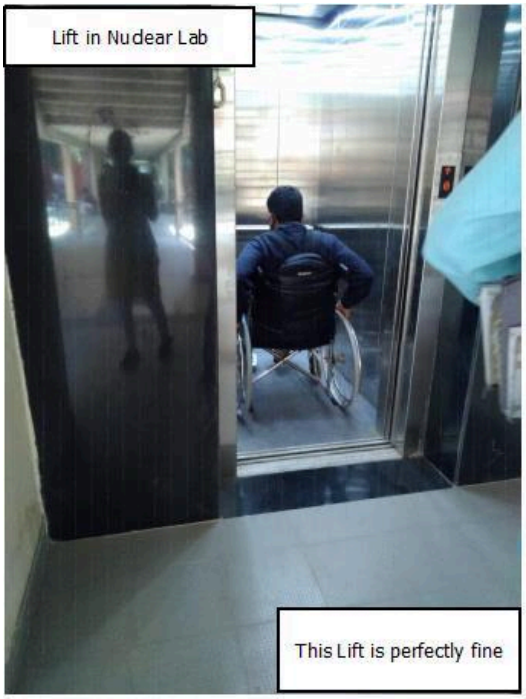

Solution:- Lift doors should be a little wide for an electric wheelchair to get inside comfortably or a mechanical wheelchair should be present at all times in this building so that a handicapped person can access this facility by using an alternative wheelchair. Along with this a mirror should be installed inside it for helping people moving backwards.

**N.W.T.F.**


This lift is a manual lift and these kinds of lifts get stuck on a particular floor on which the door is left open.
Currently, this lift is not in working condition and this makes it difficult for the handicapped person to go upstairs.

Solution:- This lift should be repaired as early as possible and a signboard should be kept near it for not leaving the door open after accessing the lift and a mirror inside it should be installed.

## Nuclear Core Laboratory

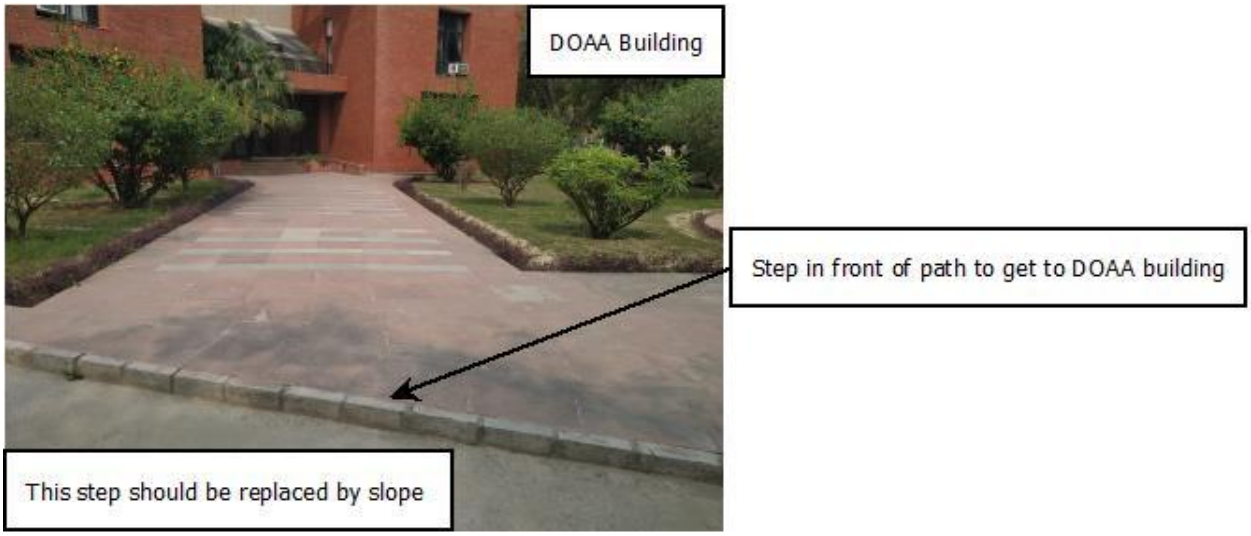



## Drawing Hall

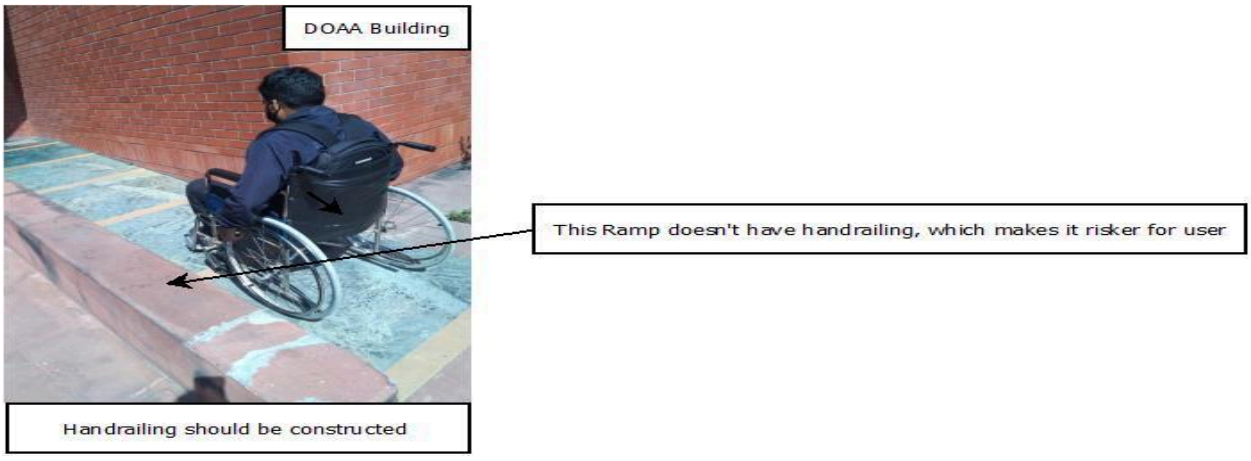
# Building Specific Issues in IITK

## DOAA building

This building is one of the most important buildings when it comes to academics as this building has UG/PG offices and DOAA office and other important offices.




Issue:- When you walk from DOAA canteen towards DOAA building then you will find that the pathway to the building is fine but there is a significant height difference between road and the main building and the wheelchair **can't get on it.** A slope must be constructed for a comfortable movement of a wheelchair and it should connect the road and the pathway shown in the picture.



This ramp is connected to the main gate of the DOAA building. This ramp is good in terms of maintenance but doesn't have hand railing so it can be risky sometimes.


Washrooms in DOAA buildings have narrow doors and these doors get closed automatically. To enter one needs to PUSH so it's not possible to get inside.
The new door should be constructed and that should be wide enough for a wheelchair.

The main entrance gate has doormat but it's toned and torn due to which it has height differences and in this wheel gets stuck and it gets inaccessible.

This alternate path goes through grass and soil. wheelchair gets stuck most of the times.

Path in front of NCL road

A proper cemented/concrete path should be constucted to connect DOAA building and main road.

This road is used as an alternate path to get to the building by users and this is in a very vulnerable condition and it should be repaired as early as possible.

1. Currently motorvehicles are parked here which is blocking the way and path is blocked by a the step as shown with the arrow. As a result wheelchair user needs to take a alternate path from side

Road connecting DOAA building to road in front of NCL

1. NO Parking signboard should be installed.
2. This step should be levelled and a proper path should be constructed to the main building

**New Core Laboratory**

NCL is used by all the first-year students for PHY101, CHM101, ESC101 labs and many other students as well and hence it becomes the most accessible building for everyone and its facilities should be maintained and should be accessible to handicapped students as well. In this section, we'll go through the issues related to this building and the optimal solutions which can solve these issues at its earliest.

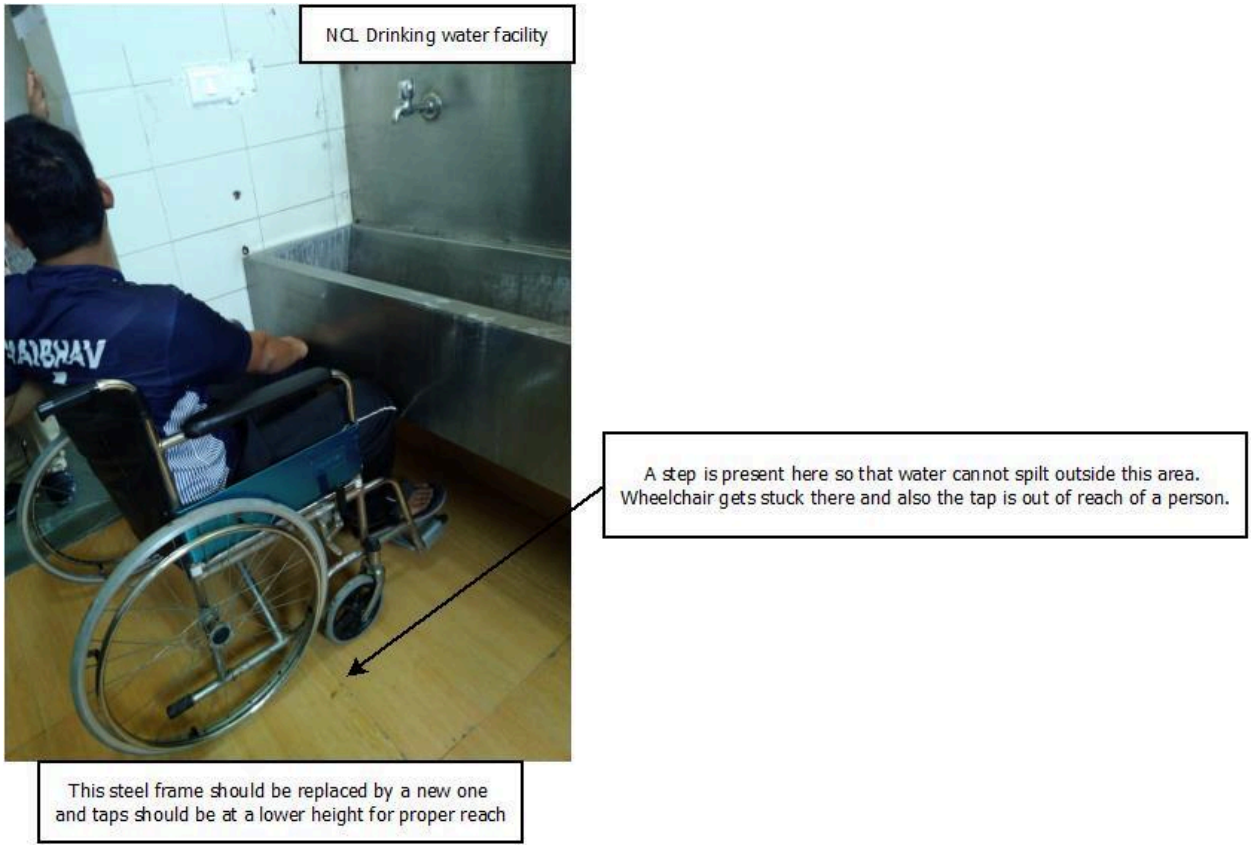
Issue:- This picture is of top floor washroom and as shown in this picture the door in very difficult to access and this is because the door needs to be pushed inside and inside the area is already small and one cannot enter inside comfortably on the wheelchair.


This picture is of the same washroom after taking a wheelchair inside the washroom (by lifting wheelchair) and it can be clearly observed that to come outside the area is not sufficient to rotate the wheelchair.

Solution:- This washroom should be reconstructed as the door is narrow to access and washbasin is inaccessible as one can't rotate the wheelchair inside it.

Alternate solution:- In gents washroom at least 1 western facility should be present which can be used by handicapped persons.

Drinking water Facility in NCL




Here there are two major issues out of which one is common with most of the drinking water facilities at IITK which is the height and the reach of the water tap.

In this particular case, the tap is in the reach of hands but to drink water one needs to have either glass or a bottle with him.

The second issue is that a step is constructed for height difference to stop water from spilling in the outside area. This step is covered by a railing which is shown in this picture but this railing is removed for cleaning purposes and according to staff it should be at its place after cleaning.

But when we reached their this was not in place and as a result of this, I was not able to access this facility as the wheel got stuck in that step.

This can happen on any other day as well and the person who wants to drink water will have to face difficulty because of this small mistake and this should be taken seriously.

Solution:- A glass should be present at all times near this facility so that a person can fill water and access this facility. Otherwise, a new sink should be constructed in which the base level should be above knee height and taps should be at a lower height.

Secondly, clear instructions should be given to the cleaning staff of NCL that after cleaning the area this railing should be kept at its place so that no one faces difficulty in accessing this facility.

Road in front of the building


This is the road in front of NCL and this road is used by everyone who enters the NCL building.
Currently, this road is in vulnerable condition due to the poor maintenance and the construction site nearby.
When I tried to use this road in the wheelchair the wheels were getting stuck or slipping after every second and it was next to impossible to use this road sitting in the wheelchair.

Solution:- This road should be constructed as early as possible and it should be maintained properly from time to time.

Main Entrance of NCL


This is the main entrance of New core laboratory and a ramp is constructed here which is working condition and can be accessed but it is blocked from both the ends. From one end it was blocked by a banner for some workshop and on the other hand it was blocked by cycles parked by students. These cycles are parked every day in front of the ramp and no one is there to stop them and no instructions are given not to do so.

Solution:- A **NO Parking** sign board should be installed near the ramp and the Security guard should be given instructions to stop people from parking cycles in front of the ramp.

Side Entrance of NCL


This is the side entrance of New core labs and this ramp is properly maintained and can be accessed by handicapped persons comfortably.

# N.W.T.F.


This is the main entrance of NWTF and after using ramp this is the gate through which one can enter inside.
The issue here is that a mat area is made for cleanliness but the mat which is used here is of a smaller size than the area as a result, it creates a step in which the wheel gets stuck and the wheelchair cannot be moved further.

Solution:- A mat of proper size should be fixed and it should be made sure that it is maintained from time to time and this should not be an issue for a handicapped persons.


Second issue at the main entrance is that the door is half locked and half-opened and as you can see that it is not possible to enter inside with half of the gate opened sitting on chair itself. The other half of the gate is locked and it can't be opened without asking for help.

Solution:- The other half of the gate should not be locked however staff can close it but not locking it. One can open the gate whenever needed and can access the building comfortably.

This ramp is at the main gate of NWTF and it is currently accessible for handicapped persons comfortably.

**P.K. Kelkar Library**

Drinking water facility


In the drinking water facility, the tap is out of reach for drinking however it is in reach if someone wants to fill a bottle or a glass.

Currently, this is inaccessible as there is no glass present but if one or two glasses are kept here then this drinking water facility will be accessible to handicapped persons also.

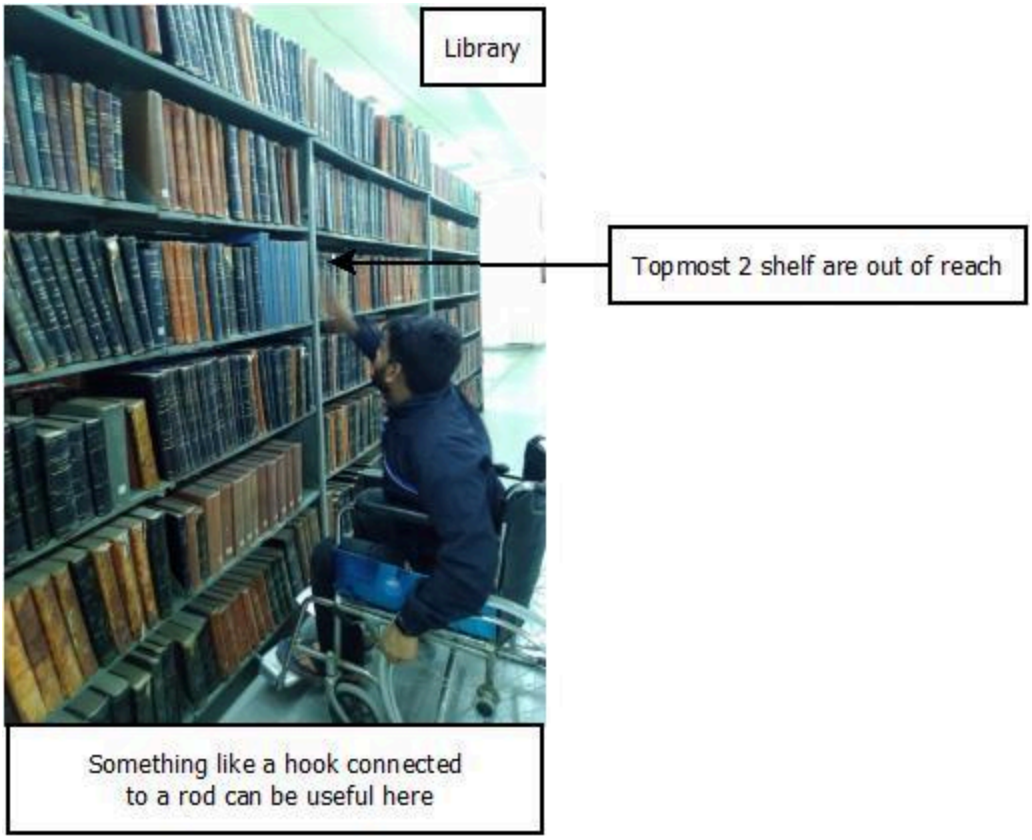
Newspaper stand


This newspaper stand is within the reach of a person physically but when someone wants to read it then eyes are out of reach for most of the newspaper and this facility is inaccessible for a handicapped person.

A probable solution can be that a stand of smaller height should be installed in addition to these stands.

The alternate solution can be if some newspapers are kept near the reception area solely for handicapped persons so that they can use them according to their requirements.

Book Shelf




Sometimes students need books from the shelf and as you can see in the picture that the top 2 shelves are out of reach from handicapped persons and they may have to wait for someone else to help them in taking out the book they need at the earliest.

Solution for this kind of problem can be a rod in which at one end a hook kind of thing is attached and by using that student can pick that book and use it. Through this, they can't keep it back but in our library, you need not require to put back the books at their places.

An alternative solution is that a modified wheelchair should be there in which it is possible to move up and down through a button only. Using this one can access the shelf and these kinds of chairs can be put inside the library for accessibility of various facilities.


Desk is comfortably accessible for everyone

These are the few more pictures taken from the library and it can be seen that these are accessible facilities and students won't face any kind of issues in accessing them on a regular basis.


This entrance is comfortably accessible

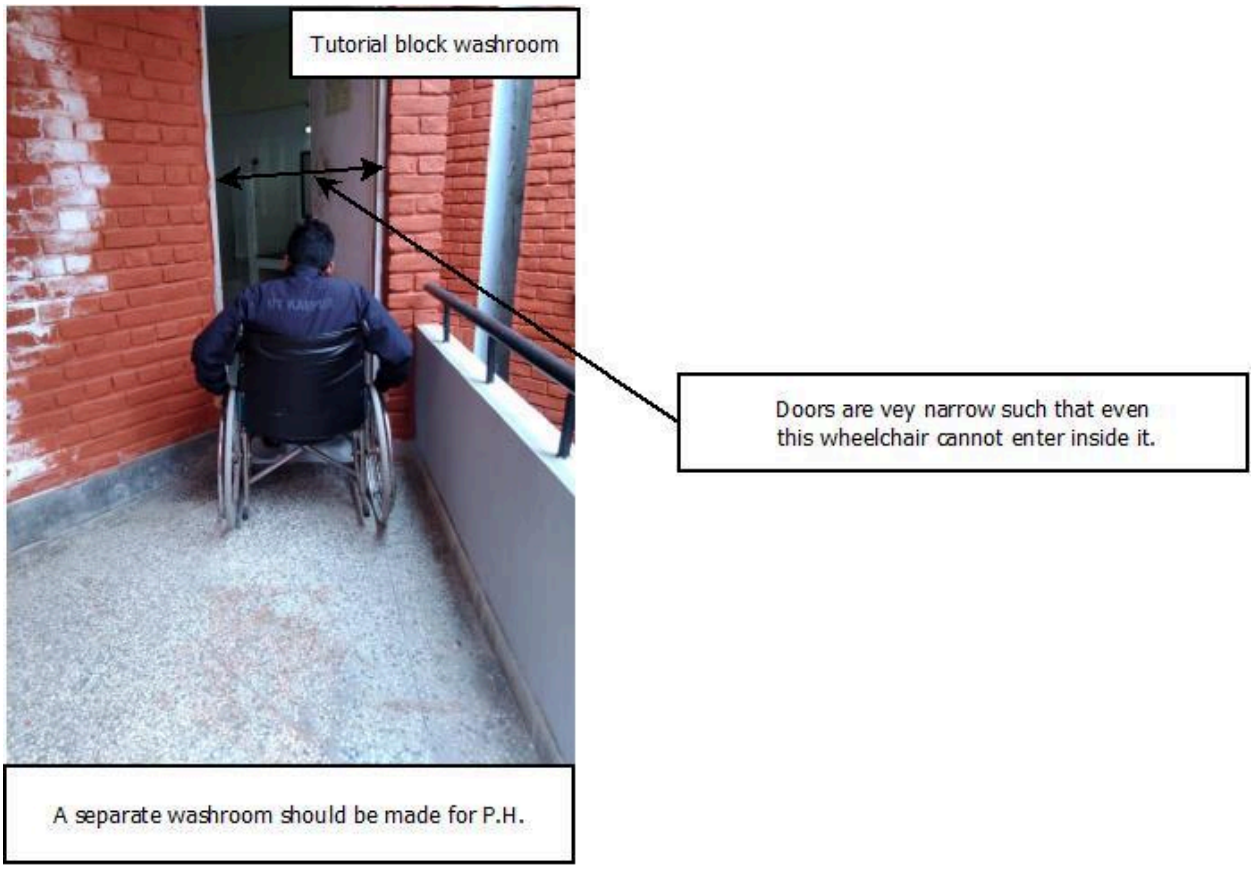

This entrance is comfortably accessible

**Tutorial Block**


This particular ramp is used for reaching out to maximum lecture hall complexes and this ramp is well maintained and is in usable condition right now.
The issue with this ramp is that during normal weekdays a lot of cycles are parked in front of this ramp as well even after putting a signboard for it no major change was observed. These cycles block the way for wheelchairs and for the electric vehicles they don't get much-starting speed to reach on the top of the ramp.

Solution:- One more signboard should be placed near the ramp indicating **Ramp nearby No Parking.** Even after this if someone parks a cycle then the SIS guard should take that cycle with him.

Washrooms

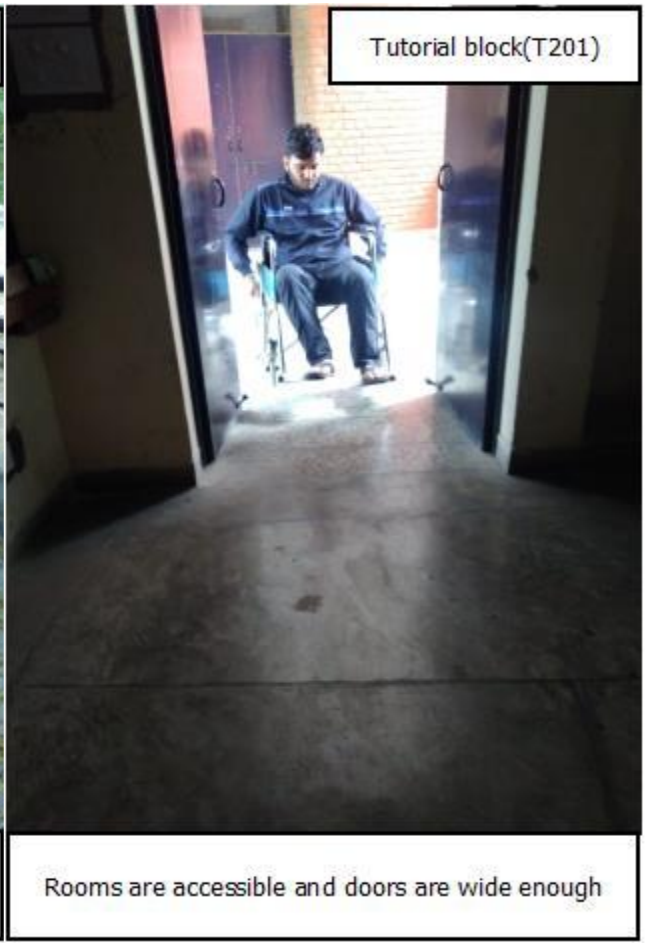



Tutorial blocks have 2 washrooms one on each floor(same situations on both the floors) but none of these washrooms have a separate facility for physically handicapped persons and even in male washrooms no western facility is available.

The second issue is that the doors of these washrooms are so small that this chair shown in the picture cannot get inside it thus even if we have a washroom inside a male facility then also it is not suitable for a handicapped person.

**Solution**:- A separate washroom facility should be constructed on both the floors only for a handicapped person.
Otherwise for solving the above issues we need to renovate these old washrooms according to the handicapped person as well.


This ramp is in good condition and accessible




Rooms are accessible and doors are wide enough

These above two photos were taken during the survey of the tutorial block.
In picture 1 the ramp connecting tutorial block is shown and this ramp is in good condition and can be accessed comfortably.

The second picture is taken while entering the tutorial block T201 and its entrance is sufficiently wide for the wheelchair to enter inside and also the chairs are not fixed so a person can adjust his/her wheelchair inside and can sit on it comfortably.

Ramp from the tutorial block towards Old LHC is well maintained and can be easily used.

Ramp: TB-LHC

Perfectly fine ramp to use

## Lecture Hall Complex

Lecture Hall Complex includes 20 halls which can be divided into L1-L6, L7, L8-L9, L10-15, L16-17, L18-20.
In this survey we tried to cover everything which is used by students on a regular basis as this building is most used by students during the stay at IITK and also it is the most important building.


Drinking water facility near L7:
It is largely used by all the students and this facility has one minor issue that is the height of the water tap is out of reach from mouth to drink water while sitting in a wheelchair. However a glass/bottle can be filled through this tap.

Solution**:** Water glass should be present at all times near this facility(Currently only 1 glass was present) and a number of glasses should be sufficient enough for no one to wait for the turn. Specially handicapped person shouldn’t wait for these minor issues

Entrance to L-7: To enter in L-7 on a wheelchair one has to take a ramp made in front of it which connects to the stage of L-7 and this ramp has two major issues with it.

1. Hand railing is not present to hold and due to which it can be risky for handicapped people to use this ramp.

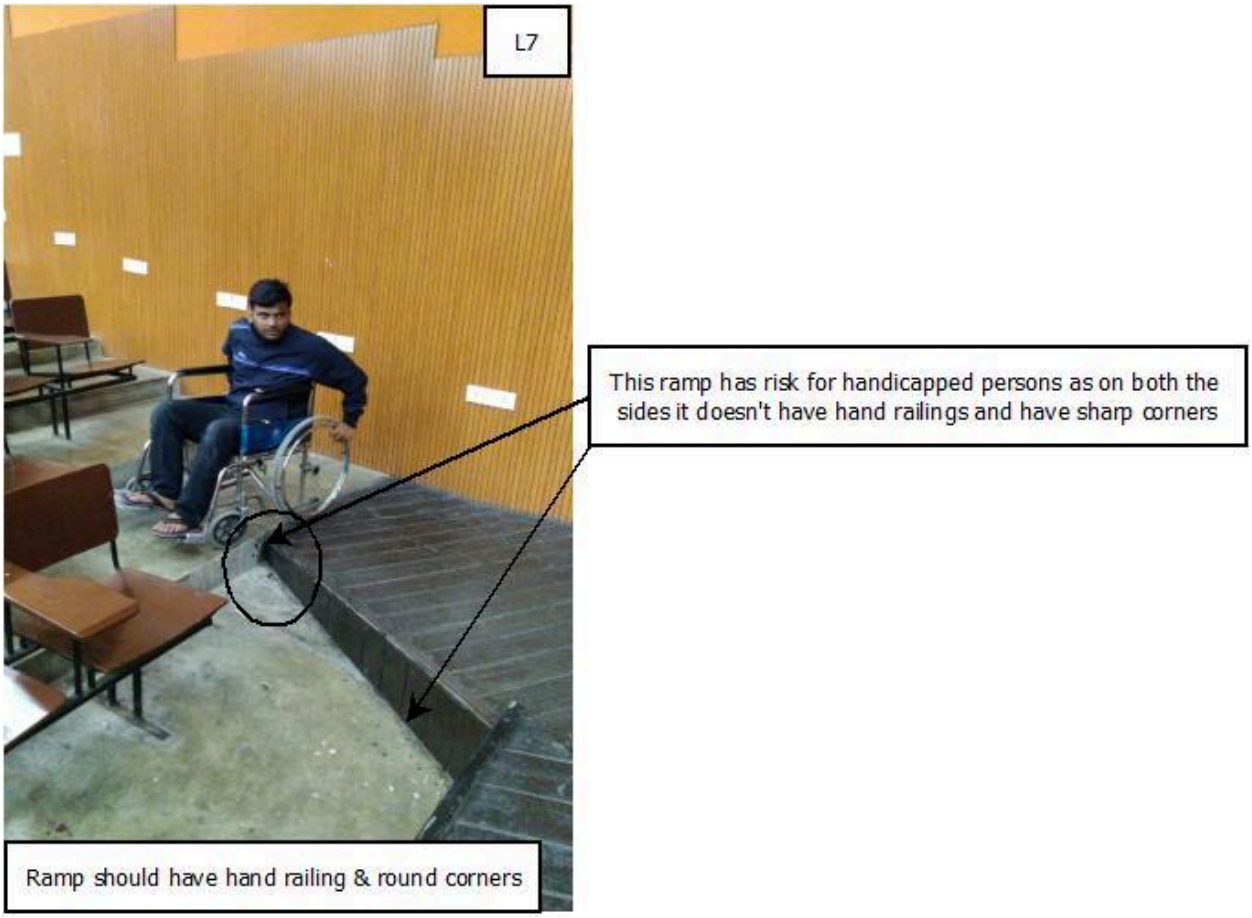
2. Slope of this ramp is a little high then the maximum limit and during the survey I wasn't able to climb this ramp without any help.


Solution**:** On one of the sides a hand railing should be installed and the slope of the ramp should be minimized in order to make this ramp accessible for handicapped persons.

Ramp from stage to sitting area:
This ramp is connected from L-7 stage to the student sitting area near the chairs.
This ramp has 2 major issues with it and these should be resolved ASAP.

1. Sharp corners are at the end and due to these corners it is very difficult to rotate the wheelchair and get to the classroom chairs.

2. Both the sides of ramp are dangerous as the ramp is well above the ground and someone sitting on chair can fall on any of the side.




Solution**:**

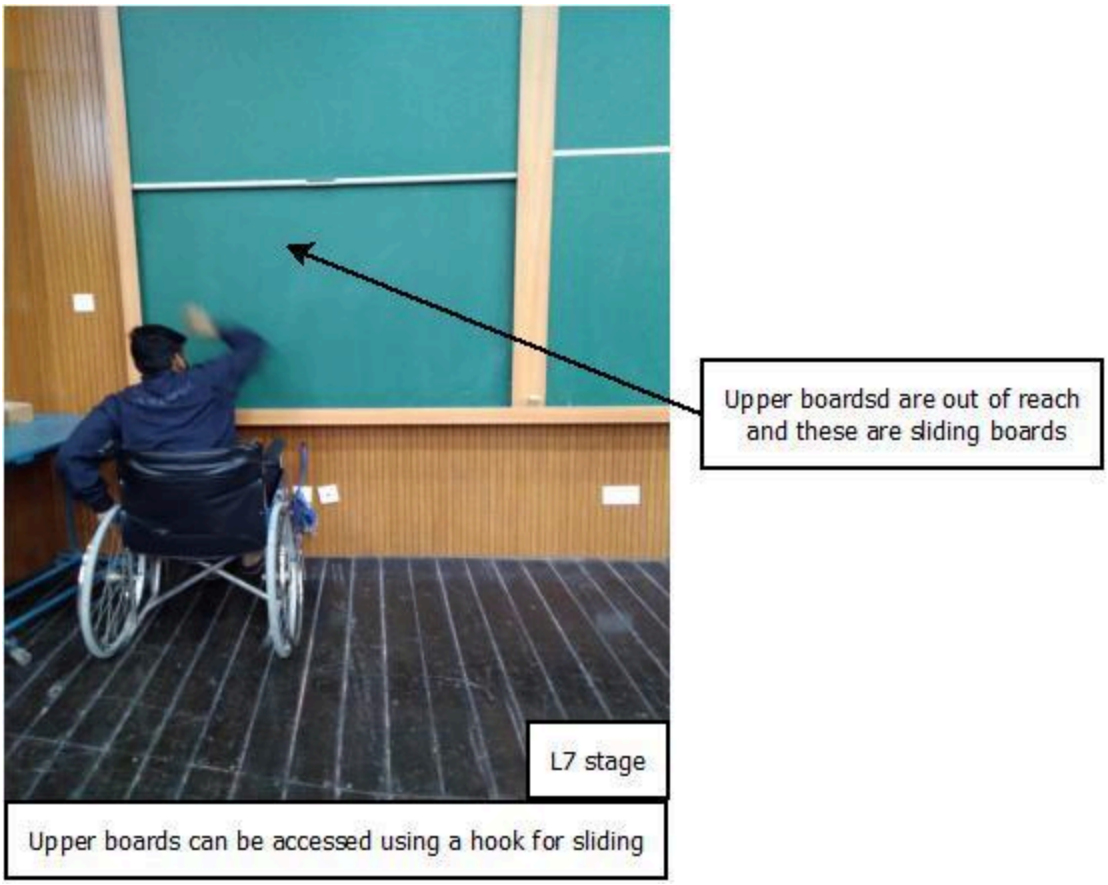
1. Corners of the ramp at the ends should be made round in such a way that the ramp mixes up with the concrete stair properly and has sufficient area for rotation.

2. This ramp should have hand railing on one of the sides so that one can move a wheelchair near to that side and can use railing for support.

Green boards on stage of L-7:

Lecture hall no. 7 has an automated teaching area which is controlled by a control device and using that device. The teacher can use the screen also without any difficulty but the main issue comes when the teacher or anyone wants to use the green boards.

L-7 has 4x2 green boards and these boards can be slided up and down using a slider.
Issue**:** Slider is out of reach for a person sitting in a wheelchair and due to this reason only 4 boards can be accessed by handicapped person.




Solution**:** A hook can be made and can be attached to a stick which can be used for sliding the boards up and down. By doing this all 8 boards can be easily accessed by handicapped people.

Stage Control Box L-7:

This device is easily accessible for people sitting in a wheelchair and it was tested during the survey.

L7 stage

Device is in reach and can be accessed

As categorized above L1-L6 are on the same ground level and have 2 entrances each, one of these entrances can be used to enter inside these LHCs on a wheelchair.

Inside these LHCs loose chairs are present that can be used according to the requirement by the handicapped person. Also the area in front of board is quite large for moving wheelchair around it due to which it makes quite comfortable for handicapped person to access these LHCs


L1-L6 are perfect for entering & sitting on wheelchair

L8-L9:


Accessible LHC for handicapped


Enough space in front for wheelchair

Now L8-L9 are similar lecture halls and these two pictures above show that these LHCs are easily accessible and in picture 1 it can be observed that the area in front of the stage is quite wide for easy movement of the wheelchair.

L10-L15:


Loose chairs are used for sitting if needed


Enough space at door and in front for wheelchair

Now L10-L15 are similar lecture halls and these two pictures above show that these LHCs are easily accessible and in picture 1 it can be observed that the area in front of the stage is quite wide for easy movement of the wheelchair.
In picture 2 it can be observed that one can easily enter these LHCs from the front gate.

Washroom and Water cooler facilities:

Washroom: L8-L15

Accessible & western washrooms for handicapped

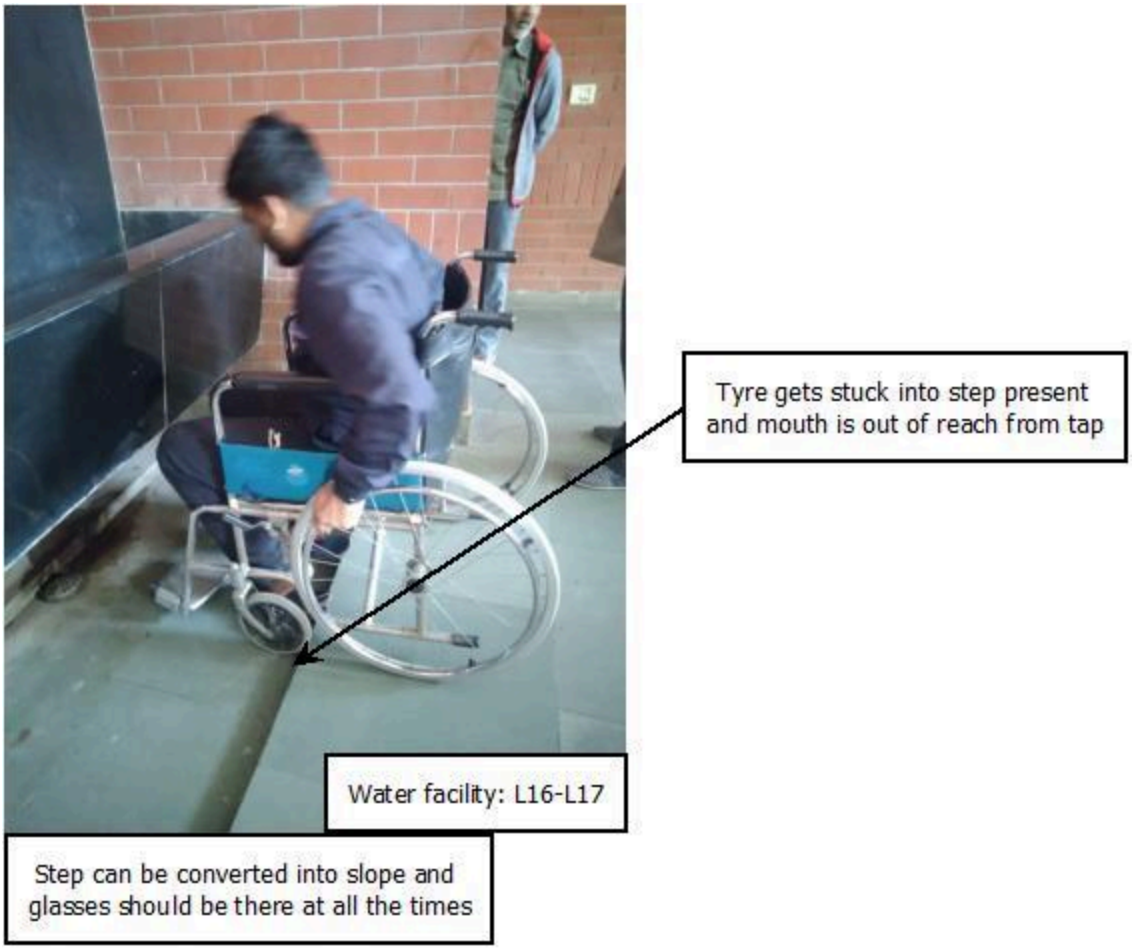
Water Cooler: L10-L15

Easily accessible for drinking

In picture 1 washroom facility for L8-L15 is shown, basically there are two men washrooms, one on ground floor and one on first floor and both of these washrooms are same in terms of structure and we checked the one on ground floor.
These washrooms are easily accessible and they **have one western toilet** which can be used by handicapped people.

In picture 2 it can be observed that both mouth and hands are in reach to the tap on the water cooler and this water cooler located near L11 is easily accessed by handicapped students.

Drinking Water facility under L16-L17:




As shown in above picture this facility has two major issues with it which are as follows:

1. There is a small step present near the sink and in that step front wheels get stuck and the wheelchair cannot be moved further.

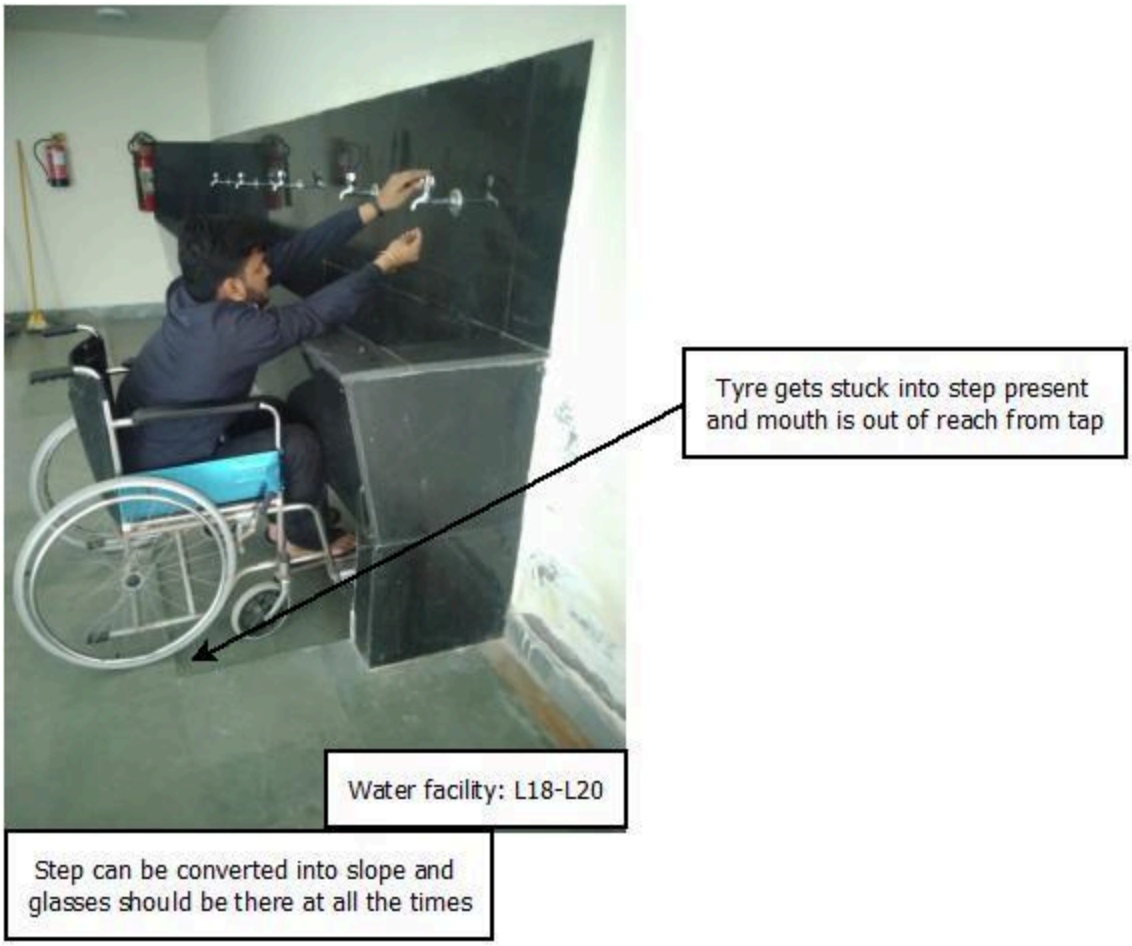
2. Mouth is out of reach from taps and no water bottles or glasses are present near the taps so a handicapped person can't use this facility comfortably.

Solution:

1. Small step should be converted to slope of appropriate steepness to make it accessible for wheelchair use.

2. Few glasses should always be present near this facility so that anyone can use it at any time.

Drinking Water facility under L18-L20:




As shown in above picture this facility has two major issues with it which are as follows:

1. There is a small step present near the sink and in that step front wheels get stuck and the wheelchair cannot be moved further.

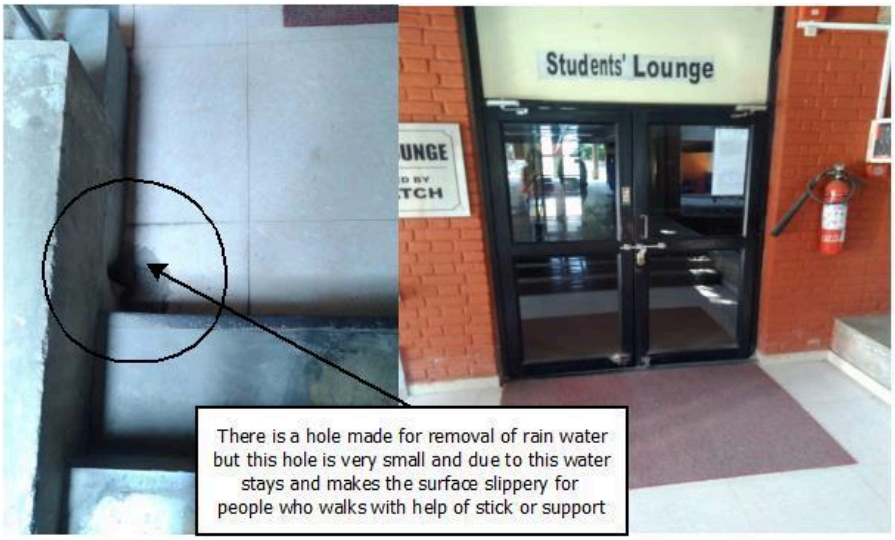
2. Mouth is out of reach from taps and no water bottles or glasses are present near the taps so a handicapped person can't use this facility comfortably.

Solution:

1. Small step should be converted to slope of appropriate steepness to make it accessible for wheelchair use.

2. Few glasses should always be present near this facility so that anyone can use it at any time.

Students' Lounge:

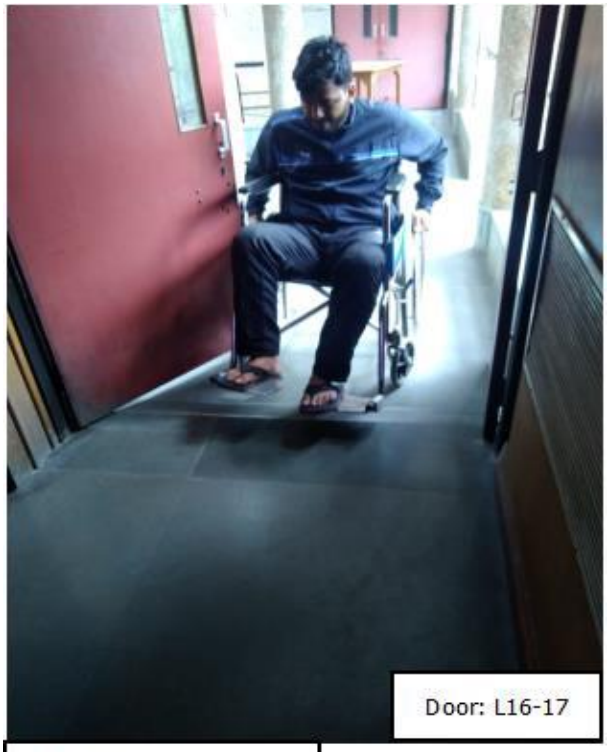




Students' Lounge main gate is connected from a ramp and this ramp is recently constructed and is perfect for use but it was observed by staff of LHC that during the rainy season this ramp gets slippery and it may cause some serious injury to handicapped person. Along with this water removal is not proper on entrance of lounge and this makes the floor slippery during rainy season

Solution:

This ramp should be covered with some kind of shelter so that rain drops can be avoided as much as possible. Also the drainage facility should be proper so that water doesn't spill on the floor.


Perfect ramp for using




Perfect door for entrance


Ramp is in good condition and accessible

These are a few more pictures taken during the survey and these doors and ramps are perfectly fine and can be easily accessed by handicapped person.

## Faculty Building

Entrance:


This is the entry or I can say starting point to enter the faculty building from the main entrance (front of Auditorium). This ramp is broken from the starting point and due to which the small/front wheels get stuck and the wheelchair can't be moved further. Due to this reason ramp is inaccessible.

Solution:
This ramp should be properly maintained and should be repaired asap so that no one faces any kind of difficulty.

Entrance:


This is the same entrance ramp and this ramp doesn’t have hand railing as well which is riskier for someone in a wheelchair.

Solution:
Hand Railing should be installed on a priority basis on one side so that one can easily access this ramp.

Accounts/Cash section:


Issue:
As shown through the arrow there is a small stepping which is blocking the path of the wheelchair and due to this handicapped person can't get inside the accounts section sitting in a wheelchair.

Solution**:**
This step should be levelled properly to make it accessible for wheelchairs as well.

**Western Lab Extension**

Drinking water facility:


Mouth is out of reach from taps and no water bottles or glasses are present near the taps so a handicapped person can't use this facility comfortably.

Solution:
Few glasses should always be present near this facility so that anyone can use it at any time.

Washroom Facility:

WLE washroom

Accessible for handicapped person

Washroom facility in WLE is accessible for handicapped person as well and it was verified during survey as well.

Road from ACES to WLE:

ACES and WLE are very near to each other and these are connected by road as shown below in the photographs.

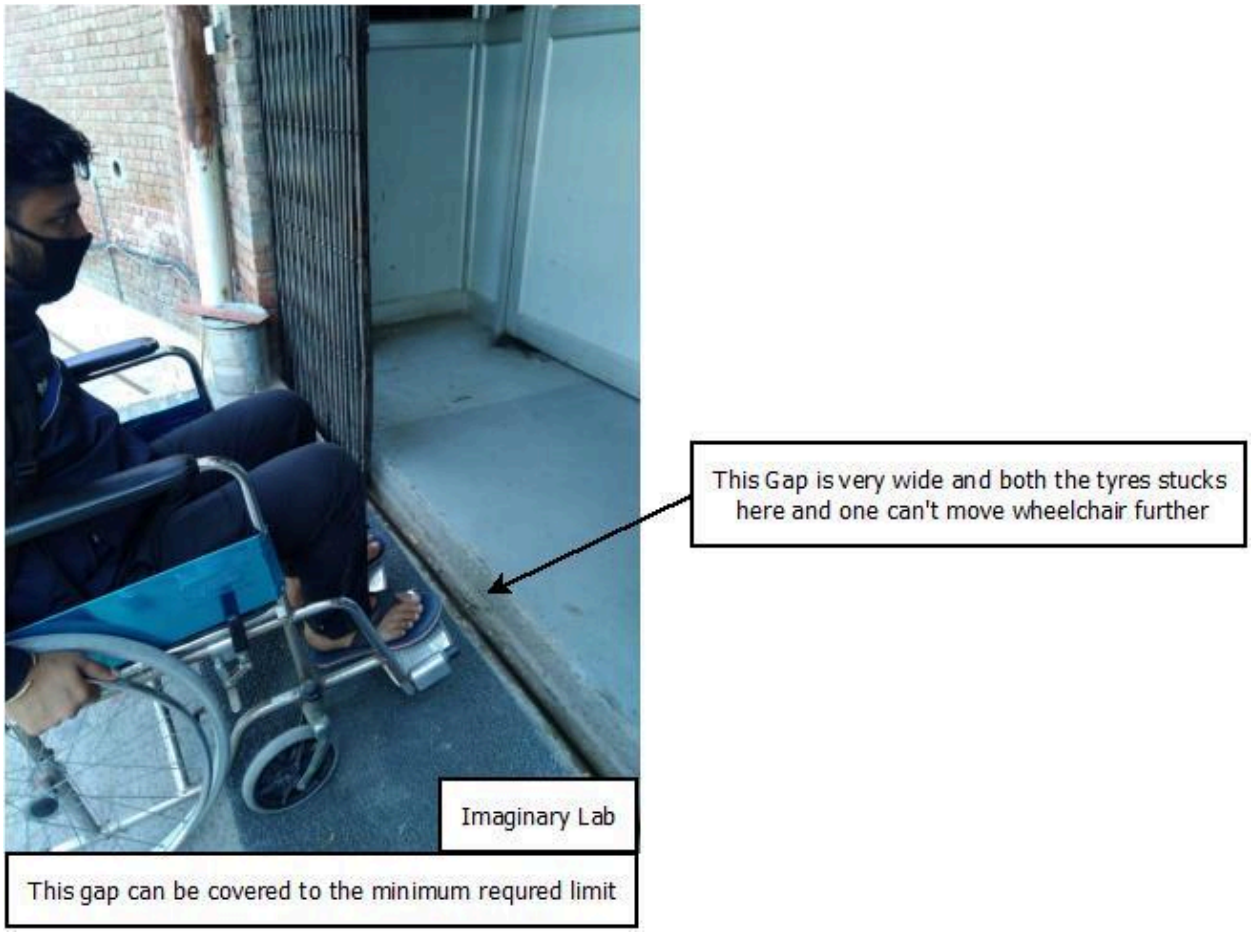
As it can be clearly observed from the photographs that the road is not in a good position to be accessed on a wheelchair.
During our survey the wheelchair was getting stuck after every second.

In picture 2 it can be observed that there is a significant high step on the pathway and due to which this path is inaccessible for a person in a wheelchair.

**Imaginary Lab**


This is the main entrance ramp from the main road to the imaginary lab and this ramp can be used by handicapped person on a wheelchair to get to the main gate of this laboratory.

Entrance Gate(Front side):




This is the main entrance gate of imaginary labs which is made of channel gate and due to this a wide gap is present as shown through the arrow in the above photograph.

This gap is more than the required gap for the channel gate and due to this reason the wheels get stuck here and the wheelchair cannot be moved further. This makes this gate inaccessible for a handicapped person.

Solution:
This gap should be covered to the minimum required size by the channel gate and this can be easily done as the back gate of the same lab has the same gate but that can be accessed due to much less gap at the bottom.

Back gate of Imaginary Lab

This gate has channel gate too but have minimum gap unlike the front gate and can be accessed easily

Imaginary Lab

This gap is not blocking the tyres of wheelchair and the lab can be accessed easily

Imaginary Lab

Inside labs are accessible in Imaginary labs

These are a few more pictures clicked during the survey of imaginary labs. The labs inside the imaginary labs are accessible and the back gate has a narrow gap and a wheelchair can get over that gap easily.

## Drawing Hall


Drawing hall can be reached on wheelchair comfortably


These washrooms are accessible to handicapped person


These water taps are accessible to handicapped person

1. Main drawing hall: This can be reached as there is a lift from ground floor to first floor and after that one can reach on a wheelchair as well.

2. Washroom: Washroom is in front of lift and washroom facility is accessible as it has wide doors and separate western toilet.

3. Drinking water: Taps are in the reach of mouth as well as hands and one can drink water even sitting on a wheelchair as well.

## IME Building

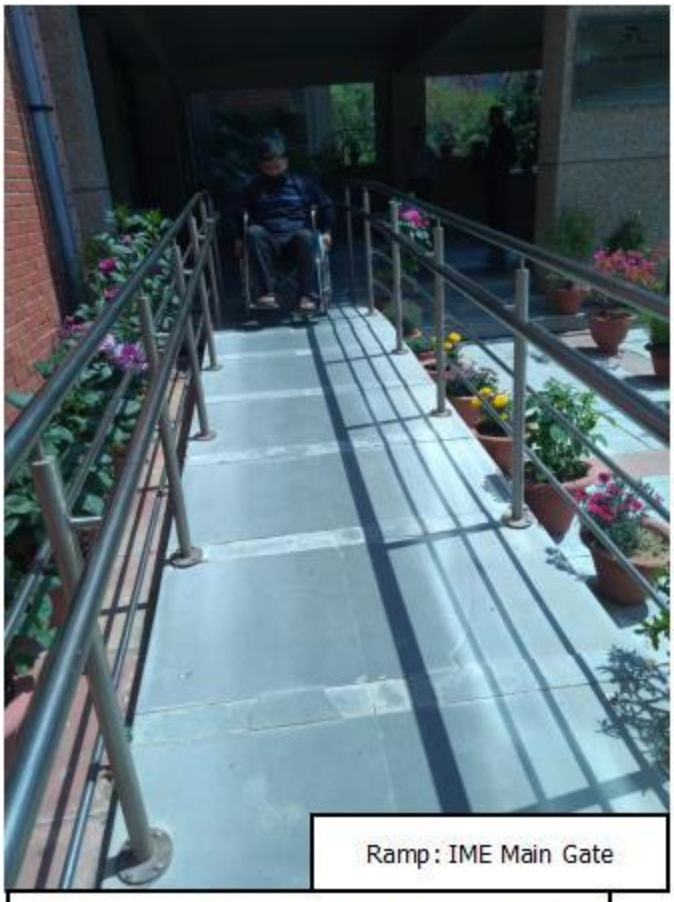
**Entrance near NCL:**


**Issue:**

This side of the pathway is connected to the main gate through a ramp and that ramp is accessible for wheelchair access to the main gate.
But to get to this pathway and to the ramp from this side is impossible for a person sitting in a wheelchair due to the stairs present in front of the pathway.

However it is possible to come from the other side (from drawing hall ground floor).

Ramp: Main Gate

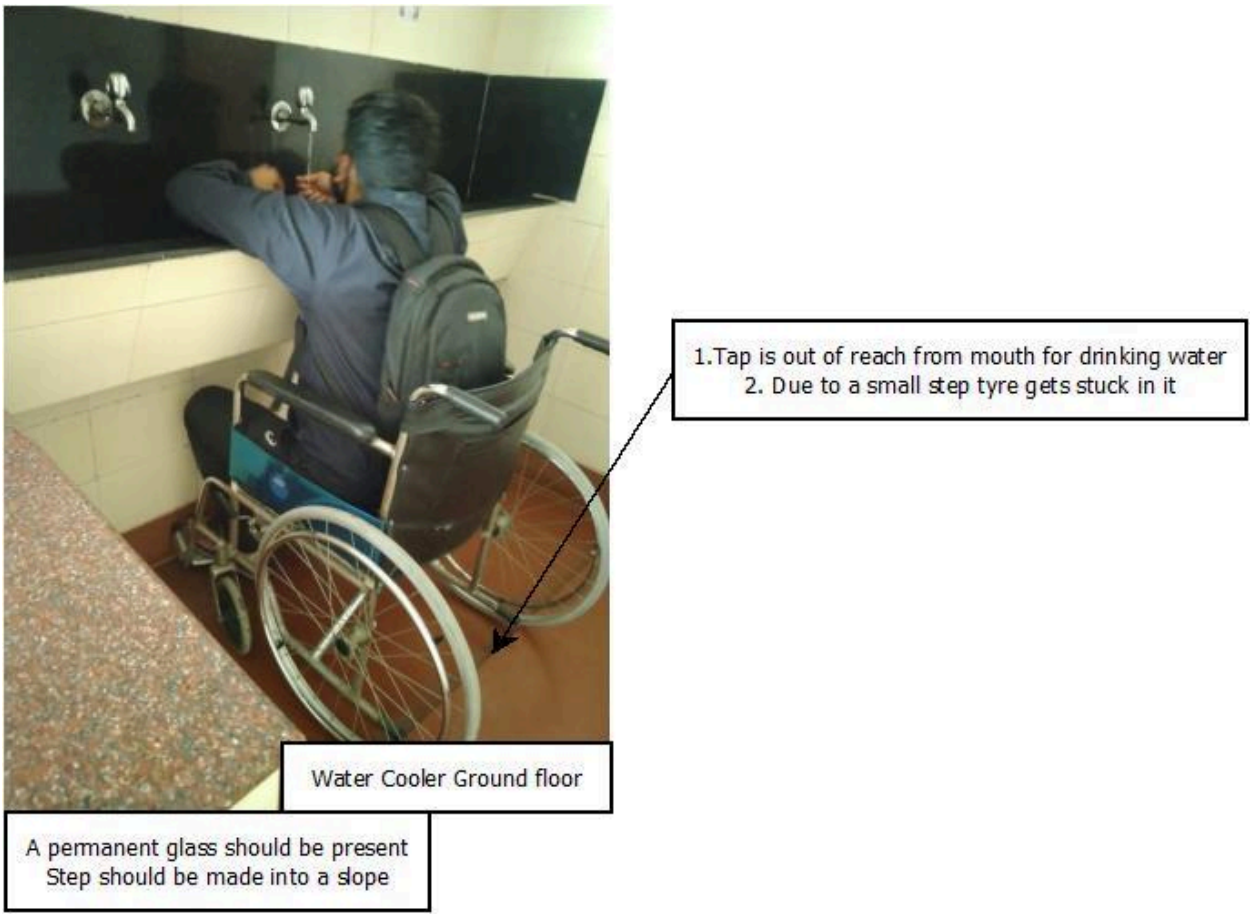


Ramp: IME Main Gate

Ramp is in good condition and can be easily used

This ramp is in good condition and this ramp is only on the ground floor of this building and to get to this ramp one has to come from the Drawing hall side on a wheelchair as the NCL side has stairs before the ramp which is shown in the above photograph.

Drinking water facility:




As shown in above picture this facility has two major issues with it which are as follows:

1. There is a small step present near the sink and in that step front wheels get stuck and the wheelchair cannot be moved further.

2. Mouth is out of reach from taps and no water bottles or glasses are present near the taps so a handicapped person can't use this facility comfortably.

Solution:

1. Small step should be converted to slope of appropriate steepness to make it accessible for wheelchair use.

2. Few glasses should always be present near this facility so that anyone can use it at any time.

Access to C4/ Tower2 of IME:


During the survey we tried to get to C4 which is in tower 2(other than the main building) and for that one way which we found is shown in the above photograph and it can be clearly observed that one has to take stairs to get to C4.

Then we tried to find a connection from the main building to C4 as the main building has a lift installed but we didn't find any connectivity between these two towers on which one can use a wheelchair to get to C4.

Solution**:**

A ramp is required for connectivity or a lift can be useful for tower2 as well. Whatever be the best solution needs to be implemented here.

Exit/Entrance from 1st floor:

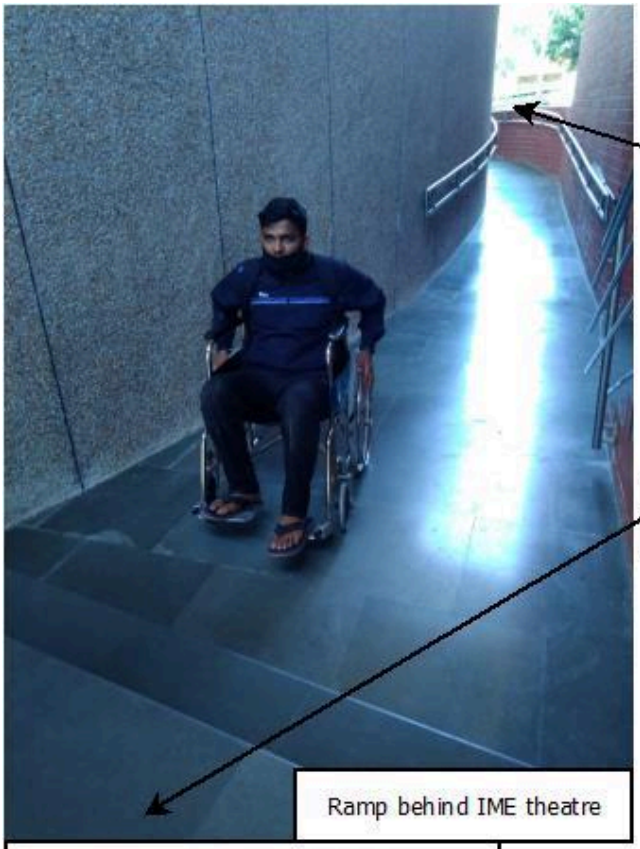

This is a photo from the IME building's first floor, this floor has two gates and both the gates have one stair after the glass door.
As mentioned earlier, the IME building has one ramp on the ground floor and no ramp is present on the first floor so it makes it difficult for handicapped persons on wheelchairs to access this door.

Solution:
This step should be made into a slope of appropriate steepness so that a person on a wheelchair can access these gates for entry/exit from the first floor.

Ramp from first floor gate-2:


This ramp starts after a few steps from gate-2 on the ground floor of IME building and the gate-2 has stairs(basically the starting point of this ramp) and this ramp ends in an empty area where no rooms/labs are present.
We didn't find this ramp to be useful during the survey.

The below shown curved ramp is also of no sue as it's starting and the ending points has stairs and this ramp doesn't go to any particular place which is used by anyone.

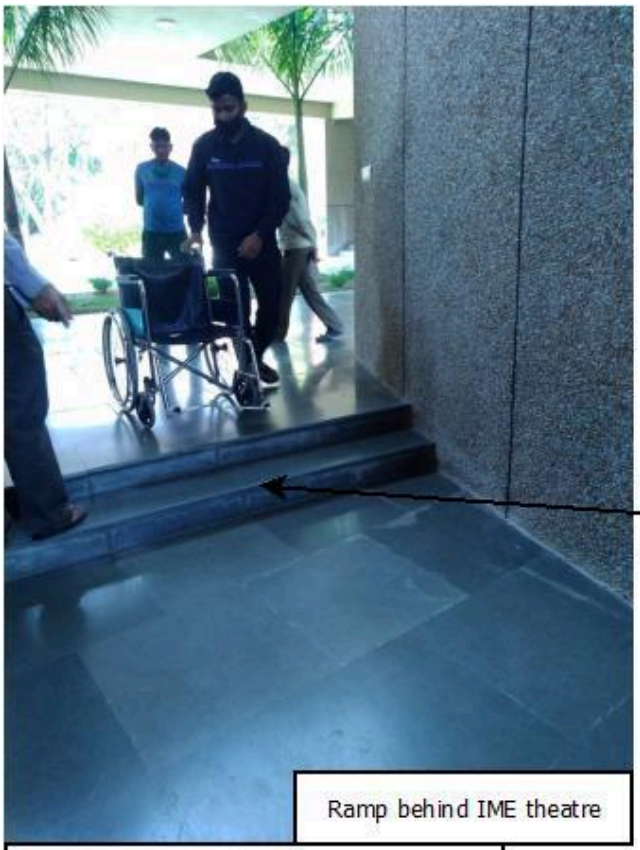


Two ramps are connected at the end followed by stairs from main building

way towards stairs near entrance from drawing hall

Ramp behind IME theatre

Ramp is in good condition but is of no use



Way towards ramp behind mini theater IME

Ramp behind IME theatre

Stairs at the starting point of ramp should be removed and slope should be made

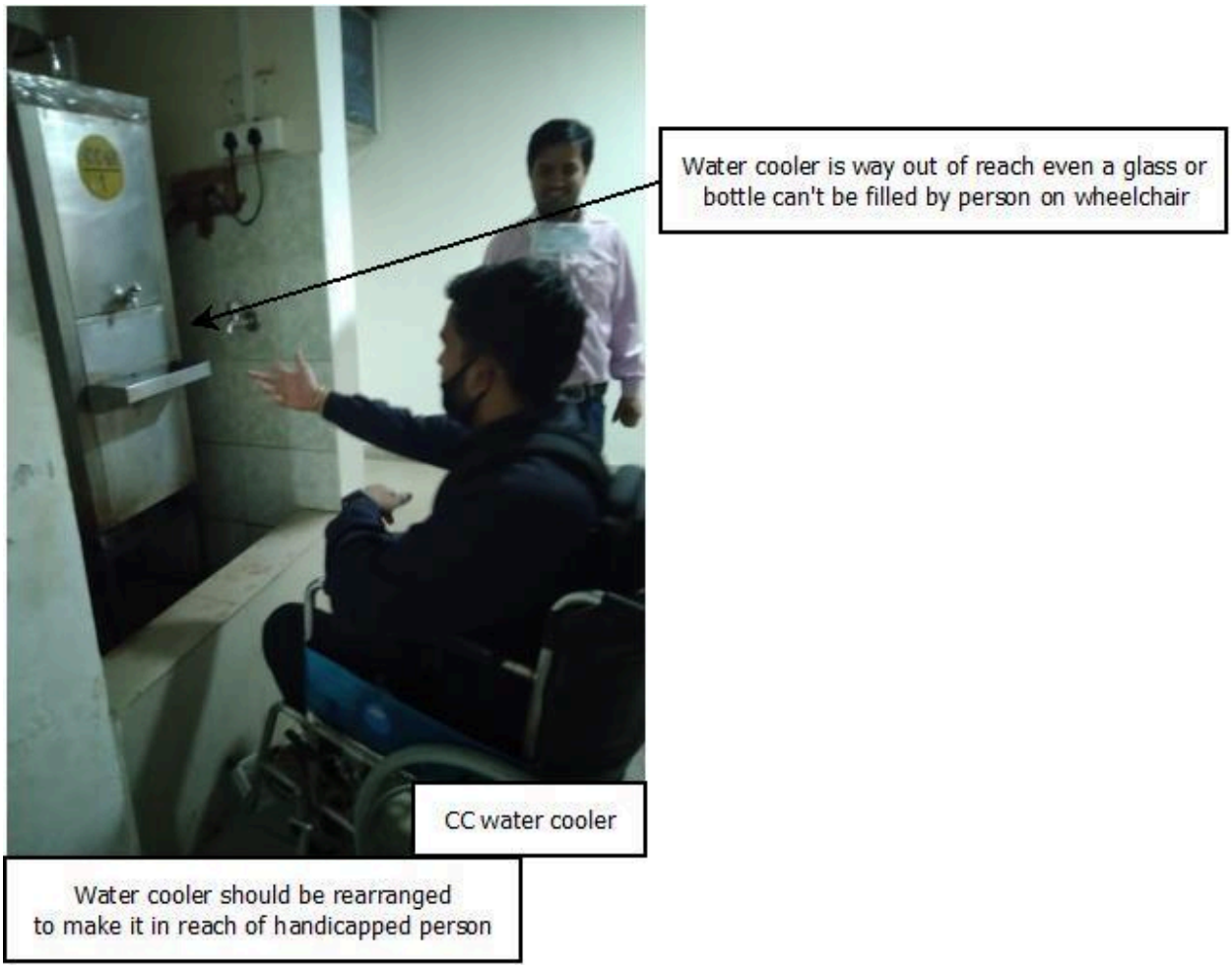
**Computer Center**

Main Entrance:


Issue**:** From the road outside CC only one way to get inside CC is through stairs and that can be seen in above picture that a person on wheelchair can't get to the main gate of computer center and this building is very important as ESC101 lab exam is conducted here, many placement tests are conducted here.

Solution**:**
A proper ramp should be constructed in such a way that it shouldn't block the way of cycles and pedestrians, and the purpose of handicapped person can also be satisfied.

Drinking water facility:




As it can be seen clearly that even hands are out of reach from the tap in computer center ground floor drinking water facility. So, one can't drink water even using glass(present near a water cooler).

Solution**:**
Water cooler should be rearranged to make it in the reach of handicapped person and glasses should be present all the times to drink water properly.

Washroom on ground floor:


Issue:
A small step is present at the washroom door and the door is also automatic and not wide enough to get inside the washroom sitting in a wheelchair.

Solution:
This small step should be converted into a slope so that tyre doesn't get stuck here and the automation of gate should be removed so that wheelchair can get inside.

**RM & KD building**

Entrance Ramp:


Issue**:**
At the starting point of this ramp a small step is there which is due to the poor maintenance of this ramp. Due to this step wheels get stuck and the wheelchair can not be moved further.
Secondly, No hand railing is present which is required for safety purposes on every ramp.

Solution**:**
Step should be made in level with the ramp and ground for smoothness in movement and on one side a hand railing should be installed.

Entrance Gate:


Issue:
As indicated by the arrow in the above picture that the doormat is completely toned and due to this doormat a small step has occurred and in this step front wheels get stuck due to which the wheelchair's motion gets hindered and makes it inaccessible for handicapped persons.

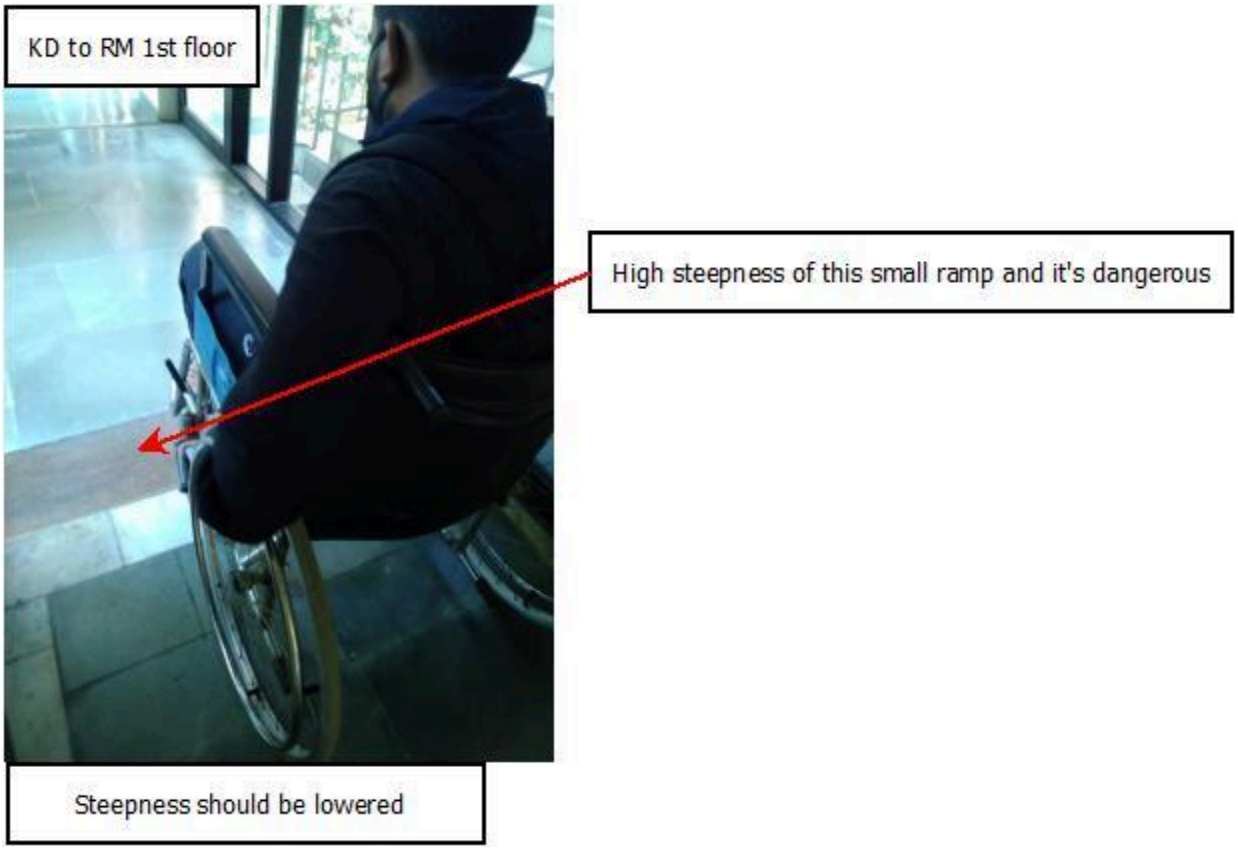
Solution:
Doormat should be replaced from time to time and should be properly maintained.

Water cooler/Washroom in KD:


Mouth is out of reach from taps and no water bottles or glasses are present near the taps so a handicapped person can't use this facility comfortably.
Few glasses should always be present near this facility so that anyone can use it at any time.

Door here is much narrow that even a mechanical chair couldn’t get inside and the door is also automated which makes it impossible to enter inside on a wheelchair.

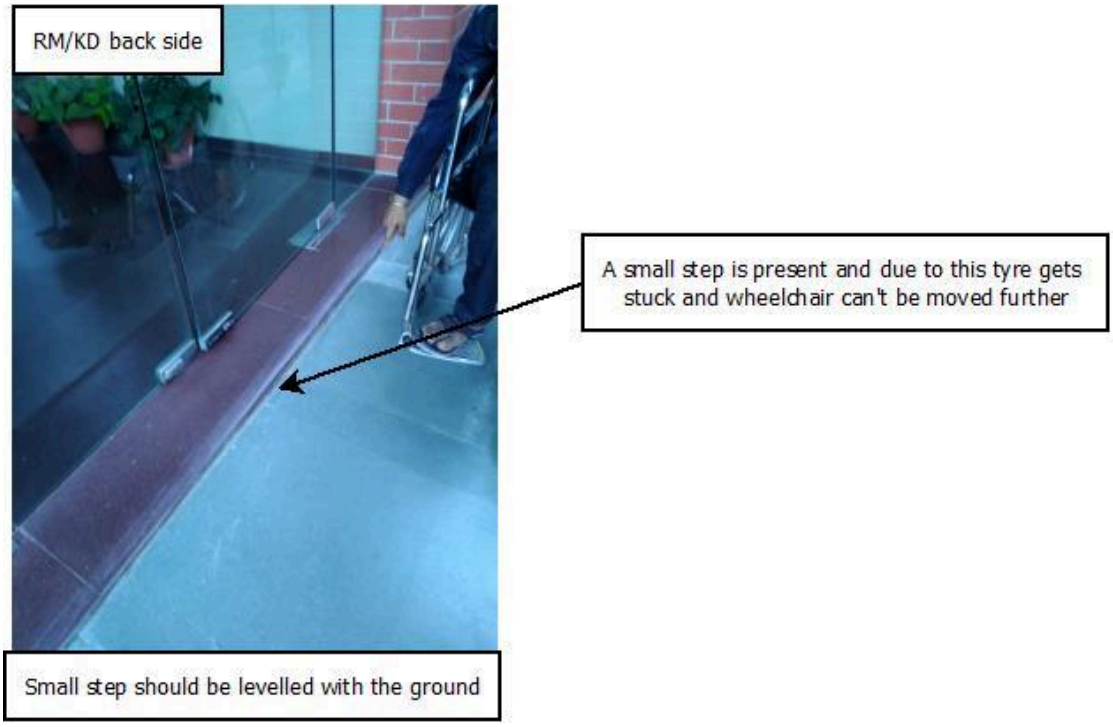
Way to RM from KD 1st floor:




Issue:
As shown by the arrow in the above picture the wooden ramp connecting the two levels is very steep and when I tried to get over this it was highly risky at that time and I feel it can be very dangerous for handicapped person to take a wheelchair over this slope.

Solution:
This ramp should be replaced by a ramp with much lower slope than this and should be checked before installing so that handicapped person doesn’t face difficulty and risk should not be there in passing over it.

Small steps at the backside of RM/KD:


Issue**:** In both the pictures above a small step is present and due to which the wheel gets stuck and the wheelchair can't be moved without help.
Solution**:** Steps should be levelled with the ground by making them into slope and proper maintenance should be priority.

RM101:


Issue:

1. This ramp in RM101 is a little steep for a mechanical wheelchair and it can be felt while moving upwards.
2. Stage is not connected to any kind of slope/ramp and makes it inaccessible for handicapped people.

Solution:

1. If a ramp can be made with lower steepness then it will be more comfortable for handicapped person.
2. Stage should be connected through a ramp so that even if faculty or someone wants to use it they can use it on a wheelchair as well.

Drinking water facility in RM:


Issue:
In RM building sink and tap are at perfect height and which is not an issue but to get to the tap it has a step before it in which the wheel gets stuck and the wheelchair cannot be moved further.

Solution**:**
This step should be converted into a small slope in which a wheelchair can be moved easily.

**TA-202 Lab**

Entrance ramp:


This ramp is in good condition and can be used by person on wheelchair(wrongly mentioned in photo as TA201)

In the below shown pictures the major issue is that handicapped persons cannot access the workstation in TA202. The drilling machine and work table have reach issue and height issues respectively (explained in photos as well) for that we can modify the wheelchair and that modified wheelchair can be used by handicapped students.

In modified wheelchair few things were noted during discussion in this lab:

1. Lead screw or scissors mechanism can be used to adjust the height of a wheelchair(first priority) using a hydraulic machine.

2. A certain amount of circular rotation is also required(second priority). Handles should be adjustable so that one can rotate on its own and a wheelchair can be used easily. And chairs can enter more inside corners.

Limited reach is the issue

TA201 Lab

Modified wheelchair can be useful

Standing height is the required height for comfortable working

Sitting height is much lower than required height

TA201 Lab

Modified wheelchair is required

## Other observations during survey

DOAA Canteen

Stairs makes it inaccessible to get to the Counter

In DOAA canteen one needs to take stairs to reach the token counter and this makes the canteen of no use for handicapped people.
A ramp should be made so that one can get to the token counter to buy some snacks.

ESC201 Labs

Accessible lab inside Old core lab ground floor

way to Old core labs

This Ramp is good to use

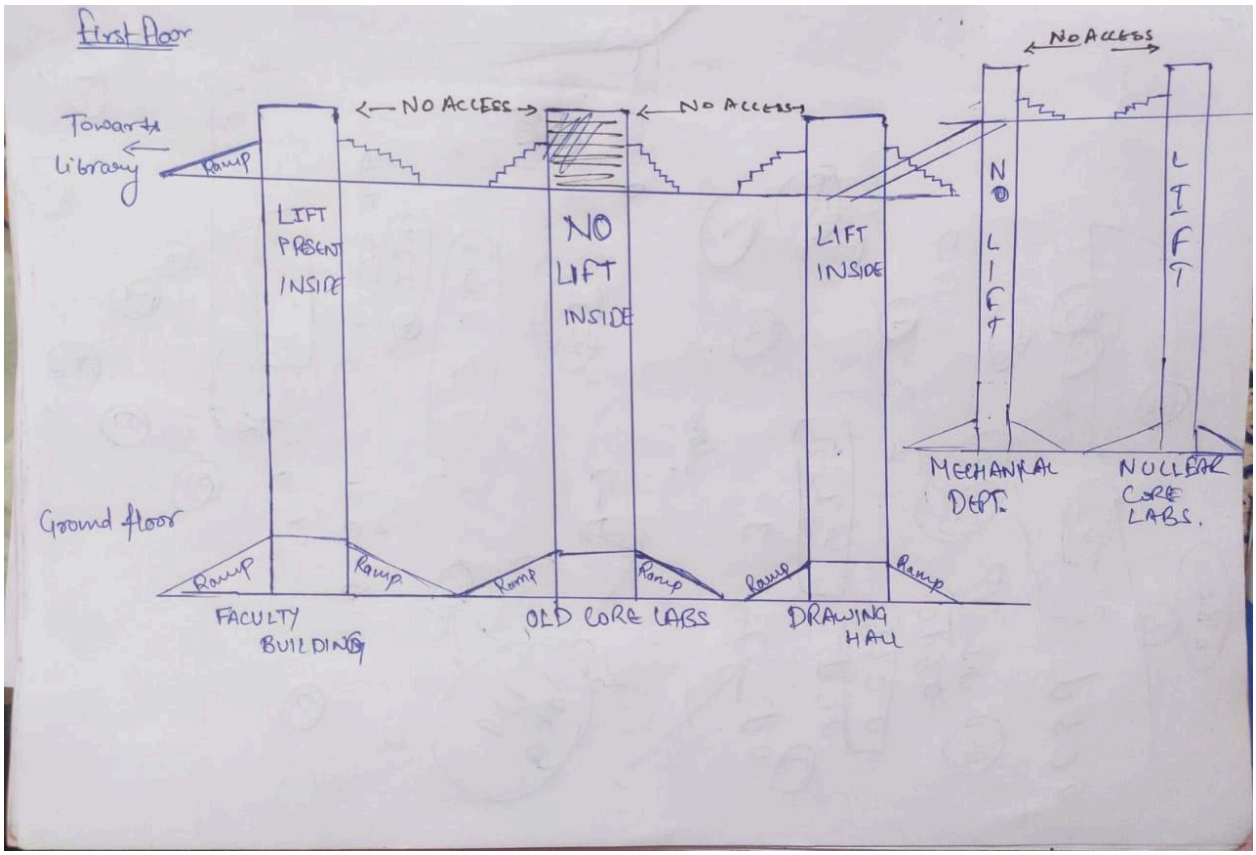
Southern Labs 1st Floor:


To get to the first floor of Southern labs the most suitable way is through the library skywalk for a handicapped person. But there's no ramp constructed to get to the first floor of this building.

A ramp should be constructed from the skywalk to the first floor of the southern labs for accessibility of this building to handicapped people as well.

## Connectivity of Skywalk from FB-IME/ME-CNL

**Sketch of skywalk connectivity:**

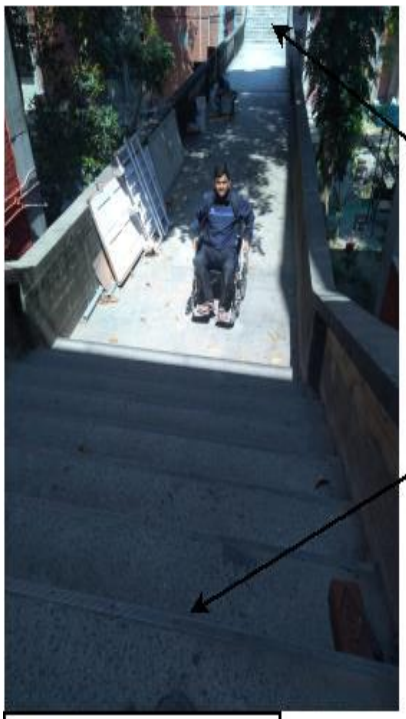



In the above sketch I have tried to show how the first floors of certain buildings are not connected through skywalk as they lack in ramps at certain places however they are connected from ground floor but again they don't have lift inside buildings so a handicapped person will face difficulty in reaching to these places which are listed below:

1. Old Core Labs (1st floor & above)
2. Mechanical department(1st floor & above)

Also they are not connected from the first floor via ramps so even if one try to move from one building to other via skywalk he/she won't be able to do so using wheelchair.

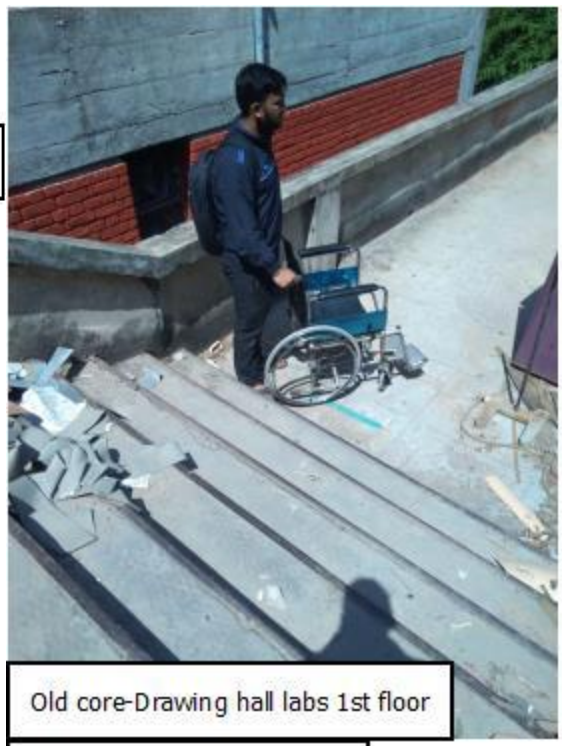
During our survey we clicked photographs of these places where we found difficulty and these pictures are shown below.



Nuclear Core Labs 1st floor

Mechanical Dept first floor

Both the sides have stairs and these floors aren't connected

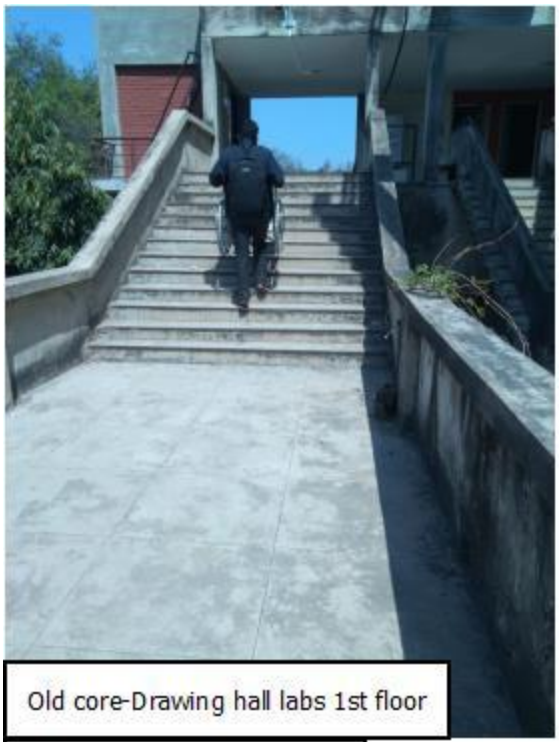


Old core-Drawing hall labs 1st floor

Stairs makes it inaccessible

FB-Old core labs 1st floor

Stairs makes it inaccessible



Old core-Drawing hall labs 1st floor

Stairs makes it inaccessible

## Other findings

### Standard Door Sizes - India

The **standard interior door size** in India is *800 x 2045 mm* and the **standard exterior door size** is *1000 x 2045 mm*.

**Other Door Sizes Include:**

| Inches | Metric | Imperial |
|---|---|---|
| 26" x 80" | 650 x 2045 mm | 2' 1" x 6' 8" |
| **31" x 80"** | **800 x 2045 mm** | **2' 7" x 6' 8"** |
| 35" x 80" | 900 x 2045 mm | 2' 11" x 6' 8" |
| **39" x 80"** | **1000 x 2045 mm** | **3' 3" x 6' 8"** |

This above data is taken from some commercial website. Other data can be found here on page no 19 of the document.

**Standard wheelchair size:** This data is taken for standard wheelchair on amazon.

## Things which can help handicapped persons

Spare Electric Wheelchairs:

IIT Kanpur has a huge campus and from hostel to lecture halls it is not favorable to handicapped students to use a mechanical wheelchair. As per discussion with some students, currently in the starting days they don't have an electric wheelchair but after a few months they get it with the help of CDAP. In the meantime they take help from other students to reach to LHCs but it can be the case when there is nobody to help to avoid such scenario CDAP should have at least couple of electric wheelchairs for newly admitted students or sometimes wheelchair need maintenance and at that time also these spare chairs will help students.

Wheelchair Gloves

If you use a manual wheelchair, you must have a set of wheelchair gloves. These gloves give you a better grip over your wheelchair pushing rims. It becomes necessary when you have to wheel over a long distance or on a bumpy street because sweaty hands make propelling a wheelchair very difficult.

These gloves can be purchased from here.

Grabber/Reacher:

This small tool can bring a lot of independence in your life. This stick-like-tool with a claw helps you reach out to the things on your own. You can use this tool to pick up things from the floor or from a shelf that's out of your reach. **Examples: Library bookshelf (page no. 28) and Lecture hall-7 greenboards (page no. 37)**