Considerations for Building and Modifying Latrines for Access

Planning a pit latrine

Before the decision to build a latrine is made, there are many things to consider.

1. Type of latrine
2. Where to build your latrine
3. Digging and lining the pit
4. The covering slab (sanitation platform)
5. Size of squat hole
6. Covering the squat hole
7. Including a handwashing station

Get some expert advice if you can. Consult resource partners with experience.

1. The type of latrine

We will look at four types of hygienic latrines…

1.1. a ventilated improved pit latrine (VIP)
1.2. a sealed-lid pit latrine
1.3. an arbor-loo latrine
1.4 a pour-flush latrine – suitable where people use water or for cleaning themselves

1.1. VIP latrines

VIP latrines must have a vertical pipe, ideally at least 150mm diameter, or brick chimney connected to the pit. The top of the pipe should be covered with mesh to stop flies using the vent to enter or leave the pit. To prevent the mesh from deteriorating due to the sunlight or corrosive gases from the latrine it should be of glass fibers or stainless steel and not plastic or normal steel mesh. The holes should be about 1.2–1.5mm square.

Wind blowing across the top of the vent pipe sucks air out of the pit while fresh air flows into the pit through the squat hole. This flow of air is helped if the door faces the direction from which the wind normally blows.

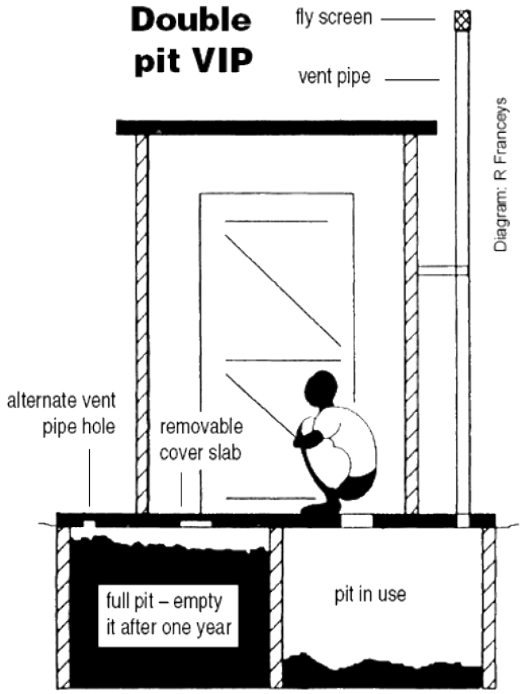
The VIP shelter needs to be fairly dark to discourage any flies that enter the pit from leaving it through the squat hole, carrying disease-causing organisms with them. This works on

the principle that flies are attracted to light. To a fly in the pit, the squat hole will not be brightly illuminated so it will try to leave by going up the vent towards the sunlight shining down into the pit. The mesh will stop it escaping and it will eventually die.

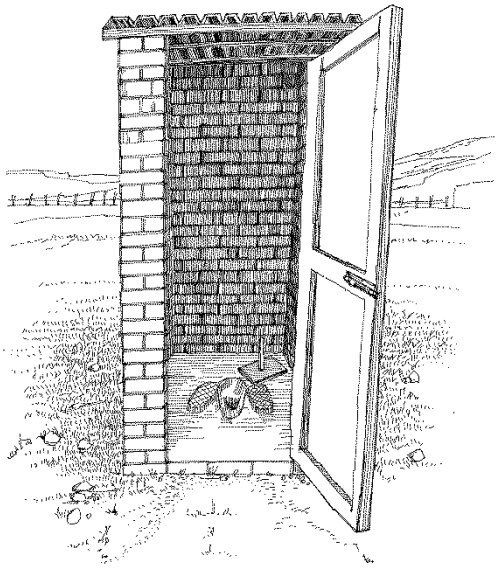
One or two pits?

You can dig a single pit about 3m deep (or deeper if you want it to last longer). If you cannot dig so deeply, then you can dig two shallower pits. With a pour-flush latrine these pits can be outside the shelter, connected to it by pipework. With the sealed-lid latrine or the VIP latrine the shelter has to be partly over both pits.

Digging two pits means that first one pit is used until it is nearly full. Then it is sealed while the second pit is used. After at least a year the material in the first pit can be safely emptied and used to improve the soil in a garden. The emptied pit is then ready for use again.

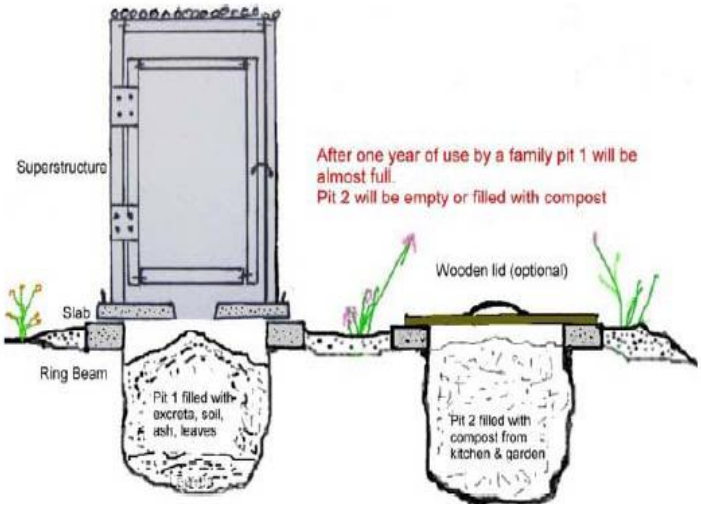


1.2. Simple pit latrines



Advantages:
Can be constructed from available local materials with household or community labor

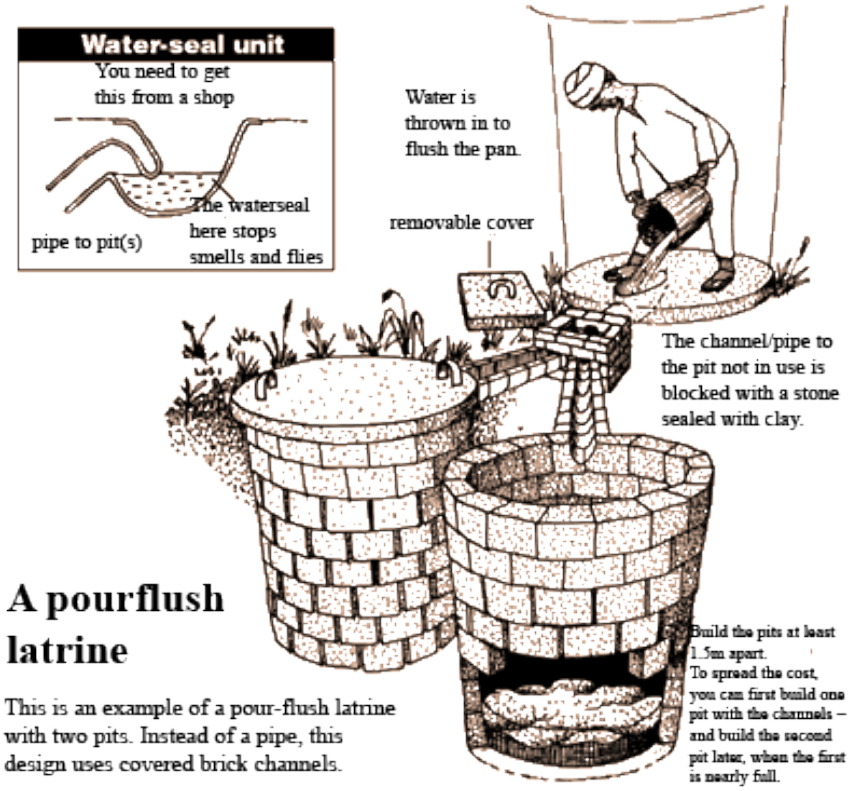
1.3. Arbor-loo



• Can use in conditions that prohibit deep pits, e.g., hard to excavate rock, collapsible sand or high water tables
• Small pits are inexpensive
• Slab to be movable
• Framed superstructure with reed walls can be moved
• Trees can be planted in pit after 1 year of pit closure

Alternating Pits
• After 1-2 years, old pit is emptied, waste used for gardens

Pour flush latrines



2. Where to build your latrine

It is convenient to build your latrine near to the home but it must be at least 6m away from a kitchen or homestead, and at least 15m from a well or a spring source or it may pollute the water.

This can be challenging in urban areas, but is usually quite feasible in rural areas. For urban sanitation solutions, consult WSSUP or the Water and Sanitation Program/World Bank.

3. Digging and lining the pit

At least 0.5m depth of lining is recommended at the top of a pit in all types of soil. This supports the squatting slab and may also support part of the shelter. For the rest of the pit the need for lining will vary depending on the soil strength…

Hard firm soil – may not need lining below the top 0.5m

Rocky ground – You can build some of the pit above ground surrounded with a mound of earth and steps leading up to the latrine.

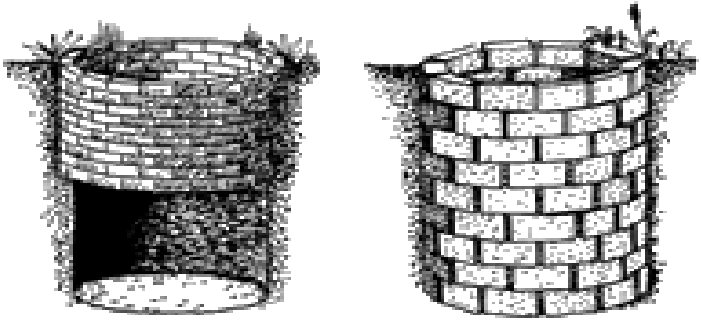
Soft loose soil – You will need to line the pit to prevent the sides from falling in.

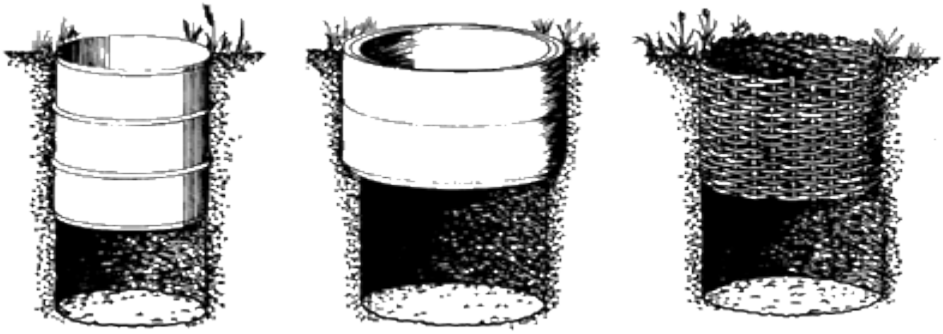
The lower part of a lining should have small holes so that liquid can seep through the holes and out of the pit. Circular pits are stronger than other shapes.

If you have firm soil and do not need to line the whole pit, first dig only to the depth of the lining and then build up the lining wall. When the lining wall has hardened you can continue to dig a slightly smaller pit inside the wall. A guide frame and a plumb bob (e.g., a stone on a piece of string) are useful aids for obtaining the right size of hole with vertical walls.

An octagon (8 sides) is a good guide for a round hole.

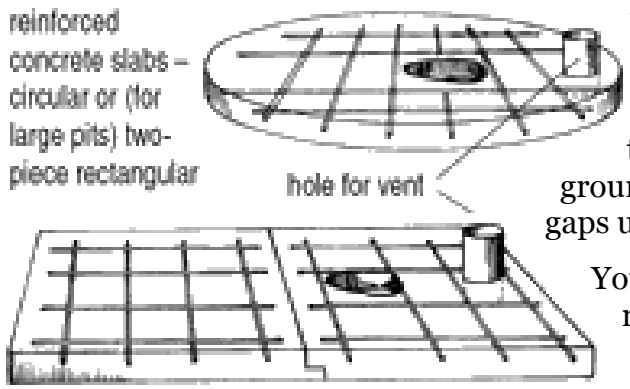
Beside and below are examples of how to line the pit with locally available materials – a reed basket, locally made bricks, an oil drum or steel container, a cement irrigation round, locally woven basket:





4. The covering slab

For sealed-lid and VIP latrines, the best material for the squat slab is concrete, since this is strong, rot-proof and easily cleaned. Flat slabs will need to be at least 80mm thick with 6mm diameter bars every 150mm in both directions. (See page 15 for thinner kinds of slabs.)



The size of the slab can be the same size as the outer lining if this is built of brick. If the lining is made from an oil drum or basketwork it needs to be slightly larger so that at least 200mm of the slab rests on the ground all round the pit. There should not be any gaps under the slab to let flies or smells leave the pit.

You can also build a floor out of traditional materials like wood covered with mud – but add a sanplat so that the area around the squat hole can be washed clean.

Dome slab (non-reinforced)

Advantages
- Inexpensive
- Easy to clean
- Long lasting
- Reusable
- Easily rolled to new location

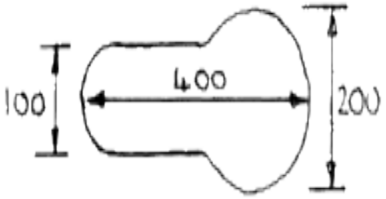
Disadvantages
- Requires skilled labor
- Fragile to transport; should be made on site

If concrete is not available, local materials such as logs and mud or locally produced bricks can be used, but it is essential that the slab is cleanable and completely sealed so that flies and smells do not pass.

Pour-flush pans can be placed directly above a pit in which case the floor needs to be strong. If two pits are used the pan and shelter floor do not need to be directly over the pits and can be unreinforced. Concrete slabs will still be needed to cover the pits.

5. Size of squat hole

The hole should not be too large, or small children can fall into the pit. A keyhole shape 100mm wide and 400mm long with a 200mm diameter circular hole at one end is a good size.



Raised foot pads to either side of the squat hole help keep feet and shoes hygienic and clean. If pouring a cement sanitation platform, these footpads should be built into the design. If making a more "do it yourself" latrine and platform, flat rocks can serves as adequate footpads. Be sure to anchor them firmly in the dirt floor.

6. Squat hole cover

A squat hole cover should only be used with the sealed-lid type of latrine (it would stop proper ventilation of a VIP latrine). This cover (lid) needs to be tightly fitting to control smells and flies.

When a concrete cover with a handle is not available, local clay pot lids with a strong rope to lift, and other "do it yourself" covers are acceptable.

"Inclusive latrines" for the elderly, people with disabilities or limited mobility

Access to latrines can be greatly enhanced by simple "do it yourself" adaptations to the latrine. Below are some options:

- Clear the path to the latrine of stones and objects that might create an obstacle.
- Provide a cane or walking stick to ease the journey. Alternatively, run a guide rope if possible.
- Enlarge the door to the latrine to allow for a companion to enter the latrine and assist.
- Add a pole, handle or rope for the user to hold onto for balance and ease of squatting.
- Construct a raised seat or commode. (construction visual aid available)

Square Slab with Raised Seat
(for the elderly or those with mobility challenges)

Materials
• Cement (as above for slabs) , Pre-cast raised seat

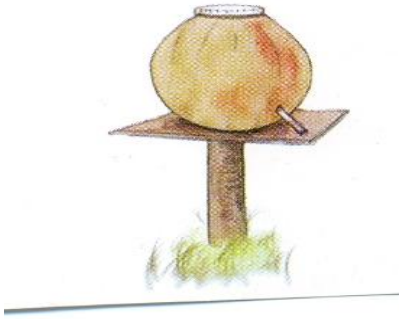
Advantages
• Easy to clean (seat interior will require cleaning also)
• Long lasting
• Reusable
• Comfort and accessibility for elderly and handicapped

Disadvantages
• Requires skilled labor
• Needs to be made near site
• Drop hole size may need to be adjusted to be flush with bottom of raised seat

7. Include a handwashing station, with soap or ash

A fixed handwashing station facilitates handwashing and serves as a reminder to wash when leaving the latrine.

The tippy tap handwashing station (pictured right and below) overcomes major barriers to handwashing: they provide running water for proper rinsing and allow for a thorough wash with about one fourth of the water quantity of other handwashing methods.



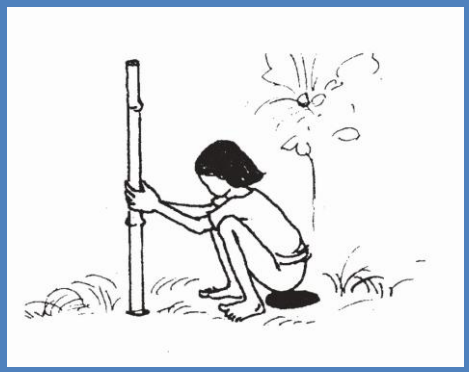
Keep the latrine clean!

Wash the latrine slab regularly with a brush and soapy water. (Rinsing water left from washing clothes is ideal.) Make sure that hands are washed each time the latrine is used.

Take pride in your latrine. The benefits to your family's health are enormous! Encourage all your neighbors to follow your example.

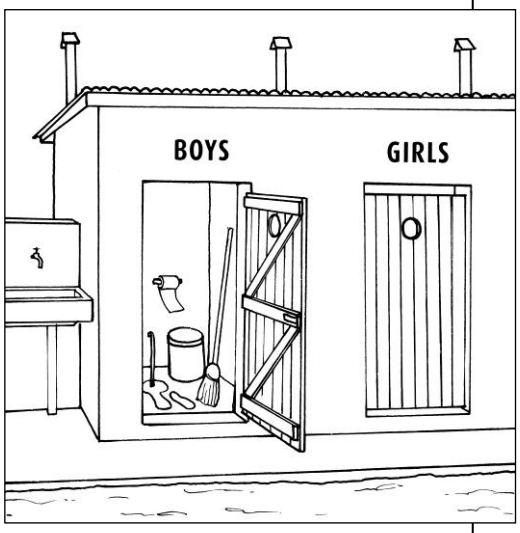
Children's latrines

Young children are often afraid to use a latrine, or find it difficult to manage. An alternative idea for very young children is to dig a shallow pit (0.5m deep) with a small slab with a cover (just like the sealed-lid latrine but smaller). No shelter is needed. Encourage children to use this and always to replace the lid. If you find that this shallow latrine becomes smelly, you may find that adding some ashes will help. Move the slab to a new hole when the bottom 200mm is used and fill the used hole with soil.



Checklist of Minimum Standards for School or OVC Child Center Sanitation & Hygiene Facilities

- ☐ Separate latrines for boys and girls
- ☐ "Child friendly" facilities with smaller pit sizes and no fear of falling in
- ☐ Latrines for male and female teachers
- ☐ 1 latrine per 25 girls and 1 for female staff
- ☐ 1 latrine + 1 urinal per 50 boys and 1 for male staff
- ☐ Handwashing stations next to latrines



Latrines should have:

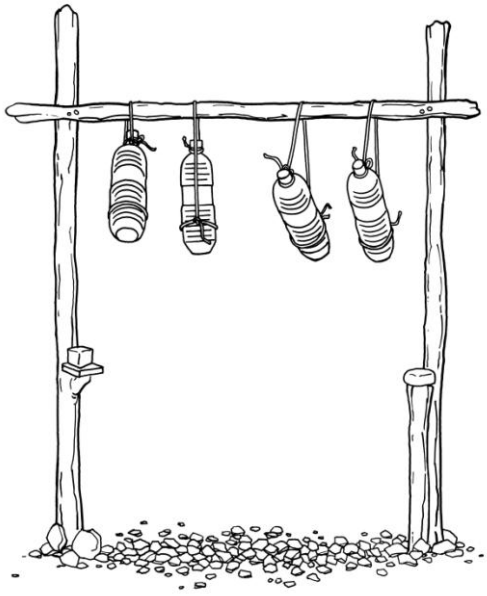
- ☐ Walls and roof
- ☐ Ventilation
- ☐ Doors that lock from the inside, not the outside
- ☐ Washable slabs
- ☐ Anal cleansing material (paper, leaves, water)
- ☐ Waste basket for used wiping material
- ☐ A place to wash hands after use
- ☐ Cleaning items such as broom, scrub brush etc

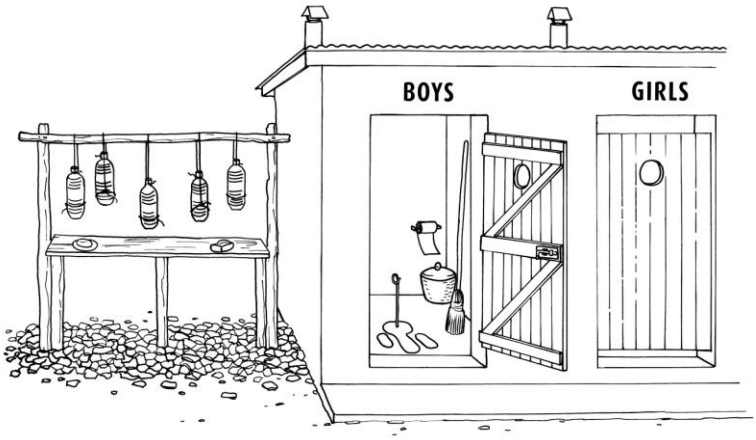
Handwashing stations should have (at least)

- ☐ Basin
- ☐ Source of running water for rinsing (tap, jug)
- ☐ Soap, ash, clean sand or mud
- ☐ Soak pit to avoid standing water

See: *Water, Sanitation and Hygiene Standards for Schools in Low-cost Settings (WHO, UNICEF 2009)*

School or OVC Child Center Tippy Tap Designs





WASHplus, a five-year project funded through USAID's Bureau for Global Health, creates supportive environments for healthy households and communities by delivering high-impact interventions in water, sanitation, hygiene (WASH) and indoor air quality (IAQ). WASHplus uses proven, at-scale interventions to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit **www.washplus.org** or email: **contact@washplus.org.**

C-Change is a USAID-funded project, implemented by FHI 360, to improve the effectiveness and sustainability of social and behavior change communication (SBCC) across development areas, including family planning and reproductive health, HIV prevention, malaria prevention, other health areas, civil society, and democracy and governance. C-Change works with regional and local partners to strengthen their capacity to implement effective SBCC programs. For information, visitwww.c-changeproject.org.

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C-CHANGE
COMMUNICATION FOR CHANGE
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SOCIAL AND BEHAVIOR CHANGE COMMUNICATION

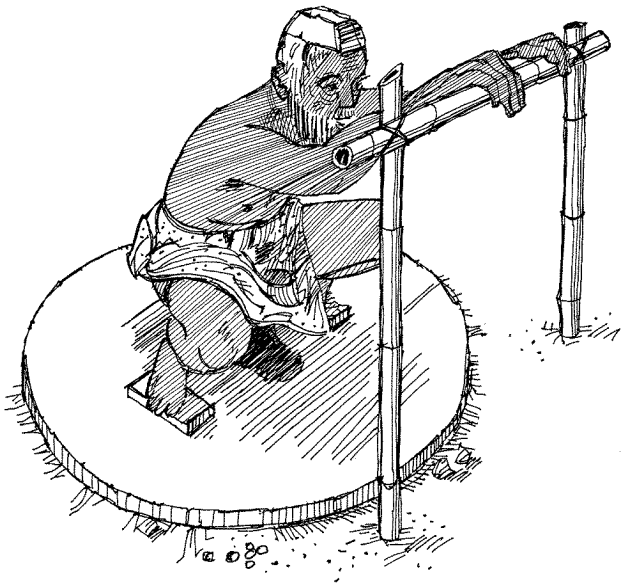
washplus
Supportive Environments for Healthy Communities

Simple Latrine Modifications

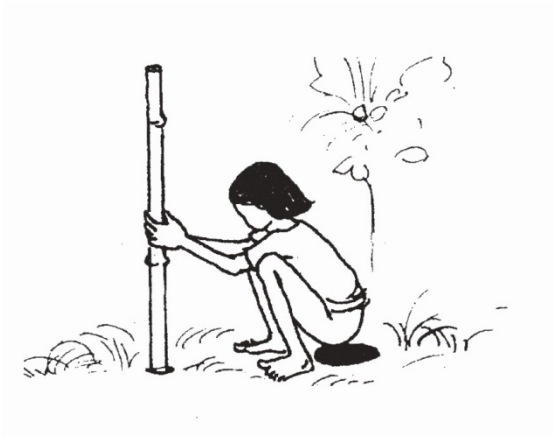
to Facilitate Latrine Use and Improved Sanitation for the Elderly, Mobility Challenged, & Disabled

The following examples can serve as designs and inspiration to use local materials to build latrine supports that help the weak to squat and stand, enabling them to more easily use a latrine.

Most images were provided by WEDC from their publication Water and Sanitation for Disabled People and Other Vulnerable Groups – Designing Services to Improve Accessibility, WEDC, Loughborough University, UK. ISBN Paperback 1 843800799. The full document can be downloaded from http://www.lboro.ac.uk/wedc/publications/



Simple Rails and Poles



Raised Seats

Rope Supports