No W.11042/63/20142-NBA

Government of India
Ministry of Drinking Water and Sanitation
NBA Division

12th Floor, Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi – 110003
Date: 4th September, 2014

To,
The Principal Secretary / Secretary,
In charge Rural Sanitation, All States/UTs

Subject: Draft guidelines on "Technical Options for Persons with Disability (PwD) friendly Household Toilets under Swachh Bharat.

Sir/Madam,

As you are aware under Swachh Bharat Abhiyan target has been set up for "Swachh Bharat" by the year 2019. Providing toilet facilities to all is the basic aim of "Swachh Bharat". To achieve this target, this Ministry in collaboration with Water Aid in India, Water Engineering and Development Centre (WECD) has developed a set of Household Toilet design option which are PwD inclusive. These toilet designs have been piloted on the ground with feedback from rural water supply and sanitation engineers, persons with disabilities as well as Disabled peoples' organizations (DPOs).

2. A copy of the draft document on "Technical Options for Persons with Disability (PwD) friendly Household Toilets is enclosed. Comments on the draft document may kindly be sent to this Ministry by 12th September, 2014 positively. Comments may be sent by e-mail / FAX given below:
Sujoy.m@nic.in / nandkishore.joshi@nic.in
FAX – 011 24361062 / 011 24364869

Yours faithfully,

(Sujoy Mojumdar)
Director (Sanitation)

Encl; As above

Copy to :
State Coordinator, NBA, All States/UTs
PPS to Secretary, DWS / PPS to JS (Sanitation)/Tech. Dir (NIC) – for placing on it Ministry's website
Copy also to: Shri Siddhartha Das, Manager Policy, Water Aid, 403, 4th floor, CNIBhawan, 16 Pandit Pant Marg, New Delhi-110001

PERSONS WITH DISABILITY-FRIENDLY TOILET DESIGNS

PRACTICALSOLUTIONSinWaterAidIndia

PERSONS WITH DISABILITY-FRIENDLYTOILET DESIGNs

WaterAidIndia – AdditionalLiasion Office-ALOE,

UNCRPDDESCRIBES

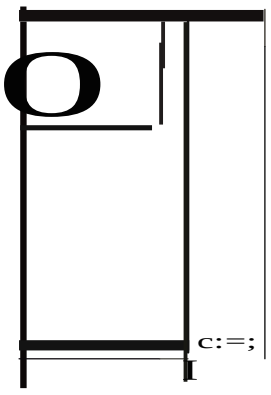
“Reasonable accommodation” meansnecessaryandappropriate modifications andadjustmentsnotimposing a disproportionate or undue burden, where needed in a particular case, to ensure to personswith disabilitiesthe enjoymentor exercise on an equalbasis with othersofallhuman rightsandfundamental freedoms;

“Universaldesign” meansthe design ofproducts, environments, programsand servicesto be usable byallpeople, to the greatestextentpossible, withoutthe needfor adaptation or specializeddesign. “Universaldesign” shallnotexclude assistive devicesfor particular groupsofpersonswith disabilitieswhere this is needed.

We acknowledge the supportofUKAidfor demonstration andlearning from field through IPAP project.

QWaterAid

PERSONSwithDISABILITY FRIENDLYWASHInfrastructureDESIGNs



DisabilityInclusion

Disabilityinvolveslong term impairment. Physical,Sensory, MentalandIntellectualare the four differenttypesofimpairmentsthat Personswith Disability have to endure, besidesfunctionalimpairmentslike Physical,Visual, Hearing &Speech andMental& Intellectualimpairments. Allthese impairmentsshouldbe taken into accountto support their inclusion. DisabilityInclusion isnotjustaboutinvolvementor integration, butabout upholding rights byrecognizing specificneedsandthe barriers- physical, social, institutional- to inclusion and taking active andappropriate stepsto addressthese issues.It isextremelyimportantto addressthe needsandrightsofpersonswith disabilitiesin mainstream developmentplanning andempowering them to participate in communitylife andhave greater independence andenhancing their self-determination.
Personswith disabilityneedto be empoweredin relatedaction andaccessandparticipate in the requiredplacesandpositionsofthe decision making process.Thiscan be done through specificandexclusive training andskillbuilding, provision of assistive devices, rehabilitation andother relevantmeasures. One such importantmeasure isprovision of the accessibilityfeaturesto the newly constructedinfrastructuresandthe necessary modificationsso asto make the infrastructuresinclusive on the accessfront.

Socialdiscrimination andobstaclesin the environmentare bigger problemsfor people with disabilitiesthan the impairmentitself. People with disabilitiesoften have limited accessto water, sanitation andhygiene (WASH) servicesin normal aswell asemergency situations. Allthose responsible for the environment, including those working to provide WASH services, have a keyrole in reducing attitudinal, institutionalandenvironmental barriers.Thisrelatescloselyto articlesnine and19 ofthe Convention on the Rightsof People with Disabilities.

Often, onlyminor changesare neededto ensure thatpeople with disabilitiesare included in provision of WASH services. Involving people with disabilitiesin program design can help ensure that WASH provisionsrespondto their needs.Thiscan be done, for example, byconsidering different water and sanitation technology options, using different waysto communicate hygiene messagesor providing additionalhygiene training to caretakers.

It isimportantto provide minimum accessibilityfeaturesin theWASH infrastructuresfor Personswith disability, consideredthe mostvulnerable among the marginalizedand

excludedgroups.The mostcommon constructionsthatwe findin our countryare individualandcommunitytoilets, drinking water sourceslike open wells,SanitaryWells andthe Handpumpsetc. Disabilityinclusive infrastructuresreinforce theWASH programs to make them more accessible, inclusive anduser friendly-- notonlyfor Personswith disability, butalso for othervulnerable membersin the familyandcommunitylike old men, pregnantwomen, children, sickpersonsandeverybodyaccessing the facility perfectly. It ismuch cheaper to ensure designsare disabilityinclusive atthe planning stage than it isto make adaptations later.

Universaldesign conceptsandthe relatedguidelinesprovide the normsandconditionsto adoptdifferentdimensionsanddesigns, up keeping the rightsofperson with disabilityso asto make a place accessible mostappropriately. However, in the special casesof individuallyaccessibleWASH infrastructures, it isimportantto consider the type of impairment, integrating disabilityinclusion considering their specialneedsandbarriers andto adoptdesignsanddimensionsaccordingly.

Disablingbarriers

Barrier refersto the physicalor invisible obstaclesthatpreventaccessandfree andsafe movementofpersonswith disability. Physical Barriersare those thatpreventaccessto the builtandphysicalenvironment, whereasSocialBarriersinclude negative behaviour, attitudesandbeliefs. Institutional Barriersrefer to policies, legislationsandinstitutions thatdo notadequatelyaddressthe rightsofpersonswith disability.

Disabling barrierscan be categorized asfollows:

Lackofaccess

Inadequate servicesforce some physicallydisabledpeople to crawlon the floor to use a toiletor defecate in the open.This hasimplicationsfor their health andsafetyand negativelyaffectstheir self-esteem. A lackofaccessible information on optionsand servicesavailable for disabledpeople iscommon.

Inadequatepoliciesandstandards

Policiesandstandardsare often either notenforced, or do not include the needsof disabledpeople.

Negativeattitudes

Stigma anddiscrimination are rife due to a lackofinformation aboutthe cause of disability.

Lackof consultationandinvolvement

Disabledpeople are often excludedfrom decision-making processesthatcan directly affecttheir lives. Existing information on inclusiveWASH options is rarelyaccessible for disabledpeople

ConceptofAccessibility

The conceptofaccessibilityfor people with disability isa tool/meansto allow participation in sociallife anddevelopment. It seeksto initiate measuresto equip a given space so thatpeople with disabilitycan freelyaccessthe facilitieson their own andwith dignity.

Accessibilityrelating to movementcomprisesmeansof transportfor moving from one place to another andthe use ofAidsandAppliances.

AccessibilityofPhysicalEnvironmentisthe use ofbuildingsandinfrastructuresin public andprivate placeswith necessarymodificationsandPwD friendlyoptions.

Accessibilityrelating to information andcommunications isproper andadequate use of symbols, signagesandcontrast colour options.

The standarddesignsandconsiderationsfor People with disabilityconcentrate mostlyon the accessibilityfeaturesfor the people with PhysicalImpairmentandSensory Impairment, i.e., Peoplewith problem in walking, sitting andmovementandalso people having lowvision and blindness. However, people with HearingandSpeech Impairments

can accessthe infrastructure facilities withoutmuch problem.The onlyrequirement may be proper signage, symbolandsound signals. In thisdocument, we willmostlyconsider differentfeaturesofphysicalaccessibilitymeantfor people with locomotors(Physical Impairment) andvisualdisability.

WaterAidPrinciples

- Sanitation refersto the safe managementofhuman excreta from the pointof defecation to itsdisposal, treatmentor re-use. (Also sanitation includessolidwaste, greywater &surface drainage)
- Ifthere isno safe &clean accessto toilet, people become exposedto disease, lackof privacy& indignity
- ImprovedSanitation leadsto qualitylife & povertyreduction

WaterAidhave the following four guiding principlesin their sanitation work:

Inclusive

Allsanitation interventionsshouldbe designedto serve allmembersof communities.Hardware shouldbe appropriatelydesignedto provide accessto women, men, children, elderlyanddisabledusers.Sanitation interventionsshouldensure that some form ofimprovedsanitation can be afforded byall.

Relevant

Ata locallevel, approachesneedto be designedaccording to the specific situation, taking accountofsocial, culturaland traditional aspects, geographicalcontext, natural environmentandinstitutionalandfinancing arrangements. (No single approach or a setof technology maybe prescribed)

Effective

Numerouspublicsector, private sector and civilsocietyorganizations mayneedto play their part.Service deliveryandadvocacyneedto be seen asequalandcomplementary partsofa single strategy.

Sustainable

Improvedsanitation shouldbe designedto ensure thatbeneficialchangesare maintainable andpermanent. Interventionsshouldaim to improve human health andbe affordable for the users, environmentallysustainable andinstitutionallyappropriate.

When adequate accessibilityfeaturesare providedandthe building/ structure exhibitsthe optimum facilitiesfor People with Disability, notonlydoesitenhance the free movement ofpeople with disability, italso allowsfree, independent, safe andeasymovementto othervulnerable groupslike oldmen, pregnantwomen, personscarrying heavyweightand even people withoutanydisability.

Designaspectsofaccessibility

Letusdiscusssome ofthe importantphysicaldesign aspectsofaccessibility.These featuresare asfollows:

1. Space Consideration
2. Ramp
3. Steps&Staircase
4. Accessible Door & Entrance
5. HandRails
6. AccessibleToilet
7. Accessible Hand Pump
8. AccessibleSanitaryWell
9. Accessible Hand WASH Unit

SpaceConsideration

Personswith Disabilityusing differenttypesof assistive devicesmayrequire different space considerationsfor their safe andfree movement. Persons with disability willrequire space ofdifferentdimensionswhen moving straightandalso when turning aroundusing differenttypesof assistive devices.

People using tricycles mayneeda space with a minimum width of920mm to move straight and3000mm when turning around.The minimum length the vehicle requiresto stand/parkis2000mm. Butit maynotbe realisticto move within allindoor areas with the supportofa tricycle.

People usingWheelChair mayneeda space with a minimum width of800mm to move straightand1500mm to turn around.The minimum length the vehicle requiresto stand/parkis1200mm.

Similarly, the minimum width ofa pathway, a ramp or a veranda shouldbe 550mm for a healthyman, 750mm for an old man or a man with a walking stickand900mm for a man using crutches.

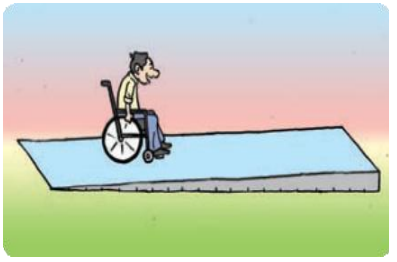
Ramp

A Ramp isnecessaryto provide smooth andeasyaccessto anyentrance, veranda, building or structure which hasa raisedbase/floor above the ground. When there isa levelof difference between two subsequentfloorsin an infrastructure, a ramp provideseasyand smooth accessto go up andalso to come down. Itisan inclinedsurface joining the two floorsthatare atdifferentheights(leveldifference).

Depending up on the space available, a ramp maybe designed asa “StraightRamp” or “SwitchbackRamp”.The following shouldbe the features/ dimensionsofa ramp asper the Universaldesign concept.

- A Ramp shouldbe smooth, non-slippery, firm andstable and made ofa materialthat isnotlikelyto wear awayquickly.
- The idealslope or gradientofa ramp shouldbe 1:12 maximum. (That isfor every12 horizontal units, the ramp rise willbe up to one unit.) If the gradient is1:20, it becomesmuch easier to access. However a 1:15 gradient makesfor a moderate ramp.
- A landing maybe providedfor resting ateveryverticalrise of750mm andalso between two flightsofa ramp for easymovement. Besidesthe restarea, it isalso requiredin placeswhere the ramp changesdirection.

- Ifa 1:20 ramp isstraightandlong, a landing (horizontallevelledplatform) for resting maybe requiredevery10mt. If the ramp isof1:15 gradient, a landing (resting point) maybe requiredevery5 m.
- The minimum clear width ofthe ramp shouldbe1200mm or more depending on the traffic.The landing shouldbe a clear, square space ofminimum 1200mmX1200mm. For a tricycle, the minimum width should be 950mm andthe landing shouldbe of3000mmX3000mm size.
- A ramp should have HandRailson both sidesandat two levels.The lower one shouldbe fixedat700 to750mm heightandthe upper railat850 to 900mm heightfrom the finishedfloor. Both endsshouldbe roundedandgroutedandextend up to 300mm beyondthe top andbottom oframp.

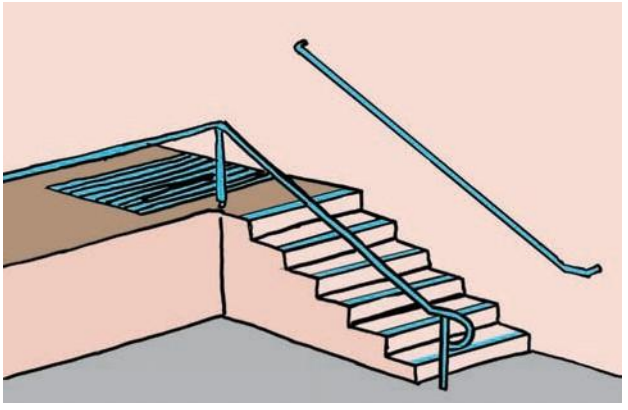


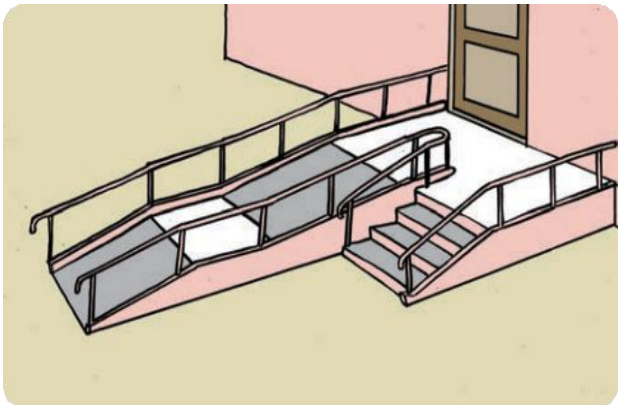
Steps&Stairs

A staircase providesaccessto move up from one floor to another andalso to come down from one floor to another. Itconsistsofone or more flightsthatare connectedwith landingsplacedin between for restandfor anychange in the direction ofmovement.The flightconsistsofsteps having itshorizontalsurface as“Tread” andverticalsurface as “Riser”.

- The stair/ flightshould have stepsof uniform Riser ofa maximum heightof150mm and uniformTreadofminimum width of300mm.
- The maximum heightofa flightbetween landingsmaybe 1200mm
- The stepsandthe stair should have an unobstructedwidth ofatleast1200mm
- A staircase should have continuousHandRailson either side ofit, including the wall (ifany) andattwo levels.The lower one shouldbe fixedata heightof700 to 750mm andthe upper railat850 to 900mm from the finishedfloor. Both endsshouldbe roundedandgroutedandextend up to 300mm beyondthe top andbottom ofthe stair.

- Landing shouldbe ofa minimum size of1200mmX1200mm, clear ofanyobstacles or door swing.
- The edgesof each step in stair (both horizontalandvertical sides) shouldhave bright
- 50 mm-wide bandsofcontrasting colourson both sides.
- Warning strips maybe placed(tactile or contrast colour) atthe beginning andendof allstairs.
- Nosing in anystep shouldbe avoided.





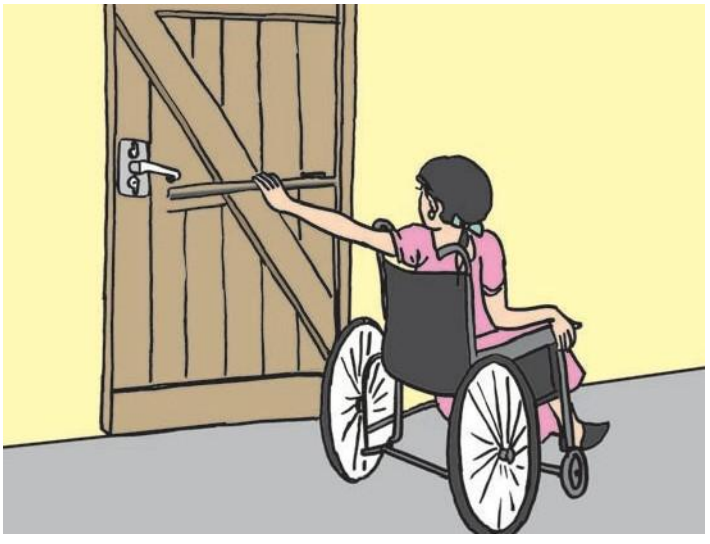
HandRails

HandRailsprovide supportto the person with disabilityto holdandmove forwardalong a ramp or stair andeven along a straightpathway.The following are the specificationsof hand rails:

- HandRailsshouldbe circular in section with diameter of40 to 45mm.
- There shouldbe a clearance ofatleast45mm from the adjacent wall/ surface to which itisfixed.
- HandRailshouldbe fixedattwo levels: one at700mm-750mm andanother at850mm-900mm from the finishedfloor.
- Itshouldbe extended byatleast300mm beyondthe headandfootofthe flightand ramp.

AccessibleDoor&Entrance

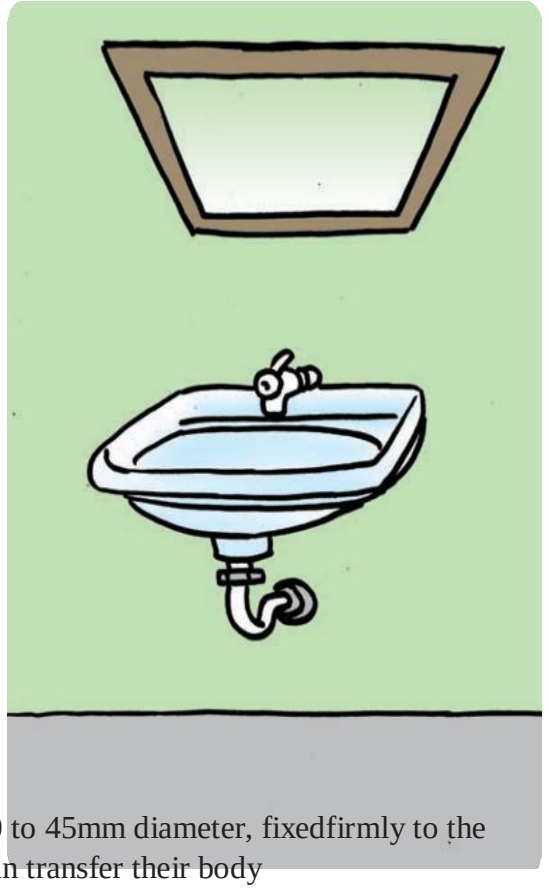
- The doorwayshould have a clear width of900mm for a person using wheelchair or those using assistantsto getthrough.
- Door shouldgenerallyopen outside.Sliding Doorsare the mostpreferable.
- A distance of450mm to 600mm beside andbeyondthe leading edge ofthe door and a safe landing space of1200mmX1200mm in frontfor a wheelchair user to manoeuvre.
- Door Handlesshouldbe fixedbetween650 to 1100mm above the floor level. It shouldbe preferably Lever shapedor D type handle.
- Wallsshouldbe painted with coloursthatare in contrastto the coloursofthe floor anddoor to supportpersonswith visualimpairmentsto access.
- The thresholdofthe door shouldbe atsame level withoutanysteps, door sealor other trip hazard.
- Proper signage shouldbe fixed.



WashBasins

AtleastoneWash Basin should have the following disabilityfriendlyfeatures:

- Wash Basin should have dimensionsof between 410mm to 520mm.
- Itshouldbe mountedin such a waythatits top edge isbetween 700-800mm from the finishedfloor.
- There shouldbe clear knee space for wheel chair usersto accessthe wash basin. Knee space shouldbe atleast750mm wide,200mm deep and650-680mm high (clear dimension)
- Lever type handlesfor water tapsare most suitable. (easier for persons with reduced strength)
- Mirror maybe fixed with itsbottom edge at 1000mm from the floor andtop maybe extendedto 1500mm andmore. Itmaybe fixedto the wallatan angle.



Grab Barsor supportbars maybe ofG.I or steelpipesof40 to 45mm diameter, fixedfirmly to the adjacent wallsandfloors, so thatpersonswith disabilitycan transfer their body weightfor movement.

Urinals

Atleastone ofthe urinalsshould have the following disabilityfriendlyfeatures:

- Urinalshould have Grab Barsinstalledon each side andin frontto supportpersons with disability, who are bilateral crutch users.
- The frontbar isto provide chestsupportandthe side barsare for the usersto holdon to while standing.

- Urinalsshouldbe stalltype or wallhung type with an elongatedrim ata maximum heightof430mm from floor finish.
- A clear floor space of750mm width and 1200mm in frontof urinalshouldbe providedfor approach.
- Urinalshieldmaybe provided with 750mm clearance between them.

AccessibleToilet

Accessible toiletprovidesadequate disabilityfriendlyfeaturesfor easyuse ofthe facilities exclusively bypersonswith disability. DisabilityInclusive toilet createsa space for adaptation ofaccessibilityfeaturesso thatpeople with disabilityandother members can have easyaccessto the facility. In case of blockofmore than one toiletin a common place, atleastone toiletcompartmentshould have enough floor space for a wheelchair user to enter andexit.

1. Space:
   a. Minimum clear floor space of2.00mtX1.80 mt(inner dimension) isrequired for a toilethaving water closetand wash basin facility.Thisspace dimension willalso be adequate for the wheelchair user.
   b. In case ofaWheelChair User, ifthe room doesnot have aWash basin inside, then the inner dimension ofthe room maybe consideredto be 1.80mtX 1.50mt
   c. In case ofpersonswho are using crutchesor those who cannot walk comfortably, the dimension maybe consideredto be 1.5 mtX1.2 mt. (inner dimension). In thiscase, the wash basin option in the toilet maybe avoided. However, the water tapsandthe cistern can be easilyfixed.

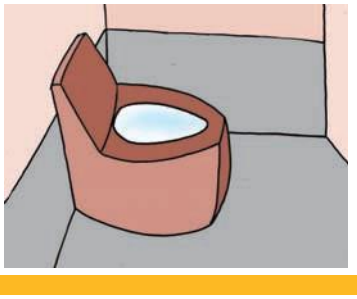
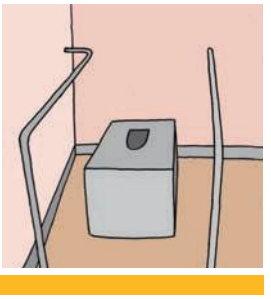
2. WaterCloset:

a. A toiletwhich ismostcomfortable to siton isalwaysthe appropriate option. If water andplumbing isavailable for flushing, then western type toiletcan be used.Where flushing isnotpossible, the Indian type squatting pan with certain modification/ adaptation can be useful.

b. However, it isalwayspreferable to have Western type toilets(Commode) option for people with disability.

c. In case ofaWheelChair User, theWater Closet(WC) shouldbe placednotin the middle space in the room. On one side, an unobstructedspace of900mm from the edge ofWCto the side wallshouldbe providedandon the other side, the distance from the centre ofthe WCto the nextadjacent wallshouldbe 480mm. There shouldbe a clear space of1200mm in frontofWC.



d. The top ofWCmaybe fixedat475 to 490 mm from the floor. In case of commode boughtfrom the market, it isdesignedso.

e. However, there are also modified/ adaptedWCconstructedwith Indian type squatting pan for Personswith disabilityoption.These modifiedoption maybe asfollowing:

i. Plastic/ wooden furniture (Chair, stooletc.) to be usedin toiletfor easy access. (Plsee Picture)

ii. Modifying the seatto a commode type through masonryworkor iron etc. (Pl see Picture)

iii. Sometimes, the Indian type toilet maybe consideredappropriate with its pan fixedto a suitable platform (comparativelyhigher than the ground) to siton.

3. Door:

   i. A 900 mm clear opening shouldbe providedfor the door with the doorsopening outwardsor being offolding or sliding type to pullthe door closed.

   ii. A horizontal handle on the inside ofthe door makesit easier to open and close. Itshouldbe 600mm long &ata heightof700 to 950mm. A 150mm long handle maybe fixedon the outside.

   iii. Anythresholdto the toiletshouldbe levelledandthere shouldbe no steps.

4. GrabBars:

   Grab Barsare supportive barswhich maybe ofG.I or steelpipesof40 to 45mm diameter, fixedfirmlyto the adjacent wallsandfloors, so thatpersonswith disabilitycan transfer their bodyweightfor movement.

   i. ForWheelChair User – the movable grab bars(U type) are to be providedon transfer side ata heightof480mm from ground(i: e; atthe same height asthe commode).The Ltype bar shouldbe fixedon the wall side to getadequate supportduring transferring the bodyweight.

   ii. For others– itdependson the condition ofdisabilityandpreference. Ideally, the barsshouldbe providedon both sideson the walland maybe fixedto the floor on the transfer side.This maybe ofG.I. pipe andfixed, not movable.The grab bars maybe fixedata heightbetween 450mm to 750mm assuitable to accessanduse.

   iii. Sometimes, the grab barsare also fixedto the two adjacent wallsclose toWCat a heightofbetween 450mm to 950mm.

5. The inside ofthe room shouldhave slip resistance flooring andfacilityto drain water safely.

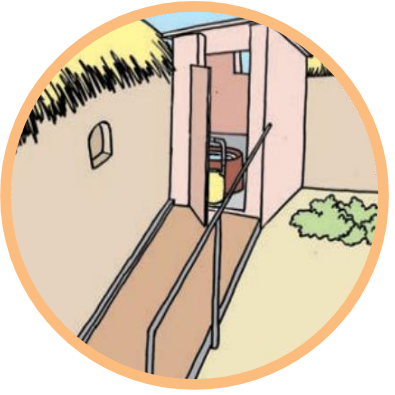
6. The approach pathwayjoining the house andthe toilet(ifit isoutside the house) shouldbe a 1200mm clear wide, concrete or masonrypavement withoutany obstructionsin between.

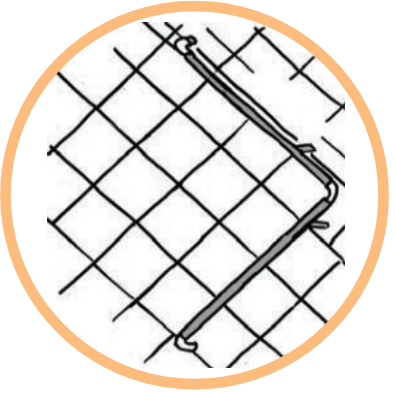
7. There shouldbe hand railsfixedata heightofbetween 750mm to 900mm from the floor on either side.

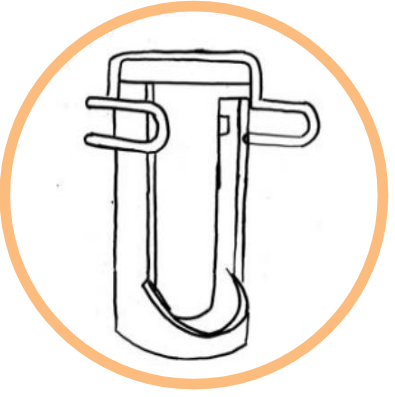
8. Ifthere isanyleveldifference between two consecutive floor levels, then either a ramp or stepsshouldbe provided asappropriate to the design considerations.
9. Wash Basin & mirror maybe provided asper the specificationsalready made in the booklet.
10. There shouldbe contrast colour combination between the floor to the wallandthe sanitaryfittingsin a toiletroom.The door edge shouldbe provided with contrast colour border outside.The inside ofthe room shouldhave also contrast colour bandata heightof750mm & 1950mm.

Generalconsiderations	Considerationusinglocalmaterials
Ramp: The ramp maybe preparedwith cement concrete (1:2:4) with brickmasonryatthe side wall.The gradientofthe ramp maybe keptbetween 1:12 to 1:20.The surface shouldbe rough.	Ramp: Ifthe soilisclaysoil, side wallsin brick masonry maybe constructed.The inside material maybe clayearth, rammedto powder andcompactedto provide a walking surface. It mayrequire maintaining the gradient (between 1:12 to 1:20) in proper slope and the surface accordingly. Otherwise, cementmortar maybe providedto the earth filledgradientsurface to access.
HandRails: The HandRailsmaybe ofSteelpipesor G.I. pipesof40 to 45 mm diameter and fixed with supportbarsofthe same size. The surface ofthe bar maybe painted with contrasting colours.	HandRails: The HandRail maybe provided with good qualitybamboo or wooden polesfixed with supportpolesof40 to 50mm diameter size. The surface shouldbe painted with contrasting colours
Commode: Itshouldbe the western type Pan available in the market. Its heightmaybe up to 480mm with an inbuiltSor P trap andfacilityto attach the cistern to it.	Commode: It maybe a raisedbase andIndian squatting pan fixed by masonrywork. P trap maybe connectedandextendedtillleach pitor septic tank.

GrabBars: These are speciallydesignedsteelbarsof 40 to 45 mm diameter fixedto the walls (maybe Lor U shaped)	GrabBars: These maybe G.I. barsof35mm to 45mm size shapedto Ltype or U type using fittingslike elbow, socket, short piece etc.,andfixedto the masonry wallor floor asappropriate.
ApproachPavement: There shouldbe a clear andcomplete 1200 mm wide concrete or masonry pavement withoutanyobstructionsin between andhand railsfixedon both sidesata heightofbetween 750mm & 900mm.	ApproachPavement: The pavementsurface shouldbe clean dressed, rammedearth and earthen polished to markaspavement with hand railsfixedon both sidesasappropriate (between 750mm & 900mm).

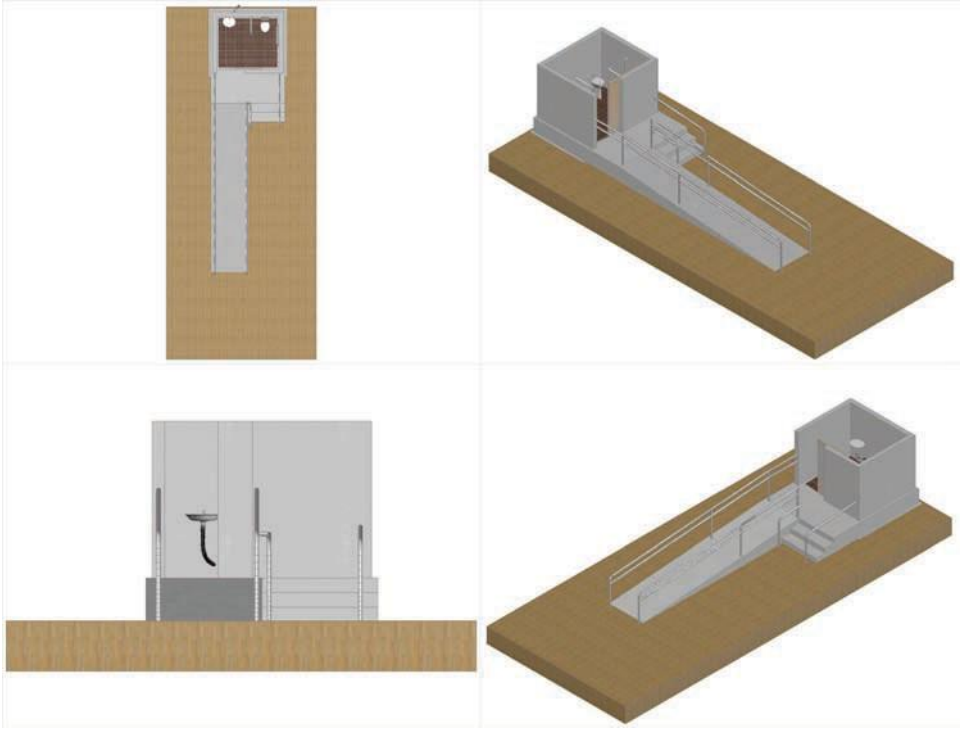






Accessiblefeaturesinabuildingwithattached Bathroomand WaterCloset

- The accessible signage shouldbe paintedatthe entryofthe toilet1.5 metersabove the floor level.The signage shouldalso have Braille facility.
- The Pathway(access) to the toiletshould have a clear andsmooth floor having tactile tile fixing asper proper specifications.
- It maybe proposedthatthe inner space shouldbe 2.00X2.00mtforW.C. andbath facility.
- The entrydoor to the toiletshould have clear width of0.9 meters with door frame & shuttersofcontrasting colours. No door sealshouldbe provided within the passage to the toilet.
- The doorsof water closetshouldopen outside for convenience.The handle should be 'D' shaped handle of circular section andfitted850 to 1000mm from the floor level.
- The leveldifference shouldnotbe more than 6-12 mm between the toilet&W.C. area.



- The wash basin shouldbe mountedbetween 0.7-0.8 meters(top edge) above the floor level with clear knee space ofatleast760mm in width, 200mm in depth and 650mm-680mm in height.
- The colour ofthe wash basin shouldbe in contrastto the wallcolourAlltheTaps shouldbe lever type handlesandpreferablyfixed0.7 to 0.8mtabove the floor level
- The WCshouldbe ofEuropean style (Commode) wallmounted@0.48 metersabove the floor level& should have an alarm bell.
- Adjacentto theWC, there shouldbe a L-shapedgrab bar of700x700 mm mounted 0.7m above the floor levelon the wall side & should have U shapedgrab bars mounted480mm from the floor levelon the transfer side.
- Mirror bottom edge isto be placed900-100 mm from the floor andthe mirror maybe inclinedatan appropriate angle.
- No stepsshouldbe providedat urinalspace.
- Atleastone ofthe urinalsshould have grab barsinstalledon each side andin front ofthe urinalto supportambulantpersonswith disabilities(for example, crutch users).
- The sewage and water supplylinesare to be fixedproperly.The water supplyline shouldbe connectedto the overhead tankandthe tankshouldbe wellconnectedto the source andsystem of water supply.Similarly, the sewage line shouldbe connectedwith the WCandthen with the septic tank.

Considerationsfortoiletsinruralareaswithpourflushoffsetleach pit

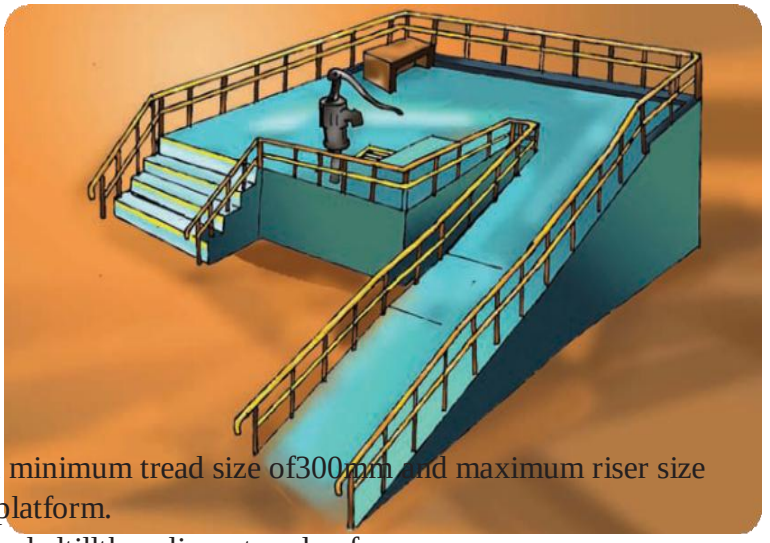
- It isgoodifthe toilet hasinner space of1.2mtX1.5meters(mustforWheelChair Users).Otherwise, existing dimensionsofIHHL(1mtX1.2mt) isfine.
- It isbetter to have two offset(leach) pitsconnectedthrough aY-Pipe or chamber in which one pit willbe functionalandsecond willbe blocked. Once the firstpitfillsup, itneedsto be blockedandthe secondpitmade functional. After a few months, the excreta turnedto compostin the firstpitisto be cleaned up andkeptreadyfor use in future when the secondpitgetsfilled up.

- However, everyToiletmust have atleastone offsetpit(leach pit) with a chamber/Y- Connection with one endconnectedto the leach pitandthe other keptclosed.
- There shouldbe no wash Basin or other fixturesin the toilet astheywould take up the inner space.
- One hasto carry water andflush or constructstorage tankoutside adjacentto the structure having a tap on the inner side anda pipe connection from the water storage tankfor easy handling of water.
- TheWater Closet(WC) mustbe a commode or modifiedcommode type.
- There mustbe Grab Barsto supportthe person with disabilityto transfer himself/herselfinto the commode base.These shouldbe G.I. pipe or stainlesssteel barsof25mm to 35 mm diameter fixedon both sidesofthe commode atappropriate height(700mm from ground).
- The toiletshouldbe supportedwith the superstructure andthe roof.The wallsofthe superstructure shouldbe plastered.
- Ifthe toilet isata distance from the house, railings made ofbamboo shouldbe fixed on both sidesofthe approach (pathway) from the hose to toiletata heightof0.9mt from ground.
- The entrance/pathwayofthe toiletshould have a ramp (with a moderate slope of
- 1:12), ifthere isa leveldifference between toiletbase andthe ground.

AccessibleHandPump

In ruralareas, mostofthe communitiesuse IM-II handpumps asthe drinking water source. These sometimescannotbe easilyaccessed bypersonswith disabilitydue to lackof accessibilityfeatures.The following are some ofthe measuresneededto make the water pointaccessible.

- It isgenerallyadvisable to raise the platform ofthe Hand Pump to protectthe water source in ruralareaswhere water logging andflooding causing inundation is common.
- Ifthe Hand Pump base isabove the ground, then it shouldbe supportedwith a platform to accessanddrain the water.



- There shouldbe a platform with a clear space of1800mmX1800mm of which 1500mm shouldbe kepton one side ofthe Hand Pump unitand300mm on the other.
- The platform shouldbe connectedwith a ramp of 1200mm clear width andat least1:12 slope on the wider side (1500mm side).
- There shouldalso be steps with a minimum tread size of300mm and maximum riser size of150mm on another side ofthe platform.
- The ramp andstepsshouldbe extendedtillthe adjacentroadsurface.
- The platform shouldbe provided with hand railson allfour sidesfixedat750mm and 900mm heightfrom the platform floor extending on both sidesofthe stepsandthe ramp.The hand railmaybe of40 to 45mm diameter with contrasting colourspainted on itsurface
- Itshouldbe ensuredthatthere isproper drainage on the platform surface to prevent itfrom becoming slippery.
- Waste water shouldbe properlydrained byconstructing an extendeddrain together with a soakpitandor connectedto the main drain or byallowing the water to run to the adjacent crop land(kitchen garden).
- The Hand Pump shouldbe attachedwith a long handle to make it easier to use.
- There shouldbe bathing cubicles(made of masonry) adjacentto HandPump for the person with disabilityto siton anda washing cubicle on one corner ofthe platform.
- The entrance shouldbe smooth andwithouta lip or other trip hazardatthe junction ofthe ramp andthe platform.

AccessibleSanitaryWell

TheSanitarywellshouldbe constructedtaking allsafetymeasures. Itshouldbe covered completely.The inner staining wallshouldbe plasteredup to a depth ofone meter.The parapet, the platform andthe device to lift water (maybe Hand Pump) etcshouldbe provided with design dimensions.Sanitaryriskassessmentmaybe conductedand precautions taken up accordingly.The following accessible features maybe consideredto convertitinto a disabilityfriendly water source.

- A platform maybe constructedsurrounding theSanitaryWellto help access, lift water anddrain itsafely.
- There shouldbe a platform constructedwith a clear space of1200mm to1500mmwidth on all sidesfor the wheelchair user to access.
- In another option, a space of1200mmX1500mm maybe earmarkedon one side of the wellso thatthe wheelchair user mayaccess, turn aroundandcome back.
- The platform shouldbe connectedwith a ramp of1200mm clear width andatleast 1:12 slope.
- There shouldalso be steps with a minimum tread size of300mm and maximum riser size of150mm on another side ofthe platform.
- The ramp andstepsshouldbe extendedtillthe adjacentroadsurface.
- The platform shouldbe provided with hand railson allfour sidesfixedat750mm and 900mm heightfrom the platform floor extending on both sidesofthe stepsand ramp.The hand railmaybe of40 to 45mm diameter with the surface paintedin contrasting colours.
- Itshouldbe ensuredthatthere isproper drainage on the platform surface to prevent itfrom becoming slippery
- Waste water shouldbe properlydrained byconstructing an extendeddrain together with a soakpitandor connectedto the main drain or byallowing the water to run to the adjacent crop land(kitchen garden).

AccessibleHandWashUnit

In theSchoolWash facilities, there isa hand wash unitwhich isaccessed bythe students andthe teachersfrequently.This isgenerallya structure constructedwith a number of water tapsanda basin to drain waste water properly.The system isconnectedwith a running water source.To make itaccessible, the following features maybe considered.

- There shouldbe a HandWash Unit constructedwith water tapsandbasin to access anddrain water.
- The taps maybe placedata heightofbetween 650mm to 1000mm from the ground atdifferentpositionsso thatstudentsofdifferentheights mayaccessthem along with the teachers.
- The depth ofthe basin platform constructedshouldbe 200 to 300mm.The basin maybe connectedwith a pipe to drain water properly.
- Waste water shouldbe properlymanaged byconstructing a soakpitor connecting it to the main drain or allowing the water to run to the adjacent crop land(kitchen garden).
- One ofthe water tapsanditsbasin base maybe constructedwith universal dimension.There shouldbe clear knee space ofatleast750mm in width, 200mm in depth and650-680mm in height(clear dimension) for wheelchair usersto access.
- Lever type handlesfor water tapsare mostsuitable. (easier for persons with reduced strength)
- There shouldbe a 1200 mm wide pathway/ platform in frontofthe water tapsfor wheelchair usersandeven other membersstanding in frontto accessit.Thereshouldbe a space of1500mmX1200mm dimension (atone extension place) so that the wheelchair user mayaccessit, turn aroundandcome back.
- The platform/ Pathwayshouldbe connectedto a ramp with a clear width of1200mm andslope ofatleast1:12. Ifrequired, steps with a minimum tread size of300 mm anda maximum riser size of150 mm maybe constructedon another side.
- The ramp andstepsshouldbe extendedtillthe adjacentroadsurface.
- The platform shouldbe provided with hand railsalong the platform andramps& steps, fixedat750mm and900mm heightfrom the platform floor.The hand railmay be of40 to 45mm diameter with contrasting colourspaintedon the surface.

SomeExamplesinconstructionofIndividual Householdtoilets

In India, there isan ongoing flagship program onSanitation. Earlier namedTotal Sanitation Campaign (TSC), it hasnow been renamed asNirmalBharatAbhiyan (NBA) with a new guideline. Asper the guideline, each householdin the below povertyline (BPL) categoryandidentifiedabove povertyline (APL) categoryare eligible to getan incentive of 10000/- INR after construction ofindividualtoilet.The toilets have to be constructedwith due consideration ofthe needto have improvedsanitation facilities.The unitshould generally have a double leach pitoption for excreta managementandconnectedto the base, which maybe fixed with an Indian squatting pan.The superstructure shouldbe with masonry wall, plasteredon both sidesandan RCCor tin roofwith a door.The inner space should have a minimum area of3'-6”x4'-0”.

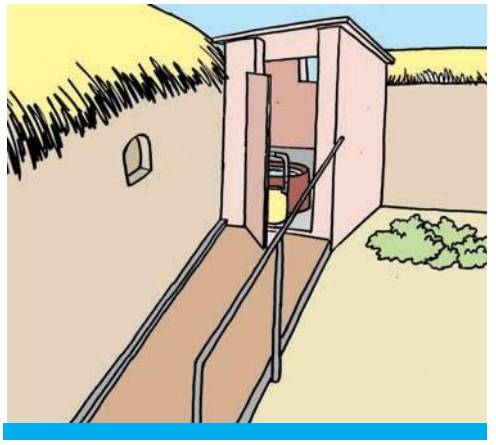
The problem with the above design isthatthere isno space in itexclusivelyfor persons making itanything buta disabilityfriendlyhouseholdtoiletoption. However,WaterAidhas triedsome changesin the universaldesign conceptso thatindividualpersonswith disabilityshould have better andmore comfortable accessto the toilet.

Example-I

Name : JosephSoren

Village : Ganpura village in Pakur in Jharkhand

Disability : PhysicalImpairment



DisabilityfriendlyOptions:

(Ramp, Handrail,Grabbar,paintingetc.)

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
01	Pan-P -trap & footrace	01	Each	210.00	210.00
02	PVCPipe	4'	Feet	55.00	55.00
03	Bricks	600	No	3.50	2100.00
04	Cement	7	Bag	350.00	2450.00
05	Sand	40	Cft.	10.00	400.00
06	Chips	17	Cft.	25.00	425.00
07	Painting	LS	LS	300.00	300.00
08	Mason	4.5	Person	250.00	1125.00
09	Labour	10	Person	160.00	1600.00
10	Iron rod	8	k.g.	49.00	392.00
11	Iron Door	1	Each	750.00	750.00
12	Tap	1	Each	68.00	68.00
13	Ramp, Railing Grab bar	LS	Each	750.00	750.00
14	Transportation	LS			150.00
				Total	10775.00

Example-II

Name : KedarSethi

Place : Tentulidihi in Odisha

Type ofDisability : PhysicalImpairment(Polio)

DisabilityfriendlyOptions:

(Approachroad,Handrail,Grabbar,commodeasWC)

The approach isprovided with a smooth andwide path with hand rails made ofbamboo fixedata heightof750mm anda commode boughtfrom the marketfixedinside. On both sides, GI grab barsare fixed with one side to the wallandother to the floor.Water arrangementsare made.

IHHLofKedarSethi(Physicalimpairment),Tentulidihi

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
1	Brick	no	300pcs.	5.00	1,500.00
2	Sand	Cumt	50ft.	20.00	1,000.00
3	Chips	Cumt	5ft.	40.00	200.00
4	Cement	Bag	5 bags	400.00	2,000.00
5	3ft dia RCCRing	no	3pc.	250.00	750.00
6	3ft dia RCCCover plate	no	1pc.	250.00	250.00
7	Door with frame andfittings	no	1pc.		700.00
8	RCCRoof	no	5'6"x4'6"		900.00
9	Commode	Set	1		900.00

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
10	Yconnection & pipe	Set	1		150.00
11	GI 1'-6" dia Grab bars	Set			250.00
12	Bamboo railing	LS			200.00
13	Painting on bamboo	ltr			150.00
14	SkyLight	1pc.	Rs. 40x1		40.00
				Total	8,990.00
15	SkilledLabour		4days	300x4	1,200.00
16	Unskilled labour		4 days	250x4	1,000.00
				Total	2,200.00
				GrandTotal	11,190.00

Example-III

Name : JitendraTuri

Place : Sirsanunthar in Deoghar

Type ofDisability : Multiple

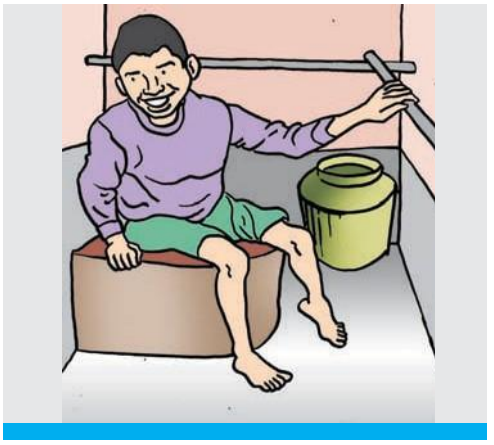
DisabilityfriendlyOptions:

(Ramp, Handrail,Grabbar,painting,modifiedWC)

The boyhasmentalretardation andalso cannotsee.So, approach road ispreparedwith compacted earth fillandbamboo railing puton the side so thathe can accessto the toilet. Inside the toilet, the height ofthe WCis raised with brickmasonryandsquatting pan fixedover it. GI grab barsare fixedto the walls.

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
01	Pan-P trap & footrace	01	Each	200.00	200.00
02	PVCPipe	4'	Feet	55.00	55.00
03	Bricks	600	No	3.50	2100.00
04	Cement	7	Bag	350.00	2450.00
05	Sand	40	Cft.	10.00	400.00
06	Chips	17	Cft.	25.00	425.00
07	Painting	LS	LS	350.00	350.00
08	Mason	5	Person	250.00	1250.00
09	Labour	10	Person	160.00	1600.00
10	Iron rod	8	k.g.	49.00	392.00
11	Iron Door	1	Each	750.00	750.00
12	Tap	1	Each	68.00	68.00
13	Ramp, Railing & Grab Bar	LS	Each	700.00	700.00
14	Transportation	LS			150.00
				Total	10900.00

Example-IV



Name : RohitMandal

Place : JogiaVillage in Deoghar

Type ofDisability : Multiple (Physical& SensoryImpairment)

DisabilityfriendlyOptions:

(Ramp, Handrail,Grabbar,painting,modifiedbrick masonryWC)

The boyaccessesthe toilet with a cementedramp of1:12 slope with bamboo hand rails fixedata heightof650 mm.The space inside the toiletinside isof4'-6"X4'-6" size with modifiedbrickmasonrycommode with space to putlegson either side.The commode isat a heightof400mm andgrab bars made of25mm GI pipe fixedto the walls.

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
01	Pan-P trap & footrace	01	Each	210.00	210.00
02	PVCPipe	4'	Feet	55.00	55.00
03	Bricks	600	No	3.50	2100.00
04	Cement	7	Bag	350.00	2450.00
05	Sand	40	Cft.	10.00	400.00
06	Chips	17	Cft.	25.00	425.00
07	Painting	LS	LS	350.00	350.00
08	Mason	5	Person	250.00	1250.00
09	Labour	10	Person	160.00	1600.00
10	Iron rod	8	kg.	49.00	392.00
11	Iron Door	1	Each	750.00	750.00
12	Tap	1	Each	68.00	68.00
13	Ramp, Railing & Grab Bar	LS	Each	750.00	750.00
14	Transportation	LS			190.00
				Total	11000.00

Example-V

Name : Munni Hembrum

Place : Banderjori in Dumka, Jharkhand

Type ofDisability : PhysicalImpairment(OldAge)

DisabilityfriendlyOptions:

(Approachroad,Handrail,Grabbar,modifiedWC)

She isaccessing the toiletthrough an approach roadconstructedandthe bamboo hand railfixedon the sides.The WCismodified with brickmasonryworkandsetata heightof 300mm that make it easyfor her andeven her other familymembersto use the toilet.The GI grab barsand water arrangement with a tankoutside andhose pipe connection to inside toilethelpsin cleaning.

Sl.No.	Materials	Unit	Amount (Rs.)
01	Cement	4.5Bag	1620
02	Brick	600 nos	2400
03	Sand	50 cft	160
04	MSRod	1.5 kg	60
05	Pan, P trap, connection (pipe 4 feet) etc	1 set	300
06	Chips	5 cft	125
07	Handle, Grab bar, fittings	1 no	236
08	Paint	4 kg	109
09	RedOxide (Cement)	1 Kg	65
10	Roof(tin)	1 ps	326
11	Door	1 ps	1500
12	Labour	4 day	600
13	Mason	4 day	1200
14	Tap & flexible Pipe, fittings	1 set	253
		Total	8954

Example-VI

Name : RohitMandal

Name : Kalicharan Kisku

Village : Bogli in Dumka in Jharkhand

Type ofDisability : VisualImpairment

DisabilityfriendlyOptions:

(BambooHandrail,G.I.Grabbar,contrastcolours)

The person isvisuallyimpairedandfacesdifficultyin morning andevening.So, the hand supportshim to the toiletandthe contrast colour painting helpshim accessthe unit.

Sl.No.	Materials	Unit	Amount (Rs.)
1	Cement	4 Bag	1440
2	Brick	550 no	2200
3	Sand	35 cft	100
4	Rod	1kg (6mm)	60
5	Pan P trap	1 set	200
6	Chips	3 cft	75
7	Handle, GI &Bamboo Railing	1 ps	382
8	Tap & Pipe	1 ps	35
9	Pipe 4"	3 ft	75
10	Socket	1p	18
11	Paint		60
12	RedCement	1 kg	65
13	Roof	1 ps	300
14	Door	1 ps	1500
15	Labour	4 day	600
16	Mason	4 day	1200
		Total	8310

Example-VII

Name : Pintu Paswan

Place : Prandi in Deoghar

Type ofDisability : Physicaldisability(Polio)

DisabilityfriendlyOptions

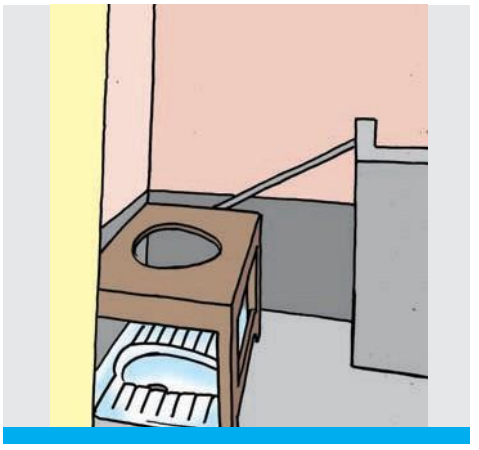
The toilet wasconstructedearlier.

The plasticchair wascutto an appropriate heightanda hole made atthe centre. After Pintu accessesit, the chair iskept aside for othersto use the toilet.

Billof quantity

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
01	Pan-P trap & footrest	01	Each	200.00	200.00
02	PVCPipe	4'	Feet	50.00	50.00
03	Bricks	600	No	3.50	2100.00
04	Cement	4	Bag	350.00	1400.00
05	Sand	40	Cft.	10.00	400.00
06	Chips	15	Cft.	25.00	375.00
07	Painting	LS	LS	300.00	300.00
08	Mason	4	Person	250.00	1000.00
09	Labour	8	Person	150.00	1200.00
10	Roof with tin sheet	1	no	500.00	500.00
11	Door (Tin Frame)	1	Each	750.00	750.00
12	Tap	1	Each	50.00	50.00
13	G.I. Railing & Grab Bar	LS	Each	300.00	300.00
14	ModifiedPlasticChair	1	no	275.00	275.00
15	Transportation	LS			200.00
				Total	9100.00

Example-VIII



Name : Manoj Pandit

Place : Khodkuan in Deoghar

Type ofDisability : PhysicalImpairment

DisabilityfriendlyOptions:

(G.IGrabBar,woodenstool)

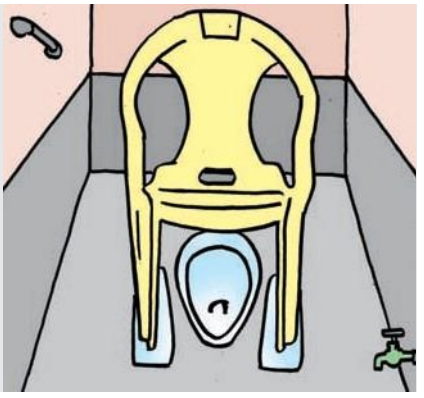
The toilet wasconstructedearlier.

The wooden stoolof320mm height wasconstructedasappropriate to the person with a hole in the middle to be used byManoj. After hisuse, the stool iskeptoutside for other familymembersto use.The grab barsare fixedto the walls.

Billof quantity

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
01	Pan-P trap & footrest	01	Each	200.00	200.00
02	PVCPipe	1	no	50.00	50.00
03	Bricks	600	No	3.50	2100.00
04	Cement	4	Bag	350.00	1400.00
05	Sand	40	Cft.	10.00	400.00
06	Chips	15	Cft.	25.00	375.00
07	Painting	LS	LS	300.00	300.00
08	Mason	4	Person	250.00	1000.00
09	Labour	8	Person	150.00	1200.00
10	Roof with tin sheet	1	no	500.00	500.00
11	Door (Tin Frame)	1	Each	750.00	750.00
12	Tap	1	Each	50.00	50.00
13	G.I. Railing & Grab Bar	LS	Each	300.00	300.00
14	ModifiedStool (wooden Frame)	1	no	800.00	800.00
15	Transportation	LS			200.00
				Total	9425.00

Example-IX



Name : SunakarYadav(Childwith disability)

Place : Prandi in Deoghar

Type ofDisability : PhysicalImpairment

DisabilityfriendlyOptions:

(G.IGrabBar,woodenstool)

The toilet wasconstructedearlier.

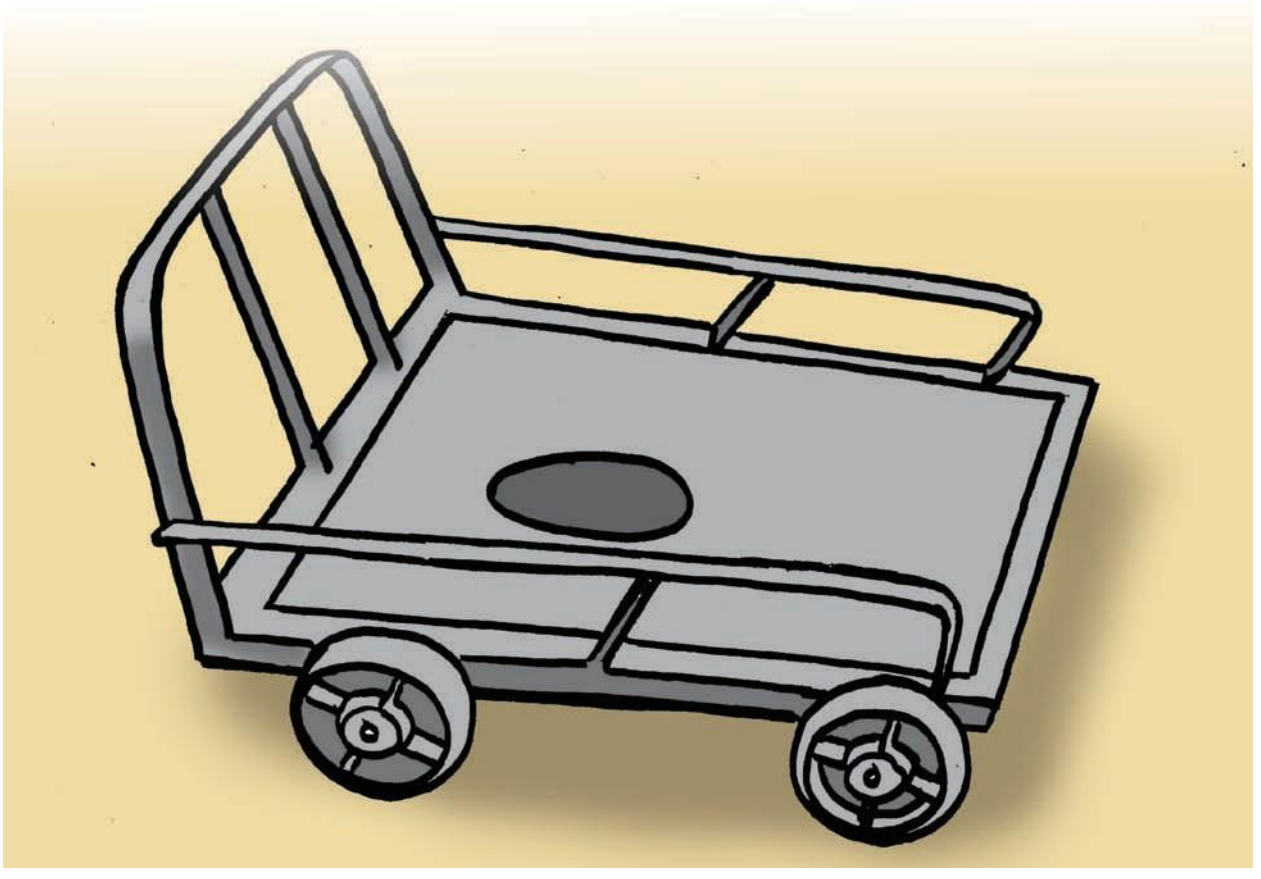
The plasticsmallchair (child size) wasputto appropriate position anda hole made atthe centre. AfterSunakar accessesit, the chair iskeptawayfor othersto use the toilet.

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
01	Pan-P trap & footrest	01	Each	200.00	200.00
02	PVCPipe	1	no	50.00	50.00
03	Bricks	600	No	3.50	2100.00
04	Cement	4	Bag	350.00	1400.00
05	Sand	40	Cft.	10.00	400.00
06	Chips	15	Cft.	25.00	375.00
07	Painting	LS	LS	100.00	100.00
08	Mason	4	Person	250.00	1000.00
09	Labour	8	Person	150.00	1200.00
10	Roof with tin sheet	1	no	500.00	500.00
11	Door (Tin Frame)	1	Each	750.00	750.00
12	Tap	1	Each	50.00	50.00
13	G.I. Railing & Grab Bar	LS	Each	300.00	300.00
14	ModifiedPlasticChair (smallfor child)	1	no	200.00	200.00
15	Transportation	LS			150.00
				Total	8625.00

Example-X

A GI framedstructure on a wheel can be easilyaccessible bythe use to accessthe existing toilet.

ExtraCost : 2000/-INR



Example-XI

Name : DebuTatwa

Place : Pachrodihi in Dumka

Type ofDisability : PhysicalImpairment(Paralysis)

DisabilityfriendlyOptions:

(Approachrod, handrail,G.IGrabBar,GIframestool)

The approach roadisconstructedwith cementmortar and hand rails made ofbamboo fixedon both sides.The GI framedWCsheet, which can be usedandliftedafterwards, is fixedat350mm height.The grab bars made of25 mm GI pipesare usedin Lshape andUshape.

Sl.No.	DescriptionofItem	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
01	Pan-P trap & footrest	01	Each	200.00	200.00
02	PVCPipe	1	no	50.00	50.00
03	Bricks	600	No	3.50	2100.00
04	Cement	4	Bag	350.00	1400.00
05	Sand	40	Cft.	10.00	400.00
06	Chips	15	Cft.	25.00	375.00
07	Painting	LS	LS	300.00	300.00
08	Mason	4	Person	250.00	1000.00
09	Labour	8	Person	150.00	1200.00
10	Roof with tin sheet	1	no	500.00	500.00
11	Door (Tin Frame)	1	Each	750.00	750.00
12	Tap	1	Each	50.00	50.00
13	Bamboo Railing & Grab G.I. Bar	LS	Each	600.00	600.00
14	GI framedWCsheet	1	no	1500.00	1500.00
15	Transportation	LS			200.00
				Total	11225.00

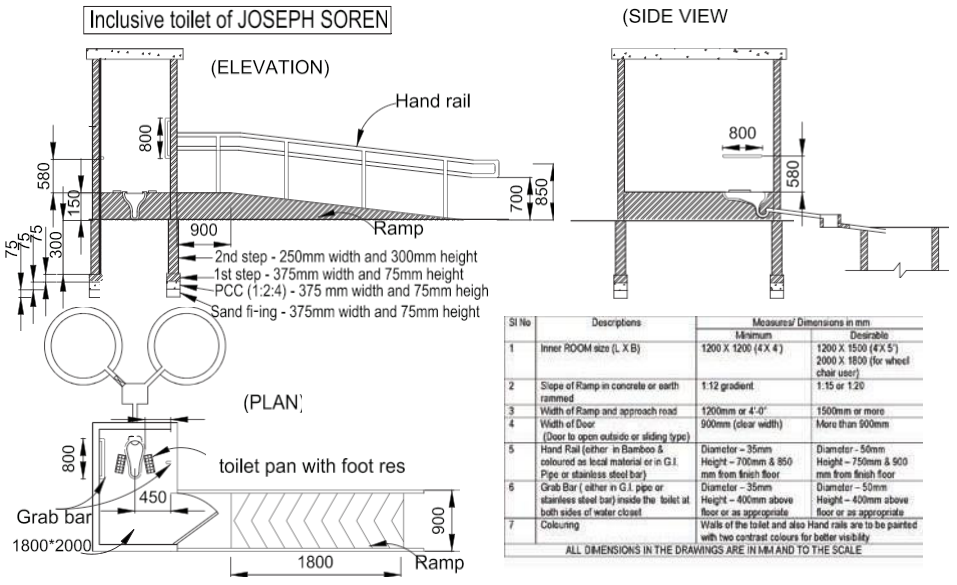
Example-XII

Name	:	RohitMandal
Name	:	PakluTudu
Place	:	Dhamna in Jarmundi in Dumka
Type ofdisability	:	PhysicalImpairment

Disabilityfriendlyoption:

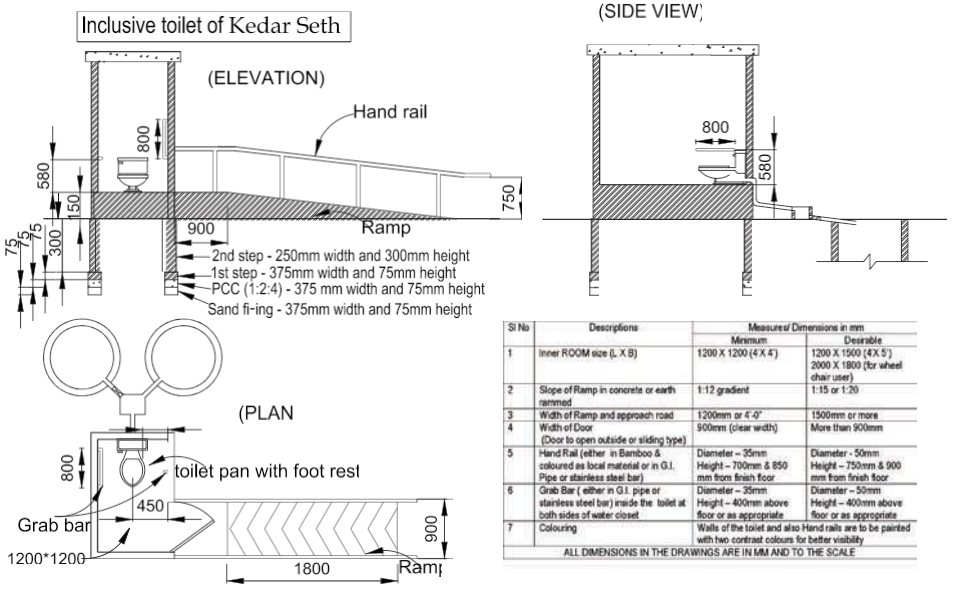
She crawlson the ground.She takesothers' help to getliftedandto go to another place. The platform isconstructedfor herWASH activitieswith rampson each side.She can comeeasilyfrom her chair to the platform. A water tankisconstructedandit isconnectedto the nearbycommunityHand Pump unit.The GI pipesare placedto the handpump and connectedto water tankwith reducedsocketarrangements.This isto ensure thatwhen any communitymember operatesthe handpump, a smallquantityof water automatically flowsto the tank.She can accessthe water. A toilet isconstructedwith a raisedbase structure ofupto 200mm height. An Indian squatting pan isconnectedover itso thatshe can siton itproperly.

Annexures: Schematics of designs



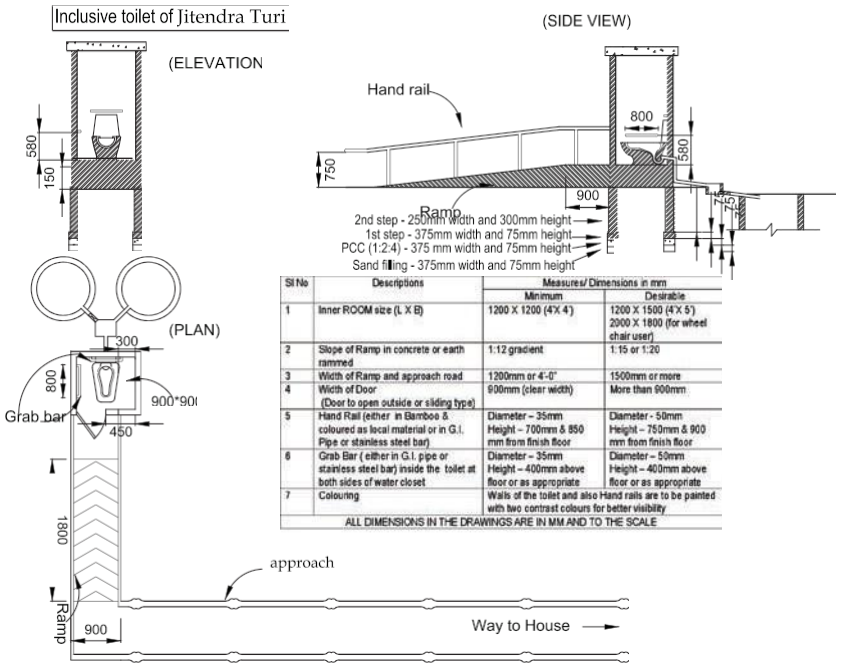
Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
2	Slope of Ramp in concrete or earth rammed	1:12 gradient	1:15 or 1:20
3	Width of Ramp and approach road	1200mm or 4'-0"	1500mm or more
4	Width of Door (Door to open outside or sliding type)	900mm (clear width)	More than 900mm
5	Hand Rail (either in Bamboo & coloured as local material or in G.I. Pipe or stainless steel bar)	Diameter – 35mm Height – 700mm & 850 mm from finish floor	Diameter - 50mm Height – 750mm & 900 mm from finish floor
6	Grab Bar (either in G.I. pipe or stainless steel bar) inside the toilet at both sides of water closet	Diameter – 35mm Height – 400mm above floor or as appropriate	Diameter – 50mm Height – 400mm above floor or as appropriate
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	
	ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE		

Drawing- 1



Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
2	Slope of Ramp in concrete or earth rammed	1:12 gradient	1:15 or 1:20
3	Width of Ramp and approach road	1200mm or 4'-0"	1500mm or more
4	Width of Door (Door to open outside or sliding type)	900mm (clear width)	More than 900mm
5	Hand Rail (either in Bamboo & coloured as local material or in G.I. Pipe or stainless steel bar)	Diameter – 35mm Height – 700mm & 850 mm from finish floor	Diameter - 50mm Height – 750mm & 900 mm from finish floor
6	Grab Bar (either in G.I. pipe or stainless steel bar) inside the toilet at both sides of water closet	Diameter – 35mm Height – 400mm above floor or as appropriate	Diameter – 50mm Height – 400mm above floor or as appropriate
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	
	ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE		

Drawing- 2



Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
2	Slope of Ramp in concrete or earth rammed	1:12 gradient	1:15 or 1:20
3	Width of Ramp and approach road	1200mm or 4'-0"	1500mm or more
4	Width of Door (Door to open outside or sliding type)	900mm (clear width)	More than 900mm
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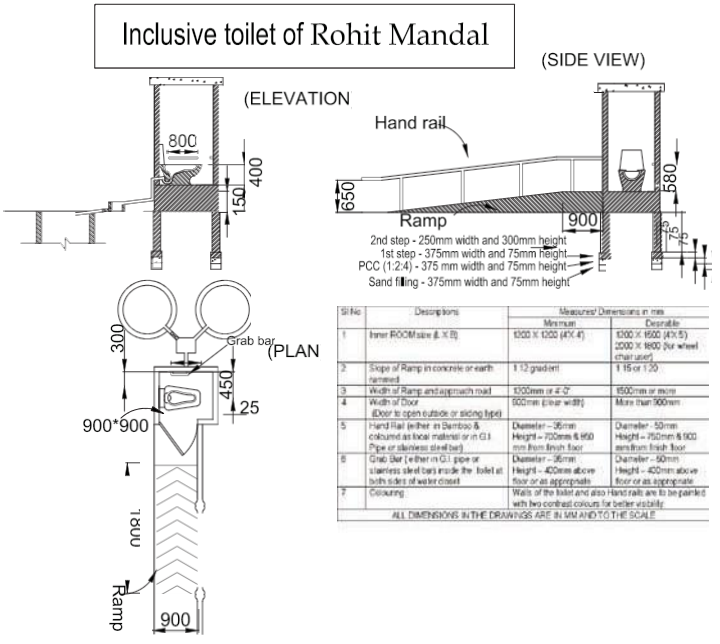
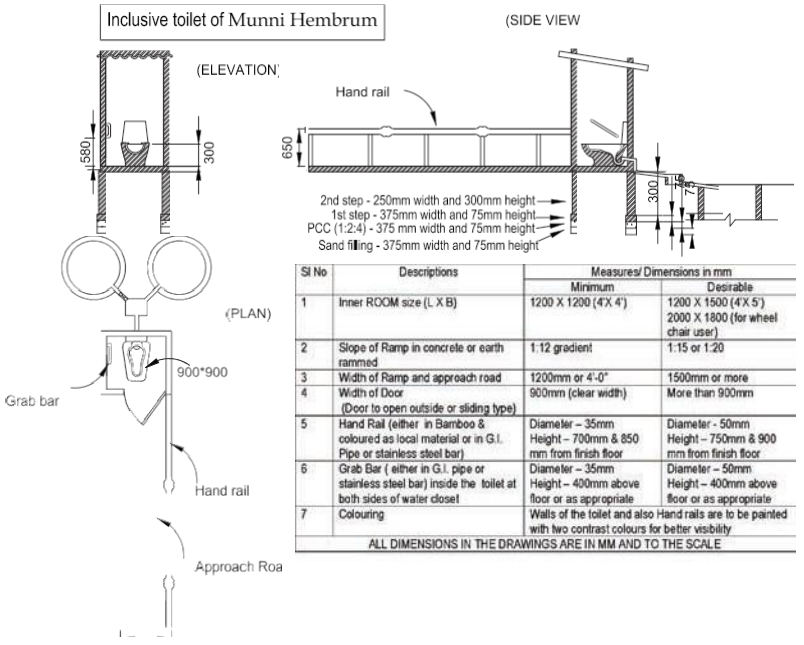
6	Grab Bar (either in G.I. pipe or stainless steel bar) inside the toilet at both sides of water closet	Diameter – 35mm Height – 400mm above floor or as appropriate	Diameter – 50mm Height – 400mm above floor or as appropriate
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	

ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE

Drawing- 3



Drawing- 4



Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
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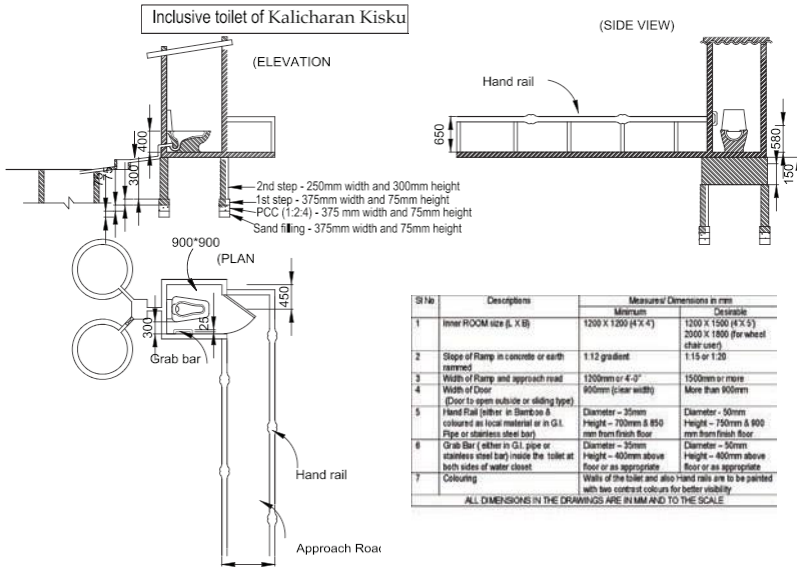
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	
	ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE		

Drawing- 5



Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
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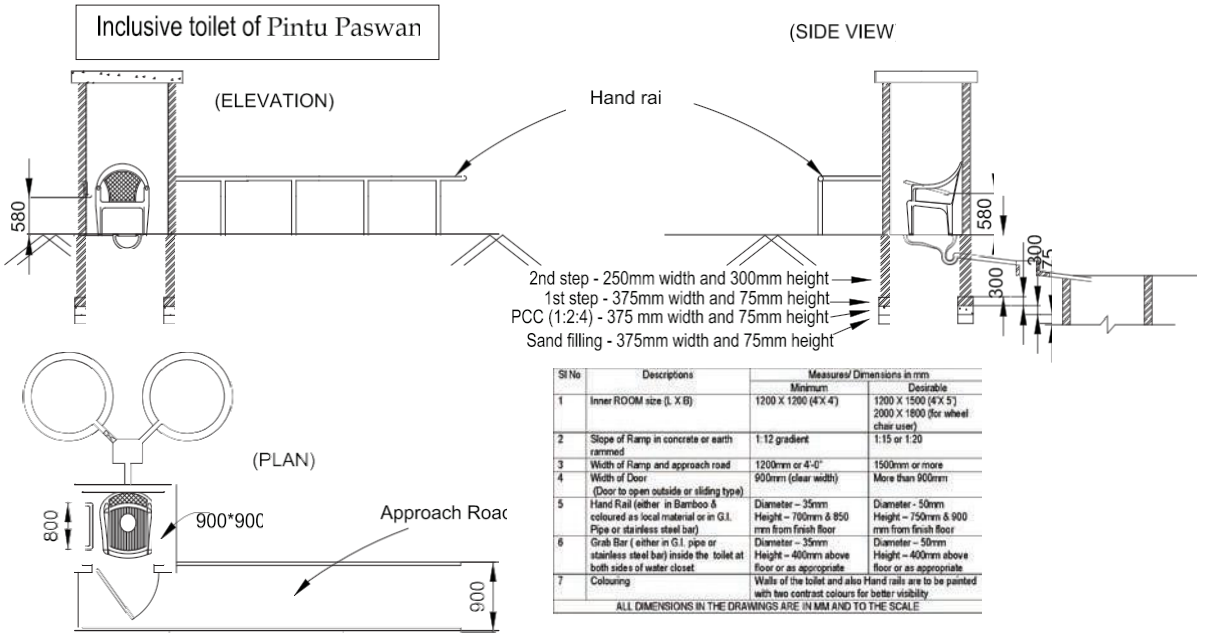
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	
	ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE		

Drawing- 6



Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
2	Slope of Ramp in concrete or earth rammed	1:12 gradient	1:15 or 1:20
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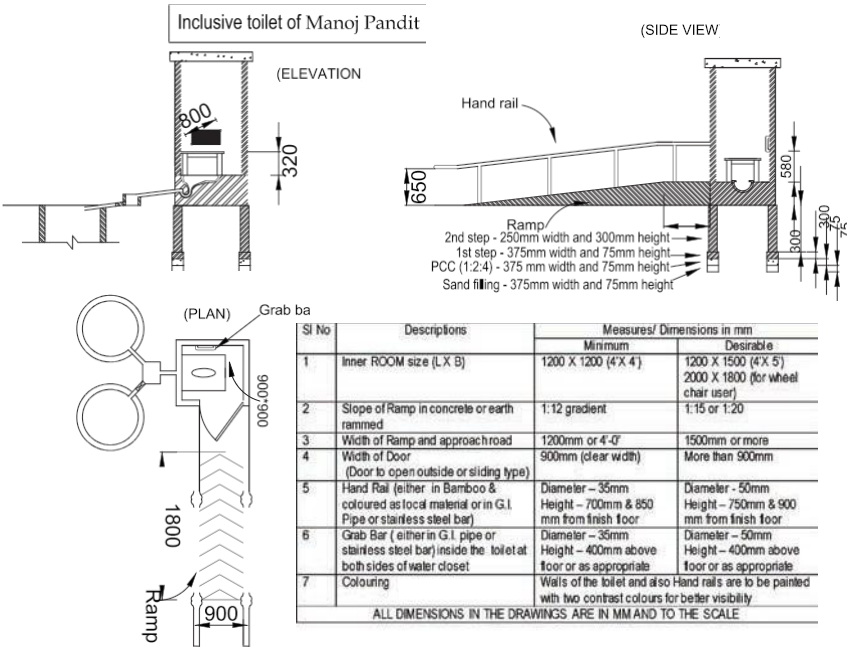
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	
ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE			

Drawing- 7



Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
2	Slope of Ramp in concrete or earth rammed	1:12 gradient	1:15 or 1:20
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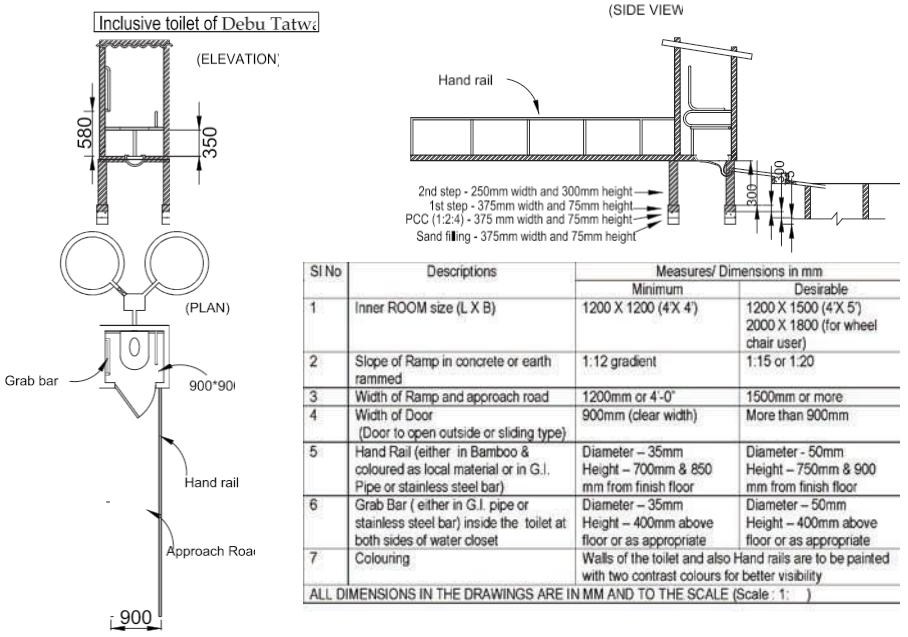
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	
ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE			

Drawing- 8



Sl No	Descriptions	Measures/ Dimensions in mm	
		Minimum	Desirable
1	Inner ROOM size (L X B)	1200 X 1200 (4'X 4')	1200 X 1500 (4'X 5') 2000 X 1800 (for wheel chair user)
2	Slope of Ramp in concrete or earth rammed	1:12 gradient	1:15 or 1:20
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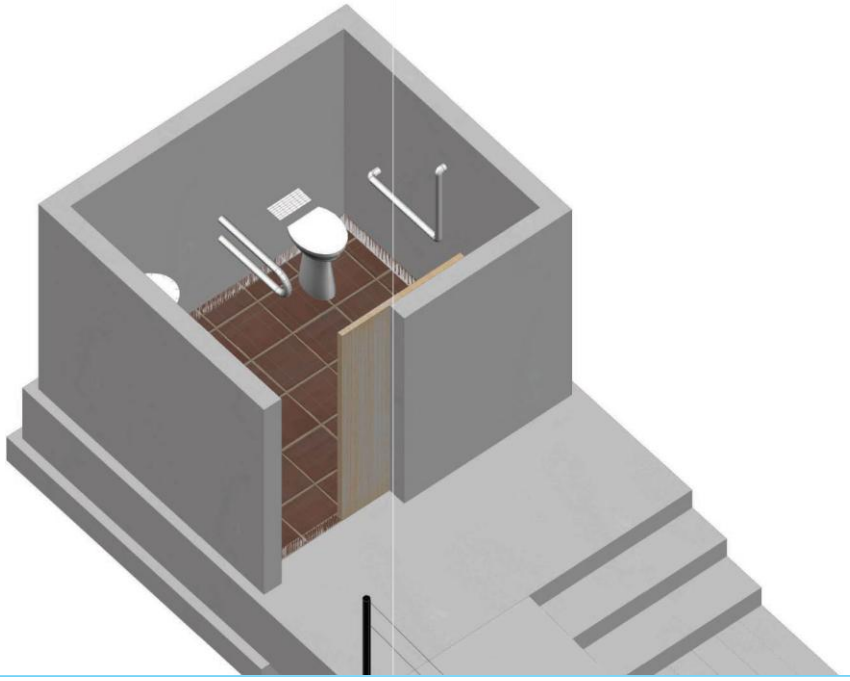
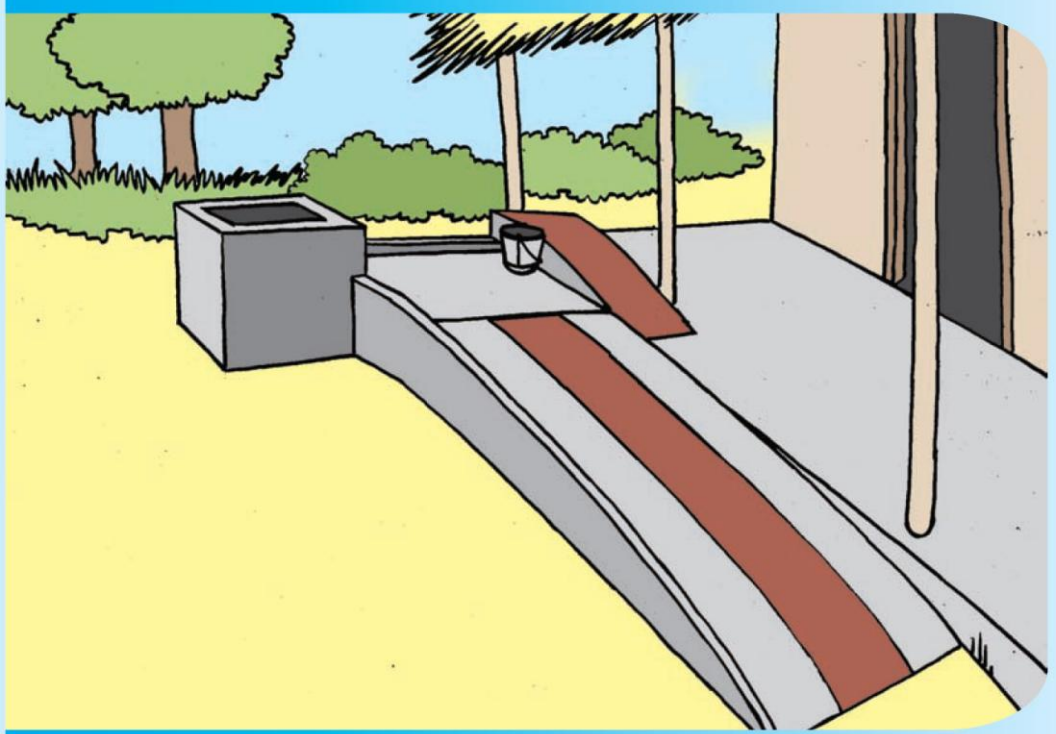
7	Colouring	Walls of the toilet and also Hand rails are to be painted with two contrast colours for better visibility	
ALL DIMENSIONS IN THE DRAWINGS ARE IN MM AND TO THE SCALE (Scale : 1:)			

Drawing- 9



Drawing- 10



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