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Tilmaamaha Xirfadeysan ee Farsamada Dhismooyinka

Dayactrika iyo horumarinta Kaabayasha dhaqaalaha dagaalada kadib

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FOR A BETTER URBAN FUTURE

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November, 2018

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UN-Habitat Waxey aqoonsi iyo qadarin siineysaa buugaagta hoos ku qoran tixraaca ay ka sameysay:
Basic Construction Training Manual for Trainers by Heini Muller
Building Construction Principles and Practices by D. Walter

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Gogol-dhig

Dagaaladii sokeeye ee ka dhacay soomaaliya 1991dii waxay dhaawac badan u geysteen nolosha iyo hantida dad farabadan oo ku nool soomaaliya oo idil, masiibadaan bani'aadanimo ee dhacday ayaa dadka deegaanka iyo hey'adaha caalamiga ah waxay la gaareen howlo gargaar iyo dayactir.

Habab kala duwan ayaa la horumariyay sidii dib loogu dhisi lahaa kaabayaasha dhaqaale ee danta-guud iyo tan gaar ahaaned ee burburay, hooy ayaa loo qeybiyay dadka barakacay, waxaana loo suura galiya dadka tabaaleysan iney dib u dhistaan nolol maalmeedkooda. Ayadoo la tixgalinayo xeerka heyadda UN-Habitat, ayaa heyaddu waxay dhiiri galisay hanaanka ka qeyb qaadashada bulshada sidii ay uga qeyb qaadan lahaayeen howlaha dayactirka iyo horumarinta kaabayaasha dhaqaalaha, ayadoo la tix galinayo baahida dhabta ah ee dadweynaha iyo xaaladaha gaarka ah.

Baaba'a ku yimid xirfadihii dhismaha, iyo ka cararka xirfadley faradan iyo aqoonyahanada ku takhasusay dhismaha ayaa si daran u wiiqay tayada dhismaha gudaha wadanka soomaaliya. Tani waxey si cad u tilmaamaysaa baahida dagdaga ah ee loo qabo sare u qaadista, casriyeynta dhismaha iyo tayeynta farsamada gudaha iyo guud ahaan xirfadaha dhismayaasha oo idil. sidaas owgeed "tilmaaha xirfadeysan: kormeerka iyo fulinta dib-u-dhisida, iyo dayactrika howlaha kaabayaasha: ayey heyadda UN-Habitat horumarisay ayadoo kaashaneysa lana tashaneysa injineerada gudaha.

Buug yarahan ayaa waxaa sameeyay mashruuca ""Sustainable Employment Creation and Improved Livelihoods of Vulnerable Communities in Mogadishu (SECIL)" "Shaqo abuurista joogtada ah iyo sare u qaadida nolosha bulshada taagta daran ee ku nool Muqdishu (SECIL)" ayadoo ku saleysan khibradda hey'adda un-habitat u leedahay mashaariicda guryeynta, horumarinta kaabayaasha, dhib-u-dhiska iyo dayactrika ee soomaaliya. ayado la tix raacayo Buugga ay qortay Heini Muller's ee "Basic Construction Training Manual for Trainers" "buugyaraha tababarka aasaasiga dhismaha ee tababarayasha" Buugga tababarka ujeedadiisu waxay tahay in sare loo qaado tayada xirfadleyda ka shaqeeysa dhismaha iyo sidoo kale sare u qaadidda tayada dib u dhiska iyo soo kordhinta farsamooyin cusub.

Buugga Tababarka waa buug kooban oo ka hadlaya aqoonta aasaasiga ah ee dhismaha, kaas oo ah qeybaha ugu muhiimsan ee xirmada xirfadaha aasaasiga ah ee laga rabo in dadka ka shaqeeya dhismaha ay si fiican u bartaan sida maamulayaasha dhismaha, kaaba-shaqaalayasha, farsamayaqaanada iyo shirkadaha dhismaha kuwaas oo ka wada shaqeeya dib u dhiska soomaaliya. Buuggu wuxuu gaar ahaan diiradda saarayaa xirfadaha hirgelinta wuxuu kaloo macluumaad muhiim ah ka siinayaa Kaaba-shaqaalayaasha iyo farsama-yaqaanada sida: waxa la sameeyo iyo waxa aan la sameyn xilliyada dhismaha. Sawirro iyo farshaxanno ayaa ku jira buugga, taas oo ka kaalmeyneysa in fiican loo fahmo, wuxuu sidoo kale iftiiminayaa farsamooyinka lagu dabaqi karo soomaaliya.

Buug-yaraha Tababarku waxuu sharaxaad guud ka bixinayaa qeybaha ugu muhiimsan ee dhismaha, wuxuu sido kale bixinayaa macluumaad la xariira tayada jaan-gooynta iyo tijaabinta tayada qalabka dhismaha ee soomaaliya laga isticmaalo, Buuggu wuxuu kaloo sharaxayaa qaabka shaqada dhismaha loo qabto sida diyaarinta shubka, bulakeetiga, dhagaxa, waraabinta, salaaxmada, shaqooyinka dhulka iyo saqafka. sidoo kale ka hortagga shilalka iyo isticmaalka qalabka badbaadada. Waxaa la rajeynayaa in buuggaan ay ka faa'iideysan doonaan dadka ka shaqeeya dhismaha, xirfada cusubna ka heli doonaan si loo helo dhismooyin tayo sare leh.

Bandhigga isticmaalaha

Ujeedada buug-yarahan waa in uu tilmaame u noqdo aqoonyahannada dhismaha, sida maamule dhisme, kormeere, farsamayaqaan iyo shirkadaha dhismaha, sidii ay u sameyn lahaayeen dhisme wanaagsan oo leh tayo, badbaado, cimri dheere, kuna baxaya dhaqaalo yar marka dib loo dhisayo soomaaliya. Dhammaan aqoonyahannada dhismaha ee soomaaliyeed, iyadoon la kala saareen jagadooda waxaa lagu dhiirri gelinayaa iney helaan nuqul, ayna wataan mar walba si ay tixraac uga dhigtaan howlahooda joogtada ah ee dhismaha.

Si dhaqso ah oo fudud ayaa buuga-yarahan tix raac looga dhigan karaa, asigoo daboolaya qeybaha ugu muhiimsan ee aasaasiga u ah dhismaha taasoo markii la raaco keeneysa in la helo dhisme leh tayo iyo adkeysi oo dhaqaala yar lagu dhisayo. Buug-yaraha wuxuu koobayaa dowrka iyo shaqooyinka looga baahan yahay qeybaha ugu muhiimsan guriga sida; Aasaaska, darbiyada, Kabbiska iyo saqafyada. wuxuu aqristaha ka kaalmeynayaa inuu doorto qalab tayo leh iyo hababka uu ku dhisi lahaa guri xoogan oo adag.

Xirfad-yahanada dhismaha, Buug-yarahaan wuxuu siinayaa tilmaamo sidii lagu dhisi lahaa guri wanaagsan sida: jaangooyada dhismaha, si wanaagsan in loo qaso loona waraabiyo shubka, qaabka la isugu dhajiyo darbiyada, qaabka loo dhigo bulakeetiga, qaabka loo tijaabiyo qalabka dhismaha iyo in la dabaqo nadaamka badbaada xilliga dhismaha

Buug-yarahaan wuxuu ka siinayaa maamulayaasha dhismooyinka iyo Kaaba-shaqaalayaasha, tilmaamo fudud oo khuseeya qeybaha ugu muhimsan ee maamulka dhismaha sida: qorsheynta, waqtiyeynta dhaqdhaqaaqa dhismaha, diyaarinta alaaabta, iyo sidii loo qiyaasi lahaa shaqaalaha looga baahan yahay qeybaha ugu muhiimsan ee dhismaha, iyo sidii loo joogteyn lahaa diiwaan galinta shaqada shaqaalaha maalin waliba.

Buug-yarahaan wuxuu leeyahay tilmaamo rasmi ah oo ku saabsan hal beegyada badbaadada laga rabo qof waliba inuu inuu is ticmaalo xilliga shaqa si looga hortago shilalku iney dhacaan.

Buugg-yarahaan wuxuu ku siinayaa si guud wax kasto oo loo baahan yahay markii la dhisayo dhisme. Wuxuu ka caawinayaa kor u qaadista xirfadaha farsamayaqaanada iyo inuu siiyo Kaaba-shaqaalayaasha iyo maamulayaasha liis warbixineed si loo xaqiijiyo tayada dhismaha.

Ayadoon la fiirineyn heerka dhismooyinka, hadii aad tahay maamule, Kaaba-shaqaale ama farsamayaqaan kaas oo qabanaya xirfadda rasmiga ah ee dhismaha, buug-yarahaan wuxuu kor u qaadaya xirfadaada dhismo ee gaar ahaaneed iyo inuu hagaajiyo guud ahaan heerka dhismo ee looga baahan yahay dib-u-dhiska soomaaliya.

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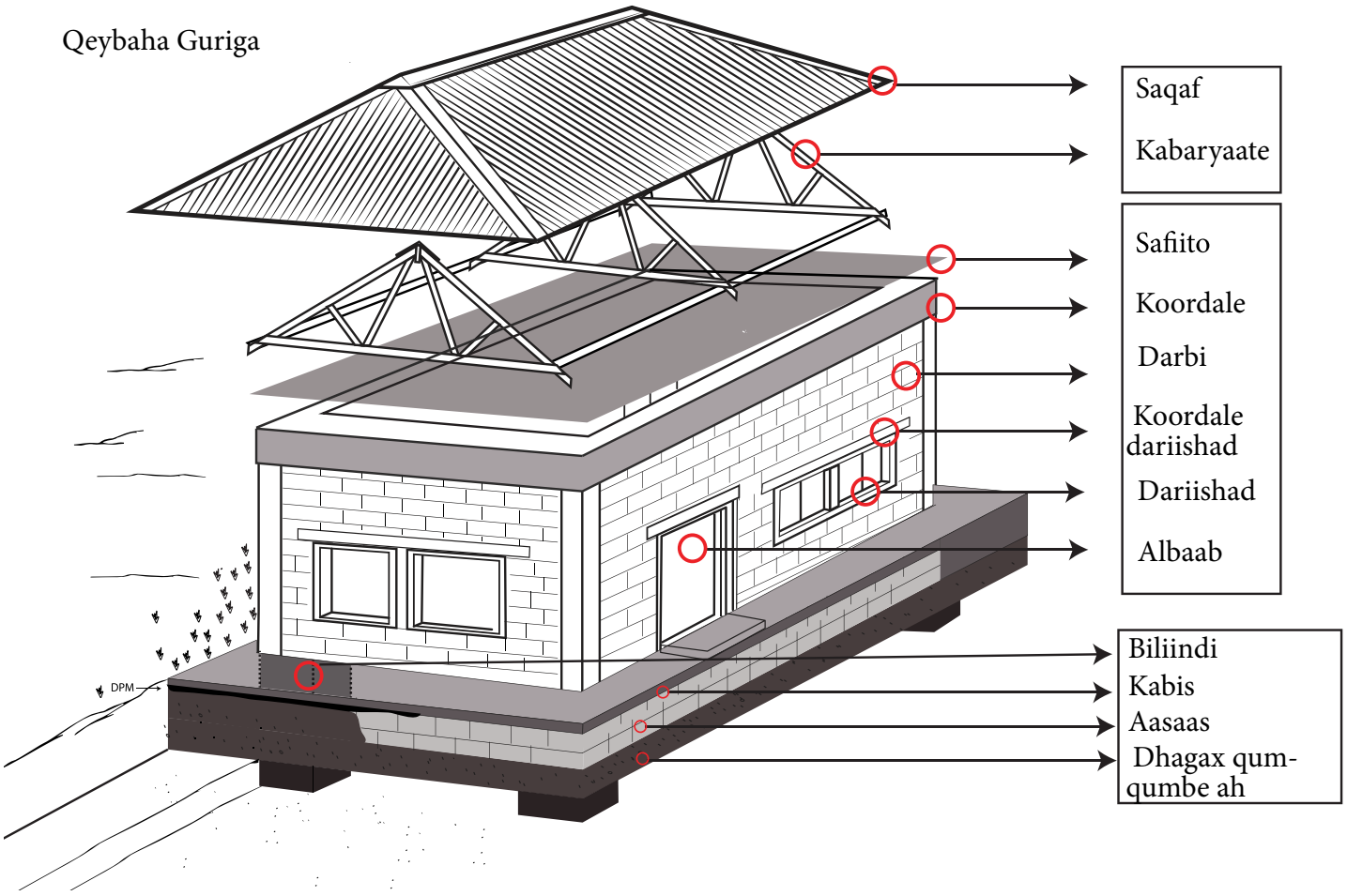
A. Qeexitaanada iyo aragtida aasaasiga ah ee dhismaha

1. Qeexidda dhismaha iyo qeybihiisa ugu muhiimsan

Dhisme waa qaab-dhismeed joogto ah ama aan joogto eheyn kaas oo sameeynaya xeendaab, kaana difaacaya waxyeelada cimilada sida roobka, qabowga iyo kuleylka (tusaale Guri, Iskuul, Suuq, dukaan, xafiis iyo warshad), dhismuhu wuxuu kaloo ku siinayaa xurnimo/keli ahaansho, badbaado iyo bee'ad aad ku shaqeyn karto.

Dhismaha aasaasiga ah wuxuu ka kooban yahay qeybahan soo socda:

- Aasaaska
- Kabbiska
- Darbiyo (oo ay ku jiraan duleelada, koordaraha iwm)
- Albaabo iyo dariishado
- Jaran-jaro (wixii ka badan hal dabaq)
- Saqafka (wuxuu ka kooban yahay kabaryaate, daboolka saqafka iyo mararka qaar saafiitada)



Jaantuska 1aad. Jaantuka qeybaha dhismuhu ka kooban yahay

1.1 Aasaaska

Aasaasku waa salka uu ku fariisanyo dhismaha kaas oo xambaara una gudbiya culeyska qaab-dhismeedka oo idil dhulka hoose. Aasaasku waa inuu lahaadaa xoog ku filan si uu u qaado culeyska dhismaha, culeyska dheeriga ah iyo culeysyada lagu siyaadin karo dhismaha mustaqbalka.

Waxaa jira saddax culeys oo aasaasku u gudbiyo dhulka hoose:

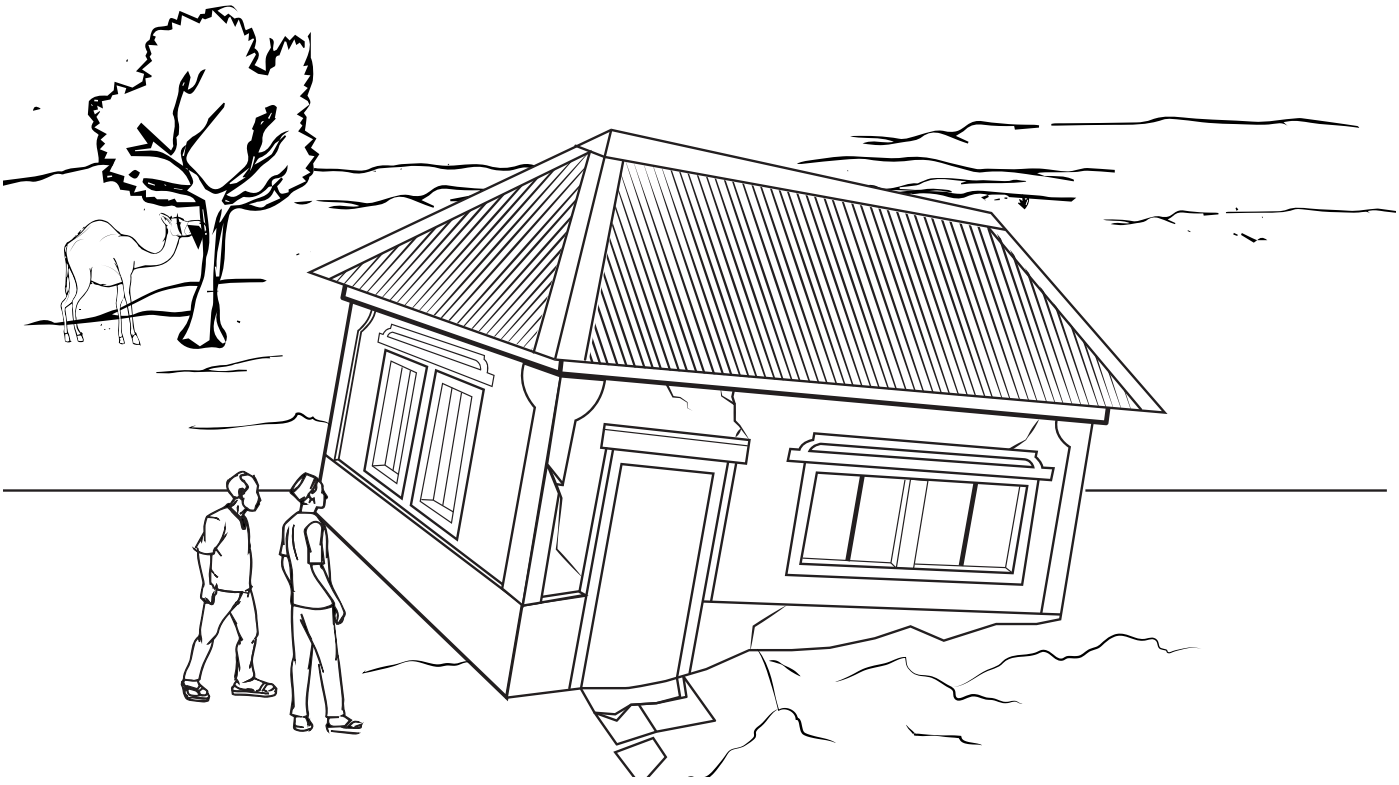
Culeys aan la dhaqaajin karin:	Kani waa isku darka culeys-yada dhismaha oo ka kooban: darbiyada, saqafka, Kabiska, safiitada guriga iyo adeegyada kala duwan sida qalabka musqulaha iyo biyaha
Culeyska dhaqdhaqaaqa ama dulsaarka ah:	Kani waa Culeyska dadka, alaabta guriga, qalabka iyo mashiinada yaala dhismaha dhaxdiisa
Culeyska dabeysha iyo kuwa tooska ah:	Kuwaani waa culeysyada dabeysha oo ku dhaca darbiyada iyo saqafka gaar ahaan dhismooyinka dhaadheer ama awoodaha dhul-gariirka, culeysyada tooska ah waxey u gudbaan aasaaska si aan isla ekeen ayagoo awood quman ah.

Aasaasku si uu u noqdo mid si caadi ah u qaadi kara culeysyada una gudbin kara dhulka hoose waa inuu ahaada mid:

- Adag oo fadhiya
- Laguna dhisay alaab iska caabin karta weerarada kaga imaanaya biyaha iyo macdanta ku jirta dhulka hoostiisa sida cusbada iwm

Naqshadeynta aasaaska waa in lagu tixgaliyaa xaaladaha dhulka hoose ee goobta dhismaha gaar ahaan dulqaadka carada ee culeysyada, iyo hoos u dagidda carrada markii culeys la dulsaaro. Tani waxey aad u muhiim ugu tahay qaab-dhismeedyada dhaadheer iyo kuwa culus, Goobta dhismaha hadii carrada dhulka hoose jilicsan tahay ama aysan fadhin (tusaale. carro jilicsan, haraaga leh waxyaaba nool, dhoobo biyo leh iwm), iyo meelaha u nugul dhul-gariirka. Dhisme leh culeys ka badan dulqaadka carrada ee culeysyada hoos ayuu u dagi karaa(waxaana loo yaqaanaa “hoos u dagida dhulka”), wuxuuna keeni karaa hoos-u-dagid aan isla ekeyn, taas oo sababeysa kabbis aan isla ekeyn ama dildilaac leh. Dhismooyinka dhaadheer iyo goobaha aan carradoodu fiicneyn waa in la sameeyaa baaritaan goobta iyo carrada (geotechnical investigation) si naqshad ku haboon loo sameeyo.

Dhismooyinka iyo xaaladaha carrada ee gaarka ah waxey u baahnaan karaan xalal aas-aas oo gooni ah, tusaale ahaan culeyska dhismaha ayaa loo qeybin karaa sagxad balaaran ama culeyska ayaa loo wareejin karaa lakab hoose oo fadhiya.



Jaantus 2aad. Dhisme Dagaya sababo la xariira Aasaaska oo liita iyo carrada oo jilicsan

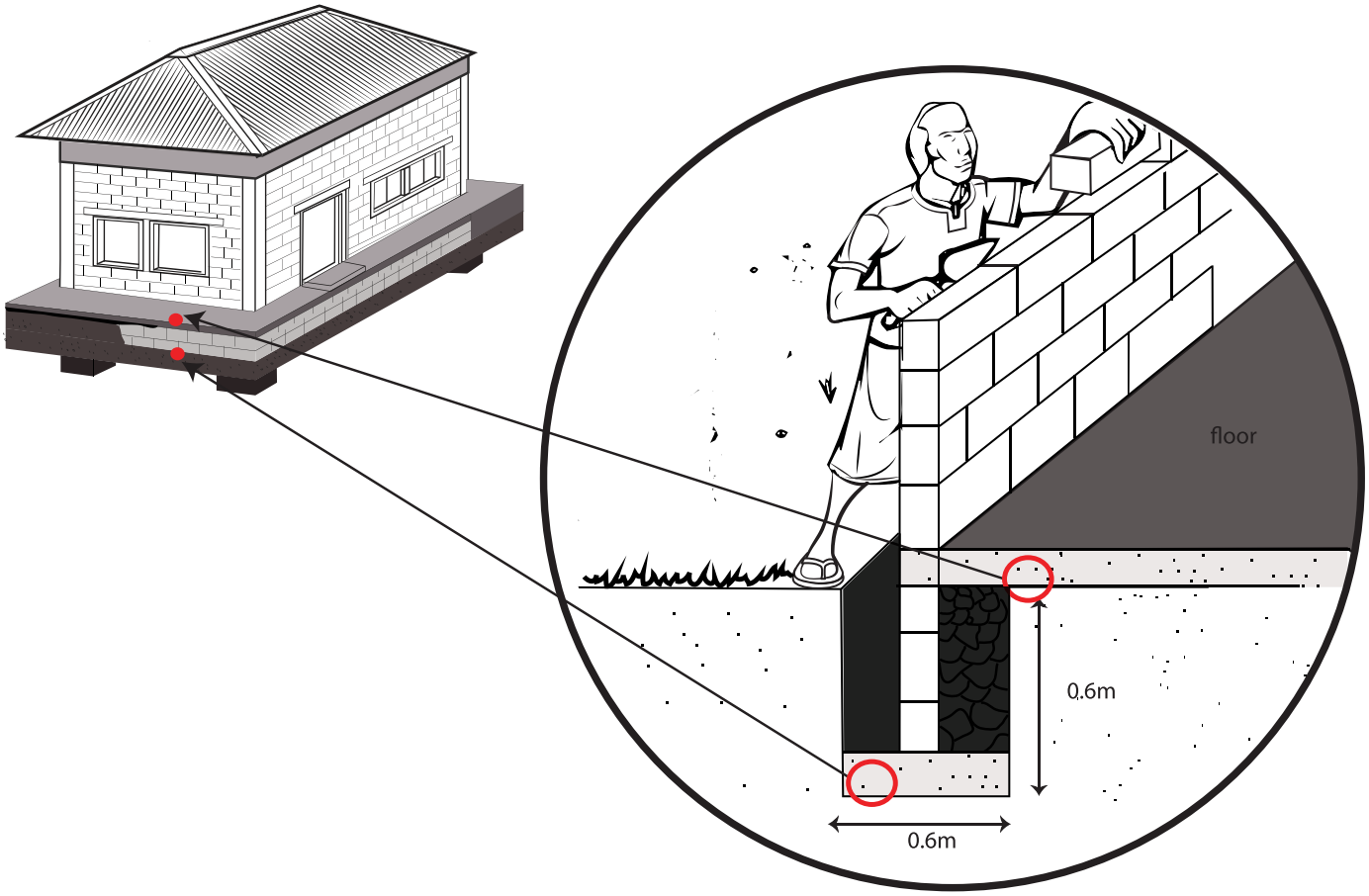
Doorashada noocyada kala duwan ee Aasaaska

Nooca aasaaska waxaa lagu go'aamiyaa:

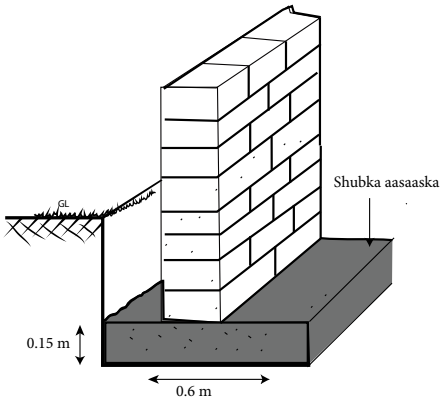
- Isticmaalka iyo Baaxada dhismaha
- Nooca carrada iyo dulqaadka ay u leedahay culeyska
- Helitaanka agabyada loo isticmaali karo aasaaska

Qota-dheerida aasaaska

Qota-dheerida aasaaska waxaa lagu go'aamiyaa culeyska dhismaha iyo dulqaadka cartadu u leedahay culeysyada. Aasaaska guud ahaantiisa waxaa loo qeybiyaa laba qeybood: Aasaas gaaban iyo aasaas qota-dheer. Guryaha caadiga ah ee deegaanka ah, aasaaska dhererkiisu waa inuu noqdaa ugu yaraan 600 mm(0.6m)

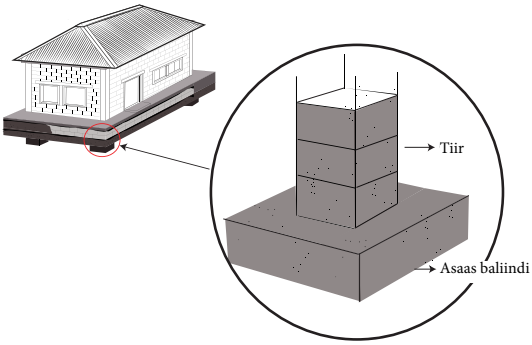


Jaantus 3aad. Aasaas qodis oo tusinaya cabirka balaca iyo qotaha ugu yar



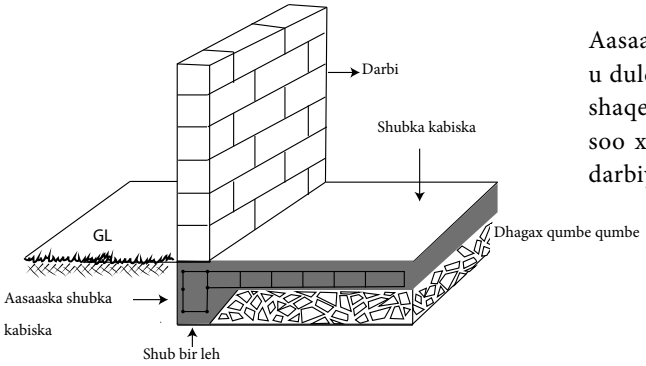
Aasaaska Magaroonaha

Aasaaska magaroonaha waa shub bir leh ama aan bir laheyn oo la dhigayo dhamaan sagxadda hoose ee dhismaha, ka hor inta aan la dhigin Tiiraka(biliindiyaasha), Shubka noocaan ah waxaa loo isticmaalaa dhismooyinka caadiga ah ee halka dabaq ah oo leh qoto ugu yaraan 600mm (0.6m)



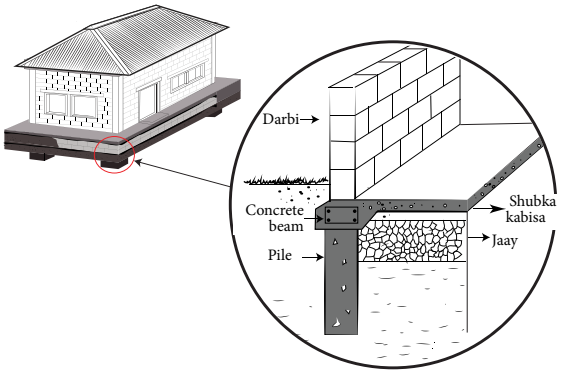
Aasaaska Tiirarka (baliindi)

Aasaaska baliindiyaasha waa aasaas gooni u taagan oo lagu xoojiyo tiirarka shubka ah ee kor u taagan, Tiirarku waxey hoos iskaga xiran yihiin koordale shub ah o leh bir shub



Aasaaska shubka kabiska

Aasaaska noocan ah waxaa loo isticmaalaa carrada aan fadhin oo aan u dulqaadan karin culeyska, sida carro madowda. Aasaaskaan wuxuu u shaqeynayaa sida kabiska dhulka oo kale, caadi ahaan waxaa hoos looga soo xiraa tiirar. Shubka kabiska geesaha ayaa laga balaariyaa meelaha darbiyadu ka bilaabanayaan.



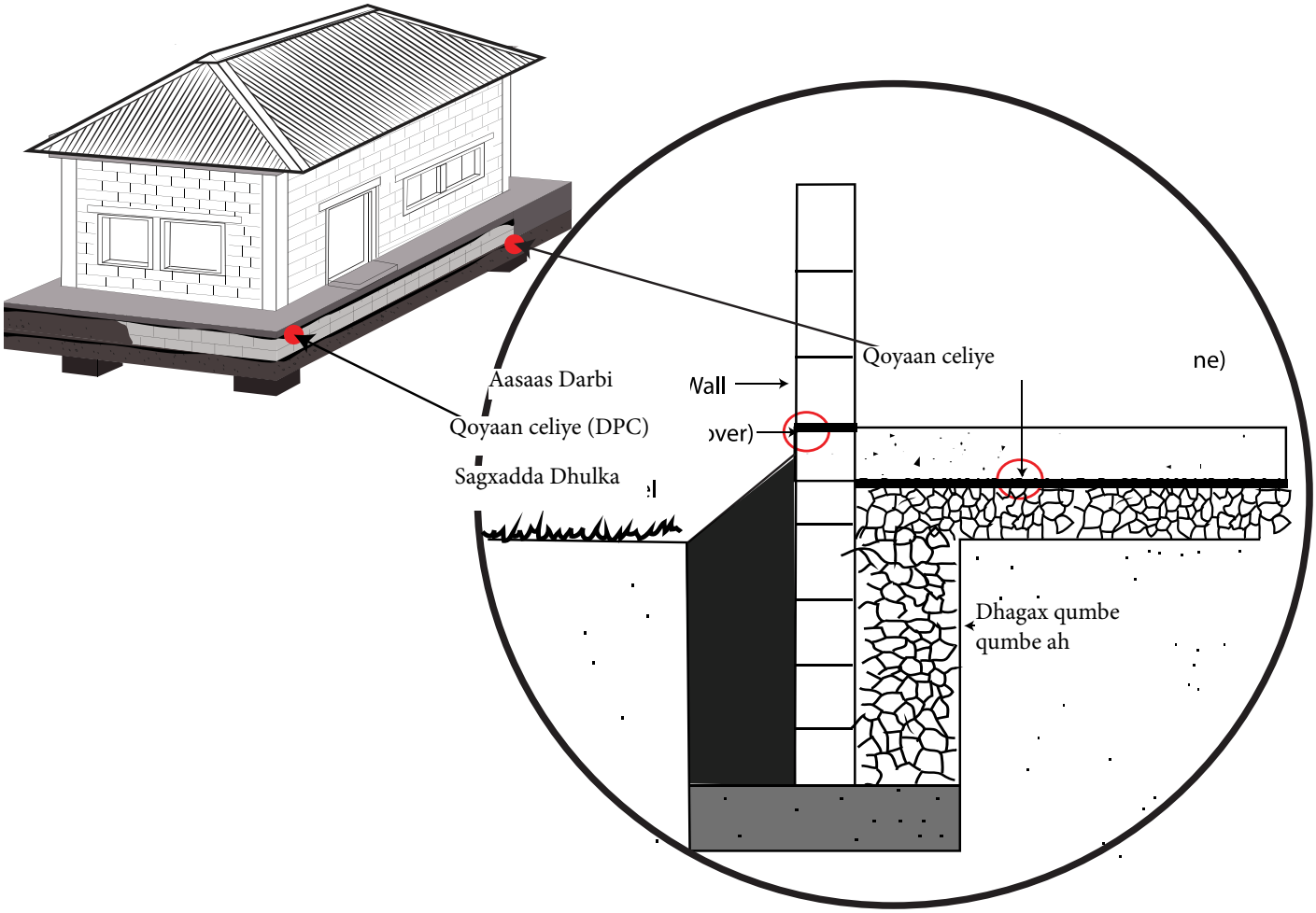
Aasaas Garaabbeysan (Piled foundation)

Aasaaska garaabbeysan waxaa loo isticmaalaa goobaha carrada dagan laga helo qoto ka dheer 2-3m. Dhex-roorka garaabuhu ugu yaraan isku jirkoodu wuxuu noqonayaa 250mm ugu badnaanna wuxuu noqonayaa 1.5m.
marka la joogo sagxadda dhulka, garaabooyinka waxaa la iskula xiraa koordaleh leh bir shub.

Qeybaha ugu muhiimsan ee aasaaska

Asaaska caadiga ah wuxuu ka sameysan yahay qeybahaan soo socda:

Aasaas Baliindi:	Kani waa shub sal adag leh oo isku xira dhismaha oo idil iyo dhulka
Aasaas darbi:	Aasaaska darbiga wuxuu ka bilaabanayaa aasaaska baliindiga wuxuuna sagxadda dhulka ka sareeyaa ugu yaraan 150mm
Kordale balindi:	Kordalaha balindiga waa qeybta sare ee aasaaska darbiga ee ka sareeysa sagxadda dhulka. mararka qaar kordale shub oo bir leh ayaa la iskula xiraa aasaaka darbiyada
Qoyaan celiye (Damp Proof Course (DPC)):	Qoyaan celiyuhu waa qalab dhisme oo la dul saaro kordalaha baliindiga, ujeedada qoyaan celiyaha waa inuu ka hortagaa qoyaanka inuu gaaro darbiyada taas oo dhaawac u geysan karto dhismaha qeybihiinsa kala duwa sida rinjiga iwm



Jaantus 4aad. Qeybaha ugu muhimsan ee aasaaska

1.2 Kabbiska

Kabisku waa sagxadda siman ee dhismaha halkaas oo ay ka dhacaan dhaqdhaqaaqyada sida shaqooyinka. Kabisku wuxuu celiya culeysyada dadka, alaabaha guriga iyo mararka qaar mashiinada culus.

Kabisku waa inuu ahaadaa mid:

- Adag oo dhegan
- Laguna dhisay agab ay ku jiraan walxa adkeysi leh.

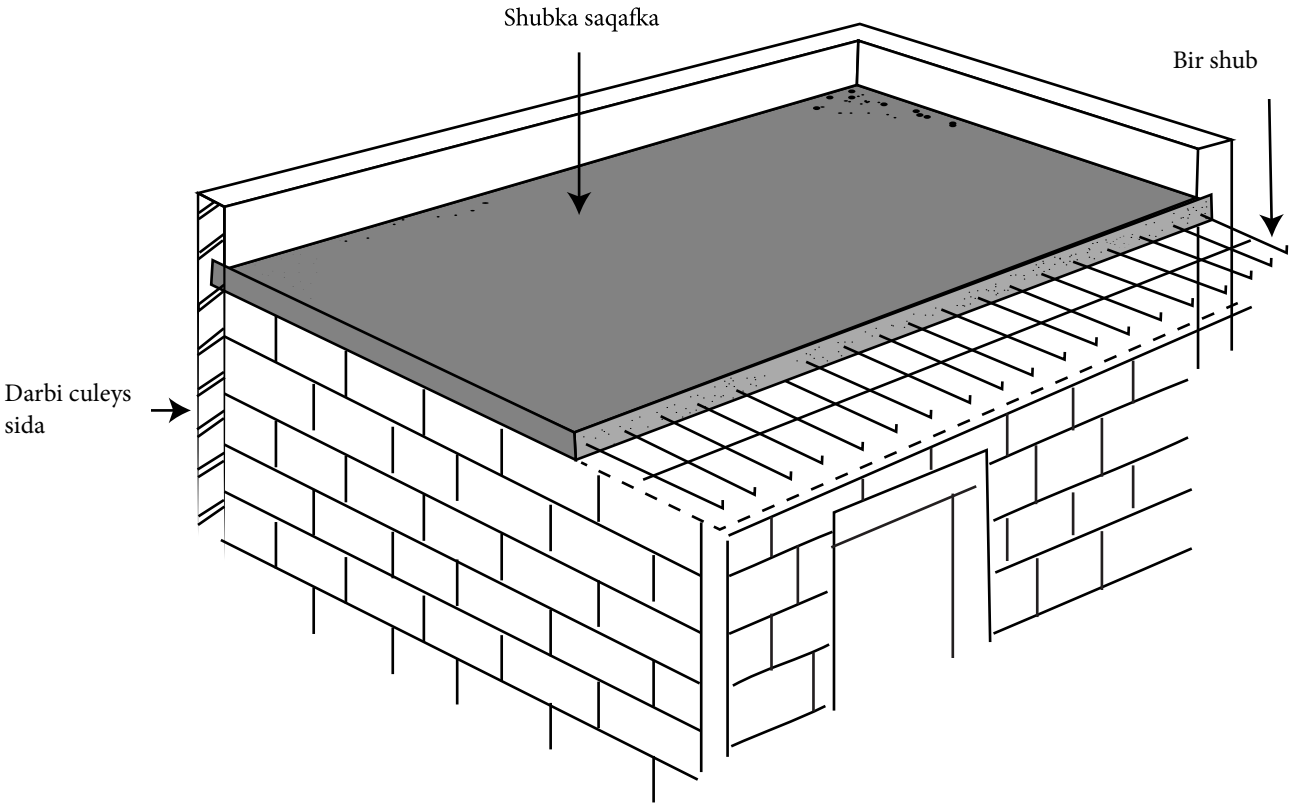
Aasaaska darbiyada markii la dhiso kadib, ayaa kabbiska dhulka toos loo dhigaa sagxadda dhulka, . wuxuuna ka kooban yahay :

-Kabiska hoose: Kani waa lakab aad loo cadaadiyay oo ka sameysan dhagax qumbe qumbe ah, carro kaawo iyo jaay. Hal lakab oo qoyaan celiye ah (DPC) ayaa la dul saarayaa kabiska hoose si uu qoyaanka uga celiyo inuu soo gaaro kabiska kore.

-Shubka kabiska: Kani waa Shub bir leh ama aan bir laheyn oo la dul saaray lakabka qoyaan celiyaha(DPC). Dhumuca shubka wuxuu u dhaxeeyaa 50-150mm oo ay ku xirtan tahay hadba isticmaalka kabiska loo rabo.

-Kabbis dhameystire (laboora fiino): Kani waa lakabka ugu danbeeyo ee kabiska muuqdo. waxaa laga sameyn karaa magaroone si fiican loo dhameystiray. nuucyada kale ee kabis dhameytiraha waxaa ka mid mutuneel iwm.

Sagxadda sare ama kabbiska labaad caadiyan waxaa loo isticmaalaa dhismooyinka dheedheer. Dhismaha kabiska labaad wuxuu u baahan yahay naqshad faahfaahsan iyo tilmaamo cad cad oo uu injineer soo sameeyay. masaafada u dhaxeeysa labada darbi waa ineysan ka badan 5 mitir Kabiska sare wuxuu badanaa ka sameysan yahay: Shub bir leh ama Tarniig.



Jaantus 5. saqaf shub ah

1.3 Darbiyada

Darbiyadu waa qeybo kamid ah dhismaha oo kor u taagan, shaqadooda ugu muhiimsan waa in uu :

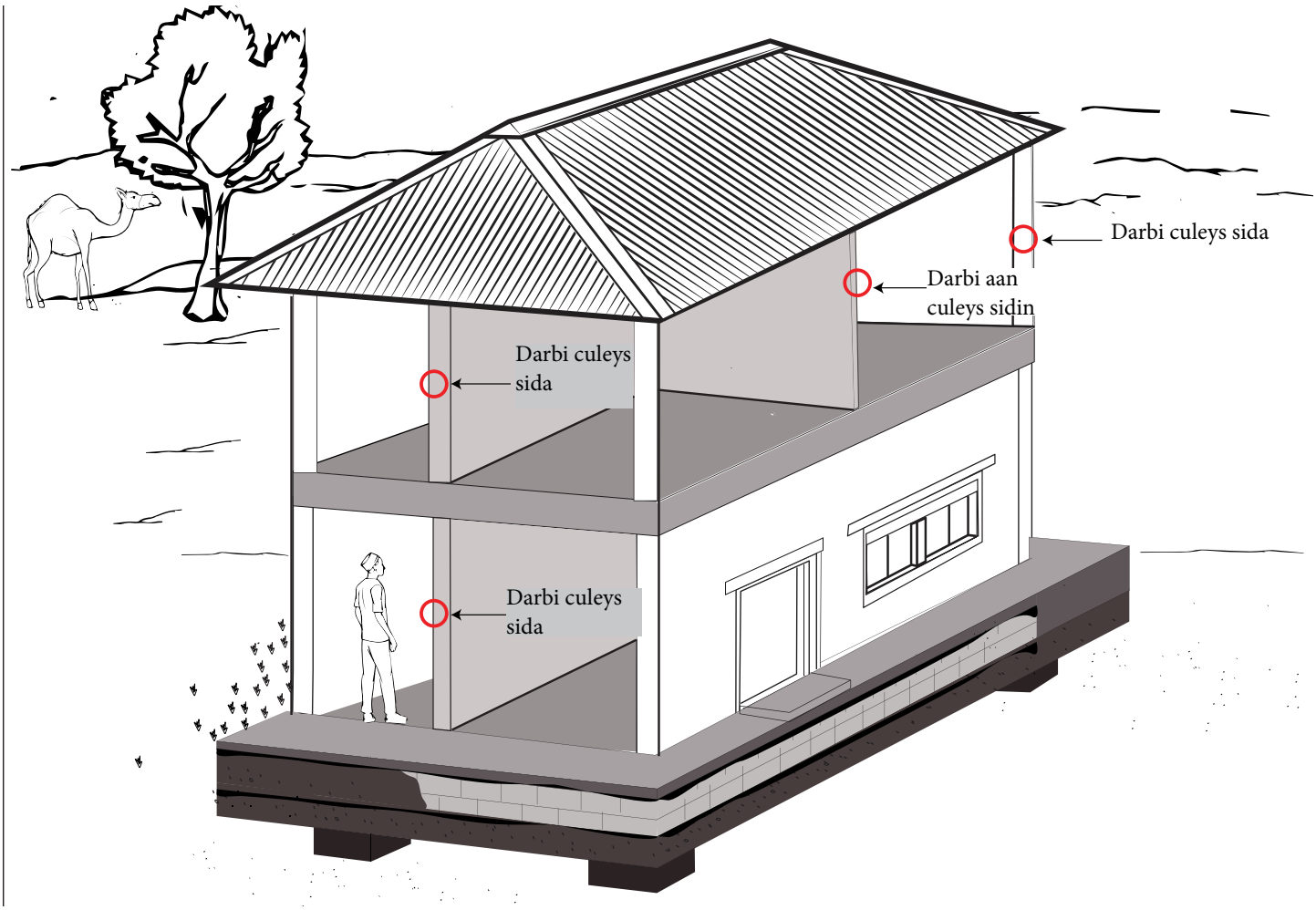
- xeeyndaab u noqdaa meel banaan, siiyaana xornimo/kali ahaansho
- u kala qeybiyaa dhismaha qolal gooni gooni ah ama qeybo isku xiran
- inuu siiyo iftiin, hawo , dariishado iyo meelo la isku maro sida albaabada.
- ka badbaadiyo dadka deggan waxyeelada cimilada sida roobka, dabeeysha iyo qorraxda
- inuu xoojiyo dabaqa sare iyo saqafka

Sidaa daraadeed darbiyado waa iney ahaadaan kuwo:

- adag oo dhegan xamaabrina kara culeyskooda iyo culeysyada la dul saaray ayagoon jabeeynin ama dilaaceeynin
- lagu dhisay qalab adag oo cimri dheer iskana caabin kara dabeysha iyo roobka, diirimaad ahaanaya xilli qaboobaha, qaboowgana ceshanaya xilli kuleeylaha
- siinaya dahaar adaga ama xijaab adag meelaha xornimada/keli ahaanshaha looga baahan yahay

Darbiyda waxaa loo kala qeybiyaa laba nooc oo kala ah:

Darbi culeys xambaare ah:	Darbigan waxuu sidaa culeys ka dheerei ah culeyskiisa sida culeyska saqafka sare iyo dabaqa labaad tusaale ahaan waa darbiga ku wareegsan banaanka dhismaha.
Darbi aan culeys xambaarsaneyn:	Kani waa darbi sida culeyskisa oo kaliya. waxaana loo isticmaalaa inuu kala qeybiyo ama kala xadeeyo dhismaha oo kaliya.



Jaantus 6aad. Darbiyada culeyska xambaarsan iyo kuwa aan xambaarsaneeyn

1.4 Albaabaha iyo dariishadaha

Albaabaha iyo dariishadaha waa duleelo ku dhaxyaala darbiyda kaas oo siinaya dhismaha meelo la isku maro, iftiin iyo hawo.

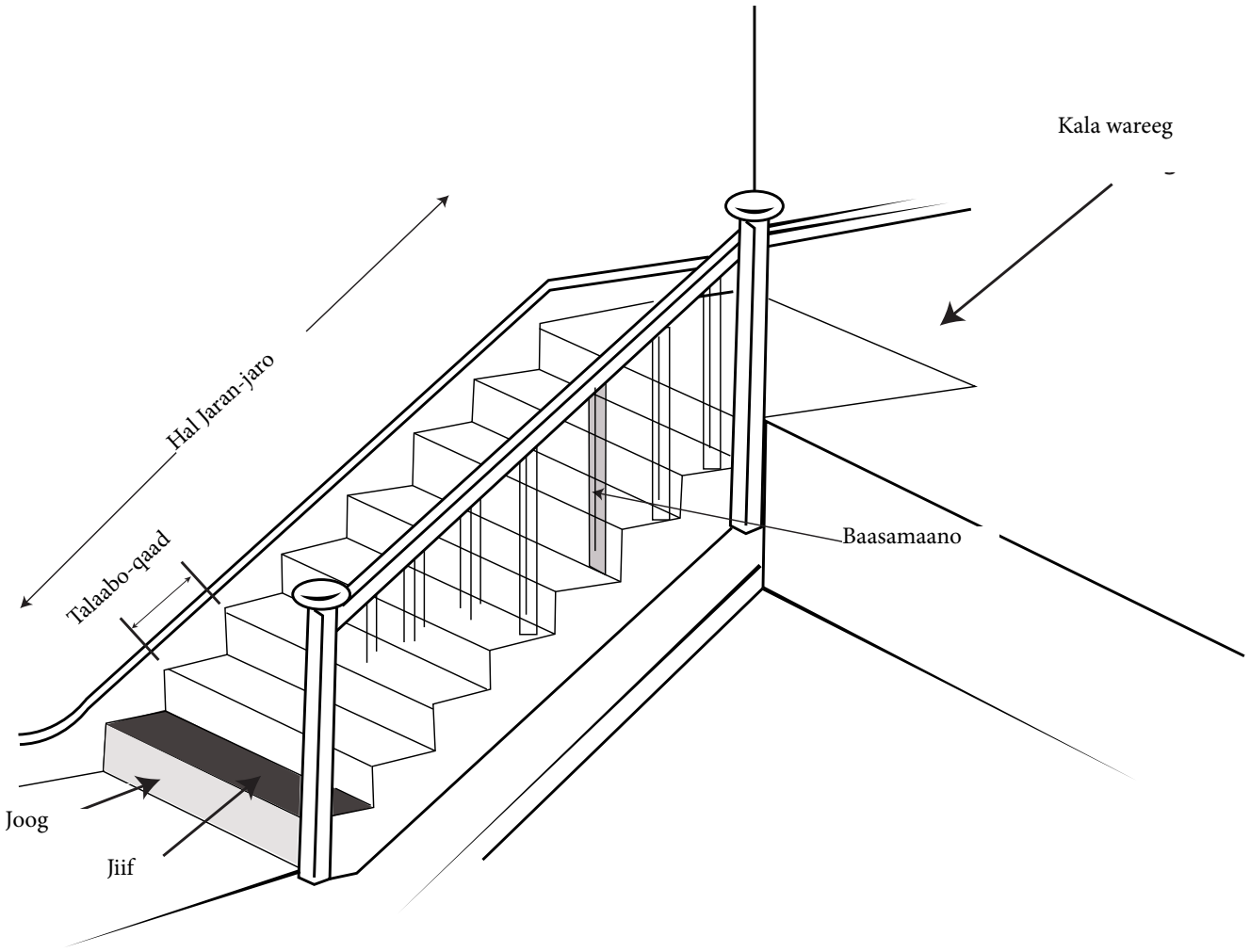
1.5 Jaran-jaro

Jaran-jaradu waxey fududeysaa in la iskaga gudbo dabaqyada dhismaha. Jaran-jaradu waxay ka sameysan tahay caga-saaro is-xigxiga waxeyna kaloo fududeysaa in lagu baxsado/badbaado xilliga dabku ka kaco dhismaha.

Jaran-jaradu waxey ka sameysan tahay qeybo kala duwan sida:

Cag-saar	waa meesha dadku ka fuulaan ama kaga soo degtaan dabaqyada kala duwan
jiif:	waa masaafada tooska ah ee u dhaxeysa laba caga-saar oo sameeyneysa hal talaabo
Joog	waa joogga hal cag-saar
Kalawareegga jaran-jarada	waa meesha lagu nasto ama looga sii gudbo qeybaha kale ee dhismaha
Hal Jaran-jaro	waa Talaabooyin is xiga-xiga oo u dhaxeeya hal kabis iyo saqaf ama laba kala-wareeg
Gacan-saar	waa halka gacanta lagu qabsado ee jaran-jarada taas oo ka badbaadisa dadka iney dhacaan
Baasamaano	waa tiirar taag taagan oo ka sameysan bir, Alwaax ama shub oo isku xira gacan-saarta iyo cag-saarta. Baasamaanada waxaa loo isticmaalaa iney dhicitaanka ka ilaaliso ilmaha. Dhextaalka labadii baasamaano waa inuusan ka ballaaran 150mm ugu badnaan

Jaran-jarada waxaa laga sameyn karaa, shub bir leh, Alwaax ama bir.



Jaantus 7. Qeybaha kala duwan ee jaran-jarada

1.6 Saqafka

Saqafku waa qeybta ugu sareysa ee dhismaha shaqadiisuna waa in uu:

- Daboolaa dhismaha, si uu uga hortago in roobka, dabeysha iyo qorraxdu soo galaan dhismaha
- Siiyaa dhismaha nolol dheeri ah, meel lagu shaqeysan karo ama wax lagu keeydsan karo

Saqafku waa inuu buuxiyaa shuruudahan si uu noqdo mid wax tar leh:

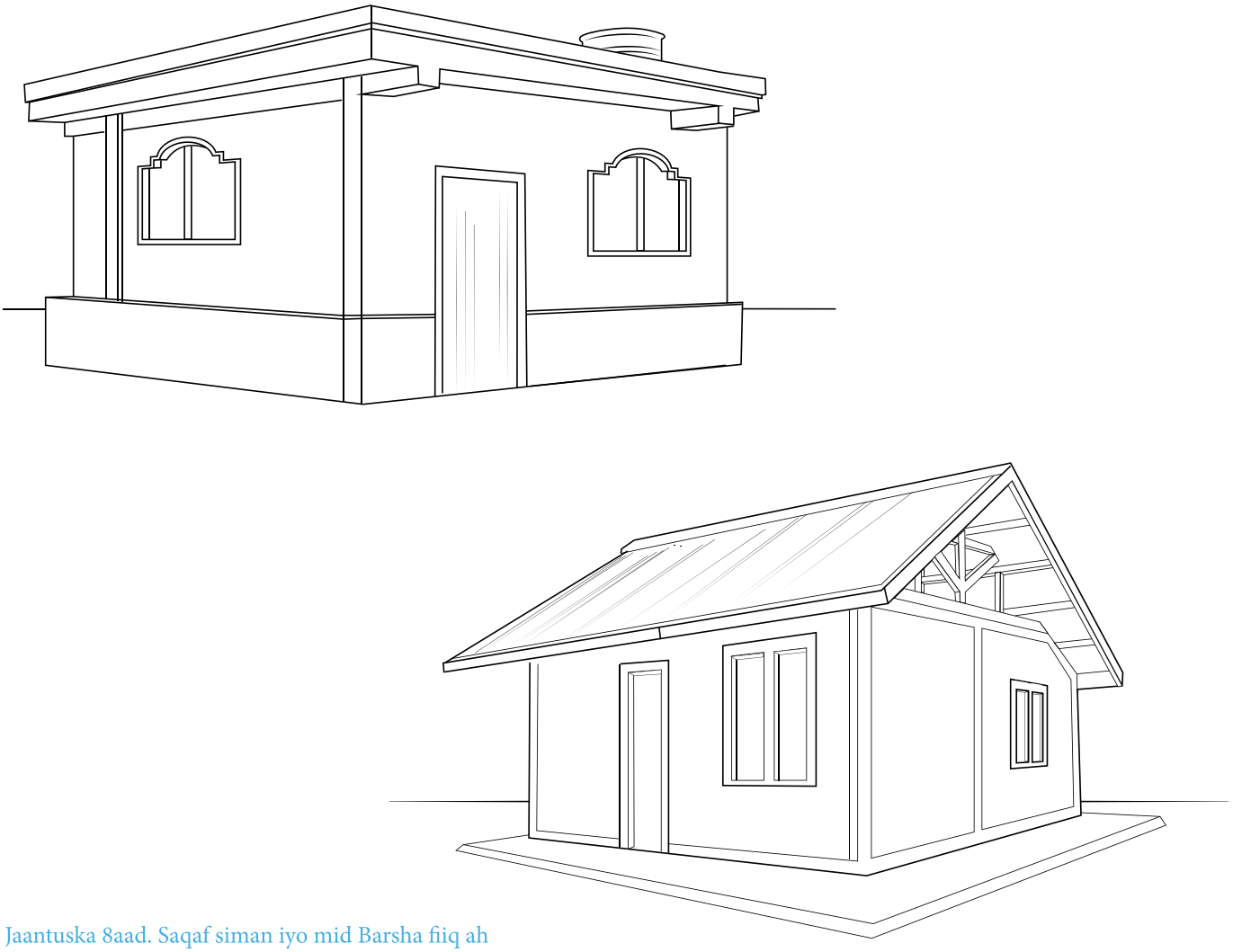
- Waa inuu ahaadaa mid xoogan oo adag si uu u qaado culeyskiisa iyo culeysyada dulsaaran
- Waa in lagu dhisaa qalab cimri dheer iskana caabin kara biyaha
- Waa in biyaha roobku si fudud uga daataan ayagoon soo galeyn guriga

Noocyada saqafka

Waxaa jira laba nooc oo saqaf oo kala aha:

Saqaf siman: waa Saqaf ka sameysan shub bir leh xoogaa yarna dhinac u jan-jeera si biyuhu uga daataan

Saqaf bersha fiiq ah: waa qaab saddex-geesood ah oo hal ama laba dhinac u janjeera si uu u daadiyo biyaha. waxaa jira laba nooc oo barsha-fiiq ah oo kala ah Ber-shub oo hal dhinac u shuba biya iyo bersha-fiiq oo labada dhinac u shuba biyaha qaab-dhismeedka saqafkaan waxaa laga sameeyn karaa alwaax ama bir, daboolka saqafka waxaa laga sameeyaa tarniig, dhoobo ama mar-mar



Jaantuska 8aad. Saqaf siman iyo mid Barsha fiiq ah

2. Qalabka dhismaha

Agabyada lagu dhiso dhismooyinka waxaa loo kala saari karaa sidaan soo socota:

2.1 Agab wax isku dhajiya
- Shamiindo iyo nuuryad

2.2 Carro

2.3 Jaay

2.4 Darbiyada
- Bulakeeti la qalajiyay
- Matuuni
- Bulakeeti la adkeeyay
- Bulakeeti la shubay (cufan ama leh duleelo)
- Dhagax dhismo

2.5 Agabka saqafka:

-Agabka saqafka loo isticmaalo wuxuu noqon karaa Alwaax ama bir

-Agabka daboolka loo isticmaalo wuxuu noqon karaa Tarniig/ lamayeerig ama shub

2.6 Birta shubka
- Gabal /cad wareeg mutuxan ah
- Gabal/cad moorgsan/maroorsan
- Gabal/cad biigeysan

2.7 Timaamaha dayactirka

2.1 Agabka wax isku dhajiya

Shamiindo iyo nuuryad ayaa loo yaqaana agabka wax isku dhajiya, maadaama loo isticmaalo sidii koolo ama walxa wax isku dhajiya oo kale sida hadii Carro iyo jaay lagu qaso shamiindo ay noqonayaan magaroone ama shub.
Shamiindadu waa sheyga ugu badan ee la isticmaalo markii la sameynayo magaroone ama shub. markii la isku daro shamiindo, carro iyo jaay waxa sameeysmaya shub, hadii la isku daro shamiindo iyo carro waxaa sameeysmaya magaroone.
Isticmaalka nuuryadda wuxuu ku xadidan yahay kaliya salaaxmada ama magaroonaha, inta badan nuuryada waxaa lagu daraa shamiindada si loo helo agab ku haboon salaaxmada ama isa saarida bulakeetiga. isku darka nuuryadda iyo shamiindada waxey sare u qaadaan falka qasitaaan. nuuryadda in kaligeed la isticmaalo waa adag tahay waayo cimilida ayaa ka adag.

Shamiindada

Shamiindada waxaa laga sameeyaa isku darka dhagaxa nuuryadda (lime stone), silica iyo alumina. seddaxdaas oo la isku daray laguna qasay biyo hadii la kululeeyo heer kul gaaraya 14000C waxey isku badalayaan unugyo yar-yar oo loo yaqaano clinkers kadib inta la shiido oo uu budo noqdo ayaa lagu daraa cadad yar oo gypsum ah si loo dajiyo shamiindada. taas oo ay ka dhalaneyso waxa loo yaqaano Ordinary Portland Cement (OPC). shamiindada caadiga ah.

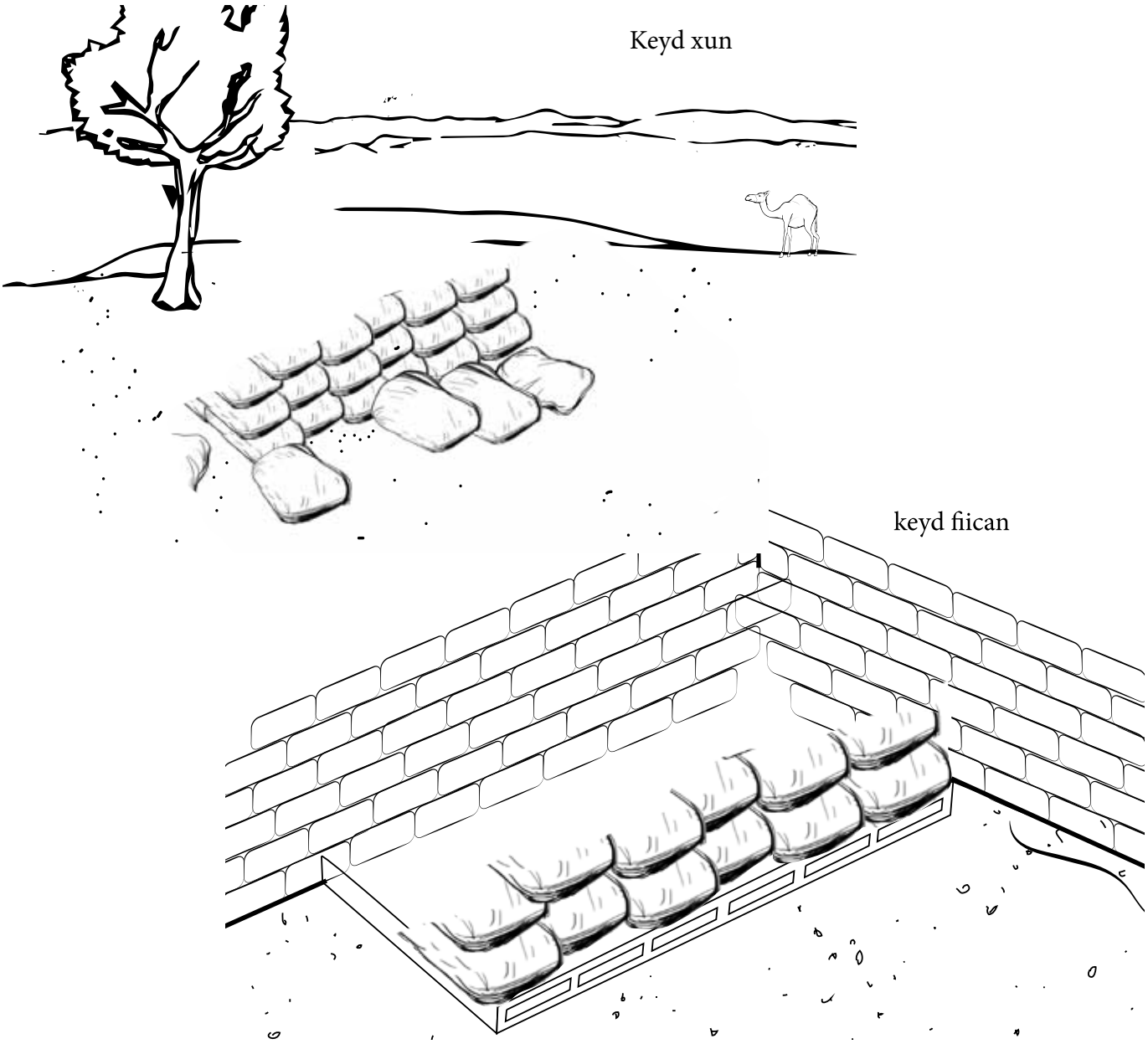
Keydinta shamiindada

Shamiindado waa inaan 3 bilood ka badan lagu keydin goobta dhismaha. waa in lagu dadaalaa sidii loo isticmaali lahaa shamiindada inta ay cusub tahay, ama la isticmaalaa isla markii la geeyo goobta dhismaha.
Shamiindada wa in lagu keydiyaa goob xiran lagana ilaaliyaa dhadada ama roobka. talaabooyinkan soo socda waa in maskaxda lagu hayaa markii la keydinaayo shamiindada:

- Shamiindada si toos ah dhulka ha u dhigin sababtoo ah qoyaan ayaa kasoo gaaraya dhulka. dulsaar shamiindada alwaax dhisan ama meel ka koreysa kabiska.
- Si tartiib ah isu dulsaar shamiinda, si aad uga ilaaliso qabowga
- 10 jawaan ka badan ha is dulsaarin
- U keydi shamiindada sidii loo kala hor isticmaalayo

Tijaabinta shamiindada waqti badan keeydsaneyd

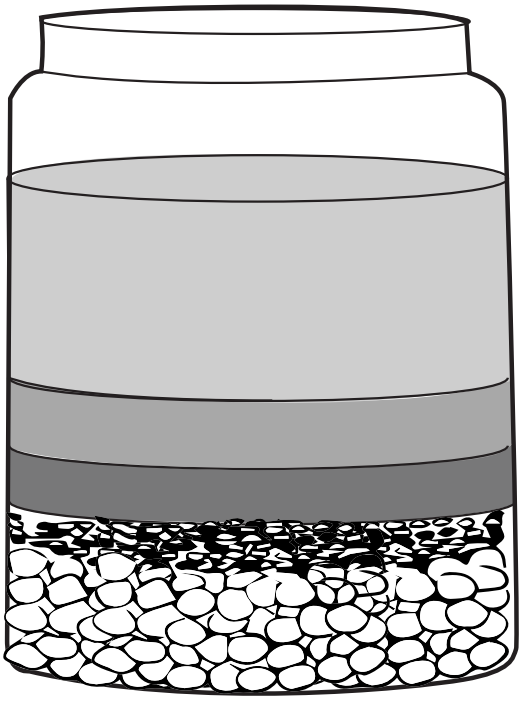
Shamiindadii keyd-saneyd in kabadan 3 bilood waa in la tijaabiyaa lana hubiyaa in wax lagu dhisi karo. Shamiindo iyo biyo ayaa la isku qasayaa kadiba lagu shubayaa foom cabirkiisu yahay 75mm diameter(dhex-roor) iyo 15mm ballac. shamiindadu waxey ku dageysaa 45 daqiiqo gudaheeda, 24saac gudaheedna wey adkaaneysaa, cidiyaha/cijiyaha in lagu xoqo wey adkaaneysaa. shamiindadii ku guul-dareysata tijaabada waa shamiindo haleysan oo aan loo isticmaali karin dhismaha.



Jaantuska 9aad. Keydka shamiindada xun iyo kan fiican

2.2 Carrada

Carrada dhismaha waxaa loola jeeda camuud cabirkeedu u dhaxeeyso 0.006mm-6mm wixii ka weyn 6mm waxaa loo yaqaan quruurax ama jaay, hadaba wixii ka yar 0.006 waxaa loo yaqaanaa camuud ama bacaad.



Tayada carrada

Carrada dhismaha waa in si isla eg la iskugu celceliyaa lagana dhowraa carra dhoobeyda. Waa in laga saaraa walxaha nool iyo cusbada. carra badeeda loo yaqaano carro maanyada ee cusbada leh waa inaan la isticmaalin.
Laba nooc oo tijaabo ah ayaa la sameeyaa si loo hubiyo ineysan carradu laheyn dhoobo badan, taas oo ka dhigeysa carrada mid aanan ku habooneyn dhismaha.

Tijaabada dhalada (The bottle test)

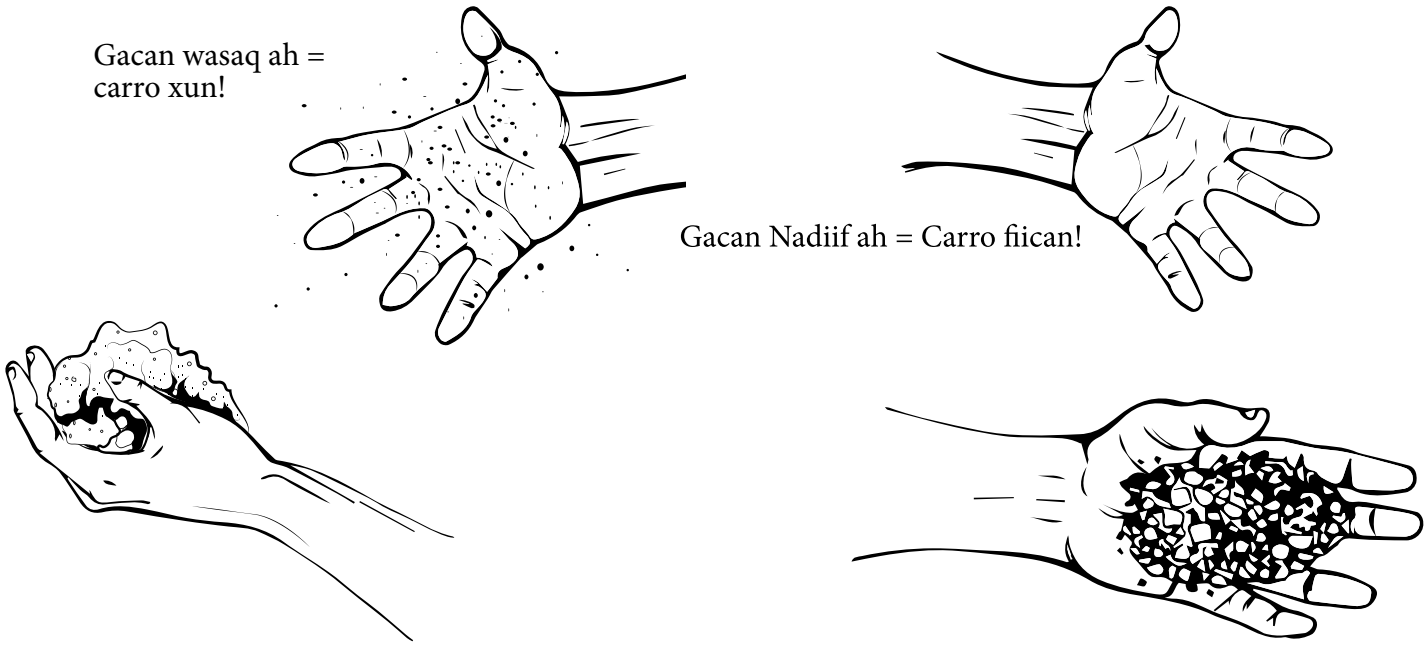
1. Soo qaado dhalo saafi ah, ku shub carro ilaa iyo kala barka
2. Ku dar biyo nadiif oo ka buuxi 3/4 (afar meelood seddex meel oo ka sareysa labeelka carada)
3. Ku dar cusbo aad u yar ee rux dhalada muddo hal daqiiqo ah
4. Meel siman dhig dhalada ugu yaraan 1 saac iyo ka badan
5. Wixii dhoobo ama cusbo ah waxey dagayaan qeybta sare ee carrada
6. Xisaabi %(boqoleyda) lakabka dhoobada ama cusbada ee dhalada ku jirta.

Hadii xisaabta dhoobada/cusbada ka badato 10% waa in carradaas la nadiifiyaa!

Tijaabada gacanta ama aragtida (Hand or visual test)

1. Soo qaado kambiyooni carro ah oo ku dar xooga biyo ah
2. Marmari carrada qoyan gacantaada
3. Carrada nadiifta ahi, gacanta kaama wasaqeeyneyso laakin carrada aan nadiifta eheyn waxey gacantaada ku reebeeysaa wasaq ama dhoobo

Carrada dhoobada badan leh waa inaan la isticmaalin hadii aan la dhaqeynin!



Jaantuska 10aad. Tijaabada gacanta ama aragtida