

DRAFT COPY - 05 APR 2010
BOUYON KOPYE A!

Konstriksiyon an mentyen kay an masonn

Pou mason ak atizan nan
domèn konstriksiyon

Marcial Blondet
Otè



Directè: Dr. Enj. Marcial Blondet
Konstriksyon: Enj. Iván Bragagnini
Strikti: Mag. Enj. Gianfranco Ottazzi
Achitekti: Ach. Mariana Bidart
Asistan Rechèh: Enj. Nicola Tarque
Asistan Rechèh: Enj. Miguel Mosqueira
Disay ak edisyon: Ach. Mariana Bidart
Keksyon atistik: Mr. Víctor Sanjinez
Tradiksyon: Enj. Gladys Villa Garcia

SENCICO

Konsitan Teknik: Enj. Carmen Kuroiwa
Konsitan Teknik: Enj. Gabriela Esparza

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© Pontificia Universidad Católica del Perú University Avenue, San Miguel, Lima 32, Peru Phone 626-2000 E mail: inveciv@pucp.edu.pe

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About this Translation

Haiti Rewired was conceived at WIRED.com as a conversation about technology, infrastructure, and the future of Haiti. It very quickly became a platform for collaborative projects. This construction book is an example of these on-going efforts.

Many thanks also to Eduardo Fierro of BFP Engineers, who mentioned it in a talk he gave at Berkeley and Katie Baker, a WIRED intern who was in the audience, and brought the existence of the document to our collective attention.

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The translators were the core of the crowdsourced effort. They took an English document and translated it into French and Creole with incredible speed and little direction.

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Chantal	Angie Janssen	
Ernest Barthelemy	Caroline Louis	
DE	Jenord Nav	
Eddy Exantus	Patrice Talleyrand	

Work continues on future versions of this book which will benefit from the efforts of the Earthquake Engineering Research Institute, the Confined Masonry Network, Build Change, Architecture for Humanity, and sundry other volunteers at Haiti Rewired and elsewhere.

Updates and Corrections should be sent to construction@ngohaiti.com
NGO Haiti
www.ngohaiti.com
(803) 661-3102

Remesiman (Aprè paj tit la)

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Apresyasyon

Otè yo ta renmen fè tout moun konnen ke liv ekselan sa yo te enspire yo e ke yo itilize enfòmasyon ke yo te jwenn ladan yo:

Gallegos, Ríos, Cassabonne, Ucelli, Icochea and Arango. 1995. Construyendo con ladrillo (Konstwi ak brik), CAPECO, Lima, Perú.

-Asociación Colombiana de Ingeniería Sísmica (Colombian Association of Earthquake Engineering). 2001. Manual de construcción, evaluación y rehabilitación sismo resistente de viviendas de mampostería (Liv pou konstriksyon, evaliyasyon, ak reyabilitasyon kay an masonnri). AIS, Colombia.

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- 1 Kantite miray nan yon kay parasismik
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POU KOMANSE

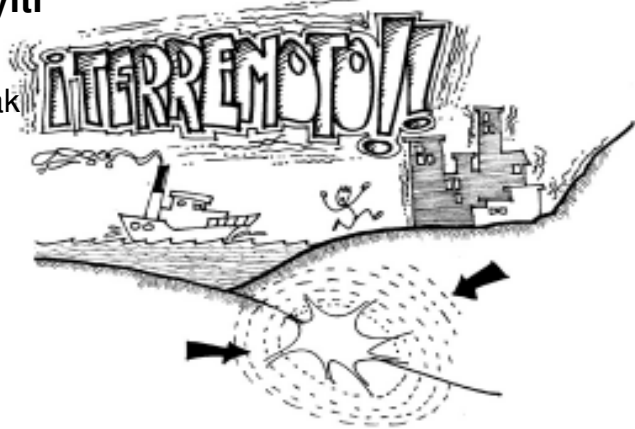


Ayiti nan yon zon ki konn gen tranbleman dte. De tan zan tranbleman dte ki pase yo konn afekte kay ki pa byen bati ase. Sa konn fe gwo dega e souvan tranbleman dte say o konn swa kraze yo pati nan kay-yo, swa kraze kay-yo net.

Nan ti liv sa-a, nou pwal montrew kouman pou batik ay ki reziste tranbleman dte. Pa bliye enpotans pale ak yon Enjenye ki konn bati, fe rout ak pon e latriye avan menm ou fe plan kay-la e avan ou batik ay-la.

1. Katastwòf Natirèl nan peyi Dayiti

Gen anpil zòn nan peyi nou ki an dange avèk katastwòf natirèl tankou lavalas, inondasyon, ak tranblemanntè. Se sak fè li empotan pou nou konprann konsekans fenomèn sa yo, pou nou ka decide ki kote ak kòman pou nou bati kay pou pwoteje tèt nou.



Lavalas

Lavalas, labou ak wòch ki rive lè anpil lapli tonbe nan mònn yo.



Tranblemanntè

Gwo mouvman ki fet anba tè a e ki pwodui gwo mouvman sou te ki sipòte kay yo.



Fenomèn El Nino

Se fenomèn El Nino a ki responsab rechofman dlo lanmè ki lakòz gwo lapli nan zòn bò lanmè ak nan mònn yo. Le fenomèn sa rive li koze anpil inondasyon ak lavalas.



Inondasyon
rive le yon rivyè debode.

2. Tranblemann tè



Risk tranbleman tè pa menm nan tout zòn. Se sa ki fe Kòd Konstriksyon Nasyonal la te divise Ayiti an “xx #” zòn. Zòn ki gen pi gwo danje se zòn bo lanmè.

— Subduction Zone - Jeyolojik nan yon pwosis ki se yon kwen nan yon plak krouit
 — Fault fòse kwen anba a nan yon lòt

Yon Kontinuite la kase nan yon fòmasyon sou koze pa yon wòch oswa deplase dislodging kwout nan tè a, nan kote adjasan sifas ki ap deplase fanmi youn ak lòt paralèl avyon an kase.

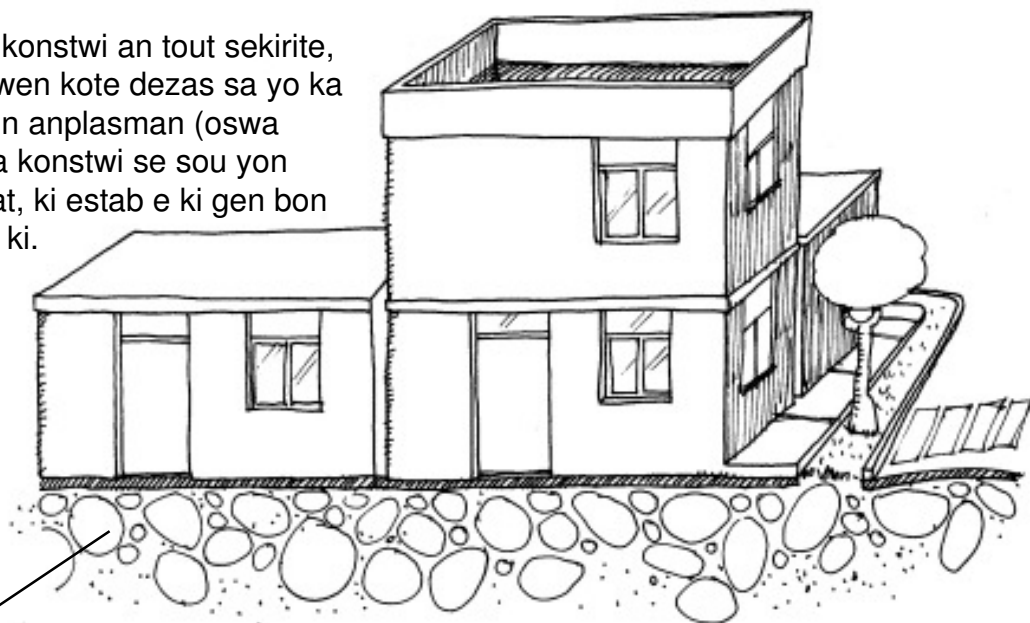
Ki jan de domaj tranblemann tè ka koze?

Tranblemann tè ka koze gwo domaj nan kay ki pa byen bati. Pa ekzanp, miray ka tonbe, fenèt an vit ka kraze e mi yo ka krake (fele). Kay ki pa gen bon strikti ka tonbe epi koze gwo pèt, blese e menm rive touye mounn ki nan kay sa yo.



1 - Lokalizasyon ak anplasman pou kay la

Zòn ou ka konstwi an tout sekirite, se zòn ki lwen kote dezaz sa yo ka rive. Pi bon anplasman (oswa kote) ou ka konstwi se sou yon teren ki plat, ki estab e ki gen bon fondasyon ki.



Sòl ki estab

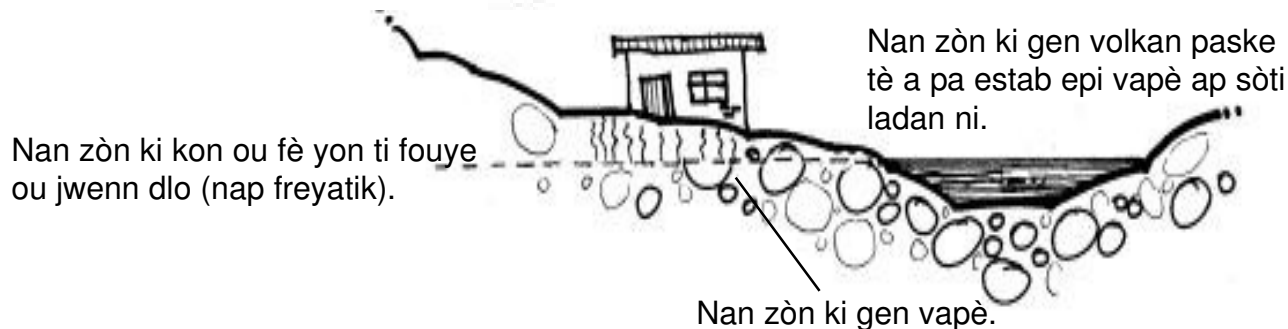
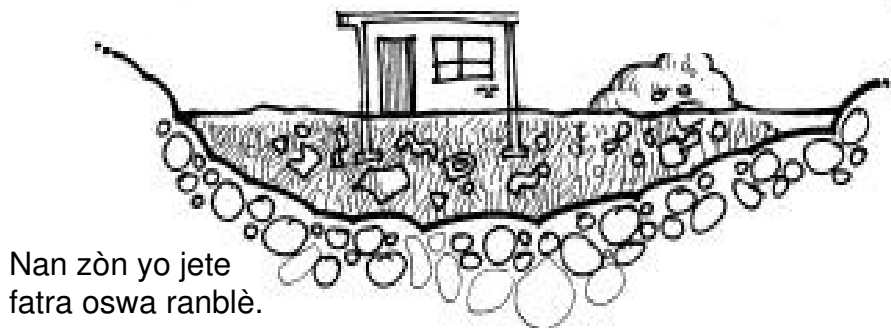
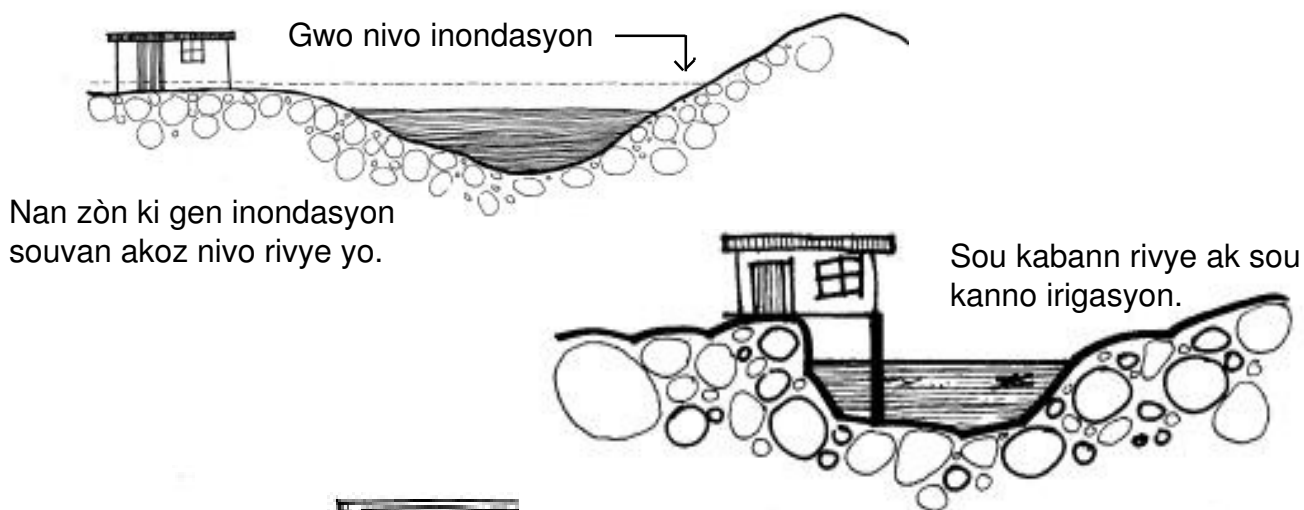
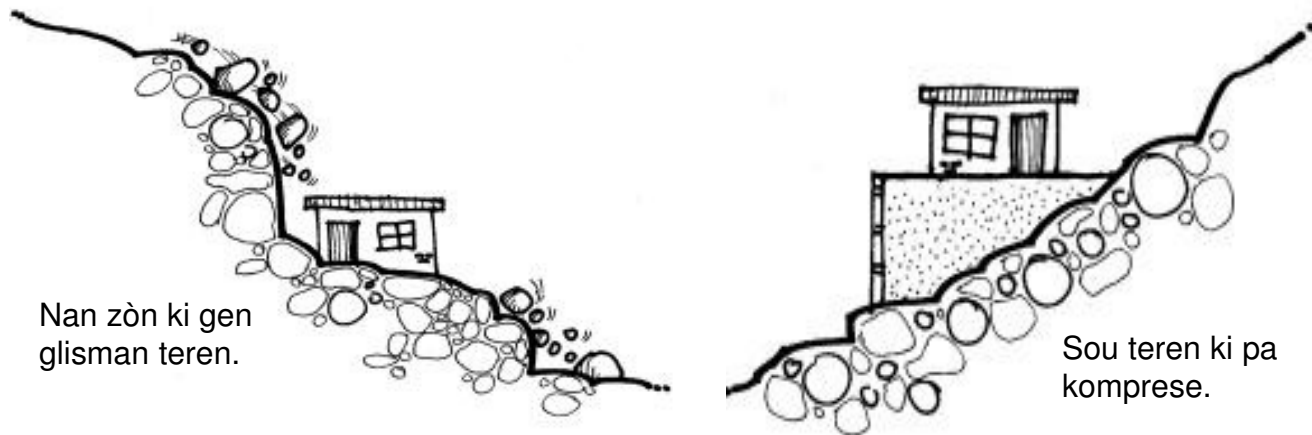
2 - Zòn au pa dwe konstwi



Nan ravin oswa sou kote flan mòn

Mwen prale montre w ki kote pou pa konstwi kay ou paske bati nan zòòn sila yo se danje.





3. Kay ki ka reziste Tranblemandtè

Pou yon kay ki an blòk rive reziste tranblemandtè fò mi li yo ka reziste sekous yo lè y ap fèt. Fò plan kay sa a senp epi simetrik. Mi ki pral sipòte dal yo dwe byen konstwi e fò yo toujou byen sentire (mare) ak poto ki fèt ak beton ame.

Dal lejè

Transmèt tout pwa ki sou li (pwa dal la, pwa mi separasyon yo, pwa mèb ak pwa moun ki soul li yo) bay mi yo konsa dal la ak mi yo va travay ansanm lò gen tranblemandtè

Poto ak senti sentiray

Eleman sa yo se eleman ki mare mi yo. Yo fèt an beton ame.

Mi

Sa yo se yo ki pi enpòtan dan you strikti an masonri.

Yo sèvi avè yo pou transmèt tout pwa ki sou dal leje an bay fondasyon kay lan pou kay lan ka reziste fòs soukous yo. Mi yo dwe konstwi ak brik et fòk yo sentire ak poto ansanm ak senti an beton ame.

Se sèlman mi kigen sentiray an beton ame ki ka reziste tranblemand tèt.

Fondasyon

Transmèt tout pwa kay la bay tè a.

Sòk

Sòk transmèt pwa mi yo ba fondasyon an. Se eleman sila a ki sentire ak pwoteje tout mi premye etaj la.

Rekòmandasyon

Mi ki sentire ak poto epi ak poto an beton ame ka reziste tranblemandtè. Si ou vle ke kay ou rive reziste tranblemandtè, nou rekòmande pou li genyen plis mi sentire posib nan tou de direksyon

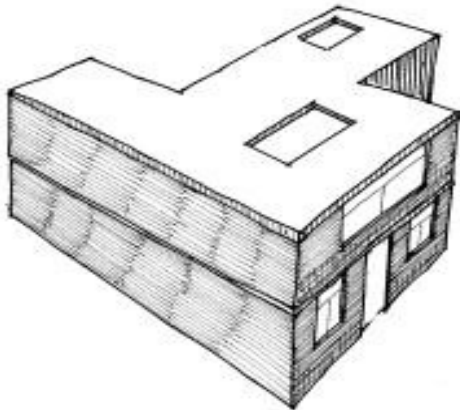
4. Plan yon kay ki ka reziste tranblemandtè

Si ou vle kay ou ka reziste tranblemandtè kòrekteman se pou plan'w gen yon bon fòm epi pou miray yo byen distribiye.

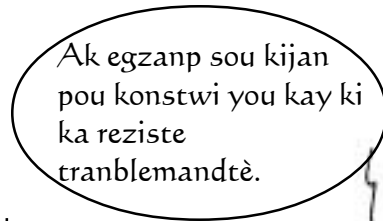


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Iregilye

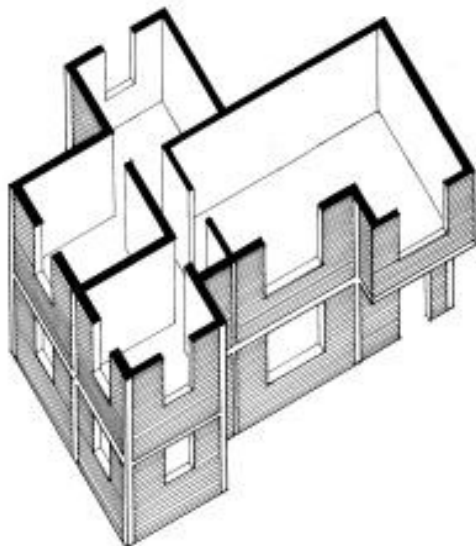
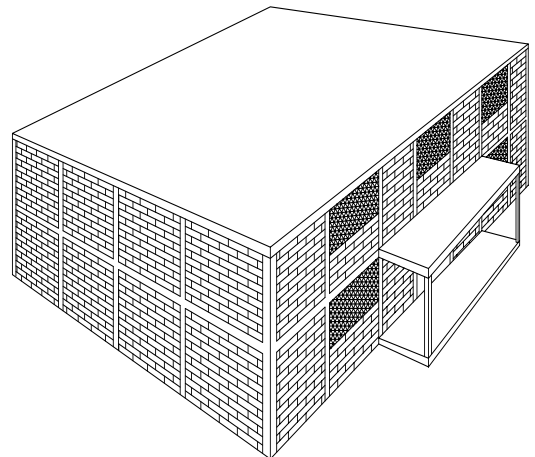


Fòm kay ou a dwe pi simetrik posib ni plan ni elevasyon. Dal leje pa dwe gen twòp ouvèti.



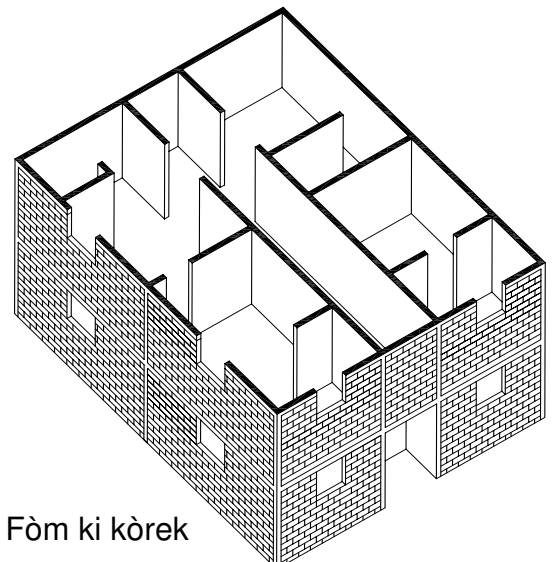
Wi

Simetrik



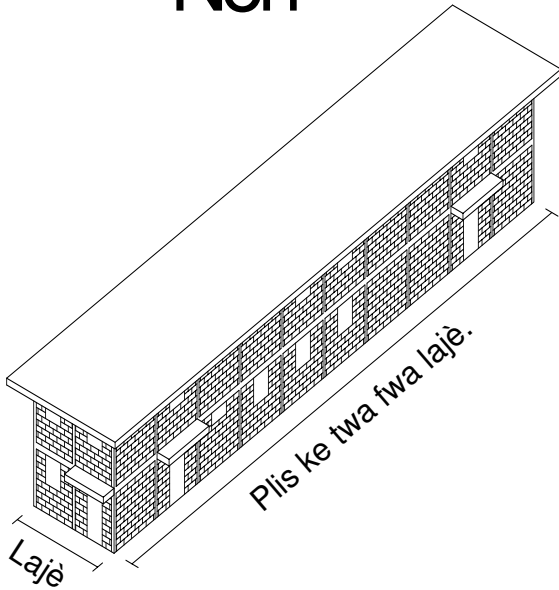
Plan kay ki pa kòrèk.

Lè wap konstwi mi yo, eseye kenbe simetri. Fòk ou eseye mete menm kantite mi yo nan tou 2 direksyon.



Fòm ki kòrèk

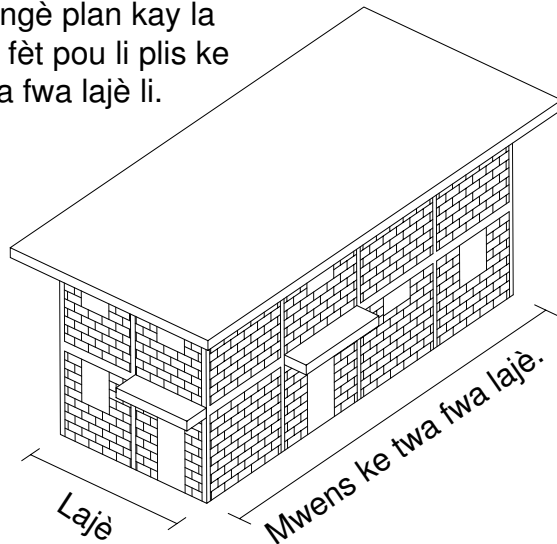
Non



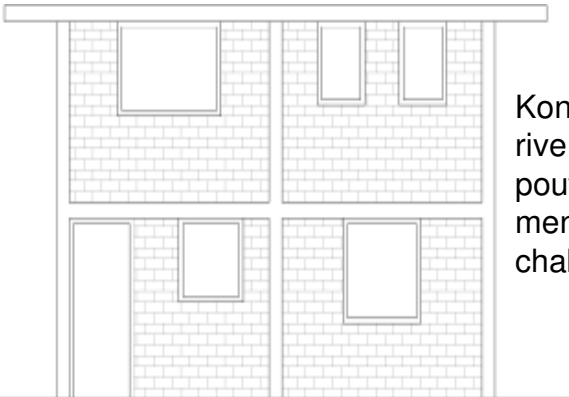
Plan ki pa byen bon pwopòsyone.

Wi

Longè plan kay la pa fèt pou li plis ke twa fwa lajè li.

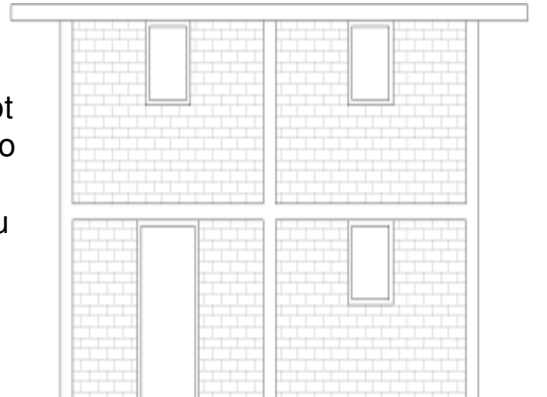


Plan ki byen bon pwopòsyone.

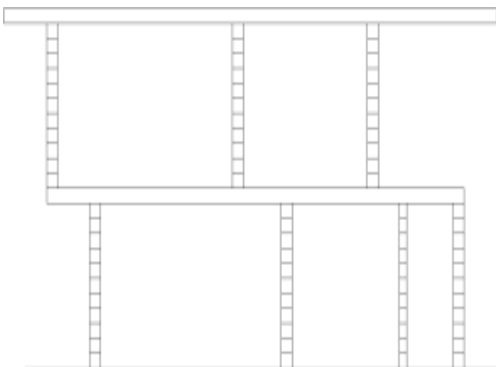


Move kote pou mete fenèt ak pòt.

Konstwi fenèt ak pòt rive jouk nan nivo yo pout e mete yo nan menm pozisyon sou chak etaj.

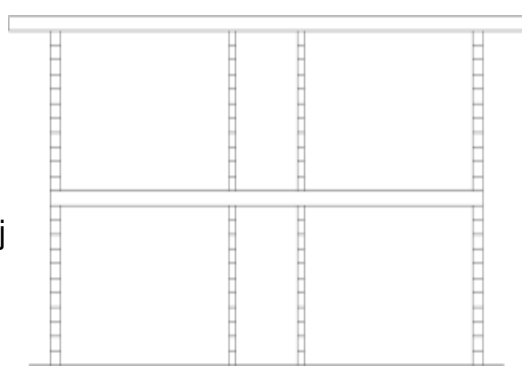


Bon kote pou mete fenèt ak pòt.



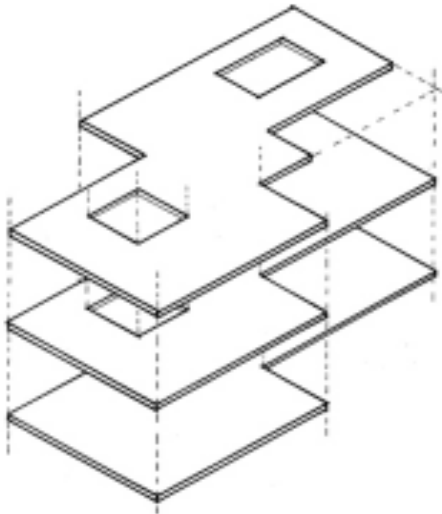
Mi ki pa nan yon bon plas pap byen chita sou tèt lòt mi.

Kotew mete mi dezyèm etaj yo trè zenpòtan. Toujou konstwi dezyèm etaj ekzakteman sou tèt mi premye etaj yo.

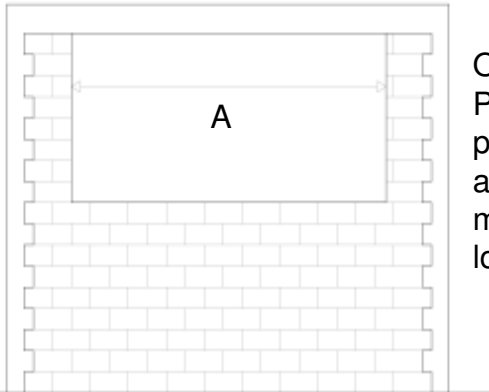


Mi ki nan bon plas.

Non

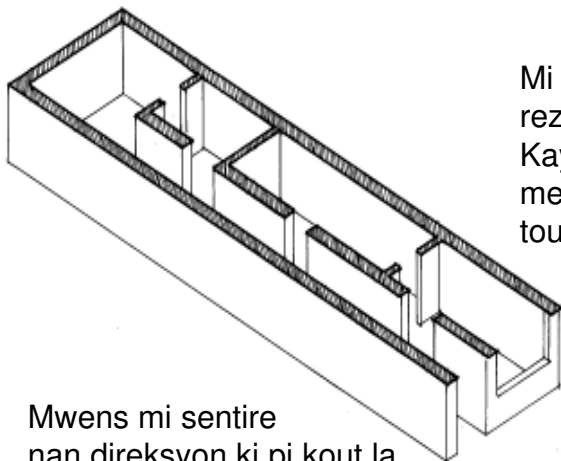


Dal ki gen fòm diferan sou chak etaj.



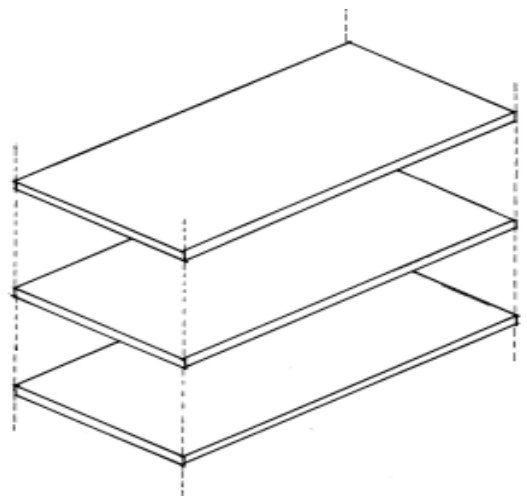
L

Gwosè ouvèti ki pa kòrèk.



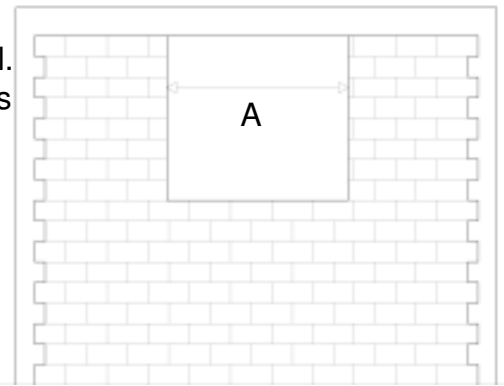
Mwens mi sentire nan direksyon ki pi kout la.

Wi



Dal ki gen menm fòm sou chak etaj.

L



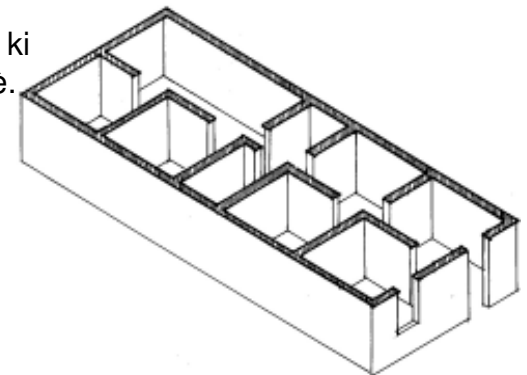
A

Gwosè mi ki kòrèk.

Se enpòtan pou dal yo byen propòsyone e ke yo genyen menm fòm nan chak etaj.

Ouvèti fè mi vini pi frajil. Pa mete ouvèti ki pi plis pase mwatye longè mi an. (Distans A a dwe mwens pase mwatye longè L la).

Mi ki sentire yo se yo ki reziste tranblemandtè. Kay ou a dwe gen menm kantite mi nan tout direksyon.



Anpil mi sentire nan tou 2 sans yo.

5. Kay ki pa byen sekirize.

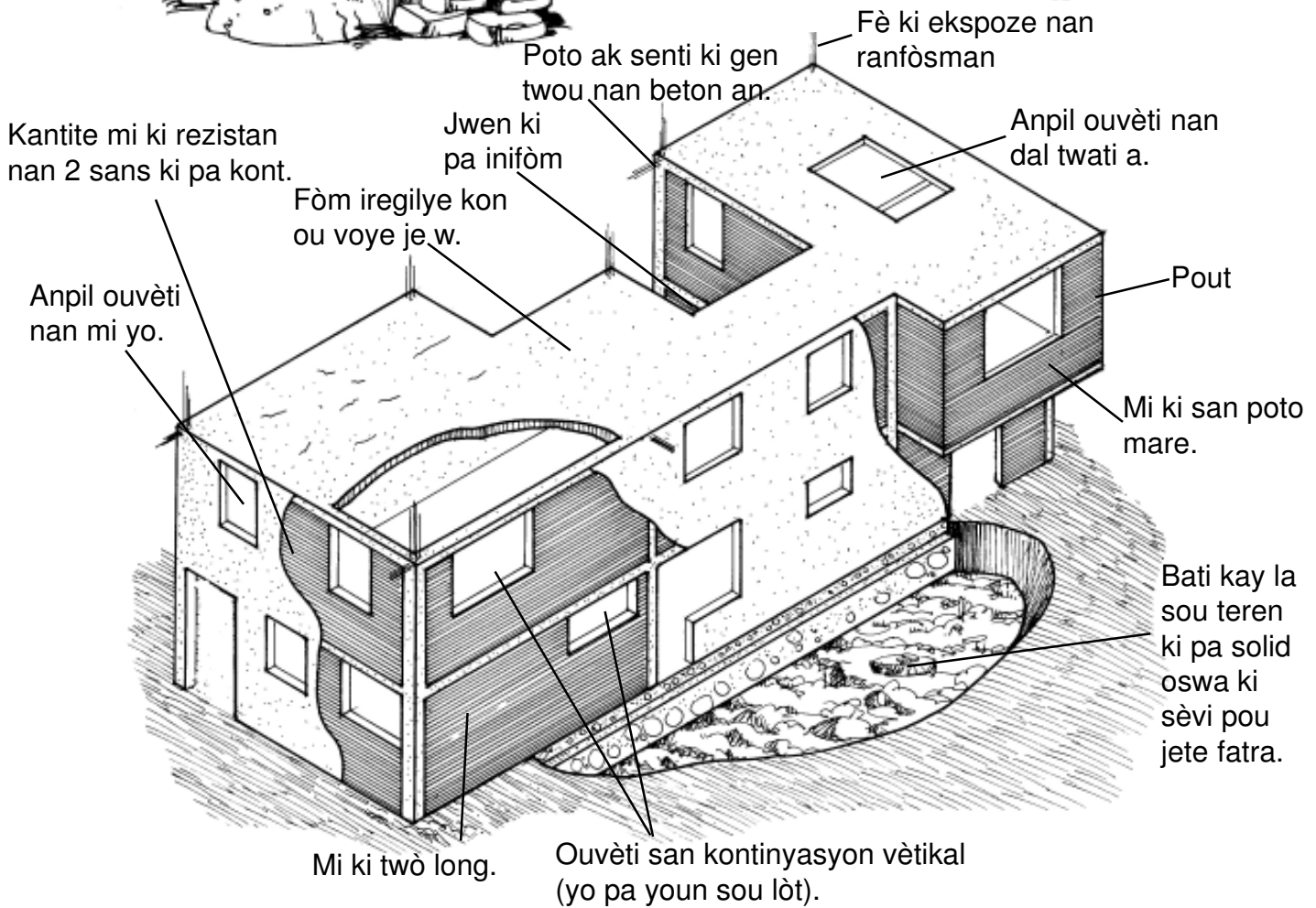
Travayè ki pa kalifye



Desen sa a montre erè moun fè pi souvan lò se pa pwofesyonèl ki konstwi. Kay sa yo pap resiste tranblemandtè.



Materyo move kalite.



6. Kay ki ka reziste tranblemandtè

Mendèv kalifye

Enjenyè sivil osnon achitèk



Ouvriye ki gen eskperyans

Desen sa a montre karakteristik yon kay ki byen konstwi (ki va reziste tranblemandtè)



Materyo bon kalite



Itilize materyo bon kalite. Lè'w achte move materyo nan fè ekonomi bout chandèl wap gen pwoblèm pi devan.

Dimansyon byen mezire.

Ouvèti pòt ak fenèt ki byen plase e byen mezire rive jwenn dal nan twati a.

Mi premye etaj la ak mi dezyèm etaj la byen tombe youn sou lòt.

Anpil mi sentire nan tou 2 sans kay la

Kòlonn ak pout ki pa gen pòch van nan beton an.

Tout mi aplon

Menm epesè mòtye nan mitan brik yo.

Mi sentire

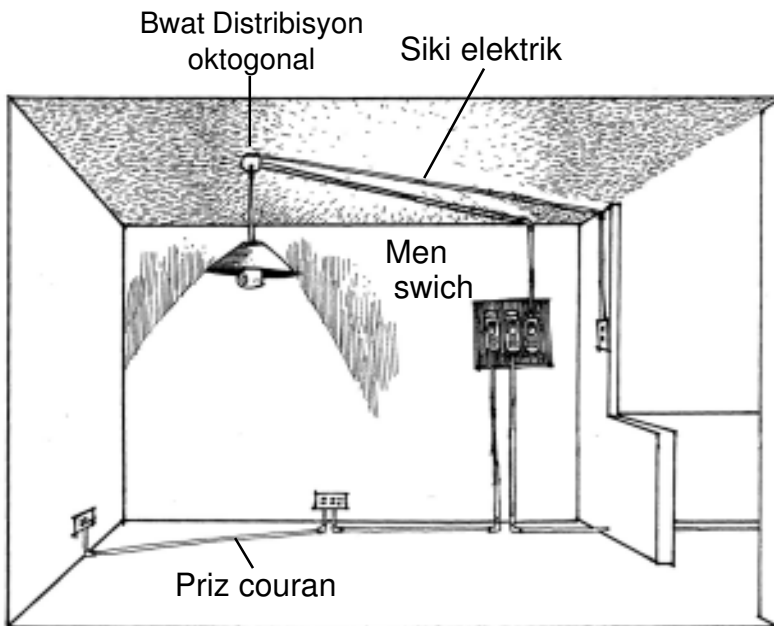
Fondasyon ki kanpe sou teren ki fèm

7 Eleman nan sistèm kouran ak dlo nan yon kay.

Yon kay ki byen planifye sipoze gen yon sistèm elektrik ak yon sistèm plonbri fonksyonèl. Men kisa ki dwe antre nan chak kalite enstalasyon sila yo.

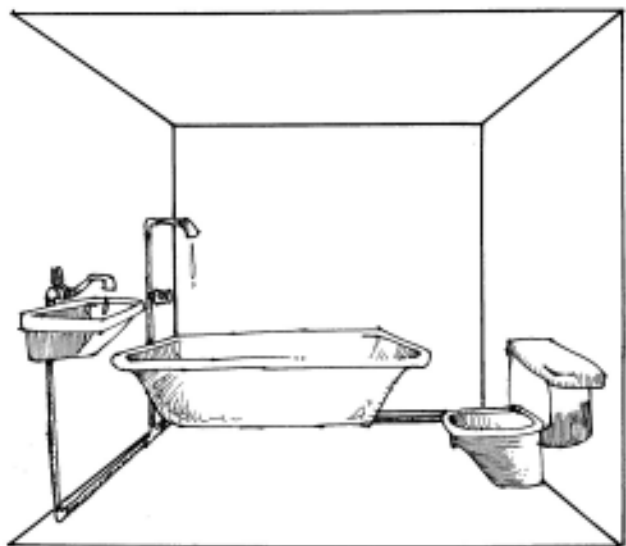


Sistèm elektrik

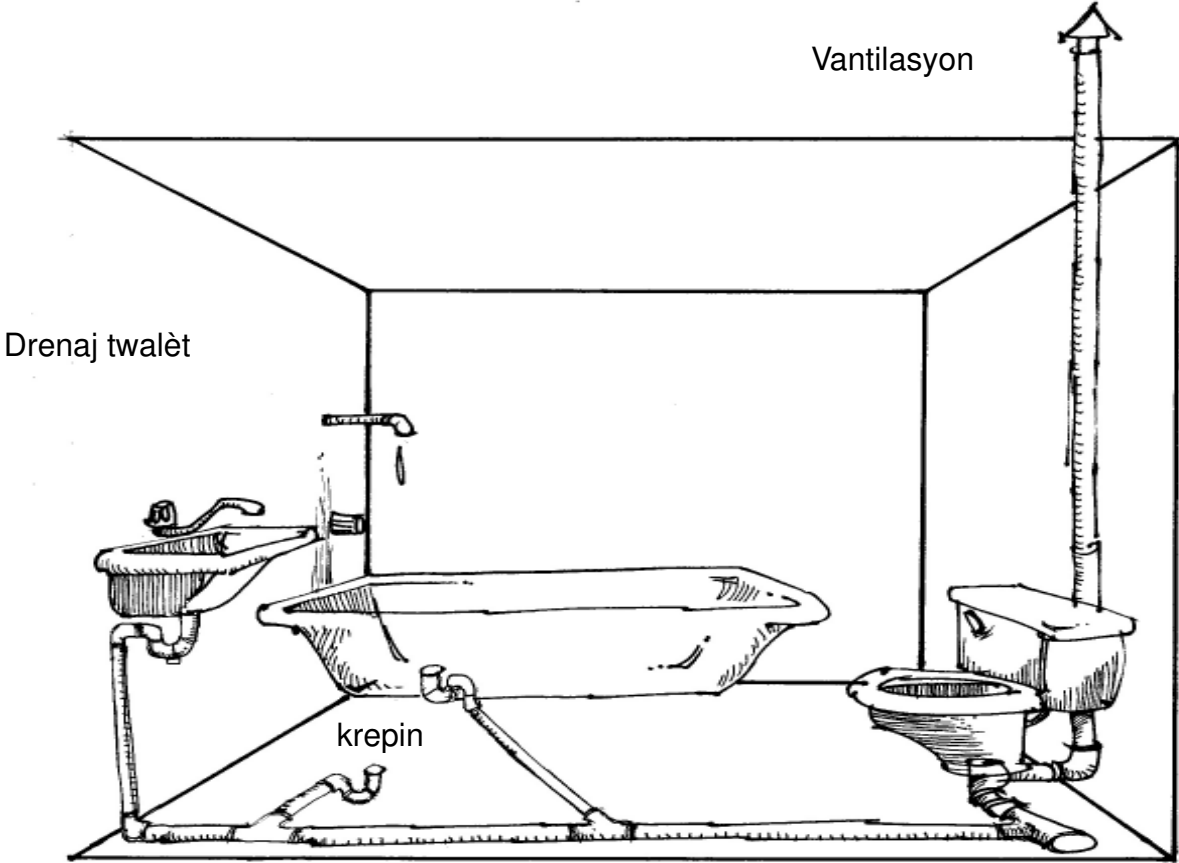
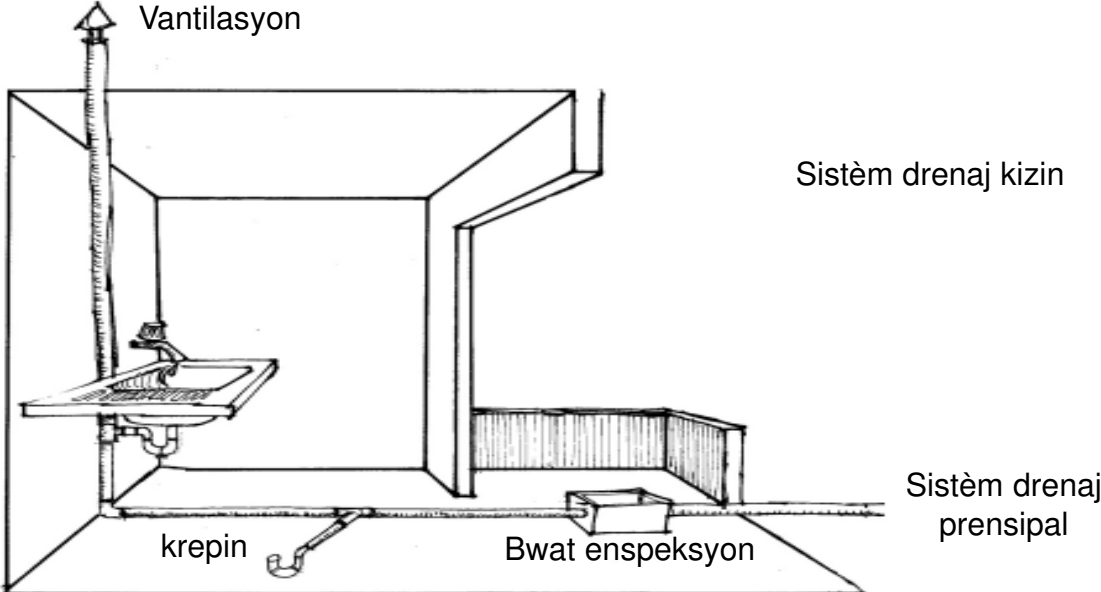


Fètatansyon lò wap enstale sistèm dlo a pou pa gen fuit.

Sistèm alimantasyon dlo



Sistèm evakiyasyon dlo sal



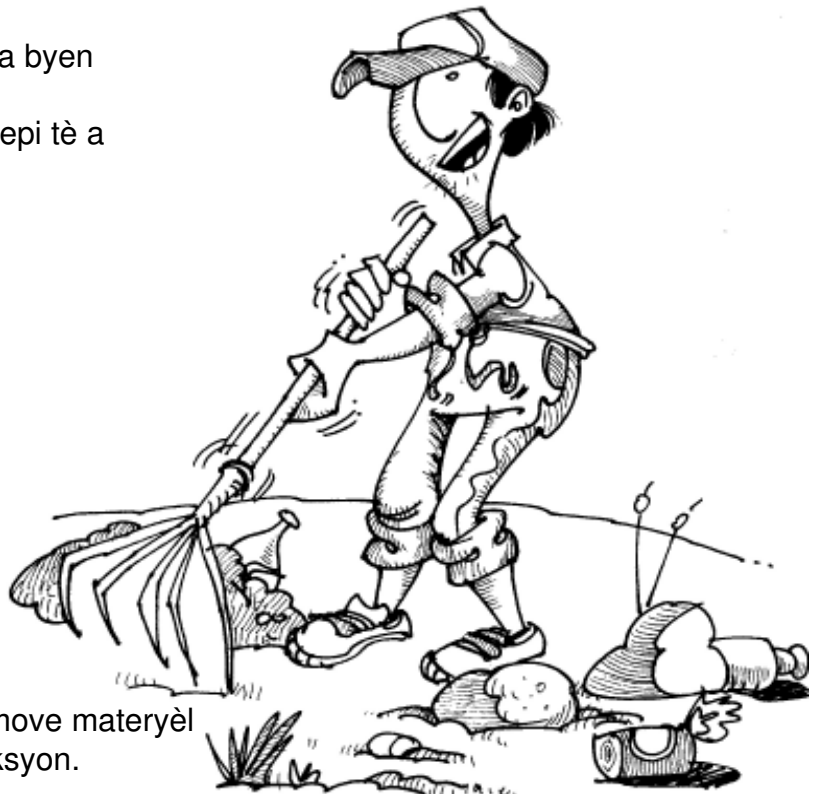
1. Desen ak pèmi (oswa lòt pwosedi administratif)



Yon fwa w achte palè ou la tè nan yon pozisyon ase, ou dwe desen kay ou. Si se posib, jwenn konsèy nan men yon enjenyè achitèk pou desen oswa nan kay la ak desen yo. Ou ka apwoche minisipalite lokal ou a jwenn èd ak desen e ou konnen si kay ou gen dwa tou pou itilize pou yon biznis. Sonje nan konstriksyon kay ou dwe kapab enskri li pa ofisyèl nan vil la sal.

2. Reglaj netwayaj ak tè a

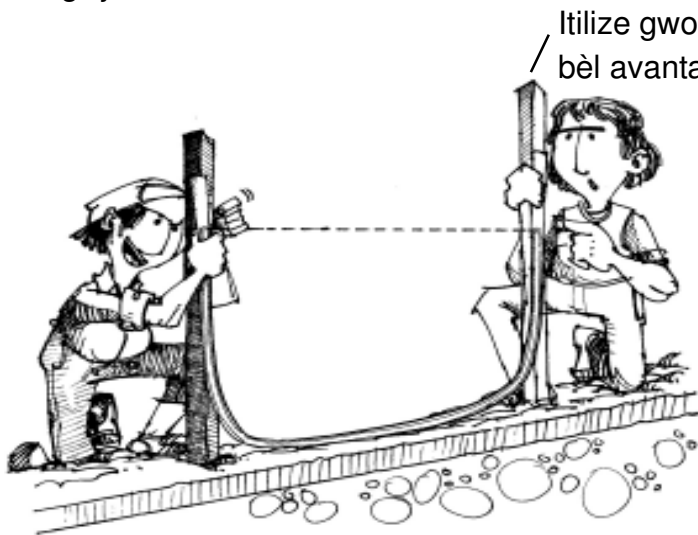
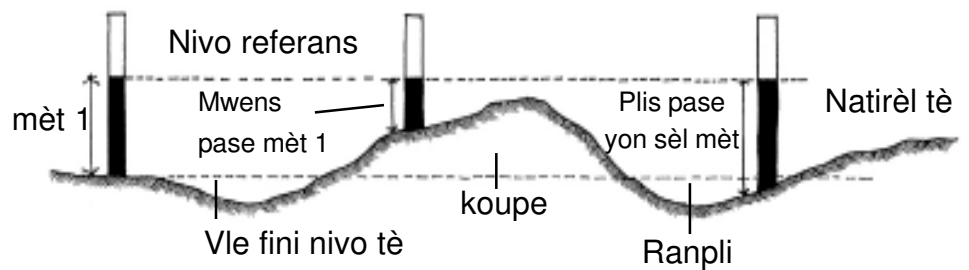
Anvan ou kòmanse travay, tè a byen pwòp. Retire tout fatra, fatra konstriksyon, materyo òganik epi tè a lach.



Òganik se move materyèl pou konstriksyon.

Nivo tè a

Sit konstriksyon an dwe nivo, ak anwo drain-pipes yo pou zòn ou an. Nan nivo lokal koupe epi ou dwe ranpli tè a, konsa li se bou konplètman plat nan nivo egzije a.



Itilize gwo kalite bèl avantaj 1.5 M

1. Kouri nivo a

Ranpli an kawotchou ak dlo pwòp epi verifye ke pa gen okenn bul.

Mete kalite bèl avantaj sou perimèt la nan plas ou a epi verifye ke yo se vre.

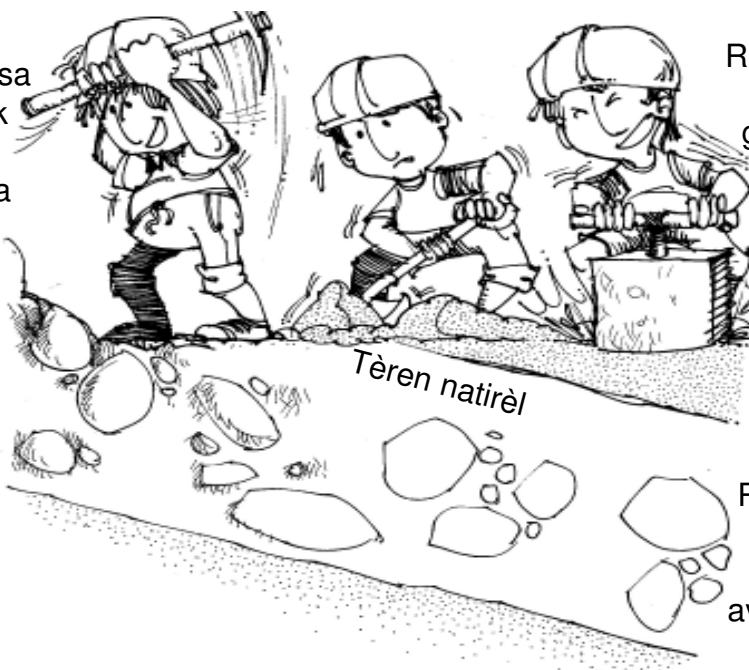
Itilize yon moso yon idantifye pwen referans tankou a nivo nivo lari an. Mak yon wotè ki pi wo nivo 1 M la referans sou poto sa premye.

Sèvi ak nivo dlo an kawotchou a anndan, make wotè nan poto an premye sou tout lòt kalite bèl avantaj sa yo.

Koupe ak ranpli

Aprè make tout kalite bèl avantaj sa yo, youn sou chak mezire distans ki genyen ant Mak la ak nan nivo tèren natirèl la.

Koupe
Lè yo mezire distans ki mwens pase 1 M.



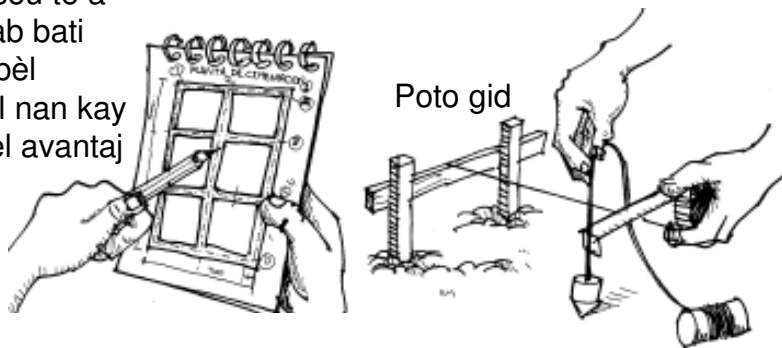
Ranpli epi koupe tèren la jouk distans ki genyen ant Mak la ak tè a se 1 M.

Ranpli
Lè yo mezire distans ki plis pase 1 M.

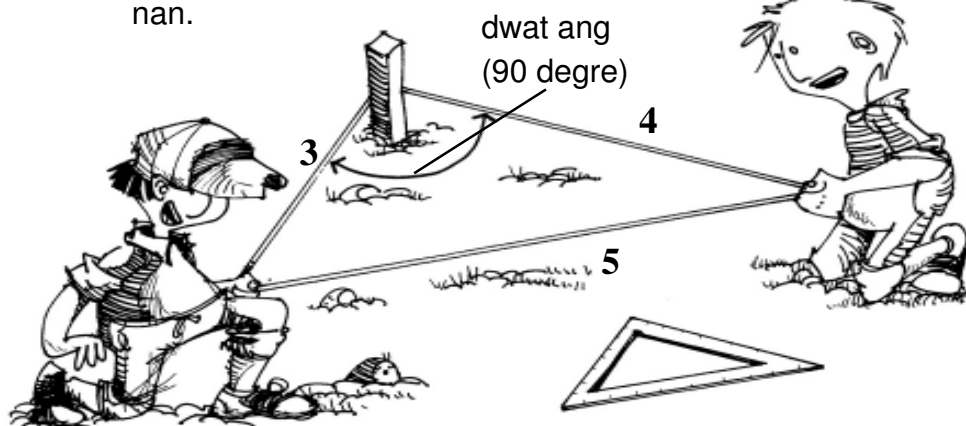
Ranpli tè a, kote kouch tè 30 santimèt epesè. Mouye chak kouch avèk dlo e konpak byen ak yon dam.

1. Trase

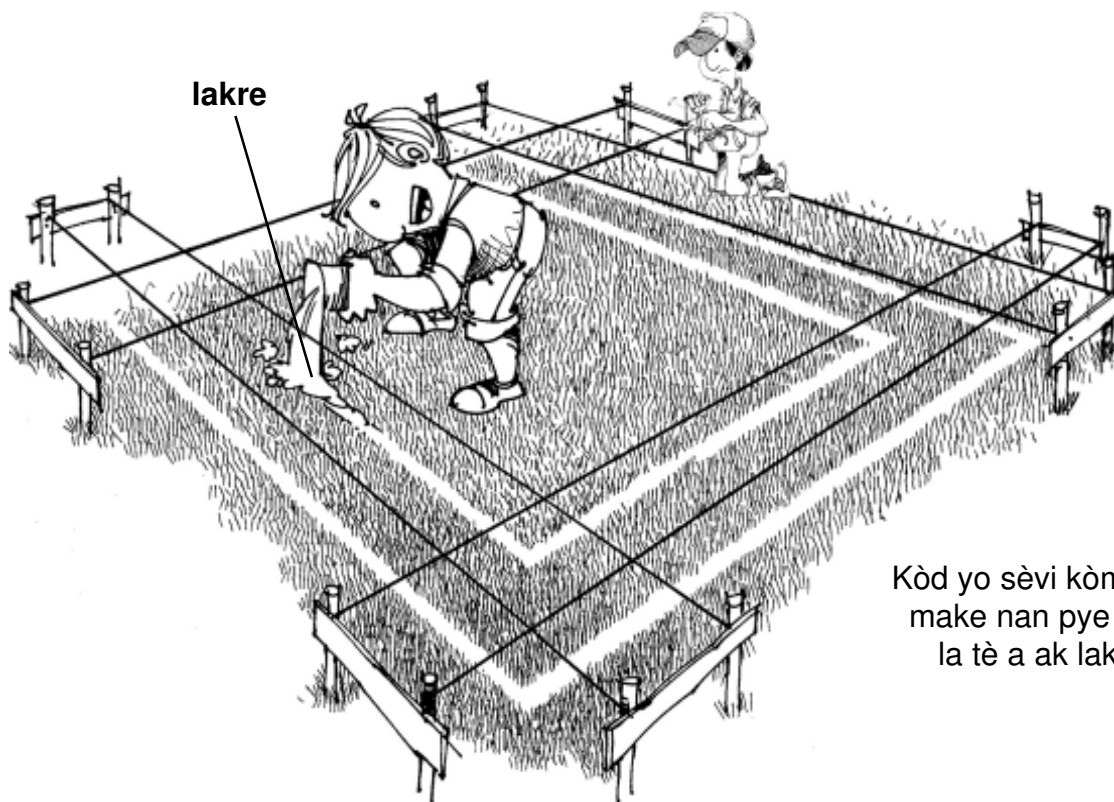
Trase a montre pozisyon yo itilize nan sou tè a kote fondasyon nan kay ou a pral kapab bati Konstwì poto gid nan plizyè bwa kalite bèl avantaj sou fondasyon tè a kote ou pral nan kay ap bati Konstwì poto gid plizyè kalite bèl avantaj nan bwa.



Mete guideposts yo selon dimansyon yo desen sa yo defini riv la kouri nan bilding nan.



Itilize triyang 3-4-5 verifeye ke tout miray yo pèpandikilè (ki se, tout kwen se ang dwa.)

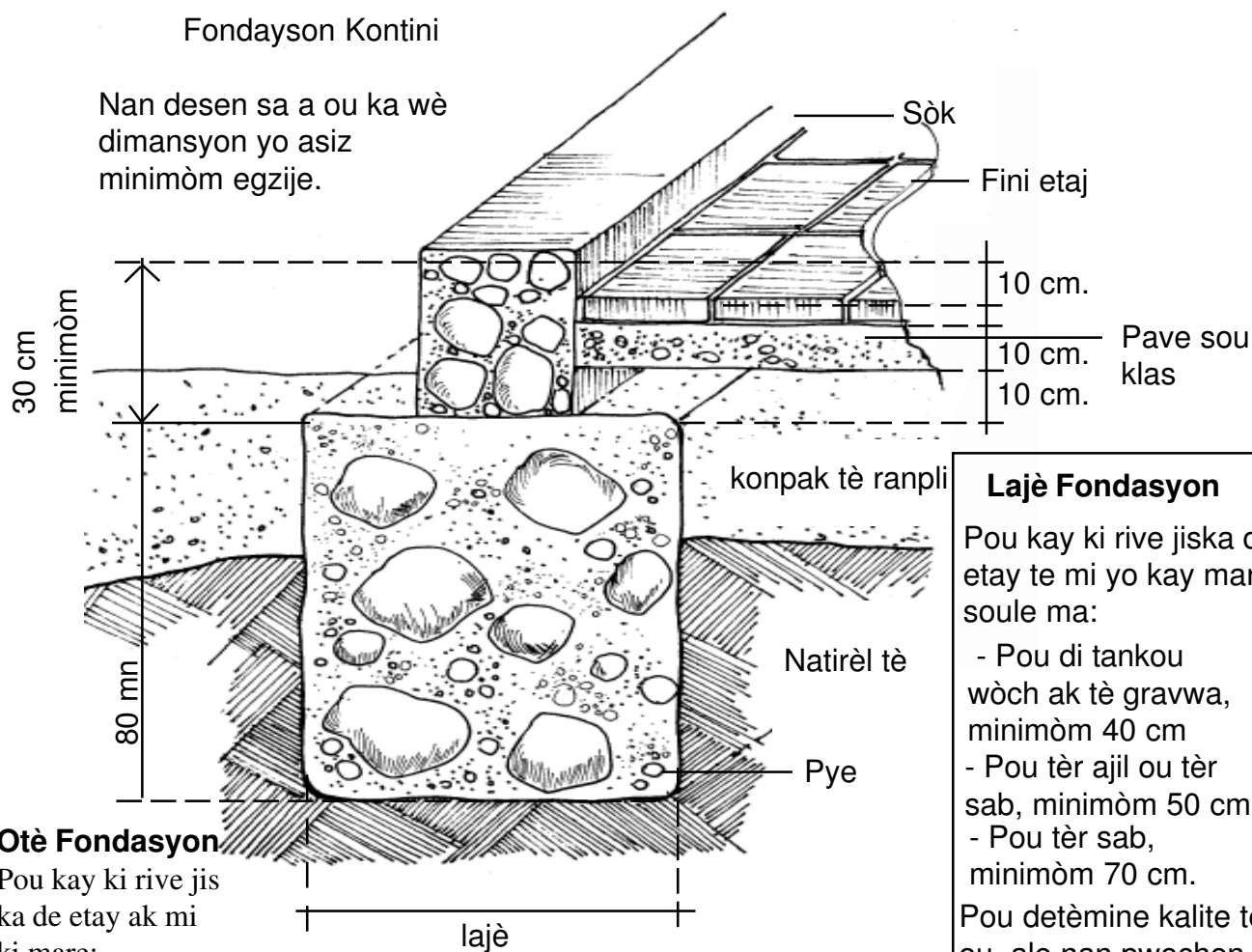


Kòd yo sèvi kòm gid epi make nan pye lajè sou la tè a ak lakre oswa sitwon.

4. Konstriksyon Fondasyon an

Fondasyon Kontini

Nan desen sa a ou ka wè dimansyon yo asiz minimòm egziye.



Lajè Fondasyon

Pou kay ki rive jiska de etaj te mi yo kay mare soule ma:

- Pou di tankou wòch ak tè gravwa, minimòm 40 cm
- Pou tèr ajil ou tèr sab, minimòm 50 cm.
- Pou tèr sab, minimòm 70 cm.

Pou detèmine kalite tè ou, ale nan pwochen paj la.

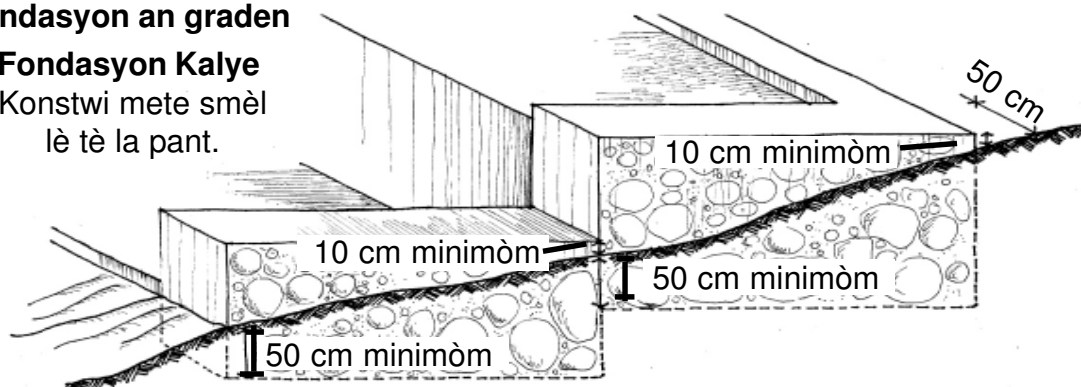
Otè Fondasyon

Pou kay ki rive jis ka de etaj ak mi ki mare;

Fondasyon an graden

Fondasyon Kalye

Konstwi mete smèl lè tè la pant.



Rekòmandasyon

Te ki di tankou wòch oswa gravwa se pi bon tè pou fondasyon. Gravwa se wòch diferan grosè a sab kompakte. Pafwa li difisil sa yo fouye tèr avèk yon pèl ak ou te itilize yon gwo mache.

Chèche konnen smèl nan kay la ki tou pre. Si w tou pre kay anba pwa yo te etabli yo, alò fondasyon ou dwe pase laj ak fon ki nan vwazinaj ou.

Konstriksyon an mentyen kay an masonn

Si ou se tè pa gravwa oubyen wòch, kouman ou ka rekonèt ki kalite li se?

Ou ka fè tès sa senp.



Fouye yon twou nan tè a ak fon 1 mètr pran yon egzanp sou la tè.

Mete yon pòsyon nan tè a nan yon boutèy transparan jiskaske li se yon twazyèm plen. Ajoute yon tyè dlo a ak yon sèl nan kwiye.



Fòtman souke boutèy la jiskaske melanj lan se inifòm.



Fè melanj pou rezoud nan 24 èdtan.



Mezi wotè nan sab la bou ak ajil.



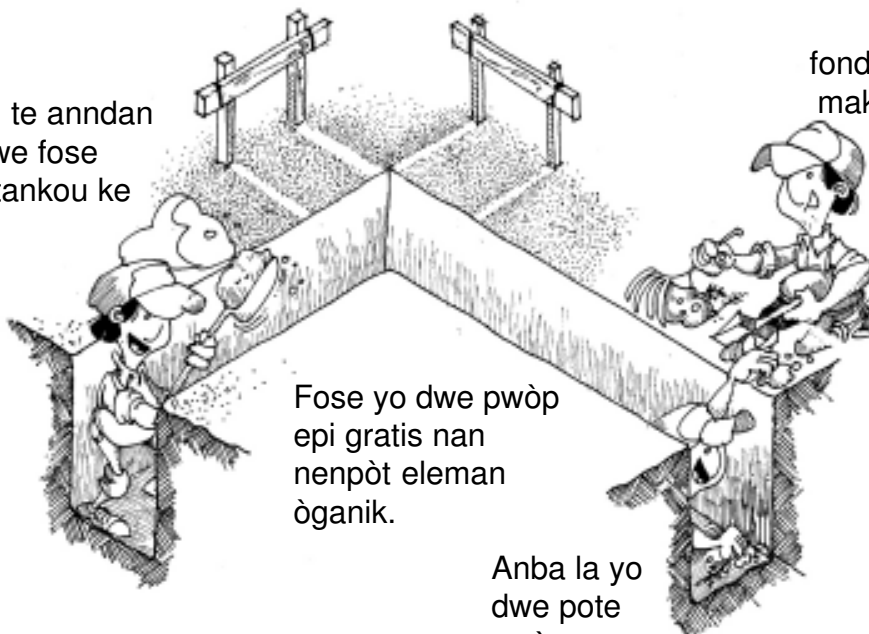
limon
ajil
sab



Si plis pase mwatye nan sab la, tè a se sab. Si gen plis pase mwatye ajil, tè a se ajil.

Èkskavasyon fose yo fondasyon.

Kote yo te anndan an ki dwe fose vètikal tankou ke posib.



Yo fouye fondasyon fose yo mak yo itilize kòm gid lakre.

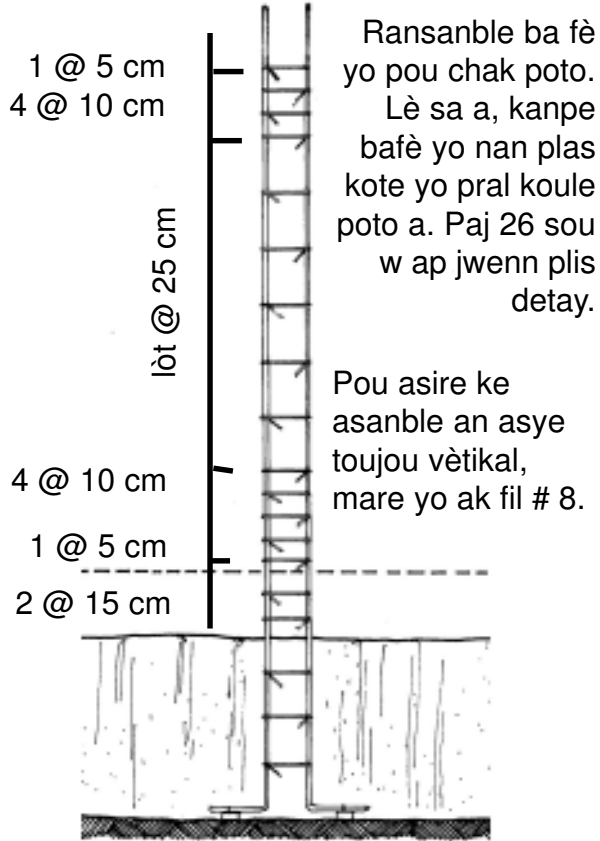
Fose yo dwe pwòp epi gratis nan nenpòt eleman òganik.

Anba la yo dwe pote pwòp e san tè lage.

Si li difisil nan nivo anba tranche a, pou nou ka melanje yon pòv konkrè (1:10) pou sa ki anba a se nivo nan tranche.

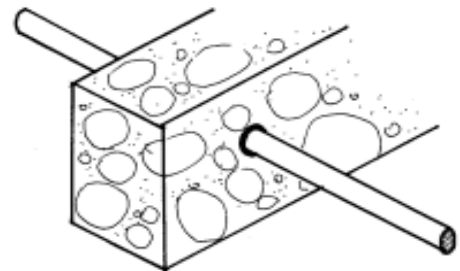
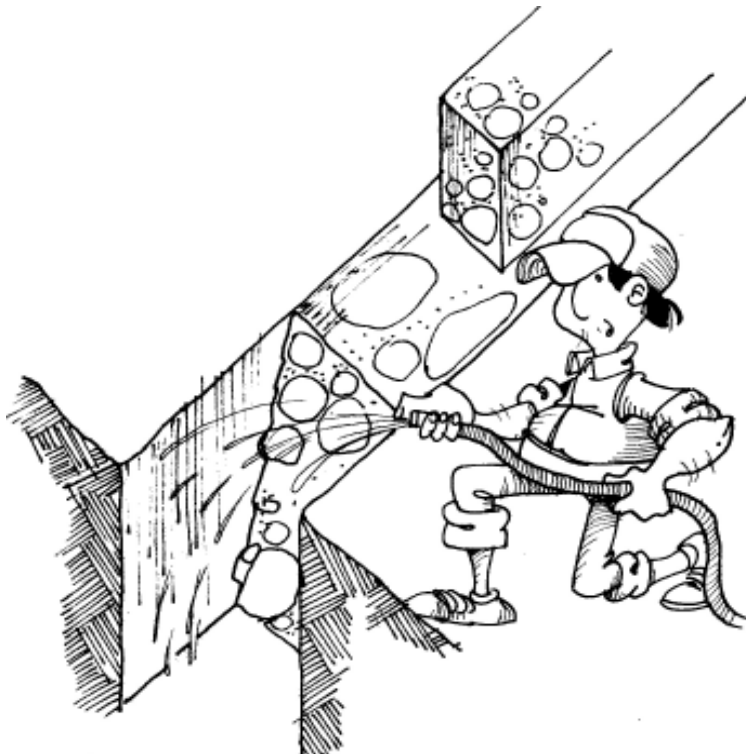
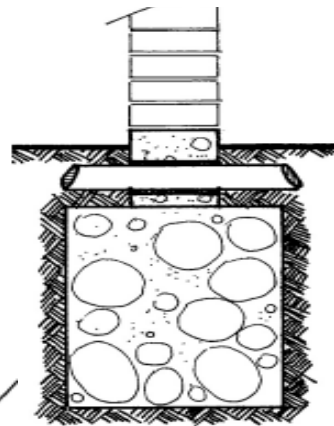
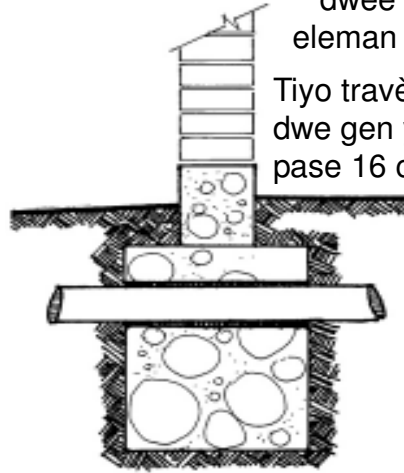
Anvan w fe fondasyon an

Kanpe pote yo ranfòse.



Enstalasyon sanitè

Èske tiyo pou sèvis piblik yo deja dis pomib pou anvan ou fe fondasyon. Tiyo yo pa dwee pa se nan okenn eleman pou ranfòse kay. Tiyo travèse smèl kontinye dwe gen yon dyamèt mwens pase 16 cm (6 pous).

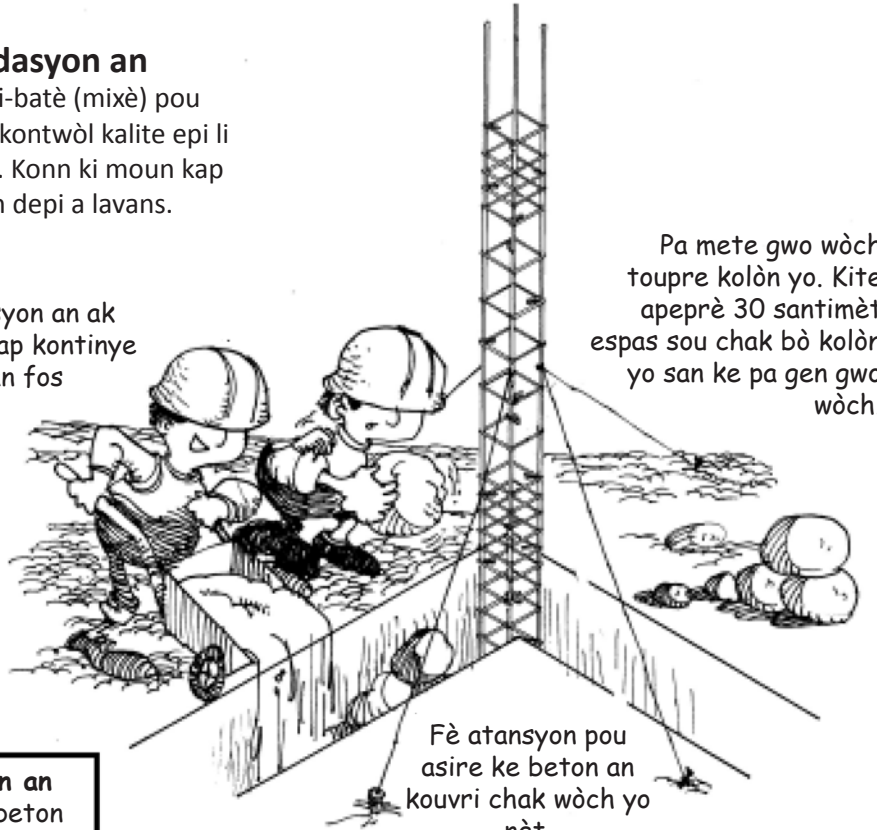


KONSTRIKSYON AM MENTYEN KAY AN MASONN





Vide beton pou fondasyon an

Li pi bon si ou lwaye yon ti-batè (mixè) pou prepare beton. Sa ap ede kontwòl kalite epi li fe ou pa gaspiye materyèl. Konn ki moun kap ede ou mixe ak vide beton depi a lavans.

Vide beton pou fondasyon an ak brouèt. Pandan beton ap kontinye vide, lage gwo wòch nan fos fondasyon yo.



Beton pou fondasyon an
Fondasyon yo fèt ak beton senp.

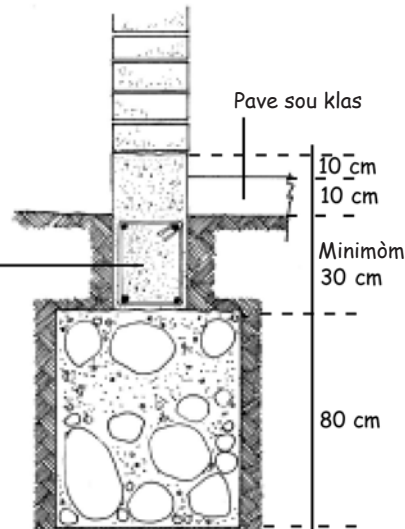
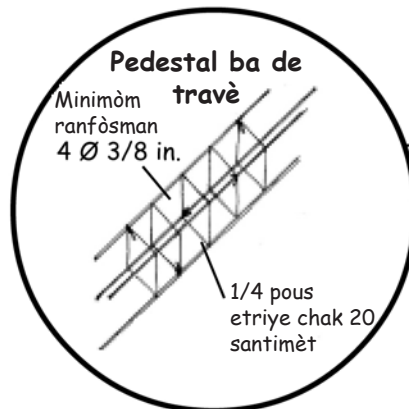
-  1 bokit siman
-  10 bokit nan générales
-  30% volim de gwo wòch (kantite maksimòm 10 pous)
-  1 1/2 bokit dlo

Pa bliye ke beton an pa dwe rete plis ke 3 minit nan mixè a.



Ranfòsman an fè nan pedestal la





Si tè paou sable oswa ajil, pito ou mete ranfò fè an asye nan pedestal a.






Beton pou pedestal

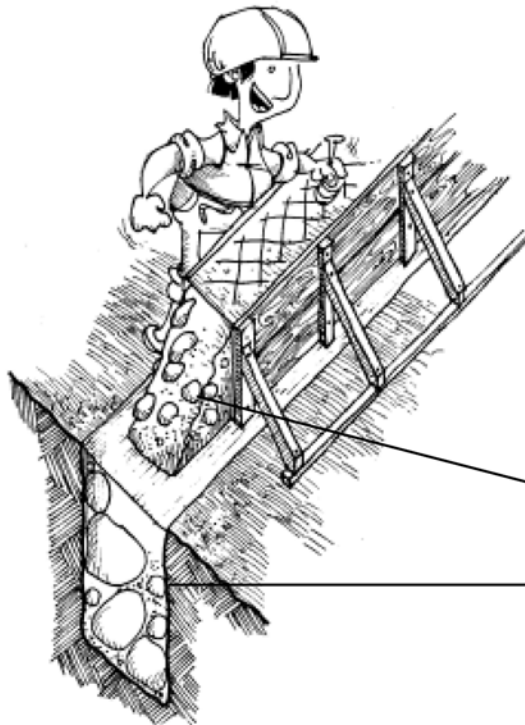
Ou gen dwa melanje beton ala men pou pedestal lan. Netwaye sifas yon zòn ki plat pou kote ou pral prepare beton an. Li pi bon si a tè kote ou pral prepare beton an an siman. Melanje materyèl a sèk epi ajoute dlo. Si ou pa ka bwasel byen, ajoute yon ti dlo. Mouye kofraj ak dlo avan ou vide beton an. Lè ou ap vide beton an ou ka sèvi ak bokit oubyen brouèt. Sonje pou pa mete gwo wòch nan zòn ki toupre kolòn yo.

Beton pou pedestal nan tè fè
Pedestal lan pa bezwen ranfòsman an asye

-  1 bokit siman
-  8 bokit nan générales
-  25% volim de wòch gwose moyen (gwose maksimòm de 4 pous)
-  1 1/4 bokit dlo

Beton pou plent nan tè ki lach (kankou sab oubyen ajil)
Konstwi yon pedestal ranfòse pou anpeche ke le tè a finn byen chita sa pa lakòz mi yo kraque

-  1 bokit siman
-  2 bokit nan générales
-  4 volim wòch kraze (gwose maksimòm 10 pous)
-  1 bokit dlo



Pedestal

Lè ou finin koule beton an sou pedestal la, grate tèt siman ak yon klou pou mòtye yo ka byen kole sou premye kouch beton an.

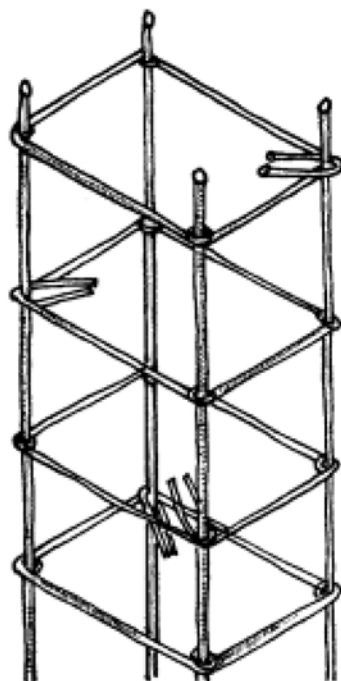
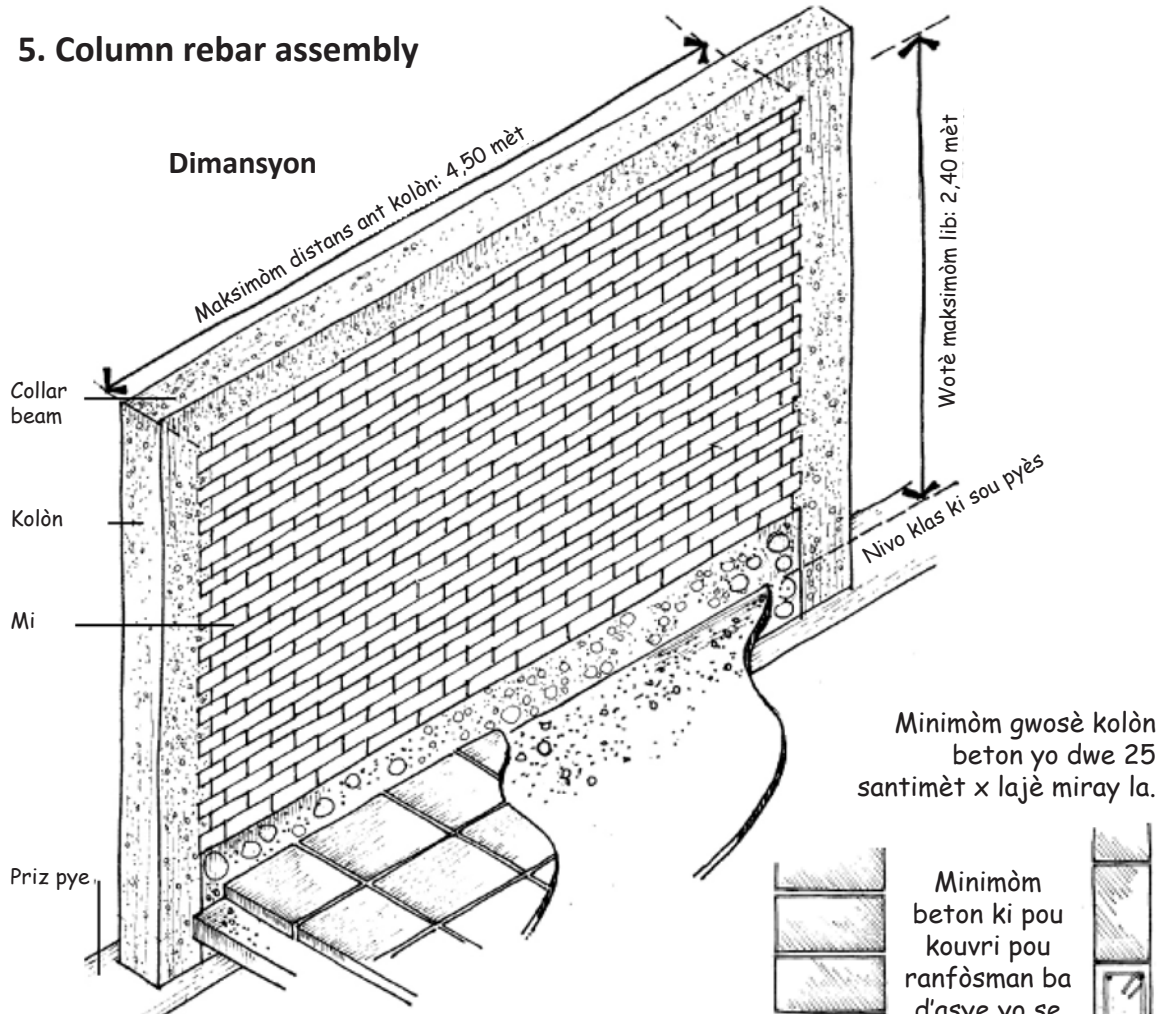
Konstriksyon jwenti



Si w bezwen sispann koule beton sou fondasyon an oswa pedestal la, kite yon jwenti dyagonal de fason pou ka wè wòch yo.

KONSTRIKSYON AM MENTYEN KAY AN MASONN

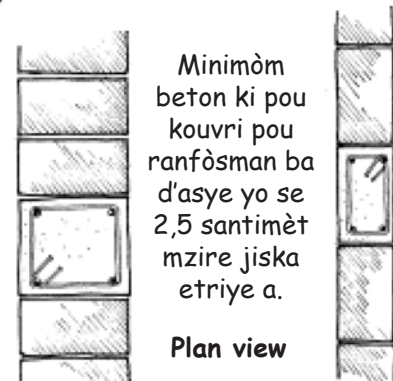
5. Column rebar assembly



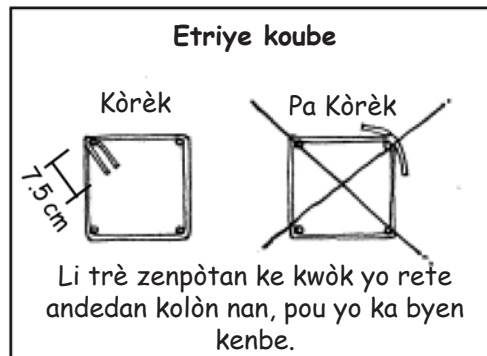
Ranfòsman

Minimòm ranfòsman pou kolòn yo se 4 a 3/8 pou de ba d'asye. Kolòn etriye yo 1/4 pou ki dwe mete ak yon entèval de: 1 a 5 santimèt + 4 a 10 santimèt + rès la a 25 santimèt nan chak bout yo. Distans ki genyen ant etriye yo mezire a pati de pedestal la an montan epi jiska de "COLLAR BEAM" sou anba.

Eseye chanje kwòk etriye de plas de fason pou li pa chita nan menm kwen ak kolòn nan.

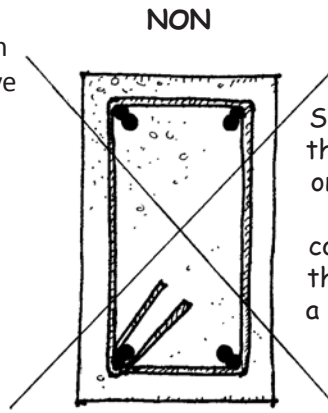


Mi nan tèt/ mi anlè (nan direksyon brik ki pèpandikilè mi a) Stretcher wall (nan direksyon brik ki paralèl mi a)

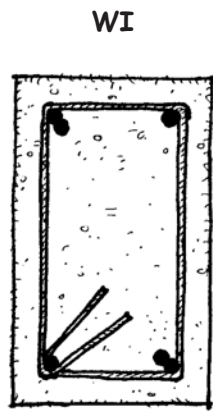


Mete rakor nom kolòn yo

Pa mete 4 ba ansanm sou menm longe kolòn yo, paske sa ap diminye fòs kolòn nan.



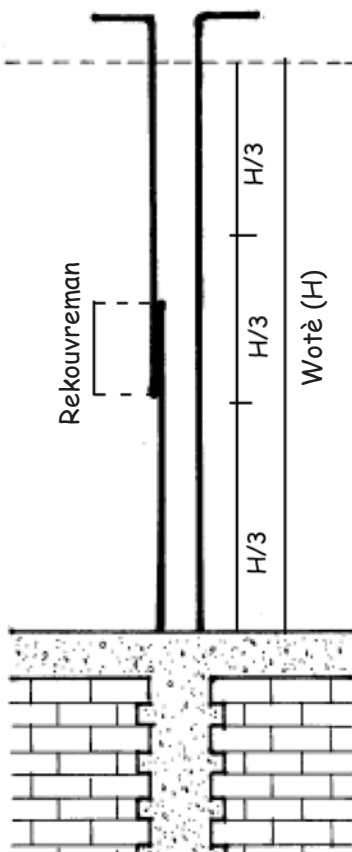
100% rakor nan yon seksyon



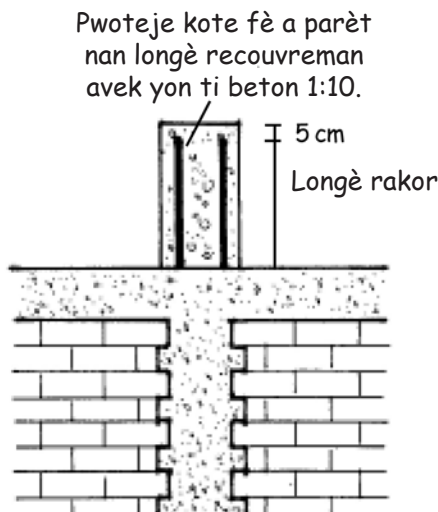
50% rakor nan yon seksyon

Splice half the bars at one height of the column and the rest at a different height.

Minimòm beton pou kouvri etriye an se 2,5 santimèt.

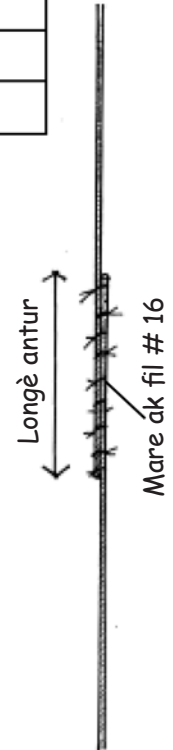


Konekte ba fè yo nan yon twazyèm nan mitan wotè pati lib kolòn nan.



Si se sèlman premye etaj la ou ap bati, kite fè fòje yo parèt pou lè ou ap konstwi dezyèm etaj la a lavni.

Asye (fè)	Longè antur
3/8 in.	40 cm
1/2 in.	50 cm



Rekòmandasyon

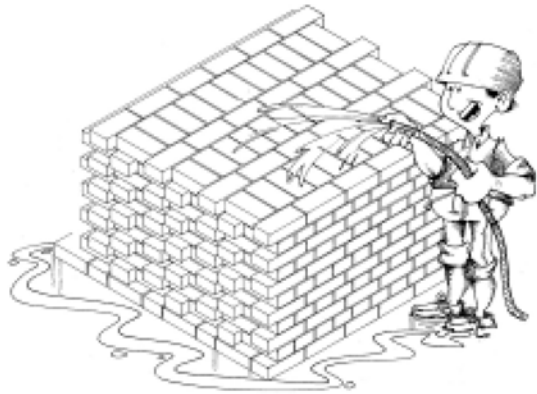
Pa janm soude ba fè ki renfose yo.

KONSTRIKSYON AM MENTYEN KAY AN MASONN

6. Mi

Prepare brik yo

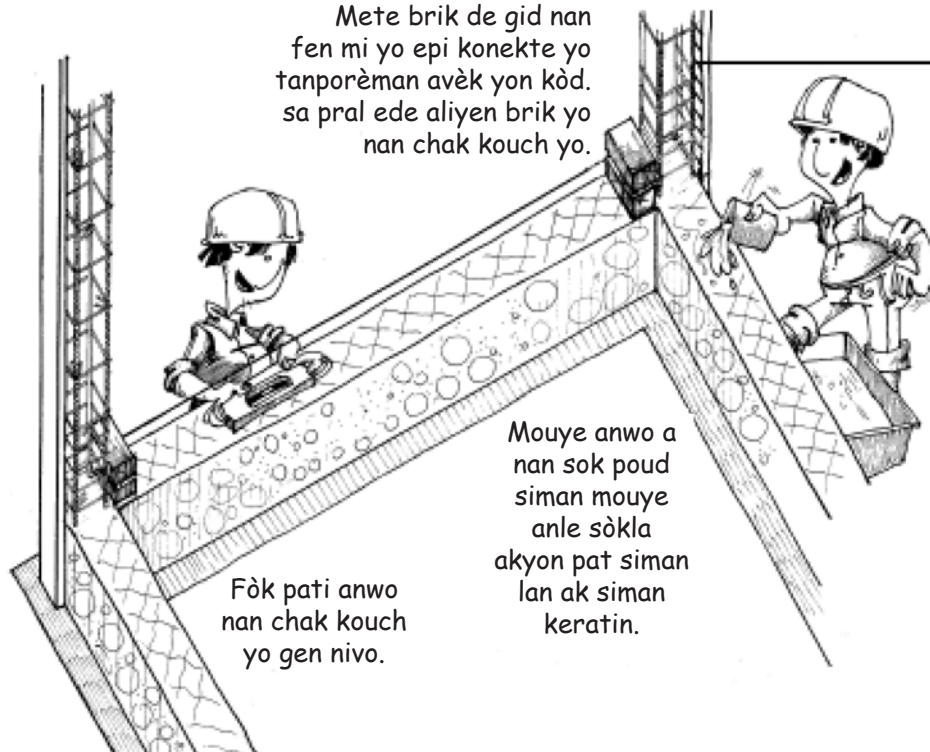
La vèy jou ouap konstwi (fè) mi yo, netwaye brik yo ak dlo pandan yon 20 minit. Apre sa, kite yo seche.



Premye s'a pou fe

Anvan ou mete premye kouch la, poze brik you san mòtye pou ka konnen ki jan yo pral rete.

Mete brik de gid nan fen mi yo epi konekte yo tanporèman avèk yon kòd. sa pral ede aliyen brik yo nan chak kouch yo.



Fòk pati anwo nan chak kouch yo gen nivo.

Mouye anwo a nan sok poud siman mouye anle sòkla akyon pat siman lan ak siman keratin.

Règ

Règ an bwa

Mete règ yo pou kontwòle lajè nan jwenti orizontal yo.



1
Premyèman, melanje siman ak sab la san dlo.

Mòtye a
Pou prepare mòtye, ou bezwen yon bokit siman ak 4 bokit sab rivyè koryas ki prop.



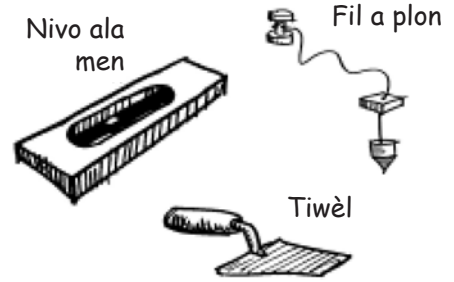
2
Apre sa, ajoute dlo tank ouap kontinye fè mi yo.

Rekòmandasyon

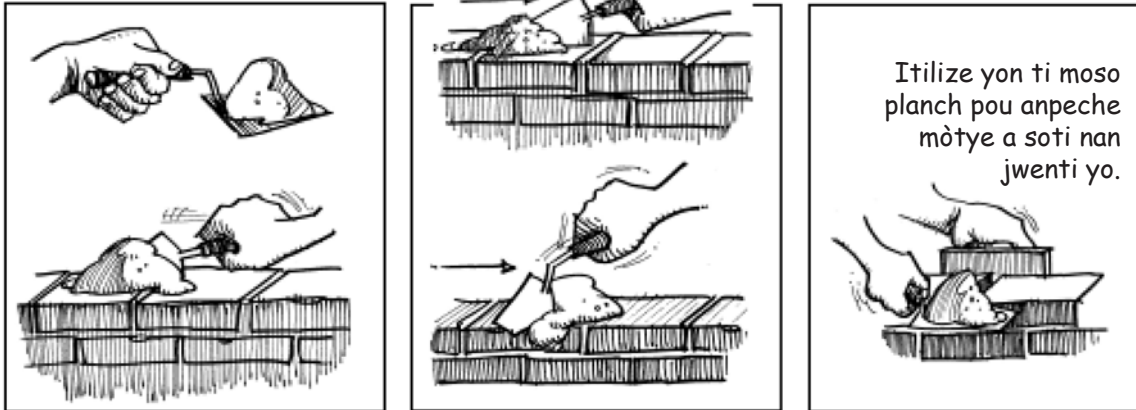
Toujou itilize yon nouvo mòtye. Pa itilize mòtye ki kòmanse ap vin di.

Konstriksyon mi an

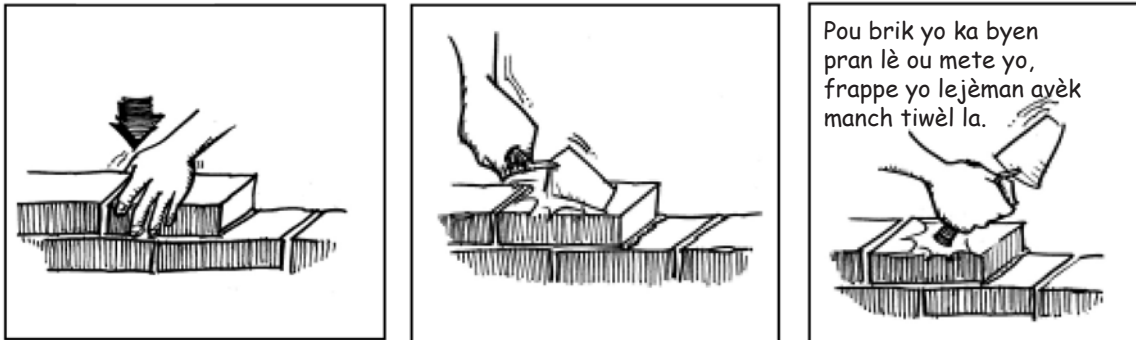
Pou konstriksyon de premye kouch a, itilize yon tiwèl mason pou pran melanj lan lè ou ap mete brik sou brik sou pave a. Mete brik yo sou mòtye a epi verify ke chak bo you touché ti kòd ki konekte brik gid la. Pou mete lòt kouch siksesif yo, mete mòtye an soubrik ki imedyatman anbaa epi ranpli jwenti vètikal yo nèt.



Plase mòtye

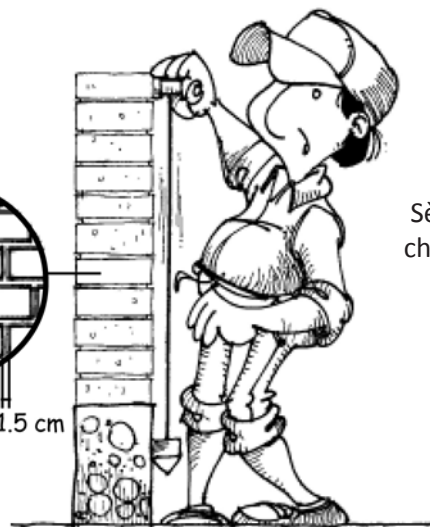
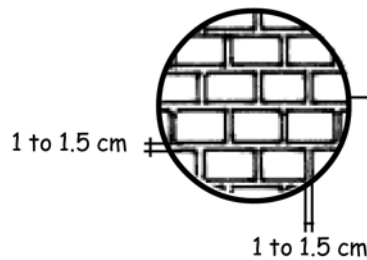


Plase brik yo



Jwen orizantal ak vètikal yo

Pa kite jwenti plis ke 1,5 santimèt epesè. Jwenti ki twò epè ap febli mi a.

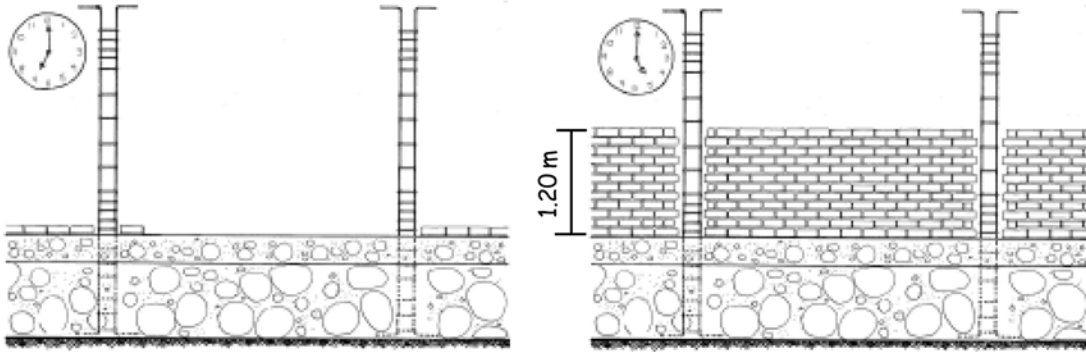


Kontwòl nivo
Sèvi ak fil a plon nan chak kouch pou asire ke mi a vètikal.

KONSTRIKSYON AM MENTYEN KAY AN MASONN

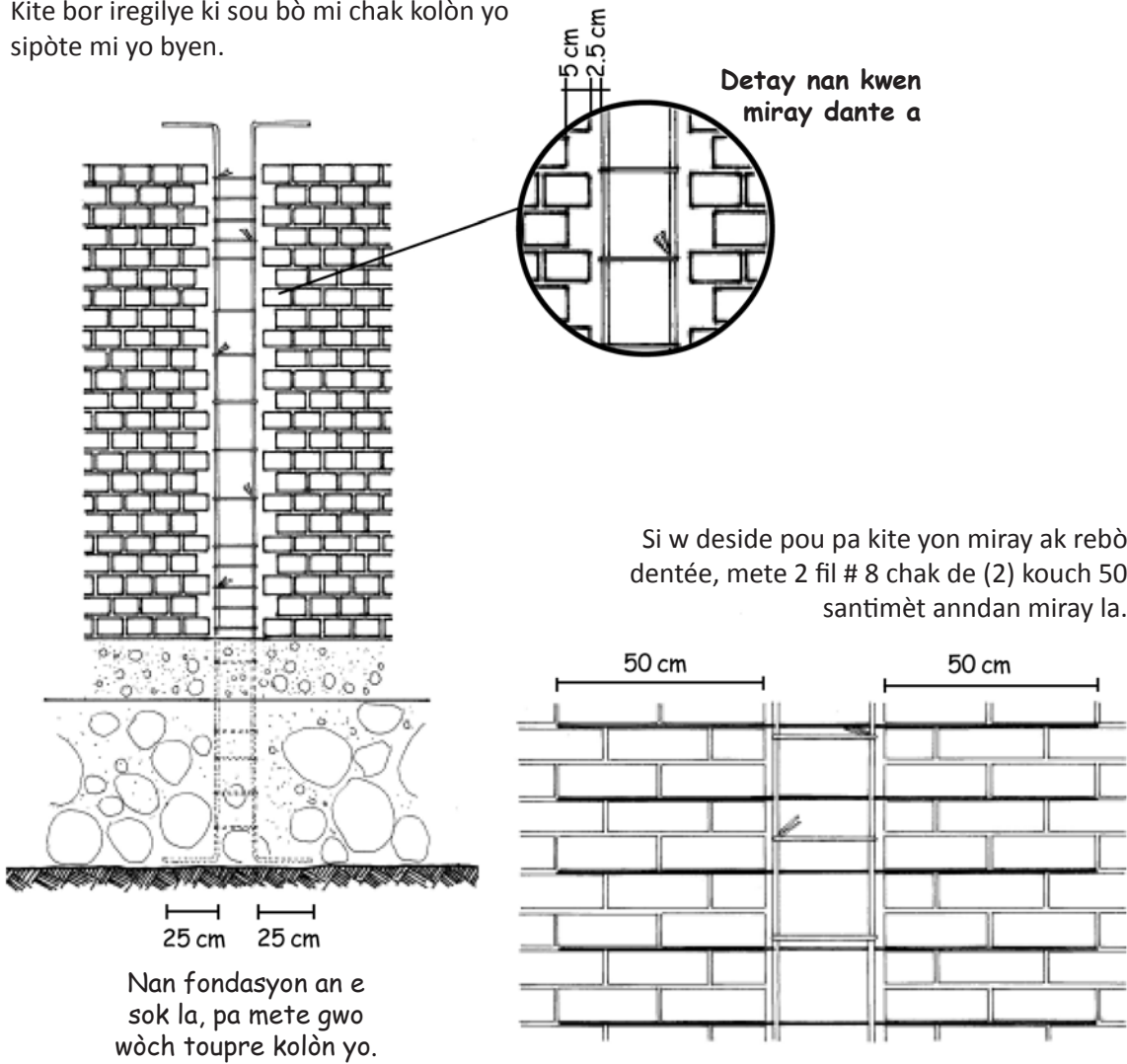
Pwogrè chak jou

Pa leve miray la pi wo ke 1,20 mètr pa jou. Si ou monte yon mi pi wo ke sa, li kapab tonbe paske mòtye a poko finn sech.



Koneksyon Mi-Kolòn

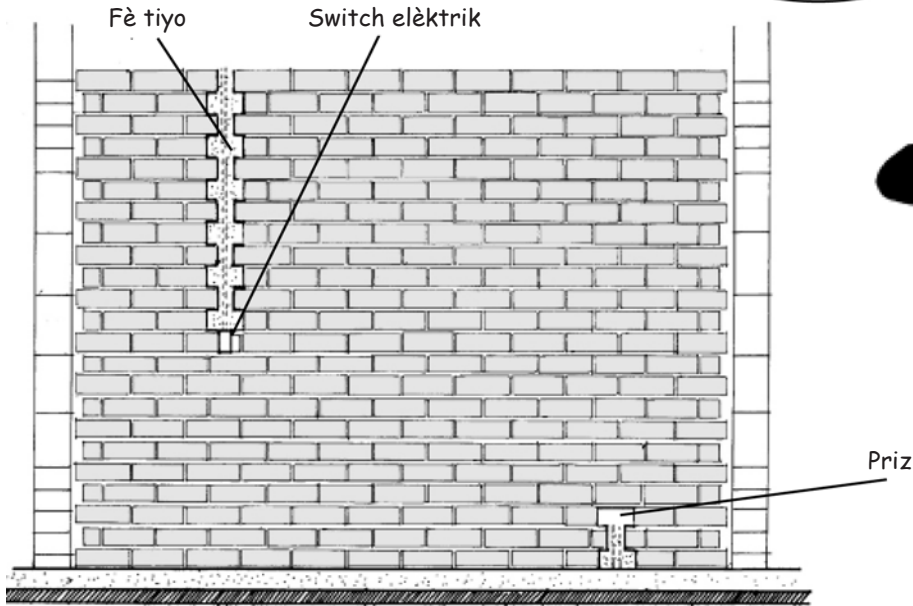
Kite bor iregilye ki sou bò mi chak kolòn yo sipòte mi yo byen.



Nan fondasyon an e sok la, pa mete gwo wòch toupre kolòn yo.

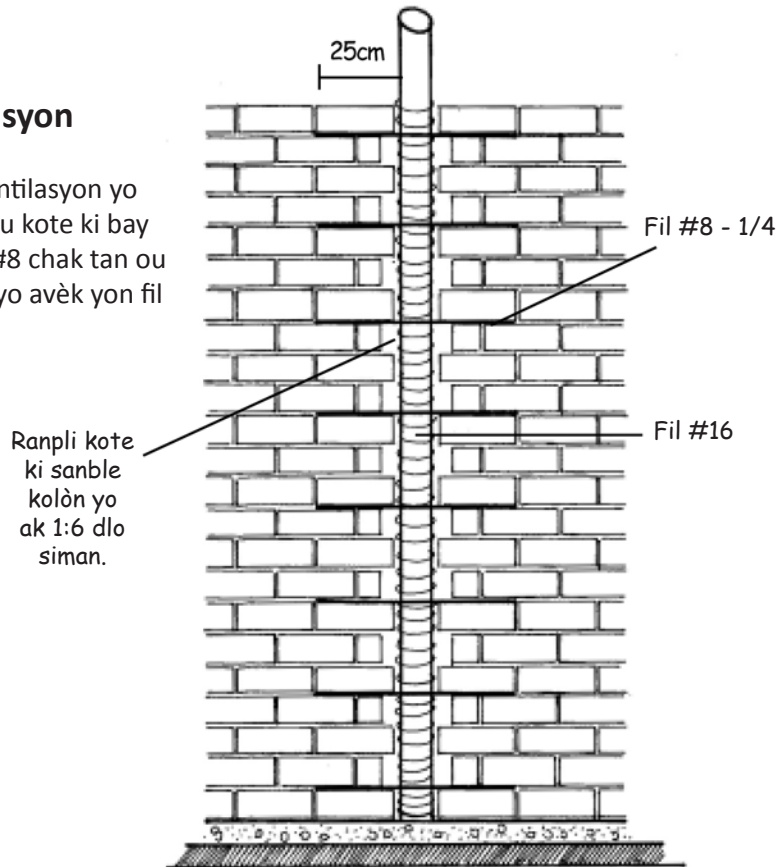
Enstalasyon elèktrik nan mi yo

Anfose yon kondi elèktrik an dedan miray an fom zigzag dante yo kote ki bay laparans kolòn yo, san fè (asye) e pi ranpli'l ak 1:6 beton.



Tiyo drenaj ak vantilasyon

Pouse tiyo drenaj ak tiyo vantilasyon yo an dedan miray dante yo sou kote ki bay laparans kolòn yo. Mete fil #8 chak tan ou poze twa kouch epi vlope tiyo avèk yon fil # 16.



KONSTRIKSYON AM MENTYEN KAY AN MASONN

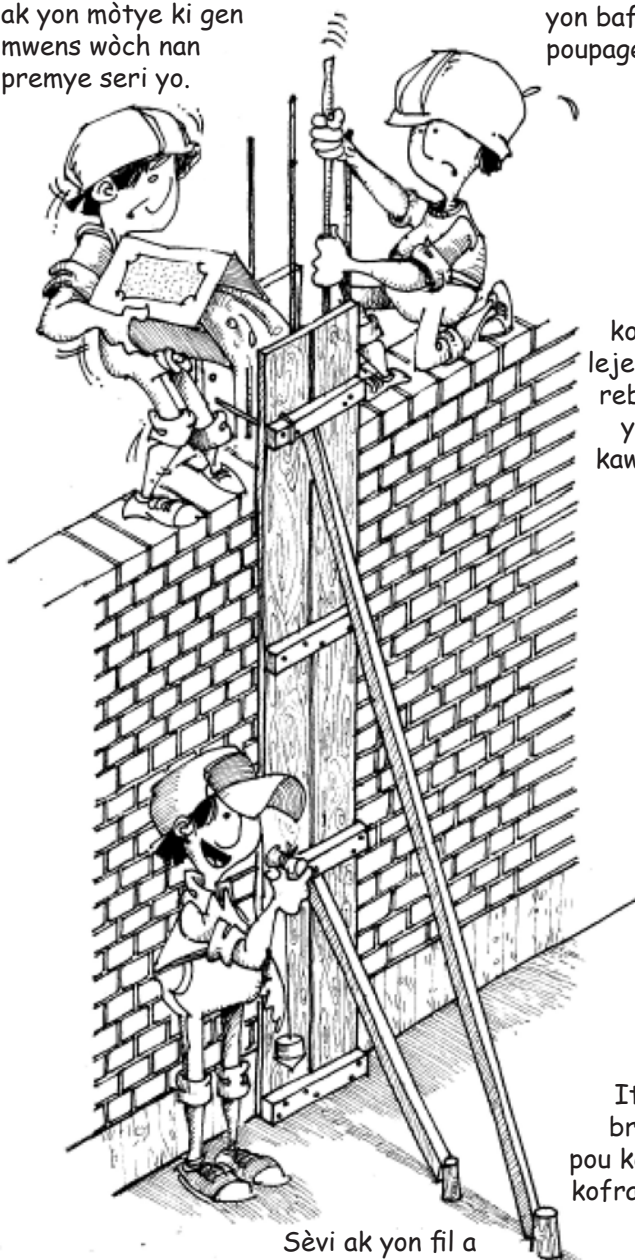
7 . Koule beton nan kolòn

Kofraj epi Koule beton

Aprè mi yo fin fèt, mete kofraj sou mi yo pou kolòn ki mare yo. Li pi bon si w itilize yon mixè pòtatif pou prepare beton pou kolòn yo. Sèvi ak bokit lè ou ap pote mòt-tye de mixè a jiska anwo nan kofraj la. Vide mòt-tye andedan kofraj la ak pwekosyon.

Pou evite tou d'è nan kolòn yo, sèvi ak yon mòt-tye ki gen mwens wòch nan premye seri yo.

Pike betonnan ak yon bafe byenlong poupagen poch dè.



Fwape kofraj lan lejeman sou rebo'l avèk yon mato kawotchou.

Beton pou kolòn yo



1 bokit siman



2 bokit sab koryas



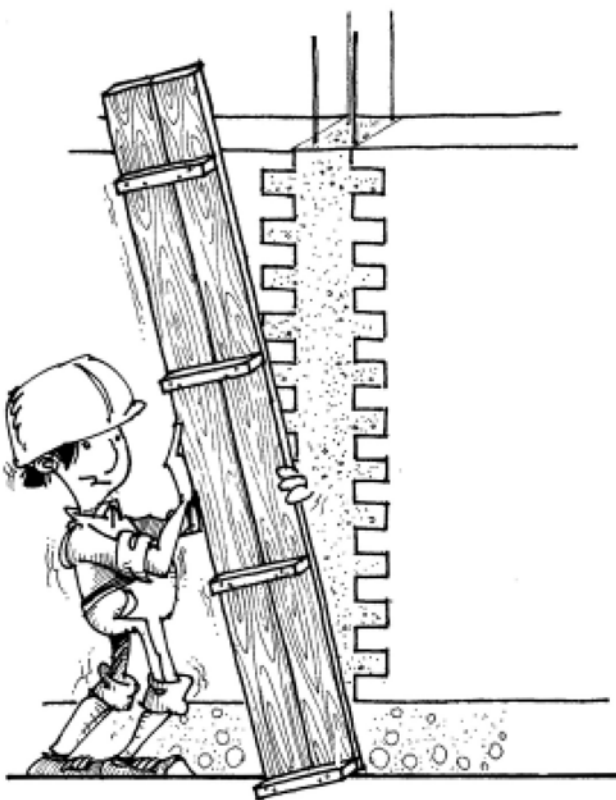
4 bokit wòch kraze
(kantite maksimòm
3/4 pou)



1 bokit dlo

Itilize brakèt pou kenbe kofraj yo.

Sèvi ak yon fil a plon pou verifye ke kofraj la vètikal.



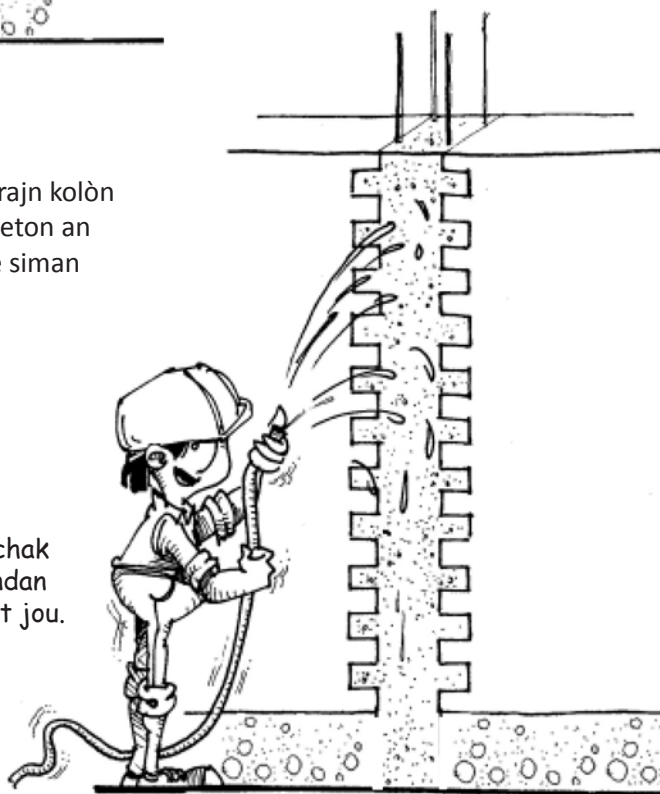
Retire kofraj

Apwè ou finn koulé beton nan kolòn yo, kite kofraj yo jiska 24 è detan. Apwè sa a, retire kofraj yo avèk pwekosyon epi itilize yo ankò pou lòt kolòn yo.

Netwayaj

Fimaj beton se apwè yo retire kofrajn kolòn yo. Netwayaj la se lè ou awouze beton an omwen twa fwa pa jou pou'l ka fè siman vin di.

Fè fimaj chak beton pandan omwen sèt jou.



Rekòmandasyon

Si yon kolòn gen yon gwo kantite vid, kraze'l imedyatman epi retire beton nan tout ba d'asye yo byen pwòp, ranplase kofraj la epi recoule beton an ankò.

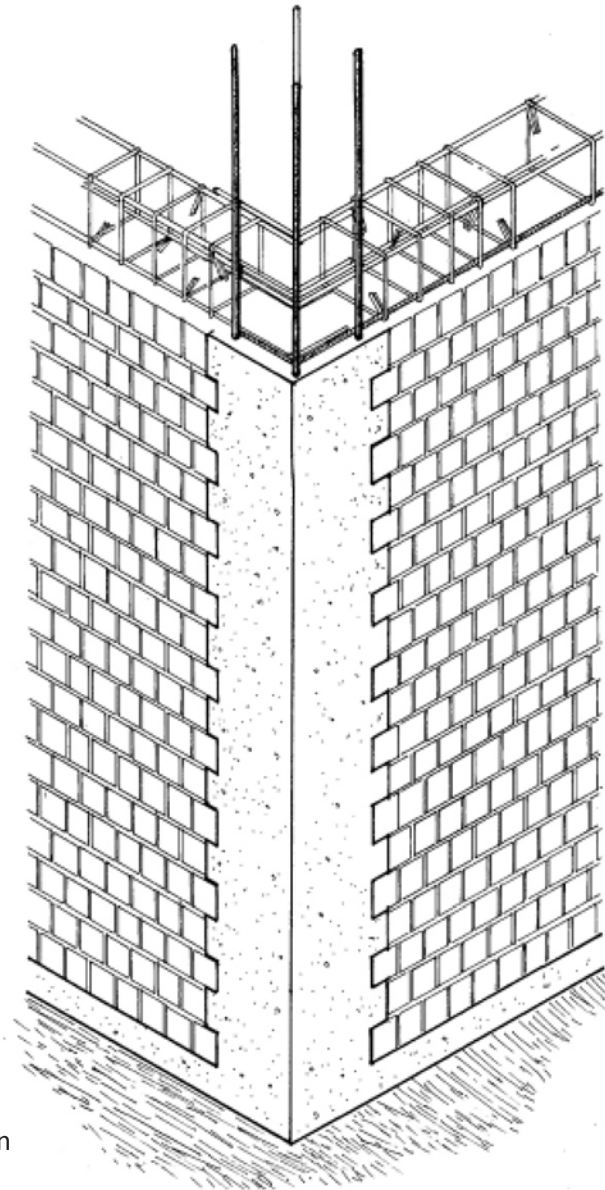
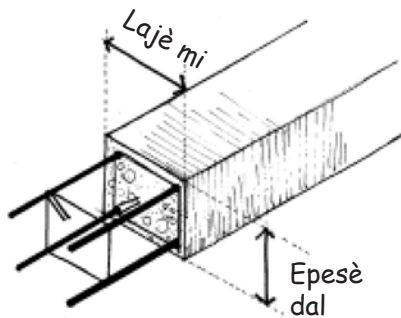
KONSTRIKSYON AM MENTYEN KAY AN MASONN

8. Pout Ankastre

Sipò nan pout nan kay ou enpòtan paske yo ede kenbe mi.

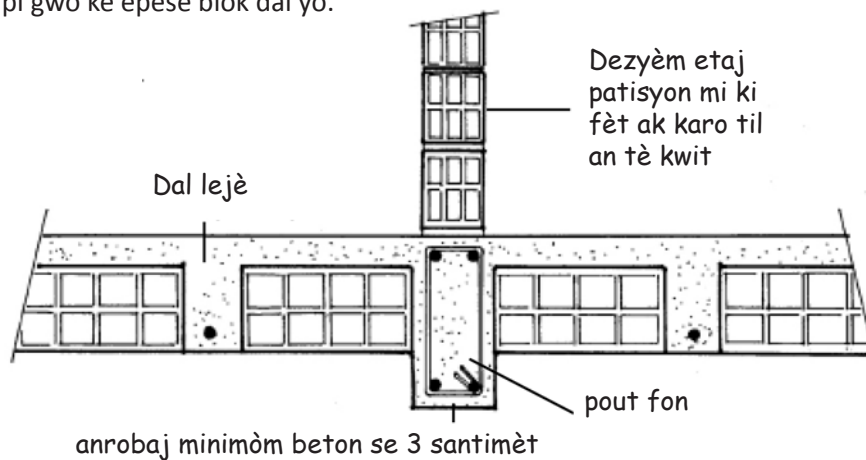
Ranfò minimòm

Ranfò minimòm pou tout pout yo se: 4 ba d'asye 3/8 avèk 1/2 pous espas ant zetriye yo a pati de 1 a 5 santimèt, 4 a 10 santimèt epi pou tout lòt yo 25 santimèt nan fen chak.



Pout repete fon

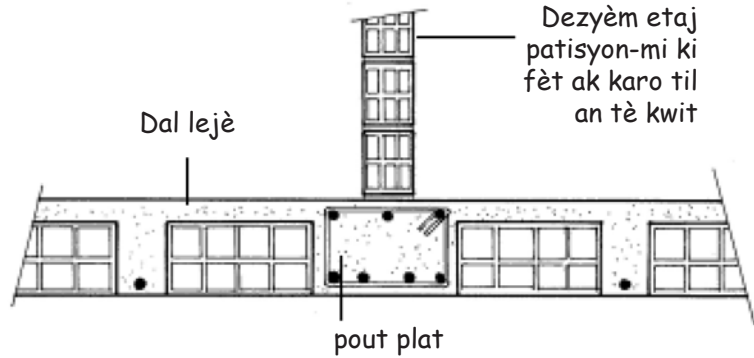
Yo itilize pout repete fon pou reziste pwa nan patisyon mi oswa tet kay la. Yo distribye chaj la nan kolòn ak mi yo. Pwofondè "BEAM" sa yo pi gwo ke epèsè blok dal yo.



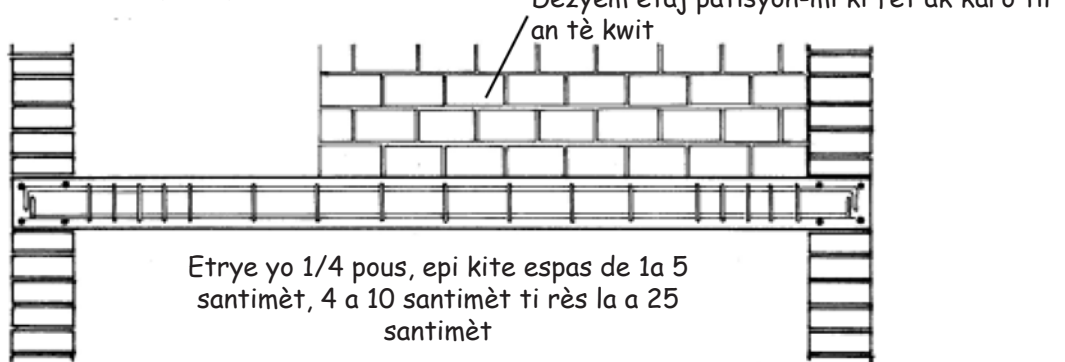
Pi piti pwofondè pout sa yo se espas vid la divize pa 14. Abityèlman pout fon yo pa konn gen mi an ba yo.

Pout plat

Pout plat yo rete anndan dal yo pou ede transmèt pwa patisyon mi yo jiska kolòn yo ak mi ki sipote yo. Li pi bon si longè pout plat yo pa plis ke 4 mè.

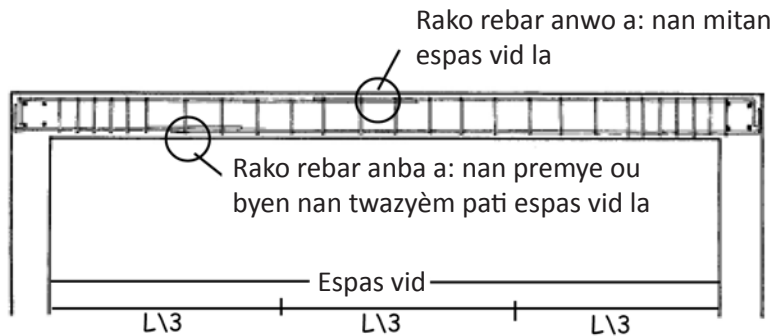


Ranfòsman pout plat



Rakò fè nan pout yo

Fè atansyon lè w ap fè rakò nan pout yo. Ou dwe fè rako ranfosman fè nan mitan distans pote yo. Rako ranfosman fè anba yo gen dwa fèt preske nan fin pote yo.



Rekòmandasyon

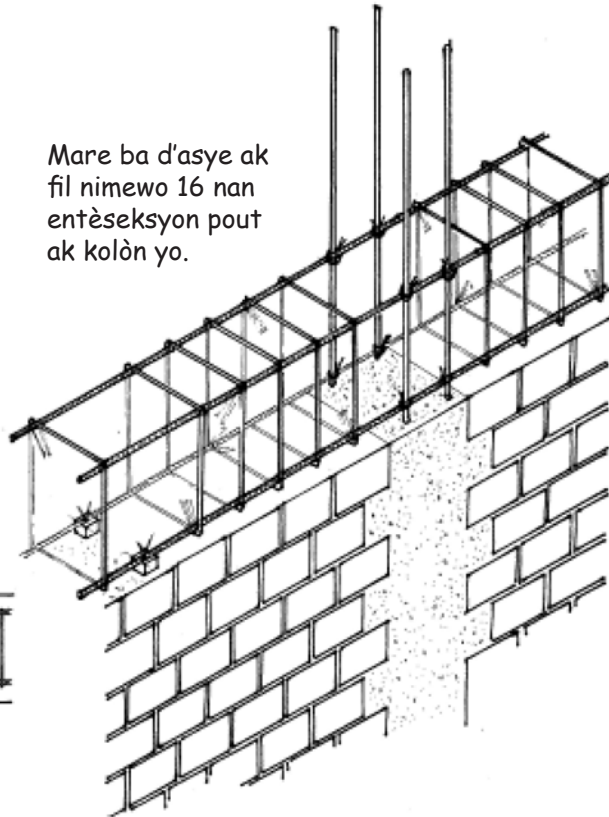
Etriyè yo mezire sou anndan miray la. Pi piti beton pou kouzwi "deep beams" yo se 3 santimèt soti depi nan etriyè a; epi pou "flat beams" yo meziman se 2.5 santimèt.

KONSTRIKSYON AM MENTYEN KAY AN MASONN

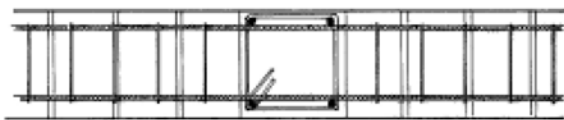
Koneksyon Pout-Kolòn

Pran tan w lè w ap mete ba ranfòsman nan entèseksyon poto kolòn yo. Lè w ap vide beton nan zòn sa yo, brase beton anpil avèk yon baton pou li pa fè pòch dè.

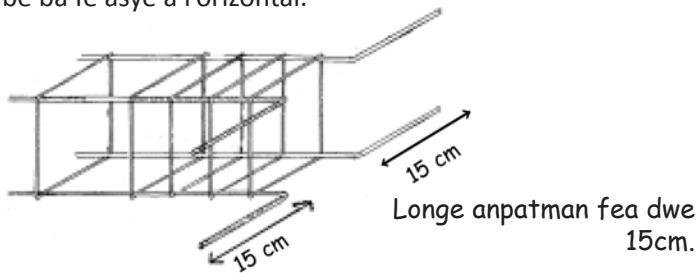
Mare ba d'asye ak fil nimewo 16 nan entèseksyon pout ak kolòn yo.



Detay vizib plan an



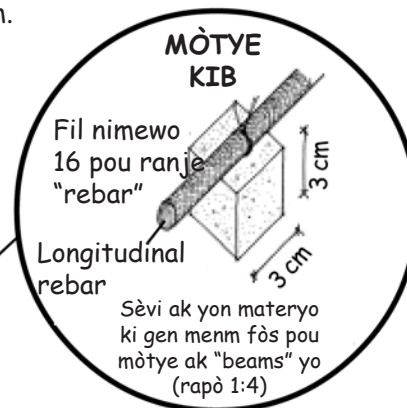
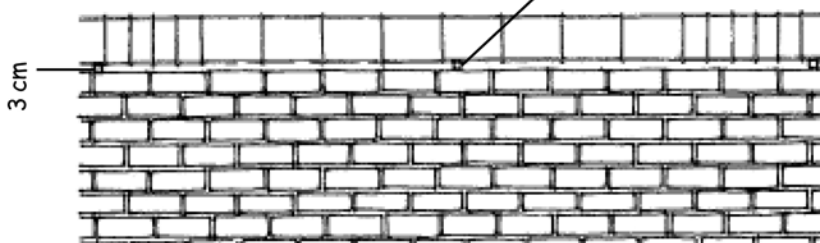
Nan ka ke pout nan pa kontinyèl, koube ba fè asye a l'orizontal.



Espas ant pout yo

Pou kenbe ranfòsman pout pou ba fè yo a l'orizontal, mete kal beton yo a 3 santimèt a kote oswa anba yo.

Distans ant mòtye kib yo: apeprè 1,5 mètr

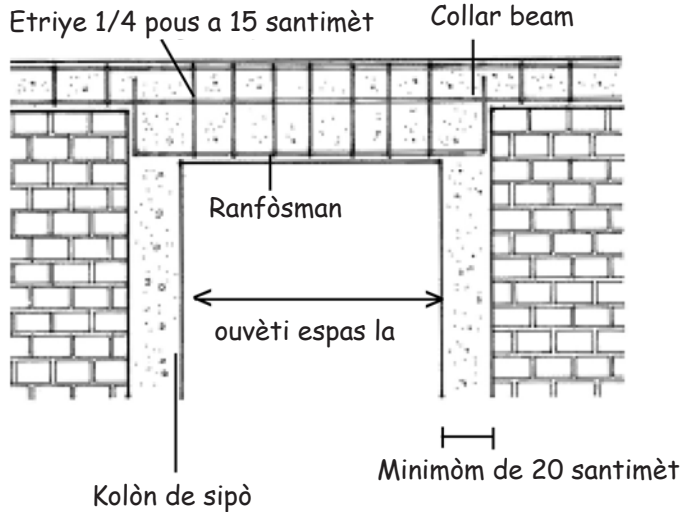


Jonksyon lento ak pout

Ouvèti pòt ak fenèt yo dwe ale nan nivo collar-beam. Men twa jan ou ka fè lentil sou ouvèti yo.

Altènatif 1 (rekòmande anpil)

Pout ki gen pi gwo pwofondè ak kolòn de sipò.

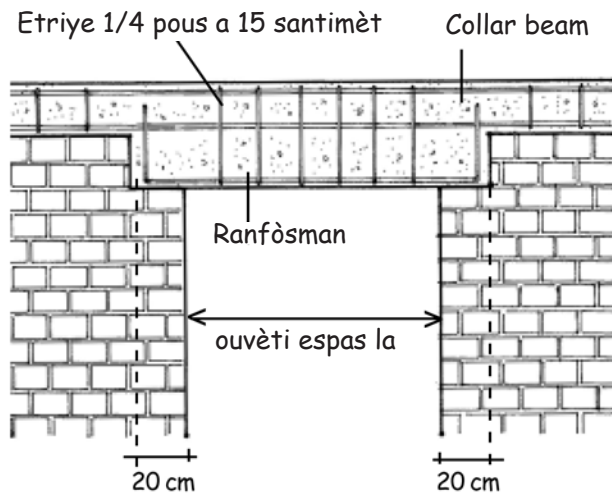


Plis ranfòsman pou lento

ouvèti espas	Ranfòsman
0.80 m a 1.50 m	2 Ø 3/8 in.
1.50 m a 2 m	2 Ø 1/2 in.

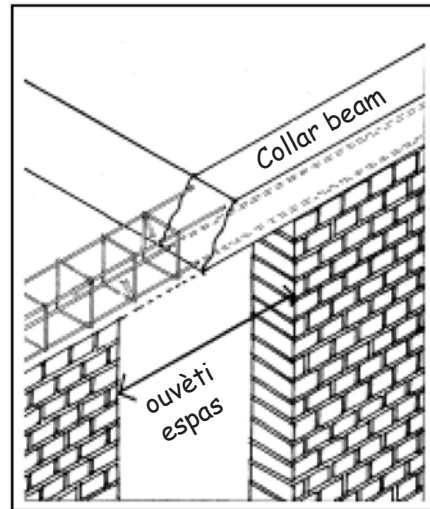
Altènatif 2

Pout ki gen pi gwo pwofondè san kolòn de sipò.



Altènatif 2

Ouvèti ki monte anba "collar beam"



Minimòm de 25 santimèt

Estanda ranfò pou "collar beam"

Si ouvèti espas la mwens ke 1 mè, ou pa bezwen mete ranfò adisyonèl pou ranfòsman "collar beam".



Etriye 1/4 pou 1 1/2 pous 1 timèt en plis.

Minimòm de 25 santimèt

Ranfòsman sipleman tè pou "collar beam"

Si ouvèti espas la rive jiska 1,5 mè, ajoute yon 1/2 pou ranfò pi ba "collar beam".



1 1/2 pous en plis. Etriye 1/4 pous a 15 santimèt

Rasanble fe pou pout

Metè ba fè ranfòsman an asye a sou tèt mi a apre yo retire kofraj nan kolòn yo.

Koule beam yo

Tout “**POUT**” yo (pout, fon ak plat) “**LINTO**” yo dwe koule ansanm ak dal yo.



PA JANM SISPAAN
KOULE BETON NAN
POUT YO SAN KE OU
PA FÈ JWENTI
ORIZONTAL YO TOU!

Beto pou “beams and slabs”



1 bokit siman



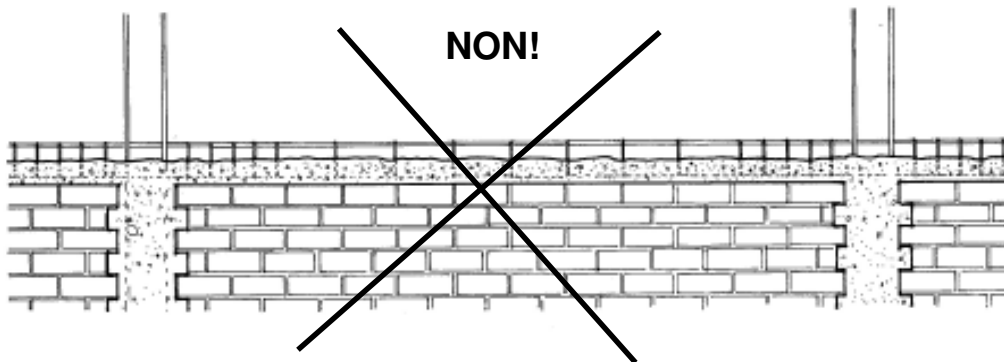
2 bokit sab koryas



4 bokit wòch kraze
(kantite maksimòm
3/4 pous)



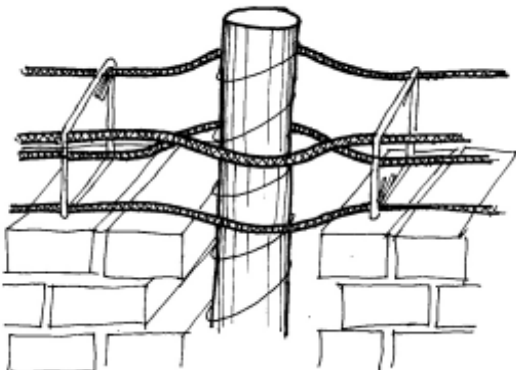
1 bokit dlo



Tiyo/plonbri nan “pout”

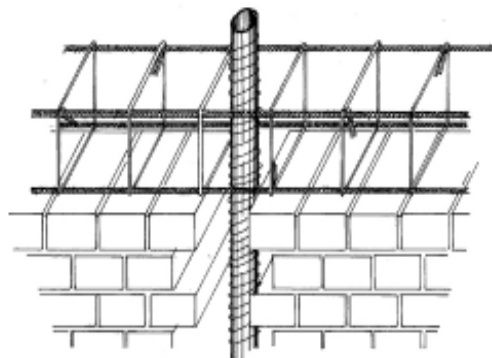
Pa janm pliye pout pou pase tiyo drena.

NON!



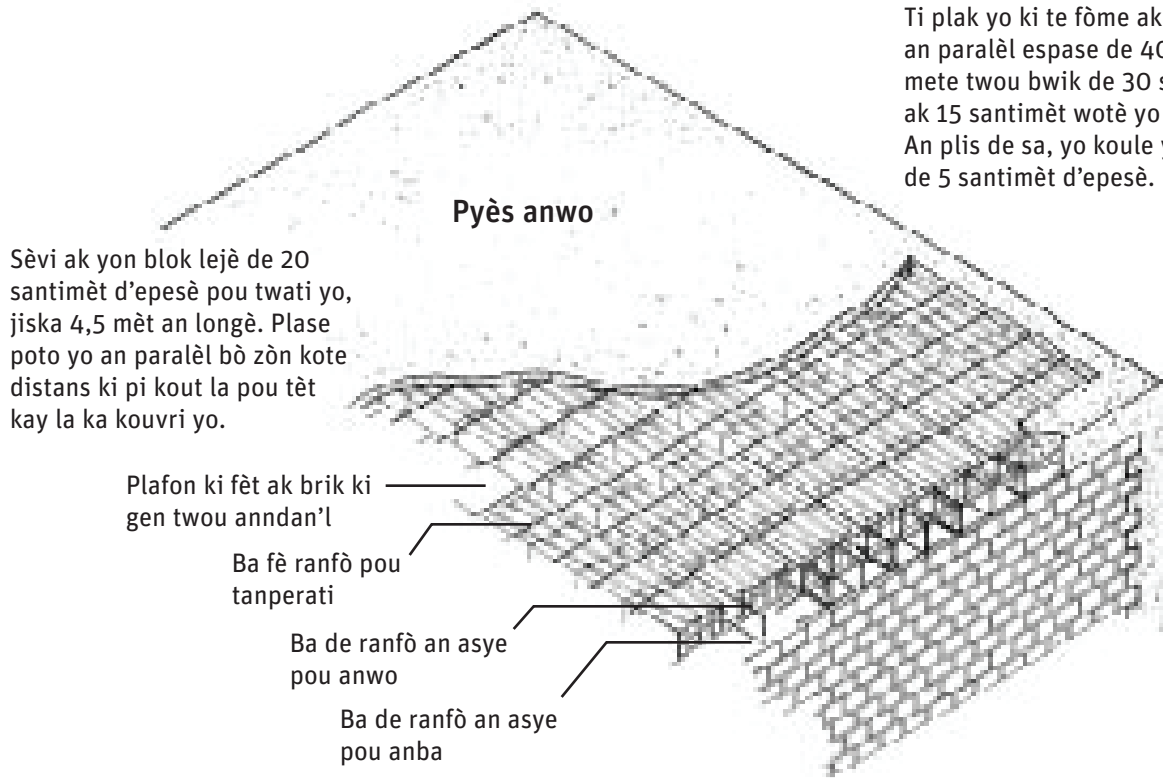
Bent rebar

Wi



straight rebar

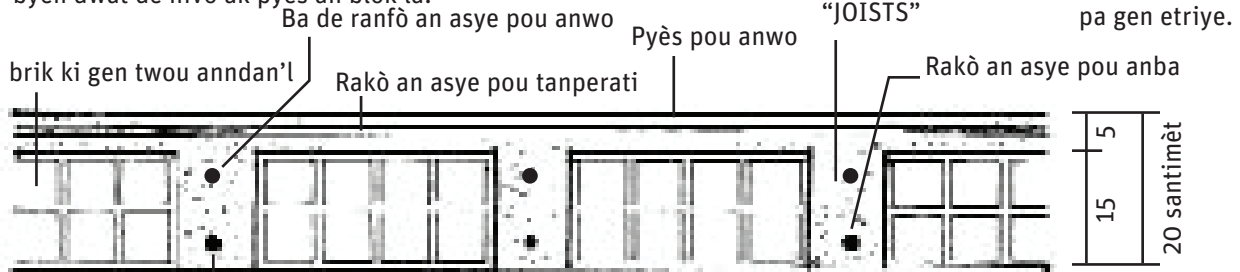
9 Pyès lejè



Ti plak yo ki te fòme ak beton ranfòse an paralèl espase de 40 santimèt. Yo mete twou bwik de 30 santimèt de lajè ak 15 santimèt wotè yo ant ti poto yo. An plis de sa, yo koule yon pyès beton de 5 santimèt d'epesè.

Dimansyon chak pyès yo

Plafon ki fèt ak brik ki gen twou anndan'l yo fèt pou yo mete byen dwat de nivo ak pyès an blok la.



Minimòm beton pou kouvri = 2 santimèt

Tanperati pou ranfò an asye

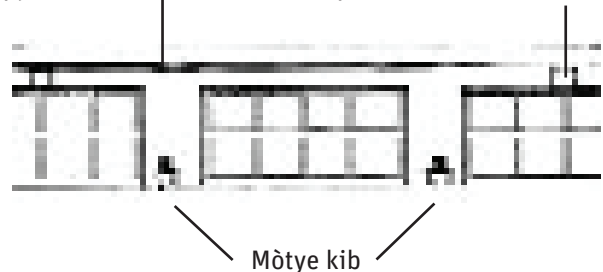
Pou anpeche krakman nan pyès anwo yo akòz de tanperati a, ou dwe mete 1/4 pous ba d'asye chak 25 santimèt, pèpandikilè ak “JOISTS” yo.



NON! Tanperati pou ranfò an asye a pa dwe touché avèk brik plafon an.

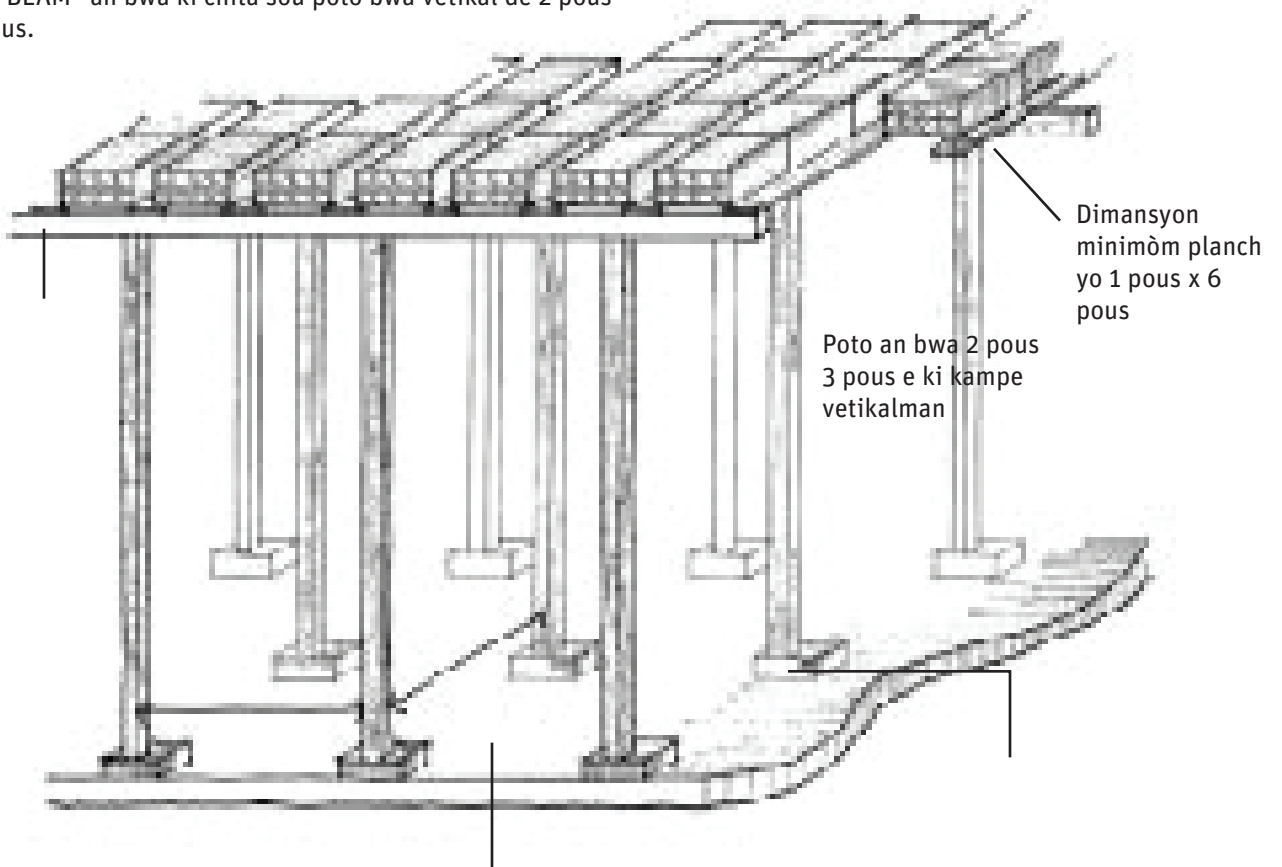
Plase ranfò an asye pou tanperati a nan mitan wotè pyès anwo an

Prepare môtaye kib (2.5 santimèt pa bò) epi itilize yo kòm sipò pou ranfòse ba fè “JOISTS” yo.

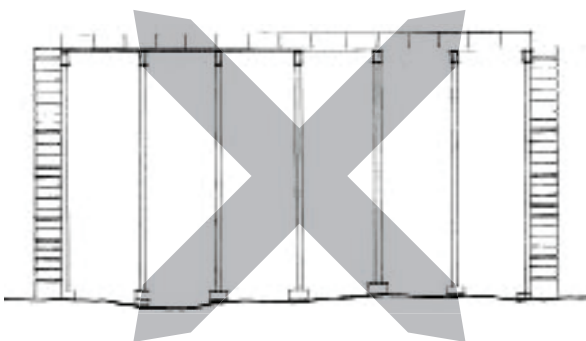


Pyès kofraj

Prepare pyès kofraj ak bwa planch ki gen omwen 1 pou espès pou chak "JOIST BED". Sipòte planch yo ak yon 2 pou x 4 pou "BEAM" an bwa ki chita sou pote bwa vètikal de 2 pou x 3 pou.

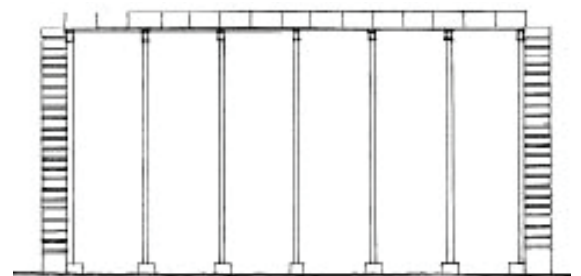


NON!



Pa janm sipòte yon pyès kofraj ki lejè sou tè ki pa tase.

WI



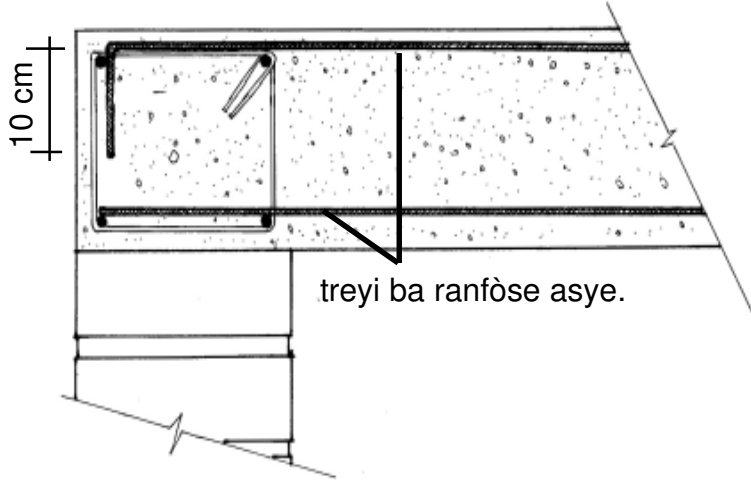
"Slab on grade" la fèt poul konstwi avann mete kofraj dal la. Si gen yon pyès la déjà, alò fòk tè a byen tassé e byen nivo.

Rekòmandasyon

Pa janm itilize move materyèl kankou sak siman plen, bwik ou katon kòm kofraj. Si ou fè sa, beton na bagay yo ap defòme.

Koneksyon ant pote sipò ak poutrel rebar

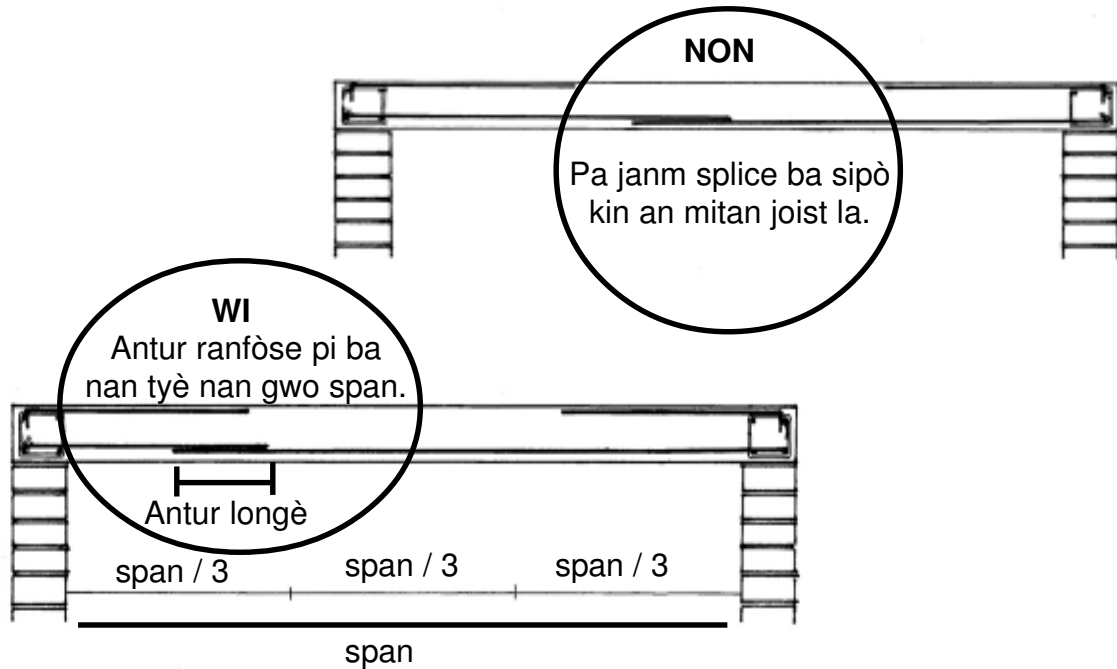
Mare anwo ranfòse soliv ba ranfòse ak reyon otaj # 16 kab.



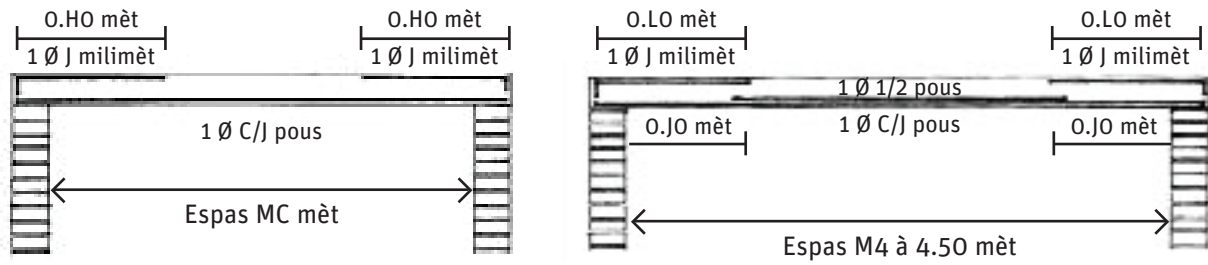
Fè asye	Antur longè
3/8 pous	40 cm
1/2 pous	50 cm

Rakor nan poutrel

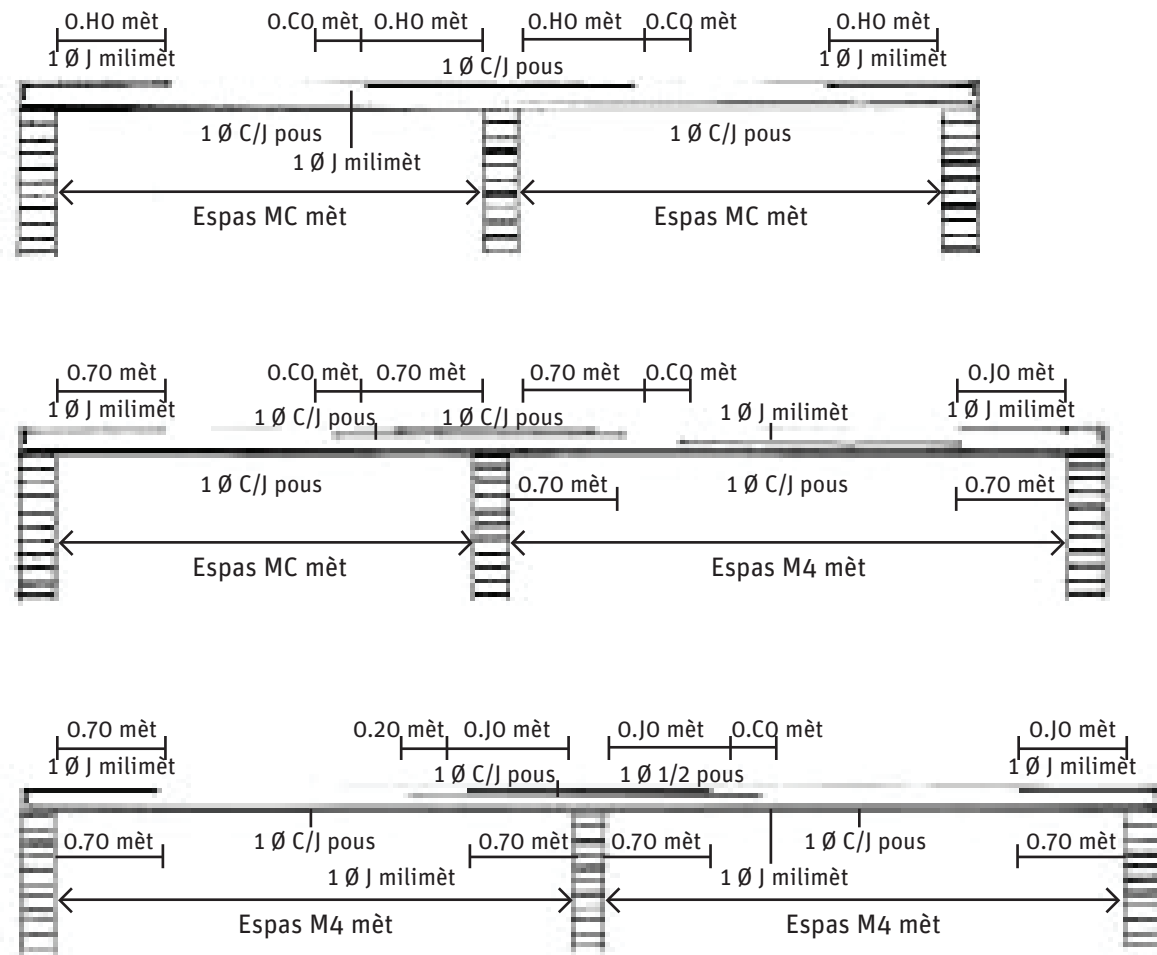
Si ou gen antur ranfòse pi ba yo nan yon soliv, èske li nan tyè ki nan gwo ouvèti lib.



Ranfòsman an fè a nesèsè pou chak span joist nan yon sistèm 20 santimèt pou pyès lejè



Ranfòsman an fè a nesèsè pou chak deux span joist nan yon sistèm 20 santimèt pou pyès lejè



Rekòmandasyon yo

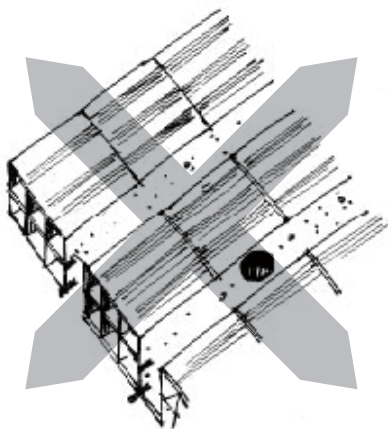
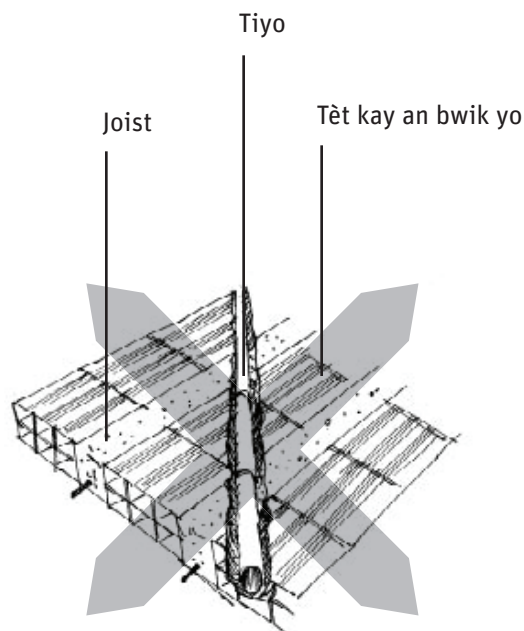
Si w ap konstwi ak yon pwa lejè ak lon pote, konsilte yon enjenyè. plak pwa leje gran espas yo dwe fèt efikasman pou asire sekirite yo ak fòs yo.

Tiyo nan pyès lejè

NON

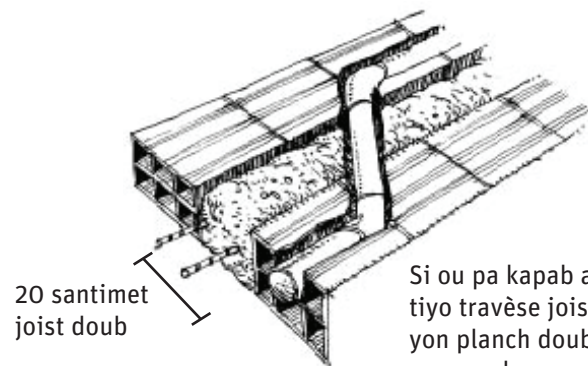
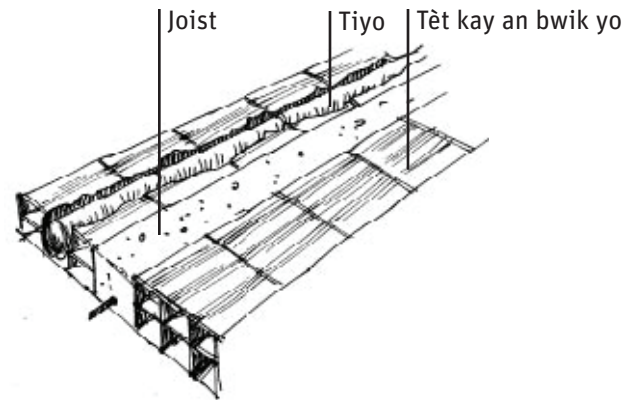
Move kote ou mete tiyo

Tiyo pa dwe koupe joists twati yo.

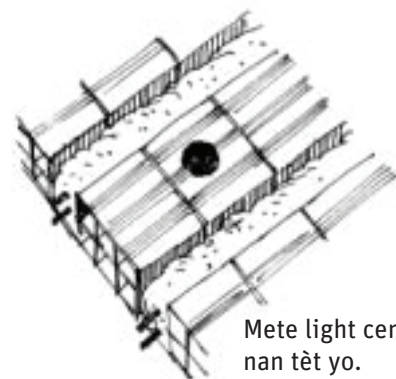


WI

Bon kote pou mete tiyo



Si ou pa kapab anpeche tiyo travèse joists, plase yon planch doub nan zòn nan pas la.



Mete light centers nan tèt yo.

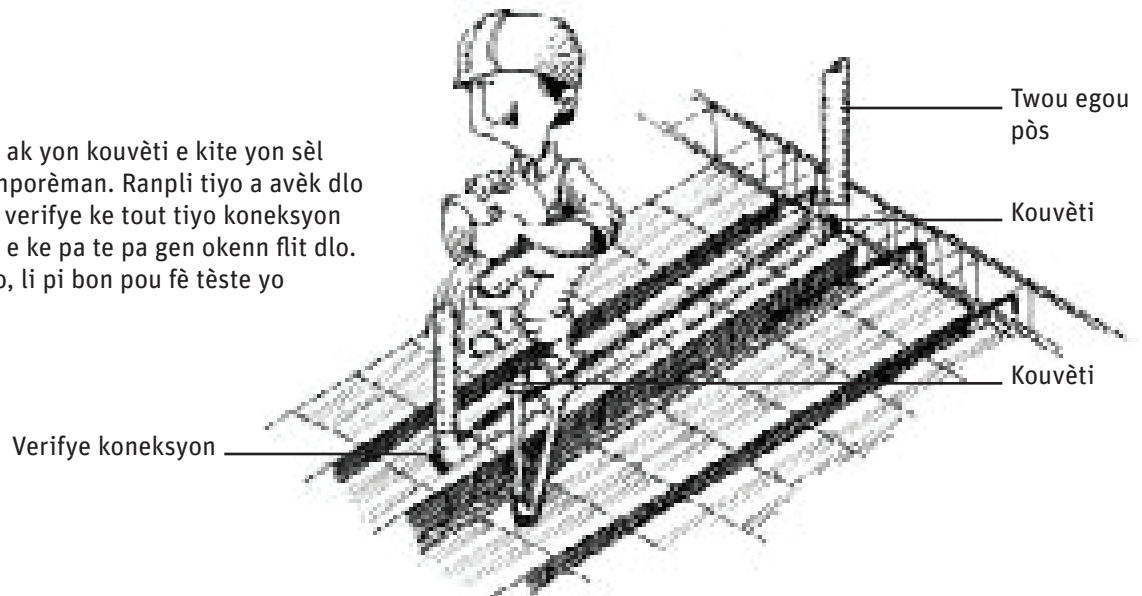
Rekòmandasyon

Chache konnen ki sèvis ki gen nan zòn kote ou ye pou sèvis dlo ak drenaj ak elektrisite ak sèvis enfòmasyon pou ki pwosedi yo mande ke mounn dwe swiv pou kay ou a ka gen dlo ak sistèm drenaj ak aksè a yon koneksyon elektrik.

Anvan tap koule vide nan pyès

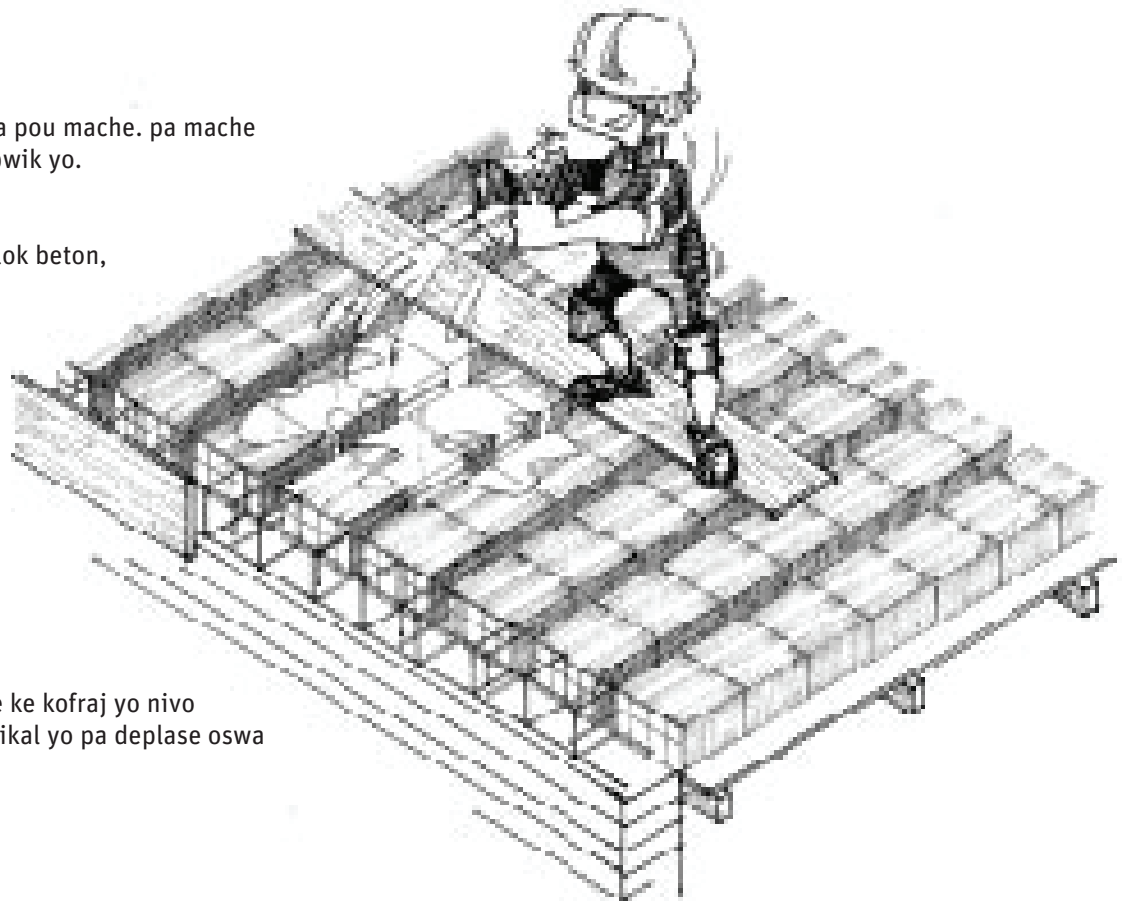
Anvan ou mete pyès beton yo, verifye ke pa gen tiyo drenaj ak dlo kap koule.

Bloke tiyo yo ak yon kouvèti e kite yon sèl bout ouvè tanporèman. Ranpli tiyo a avèk dlo e apwè katrè verifye ke tout tiyo koneksyon yo ap cheche e ke pa te pa gen okenn flit dlo. Lè gen flit dlo, li pi bon pou fè tèste yo ak presyon.



Mete yon planch bwa pou mache. pa mache dirèkteman sou tèt bwik yo.

Pou kòmanse vide blok beton, mouye bwik yo avan kofraj beams yo.



Yon fwa ankò verifye ke kofraj yo nivo e verifye ke poto vètikal yo pa deplase oswa pèdi estabiltè yo.

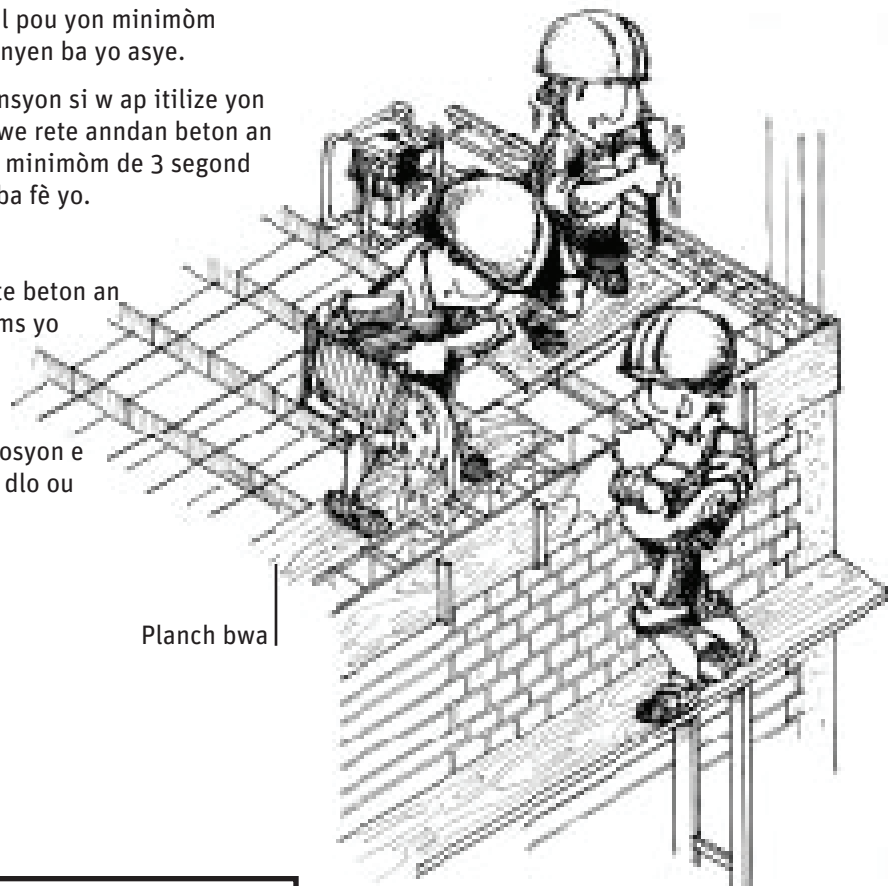
Ranpli pyès lejè an ansanm ak beam paske li enpòtan pou yo travay ansanm. Kòmanse koule collar beam answit joists yo e finalman nan pyès anwo. Li pi bon ou lwe yon mixè. Sa pral ede diminye tan w ap koule beto pou pyès yo ak economize sou materyèl yo.

Ou dwe anpil prekosyon si w itilize yon vibrer. vibrer la dwe gen anndan beton a nan yon pozisyon vètikal pou yon minimòm de 3 segond san manyen ba yo asye.

Ou dwe fè anpil atansyon si w ap itilize yon vibratè. Vibratè a dwe rete anndan beton an a la vètikal pou yon minimòm de 3 segond san ke li pa touché ba fè yo.

Itilize bokit pou pote beton an de mixè a jiska beams yo oswa slabs yo.

Vide beton ak pwekosyon e eseye pa kanpe sou dlo ou tiyo elèktrik yo.



Planch bwa

Li pi bon si ou itilize yon vibratè lè w ap koule beto na slabs ak beams yo. Nan ka ke sa pa posib, sèvi ak yon baton bou bwase beton an a la men.

Lè w ap vide beams yo fwape kofraj lan lejeman sou a rebò'l avèk yon mato kawotchou pou evite poch dè pa fèt nan beton an.

Beto pou "beams and slabs"



1 bokit siman



2 bokit sab koryas



4 bokit wòch kraze (kantite maksimòm 3/4 pous)



1 bokit dlo

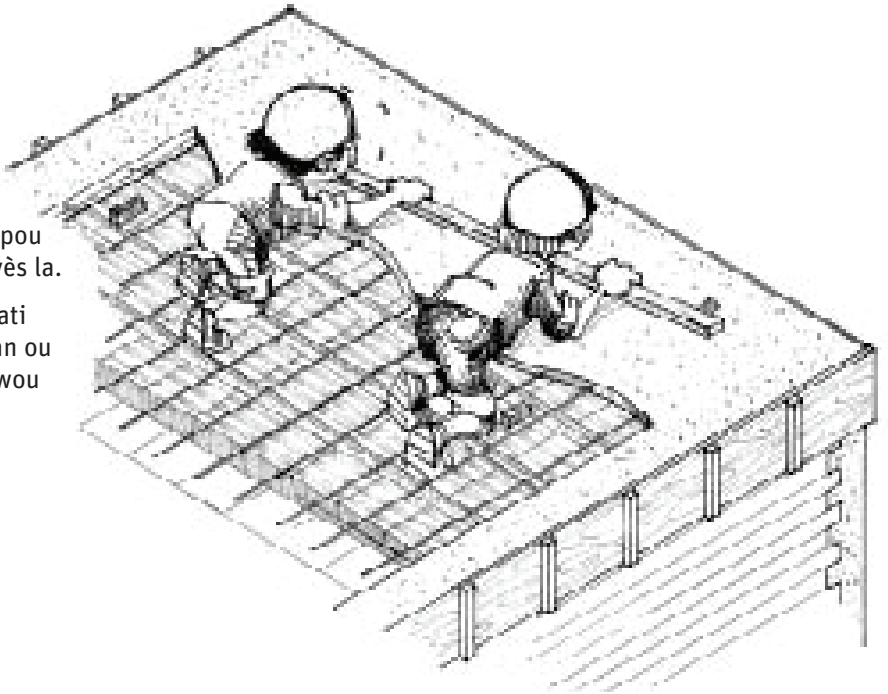
Rekòmandasyon

Depi pyès beton an fini, kofraj lan dwe rete an plas pou sipòte pyès la pou omwen 14 jou.

Prepare mòso bwa de 5 santimèt de lajè pou sèvi kòm gid pandan ke w ap fini sifas pyès la.

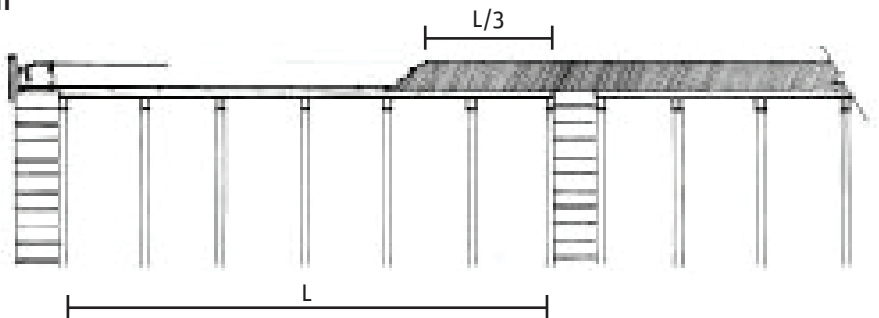
Sèvi ak yon bwa ou yon règ metal pou plati e lise melanj beton an. Depi li vinn bèl jan ou vle la, retire gid an bwa yo a epi ranpli twou yo ak beton.

Toujou verifye sifas pave a po wè si li nivo.



Vide beton nan pyès la pasyèlman

Si ou dwe sispann koule beton nan nan pyès la, fè konstriksyon jwen yo prèske nan fin pyès yo. Pa janm fè konstriksyon jwen nan mitan pyès la.

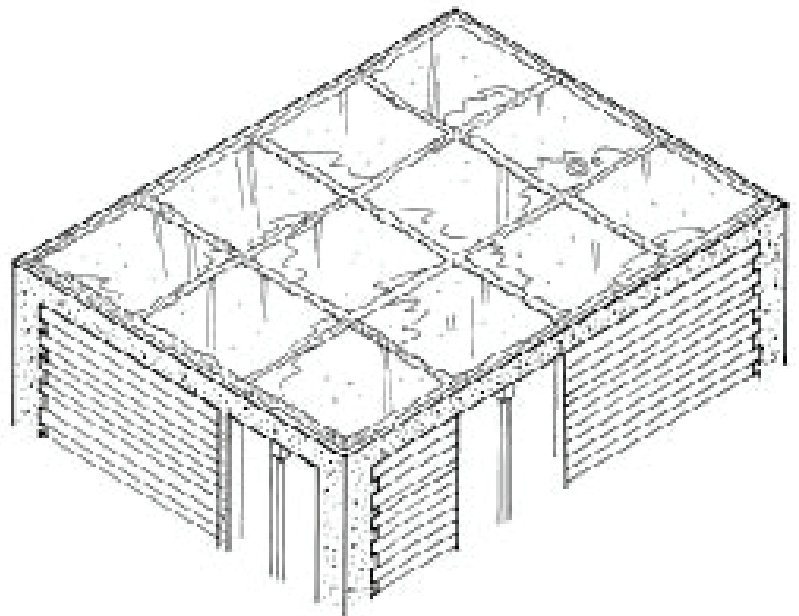


Fumaj pyès la

Ou oblije toujou ap fè fumaj pyès la. Funaj la fèt pou li kòmanse le pli vit ke posib. Pa tann jis nan demen pou kòmanse. Fémen zòn nana k pil sab sou pyès la epi ranpli yo ak dlo. Ou dwe fè fumaj sou pyès la pandan omwen sèt jou.

Pa travay sou pyès la pou omwen de jou apre ou koule beton sou li.

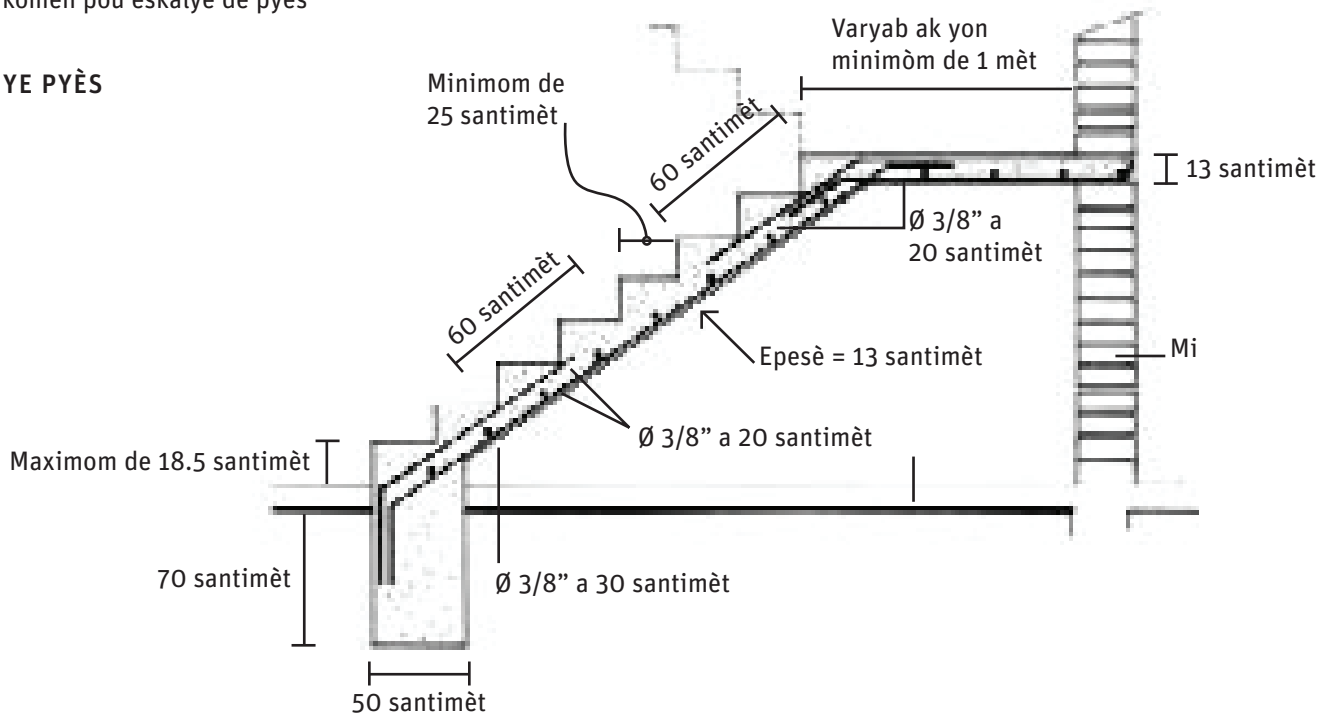
Pa tann jis nan jou pou kòmanse fumaj.



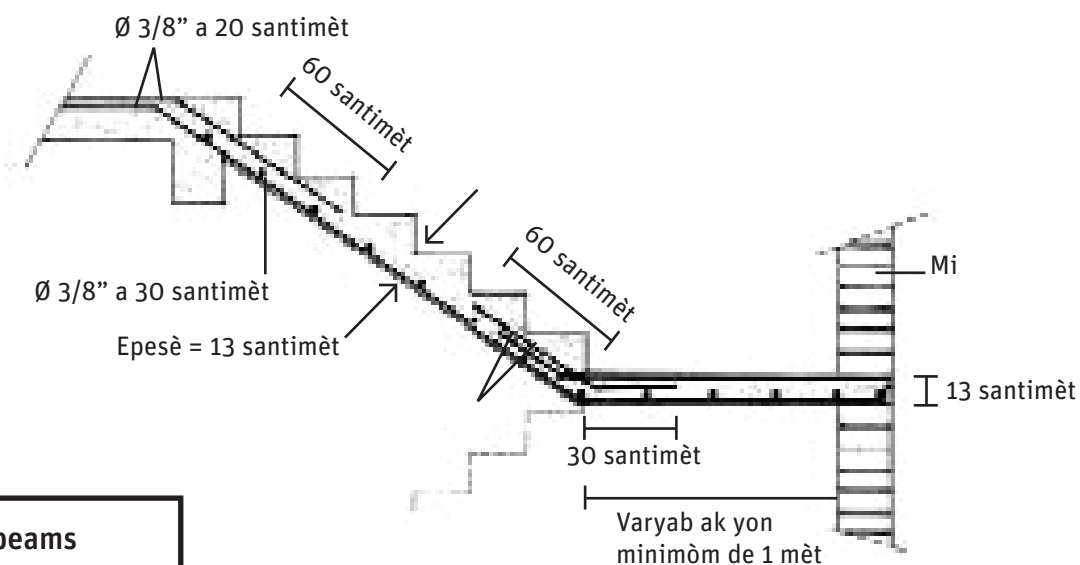
10 Eskalye

Detay komen pou eskalye de pyès





PREMYE PYÈS

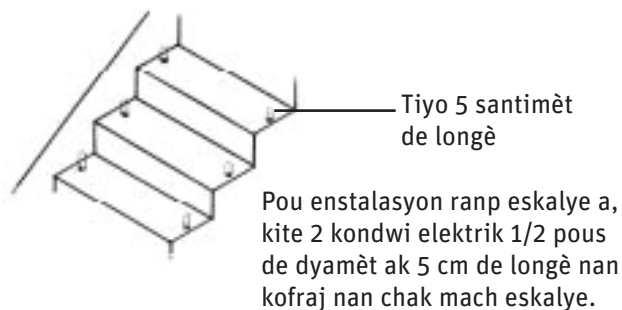


DEZYÈM PYÈS



Beto pou “beams and slabs”

-  1 bokit siman
-  2 bokit sab koryas
-  4 bokit wòch kraze (kantite maksimòm 3/4 pou)
-  1 bokit dlo



Rekòmandasyon

Lè ou te vide beton pou eskalye fè atansyon pou ke fe ranfò yo byen kouvri ak yon kouch beton.

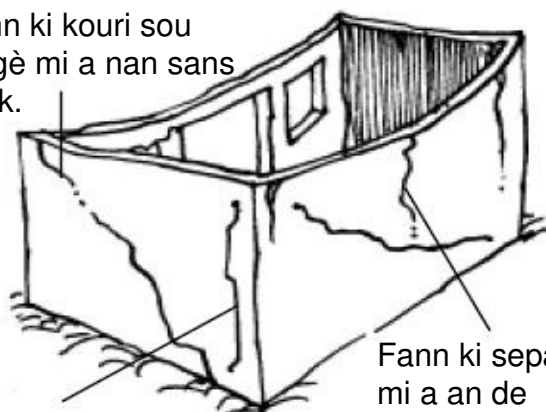
Chapit sa a gen enfòmasyon sou kòman pou nou pran swen kay nou ak rezoud kèk pwoblèm kay brik konn bay. Si pwoblèm nan kay pa w la pi grav tankou si se pwoblèm fondasyon oswa si mi yon fann anpil oswa pwoblèm beton, cheche yon enjenyè pou ede w rezoud yo.

Mi ki fann

Gen plizyè bagay ki lakòz mi yon kay fann, tankou si move kalite materyo te itilize pou bati kay la, move kout kreyon ak konstriksyon (plan kay la, ouvriye ki pa kalifye eks.), estrikti ki twò fèb tankou mi nan tou 2 direksyon ki pa mare ak pote an beton ame oswa fondasyon ki pa ase solid oswa kay ki bati sou teren ki mou. Si kay ou te mal bati e ou gen kek nan pwoblèm sa yo, gen anpil chans pou anpil pati nan kay la pa resiste.

Egzanp fann ou ka remake pi souvan nan kay brik:

Fann ki kouri sou longè mi a nan sans oblik.



Fann nan kwen kay la.

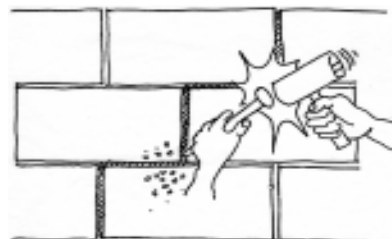
Kijan pou nou repare n mi ki fann.

Si mi lakay ou gen yon fant nan sans oblik ki pa pi laj pase 1.5 mm e si beton ki nan pote a pa gen gwo domaj, ou ka ranje l konsa:

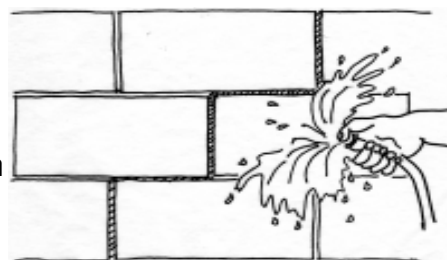
1

Retire mòtye nan kote ki gen fann nan e retire tout ti beton ki gen nan zòn nan.

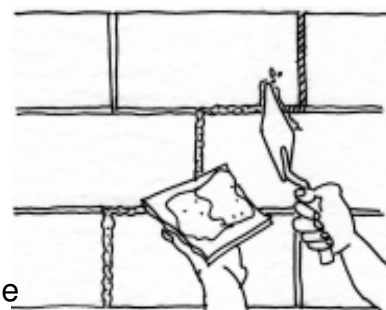
Pran prekosyon pou w pa frape brik ki sou kote fann nan pandan w ap fè travay sa a.



Netwaye fann nan byen ak yon tiyo dlo ki vini ak presyion. Kite dlo a koule pandan 15 minit.



Replen fann nan ak yon mòtye tou fre ki fèt ak proposyon 1:4 (siman:sab). Foule mòtye jis ou plen fann nan.



Konsèy:

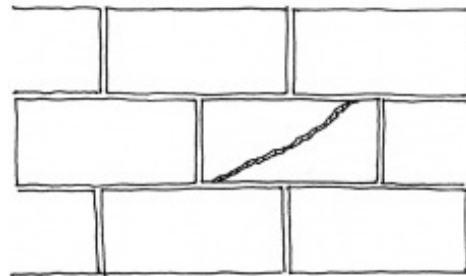
Si mi kay ou gen anpil kote ladann ki fann, oswa li pete nan kwen yo, gen posibilite pou kay la prezante anpil danje. Mande profesyonèl nan koze konstriksyon ede w pi vit ou kapab.

Koman pou ranplase brik ki pa bon

Si gen mi nan kay la ki gen brik ki souke oswa ki kase, ou ka ranplase yo konsa:

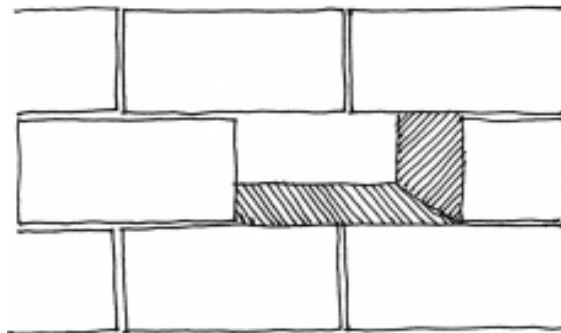
1

gen brik ki souke oswa ki kase

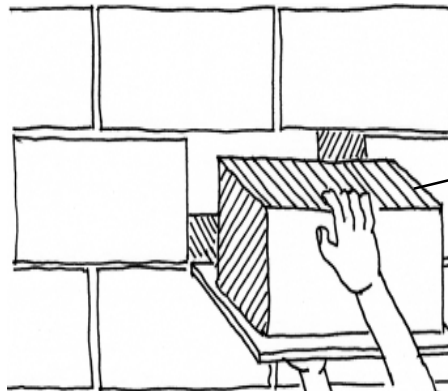


Retire brik ki pa bon an ak anpil prekosyon. Netoye mòtye ki rete nan plas kote brik la te ye a.

2



Cheche yon brik tou nèf ki fèt ak bon materyo pou ranplase brik ou soti retire a.



Fòk nouvo brik la menm gwosè ak sa'w retire'a.

3



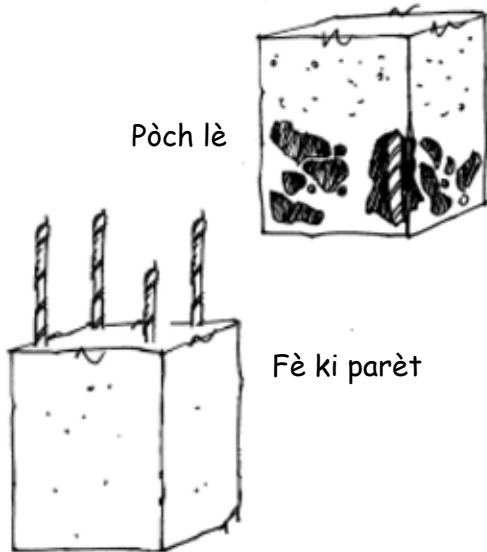
Byen mouye tout lòt brik ki sou kote brik w ap ranplase a epi mete nouvo mòtye 1:4 (siman:sab) nan tout kontou tou a kote ou prale mete brik la. Mete nouvo brik la ak anpil prekosyon. Mete mòtye nan tout espas vid ki alantou brik w ap poze a.

Konsèy:

Si w gen pou ranplase plis pase yon brik kòmanse ak brik ki pi ba sou mi an. Ou gen dwa koupe nouvo brik yo pou pèmèt yo rantre nan plas lòt retire yo, pou nouvo brik yo .ka chita pi byen.

2. Fè ki ap pouri ak rouye

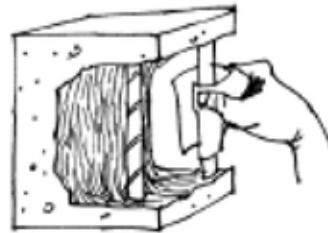
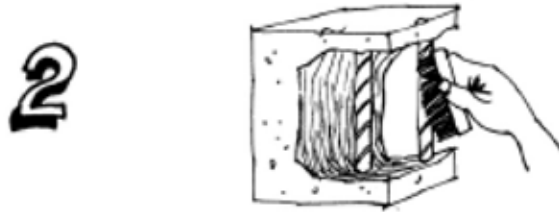
Lè beton ki kouvri brik yo twò fen oswa lè yo gen pòch lè ak fant kote imidite ka rantre, fè ki nan estrikti a ka pouri oswa rouye. Ou ka evite pwoblèm sa a si ou asire w ke poto ak pout ou fèt ak bon beton ame.



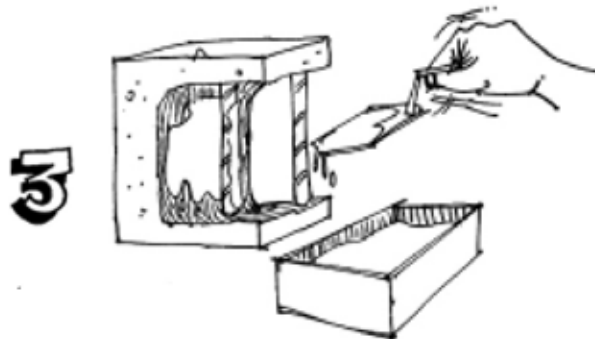
Si pout ak poto ki gen asye nan kay la pa fini twò rouye, ou ka rezoud pwoblèm nan konsa:



Kase (retire) tout beton ki domaje yo jis ou rive nan yon pati ki pa gen kras pwoblèm



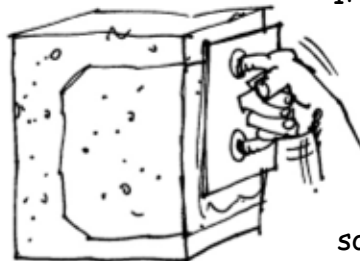
Netwaye ba fè ki rouye a ak yon bwòs ki fèt an asye. Apre sa retire tout ti kras rouy ki ka rete ak yon papye sable.



Sèvi ak yon pat siman pou kenbe beton an pou ka ede nouvo beton chita byen.

4 Fini plen tou beton ou retire a kite ak yon lòt beton ki fèt ak yon mòtye

1:4 (siman:sab).



Pran san w pou byen sire nouvo beton'a sou sifas mi'a. Pa bliye voye dlo sou nouvo beton'a pandan 7 jou, 3 fwa pa jou, pou li ka byen pran.

3. Sèl sou mi (Efflorescence)

Sèl sou mi se lè gen yon ti poud blan oswa jòn ki parèt sou brik yo oswa sou mi beton yo. Ti poud sa a parèt lè materyèl konstriksyon ou te sèvi yo, oswa tè kote ou bati a gen sèl ki fonn nan dlo a. Dlo sila pral remonte fè sifas jis li evapore poul kite mak sèl yo sou mi an



Lè sèl sou mi an pa twò grav, li pap afekte solidite mi an.

Pou Netwaye mi ki gen ti kras sèl sou mi, men sa w ka fè:

1



Netwaye pati ki gen pwoblèm la ak anpil dlo epi yon bon bwòs

2

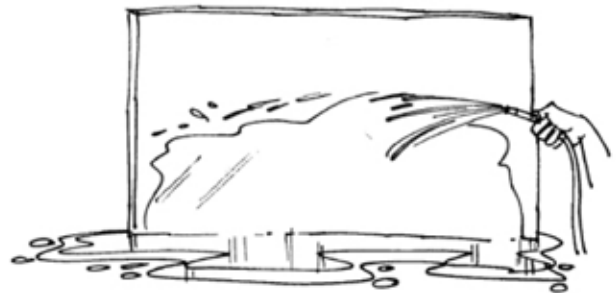
Prepare yon melanj ki fèt ak 20 bouchon dlo pou yon bouchon asid klorik. Pase melanj sa a sou mi an ak yon penso epi kite l poze sou mi an pandan 15 minit



Pa janm mete plis asid paske se yon pwodui ki danjere anpil, li ka manje materyo yo.

3

Rense fasad mi an ak bon kou dlo.



Si tè ou bati a oswa mi kay la gen pwoblèm imidite, gen anpil chans pou pwoblèm sèl sou mi an tounen.

Konsèy:

Eseye pran devan pou w pa kite imidite gentan rantre nan mi yo. Konsa wap evite sèl sou mi an retounen.

4. Pwoblèm imidite nan mi

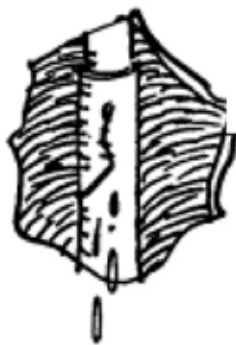
Koze imidite nan mi gen anpil pou wè ak tiyo ki konn kase anndan mi kay la. Pour ranje yon tiyo kap koule dlo ak pou w evite imidite nan mi yo, men sa w ka fè:



Kase pati mi an ki pi mouye a jis ou rive jwenn tiyo ki koule a.



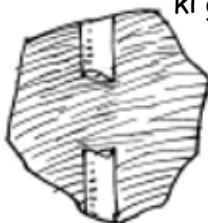
2



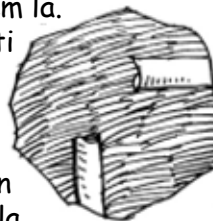
Netwaye tiyo a byen pou w ka jwenn kote lap koule a. Yon tiyo ki kase oswa de tiyo ki mal konekte ka lakòz dlo kap koule a.

3

Fèmen vòn ki dirije sistèm dlo kay la pou anpeche dlo pase nan tiyo ki gen pwoblèm la.

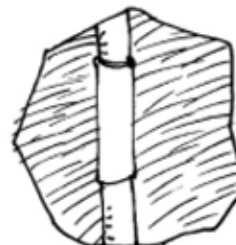
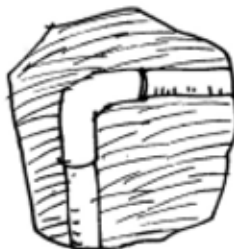


Retire pati tiyo ki pa bon an, oswa rakò ki gen pwoblèm la.



4

Ranplase pyès ki pa bon yo. Kite nouvo koneksyon an seche nèt. Kite 2-3 jou pase pou ka verifye si toujou gen dlo kap koule.



5

Sele mi an ak mòtye 1:5 (siman:sab)



1. Pou ki sa plan yo itil?

Avant ke ou komanse konstwisyon ou bezwen plan kap montre ou kouman kay la ap parèt, e kijan pou ou konstri li. **Plan architèkti** se yon ti representasyon de kouman kay la pral ye, konbyen chanm ke lap genyen et ki kote yap ye endan kay la. **Plan estrilti** ap di ou ki kote e ki dimansyon mi yo, dal, ranfòseman twakay la e ki dimansyon beton arme, poto mitan e poto. Enfin, ou ap genyen **plan elektrik et plombri** kap montre ou ki kote glo prop et glo isaje epi kouran elektrik ap pase.

Plan yo itil paske:

- ⇒ Yo ede ou konnen si kay la ap satisfè bezwen fami ou dan le prezan e dan lavni.
- ⇒ Yo pèmèt ou pou evalue egzaktman konbyen materyel ke ou bezwen ap koute.
- ⇒ Yo pèmèt ou osi ale pa etap selon mezi kob ou.
- ⇒ Yo pèmèt ou konstui chak etap lan kay la san devinèt. Kon sa pli ta, ou pap regrete ke kay la bati mal, ke ou ka oblije kraze li ou refè mi yo, oubyen chanje plas pot yo.



2. Plan kay la

Yon kay ki byen planifye genyen karakteristik sa yo:

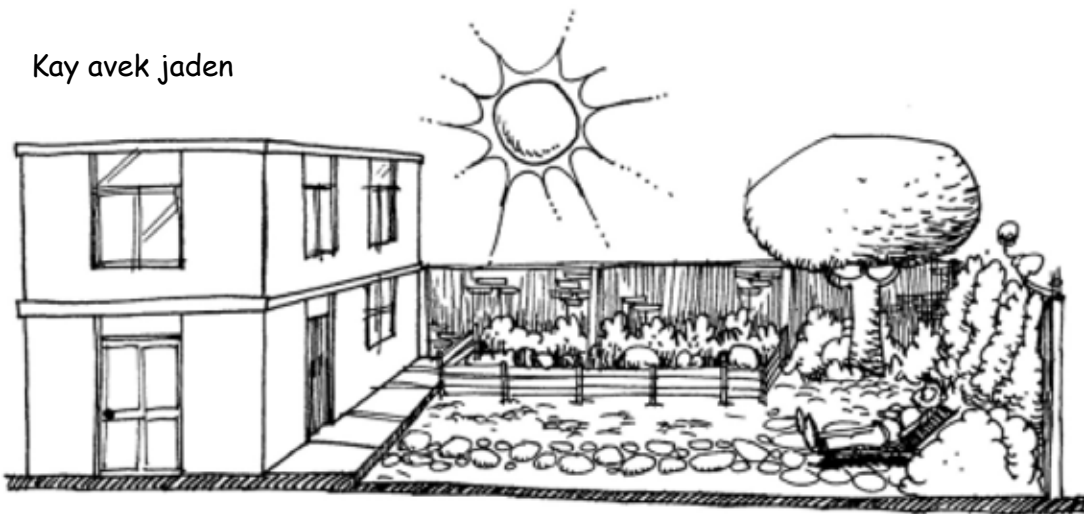
- ⇒ Lap resiste tranbleman de tè. Pou sa lap oblije genyen on kantite de mi enterye nan de direksyon. (Tcheke chapit 2 ak apendis la)
- ⇒ Kay la ap repon a bezwen fami ou dan le prezan e dan lavni.
- ⇒ Tre fasileman ou kapab konstrui li pa etap.
- ⇒ Tout chanm yo geyen limyè naturel avek lè nòmral.
- ⇒ Chanm yo byen lokalize, yo lwen de kote ki genyen bri, tankou kizin, salon, e sal a manje.
- ⇒ Li genyen yon ti lakou et sal lesiv.
- ⇒ Li genyen yon jaden kote ou mem avek fami ou kap plante fle, pye bwa, oubyen legim.



Kizin la avek twalèt yo genyen limyè naturel avek lè nòmral ka antre.



Kay avek jaden



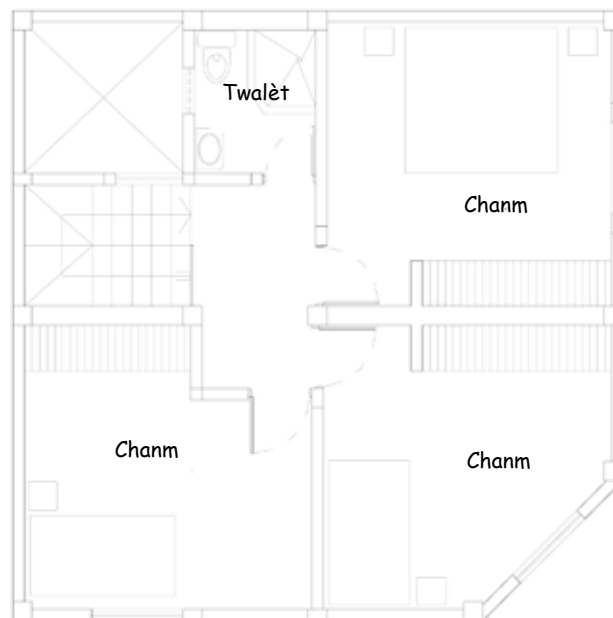
3. Egzanp plan kay

Egzanp Plan 1: Kay ki bati lan kwen.

Sa se yon egzanp de yon kay a de etaj ki bati sou yon propriyete 8m x 8m len kwen.

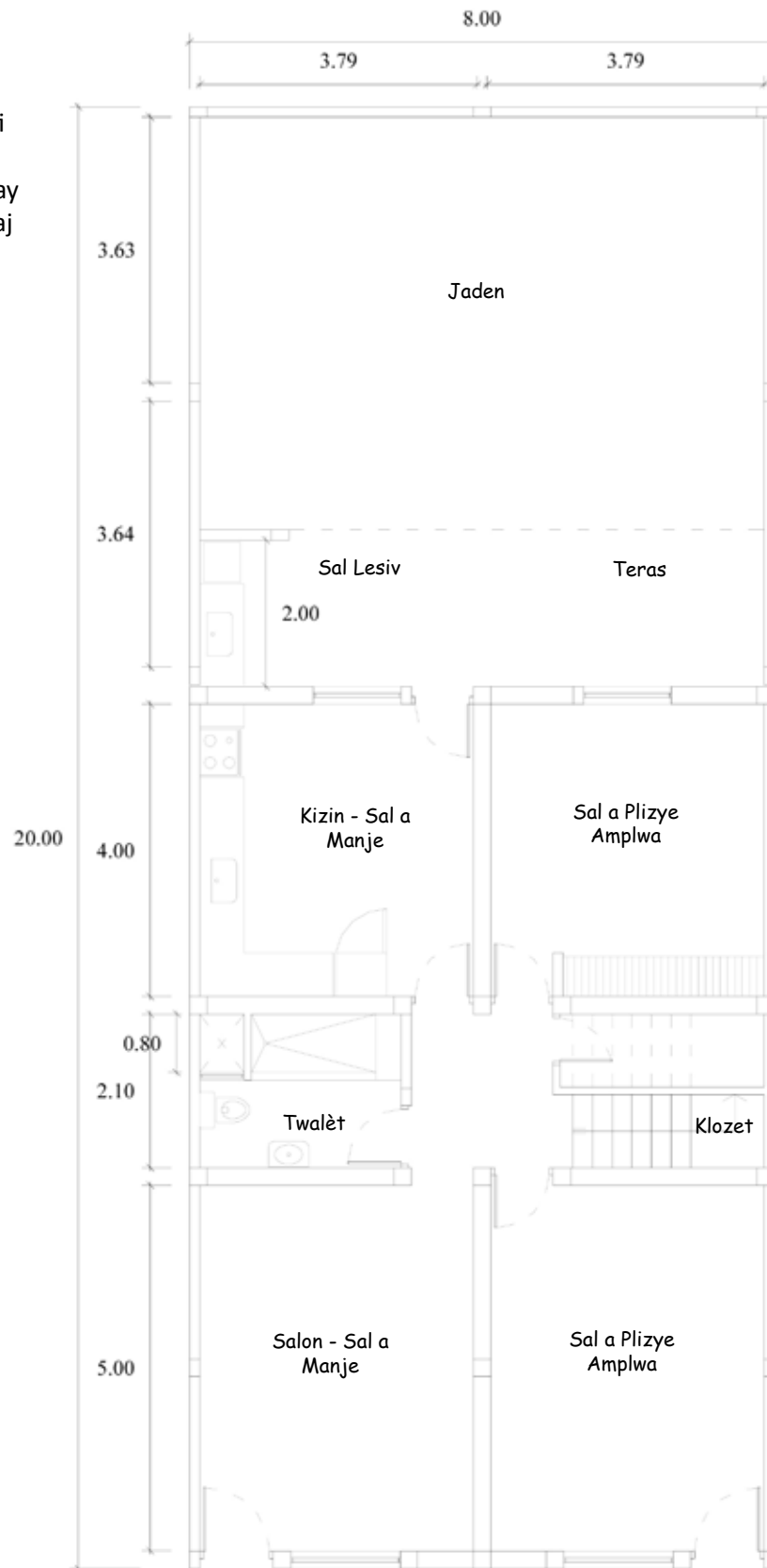


Dezyem etaj

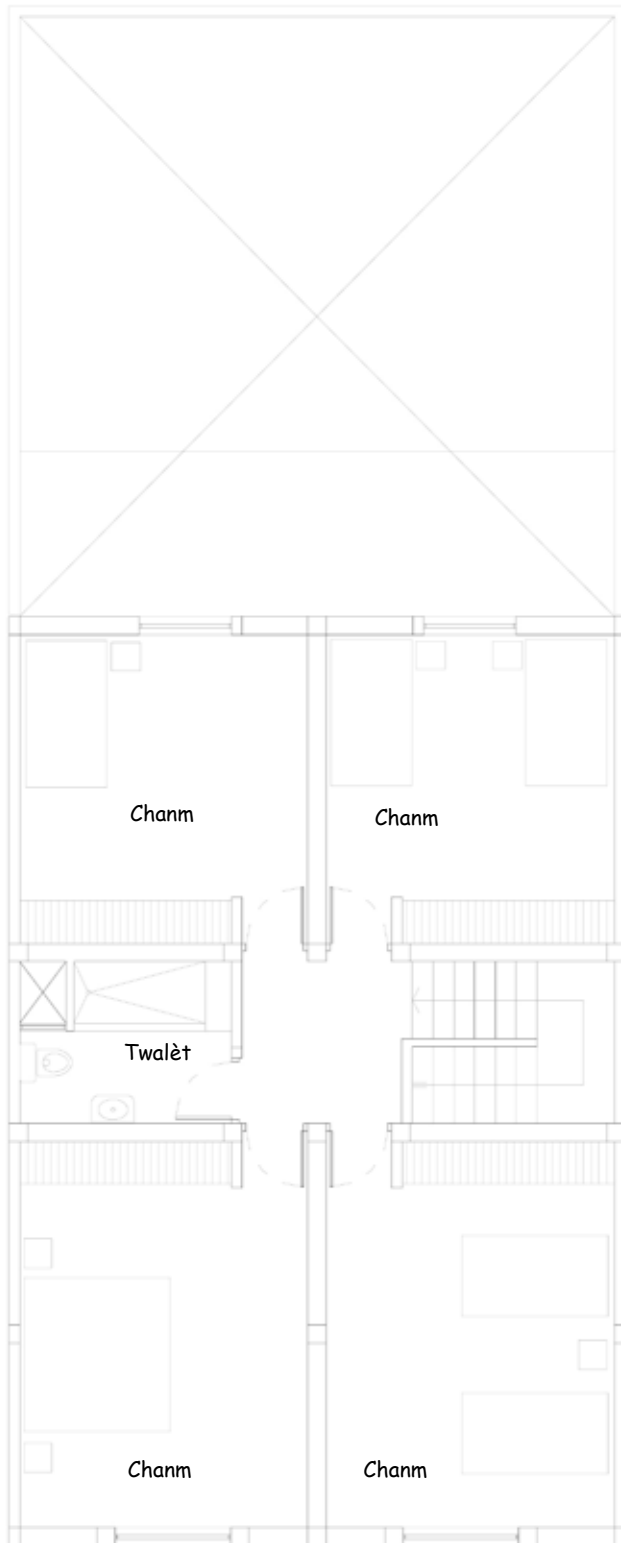


Egzanp Plan 2: Kay ki kole avek onlòt kay

Sa se yon plan yon kay ki bati sou yon propriyete 8m x 8m ki kole avek onlòt kay. Nan kay sa, li possib itilise premye etaj la konkou yon shop oubyen yon ti boutik.



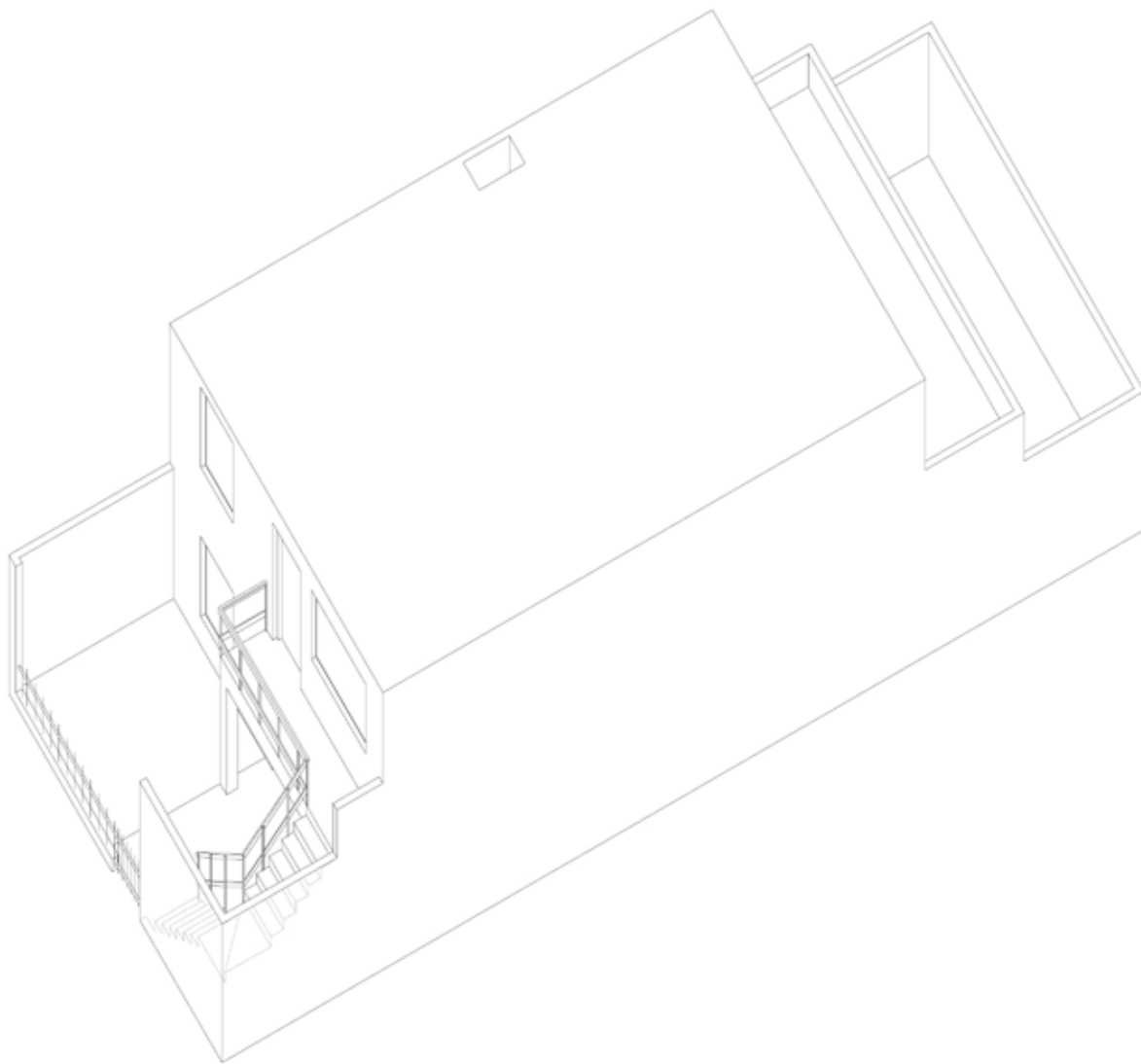
Plan Architèkti
 Premye etaj
 Eshel 1:100



Plan Architèkti
Dezyem etaj
Eshel 1:100

Egzanp Plan 3: Kay ki kole avek onlòt kay

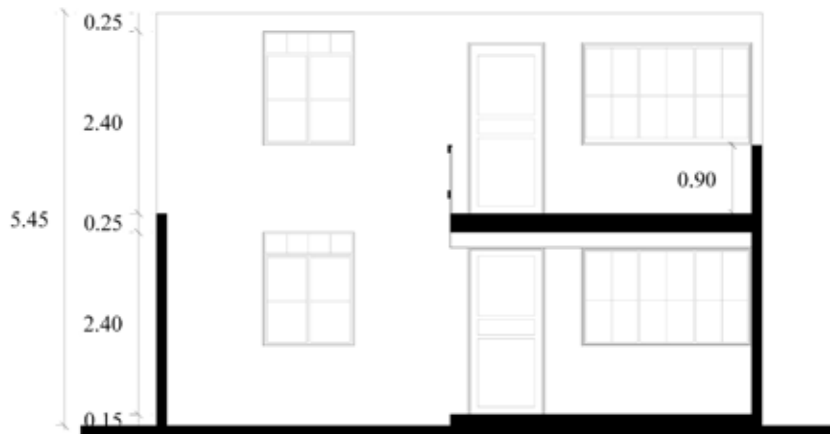
Sa se yon plan yon kay a de etaj kote chak etaj genyen yon fami diferan ladan. Kay sa genyen tou plan ki nesèsè konstrui li sous tè ki solid (wòch ou gravye). Pa bliye ke plan sa vle ke kay sa bati sèlman sou de zetaj.



Elevasyon Prinsipal



Seksyon A-A



Dimansyon e Pozisyon Ouvèti			
	Lajè	Wotè	Distans ant planche e vit
D-1	1.00	2.20	0
D-2	0.80	2.40	0
D-3	0.70	2.40	0
D-4	1.00	2.40	0
D-5	1.00	2.40	0
W-1	2.00	1.30	0.90
W-2	1.20	1.30	0.90
W-3	0.60	0.60	1.00

Elevasyon dèyè

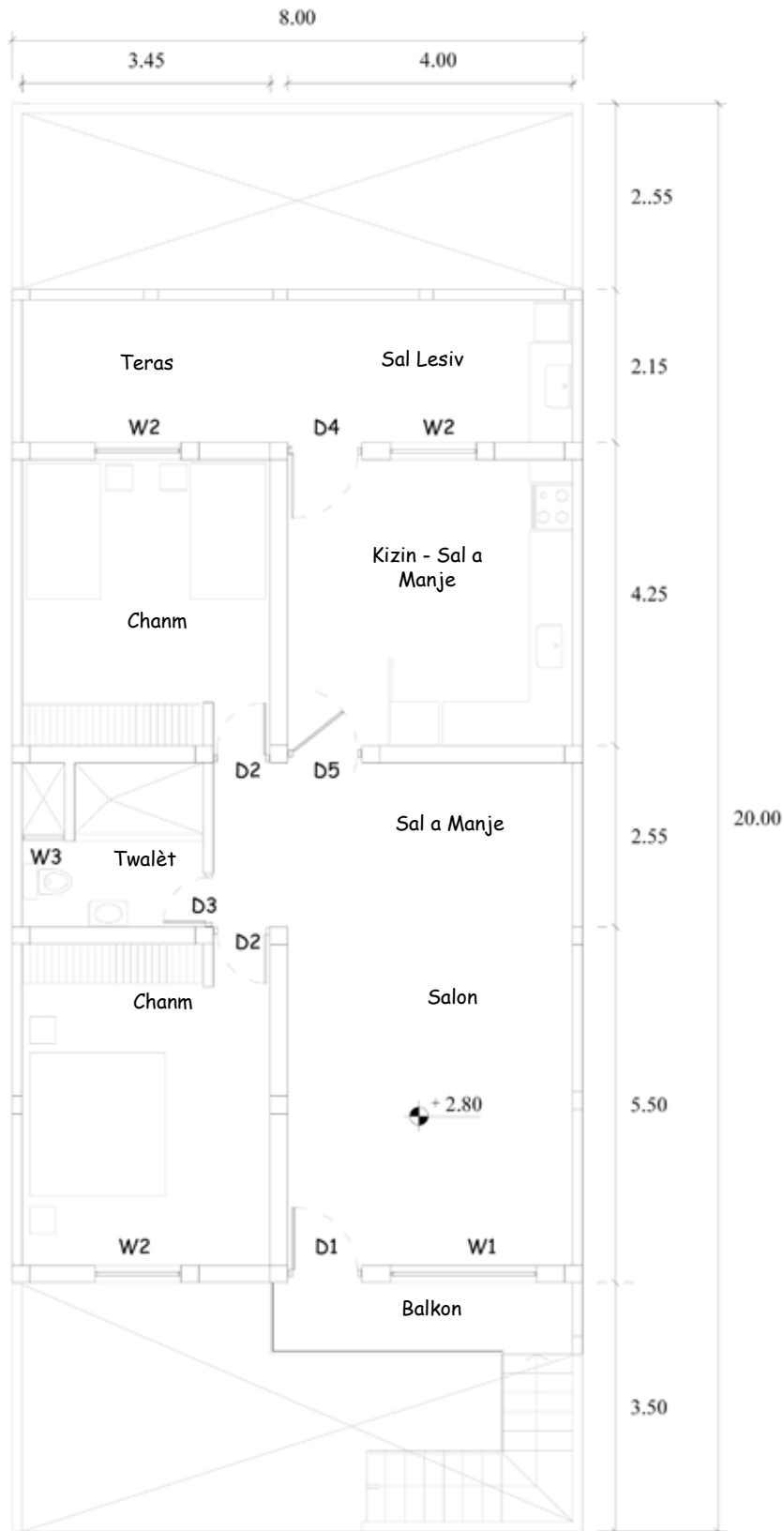


Elevasyon Koupe
Eshel 1:100

PLANS FOR YOUR HOUSE

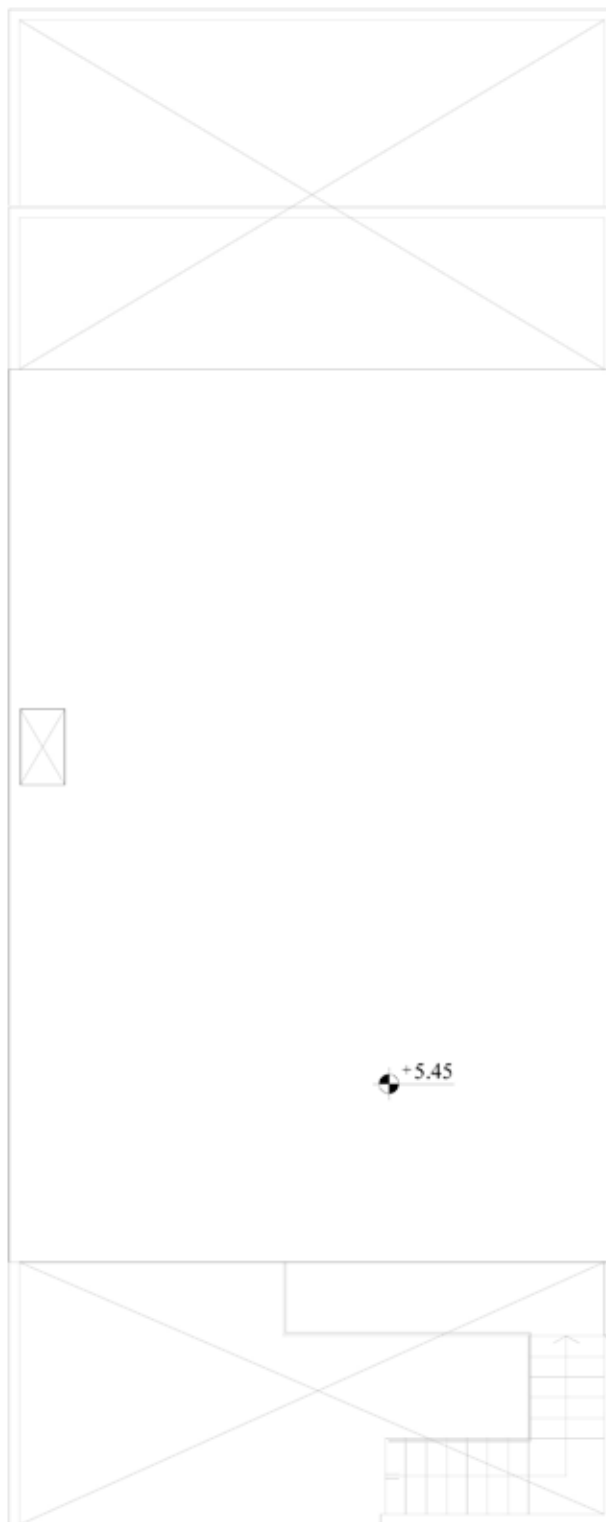


Plan Architèkti
Premye etaj
Eshel 1:100



Plan Architekti
Dezyem etaj
Eshel 1:100

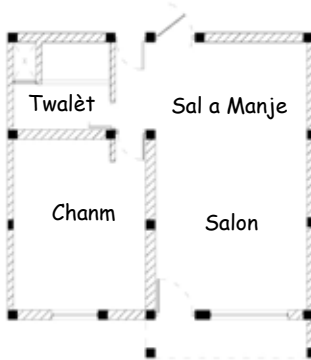
PLANS FOR YOUR HOUSE



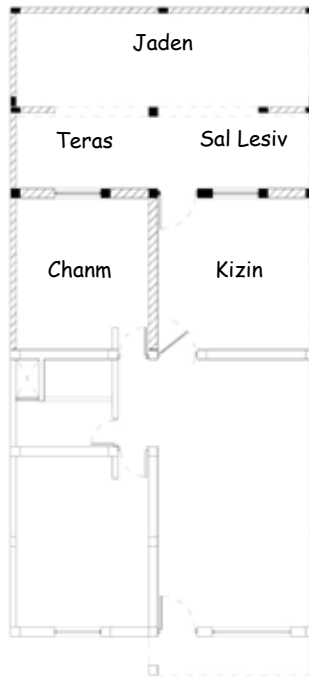
Plan Architèkti
Etaj Twakay
Eshel 1:100

Konstwiksyon pa etap

Ou ka konstrui kay sa en plizyè etap. Pa egzamp, ou ka konstrui kay sa la en senk etap dapre sekans sa:



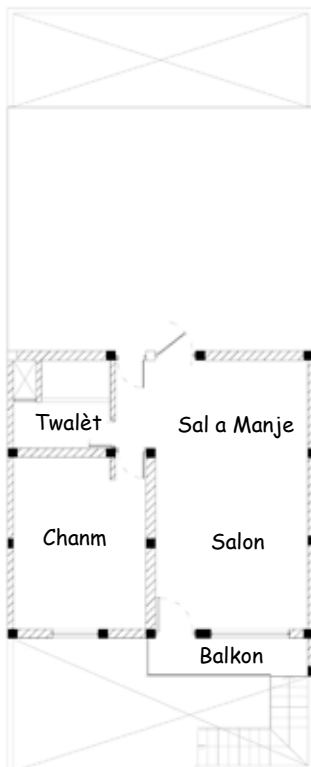
Premye etap



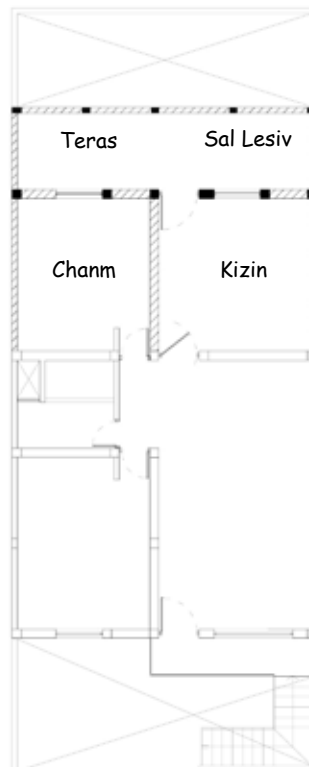
Dezyem etap



Trwazyem etap



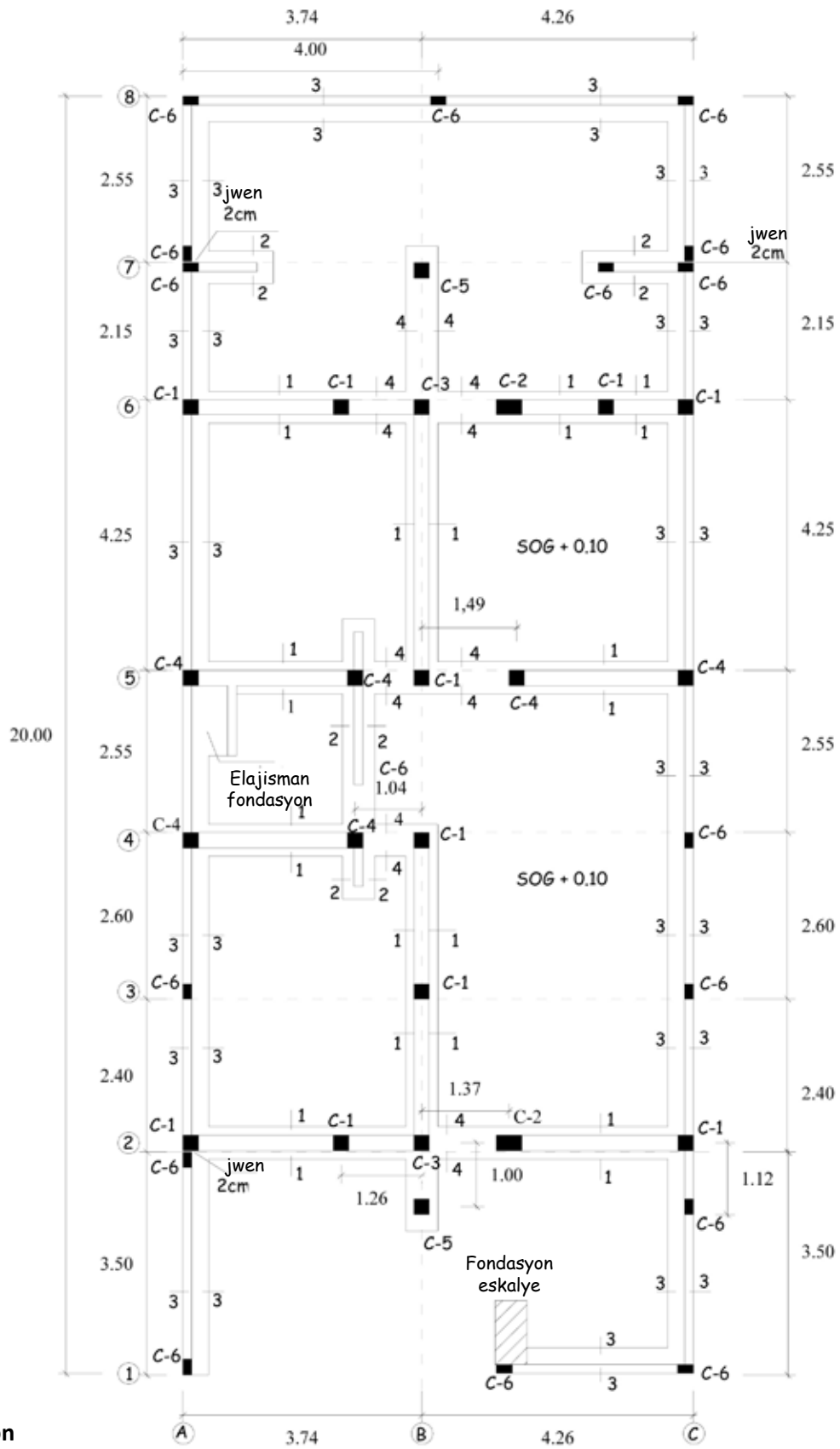
Katriyem etap



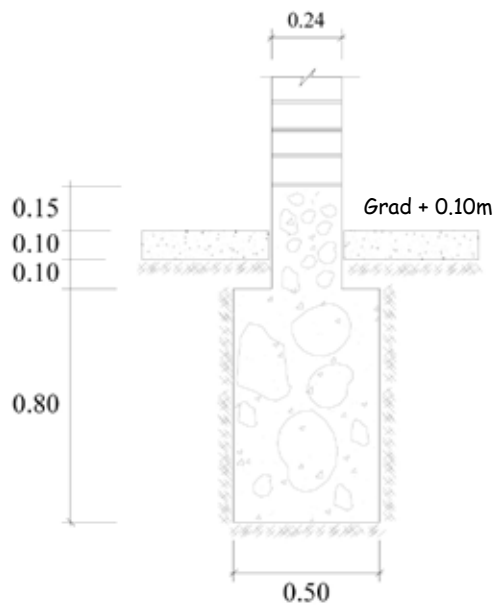
Senkyem etap

Plan Architekti
Eshel 1:200

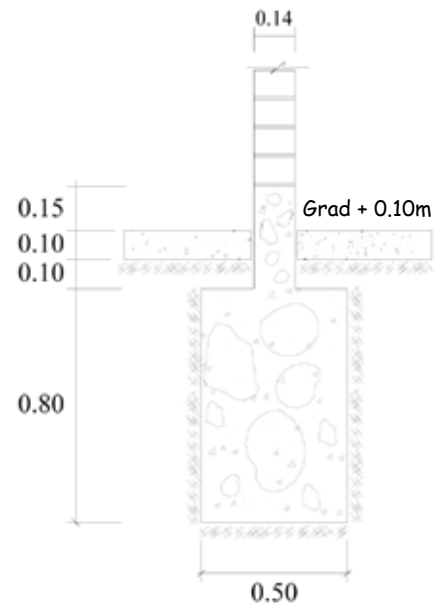
PLANS FOR YOUR HOUSE



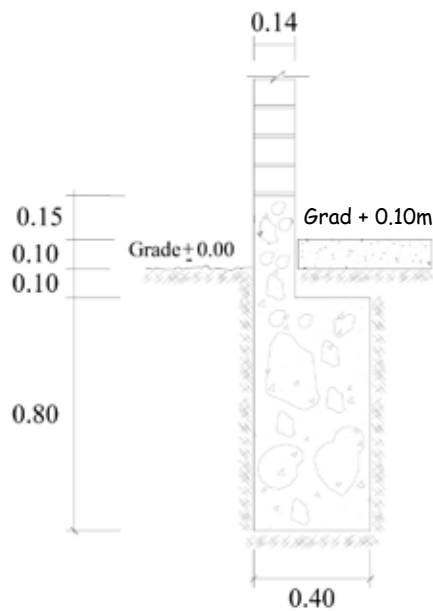
Plan fondasyon
Eshel 1:100



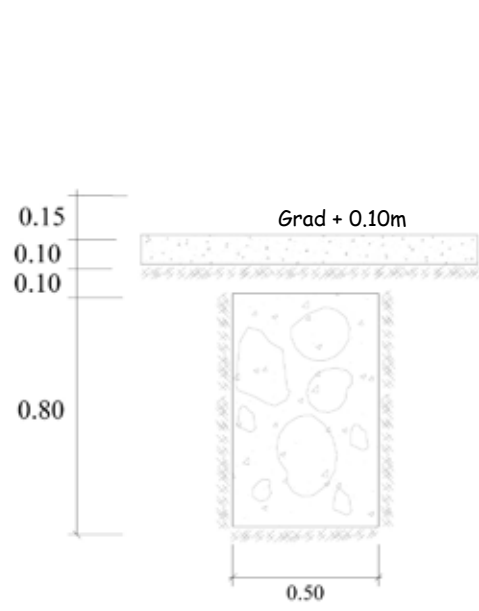
SEKSYON 1-1



SEKSYON 2-2









SEKSYON 3-3



SEKSYON 4-4

PLANS FOR YOUR HOUSE

DIMANSYON E POZISYON POTO		
<p>C-1</p> <p>0.24 x 0.25</p> <p>4 ø 3/8 in.</p> <p>Typical stirrups</p> 	<p>C-2</p> <p>0.24 x 0.40</p> <p>6 ø 1/2 in.</p> <p>Typical stirrups</p> 	<p>C-3</p> <p>0.24 x 0.24</p> <p>4 ø 3/8 in.</p> <p>Typical stirrups</p> 
<p>C-4</p> <p>0.24 x 0.25</p> <p>4 ø 1/2 in.</p> <p>Typical stirrups</p> 	<p>C-5</p> <p>0.24 x 0.24</p> <p>4 ø 1/2 in.</p> <p>Typical stirrups</p> 	<p>C-6</p> <p>0.14 x 0.25</p> <p>4 ø 3/8 in.</p> <p>Typical stirrups</p> 
<p>□ ø 1/4 in. 1@0.05 + 4@0.10 + R@0.25</p>		

SPECIFIKASYON TEKNIK

PLAIN CONCRETE:

FONDASYON:

Siman, melanj 1:10 + 30% wòch laj e pwop, dimansyon maximum 10 pous.

PLINTH:

Siman, melanj 1:8 + 25% wòch pwop a tay moyen, dimansyon maximum 4 pous.

BETON ARME:

Beton:

Poto, Poto, Dal	$f'_c = 175 \text{ kg/cm}^2$
Fè	$f_y = 4200 \text{ kg/cm}^2$

PWA PA MET KARE:

Twa premye etaj	200 kg/m ²
Twa dezyem etaj	100 kg/m ²

MÒTYE:

Siman: Sab kous	1:5
Epèse jwen	1.00 cm

TIP DE BLOK:

Blok pou konstwuiksyon, bon kalite

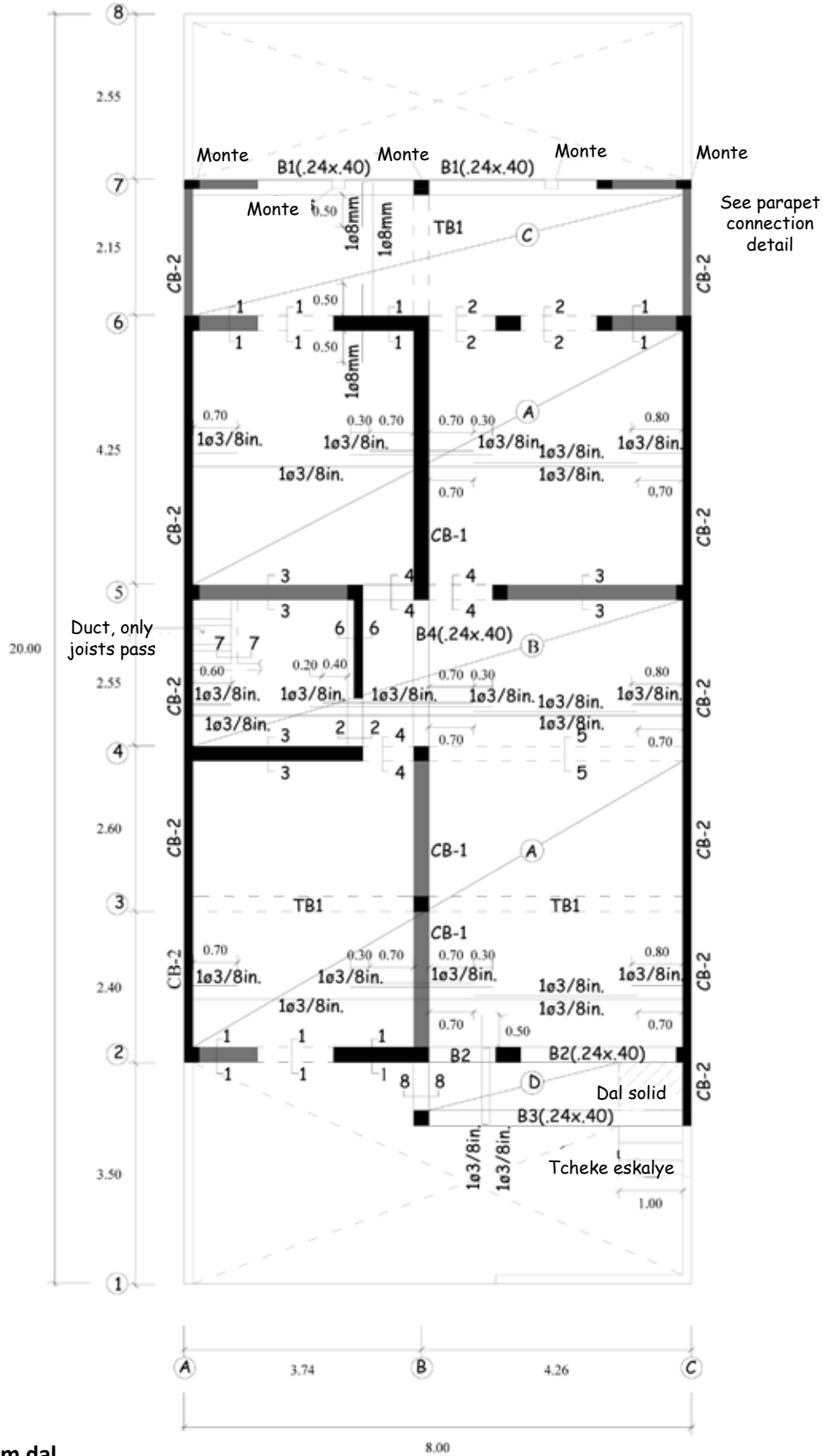
CONCRETE COVER REQUIREMENTS

Confining columns	2.5 cm
Poto a .40m	3.0 cm
Confining beams	2.5 cm
Poto plat epi dal lejè	2.5 cm
Poto fon	3.0 cm

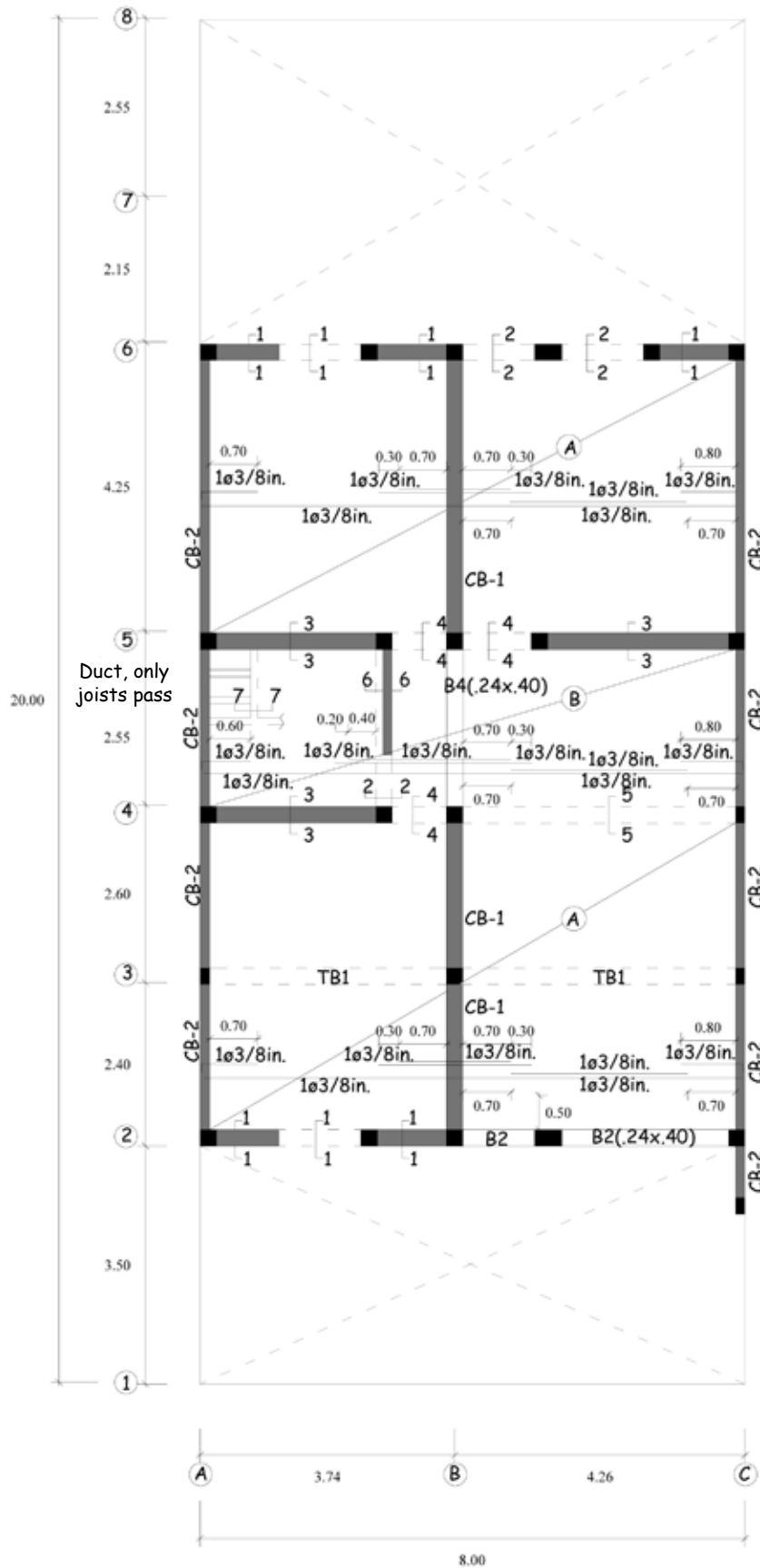


Detay Poto
Eshel 1:25

PLANS FOR YOUR HOUSE

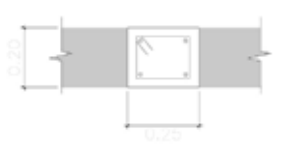


Plan fòm dal
 Premye etaj - Eshel 1:100

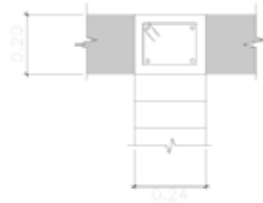


Plan fòm dal
Dezyem etaj - Eshel 1:100

PLANS FOR YOUR HOUSE



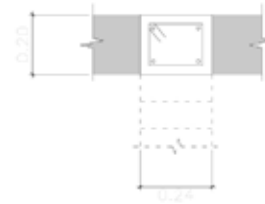
4Ø1/2in.
 □ Ø1/4in.:1 @ 0.05,
 4@0.10, rest @ 0.25
TB-1



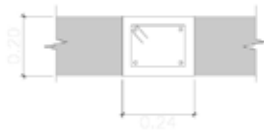
4Ø3/8in.
 □ Ø1/4in.:1@0.05,
 4@0.10, rest @ 0.25
CB-1



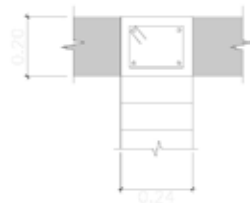
2Ø3/8in.
 § Ø1/4in. @ 0.30
CB-2



□ 4Ø3/8in.
 □ Ø1/4in.:1@0.05,
 4@0.10, rest @ 0.25
1-1



4Ø3/8in.
 □ Ø1/4in.:1@0.05,
 rest @ 0.15
2-2



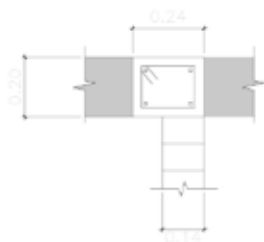
4Ø1/2in.
 □ Ø1/4in.:1@0.05,
 4@0.10, rest @ 0.25
3-3



4Ø1/2in.
 □ Ø1/4in.:1@0.05,
 rest @ 0.15
4-4



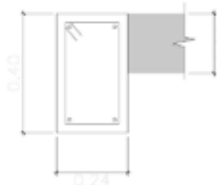
4Ø1/2in.
 □ Ø1/4in.:1@0.05,
 4@0.10, rest @ 0.25
5-5



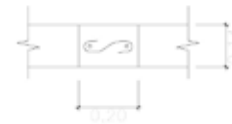
4Ø3/8in.
 □ Ø1/4in.:1@0.05,
 4@0.10, rest @ 0.25
6-6



2Ø3/8in.
 § Ø1/4in. @ 0.30
7-7



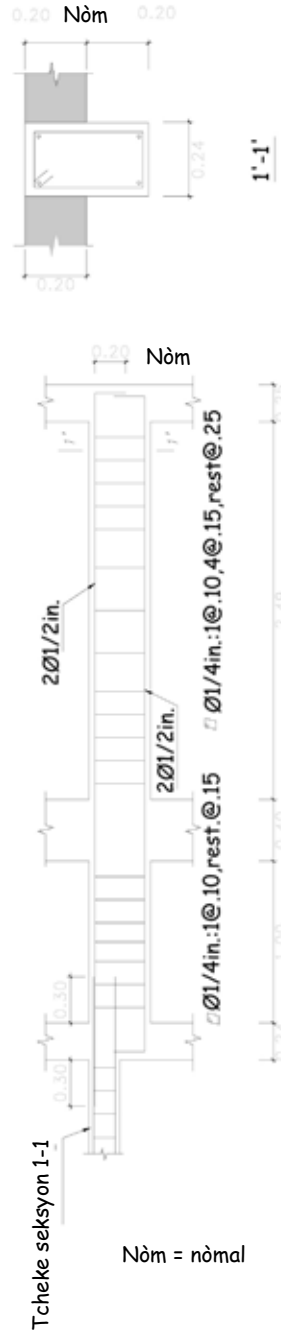
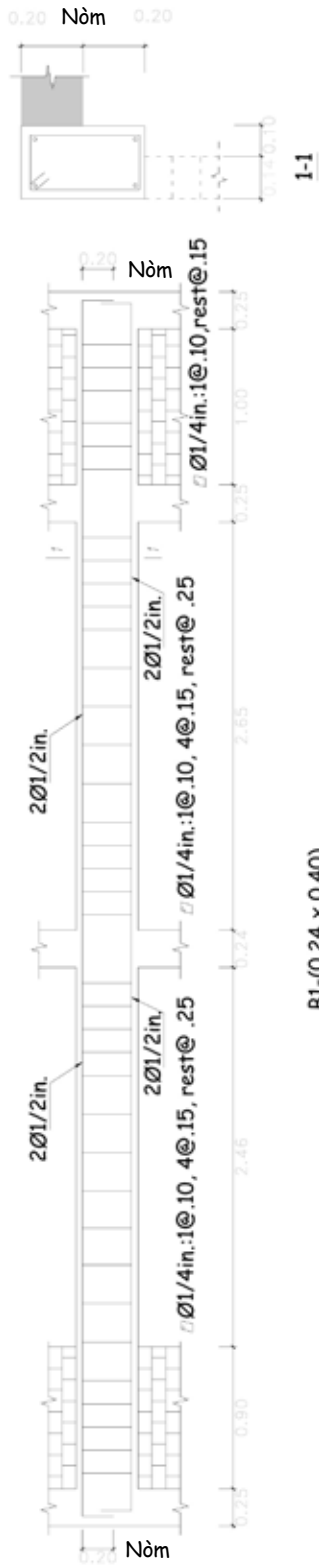
4Ø3/8in.
 □ Ø1/4in.:1 @ 0.10,
 rest @ 0.15
8-8



2Ø3/8in.
 § Ø1/4in. @ 0.30

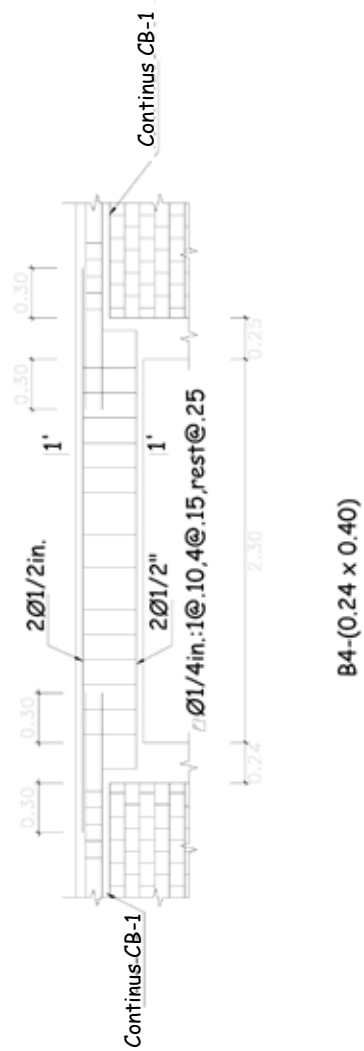
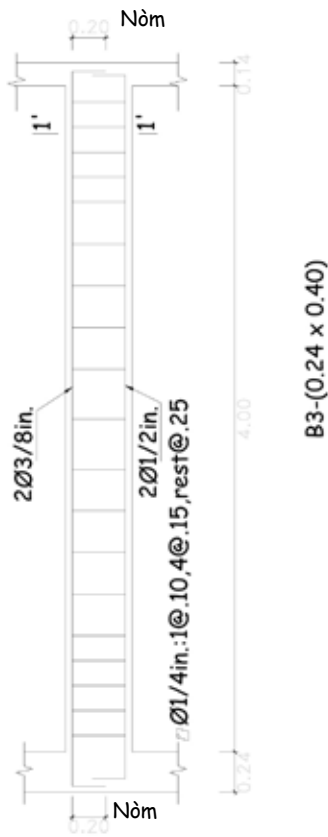
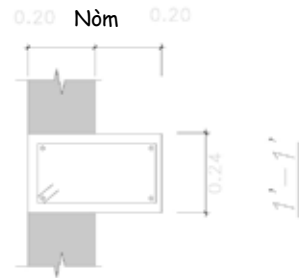
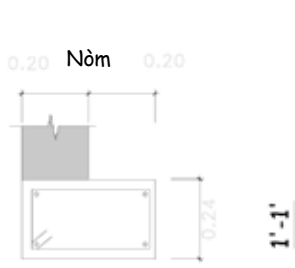
Parapet connection detail

Parapet tie in small confining



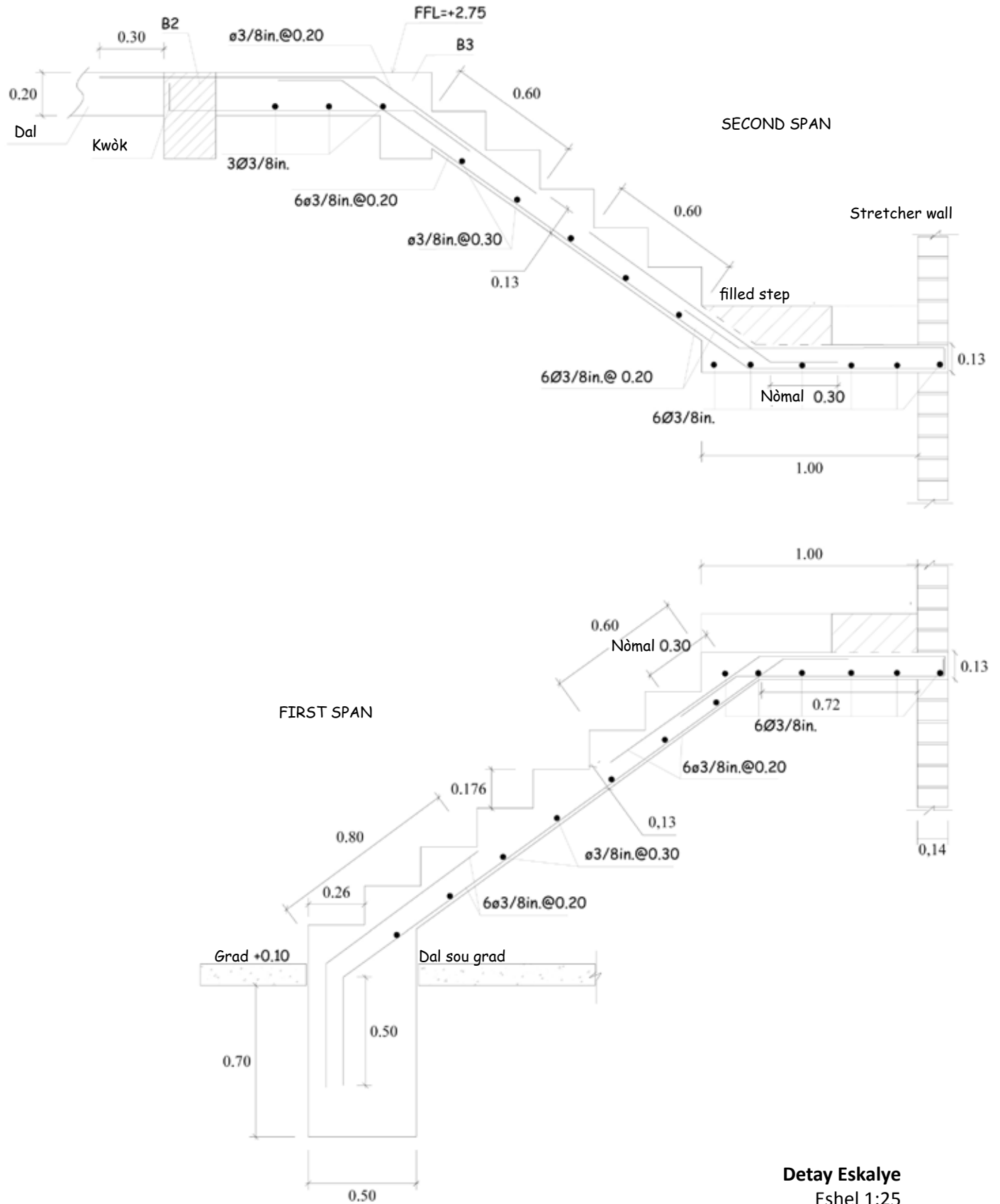
Detay Poto
Eshel 1:25 e 1:50

PLANS FOR YOUR HOUSE



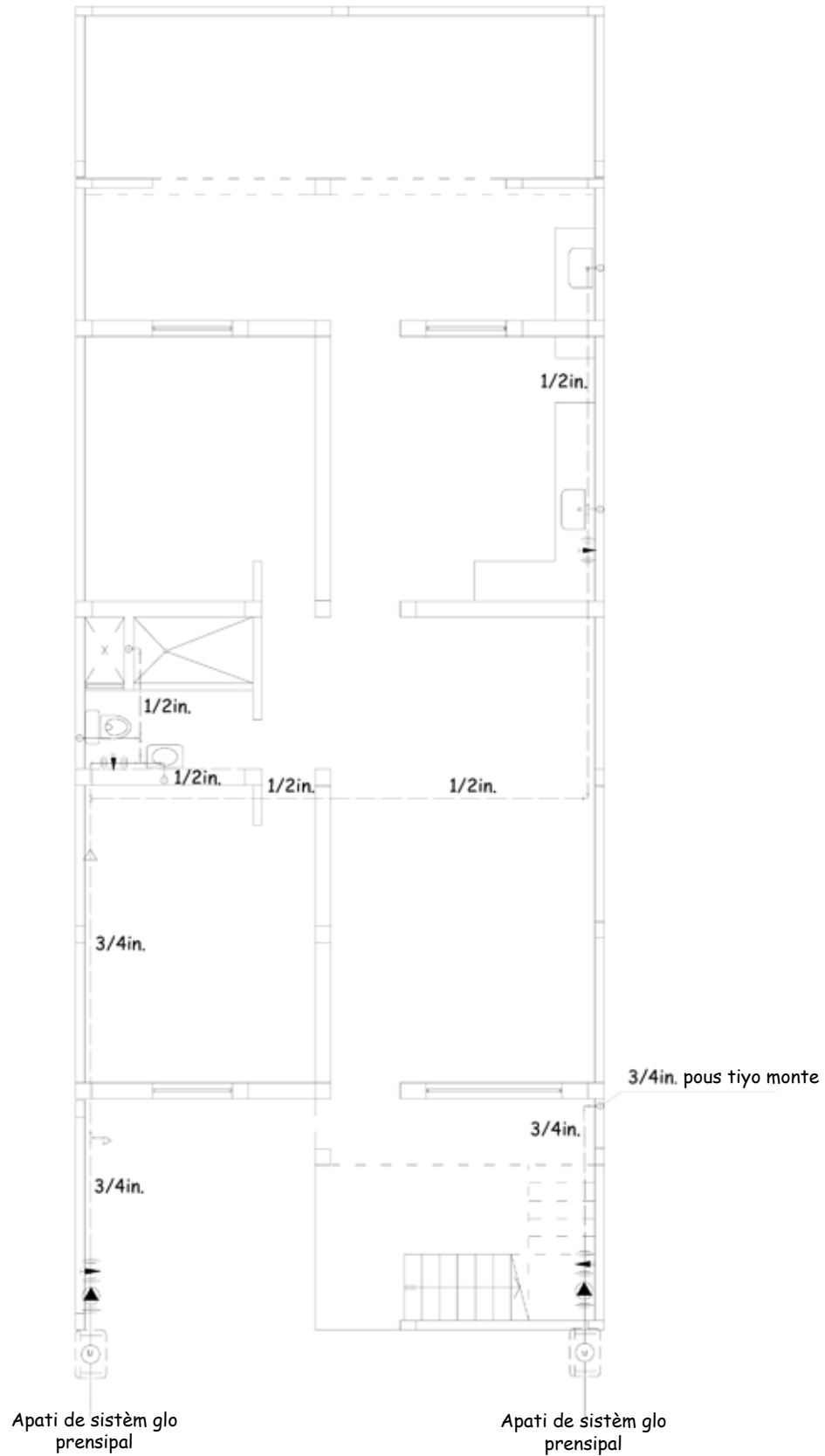
Nòm = nòmal

Detay Poto
Eshel 1:25 e 1:50

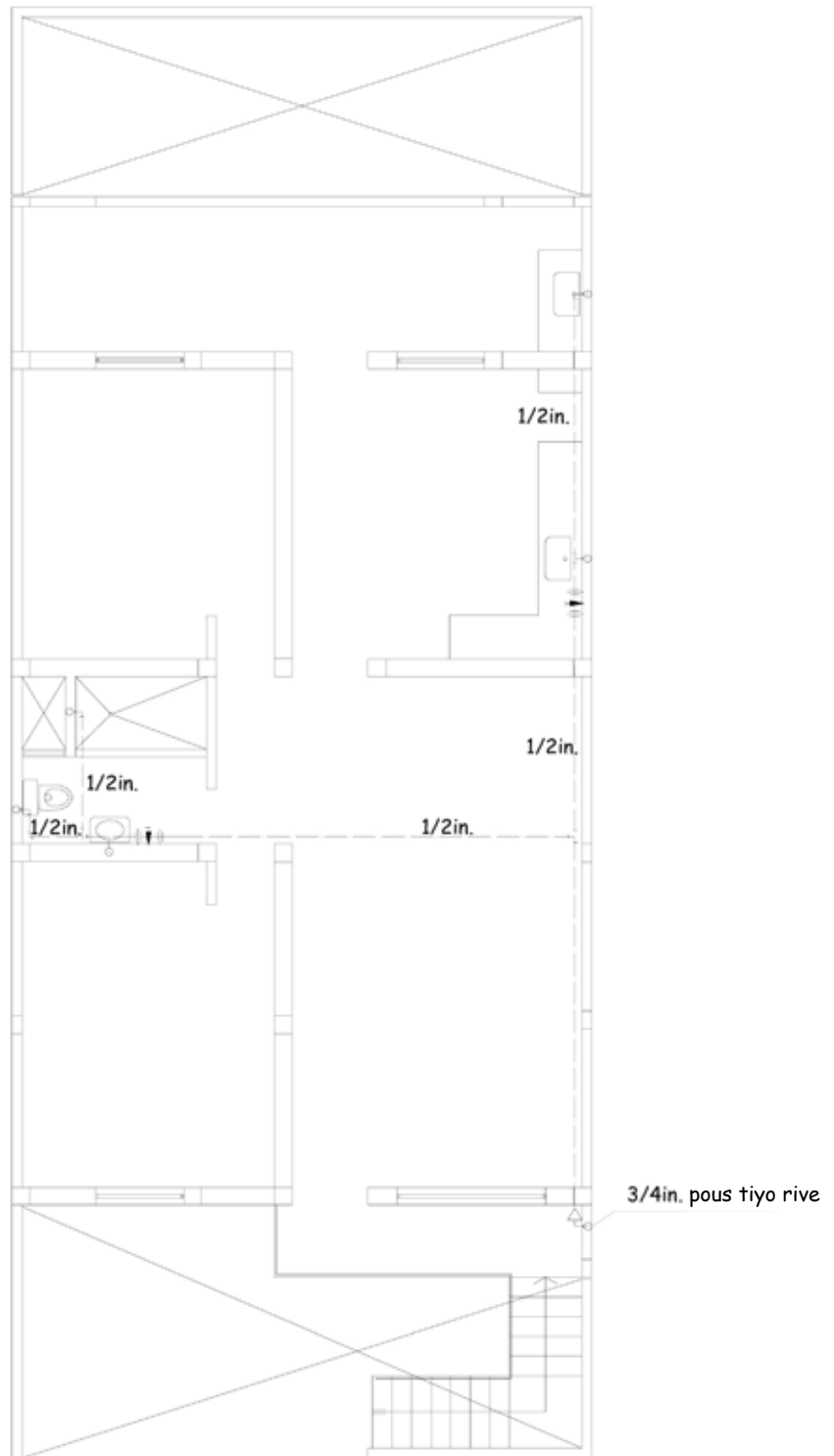


Detay Eskalye
Eshel 1:25

PLANS FOR YOUR HOUSE

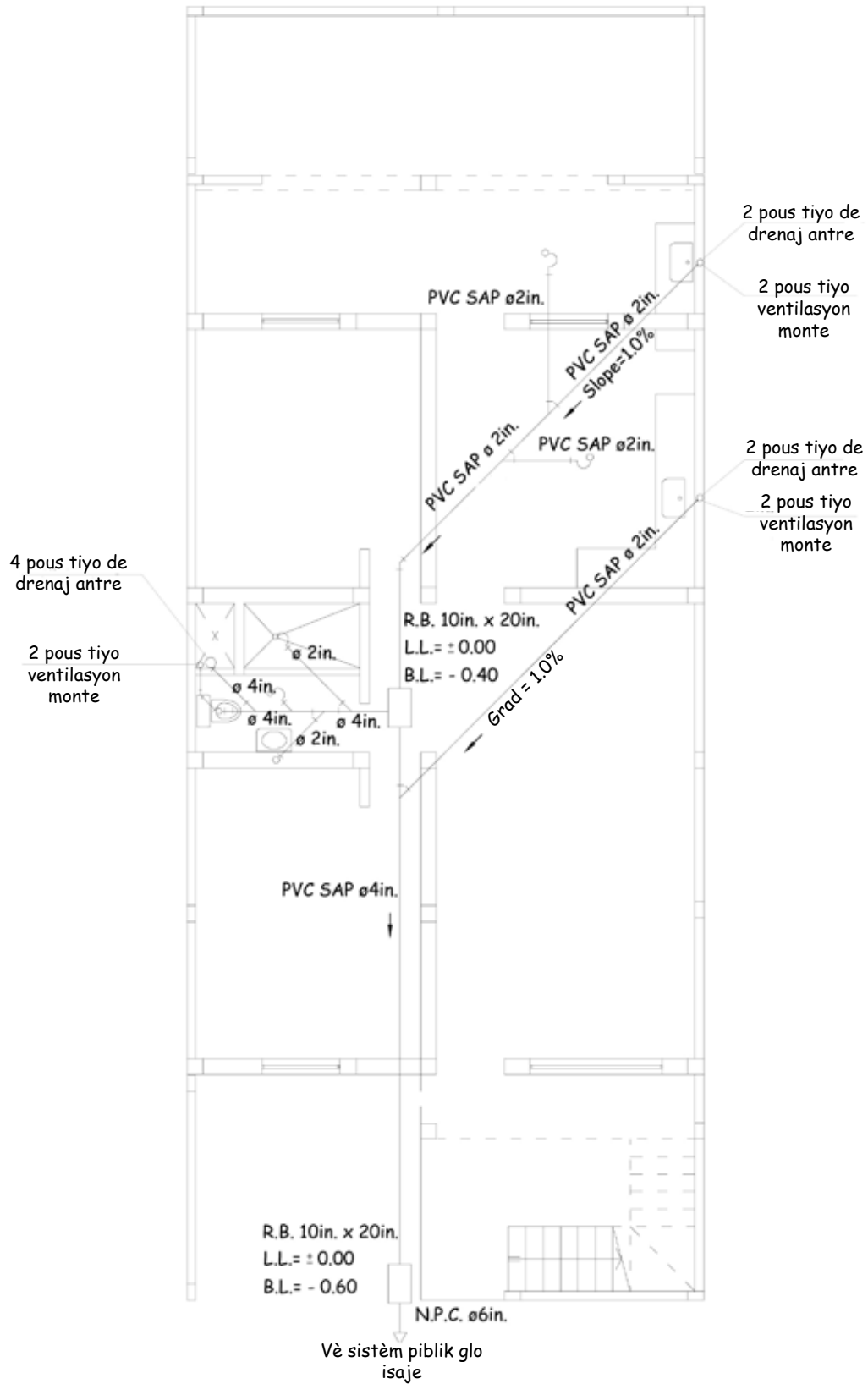


Plombri - plan distribusyon glo
Premye etaj - Eshel 1:100

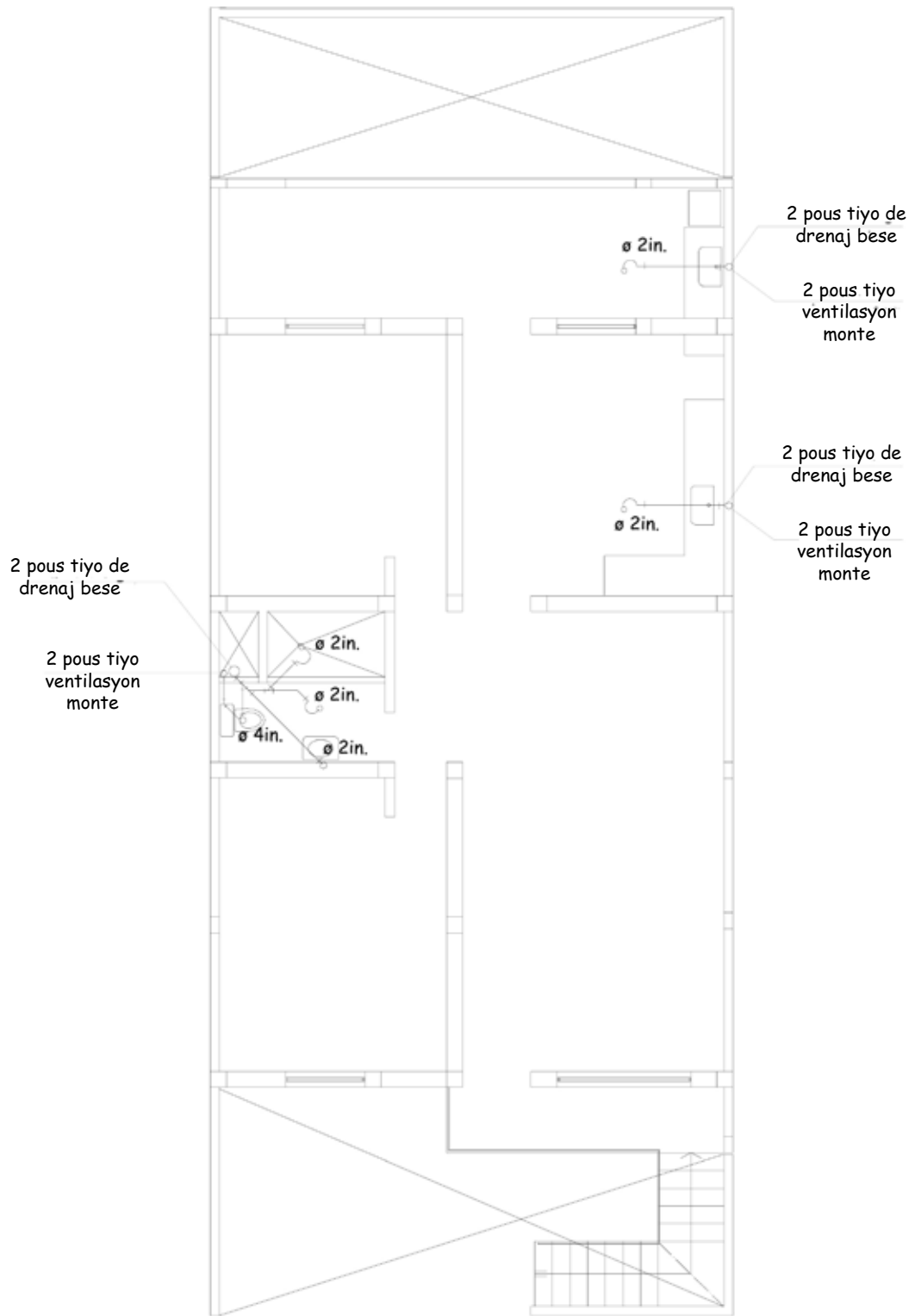


Plombri - plan distribusyon glo
Dezyem etaj - Eshel 1:100

PLANS FOR YOUR HOUSE

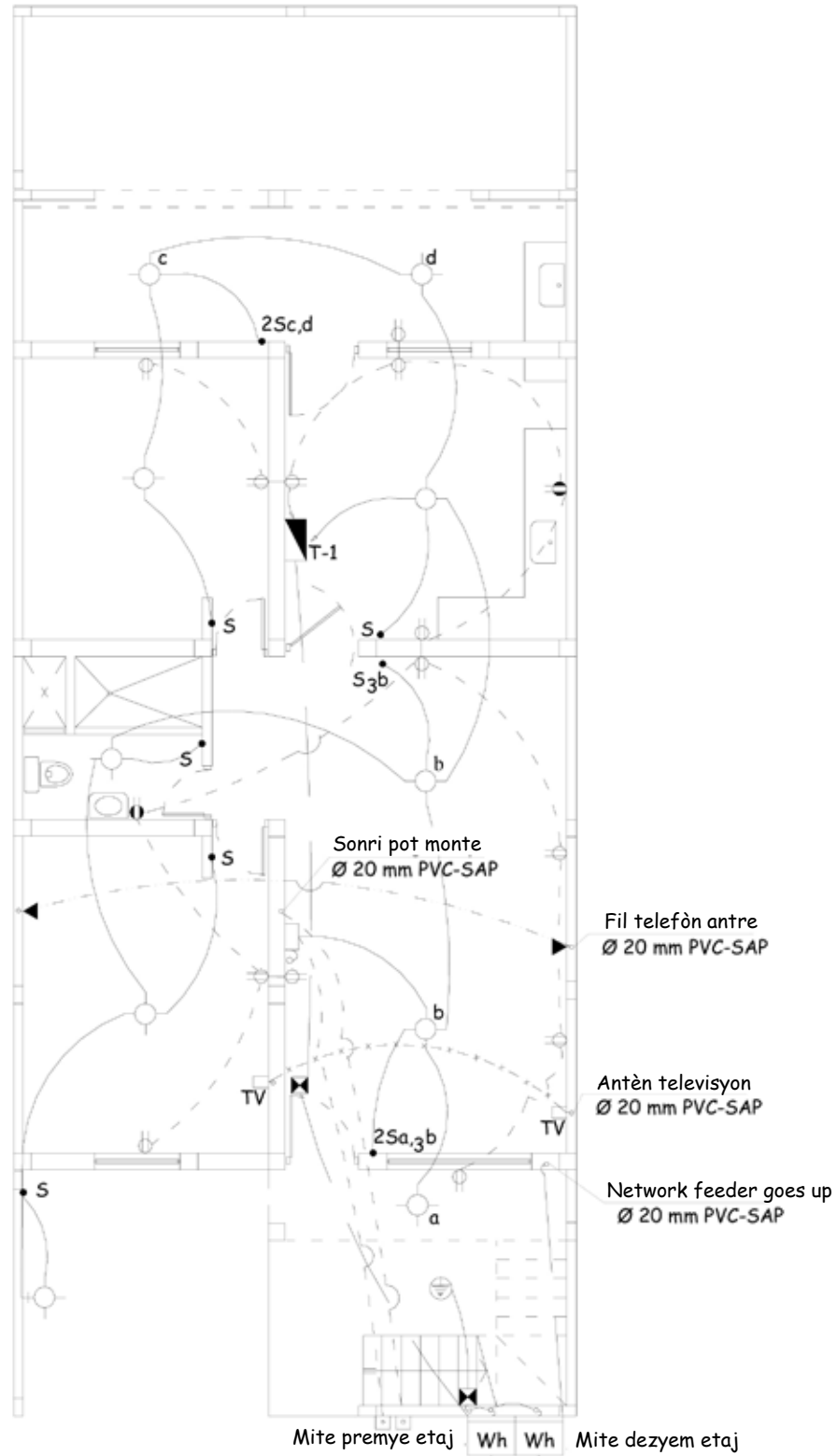


Plombri - plan distribusyon glo
Dezyem etaj - Eshel 1:100



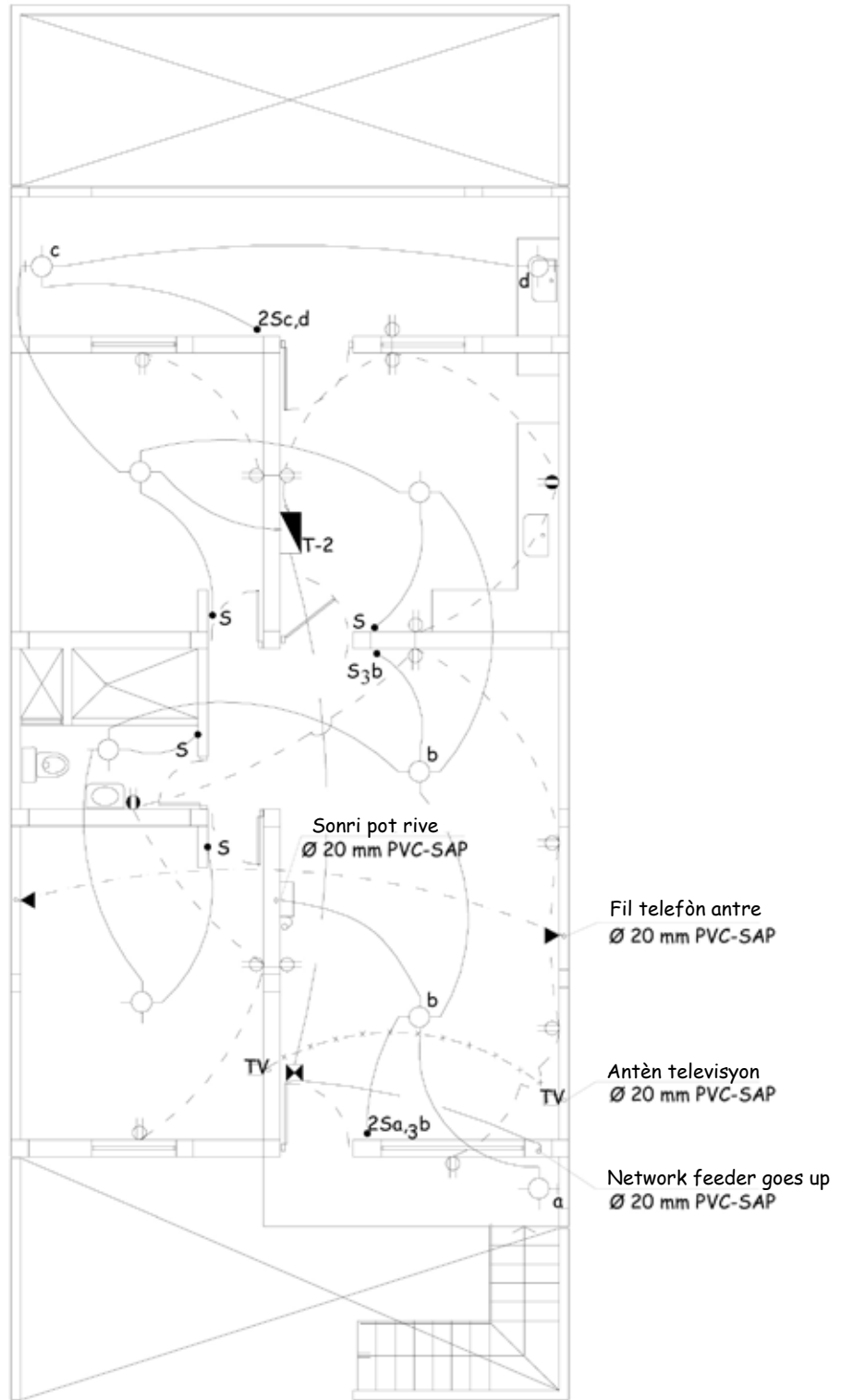
Plombri - Plan pou sistèm glo isaje
Premye etaj - Eshel 1:100

PLANS FOR YOUR HOUSE



FROM ELECTRIC NET
SYSTEM

Plan Elektrik
Premye etaj
Eshel 1:100



Plan Elektrik
 Dezym etaj
 Eshel 1:100

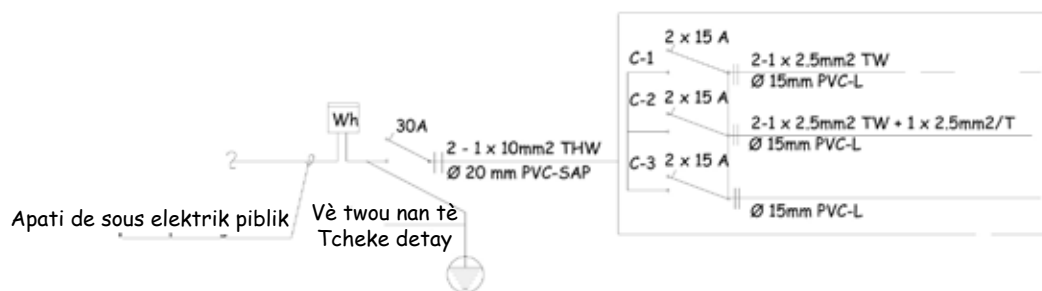
PLANS FOR YOUR HOUSE

Chema Pyès Plombri

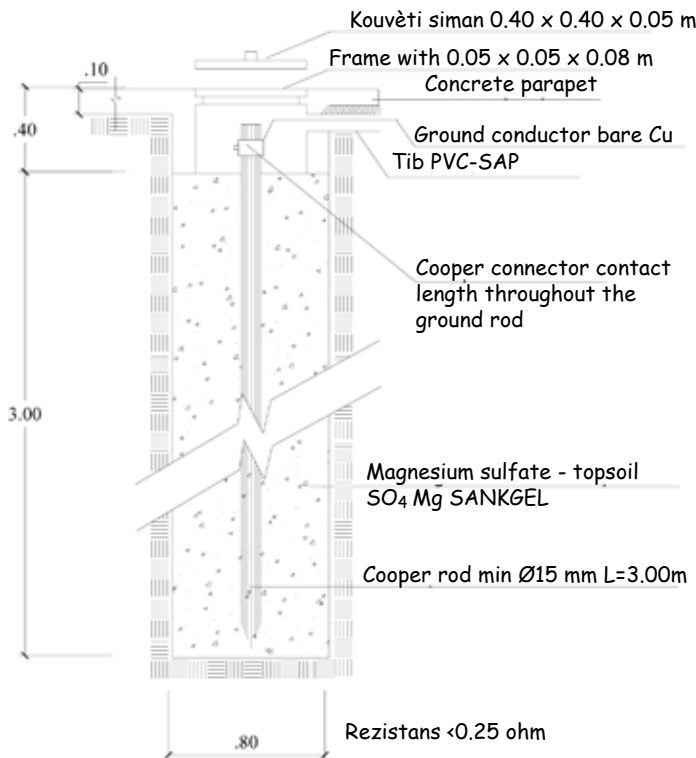
CHEMA DISTRIBUSYON GLO		CHEMA DRENAJ	
SIMBOL	DESKRIPSYON	SIMBOL	DESKRIPSYON
	KONTÈ GLO		TIYO DRENAJ
	TIYO GLO FRÈT		TIYO VENTILASYON
	KOUBI ANGL DWA		45 DEGRE KOUBI
	45 DEGRE KOUBI		"Y" SANITÈ SENP
	KOUBI ANGL DWA MONTE		"Y" SANITÈ DOUB
	T		"P" TRAP
	T DWAT KI LEVE		REGISTER BOX 12' X 24"
	JWEN INIVERSEL		FLOOR BRONZE THREAD-ED REGISTER
	GLOBE VALVE		DREN PLANCHE
	CONCENTRIC REDUCER		
	CHECK VALVE		
	SPRINKLING VALVE		

Chema Pyès Elektrik

UNIFILAR DIAGRAM T-1 Y T-2



CHEMA	
SIMBOL	DESKRIPSYON
	PRIZ KOURAN POU LIMYÈ MI
	WALL OCTOGONAL PULL BOX OF GALVANIZED IRON (G.I.) F° 6° 100 x 300 h=2.20 OVER FINISHED FLOOR LEVEL
	SQUARE PULL BOX (G.I.)
	PRIZ KOURAN TWA A ANDEDAN BWAT OKTOGON 100 x 30
	BIPOLAR DOUBLE OUTLET WITH UNIVERSAL TYPE CLOVIS G.I. BOX 10 x 55 x 28 h= .30/1.10 OVER FINISHED FLOOR LEVEL REPSECTIVELY
	ELECTRIC DISTRIBUTION SWITCHBOARD, UPPER EDGE H=1.80 OVER FINISHED FLOOR LEVEL
	POU ENSTAIASYON KWH MITE A
	ONE-POLE SIMPLE, DOUBLE, TRIPLE SWITCH IN G.I. BOX 100x53x28 h=1.20 OVER FINISHED FLOOR LEVEL
	COMMUTATION SWITCH IN 100x43x28 BOX, h=1.20 OVER FINISHED FLOOR LEVEL
	BOUTON SONRI A ANDEDAN 100x53x28 BOX, h=1.20 AN RO ETAJ FINI
	PRIZ KOURAN POU TELEFÒN DEYÒ 100x53x28 BOX h=1.20 AN RO ETAJ FINI
	DOORBELL IN G.I. OCTOGONAL 100x55x28 h=1.20 OVER FINISHED FLOOR LEVEL WITH 200v 60Hz Ø 20mm PVC-SEL TRANSFORMER
	WALL OR ROOF EMBEDDED PIPING — Ø 15mm INDICATED IN UNIFILAR DIAGRAM
	FLOOR EMBEDDED PIPING — Ø 15mm INDICATED IN UNIFILAR DIAGRAM
	FLOOR EMBEDDED PIPING — Ø 15mm TELEPHONE
	FLOOR EMBEDDED PIPING — Ø 15mm TV
	FLOOR EMBEDDED PIPING — Ø 15mm DOORBELL
	TV ANTENNA OUTLET AND/OR CABLE, G.I 100x55x28 BOX h=.30 OVER FINISHED FLOOR LEVEL
	GROUND PIT



Detay twou nan tè

REFERANS

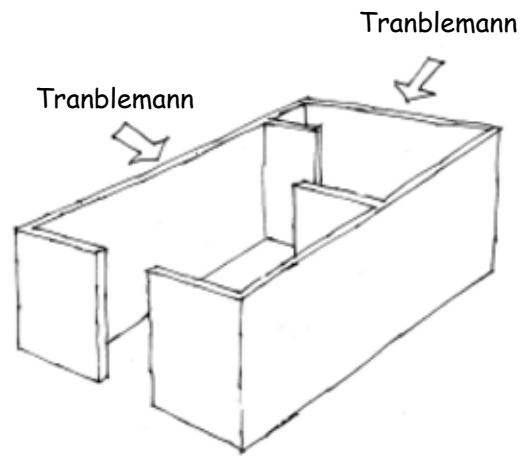
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ANÈKS

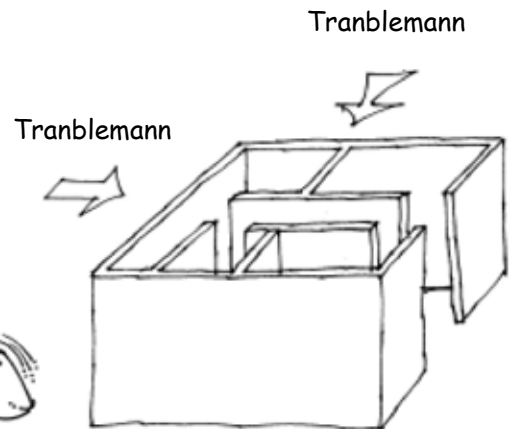
1. Kantite de mi ki genyen lan yon kay ki ka reziste tranblemann de tè.

Pou ke kay la reziste tranblemann de tè, fò li genyen yon bon nom de mi a lenterye dan tou de direksyon.

Sa se on kay ki feb:
Li pa genyen anpil mi a lenterye nan direksyon ki paralèl a la ri a.



Kay ki ka reziste tranblemann de tè
Bon kalite de mi a lenterye nan de direksyon



ANÈKS

Kalkilasyon mi yo

Pou kalkile nonm de mi ke ou bezwen pou on kay a de etaj, suiv pa sa yo:

1

Konnen ki tip **de teren** kote kay la pral bati. Lan paj 22 ou ka aprann kouman pou detèmine yon tip de teren.

2

Detèmine **minimum epese mi ke ou bezwen** lan chak direksyon daprè tip de teren. Amploye chema sa:

Tip de teren:	Deskripsyon	Minimum epese mi ke ou bezwen
Solid	Wòch gravye	1.0%
antre les de	tè tuf ki solid	1.2%
mou ou sab	tè sab, tè tuf ki mou	1.4%



3

Kalkile sifas twa ki kouvri chak etaj en met kare.

4

Kalkile sifas orizantal de chak mi a lenteye pou chak etaj

SIFAS ORIZANTAL KE
OU BEZWN POU MI A
LENTEYE NAN PREMYE
ETAJ

=

MINIMUM EPESE
MI YO
100

X

DIMANSYON SEKSYON PREMYE
ETAJ KI KOVRI PA TWA
+
DIMANSYON SEKSYON DEZYEM
ETAJ KI KOVRI PA TWA

SIFAS ORIZANTAL KE
OU BEZWN POU MI A
LENTEYE NAN DEZYEM
ETAJ

=

MINIMUM EPESE
MI YO
100

X

DIMANSYON SEKSYON DEZYEM
ETAJ KI KOVRI PA TWA

Egzanp

Sipoze ki pral kay ou a ka bati sou yon tè kontra ant sab Gravel-koryas e ke li pral gen 70 m² nan kay ki kouvri zòn nan etaj nan premye ak 50 m² nan etaj, dezyèm lan. Mi dansite obligatwa pou tè di se 1.8%.

Pou kalkile zòn nan miray orizontal bezwen nan etaj la an premye, konsidere tèt kay la ki kouvri zòn nan planche nan premye ak dezyèm fwa. Sa se, zòn nan miray egzije sa nan premye etaj yo pral:

Yo egzije orizontal etaj zòn 1

$$(1/100) \times (70 + 50 \text{ m}^2) = (1.8/100) \times 120 \text{ m}^2 = 2,16 \text{ m}^2$$

Pou kalkile zòn nan miray orizontal nesèsè nan etaj la dezyèm fwa, ou sèlman yo te konsidere zòn nan kay ki kouvri atè a yon dezyèm fwa. Sa se, zòn nan miray obligatwa pou dezyèm etaj la ap.

Yo egzije orizontal etaj zòn 2

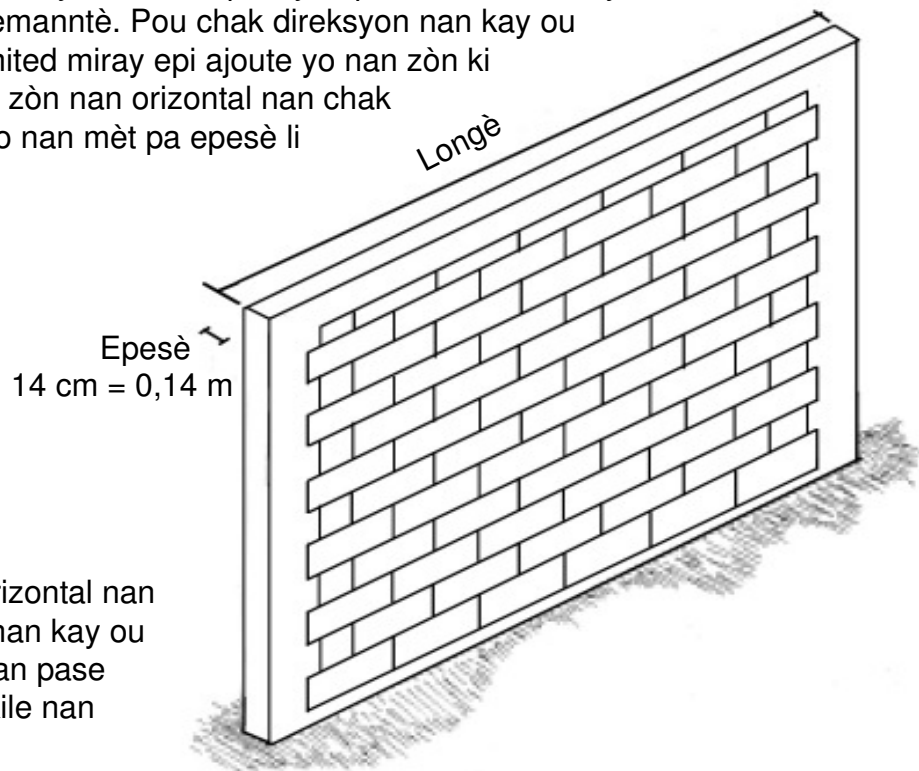
$$(1.8/100) \times (50 \text{ m}^2) = 0,9 \text{ m}^2$$

5 Verifye ke zòn lan orizontal nan limited mi yo nan chak etaj nan kay ou ak pou chak direksyon pi gran pase nan zòn lan egzije ke w kalkile nan etap anvan an. Nan evalyasyon an sèlman gen ladan mi yo te fè an brik estriktirèl ki gen longè pi gran pase 1 mè ak yo ki limited byreinforced konkrè poutr ak kolòn. Èske pa gen ladan mi mwens pase 1 mè nan longè. Epitou pa enkli illimité mi yo oswa mi patisyon paske eleman sa yo ki pa kapab reziste nan tranblemanntè. Pou chak direksyon nan kay ou evalye zòn nan nan chak limited miray epi ajoute yo nan zòn ki nan mi yo allthe. Pou kalkile zòn nan orizontal nan chak mi an m "miltipliye longè li yo nan mè pa epesè li yo an mè.

Egzanp

Orizontal miray zòn
 $3 \text{ m} \times 0,14 \text{ m} = 0,42 \text{ m}^2$

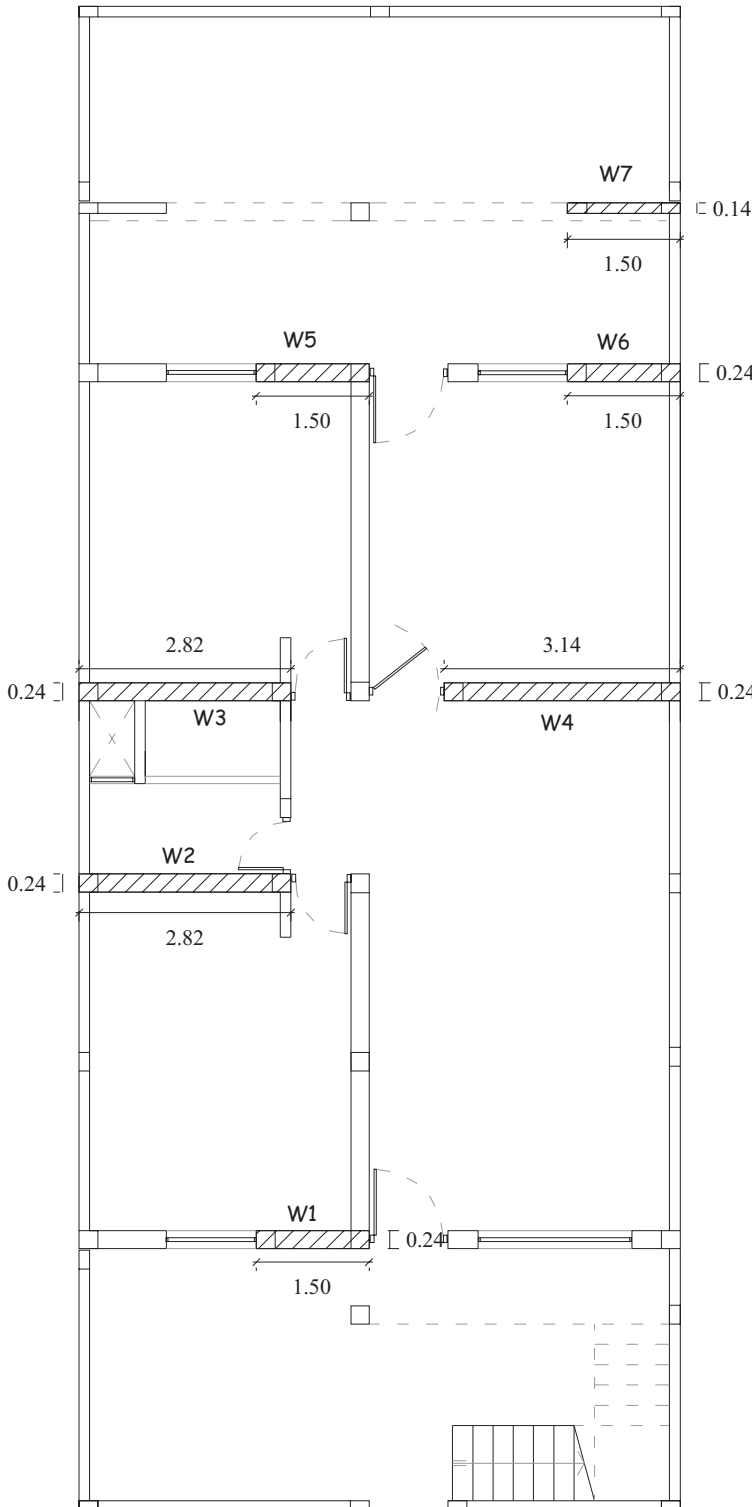
Lè sa a, verifye si zòn lan orizontal nan limited mi yo nan chak etaj nan kay ou ak pou chak direksyon pi gran pase nan zòn lan egzije ke w kalkile nan etap anvan an.



total miray orizontal zòn (m²) > egzije zòn orizontal (m²)

Example of wall calculation in the direction parallel to the street

As an example, we will analyze the house proposed in Chapter 5. This house is located over hard soil and has 115.7 m² of roof area covering in the first floor and 98.7 m² covering the second floor, which gives a total roof covering area of 214.4 m².



For this soil type, the required wall density in each direction is 1%. Therefore, the quantity of walls for our first floor has to be:

$$1 \times \frac{214.4 \text{ m}^2}{100} = 2.14 \text{ m}^2$$

We will calculate the areas of our confined walls:

- W1= 1.50 X 0.24 = 0.36 m²
- W2= 2.82 X 0.24 = 0.68 m²
- W3= 2.82 X 0.24 = 0.68 m²
- W4= 3.14 X 0.24 = 0.75 m²
- W5= 1.50 X 0.24 = 0.36 m²
- W6= 1.50 X 0.24 = 0.36 m²
- W7= 1.50 X 0.14 = 0.24 m²

The total confined wall area is 3.43 m² which is greater than 2.14 m², so we have satisfied minimum wall density.

Remember that these walls have to be confined in all four sides.

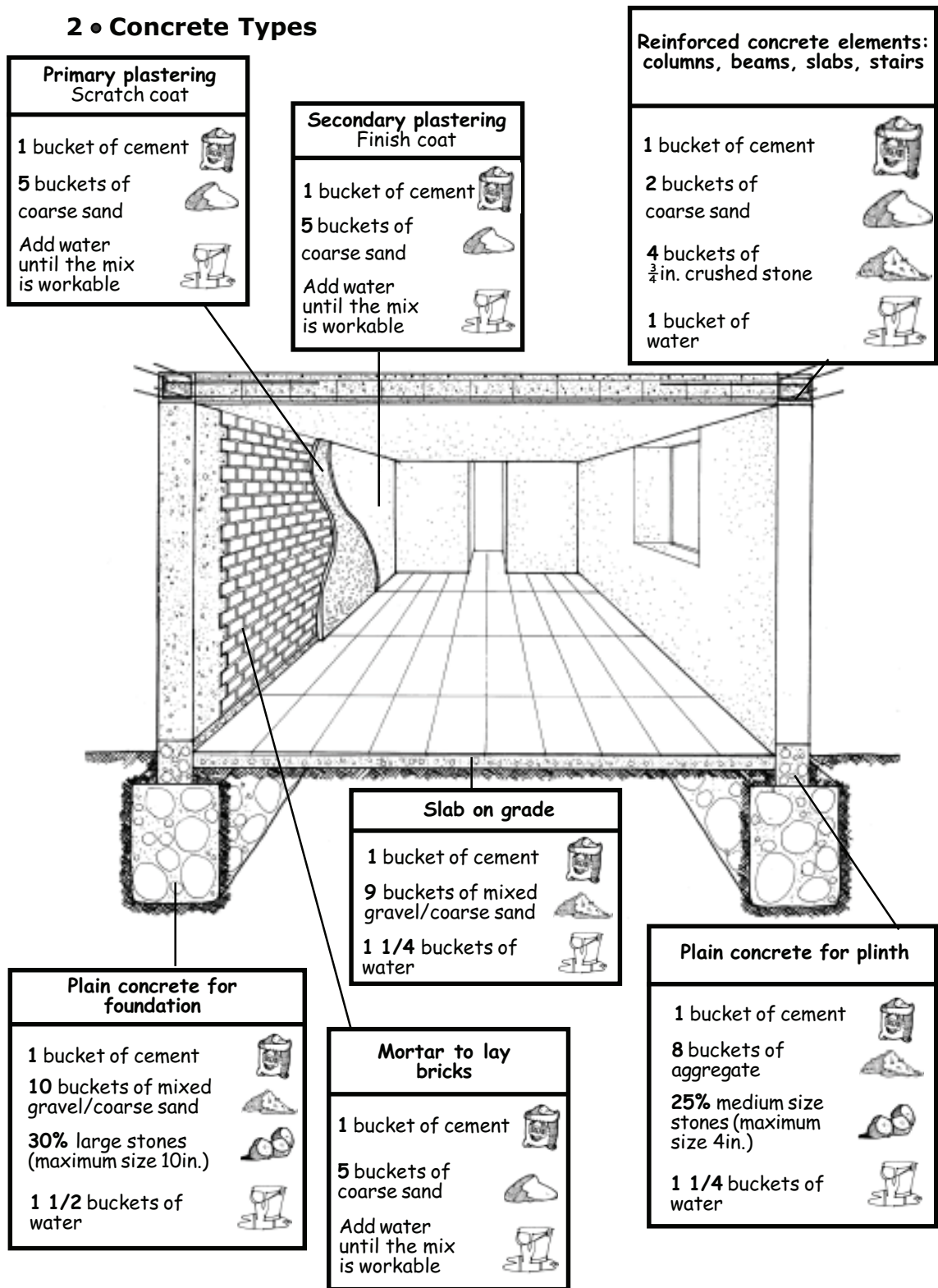
Recommendation

*It is desirable to have several walls longer than 2.70 m
How many of the required walls must be long depends on the type of soil where your house is located:*

✓ **Hard soil**
At least three walls must be longer than 2.70 m.

✓ **Intermediate or soft soil**
At least four walls must be longer than 2.70 m.

2 • Concrete Types



Recommendation

Moisten all aggregates the previous day.


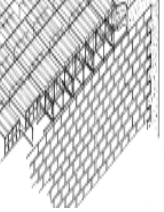
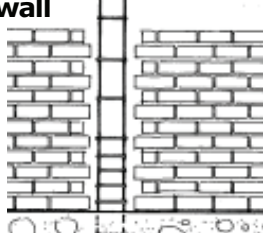
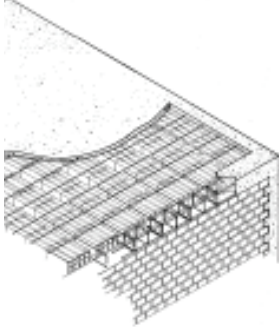
3 • Schedule of material quantities

The quantities of materials shown includes 3% loss.

WITH THIS TABLE YOU CAN CALCULATE THE QUANTITY OF MATERIALS NECESSARY FOR CONSTRUCTION



	Required material	Quantity of material for 1 m ³	X	m ³ in my house	=	Quantity of material needed for my house
Continuous footing 	Cement	2.8 bags	X		=	
	Mixed gravel / coarse sand	0.90 m ³				
	Big stone (10in.)	0.32 m ³				
	Water	116 liters				
Simple plinth 	Cement	3.7 bags	X		=	
	Mixed gravel / coarse sand	1.00 m ³				
	Medium size stone (4in.)	0.26 m ³				
	Water	124 liters				
Reinforced plinth 	Cement	7.2 bags	X		=	
	Coarse sand	0.44 m ³				
	Crushed stone(3/4in.)	0.9 m ³				
	Water	175 liters				
Columns, confining beams and slab 	Cement	7,2 bags	X		=	
	Coarse sand	0.44 m ³				
	Crushed stone(3/4in.)	0.9 m ³				
	Water	175 liters				

	Required material	Quantity of material for 1m ²	X	m ² in my house	=	Quantity of material needed for my house
Slab on grade (10 cm thickness) 	Cement	0.4 bags	X		=	
	Mixed gravel /coarse sand	0.124 m ³				
	Water	14 liters				
Header wall 	Cement	0.4 bags	X		=	
	Coarse sand	0.07 m ³				
	Jumbo cored utility brick (10x14x24cm)	59 units				
Stretcher wall 	Cement	0.2 bags	X		=	
	Coarse sand	0.03 m ³				
	Jumbo cored utility brick (10x14x24cm)	36 units				
	Hollow clay tile (10x12x24cm)	36 units				
Lightweight slab 	Cement	0.63 bags	X		=	
	Coarse sand	0.04 m ³				
	Crushed stone (3/4in.)	0.008 m ³				
	Water	17 liters				
	Hollow ceiling brick (15x30x30cm)	8.4 units				
	Hollow ceiling brick (15x30x25cm)	10.5 units				
	Hollow ceiling brick (12x30x25cm)	10.5 units				