

MANUEL TECHNIQUE POUR
L'AMELIORATION DES ARCHITECTURES RURALES EN STRUCTURE PORTEUSE EN BOIS
DANS LE DEPARTEMENT DU SUD EST D'HAÏTI



ONU HABITAT
POUR UN MEILLEUR AVENIR URBAIN

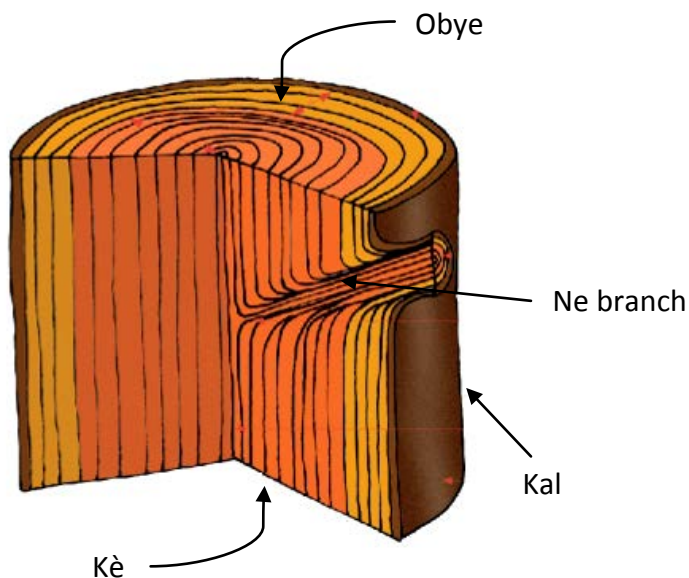


Materyo lokal yo

- 6.1 – Bwa**
- 6.2 – Sab ak gravye**
- 6.3 – Wòch**
- 6.4 – Kol mòtye ak latè**

6.1 – Bwa

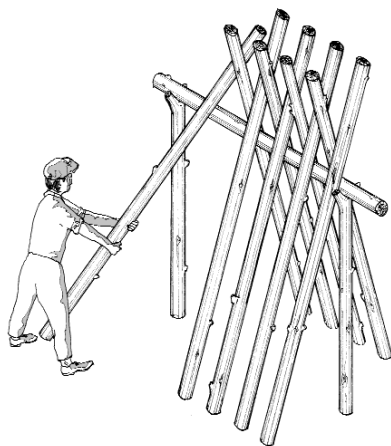
Propriyete yo



Obye a se parti ki mwen rezistan ak mwen dirab pase kè a. Poubwa pike li pi fasil. Nou dwe retire pati sa a pou fè poto yo.

Chechaj

Li empòtan pou bwa cheche byen avan nou itilize'l pou pèmèt li jwenn dimansyon final li.

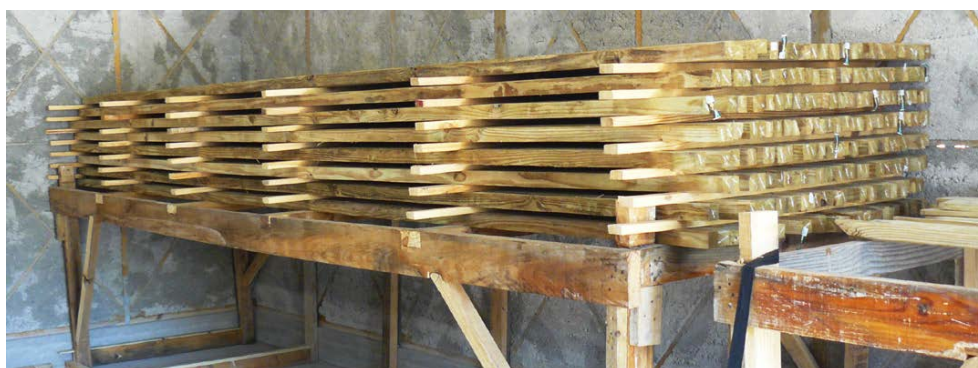
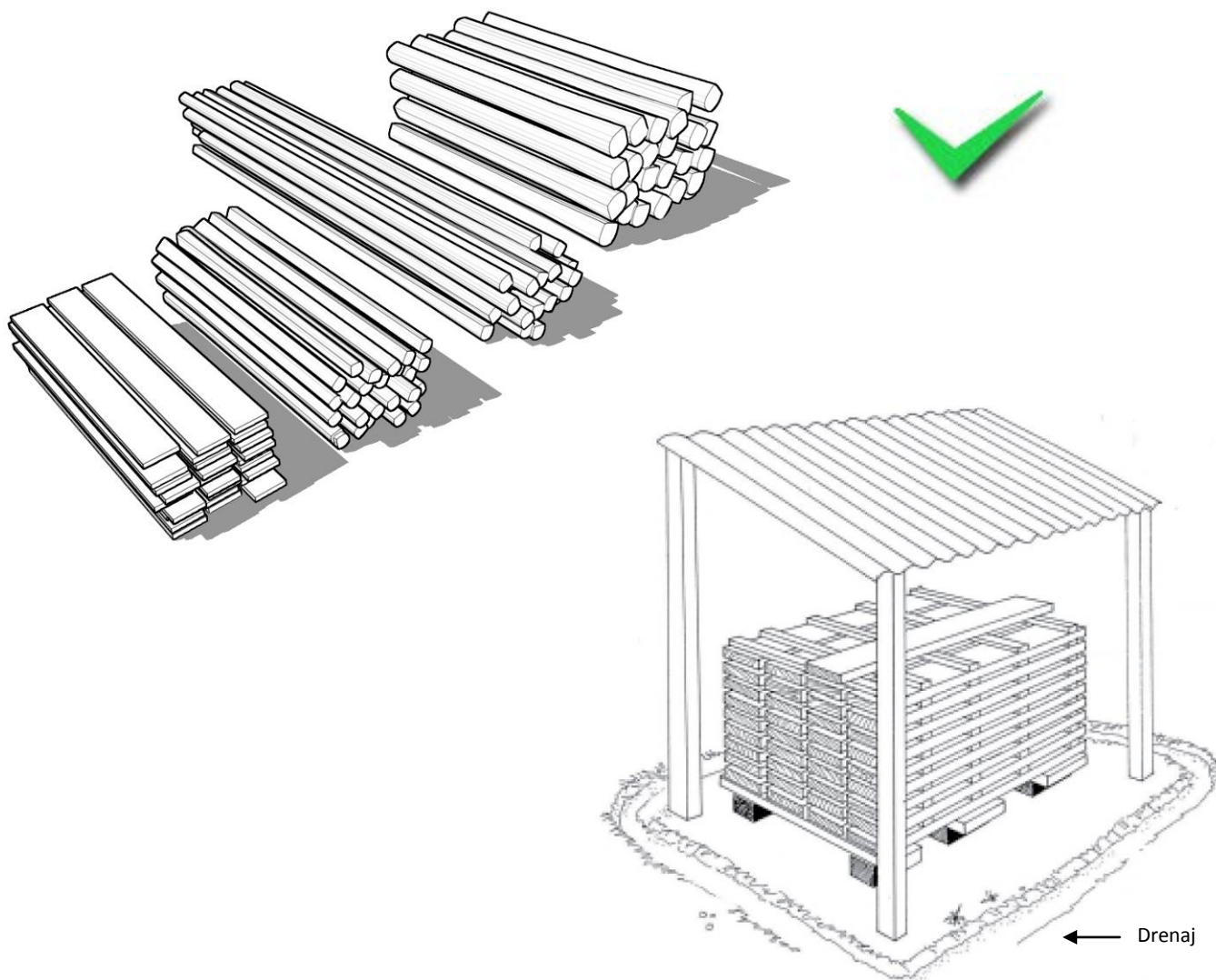


Preparasyon pyès bwa yo ak ti



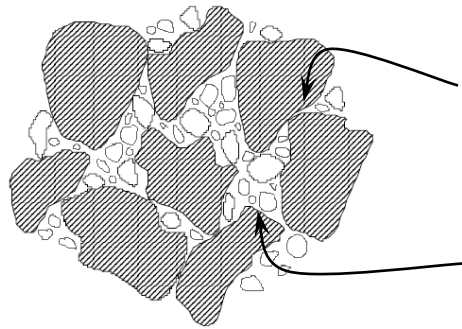
Jesyon stok bwa

- Klasifikasyon pa gwosè, fòm ak kalite bwa
- Estoke lwen imidite (lapli, dlo nan tè) e byen vantile ant chak pyès bwa



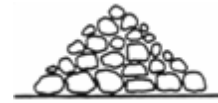
6.2 – Sab ak gravye

SAB AK GRAVYE SE SKELET MÒTYE AK BETON YO



Gravye : gren ki 5 à 20 mm

Sab : gren ki 0 à 5 mm



KALITE SAB AK GRAVYE



Ki roulé...

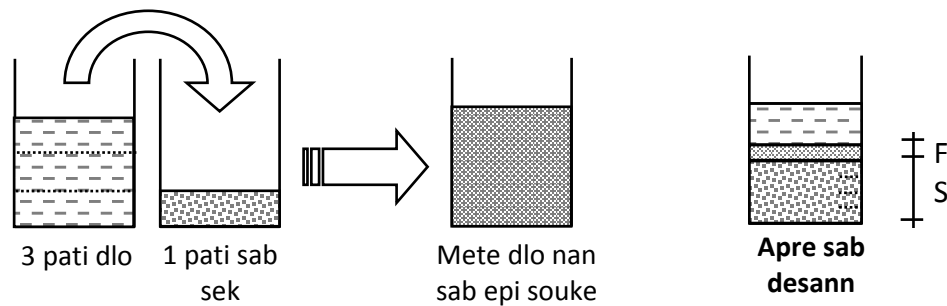


Ki moulén ou kraze



Tif

KANTITE « FINN » OU BYEN ÀJIL NAN SAB

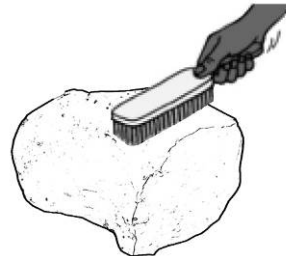
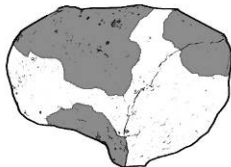
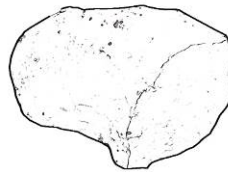
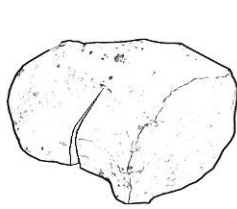


Pwòpte sab

- | | | |
|-----------|---------------|------------------------------------|
| $F > 3 S$ | $\Rightarrow$ | Sab ki gen anpil « grès » |
| $F < 8 S$ | $\Rightarrow$ | Sab ki « mèg » ou byen ki « pwop » |

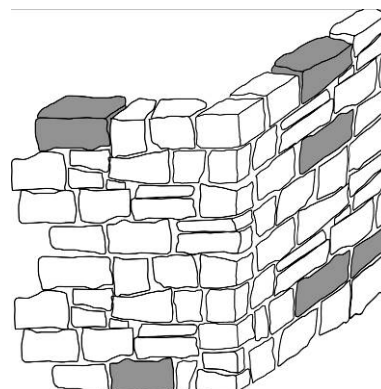
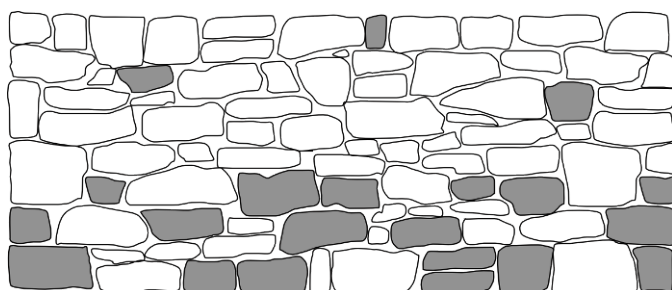
6.3 – Wòch

Byen chwazi wòch yo – Resiklaj



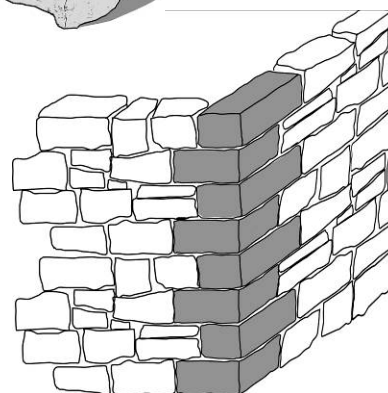
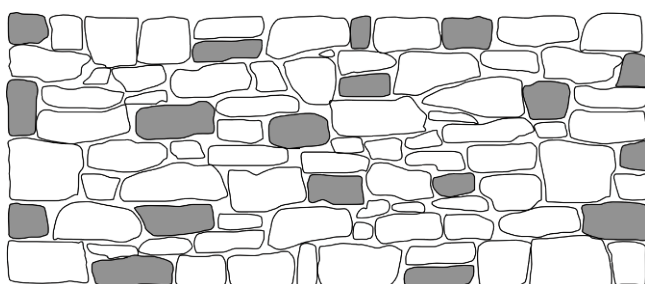
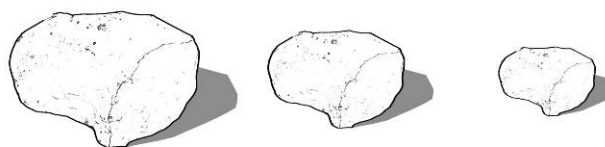
- Refize wòch ki fragil ou ki gen fant
- Netoye wòch yo pou yo ka kole pi byen avec mòtye lè nou itilize yo

Jesyon stok wòch yo



- Stokaj o azà
- Wòch yo ki monte owazà nan mi a malgre kalite yo ak pàti ki pi frajil nan mi a (kwen yo, baz la)

Jesyon stok wòch yo

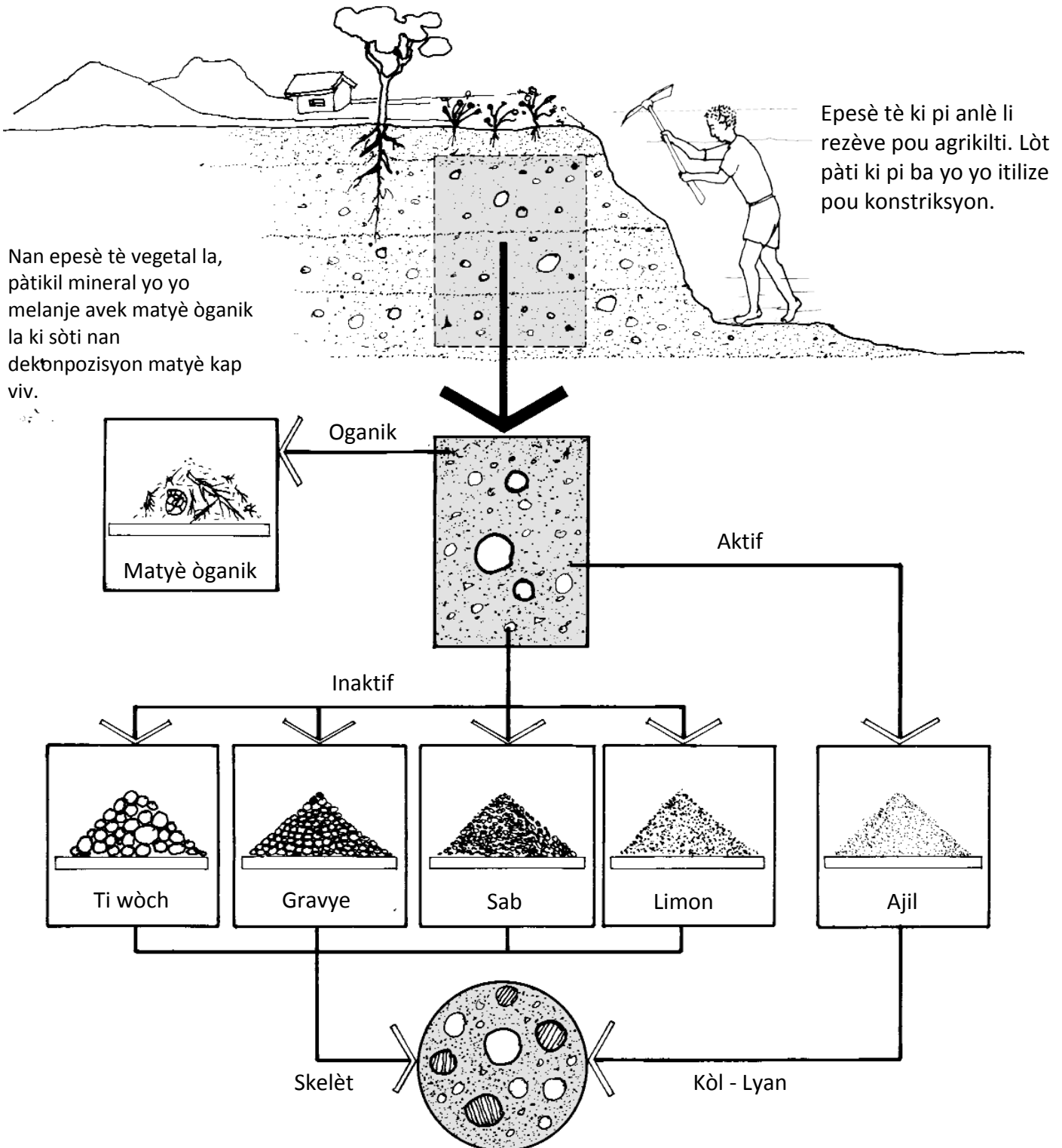


- Stokaj pa gwosè, fòm ak kalite wòch yo
- Distribisyon wòch nan diferan pozisyon nan mi an selon karakteristik yo (wòch pi byen yo nan kwen yo)

6.4 – Kol mòtye ak latè

Sa ki anndan tè a

Orijin: Latè, tankou yon materyo, sòti nan ewozyon wòch orijinal la. Wòch sa a dezintegre pou bay patikil mineral divès kalite gwosè, ti wòch ou menm àjil.

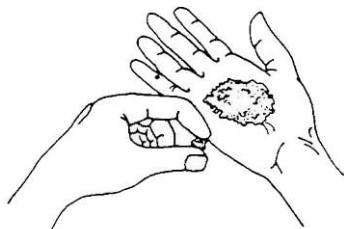


Latè : tè idantifikasyon yo

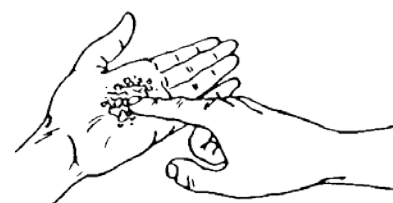
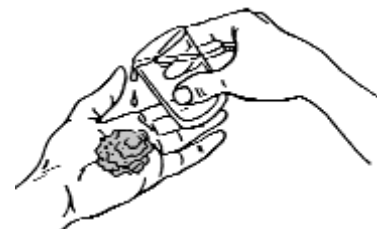
JE – TOUCHE – SANTI

Objektif : Idantifye gwosè ak kantite gren yo nan latè a. Sa vle di granularite sol la.

San dlo



Avek dlo



Rezilta yo

Presans **matyè òganik** - lage yon sant (mwazi)

Tè **sablèz** – Tè ki graj, frajil, li kole yon ti kras

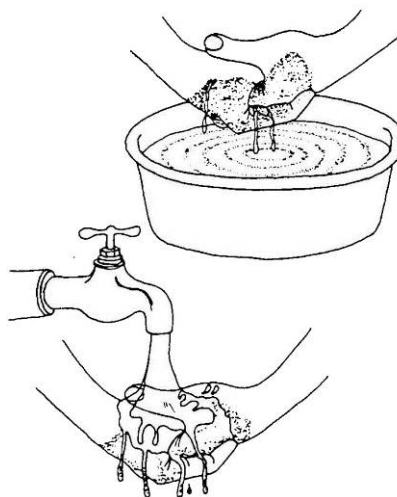
Tè **limonèz** – tè fin, fasil pou kraze nan yon poud, li kole

Tè **ajilèz** - difisil pou kraze, li pa fonn nan dlo fasil, li kole e li fin anpil

LAVE MEN YO

Mete tè a likid sou tout men yo epi lave men yo DOUSMAN avek dlo.

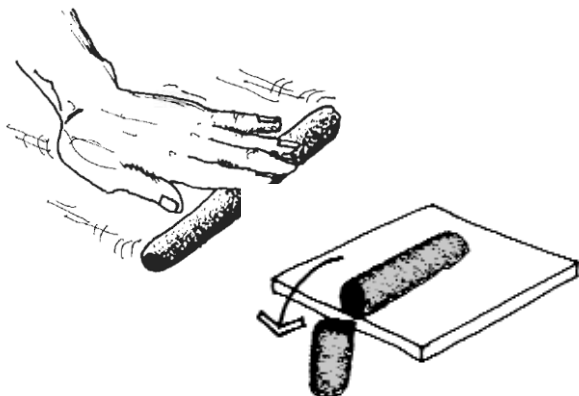
Tè ajilèz se tankou « savon » e li difisil pou rensè li. Tè limonèz li tankou farin. Tè sablèz li koule rapid ant dwèt yo e li fasil pou rensè li.



Latè : tè idantifikasyon yo

TES SIGA

Objektif : Pou detèmine si tè a kole byen. Tcheke si kantite làjil nan tè a bon.



- Retire patikil yo ki pi gwo pase 5 mm (gravye)
- Mete dlo e brase tè a. Melanj sa a pa dwe jwenn men sal.
- Kite tè a 30 mn pou àjil ka reyaji.
- Sou yon planch, fòme yon sigà 3 cm nan dyamèt ak 30 cm nan longè.
- Dousman pouse sigà a nan vid.
- Mezire longè a nan mòso ki tonbe.
- Repete tè sa a 3 fwa...

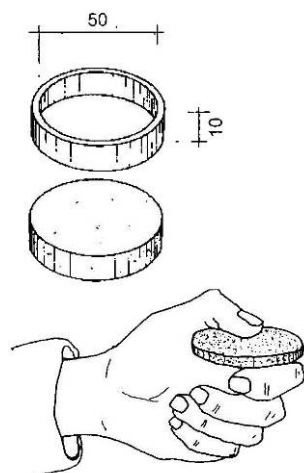
Rezilta yo

Mwens pase 5 cm : **Tè ki sablèz anpil**

Plis pase 20 cm : **Tè ki àjilèz anpil**

TES « PASTIY »

Objektif : Teste rezistans a sek. Mezire kantite kontraksyon àjil yo.



- Kolekte melanj ki sòti nan tè sigà a.
- Fòme 2 tablèt (« pastiy ») avek yon mòso tib PVC
- Lè tablèt yo vin chech :
 - ✓ Gade si gen kontraksyon (tablèt la vin pi piti)
 - ✓ Evalye rezistans tablet yo : eseye kraze li ant dwet pa ou yo

Rezilta yo

Pa gen kontraksyon, li fasil pou kraze li nan yon poud

Tè sablèz

Gen kontraksyon, li fasil pou kraze li nan yon poud

Tè limonèz

Anpil kontraksyon, li difisil pou kraze li nan yon poud

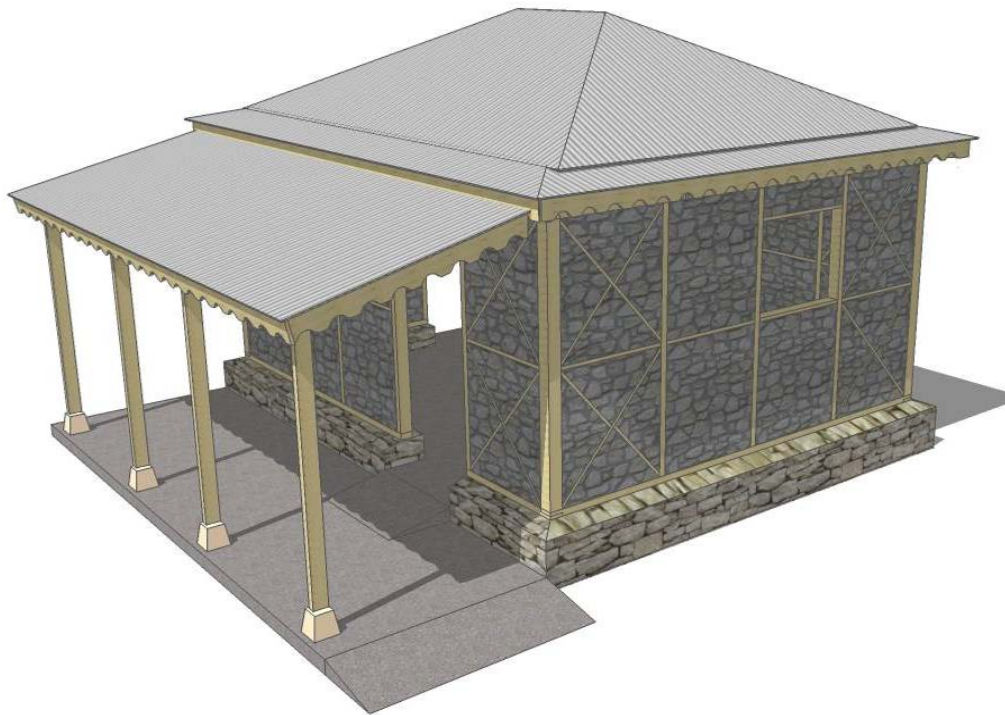
Tè àjilèz



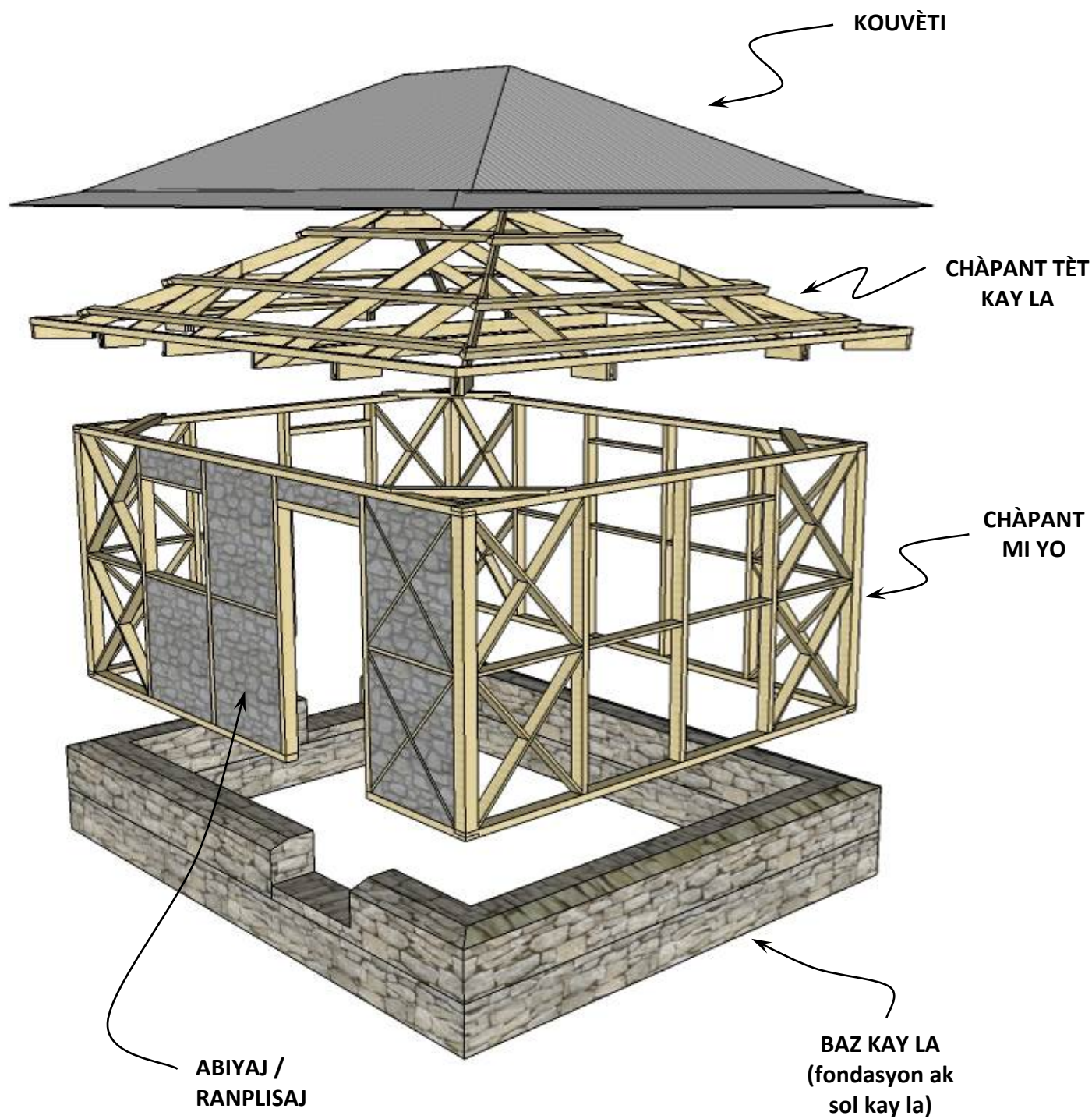
Sistèm konstriksyon

- 7.1 – Sistèm konstriksyon – Deskripsyon jeneral**
- 7.2 – Trase kay la**
- 7.3 – Mòtye ak beton yo**
- 7.4 – Masonri ak wòch**
- 7.5 – Fondasyon**
- 7.6 – Solay kay**
- 7.7 – Chàpant an bwa pou mi yo**
- 7.8 – Ranplisaj / Abiyaj mi yo**
- 7.9 – Tèt kay la**
- 7.10 – Tretman sifàs**
- 7.11 – Tretman alantou kay la**

7.1 – Sistèm konstriksyon – Deskripsyon jeneral



Diferan pati nan kay la



7.2 – Trase kay la



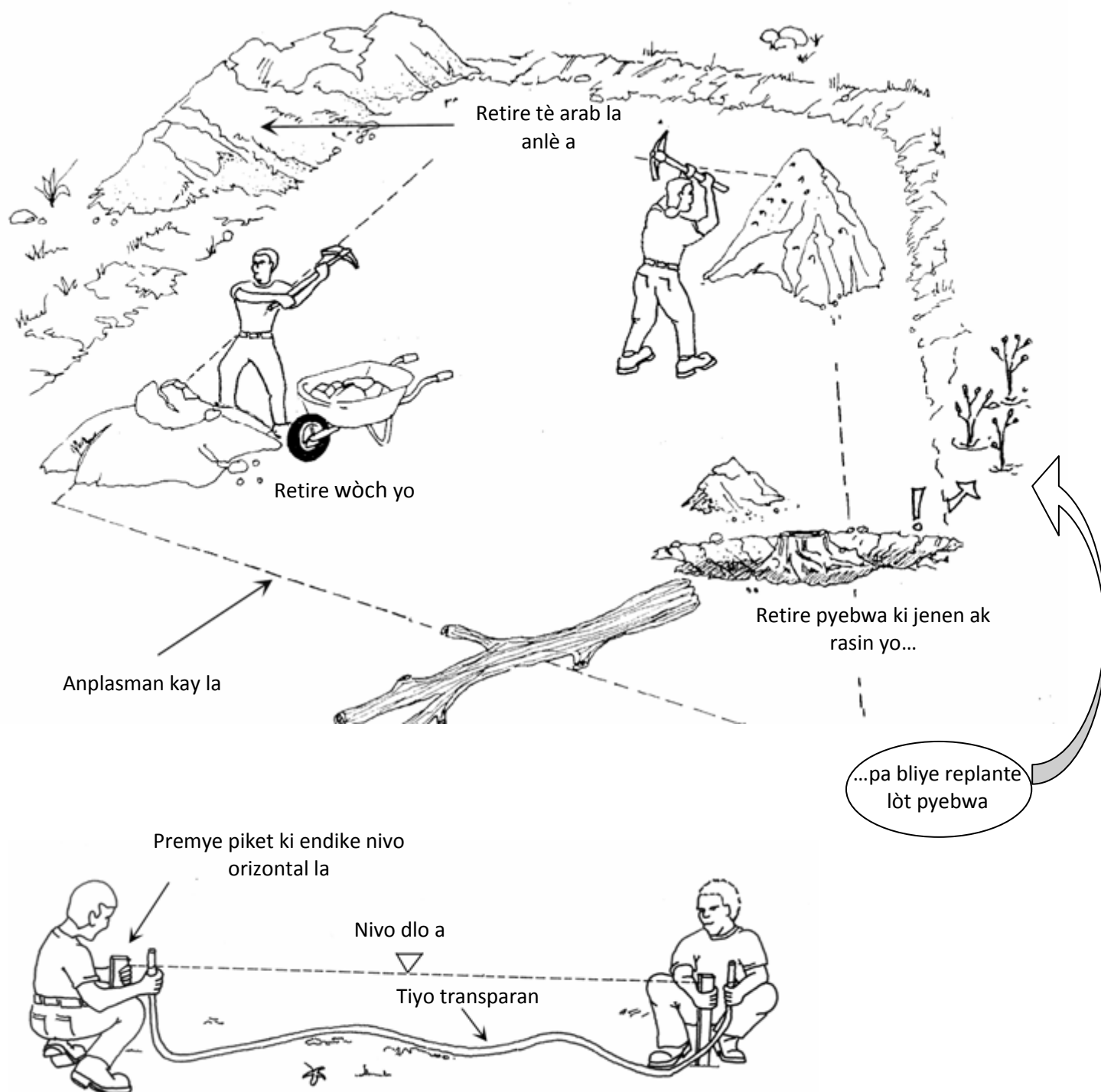
Tcheke dyagonal yo



Mete tout kwosbà yo menm nivo avek yon tiyo dlo transparan

Preparasyon teren an : Netwaye ak trase nivo yo

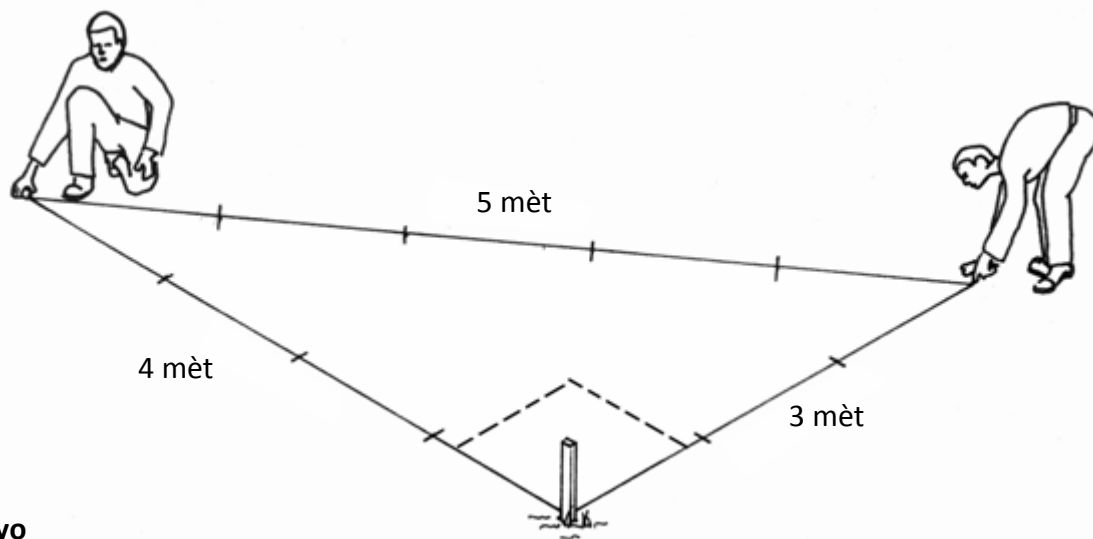
Anvan w kòmanse konstriksyon an, teren an yo dwe pwòp ak menm nivo, pou plase kay la byen ak pou stoke materyo yo.



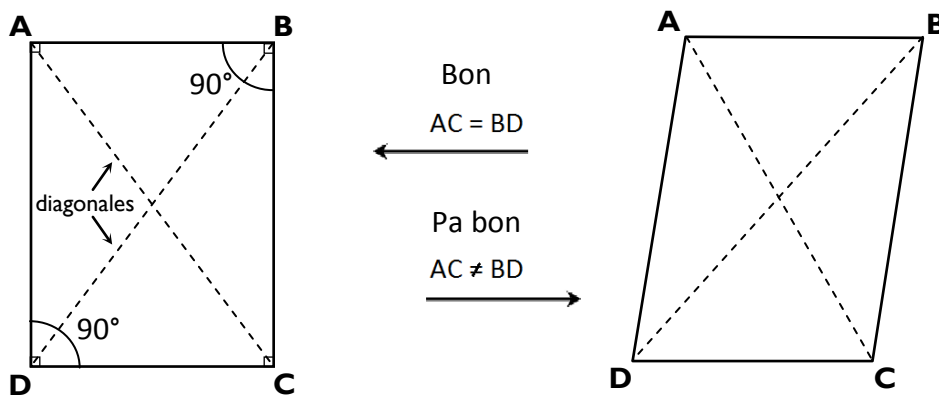
Sèvi ak yon tiyo transparan an, li trè fasil pou pote nivo orizontal la sou tout lot pwen nan teren an.

Trase a tè

Règ 3-4-5 – Mete kay la ekè

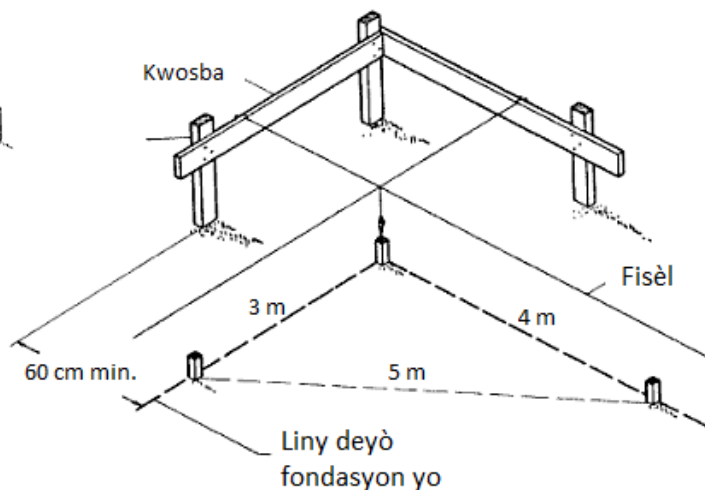
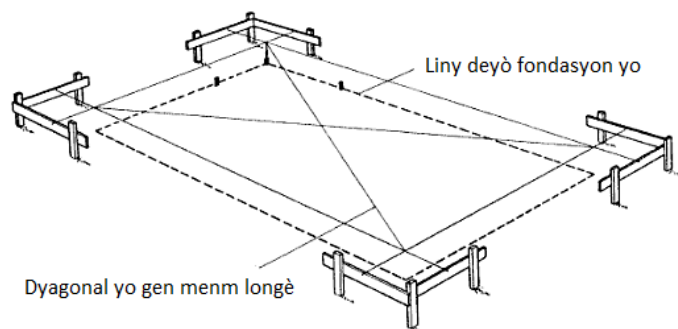


Tcheke diagonal yo



Ki jan poul yé : $AB = DC$ et $AD = BC$

Poz kwosbà yo



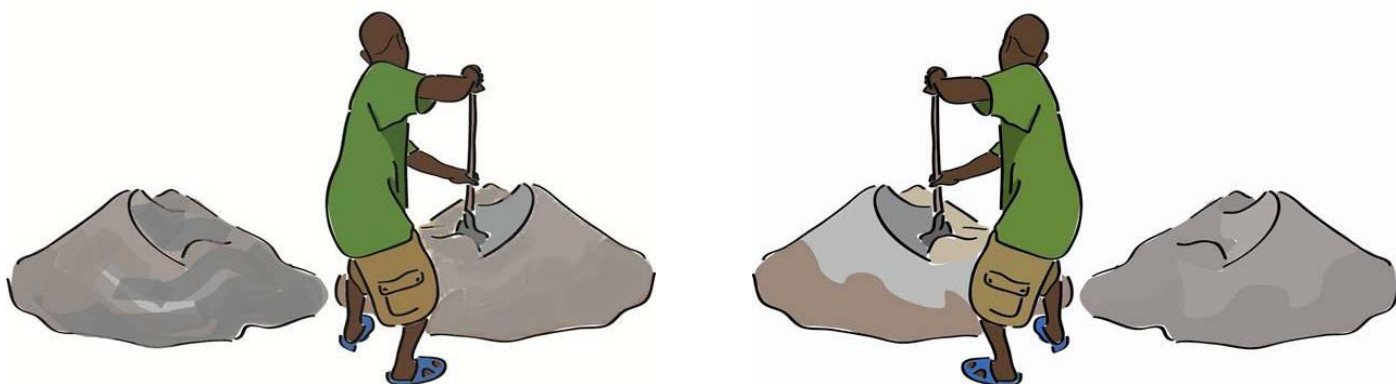
7.3 – Mòtye ak beton yo

Bon jan teknik pou brase beton ak mòtye

Fè yon pil ak gravye, sab ak siman (oubyen lacho). Pa ajoute dlo.



Brase epi deplase pil la pèl pa pèl, **2 fwa**.



Lè tout gravye, sab ak siman byen melanje, nou ka ajoute dlo.



Epi, rebrase tout pil la ankò ansanm, **2 fwa**.

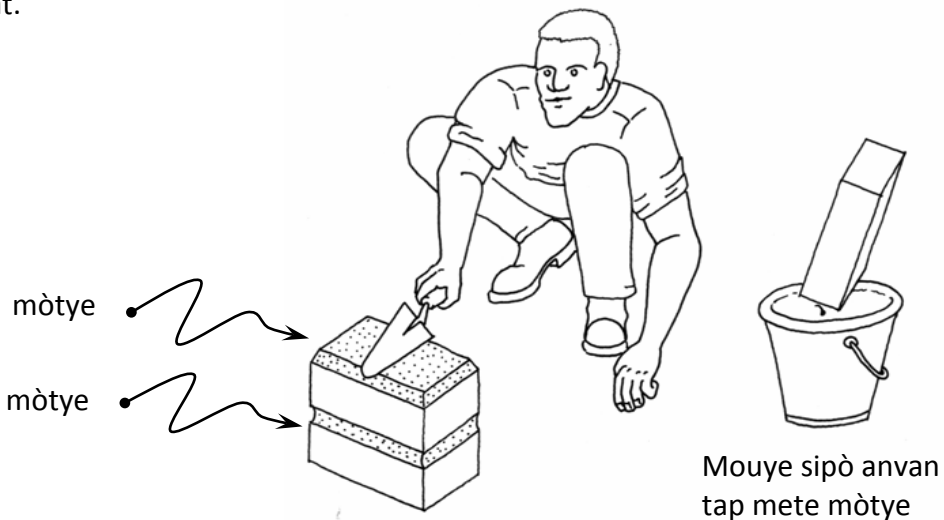
Tès mòtye tè

Objektif : Pou detèmine melanj la ki pi bon avek latè, sab ak / oswa fib (egzanp : pit).

- Prepare mòtye ki gen melanj diferan : pwopòsyon diferan nan sab epi avek fib ou pa. Mete mòtye sou 1 oswa 2 brik, oswa 2 wòch ki plat.
- Tann pou mòtye byen cheche.

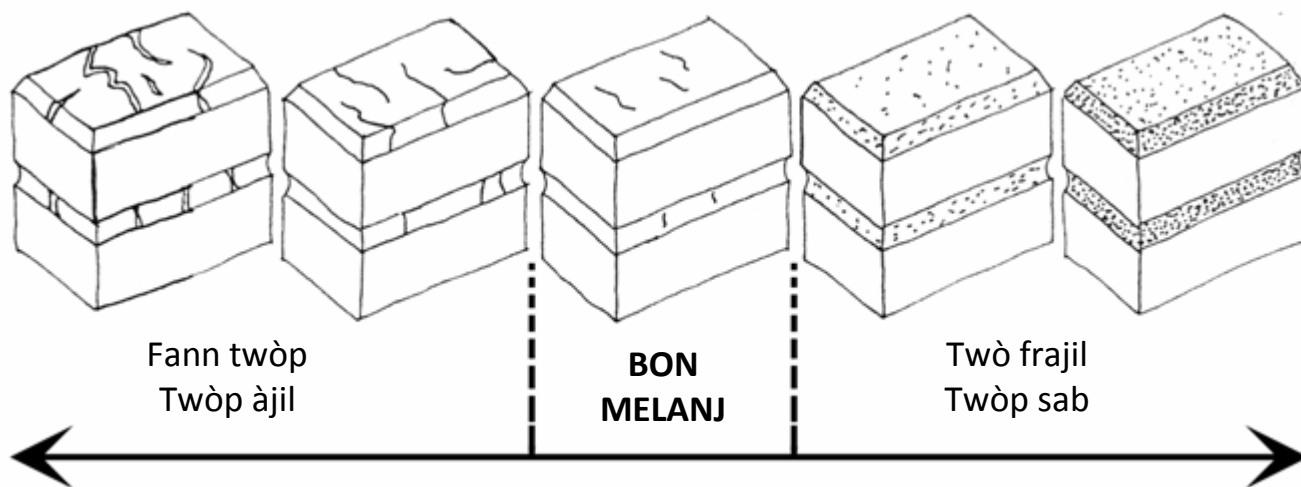
Egzanp melanj :

- Latè a sèlman.
- 4 Tè / 1 Sab
- 4 Tè / 1 Sab + fib
- 2 Tè / 1 Sab
- 2 Tè / 1 Sab + fib
- 1 Tè / 1 Sab
- Etc.



Rezilta yo :

Chwazi mòtye ki di e ki gen ti kras fant. Se mòtye sa a kap kole pi byen.



Tès melanj sou wòch ki plat yo

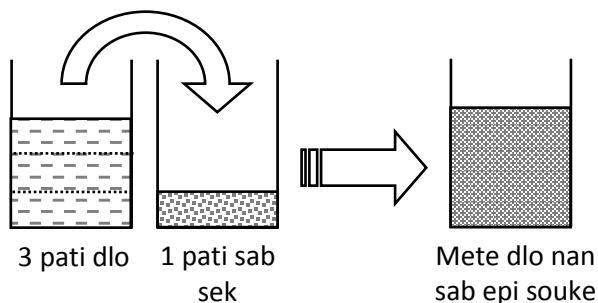


Preparasyon mòtye avek pit



Tès melanj mòtye lacho

Pwopòsyon pàtikil finn nan sab la

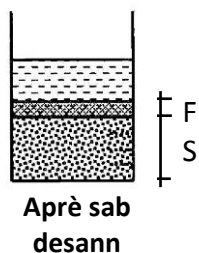


Yon sab ki « gra » li pi bon pase yon sab ki two pwòp :

- Mòtye gen plis souplès, pi fasil poul travay.
- Li amelyore rezistans kont dlo.
- Li posib pou finn yo kolore mòtye.
- Nou mwens bezwen mete lacho.

Atansyon :

Twòp pàtikil finn koze fant.

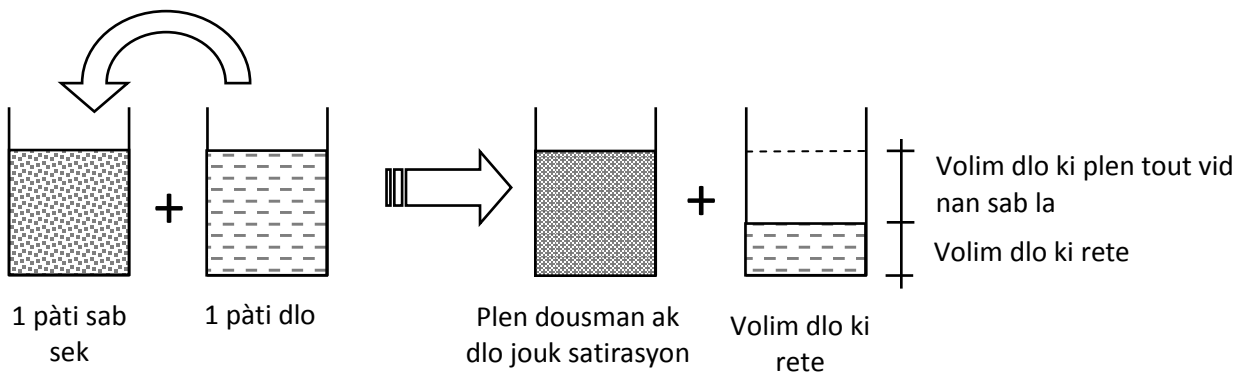


Tès kantite finn :

Rapò	$F/S = 1/4$	⇒	Bon
Rapò	$F/S = 1/3$	⇒	Twò « sal »
Rapò	$F/S = 1/5$	⇒	Twò « pwòp »

Pou konnen pwopòsyon lacho nou bezwen mete : mezire pwopòsyon vid ki gen nan sab la

Lacho ta dwe ranpli volim ki vid nan sab la. Pou mezire kantite vid ki nan sab la mete dlo nan yon volim sab jouk li pa gen plas ankò pou dlo a epi kalkile ki kantite dlo ki plen twou vid ki genyen yo nan sab la :



➤ Pwopòsyon vid nan sab la bay pwopòsyon lacho nou bezwen.

Tablo ki bay endikasyon pou kek melanj posib (men tèss yo obligatwa menm !)

	Lacho	Simant (pou mòtye batà)	Sab
Mòtye pou masonri wòch	1 vol.	(1/3 vol.)	3 à 7 vol. depann kalite sab la
Rejwentwaman wòch	3 vol.	(1/3 vol.)	3 à 4 vol.
Mòtye pour krepri	1 vol.	(1/3 vol.)	2 à 4 vol.
Mòtye pou andwi	1 vol.	/	4 à 7 vol.

M7 – 7.3	Mòtye ak beton yo	Fiche info 3
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Mòtye ak beton siman yo : Melanj

MOTYE SIMAN YO

Pase sab nan crib, si nou bezwen pou itilizasyon nap fè. Sab dwe byen pwòp.

	Siman 	Sab 	Ekivalans apeprè an kilo siman pou chak m ³ sab
Mòtye latè stabilize	1 vol.	8 vol. (<i>tè oubyen melanj tè-sab</i>)	150 kg/m ³
Mòtye pou masonri wòch (Atansyon : pas itilize pou ranpli mi ranplisaj an wòch yo)	1 vol.	6 vol.	250 kg/m ³
Mòtye pou monte blok siman yo	1 vol.	5 vol.	300 kg/m ³
Mòtye pou krepisaj blok siman yo	1 vol.	4 vol.	350 kg/m ³
Mòtye pou andwi blok siman yo	1 vol.	5 vol.	300 kg/m ³
Mòtye pou pàke beton an	1 vol.	4 vol.	350 kg/m ³

BETON SIMAN YO

Gravye diamèt 5/40 mm : se skelèt beton an, yo nan pwopòsyon 2/3 nan volim total la.

Sab diamèt 0/5 mm : yo plen vid ki nan gravye, yo nan pwopòsyon 1/3 nan volim total la. Yo dwe byen pwòp.

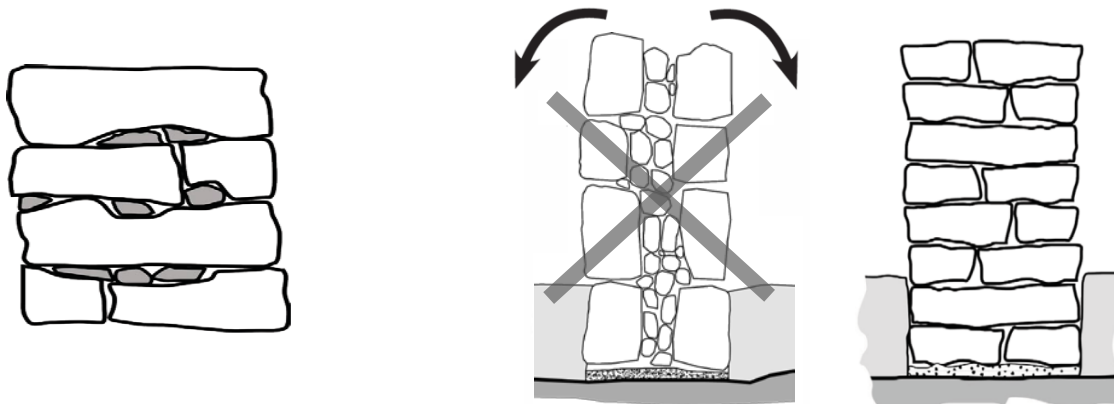
	Siman 	Sab 	Gravye 	Ekivalans apeprè an kg siman pou chak m ³ sab
Beton fonsaj	1 vol.	4 vol.	6 vol.	150 kg/m ³
Beton “siklopeen”	1 vol.	3 vol.	5 vol.	200 kg/m ³
Beton pou ranpli blok yo	1 vol.	4 vol.	6 vol.	150 kg/m ³
Beton kouran	1 vol.	2 vol.	3 vol.	300 kg/m ³

7.4 – Masonri ak wòch

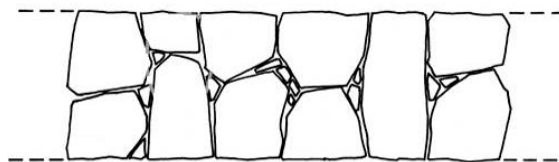
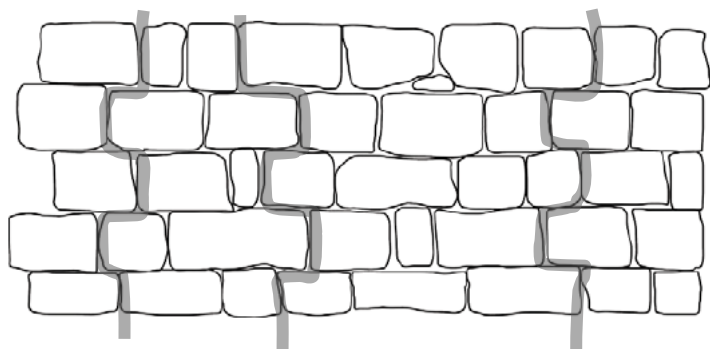
Rezime

Poze wòch yo byen CHITA

Evite mete anpil mòtye nan jwen yo, pito w mete ti piti wòch pou kale wòch yo.



Pa fè jwen file. Altène gwo wòch ak ti wòch epi kwaze jwen yo.
Mete « kle » tout kote nan mi a : se gwo wòch ki fè lajè mi a e ki pèmèt mare mi a.



Kwaze gwo wòch yo ki nan kwen yon ranje sou lòt.
Menm bagay la tou aplike nan mi yo ki nan separasyon.



7.5 - Fondasyon



Misereor – Concert-Action

Prensip fondasyon

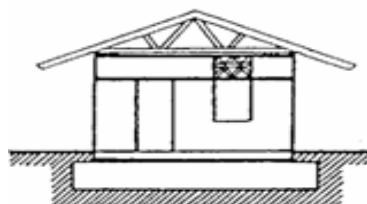
Dimansyon pou kay senp ki gen yon nivo

Fondasyon an dwe distribiye pwa kay la nan tè a.

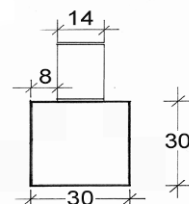
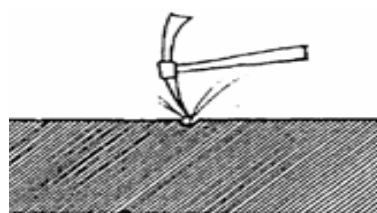
Dimansyon li depann de kalite tè ki sipòte li a.

Tablo sa a se sèlman pou bay **endikasyon** nan dimansyon fondasyon yo

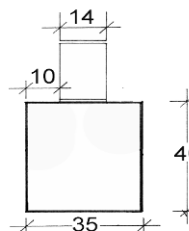
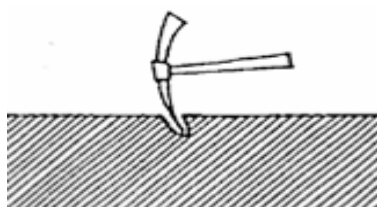
Kay avek 1 nivo sèlman



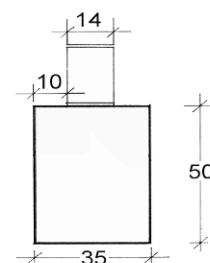
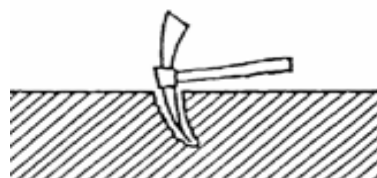
TÈ A DI



TÈ A PA TWÒ DI



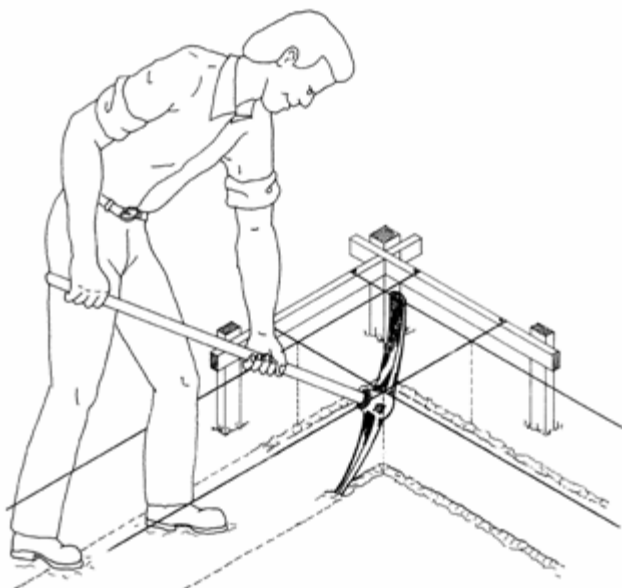
TÈ A MOU



Atansyon !

Kay ki pa gen fondasyon ou ki gen pòv kalite fondasyon se yon kay ki enstab e ki ka tonbe fasil.

Fouy la

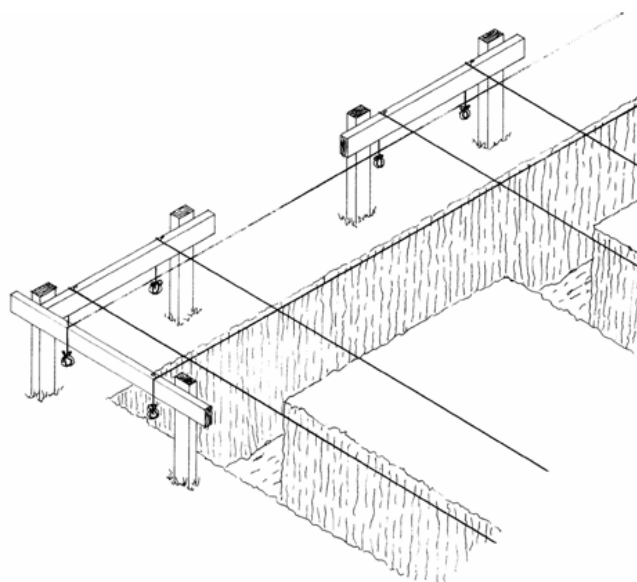


Twou fondasyon sèvi tankou kofraj

Atansyon !

Si twou fondasyon an fèt pi làj
fondasyon ap koute plis kob.

- **Make** limit fondasyon yo ak yon pikwa.
- **Fouye** byen vètikal e suiv fisèl la byen.
- **Retire** tè arab ki anlè deyò chantye a. Nou pap itilize li nan konstriksyon.
- **Stoke** tè a ki bon tou pre chantye a pou lè wap bezwen pou ranble a ak pou konstriksyon an



EMPÒTAN !

**Pa fouye fondasyon an si w pa si wap ranpli'l avan
lapli**

Si'l pa posib, alò mete nan fon fouy la yon **kouch beton**
pwòpte 5 cm avek yon melanj ki 150 kg / m³
(1 Siman / 4 Sab / 6 Gravye).

Fondasyon an masonri ak wòch

Komansman sol kay la

Mete sifas la a nivo ak fisèl la

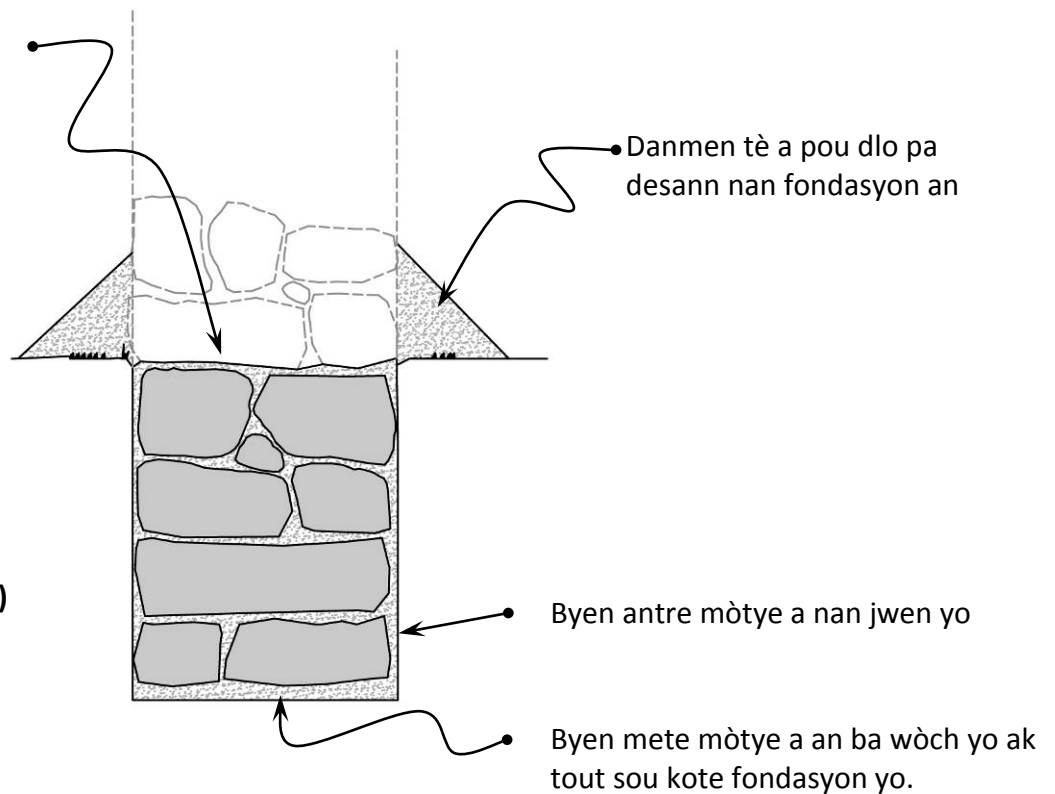
Ki mòtye nou ka itilize :

Mòtye tè (ak pit si posib)

Mòtye lacho

oubyen batà (lacho + siman)

Mòtye siman (250 kg/m³)



Byen antre mòtye a nan jwen yo

Byen mete mòtye a an ba wòch yo ak tout sou kote fondasyon yo.

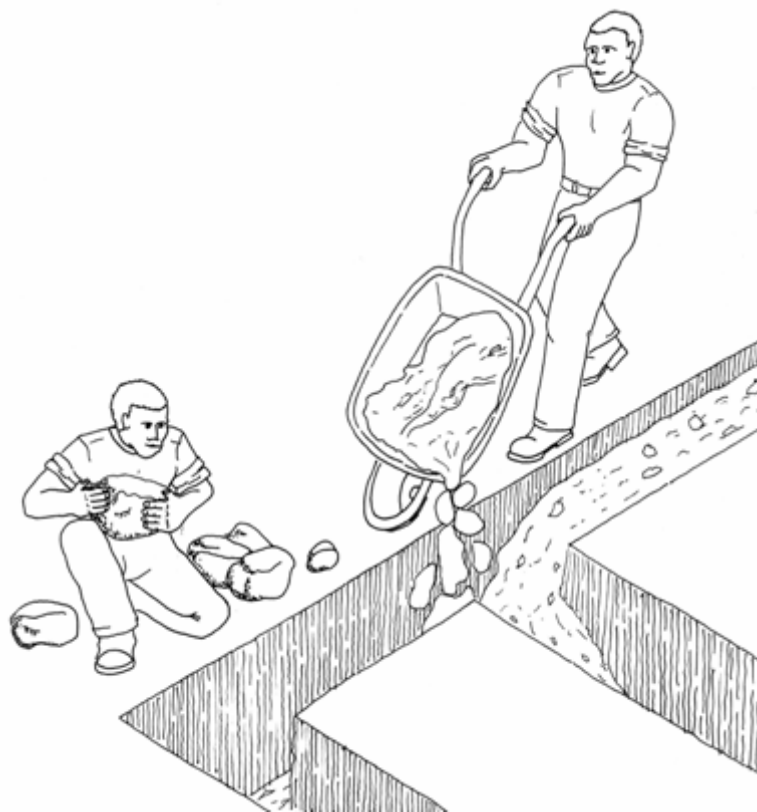
Fason nou fè masonri dwe respekte bon jan reg yo pou mont mi wòch

An pàtikilye :

- Mete wòch yo byen chita
- Pa fè jwen file epi mete « kle » tout kote pour mare mi a
- Evite jwen ki epe, li pa dwe depase 3 cm

Fondasyon beton siklopeen

Lè wòch yo twò piti pou fè yon masonri wòch, ou ka mete yo nan yon beton leje. Yo rele sa **beton siklopeen**.



Twou fouy la sèvi tankou kofraj

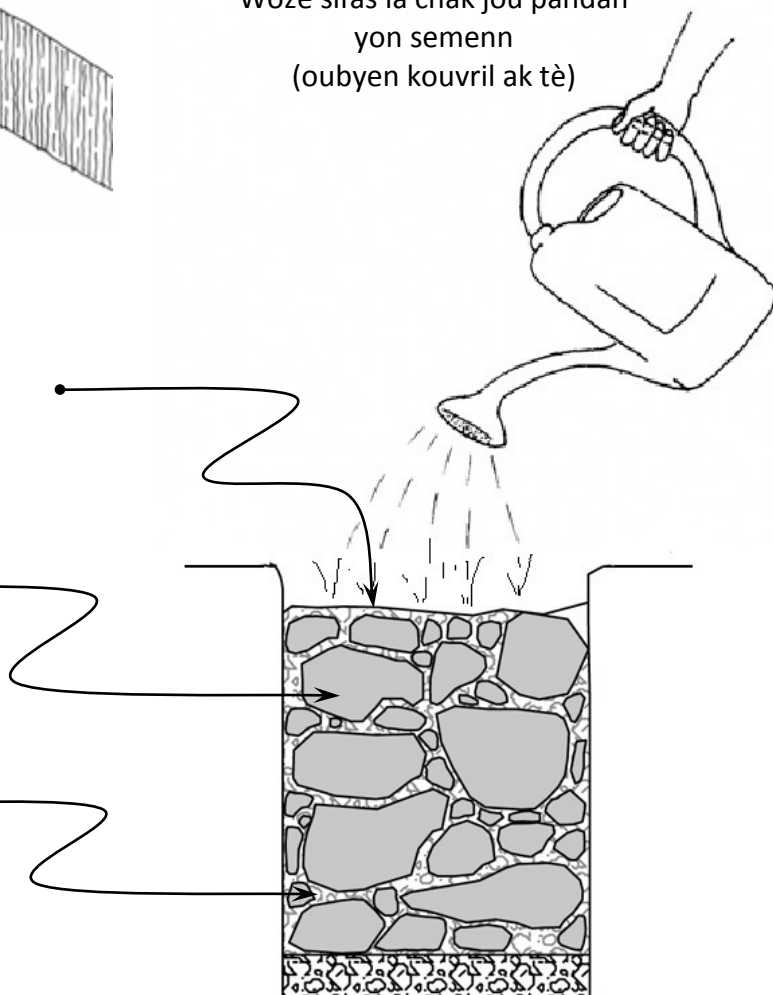
Woze sifas la chak jou pandan
yon semenn
(oubyen kouvri ak tè)

Fè sifas la plat ak mezi
depi fisèl la

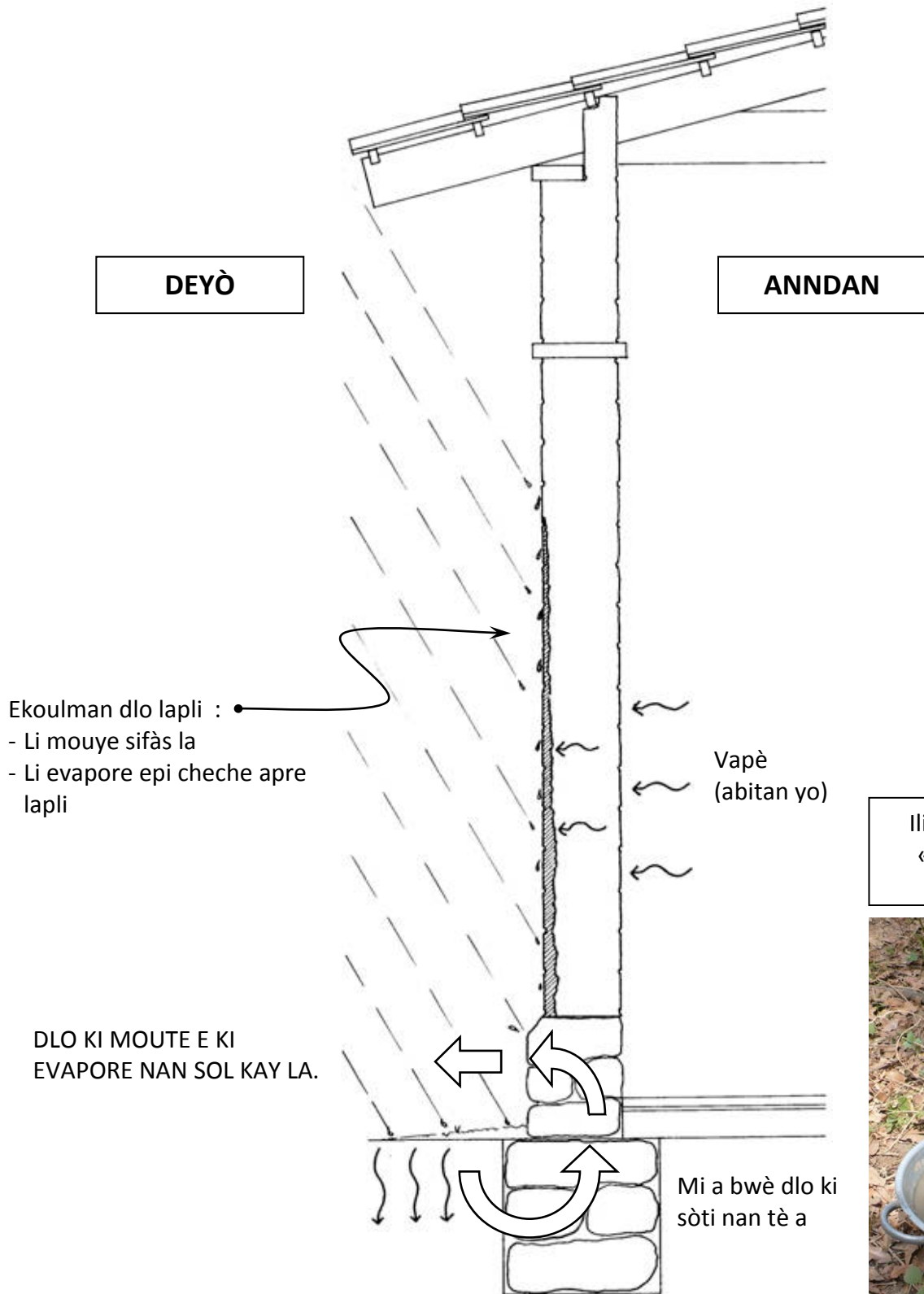
Mete wòch yo nan beton men evite
youn touche ak lòt

Melanj beton a 200 Kg / m³
1 vol. Siman / 3 vol. Sab / 5 vol. Gravye

Fè atansyon pou chak wòch kouvri ak
beton.



7.6 – Solay kay



Ilustrasyon prensip
« moute kapilè »

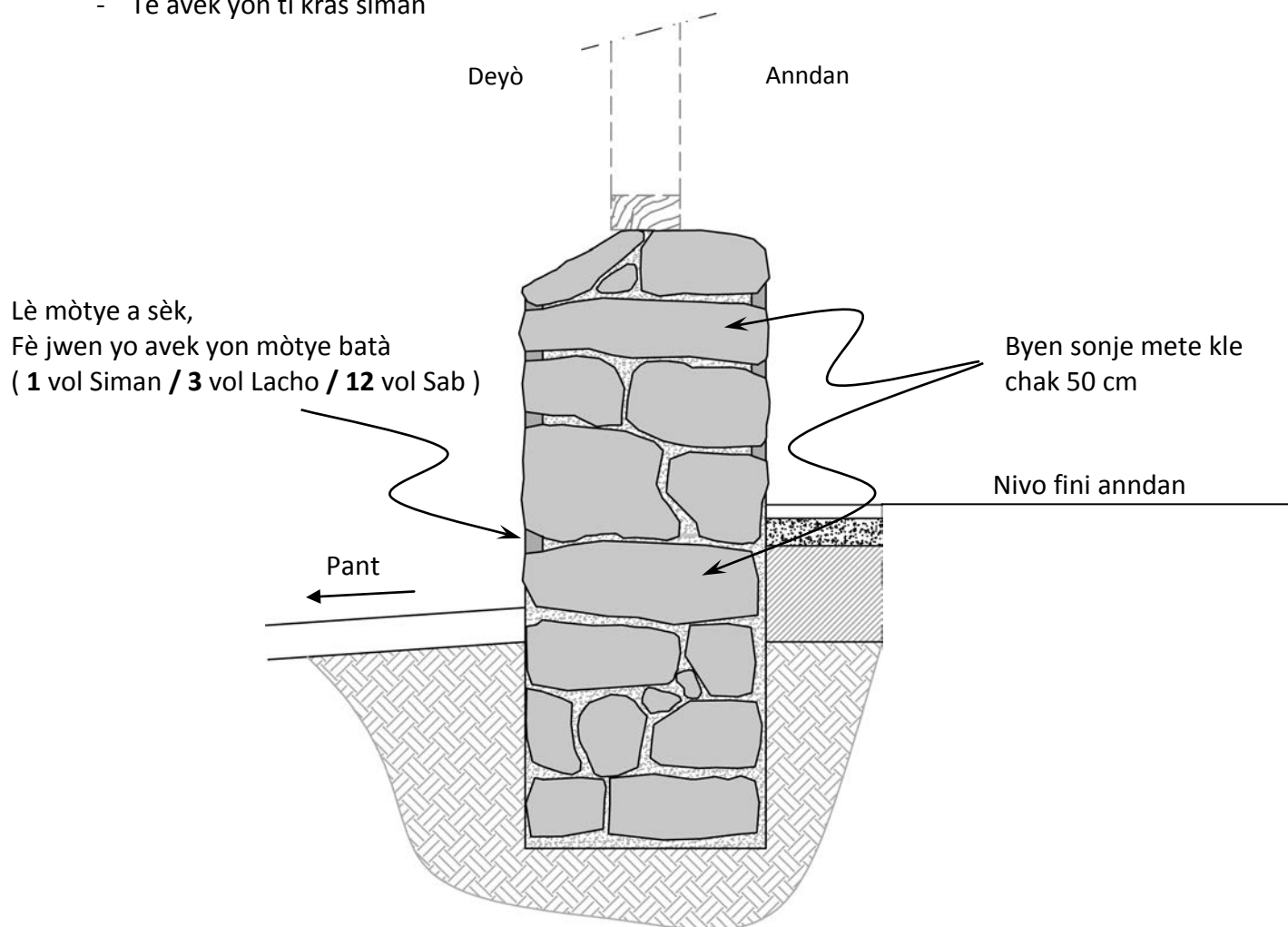


Sol ak wòch

Fason nou fè masonri dwe respekte bon jan reg yo pou monte mi wòch.

Li pi bon pou nou itilize mòtye ki soup, sa vle di kip a twò di (ak fib si posib) :

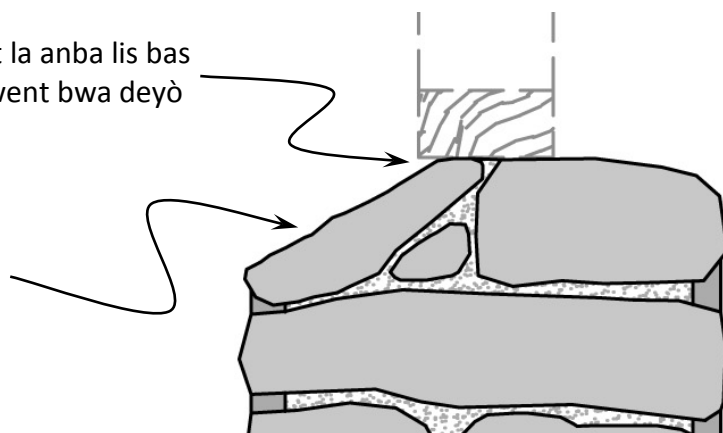
- Tè + Sab (+ pit si nou genyen)
- Tè + Sab + Lacho
- Tè avek yon ti kras siman



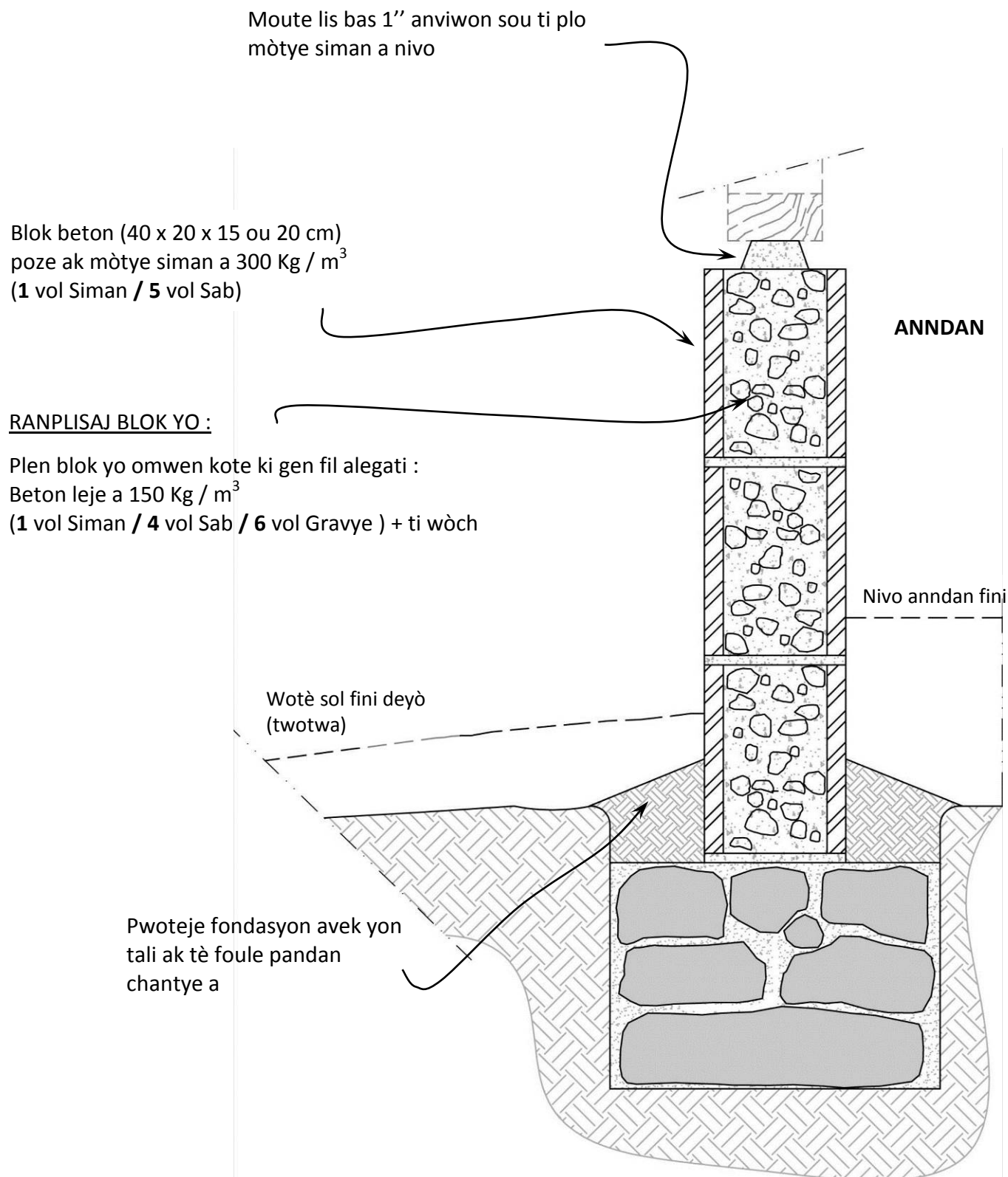
Detay pou tali a

Komanse pant la anba lis bas pou ka kite pwent bwa deyò

Chache wòch ki plat pou fè yon pant ki pèmèt dlo lapli koule deyò



Sol avek 3 blok siman - Aplikasyon



Sol avek 3 blok siman – Andwisaj ak tali

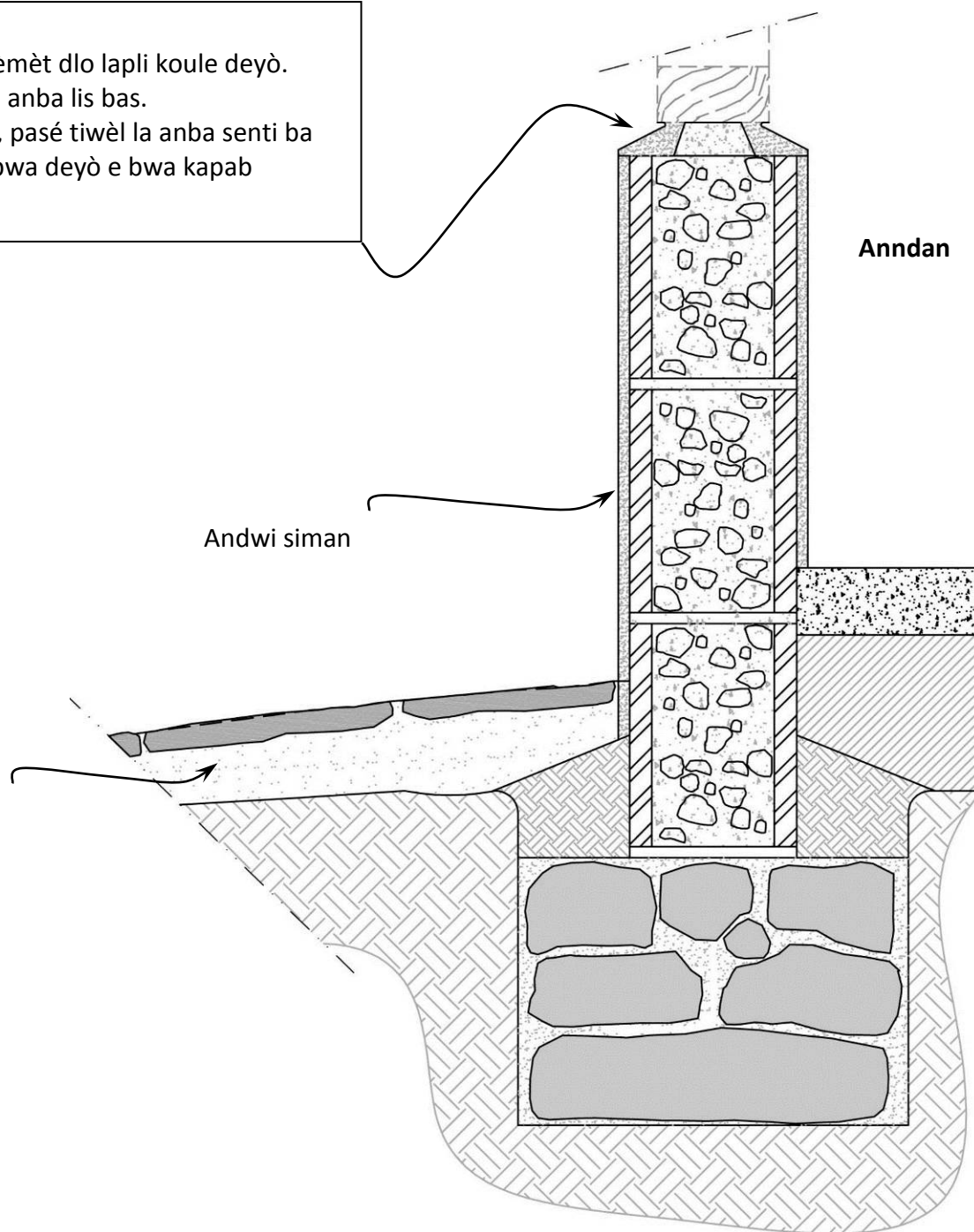
TALI :

Fè yon pant ki pèmèt dlo lapli koule deyò.
 Komanse pant la anba lis bas.
 Lè mòtye fèk fèt, pasé tiwèl la anba senti ba
 pou kite pwent bwa deyò e bwa kapab
 respire.

Tè foule

Andwi siman

Anndan

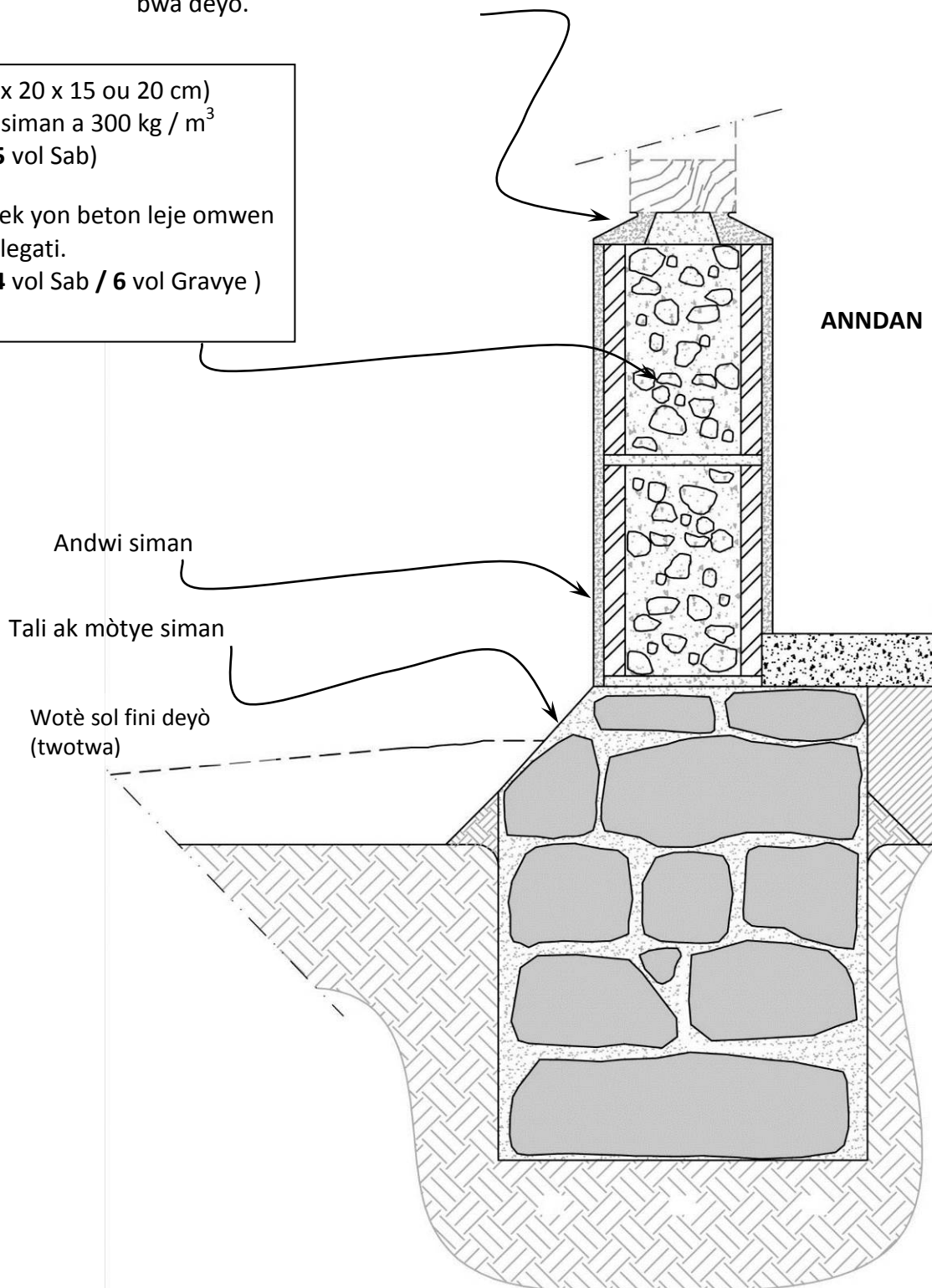


Sol avek 2 blok siman + 15 cm wòch

Fè yon pant ki pèmèt dlo lapli koule deyò.
Komanse pant la anba lis bas pou kite pwent
bwa deyò.

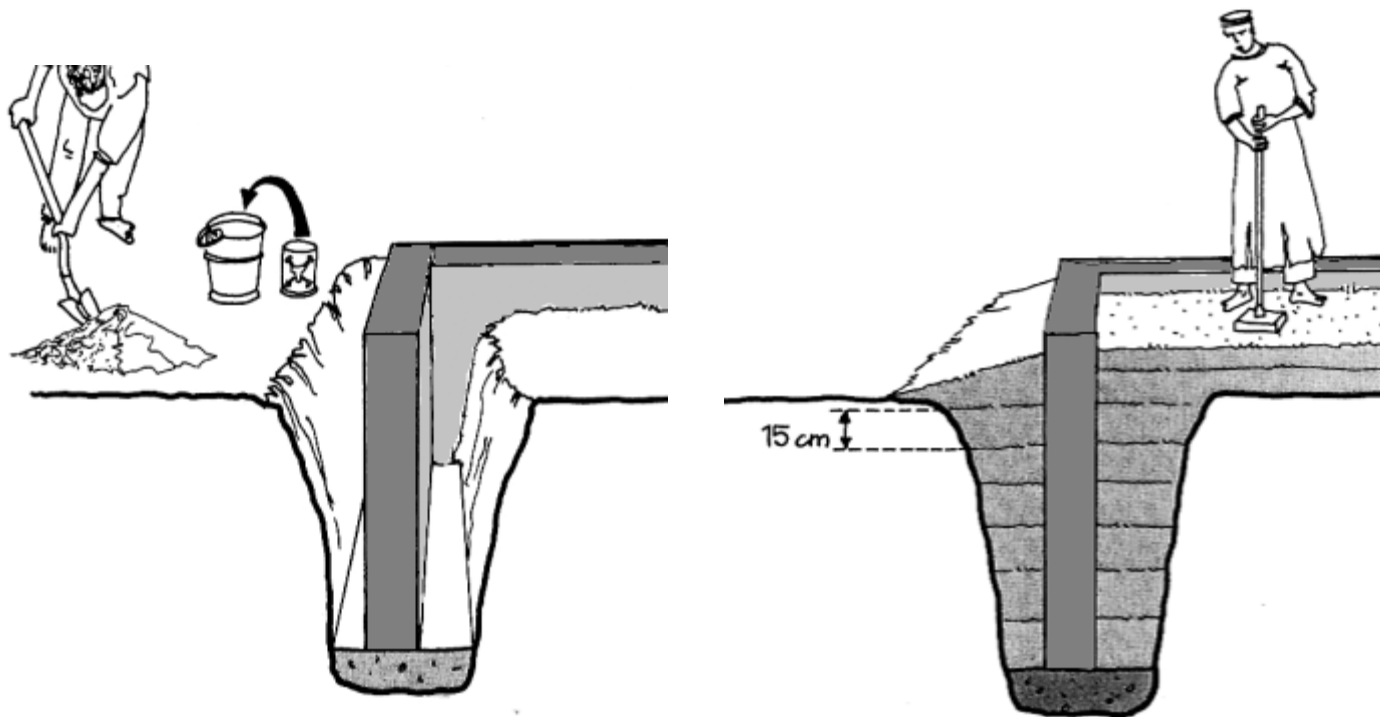
Blok beton (40 x 20 x 15 ou 20 cm)
poze ak mòtye siman a 300 kg / m³
(1 vol Siman / 5 vol Sab)

Plen blok yo avek yon beton leje omwen
kote ki gen fil alegati.
(1 vol Siman / 4 vol Sab / 6 vol Gravye)
+ ti wòch



Ranble

Ranble se yon etap esansyèl pou pwoteje fondasyon yo, baz mi yo ak anndan kay la kont dlo ki ka antre. Nivo ranble a dwe rive pi wo pase nivo sol teren deyò.

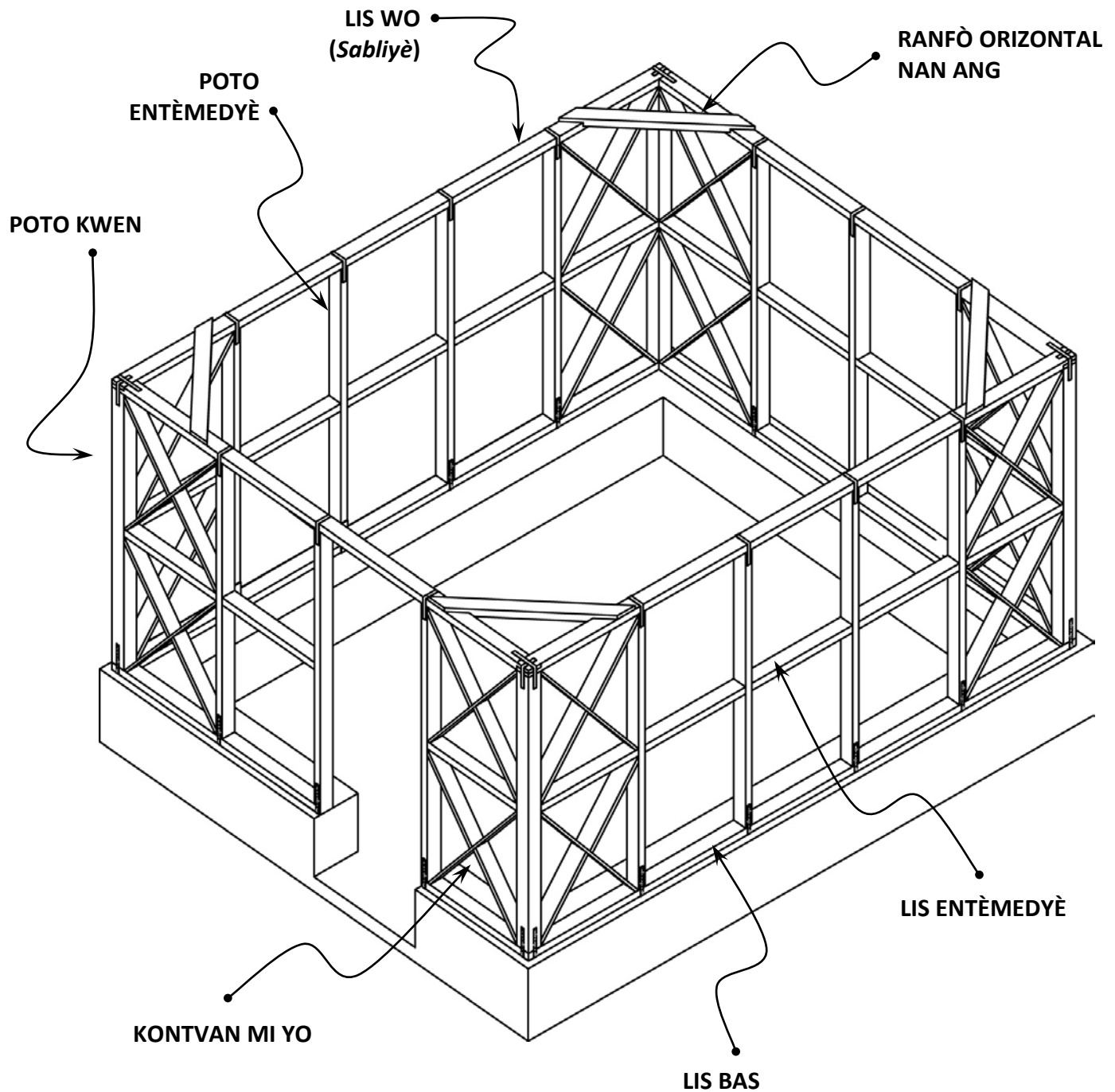


Ranble fèt ak wòch ak gravye pour pèmèt pakèt la byen respire. Nou rele se « lerison ».



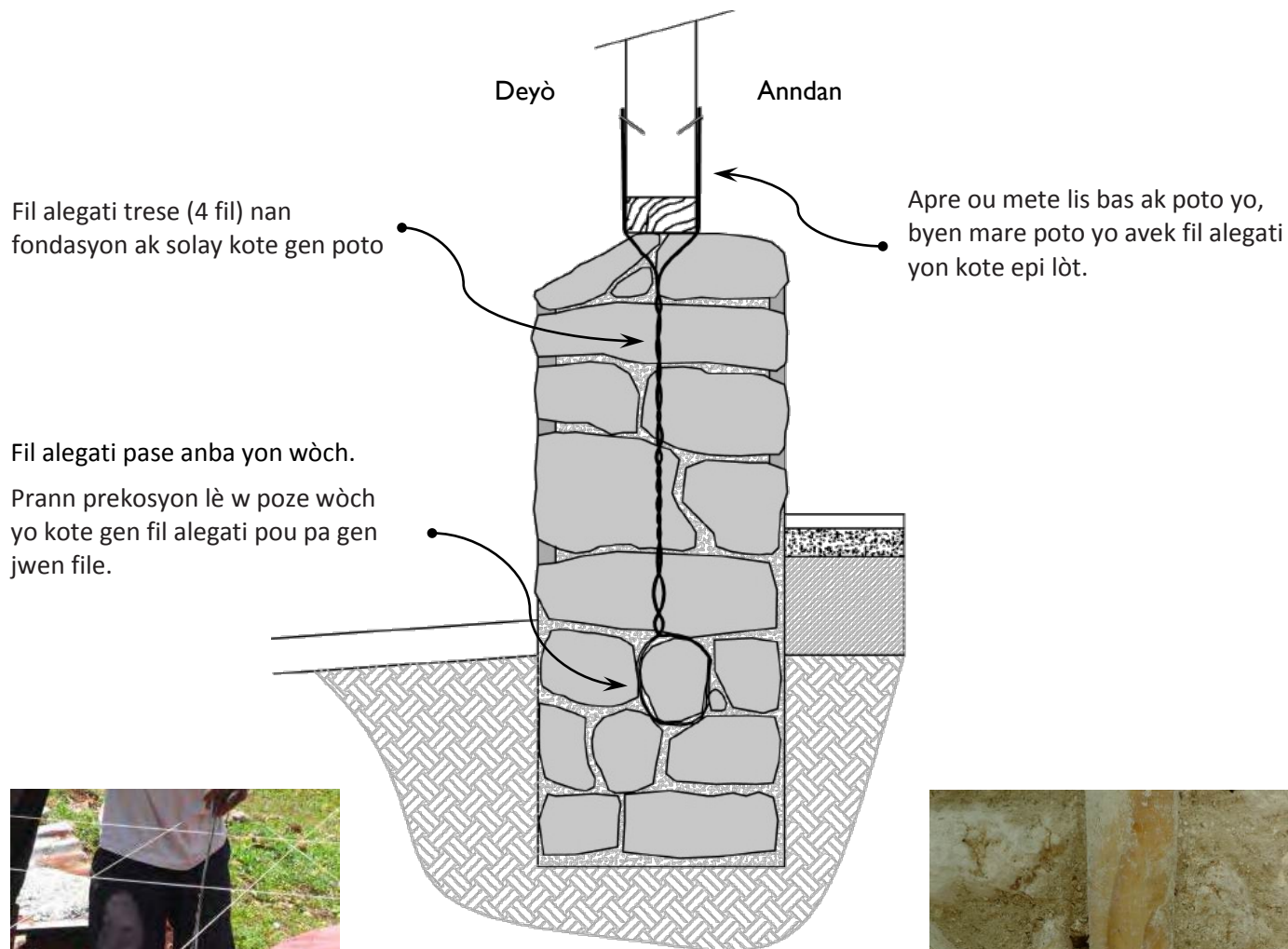
7.7 – Chàpant an bwa pou mi yo

Estrikti jeneral



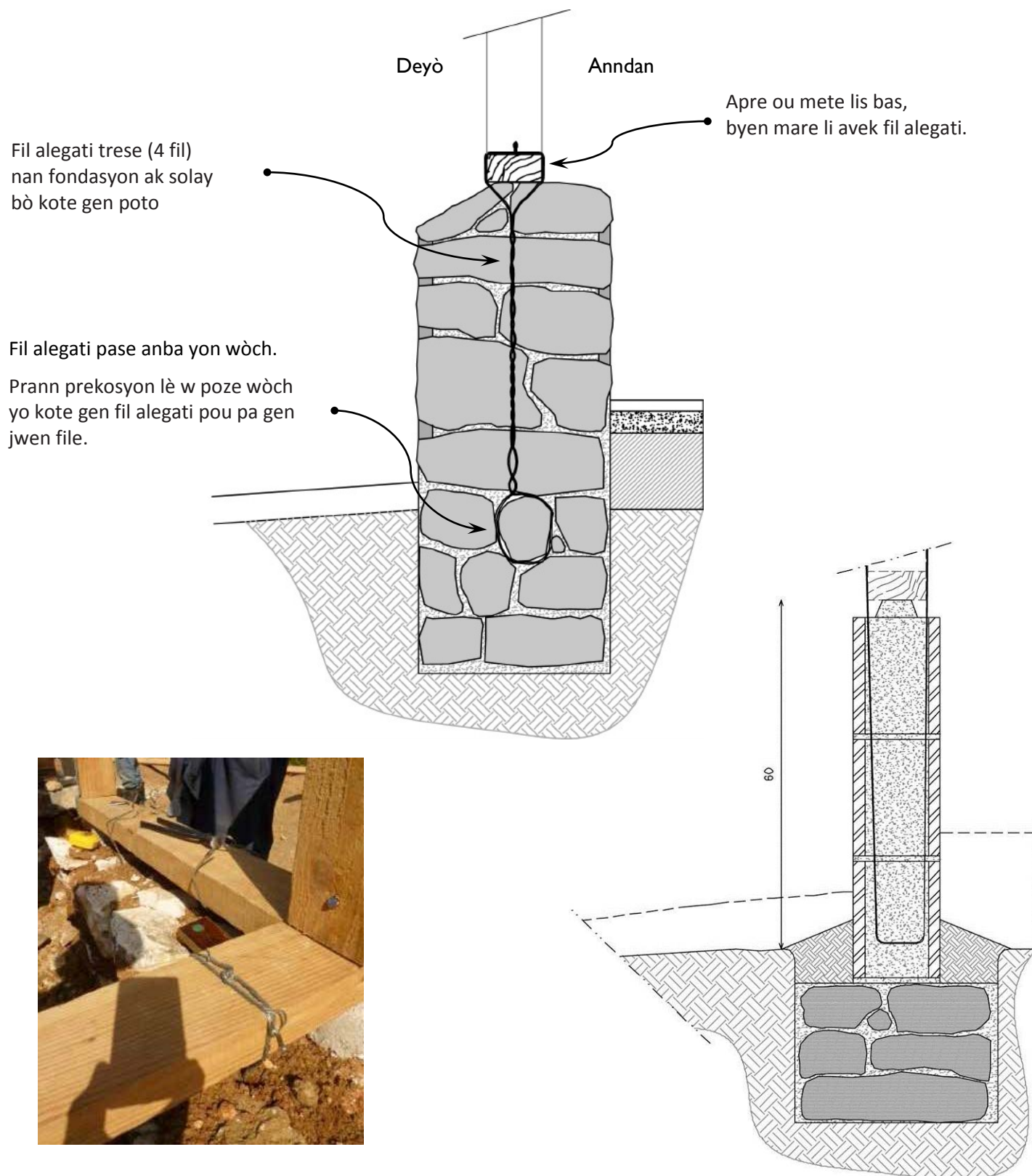
Maraj estrikti an bwa : Fil alegati mare sou poto yo

Mete fil alegati byen mare nan fondasyon nan anplasman chak poto



Maraj estrikti an bwa : Fil alegati mare sou lis bas

Mete fil alegati byen mare nan fondasyon bò anplasman chak poto



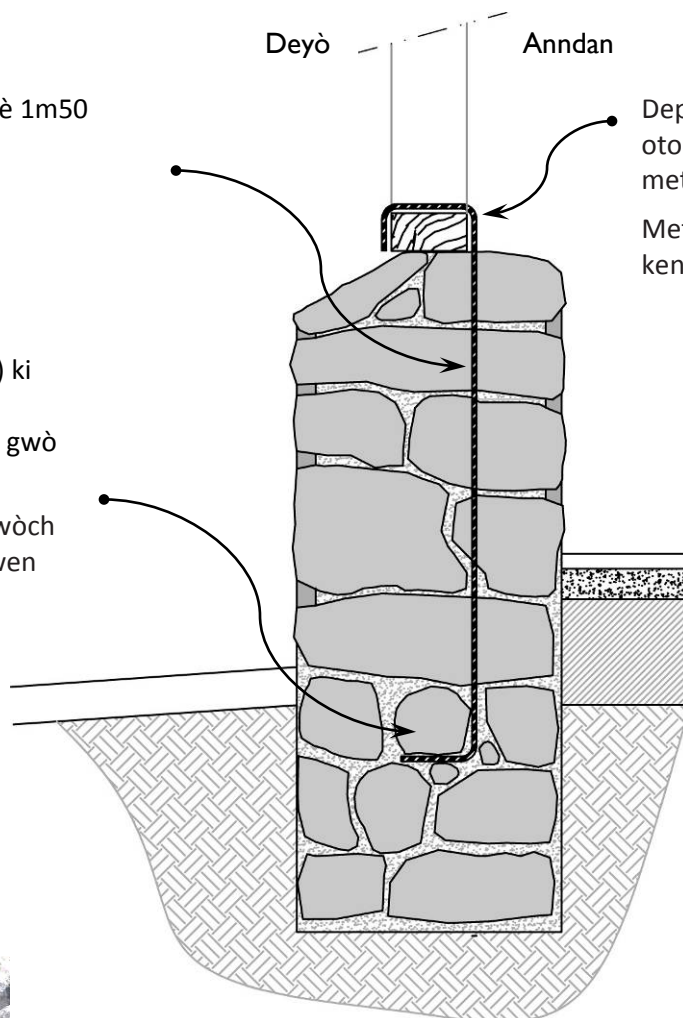
Maraj estrikti an bwa : Fè beton ki pliye sou lis bas

Mete pyes maraj nan ang yo (sòti 30 cm minimòm depi kwen) epi chak 2 oubyen 3 poto.
Evite mete maraj kote nou asanble lis bas ansanm.

Fè beton (1/4" ou plis), longè 1m50
anviwon.
Pwoteje fè a avek minyòm.

Fè a li gen omwen 30 cm (1') ki
pliye anba nan direksyon
fondasyon. Li pase anba yon gwò
wòch.

Prann prekosyon lè w poze wòch
yo kote gen fè pou pa gen jwen
file.



Depi lis bas plase, pliye fè a tout
otou de li (ou ka itilize yon tib
metalik).

Mete plizyè klou 4" ki pliye pou
kenbe fè a sou lis bas la.



Maraj estrikti an bwa – Fè beton an fòm U ki pliye sou lis bas

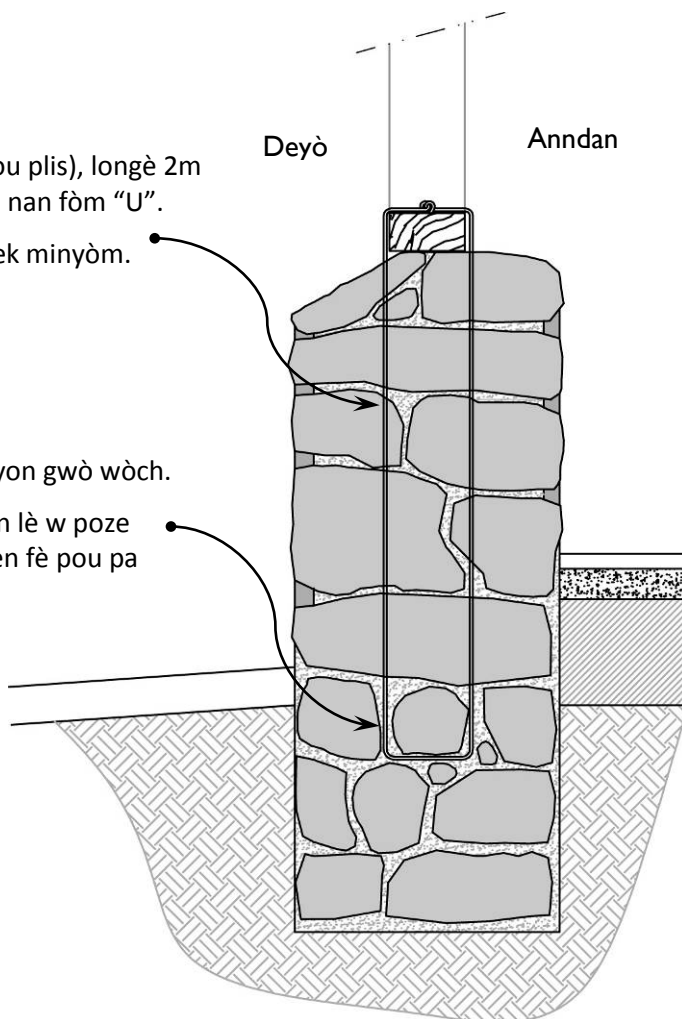
Mete pyès maraj nan ang yo (sòti 30 cm minimòm depi kwen) epi chak 2 oubyen 3 poto.
Evite mete maraj kote nou asanble lis bas ansanm.

Fè beton (1/4" ou plis), longè 2m
anviwon ki pliye nan fòm "U".

Pwoteje fè a avek minyòm.

Fè a pase anba yon gwò wòch.

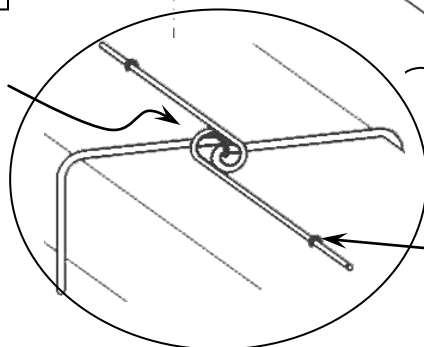
Prann prekosyon lè w poze
wòch yo kote gen fè pou pa
gen jwen file.



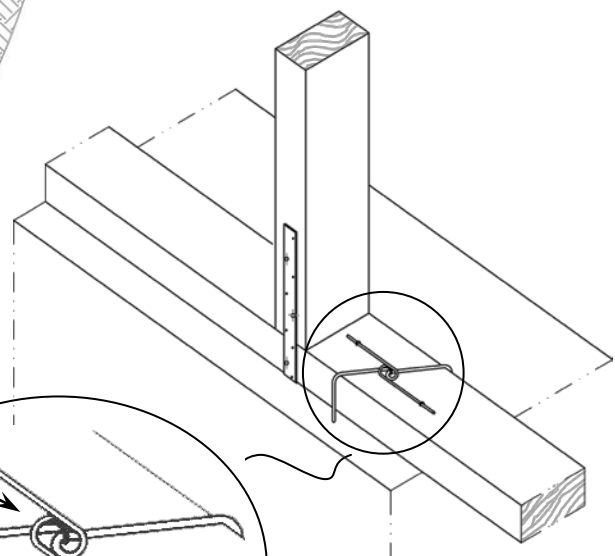
Depi lis bas plase, pliye 2 kote fè a otou de li (ou ka
itilize yon tib metalik).

Itilize klou 4" ki pliye pou kenbe fè a sou lis bas la.

Klou 4" nan mitan



Klou 4" pliye



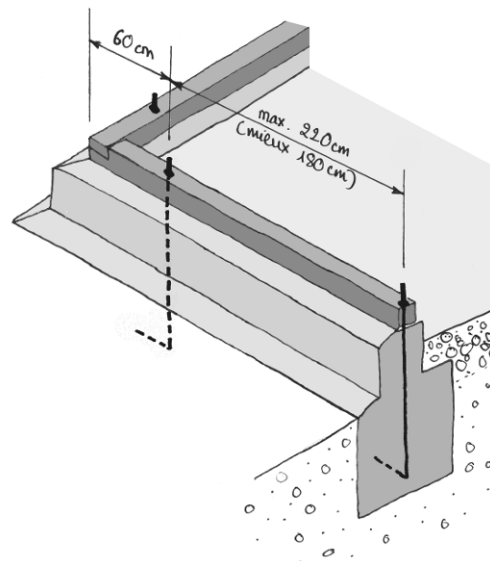
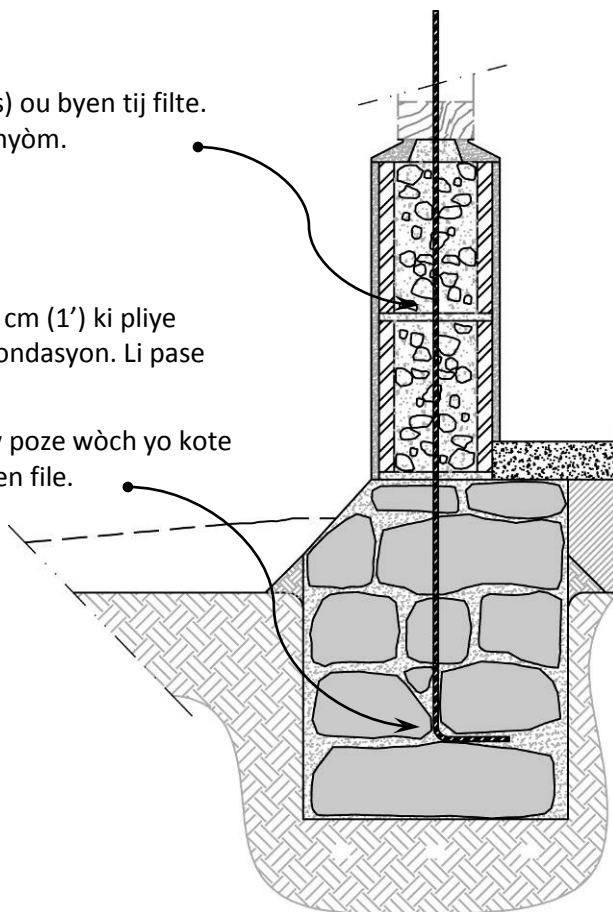
Maraj estrikti an bwa – Fè beton an L ki pase nan mitan lis bas

Mete pyes maraj nan ang yo (sòti 30 cm minimòm depi kwen) epi chak 2 oubyen 3 poto.
Evite mete maraj kote nou asanble lis bas ansanm.

Fè beton (1/4" ou plis) ou byen tij filte.
Pwoteje fè a avek minyòm.

Fè a li gen omwen 30 cm (1') ki pliye anba nan direksyon fondasyon. Li pase anba yon gwò wòch.

Prann prekosyon lè w poze wòch yo kote gen fè pou pa gen jwen file.

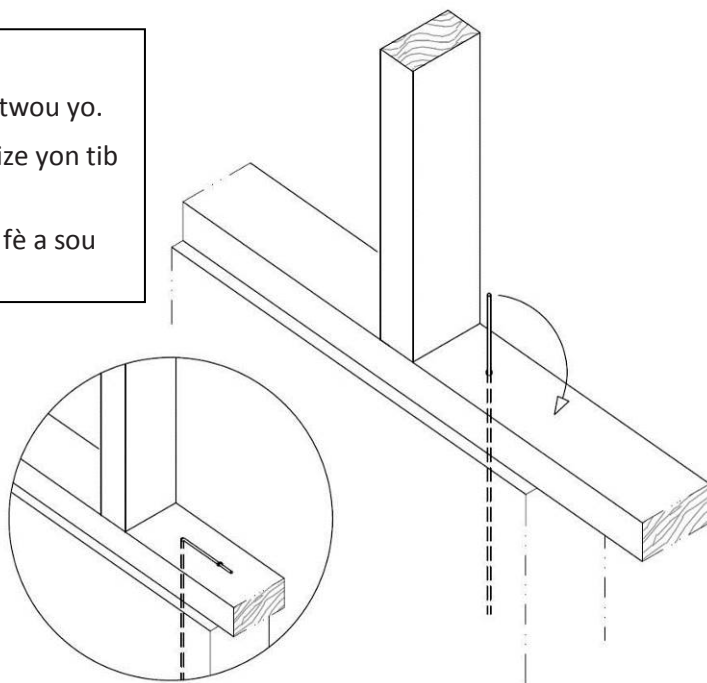


Pèse lis bas kote gen fè ki sòti.

Mete lis bas avek fè ki pase nan twou yo.

Pliye fè a sou lis bas la (ou ka itilize yon tib metalik)

Itilize klou 4" ki pliye pou kenbe fè a sou lis bas la.



Avek yon tij filte nou ka itilize ekrou ak wondèl pou fiksasyon an avek lis bas la.



Maraj estrikti an bwa – Yon lòt solisyon nan plas sol la : Plo beton

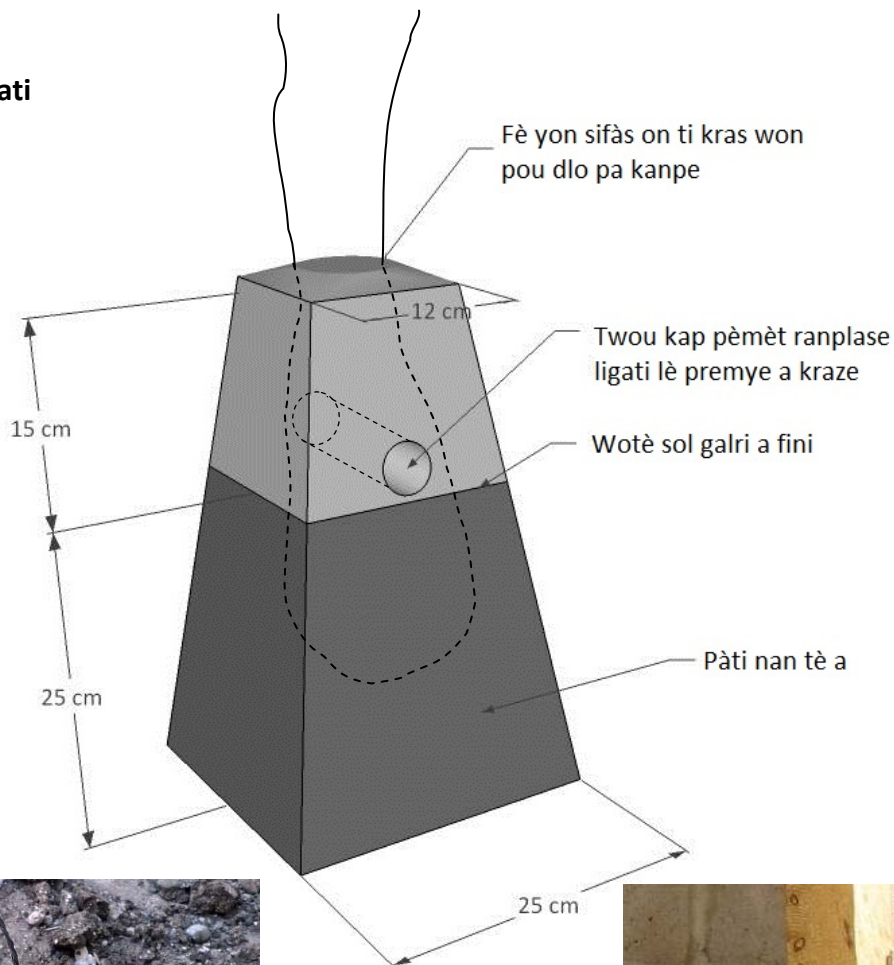
Plo beton prefabrike :

Maraj avek fil alegati ou byen strap (plak metalik)

Pou ki sa nou itilize solisyon sa a :

- Pou ranplase yon bouda poto ki pouri ou byen nan plas sol la
- Pou mete anba poto galri yo

Egzanp plo avek fil alegati



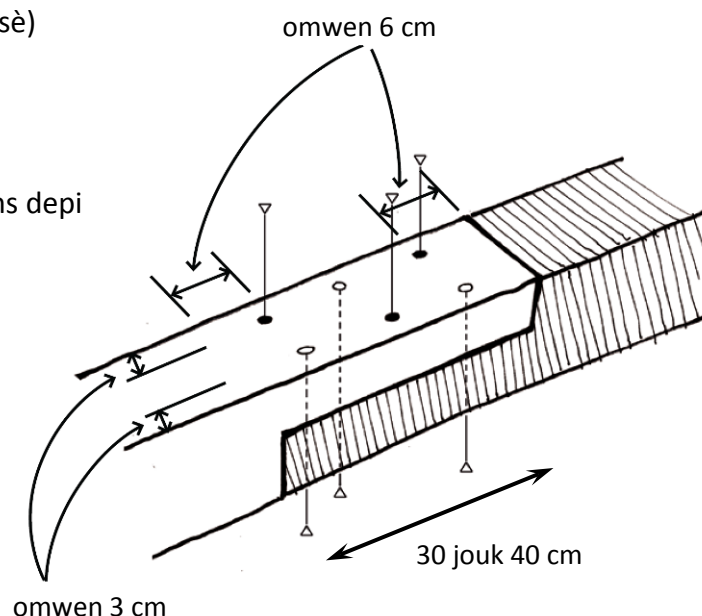
Maraj lis ansanm

KONEKSYON NAN MENM LONGÈ

Asanblaj ki pi fasil se **mibwa** (antay nan mwatye epechè) men, atansyon, pyès bwa yo vinn pi frajil.

Kijan pou'n fikse asanblaj la :

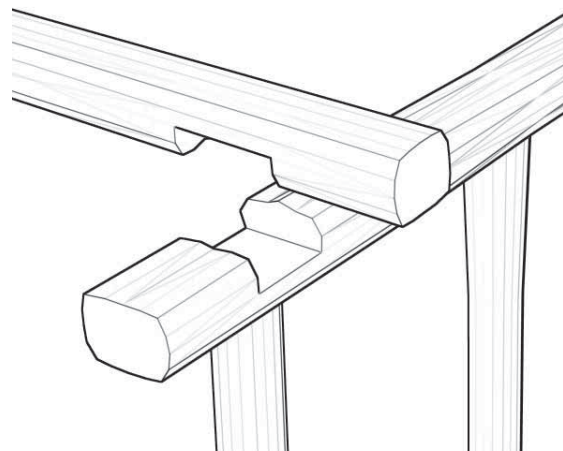
- **Avek klou** : mete 3 klou chak bò e kite yon distans depi limit yo ;
- **Avek cheviy** an bwa di.



KONEKSYON NAN KWEN YO

Se kwen yo ki pi frajil nan konstriksyon. Nou dwe prann prekosyon avec asanblaj mibwa ki se yon koneksyon frajil.

Kite yon longè dèyè asanblaj ki depase.

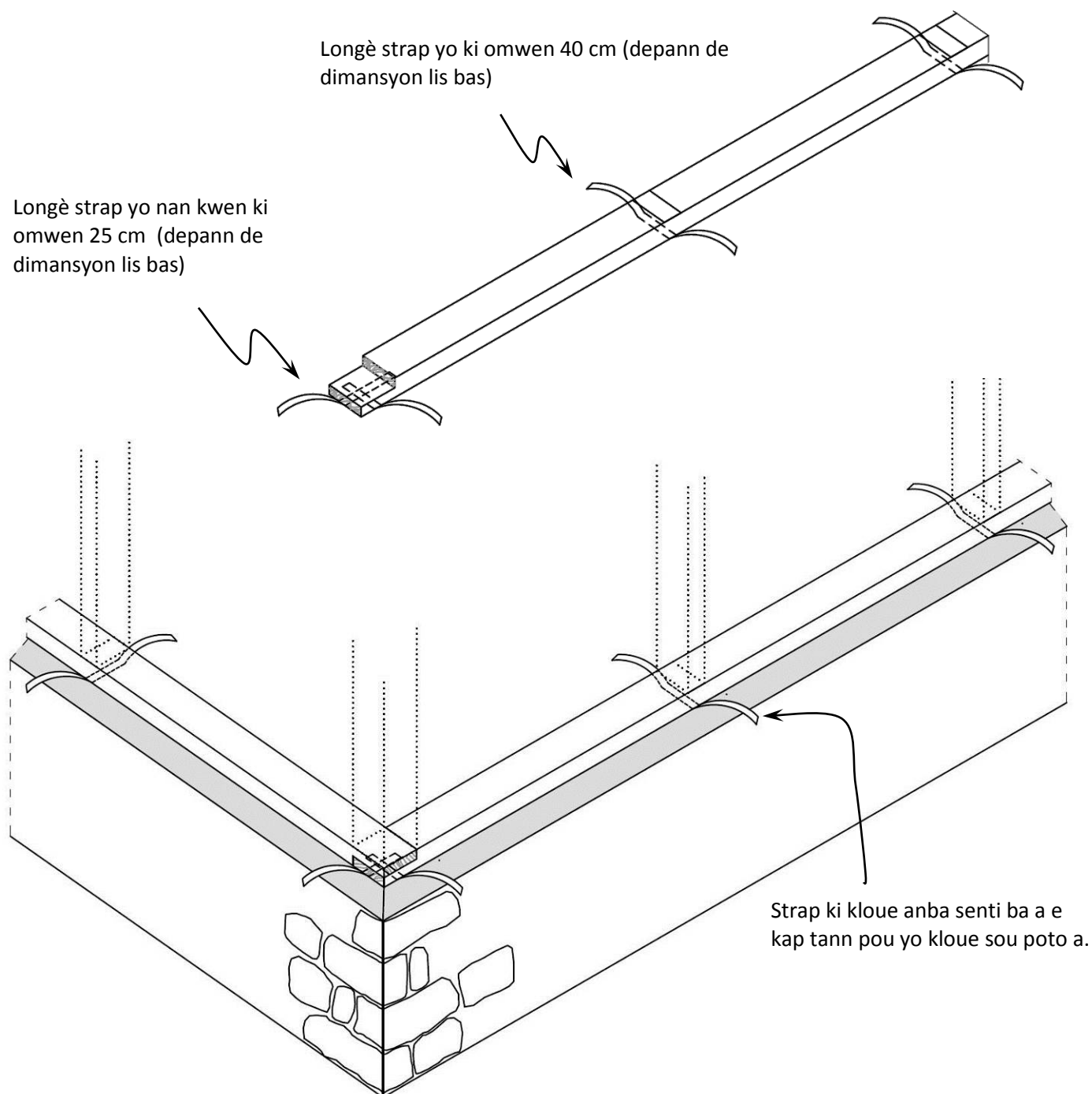


Nan peyi Ayiti a nou jwenn yon lòt jan asanblaj ki se tankou yon **"Tyè-bwa"**, sa vle di se antay ki pa rive jiske mwatye epechè pyès bwa.

- Li p'mèt fè yon asanblaj tenon mòtèz avec cheviy avec poto kwen.
- Epi li pèmèt mete lis wo ki pi kout ki se tankou yon travès, **menm nivo avec lòt travès yo** pou'l ka kenbe plafon an.

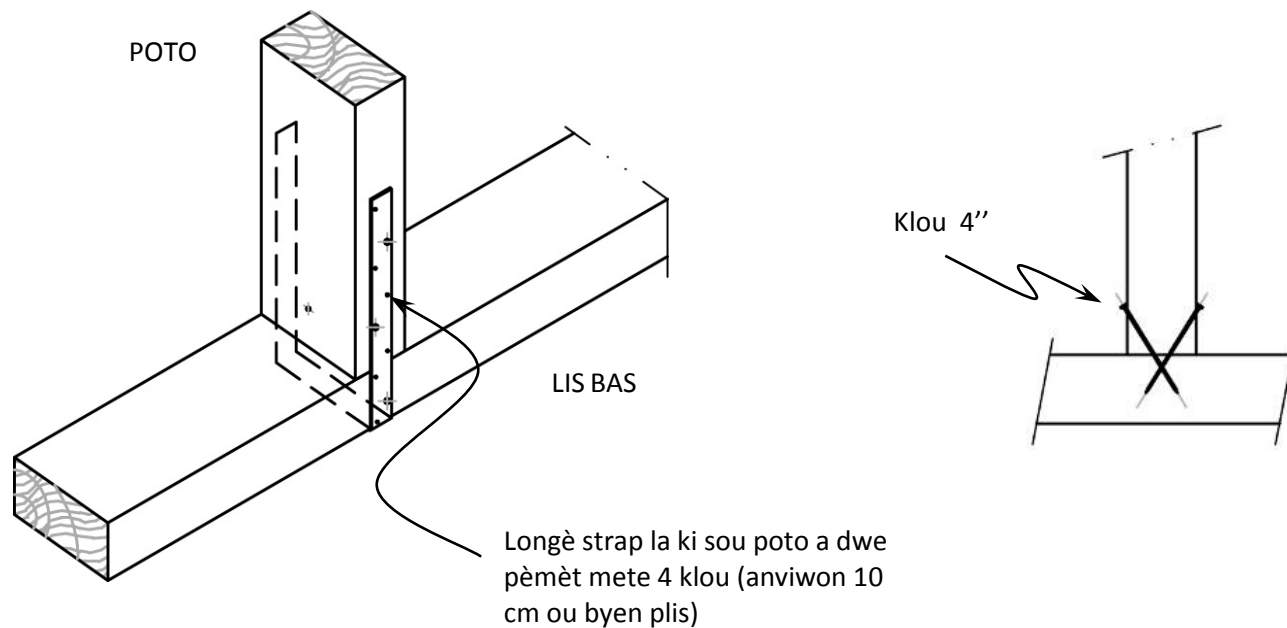
Koneksyon poto yo avek lis bas– Strap (plak metalik)

- Avan nou plase lis bas sou sol kay la, kloue stap anba lis bas kote nap mete poto yo
- Plase lis bas sou sol kay la

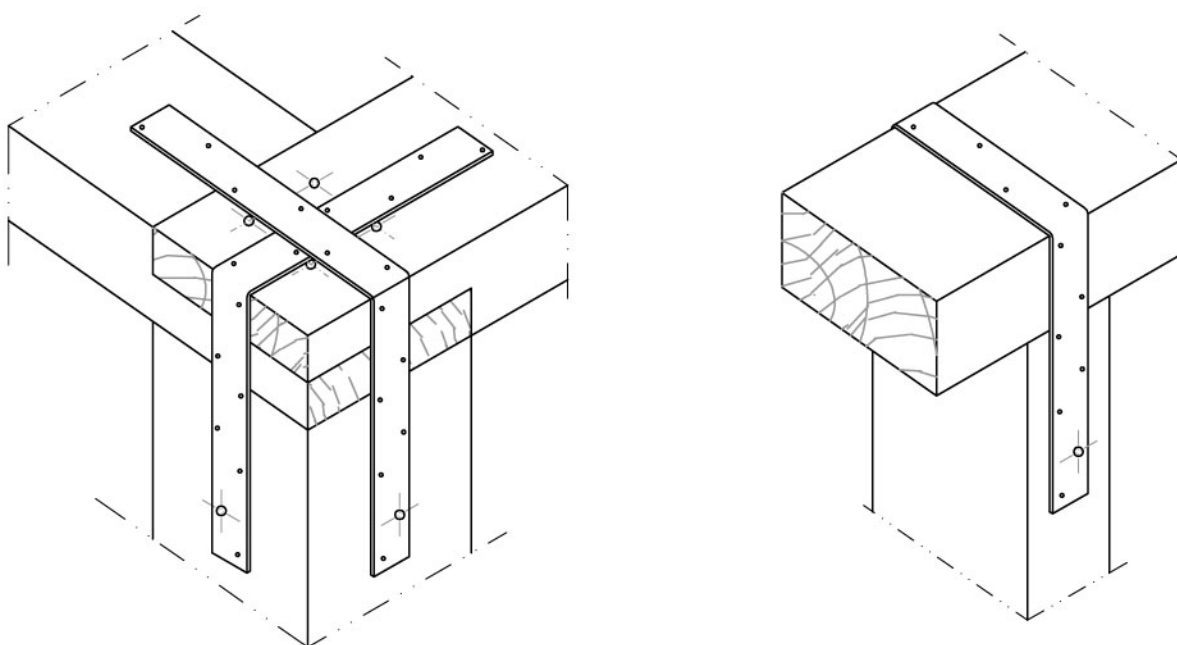


Koneksyon poto yo avek lis bas ak lis wo – Strap metalik

- Apre nou plase poto yo, kloue stap la chak bò poto a avek 4 klou anviwon.
- Fikse poto yo avek lis bas avek klou 4" ki panche.

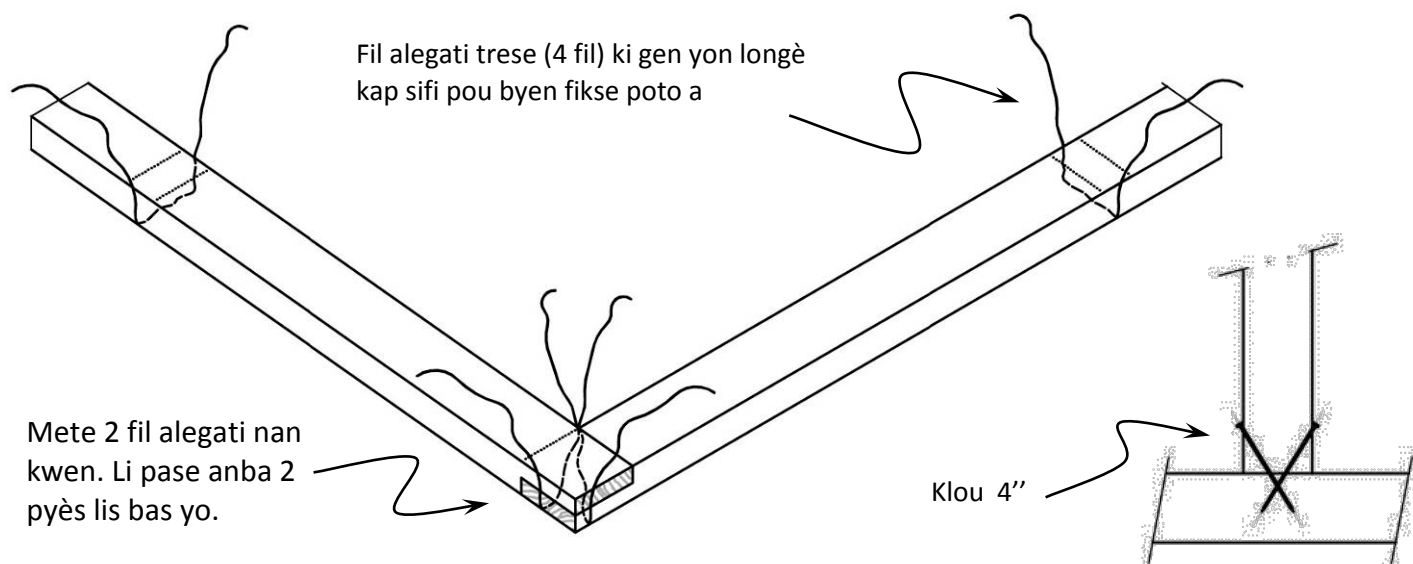


- Apre nou plase lis wo, mete strap sou li kote gen poto.
- Fikse strap yo sou poto yo menm jan nou te fikse lis bas la.

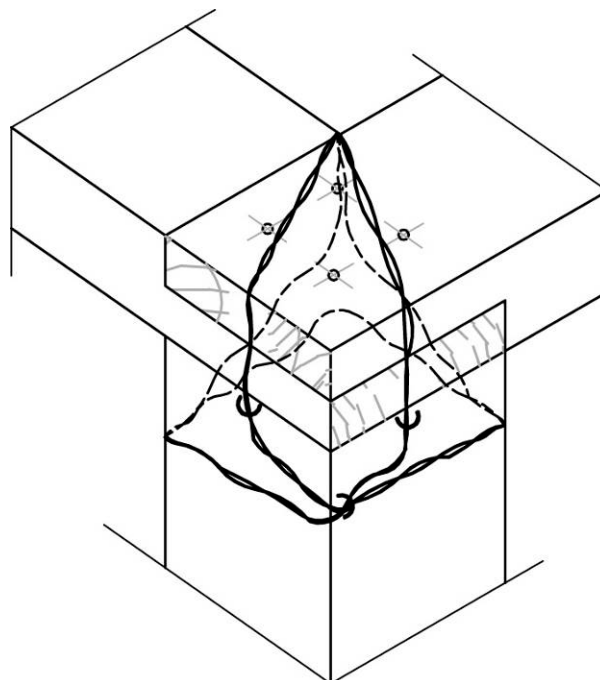
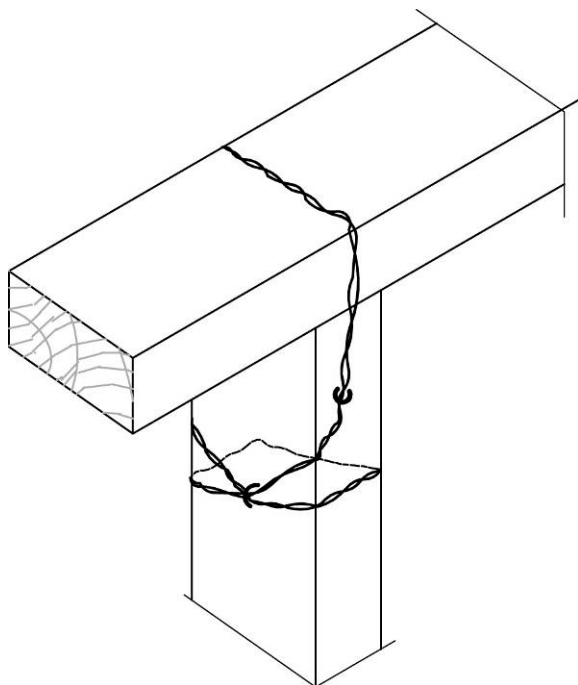


Koneksyon poto yo avek lis bas ak lis wo – Fil alegati

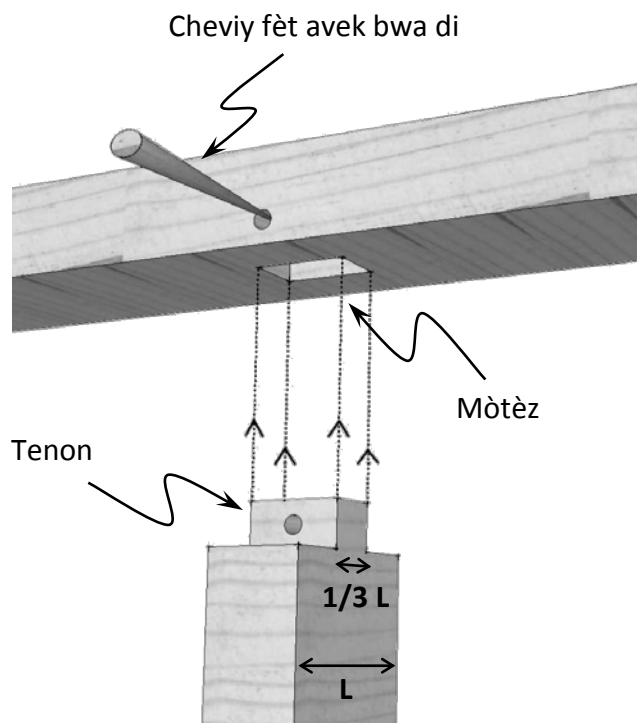
- Avan nou plase lis bas sou sol kay la, plase e kloue fil alegati trese anba lis bas kote nap mete poto yo.
- Fikse poto yo avek lis bas avek klou 4" ki panche.



- Byen tire epi fikse fil alegati sou poto a avek omwen 4 klou. Tounen tout otou poto a pou'l ka byen kenbe



Koneksyon poto yo avek lis wo – Tenon mòtèz avek cheviy



Fè yon twou avek
yon tayè oubyen
avek yon vilbreken



Jodia, moun yo konn ranplase
tenon mòtèz avek cheviy pa jan
asanblaj nou we sou foto a :



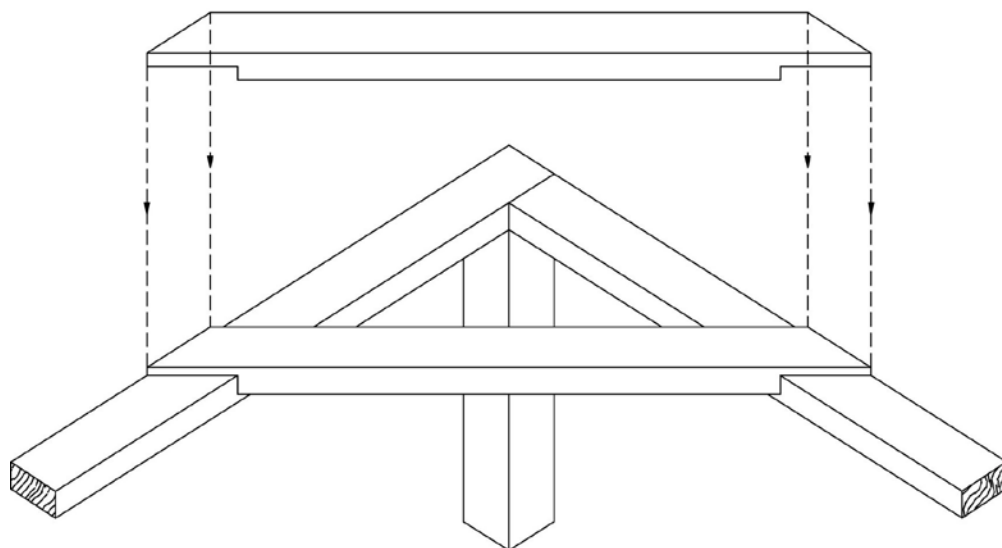
Kontvan : Ranfòsman orizontal nan kwen yo (ekè)

Mete yon ekè nan **chak kwen** kay la

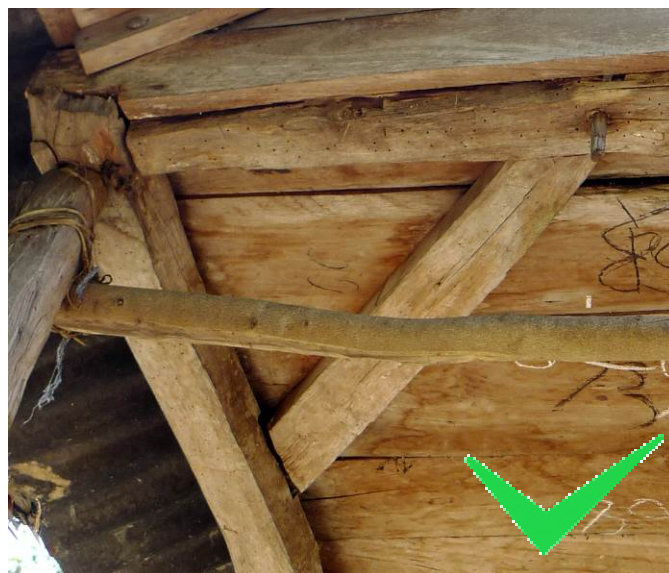
Li pi bon pou mete ekè anlè lis wo.

Fè yon ti antay nan lis wo pou byen kenbe ekè a.

Ekè pa dwe twò piti
(omwen 60 cm pou longè anndan)

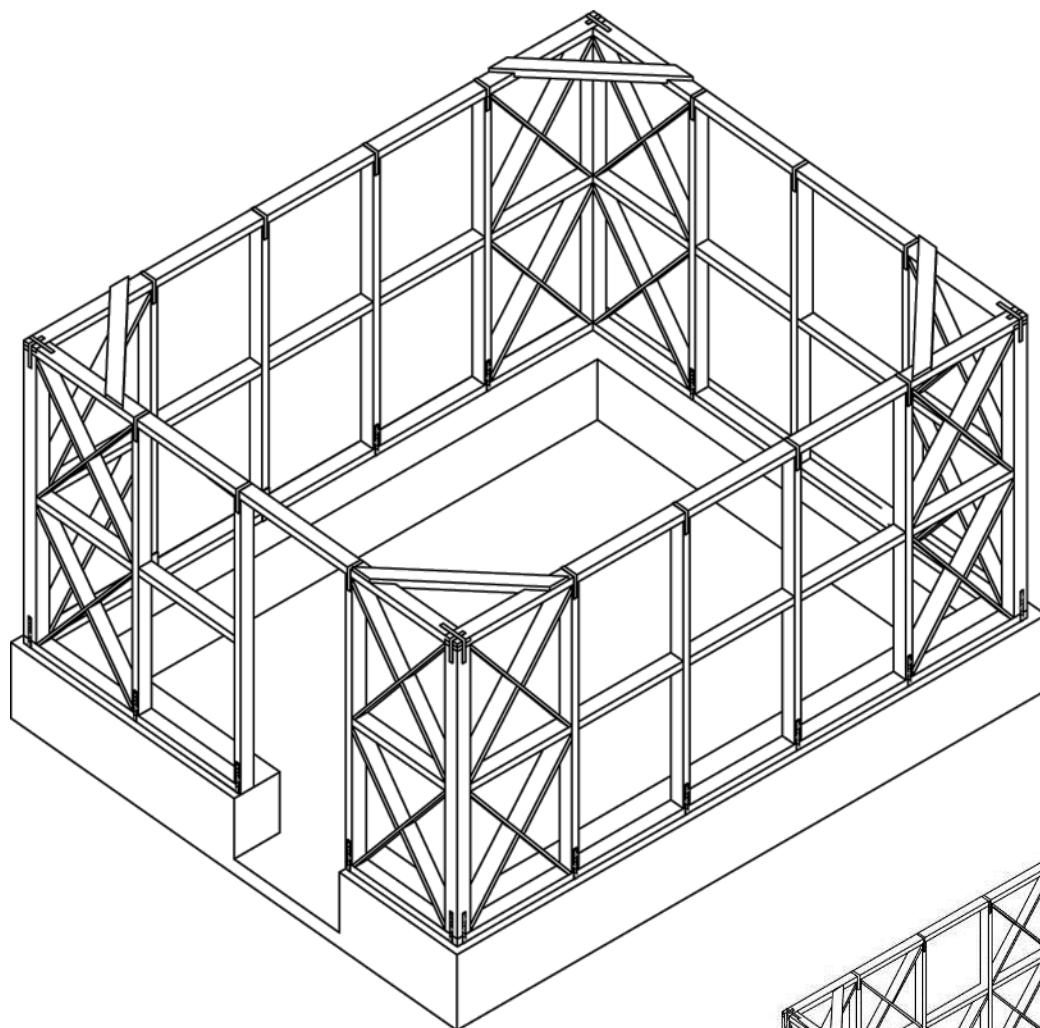


Atansyon : Ekè a twò piti epi li fikse anndan
→ Si gen mouvman, klou pa ka kenbe ekè
pour kont yo selman

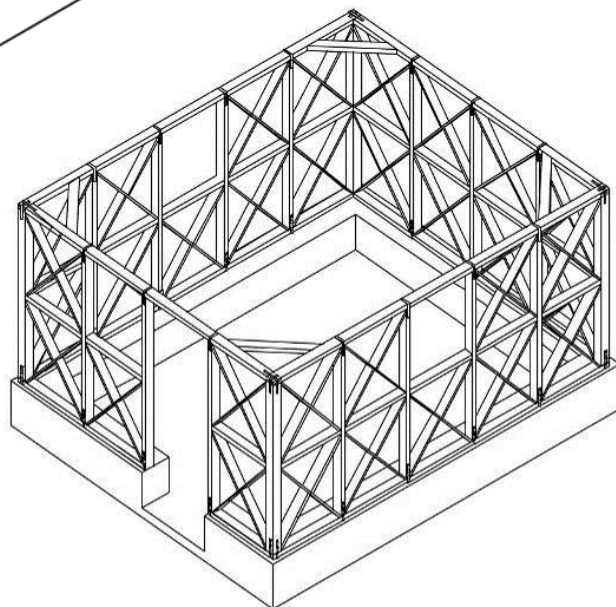


Kontvan : Pou panno mi an ti wòch

- Nou dwe plase kontvan omwen nan panno kwen yo.
- Lè nap fè panno an ti wòch, nou dwé divize panno nan espas ki pi piti yo. Se yon fason pou nou bloke ti wòch yo pou yo pa tonbe si gen mouvman. Kwa Saint-André yo se yon tèknik chàpant ki pèmèt sa.
- Nou pa dwe mete okenn pòt ni fenèt nan panno kwen yo.



Solisyon MINIMÒM



PI BON solisyon

Nou jwenn 2 jan tèknik pou mare ansanm pyès yo nan kwa Saint-André yo :

**2 mwatye dyagonal
pa fikse nan menm aks**



Nou asanble de mwatye dyagonal yo nan mitan grann dyagonal la avek yon ti decalaj, sa vle di yo pa nan menm aks. Sa pèmèt kloue yo pi byen.

> Se yon solisyon ki pi rapid ak pi fasil.
Pa gen danje pou asanblaj gen defo.

**2 dyagonal mare ansanm avek yon
antay mibwa**

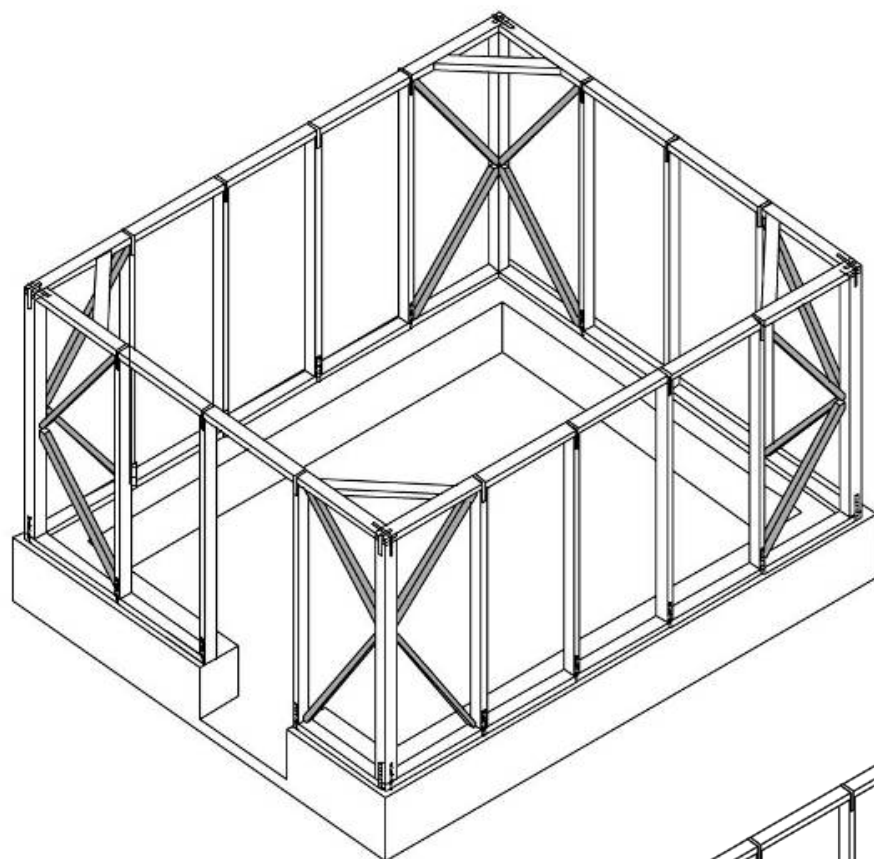


Nou asanble de grann dyagonal yo nan mitan avek yon antay (mibwa).

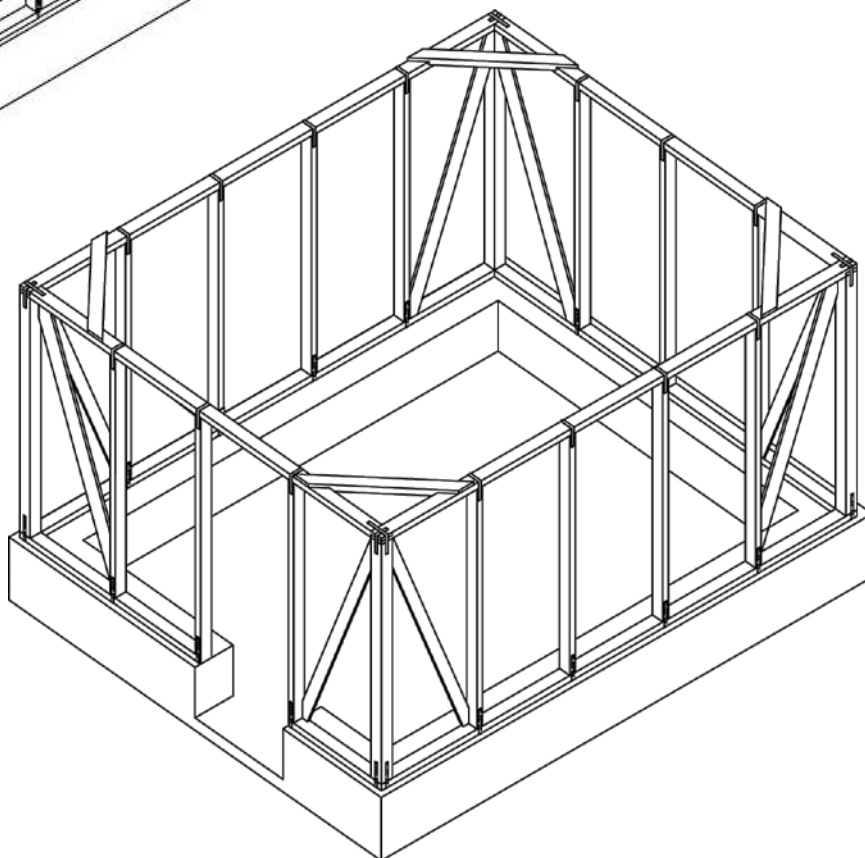
> Se yon solisyon ki ka pi bèl men ki mande anpil eksperyans avek presisyon pou nou pa gen defo nan asanblaj la e ki ka fè'l pi frajil.

Kontvan : Pou panno klisad

- Nou dwe plase kontvan omwen nan panno kwen yo.
→ Egzanp sistèm kontvan an fòm de K epi avek yon grann dyagonal
- Nou pa dwe mete okenn pòt ni fenèt nan panno kwen yo.



Kontvan an fòm de K

Kontvan avec grann
dyagonal

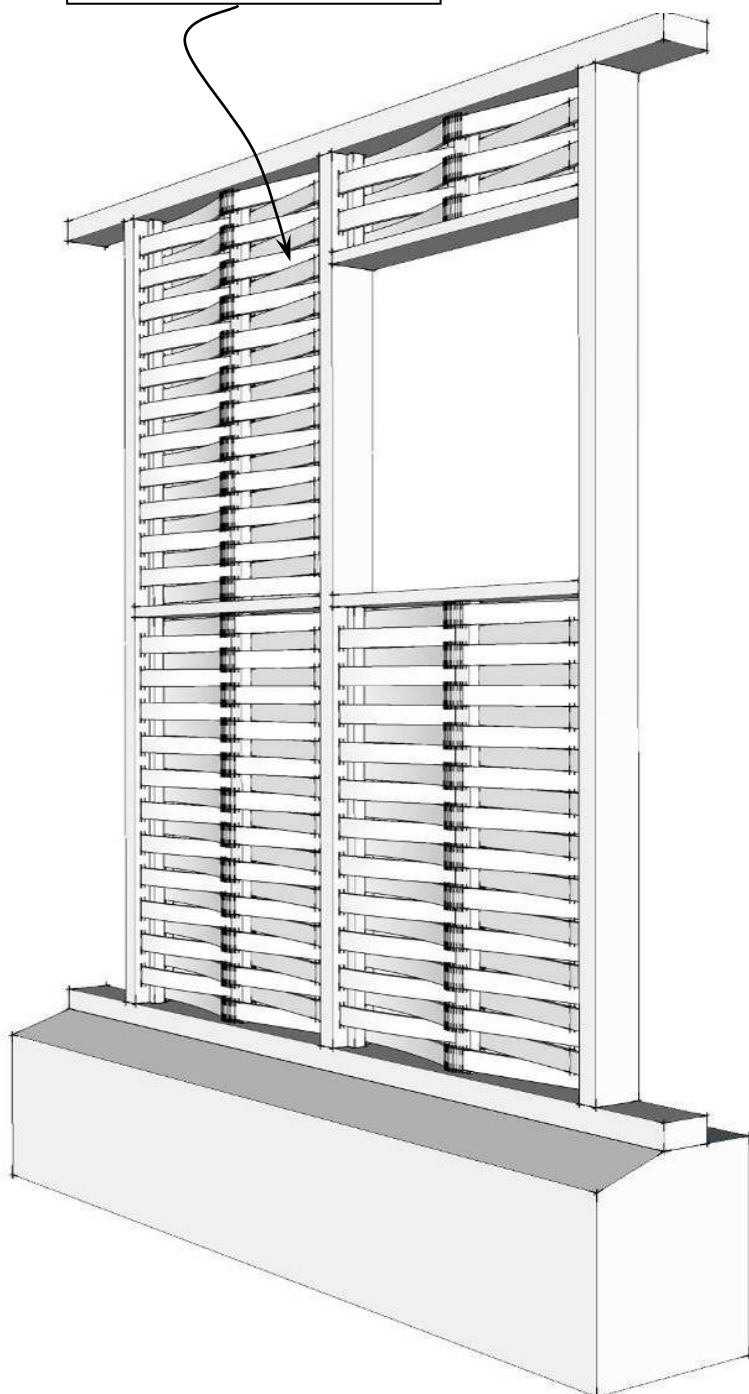
7.8 – Ranplisaj / Abiyaj mi yo



Klisad tradisyonèl

Klisad la li fèt avek lat palmis oubyen avek ti branch.
Nan peyi a nou konn mete lat yo youn kole kont lòt. Sa pèmèt dlo pa antre anndan si pa gen ranplisaj
sou li ou byen si ranplisaj pa byen pwoteje avek yon andwi.

Lat yo kole youn kont lòt



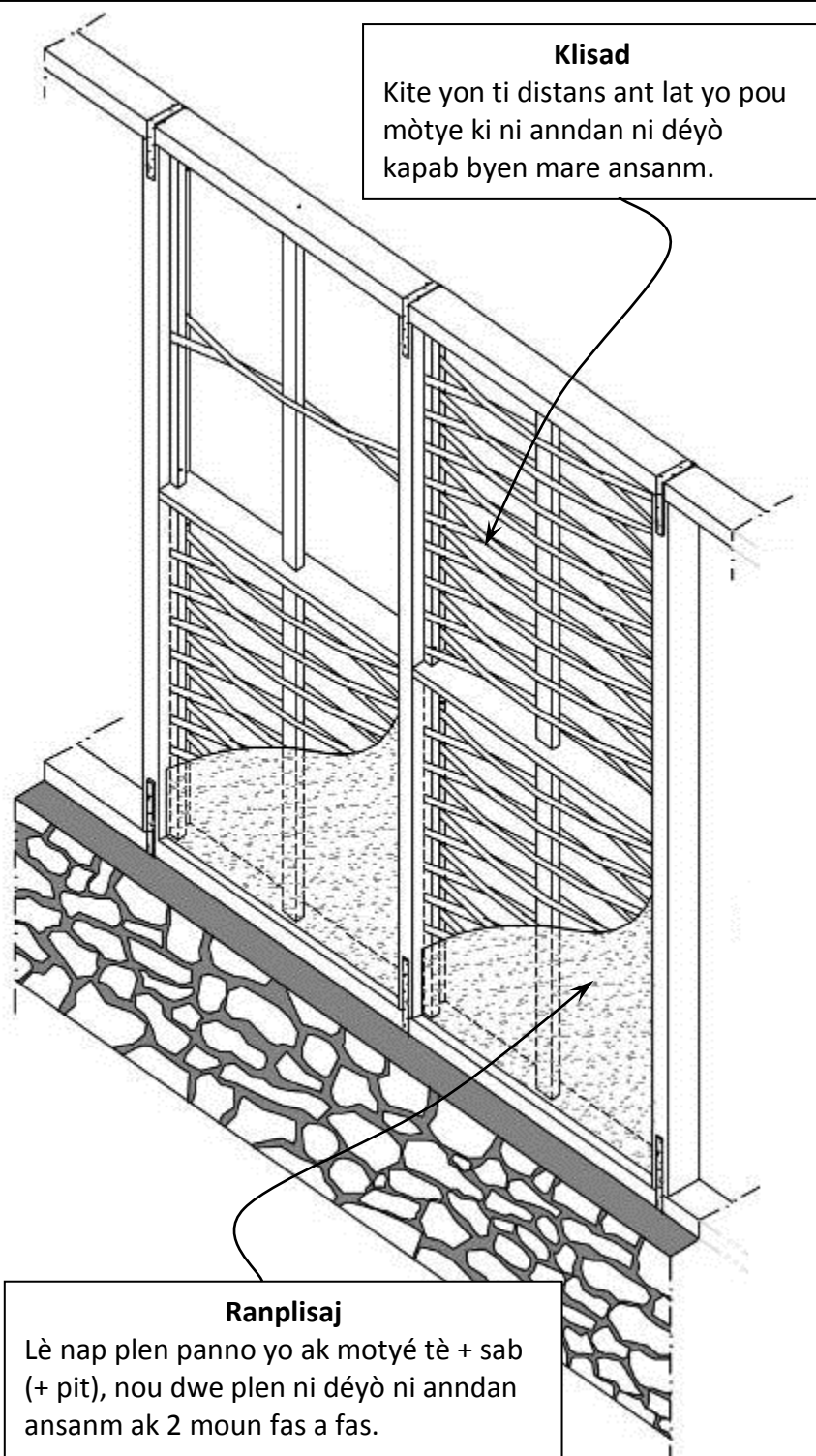
Preparasyon lat palmis



Klisad ekàte e masòn

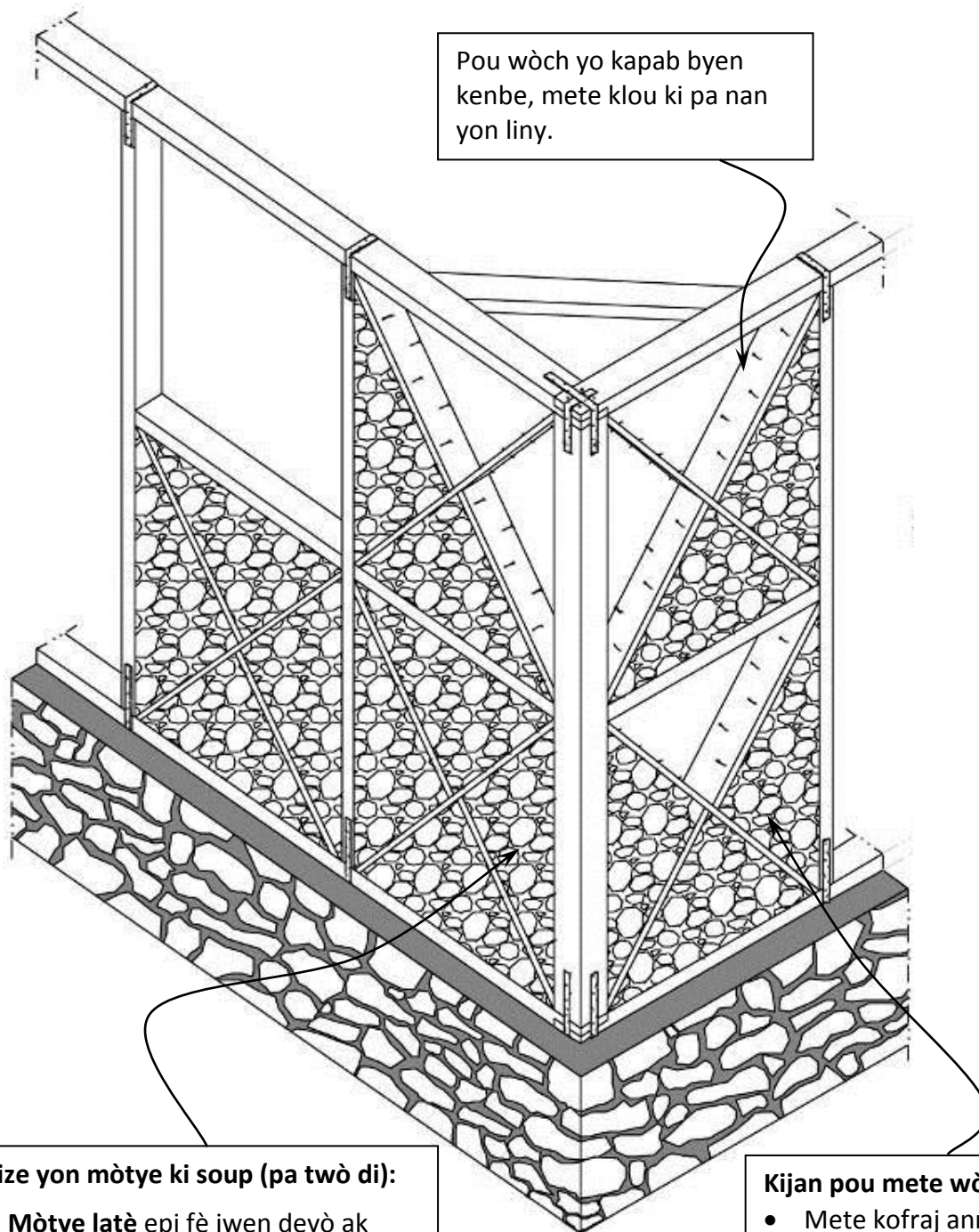
Klisad la li fèt avek lat palmis oubyen avek ti branch.

Nou ka kite yon ti distans ant lat yo pou pèmèt mòtye ni anndan ni deyò kapab byen mare ansanm. Nan solisyon sa a nou dwe fè yon ranplisaj avek yon andwi ki ka byen reziste (avek lachò oubyen latè avek yon ti kras siman). Sa pèmèt dlo pa fè twou nan ranplisaj ant chak lat.



Ranplisaj an ti wòch

Lè nap fè panno an ti wòch, nou dwe divize panno a pou byen kenbe masonry a.
Kwa Saint-André yo bay ti triyang ki pèmèt sa.



Pou wòch yo kapab byen kenbe, mete klou ki pa nan yon liny.

Itilize yon mòtye ki soup (pa twò di):

- **Mòtye latè** epi fè jwen deyò ak mòtye lacho oubyen batà
- **Mòtye lacho**
- **Mòtye latè** avek yon ti kras siman

Kijan pou mete wòch yo

- Mete kofraj anndan ki pral retire apre
- Pa mete wòch ki twò gwo
- Mete wòch byen chita
- Fè jwen ki pa epe

7.9 – Tèt kay la

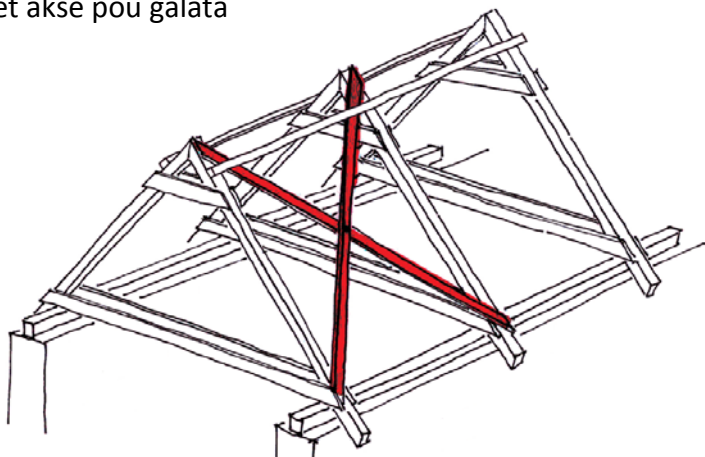


Prensip : Kontvan tèt kay la

Kontvan twati se yon sistèm ki obligatwa pou pèmèt ni chak fèm pou kont li a ni tout chàpant ansanm pa panche epi tombe. « Fe » oubyen fetyè, se yon pyès bwa ki liye chevron nan tèt, ki pa toujou la, men ki pèmèt chak fèm pa panche pou kont li a. Men li pa pèmèt tout chàpant pa panche.

Kontvan ki encline nan pant

Li pèmèt akse pou galata

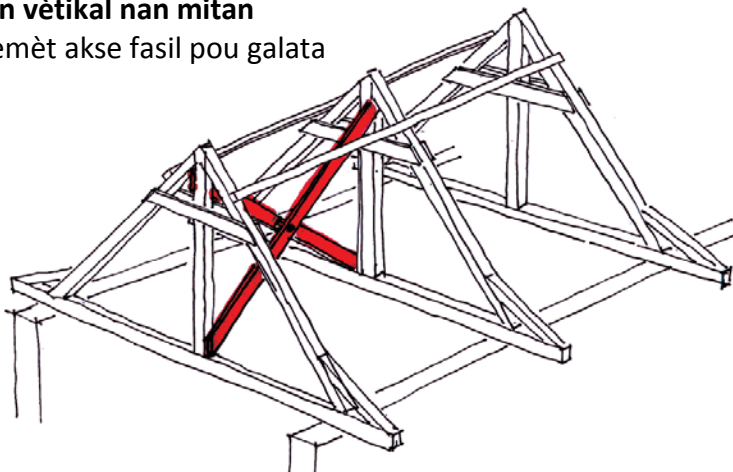


Jan tèknik kontvan nou konn
we nan peyi Ayiti a



Kontvan vètikal nan mitan

Li pa pèmèt akse fasil pou galata

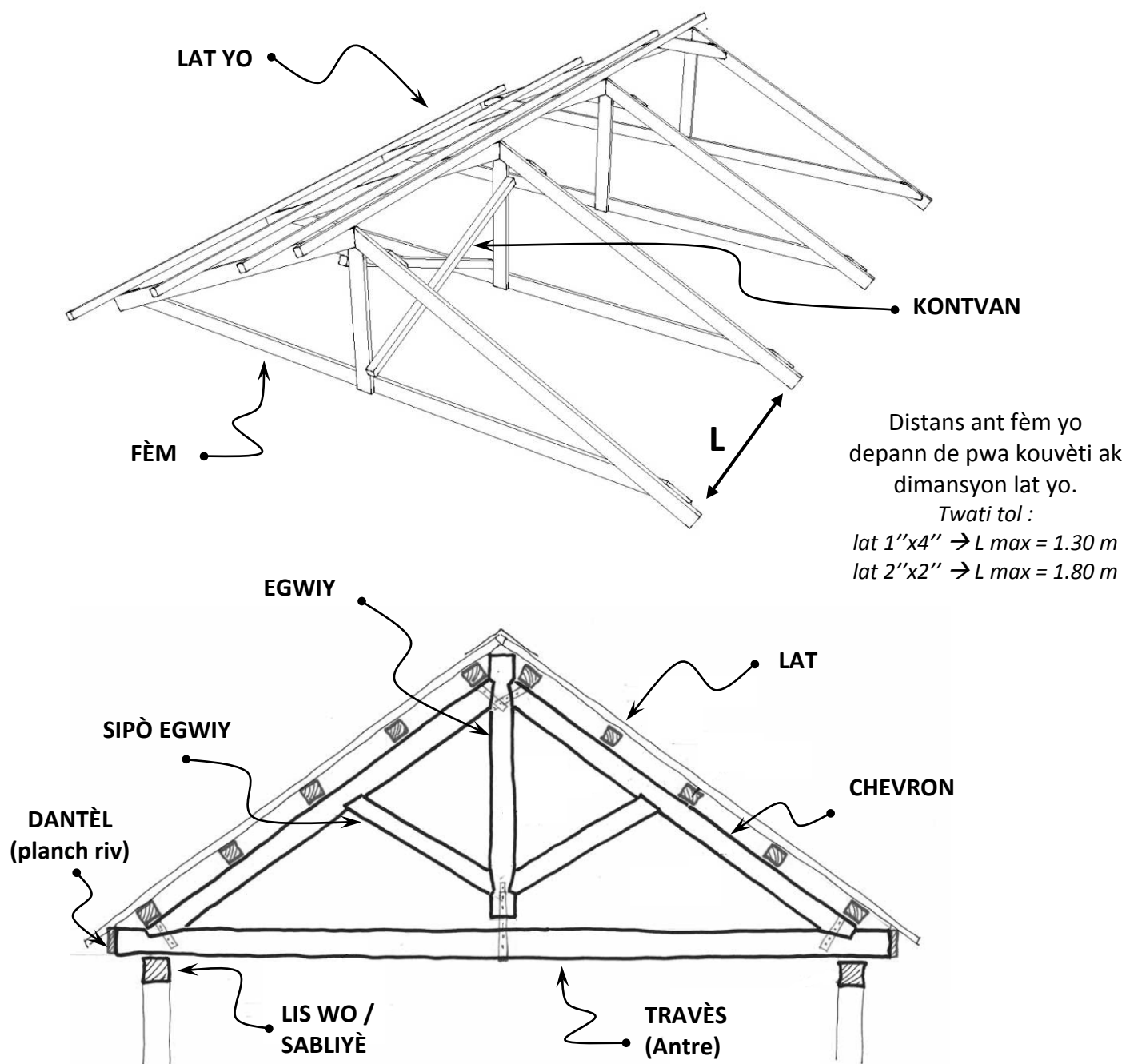


Chàpant twati 4 pant li pa bezwen kontvan ankò depi aretye yo bay kontvan deja.

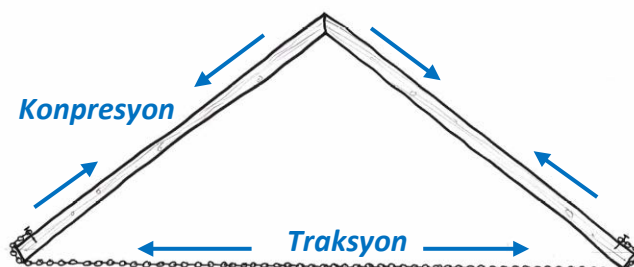
Men nou ka bezwen mete kontvan ant chak fèm ki nan mitan si pa gen fetyè.



Chàpant tèt kay la : Tout pyès ki nan chàpant la

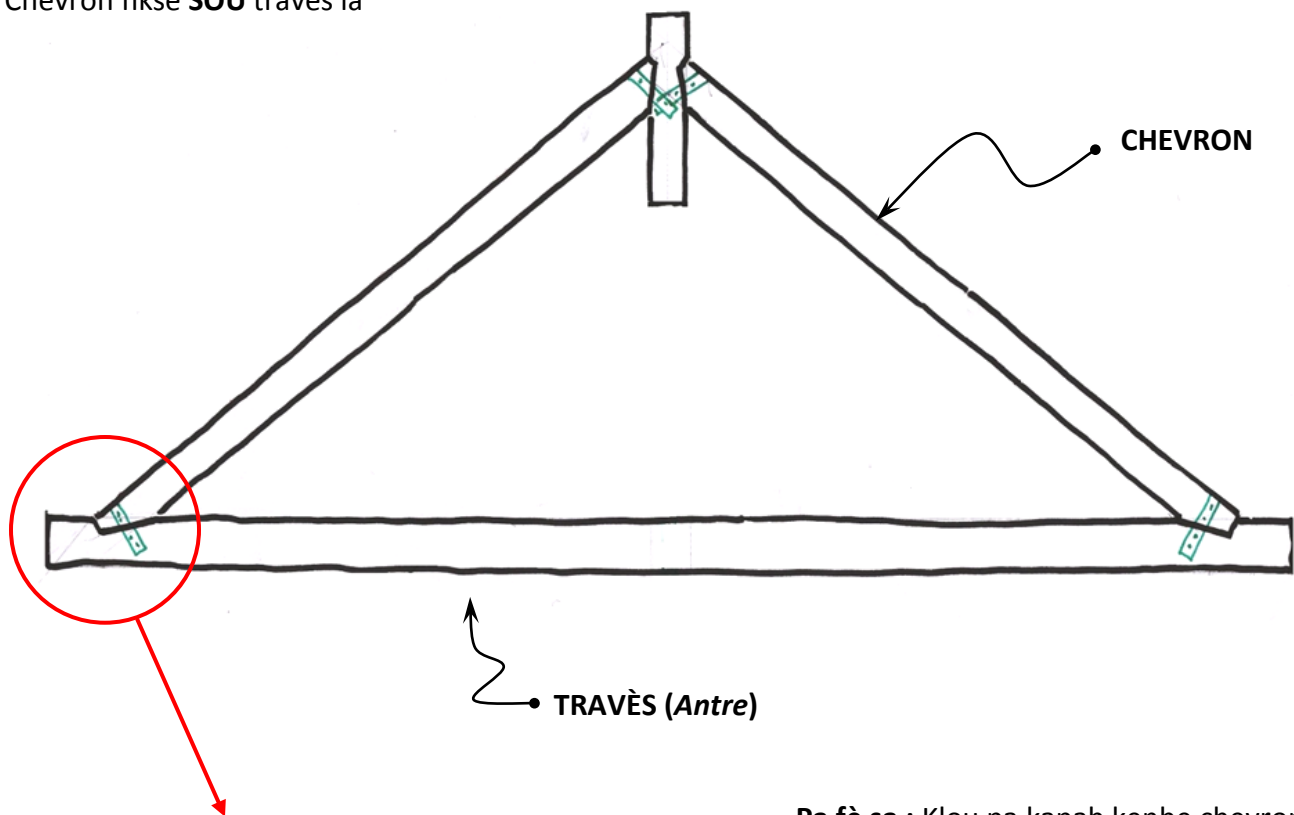


Travès la li se tankou yon **chenn** nan traksyon ki pèmèt chevron pa ale.

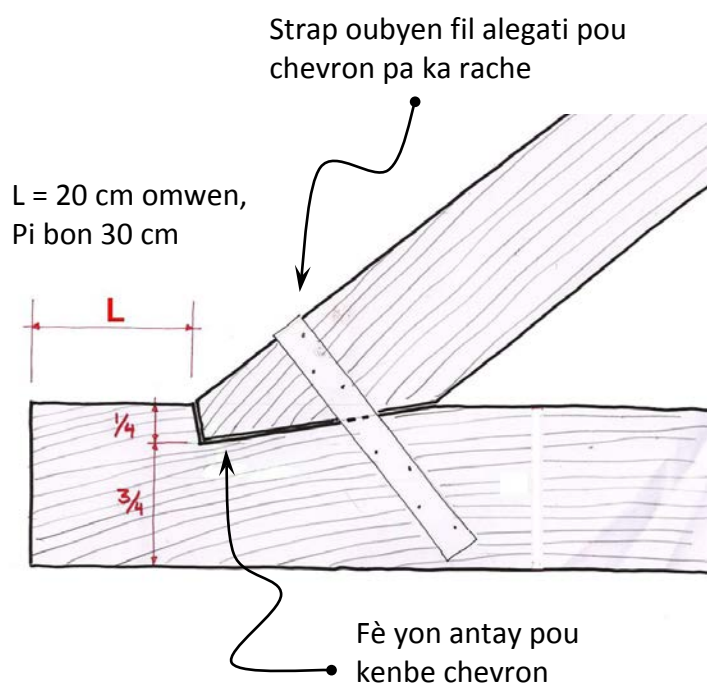


Chàpant tèt kay la : Detay koneksyon yo – Chevron sou travès

- Chevron fikse **SOU** travès la

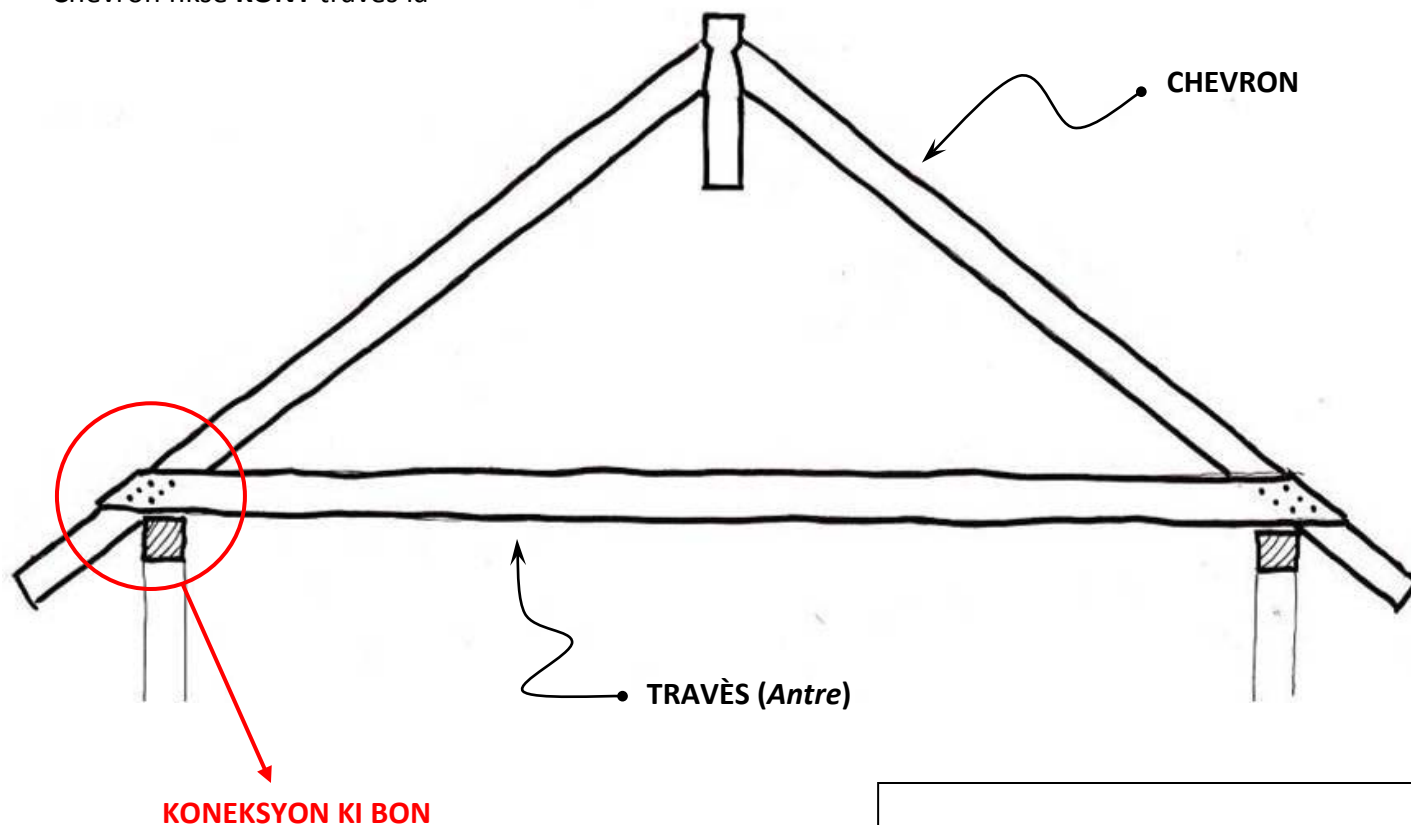


Pa fè sa : Klou pa kapab kenbe chevron sou travès pou kont yo. Chevron ka glise.

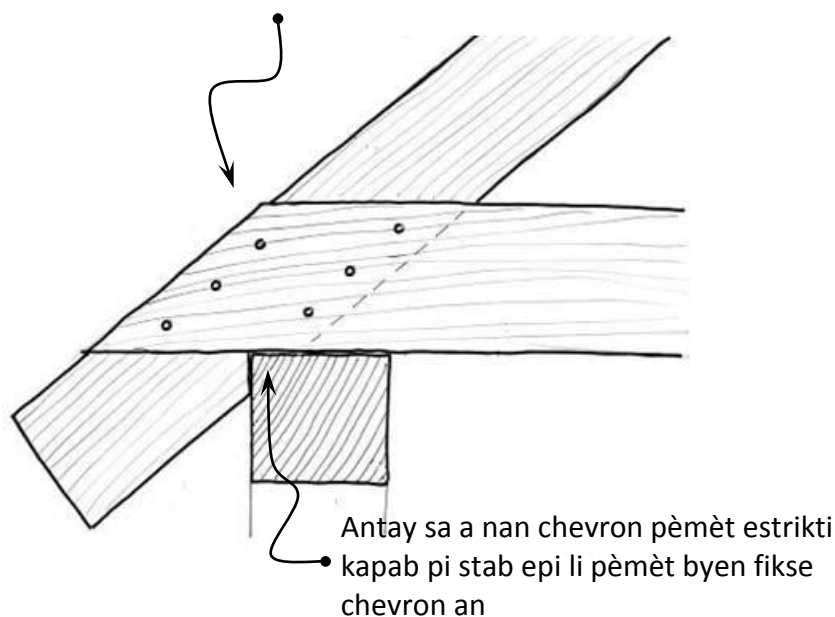


Chàpant tèt kay la : Detay koneksyon yo – Chevron kont travès

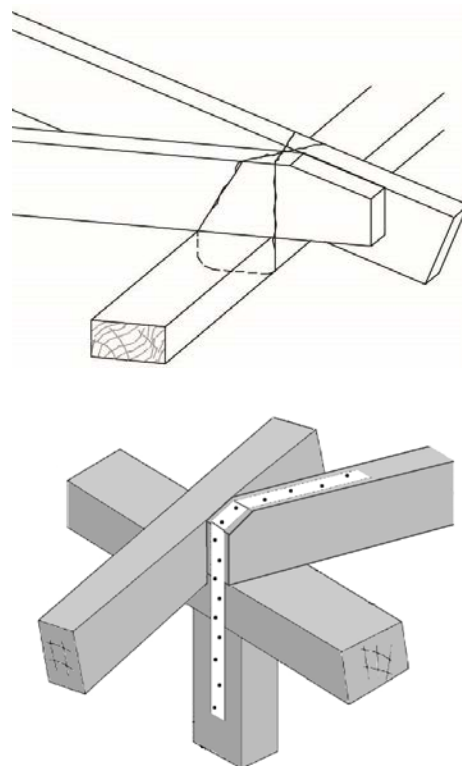
- Chevron fikse **KONT** travès la



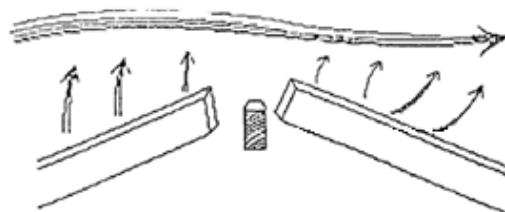
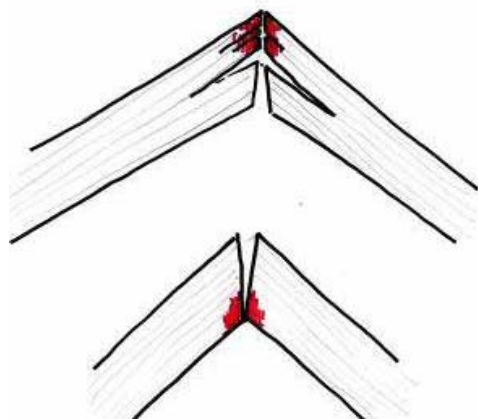
Mete omwen 3 klou chak bò.
Oubyen mete plak plywood pou koneksyon
ka reziste byen.



Solisyon maraj nou ka jwenn (strap
oubyen mòso tol, fil alegati) :

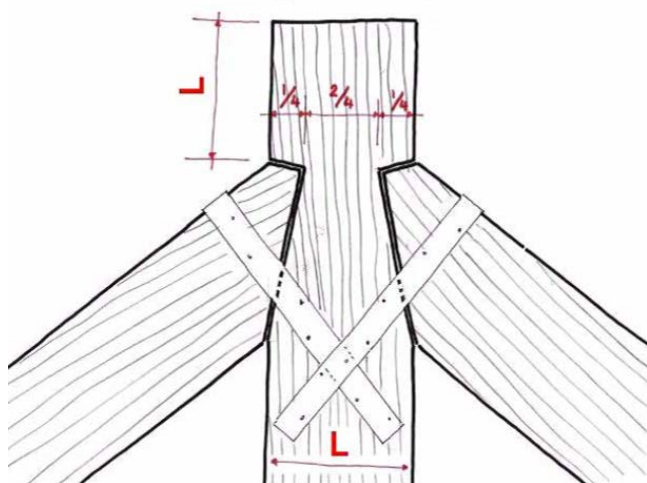


Chàpant tèt kay la : Detay koneksyon yo – Tèt chevron yo

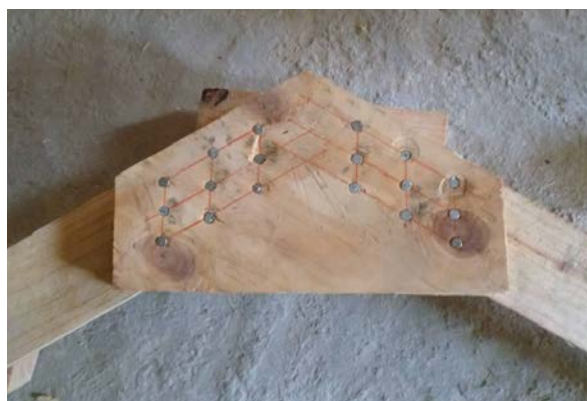


Atansyon : Yon koneksyon nan tèt chevron ki twò senp ka frajil e ka ouvri fasil

- Kek egzanp koneksyon nou ka fè nan tèt chevron :



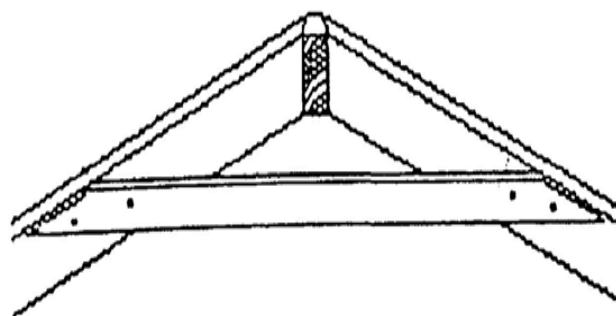
Ranfòsman koneksyon an ak planch (plywood)
→ Sa pèmèt mete anpil klou



Koneksyon chevron avek fetyè oubyen egwi
> Antay epi sistèm maraj yo (strap, mòso tol, fil alegati) ki pèmèt li byen reziste

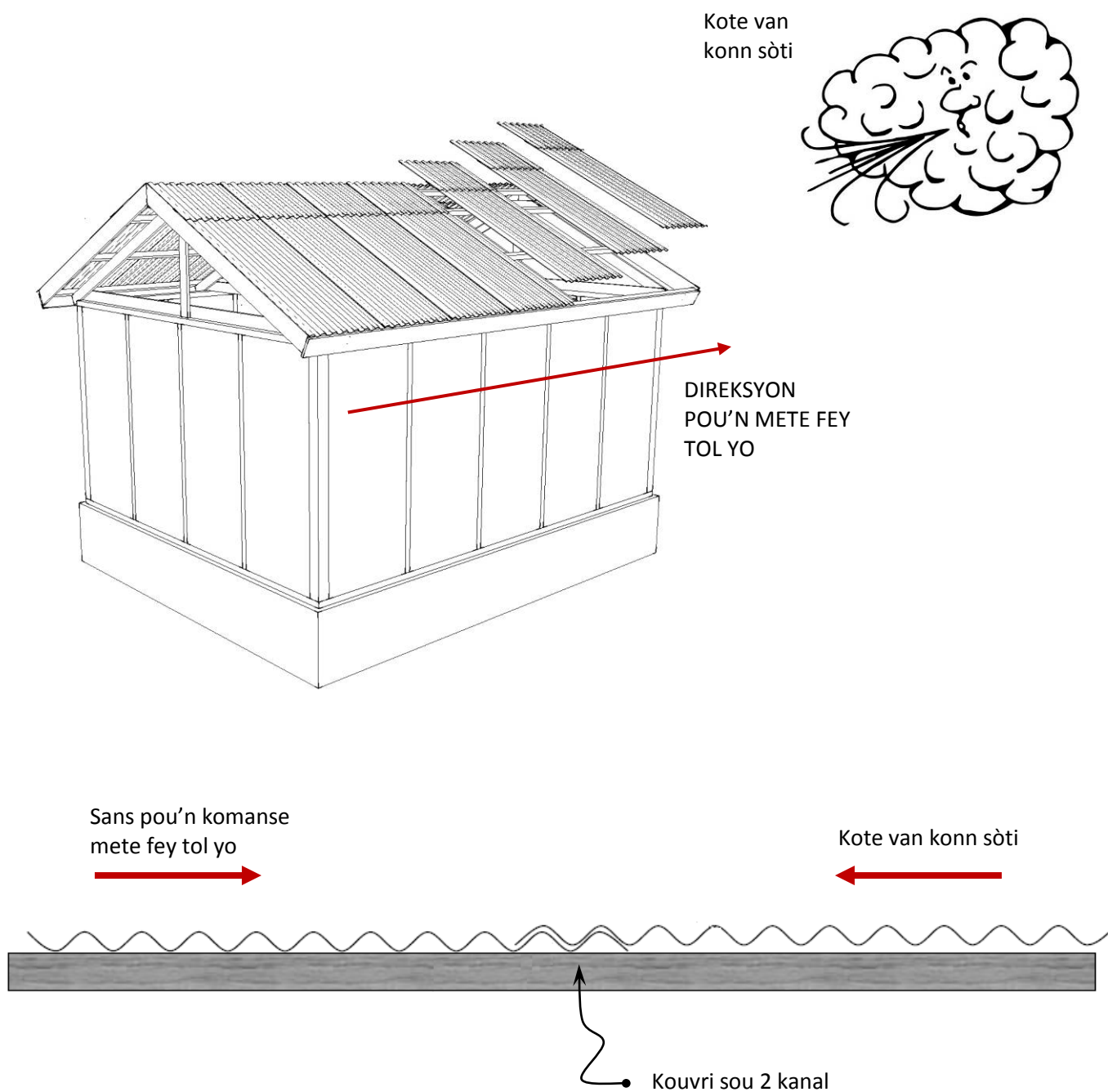


Ranfòsman koneksyon an avek yon ranfò orizontal
→ Sa pèmèt koneksyon pa ka ouvri fasil

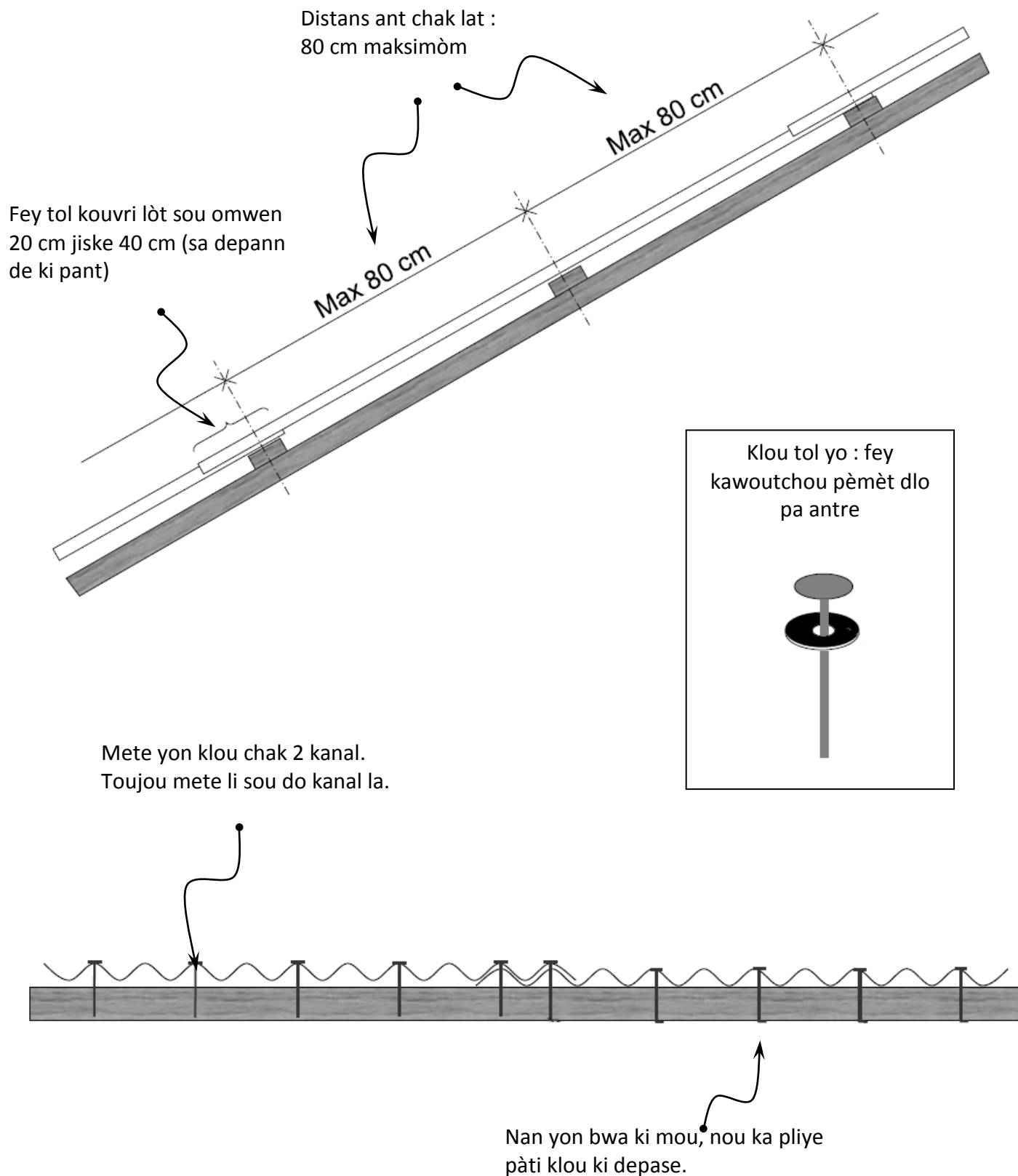


Kouvèti : Direksyon poz tol ak rekouvremant fey tol yo

Komanse mete fey tol yo youn apre lòt kote opoze avek kote ke van konn sòti.
Sa pèmèt van fò pa rache fey tol yo fasil.



Kouvèti : Recouvreman ak fiksasyon tol yo



7.10 – Tretman sifàs



Rejwentwayaj masonry wòch

Pou ki sa li pi stab :

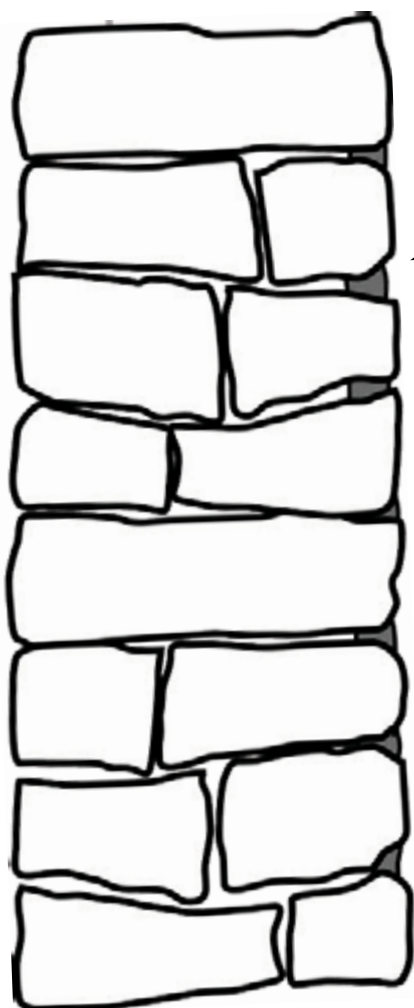
Lè nou fè jwen yo apre masonri, nou ranpli twou yo ant wòch yo. Sa pèmèt kenbe pi byen wòch yo. Mi a vinn pi stab.

Pou ki sa sa pèmèt reziste pi byen avek yon tranbleman tè :

Lè jwen kraze li pèmèt disipe enèji tranbleman tè a.

Pou ki sa sa pèmèt mi a dire plis tan :

Fè jwen avek mòtye lacho ou byen batà pèmèt pwoteje mi a. Nou bezwen mwens reparasyon.



Mòtye lacho
oubyen batà
(lacho + siman)



Andwi deyò – Sistèm andwi ak ki jan pou'n mete'l

Sipò :

- Mi dwe byen plat e regilye oubyen itilize mòtye avan pou fè'l pi plat
- Mi dwe byen sèk

Preparasyon sipò :

- Frote epi retire pousyè
- Mouye mi a anpil

Premyè kouch : « Krepi » - 8 jiske 20 mm

- 1 Lacho / 3 Sab
oubyen 3 Lacho / 1 Siman / 12 Sab
oubyen 1 Siman / 8 Sab
- Pase sab nan krib krepisaj (≈ 5 mm)
- Fè sifàs plat
- Grate mi avan li finn cheche (ak yon bròs metal oubyen ak klou)
- Tann pou mi a byen chech

Dezyèm kouch : « Andwi / Bè » - 4 jiske 8 mm

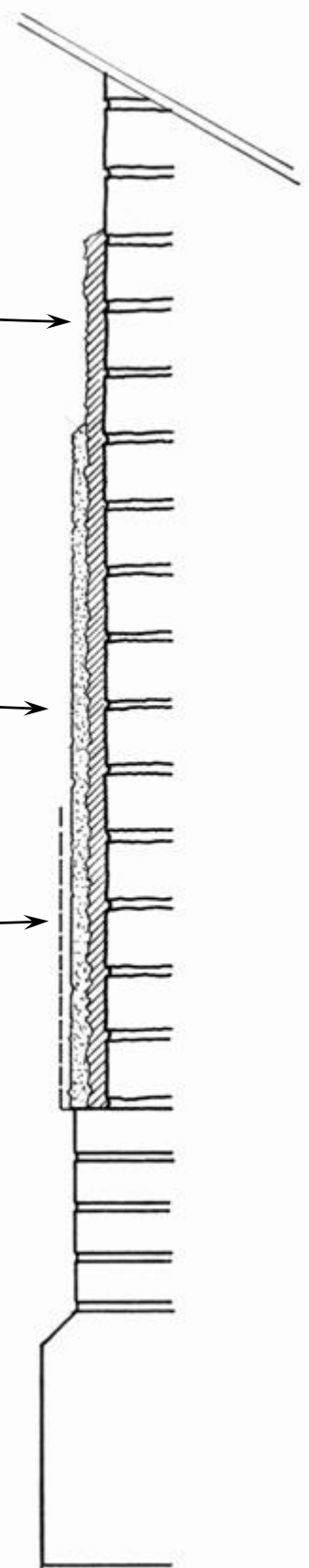
- 1 Lacho / 3 a 4 Sab
oubyen 1 Siman / 7 Sab / 2 Tè finn
- Pase sab nan crib bè (crib fen)

Twazyèm kouch : « cholaj / badijon » (si nou bezwen)

- 1 pàti Lacho / 5 pàti dlo (premyè kouch)
- 1 pàti Lacho / 3 pàti dlo (dezyèm kouch)

Sa nou dwe byen sonje :

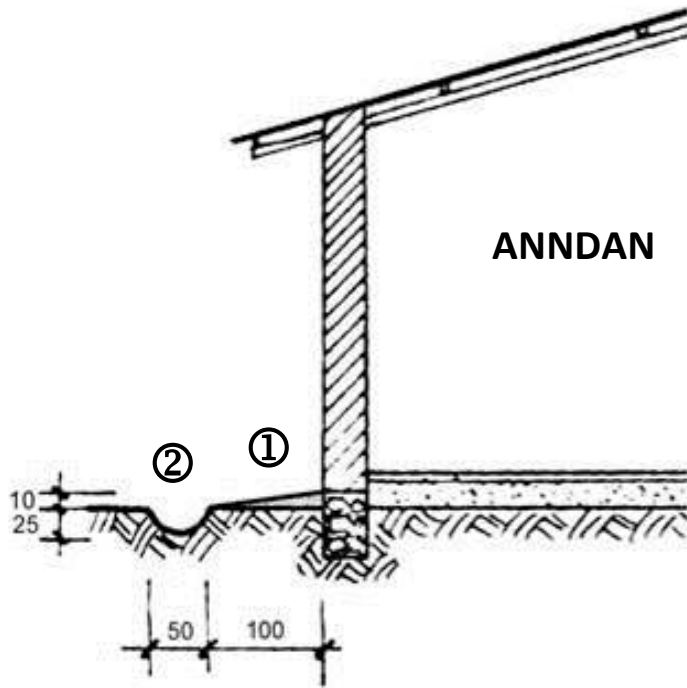
- Mòtye lacho se sa ki pi bon, li pa twò di e li pèmèt mi a respire
- Si pa gen lacho, nou mèt itilize siman men mete yon kantite tou piti sèlman.



7.11 – Tretman alantou kay la

- ① Tali a : Pant fèt ak latè foule. Nou ka mete sou li yon materyo pou pwoteje li (wòch plat, galèt, brik, etc.)
- ② Kanal pou evakye dlo lapli

Tretman nou fè sou pant tali a dwe **pèmèt tè anba respire** pou dlo anndan ka chape fasil.



Egzanp solisyon tèknik

