



Natural Resources
Canada

Ressources naturelles
Canada

Canada



Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-onji-wiiji'indwaa Anishinaabeg

Oshki-izhichigan Waasigan: Manidoo Giizisoons, 2020

Ishkwaaj nitam gii-aanjichigaadeg: Miinikewigiizis, 2024



Ge-miigwechiwindwaa:

Miiwag ogowe nitam gaa-mikwendamowaad izhichigewinan Jeremy Sager¹, Jayshree Thakar², Cara Sanders³, Walter Latt⁴, Kurt McRae⁴, Randy Keeper⁴, Pikangikum gaa-onjiwaad ge-anokiitamowaad Ishkonigan, gaye Ogimaakaan Pikangikum gaye gaa-wiidaniimigod. Gaa-gii-ozhibii'amawaad izhichigewaad inanokiiwin Jeremy Sager, Sébastien Brideau¹, Lucio Mesquita¹, Amr Daouk¹, Alexandre Bouchard⁵, Nicole Politis⁶ gaye Angelene Fajardo⁷. Gaa-gii-ozhibii'amawaad Giizisowaasigan inanokiiwinan Amr Daouk, Nicole Politis, Angelene Fajardo, Christopher Doyle¹, Cory Balderson¹ gaye Jeremy Sager. Nicole Politis, Angelene Fajardo, Terry Strack⁸ gaye Jeremy Sager, ozhitoonaawaan. Ogowe dash aanji-naanaagajitoowaad Jeff Knapp⁹, Amberly Quakegesic¹⁰ gaye Erin Knight¹¹. Zhooniyaa gaa-ondinendi Inoveshan Zhooniyaa, gaye Amikodakoniwewininiwag Zhaaganaashiiwakiing ogowe Andréane Cadieux¹, Despo Makris¹, Karen Biondi¹, Melissa Barros¹ and Jennifer Hong¹.

Nitam gii-ayaagin giizisowaasigan Wahkohtowin Development GP Inc.'s Guardian Program, mii wa'awe gaa-wiiji'iwed Jeremy Sager, Cory Balderson gaye Jean-Philippe Poirier¹.

Jeremy Sager gii-ogimaawi.

Miiwag ogowe gaa-onaabadamawaad:

Lane, T., Squires, C. Solar Hot Water Systems izhinikaade: Apii maajii-gikenjigaadeg 1977 biinish igo Noongom. 2012.

Cretton, P. Sebasol Switzerland. Training & personal communication. 2002-2003.

Gichi-gabe-gikendaasowigamig Wisconsin, Madison. CoDePro – Giizisowaasigan Izhichigewin. 2005.

Waa-kagwe-izhinaagwakin:

Owe wenji-izhichigeyaang gegoo ji-onji-gikendamowaad weshki-niigiwaad Anishinaabeg mii omaa ge-onji-gikinoo'amawindwaa ji-mikamawaad anokiiwinan ezhichigeng gegoo izhichigaadegin, weweni ji-anokiimagakin gaye gizhaagamide nibi.

Gaawiin daa-anaamimaasiwag ogo Amikodakoniwewininiwag giishpin bakaan awiya aabajitood. Mii iwe dibaajimowin gaawiin memwech Zhaaganaashii Ogimaa gii-wiijitwaasii gaawiin oniibawitanziin Zhaaganaashii Ogimaa gaye ji-waabandangiban.

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Gaa-onji-maajisegin Gegoo

Ogimaakaan Pikangikum gaye gaa-wiidanokiimigod gaye Habitat for Humanity Indigenous Housing Partnership, ogii-mikwendaanaawaa izhichigewinan. Owe da-izhichigemagadoon:

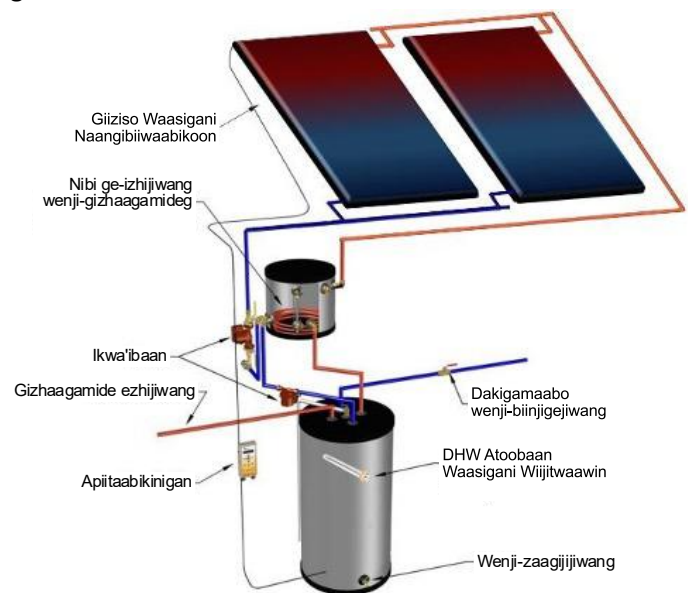
- Eko-niizhwaaching inawending niigaan-inaabiwig miiwig ogowe ge-ondinamawaad ge-ani-onji-mino-bimaadiziwaad.
- Ge-onji-nitaa-ozhitoowaad gegooyan (gaye nibi ezhichigaadeg, gemaa gaye mitigoon enaabakin, gaye waasigan, ezhichigeng waakaa'igeng) ge-onji-minogaabawidizowaad oshki-aya'aag.
- Ji-ozhi-ayaagin anokiwinan ge-dibendaasowaad Anishinaabeg, ge-ondinaawaad mitigo' ge-aabadiziwaad gegoo izhichigaadegin maagizhaa waakaa'iganan mii omaa zhooniyaakewaad.
- Anishinaabe ji-adaandiwaad gaa-gii-ozhichigaadegin giizisowaasigan aya'iin.
- Mii owe biinak gakina gegoo aabadak giizisowaasigan iwidi aanind waasigan da-biinichigemagad gizhaagamideg nibiing.
- Mii omaa niibiwa ge-onjiig waasigan ezhi-ishkoniganikaag (mii omaa gizhiigamideg waakaa'igan), nawaj bangii owe gigayaabajitoon waasigan.
- Nawaj bangii da-azheginde waasigan miziwe Ishkoniganikaang.

Mii owe gaa-naanaagajichigaadeg aaniin minik ge-inagindeg ji-zhaagamideg i nibi. Enaakideg (omaa 1) gii-waabanda'aawag igiwe NRCan / CanmetENERGY gaye ogowe gii-waabanda'aawag Ogimaakaan Pikangikum gaye gaa-wiidanokiimigod gaye Eenchokay Birchstick Gichi-gikinoo'amaadii Ogimaa gaye gaa-dazhi-anokaadamowaad mitigo anokiwinan, mii omaa gii-tebwechigaade. NRCan / CanmetENERGY gaa-naanaagajitoowaad giizisowaasigan gii-kikinoo'amaawag gichi-gikinoo'amadii abinoojiinyag ge-izhichigewaad ji-izhisidoowaad imaa biindig, mii omaa Gii-izhichigaadeg ge-izhichigeng Wii-ozhising.

Mii owe gii-izhichigaade ge-onji-wiiji'indwaa weshki-niigiwaad gaye gaa-gitaadiziwaad omaa ishkoniganing, miiwig ogowe aabajitoowaad aabajichiganan.

Giizisowaasigan ge-bi-azhe-giiwemagak ge-ondinigaadeg (omaa 1) mii omaa ge-onji-nagajitoowaad inanokiwinan, mitigoowanokiwin, nibi ezhijiwig, gaye waasigan.

Giizisowaasigan onji-gizhaagamide nibi gaye bi-azhe-giiwejiwan ge-dazhi-gizhaagamideg nibiwwakikoon. Giba'an nibi ezhijiwig gaawin da-mashkawaakwadizonoon giishpin aataweg waasigan. Nibi bi-azhe-giiwejiwan ge-dazhi-gizhaagamideg nibiwwakikoon. Onjida weweni ji-izhichigaadeg ji-azhe-giiwejiwang gizhaagamide akikoong.



Mazinaakizon 1: Giizisowaasigan ge-bi-azhe-giiwemagak ge-ondinigaadeg

Aanji-naanaagadawaabandan Izhichigewin

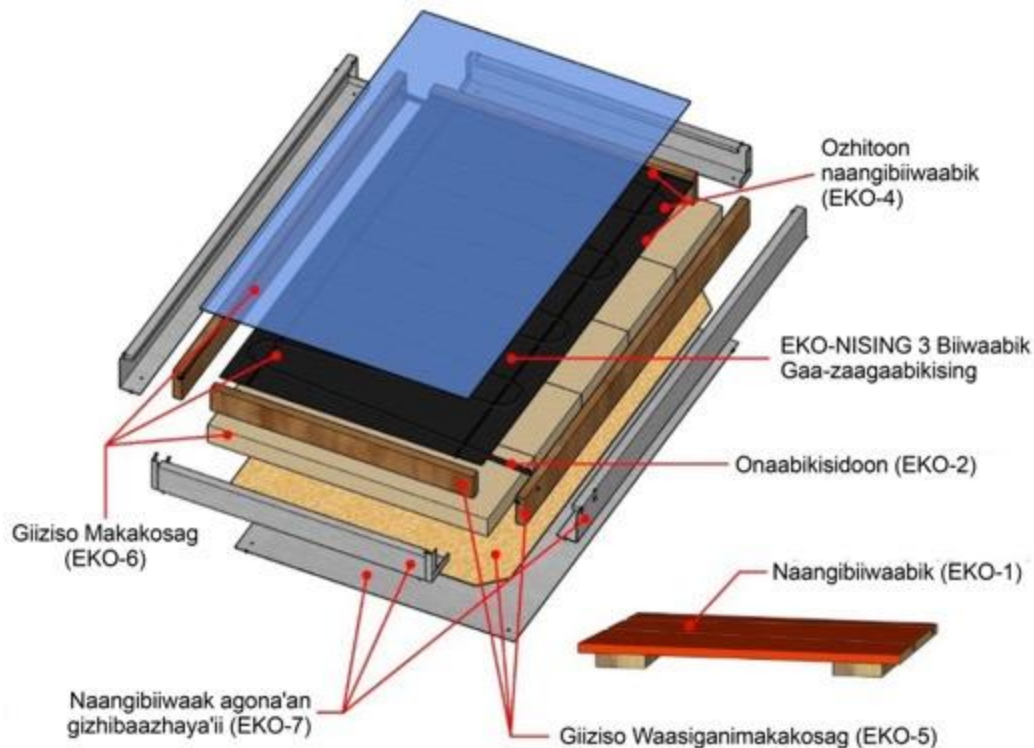
Niizhinoon izhichigewinan:

Nitam Mazina'igan1: Mii Owe Giizisowaasigan

Eko-niizhing 2: Endazhi-ganawenjigaadeg Gizhaagamide Nibi

Nitam Mazina'igan 1 endaso-bebezhiig naanaagajichigaade mii inaagwakin onowe aabajichiganan, ge-ozhisijigaadegin adaadim igo onowe aabajichiganan wenda-adaaweyan gegoo.

Mii owe Giizisowaasigan 2 mii omaa naagwak izhichigewin giizisowaasigan naagwadoon gaa-izhichigeng ezhi-naanaabisingin.



Mazinaakizon 2: Aazhawaatebii'an michaatoon Giiziso Waasigani Makakoon gaye ge-izhitooyan

Ezhi-naabisingin naagwadoon geyaabi GE-IZHICHIGENG 1.

- Ge-izhinikaade geyaabi ge-ani-izhichigeng ji-giizhichigaadeg.
- Geyaabadakin wii-ozhichigaadeg giizisowaasigan.
- Ji-ozhibii'igaadegin geyaabadakin anokaadeg giizisowaasigan.
- Baakinan wiizhaandawin mazinaatewebinigan da-naagwad ge-izhichigeyan da-gidaatabise.

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

Mii omaa naagwad ge-izhi-giizhichigaadeg (Imaa 3).



Mazinaakizon 3: Gaa-giizhitoong gaye Maamawi-Giiziso Waasigani Makak

Eko-niizhing 2: da-naagwad ge-izhitooyan ge-izhi-naabisidooyan ji-azhe-giiwejiwang nibi ge-dazhi-gizhaagamideg dibishkoo (### 1). Miiwan onowe ge-dazhichigaadegin: Giizisowaasechiganan giga-atoonan zhaawanong inake giwaakaa'iganing; giizisowaasechigan gaye nibi ge-izhijiwan; inake'ii ge-izhisingin gakina gegoo gidaa-ondadaawenan iwidi giizisowi adaawewigamigong.

EKO-NIIZHING 2 izhichigewinan onowe.

- Ge-izhinikaade geyaabi ge-ani-izhichigeng ji-giizhichigaadeg
- Geyaabadakin wii-ozhichigaadeg ji-azhe-giiwejiwang
- Ji-ozhibii'igaadegin geyaabadakin anokaadeg ji-azhe-giiwejiwang

Geyaabi aanind geyaabadakin baamaa da-ozhibii'igaadewan ishkwaaj da-ozhibii'igaadewan, giga-waabandaanan aaniin ezhisidooyan gakina gegoo.

Ge-gagishkaman Weweni Ji-ganawendaagoziyan Gaye Maazhisesiwan (PPE)

Gii-gigishkan anokiigashkiganan ji-maazhisesiwan dazhiikaman gakina gegoo naabisijiganan gaye gizhaagamide nibi gaye giizisowaasigan. Miiwan onowe geyaabajitooyan gimaazhisesiwan:

- Biiwaabikidoone makizinan
- Ganawenjige oshkiinzhigokaanan
- Ganawenjige Minjikaawanak
- Baashkineyaabate oshkiinzhigokaanan giishkiboodooyan mitig gaye dazhiikaman aasimisagowaabigan
- Baashkineyaabate giboodoonepizon gaye gishkiinzhigoong giishpin aabajitooyan zhizhoobii'igan

Miiwan onowe Onjida Ji-aabadakin

Gakina awiya ji-aabajitood onowe inaakonigewin **o'o Nitam Bezhiig 1** giizisowaasechiganan:

- Gegoo ge-maanikaagoyanban gikinoo'amaadiwin (WHMIS) gemaa gaye gegoo naasaab omaa endanakiiyan.
- Da-ozhichigaadewan gegotaanaabandaman gakina awiya ji-minosewaad gegoo ji-onji-gichi-diba'igesiwaang
- Da-gikinoo'amaadim ezhichigaadegin aabajichiganan: oninjii-aabajichiganan (bakite'iganens, biima'igan, bagoneboojiganaabik, geyaabi.), daashkiboojiganaabik, shawabaabikanibiiwaabik, ogijidoopowinaak giishkiboojigan, waawiyegiishkiboojigan, biiwaabiko agokiwasiiganibiiwaabik

Gakina gaa-gii-dazhinjigaadegin **EKO-NIIZHING 2** giizisowaasigan gii-ishkwaa-gikinoo'amawindwaa ge-onji-maazhisesigwaa:

- Bagishinan / akwaandawe anokiiyan giishpin ayaayan apakwewi gikinoo'amaadiwin

NITAM MAZINA'IGAN 1: Mii Owe Giizisowaasigan

EKO-BEZHIGWANG - 1 Naangibiiwaabik

Mii owe ge-gizhibaasing biiwaabikoon gaa-niibidesingin biinjiya'ii. Naagibiiwaabik dayaabadad iniwe aanind gegoo.

Gegoo geyaabadakin:

- Zhingwaako-desa'igan (gema gaye gegoo naasaab) $\frac{3}{4}$ " ji-apiichi-bagaag, 20" x 48" (Giishkizhan 20" x 36")
- 30" daso-mizid akwaa 36" apiichimangideyaa 5 mil (36 ga.) biiwaabikobiiwaabik (Giishkizhan gaa-akwaabiigak)
- 4' daso-mizid akwaa 2" X 6" nabagisag (gegaa) Niizh giishkizhan 20" daso-mininj ji-akwaagin
- #8 $\frac{3}{4}$ " ozaabiiwaabiko-saga'iganan (4) agwaakwa'an imaa naangibiiwaabikong
- #8 $1\frac{1}{4}$ " anokiiwisaka'igan (8) agwaakwa'an imaa nabagisagong

Aabajichiganan enawendaagwakin:

- Kagakaa
- Dibaabiiginigan
- Ozhibii'iganaak
- Biiwaabiko-dibaakwa'iganaabik (gaa-azhiganekakagaabikak)
- 2 x C-minjimaakwa'iganan
- Zhooshkoboojigan
- Zhooshkoboojiganensan, omega proofayal, $\frac{3}{4}$ " ekwaag
- 3' mininj ji-akwaag, $\frac{1}{2}$ " aabita mininj ji-inikwakwadeyaag
- Biiwaabikobiiwiboojiganan
- Pakite'iganens
- Biiwaabiko-bagone'igan gema gaye biima'iganan bebakaanakin (Raabirtsan #2)

Zhooshkiboodeg naangibiiwaabik

Desa'igan akozhan 36" ji-inikwakwadeyaag mii go bezhigwan iwe gaa-naangan biiwaabik.

Aabajitoon kakagaadiba'iganibiiwaabik, dibaabiiginan jakibii'an $4-\frac{9}{16}$ " izhi-ogijiya'ii namajina'ii, gaye $2-\frac{5}{16}$ " miinawaa ogijiya'ii gwayakonikaaning omaa 4.

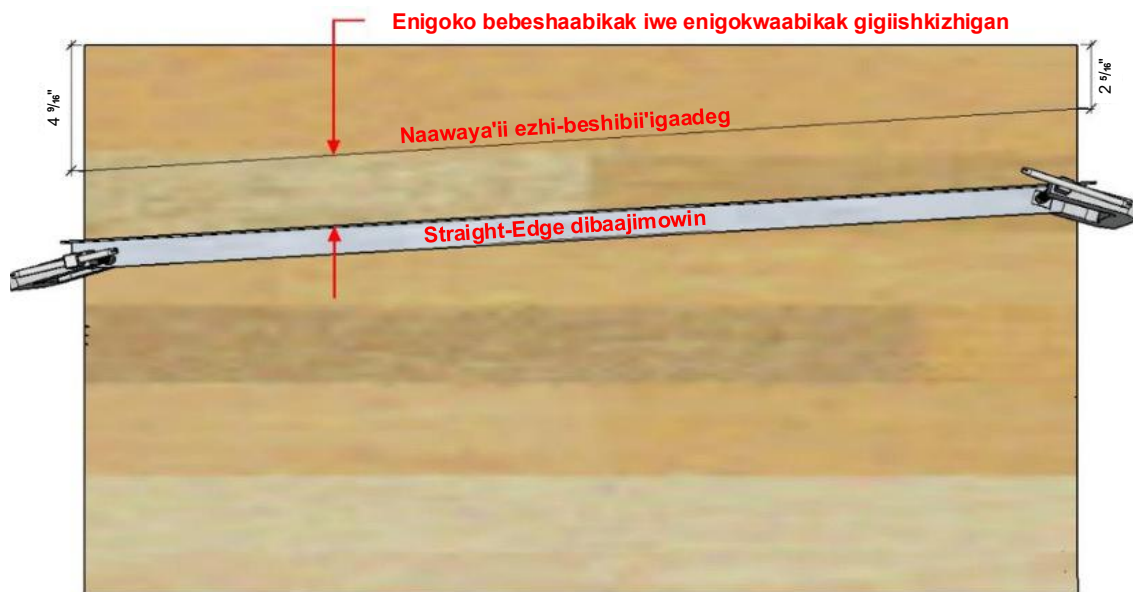
EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*



Ezhinaagwak 4: Gikinowaajibiyan izhi-naawaya'ii naangibiwaabik mii owe nitam naangibiwaabik

Gwayakobii'an ezhi-niizhingin. Mii omaa naagwak ezhi-naawaya'iawang mii omaa ji-ozhiboodeg ge-izhinaagwak.

Eshkweya'ii minjimaagwa'an imaa naangibiwaabikong, naagwatoon Ezhinaagwak naanan 5. Iniwe gaa-gii-ishkosegin naasaab ingokwaawan (omaa ishkweya'ii gaye naawaya'ii). Gichi-mashka'aakwa'an gichi-waakagwa'igan mii omaa ji-naagwak aandi ge-izhi-giishkiboodeg mitig, gaawiin gegoo da-biijinishkaasinoon.



Mazinaakizon 5: Mashkawaakwa'igwaadeg Naangibiwaabik nitam gaa-beshaabikak

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

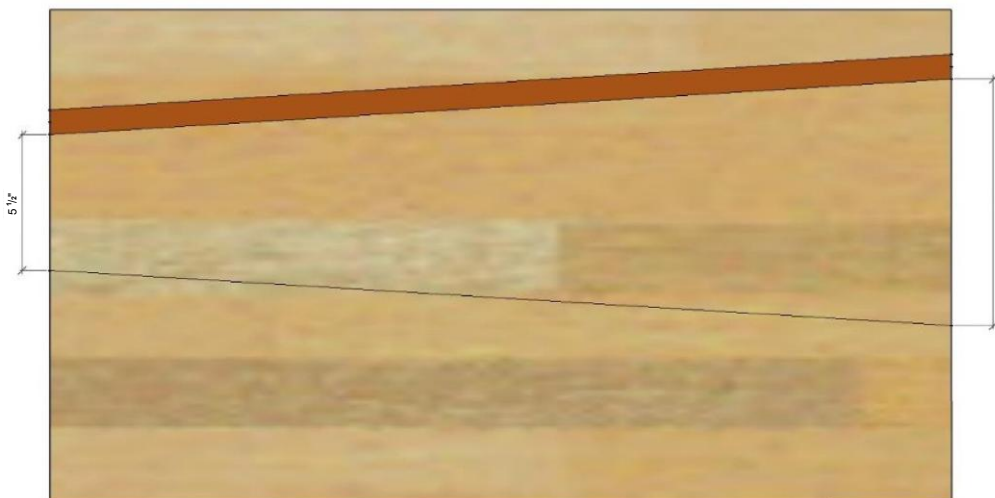
Ningo-mininj 1" da-inigokwaa saga'iganibagone'igan, aabita mininj $\frac{1}{2}$ " eta go minik ji-bagoboodeg. Bagobooodoon mitig niizhooyaakwa'an aabita ji-bookoboodeg. Maagizhaa gidaayaanjiboodoon ji-gwayakosingin.

Ningo-mizid 1" dayinigokwadezi aapiichigizi x $\frac{1}{2}$ " aabita bookobooodoon gaa-waawiyezid nibagisag omaa Gaa-inaakizod 6.



Ezhinaagwak 6: Gaa-waawiyeaad aabita Aookoboodeg Atoon imaa Gaa-gizhibaasing

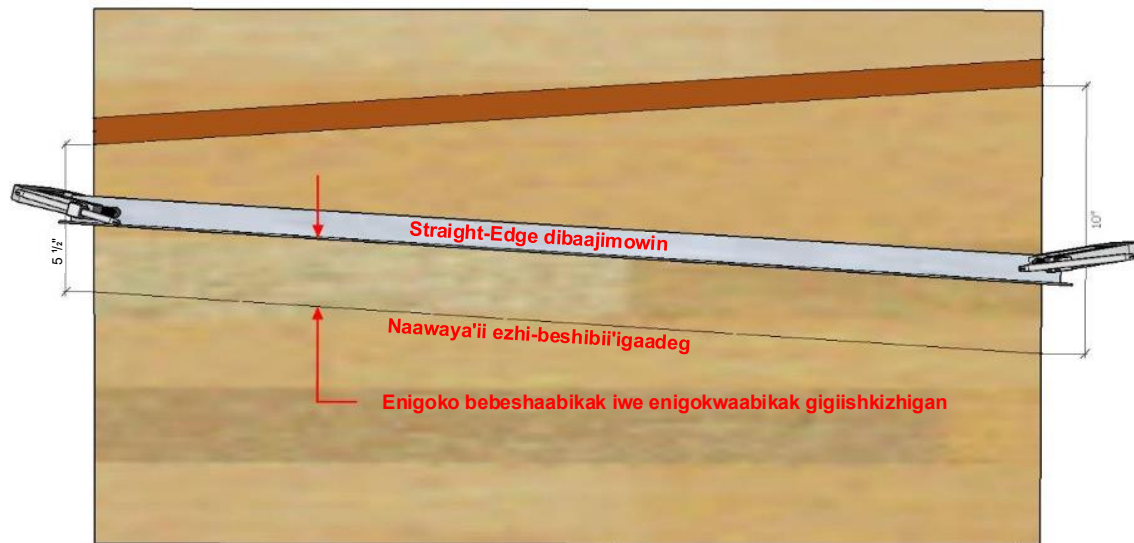
Ozhibii'an ge-izhi-boodooyan iwidi bezhig gaa-azhiganeyaag mii imaa gaa-gizhibaasing omaa gaa-naagwak 7. $5\frac{1}{2}$ " daso-minij ako-boodoon naazhaya'ii gaa-ateg namanjina'ii. Na'iiya'iing nake, 10" ako-boodoon izhi-giishkiboodoon. Niizhoosidoon gaa-gii-ozhibii'aman ji-gwayakosingin. Owe beshibiiyaa omaa aabita miinawaa bezhig.



Mazinaakizon 7: Naawaya'ii ezhi-beshibii'igaadeg ezhi-dibaabiiginigaadeg imaa Naanqibiwaabikona miinawaa iwedi Bezhiq Gaa-bebessaabikak

EKO-BEZHIGWANG 1: Mii Owe Giizisowaasigan

Gwekibidoon izhi-agwa'an iwidi gaa-gizhibaasing, naawaya'ii daangibii'an imaa gaa-gizhibaasing imaa gaa-izhinaagwak 8, aabajitoon bagone'igan aazha gaa-gii-aabajitooyan.



Mazinaakizon 8: Mashkawi'agwa'aman Naangibiwaak mii owe izhichigewin aazha gaa-gii-izhichigeyan

Minawaa izhitoon aazha idi bezhig gaa-gii-izhitooyan 1" inigwakwadeyaa x 1/2" aabita mininj apiitaa aazha gaa-gii-ozhibii'aman.

Mii owe ge-izhi-naagwakin niizhosingin gaa-azhiganeyaagin, imaa gaa-izhinaagwak 9.

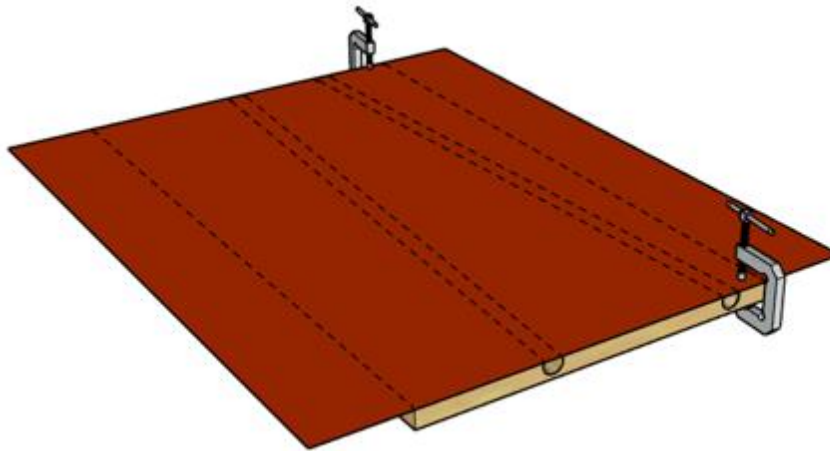


Mazinaakizon 9: Naangibiwaabik, Niizhi Bebeshaabikoon Gaa-gii-kiizhichigaadegin

Ozaawibiiwaak agwani'igaagen

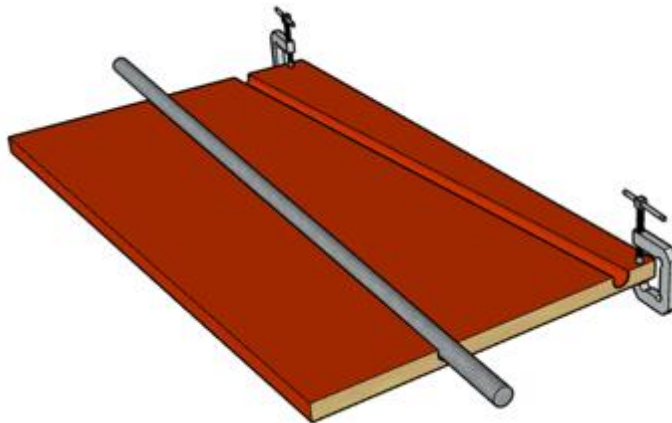
Miinawaa ge-izhichigeyan biiwaabik agwani'igaagen imaa gaa-gizhibaasingin.
Mii owe ge-onji-mashkawiziimagak iniwe idi aanind ge-ani-aabadakin giizisowaasigan.
Banaskonan biiwaabik 30" ji-akwaabikak, mii owe 5 mil ozaawaabik.

Agona'igaagen, ozaawaabik weweni ji-gashkiiwiyyaag. Minjimaakwa'an eshkweya'ii ozaawaabik owe izhinaagwak 10.



Mazinaakizon 10: Minjimaakwa'an Ozaawaabik owe Izhinaagwak

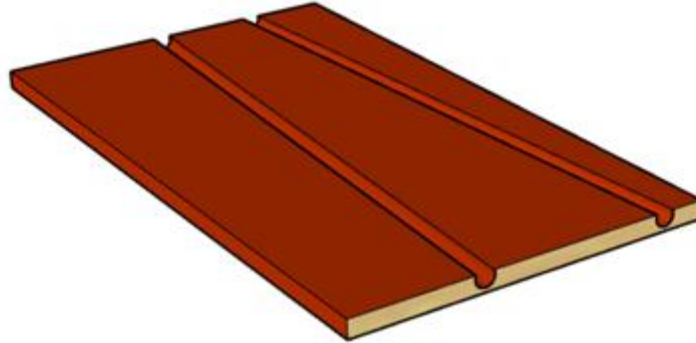
Naabisidoon biiwaak bapagwaneyaag, onji-maajitaan gaa-gii-minjimaakwa'igaadegin, naabisidoon ozaawaabik gaa-izhi-bapagwaneyaagin owe izhinaagwak 11.



Mazinaakizon 11: Mashkawizaaga'an Gaa-waabishkaabikak Biiwaabik, weweni Ji-naabaabikisingin imaa Naangibiiwaabikong

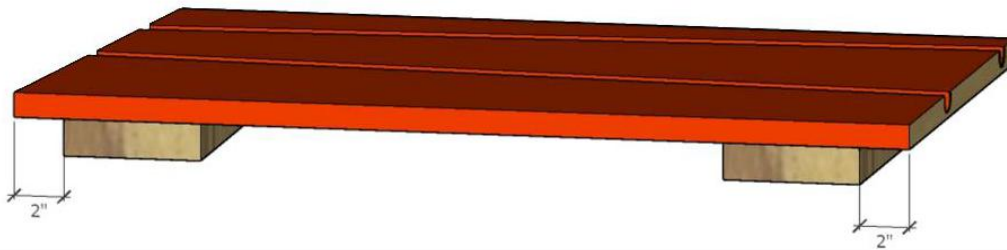
EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Biskaabikinan aanaamaya'ii sagaakwa'an $\frac{3}{4}$ " aabajitoon ozaawi-saka'igan. Aazha gaa-gii-agwana'igaadeg imaa gaa-naagwak 12.



Mazinaakizon 12: Agwana'an Naangibiwaabik aabajitoon Ozaawaabik

Ishkwaaj, giishkiboozh 4' izhi-boozh 2x6 nabagisagoog niiwaatigig izhi-boozh 20' ji-akwaakwaziwaad (agwaa'wi nabagisag agoosag imaa gizhibaasing). Aabajitoon $1\frac{1}{4}$ " saga'iganan, ji-agwa'aman naazhaya'ii mii gaa-izhi-gizhibaasing ji-mashkawising mii dash ge-ombiniman miinawaa ji-gichiwaakwa'aman ge-onji-mino-ayaag naagaj. Imaa gaa-naagwak 13, 2' minjiminik ji-dawi-ayaagin nenisiwaya'ii gaye naagaj 2x6 ge-izhi-agwaa'aman minjimaakwa'iganan.



Mazinaakizon 13: Giizhitoon Naangibiwaabik Ji-namajising Nabagisagong

EKO-2 Onaabikisidoon

Ji-onaabikisingin ge-izhijiwang nibi biindig, ge-onji-gizhaagamideg (nibi).

Gegoo geyaabadakin:

- $\frac{3}{4}$ " agwajiing gizhibaaya'ii (OD) $\frac{3}{4}$ " X 50' Ge-onji-gizhideg gaye Ge-onji-daki-ayaag (ACR)
Gaa-nookaabikak ozaawaabik COP toobing
- Emery Bagiwayaanish

Aabajichiganan endawendaagwakin:

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> - 2' X 2' X $\frac{1}{2}$" ge-apiichigizid dazhweginabagisag - $1\frac{1}{4}$" casters, gaye aabajitoon namekwaan detibibiseg (4) - #6 $\frac{5}{8}$" waawiyetigwaane saka'iganan (16) - Reamer / diibering tool - Imperial 600F Worm Gear Zhawabaabikanibiiwaabik - $\frac{5}{8}$" apaagwa'igan ge-onji-waawiyeyaag zaginigan zhawabaabikanibiiwaabik (payp) - Bagoneboojigewaabik - $\frac{11}{16}$" drill socket (maagizhaa, gaye naasaab enigokwaag) - Dibaabiiginigan - Bookozhan (ji-giishkizhan ozaawaabik) - Makadedaaigibii'iganaak | } | <p><i>Naanaabisidoon Rolling Dolly
Platform ge-onji-minosing
ozaawibiiwaabik</i></p> |
|---|---|--|

Da-niizhiwag ge-oozhisidoowaad onowen. Maagizhaa akawe da-gwajichigaadewan gaa-zhawabinigaadeg biiwaabik.

Ditibidaabaan

Nitam, ditibidaabaadan gibidaabaaniman ozaawaabik ji-babaamidaabaadaman ozaawibiiwaabik aandi waa-izhi-aabadak. Niiwin agwa'an gaa-titibisegin $1\frac{1}{4}$ " imaa nabaginabagisagong 2' x 2' x $\frac{1}{2}$ " aabajitoon $\frac{5}{8}$ " biimisko-zaka'iganan. Ditibidaabaan mii imaa ogijidaabaan ge-izhi-dazhwegising ozaawaabik.

Ozhi-ayaan gaa-biskaabikinigemagak

Ozhi-ayaan gaa-biskaabikinigemagak $\frac{5}{8}$ " zaga'igan ishkweya'ii (giichigonan gaa-biskaabikinigemagak). Zaga'an aabajitoon $\frac{11}{16}$ " begone'igemagak (enigokwaag da-naagwad wegonen zaga'igan geyaabajitooyan) aabajitoon bemibideg biimaa'igan. Use the bender with the $\frac{3}{4}$ " OD mandrel and $\frac{3}{4}$ " OD guide bar. Aabajitoon gaa-biskaabikinigemagak $\frac{3}{4}$ " OD mandrel gaye $\frac{3}{4}$ " OD guide bar.

Ji-biskinigaadeg Bagonebiiwaabik

Nitam odaapinan ezhi-ishkweyaag gaawiin baabikak biiwaabik debering tool gaye emery claath.

Ditibinan dazhwegibiiwaabik (65") weweni gegoo maakaabikisidooken. Atoon ozaawaabik ogijidaabaanaak ge-onji-biskaabikinigaadeg.

Akawe gibisaabikinaan, dibaabandan (4') ji-akwaabikak miinawaa 9 ¼", izhi-maamawi 57 ¾".

Atoon biiwaabik biskaabikiniganing ozhibi'an 0-line, naasaab Izhi-naagwad 14.



*Mazinaakizon 14: Okijaabik Biskaabikinigan Biiwaabik Onji-maajitaan
Nitam Gaa-izhi-biskinigaadeg*

Maajiibiskaabikinan bekaa go, gaa-wiiji'ik oga-banaskodidibinaan imaa ojigidaabaan. Ogoziwan biiwaabik da-babaamidaabaade, bezhig ogagadaanaan odaabaanensan mii owe ge-wiiji'iwemagak ji-biskaabikinigaadegin. Da-gazhiikaamat bagone'igewin ge-onji-mino-naagwakin, gego wiin bishigonangen ozaawaabik gaa-wiiji'ik oga-waabandaan.

Aanjisidoon biskaabikinigan giishpin inendaman, baamaa gakina gii-biskaabikinigaadegin weweni ji-inaabikisingin.

Gii-biskaabikiniman gwekinan, owe minik 150 (gemaagaye nawaj geyaabi) maagizhaa "da-azhe-geyaabikise" mii ge-izhiseg giishpin bagijiwebinaman. Naangibiiwaabik daayaabadad nawaj ji-biskaabikinigaadeg gii-ishkwaa-bikininan mii owe Izhinaagwak 15.



Mazinaakizon 15: Waabandan waa-minik Gaa-biskaabikinaman
Aabajitoon Naangibiiwaabik

Gii-ishwaa-biskaabikiniman, bakwadinan biskaabikinigan azhe-atoon bagone'igan gaa-onji-maajitaayan O-line.

Basikotibinan biiwaabikoon ji-gwayaakwaabikakin waa-anokaadaman. Dazhwaabikinan biiwaabik weweni. Maagizhaa owe apii awiya giga-andawendamaa ji-wiiji'ik. **Minjimendan:** Giishpin zhawabinaman biikwaabik, da-zanagad ji-miinwaabikinigaadeg.

Eko-niizhing biskaabikinigan, dibaabiiginan 3' gaa-gwayakaabikak bezhibii'an ishkweya'ii.

Miinawaa iwedi bezhig gwekaya'ii, atoon biskaabikinigan, guide bar gwekaya'ii nake. Atoon 3' miinawaa ozhibii'an iwedi waawiyebii'iganing mii owe gaa-izhinaagwak 16.



Mazinaakizon 16: Aabajitoon Ozaawaabik imaa Ji-maajitooyan
Eko-niizhi Biskaabikinigan

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Miinawaa biskaabikinan. Gii-ishwaa-biskaabikiniman, bakwadinan biskaabikinigan azhe-atoon bagone'igan gaa-onji-maajitaayan O-line.

Eko-nising biskaabikinan, dibaabiiginan 3' 9 ¾" iwedi ishkwaaj gaa-gii-biskaabikiniman. Gwekinan gaa-gii-biskaabikiniman guide bar, atoon ozaawaabik gaa-biskaabikinigemagak, bezhibii'an 3' 9 ¾" omaa ozaawaabikong miinawaa azhe-giiewewidoon.

Miinawaa biskaabikinan. Gii-ishwaa-biskaabikiniman, bakwadinan biskaabikinigan azhe-atoon bagone'igan gaa-onji-maajitaayan O-line.

Gakina izhitoon ozaawaabikoon, waabandan weweni ji-biskaabikinigaadegin.

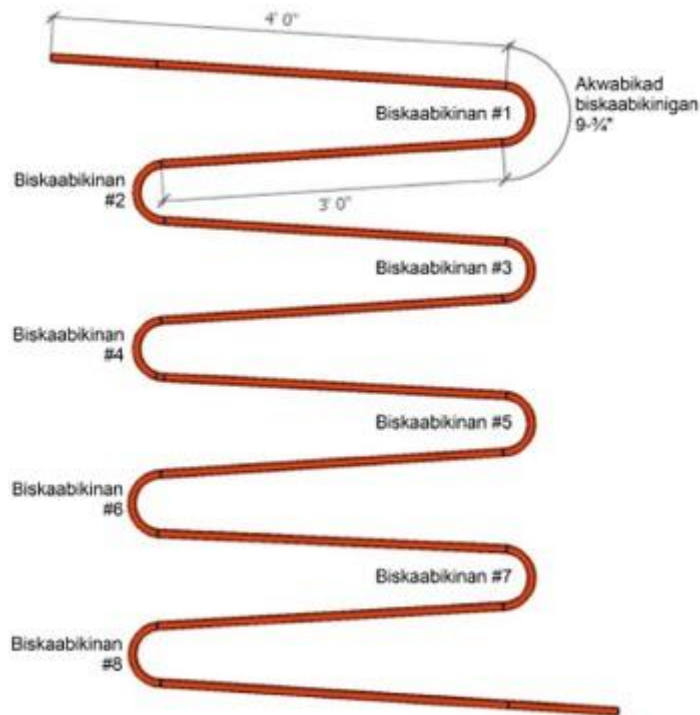
- **Eko-niiwing Biskaabikinigan: 3'**
- **Eko-naaning Biskaabikinigan: 3' 9 ¾"**
- **Eko-ningodwaaswi Biskaabikinigan: 3'**
- **Eko-niizhwaaching Biskaabikinigan: 3' 9 ¾"**
- **Eko-nishwaaching Biskaabikinigan: 3'**

Gii-ishkwaa-zhawabinaman bezhig miinawaa idi da-ayaa ge-naabising. Giishpin andawendaagwak, bezhig miinawaa didibinan.

Gii-tidibinaman, dibaabiiginan niyomizid 4' mii iwe ishkwaaj ge-giishkizhiman. Ozhi'ayaan ozaawibiwaabik ozhi'ayaan waa-aabajitooyan diibering tool miinawaa emirii claath.

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Giishpin geyaabi wii-kikendaman iwidi izhaa 17 gaye 18.



Naabisidoon gaa-izhi-biskaabikak okijaabikoons (okijaabikoons #1, #3, #5 gaye #7), dibaabiiginan ezhi-biskaabikak (miinawaa dibaabiiginan ishkya'ii ge-izhi-naabisingin).

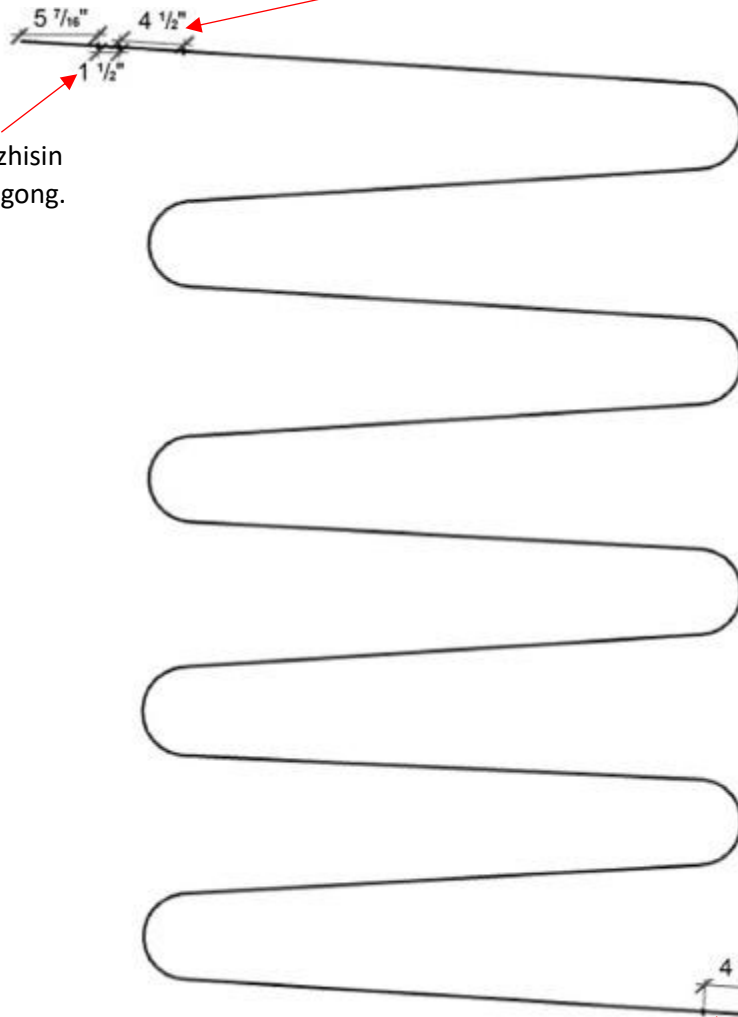
Miinawaa dibaabiiginan ishkweya'ii gaa-izhi-waawiyeyaag (dibishkoo, Bends #2, #4, #6 gaye #8) dibaabiiginan wenji-maajibiskaabikak okijaabikoons (ekwaabikak gaa-gwayakwaag biiwaabik).

Mazinaakizon 17: Enigokwaag Naangibiiwaabiko Okijaabik

Aanind gegoo maagizhaa
da-zagaabikisinoon.

Okijaabik gaye
ozaawi-naangibiiwaabikong.

Okijaabik da-izhisin
imaa nabagisagong.



Aanind gegoo
maagizhaa
da-zagaabikisinoon.

Okijaabik gaye
ozaawi-naangibiiwaabikong.

Okijaabik da-izhisin
imaa nabagisagong.

Mazinaakizon 18: Ji-gikendaman Ekwaabikaking Okijaabikoonsan Ozhibii'igaade Imaa Sakaabiisijiganing

EKO-NISING 3 Biiwaabik Gaa-zaagaabikising

Gaa-zaagaabikising biiwaabik ge-odaapinang ge-onji-gizhizided giizis ji-naabising biiwaabikoonsing.

Gegoo geyaabadakin:

- 36" X 9' / 10 Mil (30 ga.) Ozaawaabik (i.e., aabita iwe nishwaaswomininj 18' gaa-kwaabikak biiwaabik)

Aabajichiganan enawendaagwakin:

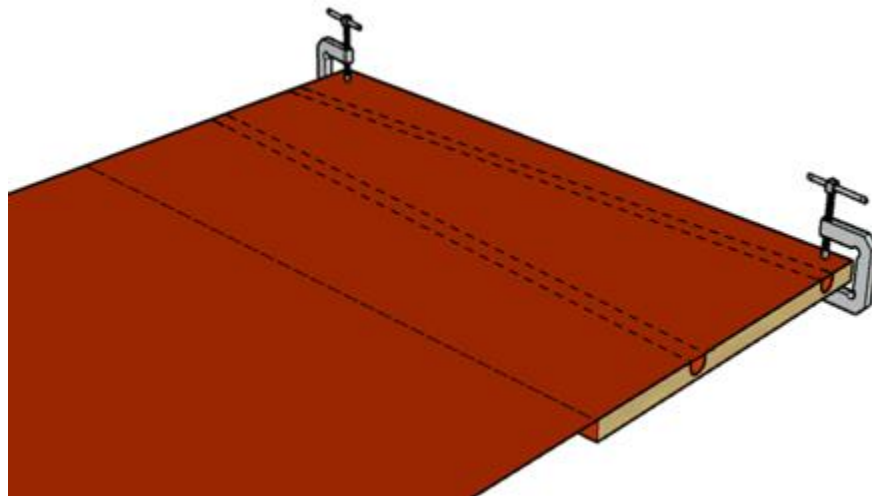
- Naangibiiwaabik
- 2 x C-minjimaakwa'iganan
- Gaa-mashkawaag biiwaabik gaa-wiibaag, nisomizid 3' , ½" miinawaa aabita mininj ji-inigokwaabikak
- Dibaabiiginigan
- Biiwaabikobiiwiboojiganan
- Pakite'iganens

36 gaa-inagwakwadeyaag ozaawaabik bakwezhan 6' 11". Gaa-gii-ishkoseg ozaawaabik aabajitoon imaa EKO-NIIWING 4.

Naawaya'ii imaa izhi-atoon ozaawaabik naangibiiwaabik, weweni ji-gwayakwaabikak.

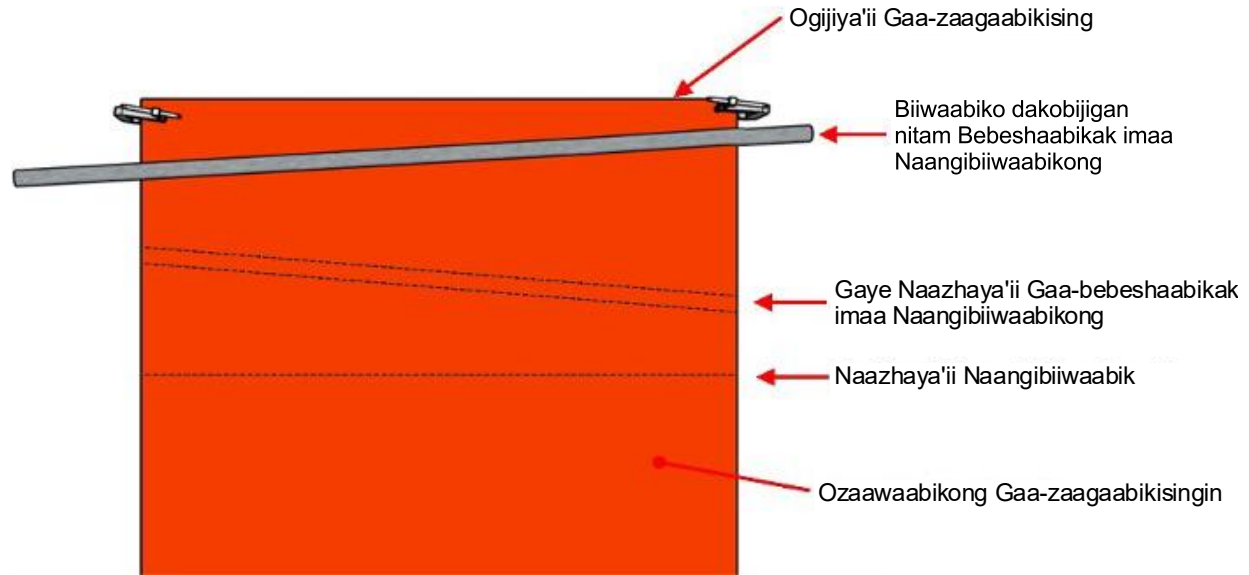
Weweni mashkawaakwa'an imaa ozaawaabikong naangibiiwaabik imaa gaa-izhinaagwak 19.

MINJIMENDAN: *Weweni mashka'aakwa'an gegoo ji-bijjiikaasinok gakina naasaab ji-izhisingin.*



Mazinaakizon 20: Agwaakwa'an imaa Naangibiiwaabikong mii owe gaa-zaagaabikising

Aazha gaa-gii-mashka'aakwa'aman ogijaya'ii atoon gaa-mashkawaag biiwaabik, imaa gaa-izhinaagwak 20, mashkawizaaga'an gaa-waabishkaabikak biiwaabik, weweni ji-naabaabikisingin imaa naangibiiwaabikong weweni ji-dashwegaabikak (2). Weweni ji-dazhwegaabikak ozaawaabik. Weweni ji-zhooshkwaabikak gaa-kaabising biiwaabik. **Awiya bezhig oga-minjiminaan ishkweya'ii biiwaabik "weweni baapaawiwebinan" agwana'ibiiwaabik ji-biinak awedi bezhig awiya oga-zaga'aan mii omaa biskaabiiginigaadeg ozaawaabik inake ezhi-andawendaman.**



Mazinaakizon 21: Ozhitoon Omega-shaped Channel miinawaa izhi-biinjisidoon imaa gaa-izhi-zaagaabikising biiwaabik gaye aabajitoon Naangibiiwaabik

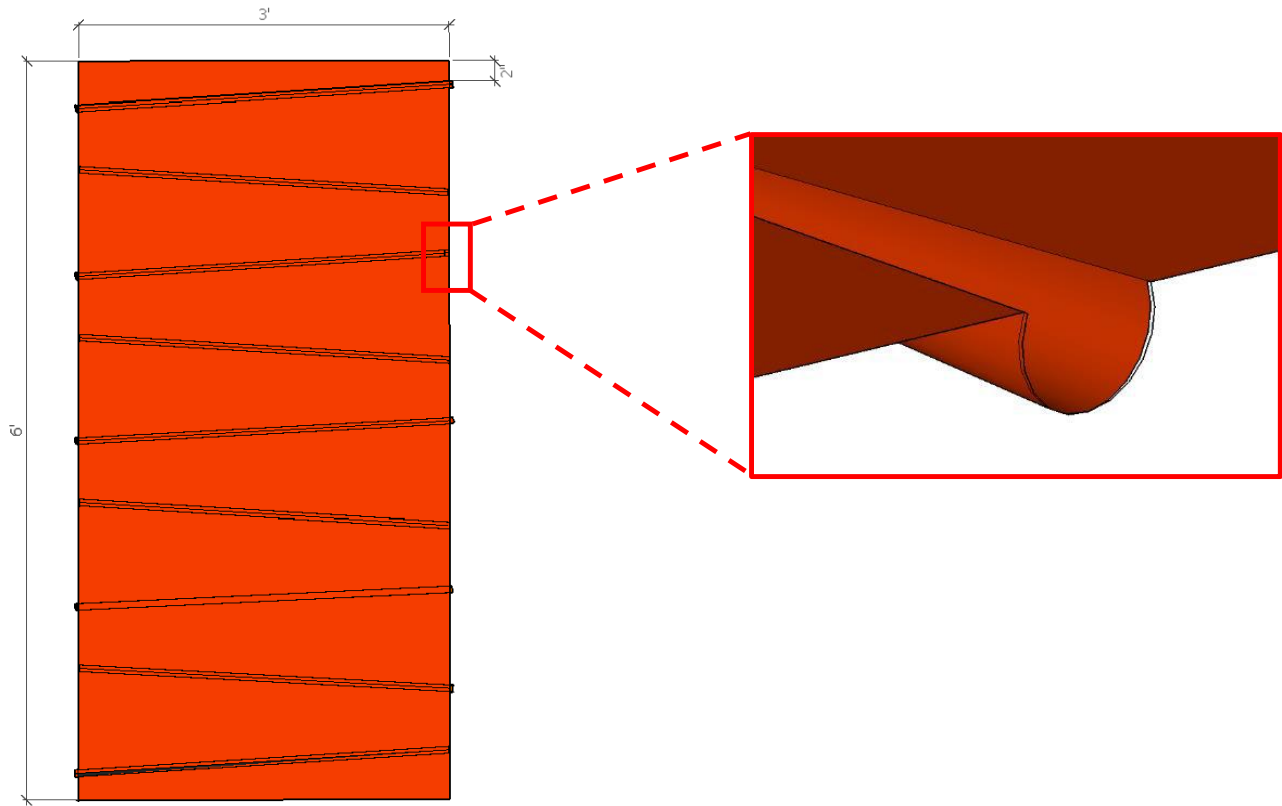
Aazha gaa-gii-niibidesingin weweni aanjigijinda'an naangibiiwaabikong, mii go bezhigwan ozhitoon naazhibiiwaabikong.

Ishkwaa-ozhitooyan omega-shaped channel, banaskonan gaa-gii-agwaakwa'aman gaa-zaagaabikising, aabita ge-izhi-gwekinan naagibiiwaabik 180° anaamaya'ii biiwaabik gaa-zaagaabikising. Gaandinan ozaawaabik ji-zaagaabikising gakina ji-naanaabikisinging omega-channel imaa naangibiiwaabikong weweni ji-daabidawaabisingin.

Miinawaa aanji-zagaakwa'an omaa ozaawaabikong miinawaa ozhichigen omega-shaped channel aabijitoon naazhaya'ii naangibiiwaabik.

Miinawaa banaskonan; gwekinan naangibiiwaabik ji-namajising; miinawaa ozhitoon omega-shaped channels biinish igo ji-naagichingin imaa gaa-izhinaagwak 21.

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*



*Mazinaakizon 23: Giizhitoon Gaa-zaagaabikising gaye Aabajitoon Zhaangaswi
Omega-shaped Channels*

EKO-NIIWING Ozhitoon Naangibiiwaabik

Ji-naabising imaa gaa-zaagising biiwaabik. Gii-naabising idash, biiwaabik agokiiwate onjida go gakina gegoo ji-mashkawi'igaadegin.

Gegoo geyaabadakin:

- 95% da-biiwaabiko-agokiiwate
- Biiwaabiko-agokiwasiganaabik
- Emery Bagiwayaanish
- Ozaawaabikodakobijigan
- 36" X 25" / 10 Mil (36 ga.) Ozaawi-biikwaabik (gaa-gii-oshkiseg omaa EKO-NISING 3)
- Biiwaabiko-zhizhoobii'igan (maagizhaa, Thurmalox gaye naasaab)
- Zhizhoobii'igan nookaagaminigan (maagizhaa, Thurmalox gaye naasaab)
- Mazina'iigin gemaa bagiwayaanish

Aabajichiganan enawendaagwakin:

- Awizowaasiganibimide
- Jaagidewaabo zhizhoobii'iganaatig (ji-aabajitooyan)
- Dibaabiiginigan
- Hand bender (aabajitoon anokiiyan)
- Biiwaabiko-moozhwaagan
- Pakite'iganens
- Nabagibiima'iganaabik

**AYAANGWAAMIZIYOK: Dayaabadad o'owe gaa-agokiwaasigemagak
ishkodeboodaajigan.**

Inaabin besho-gegoo ji-atesinok ge-jaagidegiban, gegoo maakinanidizoken.

Maamawi-agokiwasan gakina Aabajiganan

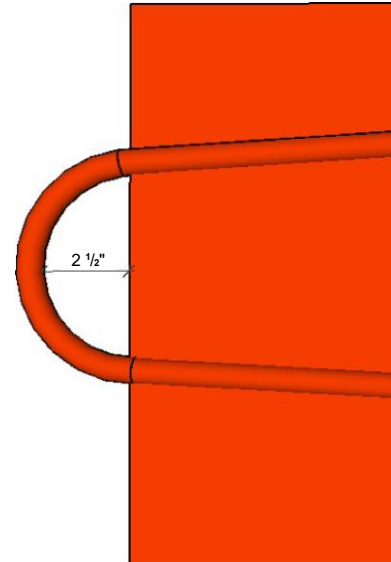
Ge-gizhibaasing Biiwaabikoon

Maajii-atoon minji-niizh omega-shaped channels omaa onaabakisidooning i'maa naangibiiwaabikong.

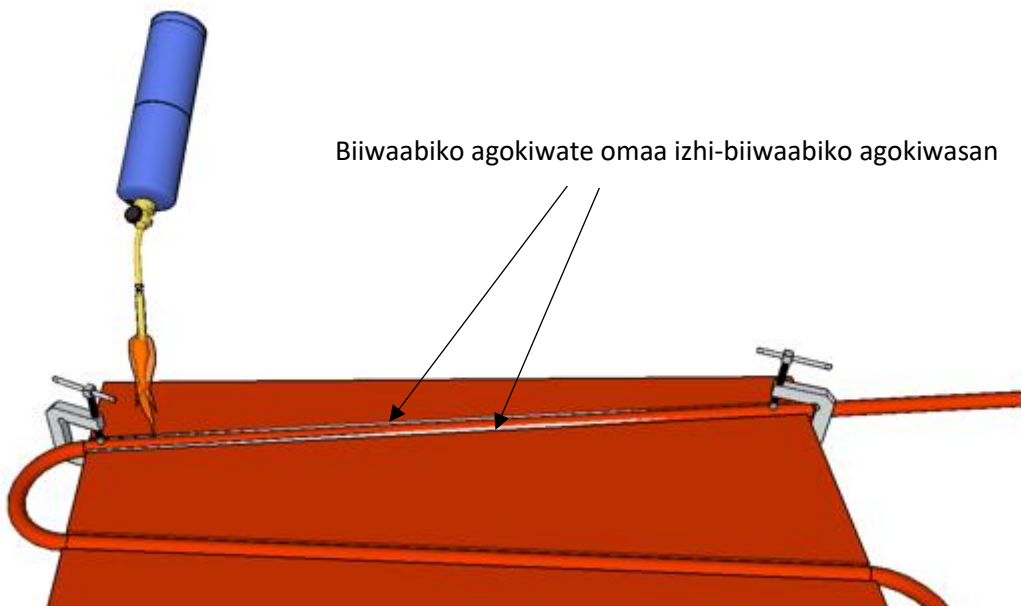
Niizhwaabikisidoon ge-gizhibaasing biiwaabik. Gakina naasaab ji-izhinaagwakin e'iidawi gizhibaaya'ii. Niizho-mininj $2\frac{1}{2}$ " da-dawaabikad imaa gaa-izhi-biskaabikak onaabakisijigan daabishkoo gaa-izhinaagwak lwe 22.

Aabajitoon biiwaabikoo agokiwasigan ji-zagikawasiman biiwaabik gaa-zaagaabikising biiwaabik. Gakina mashkawaakwa'an imaa naangibiiwaabikong dibishkoo omaa Gaa-izhinaagwak 23, gego gegoo maakaabika'angen.

Aabajitoon boodaajigan agokiwasinan weweni ji-ningikiwateg. Mii go ge idi bezhigwan gwekiwaya'ii izhitoon.



Mazinaakizon 24: Atoon imaa onaabakisijigan omaa gaa-gizhibaasing biiwaabikoon



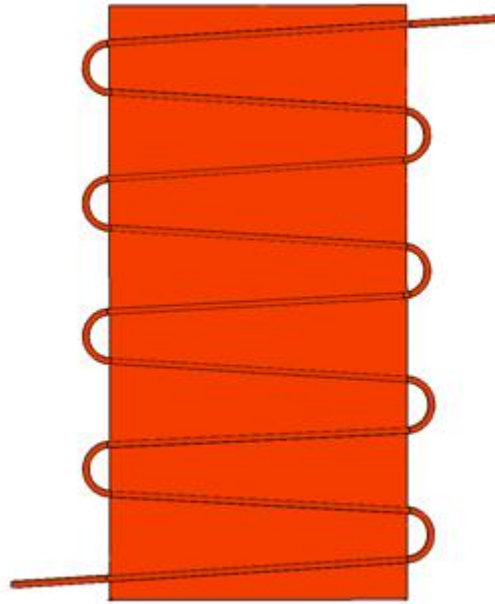
Mazinaakizon 25: Ji-biiwaabiko agokiwateg Naangibiiwaabiko Okjaabik imaa izhi-agokiwasan Gaa-zaagaabikising Biiwaabik

Akawe gizhibaa biiwaabikoo agokiwasigan minji-niizh channel mii dash ge-azhe-mamashkawaakwa'aman okjaabikoonsan gakina maamawi-zagikiwasan.

Mii dash ge-izhi-banashkonaman maagwaakinensan mayaawisidoon gaa-gizhibaasing biiwaabik. Naanaabisidoon okjaabikoonsan gakina weweni ji-mino-naanaabisingin.

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Mii go miinawaa bezhigwan ge-izhichigeyan aazha Dibishkoo 24.



Mazinaakizon 26: *Gakina gegoo Ge-biiwaabiko Agokiwategin*

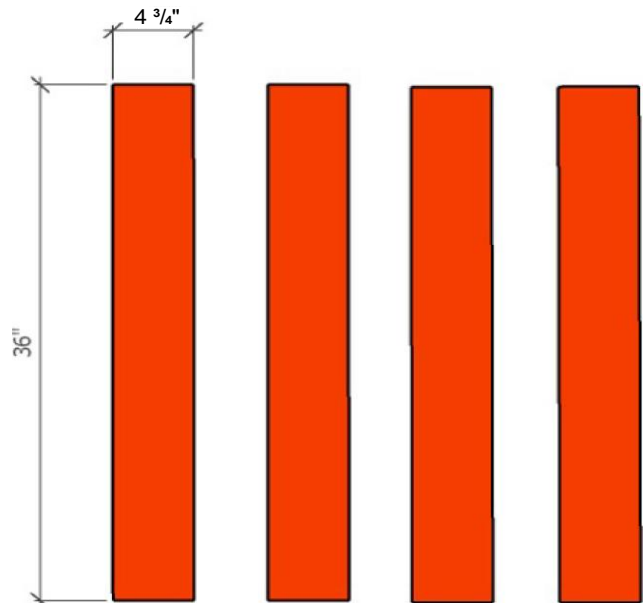
Miiwan iniwe ge-agwa'aman

imaa Naangibiiwaabikong

Niiwin onizhan ozaawaabik enigokwaagin $4\frac{3}{4}$ " x 36" dibishkoo imaa 25 (***Minjimendan:*** *gikendan naasaab ji-inigwakwaabagikin iniwe idi aanind gaa-gii-onizhaman*).

Mayaawisidoon onaabikisigan ozhisidoon waa-izhi-biiwaabikoo-agokiwagaman weweni ozhisidoon waa-anokaadaman omaa ogijiya'ii adoopowinaakong.

Neniizh atoon) e'iidayawa'ii ozaawaabikoon gaa-gii-wanizhaman Dibishkoo omaa 26. Aanind igo $4\frac{1}{2}$ " daneyaabikagoode naazhaya'ii $\frac{1}{4}$ " gaye ogijiya'ii. Aanind gaye imaa naawaya'ii $\frac{1}{4}$ " daneyaabikagoode naangibiiwaabikong.



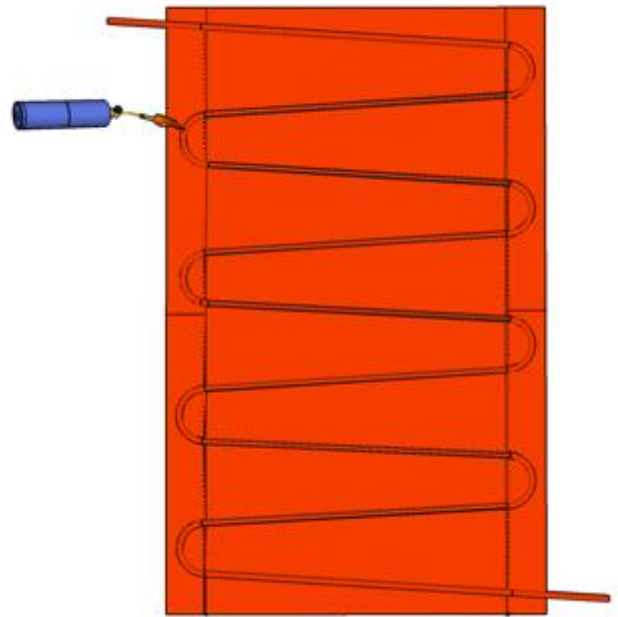
Mazinaakizon 27: *Imaa Aasamaya'ii Daneyaabikagoode Naangibiiwaabikong*

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Gizhibaa biiwaabikoo agokiwasigan imaa naazhaya'ii, maagwakwa'an gizhaabikoonsan gizhibaa biwaabiko agokiwasan.

Mii go gakina ge-izhi-atooyan iniwe okiji-biiwaabikoonsan.

Naangibiiwaabik, atoon biiwaabikoo agokiwasigan imaa aasamaya'ii gaa-gizhibaasing gakina gegoo biiwaabikoo agokiwasan. Maagizhaa bangii giga-naazhibidoon weweni ji-zagikiwateg.

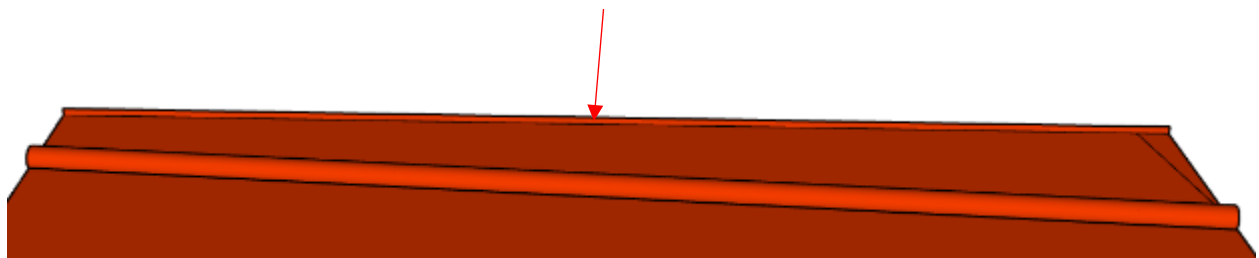


Mazinaakizon 28: E'iidayawa'ii ozaawaabikoon gaa-gii-wanizhaman Naangibiiwaabiko Okijaabik

Giishtoong Giiziso Waasigan

Aabajitoon biskaabikinigan, o'owe minik $\frac{1}{2}$ " imaa ogijiya'ii, gaye naazhaya'ii, ozaawaabik gaa-gizhibaasing Dibishkoo omaa 27. Mii owe ge-onji-zoongang gaa-gizhibaasing imaa eshkweya'ii.

Biskaabikinan Odeninikaan imaa Naangibiiwaabikong.



Mazinaakizon 29: Ishpiming Izhi-biskaabikinan iwedi ishkweya'ii imaa Naangibiiwaabikong

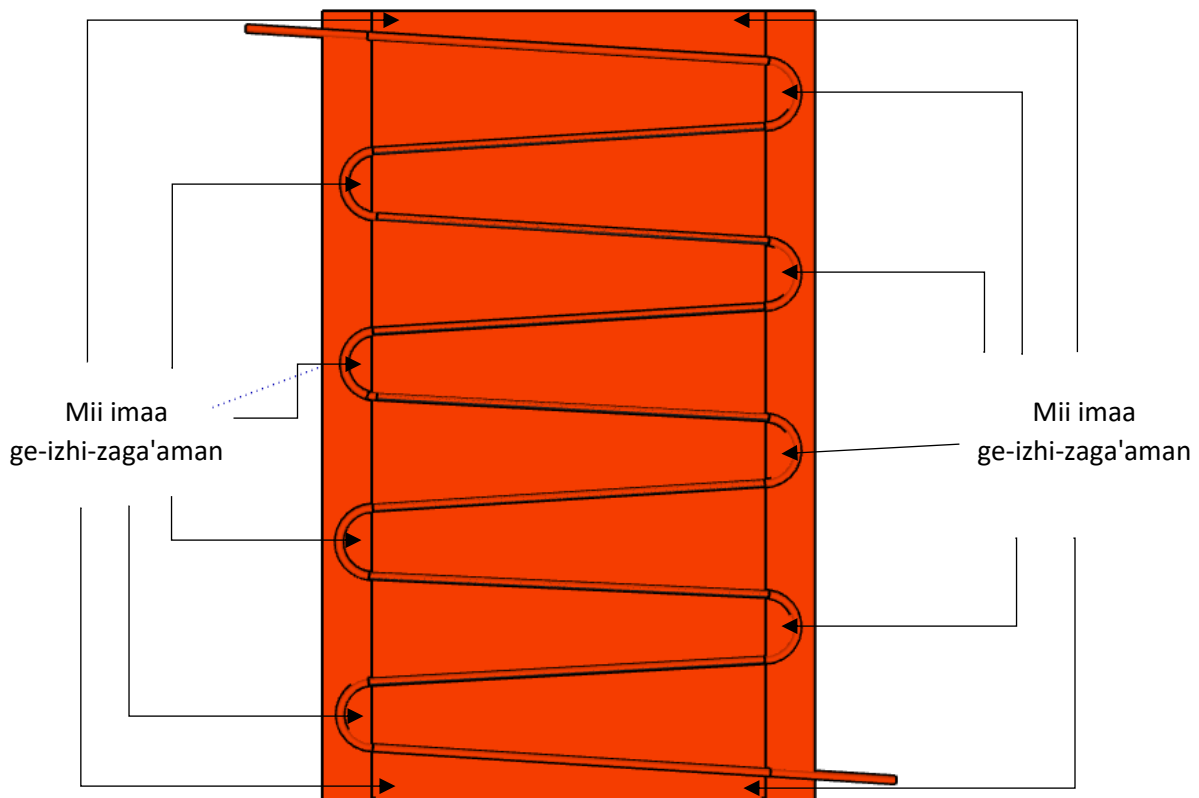
Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

Mii Omaa Ge-izhi-baasing Ozaawaabik

Papagwane'an, ge-ondapideg wii-gizhibaadaakoobideg naangibiiwaabik mii omaa ji-zoongwan agwapideg imaa mitigong. Papagwane'an 12 omaa Dibishkoo 28. Mii iniwe:

- Niizh dabagone'igaadewan ogijiya'ii,
- Niizh gaye naazhaya'ii,
- Nishkwaaswi aasamaya'ii ga-gizhibaasing biiwaabik, jiigi-okiji-biiwaabikoonsing.



Mazinaakizon 30: Gikendan Ezhi-mashka'aakwa'igaadeg Ge-ondapideg Wii-gizhibaadaakoobideg Naangibiiwaabik

Geyaabi 6", onizhan ozaawaabikoon geyaabadakin ogijaya'ii gaye imaa naazhaya'ii. Gashkigwaadan gaa-izhi-babagoneyaag gaa-gizhibaasing biiwaabik, mii dash ge-izhi-biiwaabiko-agokiwasisan, aanind ishkweya'ii da-agoodebiiwaabik.

Ozhiboodoon 8" mizid ozaawaabik. Miinawaa gashkiwaadan gaye biikwaabiko-agokiwasan miinawaa.

Zhizhoobii'an Naangibiiwaak

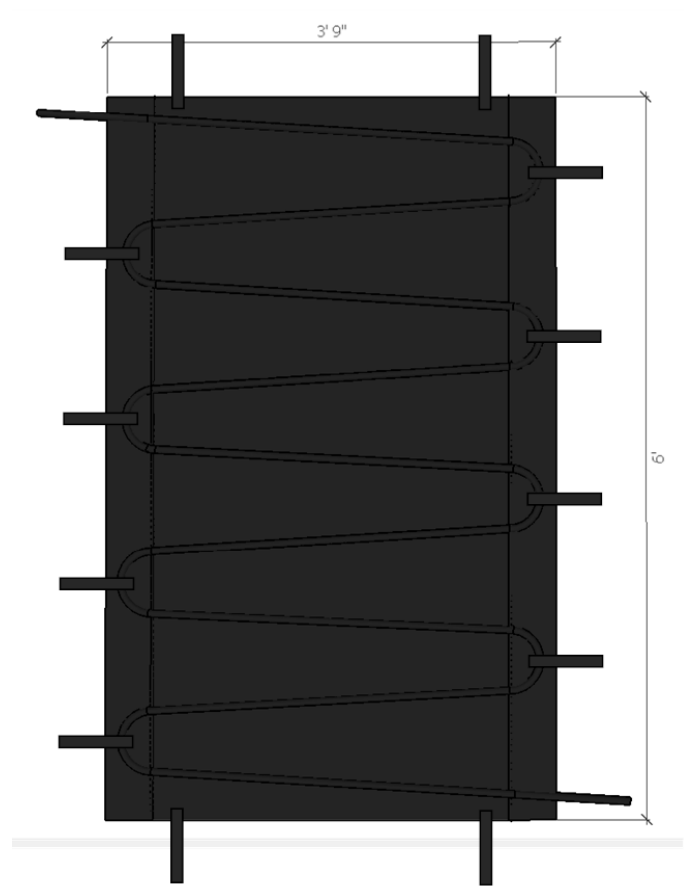
Naagadawaabandan izhichigewinan zhizhoobii'igeng.

Weweni akawe biinitoon ogiji-naangibiiwaabikong naagadawaabandan izhichigewinan.

Zhizhoobii'igaagen solar zhizhoobii'igan imaa naangibiiwaabikong. Nitam eta go zhizhoobii'an.

Giizhitooyan Da-izhinaagwad imaa 29.

AYAANGWAAMIZIN: Gii-ishkwaajizhoobii'igeyan weweni dazhiikan ayaagwaamizin.



Mazinaakizon 31: Giizhitoon Naagibiiwaabik gaye Zhizhoobii'igaagen Solar Zhizhoobii'igan

AYAANGWAAMIZIYOK: Nitam zhizhoobii'iganaabo gemaa giga-ishkwekaagon.

Baakinan waasechigan endananokiiyan ji-zaagidaabiteg biisikan gibidoonepizoyan.

EKO-NAANING - Giiziso Waasiganimakakosag

Mii owe gakina ge-minjiminigemagak. Mii owe mitigomakak.

Gegoo geyaabadakin:

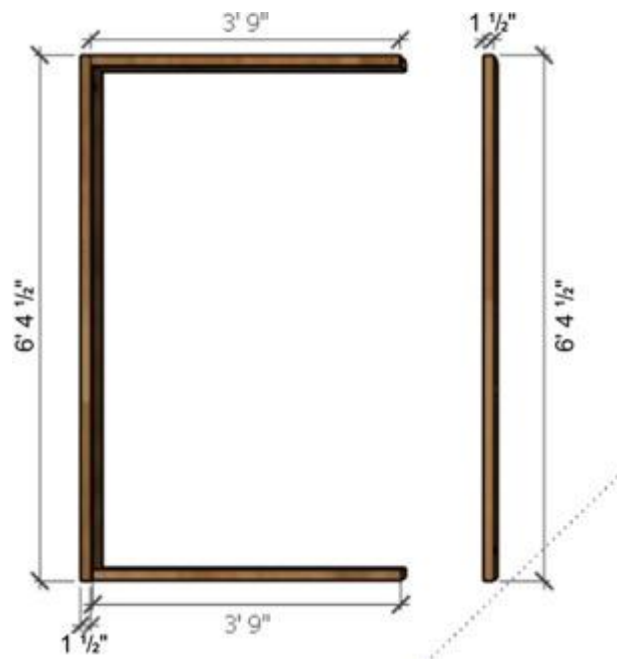
- 3 x 2" x 6" (bangii) x 8' mitigoon
- 1 x 4' x 8' x 1/4" OSB Sheet
- 8 x Mitigoozaga'iganan (#8 Robertson head, 3" mizid ji-akwaag)
- 40-50 x Mitigoozaga'iganan (#8 Robertson head, 3/4" mizid ji-akwaag)

Aabajichiganan enawendaagwakin:

- Bagoneboojigan
- Bagoneboojiganaabikoonsan
- Miter giishkiboojigan apiboojiganaatig
- Daashkiboojigan gaye apiboojiganaatig
- Ozhiboojiganigiishkiboojiganen ozhiboojiganaabikoons
- #2 Robertson biima'igan (Miskwaa)
- Dibaabiiginigan
- Ozhibii'iganaak

Giiziso Waasiganimakakosag

Giishkiboozh 2" x 6" nabagisagoog miinawaa niizh 76 1/2" ji-akwaakoziwaad, miinawaa niizh 45" ji-akwaakoziwaad.



Mazinaakizon 32: *Giishkizhan Ji-mino-akwaag Giiziso Makak*

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Mii omaa ji-waabamadwaa nabagisagoog mii imaa ge-izhi-biindakoshimadwaa giiziso waasiganimakakoon. Ozhisidoon daashkiboojigan mii owe ge-apiichiboonidwaa $\frac{1}{2}$ " mininj ji-apiidadeziwaad. Miinwaa ozhisidoon daashkiboojiganbakweboozh ishkweya'ii $\frac{3}{4}$ " mininj (omaa Mazinaateseg 33). Dibaabiiginan waasechiganaabik weweni ji-naabising $\frac{1}{8}$ " wewenji ji-ziinda'ooodegin ($\frac{1}{8}$ " waasechiganaabikoon, $\frac{1}{4}$ " inigwakwadeboodoon).

Dibaabiiginan daashkiboojiganaabikoons mii omaa naasaab ji-inikobagwaneyaagin.

Gakina niiwin ozhiboozh nabagisagoog niizhing, weweni ji-izhisingin.

Giishpin owe anigokwaag dibaabandan aazha $\frac{1}{4}$ " gaa-gii-izhichigeyan. Giishpin onzaami-agaasi-bagoneyaa $\frac{1}{4}$ " aanji-bagibooodoon (niizhing) weweni ji-mino-ingwakwadeyaagin $\frac{1}{4}$ ". Izhi-inigokwaag, weweni daa-mamaajise $\frac{1}{4}$ " izhi-mangadeyaag.

Giishpin miinawaa mii ozhibooodooyan ogijaya'ii owe ji-inigokobagoneyaagin $\frac{3}{4}$ " Dibishkoo imaa 31.



Mazinaateseg 33: Gikendan minik Bakweboodooyan iwe Ge-minjiminigemagak

Giishpin nawaj mangibooodooyan o'owe $\frac{1}{4}$ " ($\frac{3}{8}$ ") mii owe ge-onji-mino-biinjising waasechiganaabik dibishkoo Eko- 6, mii owe ji-inibagoneyaagin $\frac{3}{4}$ " ogijaya'ii onjida go gakina niiwin ji-inigwakobagoneyaagin.

Gakina onowe gii-bagoneboodegin aanjitoon bagoneneboojiganaabik 2" mininj ako-boodeg. Odaapin nabagisag 45" gaa-akwaakwazidbakweboozh ogijaya'ii 4 $\frac{1}{2}$ " ashi-aabita Dibishkoo imaa 32. Gaa-agaasidezid nabagisag mii omaa naazhaya'ii ge-agwa'igaazid giiziso gaasiganimakakosag.

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*



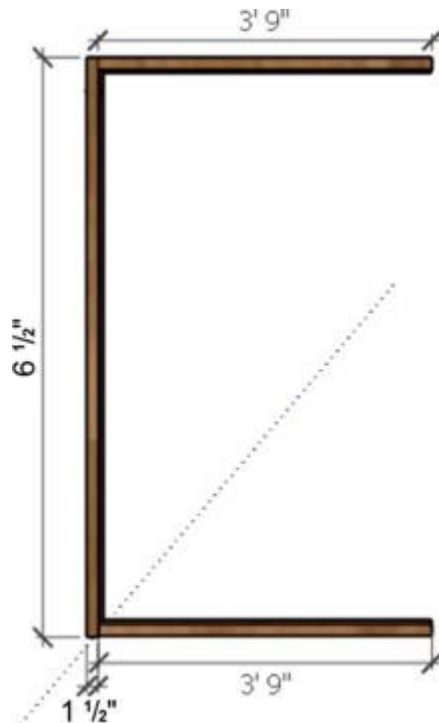
Mazinaakizon 34: Anda-waabam Nabagisag Geyaabaji'ad Naazhaya'i imaa Naazhaya'ii Ge-agwa'igaazid Giiziso Waasiganimakakosag

Aabajitoon 3" gaa-akwaagin mitigo-zaga'igan, niizho-zaga'wi 45" gaa-agwakwaziwaa (76.5") Dibishkoo 33.



Mazinaakizon 35: Akwa'an Ogjiya'ii gaye Naazhaya'ii Nabagisagoonsag Aasamaya'ii

Weweni ji-niizho-saga'windwaa jibwaa-zaga'wadwaa. Gaye naazhaya'ii weweni naasaab, miinawaa aanji-gadawaabam ji-izhi-zaga'igaasowaad. Gii-kiizhitooyan, nising ezhi-gakakaag Daabishkoo 34.



Mazinaakizon 36: Ezhi-niso-jiiyaag Giiziso Makak

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

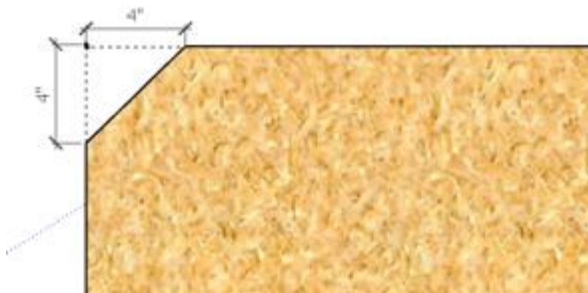
Odaanaag Giiziso Waasiganimakakosag

Giishkizhan OSB dazhwegin nabagisag 48" x 76.5" (giishkizhan 19.5") aabajitoon ozhiboojiganigiishkiboojiganen. Owe OSB nabagisag odaanaag da-agwa'igaazo.

Eko-niiyo-nesagaag OSB 4" mizid da-akwaawan Daabishkoo 35.

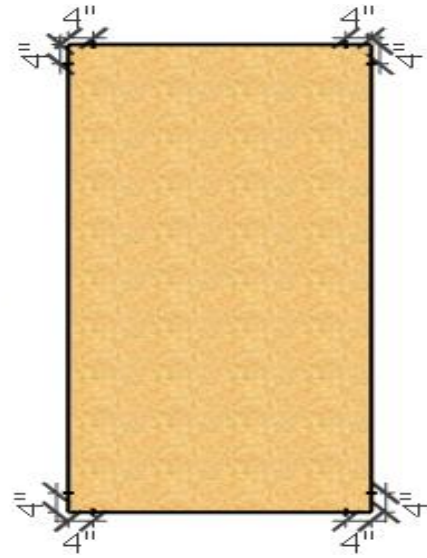
Aabajitoon ozhiboojiganigiishkiboojiganen, ashi-ganeboodoon endaso-nesagaag OSB Daabishkoo 36.

Gakina minji-niiwin ozhitoon. Miiwan onowe gaa-bagoneyaagin "ge-onji-bagidinaamowagakin" gego ingoji da-onji-gaasinoon biindig ingoding igo iwe da-izhise.

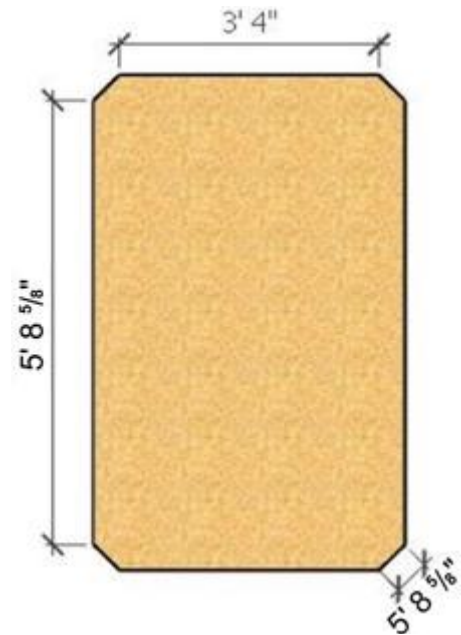


Mazinaakizon 39: Ozhiboodoon eko-niiyo-nesagaag Odaanaag Makakoon

Gaa-gii-izhichigaadeg owe izhinaagwad Daabishkoo 37.



Mazinaakizon 37: Giishkizhan OSB Izhi-odaanaag Onizhan Ge-inigokwag gaye Beshibii'an Ezhineyaabikakin



Mazinaakizon 38: Ezhi-giizhinaagwak Odaanaag Giiziso Waasiganimakakosag

Giiziso Waasiganimakak

Atoon waasiganimakak imaa adoopowinaakong gaa-bapagoneyaagin ishpimiing da-ayaawan.

Naazhaya'ii, nabagisag da-bagoneboozo. Aabaji' nabagisag gaa-gii-ishkosed gaa-apiidadezid 1" naazhaya'ii dayaabadizi.

Naanaagajitoon eko-niiyo-nesagaag weweni ji-minosingin ogijaya'ii miinawaa naazhaya'ii.

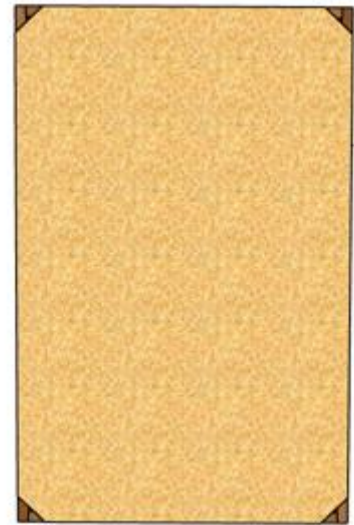
Atoon OSB ashi-dashwegin nabagisag iwidi odaanaang agojiya'ii ji-zhooshkwagokwagiizid Dibishkoo 38. Endaso-nesagaag bagoneboodoon nibi (ge-izhijiwang) OSB.

Aabaji' OSB dazhweginabagisag weweni naasaab ge-izhi-gakakaagin.

Giizhi gakakaa, agosagawi' dazhweginabagisag $\frac{3}{4}$ " mitgo zaga'iganan, endaso-ningodwaasomininj 6' jizheshinowaad, weweni naawaya'ii ji-izhisingin zaga'iganan. Mii go iniwe gakina izhitoon gaa-nisingin. Gaa-ako-niiwing gaawiin saga'igaadesinoon giizhoozigan gaye gaawiin memwech giizhoo'igan atesinoon EKO-6.

Mii omaa giiziso makakosagong Dibishkoo 39.

Minjimendan: *Gaawiin mashi gegoo da-bagonedesinoon.*



Mazinaakizon 40: Odaanaang Atoon Odaanaang Izhi-agwa'an Naangibiiwaabik

Aandi Miinawaa Ge-izhi-bagonenboojigeyan



Gaa-agaasidesigwaad Nabagisag
Ashi iwedi naazhaya'ii

Mazinaakizon 41: Waabandan Ishkwe-nibagisagong Ishkwaaj Mashi Gaa-agwa'iigaadesinok

EKO - 6 Giiziso Makakosag

Gegoo geyaabadakin:

- Rockwool R14 insulation batt 16" da-inigwakwadeyaa giizhoo'igan 2x4 nabagisagoog (gema naasaab)
- Silicone gasket weather stripping (silicone gii-niibing gii-gizhideg gaawiin gegoo da-jaagidesinoon amanji igo ezhiwebak)
- Waasigani-agokiwasigan
- Ozaawaabiko-zaga'iganan (#8 Robertson head, 1" ekwaabagakin)
- Agokiwate
- 4 mm ($\frac{1}{8}$ ") waasechiganaabik 46" x 76"

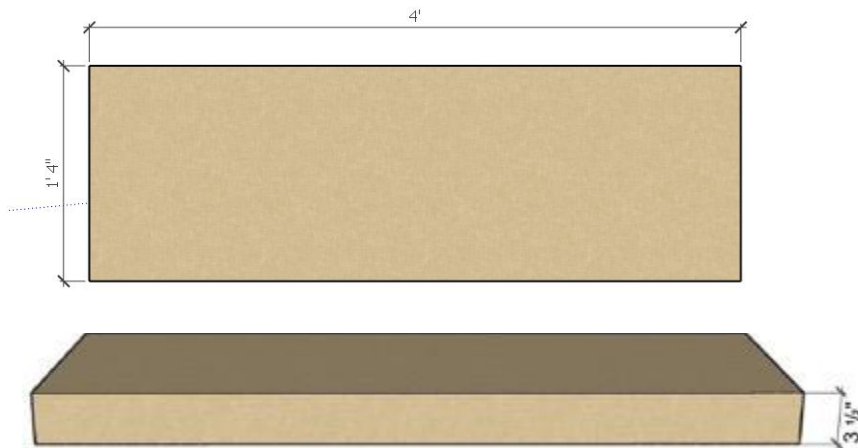
Aabajichiganan enawendaagwakin:

- Waasiganibagoneboojigan
- 1" Bagoneboojiganaabik
- Biiwaabiko-zagaagwa'iganaabik
- Gaashikomaanens
- #2 Robertson biima'igan (Miskwaa)
- Dibaabiiginigan

Niizh awiya andawendaagoziwag ji-anokaadamowaad niibiwa gegoo da-gwazigwanoon. Gema gaye nisiwaad nawaj ji-agwa'amawaad waasechiganaabik.

Giizisowaasigan Giizhoo'igan

Giizhoo'iganan bebakaaniiginigaadewan Dibishkoo 40.



Mazinaakizon 42: Giizhoo'igan Batt Dimensions

Giizhootoon waasiganimakak. Gego biigibitooken biinjisidoon imaa makakoon.

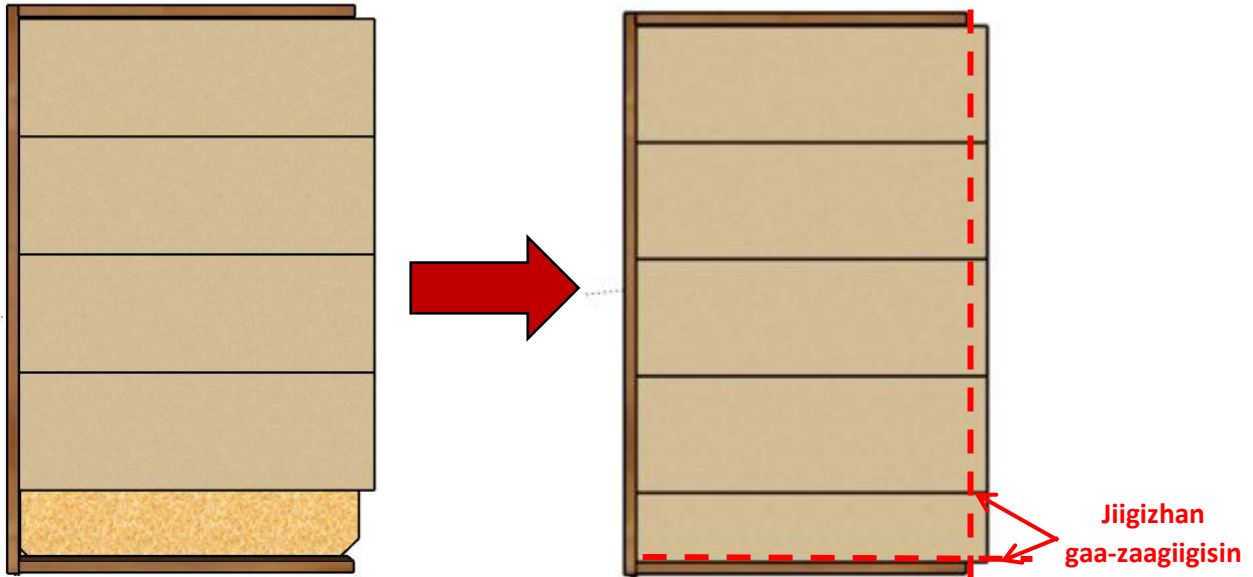
Enigok maagwasidoon biinji-makakoon. Mii owe gaawiin da-maamizisinoon naangibiiwaabikong gaawiin da-baazagwazisinoon waasechiganaabik.

Amikodakoniwewininiwag Zhaaganaashiiwakiing

EKO-BEZHIGWANG 1: Mii Owe Giizisowaasigan

Gakina 4 gii-atooyan giizhoo'iganan, naagewaasawibidoon iwidi bezhig 5th dibebashkineg Dibishkoo 41. Giishkizhan giishpin gegoo ishkiseg gaawiin gegoo ji-zaagisinog.

Mii dash (ge-izhi-gojitooyan) eko-niiwingin miinawaa giishkizhan giishpin gegoo zaagiigising.



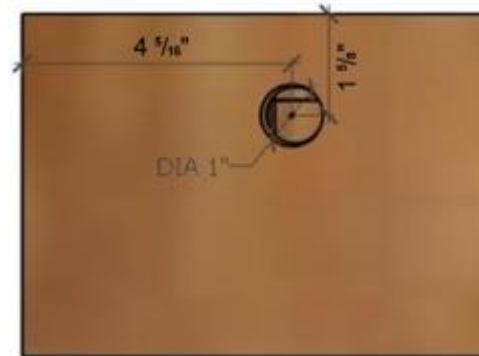
Mazinaakizon 43: Onizhan Naanan Giizhoo'igan mii imaa Ge-giba'igaageyan Giiziso Waasigani Makakong

Geyaabi Gegoo Imaa Atoon Naangibiiwaabikong

Gakina gii-achigaadeg gaanjibiinjidoon, weweni gegoo ji-izhinaagwak. Agona'igaagen naangibiiwaabik gii-kiizhitooyan. Waawiyebii'an ge-izhi-biinjising okijaabikoons imaa-namanjiya'ii giiziso makakoong.

1" mininj omaa mitigong (D) bagoneboodoon. Owedi inigokwaawan bagoneboojigan $4\frac{5}{16}$ " bagoneboojiganan $1\frac{5}{8}$ mizid onji-ogijaya'ii Dibishkoo 42. Niizh gaa-gii-bagoneboodoowin naasaa ji-izhi-naagwakin.

Giizhoo-didibiiginan silicone weather stripping gaye waasigani-agokiwasigan. Aabajitoon waasigani-agokiwasigan eshkwaya'ii weweni ji-mashkawi-agokiwateg.



Mazinaakizon 44: Gikendan waa-izhi-bagone'igeyan imaa Giiziso Waasigani Makakong imaa Naangibiiwaabikong Okijaabik

Naabisidoon okijaabikoon ezhi-bagoneyaab ji-bagaamabakisinging ji-naagibiiwaabikong gaye giiziso makakoon.

Amikodakoniwewininiwag Zhaaganaashiiwakiing

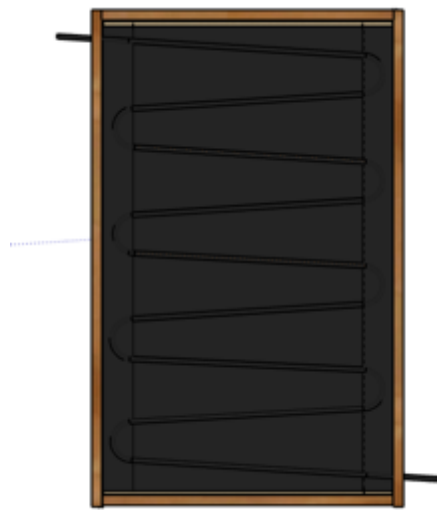
Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Ozhisidoon waa-izhi-ozhibii'aman mii omaa ge-izhi-naabising iwide bezhig okijaabikoons. Geyaabi bezhig bagoneboojige mitigong. Akawe weweni giizhoodidibinan gaa-gii-bagoneboodooyan silicone weather stripping gaye waasigani-agokiwasigan.

Iwide gaa-gii-baganeboodooyan, naabisidoon okijaabikoons waasiganimakak moozhaginan waa'agwaa'aman aasamisag 3" zaga'iganan agwawi' nabagisag aasamisag makakong. Odaanaang gizhagwa'an naangibiiwaabik $\frac{3}{4}$ " zaga'iganan.

Agwa'an ashi-niizh zagaabiiginigan aabajitoon ozaawaabikozaga'iganan biinjimakakong. Naazhaya'ii, izhi-zaga'igen gaanjibitood giizhoo'igan bangii ji-dawi-ayaag omaa makakoon gaye waasechiganaabik. Mii imaa makakong Daabishkoo imaa 43.



Mazinaakizon 45: Agwa'an Naangibiiwaabik imaa Giiziso Makakong

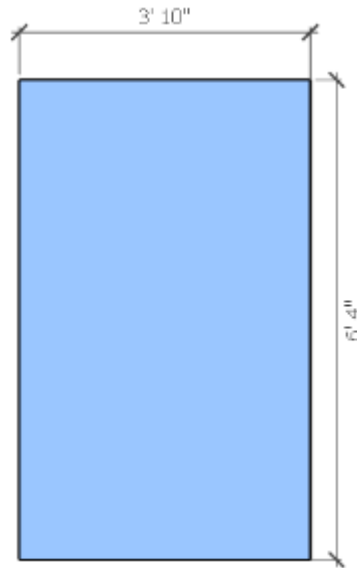
Giiziso Waasechiganaabik:

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Naazhaya'ii onji-gaandinan, imaa makakong, Daabishkoo imaa 44. Ge-inigokwaag waasechiganaabik 76" x 46" gaye $\frac{1}{8}$ " izhi-gaandinan ji-mino-oodeg $\frac{1}{4}$ ". Bezhig awiya oga-minjiminaan eshkweya'ii wewenji ji-naabising ezhi-beshigak. Geyaabi bezhig awiya da-wiiji'iwe.

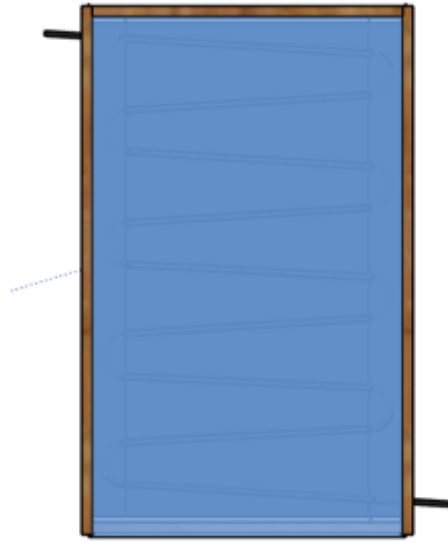


*Mazinaakizon 46: Aabajitoon waasechiganaabik
ji-agwana'aman Giiziso Waasigan*

Gii-kiizhitooyan gakina aabita mininj $\frac{1}{2}$ " da-zaagaabikisin waasechiganaabak Daabishkoo imaa 45. Mii omaa ishkweya'ii, ge-izhi-onji-gaasinok biinji-makakoong.

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Agwa'an naangibiwaak eshkwe-waasijiganiing nawaj EKO-7.



*Mazinaakizon 47: Waasechiganaabik izhi-naabisidoon Gaa-izhi-basiboodeg
imaa Giiziso Makakong*

Niizh gaa-zaagaabikisingin giizhoodoon wenji-zaagaabikisingin aabajitoon silicone caulking.

EKO-7 Naangibiiwaak Agona'an Gizhibaazhaya'ii

Aabajitoon naangibiiwaabik gegoo zhibobiisinok gaye ji-goshkaasinok.

Gegoo geyaabadakin:

- 12"x 50' Aluminum flashing
- 4'x 8' Naanganbiiwaabik
- Asibiibiiwaabikoons aabajitoon ji-gashki'osigwaa manidooshag
- Aabajitoon Naangibiiwaabiko zaga'iganan
- Ge-agwaagwaabikisinok zaga'iganan (aazha gaa-gii-papagwanegin)
- Nylon naangi-apaginensan zaga'iganan
- Clear silicone caulking

Aabajichiganan enawendaagwakin:

- Bending brake (giishkiboojigan)
- Hand bender
- Waasiganibagoneboojigan
- 1" Bagoneboojiganaabik
- Biiwaabikobiiwiboojiganan
- Gaashikomaanens
- Namekwaani bakite'igan
- Dibaabiiginigan
- Makadedaaigibii'iganaak
- Biiwaabiko-zagaagwa'iganaabik

Miinawaa owe ge-izhichigeyeg niizh awiya ji-wiiji'idiwaad gagaawaakoziwag nabagisagoog.

Aabajitoon bending break gojitoon jibwaa-maadanokiiyan.

Nibi ge-izhi-niisijiwang:

Ogijiya'ii ogiji-nabagisag adoopowinaak niisijiwanikaang, bezhig awiya oga-minjiminaan ji-niisisesinok. Dibaabiiginan 6'-7 ½ aabaji' makadewaabo-ozhibii'iganaak, aanji-zhooshkonan weweni ji-bimiwijigaadeg.

Izhidoon flashing imaa bending break, onjida go bezhig odaanaag ji-ayaad. Mii awe ge-bakinan bender mii dash ge-gaandinang flasher. Gaadinan flashing biinish 6'-7 ½" waabandaman beshibii'igan. Ishkweya'ii gaa-gii-peshibii'aman ishkweya'ii flash, gakina gegoo weweni ji-minosing (gwayak igo).

Aabajitoon gashkimookomaanens gwayako go giishkizhan omaa flashing, aabajitoon bender ji-gwayakozhaman. Onjida weweni ji-gwayak gozhigaadeg.

Ombinan onikaanikaan bender naazhizhawabinan flashing namajinaya'ii, miinawaa doodan baamaa gii-bakweseg flashing. Bending brake ayaa giishkiboojigan giishkiboozood nabagisag ayaawan detibisegin, wenji-wendak babaamiwijigaadeg.

Miinawaa onowe izhichigen 6'-7 ½" nabagisag niizh o'owe da-akwaakoziwag nabagisagoog miinawaa aanind da-akwaakoziwag 4'-3".

6'-7 ½" ekwaakoziwaad da-igwa'igwaazowag aasami-giiziso waasiganimakakosagong, 4'-3" gaa-kwakwaziwag ojijaya'ii miinawaa naazhaya'ii makakosaging.

Aasamisag (2 x 6'-7 ½") da-igwa'igaazowag ogijaya'ii dash geyaabadizid (1 x 4' 3"):

Amikodakoniwewininiwag Zhaaganaashiiwakiing

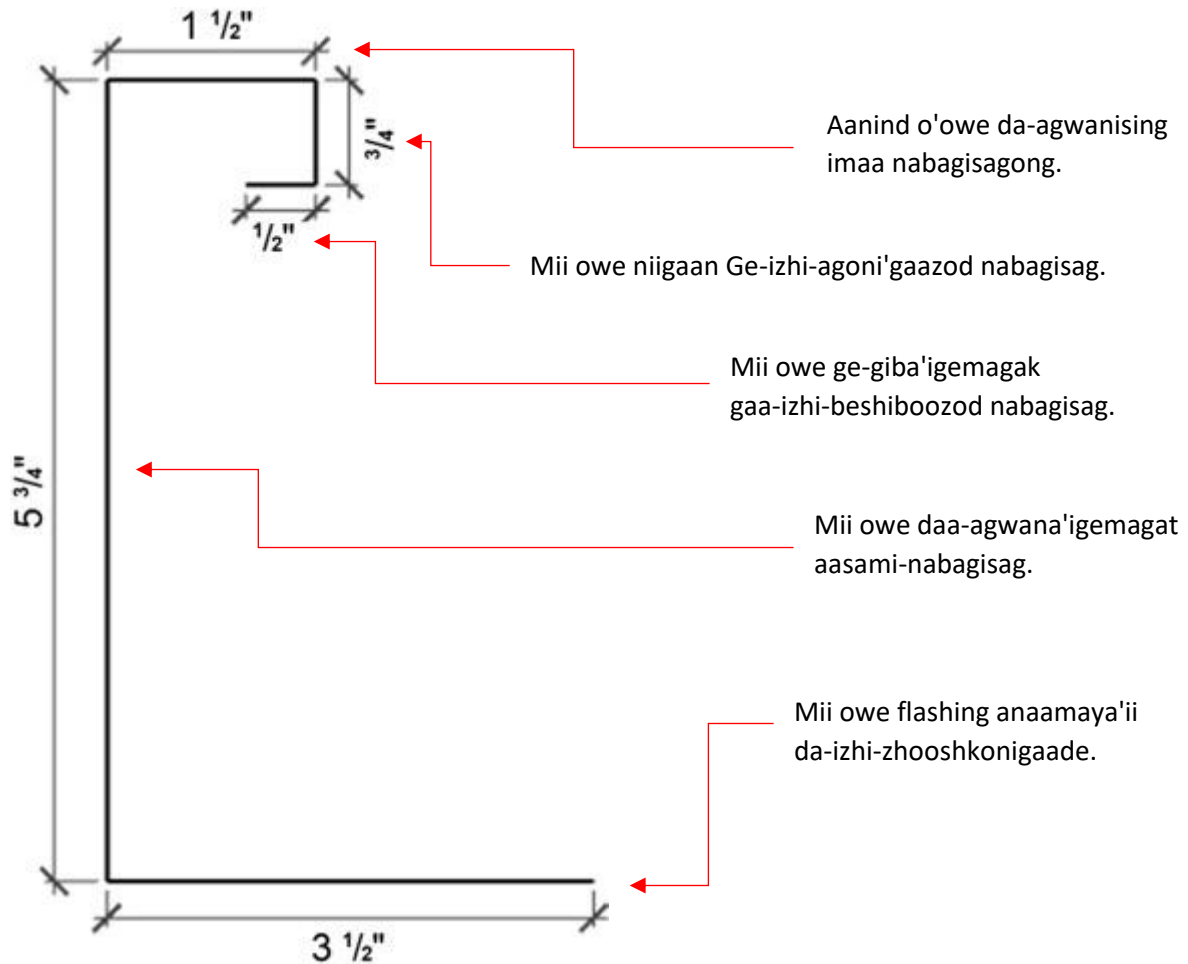
Giizisowaasigan inakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

- Eshkweya'ii $\frac{1}{2}$ " beshibii'an.
 - Mii owe ogiji-waasechiganaabikong da-agwa'igaadeg.
 - Atoon flashing biiji-bender, zaagaagoshin $\frac{1}{2}$ " nabagisag. Weweni ji-gwayakosing flashing. Ombinan onikaakaan 90° omaa flashing.
- Beshibii'an $\frac{3}{4}$ gaye $\frac{1}{16}$ "¹² (owe maamawichigwaagin $\frac{13}{16}$ ").
 - Mii imaa ge-izhi-agwane'igaadegin waasechigaanbik gaye naangibiiwaabik.
 - Atoon flashing biiji-bender, zaagaagoshin $\frac{1}{2}$ " gaye $\frac{3}{4}$ " nabagisag. Weweni ji-gwayakosing flashing. Ombinan onikaakaan 90° omaa flashing.
- Omaa beshibii'igan $1\frac{1}{2}$ " gaye nawaj $\frac{1}{16}$ " ge-inigokwaagin (owe maamawichigwaagin $1-\frac{9}{16}$ ")
 - Mii owe ogijiya'ii ge-izhising.
 - Atoon flashing biiji-bender, iwedi bezhig gaa-zaagising niigaan. Weweni ji-gwayakosing flashing. Ombinan onikaakaan 90° omaa flashing.
- Aazha iwedi gaa-gii-tibaabii'aman mii imaa beshibii'aman $5-\frac{3}{4}$ " gaye $\frac{1}{16}$ " (maamawichigwaagin $5-\frac{13}{16}$ ")
 - Mii imaa ji-agwana'igaadeg giiziso waasiganimakak.
 - Atoon flashing biiji-bender, iwedi bezhig gaa-zaagising niigaan. Weweni ji-gwayakosing flashing. Ombinan onikaakaan 90° omaa flashing.
 - Mii owe minik eshkoseg $3\frac{1}{2}$ " naangibiiwaabik. Mii owe ge-agwana'igaageng odaanaang giizisomakakong.

Minjimendan: *Gaa-gii-ozhi-ayaayan aanji-ganawaabandan, aanji-naagajitoon giizisomakak weweni ji-gwayakosingin. Aanji-ganawaabandaman, ganawaabandan epiitaag OSB naanaagajitoon odaanaang wewenji ji-naabising giiziso makak.*

¹²**Minjimendan:** *Nawaj o'owe geyaabi $\frac{1}{16}$ " mii omaa ge-izhi-biniskinigaadeg naangibiiwaabikong.*

Aazha gaa-gii-anokaadamang omaa Da-naagwad 46.



Mazinaakizon 48: Atoon Flashing Ogijiya'ii gaye Aasamaya'ii Naangibiwaabik

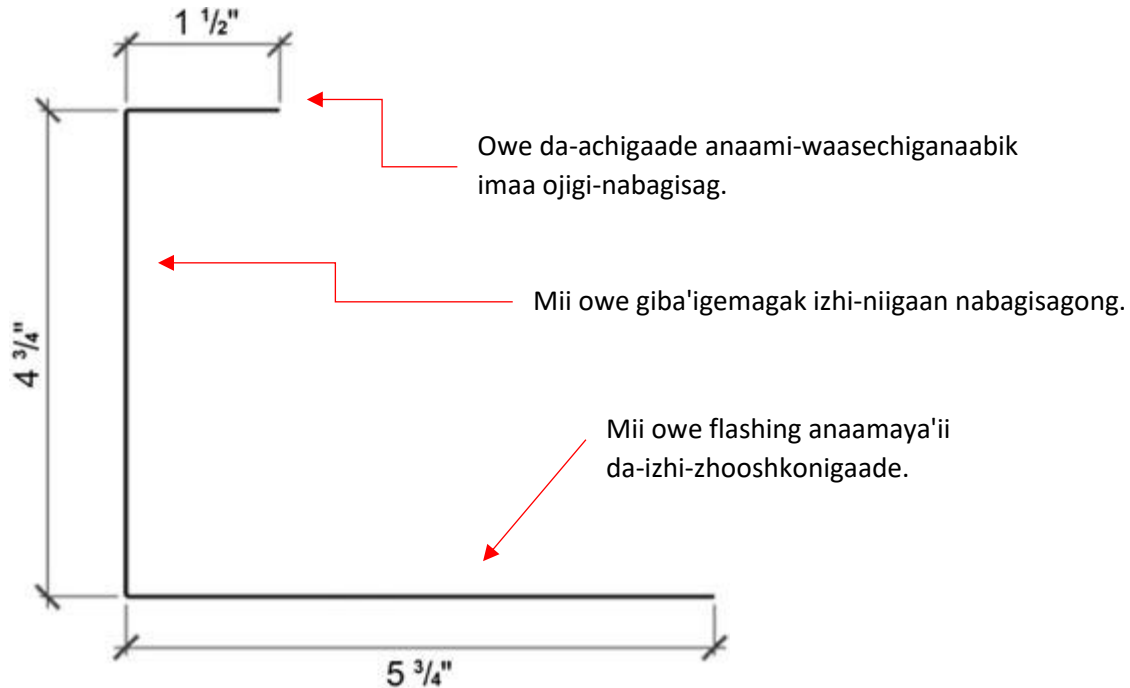
Iwidi naazhaya'ii giiziso makakong, dibaabiiginan gaa-izhi-biskising 4'3 flashing:

- Ishkweya'ii dibaabiigiinan makade-beshibii'an $1 \frac{1}{2}"$.
 - Mii owe anaami-waasechiganaabikong ge-ateg giiziso makak.
 - Atoon flashing imaa bender, zaagaagoshin $1 \frac{1}{2}"$ nabagisag. Weweni ji-gwayakosing flashing. Ombinan onikaakaan 90° omaa flashing.
- Aazha iwedi gaa-gii-tibaabii'aman mii imaa beshibii'aman $4 \frac{3}{4}"$ gaye $\frac{1}{16}"$ ¹ (maamawichigwaagin $4 \frac{13}{16}"$).
 - Mii imaa ji-agwana'igaadeg giiziso waasiganimakak.
 - Atoon flashing imaa bender, zaagaagoshin nabagisag niigaan. Weweni ji-gwayakosing flashing. Ombinan onikaakaan 90° omaa flashing.

EKO-BEZHIGWANG 1: Mii Owe Giizisowaasigan

Minjimendan: Gaa-gii-ozhi-ayaayan aanji-ganawaabandan, aanji-naagajitoon giizisomakak weweni ji-gwayakosingin. Aanji-ganawaabandaman, ganawaabandan epiitaag OSB naanaagajitoon odaanaang wewenji ji-naabising giiziso makak.

Aazha gaa-gii-anokaadamang omaa Da-naagwad 47.



Mazinaakizon 49: Flashing Naazhaya'ii Da-achigaade Naangibiiwaabikong

Flashing anaamaya'ii da-ayaa Giiziso Waasigan

Flashing anaamaya'ii da-ate giiziso waasiganing giigi-waasechiganaabikong. Jibwaa-naabisidooyan flashing, e'iiyawa'ii $2 \frac{1}{2}$ bagone'an gaye $1 \frac{1}{2}"$ giakina giishkiboodoon gaa-inaagwakin Da-inaagwad 48. flashing da-zhooshkose anaami-waasechiganaabik geyaabi gegoo da-zaagigisinoon giiziso waasiganing. Weweni naanaagajitoon owe gaa-ozhibii'ligaadegin ji-biinjiwanzinog giiziso makakong.



Mazinaakizon 50: Daashkiboodoon Naazhaya'ii Flashing Gegoo Imaa Atooyan Waasechiganaabikong

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Moogozhan 1 ½" imaa gaa-biskinigaadeg flashing giishkizhan naasaab gii-akwaagin imaa giiziso waasiganing daabishkoo 49. Eyii'dawaya'ii tabs ayaawan imaa flashing.

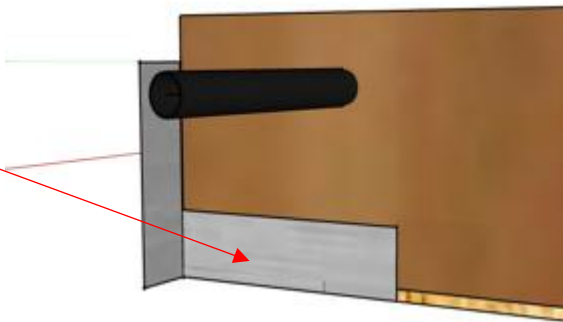
Giishkizhan ezhi-nesagaag.



Mazinaakizon 51: Giishkizhan Flashing Ezhi-nesagaag Ji-onizhi'ang Biiwaabikoonsan

Biskinan biiwaabikoonsan anaamaya'ii giiziso waasigan Daabishkoo 50. Weweni biskinan ji-mashkawisingin giiziso waasigan, aabajitoon gichi-bakite'igaans flashing imaa giiziso waasiganing enigok bakite'an weweni mashkawa'oodegin(maagizhaa aabajitoon hand bender).

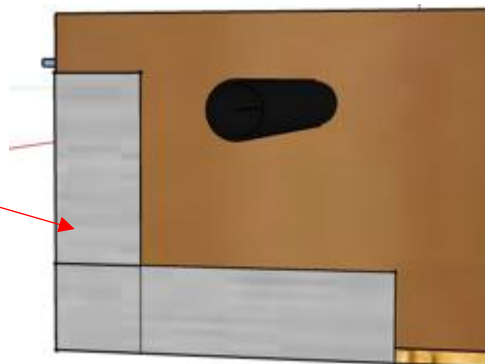
Omaa biskaabikinan
biiwaabikoonsan.



Mazinaakizon 52: Biskaabikinan Anaamaya'ii imaa Giiziso Makak

Biskinan tabs eshkweya'ii, giiziso waasigan owe onjida Ji-izhinaagwak 51. Weweni flashing ji-mashkawising aabajitoon gichi-bakite'iganens.

Biinji-biskaabikinan,
izhi-naazhaya'ii
biiwaabikoonsan.



Mazinaakizon 53: Biskaabikinan Aasamaya'ii Biiwaabikoonsag imaa Giiziso Makak

Mii go miinawaa ge-izhichigeng gwekaya'ii iwidi flashing.

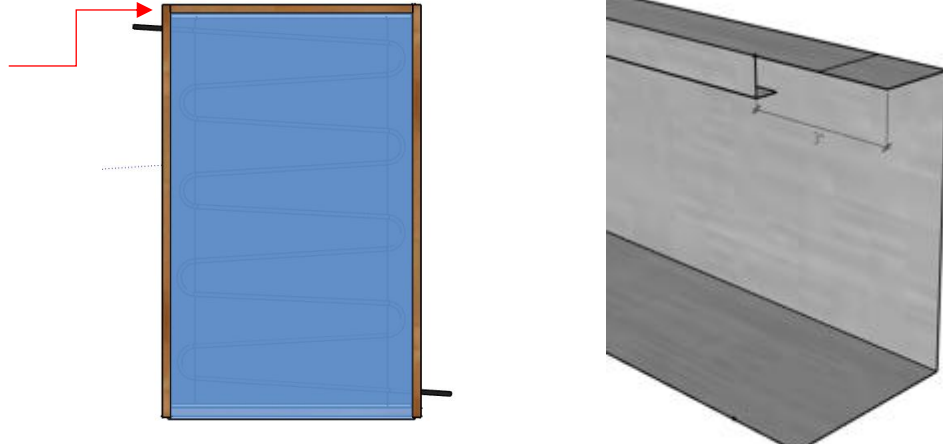
Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

Flashing gaye eshkweya'ii Giiziso Waasiganing

Odaapinan gaa-ishkoboodeg mitig iwidi atoon namanjiya'ii giiziso makakong. Ishkweya'ii flashing, 3"ing bagone'an imaa nabagisagong $\frac{1}{2}$ " gaye $\frac{3}{4}$ " gaa-akwaagwazid Daabishkoo 52. Mii omaa flashing ge-minosing giiziso makakong izhi-naabisidoon imaa waasechiganaabikong.

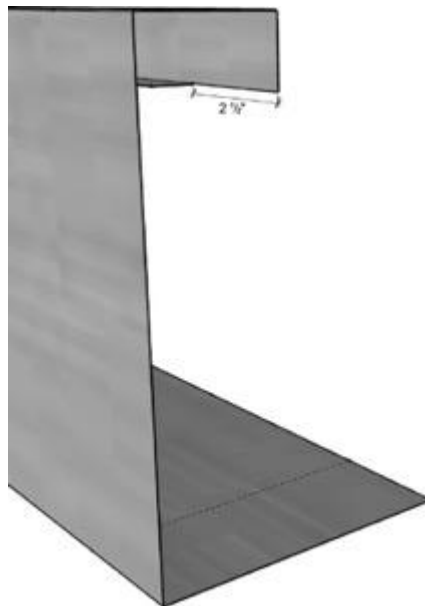
Giishkizhan Flashing
imaa naazhaya'ii
ezhi-nesagaag imaa
Naangibiiwaabikong.



Mazinaakizon 54: Bezhiboodoon Ogijiya'ii Anaami-flashing

Naabidoosidoon, flashing imaa giizisomakakoong naangibiiwaabiko-okijaabik ji-naabikising imaa. Bagoneboodoon 1" (D) ji-inigokwaag mii imaa ge-izhi-naabikisingin okijaabikoonsan.

Awasinakeya'ii flashing odaanaang nake giiziso waasiganing, $1\frac{1}{2}$ " dayanigokobagoneboode gaye bagone'an naangibiiwaabik $\frac{1}{2}$ " Daabishkoo 53. Weweni naabisidoon ezhi-bagoneyaagin bagonenboodoon mitig nabagisag ogiji-waasechiganaabikong. Miinawaa aanji-gojitoon. Zhawabinigan dayaabadad mii omaa gwayakosingin bagoboodoon naawaya'ii waasechiganing jiigi-giizisomakakoong.



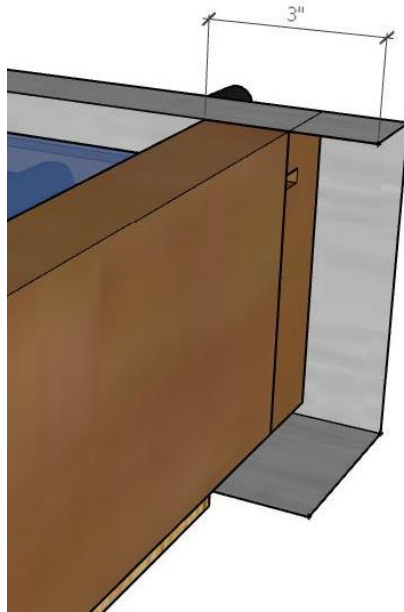
Mazinaakizon 55: Bezhiboodoon Naazhaya'ii Anaami-flashing

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

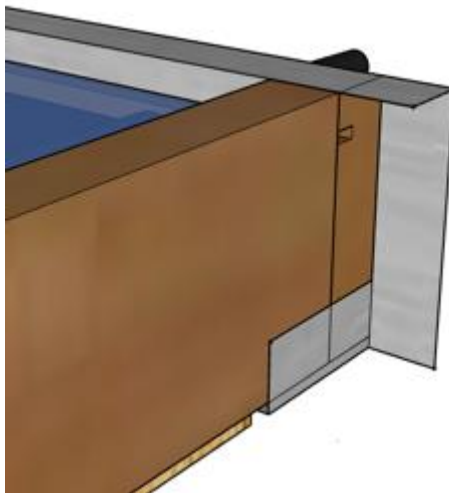
EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Achigaadeg flashing 1½" danegoojin nabagisag Daabishkoo 54. Aabajitoon biiwaabikobakizhigan, jiigizhan okijaabikoons imaa flashing biinish igo ishkwe-nibagisagong gaye miinawaa nising flashing.



Mazinaakizon 56: Aanami-Flashing negoode ezhi-ishkweya'ii Giiziso Makakong

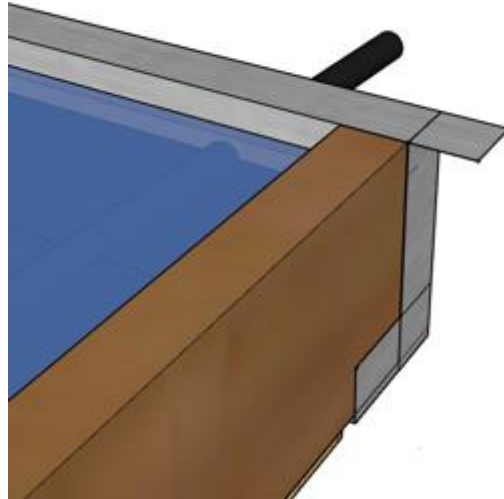
Ogijiya'ii flashing, biskaabikinan weweni ji-naabising imaa giiziso makakoong Daabishkoo 55.



Mazinaakizon 57: Biskaabikinan anaamaya'ii imaa Ogijiya'ii Giiziso Makakong

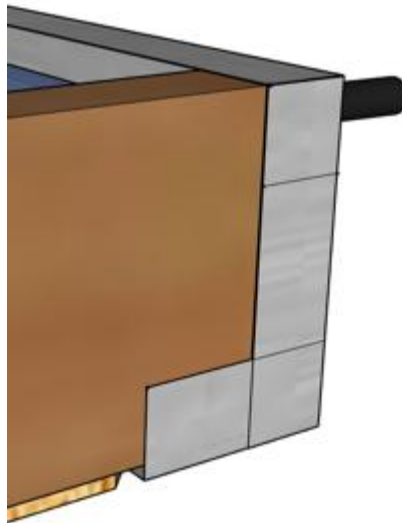
EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Minjiminan, gaa-izhi-bagoneyaag biskinan weweni ji-naabising, gijinda'an weweni ji-naabising aabajitoon gichi-bakite'igaans Dibishkoo 56.



Mazinaakizon 58: Biskaabikinan Aasamaya'ii Biiwaabikoonsag imaa Ogijiya'ii Giiziso Waasigan

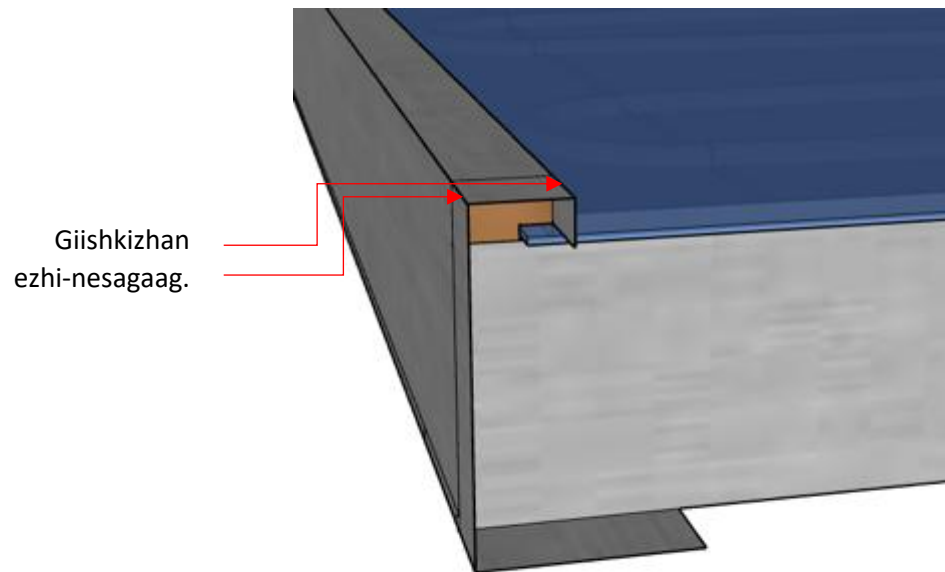
Mii owe, ishkwaaj biskinan biiwaabik imaa naangibiiwaabikong ji-naabising Dibishkoo 57. Owe biiwaabik bezhig da-ani-goode biiwaabik. Weweni ji-ziinda'oodeg flashing giizisowaasiganing.



Mazinaakizon 59: Biskaabikinan Ogiji-biiwaabikoonsag aasamaya'ii imaa Ogijiya'ii Giiziso Waasigan

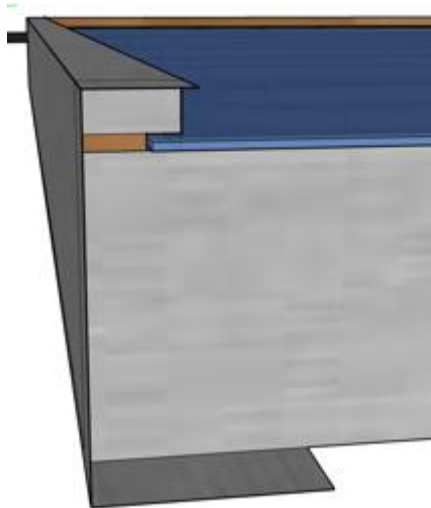
EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Aabajtoon biiwaabikobakizhigan, jiigizhan okjaabikoons imaa naazhaya'ii flashing imaa giiziso makakong Dibishkoo 58, niizhwaabikisidoon biiwaabikoonsan.



Mazinaakizon 60: Giishkizhan Flashing ezhi-negoodeg imaa Ji-onizhi'ang Biiwaabikoonsan

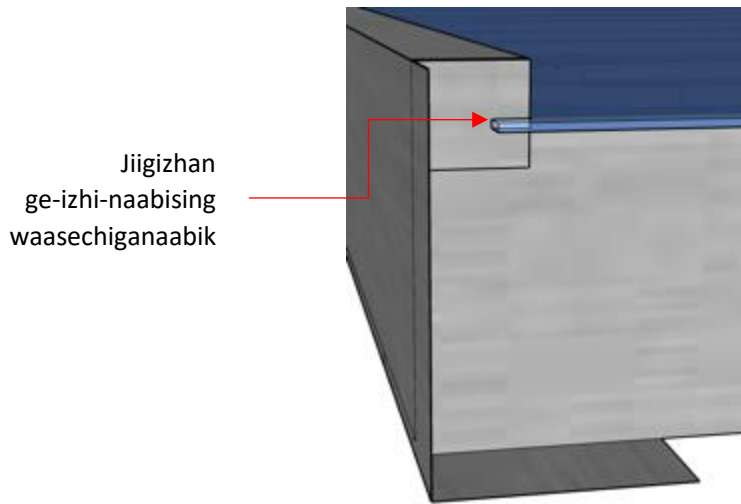
Akawe biskaabikinan $\frac{3}{4}$ " imaa giiziso makakong daabishkoo 59.



Mazinaakizon 61: Biskaabikinan Aasamaya'ii Biiwaabikoonsan imaa Naazhaya'ii Giiziso Waasigan

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Miinawaa dash $1\frac{1}{2}$ " izhi-biskaabikinan imaa waasechiganaabikong daabishkoo 60. Gii-onizhaagidegin flashing, anaamaya'ii biskinaabikinan ogiji-flashing.



Mazinaakizon 62: Daashkobooodoon gaye Biskaabikinan Ojigi-biiwaabikoonsan imaa Aasami-Flashing Naazhaya'ii Giiziso Waasigan

Gego babaamendangen gaa-neyaabikagoodegin mii omaa ge-onjigaag nibi imaa naangibiiwaabikong. Maagizhaa giga-giishkaabikishaanan gaa-negoodegin (giishpin ingoding wii-aanjisidooyan)

Mii go miinawaa bezhigwan ge-izhichigeyan iwedi gwekaya'ii flashing. Weweni ji-niibidesingin bagane'igan i'ima flashing jibwaa-giishkizhaman.

Flashing Ogijinaagibiiwaabikong

Moozhigan gaa-gii-ishkozhaman (4'-3" biiwaabik) bakweboodoon 3" e'iidayawa'ii flashing $\frac{1}{2}$ " gaye $\frac{3}{4}$ " imaa Daabishkoo 61.



Mazinaakizon 63: Daashkobooodoon Ogijiya'ii Flashing

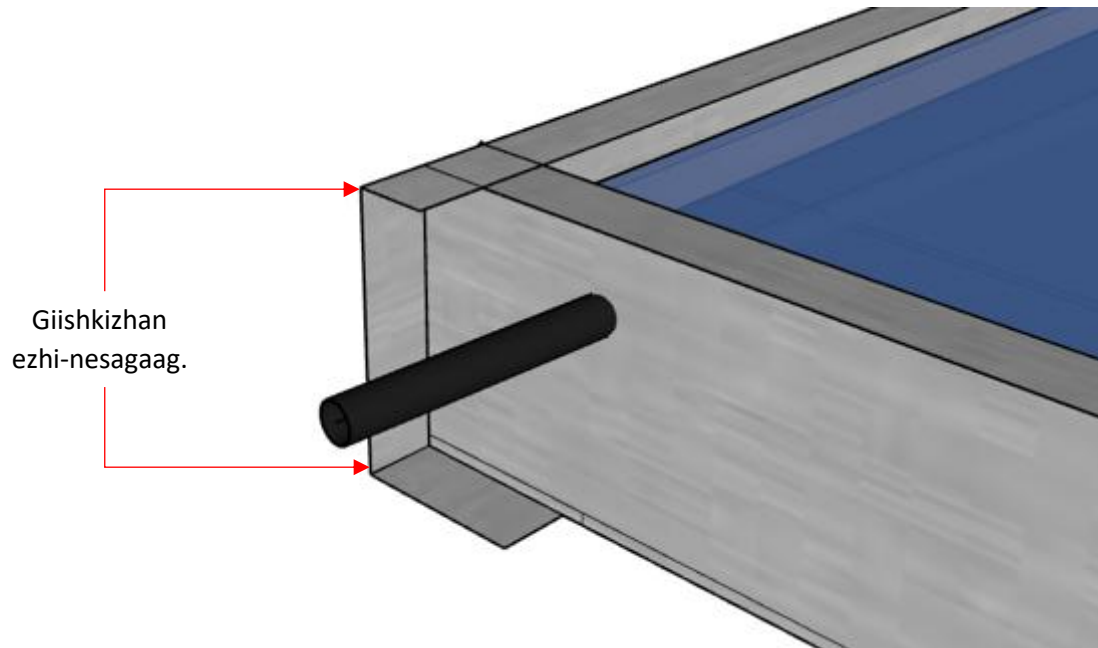
Ezhi-bakoboodegin ogijiya'ii mii imaa ge-izhi-naabikising flashing gaa-gii-bakweboodegin imaa naangibiiwaabikong. Naabisidoon flashing imaa giiziso makakong mii imaa naabisidoon $\frac{1}{2}$ " ogiji-waasechiganaabikong. Aanji-gagwejitoon, weweni naanaabikisingin ezhi-bagoneboodegin waasechiganaabikong.

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

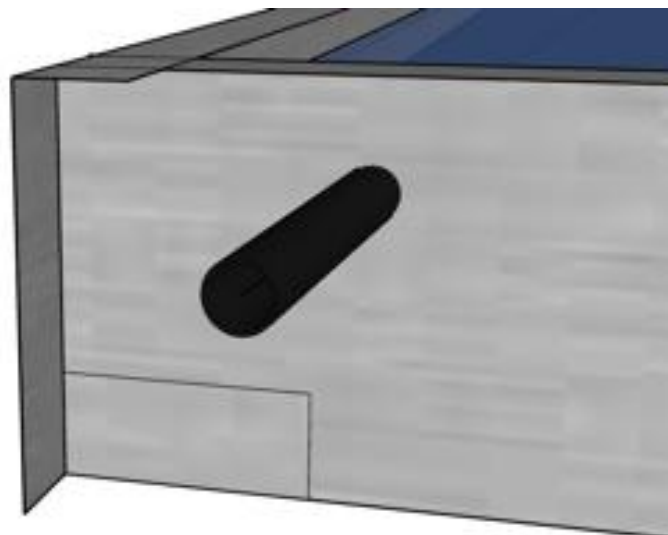
EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Aabajtoon biiwaabikobakizhigan, jiigizhan okijaabikoons imaa flashing ogjiya'ii gaye naazhaya'ii, ozhitoonan niswi ozhi-boodoon biiwaabikoon Daabishkoo 62.



Mazinaakizon 64: Giishkizhan Flashing ezhi-negoodeg imaa Ji-onizhi'ang Biiwaabikoonsan

Akawe, biskaabikinan anaamaya'ii imaa naagibiiwabikong Daabishkoo 63.



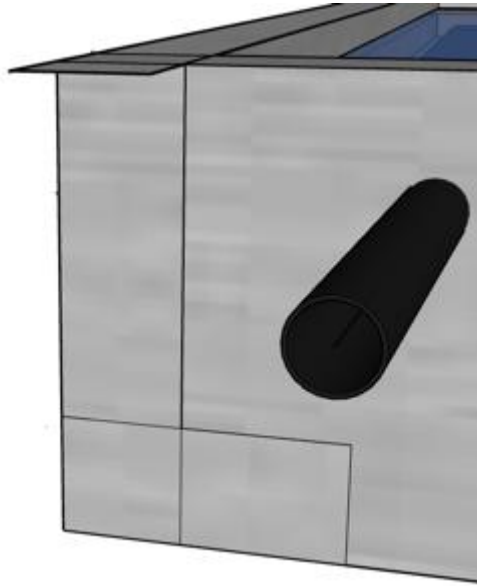
Mazinaakizon 65: Biskaabikinan Naazhaya'ii imaa Ogjiya'ii Giiziso Makakong imaa Jiigi-naangibiiwaabikong

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inaakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

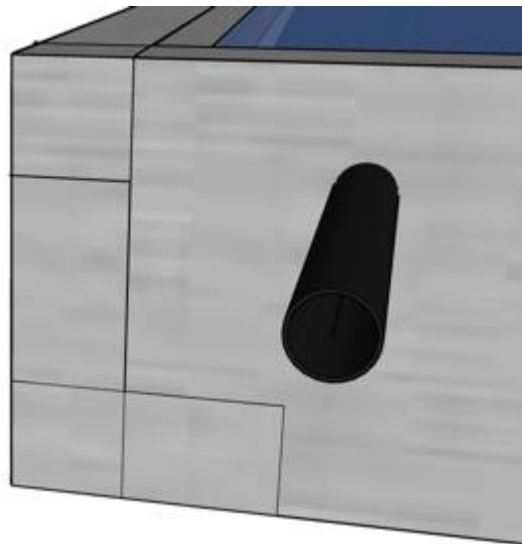
EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Miinawaa dash, babiskaabikinan eshkweya'ii naangibiwaabikong Daabishkoo 64.



Mazinaakizon 66: Biskaabikinan anaamaya'ii imaa Ogijiya'ii Giiziso Makakong imaa Jiigi-naangibiwaabikong

Mii dash ge-izhi-biskaabikinaman imaa naangibiwaabikong Daabishkoo 65.



Mazinaakizon 67: Biskaabikinan Ogijiya'ii imaa Naazhaya'iii Giiziso Makakong imaa Jiigi-naangibiwaabikong

Atoon silicone ogijiya'ii odaanaang imaa flashing. Weweni gaandinan ji-mashkawa'ooodeg silicone.

Mii go miinawaa bezhigwan ge-izhichigeyan iwedi gwekaya'ii flashing.

Weweni ji-mashkawising Waasechiganaabik gaye Flashing

Atoon clear silicone ji-zagikiwateg weweni ji-agokiwateg flashing aabajitoon silicone ezhi-niso-jiiyaag naangibiiwaabik. Aabaji' minjikaawanag, ji-gaandinaman silicone endaso-eyashkweya'ii weweni ji-zhooshkojiishkiwagak imaa waasechiganaabikong gaye biiwaabikong. Ingoji bagoneyaasinok nibi ji-biinjiibiisnok imaa naangibiiwaabikong.

Nawaj geyaabi aanji-zhizhoonan silicone ingoji ji-bagoneyaasinok flashing, nibi ji-izhijiwanzinok.

Aabajitoon biiwaabiko zaka'iganan ji-zaga'aman nylon (maagizhaa aabajitoon naangizaga'iganan). Bagoneboodoon (gema gaye bakite'iganens aabajitoon) zaga'an gaa-gii-biskaabikinaman imaa flashing, gego babaamendangen gaa-neyaabikagoodegin imaa naazhaya'ii naangibiiwaabikong. Aabajitoon apiziga'iganaabikoon jibwaa-zaga'aman imaa flashing. Aabajitoon naangibiiwaabikozaga'iganan giin igo inendaman (pilot holes wii-aabajitooyan daabishkoo naangibiiwaabikozaga'iganan wendadoon biskaabikinigaadegin). ***Minjimendan:*** *Naangibiiwaabiko-zaga'iganan dayaabadadoon, ji-agwaagwaabikisisnok.*

Dazhwebiiwaabik Izhi-odaanaang

Ozhiboodoon 19 ½, 4' x 8 ji-inigokwaagin naagibiiwaakikoon. Izhiwidoon naangibiiwaabikoon gaa-gii-biskaabikinigaadegin imaa bending brake. Biiwaabiko-moozhwaagan gayaabadad onizhigaadegin biiwaabikoon

Bendiing brake 14" minik eta dayizhisin naazhaya'ii, 2ing da-izhichigaaewan.

Nitam, gaa-izhi-boodooyan biiwaabik iwedi gaa-izhi-biskinigaadeg bending brake (i.e., 14"). Ji-gizhan biiwaabik izhi-agwaa'an zaagaakwa'an gaa-ih-biskinigaadegin aabajitoon gaazhikomaanens, ji-giishkizhaman biiwaabik. Gii-kiigiishkizhaman, ombaabikibidoon biiwaabik ji-giishkisege bending brake.

Miinawaa bezhig, ge-ozhinaman ozhibii'an waa-onizhi'aman aabajitoon gaashkimokomaanens aazha gaa-gii-izhichigeyan. Naa'esidoon gaa-gii-ishkosegin baamaa ji-aabadakin.

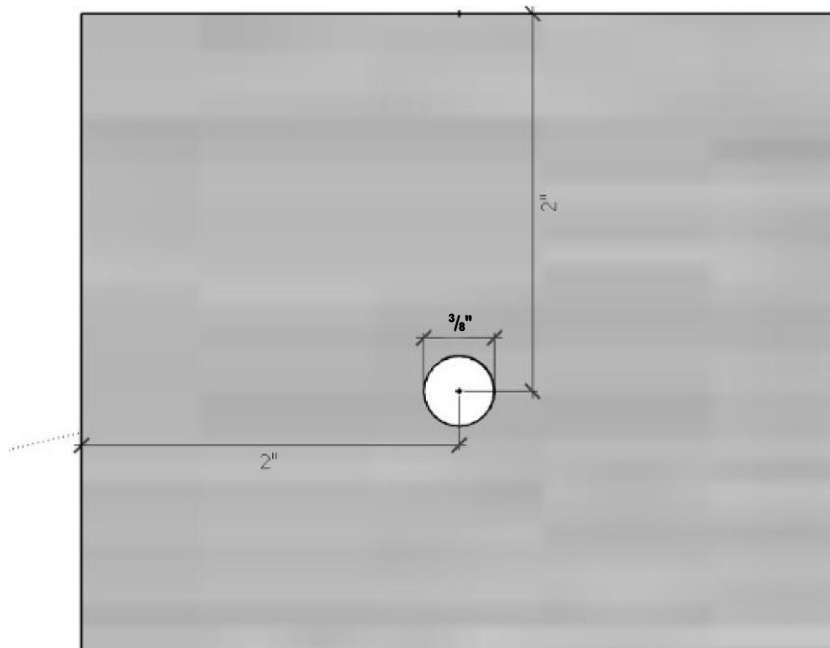
Odaanaag ge-agwe'igaadeg biiwaabik 4' 0" x 6' 4½".

Ji-agwa'aman odaanaag, gakina naangibiiwaabik ji-gwekinigaadegin. Aanind awiya andawendaagoziwag, ji-wiiji'iwewaad wii-ombinigaadeg naangibiiwaabik. Ombiniman naangibiiwaabik, ezhi-mitigwang izhi-odaapinan gego wiin ezhi-okijaabikowang, gego da-biijinishkaasinoon waasechiganaabik.

Naawaya'ii izhisinoon biiwaabik odanaang naangibiiwaabikong.

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Eshkweya'ii biiwaabik, 2" mizid dibaabiiginan ogijaya'ii gaye naazhaya'ii, endaso niizhomizid 2" eshkweya'iing Daabishkoo 66. Bagoneboodoon $\frac{3}{8}$ " (D) iwedi odaanaang biiwaabik gaye aaba'an flashing. Mii omaa ge-onji-zaagijjiwang nibi.



Mazinaakizon 68: Bagoboodoon $\frac{3}{8}$ " ji-inigokwaag Ge-onji-zaagijjiwang Eshkweya'ii Odaanaang Naangibiwaabikong

Onizhan asabiibiiwaabikoons 2" x 2" odaanaang izhi-atoon anaami-biiwaabikong ji-giba'aman ezhi-bagoneyaag. Aabajitoon naagizaga'iganan iwedi odaanaang giizhiso makakoong.

Minjimendan: *Onjida go ji-aabadakin naangibiwaabiko zaka'iganan ji-agwaagwaabikisinzinok.*

Gizhibaasidoon gibijiishkiwaginigan iwedi odaanaang biiwaabikong jibwaa-zaga'aman ji-biisibiisinok imaa naangibiwaabikong.

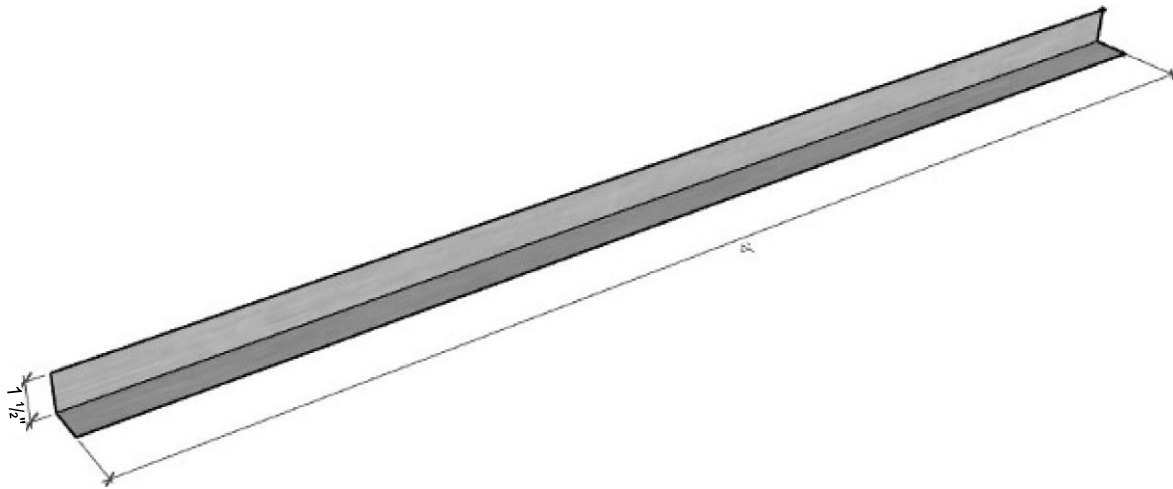
Akawe bagoneboodoon, jibwaa-zaga'aman mii owe ge-izhitooyan (6") endaso-ningodwaasomininj giiwitaaya'ii. Mitigong ji-izhi-zaga'igaadegin gaawiin noon imaa giizhoo'iganing.

Flashing Gaye Ji-biigwa'igaadesinog Waasechiganaabik

Bezhing onizhan naangibiiwaabik odaanaang, 3" ji-akwaabikak gaye 4' 0" niyomizid.

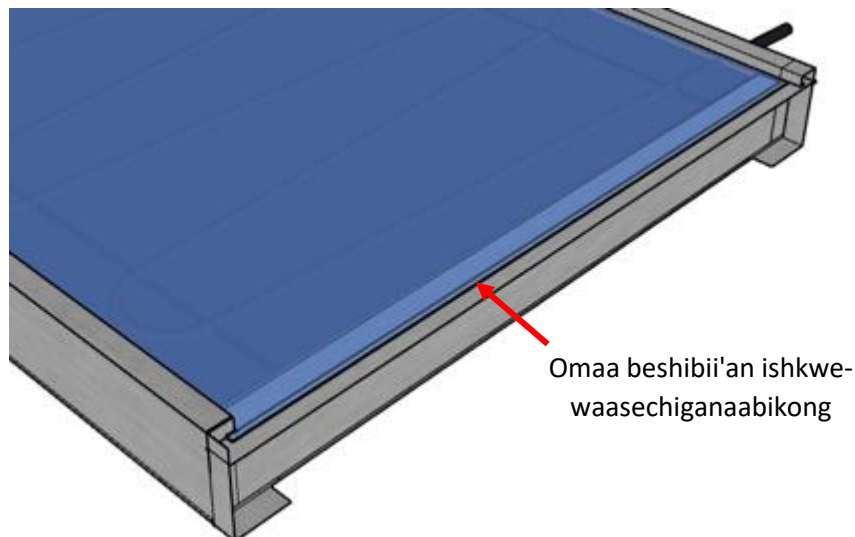
Minjimendan: Niizh onizhan flashing pieces 6" ningodwaasomizid ji-inigwakwadeyaagin gaa-izhi-nenesagaag naangibiiwaabikong. Aabajitooyan naagibiiwaabik zanagad igo ji-biiwaabiko-agokiwasaman iwedi ishkweya'ii waasechiganaabikong. Mii omaa ge-onji-gikendaman nitam gii-ozhitooyan.

Dibaabiigiman 1½" iwedi flashing gaye 90° minik izhi-zhawabinan Dibishkoo 67.



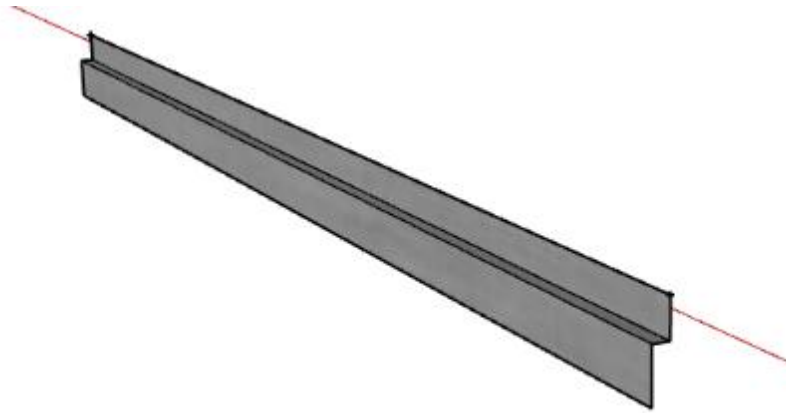
Mazinaakizon 69: Nitam Beskinigaadeg imaa Waasechiganaabikong Flashing

Atoon flashing atoon i'ima giiizo makakong iwedi anaamaya'ii beshibii'an ezhi-ishkwesing flashing Dibishkoo 68 (giishpin gakakaasinok mii go maanoo).



Mazinaakizon 70: Beshibii'an Aandi miinawaa Biskinigaadeg Waasechiganaabikong Flashing

Azhe-biskinan flashing 90° gaa-gii-beshibii'aman. Flashing da-izhinaagwad Dibishkoo 69.

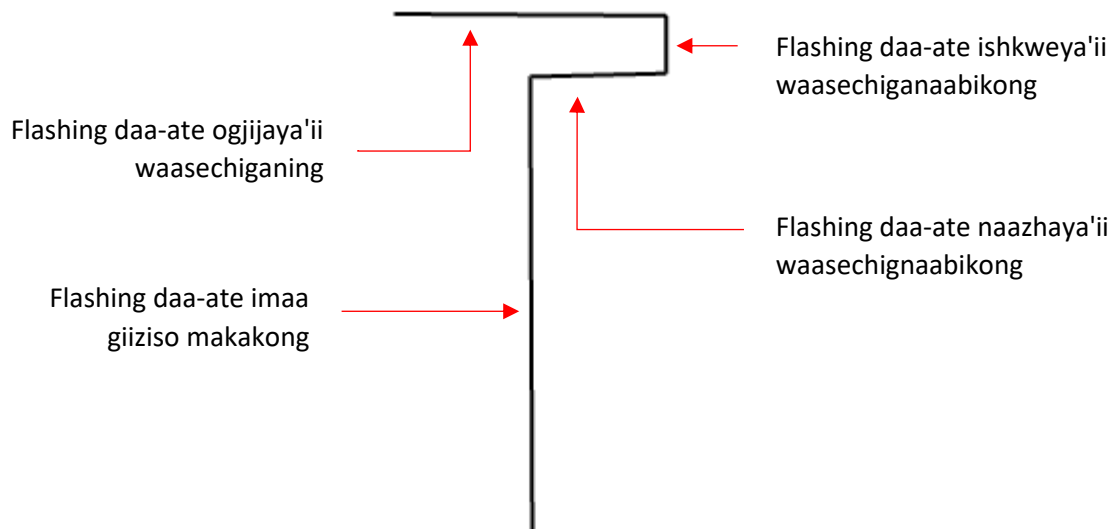


Mazinaakizon 71: Aandi miinawaa Biskinigaadeg Waasechiganaabikong Flashing

Miinawaa atoon flashing atoon i'ima giiziso makakong iwedi anaamaya'ii beshibii'an ezhi-ishkwesing flashing (miinawaa giishpin gakakaasinok mii go maanoo).

Miinawaa biskaabikinan bending brake mii owe ishkwaaaj, maagizhaa gaawiin gashkitoosiin ji-izhising 90° onjii iwe flashing. Aabajitoon zhawabinigan minik ji-inaabikishkaag 90° izhi-baasidoon flashing waasechiganaabikong. Biskinan flashing weweni ji-mashkawising imaa ojigiji-waasechiganaabikong.

Iskwaaj o'owe biskinigaadeg Daabishkoo ezhinaagwak 70.



Mazinaakizon 72: Beshibii'an Ishkwaaaj Waa-biskinigaadeg Waasechiganaabikong Flashing

EKO-BEZHIGWANG 1: *Mii Owe Giizisowaasigan*

Giishkizhan waasechiganaabik imaa flashing niizhing izhi-eshkweya'ing Daabishkoo 71.



Mazinaakizon 73: Jiigizhan Waasechiganaabik izhi-eshkweya'ii Flashing Ji-onizhaman Biiwaabikoonsan

Jiigizhan gaa-bii-biskinigaadegin imaa flashing, onizhan biiwaabik ezhi-eshkweya'ii imaa flashing mii owe ogijiyaa'ii ge-atteg imaa giiziso makakong.

Biskaabikinan gaa-neyaabikising imaa flashing. Atoon gibijiikiwaginigan enigok gaandinan imaa flashing weweni ji-gibijiishkawaginigaadeg gegoo ji-biinjiseseinok.

Bagoneboodoon giizisowaasiganimakak aabajitoon biimasko-zaga'iganan gaye apa'iganan gemaa flashing giiziso waasiganimakakong (gemaa gaye gidaayaabajitooyan naangibiiwaabiko-zaka'iganan). Mii owe ge-izhitooyan e'iidawaya'ii.

Giizhitoon ji-agwa'aman imaa flashing bagone'an aabajitoon biimishko-zaga'iganan gaye apa'iganan, nenishwaaswo-mininzh 8" ayaapii ji-ayaagin (maagizhaa gaye gidaayaabajitooyan naangizaga'iganan).

Atoon gibijiishkiwaginigan flashing ezhi-sakising waasechiganaabik, gakina giboojiishkiwaginigan ezhi-bapagoneyaagin.

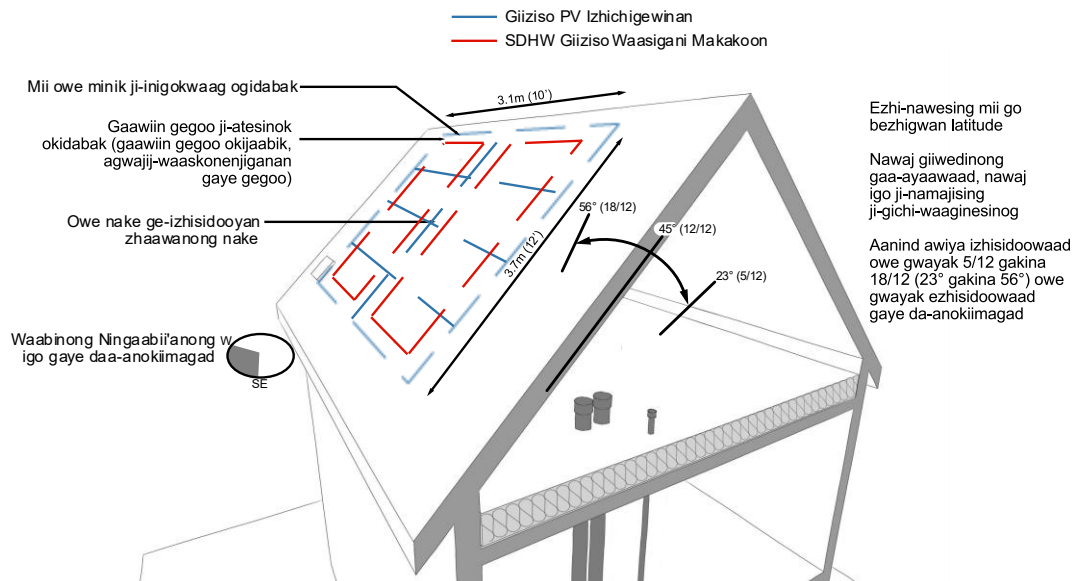
EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing

Naangibiwaabik ezhi-ayaag

Ningii-onji-gikendaamin owe mii imaa naake NRCan's Solar Ready Guidelines [Imaa 1], mii owe ge-aabajitooyang ji-biindigeshkaag giiziso gizhaagamide nibi (SDHW). Gidaayaazhawibii'amaazowin owe mii omaa ji-gikendamang ge-izhichigeyang.

Naaagibiwaabik ezhi-ayaag gaye ge-izhi-atooyan ezhi-agonaateg

Aanind waakaa'iganan ogidabakitooyan, naawaj bangii da-inaginde owe giiziso waasiganimakak. Giishpin niizh imaa we-atooyan ogidabak 1.2 m (4') x 1.8 m (6') weweni ji-nabagisingin ogidabak, 30 cm (12") minik da-dawiyayaawan ogijaya'ii gaye naazhaya'ii miinawaa dash 6" neningodwaaso-mininj ji-dawisingin Dibishkoo 72.

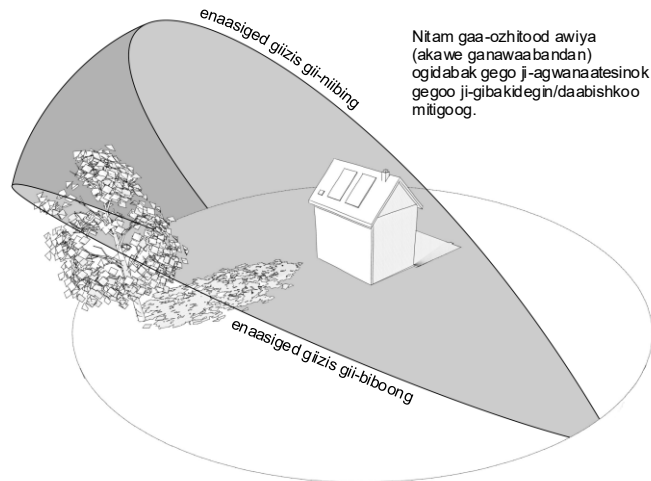


Mazinaakizon 74: Enigokwaag apakwaan, Ge-izhi-atooyan Biiwaabiko Apakwaan [Imaa 1]

Akawe naanaagadawaabandan waa-izhi-atooyan gegoo niibiwa mitigoog ji-gibakizowaad gaye/ maanoo dabashkwaa.

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing

Imaa ge-onji-gikendaman aagwanaate inaabin Dibishkoo 73.



Mazinaakizon 75: Onendan Waa-izhi-agwanaate'aman Giiziso

Onaabandan Waa-izhisidooyan Giiziso Waasigan

Ge-izhisidooyan igo giiziso waasigan mii omaa ge-ondinaman waasigan, ge-izhisidooyan mii go bezhigwan latitude gaa-izhising. Giishpin geyaabi gegoo wii-kikendaman inaabin imaa Solar Resource Maps of Canada [Imaa 2]. Weweni ji-gwayakosing ishpimiing, aapiji go ogowe giowedinong inake gaa-ayaawaad (inaabin waa-apii-izhisidooyan).

Aanind nawaj namajisinoon (45° (12/12) nawaj igo owe minik onizhishin) goon ji-binaagisig nawaj gaa-namadakitegin onizhishinoon gi-biboong.

Mii owe ezhi-gikinoon'amaading ji-izhisidooyan 5/12 gaye 18/12, mii go bezhigwan 23° gaye 56° (0°). Apakwanaani gikinoon'amaadiwin ayaamagad nawaj ge-izhisidooyan. Wii-aabajitooyan o'owe gagwe-gikendan aaniin epiitang ogidabak.

Naangibiwaabik ezhi-ayaag

Nawaj imaa ge-ondinaman giiziso waasigani zhaawanong dayinaasamakide. Idash, weweni izhisidooyan nawaj giga-onidinan gaawiin nawaj 70%, aanind igo ingoji gaawiin aapiji niibiwa da-zaagaasigesii giizis bebakaan apii giga-debinaan ezhising giiziso waasigan giishpin nawaj ningaa'anong izhising gaye waabanong.

Aaniin igo Apii Apiichi-gikinoonowin

Weweni-inaabadoon gii-niibing gaye gii-biboong ezhisidooyan igo, gaye minik waa-aabajitooyan gaye eyaayan. Giiziso waasigan SDHW nawaj niibiwa "dawanjii" gii-biboong idash "gaawiin aapiji". Giiwedinong gaa-ayaawaad nawaj da-namajisin, nawaj geyaabi gidaamichaadoon gidabakwaan (maagizhaa gaye aasamisag) nawaji ji-machaag.

Ingoding igo, SDHW onizhisinoon gii-biboong, giishpin owe minik izhisidooyan 10 digriis nawaj geyaabi latitude gaye nawaj geyaabi nake oizhisidoon zhaawanong miinawaa ningaabii'anong. Giishpin waasa giiwedinong ayaayan daabishkoo iwedi yookaan maagizhaa nawaj gidaa-aanji-gwekwesidoon iwe giiziso waasigan.

Giiziso Waasigan Ezhising

Niizh iniwe giiziso waasigani zhaawanong gaa-izhisingin gemaa gaye zhaawanong gaa-inakideg waakaa'igan L (dibikoo inaagwak)- nabagisag da-sakizhin aasami-waakaa'iganing. Ogidabak ge-inigwakwadeyaag 102" ji-inigwakwadeyaag gaye 96" iwe dash (ekwaag). **Giiziso waasigan ji-agwa'igwaadegin aasami-waakaa'iganing.** Niizh ji-agwa'igaadegin nawaj igo bangii naawaya'ii ji-dawi'ayaagin (giiziso waasigan), gemaa gaye, imaa (da-bezhigwan waaskonebijigan). Niizhwaabikisidooyan nawaj igo zanagad ji-agwa'aman aasami-waakaa'iganing. Giishpin anooj igo izhisidooyan aasami-waakaa'iganing gaawiin aapiji da-anokiimagasinoon nawaj ogidabakitegin da-anokiimagadoon. Giishpin aasami-waakaa'iganing agwa'aman, nawaj anokiiwin giga-ayaan. Giishpin ji-gaabiising gidabakwaan, nabagisag ogiji-apakwaan ge-izhisakisidooyan giiziso waasigan.

Mii owe endawendaman ji-anokaadaman apakwaan gemaa gaye aasami-waakaa'igan

- Niizh 2 Giiziso Waasiganan
- 8' M-D Building Products $\frac{3}{16}$ " x 1- $\frac{1}{4}$ " Odaabaani gibojiishkiwaginigan gaa-mashkawaag (gemaa gaye bakaan gegoo)
- 8 Simpson Strong-Tie Gauge 12, 5- $\frac{7}{8}$ " x 5- $\frac{7}{8}$ " x 1- $\frac{1}{2}$ " aasami-agwakwa'iganibiiwaabikoon; (model A66 gemaa gaye bakaan gegoo)
- 16 $\frac{1}{4}$ " gemaa gaye $\frac{5}{16}$ " x 3- $\frac{1}{2}$ " GRK RSS Gaa-mashkawaabagakin zaga'iganan, Star Drive (**Minjimendan:** Gaa-gagaanwaabagakin ji-debinigemagakin aasamisag; owe eta go inigokwaawan gichi-zaga'iganan $\frac{5}{16}$ ")
- 16 $\frac{1}{4}$ " x 1- $\frac{1}{2}$ " GRK RSS Gaa-mashkawaabagakin zaga'iganan, Star Drive (gemaa gaye bakaan gegoo)
- Ganabaj igo 16' of 2" x 4" SPF nabagisagoog (mii go owe ge-aabadiziwaad gegoo ji-giba'igaadegin 2" x 6" gemaa gaye ogowe 4" x 4" dayaabadiziwig)
- 16 #9 x 3- $\frac{1}{8}$ " R4 Giiziso Makakozaga'iganan, Star Drive (gemaa gaye bakaan gegoo) miiwan onowe geyaabajitooyan wii-kibizaga'aman gegoo/apakwaanaatigong

Miiwan onowe geyaabajitooyan wii-anokaadaman aasamisagong

- Niizh 2 Giiziso Waasiganan
- 8' M-D Building Products $\frac{3}{16}$ " x 1- $\frac{1}{4}$ " Odaabaani gibojiishkiwaginigan gaa-mashkawaag (gemaa gaye bakaan gegoo)
- 8 Simpson Strong-Tie Gauge 12, 5- $\frac{7}{8}$ " x 5- $\frac{7}{8}$ " x 1- $\frac{1}{2}$ " aasami-agwakwa'iganibiiwaabikoon (model A66) (gemaa gaye bakaan gegoo)
- 16 Buildex Tapcon Concrete Anchors, $\frac{1}{4}$ " x 2- $\frac{1}{4}$ ", Slotted Hex Drive zaga'iganan (gemaa gaye bakaan gegoo)
- 16 Paulin $\frac{1}{4}$ " x 1- $\frac{1}{2}$ " GRK RSS Gaa-mashkawaabagakin zaga'iganan, Star Drive (gemaa gaye bakaan gegoo)

Dinowan geyaabajitooyan dazhiikaman apakwaan gaye aasamisag

- Mitre giishkiboojigan
- Bagoneboojigan
- $\frac{3}{16}$ " Bagoneboojiganaabik
- T-25 gaye T-30 anangobiima'igan
- Dibaabiiginigan
- Dibaabiinigani mazinaatesijigan

Amikodakoniwewiniwag Zhaaganaashiiwakiing

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing

- 48" enaagamishkaag dibaakwa'iganaak
- Biiwaabikobiiwiboojiganan
- Mitigo gibaakwa'iganan, $\frac{3}{4}$ " ji-apiitaagin
- Andone'igewaabik

Geyaabi aabajichiganan endawendaman wii-anokaadaman aasamisag

- Waasigani bagonebooiganaabik
- $\frac{3}{16}$ " x 7" Carbide Tipped Concrete bagonebooiganaabikoon ($\frac{1}{4}$ " Tapcon Concrete anchor zaga'iganan)
- $\frac{1}{4}$ " Socket drive

Bebakaan gegoo izhichigewinan anokaadaman apakwaansag

Ogidabak da-igwa'igaadewan giiziso waasiganaabikoon ji-izhi-zaga'aman apakwaanaatigong (ogidabak).

Niiweyaanagwad izhichigewinan, mii owe izhichigewin onowe:

- i. Aabajitoon J-bolts gemaa gaye U-bolts anaami-apakwaanaakong.
- ii. Aabaji' nabagisagoonsan nawaj ji-mashkawisingin. Owe izhichigeyan gaawiin gegoo da-biigoshkaasinoon. Izhaan iwedi biinji-ishpimishkasagong mii omaa ji-anokaadaman izhichigewinan.
- iii. Aabajitoon lag bolt zaga'iganan saga'aman aasami-apakwaanaatigong aabajitoon owe dibaajimowin mazina'igan Truss Plate Institute of Canada, izhi-dibaajimowin #7 [Imaa 3].
- iv. Miiwan onowe Lag bolt zaga'iganan ayaabadakin zaga'aman aasami-apakwaanaatigong apane onowe aabadadoon zaga'iganan.

*** GIKENDAN OWE wii-ozhitooyan giiziso waasiganibiiwaabik *Truss Plate Institute of Canada (TPIC)* [Imma 3]**

TPIC Solar Ready (SR) aasami-apakwaanaatigong gaawiin aapiji mashkawaasinoon imaa ji-zaga'amamban giin igo enendaman. Gaawiin noon owe inendaagwasinoon ji-izhichigengiban *TPIC*.

Andone'an ogidabak waa-izhi-atooyan gigiiziso waasiganibiiwaabik, daangibii'an enaakoshinowaad apakwaanaatigong.¹³ Mii owe minik endawendaman ji-dawi-ayaag waa-izhi-atooyan giiziso waasiganibiiwaabikoon 102" ji-inigwakwadeyaag ogidabak gaye 96" ji-apiitaag.¹⁴ Niih awiyag oga-anokaadaanaawaa bezhig ogidabak awedi miinawaa bezhig biinji-ogidabak ji-gaganoonindiwaad aandi waa-izhi-atoowaad waasiganibiiwaabik.

¹³Dibi go gidaa-mikawaag eyaawaad apakwaanaatigoog. Ezhi-waanakwaashing "tail" apakwaanaak imaa biinji-ogidabak, mii omaa ge-onji-anokaadaman ogidabakong mii omaa ge-onji-dadibaabiiginaman waa-izhichigeyan (maagizhaa aanind gegooyan giga-aanjisidoonan). Andone'igewaasikononjigan maagizhaa daayaabadad. Idash, nashke ge-onji-biindigeyan biinji-ogidabak waabam enaakonishowaad apakwaanaatigoog. Gii-piindigeyan iwedi biinji-ogidabak, bangii naazhaya'ii izhi-bagoneboozh apakwaanaak gikendan ekwaak gaa-gii-bagone'igeyan (maagizhaa 16" izhi-naawaatig).

¹⁴Owedi inigokwaawan bebezahig giiziso waasiganan ningodwaaso mininji 6" dadawisinoon naawaya'ii. Izhi-maamawi-minik da-akwaawan gaye enigikwagokwaadeyaagin $48" + 6" + 48" = 102"$. Ekwaabikakin 72" gaye endaso-dadawisinoon 12" mii owe minik ge-dadawisidooyan ogijiya'ii gaye naazhaya'ii. Izhi-maamawi-minik da-ikwaabikakin gaye enigikwagokwaadeyaagin $72" + 12" + 12" = 96"$.

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Ogidabak atoon gaye giishpin gegoo imaa gibising gaa-inaagoshinowaad nabagisagong

Dibaabiiginan ogidabak waa-izhi-atooyan ge-izhi-ishkwesing giiziso makak, Dibaabiiginan naazhaya'ii aabajitoon dibaabiiginani mazinaatesijiganeyaab waa-izhi-atooyan waasigani makak.

Biinji-ogidabak, dibaabiiginan enaakoshinowaad/nabagisagoog ozhi-boozh nababigisagoog 2" x 4" x 8" waa-izhi-agwa'adwaa gaa-inaakoshinowaad nabagisagoog.

Niizh imaa atoon giiziso waasiganimakakoon ogidabak imaa angle brackets. Agowi-nabagisag ogidabak ge-izhi-ateg waasigani makak bezhig miinawaa ogijiya'ii akwaawi' mii owe minik ge-dawishinowaad $\frac{3}{4}$ " nenisawaya'ii (gaa-dawisingin) mii imaa izhi-atoon giizhoo'igan.

Atoon niizh angle brackets imaa atoon gaa-gii-beshi'aman, zhaaboosh bagonenboodoon (Gagwejim ogidabak gaa-ayaad ji-bichiboozisigwaa nabagisagoog). Mii omaa ge-izhi-atooyan giiziso waasiganimakak. Akawe dibaabiiginan aandi miinawaa waa-izhi-boojigeyan angle bracket jiiginaya'ii naazhaya'ii giiziso waasigani makakoong. Biindipakwaan gaa-ayaad oga-gikendaan aandi miinawaa ge-izhi-bagone'igeng mii go miinawaa iwe aabajitoon aazha gaa-giikibaabiiginaman ji-bichi-bagonewaasiwadwaa nabagisagoog. Nabagisagoog gaa-gii-asadwaa mii i ge-izhi-saga'indwaa. Wii-izhichigan owe akawe minjimin nabagisag ji-gikendaman waa-izhi-bagoneboojigeyan (gego giba'angen gaa-gii-bagoneboodooyan), e'ii nabagisag izhi-bagone'igeng eshkweya'ii gaa-inaagoshinowaad nabagisagoog ¹⁵aabajitoon niwin #9 x 3 $\frac{1}{8}$ " GRK R4 Multi-Purpose Framing zaga'iganan (eshkweya'ii zaga'an).

Jibwaa-atooyan angle brackets akawe dibaabiiginan, weweni ji-izhisingin iwedi naazhaya'ii giiziso waasigan. Ezhi-nesagaag angle brackets bangii bakweboodoon mii omaa ge-onji-onjigaag nibi imaa izhi-odaanaang giiziso waasigani makakong. Minjimendan minik gaa-gii-dawisidooyan ($\frac{3}{4}$ ") ezhi-nisawaya'ii.

Dibaabiginan gibijiishkawigan waa-aabajitooyan (6" da-akwaa) giboojiishkawaginan biinish igo iwedi angle bracket nabagisagoog gaa-inaagoshinowaad. Giboojiishkawaginan iwedi odaanaang izhi-brackets ji-zaamisizinok imaa flashing imaa giiziso waasiganing. Naazhaya'ii zaga'an angle bracket aabajitoon niizh $\frac{1}{4}$ " x 1- $\frac{1}{2}$ " GRK RSS Rugged Structural zaga'iganan.

Miinawaa iwedi bezhig angle bracket naazhaya'ii naagibiiwaabikong mii imaa ge-izhi-bagobooadooyan mii imaa zhaagobooadooyan biinji-ogidabak. Biinji-apakwaanang gaa-ayaag da-dibaajimo ge-izhi-bagone'igeng gikendan ji-bagoobooadoon nabagisag aazha iwedi gaa-gii-izhichigeyan.

Niizh angle brackets da-agwa'igaadewan naazhaya'ii giiziso waasigani makakong onowe aabajitoon $\frac{1}{4}$ " x 1- $\frac{1}{2}$ " GRK Round Washer Head RSS Rugged Structural zaga'iganan (niizh eta go aabajitoon angle brackets). Angle brackets da-zaga'igaadewan imaa biinji-ogidabak onowe gaa-inigokwaagin $\frac{1}{4}$ " gemaa gaye $\frac{5}{16}$ " x 4" GRK Round Washer Head RSS Rugged Structural zaga'iganan (niizh eta go aabajitoon angle brackets biinj-ogidabak).

Niizh atoon iniwe angle brackets imaa gibijiishkawaginaning aazha iwe gaa-gii-izhichigeyan.

Miinawaa go ge-bezhigwan ge-izhichigeyan iwedi bezhig giiziso waasigan.

Bakojiwebaawi' gaa-gii-asadwaa naazhaya'ii nabagisagoonsag.

¹⁵Angle brackets dayaabadoon nawaj ji-mashkawisingin giiziso waasigani makakoon.

Atoon Giiziso Waasigani Makak Aasamisag

Giishpin wii-atooyan imaa aasamisag gikendan aabajitooyan aandi gaye waa-izhi-agwa'aman.

- Giishpin nabagisagowang aasami-waakaa'igan aabajitoon angle brackets zaga'igaagen owe GRK RSS Rugged Structural zaga'iganan. Ge-akwaabikakin zaga'iganan epiitagizid igo nabagisag owe minik da-gijinda'igaadewan 2-½" gakina 3" imaa nagabisagong.
- Owe dinowa aasamisag concrit, aabajitoon angle bracket agozaga'an aabajitoon Tapcon Concrete Anchor zaga'iganan, ¼" x 2-¼".

Beshibii'an aasamisag waa-izhi-atooyan, giiziso waasigani makak gaa-wii-izhitooyan giiziso waasigani makak. Ge-izhi-atooyan giiziso waasigani makak naazhaya'ii, ji-gikendaman ge-apiichi-ishpaagonagaag, miinawaa bezhaagibii'an.

- Ji-gikenimadwaa enaakonishinowaad nabagisagoog gaye mii imaa ge-izhi-beshaabiiginigeyan. Gidaayaabajitoon andone'igewaabik.

Niizh atoon imaa angle brackets gaa-izhi-biishibii'igaadeg gaye niizhing izhi-bagoboodoon ge-izhinaabisinging angle brackets.

- Bagoboodoon aasamisag ji-debiboond biindig nabagisag.
- Bagoboodoon aasamisag aabajitoon carbide-tipped bagoneboojiganaabikoonsan imaa biinji-Tapcon Concrete Anchors, dimibagoboodoon ji-biijinishkaasinogin.

Jibwaa-agwa'aman izhi-angle brackets aasamisag, gikendan ji-de-inigokwaagan iwedi odaanaag giiziso waasigani makakong. Ezhi-nesagaag angle brackets bangii bakweboodoon mii omaa ge-onji-onjigaag nibi imaa izhi-odaanaang giiziso waasigani makakong. Minjimendan gaa-dawi-ayaagin.

Dibaabiginan gibijiishkawigan waa-aabajitooyan (6" da-akwaa) giboojiishkawaginan biinish igo iwedi angle bracket nabagisagoog gaa-inaagoshinowaad. Giboojiishkawaginan iwedi odaanaang izhi-brackets ji-zaamisizinok imaa flashing imaa giiziso waasiganing.

- Giishpin dinowa ayaawang asiniiwiwaasimisag niiwin aabajitoon angle brackets onowe zaga'igaagen ¼" GRK Structural zaga'iganan ji-debizagawad biidig nabagisag.
- Iwedi bezhig dinowa ayaawang aasamisag niiwin aabajitoon angle brackets onowe zaga'igaagen aabajitoon niizh Tapcon, ¼" x 2-¼", Concrete Anchor zaga'iganan mii imaa ge-izhi-agwa'aman aazha gaa-gii-bagoboodooyan.

Atoon niizh giiziso waasigani makakoon ogijaya'ii gaa-gii-agwa'aman angle brackets. Ashi niizhwaatig nabagisagoonsag ishpimiing gaye naazhaya'ii giiziso waasigani makakong ¾" owe minik da-dawisin giiziso waasigani makak imaa aasamisag, wenji-dawisingin mii imaa waa-atooyan giizhoo'igan.

Weweni gi'agwa'igaadegin giiziso waasigani makak aabajitoon niizh ¼" x 1-½" GRK RSS Rugged Structural zaga'iganan miiwan onowe zaga'igaageyan imaa angle bracket ji-biigwa'an waasechiganaabik gaa-zaagabikising.

Izhaan iwedi ogiji-angle brackets niiwin agwa'an angle brackets izhi-ogijiya'ii giiziso waasigani makakong mii go bezhigwan ogijiya'ii gaye naazhaya'ii.

Gwiichiawwi' nabagisagoonsag naazhaaya'ii giiziso waasigani makakong.

Giiziso Waasigani Makak Gaa-niigaanising gaye Ge-inaabikisingin Okijaabikoonsan

Da-niizhosinoon Giiziso waasigani makakoon bezhig ogijiya'ii gaye naazhaya'ii ozaawibiiwaabik gaa-ayaawangin, miiwan onowe ge-inaabikisingin iwedi atoobaaning aabajitoon PEX okijaabikoonsan. Okijaabikoonsan ogidabak da-inaabikisinoon gemaa gaye biinjisag waakaa'iganing flashing. Gakina okijaabikoonsan da-giizhoochigewan.

Gegoo geyaabadakin:

- Da-niizhinoon Giiziso Waasigani Makakoon imaa ogidabak gemaa gaye biinjisagiwaakaa'iganing
- 4 x copper bushing adapters ¾-in OD dakisinjigan imaa ¾" ID ikwa'ibaana
- 6 x ozaawaabik ¾" ID 90° zhawabi-okijaabikoonsan
- 4 x ozaawaabik ¾" ID tees
- 2 x ozaawaabik ¾" ID okijaabjiko-gibaakwa'iganan
- 2 x 1" PEX gakina ¾" ID ozaawaabik female sweat adapters
- ¾" ozaawaabiki-okijaabik (baamaa giga-gikendaan ge-akwaabikak omaa anokaadaman)
- 1" PEX fittings gaye gizhibaamashkawaakwa'iganan (baamaa giga-gikendaan ge-akwaabikak omaa anokaadaman)
- 1" PEX okijaabik (baamaa giga-gikendaan ge-akwaabikak omaa anokaadaman)
- 95% biiwaabiko agokiwasigan
- Biiwaabiko-agokiiwate
- 2 niizh 3" PVC okijaabikoonsan (18" ayaakwaabikadoon)
- 2 x Flex roof plumbing boot flashing idash 3" PVC pipe (giishpin aabajitooyan ogidabak) gaye butyl tape agokiwasigaageng ogidabak
- Apakwaani zaga'iganan (giishpin ogidabak wii-atooyan)
- Gibijiishkiwaginigan (UV resistant)
- Biiwaabiko mashkawa'iganan
- #8 x 1-½" mitigo zaga'iganan aabajitoon ji-mashkawa'aman (baamaa giga-gikendaan ge-akwaabikak omaa anokaadaman)
- Okijaabiko gizhoo'igan gaye UV agwana'igan (ganawaabandan mazina'igani izhichigewinan wii-gikendaman ezhichigeng)
- Debaajimomagak ge-apiichinizhideg giiziso waasigani makak (ganawaabandan "ge-izhi-izhisingin" nawaj geyaabi gegoo wii-kikendaman)
- Naangibiiwaabiko mashkawaakwa'iganan (ganawaabandan "ge-izhi-izhisingin" nawaj geyaabi gegoo wii-kikendaman)
- Namekwaane apa'igan (ganawaabandan "ge-izhi-izhisingin" nawaj geyaabi gegoo wii-kikendaman)
- 2 conductor, 18 AWG sensor wire (ganawaabandan "ge-izhi-izhisingin" nawaj geyaabi gegoo wii-kikendaman)

Aabajichiganan enawendaagwakin:

- Biiwaabiko moozhwaagan
- Biiwaabiko ningikiwaasigan ayaabadak
- PEX okijaabiko moozhwaagan
- Ishkodeboodaajigan
- Emery Bagiwayaanish
- Jaagidewaabo zhizhoobii'iganaatig
- Dibaabiiginigan

Amikodakoniwewininiwag Zhaaganaashiiwakiing

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing

- 48" Gwayakosijigewaabik
- Pakite'iganens
- Biiwaabikobiwiboojiganan
- Andone'igewaabik
- Bagoneboojigan gaye bagoneboojiganaabikoonsan
- 3-½ Bagoneboojigan Giishkiboojigan
- Mashkawaakwa'iganibiiwaabik 1 daso-mininj PEX
- Biiwaabiko-zagaagwa'iganaabik

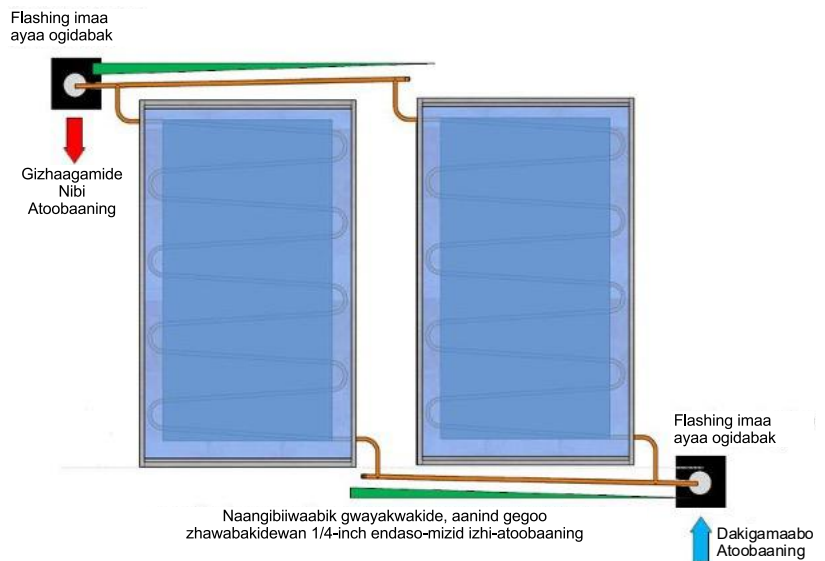
Giiziso Waasigani Makak Gaa-niigaanising Agwana'igan

Niizh serpentine collectors
neniizhoosinoon ogijaya'ii
gaye naazhaya'ii agwana'igan
ozaawaabikong gaye ¾"
ge-onji-nibiiwaabikasinok
Dibishkoo owe 74.

Onowe eko-niiwingin,
¾" OD dakisinjigan dinowa
("naangibiiwaabik") ozaawaabiko
tubing stubs mii owe ge-onji-
ondaabikising wedaapinigemagak onji-
giizisong mii owe enaabikising iwedi ¾"
ikwa'ibaaning ("mashkawaabikad")
aabajitoon ozaawaabik ojaabikizigan
ozaawaabikong bushing gaye 90°
odooshkwanaabik.

Aakwatooyaabikisidoon
ozaawibiiwaabiko ojaabikoonsan imaa
gaa-niigaanising ¼" ge-izhi-zakisingin
imaa gizhaagamidemagakong, nawaj bangii ji-dawising dawisidoon minik ge-azhe-atooyan giizhoo'igan.

Gakina niiwin ge-izhi-biindaakisingin imaa giiziso waasigani makakong aabajitoon plumbing-tees
ge-izhijiwan nibi ji-izhijiwang imaa giiziso waasigani makakong.

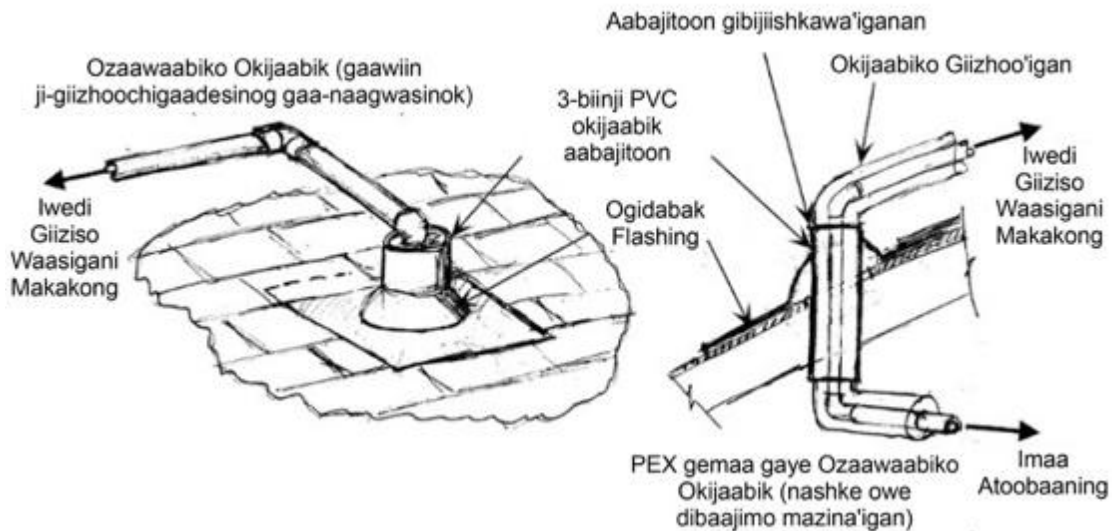


Mazinaakizon 76: Niizh naangibiiwaabikong ogidabak, biiwaabiko gibichi'igan, ge-izhi-naabising ozaawaabiko okijaabik.

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing

Aanikoyaabikisidoon okijaabikoonsan ge-izhi-zakisingin imaa giiziso waasigani makakong

Anokaadaman ogidabak, niizhing inaabikisidoon okijaabikoonsan iwedi ogidabak gaye biinji-zhiibaa-apakwaaning niso-mininj 3" PVC gaa-inigokwaabikakin okijaabikoonsan atoon flashing anaamapakwaanig Dibishkoo owe 75.



Mazinaakizon 77: Biindabak Ge-achigaategin

Mikiman waa-inaabikisidooyan okijaabikoonsan ji-ajidaabikisingin izhi-naazhaya'ii imaa ge-onji-giizhaagamideg nibi¹⁶. Awasinake ogiji-aasamisag apakwaaning, mii imaa ge-izhi-naazhaabikisingin imaa atoobaaning, dibi go da-inaabikisinoon maagizha anaami-aasamisag ji-naagwasinok okijaabikoonsan. **Onjida go ji-nawesingin okijaabikoonsan imaa ikwa'ibaaning³.**

Anaami-ogidabak gakina da-naazhabikisinoon:

- Giishpin ayaagin okijaabikoonsan anaami-apakwaan daa-minjimaakwa'igaadewan (endaso-niso-mininj 3') ji-zhawabishkaasinok okijaabikoonsan, mii owe geyaabajitooyan 1" PEX okijaabikoonsan. Akawe giizhoopidoon jibwaa-minjimaakwa'aman okijaabikoonsan owe aabajitoon nylon coated ji-biigishkaasinog biishoopijigan.
- Bizaan igo gidayaabajtoon biiwaabiko-minjimaakwa'iganan, aabajitoon meshkawaabikakin okijaabikoonsan ¾" ID giishpin wiisaga'anziwan endaso-niso-mininj.

Okijaabikoonsan ogijiya'ii gaa-onjisingin gakina ji-naazhaabikisingin:

- Imaa ji-inaabikisingin atoobaaning aabajitoon 1" PEX okijaabikoonsan.

¹⁶Ji-ajidaabikisingin okijaabikoonsan ¼" minik omaa onji-giiziso waasigani makakong ji-inaabikisingin ikwa'ibaaning, gakina ji-ajidaabikisingin maagizhaa daa-gibichiwan nibi. Giishpin beshinaagwak waa-inaabikisingin (6" biinji-aasamisag) gakina da-naazhabikisinoon.

Wii-inaabikisidooyan Okjaabikoonsan Biinji-aasamisag

Gaa-niigaaninaabikisingin okjaabikoonsan ¾" ID plumbing ("zoongan") ozaawaabiko okjaabikoonsan gakina 1" PEX miiwan onowe agwajiing ge-inaabikisingin ogijiya'ii aasamisag jiigaya'ii gizhaagamide makakong. Anaami-aasamisag inaabikisinoon okjaabikoonsan niizhing imaa izhi-babagoneyaa miiwan onowe biindig ge-inaabikisingin ishpimiing ondaabikisingin gemaa gaye onaamisag 3" PVC gibijiishkawiginan gaa-izhi-bapagoneyaagin aabajitoon gibojiishkawiginan. Onjida go gakina naazhaya'ii ji-inaabikisingin imaa nake gizhaagamide atoobaaning¹².

Giizhoodoon Gaa-niigaanising Okjaabikoonsan

Gakina gaa-niigaanisingin giizhoojigaadegin. Agwajiing geyaabajitooyan giizhoo'igan gaa-zhaabobiisinok aabajitoon. Niizhwewanagad ge-izhichigeyamban:

1. Giizhoodoon okjaabikoons 1" ningo-mininj epiichigipagaag Armaflex gemaa gaye bakaan gegoo naasab 230°F (110°C). Zhaabwaatenamewaan giizhoo'igan daa-zhizhoobii'igaade imaa agwajiya'ii izhi-zakaasigegiizis maagizhaa da-ningide mii owe wenji-zhizhoobii'aman UV, gemaa gaye
2. Giizhoodoon okjaabik aabajitoon ningomininj 1" epiichigipagaag (gemaa gaye bizaan igo giizhoo'igan aabajitoon). Giizhootoon agwajiing okjaabikoonsan UV-resistant (maagizhaa, PVC), gakina iniwe gaa-naagwakin daa-gibikiwatewan. Biinding inaabikisingin aabajitoon agokiwasiganeyaab.

Mii owe Ge-izhisidooyan Ji-gikendaman gegoo Epiichinizhidegin Giiziso Waasigani Makakong

Jibwaa-naanaabisidooyan okjaabikoonsan agwajiya'ii, gemaa gaye ogijiya'ii gaa-niigaanisingin, "epiichinizhidegin" imaa giiziso waasigani makakong giigi-aasamaya'ii giiziso makakong, aabajitoon biiwaabiko-mashkawaakwa'iganensan. Atoon bimaagami-agokiwasigan agwajiing imaa epiichinizhidegin, ozaawaabiko ojaabikiziganan gaye imaa biiwaabiko-mashkawaakwa'iganensing. Giizhoo'an iwe epiichinizhidewibiiwaabik.

Onjida go ji-giizhoochigaadeg aazhawaabiiginan aabajitoon PVC giizhoo'igan. Ganawaabandan "ge-izhi-izhisingin" nawaj geyaabi gegoo Wii-kikendaman.

Ozhisidoon ge-izhi-izhisingin waakaa'iganing

Miiwan iniwe geyaabadaking “ge-izhi-izhisingin” *DX drainback* giiziso gizhaagamide nibi imaa biindig, *adaawen geyaabajitooyan naanaagadawaabandan mazina'igan izhichigewinan. Mii owe geyaabajitooyan ji-gikendaman ge-izhichigeyan, aabajitoon gaye nitam dibaajimomazina'igan.*

Miiwan onowe Ge-andawendaman

DX drainback system consists of a collector array, nibi ge-izhijiwang giishpin onzaamibaazhijibiig, imaa atoobaan, niizh ikwe'ibaanan gaye apiitaabikinigan.

Miiwan iniwe maagizhaa aanind ge-andawendaman jiyaabajitooyan.

- Atoobaaning (ayaa dibaajimowin gegoo epiichinizhideging / pressure relief (TPR) valve gibichii'igan):
 - o Oshki-atoobaan (Niiyo-atoobaanensan 4) gemaa gaye
 - o Waasigani atoobaanens, (inaabin section “Miiwan Onowe Ge-wiiji'igooyan Wii-aanji-mashkawaatedooyan Waasigani Makakoon”)
- 4 X ¾” ozaawaabiko (*wendadoon ji-meshkojisingiban*)
- Ikwe'ibaanan gaye apiitaabikinigan: Niizh cartridge circulators with isolation valve flanges (bezhig niigaani-ikwe'ibaanan ji-bimiwang / giiziso waasigani makak gaye ikwe'ibaanan gaye atoobaaning gaye nibi ge-izhijiwang.
- Nibi ge-izhijiwang ikwe'ibaanan gizhaagamizigan gaye anokiwi oshkiinzhigokaanan
- Aandaabikiniginikbaabikinigan (PR)
- Ziikobiiganaabik
- Epiichinizhidegojijigan gaye adapter bushings (*mii iwe ge-wiiji'igooyangegoo na'itooyan*)
- Gibaabikiniganan (*gikendan minik geyaabajitooyan*)
- Tempering valve (*giishpin oshki-gibaakwa'igan*)
- PEX gemaa/gaye ozaawaabiko ojaabikiziganan (*gikendan minik geyaabajitooyan*)
- Teflon tape
- Biiwaabiko agokiwategin (*giishpin aabajitooyan ozaawaabiko okijaabik*)
- Emirii Claath (*giishpin aabajitooyan ozaawaabiko okijaabik*)
- Niizh 2 candakter, 18 AWG biiwaabikwaabiin (*ji-izhi-zagisidooyan iwedi epiichinizhideg gegoo*)
- Zaga'igani giba'iganan
- Biiwaabiko-mashkawaakwa'iganensan
- Gibijiishkiwaginigan
- Biiwaabiko biimasko-zaga'anan
- Minjimaakwapijiganan (*UV resistant (makadeyaawan)) agwajiin aabadadoon*)

Aabajichiganan endawendaabadakin

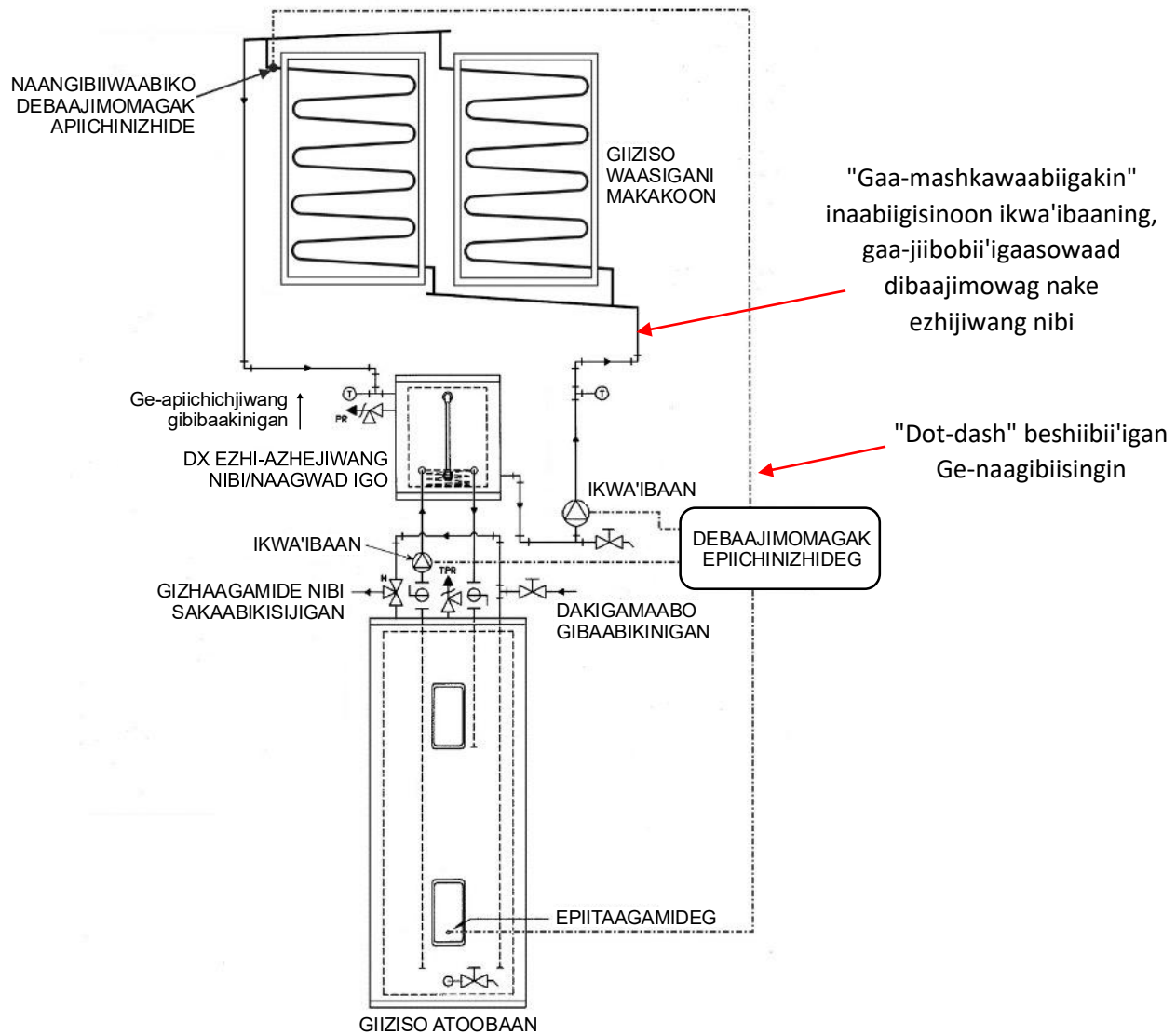
- PEX Biiwaabiko moozhwaagan (*giishpin aabajitooyan PEX okijaabiboon*)
- Mashkawaakwa'iganibiiwaabik 1" PEX
- Biiwaabiko moozhwaagan (*giishpin aabajitooyan ozaawaabiko ojaabikiziganan*)
- Ishkodeboodaajigan (*giishpin aabajitooyan ozaawaabiko ojaabikiziganan*)
- Dibaabiiginigan gaye dibaabiiginigewaabo
- Okijaabik gaa-dakwanjigemagak biiwaabik
- Aanji-dakwanjige biiwaabik (*maagizhaa, 8", 10"*)
- Slip-Joint gaa-dakwanjigemagak biiwaabik
- Biiwaabikobiiwiboojiganan
- Biima'iganaabikoon
- Biiwaabiko moozhwaaganan
- Bishigaabichigewibiima'igan gemaa gaye mookomaan
- Biiwaabiko-zagaagwa'iganaabik

Miiwan iniwe geyaabadaking ge-izhi-izhisingin aabajitooyan oshki-ikwa'ibaani atoobaan.

Miiwan iniwe geyaabadaking ge-izhi-izhisingin gidaayaabajitoon gikinoo'amaage mazina'igan.

Gii-kiizhitooyan, owe da-izhinaagwak 76 solar DX drainback gizhaagamide nibi.

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing



Mazinaateseg 78: Gaa-naagwak Giiziso DX ge-onji-azhe-biinjiwang Oshki-Waasigani-Giiziso-Atoobaan

Waa-izhi-atooyan Gizhaagamide Atoobaan

Onjida go imaa ji-atooyan atoobaan ezhi-gisinaasinog atoon ge-izhibizokigaadesinog.

Nawaj bangii ji-izhisa'igooyan, imaa izhi-atoon jiigi-giiziso waasigani makakong gaye apane wendinaman nibi. Ezhi-giizhooyaag ji-atteg, ji-mashkawaakwadinzinok nibi imaa atoobaaning. Ogijisidoon atoobaan weweni ji-niisijiwang gaye apane ezhi-gizhideg ji-mashkawaakwadinzinog nibi. Ge-izhi-atoobaan ji-ayaag ininaamowin gizhaagamidewatoobaan, o'owe minik ji-dawi-ayaag ji-izhi-gakakidawi-ayaag 6" gaye 8" ge-onji-waabandaman wii-anokaadaman.

Giishpin onjigaag gegoo gidaa-atoon ge-izhi-bangigaag. Owe ji-inigokwaag $\frac{3}{4}$ " gaye 2" niizhomizid ji-akwaabikak ani-besidoon ge-izhi-biijigaag.

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

Waasigani Aabajichiganan

115-120 VAC wiikwaasinjigan jiigaya'ii giiziso waasigani makakong ge-onji-anokiimagak. Giishpin bekaanak andawendaman, gagwijim waasigan gaa-gikendang ezhichigaadeg gemaa gaye ogimaa waakaa'ige.

Aanind waa-kanawendaman bijiinag geyaabajitooyan Giiziso Waasigani Ikwa'ibaaan omaa biindewan 230-240 VAC mii omaa ge-ategin jiigi-ikwa'ibaaning. Giishpin andawendaman naabisijigan, gagwijim waasigan gaa-gikendang ezhichigaadeg gemaa gaye ogimaa waakaa'ige.

Epiichinizhidegojjigan imaa Ikwa'ibaaning

Aanink ikwa'ibaaning, odaanaag ji-gaanizhi'atewan baakinan ishkwandemens giishpin anokaadaman. Gwayak ge-izhitooyan epiichinizhidegojjigan*:

- Baakinan ishkwandemen wii-anokaadaman ikwa'ibaani atoobaan.
- Banaskonan giizhoo'igan ji-waabandaman ikwa'ibaani atoobaan.
- Andone'an zaga'iganan azhe-giichigwa'an gaye atoon i'ima epiichinizhidegojjigan.
- Aanji-mashkawa'an epiichinizhidegojjigan.
- Bangii bagoboodoon ogijiya'ii mii imaa (izhi-biindaabiigisidoon) waasiganeyaab.
- Imaa epiichinizhidegojjiganing izhi-naabisidoon ezhi-ozowaawang minjimaakwa'an aabajitoon naangi-zaga'iganan. **Minjimendan:** wegodogwen igo da-kasaabiikisin.
- Miinawaa aanji-giizhoo'iiginan miinawaa azhe-gibaakwa'an ishkwandemens.

* **Minjimendan:** Aanind Giiziso ikwa'ibaani atoobaan aazha imaa agoode epiichinizhidegojjigan. Giishpin owe aazha, mii eta go owe ge-izhichigeyan ozowi-aazhawabiiginigan ji-inaabiigising gegoo onji-maajiishkaag.

Ikwa'ibiing

Ikwa'ibiing

Aazha imaa gakina gaa-gii-achigaadegin onjida go weweni ji-naabisingin nibi ge-onji-onjigaag. Gakina okijaabikoonsan ji-naazhaabikisingin ¼" ji-inaabikisingin atoobaaning, onjida go ji-gwayakwaabikisingin weweni ji-izhijiwan nibi.

Inaabin weweni gakina ji-zakaabikisingin okijaabikoonsan ikwa'ibaani atoobaaning gagwijim waasigan gaa-gikendang ezhichigaadeg gemaa gaye ogimaa waakaa'ige.

Miiwan Onowe Ge-wiiji'ogooyan Wii-aanji-mashkawaatedooyan Waasigani Makakoon

DX giiziso waasigani makak aazha gaa-ayaayan giga-wiiji'igon ji-gizhaagomizoman geyaabitooyan giiziso apakwanaabikong (onjida ayaayan nawaj gizhisijigemagak), niizh ikwa'ibaaning gaye gegoo wenji-maajiishkaamagak. Giishpin aazha iniwe gaa-ayaayan aanind aabajichiganan, gegoo ji-meshkojijitooyan ikwa'ibaaning gizhaagamidewatoobaaning.

Miiwan onowe Ge-andawendaman

- JB Weld (gema aayaa naasaab epoxy)
- ½" PEX giba'igan
- PEX / ozaawaabiko okijaabikoon (*baamaa giga-gikendaan ge-akwaabikak omaa anokaadaman*)
- ½ " ozaawaabiko okijaabikoonsan (*maagizhaa 10"*) (*giisphin wii-meshkotooyan wii-atoobaaning, agindan dibaajimomazina'igan*)
- Oshki-dakigami-godaagami'igan (*giisphin wii-meshkotooyan wii-atoobaaning, agindan dibaajimomazina'igan*)
- Teflon tape
- Biiwaabiko agokiwate
- Biiwaabiko agokiwatewaabo
- Emery Bagiwayaanish
- Ozaawaabik gaa-bikak zaga'igan (*giisphin wii-meshkotooyan wii-atoobaaning, agindan dibaajimomazina'igan*)
- Ozaawaabiko- female NPT abwezomagad adaptor

Aabajichiganan endawendaabadakin

- Okijaabiko flaring aabajichigan (*giisphin wii-meshkotooyan wii-atoobaaning, agindan dibaajimomazina'igan*)
- Okijaabiko gashkaabikinigan,
- PEX Biiwaabiko moozhwaagan,
- PEX Mashkawaakwa'iganibiiwaabik
- Bagoneboojigan gaye ¼" bagoneboojiganaabikoonsan
- Biiwaabiko moozhwaagan
- Ishkodeboodaajigan (*giisphin aabajitooyan ozaawaabiko ojaabikiziganan*)
- Dibaabiiginigan

GICHI-GEKOO DIBAAJIMOWIN:

Owe aanjisijigan waasigani gizhaagamidemakak onowe gizhaagamiziganan da-dago-ayaa dakaagamini nibi ogijiya'ii aabajitoon godaagami'igan. Waasigani gizhaagamidemakak gaye gizhaagamiziganan da-dago-ayaa dakaagamini nibi GAAWIIN ONOWE dayaanjichigaadesinoon.

Waasigani gizhaagamidemakak gaye dakaagamini nibi bebakaan niizhing inake onjijiwanoon:

- A. Waasigani gizhaagamidemakak gaye dakaagamini nibi, bezhigwan eta gizhaagamide biindaabiikisijigan (*maagizhaa bezhigwan eta go*)

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing

- B. Waasigani gizhaagamidemakak gaye dakaagamini nibi, bezhigwan eta gizhaagamide biindaabiikisijigan gaye niizhinoon biindaabiikisijigan (**Minjimendan:** eko-niizhing dago-ayaa gizhaagamide nibi)

Bebakaak ji-izhi-sakaabigisingin bezhig gizhaagamide gaye dakigamin Omaa izhi-ozhibii'igaadewan bezhig 1.

Adoopowinaak1: Akawe meshkojitoon atoobaan gaye okjaabikoon aazha gaa-ayaagin Waasigani Atoobaanan Giishpin Aabajitooyan Owe Azhe-biinjiwan iwedi Giiziso Gizhaagamide Atoobaaning

EZHIZHINAAGWAK ATOOBAAN >	A. Waasigani gizhaagamidemakak gaye dakaagamini nibi, bezhigwan eta gizhaagamide biindaabiikisijigan (maagizhaa bezhigwan eta go)	B. Waasigani gizhaagamidemakak gaye dakaagamini nibi, bezhigwan eta gizhaagamide biindaabiikisijigan gaye niizhinoon biindaabiikisijigan
Atoobaan gaye Ikwa'ibaaan Miiwan Onowe Meshkojitooyan Andawendan	• MOD 1, • MOD 2A, • MOD 3, • MOD 4, gaye • MOD 5	• MOD 1, • MOD 2B, • MOD 4, gaye • MOD 5
Sakaabiisijiganan (eyaagin)	Mii iwe izhichigemagak sakaabiisijiganan Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing (Dibishkoo imaa 84 nawaj geyaabi wii-gikendaman)	Mii iwe izhichigemagak sakaabiisijiganan Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing (Dibishkoo imaa 85 nawaj geyaabi wii-gikendaman)
Dakigami sakaabiisijigan (ogijaya'ii)	Giiziso gizhaagamide sakaabiisijigan (azhe-biinjiwan HX)	Dakigami sakaabiisijigan imaa atoobaaning; Giiziso waasiganin dakigami sakaabiisijigan (azhe-biinjiwan HX)
Gizhaagamide sakaabiisijigan (ogijaya'ii)	Gizhaagamide sakaabiisijigan imaa biinji-waakaa'iganing (gegoo meshkojitooken)	Gizhaagamide sakaabiisijigan imaa biinji-waakaa'iganing (gegoo meshkojitooken)
Sakaabiisigijigan (ogijaya'ii)	Sakaabiisijigan (gego meshkojitooken)	Giiziso gizhaagamide atoobaan sakaabiisijigan (azhe-biinjiwan HX)
Wenjigijiwang Nibi (naazhaya'ii)	Dakigami sakaabiisijigan imaa atoobaaning; Giiziso waasigani dakigami sakaabiisijigan (azhe-biinjiwan HX) gigijiwaniiminigan	Gigijiwaniiminigan (gego meshkojitooken)

AYAANGWAAMIZIYOK:

Jibwaa-meshkotooyan gikendan giba'an waasigan minji-niizh JIGIBAABIKINIGAADEGIN, ZIIKOBIIGINAN atoobaan.

Jibwaa-biiwaabiko agokiwasiman GEGO JI-AYAASINOG GE-SAKIDSESEG endananokiiyan, weweni JI-AYAAG ININAAMOWIN.

Naasaab izhichigen aazha gaa-gii-izhichigeyan waasigani gizhaagamide atoobaan, mii idi meshkosijidooyan giiziso waasigani atoobaaning ayaan gizhidegizhaabikiziganen giishpin andawendaman. Aanjitoon iniwe gaa-izhibii'igaadegin omaa Dibishkoo 1.

MOD 1 – Bakwadinan Dakigami Sakaabiisijigan Gaye Gizhizigan (ezhi-minji-niizh atoobaanan)

Giizhitoon onowe:

- Gibaakwa'an dakigamin nibiwokijaabikoons.
- Bakwadinan Dakigami Sakaabiisijigan Gaye Gizhizigan (giishpin anokaadaman) ogijaya'ii dip tube imaa Dibishkoo 77.



*Mazinaakizon 79:
Baakaakwanan ishkwandemens imaa
wenji-zaagijjiwang dakigaminibi*

MOD 2A – Aanji-bagoboodoon ge-inaabiigising waasiganeyaab imaa Giiziso Waasigani Gizhaagamidewatoobaaning (gaawiin gegoo saabiigiisijigan)

Giizhitoon onowe:

- Agwaabiiginan godaagama'igan imaa dakibiing Dibishkoo 78.
- Nawaj dakwaabiigitoon godaagami'igan imaa mazina'iganing, **"MOD 2A & MOD 2B (geyaabi) – Nawaj Dakwaabiigitoon Godaagami'igan"**



*Dibishkoo 80:
Agwaabiiginan godaagama'igan
imaa atoobaaning*

MOD 2B – Aanji-bagoboodoon ge-inaabiigising waasiganeyaab imaa Giiziso Waasigani Gizhaagamidewatoobaaning (mii owe niizhwaabiigising saakaabiigininan)

Giizhitoon onowe:

- a) Giichigonan ogiji-atoobaaning gaa-inaabiigising sakaabiigininan. Owe sakaabiigininan ge-aabadak oshki-godaagama'igan. Cathodic mii owe ge-ganawenjigemagak aanike-sakaabiigisijigan gaa-biindaabiigisin atoobaaning.
- b) Adaawe'an oshki-godaagama'igan **“MOD 2A & MOD 2B (geyaabi) – Nawaj Dakwaabiigitoon Godaagama'igan”**

“MOD 2A & MOD 2B (geyaabi) – Nawaj Dakwaabiigitoon Godaagama'igan” (minji-niizh atoobaanan)

Geyaabi onowe ani-aanjitoon 2A gaye 2B giizhitoon onowe:

- c) Nawaj dakwaabiigizhan godaagama'igan ogijiya'ii aazha gaa-gii-bagogoodeg.
- d) Gibijiishkawaginan godaagama'igan ½” PEX apa'igan.
- e) Imaa izhi-atoon gaa-dakwaabiigak godaagama'igan imaa agwaji'aya'ii atoobaaning Dibishkoo 79. Beshibii'an imaa izhi-aabita ekobiig atoobaan.
- f) Bagoneboodoon 4 x ¼” imaa izhi-zhaabwaya'ii godaagama'iganing (e'iidwaya'ii) aabita eta go bagone'igaadeg, niswi geyaabi bagoboodoon ezhi-ishkweyaabiigisin godaagama'iganaabikong Dibishkoo 80.
- g) Azhe-atoon godaagama'iganaabik atoobaaning. Mii iwe ge-wiiji'iwemagak giiziso gizhaagamide sakaabiigininan (imaa da-izhinaabisin ge-onji-zaagijijiwang nibi).
 - a. MOD 2A, omaa atoon dakigami izhi-sakaabiigininan
 - b. MOD 2B, omaa atoon sakaabiigininan



Oyakhikêwin 82: Ka-tipahikâtêk ôma
Ahpitâw-iskosiwin Astâsowikamik Itastêwin



Oyakhikêwin 81:
Ka-cimêkahtahk Kôkinamowin

MOD 3 – Ge-izhi-meshkojitooyan nibi ge-onji-zaagijijiwang (*miiwan onowe atoobaanan gaa-sakaabiigisizinoogin*)

Giizhitoon onowe. Gikendan imaa Dibishkoo 82 nawaj giishpin geyaabi wii-kikendaman agindan izhichige mazina'igan.

- a) Bakwadinan gigijiwanobinigan anaami-atoobaaning.
- b) Aabajitoon flaring biiwaabik aabita mininji $\frac{1}{2}$ " gaa-inigokwaag ozaawi-biiwaabik naazhaya'ii izhi-zhawabinan 45° , nawaj dakwaabikizhan owe da-izhinaagwad Dibishkoo 81. Owe gibiskaabikak mii owe ge-izhijiwang naazhaya'ii sakaabiiginiganing dakigami nibi atoobaaning.
- c) Jiiboboodoon male-to-male NPT gaa-jiibiboodeg ozaawaabik (adapter) iwedi izhi-biindaabiigisidoon anaami-atoobaaning, izhi-biindaabikisidoon gaa-biskaabikak ozaawaabik imaa atoobaaning. Jiiboboodoon female NPT ozaawaabiko-adapter imaa izhi-atoon gaa-izhi-boboodeg.
- d) Atoon "tee" ge-izhi-bimijiwang dakigamaabo sakaabiiginigan (ji-inaabikising ge-azhe-biijijiwang atoobaaning).
- e) Iwedi miinawaa bezhig "tee" ozhibooodoon mii iwe ge-oshki-bagone'igan ge-onji-zaagajijiwang nibi onji-atoobaaning.
- f) Aabajitoon "90-odooskwaning gaa-inibikinigaadeg biiwaabik" mii owe oshki-sakaabiginigan ge-inaabiigising atoobaaning.



Mazinaakizon 83: Ji-aanjitooyan ozaawaabiko $\frac{1}{2}$ " okajaabik giizhoo'igan

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing



Dakigamaabo azhejjiwang atoobaaning bakaan ji-apiitaagamideg

Dakigamaabo biinji-waakaa'igan gaa-ayaag azhejiwan atoobaaning

Oshki-gibaakobaakinigan imaa izhi-atoobaaning

Mazinaakizon 84: Meshkojitoon Baakiigibaakwanigan/Okijaabik

MOD 4 – Ozhisidooyan Giiziso ikwa'ibaani atoobaan agoode epiichinizhidegojijigan (e'iidwaya'ii izhi-atoobaaning)

Oshki-giiziso ikwa'ibaani atoobaan agoode epiichinizhidegojijigan apiichinaazhaya'ii go ge-izhi-gashkitooyan. Gidaa-gashkitoon owe ganawaabandaman izhichigewinan:

- Giichigwa'an ishkwaandemens naazhaya'ii gaa-ayaag ji-gikendaman epiichinizhideg Dibishkoo 83.
- Aanjisidoon giizhoo'igan ji-waabandaman ogiji-atoobaaning.
- Aabajitoon epoxy (JB weld gemaa gaye naasaab) atoon thermistor imaa atoobaaning, weweni ji-minosing epoxy.
- Bagoboodoon ishkwaandemens izhi-biindaabikisidoon (imaa giiziso makakong).
- Imaa epiichinizhidegojijiganing izhi-naabisidoon ezhi-ozowaawang minjimaakwa'an aabajitoon naangi-zaga'iganan.

Minjimendan: wegogwen igo da-kasaabiikisin.

GEGOO MASHI azhe-atooken giizhoo'igan baamaa giizhiitaayan.



Mazinaakizon 85: Baakinan ishkwaademen Naazhaya'ii Ji-waabandaman Ekobiig Atoobaan gaye Ji-waabandaman Enaabiigisingin

Amikodakoniwewininiwag Zhaaganaashiiwakiing

Giizisowaasigan inakonigewin gaye nibi gizhaagamideg ge-izhichigeyang biindig wii-aabajitooyan onowe

MOD 5 – Giichigonan naazhaya'ii wenji-gikendaman epiitaagamideg nibi (*e'iidwaya'ii atoobaaning*)

Giichigonan naazhaya'ii wenji-gikendaman epiitaagamideg nibi mii owe geyaabajitooyan giiziso waasigani makak. Mii owe ge-izhichigeyan ji-giizhitooyan waabandaman izhichigewinan:

- a) Giichigonan niizh sakaabiiginiganan ogijiya'ii gaa-ondaabiigisingin. Bezhig naazhaya'ii dayinaabiigisin gaye iwe idi dash bezhig da-inaabiigisin ge-onij-gizhaagamideg.
- b) Minji-niizh giikijigonaman, gibaabowe'an aabajitoon biiwaabiko-apa'igwanan gegoo ji-biigwasesinok.
- c) Azhe-atoon/giizhoo'igan gaye ishkwaandemens.

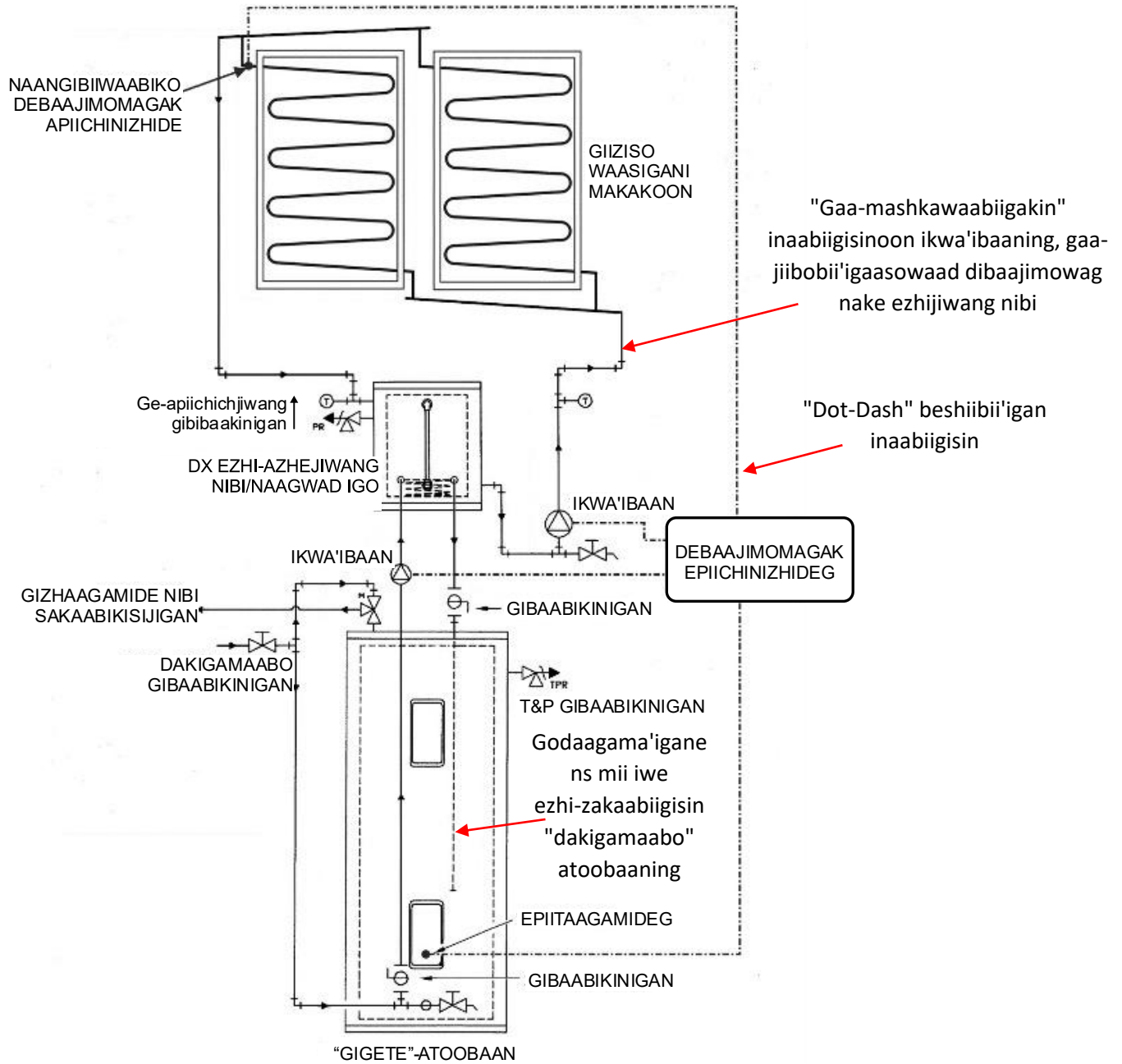
Ge-izhi-izhisingin waakaa'iganing Aabajitooyan Waasigani Atoobaan (mii owe ge-meshkwajitooyan)

Gii-ishkwaa-meshkotooyan, miinawaa da-azhe-naabisin iwedi dakigamaaboong, gaa-ishkosegin imaa DX biindig gizhaagamide atoobaani dibaajimo mazina'iganing.

Ge-meshkojitooyan gizhaagamide atoobaaning naasaab owe:

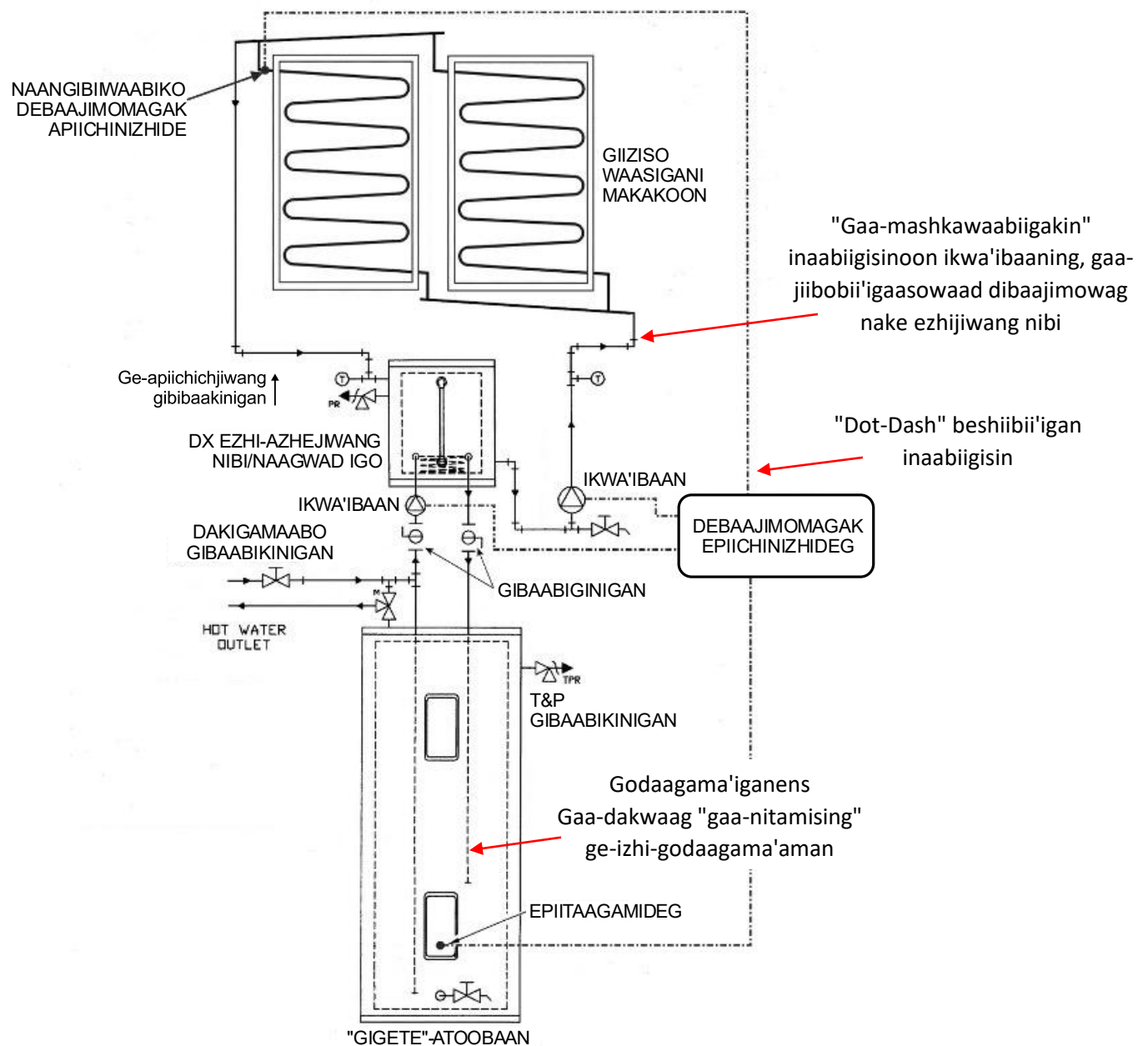
- A. Dibishkoo 84 atoobaaning atoon gaa-dakwaabiigak godaagami'iganaabik imaa dakigamaabobiiwaabikong gaye gaa-onji-gizhaagamideg.
- B. Dibishkoo 85 atoobaaning atoon gaa-dakwaabiigak godaagami'iganaabik imaa biindig sakaabiiginiganing gaye gaa-onji-gizhaagamideg.

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing



Mazinaateseg 86: Owe izhi-naagwad Giiziso DX azhe-biinjiwan atoobaaning aazha imaa ayaa atoobaaning gaye gizhaagamiziganan da-dago-ayaa dakaagamini nibi ogijiatoobaaning gaye Waasigani gizhaagamidemakak

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing



Mazinaateseg 87: Owe izhi-naagwad Giiziso DX azhe-biinjiijwan atoobaaning aazha imaa ayaa atoobaaning imaa biindig sakaabiiginiganing gaye gaa-onji-gizhaagamideg

Nitam mooshkinibijigaadeg atoobaan

Mii go iwe akobijigaadeg gaa-ikidomagak dibaajimo mazina'igan. Mii owe geyaabajitooyan ji-gikendaman ge-izhichigeyan, gaye nitam dibaajimomazina'igan.

Miiwan onowe Ge-andawendaman

- Miiwan onowe aabajichiganan:
 - o Inhibitor and buffer additive (sentinel X100 gemaa gaye naasaab)
 - o Descaler (giishpin misawendaman, sentinel X200 gemaa gaye naasaab)
 - o Ge-biinichigemagak (sentinel X400 gemaa gaye naasaab)

Aabajichiganan endawendaabadakin

- Miiwan onowe aabajichiganan
- Boodaajii'igan gaa-dibaajimomagak

Jibwaa-mooshkinebadooyan gizhaagamidemakak, andawindan ingoji ji-onjigaasinok. Azhe-naabisidoon aabajitoon boodaajigan ge-onji-zaagijijiwang nibi atoobaaning (Gegoo wiin ashime enigok 30 PSI).

Giiziso okijaabikoonsan weweni ji-biinaabikakin. Gakina go ii'i ji-biinichigaadegin, gemaa gaye gii-ishkwaa-atooyan baamaa apii.

Atoobaanan ji-biinibijigaadegin weweni agindan dibaajimo mazina'igan.

Onjida go gakina ji-inaabiigisingin iwedi imaa apiitaabikiniganing ekidomagak mazina'igan.

Mii owe Izhichigewin Ge-onji-minojiwang Gibi

Mii owe ge-apiichichiwang 2 GPM, mii eta go minik giiziso waasigan ge-anokiimagak ezhi-niizhingin 2 giiziso waasigani makakong maagizhaa da-onzaami-gizhidewan (ge-apiichichiwang 1GPM giishpin niizh 2 aabajitooyan). Giishpin niibiwa aabajitooyan giiziso waasigani nawaj da-ni-akwaagamide imaa atoobaaning, mii owe ge-onji-mino-anokiimagakin (nawaj bangii da-izhise giwaasiganim).

Mii owe ge-izhichigeyamban gii-mizhakwanigiizhigak biinish igo jibwaa-naawakweg giishpina gashkitooyan owe nake:

- a) Akawe noomag bimibizotoon. baakishkaawan giizis gii-bi-mooka'ang. Gakina ojaabikoonsan gaa-inaabikisingin gizhaagamizigane atoobaaning da-izhijiwan miziwe.
- b) Naagadawaabandan epiitaagamideg, ozhibii'an gikinawaajibii'iganan nibi da-izhijiwan gizhaagamide atoobaaning.
- c) Azheyaabikinan baakinigan 45° (Gii-inaagwak imaa Mazinaateseg 78, Mazinaateseg 86, gaye Mazinaateseg 87) mii idi ge-izhijiwang giiziso waasigani makakong, aabita eta go minik inaabikinan gaa-izhi-giba'igaadeg). Mii owe bejijiwang, weweni da-bizaanad miziwe. Mii omaa gakina gegoo owe wenji-maajiishkaagin. Waabandan epiitaagamideg. Giishpin owe apiitaagamideg > 60°C, imaa izhi-gibitanan. Giishpin owe apiitaagamideg > 60°C, imaa izhi-gibitanan geyaabi d.
- d) Giishpin weweni gakina gegoo anokiimagakin owe da-apiitaagamide 60°C (aaniin igo apii ge-apiitaagamideg, maanoo dash igo 60°C giishpin aazha noomag gii-paakinigaadeg gemaa niizho diba'igan). Giishpin owe izhitooyan, nawaj da-bejijiwan nibi imaa okijaabikoonsing nawaj ji-bejijiwang azheyaabikinan gibaakwa'igan (bangii eta) dibaabindan epiitaagamideg. Endaso-niizhing diba'igaans gibichiin. Mii owe bejijiwang, nawaj da-ani-gizhaagamide.

EKO 2: Giiziso Gizhaagamide Nibi Imaa Biindig Waakaa'iganing

- e) Ayaandaabikinan gibaakikinigan ganawaabandan epiitaagamideg. Maagizhaa owe apiitaagamideg gibaakwa'igan 45° (aabita eta go minik giba'an) 90° (giba'igaade) mii owe ge-onji-gwayakojiwang ezhi-andawendaman igo.
- f) Daangibii'an gaa-gii-izhi-biiminaman mii iwe naagaj ge-onji-gikendaman.

MINJIMENDAN:

**GEGO WIIKAA GAKINA GIBAABIKINAGENG IMAA GIIZISO WAASIGANI MAKAKONG.
GIISHPIN IZHICHIGEYAN GAKINA DA-GIBIIJIJIAN NIBI, DA-BIIGOSHKAA ATOOBAAN.**

Naanaagadawaabandan Gaa-wiiji'iwemagakin Mazina'igan

1. Amikodakoniwewininiwag Zhaaganaashiiwakiing, *"Solar Ready Guidelines for Solar Domestic Hot water and Photovoltaic Systems"*, owe izhichigewin version 1.1, 2013. (PDF dibaajimo mazina'igan imaa naagwad, aazhawaatebii'iganing izhi-andone'an).
2. Amikodakoniwewininiwag Zhaaganaashiiwakiing, *"Photovoltaic Potential and Solar Resource Maps of Canada"*. (aazhawaatebii'iganing izhi-andone'an).
3. Truss Plate Institute of Canada, *"Solar Ready Truss Design Procedure, TPIC Technical Bulletin #7"*, Gii-aanji-minochigaade mazina'igan Aandegogizis 12, 2020 (PDF dibaajimo mazina'igan imaa naagwad, aazhawaatebii'iganing izhi-andone'an).

Izhichigewin 1: Gagwejitoon Aaniin Ge-izhisingin

Owe 1 Ezhichigewin

Ge-naagwak: Aabajichiganan, Aasamisag, Oshki-giiziso Waasigani Gizhaagamide Nibi (80 daso-baani atoobaan)



Mazinaakizon 90: Niigaan ezhi-naagwak giiziso waasigani makak imaa Wahkohtowin Innovation Centre, Chapleau, Ontario, 2021.



Mazinaakizon 89: Aasamaya'ii ezhi-naagwak giiziso waasigani makak imaa Wahkohtowin Innovation Centre, Chapleau, Ontario, 2021.



Mazinaakizon 88: Niigaan ezhi-naagwak naagwad wenji-azhejiwang nibi imaa atoobaaning, oshki-waasigani-giiziso-atoobaan imaa Wahkohtowin Innovation Centre, Chapleau, Ontario, 2021.

Owe 2 Ezhichigewin

Ge-naagwak: Aabajichiganan, Apakwaanigan, Oshki-giiziso Waasigani Gizhaagamide Nibi (80 daso-baani atoobaan)



Mazinaakizon 92: Ogijiyâ'ii ezhinaagwak giiziso waasigani makak imaa Missanabie Cree First Nation, May 2022.



Mazinaakizon 91: Niigaan ezhi-naagwak oshki-waasigani-giiziso-atoobaan, azhejjiwang gaye apiitaabikinigan imaa Missanabie Cree First Nation, May 2022.

Owe 3 Ezhichigewin

Ge-naagwak: Aabajichiganan, Apakwaanigan, Oshki-giiziso Waasigani Gizhaagamide Nibi (80 daso-baani atoobaan)



Mazinaakizon 93: Niigaan ezhi-naagwak giiziso waasigani makak imaa Chapleau Cree First Nation, Mukeso House, September 2022.