

Aldea Patzac School Project



ENGINEERS WITHOUT BORDERS USA
Minnesota Professional Chapter

Community of Patzac

Region: Quiché Department

Municipality: San Andrés Sajcabajá

Community: Aldea Patzac

Project Partners:

- EWB-USA Guatemala Country office
- San Andrés Sajcabajá Municipality

Community size: about 500 people

Language: Ki'che dialect

Accessibility: about 1 hour from San Andrés Sajcabajá by truck



Project Timeline



Assessment Trip - March 2019



Design and Fundraising – Summer 2019

CONTENIDO

T-1 TITULO
C-1 PLANTA DE CONJUNTO
A-1 PLANTA
A-2 FACHADAS
A-3 FACHADAS
S-1 FUNDICION EXISTENTE
S-2 CIMENTO
S-3 MUROS
S-4 MUROS
S-5 DETALLES ESTRUCTURALES
S-6 DETALLES ESTRUCTURALES
S-7 TECHO
E-1 ELECTRICIDAD – FUERZA
E-2 ELECTRICIDAD – ILUMINACION
L-1 LETRINA

NOTAS GENERALES

ESTANDARES DE DISEÑO
CARGAS: ASCE 7-10 & AGES NSE 2-10
CONCRETO: ACI 318-11
MAMPOSTERIA: MCBC NTC-M 2002 & AGES NSE 7.4-10
ACERO: AISI S100-12

PROPIEDADES DE MATERIALES
CONCRETO
CONCRETO: $f'_c = 175 \text{ kg/cm}^2$ (2,500 psi)
MEZCLAR: (1) PARTE DE CEMENTO
(1) PARTES DE ARENA
(3) PARTES DE PIEDRA
VARILLAS: $f_y = 40,000 \text{ psi}$ (ASTM A-615)
MAMPOSTERIA CONFINADA
BLOCKS: $f'_m = 50 \text{ kg/cm}^2$ (CLASE B)
MAMPOSTERIA: $f'_m = 35 \text{ kg/cm}^2$ (500 psi)
MEZCLAR: (1) PARTE DE CEMENTO
(6) PARTES DE ARENA

ACERO
LAMINA, $F_y = 80 \text{ ksi}$
COSTANERAS, $F_y = 72 \text{ ksi}$
PROPIEDADES DE SUELOS
CAPACIDAD, $q_u = 2,000 \text{ psf}$
ANGULO DE FRICCION INTERNA, $\phi = 32^\circ$ (LOOSE)
ANGULO DE FRICCION INTERNA, $\phi = 36^\circ$ (DENSE)
COHESION, $c = 0 \text{ psf}$

CARGAS ESTRUCTURALES
MUERTA
CONCRETO, $\gamma = 150 \text{ pcf}$
ACERO, $\gamma = 490 \text{ pcf}$
SUELO, $\gamma = 95 \text{ pcf}$
MAMPOSTERIA, $q = 42 \text{ psf}$
REPELLO+GERNIDO (AMBOS LADOS), $q = 10 \text{ psf}$
LAMINA, $q = 2 \text{ psf}$
ILUMINACION, $q = 2 \text{ psf}$
POLINES, $q = 2 \text{ psf}$
VIVA
TECHO, $q = 10 \text{ psf}$
TECHO, $P = 200 \text{ lb}$ CARGA CONCENTRADA (PERSONA)
SSMO
 $S_r = 1.50g$ $R = 3.00$
 $S_{tr} = 0.55g$ $C_s = 0.38$
 $K_d = 0.80$ $T = 0.14 \text{ sec}$
 $I_o = 4.20$ $V = 30.6 \text{ klp}$
SITIO CLASE D
VIENTO
VELOCIDAD BASICA, $V = 80 \text{ mph}$ (700 MPR)
CATEGORIA DE RIESGO = II

ALDEA PATZAC SCHOOL PROJECT

SAN ANDRÉS SAJCABAJÁ MUNICIPALITY, GUATEMALA
CONSTRUCTION DRAWINGS AUGUST 29, 2019
ENGINEERS WITHOUT BORDERS MINNESOTA PROFESSIONAL CHAPTER
PROJECT MANAGER: TYLER MYERS



PROJECT TITLE

ALDEA PATZAC
SCHOOL PROJECT

SCHOOL TYPE

CONFINED MASONRY

PROJECT TEAM

EWB-MINNESOTA
PROFESSIONAL
CHAPTER

PROJECT LOCATION

QUICHE, GUATEMALA

DATE DRAWN

29 AUG 2019

DRAWN BY

JONATHAN HIMES

REVISED BY

PROJECT MANAGER

TYLER MYERS

APPROVED BY

MUSTAFA B. IGDELIOGLU

REVISION DATE

26 SEP 2019

SHEET TITLE

TITULO

PAGE NUMBER

T-1

Implementation Trip #1 - November 2019



Implementation Trip #1 - November 2019



Implementation Trip #1 - November 2019



Implementation Trip #1 - November 2019



Continued Construction, December-January 2021



Continued Construction, December-January 2021



Continued Construction, December-January 2021



Continued Construction, December-January 2021



Continued Construction, December-January 2021



Next Steps...



Next Steps



Next Steps



Next Steps

CONTENIDO

- T-1.0 TITULO
- C-1.0 PLAN DE SITIO CIVIL
- C-2.0 PLAN Y PERFIL CIVIL
- S-1.0 PLAN DE SITIO ESTRUCTURALES
- S-2.0 PLAN DE CIMENTOS ESTRUCTURALES
- S-2.1 PLAN DE CIMENTOS ESTRUCTURALES

DATA SET INFORMATION

BASE FILE	FILE NAME/NOTES	PROVIDER	DATE
TOPOGRAPHY	ESUELA CASERIO PATZAC - PLANOS TOPOGRAFICOS	HANS L. ECKSTEIN PAZ	7/8/20

NOTAS GENERALES

DESIGN STANDARDS
LOADS: ASCE 7-16 & AGIES NSE 2-18
CONCRETE: ACI 318-14
EARTH RETENTIONS: AGIES NSE 5.3-18
STEEL
WOOD

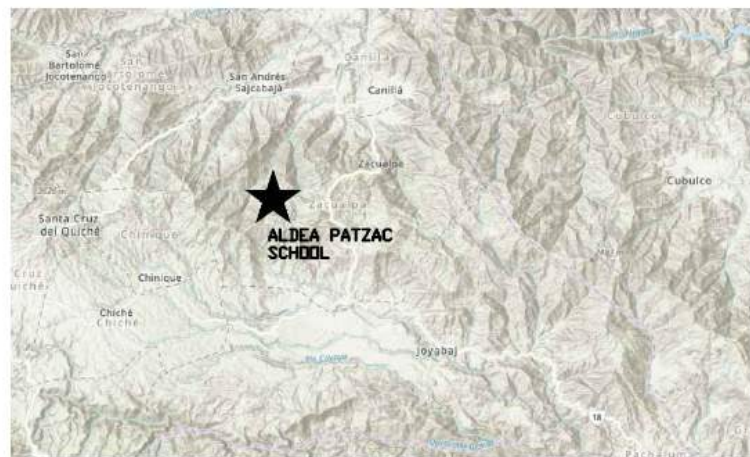
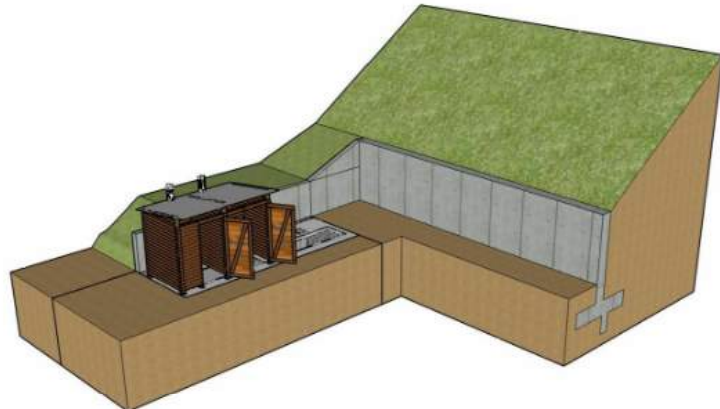
MATERIAL PROPERTIES
CONCRETE
CONCRETE: $f'_c = 175 \text{ kg/cm}^2$ (2,500 psi)
REINFORCING STEEL: $f_y = 40,000 \text{ psi}$ (ASTM 500 psi)
MASONRY
BLOCKS: $f'_p = 50 \text{ kg/cm}^2$ (CLASS B)
MORTAR: $f_{m^*} = 35 \text{ kg/cm}^2$ (500 psi)
SEEL
STEEL: $f_y = 50 \text{ ksi}$

SOIL PROPERTIES
BEARING CAPACITY: $q_0 = 2,500 \text{ psf}$
ANGLE OF INTERNAL FRICTION: $\theta = 28 \text{ deg(LOOSE)}$
ANGLE OF INTERNAL FRICTION: $\theta = 28 \text{ deg(DENSE)}$
COHESION: $c = 0 \text{ psf}$

STRUCTURAL LOADS
DEAD LOADS
CONCRETE: $\gamma = 150 \text{ pcf}$
STEEL: $\gamma = 490 \text{ pcf}$
SOIL: $\gamma = 95 \text{ pcf}$
MASONRY
LIVE LOADS
WALL SURCHARGE: $q = 40 \text{ psf}$
LATRINE SLAB: $q = 40 \text{ psf}$
LATRINE SLAB: $P = 1,000 \text{ lb}$ (CONCENTRATED LOAD)
LATRINE ROOF: $q = 10 \text{ psf}$
LATRINE ROOF: $P = 200 \text{ lb}$ (CONCENTRATED LOAD)
WIND
BASIC WIND SPEED: $V = 80 \text{ mph}$ (700 MRI)
RISK CATEGORY: II
EXPOSURE: C
SEISMIC
 $S_{cr} = 1.5g$ $R = 3.00$
 $S_r = 0.55g$ $C_s = 0.38$
 $K_d = 0.8$ $T = 0.14 \text{ sec}$
 $I_0 = 4.2$
SITE CLASS D

ALDEA PATZAC SCHOOL PROJECT

SAN ANDRES SAJCABAJA MUNICIPALITY, GUATEMALA
CONSTRUCTION DRAWINGS SEPTEMBER 2020
ENGINEERS WITHOUT BORDERS MINNESOTA PROFESSIONAL CHAPTER
PROJECT MANAGER: TYLER MYERS



PROJECT TITLE
ALDEA PATZAC SCHOOL PROJECT

SCHOOL TYPE
CONFINED MASONRY

PROJECT TEAM
EWB-MINNESOTA PROFESSIONAL CHAPTER
PROJECT LOCATION
QUICHE, GUATEMALA

DATE DRAWN
10-Sep-20
DRAWN BY
THOMAS DESUTTER
REVISED BY

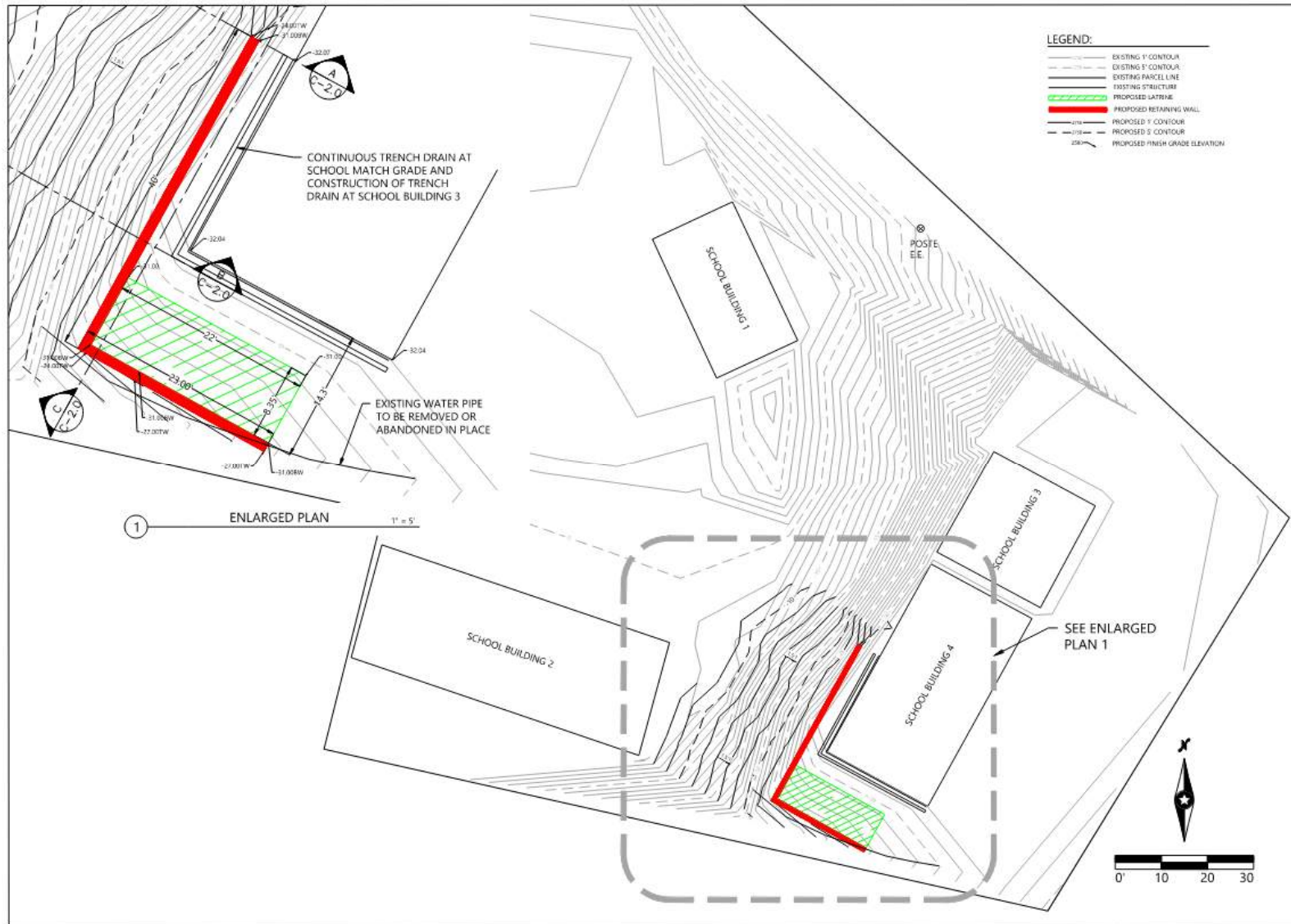
PROJECT MANAGER
TYLER MYERS
APPROVED BY
MUSTAFA B. IGDELIOGLU

REVISION DATE

SHEET TITLE
TITULO

PAGE NUMBER
T-1.0

Next Steps



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EWB-MINNESOTA PROFESSIONAL CHAPTER

PROJECT LOCATION
QUICHE, GUATEMALA

DATE DRAWN

02 SEP 2020

DRAWN BY

THOMAS DESUTTER

REVISED BY

PROJECT MANAGER

TYLER MYERS

APPROVED BY

MUSTAFA B. IGDELIOGLU

REVISION DATE

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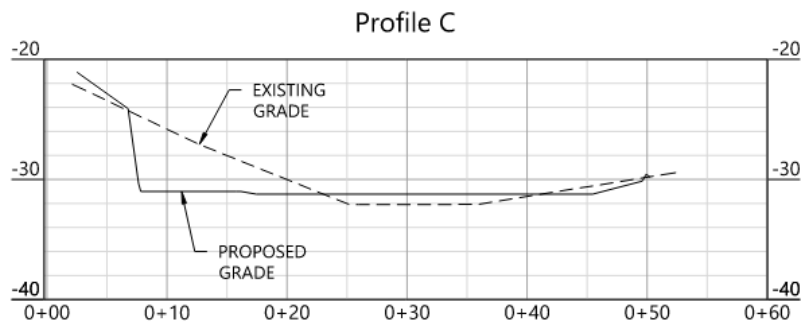
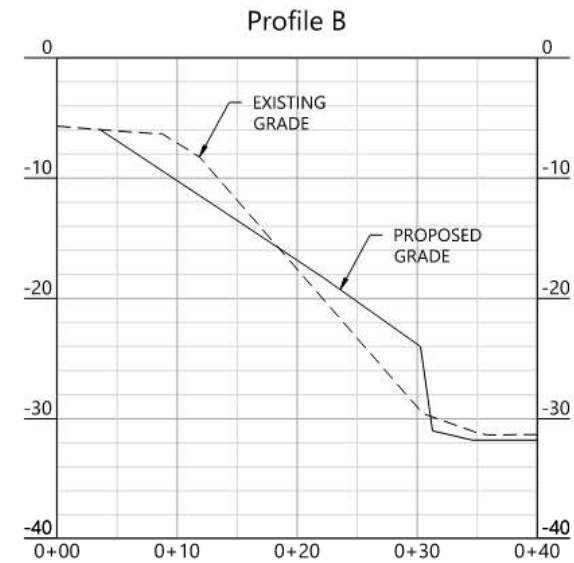
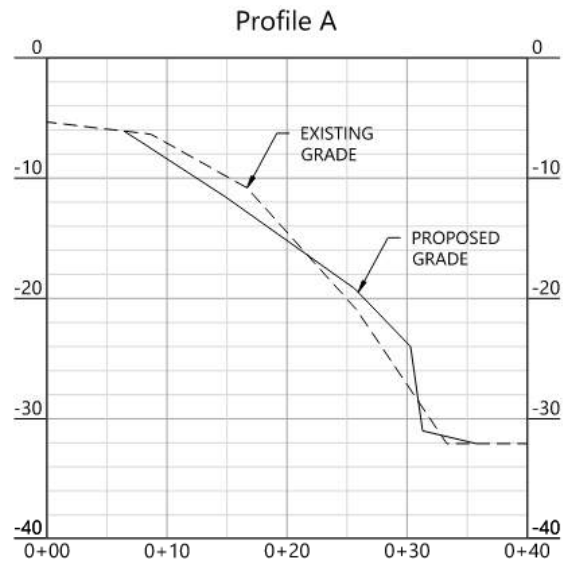
SHEET TITLE

PLAN DE SITIO CIVIL

PAGE NUMBER

C-1.0

Next Steps



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DATE DRAWN
02 SEP 2020

DRAWN BY
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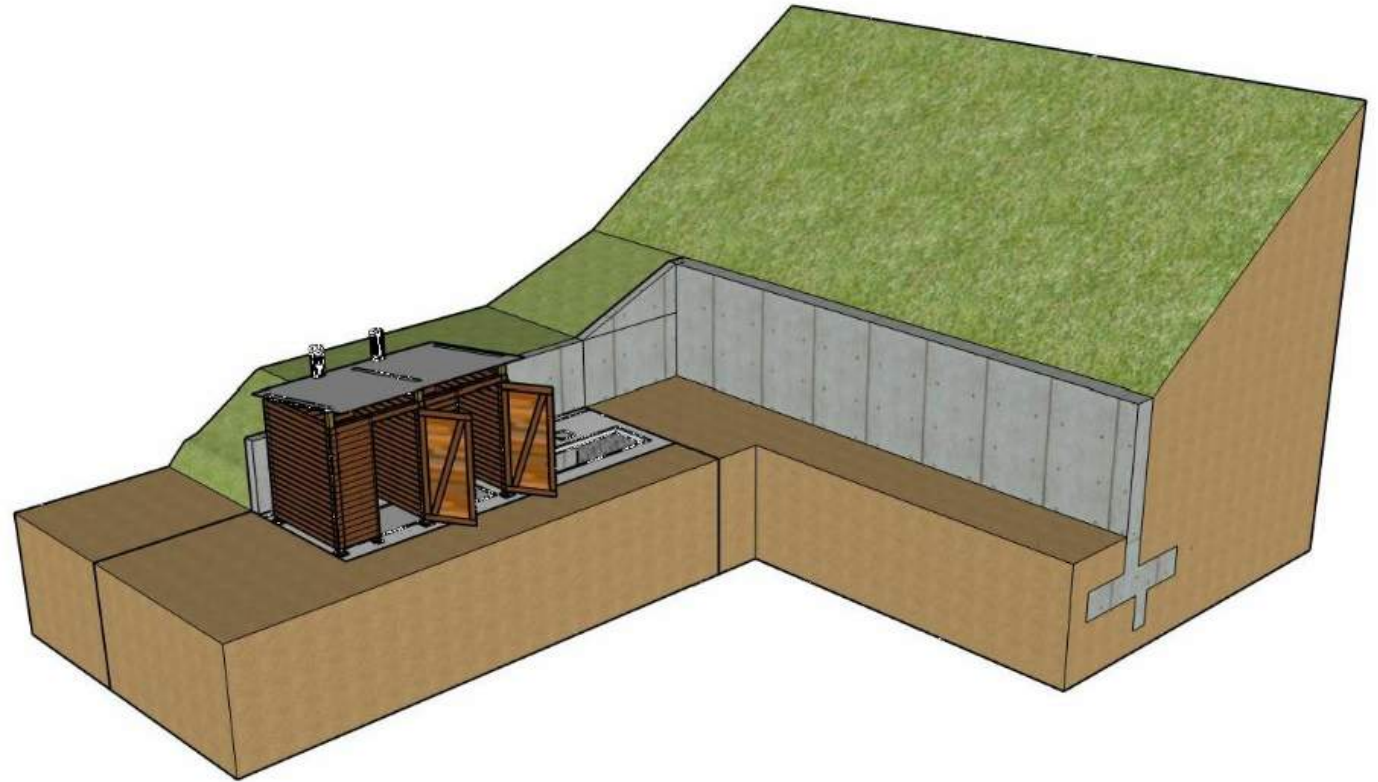
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MUSTAFA B. IGDELIOGLU

REVISION DATE
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SHEET TITLE
PLAN Y PERFIL CIVIL

PAGE NUMBER
C-2.0

Next Steps



Contributing to EWB-MN

Financial contributions

- District Grant
 - Company Donations
 - Individual Donations
 - Please visit <http://ewb-mn.org>
 - Currently throwing a “Coffee with a Purpose Stocking Stuffer” Fundraiser...
-

EWB MN Coffee Fundraiser



Café Juan Ana - San Lucas Mission
Local Guatemalan Direct Trade Coffee

Current Projects:

- Patzac, Guatemala
(Building an Elementary School)
- Rio Azul, Guatemala
(Building a High School)

Type (16 oz):

- Ground
- Regular Bean
- Dark Bean

Guatemala Team



Donation Amount

Receive 1 bag for
every \$20 donation.
Shipping: \$8 for less
than 3 bags

Order Today!

Scan this QR
Code for the
Order form!



ENGINEERS WITHOUT BORDERS USA
Minnesota Professional Chapter

Thank you!

All proceeds go back to Guatemala!

- Direct payment to coffee growers
- Construction of new schools

Great holiday gift!

**Need stocking
stuffers?**

[Order Here!](https://support.ewb-usa.org/event/coffee-fundraiser/e294311)



<https://support.ewb-usa.org/event/coffee-fundraiser/e294311>