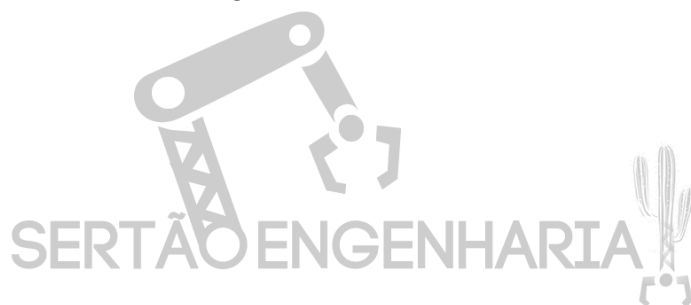


MEMÓRIA DE CÁLCULO

PROJETO DE REFORÇO ESTRUTURAL EM ESTRURA DE AÇO



ENG. HÉLIO ALVES OLIVEIRA DO AMARAL SOBRINHO
ENGENHEIRO CIVIL CREA: 0518568318BA

PREFEITURA MUNICIPAL DE GARANHUNS-PE
SECRETARIA MUNICIPAL DE EDUCAÇÃO

1. DADOS GERAIS DA ESTRUTURA

Projeto: PROJETO_CRO

Chave: PROJETO_CRO

2. NORMAS CONSIDERADAS

Concreto: ABNT NBR 6118:2023

Aços dobrados: ABNT NBR 14762: 2010

Aços laminados e soldados: ABNT NBR 8800:2008

Categoria de uso: Edificações residenciais

3. HIPÓTESES/AÇÕES DE CARGA

Automáticas	Peso próprio
	Cargas permanentes
	Sobrecarga

4. RELATÓRIO DE CARGAS

Cargas especiais introduzidas (em t, t/m e t/m²)

Grupo	Hipótese	Tipo	Valor	Coordenadas
TÉRREO	Cargas permanentes	Linear	0.51	(6.68,17.37) (4.03,16.83)
	Cargas permanentes	Linear	0.51	(4.03,15.12) (4.03,16.69)
	Cargas permanentes	Linear	0.51	(6.68,14.74) (6.68,17.23)
	Cargas permanentes	Linear	0.51	(6.68,14.74) (6.68,13.46)
	Cargas permanentes	Linear	0.51	(4.03,13.44) (4.03,15.12)
	Cargas permanentes	Linear	0.51	(6.10,13.46) (4.10,13.46)
	Cargas permanentes	Linear	0.51	(13.12,13.46) (6.10,13.46)
	Cargas permanentes	Linear	0.51	(5.97,9.59) (5.97,13.46)
	Cargas permanentes	Linear	0.51	(4.03,9.50) (4.03,13.44)
	Cargas permanentes	Linear	0.51	(4.10,9.50) (5.97,9.51)
	Cargas permanentes	Linear	0.51	(5.97,9.51) (13.12,9.53)
	Cargas permanentes	Linear	0.51	(13.12,9.53) (13.12,13.33)
	Cargas permanentes	Linear	0.51	(13.12,6.22) (13.12,9.53)
	Cargas permanentes	Linear	0.51	(13.12,1.09) (13.12,6.22)
	Cargas permanentes	Linear	0.51	(5.97,5.27) (5.97,9.59)
	Cargas permanentes	Linear	0.51	(4.03,6.22) (4.03,9.50)
	Cargas permanentes	Linear	0.51	(0.92,7.31) (4.03,7.31)
	Cargas permanentes	Linear	0.51	(-0.23,10.61) (4.03,10.61)
	Cargas permanentes	Linear	0.51	(4.03,4.45) (4.03,6.22)
	Cargas permanentes	Linear	0.51	(4.03,1.22) (4.03,4.45)
	Cargas permanentes	Linear	0.51	(5.97,1.21) (5.97,5.27)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Cargas permanentes	Linear	0.51	(6.10,1.22) (11.68,1.22)
	Cargas permanentes	Linear	0.51	(11.68,1.22) (13.12,1.21)
	Cargas permanentes	Linear	0.51	(11.56,1.21) (11.56,-0.70)
	Cargas permanentes	Linear	0.51	(11.56,-0.70) (11.56,-6.23)
	Cargas permanentes	Linear	0.51	(5.98,-3.55) (11.56,-3.55)
	Cargas permanentes	Linear	0.51	(11.56,-6.35) (5.96,-6.35)
	Cargas permanentes	Linear	0.51	(5.96,-6.23) (5.96,-3.55)
	Cargas permanentes	Linear	0.51	(0.67,-3.55) (5.98,-3.55)
	Cargas permanentes	Linear	0.51	(5.96,-6.35) (0.67,-6.35)
	Cargas permanentes	Linear	0.51	(5.96,-3.55) (5.97,1.21)
	Cargas permanentes	Linear	0.51	(2.68,0.07) (0.67,0.08)
	Cargas permanentes	Linear	0.51	(0.67,-2.68) (0.67,0.08)
	Cargas permanentes	Linear	0.51	(0.67,-6.23) (0.67,-2.68)
	Cargas permanentes	Linear	0.51	(2.81,0.07) (2.81,1.22)
	Cargas permanentes	Linear	0.51	(2.88,1.22) (2.88,3.16)
	Cargas permanentes	Linear	0.51	(2.75,1.22) (6.10,1.22)
	Cargas permanentes	Linear	0.51	(2.75,3.16) (0.20,3.16)
PAVIMENTO 1	Cargas permanentes	Linear	0.51	(6.68,17.37) (4.03,16.79)
	Cargas permanentes	Linear	0.51	(6.68,15.12) (6.68,17.23)
	Cargas permanentes	Linear	0.51	(6.68,14.74) (6.68,13.46)
	Cargas permanentes	Linear	0.51	(6.68,13.46) (13.12,13.46)
	Cargas permanentes	Linear	0.51	(4.10,13.46) (6.10,13.46)
	Cargas permanentes	Linear	0.51	(4.03,15.12) (4.03,16.69)
	Cargas permanentes	Linear	0.51	(4.03,13.44) (4.03,15.12)
	Cargas permanentes	Linear	0.51	(4.03,9.50) (4.03,13.44)
	Cargas permanentes	Linear	0.51	(-0.23,10.61) (4.03,10.61)
	Cargas permanentes	Linear	0.51	(0.80,7.31) (0.80,10.61)
	Cargas permanentes	Linear	0.51	(13.12,9.53) (13.12,13.33)
	Cargas permanentes	Linear	0.51	(13.12,5.22) (13.12,9.53)
	Cargas permanentes	Linear	0.51	(13.12,1.09) (13.12,5.22)
	Cargas permanentes	Linear	0.51	(11.68,-0.70) (5.96,-0.70)
	Cargas permanentes	Linear	0.51	(6.10,1.22) (11.68,1.22)
	Cargas permanentes	Linear	0.51	(11.68,1.22) (13.12,1.22)
	Cargas permanentes	Linear	0.51	(5.96,-3.55) (5.96,1.21)
	Cargas permanentes	Linear	0.51	(5.96,1.21) (5.96,5.27)
	Cargas permanentes	Linear	0.51	(5.96,6.22) (13.12,6.22)
	Cargas permanentes	Linear	0.51	(4.10,6.22) (5.96,6.22)
	Cargas permanentes	Linear	0.51	(4.03,6.22) (4.03,9.50)
	Cargas permanentes	Linear	0.51	(4.03,4.45) (4.03,6.22)
	Cargas permanentes	Linear	0.51	(4.03,4.45) (4.03,3.16)
	Cargas permanentes	Linear	0.51	(2.75,3.16) (5.96,3.16)
	Cargas permanentes	Linear	0.51	(0.20,3.16) (2.75,3.16)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Cargas permanentes	Linear	0.51	(2.81,0.07) (2.81,1.22)
	Cargas permanentes	Linear	0.51	(0.67,-2.68) (0.67,0.08)
	Cargas permanentes	Linear	0.51	(0.67,0.08) (2.68,0.07)
	Cargas permanentes	Linear	0.51	(0.40,0.08) (0.67,0.08)
	Cargas permanentes	Linear	0.51	(5.96,-6.35) (11.56,-6.35)
	Cargas permanentes	Linear	0.51	(0.67,-6.35) (5.96,-6.35)
	Cargas permanentes	Linear	0.51	(0.67,-6.23) (0.67,-2.68)
	Cargas permanentes	Linear	0.51	(5.96,13.43) (5.96,9.60)
	Cargas permanentes	Linear	0.51	(11.07,1.12) (11.07,-0.67)
	Cargas permanentes	Linear	0.51	(8.17,-0.76) (8.17,-6.34)
	Cargas permanentes	Linear	0.51	(8.15,-3.09) (0.66,-3.09)
	Cargas permanentes	Linear	0.51	(4.55,-3.09) (4.55,-0.68)
	Cargas permanentes	Linear	0.51	(4.58,-0.69) (5.94,-0.69)
	Cargas permanentes	Linear	0.51	(0.70,-1.48) (2.75,-1.48)
	Cargas permanentes	Linear	0.51	(2.72,-1.47) (2.72,0.01)
	Cargas permanentes	Linear	0.51	(0.70,-5.46) (2.16,-5.46)
	Cargas permanentes	Linear	0.51	(2.14,-5.45) (2.14,-3.10)
	Cargas permanentes	Linear	0.51	(6.00,3.60) (9.01,3.60)
	Cargas permanentes	Linear	0.51	(9.04,6.14) (9.04,1.20)
	Cargas permanentes	Linear	0.51	(6.00,9.50) (13.14,9.50)
	Cargas permanentes	Linear	0.51	(6.11,13.47) (6.66,13.47)
	Cargas permanentes	Linear	1.27	(5.92,1.13) (5.92,-3.52)
	Cargas permanentes	Linear	1.27	(8.34,1.17) (8.34,-6.35)
	Cargas permanentes	Superficial	0.13	(6.60,17.35) (4.10,16.81) (4.10,16.49) (4.03,16.49) (4.03,15.19) (4.10,15.19) (4.10,15.12) (6.68,15.12) (6.68,17.03) (6.60,17.03)
	Cargas permanentes	Superficial	0.13	(4.25,13.46) (5.90,13.46) (5.90,13.54) (6.30,13.54) (6.30,13.46) (6.68,13.46) (6.68,14.54) (6.60,14.54) (6.60,14.94) (6.68,14.94) (6.68,15.12) (4.10,15.12) (4.10,15.04) (4.03,15.04) (4.03,13.54) (4.25,13.54)
	Cargas permanentes	Superficial	0.13	(4.03,9.40) (3.95,9.40) (3.95,9.60) (4.03,9.60) (4.03,10.61) (0.80,10.61) (0.80,7.39) (1.12,7.39) (1.12,7.31) (4.03,7.31)
	Cargas permanentes	Superficial	0.13	(2.95,3.16) (2.95,3.09) (2.88,3.09) (2.88,1.30) (2.95,1.30) (2.95,1.22) (5.90,1.22) (5.90,1.29) (5.96,1.29) (5.96,3.16)
	Cargas permanentes	Superficial	0.13	(5.90,1.22) (2.95,1.22) (2.95,1.15) (2.81,1.15) (2.81,0.15) (2.88,0.15) (2.88,- 0.00) (2.81,-0.00) (2.81,-0.70) (5.96,-0.70) (5.96,1.14) (5.90,1.14)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Cargas permanentes	Superficial	0.13	(11.48,1.22) (6.30,1.22) (6.30,1.14) (5.96,1.14) (5.96,-0.70) (11.48,-0.70) (11.48,-0.62) (11.56,-0.62) (11.56,1.14) (11.48,1.14)
	Cargas permanentes	Superficial	0.13	(11.48,-0.70) (5.96,-0.70) (5.96,-3.40) (6.08,-3.40) (6.08,-3.55) (11.56,-3.55) (11.56,-0.77) (11.48,-0.77)
	Cargas permanentes	Superficial	0.13	(5.88,-3.55) (5.88,-3.40) (5.96,-3.40) (5.96,- 0.70) (2.81,-0.70) (2.81,-3.55)
	Cargas permanentes	Superficial	0.13	(2.81,-0.00) (2.48,-0.00) (2.48,0.07) (0.67,0.08) (0.67,-2.58) (0.90,-2.58) (0.90,- 2.68) (2.81,-2.68)
	Cargas permanentes	Superficial	0.13	(2.81,-2.68) (0.90,-2.68) (0.90,-2.78) (0.67,- 2.78) (0.67,-6.03) (0.75,-6.03) (0.75,-6.35) (2.81,-6.35) (2.81,-3.55)
	Cargas permanentes	Superficial	0.13	(5.96,-6.03) (5.96,-3.70) (5.88,-3.70) (5.88,- 3.55) (2.81,-3.55) (2.81,-6.35) (5.89,-6.35) (5.89,-6.03)
	Cargas permanentes	Superficial	0.13	(8.33,-3.55) (6.08,-3.55) (6.08,-3.70) (5.96,- 3.70) (5.96,-6.03) (6.04,-6.03) (6.04,-6.35) (8.33,-6.35)
	Cargas permanentes	Superficial	0.13	(11.56,-6.03) (11.56,-3.55) (8.33,-3.55) (8.33,-6.35) (11.48,-6.35) (11.48,-6.03)
	Cargas permanentes	Superficial	0.13	(8.33,-6.35) (6.04,-6.35) (6.04,-6.43) (5.96,- 6.43) (5.96,-6.72) (8.33,-6.72)
	Cargas permanentes	Superficial	0.13	(5.96,-6.43) (5.89,-6.43) (5.89,-6.35) (2.81,- 6.35) (2.81,-6.72) (5.96,-6.72)
	Cargas permanentes	Superficial	0.13	(2.81,-6.35) (0.75,-6.35) (0.75,-6.43) (0.67,- 6.43) (0.67,-6.72) (2.81,-6.72)
	Cargas permanentes	Superficial	0.13	(13.05,6.22) (5.95,6.22) (5.95,5.47) (6.05,5.47) (6.05,5.07) (5.97,5.07) (5.97,1.29) (6.30,1.29) (6.30,1.22) (11.48,1.22) (11.48,1.29) (11.88,1.29) (11.88,1.22) (13.05,1.21) (13.05,1.29) (13.12,1.29) (13.12,6.02) (13.05,6.02)
	Cargas permanentes	Superficial	0.13	(13.12,6.42) (13.12,9.33) (13.05,9.33) (13.05,9.53) (5.95,9.51) (5.95,6.22) (13.05,6.22) (13.05,6.42)
	Cargas permanentes	Superficial	0.13	(13.12,9.73) (13.12,13.13) (13.05,13.13) (13.05,13.46) (6.30,13.46) (6.30,13.39) (5.95,13.39) (5.95,9.51) (13.05,9.53) (13.05,9.73)
	Cargas permanentes	Superficial	0.13	(5.95,13.39) (5.90,13.39) (5.90,13.46) (4.25,13.46) (4.25,13.34) (4.03,13.34) (4.03,9.70) (4.13,9.70) (4.13,9.50) (5.95,9.51)
	Cargas permanentes	Superficial	0.13	(4.13,9.50) (4.13,9.30) (4.03,9.30) (4.03,6.42) (4.13,6.42) (4.13,6.22) (5.95,6.22) (5.95,9.51)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Cargas permanentes	Superficial	0.13	(5.95,5.47) (5.95,6.22) (4.13,6.22) (4.13,6.02) (4.03,6.02) (4.03,4.65) (4.10,4.65) (4.10,4.25) (4.03,4.25) (4.03,3.16) (5.97,3.16) (5.97,5.07) (5.85,5.07) (5.85,5.47)
	Sobrecarga	Superficial	0.15	(6.60,17.35) (4.10,16.81) (4.10,16.49) (4.03,16.49) (4.03,15.19) (4.10,15.19) (4.10,15.12) (6.68,15.12) (6.68,17.03) (6.60,17.03)
	Sobrecarga	Superficial	0.15	(4.25,13.46) (5.90,13.46) (5.90,13.54) (6.30,13.54) (6.30,13.46) (6.68,13.46) (6.68,14.54) (6.60,14.54) (6.60,14.94) (6.68,14.94) (6.68,15.12) (4.10,15.12) (4.10,15.04) (4.03,15.04) (4.03,13.54) (4.25,13.54)
	Sobrecarga	Superficial	0.15	(4.03,9.40) (3.95,9.40) (3.95,9.60) (4.03,9.60) (4.03,10.61) (0.80,10.61) (0.80,7.39) (1.12,7.39) (1.12,7.31) (4.03,7.31)
	Sobrecarga	Superficial	0.15	(2.95,3.16) (2.95,3.09) (2.88,3.09) (2.88,1.30) (2.95,1.30) (2.95,1.22) (5.90,1.22) (5.90,1.29) (5.96,1.29) (5.96,3.16)
	Sobrecarga	Superficial	0.15	(5.90,1.22) (2.95,1.22) (2.95,1.15) (2.81,1.15) (2.81,0.15) (2.88,0.15) (2.88,- 0.00) (2.81,-0.00) (2.81,-0.70) (5.96,-0.70) (5.96,1.14) (5.90,1.14)
	Sobrecarga	Superficial	0.15	(11.48,1.22) (6.30,1.22) (6.30,1.14) (5.96,1.14) (5.96,-0.70) (11.48,-0.70) (11.48,-0.62) (11.56,-0.62) (11.56,1.14) (11.48,1.14)
	Sobrecarga	Superficial	0.15	(11.48,-0.70) (5.96,-0.70) (5.96,-3.40) (6.08,-3.40) (6.08,-3.55) (11.56,-3.55) (11.56,-0.77) (11.48,-0.77)
	Sobrecarga	Superficial	0.15	(5.88,-3.55) (5.88,-3.40) (5.96,-3.40) (5.96,- 0.70) (2.81,-0.70) (2.81,-3.55)
	Sobrecarga	Superficial	0.15	(2.81,-0.00) (2.48,-0.00) (2.48,0.07) (0.67,0.08) (0.67,-2.58) (0.90,-2.58) (0.90,- 2.68) (2.81,-2.68)
	Sobrecarga	Superficial	0.15	(2.81,-2.68) (0.90,-2.68) (0.90,-2.78) (0.67,- 2.78) (0.67,-6.03) (0.75,-6.03) (0.75,-6.35) (2.81,-6.35) (2.81,-3.55)
	Sobrecarga	Superficial	0.15	(5.96,-6.03) (5.96,-3.70) (5.88,-3.70) (5.88,- 3.55) (2.81,-3.55) (2.81,-6.35) (5.89,-6.35) (5.89,-6.03)
	Sobrecarga	Superficial	0.15	(8.33,-3.55) (6.08,-3.55) (6.08,-3.70) (5.96,- 3.70) (5.96,-6.03) (6.04,-6.03) (6.04,-6.35) (8.33,-6.35)
	Sobrecarga	Superficial	0.15	(11.56,-6.03) (11.56,-3.55) (8.33,-3.55) (8.33,-6.35) (11.48,-6.35) (11.48,-6.03)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Sobrecarga	Superficial	0.15	(8.33,-6.35) (6.04,-6.35) (6.04,-6.43) (5.96,-6.43) (5.96,-6.72) (8.33,-6.72)
	Sobrecarga	Superficial	0.15	(5.96,-6.43) (5.89,-6.43) (5.89,-6.35) (2.81,-6.35) (2.81,-6.72) (5.96,-6.72)
	Sobrecarga	Superficial	0.15	(2.81,-6.35) (0.75,-6.35) (0.75,-6.43) (0.67,-6.43) (0.67,-6.72) (2.81,-6.72)
	Sobrecarga	Superficial	0.20	(13.05,6.22) (5.95,6.22) (5.95,5.47) (6.05,5.47) (6.05,5.07) (5.97,5.07) (5.97,1.29) (6.30,1.29) (6.30,1.22) (11.48,1.22) (11.48,1.29) (11.88,1.29) (11.88,1.22) (13.05,1.21) (13.05,1.29) (13.12,1.29) (13.12,6.02) (13.05,6.02)
	Sobrecarga	Superficial	0.20	(13.12,6.42) (13.12,9.33) (13.05,9.33) (13.05,9.53) (5.95,9.51) (5.95,6.22) (13.05,6.22) (13.05,6.42)
	Sobrecarga	Superficial	0.20	(13.12,9.73) (13.12,13.13) (13.05,13.13) (13.05,13.46) (6.30,13.46) (6.30,13.39) (5.95,13.39) (5.95,9.51) (13.05,9.53) (13.05,9.73)
	Sobrecarga	Superficial	0.20	(5.95,13.39) (5.90,13.39) (5.90,13.46) (4.25,13.46) (4.25,13.34) (4.03,13.34) (4.03,9.70) (4.13,9.70) (4.13,9.50) (5.95,9.51)
	Sobrecarga	Superficial	0.20	(4.13,9.50) (4.13,9.30) (4.03,9.30) (4.03,6.42) (4.13,6.42) (4.13,6.22) (5.95,6.22) (5.95,9.51)
	Sobrecarga	Superficial	0.20	(5.95,5.47) (5.95,6.22) (4.13,6.22) (4.13,6.02) (4.03,6.02) (4.03,4.65) (4.10,4.65) (4.10,4.25) (4.03,4.25) (4.03,3.16) (5.97,3.16) (5.97,5.07) (5.85,5.07) (5.85,5.47)
PAVIMENTO 2	Cargas permanentes	Linear	0.51	(6.68,17.37) (4.03,16.79)
	Cargas permanentes	Linear	0.51	(6.68,15.12) (6.68,17.23)
	Cargas permanentes	Linear	0.51	(6.68,14.74) (6.68,13.46)
	Cargas permanentes	Linear	0.51	(6.68,13.46) (13.12,13.46)
	Cargas permanentes	Linear	0.51	(4.10,13.46) (6.10,13.46)
	Cargas permanentes	Linear	0.51	(4.03,15.12) (4.03,16.69)
	Cargas permanentes	Linear	0.51	(4.03,13.44) (4.03,15.12)
	Cargas permanentes	Linear	0.51	(4.03,9.50) (4.03,13.44)
	Cargas permanentes	Linear	0.51	(-0.23,10.61) (4.03,10.61)
	Cargas permanentes	Linear	0.51	(0.80,7.31) (0.80,10.61)
	Cargas permanentes	Linear	0.51	(13.12,9.53) (13.12,13.33)
	Cargas permanentes	Linear	0.51	(13.12,5.22) (13.12,9.53)
	Cargas permanentes	Linear	0.51	(13.12,1.09) (13.12,5.22)
	Cargas permanentes	Linear	0.51	(11.68,-0.70) (5.96,-0.70)
	Cargas permanentes	Linear	0.51	(6.10,1.22) (11.68,1.22)
	Cargas permanentes	Linear	0.51	(11.68,1.22) (13.12,1.22)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Cargas permanentes	Linear	0.51	(5.96,-3.55) (5.96,1.21)
	Cargas permanentes	Linear	0.51	(5.96,1.21) (5.96,5.27)
	Cargas permanentes	Linear	0.51	(5.96,5.27) (5.96,9.59)
	Cargas permanentes	Linear	0.51	(5.96,6.22) (13.12,6.22)
	Cargas permanentes	Linear	0.51	(4.10,6.22) (5.96,6.22)
	Cargas permanentes	Linear	0.51	(4.03,6.22) (4.03,9.50)
	Cargas permanentes	Linear	0.51	(4.03,4.45) (4.03,6.22)
	Cargas permanentes	Linear	0.51	(4.03,4.45) (4.03,3.16)
	Cargas permanentes	Linear	0.51	(2.75,3.16) (5.96,3.16)
	Cargas permanentes	Linear	0.51	(0.20,3.16) (2.75,3.16)
	Cargas permanentes	Linear	0.51	(2.81,0.07) (2.81,1.22)
	Cargas permanentes	Linear	0.51	(0.67,-2.68) (0.67,0.08)
	Cargas permanentes	Linear	0.51	(0.67,0.08) (2.68,0.07)
	Cargas permanentes	Linear	0.51	(0.40,0.08) (0.67,0.08)
	Cargas permanentes	Linear	0.51	(5.96,-6.35) (11.56,-6.35)
	Cargas permanentes	Linear	0.51	(0.67,-6.35) (5.96,-6.35)
	Cargas permanentes	Linear	0.51	(0.67,-6.23) (0.67,-2.68)
	Cargas permanentes	Linear	0.51	(5.96,13.43) (5.96,9.60)
	Cargas permanentes	Linear	0.51	(11.07,1.12) (11.07,-0.67)
	Cargas permanentes	Linear	0.51	(8.17,-0.76) (8.17,-6.34)
	Cargas permanentes	Linear	0.51	(8.15,-3.09) (0.66,-3.09)
	Cargas permanentes	Linear	0.51	(4.55,-3.09) (4.55,-0.68)
	Cargas permanentes	Linear	0.51	(4.58,-0.69) (5.94,-0.69)
	Cargas permanentes	Linear	0.51	(0.70,-1.48) (2.75,-1.48)
	Cargas permanentes	Linear	0.51	(2.72,-1.47) (2.72,0.01)
	Cargas permanentes	Linear	0.51	(0.70,-5.46) (2.16,-5.46)
	Cargas permanentes	Linear	0.51	(2.14,-5.45) (2.14,-3.10)
	Cargas permanentes	Linear	0.51	(6.00,3.60) (9.01,3.60)
	Cargas permanentes	Linear	0.51	(9.04,6.14) (9.04,1.20)
	Cargas permanentes	Linear	0.51	(6.00,9.50) (13.14,9.50)
	Cargas permanentes	Linear	0.51	(6.11,13.47) (6.66,13.47)
	Cargas permanentes	Linear	1.27	(5.92,1.13) (5.92,-3.52)
	Cargas permanentes	Linear	1.27	(8.34,1.17) (8.34,-6.35)
	Cargas permanentes	Linear	0.76	(13.08,9.54) (6.03,9.54)
	Cargas permanentes	Linear	0.76	(6.00,9.53) (4.05,9.53)
	Cargas permanentes	Linear	0.76	(4.09,6.24) (13.15,6.24)
	Cargas permanentes	Linear	0.76	(5.99,5.43) (5.99,13.44)
	Cargas permanentes	Superficial	0.13	(6.60,17.35) (4.10,16.81) (4.10,16.49) (4.03,16.49) (4.03,15.19) (4.10,15.19) (4.10,15.12) (6.68,15.12) (6.68,17.03) (6.60,17.03)

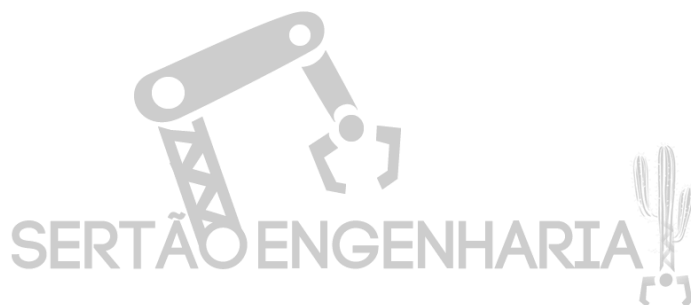
Grupo	Hipótese	Tipo	Valor	Coordenadas
	Cargas permanentes	Superficial	0.13	(4.25,13.46) (5.90,13.46) (5.90,13.54) (6.30,13.54) (6.30,13.46) (6.68,13.46) (6.68,14.54) (6.60,14.54) (6.60,14.94) (6.68,14.94) (6.68,15.12) (4.10,15.12) (4.10,15.04) (4.03,15.04) (4.03,13.54) (4.25,13.54)
	Cargas permanentes	Superficial	0.13	(4.03,9.40) (3.95,9.40) (3.95,9.60) (4.03,9.60) (4.03,10.61) (0.80,10.61) (0.80,7.39) (1.12,7.39) (1.12,7.31) (4.03,7.31)
	Cargas permanentes	Superficial	0.13	(2.95,3.16) (2.95,3.09) (2.88,3.09) (2.88,1.30) (2.95,1.30) (2.95,1.22) (5.90,1.22) (5.90,1.29) (5.96,1.29) (5.96,3.16)
	Cargas permanentes	Superficial	0.13	(5.90,1.22) (2.95,1.22) (2.95,1.15) (2.81,1.15) (2.81,0.15) (2.88,0.15) (2.88,- 0.00) (2.81,-0.00) (2.81,-0.70) (5.96,-0.70) (5.96,1.14) (5.90,1.14)
	Cargas permanentes	Superficial	0.13	(11.48,1.22) (6.30,1.22) (6.30,1.14) (5.96,1.14) (5.96,-0.70) (11.48,-0.70) (11.48,-0.62) (11.56,-0.62) (11.56,1.14) (11.48,1.14)
	Cargas permanentes	Superficial	0.13	(11.48,-0.70) (5.96,-0.70) (5.96,-3.40) (6.08,-3.40) (6.08,-3.55) (11.56,-3.55) (11.56,-0.77) (11.48,-0.77)
	Cargas permanentes	Superficial	0.13	(5.88,-3.55) (5.88,-3.40) (5.96,-3.40) (5.96,- 0.70) (2.81,-0.70) (2.81,-3.55)
	Cargas permanentes	Superficial	0.13	(2.81,-0.00) (2.48,-0.00) (2.48,0.07) (0.67,0.08) (0.67,-2.58) (0.90,-2.58) (0.90,- 2.68) (2.81,-2.68)
	Cargas permanentes	Superficial	0.13	(2.81,-2.68) (0.90,-2.68) (0.90,-2.78) (0.67,- 2.78) (0.67,-6.03) (0.75,-6.03) (0.75,-6.35) (2.81,-6.35) (2.81,-3.55)
	Cargas permanentes	Superficial	0.13	(5.96,-6.03) (5.96,-3.70) (5.88,-3.70) (5.88,- 3.55) (2.81,-3.55) (2.81,-6.35) (5.89,-6.35) (5.89,-6.03)
	Cargas permanentes	Superficial	0.13	(8.33,-3.55) (6.08,-3.55) (6.08,-3.70) (5.96,- 3.70) (5.96,-6.03) (6.04,-6.03) (6.04,-6.35) (8.33,-6.35)
	Cargas permanentes	Superficial	0.13	(11.56,-6.03) (11.56,-3.55) (8.33,-3.55) (8.33,-6.35) (11.48,-6.35) (11.48,-6.03)
	Cargas permanentes	Superficial	0.13	(8.33,-6.35) (6.04,-6.35) (6.04,-6.43) (5.96,- 6.43) (5.96,-6.72) (8.33,-6.72)
	Cargas permanentes	Superficial	0.13	(5.96,-6.43) (5.89,-6.43) (5.89,-6.35) (2.81,- 6.35) (2.81,-6.72) (5.96,-6.72)
	Cargas permanentes	Superficial	0.13	(2.81,-6.35) (0.75,-6.35) (0.75,-6.43) (0.67,- 6.43) (0.67,-6.72) (2.81,-6.72)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Cargas permanentes	Superficial	0.13	(5.97,13.39) (5.90,13.39) (5.90,13.46) (4.25,13.46) (4.25,13.34) (4.03,13.34) (4.03,9.70) (4.13,9.70) (4.13,9.50) (5.97,9.51)
	Cargas permanentes	Superficial	0.13	(13.12,9.73) (13.12,13.13) (13.05,13.13) (13.05,13.46) (6.30,13.46) (6.30,13.39) (5.97,13.39) (5.97,9.51) (13.05,9.53) (13.05,9.73)
	Cargas permanentes	Superficial	0.13	(13.12,6.42) (13.12,9.33) (13.05,9.33) (13.05,9.53) (5.97,9.51) (5.97,6.22) (13.05,6.22) (13.05,6.42)
	Cargas permanentes	Superficial	0.13	(4.13,9.50) (4.13,9.30) (4.03,9.30) (4.03,6.42) (4.13,6.42) (4.13,6.22) (5.97,6.22) (5.97,9.51)
	Cargas permanentes	Superficial	0.13	(5.97,5.47) (5.97,6.22) (4.13,6.22) (4.13,6.02) (4.03,6.02) (4.03,4.65) (4.10,4.65) (4.10,4.25) (4.03,4.25) (4.03,3.16) (5.97,3.16) (5.97,5.07) (5.85,5.07) (5.85,5.47)
	Cargas permanentes	Superficial	0.13	(13.05,6.22) (5.97,6.22) (5.97,5.47) (6.05,5.47) (6.05,5.07) (5.97,5.07) (5.97,1.29) (6.30,1.29) (6.30,1.22) (11.48,1.22) (11.48,1.29) (11.88,1.29) (11.88,1.22) (13.05,1.21) (13.05,1.29) (13.12,1.29) (13.12,6.02) (13.05,6.02)
	Sobrecarga	Superficial	0.15	(6.60,17.35) (4.10,16.81) (4.10,16.49) (4.03,16.49) (4.03,15.19) (4.10,15.19) (4.10,15.12) (6.68,15.12) (6.68,17.03) (6.60,17.03)
	Sobrecarga	Superficial	0.15	(4.25,13.46) (5.90,13.46) (5.90,13.54) (6.30,13.54) (6.30,13.46) (6.68,13.46) (6.68,14.54) (6.60,14.54) (6.60,14.94) (6.68,14.94) (6.68,15.12) (4.10,15.12) (4.10,15.04) (4.03,15.04) (4.03,13.54) (4.25,13.54)
	Sobrecarga	Superficial	0.15	(4.03,9.40) (3.95,9.40) (3.95,9.60) (4.03,9.60) (4.03,10.61) (0.80,10.61) (0.80,7.39) (1.12,7.39) (1.12,7.31) (4.03,7.31)
	Sobrecarga	Superficial	0.15	(2.95,3.16) (2.95,3.09) (2.88,3.09) (2.88,1.30) (2.95,1.30) (2.95,1.22) (5.90,1.22) (5.90,1.29) (5.96,1.29) (5.96,3.16)
	Sobrecarga	Superficial	0.15	(5.90,1.22) (2.95,1.22) (2.95,1.15) (2.81,1.15) (2.81,0.15) (2.88,0.15) (2.88,- 0.00) (2.81,-0.00) (2.81,-0.70) (5.96,-0.70) (5.96,1.14) (5.90,1.14)
	Sobrecarga	Superficial	0.15	(11.48,1.22) (6.30,1.22) (6.30,1.14) (5.96,1.14) (5.96,-0.70) (11.48,-0.70) (11.48,-0.62) (11.56,-0.62) (11.56,1.14) (11.48,1.14)

Grupo	Hipótese	Tipo	Valor	Coordenadas
	Sobrecarga	Superficial	0.15	(11.48,-0.70) (5.96,-0.70) (5.96,-3.40) (6.08,-3.40) (6.08,-3.55) (11.56,-3.55) (11.56,-0.77) (11.48,-0.77)
	Sobrecarga	Superficial	0.15	(5.88,-3.55) (5.88,-3.40) (5.96,-3.40) (5.96,-0.70) (2.81,-0.70) (2.81,-3.55)
	Sobrecarga	Superficial	0.15	(2.81,-0.00) (2.48,-0.00) (2.48,0.07) (0.67,0.08) (0.67,-2.58) (0.90,-2.58) (0.90,-2.68) (2.81,-2.68)
	Sobrecarga	Superficial	0.15	(2.81,-2.68) (0.90,-2.68) (0.90,-2.78) (0.67,-2.78) (0.67,-6.03) (0.75,-6.03) (0.75,-6.35) (2.81,-6.35) (2.81,-3.55)
	Sobrecarga	Superficial	0.15	(5.96,-6.03) (5.96,-3.70) (5.88,-3.70) (5.88,-3.55) (2.81,-3.55) (2.81,-6.35) (5.89,-6.35) (5.89,-6.03)
	Sobrecarga	Superficial	0.15	(8.33,-3.55) (6.08,-3.55) (6.08,-3.70) (5.96,-3.70) (5.96,-6.03) (6.04,-6.03) (6.04,-6.35) (8.33,-6.35)
	Sobrecarga	Superficial	0.15	(11.56,-6.03) (11.56,-3.55) (8.33,-3.55) (8.33,-6.35) (11.48,-6.35) (11.48,-6.03)
	Sobrecarga	Superficial	0.15	(8.33,-6.35) (6.04,-6.35) (6.04,-6.43) (5.96,-6.43) (5.96,-6.72) (8.33,-6.72)
	Sobrecarga	Superficial	0.15	(5.96,-6.43) (5.89,-6.43) (5.89,-6.35) (2.81,-6.35) (2.81,-6.72) (5.96,-6.72)
	Sobrecarga	Superficial	0.15	(2.81,-6.35) (0.75,-6.35) (0.75,-6.43) (0.67,-6.43) (0.67,-6.72) (2.81,-6.72)
	Sobrecarga	Superficial	0.20	(5.97,13.39) (5.90,13.39) (5.90,13.46) (4.25,13.46) (4.25,13.34) (4.03,13.34) (4.03,9.70) (4.13,9.70) (4.13,9.50) (5.97,9.51)
	Sobrecarga	Superficial	0.20	(13.12,9.73) (13.12,13.13) (13.05,13.13) (13.05,13.46) (6.30,13.46) (6.30,13.39) (5.97,13.39) (5.97,9.51) (13.05,9.53) (13.05,9.73)
	Sobrecarga	Superficial	0.20	(4.13,9.50) (4.13,9.30) (4.03,9.30) (4.03,6.42) (4.13,6.42) (4.13,6.22) (5.97,6.22) (5.97,9.51)
	Sobrecarga	Superficial	0.20	(13.12,6.42) (13.12,9.33) (13.05,9.33) (13.05,9.53) (5.97,9.51) (5.97,6.22) (13.05,6.22) (13.05,6.42)
	Sobrecarga	Superficial	0.20	(13.05,6.22) (5.97,6.22) (5.97,5.47) (6.05,5.47) (6.05,5.07) (5.97,5.07) (5.97,1.29) (6.30,1.29) (6.30,1.22) (11.48,1.22) (11.48,1.29) (11.88,1.29) (11.88,1.22) (13.05,1.21) (13.05,1.29) (13.12,1.29) (13.12,6.02) (13.05,6.02)
	Sobrecarga	Superficial	0.20	(5.97,5.47) (5.97,6.22) (4.13,6.22) (4.13,6.02) (4.03,6.02) (4.03,4.65) (4.10,4.65) (4.10,4.25) (4.03,4.25) (4.03,3.16) (5.97,3.16) (5.97,5.07) (5.85,5.07) (5.85,5.47)

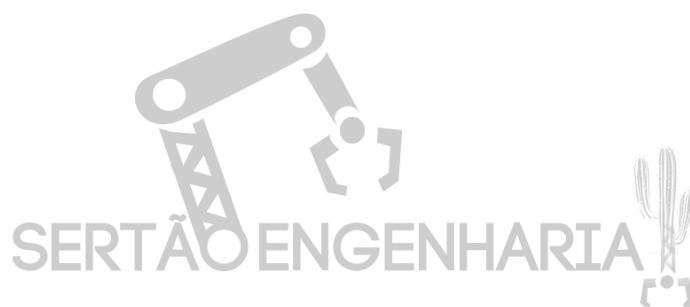
Grupo	Hipótese	Tipo	Valor	Coordenadas
COBERTURA	Cargas permanentes	Superficial	0.06	(5.97,13.46) (4.10,13.46) (4.03,13.46) (4.03,9.50) (4.03,9.50) (5.97,9.51)
	Cargas permanentes	Superficial	0.06	(7.60,13.46) (6.10,13.46) (5.97,13.46) (5.97,9.59) (5.97,9.51) (7.60,9.51)
	Cargas permanentes	Superficial	0.06	(13.12,9.53) (13.12,13.33) (13.12,13.46) (7.60,13.46) (7.60,9.51) (13.12,9.53)
	Cargas permanentes	Superficial	0.06	(13.12,9.53) (5.97,9.51) (5.97,9.51) (5.97,6.22) (13.12,6.22)
	Cargas permanentes	Superficial	0.06	(5.97,9.51) (4.10,9.50) (4.03,9.50) (4.03,6.22) (5.97,6.22)
	Cargas permanentes	Superficial	0.06	(5.97,5.27) (5.97,6.22) (4.10,6.22) (4.03,6.22) (4.03,4.45) (4.03,3.16) (5.97,3.16)
	Cargas permanentes	Superficial	0.06	(13.12,5.22) (13.12,6.22) (5.97,6.22) (5.97,5.27) (5.97,1.21) (11.68,1.21) (13.12,1.21)
	Cargas permanentes	Superficial	0.06	(5.97,1.21) (5.97,3.16) (2.88,3.16) (2.88,1.22) (2.88,1.21) (4.42,1.21)
	Cargas permanentes	Superficial	0.06	(5.97,1.21) (4.42,1.21) (4.42,-0.70) (5.97,- 0.70)
	Cargas permanentes	Superficial	0.06	(11.56,-0.70) (11.56,1.21) (11.56,1.21) (6.10,1.21) (5.97,1.21) (5.97,-0.70)
	Sobrecarga	Superficial	0.10	(5.97,13.46) (4.10,13.46) (4.03,13.46) (4.03,9.50) (4.03,9.50) (5.97,9.51)
	Sobrecarga	Superficial	0.10	(7.60,13.46) (6.10,13.46) (5.97,13.46) (5.97,9.59) (5.97,9.51) (7.60,9.51)
	Sobrecarga	Superficial	0.10	(13.12,9.53) (13.12,13.33) (13.12,13.46) (7.60,13.46) (7.60,9.51) (13.12,9.53)
	Sobrecarga	Superficial	0.10	(13.12,9.53) (5.97,9.51) (5.97,9.51) (5.97,6.22) (13.12,6.22)
	Sobrecarga	Superficial	0.10	(5.97,9.51) (4.10,9.50) (4.03,9.50) (4.03,6.22) (5.97,6.22)
	Sobrecarga	Superficial	0.10	(5.97,5.27) (5.97,6.22) (4.10,6.22) (4.03,6.22) (4.03,4.45) (4.03,3.16) (5.97,3.16)
	Sobrecarga	Superficial	0.10	(13.12,5.22) (13.12,6.22) (5.97,6.22) (5.97,5.27) (5.97,1.21) (11.68,1.21) (13.12,1.21)
	Sobrecarga	Superficial	0.10	(11.56,-0.70) (11.56,1.21) (11.56,1.21) (6.10,1.21) (5.97,1.21) (5.97,-0.70)
	Sobrecarga	Superficial	0.10	(5.97,1.21) (4.42,1.21) (4.42,-0.70) (5.97,- 0.70)
	Sobrecarga	Superficial	0.10	(5.97,1.21) (5.97,3.16) (2.88,3.16) (2.88,1.22) (2.88,1.21) (4.42,1.21)

E.L.U. Concreto	ABNT NBR 6118:2023(ELU)
E.L.Util Fissuração. Concreto	
E.L.U. Concreto em fundações	
E.L.U. Aço laminado	NBR 8800: 2008
Tensões sobre o terreno	Ações características
Deslocamentos	





SERTÃO ENGENHARIA LTDA
SERTÃO ENGENHARIA CNPJ: 21.629.277/0001-58
PRAÇA PEDRO BATISTA N 210, CENTRO, SANTA BRÍGIDA-BA
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ENG. HÉLIO ALVES OLIVEIRA DO AMARAL SOBRINHO
RESPONSÁVEL TÉCNICO SERTÃO ENGENHARIA LTDA
ENGENHEIRO CIVIL CREA: 0518568318BA
VISTO 18568318PE 20230335798SE

SERTÃO ENGENHARIA LTDA CNPJ: 21.629.277/0001-58
Registro CREA: 0010160558 Registro Regional: 0001016190DDBA
Profissional Responsável: HÉLIO ALVES OLIVEIRA DO AMARAL SOBRINHO
Registro CREA: 0518568318 CPF:050.397.315-74