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STRUCTURAL CALCULATIONS

PREPARED FOR:

SYSTEM:

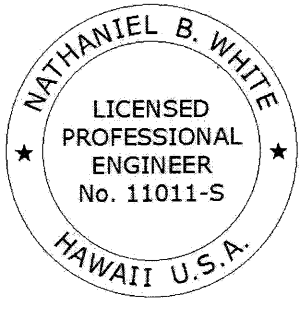
SnapNrack Ground Mount Racking System

DESIGNER OF RECORD:

AEE Solar, Inc.
775 Fiero Lane Suite 200
San Luis Obispo, CA 93401

PROJECT ENGINEERS:

Matthew Gilliss, LEED AP
Nathan B. White, S.E., LEED AP



This work was prepared by me
or under my supervision.

Expiration Date of License: April 30, 2010

Valid Through December 31, 2010
Subject to Annual Review & Reissuance

Job No. 8445
February 1, 2010

TAYLOR & SYFAN CONSULTING ENGINEERS, INC

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Date: January 29, 2010

To: Tim Vaughn
AEE Solar

From: Matthew Gilliss
Taylor & Syfan Consulting Engineers

Project: SnapNrack Ground Mount System

T&S Job No.: 8445

Subject: Summary Letter for SnapNrack

INTRODUCTION

This Project Summary Letter is in reference to the Structural Calculation Packet for the AEE Solar Ground Mount Racking System "SnapNrack", dated December 2009. The calculations have been performed in accordance with the 2003 International Building Code (IBC), the governing structural code in Hawaii. Several factors contained within this code govern the overall design of the racking system. The racking system has been designed to withstand code-prescribed forces due to the racking system's own weight, the weight of the solar panels, snow loads, and wind forces.

RAIL SPANS

In terms of variable conditions for the racking system, the follow pages contain charts that can be used to determine maximum spans and spacings based on the solar array's overall size and tilt angle. This chart is a summary of the following pages which include the calculations for each component under each condition.

SITE-SPECIFIC ANALYSIS

Every possible racking configuration labeled in the following chart has been analyzed and is summarized within this chart. Because there are so many different possible configurations, (2) of the most common cases have been provided in this report as example calculations.

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Site specific racking configurations with calculations producing the overall results shown in the following charts can be provided upon request.

A site-specific analysis may be required if it is found that the location of the solar panel install corresponds to any of the following criteria:

- **The total pitch of the solar panel (solar panel pitch) is greater than 45 degrees above the horizontal.**
- **A topographic factor applies to the location. Topographic factors apply, for general purposes, when the structure is on a hill, mesa or bluff, or is adjacent to a large body of water. For complete descriptions of topographic factors, please refer to ASCE 7-05 Section 6.5.7.**
- **A combination of loads and/or site conditions applies that is not addressed in the attached rail span charts.**

If one of more of these factors applies to the project location, please contact Taylor & Syfan, and we will be able to analyze the site conditions and recommend a custom configuration for each specific site.

SUMMARY CHARTS AND TOPGRAPHIC FACTORS

The attached pages of this summary contain what we feel are some of the most common array configurations with varying wind speeds. These charts can be used as a quick reference for looking up array configurations and foundation requirements based on the site conditions, but it must be noted that for any site location where a topographic factor is to be applied (e.g. hills, mesas, seashore) the configurations given may not be adequate for the given site. A registered structural engineer should evaluate the exact topographic conditions for this specific site prior to construction.

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UNIVERSAL END CLAMP

AEE Solar has also developed a "Universal End Clamp" which is used to connect individual solar panels to the rails (see AEE Solar's drawing "UEC INSTALL"). These have been developed and tested by AEE Solar, and they are adequate to resist the maximum uplift and shear forces generated by code prescribed wind forces when installed as specified. The testing results may be submitted upon request.

FOUNDATION OPTIONS

- **Pier Foundations: Piers shall be 12" in diameter and shall be the depth required in the following charts based on wind speed, panel tilt, and snow load. Concrete shall conform to the attached concrete specifications.**
- **Grade Beam Option: A grade beam may be used in place of the pier foundations. See AEE's drawing S200 D04 for grade beam configuration. Grade beam shall be a minimum of 12" wide, 18" deep and shall run the width of the array a minimum of 12" beyond each vertical post. (2) #4 Bars Shall be used at BOTH the top and bottom of the grade beam, one on each side of the vertical pipe. These shall have a minimum of 3" clear of concrete cover and shall conform to the attached specifications. Concrete shall conform to the attached concrete specifications.**

Please note that all sizes, material specifications, and weights have been provided by AEE Solar. AEE Solar has also provided estimated soil values used to calculate the size and depths of the footings. It is the responsibility of AEE Solar's customer, otherwise known as the contractor or professional solar installer, to verify that the site specific soil conditions match or exceed the estimated values given within this report.

Please feel free to contact me with any questions or concerns. Thank you.

Sincerely,

Matthew B. Gilliss
Project Engineer
Taylor & Syfan Consulting Engineers

GROUND SNOW LOAD = 0 PSF

85 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	7'-6”	8'-0”	15'	15'	(3) / (3)	(2) / (4)	NO	NO	EVERY 3RD BAY	NO
16-30 Deg.	6'-6”	7'-7”	13'	15'	(3) / (4)	(2) / (4)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	5'-6”	6'-0”	8'	8'	(3) / (4-1/2)	(2) / (5)	YES	NO	EVERY 2ND BAY	EVERY 3RD BAY*

*Brace D is not required when Brace E is used.

90 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	6'-9”	7'-6”	15'	15'	(3) / (4)	(2) / (4)	NO	NO	EVERY 3RD BAY	NO
16-30 Deg.	5'-10”	6'-4”	12'	13'	(3) / (4-1/2)	(2) / (4)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	5'-0”	5'-8”	8'	7'	(3) / (5)	(2) / (6)	YES	NO	EVERY 2ND BAY	EVERY 3RD BAY*

*Brace D is not required when Brace E is used.

105 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	5'-3”	6'-4”	12'	13'	(3-1/2) / (5)	(2) / (4-1/2)	YES	NO	EVERY 3RD BAY	NO
16-30 Deg.	4'-0”	5'-6”	10'	11'	(4) / (5-1/2)	(2) / (5-1/2)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	-	-	7'	7'	-	(2) / (6-1/2)	YES	NO	N/A	N/A

*Brace D is not required when Brace E is used.

120 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	4'-0”	5'-0”	9'	11'	(4) / (6)	(2) / (5)	YES	NO	EVERY 3RD BAY	NO
16-30 Deg.	-	-	7'	8'	-	(2) / (6-1/2)	YES	NO	N/A	N/A
31-45 Deg.	-	-	-	5'	-	(2) / (7)	YES	NO	N/A	N/A

**Actual Outer Diameter of Sch. 40/80 1-1/2” Nominal Diameter Pipe is 1.9”

GROUND SNOW LOAD = 1-10 PSF

85 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	6'-0”	7'-3”	15'	15'	(3) / (3)	(2) / (4)	NO	NO	EVERY 3RD BAY	NO
16-30 Deg.	5'-0”	6'-7”	12'	14'	(3) / (4)	(2) / (4)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	-	5'-4”	7'	7'	(3) / (4-1/2)	(2) / (5)	YES	NO	EVERY 2ND BAY	EVERY 3RD BAY*

*Brace D is not required when Brace E is used.

90 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	5'-9”	6'-6”	14'	15'	(3) / (4)	(2) / (4)	NO	NO	EVERY 3RD BAY	NO
16-30 Deg.	4'-8”	5'-9”	10'	12'	(3) / (4-1/2)	(2) / (4)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	4'-0”	4'-8”	7'	7'	(3) / (5)	(2) / (6)	YES	NO	EVERY 2ND BAY	EVERY 3RD BAY*

*Brace D is not required when Brace E is used.

105 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	4'-0”	5'-0”	10'	12'	(3-1/2) / (5)	(2) / (4-1/2)	YES	NO	EVERY 3RD BAY	NO
16-30 Deg.	-	4'-0”	8'	9'	(4) / (5-1/2)	(2) / (5-1/2)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	-	-	6'	6'	-	(2) / (6-1/2)	YES	NO	N/A	N/A

*Brace D is not required when Brace E is used.

120 MPH DESIGN WIND SPEED – 1-1/2” NOMINAL DIAMETER PIPE** – 12” DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	-	4'-0”	8'	10'	(4) / (6)	(2) / (5)	YES	NO	EVERY 3RD BAY	NO
16-30 Deg.	-	-	6'	7'	-	(2) / (6-1/2)	YES	NO	N/A	N/A
31-45 Deg.	-	-	-	4'	-	(2) / (7)	YES	NO	N/A	N/A

**Actual Outer Diameter of Sch. 40/80 1-1/2” Nominal Diameter Pipe is 1.9”

GROUND SNOW LOAD = 11-20 PSF

85 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	5'-3"	6'-6"	11'	13'	(3) / (3)	(2) / (4)	NO	NO	EVERY 3RD BAY	NO
16-30 Deg.	4'-0"	5'-6"	10'	12'	(3) / (4)	(2) / (4)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	-	4'-0"	6'	6'	(3) / (4-1/2)	(2) / (5)	YES	NO	EVERY 2ND BAY	EVERY 3RD BAY*

*Brace D is not required when Brace E is used.

90 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	4'-0"	5'-0"	10'	12'	(3) / (4)	(2) / (4)	NO	NO	EVERY 3RD BAY	NO
16-30 Deg.	-	4'-0"	8'	10'	(3) / (4-1/2)	(2) / (4)	YES	NO	EVERY 3RD BAY	EVERY 3RD BAY*
31-45 Deg.	-	-	6'	6'	(3) / (5)	(2) / (6)	YES	NO	N/A	N/A

*Brace D is not required when Brace E is used.

105 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	-	4'-0"	9'	10'	(3-1/2) / (5)	(2) / (4-1/2)	YES	NO	EVERY 3RD BAY	NO
16-30 Deg.	-	-	7'	8'	(4) / (5-1/2)	(2) / (5-1/2)	YES	NO	N/A	N/A
31-45 Deg.	-	-	5'	5'	-	(2) / (6-1/2)	YES	NO	N/A	N/A

*Brace D is not required when Brace E is used.

120 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	-	-	7'	9'	(4) / (6)	(2) / (5)	YES	NO	EVERY 3RD BAY	N/A
16-30 Deg.	-	-	5'	8'	-	(2) / (6-1/2)	YES	NO	N/A	N/A
31-45 Deg.	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A

**Actual Outer Diameter of Sch. 40/80 1-1/2" Nominal Diameter Pipe is 1.9"

GROUND SNOW LOAD = 21-40 PSF

85 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	-	4'-0"	8'	10'	(4) / (4)	(3) / (5)	NO	NO	EVERY 3RD BAY	NO
16-30 Deg.	-	-	8'	10'	(4) / (5)	(3) / (5)	YES	NO	N/A	EVERY 3RD BAY*
31-45 Deg.	-	-	6'	6'	(4) / (5-1/2)	(3) / (6)	YES	NO	N/A	EVERY 3RD BAY*

*Brace D is not required when Brace E is used.

90 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	-	-	8'	9'	(4) / (4)	(3) / (5)	NO	NO	N/A	N/A
16-30 Deg.	-	-	8'	9'	(4) / (5-1/2)	(3) / (5)	YES	NO	N/A	N/A
31-45 Deg.	-	-	6'	6'	(4) / (6)	(2) / (6)	YES	NO	N/A	N/A

105 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	-	-	8'	9'	(4-1/2) / (6)	(3) / (5)	YES	NO	EVERY 3RD BAY	NO
16-30 Deg.	-	-	6'	7'	(5) / (6-1/2)	(3) / (6)	YES	NO	N/A	N/A
31-45 Deg.	-	-	5'	5'	-	(3) / (7)	YES	NO	N/A	N/A

*Brace D is not required when Brace E is used.

120 MPH DESIGN WIND SPEED – 1-1/2" NOMINAL DIAMETER PIPE** – 12" DIAMETER PIERS

Tilt Angle	Max PS (ft.)				Pier Depth Short/Tall Leg (ft.)		Required Braces			
	No Brace E & F		Braced (E & F)				A	B	C	D
	Sch. 40	Sch. 80	Sch. 40	Sch. 80	No Brace E&F	Braced (E&F)				
0-15 Deg.	-	-	6'	8'	(5) / (7)	(3) / (6)	YES	NO	EVERY 3RD BAY	N/A
16-30 Deg.	-	-	4'	6'	-	(3) / (7)	YES	NO	N/A	N/A
31-45 Deg.	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A

**Actual Outer Diameter of Sch. 40/80 1-1/2" Nominal Diameter Pipe is 1.9"

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Taylor & Syfan Consulting Engineers

Friction Pile Design - Version 12.00 - 2007 CBC / 2006 IBC

INPUT DATA:

Name:	Front Pier (Short Leg) Unbraced		
V =	0.15 kips	@ H =	0.00 ft above grade
M =	0.57 kips	@ H =	0.00 ft above grade
Axial =	0.60 kips		
Creep =	0.00 plf/ft	for D =	0.00 ft of soil
	Pile is unconstrained		
	1/3 Seismic Stress Incease		
	2x Isolated Pile Increase		
Pile Dia =	12.00 inches		
Passive =	150.00 psf/ft	to a Maximum =	1500.00 psf
Friction =	333.00 psf/ft	End Bearing =	2000.00 psf

SOLUTION:

Required Embedment Depths into Firm Soils:

Axial = 0.57 ft Lateral = 3.00 ft

Required = 3.00 ft into firm soil

Soil Pressures:

S1 = 400.00 psf at D/3

S3 = 4000.00 psf at full depth

Moments:

M = 0.72 ft-kips unfactored

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Taylor & Syfan Consulting Engineers

Friction Pile Design - Version 12.00 - 2007 CBC / 2006 IBC

INPUT DATA:

Name: Back Pier (Long Leg) Unbraced

V =	0.95 kips	@ H =	0.00 ft above grade
M =	0.24 kips	@ H =	0.00 ft above grade
Axial =	1.80 kips		
Creep =	0.00 plf/ft	for D =	0.00 ft of soil

Pile is unconstrained

1/3 Seismic Stress Incease

2x Isolated Pile Increase

Pile Dia =	12.00 inches		
Passive =	150.00 psf/ft	to a Maximum =	1500.00 psf
Friction =	333.00 psf/ft	End Bearing =	2000.00 psf

SOLUTION:

Required Embedment Depths into Firm Soils:

Axial = 1.72 ft Lateral = 4.20 ft

Required = 4.20 ft into firm soil

Soil Pressures:

S1 = 560.00 psf at D/3

S3 = 4000.00 psf at full depth

Moments:

M = 1.57 ft-kips unfactored

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Taylor & Syfan Consulting Engineers

Friction Pile Design - Version 12.00 - 2007 CBC / 2006 IBC

INPUT DATA:

Name:	Front Pier (Short Leg) Braced		
V =	0.10 kips	@ H =	0.00 ft above grade
M =	0.19 kips	@ H =	0.00 ft above grade
Axial =	1.50 kips		
Creep =	0.00 plf/ft	for D =	0.00 ft of soil
	Pile is unconstrained		
	1/3 Seismic Stress Incease		
	2x Isolated Pile Increase		
Pile Dia =	12.00 inches		
Passive =	150.00 psf/ft	to a Maximum =	1500.00 psf
Friction =	333.00 psf/ft	End Bearing =	2000.00 psf

SOLUTION:

Required Embedment Depths into Firm Soils:

Axial = 1.00 ft Lateral = 2.00 ft

Required = 2.00 ft into firm soil

Soil Pressures:

S1 = 266.67 psf at D/3

S3 = 4000.00 psf at full depth

Moments:

M = 0.26 ft-kips unfactored

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Taylor & Syfan Consulting Engineers

Friction Pile Design - Version 12.00 - 2007 CBC / 2006 IBC

INPUT DATA:

Name:	Back Pier (Long Leg) Braced		
V =	1.30 kips	@ H =	0.00 ft above grade
M =	0.10 kips	@ H =	0.00 ft above grade
Axial =	4.20 kips		
Creep =	0.00 plf/ft	for D =	0.00 ft of soil
	Pile is unconstrained		
	1/3 Seismic Stress Incease		
	2x Isolated Pile Increase		
Pile Dia =	12.00 inches		
Passive =	150.00 psf/ft	to a Maximum =	1500.00 psf
Friction =	333.00 psf/ft	End Bearing =	2000.00 psf

SOLUTION:

Required Embedment Depths into Firm Soils:

Axial = 4.01 ft Lateral = 5.00 ft

Required = 5.00 ft into firm soil

Soil Pressures:

S1 = 666.67 psf at D/3

S3 = 4000.00 psf at full depth

Moments:

M = 2.27 ft-kips unfactored

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(626)793.7438
(626)793.7439 fax

Structural Specifications

GENERAL

1. Do not scale drawings. Contractor shall use dimensions on architectural plans to lay out walls, foundations and other elements. If dimensional questions occur, the Architect must be consulted.

2. All construction and materials shall comply with and be installed in accordance with all the requirements of all legally constituted public authorities having jurisdiction, including all county and local ordinances, and the Safety Orders of the State Industrial Accident Commission, OSHA.

3. The general contractor shall be responsible for shoring and providing bracing during construction and/or erection to support all loads to which the structure may be subjected.

4. The engineer will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the construction delineated by these plans. It should be understood that the contractor or his/her agent(s) shall supervise and direct all work and shall be solely and completely responsible for all construction means, methods, techniques, sequences, procedures, and conditions on the job site, including safety of all persons and property during the entire period of construction. Periodic observations by Taylor & Syfan Consulting Engineers Incorporated (or "Taylor & Syfan" typ.) personnel or representatives are not intended to include verfication of dimensions or review the adequacy of the contractors safety measures on or near the construction site.

5. See specifications for additional requirements.

6. No deviations are allowed from the structural details without the written approval of the Engineer. Approval by City (or County) Inspector, Special/Deputy Inspector, or any other party does not constitute authority to deviate from plans or specifications. All plan changes or addenda are subject to approval of City (or County) Building Department. The processing of changes, assembly of permit documents, and acquisition of permits is the responsibility of the General Contractor.

7. Per City (or County) and OSHA, shoring is required for all vertical cuts in excess of 5'-0".

8. Where inspection is required, the Special (or "Deputy") Inspector is to obtain City (or County) Building Department clearance prior to any work commencement. Copies of the inspection report(s) to be filed by the special inspector(s) shall be given to the engineer. The general contractor is responsible for scheduling, coordination, and expenses involved in any and all inspections.

9. Taylor & Syfan's details are prepared to convey only the structural aspects of each detail. Architectural information, including but not limited to fenestrations, fire-resistance, insulation, finishes, waterproofing, drainage and flashing may not be included on the structural plans. The Contractor shall obtain the non-structural information for each detail from the Architect and the architectural plans.

10.

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Structural Specifications

FOUNDATIONS & CONCRETE

1. GENERAL

1.1 The Building Inspector shall inspect and approve all grading and excavations prior to placement of forms, reinforcing steel or concrete.

1.2 Refer the structural drawings for foundation embedments, however foundations shall not be embedded less than 12" into approved competent soil, unless specifically noted otherwise.

2. MATERIALS

2.1 Concrete shall have a strength of 2500 psi at 28 days, Type II, and a maximum slump of 5". Special Inspection is not required, unless required by the Building Department.

2.2 Reinforcing steel shall be to ASTM A615 Grade 60, deformed, clean and free of rust.

2.3 Aggregates shall be per ASTM C33. Maximum size 1½" for footings and 1" for all other work.

2.4 Concrete durability, quality, mixing, placing and curing, shall conform to ACI standards and specifications. Mix design must be adjusted for local soil and exposure conditions.

3. EXECUTION

3.1 Conform with ACI 301-05 and 318-05 requirements.

3.2 Minimum lengths for rebar lap splices shall be 48 bar diameters.

3.3 Reinforcing clearances for foundations shall be 3" min. when against earth and 2" min. when against a formed surface or top of footing. Other reinforcing clearances shall be 1 1/2" minimum UNO.

3.4 Removal of forms (formwork) supporting vertical surfaces shall be after 2 days min.