

Structural Calculations

PROJECT: Delta Coves - Typical Decks
ADDRESS: Bethel Island, CA

JOB No.: X204419
DELTA: D1 - Full Calculation Package
DATE: 7/20/2020

CLIENT: Davidson Communities

CONTRA COSTA COUNTY
BUILDING INSPECTION DIVISION

PERMIT NUMBER

BIPRJ20-00013

THESE PLANS MUST BE KEPT ON THE PREMISES AND ACCESSIBLE TO INSPECTORS AT ALL TIMES.

4:21 pm, Oct 05, 2020

REVIEWED

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By: Jessica Collignon





PROJECT: Delta Coves - Typical Decks

CLIENT: Davidson Communities

JOB NO.: X204419

CALCS BY: Engineer

DATE: 1/29/2020

STRUCTURAL CALCULATIONS ARE BASED ON THE FOLLOWING CRITERIA, UNLESS NOTED OTHERWISE

STRUCTURAL MATERIALS:

Structural Steel:

W Shapes	ASTM A992, Fy = 50 ksi
Shapes (M, S, HP, C, MC, L)	ASTM A572, Grade 50
Pipe	ASTM A53, Grade B
Tube (HSS)	ASTM A500, Grade B
Plates and Bars	ASTM A572, Grade 50
Welding	Current AWS D1.1
Bolts - Unfinished	ASTM A307
Bolts - High Strength (HSB)	ASTM A325 SC/N/X
Threaded Rods	ASTM A449
Light Gage Steel Studs and Joists	ASTM A653, Grade 50
Welding (Light Gage)	Current AWS D1.3

Concrete:

Slab on Grade	2500 psi @ 28 Days
Foundation	2500 psi @ 28 Days
Tilt-Up Wall Panels	4000 psi @ 28 Days
Structural Concrete	3000 psi @ 28 Days
Reinforcing Steel (#3 Rebar)	ASTM A615, Grade 40
Reinforcing Steel (#4 & larger)	ASTM A615, Grade 60
Welding (Reinf.).....	Current AWS D1.4

Wood:

2" to 4" Thick x 2" and Wider	DF No. 2 or better
Joists and Planks	DF No. 2 or better
Beams and Stringers	DF No. 1 or better
Posts and Timbers	DF No. 1 or better
Glu-lam Beams (simple span)	2400F-V4 DF/DF
Glu-lam Beams (cantilevers)	2400F-V8 DF/DF
Sheathing	Exposure 1, Grade C-D, C-C



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LOADING SCHEDULE:

Deck Dead Load:

Decking:	2x Decking (Rain Through)	6.5 psf
Framing:	P.T. 2x12 @ 16" o.c.	3.0 psf
Insulation:	None	0.0 psf
Ceiling:	None	0.0 psf
Misc:	Misc.	1.0 psf
		<hr/>
		10.5 psf

Deck Live Load:

Exterior Balcony (Reducible)	60.0 psf
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Wood Beam

File = Z:\Projects\X204419 - Delta Coves - Decks\Calcs\X204419 Delta Coves_enercalc.ec6 .
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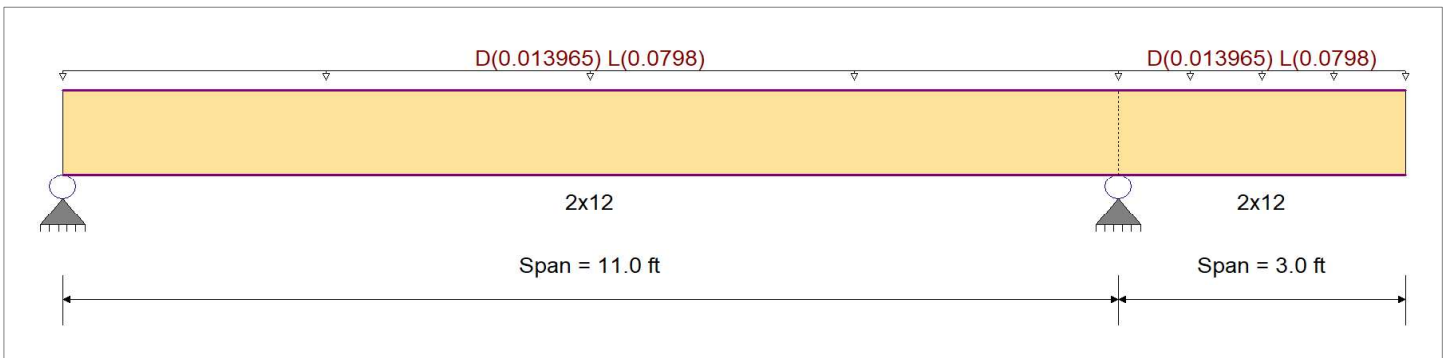
DESCRIPTION: Typical Deck Joist

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	875.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	875.0 psi	Ebend- xx
	Fc - Prll	600.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.2	Fv	170.0 psi	
	Ft	425.0 psi	Density
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.01050, L = 0.060 ksf, Tributary Width = 1.330 ft, (Deck)

Load for Span Number 2

Uniform Load : D = 0.01050, L = 0.060 ksf, Tributary Width = 1.330 ft, (Deck)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.595	1	Maximum Shear Stress Ratio	=	0.318	: 1
Section used for this span		2x12		Section used for this span		2x12	
fb : Actual	=	478.80	psi	fv : Actual	=	43.19	psi
FB : Allowable	=	805.00	psi	Fv : Allowable	=	136.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	5.101	ft	Location of maximum on span	=	10.078	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.099	in	Ratio =		1329	>=180
Max Upward Transient Deflection		-0.067	in	Ratio =		1074	>=180
Max Downward Total Deflection		0.121	in	Ratio =		1089	>=120
Max Upward Total Deflection		-0.082	in	Ratio =		880	>=120

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.1212	5.346		0.0000	0.000
	2	0.0000	5.346	+D+L+H	-0.0818	3.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.496	0.868	
Overall MINimum	0.406	0.711	
+D+H	0.090	0.157	
+D+L+H	0.496	0.868	

Wood Beam

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DP ADVANCED ENGINEERING INC.

DESCRIPTION: Typical Deck Joist

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+Lr+H	0.090	0.157	
+D+S+H	0.090	0.157	
+D+0.750Lr+0.750L+H	0.394	0.690	
+D+0.750L+0.750S+H	0.394	0.690	
+D+0.60W+H	0.090	0.157	
+D+0.750Lr+0.450W+H	0.090	0.157	
+D+0.750S+0.450W+H	0.090	0.157	
+0.60D+0.60W+0.60H	0.054	0.094	
+D+0.70E+0.60H	0.090	0.157	
+D+0.750L+0.750S+0.5250E+H	0.394	0.690	
+0.60D+0.70E+H	0.054	0.094	
D Only	0.090	0.157	
Lr Only			
L Only	0.406	0.711	
S Only			
W Only			
E Only			
H Only			

Wood Beam

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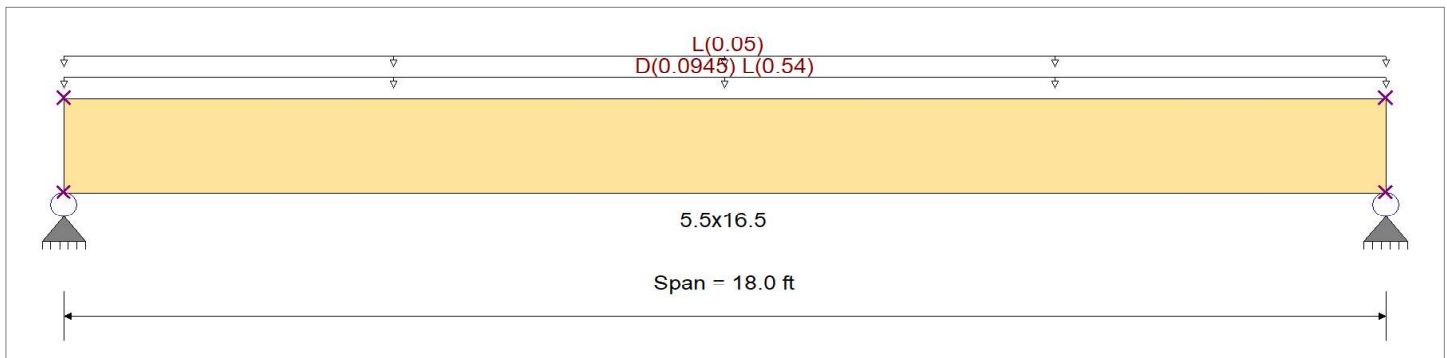
DESCRIPTION: Typical Deck Girder

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2000 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	1400 psi	Ebend- xx
	Fc - Prll	1500 psi	Eminbend - xx
Wood Species : AC/AC	Fc - Perp	560 psi	Ebend- yy
Wood Grade : 20F-V12	Fv	265 psi	Eminbend - yy
	Ft	925 psi	Density
			28.72pcf
Beam Bracing : Completely Unbraced			



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.01050, L = 0.060 ksf, Tributary Width = 9.0 ft, (Deck)

Uniform Load : L = 0.050 ksf, Tributary Width = 1.0 ft, (Guardrail)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.887 : 1	Maximum Shear Stress Ratio	=	0.385 : 1
Section used for this span		5.5x16.5	Section used for this span		5.5x16.5
fb : Actual	=	1,368.25psi	fv : Actual	=	89.26 psi
FB : Allowable	=	1,542.34psi	Fv : Allowable	=	231.88 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	9.000ft	Location of maximum on span	=	16.686 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.545 in	Ratio =		396 >=180
Max Upward Transient Deflection		0.000 in	Ratio =		0 <180
Max Downward Total Deflection		0.649 in	Ratio =		332 >=120
Max Upward Total Deflection		0.000 in	Ratio =		0 <120

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.6488	9.066		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.323	6.323
Overall MINimum	5.310	5.310
+D+H	1.013	1.013
+D+L+H	6.323	6.323
+D+Lr+H	1.013	1.013
+D+S+H	1.013	1.013
+D+0.750Lr+0.750L+H	4.996	4.996

Wood Beam

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DP ADVANCED ENGINEERING INC.

DESCRIPTION: Typical Deck Girder

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
+D+0.750L+0.750S+H	4.996	4.996
+D+0.60W+H	1.013	1.013
+D+0.750Lr+0.450W+H	1.013	1.013
+D+0.750S+0.450W+H	1.013	1.013
+0.60D+0.60W+0.60H	0.608	0.608
+D+0.70E+0.60H	1.013	1.013
+D+0.750L+0.750S+0.5250E+H	4.996	4.996
+0.60D+0.70E+H	0.608	0.608
D Only	1.013	1.013
Lr Only		
L Only	5.310	5.310
S Only		
W Only		
E Only		
H Only		

Wood Beam

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DESCRIPTION: Typical Deck Girder (Option 2)

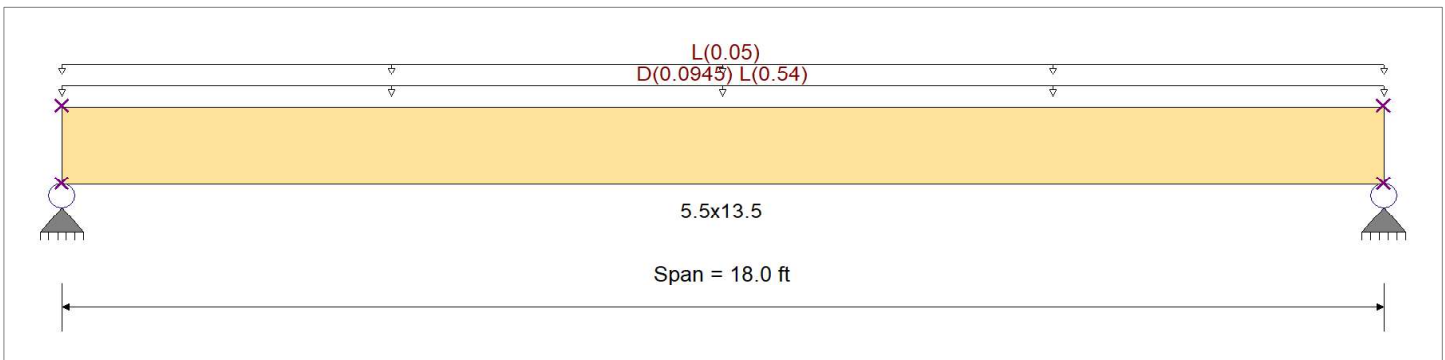
CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2400 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	2400 psi	Ebend- xx
	Fc - Prll	1650 psi	Eminbend - xx
Wood Species : DF/DF	Fc - Perp	650 psi	Ebend- yy
Wood Grade : 24F-V8	Fv	265 psi	Eminbend - yy
	Ft	1100 psi	Density
			31.21 pcf

Beam Bracing : Completely Unbraced



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.01050, L = 0.060 ksf, Tributary Width = 9.0 ft, (Deck)

Uniform Load : L = 0.050 ksf, Tributary Width = 1.0 ft, (Guardrail)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.873	1	Maximum Shear Stress Ratio	=	0.421	: 1
Section used for this span		5.5x13.5		Section used for this span		5.5x13.5	
fb : Actual	=	2,038.09 psi		fv : Actual	=	111.57 psi	
FB : Allowable	=	2,333.49 psi		Fv : Allowable	=	265.00 psi	
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	9.000 ft		Location of maximum on span	=	16.883 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.727 in	Ratio =	297	>=	180	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	180	
Max Downward Total Deflection		0.863 in	Ratio =	250	>=	120	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	120	

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.8632	9.066		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.305	6.305
Overall MINimum	5.310	5.310
+D+H	0.995	0.995
+D+L+H	6.305	6.305
+D+Lr+H	0.995	0.995
+D+S+H	0.995	0.995
+D+0.750Lr+0.750L+H	4.978	4.978

Wood Beam

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DESCRIPTION: Typical Deck Girder (Option 2)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
+D+0.750L+0.750S+H	4.978	4.978
+D+0.60W+H	0.995	0.995
+D+0.750Lr+0.450W+H	0.995	0.995
+D+0.750S+0.450W+H	0.995	0.995
+0.60D+0.60W+0.60H	0.597	0.597
+D+0.70E+0.60H	0.995	0.995
+D+0.750L+0.750S+0.5250E+H	4.978	4.978
+0.60D+0.70E+H	0.597	0.597
D Only	0.995	0.995
Lr Only		
L Only	5.310	5.310
S Only		
W Only		
E Only		
H Only		

Wood Beam

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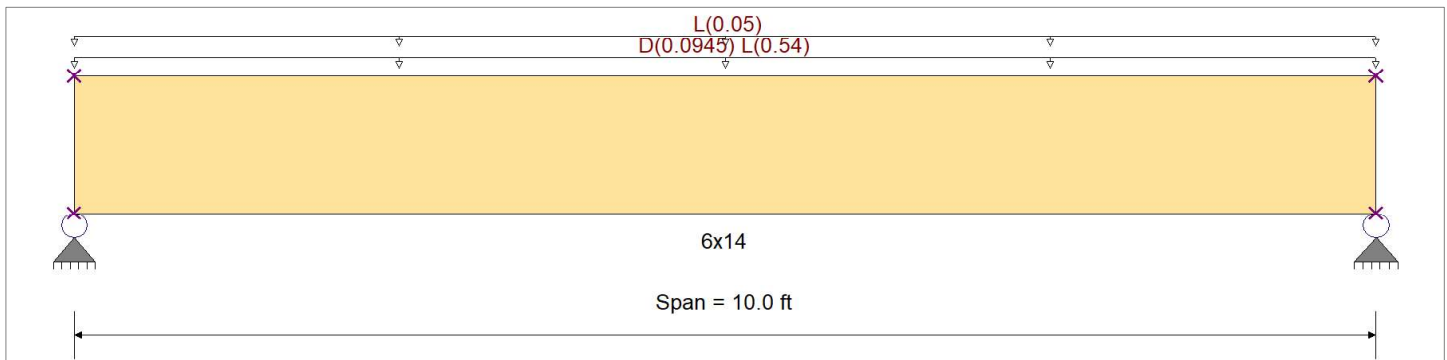
DESCRIPTION: Typical Deck Girder (Option 3)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	875.0 psi	E : Modulus of Elasticity	
Load Combination : ASCE 7-16	Fb -	875.0 psi	Ebend- xx	1,300.0 ksi
	Fc - Prll	600.0 psi	Eminbend - xx	470.0 ksi
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi		
Wood Grade : No.2	Fv	170.0 psi		
	Ft	425.0 psi	Density	31.210pcf
Beam Bracing : Completely Unbraced				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.01050, L = 0.060 ksf, Tributary Width = 9.0 ft, (Deck)

Uniform Load : L = 0.050 ksf, Tributary Width = 1.0 ft, (Guardrail)

DESIGN SUMMARY

Design OK

<table border="0"> <tr> <td>Maximum Bending Stress Ratio</td> <td>=</td> <td>0.905</td> <td>1</td> </tr> <tr> <td>Section used for this span</td> <td></td> <td>6x14</td> <td></td> </tr> <tr> <td>fb : Actual</td> <td>=</td> <td>629.04</td> <td>psi</td> </tr> <tr> <td>FB : Allowable</td> <td>=</td> <td>694.82</td> <td>psi</td> </tr> <tr> <td>Load Combination</td> <td></td> <td>+D+L+H</td> <td></td> </tr> <tr> <td>Location of maximum on span</td> <td>=</td> <td>5.000</td> <td>ft</td> </tr> <tr> <td>Span # where maximum occurs</td> <td>=</td> <td>Span # 1</td> <td></td> </tr> <tr> <td>Maximum Deflection</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Max Downward Transient Deflection</td> <td></td> <td>0.096</td> <td>in Ratio = 1251 >=180</td> </tr> <tr> <td>Max Upward Transient Deflection</td> <td></td> <td>0.000</td> <td>in Ratio = 0 <180</td> </tr> <tr> <td>Max Downward Total Deflection</td> <td></td> <td>0.114</td> <td>in Ratio = 1054 >=120</td> </tr> <tr> <td>Max Upward Total Deflection</td> <td></td> <td>0.000</td> <td>in Ratio = 0 <120</td> </tr> </table>	Maximum Bending Stress Ratio	=	0.905	1	Section used for this span		6x14		fb : Actual	=	629.04	psi	FB : Allowable	=	694.82	psi	Load Combination		+D+L+H		Location of maximum on span	=	5.000	ft	Span # where maximum occurs	=	Span # 1		Maximum Deflection				Max Downward Transient Deflection		0.096	in Ratio = 1251 >=180	Max Upward Transient Deflection		0.000	in Ratio = 0 <180	Max Downward Total Deflection		0.114	in Ratio = 1054 >=120	Max Upward Total Deflection		0.000	in Ratio = 0 <120	<table border="0"> <tr> <td>Maximum Shear Stress Ratio</td> <td>=</td> <td>0.406</td> <td>: 1</td> </tr> <tr> <td>Section used for this span</td> <td></td> <td>6x14</td> <td></td> </tr> <tr> <td>fv : Actual</td> <td>=</td> <td>55.27</td> <td>psi</td> </tr> <tr> <td>Fv : Allowable</td> <td>=</td> <td>136.00</td> <td>psi</td> </tr> <tr> <td>Load Combination</td> <td></td> <td>+D+L+H</td> <td></td> </tr> <tr> <td>Location of maximum on span</td> <td>=</td> <td>0.000</td> <td>ft</td> </tr> <tr> <td>Span # where maximum occurs</td> <td>=</td> <td>Span # 1</td> <td></td> </tr> </table>	Maximum Shear Stress Ratio	=	0.406	: 1	Section used for this span		6x14		fv : Actual	=	55.27	psi	Fv : Allowable	=	136.00	psi	Load Combination		+D+L+H		Location of maximum on span	=	0.000	ft	Span # where maximum occurs	=	Span # 1	
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Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.1138	5.036		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.503	3.503
Overall MINimum	2.950	2.950
+D+H	0.553	0.553
+D+L+H	3.503	3.503
+D+Lr+H	0.553	0.553
+D+S+H	0.553	0.553
+D+0.750Lr+0.750L+H	2.765	2.765

Wood Beam

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DP ADVANCED ENGINEERING INC.

DESCRIPTION: Typical Deck Girder (Option 3)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
+D+0.750L+0.750S+H	2.765	2.765
+D+0.60W+H	0.553	0.553
+D+0.750Lr+0.450W+H	0.553	0.553
+D+0.750S+0.450W+H	0.553	0.553
+0.60D+0.60W+0.60H	0.332	0.332
+D+0.70E+0.60H	0.553	0.553
+D+0.750L+0.750S+0.5250E+H	2.765	2.765
+0.60D+0.70E+H	0.332	0.332
D Only	0.553	0.553
Lr Only		
L Only	2.950	2.950
S Only		
W Only		
E Only		
H Only		



PROJECT: Delta Coves - Typical Decks

CLIENT: Davidson Communities

JOB NO.: X204419

CALCS BY: Engineer

DATE: 1/29/2020

SPREAD FOOTING FOUNDATION ANALYSIS:

<u>Allowable Stress:</u>	<u>Footing Reinf:</u>	
fy (ksi): 60	(2) #5 in Top	As used: 0.61
f'c (psi): 2500	(2) #5 in Bottom	

Grid Line:	1
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Footing Design Criteria:

Allow. Bearing Pres. (psf):	2500
Footing Width (in):	18
Footing Depth (in):	36
Unsupported Length (ft):	5.0

Uniform Loads:

Deck Trib (ft)	6.0
Deck DL (psf)	10.5
Deck LL (psf)	60.0

TOTAL DL (plf): 738

TOTAL LL (plf): 360

Point Load:

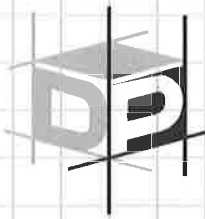
Max. Point DL (lbs)	0
Max. Point Lr (lbs)	0
Max. Point LL (lbs)	0
Max. HD Load (lbs)	0

Soil Analysis:

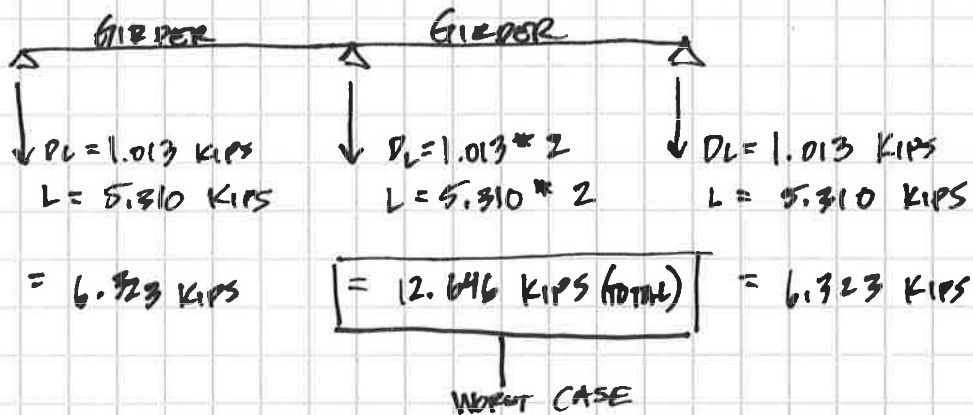
q (psf):	282
q/ q _{ALLOW} :	0.11

M_{max} (ft-lb):	4568 ft-lb
V_{max} (lb):	3654 lbs
Allowable M_{max} (ft-lb):	87899 ft-lb
Allowable V_{max} (lb):	24863 lbs

Footing A(s) req'd: 0.61
O.K.



PILE CAPACITY ANALYSIS



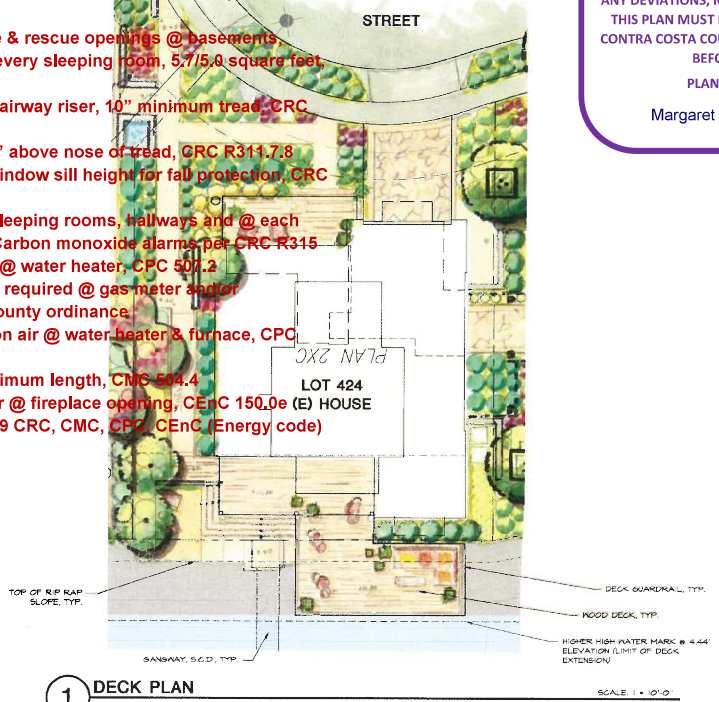
PER PLANS, PILES WILL BE 12" ϕ X 15'-0" DEEP.

PER, "RECOMMENDATIONS FOR FOUNDATIONS ON LEVEE SLOPES" LETTER,
PILE CAPACITY AT 12" ϕ X 15'-0" DEEP = 14.7 KIPS > 12.646 KIPS.

DESIGN OK!

2019 CALIFORNIA RESIDENTIAL CODE

1. Exterior walls & projections to be one-hour fire rated with restricted openings if closer than 5'-0" to property line, CRC table R302.1(1)
2. Fire separation @ garage/carport & dwelling, CRC R302.5 & R302.6
3. 4% natural ventilation, 8% natural light, of floor area, or artificial light and ventilation, CRC R303
4. Bathroom exhaust fans required in all bathrooms, CRC R303.3.1
5. Safety glazing required in hazardous locations, CRC R308.4
6. Emergency escape & rescue openings @ basements, habitable attics & every sleeping room, 5.7/5.9 square feet, CRC R310
7. 7-3/4" maximum stairway riser, 10" minimum tread, CRC R311.7.5
8. Handrails 34" – 38" above nose of tread, CRC R311.7.8
9. 42" guards & 24" window sill height for fall protection, CRC R312
10. Smoke alarms @ sleeping rooms, hallways and @ each story, CRC R314. Carbon monoxide alarms per CRC R315
11. Seismic strapping @ water heater, CPC 507.2
12. Gas shutoff valves required @ gas meter and/or appliances, City/County ordinance
13. Outside combustion air @ water heater & furnace, CPC 506.4 & CMC 701.6
14. Dryer vent 14' maximum length, CMC 504.4
15. Metal or glass door @ fireplace opening, CEC 150.0e (E) HOUSE
16. Code editions: 2019 CRC, CMC, CPD, CENC (Energy code)



1 DECK PLAN
LOT 424
SCALE: 1/8" = 1'-0"
1/24

CONTRA COSTA COUNTY
CONSERVATION AND DEVELOPMENT
COMMUNITY DEVELOPMENT DIVISION
HAS ONLY APPROVED THE FOLLOWING:

DP20-3003 - design example

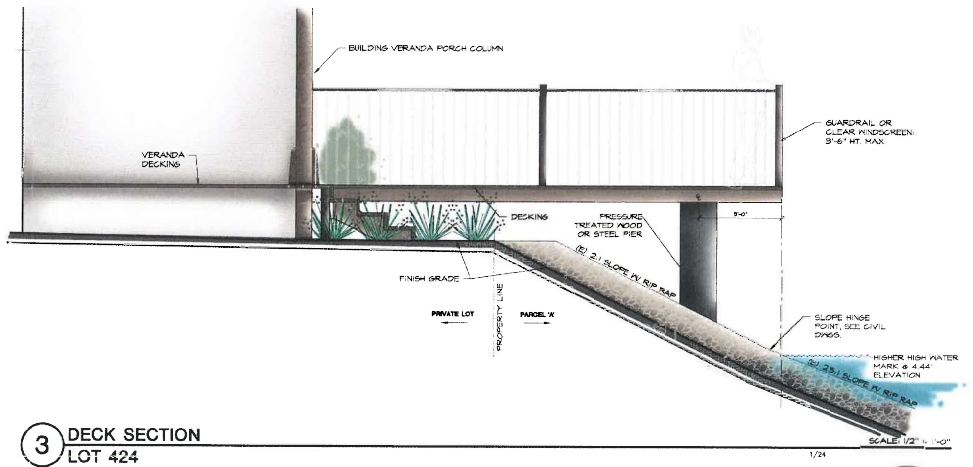
ANY DEVIATIONS, MODIFICATIONS, OR ADDITIONS TO
THIS PLAN MUST BE REVIEWED AND APPROVED BY
CONTRA COSTA COUNTY COMMUNITY DEVELOPMENT
BEFORE MODIFICATION.

PLANNING APPROVED BY:

Margaret Mitchell on Oct 5, 2020



2 DECK ELEVATION (EXISTING)
LOT 424



3 DECK SECTION
LOT 424
SCALE: 1/2" = 1'-0"
1/24

CONTRA COSTA COUNTY
BUILDING INSPECTION DIVISION
PERMIT NUMBER
6013

THESE PLANS MUST BE KEPT ON THE PREMISES AND ACCESSIBLE TO INSPECTORS AT ALL TIMES.

4:19 pm, Oct 05, 2020

REVIEWED

FOR COMPLIANCE WITH COUNTY BUILDING ORD. & CODES. THE STAMPING OF THIS DOCUMENT SHALL NOT BE HELD TO PERMIT OR TO BE AN APPROVAL OF THE VIOLATIONS OF ANY COUNTY ORDINANCE OR STATE LAW. NO CHANGES SHALL BE MADE WITHOUT AUTHORIZATION FROM THE BUILDING OFFICIAL.

By: Jessica Collignon

RESIDENTIAL DECKS

DMB DEVELOPMENT

EXAMPLE DESIGN CONCEPT

COUNTY FILE #CDP20-03003 DEVELOPMENT PLAN
Delta Coves, Bethel Island, California



DATE: 02/28/20
JOB#: 16030.D1



ENVIRONMENTAL
FORESIGHT, INC.
Landscape Architecture
1700 N. Broadway, Suite 401
Walnut Creek, CA 94596
T: (925) 945-0300 F: (925) 945-8888
www.environmentalforesight.com

GENERAL NOTES

- ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE 2019 EDITION OF THE CALIFORNIA BUILDING CODE (CBC), THE MOST RECENT EDITION OF THE CBC, AND ALL APPLICABLE LOCAL CODES AND ORDINANCES AND LOCALLY ACCEPTED STANDARDS OF PRACTICE.
- CONTRACTOR SHALL VERIFY THE TYPE OF FINISH MATERIALS AND THEIR LOCATIONS FOR DEPRESSIONS IN FLOOR SLABS, FOR OPENINGS IN WALLS AND FLOORS REQUIRED BY ARCHITECTURAL AND MECHANICAL FEATURES, FOR STAIRS, CORE, ETC.
- DRAWINGS AND SPECIFICATIONS REPRESENT FINISHED STRUCTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION. INSTALLATION IS NOT LIMITED TO CONDITIONS AND REQUIREMENTS. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO INSURE SAFETY OF ALL PERSONS AND STRUCTURES AT THE SITE AND ACCORDANT TO THE CONTRACTOR'S OBLIGATION TO THE ARCHITECT/ENGINEER OR ARCHITECT/ENGINEER/CONTRACTOR MANAGER SHALL NOT RELIEVE THE CONTRACTOR OF SUCH RESPONSIBILITY.
- THE CONTRACTOR SHALL REVIEW ALL DRAWINGS IMMEDIATELY UPON THEIR RECEIPT AND SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES.
- CONNECTIONS AND IMPLIED CONSTRUCTION ASSEMBLIES THAT ARE NOT SPECIFICALLY DESCRIBED OR DETAILED SHALL BE CONSTRUCTED USING STANDARD CONSTRUCTION PRACTICES IN CONFORMANCE WITH THE GOVERNING CODES AND ORDINANCES.
- ALL DETAILS SHALL BE CONSIDERED "TYPICAL," THE INTENT OF "TYPICAL" DETAILS SHALL BE APPLIED TO SIMILAR CONDITIONS ELSEWHERE IN THE PROJECT, WHEN DETAILS LABELLED "UNUSUAL" ARE GIVEN ON DRAWINGS, THE CONTRACTOR SHALL APPLY THE GENERAL INTENT OF THE DETAIL, TO THE REFERENCED CONDITION.
- WRITTEN INFORMATION AND DIMENSIONS SHALL TAKE PRECEDENCE OVER GRAPHIC INFORMATION, NOT SCALE DRAWINGS.
- STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR THIS WORK HAVE BEEN PREPARED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS OF PRACTICE TO MEET THE MINIMUM REQUIREMENTS OF THE APPLICABLE EDITION OF THE CBC, ANY ORDINANCES OR DISCREPANCIES ON THE PLANS OR ANY DEVIATIONS FROM THE PLANS THAT ARE NECESSARY TO COMPLY WITH ANY APPLICABLE CODES OR ORDINANCES OR TO CORRECT ERRORS ON THE PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO COMMENCING CONSTRUCTION. ALL WORK SHALL BE COORDINATED TO COOPERATION BETWEEN THE TRADES IS ACCORDANCE.
- THE STRUCTURAL DRAWINGS SHOW ONLY THE BASIC STRUCTURAL SYSTEM, REFERENCE TO THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ITEMS WHICH REQUIRE SPECIAL PROVISIONS DURING THE CONSTRUCTION OF THE BUILDING.
- CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY BRACING NECESSARY TO COMPLETE THE CONSTRUCTION.
- THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED EXCLUSIVELY FOR USE ON THIS PROJECT ONLY. THE DRAWINGS AND SPECIFICATIONS, OR PORTIONS THEREOF, SHALL NOT BE USED ON OTHER PROJECTS OR ADDITIONS TO THIS PROJECT EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE CORRECTIONS OF THE ENGINEER. THE STRUCTURAL SYSTEMS HAVE BEEN DESIGNED TO CARRY THE SUPERIMPOSED LIVE LOADS AS PRESCRIBED BY THE CALIFORNIA BUILDING CODE AND IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES, WITH NO SPECIAL PROVISIONS TO CARRY CONCENTRATED LOADS FROM STORAGE AND HANDLING OF CONSTRUCTION MATERIALS OR FROM OPERATIONS OF CONSTRUCTION EQUIPMENT.
- THE CONTRACTOR SHALL MAINTAIN THE UTILITY OF ALL EXISTING BRACING, AND SHORING SYSTEMS AS REQUIRED FOR INSTALLATION, STABILITY AND SAFETY OF NEW WORK AND EXISTING STRUCTURES, PERMANENT AND TEMPORARY CONSTRUCTION EQUIPMENT.
- CONTRACTOR SHALL MAINTAIN RECORDS OF THE SAFETY OF PERSONS AND PROPERTY AND OF THE SAFETY OF THE CONSTRUCTION. THE CONTRACTOR SHALL HAVE A WRITER UNDER THE SUPERVISION OF THE CONTRACTOR TO MAINTAIN RECORDS OF THE SAFETY OF PERSONS AND PROPERTY, THE CONTRACTOR SHALL PROTECT NEW AND EXISTING UTILITIES AND STRUCTURES FROM DAMAGE BY THE CONSTRUCTION OF THE PROJECT.
- CONTRACTOR SHALL COORDINATE WITH THE CITY TO ENGINEER ALL INSPECTIONS (INCLUDING SPECIAL INSPECTIONS) AS COMPLETED BY THE LOCAL JURISDICTIONARY REQUIREMENTS. APPROVAL BY BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE PLANS AND SPECIFICATIONS.
- IF PROVIDED, OBSERVATION OF THE CONSTRUCTION BY THE ENGINEER IS INTENDED TO IMPROVE THE PROBABILITY THAT THE WORK IS COMPLETED IN GENERAL CONFORMANCE WITH THE ENGINEERING DESIGN INTENT, OBSERVATION OF THE CONSTRUCTION BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR COMPLETING THE CONSTRUCTION IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND GENERALLY ACCEPTED STANDARDS OF PRACTICE.
- ALL FRAMING HARDWARE SHALL BE MANUFACTURED BY EMPLOYER SPECIFIED. ALTERNATE FRAMING HARDWARE MANUFACTURERS SHALL NOT BE APPROVED UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER AND THE BUILDING OWNER. IF ALTERNATE HARDWARE SYSTEMS ARE AUTHORIZED, THE CONTRACTOR SHALL FORWARD COMPLETE SHOP DRAWINGS FOR REVIEW AND APPROVAL.

SPECIAL INSPECTIONS PER 2019 CBC 1701

- IN ADDITION TO OBSERVATIONS BY THE CONTRA COSTA INSPECTOR, SPECIAL INSPECTIONS SHALL BE PROVIDED BY THE E.A.M. AS FOLLOWS:
 - CONTINUOUS INSPECTION OF DIVINER PEEP FOUNDATION ELEMENTS TO VERIFY ELEMENT MATERIALS, SIZES AND LENGTHS CORRELATE WITH REQUIREMENT PER SECTION 1705 OF THE CBC.
 - CONTINUOUS INSPECTION OF DIVINER PEEP FOUNDATION ELEMENTS TO VERIFY DESIGNING OPERATION AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT PER SECTION 1705 OF THE CBC.
 - CONTINUOUS INSPECTION OF DIVINER PEEP FOUNDATION ELEMENTS TO VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFORM THE AND SIZE OF HAMMER RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, OTHERWISE REQUIRED PRESENTATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TOP AND BUTT ELEVATIONS AND OTHERWISE REQUIRED PRESENTATIONS TO ACHIEVE DESIGN CAPACITY.
- THE CONTRACTOR SHALL MAINTAIN RECORDS OF THE SAFETY OF PERSONS AND PROPERTY, THE CONTRACTOR SHALL PROTECT NEW AND EXISTING UTILITIES AND STRUCTURES FROM DAMAGE BY THE CONSTRUCTION OF THE PROJECT.
- CONTRACTOR SHALL COORDINATE WITH THE CITY TO ENGINEER ALL INSPECTIONS (INCLUDING SPECIAL INSPECTIONS) AS COMPLETED BY THE LOCAL JURISDICTIONARY REQUIREMENTS. APPROVAL BY BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE PLANS AND SPECIFICATIONS.
- IF PROVIDED, OBSERVATION OF THE CONSTRUCTION BY THE ENGINEER IS INTENDED TO IMPROVE THE PROBABILITY THAT THE WORK IS COMPLETED IN GENERAL CONFORMANCE WITH THE ENGINEERING DESIGN INTENT, OBSERVATION OF THE CONSTRUCTION BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR COMPLETING THE CONSTRUCTION IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND GENERALLY ACCEPTED STANDARDS OF PRACTICE.
- ALL FRAMING HARDWARE SHALL BE MANUFACTURED BY EMPLOYER SPECIFIED. ALTERNATE FRAMING HARDWARE MANUFACTURERS SHALL NOT BE APPROVED UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER AND THE BUILDING OWNER. IF ALTERNATE HARDWARE SYSTEMS ARE AUTHORIZED, THE CONTRACTOR SHALL FORWARD COMPLETE SHOP DRAWINGS FOR REVIEW AND APPROVAL.

DESIGNER AND CONTRACTOR TO CONSULT AND OBTAIN APPROVAL FROM THE CITY OF SACRAMENTO TO ACHIEVE THE DESIGN BEARING CAPACITY, SOLS ENGINEER OF RECORD TO PERFORM INSPECTION.
 PERIODIC INSPECTION TO VERIFY MATERIALS BELOW GRADE DEPTH AND HAVE REACHED PROPER CONTRACTOR, SOLS ENGINEER OF RECORD TO PERFORM INSPECTION.

- CONTRACTOR SHALL COORDINATE WITH THE COUNTY TO ENSURE SPECIAL INSPECTION IS PROVIDED PER COUNTY REQUIREMENTS.
- FOR LEVEL LOTS (SEE SHEET 02), BMDM MAY ALSO INSPECT IN CONJUNCTION WITH CONTRA COSTA COUNTY.

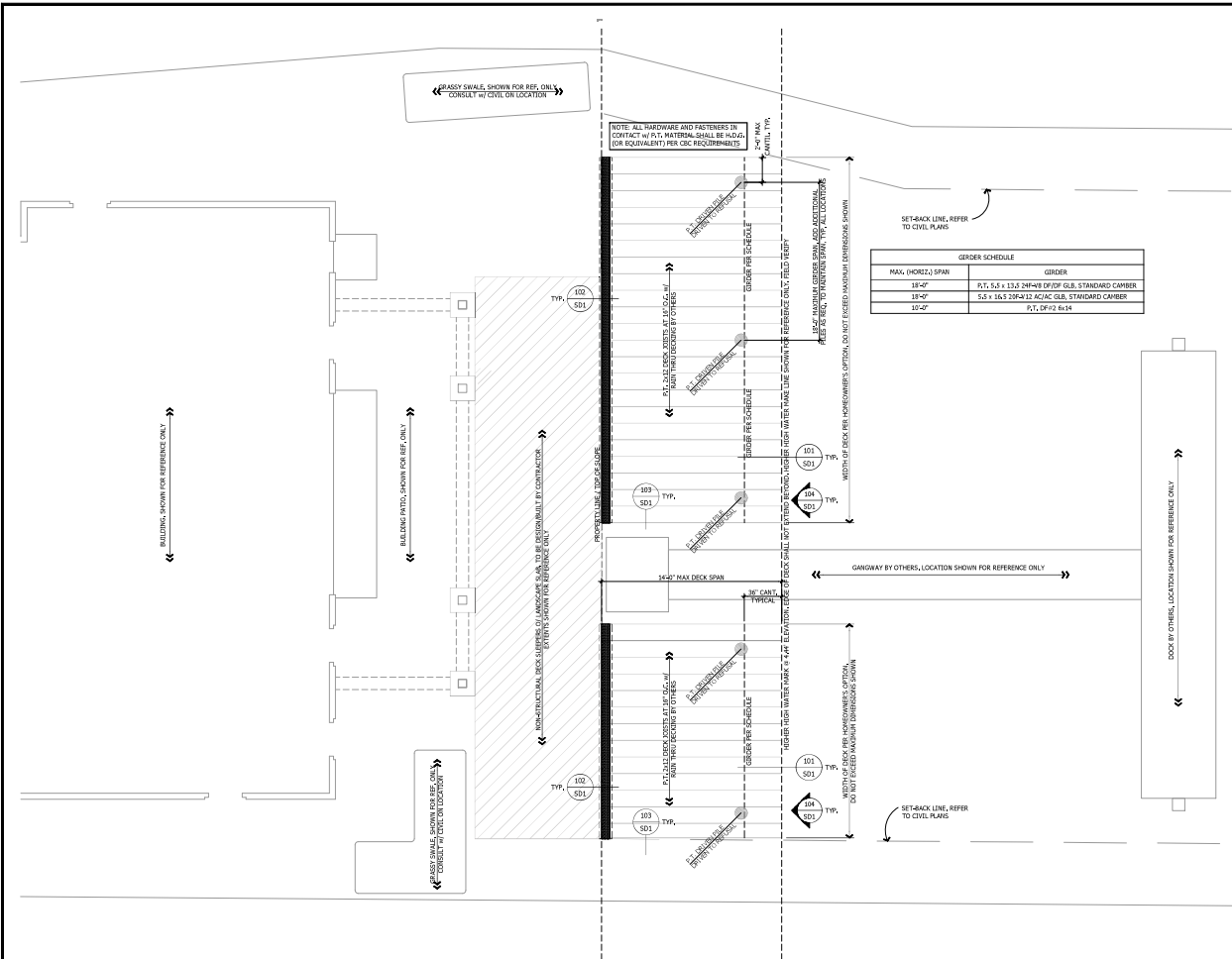
GENERAL FRAMING NOTES

- NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN, NOTED, OR APPROVED BY THE ENGINEER. NOTCH DETAILS, IF PROVIDED, ARE FOR GENERAL GUIDANCE ONLY. THE ENGINEER SHALL BE CONTACTED TO APPROVE LOCATIONS OF PROPOSED NOTCHES, STUDS IN EXTERIOR WALLS AND BEARING PARTITIONS MAY BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25% OF THE HEIGHT, CUTTING OR NOTCHING OF STUDS IN NON-BEARING PARTITIONS SHALL NOT EXCEED 40% OF THE WIDTH.
- ALL MEMBERS IN BEARING SHALL BE ACCURATELY CUT AND ALSO GUIDED SO THAT FULL BEARING IS PROVIDED WITHOUT THE USE OF SHIMS.
- INSTALL HORIZONTAL MEMBERS WITH CROWN UP, WHERE NOTS EXIST NEAR THE TOP OR BOTTOM OF HORIZONTAL MEMBERS, INSTALL MEMBER WITH NOTCHES UP. CANTILEVERED DECK STUDS SHALL BE CAREFULLY NOTCHED AND THIMBED (IF NECESSARY) TO PROVIDE SURE WITHOUT OVERCUTTING.
- ALL FRAMING LUMBER SHALL BE KINGS FIR, AND SHALL BE STAMPED WITH A GRADE MARK "K", FRAMING LUMBER SHALL CONFORM TO GRADE RULERS OF WPPFA. **MAXIMUM MOISTURE CONTENT SHALL NOT EXCEED 19% AT THE TIME OF INSTALLATION AND FABRICATION.**
- ALL JOISTS WITHIN 10" AND GIRDERS WITHIN 2" OF GRADE, LUMBER IN CONTACT WITH CONCRETE, OR LUMBER EXPOSED TO THE ELEMENTS (INCLUDING DECK FRAMING) MUST BE PRESURE TREATED OR NATURALLY DURABLE LUMBER IN ACCORDANCE WITH GOVERNING CODE. JOISTS, ALL FASTENERS AND CONNECTIONS IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE HOT DIPPED GALVANIZED. STAINLESS STEEL IN ACCORDANCE WITH GOVERNING CODE. CORNALS AND BRACE IN ACCORDANCE WITH A 1.5.
- QUALIFIED STRUCTURAL MATERIALS:
 - ALL GULAM MEMBERS SHALL BE COMBINATION 2440 (COMPOSED OF 1x12) LAMINATIONS, F_b = 2400 MPa FOR DRY USE CONDITION LVLs. EACH MEMBER SHALL BEAR SPECIFIC IDENTIFICATION OF LOCATION AND SHALL BE PROVIDED WITH A CERTIFICATE OF INSPECTION BY THE INSPECTION AGENCY, CAMBER SHALL BE PROVIDED IF SPECIFIED ON THE PLANS.
 - DESIGN, FABRICATION AND CONSTRUCTION OF STRUCTURAL GULAM MEMBERS SHALL CONFORM TO THE AMERICAN INSTITUTE OF WOOD CONSTRUCTION STANDARDS MANUAL No. 101 AND THE COMMERCIAL STANDARD FOR STRUCTURAL GLUE LAMINATED TIMBER, C-25.
 - STRUCTURAL PL WOOD SHALL BE GRADED PER THE NDS-EMERALD SHAL INTERIOR THE SHEATHING C-G GRADE WITH EXTERIOR G-GLS. EQUIVALENT G-GLS WOOD STRUCTURAL PANELS MAY BE USED AS AN ALTERNATE TO PL WOOD. HOWEVER, IN ACCORDANCE WITH THE TILE COUNCIL OF AMERICA RECOMMENDATIONS, G-GLS SHALL NOT BE USED BELOW TILE NORMAL. ALL HORIZONTAL PL WOOD SHALL BE LAID WITH FACE GRAIN PERPENDICULAR TO FRAMING MEMBERS, WITH ENGRAINED CORNS.
- ALL LOCKED WOOD CONNECTIONS SHALL HAVE A WIDER ANGLE A STEEL PLATE IS SPECIFIED, HOLES SHALL BE PROPERLY ALIGNED, OVERLAPED HOLES ARE NOT ALLOWED. NUTS SHALL BE SHALTS TIGHTENED. BOLT HOLES SHALL BE NOMINAL DIMENSIONS OF BOLT PLUS 1/16".
- MALD WOOD CONNECTIONS SHALL USE COMMON WIRE NAILS, UNLVL, MIN. NAILING REQUIREMENTS FOR STANDARD CONNECTIONS SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION CODES, FASTENERS TO BEHOLD (TABLE 2304.10.2).
- ALL MANUFACTURED CONNECTION HARDWARE SHALL BE AS SHOWN ON DRAWINGS AND INSTALLED WITH ALL NAIL HOLES FILLED) IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPLICABLE CODE APPROVALS.
- INSTALL LAG SCREWS IN DRILLED LAG HOLES WITH A DEEP, NOTED TO 3/4" OF THE SHANK DIAMETER, LAG SCREWS SHALL NOT BE HEMWOOD. INSERT WASHERS UNDER HEADS WHERE WOOD HOLES SHALL BE PROPERLY SLOTTED.

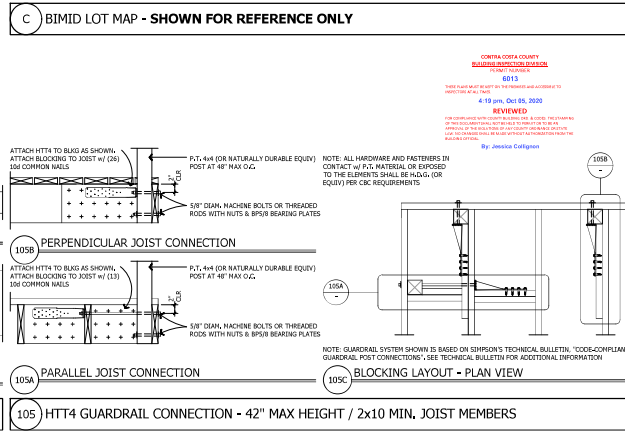
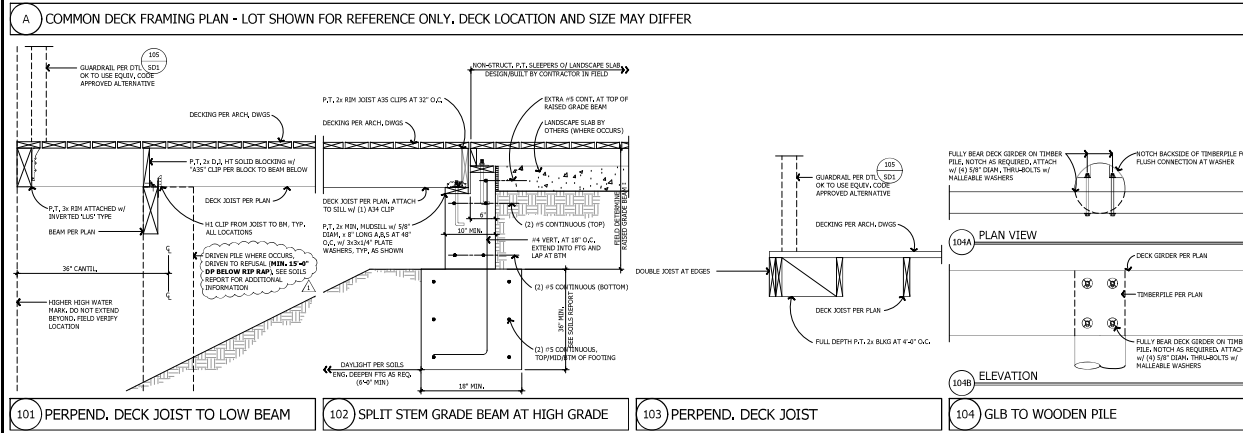
FASTENING SCHEDULE (C.B.C. TABLE 2304.10.1)

ITEM	DESCRIPTION OF CONNECTION	FASTENING (NOTE 1, 4, 13)		
		COMMON / BOX	SMOOTH SHANK	STAPLES
1	JOIST TO SILL OR GEEZER, 706-AI-BL	(3) M	(3) 3" x 11"	(3) 3/4" x 6G
2	BRIDGINGS TO JOIST, 706-AI-BL, END	(2) M	(2) 3" x 11"	(2) 3/4" x 6G
3	1" x 8" SUPPORT OR LESS, TO EACH	(2) M	N/A	N/A
4	WIDER THAN 1" x 8" SUPPORT, TO EACH	(3) M	N/A	N/A
5	2" SUBROOF TO JOIST OR GEEZER	(2) 1/4"	N/A	N/A
6	SOLE PLATE TO JOIST OR BRIDGING	164 1/4" 3"	7" x 11"	1" x 10" G5
7	SOLE PLATE TO JOIST OR BRIDGING	(3) 164 1/4" 3"	7" x 11"	1" x 10" G5
8	TOP PLATE TO STUD, END NAIL	(2) 1/4"	(3) 3" x 11"	(3) 3/4" x 6G
9	STUD TO SOLE PLATE, END NAIL	(2) 1/4"	(3) 3" x 11"	(3) 3/4" x 6G
10	STUD TO SOLE PLATE, 706-AI-BL	(4) M	(4) 3" x 11"	(3) 3/4" x 6G
9	DOUBLE STUD, FACE NAIL	164 1/4" 3"	7" x 11"	1" x 10" G5
10	DOUBLE TOP PLATES, TYP. FACE NAIL	164 1/4" 3"	7" x 11"	1" x 10" G5
10	DOUBLE TOP PLATES, LAP SPLICE	(8) 1/4"	(12) 3" x 11"	(12) 3/4" x 6G
11	DOUBLE STUDS TO JOIST OR RAFTERS, TO TOP PLATE, 706-AI-BL	(3) M	(3) 3" x 11"	(3) 3/4" x 6G
12	RAM JOIST TO TOP PLATE, 706-AI-BL	84 1/4" 3"	7" x 11"	1" x 10" G5
13	TOP RAFTERS TO JOIST AND INTERSECTIONS, FACE NAIL	(2) 1/4"	(3) 3" x 11"	(3) 3/4" x 6G
14	CONTINUOUS HEADER, TWO PIECES	ALONG EDGE	N/A	N/A
15	CEILING JOIST TO PLATE, 706-AI-BL	(3) M	(3) 3" x 11"	(3) 3/4" x 6G
16	CONTINUOUS HEADER TO STUD, 706-AI-BL	(4) M	N/A	N/A
17	FIELDING JOISTS, JOIST OVER RAFTERS	(3) 164 1/4" 3"	(4) 3" x 11"	(4) 3/4" x 6G
18	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	(4) 3" x 11"	(4) 3/4" x 6G
19	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	(3) 3" x 11"	(3) 3/4" x 6G
20	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	(3) 3" x 11"	(3) 3/4" x 6G
21	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	(3) 3" x 11"	(3) 3/4" x 6G
22	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
23	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
24	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
25	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
26	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
27	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
28	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
29	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
30	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
31	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
32	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
33	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
34	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
35	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
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40	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
41	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
42	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
43	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
44	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
45	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
46	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
47	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
48	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
49	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
50	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
51	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
52	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
53	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
54	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
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56	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
57	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
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60	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
61	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
62	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
63	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
64	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
65	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
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67	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
68	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
69	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
70	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
71	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
72	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
73	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
74	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
75	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
76	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
77	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
78	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
79	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
80	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
81	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
82	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
83	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
84	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
85	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
86	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
87	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
88	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
89	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
90	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
91	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
92	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
93	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
94	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
95	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
96	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
97	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
98	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
99	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A
100	FACE NAIL (SEE C.B.C. TABLE 2304.10.4.1)	(3) M	N/A	N/A

- NOTES:** FOR S: 1 inch = 25.4 mm
- COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED.
 - NAILS SPACED AT 6" O.C. AT EDGES, 12" O.C. AT INTERMEDIATE SUPPORTS EXCEPT 6" O.C. AT ALL SUPPORTS WHERE SPANS ARE 4'-0" OR MORE. NAILING OF WOOD STRUCTURAL PANELS AND MATCHLINES DIMENSIONS AND SPACING SHALL REFER TO C.B.C. SECTION 2305. WALL SHEATHING NAILS ARE PERMITTED TO BE COMMON, BOX OR CASING, COMMON OR DEFORMED SHANK (6" x 7", 6" x 11", 8" x 11", 10" x 11", 10" x 14", 10" x 18", 10" x 24", 10" x 30", 10" x 36", 10" x 42", 10" x 48", 10" x 54", 10" x 60", 10" x 66", 10" x 72", 10" x 78", 10" x 84", 10" x 90", 10" x 96", 10" x 102", 10" x 108", 10" x 114", 10" x 120", 10" x 126", 10" x 132", 10" x 138", 10" x 144", 10" x 150", 10" x 156", 10" x 162", 10" x 168", 10" x 174", 10" x 180", 10" x 186", 10" x 192", 10" x 198", 10" x 204", 10" x 210", 10" x 216", 10" x 222", 10" x 228", 10" x 234", 10" x 240", 10" x 246", 10" x 252", 10" x 258", 10" x 264", 10" x 270", 10" x 276", 10" x 282", 10" x 288", 10" x 294", 10" x 300", 10" x 306", 10" x 312", 10" x 318", 10" x 324", 10" x 330", 10" x 336", 10" x 342", 10" x 348", 10" x 354", 10" x 360", 10" x 366", 10" x 372", 10" x 378", 10" x 384", 10" x 390", 10" x 396", 10" x 402", 10" x 408", 10" x 414", 10" x 420", 10" x 426", 10" x 432", 10" x 438", 10" x 444", 10" x 450", 10" x 456", 10" x 462", 10" x 468", 10" x 474", 10" x 480", 10" x 486", 10" x 492", 10" x 498", 10" x 504, 10" x 510, 10" x 516, 10" x 522, 10" x 528, 10" x 534, 10" x 540, 10" x 546, 10" x 552, 10" x 558, 10" x 564, 10" x 570, 10" x 576, 10" x 582, 10" x 588, 10" x 594, 10" x 600, 10" x 606, 10" x 612, 10" x 618, 10" x 624, 10" x 630, 10" x 636, 10" x 642, 10" x 648, 10" x 654, 10" x 660, 10" x 666, 10" x 672, 10" x 678, 10" x 684, 10" x 690, 10" x 696, 10" x 702, 10" x 708, 10" x 714, 10" x 720, 10" x 726, 10" x 732, 10" x 738, 10" x 744, 10" x 750, 10" x 756, 10" x 762, 10" x 768, 10" x 774, 10" x 780, 10" x 786, 10" x 792, 10" x 798, 10" x 804, 10" x 810, 10" x 816, 10" x 822, 10" x 828, 10" x 834, 10" x 840, 10" x 846, 10" x 852, 10" x 858, 10" x 864, 10" x 870, 10" x 876, 10" x 882, 10" x 888, 10" x 894, 10" x 900, 10" x 906, 10" x 912, 10" x 918, 10" x 924, 10" x 930, 10" x 936, 10" x 942, 10" x 948, 10" x 954, 10" x 960



- 2019 RESIDENTIAL CODE STRUCTURAL**
- Anchor bolts to be 1/2" dia, with 2" embed into concrete. 8" dia, 2" x 3" x 23" washers, CRC R402.2.6 & R402.1.1
 - Min L4x4 top & bot of figs. 3" deep to dirt, CRC R402.2
 - Provide under-floor cross-ventilation, 1/150 of crawl space area, 1" vent within 3" of each corner of 840-CRC R403.1
 - Provide 1/2" x 24" under-floor access, spanning downwards to be within 5" CRC R403.4, CPC 701.9
 - 1/150 cross ventilation for attics and rafter bays, 1" minimum air space above insulation. Also see options for covered attic, CRC 805
 - Provide 22"x30" attic access, CRC R401.1
 - Fatties screws, CRC Table R602.1(1) + (2)
 - Exposed wood members & sheathing to be pressure treated (P.T.) or naturally durable wood, CRC R317.1
 - Wood members & sheathing in contact w/ ground or concrete shall be P.T. or naturally durable, CRC R317.1.2
 - Cutting, notching, and drilling of floor joists, studs, top plates, and rafters, CRC R502.6, R502.8 & R502.7
 - Provide 2" x 10" clearance, 2" minimum height & square anchor at fireplace chimney termination, CRC R101.6
 - Truss design drawings to be approved by County prior to installation, CRC R502.1.4 & R502.1.1
 - Code editions: 2019 CRC, CPC



CONTRA COSTA COUNTY
CONSERVATION AND DEVELOPMENT
COMMUNITY DEVELOPMENT DIVISION
HAS ONLY APPROVED THE FOLLOWING:

DP20-3003 - individual plot plans for each deck must be submitted and must comply with 2245A.

ANY DEVIATIONS, MODIFICATIONS, OR ADDITIONS TO THIS PLAN MUST BE REVIEWED AND APPROVED BY CONTRA COSTA COUNTY COMMUNITY DEVELOPMENT BEFORE MODIFICATION.

PLANNING APPROVED BY:
Margaret Mitchell on Oct 5, 2020

ADVANCED ENGINEERING
3361 Walnut Blvd, Ste. 100
Brentwood, CA 94513
Office: 925.516.2502
Fax: 925.262.4662

THE DRAWING AND SPECIFICATIONS ARE PREPARED BY THE ENGINEER, BASED ON THE INFORMATION PROVIDED BY THE CLIENT. THE ENGINEER HAS CONDUCTED VISUAL GENERAL VERIFICATION OF THE INFORMATION PROVIDED AND HAS FOUND NO APPARENT CONFLICTS OR OMISSIONS. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THE INFORMATION PROVIDED. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CONSEQUENCES ARISING FROM THE USE OF THIS DRAWING FOR ANY PURPOSE OTHER THAN THAT INTENDED BY THE ENGINEER.

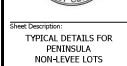
DELTA COVES - TYPICAL DECKS
BETHEL ISLAND, CALIFORNIA

PLAN CHECK RESPONSES 07-20-20



PLEASE NOTE THE REVISION NUMBER AND DATE ARE FOR STRUCTURAL SHEETS ONLY Engineering Seal

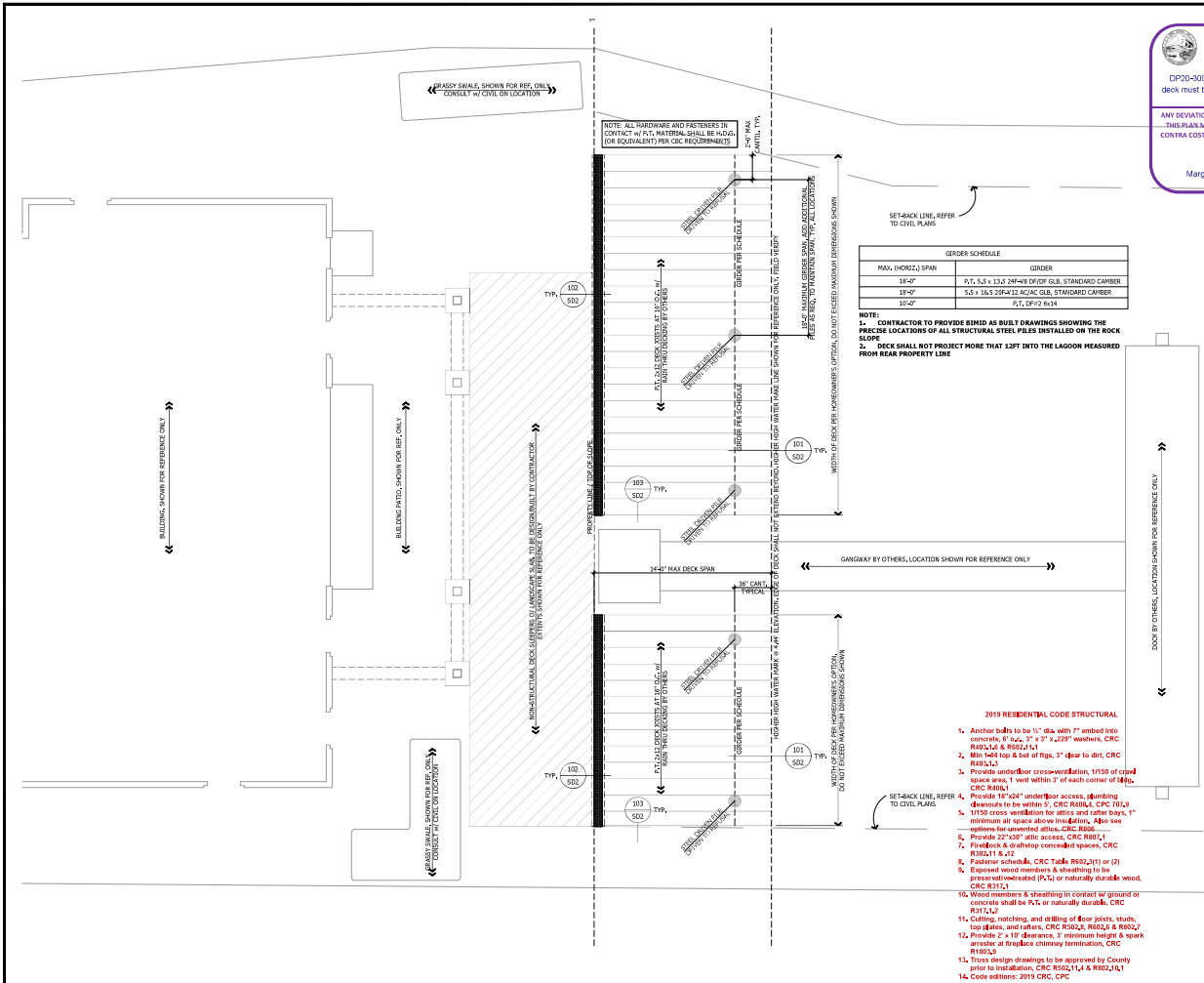
CONTRA COSTA COUNTY
BUILDING INSPECTION DIVISION
6815
1985 EAST 98TH ST. #100
SAN RAMON, CA 94583
4-19 pm, Oct 05, 2020
REVIEWED
BY: Jessica Colligan



Sheet Description
TYPICAL DETAILS FOR
PENINSULA
NON-LEVEL LOTS

Print Date: 05/26/20
Drawn By: N. Reese
Project Designer: N. Enriquez
Project Manager: N. Enriquez Ext. 22
SJS File: X20419
Sheet No.: SD1

DO NOT SCALE THESE DRAWINGS



CONTRA COSTA COUNTY
 CONSERVATION AND DEVELOPMENT
 COMMUNITY DEVELOPMENT DIVISION
 HAS ONLY APPROVED THE FOLLOWING:
 DP20-003 - individual p&T plans for each deck must be submitted and must comply with P.T. & P.

ANY DEVIATIONS, MODIFICATIONS, OR ADDITIONS TO THIS PLAN MUST BE REVIEWED AND APPROVED BY CONTRA COSTA COUNTY COMMUNITY DEVELOPMENT BEFORE MODIFICATION.

PLANNING APPROVED BY:
 Margaret Mitchell on Oct 5, 2020

jdh corrosion
 PROTECTIVE COATINGS

February 7, 2020

Delta Coves

Author: Michael Hebert
 mhebert@jdhcorrosion.com

Subject: Long Term Protection of Steel Deck Support Nuts
 Delta Cove Residential Development
 Bethel Island, CA

Dear Michael,

We are pleased that you are using our products (also supporting the deck) for these steel frames located at the Delta Cove Residential Community (Bethel Island, CA). These steel deck support nuts are an important element in the long-term success of the development. We are pleased to have your business and we are confident that you are providing the best possible service to your clients. We are pleased to have your business and we are confident that you are providing the best possible service to your clients.

Due to the corrosion nature of the nuts and the steel condition of these piles to be exposed water and gas to implement a cathodic protection system for these piles. The cathodic protection system will be installed on the steel of piles designed to reduce to about one-half (1/2) the rate. We will be a source of information and site visits to follow these long term protection plans.

Thank you for your interest in our products and we will be happy to provide additional information, please feel free to contact us at 800.527.4500.

Respectfully submitted,
 J. Daryl Howard, Jr.
 J. Daryl Howard, Jr., P.E.
 JPH CORROSION CONSULTANTS, INC.
 Fremont

1106 Wilbur Pass Court, Concord, CA 94529 Tel: 925.527.4500 Fax: 925.527.4624

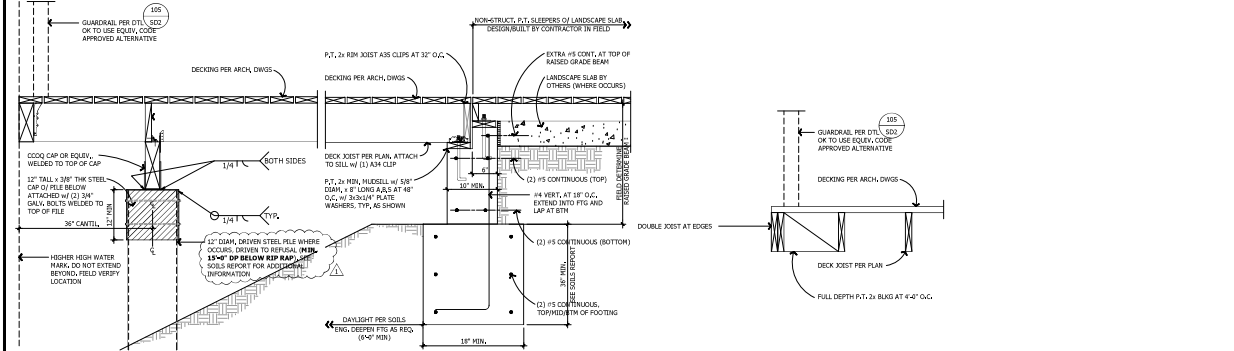


B CORROSION REQUIREMENTS AT STEEL PILE - SHOWN FOR REFERENCE ONLY

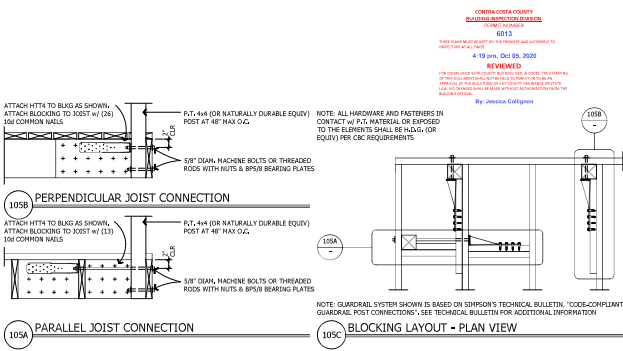


STEEL PILE APPLICABLE LOTS: 1-8, 34-47, 67-83, 143-152, 182-193, 219-228, 244-251, 279-289, 314-337, 365-376, 398-408, 449-460, 474-483, 484-494

A COMMON DECK FRAMING PLAN - LOT SHOWN FOR REFERENCE ONLY, DECK LOCATION AND SIZE MAY DIFFER



C BIMID LOT MAP - SHOWN FOR REFERENCE ONLY



THE DRAWING AND SPECIFICATIONS ARE PREPARED BY THE ENGINEER AND ARE NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED AND DOES NOT INCLUDE THE DESIGN OF ANY STRUCTURE OR THE CONSTRUCTION OF ANY STRUCTURE. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED AND DOES NOT INCLUDE THE DESIGN OF ANY STRUCTURE OR THE CONSTRUCTION OF ANY STRUCTURE.

DELTA COVES - TYPICAL DECKS
 BETHEL ISLAND, CALIFORNIA

APPROVED BY BIMID

PLAN CHECK RESPONSES 07-20-20

PLEASE NOTE THE REVISION NUMBER AND DATE ARE FOR STRUCTURAL SHEETS ONLY.
 Engineering Ltd.

CONTRA COSTA COUNTY
 RESIDENTIAL DIVISION

8813

4-19 pm, Oct 05, 2020

REVIEWED

FOR CONSTRUCTION OF DELTA COVES TYPICAL DECKS
 APPROVED BY THE COUNTY ENGINEER AND ARCHITECT

By: Jessica Calligan

Sheet Description
 TYPICAL DETAILS FOR PERMETER LEVEL LOTS

Print Date: 05/26/20

Drawn By: N. Reese

Project Designer: N. Enriquez

Project Manager: N. Enriquez Ext. 22

Sheet No. X204419

SD2

DO NOT SCALE THESE DRAWINGS



SPECIAL INSPECTION REQUIREMENTS

(This is intended to be a guide. The registered design professional is still responsible for preparing the statement of special inspections per Section 1704.3)

For this project, list the required inspections for CBC Chapter 17

Permit #: BIPRJ20-00013 Project Address: Bethel Island, CA - Delta Coves

CONSTRUCTION TYPE REQUIRING INSPECTION	LIST OF REQUIRED INSPECTIONS
Special Cases (Section 1705.1.1)	<input type="checkbox"/>
Steel Construction (1705.2)	<input type="checkbox"/> Structural steel welding. (Per AISC 360 Tables N5.4-1 thru N5.4-3) <input type="checkbox"/> Structural steel bolting (Per AISC 360 Tables N5-6.1 thru N5.6-3) <input type="checkbox"/> Cold-formed steel deck (Per SDI QA/QC) <input type="checkbox"/> Open-web steel joists and joist girders <input type="checkbox"/> Cold-form steel trusses spanning 60 feet or greater
Concrete Construction (Section 1705.3)	<input type="checkbox"/> Inspect reinforcement, including prestressing tendons, and verify placement. <input type="checkbox"/> Reinforcing bar welding. <input type="checkbox"/> Inspect anchors cast in concrete. <input type="checkbox"/> Inspect epoxy anchors. <input type="checkbox"/> Inspect mechanical anchors. <input type="checkbox"/> Verify use of required design mix. <input type="checkbox"/> Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete. <input type="checkbox"/> Inspect concrete and shotcrete placement for proper application techniques. <input type="checkbox"/> Verify maintenance of specified curing temperature and techniques. <input type="checkbox"/> Inspect prestressed concrete. <input type="checkbox"/> Inspect erection of precast concrete members. <input type="checkbox"/> Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs. <input type="checkbox"/> Inspect formwork for shape, location and dimensions of the concrete member being formed. <input type="checkbox"/> Preconstruction tests for shotcrete (Per 1704.5.4, 1908.5)
Masonry Construction (Section 1705.4)	<input type="checkbox"/> In accordance with the quality assurance program requirements of TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.1/ASCE 6
Wood Construction (Section 1705.5)	<input type="checkbox"/> High-load diaphragms. <input type="checkbox"/> Metal-plate-connected wood trusses spanning 60 feet or greater.
Soils (Section 1705.6)	<input checked="" type="checkbox"/> Verify materials below shallow foundations are adequate to achieve the design bearing capacity. <input checked="" type="checkbox"/> Verify excavations are extended to proper depth and have reached proper material. <input type="checkbox"/> Perform classification and testing of compacted fill materials. <input type="checkbox"/> Verify use of proper materials, densities, and lift thicknesses. <input type="checkbox"/> Prior to placement of compacted fill, inspect subgrade, and verify that site has been prepared properly.
Driven Deep Foundations (Section 1705.7)	<input checked="" type="checkbox"/> Verify element materials, sizes and lengths comply with the requirement. <input type="checkbox"/> Determine capacities of test elements, and conduct additional load tests as required. <input type="checkbox"/> Inspect driving operations and maintain complete and accurate records for each element. <input checked="" type="checkbox"/> Verify placement locations, plumbness, type and size of hammer, blows per foot of penetration, and record tip and butt elevations. <input type="checkbox"/> For steel elements, perform additional special inspections in accordance with Section 1705.2. <input type="checkbox"/> For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3. <input type="checkbox"/> For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge.

CONTRA COSTA COUNTY
BUILDING INSPECTION DIVISION
 PERMIT NUMBER
6013

THESE PLANS MUST BE KEPT ON THE PREMISES AND ACCESSIBLE TO
 INSPECTORS AT ALL TIMES.

4:19 pm, Oct 05, 2020
REVIEWED

FOR COMPLIANCE WITH COUNTY BUILDING ORD. & CODES, THE STAMPING
 OF THIS DOCUMENT SHALL NOT BE HELD TO PERMIT OR TO BE AN
 APPROVAL OF THE VIOLATIONS OF ANY COUNTY ORDINANCE OR STATE
 LAW. NO CHANGES SHALL BE MADE WITHOUT AUTHORIZATION FROM THE
 BUILDING OFFICIAL.

By: **Jessica Collignon**

For this project, list the required inspections for CBC Chapter 17

Cast-in-place Deep Foundations (Section 1705.8)	<input type="checkbox"/> Inspect drilling operations and maintain complete and accurate records for each element by either a: <input type="checkbox"/> Soils Engineer, <input type="checkbox"/> Special Inspector (approved for "PDC"), or <input type="checkbox"/> Engineer of Record (for one and two family dwellings). <input type="checkbox"/> Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes. <input type="checkbox"/> For concrete elements, perform tests and additional special inspections in accordance with Section 1705.3.
Helical Piles (Section 1705.9)	<input type="checkbox"/> Installation of helical pile foundations
Fabricated Items (Section 1705.10)	<input type="checkbox"/> Special inspections of fabricated items shall be performed in accordance with Section 1704.2.5.
Wind Resistance (Section 1705.11)	<input type="checkbox"/> Structural wood <input type="checkbox"/> Cold-formed steel light-frame construction <input type="checkbox"/> Wind-resisting components
Seismic Resistance (Section 1705.12 & 1705.13)	<input type="checkbox"/> Structural steel <input type="checkbox"/> Structural wood <input type="checkbox"/> Cold-formed steel light-frame construction <input type="checkbox"/> Designated seismic systems <input type="checkbox"/> Architectural components <input type="checkbox"/> Plumbing, mechanical, and electrical components <input type="checkbox"/> Storage racks <input type="checkbox"/> Seismic isolation systems <input type="checkbox"/> Cold-formed steel special bolted moment frames
Fire Resistive Construction (Section 1705.14)	<input type="checkbox"/> Spray applied materials (1705.14) <input type="checkbox"/> Mastic and Intumescent coatings (1705.15) <input type="checkbox"/> Penetrations and joints (1705.17)
Exterior Insulation and Finish Systems (EIFS) (Section 1705.16)	<input type="checkbox"/>
Testing For Smoke Control (Section 1705.18)	<input type="checkbox"/>
Structural Observation for seismic resistance	<input type="checkbox"/>

Acknowledgements: (Choose one) Owner, Design Professional, or Contractor

Name: GABE DAL PORTO Signature:  Date: 07-27-20



**CONTRA COSTA COUNTY
DEPARTMENT OF CONSERVATION & DEVELOPMENT
BUILDING INSPECTION DIVISION
30 Muir Road
Martinez, CA 94553**

**CONTRA COSTA COUNTY
BUILDING INSPECTION DIVISION
PERMIT NUMBER
6013**

4:19 pm, Oct 05, 2020

REVIEWED

FOR COMPLIANCE WITH COUNTY BUILDING ORD. & CODES, THE STAMPING OF THIS DOCUMENT SHALL NOT BE HELD TO BE AN APPROVAL OF THE VIOLATIONS OF ANY COUNTY ORDINANCE OR STATE LAW. ANY CHANGES SHALL BE MADE WITHOUT AUTHORIZATION FROM THE BUILDING OFFICIAL.

By: **Jessica Collignon**

THESE PLANS MUST BE KEPT ON THE PREMISES AND ACCESSIBLE TO INSPECTORS AT ALL TIMES.

**RECOGNIZED SPECIAL INSPECTION AND TESTING AGENCIES
EFFECTIVE 02/19/20 – 02/19/21**

Key RC=Reinforced Concrete PC=Prestressed/Post-tensioned Concrete SM=Structural Masonry
 SS=Structural Steel Welding/Bolting FP=Spray-Applied Fireproofing URM= Unreinforced Masonry
 PDC = Piling, Drilled Piers & Caissons GEF = Grading, Excavation, & Filling

Agency Name	HQ Address	Phone/Fax	RC	PC	SM	SS	FP	URM	PDC	GEF
AI Inspection Services	1754 Mission Street San Francisco, CA 94109	(415) 621-8001 (415) 358-4409	X	X	X	X	X			
ACE Quality Control (Formerly Earthtec, Inc.)	1830 Vernon Street, Ste 7 Roseville, CA 95678	(916) 786-5263 (916) 786-5263	X	X	X	X	X	X		
Achievement Engineering Corp.	2455 Autmynvale Drive, Unit E San Jose, CA 95131	(408) 217-9174 (408) 217-9632	X	X	X	X	X	X	X	X
Achievement Engineering Corp.	250 King Street, Suite 1108 San Francisco, CA 94107	(800) 653-1397 (408) 217-9632	X	X	X	X	X	X	X	X
Achievement Engineering Corp.	5070 North 6 th Street Fresno, CA	(408) 217-1974 (408) 217-9632	X	X	X	X	X	X	X	X
AECOM Technical Services	300 Lakeside Drive Suite 400 Oakland, CA 94612	(510) 893-3600							X	
AGS Inc.	5 Freelon Street San Francisco, CA 94107	(415) 777-2166 (415) 777-2167	X						X	X
Alan Kropp & Associates, Inc. (Geotechnical Consultants)	2140 Shattuck Avenue, Suite 910 Berkeley, CA 94704	(510) 841-5095 (510) 841-8357							X	X
Alta Vista Solutions	6475 Christie Avenue, Suite 425 Emeryville, CA 94608	(510) 594-0510 (510) 5940511	X	X	X	X	X	X		
Applied Materials & Engineering, Inc.	980 41 st Street Oakland, CA 94608	(510) 420-8190 (510) 420-8186	X	X	X	X	X	X		
Aries Engineering	5357 Persimmon Grove Ct. San Jose, CA 95123	(408) 634-0087 N/A	X						X	X
B.S.K. Associates	399 Lindbergh Avenue Livermore, CA 94551	(925) 315-3151 (925) 315-3152	X	X	X	X	X	X	X	X
BAEZ Geotechnical Group (BGG)	2060 Colorado Ave., Suite B Turlock, CA 95382	(209) 632-3779 (209) 632-3771	X	X	X	X	X	X	X	X
BAEZ Geotechnical Group (BGG)	1686 Second Street, Suite 205 Livermore, CA 94550	(925) 766-1616	X	X	X	X	X	X	X	X
BAGG	138 Charcot Avenue San Jose, CA 95131	(650) 852-9133 (650) 852-9138	X	X	X	X	X	X	X	X
Berlogar Stevens & Associates (BSA)	5587 Sunol Boulevard Pleasanton, CA 94566	(925) 484-0220 (925) 846-9645	X	X						
Biggs Cardosa Associates, Inc.*	1871 The Alameda, Suite 200 San Jose, CA 95126	(408) 296-5515 (408) 296-8114	X	X	X	X		X		
Cal Engineering & Geology, Inc (CE&G)	1870 Olympic Blvd., Suite 100 Walnut Creek, CA 94596	(925) 935-9771 (925) 935-9773	X						X	
Capex Engineering Inc.	74 Shanico Common Fremont, CA 94539	(510) 668-1815 (510) 490-8690	X	X	X	X	X	X		
Consolidated Engineering Labs	2001 Crow Canyon Rd., Ste 100 San Ramon, CA 94583-5387	(925) 314-7100 (925) 855-7140	X	X	X	X	X	X	X	X
Construction Materials Testing, Inc.	2278-F Pike Court Concord, CA 94520-1252	(925)825-2840 (925)682-7953	X	X	X	X	X	X		
Construction Testing Services	2142 Rheem Drive, Suite E Pleasanton, CA 94588	(925) 462-5151 (925) 462-5183	X	X	X	X	X	X		
CTE CAL, Inc.	46716 Fremont Blvd. Fremont, CA 94538	(510) 573-6362 (510) 573-6684	X	X	X	X	X	X	X	X
Dynamic Consultants, Inc	1300 Space Park Way Mountain View, CA 94043	(650) 967-6982 (650) 967-6955	X	X	X	X	X	X		

Agencies have not been evaluated for geotechnical special inspection or nondestructive testing. Agencies may not be qualified to perform all aspects of special inspection. Agencies may have offices in more than one location. Chief Building Officials may add and/or remove from this list.
 * Agency Subcontracts Laboratory Services.
 ** Inclusion as a recognized special inspection and testing agency is conditional upon receipt of agreement letter with approved concrete testing laboratory.
 *** Pacific InterWest Building Consultant approved for Shear/Diaphragm Nailing Only.

Agency Name	HQ Address	Phone/Fax	RC	PC	SM	SS	FP	URM	PDC	GEF
Earth Systems Consultants	47853 Warm Springs Blvd. Fremont, CA 94539-7400	(510) 353-0320 (510) 353-0344	X	X	X	X	X	X		
ENNGEO Incorporated	Crow Canyon Rd., Suite 200 San Ramon, CA 94583-1545	(925) 838-1600 (925) 838-7425	X	X	X	X	X	X		
ESI (Earthquake & Structures, Inc.)	6355 Telegraph Ave., Ste. 101 Oakland, CA 94609	(510) 601-1065 (510) 601-1808	X	X	X	X			X	
Forsythe Engineering Consultants*	1760 Industrial Way Suite 1 Napa, CA 94558	(707) 259-1292 (707) 259-1393				X	X	X		
HP Inspections	690 Sunol Street, Bldg. H San Jose, CA 95123	(408) 288-8460 (408) 271-0902	X	X	X	X	X	X		
Hultgren – Tillis Engineers	2221 Commerce Avenue, Suite A-1 Concord, CA 94520	(925) 685-6300 (925) 685-6768							X	X
Inspection Consultants	1515 North C Street Sacramento, CA 95814	(916) 321-5580 (916) 321-5590	X	X	X	X	X	X		
Inspection Consultants	315 14 th Street, Suite 2 Oakland, CA 94612	(510) 635-9211	X	X	X	X	X	X		
Inspection Services Inc.	1798 University Ave Berkeley CA 94703	(415) 243-3265 (415) 243-3266	X	X	X	X	X	X		
KC Engineering Co.	865 Cotting Lane, Suite A Vacaville, CA 95688	(707) 447-4025 (707) 447-4143	X	X	X	X	X	X	X	X
Kleinfelder Inc.	7133 Koll Center Parkway #100 Pleasanton, CA 94566	(925) 484-1700 (925) 484-2977	X	X	X	X	X	X		
Korbmacher Engineering Inc.	480 Preston Court, Suite B Livermore, CA 94551	(925) 454-9033 (925) 454-9564	X	X	X	X				
Krazan and Associates Inc.	545 Parrott Street San Jose, Ca 95112	(408) 271-2200 (408) 271-2201	X	X	X	X	X	X		
MatriScope, Inc	3102 Industrial Boulevard West Sacramento, CA 95691	(510) 763-3601 (510) 763-1388	X	X	X	X	X	X		
Mid Pacific Engineering, Inc. (MPE)	840 Embarcadero Dr. Ste. 20 West Sacramento, CA 95605	(916) 927-7000 (916) 372-9900	X	X	X	X	X		X	X
Mid Pacific Engineering, Inc. (MPE)	2915 Innsbruck Dr. Ste. A Redding, CA 96003	(530) 246-9499 (530) 246-9527	X	X	X	X	X		X	X
Neil O. Anderson and Associates	902 Industrial Way Lodi, CA 95240	(209) 367-3701 (209) 333-8303	X	X	X	X	X			
Nichols Consulting Engineers	501 Canal Blvd, Suite C Point Richmond, CA 94804	(510) 215-3620 (510) 215-2898							X	
Nichols Engineering Consultants*	6743 Dublin Boulevard, #15 Dublin, CA 94568	(925) 829-8090 (925) 829-0235	X	X	X	X	X	X		
Ninyo & Moore	2020 Challenger Drive, Suite 103 Alameda, CA 94501	(510) 343.3000 (510) 343-3001	X	X	X	X	X			
Ninyo & Moore	2149 O'Toole Ave. Suite 30 San Jose, CA 95131	(408) 435-9000 (408) 435-9006	X	X	X	X	X	X	X	X
Northbay Inspection and Technical Service (NIS)	2089 West F Street Napa, CA 94558	(707) 738-9369	X	X	X	X	X			
Pacific InterWest Building Consultants***	1600 S. Main Street, Suite 380 Walnut Creek, CA 94596	(925) 939-5500 (925) 939-9561								
Paragon Geotechnical, Inc.	1049 Kimi Way Placerville, CA 95667	(530) 642-2281	X						X	X
PJC & Associates**	600 Martin Ave, Suite 210 Rohnert Park, CA 94928	(707) 584-4804 (707) 584-4811	X	X	X	X			X	X
PSI	365 Victor Street, Suite C Salinas, CA 93907	(831) 757-3536 (831) 757-6265	X	X	X	X	X	X		
Quantum Geotechnical, Inc	6288 San Ignacio Avenue Ste D San Jose, CA 95119	(408) 629-3822 (408) 629-3825	X	X		X	X	X	X	X
Quantum Geotechnical, Inc	1110 Burnett Avenue Concord, CA 94520	(925) 788-2751	X	X		X	X	X	X	X
RES Engineers, Inc.	1250 Missouri Street Ste. 207 San Francisco CA 94107	(415) 822-4625 (415) 822-8925	X	X	X	X	X	X		
RMA Group	5075 Commercial Circle, Unit C Concord, CA 94520	(325) 243-6662 (925) 798-1206	X	X	X	X	X			
Salem Engineering Group, Inc	4055 West Shaw Ave., Suite 110 Fresno, CA 93722	(559) 271-9700 (559) 275-0827	X		X	X	X		X	X
Signet Testing Laboratories	3121 Diablo Avenue Hayward, CA 94545	(510) 887-8484 (510) 783-4295	X	X	X	X	X	X	X	X
Smith-Emery Company	PO Box 880550,	(415) 330-3000	X	X	X	X	X	X		

Agencies have not been evaluated for geotechnical special inspection or nondestructive testing. Agencies may not be qualified to perform all aspects of special inspection. Agencies may have offices in more than one location. Chief Building Officials may add and/or remove from this list.

* Agency Subcontracts Laboratory Services.

** Inclusion as a recognized special inspection and testing agency is conditional upon receipt of agreement letter with approved concrete testing laboratory.

*** Pacific InterWest Building Consultant approved for Shear/Diaphragm Nailing Only.

Agency Name	HQ Address	Phone/Fax	RC	PC	SM	SS	FP	URM	PDC	GEF
	Hunters Point Shipyard, Bldg. 114 San Francisco, CA 94188	(415) 330-3030								
Stevens, Ferrone & Bailey Engineering Company, Inc.	1600 Willow Pass Court Concord, CA 94520	(925) 688-1001 (925) 688-1005	X	X	X	X	X			
T. Makdissy Consulting, Inc.	6280 San Ignacio Ave., Ste M San Jose, CA 95119	(408) 227-8595 (408) 227-1672	X	X	X		X			
TEAM Industrial Services, Inc.	4716 East Second Street Benicia, CA 94510	(707) 748-5800 (707) 748-5804	X	X	X	X	X	X	X	X
Terracon Consultants, Inc.	18001 W. 106 th St., Ste 300 Olathe, KS 66061	(925) 609-7224 (925) 609-6324	X	X	X	X	X	X	X	X
Terrasearch Inc.	6840 Via Del Oro, #110 San Jose, CA 95119	(408) 362-4920 (408) 362-4926	X	X	X	X	X	X		
Testing Engineers Inc.	2811 Teagarden Street San Leandro, CA 94577	(510) 835-3142 (510) 834-3777	X	X	X	X	X	X		
Twining Laboratories, Inc.	2527 Fresno Street Fresno, CA 93721	(559) 268-7021 (559) 268-7126	X	X	X	X	X	X		
Valley Inspection Incorporated	326 Woodrow Avenue Vallejo, CA 94591-7302	(707) 552-7037 (707) 552-7022				X				
Wallace Kuhl & Associates, Inc.	3251 Beacon Blvd., Suite 300 3 rd Floor West Sacramento, CA 95691	(916)-372-1434 (916)-372-2565	X	X	X	X	X	X	X	X
Youngdahl Consulting Group, Inc.	1234 Glenhaven Ct. El Dorado Hills, CA 95762	(916) 933-0633 (916) 933-6482	X	X	X	X	X	X	X	X

Key RC=Reinforced Concrete
SS=Structural Steel Welding/Bolting
PDC = Piling, Drilled Piers & Caissons

PC=Prestressed/Post-tensioned Concrete
FP=Spray-Applied Fireproofing
GEF = Grading, Excavation, & Filling

SM=Structural Masonry
URM= Unreinforced Masonry Push/Torque Tests Only

Agencies have not been evaluated for geotechnical special inspection or nondestructive testing. Agencies may not be qualified to perform all aspects of special inspection. Agencies may have offices in more than one location. Chief Building Officials may add and/or remove from this list.

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02/19/2020

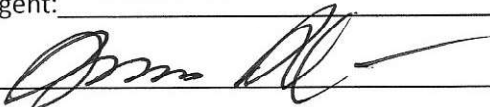
Special Inspection & Testing Agreement

ACKNOWLEDGEMENTS

Application Number: BIPRJ20-00013
Project Location: BETHEL ISLAND - DELTA COVES
Contact (include name, telephone and fax): _____

Return to : *Department of Conservation & Development
Building Inspection Division
30 Muir Road
Martinez CA 94553
Attn: Abed Chowdhury, SE*


Owner/Owner's Agent: Owen Poole

Signature:  Date: 07-27-20

Contractor: Delta Coves Decks and Docks

Signature:  Date: 07-27-20

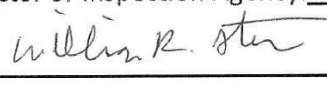
Project Engineer or Architect: GABE DAL PORTO

Signature:  Date: 07-27-20

(FOR DRIVEN PILES) Special Inspector or Inspection Agency: DP ADVANCED ENGINEERING

Signature:  Date: 07-27-20

(FOR FOOTINGS) Special Inspector or Inspection Agency: BAEZ GEOTECHNICAL GROUP

Signature:  Date: 07-27-20

ACCEPTED FOR THE CONTRA COSTA COUNTY BUILDING INSPECTION DEPARTMENT:

Signature: _____ Date: _____
Engineer

Structural Calculations

PROJECT: Delta Coves - Typical Decks
ADDRESS: Bethel Island, CA

JOB No.: X204419
DELTA: D2 - Revised Calculations Only
DATE: 4/1/2021

CLIENT: Davidson Communities

**CONTRA COSTA COUNTY
BUILDING INSPECTION DIVISION**
PERMIT NUMBER

BIPRJ20-00013-Revision 1

THESE PLANS MUST BE KEPT ON THE PREMISES AND ACCESSIBLE TO
INSPECTORS AT ALL TIMES.

9:51 am, Apr 15, 2021

REVIEWED

FOR COMPLIANCE WITH COUNTY BUILDING ORD. & CODES. THE STAMPING
OF THIS DOCUMENT SHALL NOT BE HELD TO PERMIT OR TO BE AN
APPROVAL OF THE VIOLATIONS OF ANY COUNTY ORDINANCE OR STATE
LAW. NO CHANGES SHALL BE MADE WITHOUT AUTHORIZATION FROM THE
BUILDING OFFICIAL.

By: Kristen Palenchar



Wood Beam

File: X204419 Delta Covets_enercalc.ec6
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 DP ADVANCED ENGINEERING INC.

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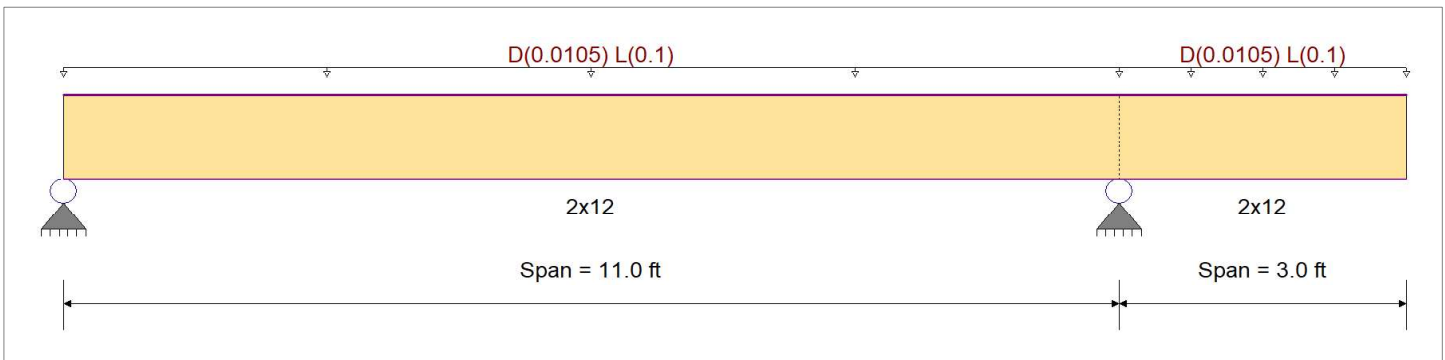
DESCRIPTION: Typical Deck Joist (with spa)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	875.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	875.0 psi	Ebend- xx
	Fc - Prll	600.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.2	Fv	170.0 psi	Density
	Ft	425.0 psi	Repetitive Member Stress Increase
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.01050, L = 0.10 ksf, Tributary Width = 1.0 ft, (Deck)

Load for Span Number 2

Uniform Load : D = 0.01050, L = 0.10 ksf, Tributary Width = 1.0 ft, (Deck)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.697 : 1	Maximum Shear Stress Ratio	=	0.372 : 1
Section used for this span		2x12	Section used for this span		2x12
fb: Actual	=	561.05 psi	fv: Actual	=	50.61 psi
Fb: Allowable	=	805.00 psi	Fv: Allowable	=	136.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	5.101 ft	Location of maximum on span	=	10.078 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.124 in	Ratio =		1061 >=180
Max Upward Transient Deflection		-0.084 in	Ratio =		856 >=180
Max Downward Total Deflection		0.142 in	Ratio =		929 >=120
Max Upward Total Deflection		-0.096 in	Ratio =		750 >=120

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.1420	5.346		0.0000	0.000
	2	0.0000	5.346	+D+L+H	-0.0958	3.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.581	1.017	
Overall MINimum	0.509	0.891	
+D+H	0.072	0.126	
+D+L+H	0.581	1.017	
+D+Lr+H	0.072	0.126	
+D+S+H	0.072	0.126	

Wood Beam

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DP ADVANCED ENGINEERING INC.

Lic. #: KW-06006640

DESCRIPTION: Typical Deck Joist (with spa)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+0.750Lr+0.750L+H	0.454	0.794	
+D+0.750L+0.750S+H	0.454	0.794	
+D+0.60W+H	0.072	0.126	
+D+0.750Lr+0.450W+H	0.072	0.126	
+D+0.750S+0.450W+H	0.072	0.126	
+0.60D+0.60W+0.60H	0.043	0.076	
+D+0.70E+0.60H	0.072	0.126	
+D+0.750L+0.750S+0.5250E+H	0.454	0.794	
+0.60D+0.70E+H	0.043	0.076	
D Only	0.072	0.126	
L Only	0.509	0.891	
H Only			

Wood Beam

Lic. #: KW-06006640

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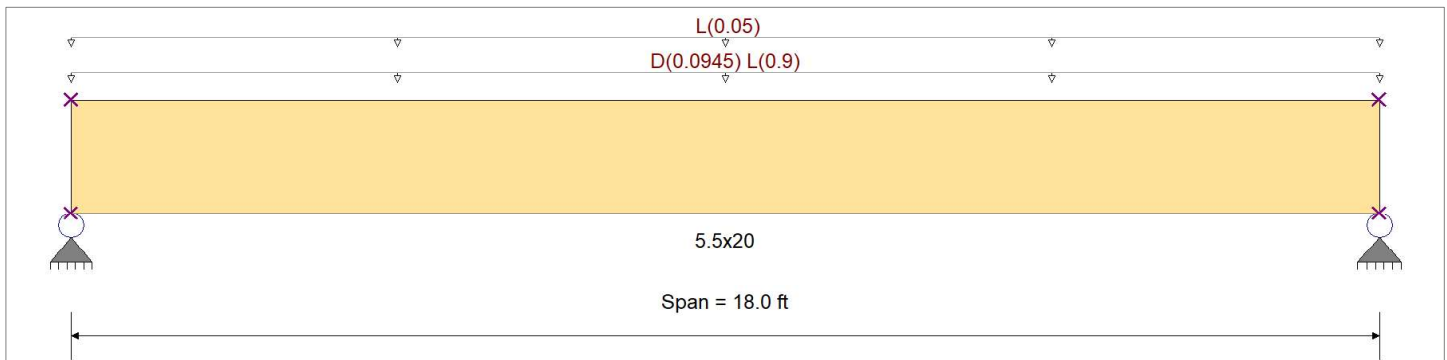
DESCRIPTION: Typical Deck Girder (with spa)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,000.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	1,400.0 psi	Ebend- xx
Wood Species : AC/AC	Fc - Prll	1,500.0 psi	Eminbend - xx
Wood Grade : 20F-V12	Fc - Perp	560.0 psi	Ebend- yy
Beam Bracing : Completely Unbraced	Fv	265.0 psi	Eminbend - yy
	Ft	925.0 psi	Density
			28.720 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.01050, L = 0.10 ksf, Tributary Width = 9.0 ft, (Deck)

Uniform Load : L = 0.050 ksf, Tributary Width = 1.0 ft, (Guardrail)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.932	1	Maximum Shear Stress Ratio	=	0.461	: 1
Section used for this span		5.5x20		Section used for this span		5.5x20	
fb: Actual	=	1,413.52 psi		fv: Actual	=	107.00 psi	
Fb: Allowable	=	1,516.75 psi		Fv: Allowable	=	231.88 psi	
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	9.000 ft		Location of maximum on span	=	16.358 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.493 in	Ratio =	438	>=	180	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	180	
Max Downward Total Deflection		0.553 in	Ratio =	390	>=	120	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	120	

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.5530	9.066		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	9.598	9.598
Overall MINimum	8.550	8.550
+D+H	1.048	1.048
+D+L+H	9.598	9.598
+D+Lr+H	1.048	1.048
+D+S+H	1.048	1.048
+D+0.750Lr+0.750L+H	7.460	7.460
+D+0.750L+0.750S+H	7.460	7.460
+D+0.60W+H	1.048	1.048

Wood Beam

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DP ADVANCED ENGINEERING INC.

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DESCRIPTION: Typical Deck Girder (with spa)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
+D+0.750Lr+0.450W+H	1.048	1.048
+D+0.750S+0.450W+H	1.048	1.048
+0.60D+0.60W+0.60H	0.629	0.629
+D+0.70E+0.60H	1.048	1.048
+D+0.750L+0.750S+0.5250E+H	7.460	7.460
+0.60D+0.70E+H	0.629	0.629
D Only	1.048	1.048
L Only	8.550	8.550
H Only		

Wood Beam

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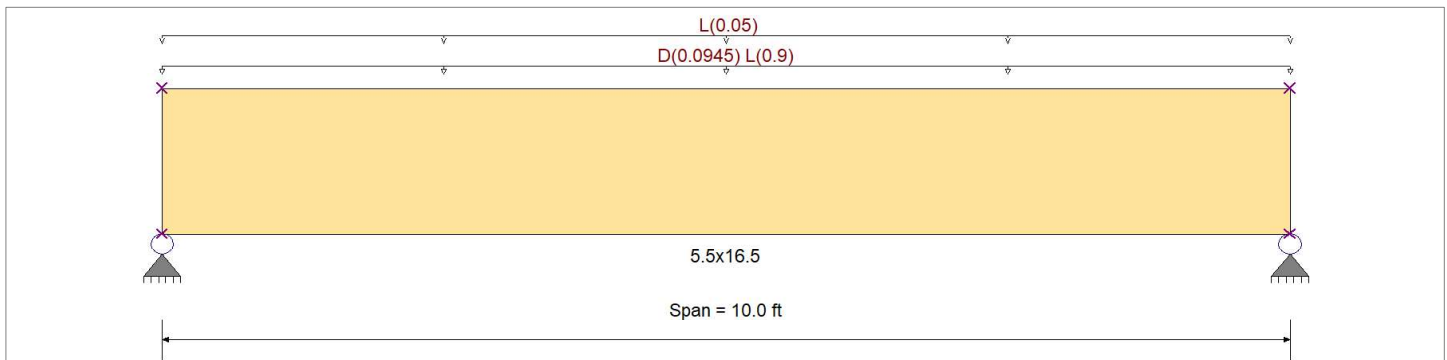
DESCRIPTION: Typical Deck Girder (option 4 with spa)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,000.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	1,400.0 psi	Ebend- xx
Wood Species : AC/AC	Fc - Prll	1,500.0 psi	Eminbend - xx
Wood Grade : 20F-V12	Fc - Perp	560.0 psi	Ebend- yy
Beam Bracing : Completely Unbraced	Fv	265.0 psi	Eminbend - yy
	Ft	925.0 psi	Density
			28.720pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.01050, L = 0.10 ksf, Tributary Width = 9.0 ft, (Deck)

Uniform Load : L = 0.050 ksf, Tributary Width = 1.0 ft, (Guardrail)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.406	1	Maximum Shear Stress Ratio	=	0.276	: 1
Section used for this span		5.5x16.5		Section used for this span		5.5x16.5	
fb: Actual	=	638.68psi		fv: Actual	=	64.10 psi	
Fb: Allowable	=	1,571.52psi		Fv: Allowable	=	231.88 psi	
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	5.000ft		Location of maximum on span	=	0.000ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.084 in	Ratio =	1435	>=	180	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	180	
Max Downward Total Deflection		0.093 in	Ratio =	1283	>=	120	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	120	

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.0935	5.036		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.313	5.313
Overall MINimum	4.750	4.750
+D+H	0.563	0.563
+D+L+H	5.313	5.313
+D+Lr+H	0.563	0.563
+D+S+H	0.563	0.563
+D+0.750Lr+0.750L+H	4.125	4.125
+D+0.750L+0.750S+H	4.125	4.125
+D+0.60W+H	0.563	0.563

Wood Beam

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Lic. # : KW-06006640

DESCRIPTION: Typical Deck Girder (option 4 with spa)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
+D+0.750Lr+0.450W+H	0.563	0.563
+D+0.750S+0.450W+H	0.563	0.563
+0.60D+0.60W+0.60H	0.338	0.338
+D+0.70E+0.60H	0.563	0.563
+D+0.750L+0.750S+0.5250E+H	4.125	4.125
+0.60D+0.70E+H	0.338	0.338
D Only	0.563	0.563
L Only	4.750	4.750
H Only		

Wood Beam

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 DP ADVANCED ENGINEERING INC.

Lic. #: KW-06006640

DESCRIPTION: Typical Deck Girder (Option 2 with spa)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

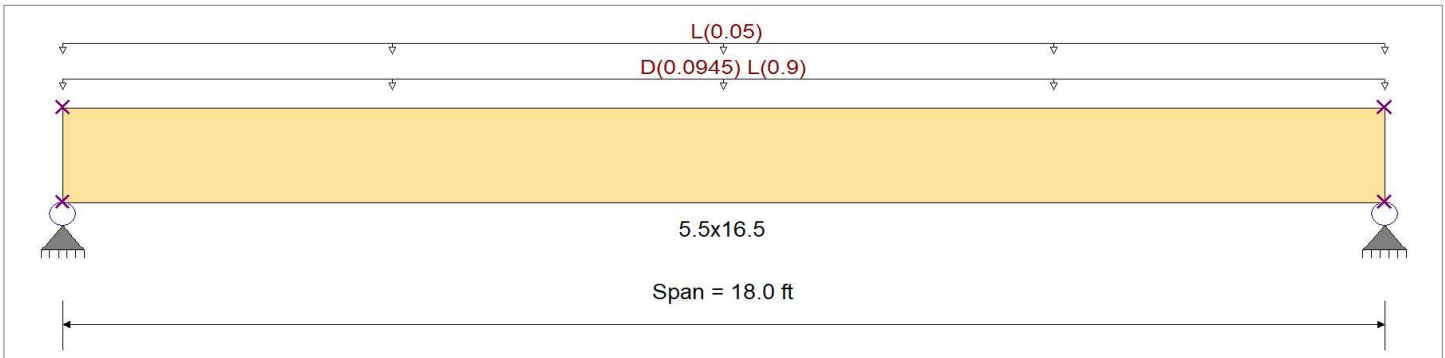
Material Properties

Analysis Method : Allowable Stress Design
 Load Combination : ASCE 7-16

Wood Species : DF/DF
 Wood Grade : 24F-V8

Beam Bracing : Completely Unbraced

Fb +	2,400.0 psi	E : Modulus of Elasticity	
Fb -	2,400.0 psi	Ebend- xx	1,800.0 ksi
Fc - Prll	1,650.0 psi	Eminbend - xx	950.0 ksi
Fc - Perp	650.0 psi	Ebend- yy	1,600.0 ksi
Fv	265.0 psi	Eminbend - yy	850.0 ksi
Ft	1,100.0 psi	Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.01050, L = 0.10 ksf, Tributary Width = 9.0 ft, (Deck)

Uniform Load : L = 0.050 ksf, Tributary Width = 1.0 ft, (Guardrail)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.898	1	Maximum Shear Stress Ratio	=	0.510	: 1
Section used for this span		5.5x16.5		Section used for this span		5.5x16.5	
fb: Actual	=	2,072.37	psi	fv: Actual	=	135.20	psi
Fb: Allowable	=	2,308.04	psi	Fv: Allowable	=	265.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	9.000	ft	Location of maximum on span	=	16.686	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.641	in	Ratio =		336	>=180
Max Upward Transient Deflection		0.000	in	Ratio =		0	<180
Max Downward Total Deflection		0.718	in	Ratio =		300	>=120
Max Upward Total Deflection		0.000	in	Ratio =		0	<120

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.7181	9.066		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	9.578	9.578
Overall MINimum	8.550	8.550
+D+H	1.028	1.028
+D+L+H	9.578	9.578
+D+Lr+H	1.028	1.028
+D+S+H	1.028	1.028
+D+0.750Lr+0.750L+H	7.440	7.440
+D+0.750L+0.750S+H	7.440	7.440
+D+0.60W+H	1.028	1.028

Wood Beam

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DESCRIPTION: Typical Deck Girder (Option 2 with spa)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
+D+0.750Lr+0.450W+H	1.028	1.028
+D+0.750S+0.450W+H	1.028	1.028
+0.60D+0.60W+0.60H	0.617	0.617
+D+0.70E+0.60H	1.028	1.028
+D+0.750L+0.750S+0.5250E+H	7.440	7.440
+0.60D+0.70E+H	0.617	0.617
D Only	1.028	1.028
L Only	8.550	8.550
H Only		

Wood Beam

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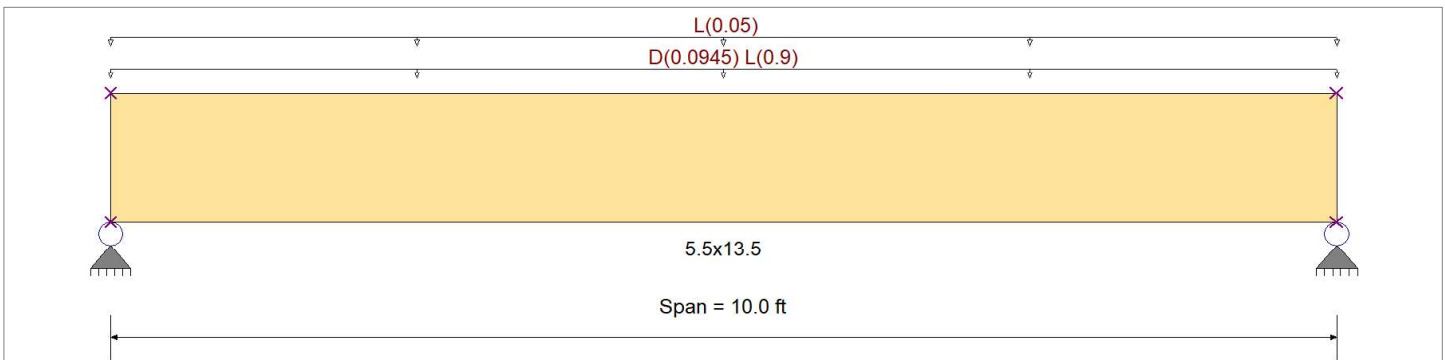
DESCRIPTION: Typical Deck Girder (Option 3 with spa)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,400.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	2,400.0 psi	Ebend- xx
Wood Species : DF/DF	Fc - Prll	1,650.0 psi	Eminbend - xx
Wood Grade : 24F-V8	Fc - Perp	650.0 psi	Ebend- yy
Beam Bracing : Completely Unbraced	Fv	265.0 psi	Eminbend - yy
	Ft	1,100.0 psi	Density
			31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.01050, L = 0.10 ksf, Tributary Width = 9.0 ft, (Deck)

Uniform Load : L = 0.050 ksf, Tributary Width = 1.0 ft, (Guardrail)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.402	1	Maximum Shear Stress Ratio	=	0.316	: 1
Section used for this span		5.5x13.5		Section used for this span		5.5x13.5	
fb: Actual	=	952.27	psi	fv: Actual	=	83.67	psi
Fb: Allowable	=	2,366.86	psi	Fv: Allowable	=	265.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	5.000	ft	Location of maximum on span	=	0.000	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.111	in	Ratio =		1076	>=180
Max Upward Transient Deflection		0.000	in	Ratio =		0	<180
Max Downward Total Deflection		0.124	in	Ratio =		964	>=120
Max Upward Total Deflection		0.000	in	Ratio =		0	<120

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.1245	5.036		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.303	5.303
Overall MINimum	4.750	4.750
+D+H	0.553	0.553
+D+L+H	5.303	5.303
+D+Lr+H	0.553	0.553
+D+S+H	0.553	0.553
+D+0.750Lr+0.750L+H	4.115	4.115
+D+0.750L+0.750S+H	4.115	4.115
+D+0.60W+H	0.553	0.553

Wood Beam

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DESCRIPTION: Typical Deck Girder (Option 3 with spa)

Vertical Reactions

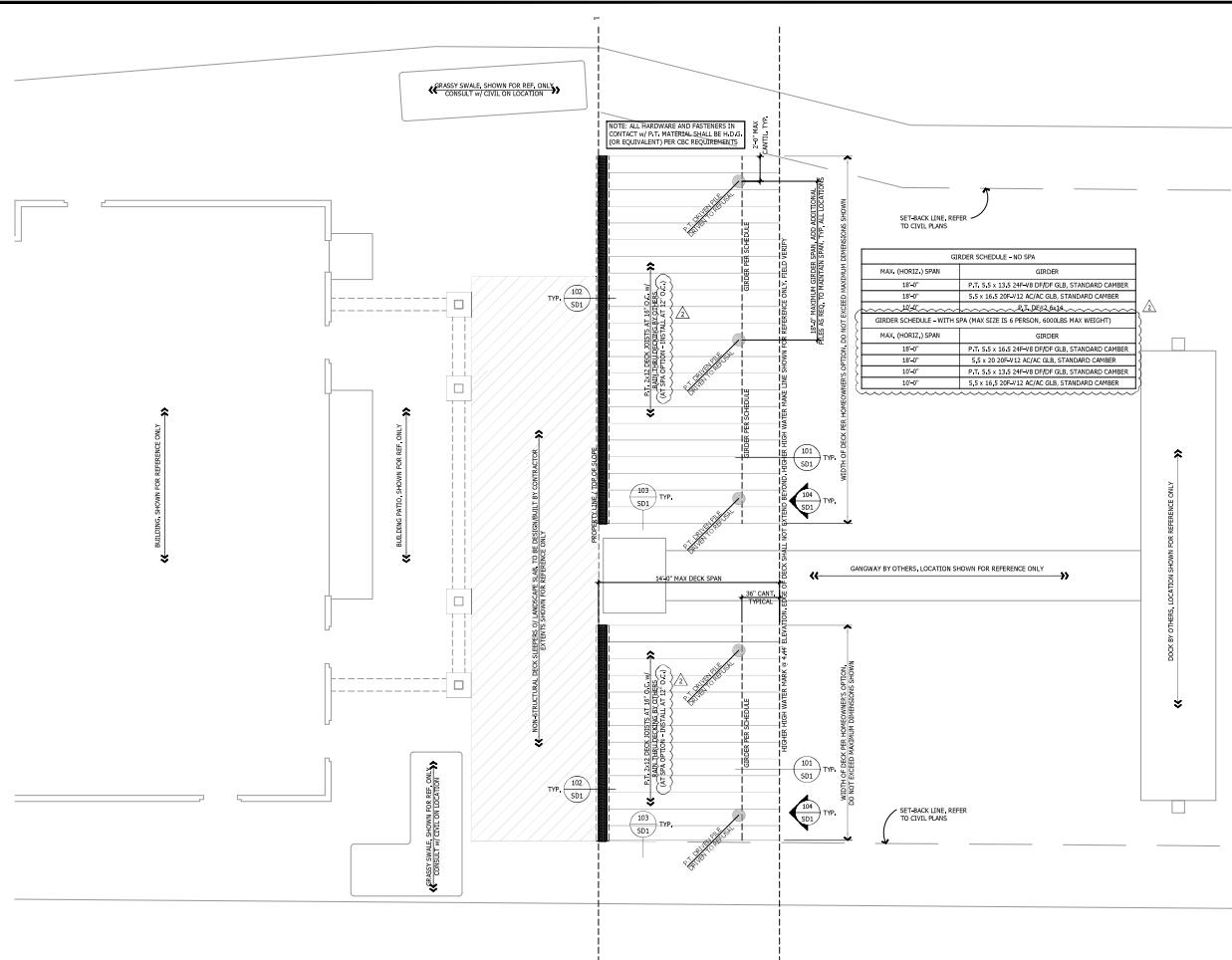
Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
+D+0.750Lr+0.450W+H	0.553	0.553
+D+0.750S+0.450W+H	0.553	0.553
+0.60D+0.60W+0.60H	0.332	0.332
+D+0.70E+0.60H	0.553	0.553
+D+0.750L+0.750S+0.5250E+H	4.115	4.115
+0.60D+0.70E+H	0.332	0.332
D Only	0.553	0.553
L Only	4.750	4.750
H Only		

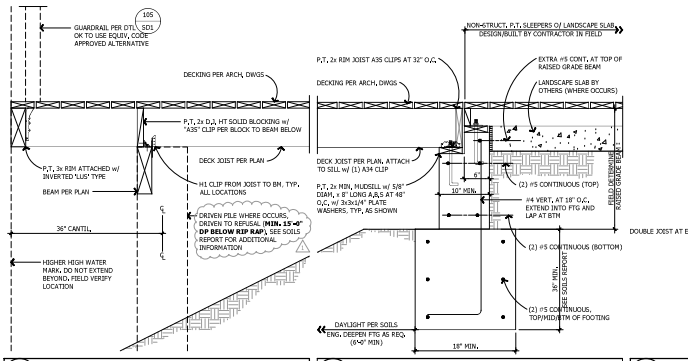


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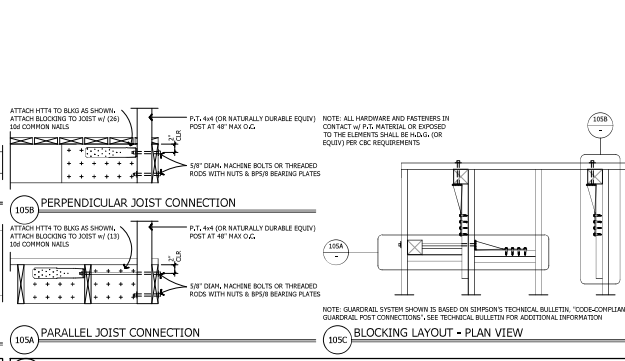
DELTA COVES - TYPICAL DECKS
 BETHLE ISLAND, CALIFORNIA

A COMMON DECK FRAMING PLAN - LOT SHOWN FOR REFERENCE ONLY, DECK LOCATION AND SIZE MAY DIFFER



- 101 PERPEND, DECK JOIST TO LOW BEAM
- 102 SPLIT STEM GRADE BEAM AT HIGH GRADE
- 103 PERPEND, DECK JOIST

C BIMD LOT MAP - SHOWN FOR REFERENCE ONLY



- 104A PLAN VIEW
- 104B ELEVATION
- 105 HTT4 GUARDRAIL CONNECTION - 42" MAX HEIGHT / 2x10 MIN. JOIST MEMBERS
- 105A PARALLEL JOIST CONNECTION
- 105B PERPENDICULAR JOIST CONNECTION
- 105C BLOCKING LAYOUT - PLAN VIEW

PLAN CHECK RESPONSES	07-20-20
CLIENT REVISIONS	04-01-21



PLEASE NOTE THE REVISION NUMBER AND DATE ARE FOR STRUCTURAL SHEETS ONLY.
 Engineering Seal
 Sheet Description
TYPICAL DETAILS FOR PENINSULA NON-LEVEL LOTS
 Date Issued: 05/26/20
 Drawn By: N. Reese
 Project Designer: N. Enriquez
 Project Manager: N. Enriquez Ext. 22
 Job No. X20419
 Sheet No.

SD1

