C.A. PRETZER ASSOCIATES, INC. 50 Freeway Drive, Cranston, RI 02920
STRUCTURAL ENGINEERS
DESIGN, CONSULTATION, INVESTIGATION
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C. ANDREW PRETZER, PH.D., P.E.
MICHAEL J. GRAFE, P.E.
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PETER W. GRAFE, P.E.
DAVID B. O'NEILL, P.E.

August 10, 2011

Ms. Lisa W. Bryer, AICP, Town Planner
Town of Jamestown
P.O. Box 377
Jamestown, RI 02835

Re: Jamestown Golf Course Building
245 Conanicus Avenue, Jamestown, RI
CAPA File No. 211686.20
Structural Assessment

Dear Ms. Bryer:

The purpose of this report is to provide an assessment of the current structural condition of the Jamestown Golf Course building to the Town Council and Facilities Planning Committee. Our assessment will report on the following:

1. The structural condition of the foundation and basement level of the structure.
2. The condition of the structural framing of the main floor (first floor).
3. The structural condition of the roof.
4. Structural requirements for future use options.

INTRODUCTION

Our assessment was made by observing the condition of the structural components where accessible and visible at the time of the site visits on May 26 and July 27, 2011. Enclosed in Attachment 1 are photos taken during the site visit. Attachment 2 contains first floor and roof framing plans. The building is labeled A, B, C, D, and E, representing different additions to the structure.

For reference purposes, we will refer to the elevation of the building along Conanicus Avenue as the east side of the building. Please refer to the framing plans in Attachment B, identifying the five building structures that will be discussed during our assessment.

FOUNDATION AND BASEMENT STRUCTURAL ASSESSMENT

The original foundation is comprised of a stone rubble wall in Buildings A, C, and D, refer to first floor framing plan in Attachment 2. There is a 4-inch concrete cap on the stone rubble wall, forming a level surface to support the 8-inch block foundation to the underside of the wood framing, refer to photos 6 to 9. The original grade had been removed at the south and east foundation walls in order to increase the headroom for maintenance and storage. In doing so, the stone rubble foundation wall was exposed and no longer laterally braced by the excavated soil, refer to photos 6 and 7. This condition is unsafe and may result in movement of the stone rubble foundation wall. The lateral forces from ground water and saturated soils outside the building will apply pressure on the stone rubble foundation wall and may cause failure.

The first floor framing in the original building (A and C) is supported on the foundation wall and interior 8-inch concrete block piers, refer to photos 9, 10, and 11. The 8-inch concrete block piers are founded on small square concrete footings, refer to photos 10 and 11. The concrete footings and piers are located in areas where the original soils had been excavated and removed in order to gain more headroom. Soil beneath the footings for the concrete block piers at the edge of the excavated area may be unstable, creating an unsafe condition. The concrete block piers should be replaced with new steel columns properly supported on new concrete spread footings located below the grade.

Recommendations

The existing exposed stone rubble foundation walls are presently unsafe. A reinforced concrete buttress foundation wall and footing should be installed to give lateral support and brace the stone wall.

The concrete block piers and supporting footings should be removed and new steel columns founded on properly sized spread footings should be installed below grade.

MAIN FLOOR (FIRST FLOOR) ASSESSMENT

The structural framing of the main floor (first floor) is different in each of the five building structures, refer to Attachment 2.

Building A First Floor Framing

Building A (the original building) first floor is framed with full size 2x8's (2 inches by 7 3/4 inches) at approximately 18 inches on center, refer to first floor framing drawings in Attachment 2. The 2x8 floor joists span approximately 14 feet in the east/west direction supported on a 6x6 wood beam. The beam is supported by 3 1/2-inch round (4-inch overall dimension) steel columns at approximately 8 to 10 feet on center. There is also a 6x6 wood beam supporting the 2x8 wood framing along the east elevation of Building A. The 6x6 wood beam is supported on concrete piers at approximately 10 feet on center, refer to photo 9.

Recommendations

The existing 2x8 first floor framing in Building A cannot support the required live loads assumed for public assembly. Based on our calculations, the 6x6 beam spanning 10 feet has the capacity to support approximately 40 pounds per square foot (psf) live load. The 2x8 full-size floor joists at 18 inches on center can also support about 40 psf.

To increase the live load capacity to public assembly on the first floor in Building A, we recommend that additional columns, beams, and footings be installed for the both the floor joists and supporting beams.

Buildings C and D

Based on our analysis, the first floor framing at building additions C and D are similar in capacity to the original Building A. The first floor capacity ranges between 20 and 40 psf live load in these areas.

Recommendations

We recommend in Building C that additional columns and beams be installed in order to support the first floor framing. In Building D, the existing floor joists should be sistered with deeper joists in order to support the required live load requirements for public assembly.

Building E

The first floor framing in Building E is comprised of two 12-inch steel beams spanning north to south at approximately third points across the building, refer to photo 14. There are 2x12-inch floor joists at 16 inches on center spanning in the east to west direction between the steel beams and the exterior walls. Our analysis shows that the live load capacity of the first floor framing in Building E, above the restaurant, is about 50 psf live load.

Recommendations

In order for the first floor framing in Building E to support the live load required for public assembly, new steel columns and footings would have to be installed at mid-span of the two existing steel beams. Secondly, in the middle bay, each 2x12 floor joists would need to be sistered with an additional 2x12 joist.

ROOF FRAMING ASSESSMENT

Building A Roof Framing

The roof framing in Building A consists of 2x6 rafters at approximately 24 inches on center. The roofing is supported on 1x boards, varying in width from 4 to 8 inches. The ceiling below the roof rafters is hung by 1x8 vertical boards at quarter-span attached to the 2x6 roof rafters. The 2x6 roof rafters at 24 inches on center are not capable of supporting the required 30 psf snow load for the Town of Jamestown.

Recommendations

The existing 2x6 rafters would have to be sistered with an additional framing in order to meet the snow load requirements.

Buildings B and C Roof Framing

The roof framing in Buildings B and C is comprised of full 2x6 rafters at approximately 24 inches on center, refer to photo 13. Similar to Building A, the 2x6 rafters in Buildings B and C are not in compliance with the live load requirements for the Town of Jamestown.

Recommendation

The existing 2x6 rafters in Buildings B and C would need to be sistered with additional framing at each existing 2x6 joist.

Building D Roof Framing

The roof framing in Building D is comprised of 2x8 rafters at 16 inches on center. The roof rafters have 1x4 boards installed vertically to support the 2x6 ceiling joists. The roofing is supported on 1x8 board sheathing spanning between the roof rafters.

The roof framing in Building D is adequate to support the required snow load for the Town of Jamestown.

Building E Roof Framing

The roof framing in Building E consists of typical 2x scissor trusses at 24 inches on center. We were unable to determine the load capacity of the scissor trusses in Building E.

General Recommendations

Install additional roof framing in Buildings A, B, and C to meet Town of Jamestown roof snow load requirements. Install collar ties and hurricane ties in Building A. Install hurricane ties in Buildings B, C, D, and E as required.

EXTERIOR ASSESSMENT

The exterior façade of the Jamestown Golf Course building is primarily finished with painted cedar shingles, refer to photos 1 to 5. The cedar shingles appeared to be in good condition, except in areas where the window casings have cracked and failed, and water has infiltrated, causing some slight rot to the cedar shingles.

The double-awning windows on the upper level of the north, east, and west elevations are single-pane awning windows. The windows are original single-pane glass windows that show signs of deterioration and some slight rot that allows water to infiltrate the exterior of the building. The fixed panel windows at the southwest corner of the building have areas of significant rot; specifically at the windowsill.

There are three replacement windows at the lower level west elevation at the bathroom and storage room areas. There are also four sets of replacement double-hung windows at the lower level restaurant.

Recommendations

Install new thermopane replacement windows in all locations where there are original single-pane windows. Repair and replace any rotted window framing or exterior shingle siding in these locations.

SUMMARY OF STRUCTURAL REQUIREMENTS FOR FUTURE USE OPTIONS

The following is a summary of our assessment to provide the Council with the following options for future use:

No Action – Continue the Uses Currently Established with only Routine Maintenance

In order to continue the use of this structure, we recommend that the unsafe conditions of this building be addressed. Secondly, the current established use of the building for public assembly and recreational programs would need to be discontinued or limited in scope so as not to exceed the live load capacity of the building.

Continue the Uses Currently Established

In order to continue the uses currently established for pubic assembly and recreational programs, all structural recommendations presented in the assessment would need to be completed.

Reinforced concrete buttress foundation walls and footings would need to be installed in order to support and brace the stone rubble foundations. The main floor is presently not capable of supporting the current established uses for public assembly and recreational programs. Additional support beams, columns, and spread footings would need to be installed throughout all areas of the building structure.

The roof framing in building areas A, B, and C are not capable of supporting the required roof snow loads for the Town of Jamestown.

New thermal replacement windows and support framing should be installed throughout most of the building, except at the restaurant.

The estimated cost for the structural improvements identified in our assessment report is approximately $300,000.00.

Major Renovations to Expand Vertically or Horizontally and Maximize the Useful Live and Function of the Building

Based on our assessment of the structural condition of the building, it is not practical or cost-effective to vertically expand the existing building.

Horizontal expansion can be considered only after all the structural repairs have been made, as outlined in our preliminary assessment report.

Please contact our office if you have any questions or if we can be of further assistance.

Sincerely,

C. A. PRETZER ASSOCIATES, INC.

Peter W. Grafe
Senior Project Manager

Reviewed by Thomas P. Grafe, P.E.
Vice President

Enc. (3): Attachment 1 – Photos taken May 26 and July 27, 2011, by PWG
Attachment 2 – Main floor and roof partial framing plans
Attachment 3 – Structural calculations

C.A. PRETZER ASSOCIATES, INC.

Town of Jamestown
Jamestown Golf Course Building
August 10, 2011

ATTACHMENT 1 – Photos taken May 26 and July 27, 2011, by PWG

Attachment 1

	Photo 1 Southwest corner of Jamestown Golf Course building.
	Photo 2 South elevation of Jamestown Golf Course building.

Attachment 1

	Photo 3 East elevation of Jamestown Golf Course building.
	Photo 4 Northwest corner of Jamestown Golf Course building.

Attachment 1

Photo 5

North elevation of Jamestown Golf Course building, at restaurant.

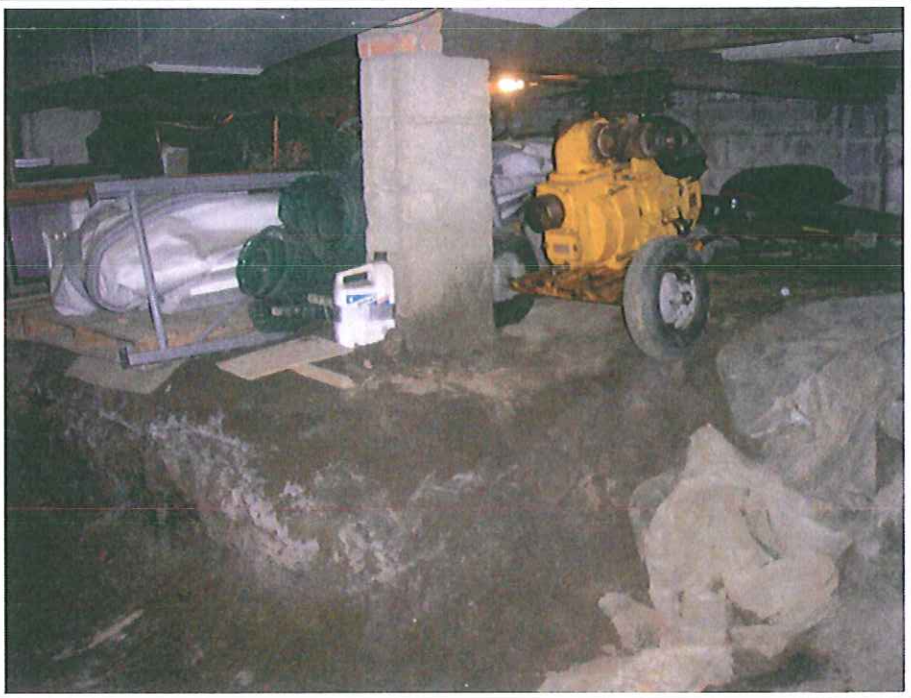
Photo 6

Stone rubble foundation supporting 8-inch concrete block, located at the south and east elevations of the building.

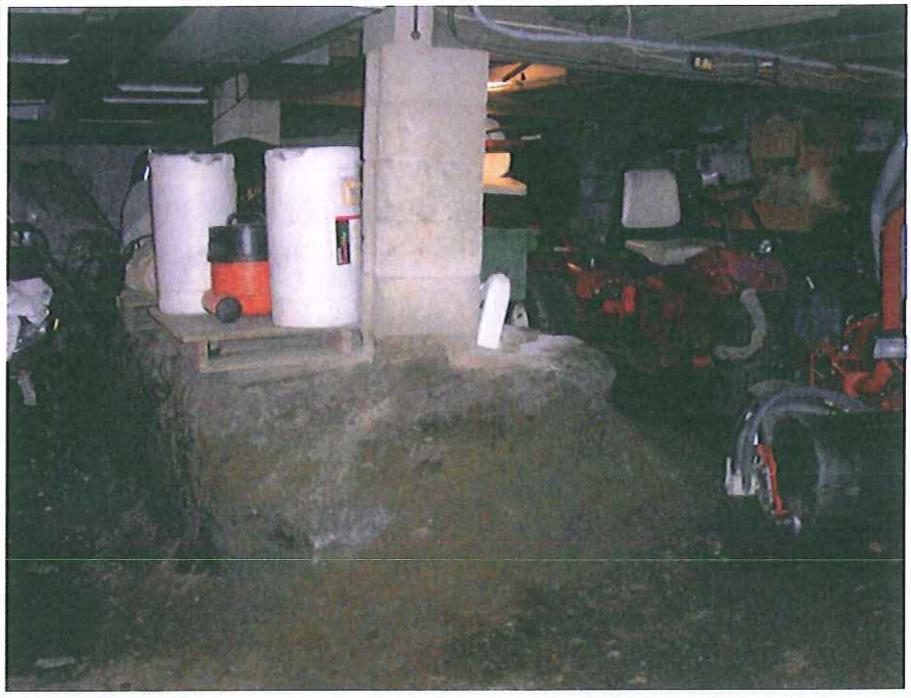
Attachment 1

	Photo 7 Stone rubble foundation supporting 8-inch concrete block, located at the south and east elevations of the building.
	Photo 8 Typical 8-inch CMU foundation supporting first floor (main floor) framing in Building C.

Attachment 1

	Photo 9 8-inch concrete block supporting a 6x6 timber beam along the east wall of Building A.
	Photo 10 Exposed concrete footings supporting 8-inch concrete block piers located at the east side of Building A, supporting the first floor (main floor) framing.

Attachment 1

	Photo 11 Exposed concrete footings supporting 8-inch concrete block piers located at the east side of Building A, supporting the first floor (main floor) framing.
	Photo 12 Full 2x6 rafters at 24 inches on center, typically found in the main building.

Attachment 1

Photo 13

2x6 rafters at 18 inches on center, typically found in Building C.

Photo 14

12-inch steel first floor beams supporting 2x12 framing in the east building.

C.A. PRETZER ASSOCIATES, INC.

Town of Jamestown
Jamestown Golf Course Building
August 10, 2011

ATTACHMENT 2 – Main floor and roof partial framing plans

C.A. PRETZER ASSOCIATES, INC.

Town of Jamestown
Jamestown Golf Course Building
August 10, 2011

ATTACHMENT 3 – Structural calculations

Jamestown Golf Course Building

Jamestown, RI

Structural Calculations

PREPARED FOR

Town of Jamestown

REVISIONS

C.A. PRETZER ASSOCIATES, INC.
STRUCTURAL ENGINEERS
50 Freeway Drive
Cranston, RI 02920
Tel. (401) 785-2690 Fax: (401) 461-9360
DESIGN, CONSULATION, INVESTIGATION

CAPA FILE NO.
Job Number
211686.2

DATE:
4-Aug-11

Project: Jamestown Golf Course Building
245 Conanicus Avenue
Jamestown, RI
CAPA File No. 211686.20

Design: Rhode Island State Building Code –IBC - 2009
Regulation SBC-1-2007/ ASCE 7-05
July 1, 2010

Roof Design: Live Load = 30 PSF (plus drift etc.)
Dead Load = 15 PSF

Floor Design:
Live Load = 100PSF Public Assembly
Dead Load = 15 PSF

Notes: 1. C. A. Pretzer Associates, Inc. scope of work is to perform an analysis of the structural framing for the Building.

ANSI/AF&PA NDS-2005

Approval Date: JANUARY 6, 2005

ASD/LRFD

WITH COMMENTARY AND

SUPPLEMENT: DESIGN VALUES FOR WOOD CONSTRUCTION

American
Forest &
Paper
Association

American Wood Council

Table 4D Reference Design Values for Visually Graded Timbers (5" x 5" and larger)[1,3]

(Tabulated design values are for normal load duration and dry service conditions, unless specified otherwise. See NDS 4.3 for a comprehensive description of design value adjustment factors.)

USE WITH TABLE 4D ADJUSTMENT FACTORS

Species and commercial grade	Size classification	Design values in pounds per square inch (psi)							Grading Rules Agency
		Bending F_b	Tension parallel to grain F_t	Shear parallel to grain F_v	Compression perpendicular to grain $F_{c\perp}$	Compression parallel to grain F_c	Modulus of Elasticity E	Modulus of Elasticity E_{min}	
ALASKA CEDAR									
Select Structural	Beams and Stringers	1,400	675	155	525	925	1,200,000	440,000	WCLIB
No.1		1,150	475	155	525	775	1,200,000	440,000	
No.2		750	300	155	525	500	1,000,000	370,000	
Select Structural	Posts and Timbers	1,300	700	155	525	975	1,200,000	440,000	
No.1		1,050	575	155	525	850	1,200,000	440,000	
No.2		625	350	155	525	600	1,000,000	370,000	
BALDCYPRESS									
Select Structural	5"x5" and Larger	1,150	750	200	615	1,050	1,300,000	470,000	SPIB
No.1		1,000	675	200	615	925	1,300,000	470,000	
No.2		625	425	175	615	600	1,000,000	370,000	
BALSAM FIR									
Select Structural	Beams and Stringers	1,350	900	125	305	950	1,400,000	510,000	NELMA
No.1		1,100	750	125	305	800	1,400,000	510,000	
No.2		725	350	125	305	500	1,100,000	400,000	
Select Structural	Posts and Timbers	1,250	825	125	305	1,000	1,400,000	510,000	NSLB
No.1		1,000	675	125	305	875	1,400,000	510,000	
No.2		575	375	125	305	400	1,100,000	400,000	
BEECH-BIRCH-HICKORY									
Select Structural	Beams and Stringers	1,650	975	180	715	975	1,500,000	550,000	NELMA
No.1		1,400	700	180	715	825	1,500,000	550,000	
No.2		900	450	180	715	525	1,200,000	440,000	
Select Structural	Posts and Timbers	1,550	1,050	180	715	1,050	1,500,000	550,000	
No.1		1,250	850	180	715	900	1,500,000	550,000	
No.2		725	475	180	715	425	1,200,000	440,000	
COAST SITKA SPRUCE									
Select Structural	Beams and Stringers	1,150	675	115	455	775	1,500,000	550,000	NLGA
No.1		950	475	115	455	650	1,500,000	550,000	
No.2		625	325	115	455	425	1,200,000	440,000	
Select Structural	Posts and Timbers	1,100	725	115	455	825	1,500,000	550,000	
No.1		875	575	115	455	725	1,500,000	550,000	
No .2		525	350	115	455	500	1,200,000	440,000	
DOUGLAS FIR-LARCH									
Dense Select Structural	Beams and Stringers	1,900	1,100	170	730	1,300	1,700,000	620,000	WCLIB
Select Structural		1,600	950	170	625	1,100	1,600,000	580,000	
Dense No.1		1,550	775	170	730	1,100	1,700,000	620,000	
No.1		1,350	675	170	625	925	1,600,000	580,000	
No.2		875	425	170	625	600	1,300,000	470,000	
Dense Select Structural	Posts and Timbers	1,750	1,150	170	730	1,350	1,700,000	620,000	
Select Structural		1,500	1,000	170	625	1,150	1,600,000	580,000	
Dense No.1		1,400	950	170	730	1,200	1,700,000	620,000	
No.1		1,200	825	170	625	1,000	1,600,000	580,000	
No.2		750	475	170	625	700	1,300,000	470,000	
Dense Select Structural	Beams and Stringers	1,900	1,100	170	730	1,300	1,700,000	620,000	WWPA
Select Structural		1,600	950	170	625	1,100	1,600,000	580,000	
Dense No.1		1,550	775	170	730	1,100	1,700,000	620,000	
No.1		1,350	675	170	625	925	1,600,000	580,000	
No.2 Dense		1,000	500	170	730	700	1,400,000	510,000	
No.2		875	425	170	625	600	1,300,000	470,000	
Dense Select Structural	Posts and Timbers	1,750	1,150	170	730	1,350	1,700,000	620,000	
Select Structural		1,500	1,000	170	625	1,150	1,600,000	580,000	
Dense No.1		1,400	950	170	730	1,200	1,700,000	620,000	
No.1		1,200	825	170	625	1,000	1,600,000	580,000	
No.2 Dense		850	550	170	730	825	1,400,000	510,000	
No.2		750	475	170	625	700	1,300,000	470,000	

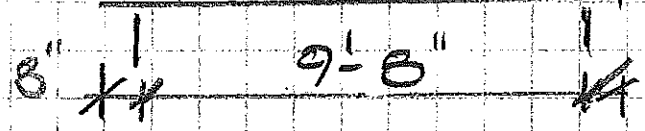
C.A. PRETZER ASSOCIATES INC.
STRUCTURAL ENGINEERS
50 Freeway Drive
Cranston, RI 02920
TEL. 401-785-2690 FAX: 401-461-9360
DESIGN, CONSULTATION, INVESTIGATION

JOB JAMESTOWN - GOLF COURSE
SHEET NO. _____ OF BLDG "A"
CALCULATED BY PNG DATE 8/3/11
CHECKED BY _____ DATE _____
SCALE FILE # 211686.20

BUILDING "A" 1ST FLOOR

EAST SIDE BEAM

EXISTING 6x6

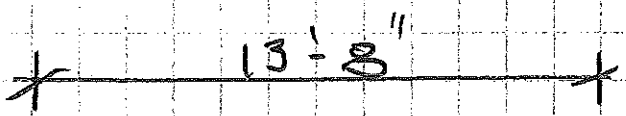


$w_{LL} = 40 \times \left(\frac{13-8}{2}\right) = 273.4$ PLF

$w_{DL} = 15 \times \left(\frac{13-8}{2}\right) = 102.5$ PLF

TYPICAL JOIST

EXIST. 2 x 7 3/4 @ 18" O/C

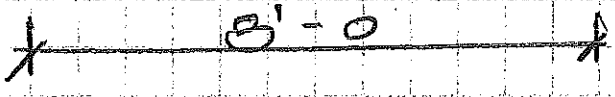


$w_{LL} = 40 \times 1.5 = 60$ PLF
$w_{DL} = 15 \times 1.5 = 22.5$ PLF

BUILDING "B"

CENTER BEAM

EXIST. (3) 2x10



$w_{LL} = 50 \times 18/2 = 450$ PLF
$w_{DL} = 20 \times 18/2 = 180$ PLF

C.A. PRETZER ASSOCIATES INC.
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DESIGN, CONSULTATION, INVESTIGATION

JOB JAMESTOWN - GOLF COURSE BLDG 'B' & 'E'
SHEET NO. _____ OF _____
CALCULATED BY PWG DATE 8/3/11
CHECKED BY _____ DATE _____
SCALE FILE # 211686.21

BUILDING "B"

TYP. JOIST

EXIST. 2x8 @ 16 o/c

9'-0"

WLL = 50 x 1.33 = 66.7 PLF
WDL = 20 x 1.33 = 26.7 PLF

TYP BEAM

BUILDING "C"

EXIST. 6x4 @ 10 o/c

11'-0

BUILDING "D"

TYP. JOIST

EXIST. 2x6 @ 16 o/c

11'-0"

WLL = 20 x 1.33 = 26.7 PLF
WDL = 15 x 1.33 = 20 PLF

BUILDING "E"

TYP JOIST

EXIST. 2x12 @ 16 o/c

2" 15'-8" 2"

WLL = 40 x 1.33 = 53.3 PLF
WDL = 15 x 1.33 = 20 PLF

C.A. PRETZER ASSOCIATES INC.
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JOB JAMESTOWN - GOLF COURSE
SHEET NO. _____ OF _____
CALCULATED BY PWG DATE 8/4/11
CHECKED BY _____ DATE _____
SCALE FILE # 21686.20

BUILDING "A" TYPICAL ROOF RAFTER

EXIST.
2x6 @ 24" O/C

13-8"

(ROOF + CL) = WLL = 12.5 x 2 = 25 PLF
WDL = 15 x 2 = 30 PLF

C. A. Pretzer Associates, Inc
50 Freeway Drive
Cranston, RI

Title :
Dsgnr:
Description :

Scope :

Job #
Date: 10:31AM, 4 AUG 11

Timber Beam & Joist

Description Building "A" Center Beam on East Wall

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

		Center Beam
Timber Section		
Beam Width	in	6.000
Beam Depth	in	6.000
Le: Unbraced Length	ft	0.00
TImber Grade		
Fb - Basic Allow	psi	1,300.0
Fv - Basic Allow	psi	170.0
Elastic Modulus	ksi	1,600.0
Load Duration Factor		1.000
Member Type		Sawn
Repetitive Status		No

Center Span Data

Span	ft	9.67
Dead Load	#/ft	102.50
Live Load	#/ft	273.40

Results

Ratio = 1.1266

Mmax @ Center	in-k	52.72
@ X =	ft	4.83
fb : Actual	psi	1,464.6
Fb : Allowable	psi	1,300.0
		OverStress
fv : Actual	psi	68.5
Fv : Allowable	psi	170.0
		Shear OK

Reactions

@ Left End	DL	lbs	495.59
	LL	lbs	1,321.89
	Max. DL+LL	lbs	1,817.48
@ Right End	DL	lbs	495.59
	LL	lbs	1,321.89
	Max. DL+LL	lbs	1,817.48

Deflections

Ratio OK

Center DL Defl	in	-0.117
L/Defl Ratio		994.4
Center LL Defl	in	-0.311
L/Defl Ratio		372.8
Center Total Defl	in	-0.428
Location	ft	4.835
L/Defl Ratio		271.1

C. A. Pretzer Associates, Inc
50 Freeway Drive
Cranston, RI

Title :
Dsgnr:
Description :

Scope :

Job #
Date: 10:17AM, 4 AUG 11

Timber Beam & Joist

Description Building "A" Typical Roof Rafter

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

		Typical Rafter
Timber Section		
Beam Width	in	2.000
Beam Depth	in	6.000
Le: Unbraced Length	ft	0.00
TImber Grade		
Fb - Basic Allow	psi	1,000.0
Fv - Basic Allow	psi	180.0
Elastic Modulus	ksi	1,600.0
Load Duration Factor		1.000
Member Type		Sawn
Repetitive Status		No

Center Span Data

Span	ft	13.67
Dead Load	#/ft	30.00
Live Load	#/ft	25.00

Results

Ratio = 0.9882

Mmax @ Center	in-k	15.42
@ X =	ft	6.83
fb : Actual	psi	1,284.7
Fb : Allowable	psi	1,300.0
		Bending OK
fv : Actual	psi	43.6
Fv : Allowable	psi	180.0
		Shear OK

Reactions

@ Left End	DL	lbs	205.05
	LL	lbs	170.87
	Max. DL+LL	lbs	375.92
@ Right End	DL	lbs	205.05
	LL	lbs	170.87
	Max. DL+LL	lbs	375.92

Deflections

Ratio > 240 !

Center DL Defl	in	-0.409
L/Defl Ratio		400.9
Center LL Defl	in	-0.341
L/Defl Ratio		481.0
Center Total Defl	in	-0.750
Location	ft	6.835
L/Defl Ratio		218.7

C. A. Pretzer Associates, Inc
50 Freeway Drive
Cranston, RI

Title :
Dsgnr:
Description :

Job #
Date: 12:14PM, 3 AUG 11

Scope :

Timber Beam & Joist

Description Building "A" Typical Joist

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

		Typical Joist
Timber Section		
Beam Width	in	2.000
Beam Depth	in	7.750
Le: Unbraced Length	ft	0.00
TImber Grade		
Fb - Basic Allow	psi	1,000.0
Fv - Basic Allow	psi	180.0
Elastic Modulus	ksi	1,600.0
Load Duration Factor		1.000
Member Type		Sawn
Repetitive Status		No

Center Span Data

Span	ft	13.67
Dead Load	#/ft	22.50
Live Load	#/ft	60.00

Results

Ratio = 0.9625

Mmax @ Center	in-k	23.13
@ X =	ft	6.83
fb : Actual	psi	1,155.0
Fb : Allowable	psi	1,200.0
		Bending OK
fv : Actual	psi	49.8
Fv : Allowable	psi	180.0
		Shear OK

Reactions

@ Left End	DL	lbs	153.79
	LL	lbs	410.10
	Max. DL+LL	lbs	563.89
@ Right End	DL	lbs	153.79
	LL	lbs	410.10
	Max. DL+LL	lbs	563.89

Deflections

Ratio OK

Center DL Defl	in	-0.142
L/Defl Ratio		1,151.8
Center LL Defl	in	-0.380
L/Defl Ratio		431.9
Center Total Defl	in	-0.522
Location	ft	6.835
L/Defl Ratio		314.1

C. A. Pretzer Associates, Inc
50 Freeway Drive
Cranston, RI

Title :
Dsgnr:
Description :

Job #
Date: 12:05PM, 3 AUG 11

Scope :

Description Building "A" Center Beam

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

		enter Beam BL
Timber Section		**6x6**
Beam Width	in	6.000
Beam Depth	in	6.000
Le: Unbraced Length	ft	0.00
TImber Grade		
Fb - Basic Allow	psi	1,300.0
Fv - Basic Allow	psi	165.0
Elastic Modulus	ksi	1,200.0
Load Duration Factor		1.000
Member Type		Sawn
Repetitive Status		No

Center Span Data

Span	ft	8.67
Dead Load	#/ft	187.50
Live Load	#/ft	250.00

Results

Ratio = 1.0541

Mmax @ Center	in-k	49.33
@ X =	ft	4.33
fb : Actual	psi	1,370.3
Fb : Allowable	psi	1,300.0
		OverStress
fv : Actual	psi	70.2
Fv : Allowable	psi	165.0
		Shear OK

Reactions

@ Left End	DL	lbs	812.81
	LL	lbs	1,083.75
	Max. DL+LL	lbs	1,896.56
@ Right End	DL	lbs	812.81
	LL	lbs	1,083.75
	Max. DL+LL	lbs	1,896.56

Deflections

Ratio OK

Center DL Defl	in	-0.184
L/Defl Ratio		565.7
Center LL Defl	in	-0.245
L/Defl Ratio		424.2
Center Total Defl	in	-0.429
Location	ft	4.335
L/Defl Ratio		242.4

iLevel by Weyerhaeuser

TJ-Beam® 6.36 Serial Number: 7005117450
User: 2 8/3/2011 3:16:12 PM
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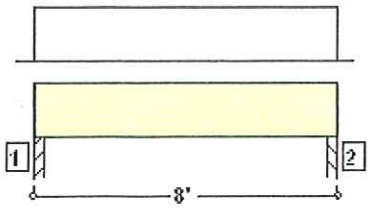
3 Pcs of 1 1/2" x 9 1/4" 1.3E Solid Sawn Hem-Fir #2

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED



Product Diagram is Conceptual.

LOADS:

Analysis is for a Header (Flush Beam) Member. Tributary Load Width: 1'
Primary Load Group - Office Bldgs - Offices (psf): 50.0 Live at 100 % duration, 15.0 Dead, 20.0 Partition
Vertical Loads:

Type	Class	Live	Dead	Location	Application	Comment
Uniform(plf)	Floor(1.00)	450.0	180.0	0 To 8'	Replaces	

SUPPORTS:

		Input Width	Bearing Length	Vertical Reactions (lbs) Live/Dead/Uplift/Total	Detail	Other
1	Steel column	3.50"	3.50"	1800 / 754 / 0 / 2554	By Others	None
2	Steel column	3.50"	3.50"	1800 / 754 / 0 / 2554	By Others	None

DESIGN CONTROLS:

	Maximum	Design	Control	Result	Location
Shear (lbs)	2448	-1876	4163	Passed (45%)	Rt. end Span 1 under Floor loading
ical Reaction (lbs)	2554	2554	6379	Passed (40%)	Bearing 2 under Floor loading
ment (Ft-Lbs)	4692	4692	5750	Passed (82%)	MID Span 1 under Floor loading
Live Load Defl (in)		0.091	0.192	Passed (L/999+)	MID Span 1 under Floor loading
Total Load Defl (in)		0.129	0.383	Passed (L/715)	MID Span 1 under Floor loading

-Deflection Criteria: STANDARD(LL:L/480,TL:L/240).
-Allowable moment was increased for repetitive member usage.
-Bracing(Lu): All compression edges (top and bottom) must be braced at 8' o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.
-2000 lbs concentrated load requirements for standard non-residential floors have been considered for reaction and shear.
-The allowable shear stress (Fv) has not been increased due to the potential of splits, checks and shakes. See NDS for applicability of increase.
-Analysis assumes continuous member. Lap joints, splices and finger joints significantly reduce member performance and have not been considered.

PROJECT INFORMATION:

Jamestown - Golf Course
Building "B"

Center Beam 1st Floor

span 8'-0"

OPERATOR INFORMATION:

Peter Grafe
C.A. Pretzer Associates, Inc.
50 Freeway Drive
Cranston, RI 02920
Phone : 401-785-2690

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3 Pcs of 1 1/2" x 9 1/4" 1.3E Solid Sawn Hem-Fir #2

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED

Group: Primary Load Group

	^	7' 8.00"	^
Max. Vertical Reaction Total (lbs)	2554		2554
Max. Vertical Reaction Live (lbs)	1800		1800
Max. Unbraced Length (in)		96	

Loading on all spans, LDF = 0.90 , 1.0 Dead

Shear at Support (lbs)		554	-554
Max Shear at Support (lbs)		723	-723
Member Reaction (lbs)	723		723
Support Reaction (lbs)	754		754
Moment (Ft-Lbs)		1386	

Loading on all spans, LDF = 1.00 , 1.0 Dead + 1.0 Floor

Shear at Support (lbs)		1876	-1876
Max Shear at Support (lbs)		2448	-2448
Member Reaction (lbs)	2448		2448
Support Reaction (lbs)	2554		2554
Moment (Ft-Lbs)		4692	
Live Deflection (in)		0.091	
Total Deflection (in)		0.129	

PROJECT INFORMATION:

Jamestown - Golf Course
Building "B"

Center Beam 1st Floor

span 8'-0"

OPERATOR INFORMATION:

Peter Grafe
C.A. Pretzer Associates, Inc.
50 Freeway Drive
Cranston, RI 02920
Phone : 401-785-2690

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by Weyerhaeuser

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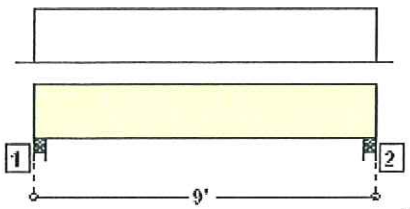
Page 1 Engine Version: 6.35.0

1 1/2" x 7 1/4" 1.3E Solid Sawn Hem-Fir #2 @ 16" o/c

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED



Product Diagram is Conceptual.

LOADS:

Analysis is for a Joist Member.
Primary Load Group - Residential - Living Areas (psf): 40.0 Live at 100 % duration, 12.0 Dead
Vertical Loads:

Type	Class	Live	Dead	Location	Application	Comment
Uniform(plf)	Floor(1.00)	66.7	26.7	0 To 9'	Replaces	

SUPPORTS:

		Input Width	Bearing Length	Vertical Reactions (lbs) Live/Dead/Uplift/Total	Detail	Other
1	Stud wall	3.50"	3.50"	300 / 120 / 0 / 420	By Others	None
2	Stud wall	3.50"	3.50"	300 / 120 / 0 / 420	By Others	None

DESIGN CONTROLS:

	Maximum	Design	Control	Result	Location
Shear (lbs)	401	-337	1088	Passed (31%)	Rt. end Span 1 under Floor loading
· ical Reaction (lbs)	401	401	2126	Passed (19%)	Bearing 2 under Floor loading
ı..ment (Ft-Lbs)	860	860	1284	Passed (67%)	MID Span 1 under Floor loading
Live Load Defl (in)		0.132	0.286	Passed (L/783)	MID Span 1 under Floor loading
Total Load Defl (in)		0.184	0.429	Passed (L/559)	MID Span 1 under Floor loading

-Deflection Criteria: STANDARD(LL:L/360,TL:L/240).
-Allowable moment was increased for repetitive member usage.
-Bracing(Lu): All compression edges (top and bottom) must be braced at 9' o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.
-The allowable shear stress (Fv) has not been increased due to the potential of splits, checks and shakes. See NDS for applicability of increase.

ADDITIONAL NOTES:

-IMPORTANT! The analysis presented is output from software developed by iLevel®. iLevel® warrants the sizing of its products by this software will be accomplished in accordance with iLevel® product design criteria and code accepted design values. The specific product application, input design loads, and stated dimensions have been provided by the software user. This output has not been reviewed by an iLevel® Associate.
-Not all products are readily available. Check with your supplier or iLevel® technical representative for product availability.
-THIS ANALYSIS FOR iLevel® PRODUCTS ONLY! PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS. Solid sawn lumber analysis is in accordance with 2001 NDS methodology.
-Allowable Stress Design methodology was used for Building Code IBC analyzing the solid sawn lumber material listed above.

PROJECT INFORMATION:

Jamestown - Golf Course
Building "B"

Typical Joist 1st Floor

span 9'-0"

OPERATOR INFORMATION:

Peter Grafe
C.A. Pretzer Associates, Inc.
50 Freeway Drive
Cranston, RI 02920
Phone : 401-785-2690

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1 1/2" x 7 1/4" 1.3E Solid Sawn Hem-Fir #2 @ 16" o/c

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED

Group: Primary Load Group

	^	8' 7.00"	^
Max. Vertical Reaction Total (lbs)	420		420
Max. Vertical Reaction Live (lbs)	300		300
Selected Bearing Length (in)	3.50(W)		3.50(W)
Max. Unbraced Length (in)		108	

Loading on all spans, LDF = 0.90 , 1.0 Dead

Shear at Support (lbs)		96	-96
Max Shear at Support (lbs)		115	-115
Member Reaction (lbs)	115		115
Support Reaction (lbs)	120		120
Moment (Ft-Lbs)		246	

Loading on all spans, LDF = 1.00 , 1.0 Dead + 1.0 Floor

Shear at Support (lbs)		337	-337
Max Shear at Support (lbs)		401	-401
Member Reaction (lbs)	401		401
Support Reaction (lbs)	420		420
Moment (Ft-Lbs)		860	
Live Deflection (in)		0.132	
Total Deflection (in)		0.184	

PROJECT INFORMATION:

Jamestown - Golf Course
Building "B"

Typical Joist 1st Floor

span 9'-0"

OPERATOR INFORMATION:

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C.A. Pretzer Associates, Inc.
50 Freeway Drive
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Phone : 401-785-2690

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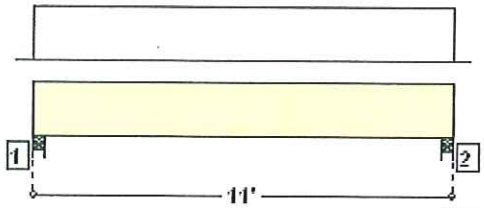
1 1/2" x 5 1/2" 1.3E Solid Sawn Hem-Fir #2 @ 16" o/c

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED



Product Diagram is Conceptual.

LOADS:

Analysis is for a Joist Member.
Primary Load Group - Residential - Living Areas (psf): 40.0 Live at 100 % duration, 12.0 Dead
Vertical Loads:

Type	Class	Live	Dead	Location	Application	Comment
Uniform(plf)	Floor(1.00)	26.7	20.0	0 To 11'	Replaces	

SUPPORTS:

		Input Width	Bearing Length	Vertical Reactions (lbs) Live/Dead/Uplift/Total	Detail	Other
1	Stud wall	3.50"	3.50"	147 / 110 / 0 / 257	By Others	None
2	Stud wall	3.50"	3.50"	147 / 110 / 0 / 257	By Others	None

DESIGN CONTROLS:

	Maximum	Design	Control	Result	Location
Shear (lbs)	247	-222	825	Passed (27%)	Rt. end Span 1 under Floor loading
ical Reaction (lbs)	247	247	2126	Passed (12%)	Bearing 2 under Floor loading
ment (Ft-Lbs)	654	654	801	Passed (82%)	MID Span 1 under Floor loading
Live Load Defl (in)		0.279	0.353	Passed (L/456)	MID Span 1 under Floor loading
Total Load Defl (in)		0.488	0.529	Passed (L/260)	MID Span 1 under Floor loading

-Deflection Criteria: STANDARD(LL:L/360,TL:L/240).
-Allowable moment was increased for repetitive member usage.
-Bracing(Lu): All compression edges (top and bottom) must be braced at 11' o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.
-The allowable shear stress (Fv) has not been increased due to the potential of splits, checks and shakes. See NDS for applicability of increase.

ADDITIONAL NOTES:

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-Allowable Stress Design methodology was used for Building Code IBC analyzing the solid sawn lumber material listed above.

PROJECT INFORMATION:

Jamestown - Golf Course
Building "D"

Typical Joist 1st Floor

span 11'-0"

OPERATOR INFORMATION:

Peter Grafe
C.A. Pretzer Associates, Inc.
50 Freeway Drive
Cranston, RI 02920
Phone : 401-785-2690

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1 1/2" x 5 1/2" 1.3E Solid Sawn Hem-Fir #2 @ 16" o/c

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED

Group: Primary Load Group

	^	10' 7.00"	^
Max. Vertical Reaction Total (lbs)	257		257
Max. Vertical Reaction Live (lbs)	147		147
Selected Bearing Length (in)	3.50(W)		3.50(W)
Max. Unbraced Length (in)		132	

Loading on all spans, LDF = 0.90 , 1.0 Dead

Shear at Support (lbs)		95	-95
Max Shear at Support (lbs)		106	-106
Member Reaction (lbs)	106		106
Support Reaction (lbs)	110		110
Moment (Ft-Lbs)		280	

Loading on all spans, LDF = 1.00 , 1.0 Dead + 1.0 Floor

Shear at Support (lbs)		222	-222
Max Shear at Support (lbs)		247	-247
Member Reaction (lbs)	247		247
Support Reaction (lbs)	257		257
Moment (Ft-Lbs)		654	
Live Deflection (in)		0.279	
Total Deflection (in)		0.488	

PROJECT INFORMATION:

Jamestown - Golf Course
Building "D"

Typical Joist 1st Floor

span 11'-0"

OPERATOR INFORMATION:

Peter Grafe
C.A. Pretzer Associates, Inc.
50 Freeway Drive
Cranston, RI 02920
Phone : 401-785-2690

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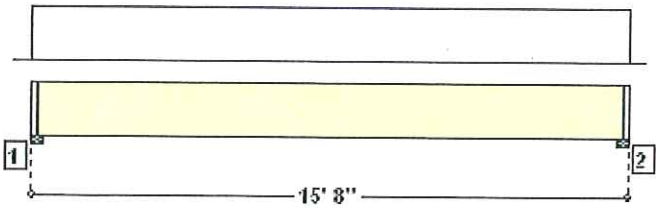
Page 1 Engine Version: 6.35.0

1 1/2" x 11 1/4" 1.3E Solid Sawn Hem-Fir #2 @ 16" o/c

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED



Product Diagram is Conceptual.

LOADS:

Analysis is for a Joist Member.
Primary Load Group - Residential - Living Areas (psf): 40.0 Live at 100 % duration, 12.0 Dead
Vertical Loads:

Type	Class	Live	Dead	Location	Application	Comment
Uniform(plf)	Floor(1.00)	66.7	20.0	0 To 15' 8"	Replaces	

SUPPORTS:

		Input Width	Bearing Length	Vertical Reactions (lbs) Live/Dead/Uplift/Total	Detail	Other
1	Plate on steel beam	3.50"	1.50"	522 / 157 / 0 / 679	By Others - Rim	1 Ply 1 3/4" x 11 1/4" 1.9E Microllam® LVL
2	Plate on steel beam	3.50"	1.50"	522 / 157 / 0 / 679	By Others - Rim	1 Ply 1 3/4" x 11 1/4" 1.9E Microllam® LVL

DESIGN CONTROLS:

	Maximum	Design	Control	Result	Location
Shear (lbs)	661	-573	1688	Passed (34%)	Rt. end Span 1 under Floor loading
ical Reaction (lbs)	661	661	911	Passed (73%)	Bearing 2 under Floor loading
ment (Ft-Lbs)	2520	2520	2577	Passed (98%)	MID Span 1 under Floor loading
Live Load Defl (in)		0.351	0.500	Passed (L/522)	MID Span 1 under Floor loading
Total Load Defl (in)		0.456	0.762	Passed (L/401)	MID Span 1 under Floor loading

-Deflection Criteria: STANDARD(LL:0.500",TL:L/240).
-Allowable moment was increased for repetitive member usage.
-Bracing(Lu): All compression edges (top and bottom) must be braced at 2' 1" o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.
-The allowable shear stress (Fv) has not been increased due to the potential of splits, checks and shakes. See NDS for applicability of increase.

ADDITIONAL NOTES:

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-Allowable Stress Design methodology was used for Building Code IBC analyzing the solid sawn lumber material listed above.

PROJECT INFORMATION:

Jamestown - Golf Course
Building "E"

Typical Joist 1st Floor

span 15'-8"

OPERATOR INFORMATION:

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C.A. Pretzer Associates, Inc.
50 Freeway Drive
Cranston, RI 02920
Phone : 401-785-2690

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1 1/2" x 11 1/4" 1.3E Solid Sawn Hem-Fir #2 @ 16" o/c

THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED

Group: Primary Load Group

	^	15' 3.00"	^
Max. Vertical Reaction Total (lbs)	679		679
Max. Vertical Reaction Live (lbs)	522		522
Selected Bearing Length (in)	1.50(W)		1.50(W)
Max. Unbraced Length (in)		25	

Loading on all spans, LDF = 0.90 , 1.0 Dead

Shear at Support (lbs)		132	-132
Max Shear at Support (lbs)		153	-153
Member Reaction (lbs)	153		153
Support Reaction (lbs)	157		157
Moment (Ft-Lbs)		581	

Loading on all spans, LDF = 1.00 , 1.0 Dead + 1.0 Floor

Shear at Support (lbs)		573	-573
Max Shear at Support (lbs)		661	-661
Member Reaction (lbs)	661		661
Support Reaction (lbs)	679		679
Moment (Ft-Lbs)		2520	
Live Deflection (in)		0.351	
Total Deflection (in)		0.456	

PROJECT INFORMATION:

Jamestown - Golf Course
Building "E"

Typical Joist 1st Floor

span 15'-8"

OPERATOR INFORMATION:

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