



UTAH OFFICES

Sandy
Layton
St. George

Project Number: L0133-001-171

March 17, 2017

Brighton Land Holdings
1275 East Fort Union Blvd. Ste 210
Cottonwood Heights, UT 84047

ATTENTION: Thomas Godfrey

REFERENCE: **Brighton Recovery Campus, Building E (4931 S 900 E, SLC, UT)**
Interior Demolition & New Wall Openings

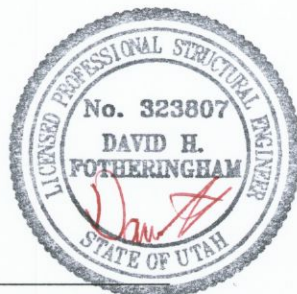
Mr. Godfrey:

Per your request, we have reviewed the architectural drawings for the above-referenced project. We also visited the above-referenced site on December 20, 2016. Please be advised as follows:

- 1) From our observation, the roof structure appeared to be manufactured wood roof trusses, bearing at the exterior perimeter walls and/or exterior overhang beams. In addition, there is an interior beam running the length of the building, supporting the roof trusses at or near their mid-span. See the enclosed "Demolition Plan," for approximate location of existing beams and posts. Interior partitions are non-bearing non-shear walls and can, therefore, be removed without adversely affecting the structure.
- 2) Two new openings may be constructed at exterior walls, as shown in the enclosed "Demolition Plan." The new headers, trimmers, and king studs are also specified on sheet 2. Supporting calculations are provided on sheets 3 and 4, enclosed. The contractor is responsible for shoring the existing roof framing during construction.

We hope this meets your needs. If you have any further questions regarding this matter, please call this office at your convenience.

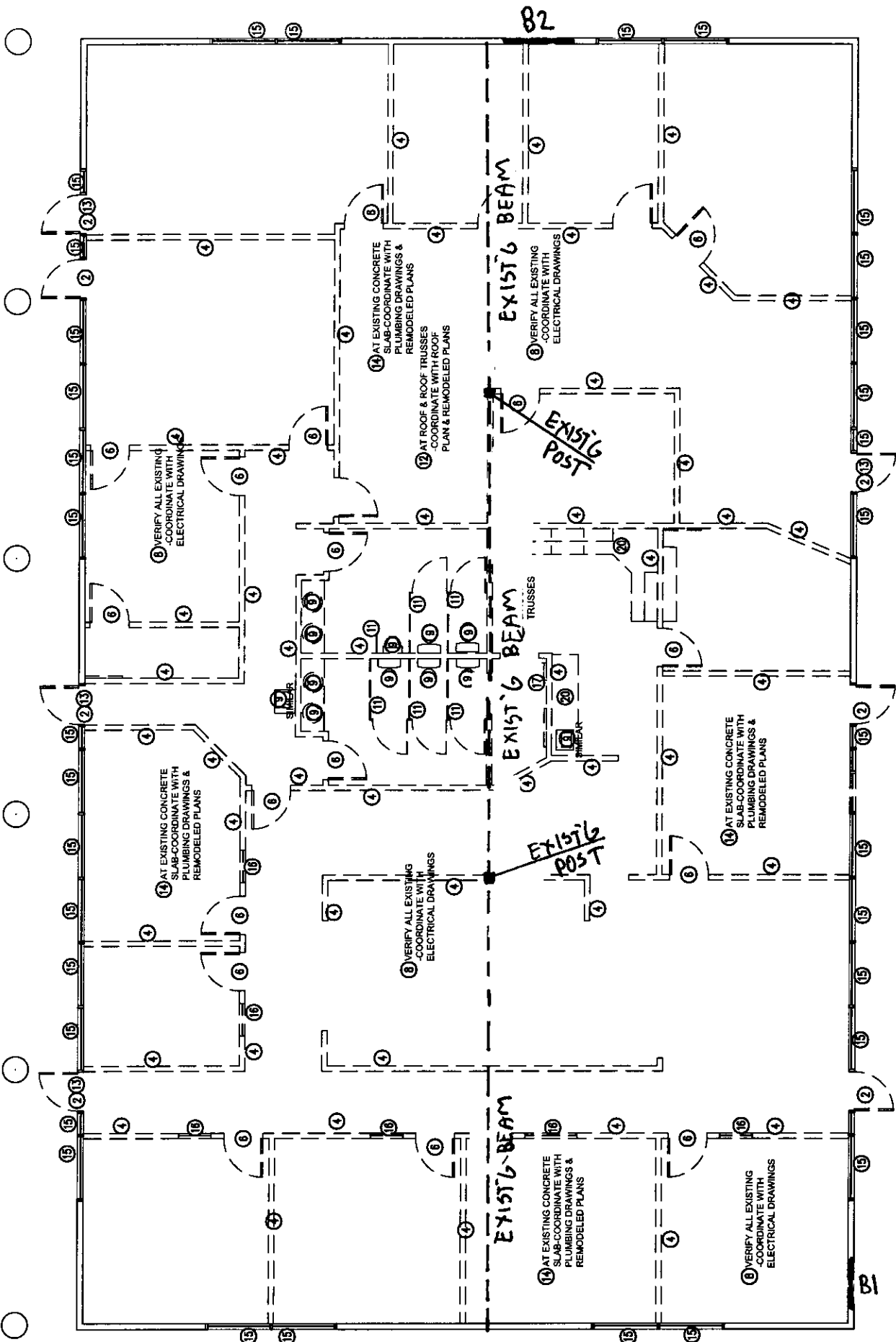
Very truly yours,
VECTOR STRUCTURAL ENGINEERS



David H. Fotheringham, S.E.
Principal

3-17-17

Enclosures



NEW HEADERS:

B1=B2 = (3) 2x6 HDR w/ 2x6 TRIM & 2x6 KING STUD EA. END



JOB NO.: L0133-001-171

DATE: 3/17/2017

SHEET 3

DESIGNED: DHF

CHECKED: DHF

PROJECT: BRIGHTON RECOVERY CAMPUS

SUBJECT: GRAVITY LOADS

		Increase due to pitch	Original loading
ROOF			
ROOF PITCH/12	4		
ASPHALT SHINGLES	4.22	1.05	4.00
1/2" PLYWOOD	1.58	1.05	1.50
FRAMING	3.00		
INSULATION	2.00		
1/2" GYPSUM CLG.	2.20		
M, E & MISC	2.00		

DL 15.00

LL 20.00

SNOW 30.00

SNOW INCLUDED IN LATERAL 0.0

2ND FLOOR (WHERE OCCURS)

FLOOR COVERING	1.00
3/4" T&G PLYWOOD	2.30
MFG TRUSSES / FRAMING	2.00
INSULATION	1.00
1/2" GYPSUM CEILING	2.20
PARTITION	2.00
M, E & MISC.	1.50
OTHER	0.00
DL	12.00
LL	40.00

EXTERIOR WALLS

STUCCO/SIDING	3.50
2x FRAMING W/3 PLATES	1.30
INSULATION	1.00
1/2" GYPSUM	2.20
1/2" PLYWOOD	1.50
OTHER	0.50
DL	10.00

OVERFILL

ASPHALT SHINGLES	4.00
1/2" PLYWOOD	1.50
RAFTERS & MISC	3.50
OTHER	0.00
DL	9.00
LL	20.00

TYPICAL ROOF OVERBUILD MAX SPAN TABLE

Grade	Size	Spacing (ft)	L _{max} (ft)
DFL#2	2X4	2	5.80
DFL#2	2X6	2	8.80
DFL#2	2X8	2	10.80
DFL#2	2X10	2	13.20

C _r	C _D	C _{F,V}	M _{allow} (ft-lb)	V _{allow} (lb)	Ctrl'g factor
1.15	1.00	1.50	385	382	Moment
1.15	1.00	1.40	888	601	Moment
1.15	1.00	1.20	1322	792	Moment
1.15	1.00	1.10	1973	1011	Moment



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CHECKED: DHF

PROJECT: BRIGHTON RECOVERY CAMPUS

SUBJECT: BEAMS

DESIGN LOADS:			
Load Types: Snow ¹ Live Dead			
Roof	30	20	18
Floor		40	15
Wall			12

CRITERIA (L)			
A _{BLANK}	D _{TL}	D _{LL}	D _{DL}
B	240	480	
C	600		800

note: 'a' must be less than or equal to 'L/2'
Add .2*S_{ps} to dead load? Yes 0.2267 = .2*S_{ps}

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PROJECT: BRIGHTON RECOVERY CAMPUS

SUBJECT: BEAMS

DESIGN LOADS:		Load Types: Snow ¹ s Live Dead			
		Roof	30	20	18
		Floor		40	15
		Wall			12

CRITERIA (L)			
A _{BLANK}	D _{TL}	D _{LL}	D _{OL}
	240	360	
	B	240	480
C	600		800

Add. 2'Sps to dead load? Yes 0.2267 = 2'Sps
note: 'a' must be less than or equal to 'L/2'

Label	Length 'L' (ft)	Roof Trib (ft)	Floor Trib (ft)	Wall Trib (ft)	Add'l Live Load (plf)	Add'l Dead Load (plf)	Point Load From	React (A,B)	Dist 'a' (ft)	Point Live Load 'P _{LL} ' (lb)	Point Dead Load 'P _{DL} ' (lb)	# PLIES	Grade	Size	"BM/HDR"	D CRITERIA				C _r	C _D	C _{FV}	R _s (lb)	R _b (lb)	M _{max} (ft-lb)	M _{allow} (ft-lb)	V _{max} (lb)	V _{allow} (lb)	D _{TL} (in)	D _{TLallow} (in)	D _{LL} (in)	D _{LLallow} (in)	E _{xx} (psi)	g (lb/ft ³)
EXISTG	27	37.5															1.00	1.00	1.00	24501	24501	165381												
B1	3.5	8										(3)	DFL#2	2X6	H		1.00	1.00	1.00	1.40	730	730	839	2382	539	2970	0.014	0.175	0.005	0.117			0.27 M	
B2	5.5	8										(3)	DFL#2	2X6	H		1.00	1.00	1.00	1.40	1147	1147	1578	2382	956	2970	0.086	0.275	0.033	0.183			0.66 M	

Abbrev	GRADES	F _{box} (psi)	F _{vxx} (psi)	E _{xx} (psi)	g (lb/ft ³)
DFL#1	DFL#1		1,000	180	1,700,000
DFL#2	DFL#2		900	180	1,600,000
DF1 (5X)	DFL#1 5X5 & LARGER		1,350	170	1,600,000
24F-V4	24F-V4		2,400	240	1,900,000
24F-V8	24F-V8		2,400	240	1,900,000
LVL (1.9)	LVL (1.9X106E)		2,500	285	1,900,000
LVL (2.0)	LVL (2.0X106E)		2,200	285	2,000,000
LSL	LSL (1.3X106E)		1,700	400	1,300,000
PSL	PSL (2.0X106E)		2,900	290	2,000,000
STL36	GRADE 36 STEEL		21,600	14,400	29,000,000
STL46	GRADE 46 STEEL		27,600	18,400	29,000,000
STL50	GRADE 50 STEEL		30,000	20,000	29,000,000