

March 16, 2021

Via: Email

City of Lee's Summit
Attention: Joe Frogge – Plans Examiner
Development Services
200 SE Green Street
Lee's Summit, MO 64063

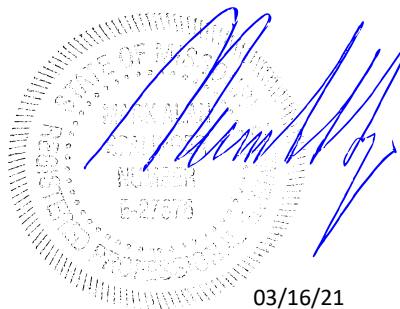
Re: Open Tenant Space
155 SW M 150 HWY, Lee's Summit, MO 64802

Dear Joe,

Per the request of the General Contractor, CASCO has analyzed the roof framing of the existing structure for the referenced project with respect to the support of a single replacement mechanical rooftop unit that weighs approximately 1,300 lbs. The approximate location of the replacement unit is identified in the calculations attached to this letter. Existing roof framing information utilized as the basis of the analysis was obtained from original building construction documents prepared by Larson Engineering of Missouri dated 03/25/04 (Addendum #1). I herein attest to the best of my knowledge and belief, that the existing roof framing is adequate to support the proposed replacement unit described herein and attached.

The preparation of support details is beyond the scope of our services. The weight of the replacement unit shall be imparted to the existing joists in specific accordance with respective criteria published by the Steel Joist Institute. Please contact our office if we may be of further service.

Warm Regards,



03/16/21

Enclosure: Structural Calculations

Mark A. Spalinger – Principal, Structural EOR
314.821.1100 x182
Email: urgentcare@cascoCorp.com

cc: Brent Johnson, Bran Mefford – Midland General Contractors, Inc.
BJV – CASCO/file 320488

STRUCTURAL CALCULATIONS

for

MIDLAND

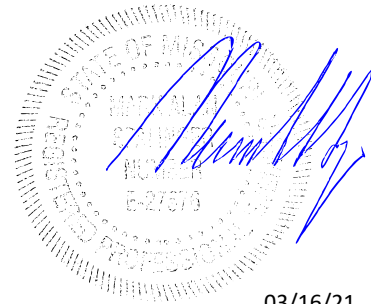
**155 S.W. MO-150 HWY
LEE'S SUMMIT, MO 64802**

PROJECT NO. # 320488

PERFORMED: 03/16/21

Prepared By:

CASCO



03/16/21

Analyze Existing RTU3 location for New RTU

At the existing RTU location (2) 16KCS3 Joists are present according to the Original Building Drawings preformed my Larson Engineering of Missouri dated 03/25/04. Existing Roof Framing attached to this calculation. Allowable Stress Design is used.

Conservatively assume joist sees 100% of the Roof Uniform Load and 100% RTU load. Existing Joist spacing is assumed at 5.33 ft. Check capacity of 16KCS3 Joists - capacity table included at end of calculation.

Input loads for RISA:

Dead Load: **15 PSF**

Flat Roof Load: **20 PSF** (As indicated on the Original Building Drawings)

+ Roof Snow Drift: per ASCE 7-10, height of obstruction, h, assumed at 4.3 ft

New RTU weight: 1300 lbs (Includes Economizer and Curb)

Unit Corner Load: $0.3 \times 1300 = 390 \text{ lbs}$



Moment:

$$M_{max} := 10.887 \text{ kip} \cdot \text{ft}$$

$$M_{KCS3_CAP} := 39.166 \text{ kip} \cdot \text{ft}$$

$$\frac{M_{max}}{M_{KCS3_CAP}} = 0.278$$

Shear:

$$V_{max} := 2.45 \text{ kip}$$

$$V_{KCS3_CAP} := 4.8 \text{ kip}$$

$$\frac{V_{max}}{V_{KCS3_CAP}} = 0.51$$

ASD

STANDARD LOAD TABLE FOR KCS OPEN WEB STEEL JOISTS							
Based on a 50 ksi Maximum Yield Strength							
JOIST DESIGNATION	DEPTH (in.)	MOMENT CAPACITY (k-in.)	SHEAR CAPACITY* (lbs)	APPROX. WEIGHT** (lbs/ft.)	GROSS MOMENT OF INERTIA (in. ⁴)	ERECTION STABILITY BRIDGING REQ'D (ft.)	BRIDGING TABLE SECTION NUMBER
10KCS1	10	172	2000	6.0	29	NA	1
10KCS2	10	225	2500	7.5	37	NA	1
10KCS3	10	296	3000	10.0	47	NA	1
12KCS1	12	209	2400	6.0	43	NA	3
12KCS2	12	274	3000	8.0	55	NA	5
12KCS3	12	362	3500	10.0	71	NA	5
14KCS1	14	247	2900	6.5	59	NA	4
14KCS2	14	324	3400	8.0	77	NA	6
14KCS3	14	428	3900	10.0	99	NA	6
16KCS2	16	349	4000	8.5	99	NA	6
16KCS3	16	470	4800	10.5	128	NA	9
16KCS4	16	720	5300	14.5	192	NA	9
16KCS5	16	934	5800	18.0	245	NA	9

ARCHITECT:

Architect

Strategic Planning

Interior Des

Move Management

323 NORTH EUCI

SITE 2
CASE 1 (OUTER) 110.0-110.5m

ST. LOUIS, MO 63101

IT1 314.367.61

IFI 314.367.14

STRUCTURAL ENGINEER:



5757 Phantom Drive, Suite 200
St. Louis, MO 63042-2455
Ph. (314) 731-4710 Fx. (314) 731-4712
www.larsonmo.com

Issue	Date & Issue Description	By	Check
1-26-04	ISSUED FOR PERMIT		
2-13-04	FOUNDATION OPTION		
3-25-04	ADDENDUM #1		

Seal/Signature

Project Name

BANK OF AMERICA MWK-0002 LEE SUMMIT, MISSOURI
HIGHWAY 150 & MARKET STREET - NEW STORE

Project Number

BANK OF AMERICA MWK-0002 OCULUS #008-03-717

CAD File Name:

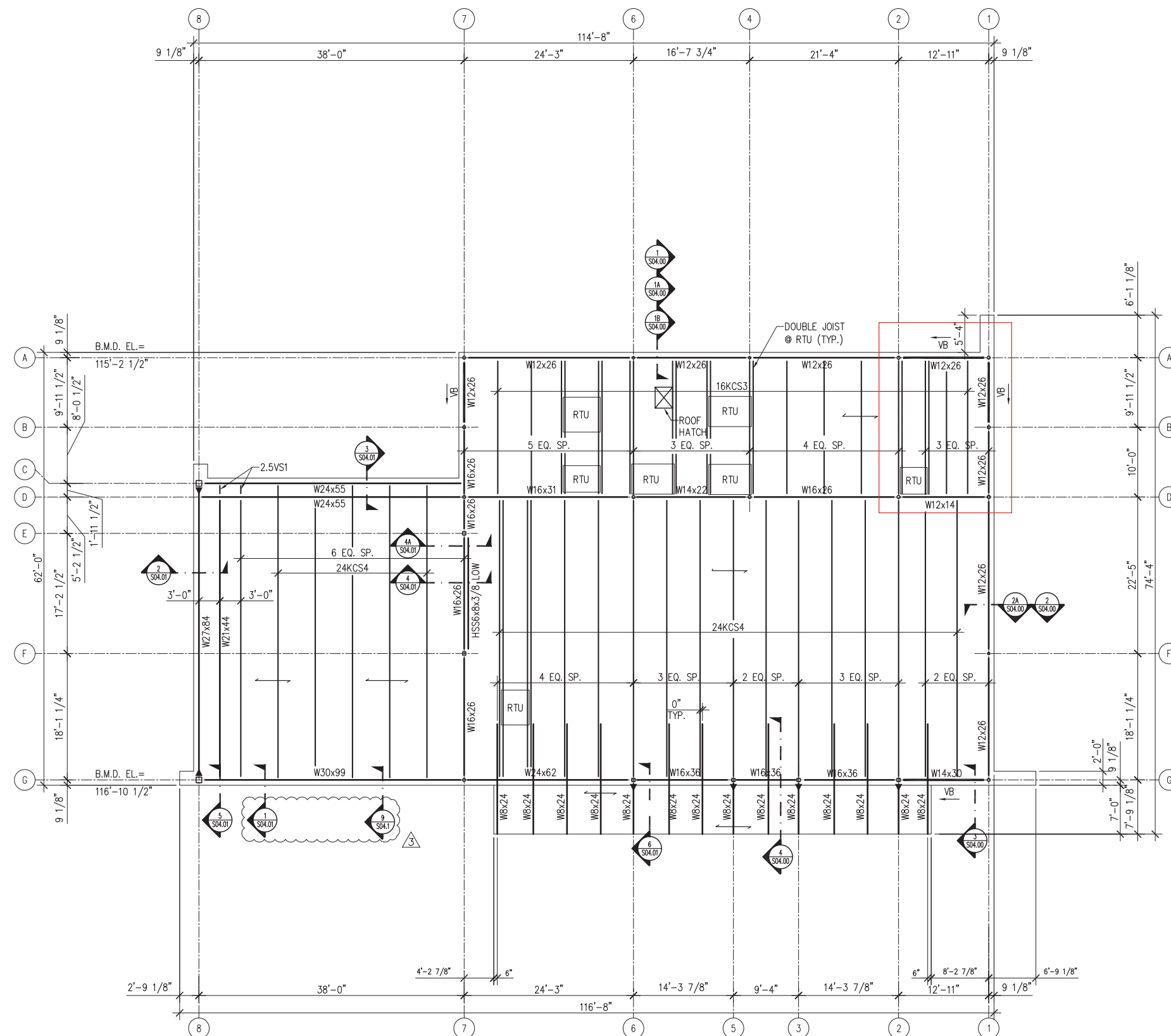
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ROOF FRAMING PLAN

Scale

AS NOTED

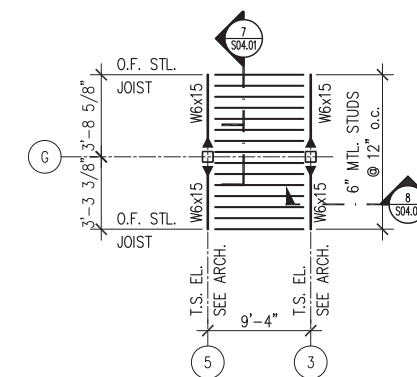
S02.01



ROOF FRAMING PLAN
SCALE: 1/8"=1'-0"



- NOTES:
1. B.M.D. ELEVATION VARIES - SEE PLAN
 2. ► -INDICATES MOMENT CONNECTION
 3. \longleftrightarrow INDICATES 1 1/2"x22 GA. TYPE B METAL ROOF DECK
 4. VB INDICATES VERTICAL BRACE & SLOPE DOWN



NOTE: DECK TO BE 3/4" FIRE TREATED PLYWOOD

ACCESSIBLE CEILING
FRAMING @ ENTRANCE
SCALE: 1/4"=1'-0"



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