

## MEMORANDUM

PAGE 1 OF 1

TO: Damian deKrom (DFAIT)  
Doug Ercit (DFAIT)

DATE: June 28<sup>th</sup>, 2013

JOB NO.: 23423-03

FROM: John Elliot (JLR)

CC: Michael Petrescu-Comnene(DFAIT),  
Rene Lambert (JLR), Jennifer Stephenson  
(JLR), Tony Hiratsuka (JLR)

RE: Memo 2 - DFAIT Comments Phase 1 Seismic  
Re-Evaluation Canadian Chancery, Bridgetown  
Barbados

The purpose of this memorandum is to respond to DFAIT's comments regarding the above-referenced report, received April 23, 2013, and subsequent in-person and phone conversations. The main comments have been addressed in a previously submitted memorandum; however, DFAIT has also requested additional information.

DFAIT has requested additional demand/capacity ratio summary tables based the original analysis method, with a Seismic Site Class 'A'. In order to meet the request made by DFAIT, the model was analyzed according to the analysis method used in the original report, with a Seismic Site Class 'A'. Comparative tables were prepared based on the results and these additional tables are presented in an appendix to this memorandum for discussion purposes.

We hope this memo provides you with the information you require. If you have any questions or we can be of further assistance, please do not hesitate to contact us.

Prepared by:

J.L. RICHARDS & ASSOCIATES LIMITED



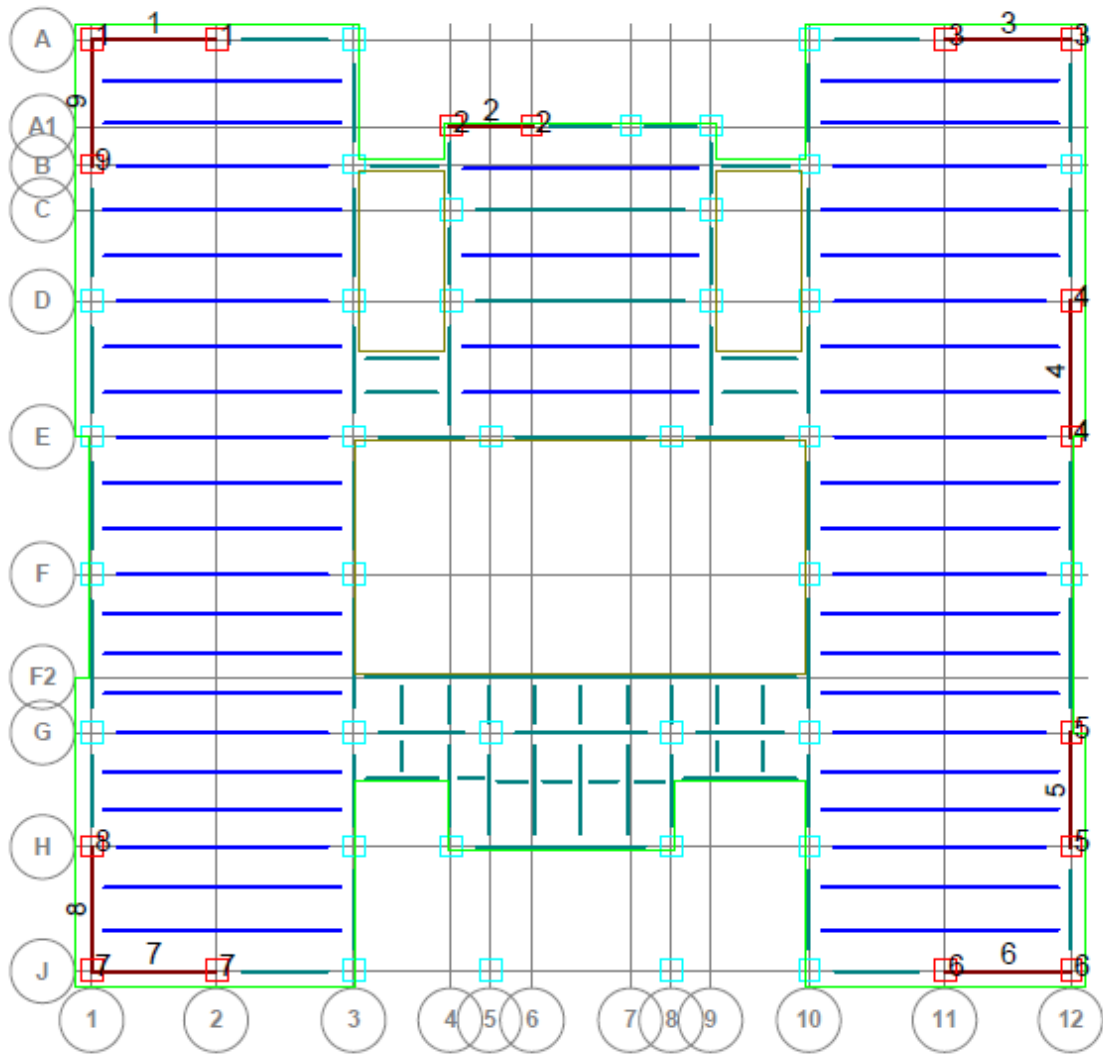
For

John Elliot, P.Eng.

JRE:TH:nf

## **APPENDIX A**

### **COMPARISON OF UPDATED DEMAND/CAPACITY RATIOS TO VALUES FROM ORIGINAL REPORT**



**Figure 1: Braced Frame Locations (2nd Floor and Roof)**

**Table 1: Original Demand/Capacity Ratios for HSS Columns**

Braced Frame Number <sup>‡</sup>	Level	Demand/Capacity Ratio I=1.0 <sup>†</sup>	Demand/Capacity Ratio I=1.5 <sup>†</sup>
1	Roof – 2nd	0.38	0.59
	2nd - Ground	1.06	1.71
2	Roof – 2nd	0.29	0.46
	2nd - Ground	0.86	1.38
3	Roof – 2nd	0.38	0.59
	2nd - Ground	1.11	1.75
4	Roof – 2nd	0.36	0.52
	2nd - Ground	0.97	1.44
5	Roof – 2nd	0.36	0.53
	2nd - Ground	1.04	1.55
6	Roof – 2nd	0.4	0.52
	2nd - Ground	1.03	1.5
7	Roof – 2nd	0.4	0.52
	2nd - Ground	0.98	1.51
8	Roof – 2nd	0.33	0.49
	2nd - Ground	0.99	1.51
9	Roof – 2nd	0.34	0.53
	2nd - Ground	1.01	1.6

† Demand/Capacity Ratio greater than one represents an overstressed condition.

‡ Refer to Figure 1 for the location of the columns.

**Table 2: Updated Demand/Capacity Ratios for Site Class A for HSS Columns**

Braced Frame Number	Level	Normal Occupancy (max) I=1.0	Immediate Occupancy (max) I=1.5
1	Roof – 2nd	0.27	0.42
	2nd - Ground	0.76	1.22
2	Roof – 2nd	0.21	0.33
	2nd - Ground	0.61	0.98
3	Roof – 2nd	0.27	0.42
	2nd - Ground	0.79	1.25
4	Roof – 2nd	0.26	0.37
	2nd - Ground	0.69	1.03
5	Roof – 2nd	0.26	0.38
	2nd - Ground	0.74	1.10
6	Roof – 2nd	0.29	0.37
	2nd - Ground	0.73	1.07
7	Roof – 2nd	0.29	0.37
	2nd - Ground	0.70	1.08
8	Roof – 2nd	0.24	0.35
	2nd - Ground	0.71	1.08
9	Roof – 2nd	0.24	0.38
	2nd - Ground	0.72	1.14

† Demand/Capacity Ratio greater than one represents an overstressed condition.

‡ Refer to Figure 1 for the location of the columns.

**Table 3: Original Demand/Capacity Ratios for Steel Beams**

Beam <sup>‡</sup>	Level	Demand/Capacity Ratio I=1.0 <sup>†</sup>	Demand/Capacity Ratio I=1.5 <sup>†</sup>
1	2nd - Ground	0.02	N/A
2	2nd - Ground	0	N/A
3	2nd - Ground	0.02	N/A
4	2nd - Ground	0.16	N/A
5	2nd - Ground	0.13	N/A
6	2nd - Ground	0.02	N/A
7	2nd - Ground	0.02	N/A
8	2nd - Ground	0.15	N/A
9	2nd - Ground	0.15	N/A
1	Roof - 2nd	0.09	N/A
2	Roof - 2nd	0	N/A
3	Roof - 2nd	0.09	N/A
4	Roof - 2nd	0.15	N/A
5	Roof - 2nd	0.13	N/A
6	Roof - 2nd	0.09	N/A
7	Roof - 2nd	0.09	N/A
8	Roof - 2nd	0.12	N/A
9	Roof - 2nd	0.12	N/A

<sup>†</sup> Demand/Capacity Ratio greater than one represents an overstressed condition.

<sup>‡</sup> Refer to Figure 1 for the location of the beams.

**Table 4: Updated Demand/Capacity Ratios for Site Class A for Steel Beams**

1	2 <sup>nd</sup> - Ground	0.01	N/A
2	2 <sup>nd</sup> - Ground	0.00	N/A
3	2 <sup>nd</sup> - Ground	0.01	N/A
4	2 <sup>nd</sup> - Ground	0.11	N/A
5	2 <sup>nd</sup> - Ground	0.09	N/A
6	2 <sup>nd</sup> - Ground	0.01	N/A
7	2 <sup>nd</sup> - Ground	0.01	N/A
8	2 <sup>nd</sup> - Ground	0.11	N/A
9	2 <sup>nd</sup> - Ground	0.11	N/A
1	Roof - 2 <sup>nd</sup>	0.06	N/A
2	Roof - 2 <sup>nd</sup>	0.00	N/A
3	Roof - 2 <sup>nd</sup>	0.06	N/A
4	Roof - 2 <sup>nd</sup>	0.11	N/A
5	Roof - 2 <sup>nd</sup>	0.09	N/A
6	Roof - 2 <sup>nd</sup>	0.06	N/A
7	Roof - 2 <sup>nd</sup>	0.06	N/A
8	Roof - 2 <sup>nd</sup>	0.09	N/A
9	Roof - 2 <sup>nd</sup>	0.09	N/A
1	2 <sup>nd</sup> - Ground	0.01	N/A

<sup>†</sup> Demand/Capacity Ratio greater than one represents an overstressed condition.

<sup>‡</sup> Refer to Figure 1 for the location of the beams.

**Table 5: Original Demand/Capacity Ratios for Diagonal Braces in Tension**

Brace Bay Number <sup>‡</sup>	Level	Demand/Capacity Ratio I=1.0 <sup>†</sup>	Demand/Capacity Ratio I=1.5 <sup>†</sup>
1	2nd - Ground	1.1	1.7
2	2nd - Ground	1.1	1.7
3	2nd - Ground	0.6	1.0
4	2nd - Ground	1.3	2.0
5	2nd - Ground	1.4	2.1
6	2nd - Ground	1.1	1.6
7	2nd - Ground	1.1	1.6
8	2nd - Ground	1.1	1.6
9	2nd - Ground	0.7	1.0
1	Roof - 2nd	1.7	2.6
2	Roof - 2nd	1.7	2.6
3	Roof - 2nd	1.0	1.5
4	Roof - 2nd	2.0	3.0
5	Roof - 2nd	2.1	3.1
6	Roof - 2nd	1.6	2.4
7	Roof - 2nd	1.6	2.4
8	Roof - 2nd	1.7	2.5
9	Roof - 2nd	1.1	1.7

† Demand/Capacity Ratio greater than one represents an overstressed condition.

‡ Refer to Figure 1 for the location of the braces.

**Table 6: Updated Demand/Capacity Ratios for Site Class A for Diagonal Braces in Tension**

Brace Bay Number <sup>‡</sup>	Level	Demand/Capacity Ratio I=1.0 <sup>†</sup>	Demand/Capacity Ratio I=1.5 <sup>†</sup>
1	2 <sup>nd</sup> - Ground	0.8	1.2
2	2 <sup>nd</sup> - Ground	0.8	1.2
3	2 <sup>nd</sup> - Ground	0.5	0.7
4	2 <sup>nd</sup> - Ground	0.9	1.4
5	2 <sup>nd</sup> - Ground	1.0	1.5
6	2 <sup>nd</sup> - Ground	0.8	1.1
7	2 <sup>nd</sup> - Ground	0.8	1.1
8	2 <sup>nd</sup> - Ground	0.8	1.1
9	2 <sup>nd</sup> - Ground	0.5	0.7
1	Roof - 2 <sup>nd</sup>	1.2	1.9
2	Roof - 2 <sup>nd</sup>	1.2	1.9
3	Roof - 2 <sup>nd</sup>	0.7	1.1
4	Roof - 2 <sup>nd</sup>	1.4	2.2
5	Roof - 2 <sup>nd</sup>	1.5	2.2
6	Roof - 2 <sup>nd</sup>	1.2	1.7
7	Roof - 2 <sup>nd</sup>	1.2	1.7
8	Roof - 2 <sup>nd</sup>	1.2	1.8
9	Roof - 2 <sup>nd</sup>	0.8	1.2

† Demand/Capacity Ratio greater than one represents an overstressed condition.

‡ Refer to Figure 1 for the location of the braces.