Appendix C2 – Ductility Demand Versus $r_p$

Figure Number Designations:

**Figure C2.3.1.1a**

- a - Ductility Demand; 2.5V
- b - Change in Ductility Demand; 1.5V
- c - Change in Ductility Demand; 2.0V
- d - Change in Ductility Demand; 2.5V
- Lateral Scale (g)
- Earthquake Number
- Number of Stories High
- Appendix Designation
Figure C2.3.1.1a – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.705 Seconds.

Figure C2.3.1.1b – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds.
Figure C2.3.1.2a – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.705 Seconds.

Figure C2.3.1.2b – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds.
Figure C2.3.1.2c – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds.

Figure C2.3.1.2d – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds.
Figure C2.3.1.3a – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.705 Seconds.

Figure C2.3.1.3b – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds.
Figure C2.3.1.4a – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.705 Seconds.

Figure C2.3.1.4b – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds.
Figure C2.4.1.1a – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.903 Seconds.

Figure C2.4.1.1b – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds.
Figure C2.4.1.2a – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.903 Seconds.

Figure C2.4.1.2b – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds.
Figure C2.4.1.2c – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds

Figure C2.4.1.2d – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds
Figure C2.4.1.3a – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.903 Seconds.

Figure C2.4.1.3b – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds.
Figure C2.4.1.4a – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Ductility Demand Versus \( r_p \) for Models with a Period of 0.903 Seconds.

Figure C2.4.1.4b – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds
Figure C2.5.1.1a – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.093 Seconds.

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Figure C2.5.1.2c – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.093 Seconds

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Figure C2.6.1.1a – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.278 Seconds.

Figure C2.6.1.1b – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.278 Seconds
Figure C2.6.1.2a – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.278 Seconds.

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Figure C2.6.1.2c– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.278 Seconds

Figure C2.6.1.2d– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.278 Seconds
### Figure C2.6.1.3a – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.278 Seconds.

![Graph showing Ductility Demand and Change in Ductility Demand](image)

### Figure C2.6.1.3b– EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.278 Seconds

![Graph showing Change in Ductility Demand](image)
Figure C2.6.1.4a – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.278 Seconds.

Figure C2.6.1.4b – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.278 Seconds
Figure C2.7.1.1a – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.459 Seconds.

Figure C2.7.1.1b – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
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Figure C2.7.1.2b– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds.
Figure C2.7.1.2c– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds

Figure C2.7.1.2d– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
Figure C2.7.1.3a – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.459 Seconds.

Figure C2.7.1.3b – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
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Figure C2.7.1.4b– EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
Figure C2.8.1.1a– EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.655 Seconds.

Figure C2.8.1.1b– EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.655 Seconds
Figure C2.8.1.2a – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.655 Seconds.

Figure C2.8.1.2b – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.655 Seconds
Figure C2.8.1.2c– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.655 Seconds

Figure C2.8.1.2d– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.655 Seconds
Figure C2.8.1.3a – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.655 Seconds.

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Figure C2.8.1.4b – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.655 Seconds.
Figure C2.9.1.1a – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.1.1.9a – EQ1, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds.
Figure C2.9.1.2a – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.9.1.2b – EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds
Figure C2.9.1.2c– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds

Figure C2.9.1.2d– EQ1, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds
Figure C2.9.1.3a – EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.9.1.3b– EQ1, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds.
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Figure C2.9.1.4b – EQ1, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds
Figure C2.3.2.1a – EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.705 Seconds.

Figure C2.3.2.1b – EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds
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Figure C2.3.2.2b– EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds
Figure C2.3.2.2c– EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds

Figure C2.3.2.2d– EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds
Figure C2.3.2.3a – EQ2, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.705 Seconds.

Figure C2.3.2.3b– EQ2, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds
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Figure C2.3.2.4b – EQ2, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.705 Seconds
Figure C2.4.2.1a – EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.903 Seconds.

Figure C2.4.2.1b– EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds
Figure C2.4.2.2a – EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.903 Seconds.

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Figure C2.4.2.2c– EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds

Figure C2.4.2.2d– EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds
Figure C2.4.2.3a – EQ2, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 0.903 Seconds.

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Figure C2.4.2.4a – EQ2, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Ductility Demand Versus \( r_p \) for Models with a Period of 0.903 Seconds.

Figure C2.4.2.4b– EQ2, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 0.903 Seconds
Figure C2.5.2.1a – EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus \( r_p \) for Models with a Period of 1.093 Seconds.

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Figure C2.6.2.2c– EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.278 Seconds

Figure C2.6.2.2d– EQ2, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.278 Seconds
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Figure C2.8.2.1a – EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus \( r_p \) for Models with a Period of 1.635 Seconds.

Figure C2.8.2.1b– EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.635 Seconds
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Figure C2.9.2.1a – EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.9.2.1b – EQ2, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds.
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Figure C2.7.8.1b– EQ8, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds.
Figure C2.7.8.2a – EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.459 Seconds.

Figure C2.7.8.2b – EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
Figure C2.7.8.2c– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds

Figure C2.7.8.2d– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
Figure C2.7.8.3a – EQ8, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus \( r_p \) for Models with a Period of 1.459 Seconds.

Figure C2.7.8.3b – EQ8, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
Figure C2.7.8.4a – EQ8, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Ductility Demand Versus \( r_p \) for Models with a Period of 1.459 Seconds.

Figure C2.7.8.4b – EQ8, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.459 Seconds
Figure C2.8.8.1a – EQ8, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.635 Seconds.

Figure C2.8.8.1b – EQ8, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.635 Seconds
Figure C2.8.8.2a – EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.635 Seconds.

Figure C2.8.8.2b– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.635 Seconds.
Figure C2.8.8.2c– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.635 Seconds

Figure C2.8.8.2d– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.635 Seconds
Figure C2.8.8.3a – EQ8, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.635 Seconds.

Figure C2.8.8.3b– EQ8, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.635 Seconds
Figure C2.8.8.4a – EQ8, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.635 Seconds.

Figure C2.8.8.4b– EQ8, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.635 Seconds
Figure C2.9.8.1a – EQ8, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.9.8.1b– EQ8, Lateral Scale = 0.1 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds
Figure C2.9.8.2a – EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.9.8.2b– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds
Figure C2.9.8.2c– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.0, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds

Figure C2.9.8.2d– EQ8, Lateral Scale = 0.2 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds
Figure C2.9.8.3a – EQ8, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.9.8.3b – EQ8, Lateral Scale = 0.3 g, Vertical Multiplier = 1.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds
Figure C2.9.8.4a – EQ8, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Ductility Demand Versus $r_p$ for Models with a Period of 1.808 Seconds.

Figure C2.9.8.4b – EQ8, Lateral Scale = 0.4 g, Vertical Multiplier = 2.5, Change in Ductility Demand Due to the Inclusion of Vertical Accelerations for Models with a Period of 1.808 Seconds