

**Initial Evaluation Procedure (IEP) Assessment**

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Street Number & Name:	55 Coote Road	Job No.:	2,63649.00
AKA:	Napier Prison	By:	[ s 9(2)(a) ]
Name of building:	Building 6 - Wash/Shower Block	Date:	7/06/2016
City:	Napier	Revision No.:	0

**Table IEP-1 Initial Evaluation Procedure Step 1**

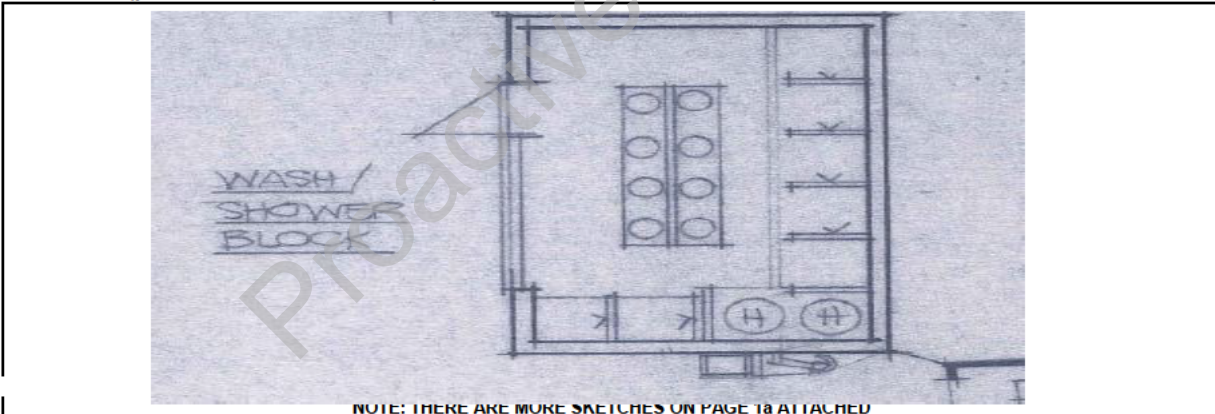
**Step 1 - General Information**

**1.1 Photos (attach sufficient to describe building)**



NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

**1.2 Sketches (plans etc, show items of interest)**



NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

**1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)**

Built: 1862  
 Use: Shower Block  
 Structural bracing system: Timber framing in the longitudinal direction and timber portal frame in the transverse direction.  
 Roof: Corrugated iron roofing on timber purlins.  
 Foundation system: Suspended timber floors on piles.  
 Both walls are lined with horizontal slatted timber and cement stabilised plaster.

**1.4 Note information sources**

Tick as appropriate

Visual Inspection of Exterior   
 Visual Inspection of Interior   
 Drawings (note type)

Specifications   
 Geotechnical Reports   
 Other (list)

Plan layouts from local council archives.

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**Table IEP-2 Initial Evaluation Procedure Step 2**

**Step 2 - Determination of (%NBS)<sub>b</sub>**

(Baseline (%NBS) for particular building - refer Section B5)

**2.1 Determine nominal (%NBS) = (%NBS)<sub>nom</sub>**

	<u>Longitudinal</u>	<u>Transverse</u>
<b>a) Building Strengthening Data</b>		
Tick if building is known to have been strengthened in this direction	<input type="checkbox"/>	<input type="checkbox"/>
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
<b>b) Year of Design/Strengthening, Building Type and Seismic Zone</b>		
	Pre 1935 <input checked="" type="radio"/> 1935-1965 <input type="radio"/> 1965-1976 <input type="radio"/> 1976-1984 <input type="radio"/> 1984-1992 <input type="radio"/> 1992-2004 <input type="radio"/> 2004-2011 <input type="radio"/> Post Aug 2011 <input type="radio"/>	Pre 1935 <input checked="" type="radio"/> 1935-1965 <input type="radio"/> 1965-1976 <input type="radio"/> 1976-1984 <input type="radio"/> 1984-1992 <input type="radio"/> 1992-2004 <input type="radio"/> 2004-2011 <input type="radio"/> Post Aug 2011 <input type="radio"/>
Building Type:	Public Buildings	Public Buildings
Seismic Zone:		
<b>c) Soil Type</b>		
From NZS1170.5:2004, CI 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, CI 4.6.2.2 : (for 1992 to 2004 and only if known)	Flexible	Flexible
<b>d) Estimate Period, T</b>		
Comment:		
	h <sub>n</sub> = 4	4 m
	A <sub>c</sub> = 1.00	1.00 m <sup>2</sup>
Moment Resisting Concrete Frames: T = max(0.09h <sub>n</sub> <sup>0.75</sup> , 0.4)	<input type="radio"/>	<input type="radio"/>
Moment Resisting Steel Frames: T = max(0.14h <sub>n</sub> <sup>0.75</sup> , 0.4)	<input type="radio"/>	<input type="radio"/>
Eccentrically Braced Steel Frames: T = max(0.08h <sub>n</sub> <sup>0.75</sup> , 0.4)	<input type="radio"/>	<input type="radio"/>
All Other Frame Structures: T = max(0.06h <sub>n</sub> <sup>0.75</sup> , 0.4)	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Concrete Shear Walls: T = max(0.09h <sub>n</sub> <sup>0.75</sup> /A <sub>c</sub> <sup>0.5</sup> , 0.4)	<input type="radio"/>	<input type="radio"/>
Masonry Shear Walls: T ≤ 0.4sec	<input type="radio"/>	<input type="radio"/>
User Defined (input Period):	<input type="radio"/>	<input type="radio"/>
Where h <sub>n</sub> = height in metres from the base of the structure to the uppermost seismic weight or mass.	T: 0.40	0.40
<b>e) Factor A:</b> Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	Factor A: 1.00	1.00
<b>f) Factor B:</b> Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	Factor B: 0.03	0.03
<b>g) Factor C:</b> For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	Factor C: 1.00	1.00
<b>h) Factor D:</b> For buildings designed prior to 1935 Factor D = 0.8 except for Wellington where Factor D may be taken as 1, otherwise take as 1.0.	Factor D: 0.80	0.80
<b>(%NBS)<sub>nom</sub> = AxBxCxD</b>	<b>(%NBS)<sub>nom</sub> = 2%</b>	<b>2%</b>

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**Table IEP-2 Initial Evaluation Procedure Step 2 continued**

**2.2 Near Fault Scaling Factor, Factor E**

If  $T \leq 1.5\text{sec}$ , Factor E = 1

a) Near Fault Factor,  $N(T,D)$

(from NZS1170.5:2004, Cl 3.1.8)

Longitudinal

$N(T,D)$ : 1

Transverse

1

b) Factor E

=  $1/N(T,D)$

Factor E: 1.00

1.00

**2.3 Hazard Scaling Factor, Factor F**

a) Hazard Factor, Z, for site

Location: Napier

Z = 0.38 (from NZS1170.5:2004, Table 3.3)

$Z_{1992}$  = 1.2 (NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))

$Z_{2004}$  = 0.38 (from NZS1170.5:2004, Table 3.3)

b) Factor F

For pre 1992 =  $1/Z$

For 1992-2011 =  $Z_{1992}/Z$

For post 2011 =  $Z_{2004}/Z$

Factor F: 2.63

2.63

**2.4 Return Period Scaling Factor, Factor G**

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1985 and known to be designed as a public building set to 1.25. For buildings designed 1985-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

I = 1.25

1.25

b) Design Risk Factor,  $R_0$

(set to 1.0 if other than 1976-2004, or not known)

$R_0$  = 1

1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level  1  2  3  4

R = 1.0

1.0

d) Factor G

=  $IR_0/R$

Factor G: 1.25

1.25

**2.5 Ductility Scaling Factor, Factor H**

a) Available Displacement Ductility Within Existing Structure

Comment:

$\mu$  = 2.00

2.00

b) Factor H

For pre 1976 (maximum of 2) =  $k_{\mu}$

For 1976 onwards = 1

Factor H: 1.57

1.57

(where  $k_{\mu}$  is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

**2.6 Structural Performance Scaling Factor, Factor I**

a) Structural Performance Factor,  $S_p$

(from accompanying Figure 3.4)

Tick if light timber-framed construction in this direction

$S_p$  = 0.50

0.50

b) Structural Performance Scaling Factor

=  $1/S_p$

Factor I: 2.00

2.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for  $S_p$  in this period

**2.7 Baseline %NBS for Building, (%NBS)<sub>b</sub>**

(equals  $(\%NBS)_{nom} \times E \times F \times G \times H \times I$ )

24%

24%

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**Table IEP-3 Initial Evaluation Procedure Step 3**

**Step 3 - Assessment of Performance Achievement Ratio (PAR)**

(Refer Appendix B - Section B3.2)

**a) Longitudinal Direction**

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
<b>3.1 Plan Irregularity</b> Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None		Factor A 1.0
<b>3.2 Vertical Irregularity</b> Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None		Factor B 1.0
<b>3.3 Short Columns</b> Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None		Factor C 1.0

**3.4 Pounding Potential**

(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

**a) Factor D1: - Pounding Effect**

*Note:*  
 Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

**Factor D1 For Longitudinal Direction:** 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	<input type="radio"/> 1	<input type="radio"/> 1	<input checked="" type="radio"/> 1
Alignment of Floors not within 20% of Storey Height	<input type="radio"/> 0.4	<input type="radio"/> 0.7	<input type="radio"/> 0.8
None			

**b) Factor D2: - Height Difference Effect**

**Factor D2 For Longitudinal Direction:** 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	<input type="radio"/> 0.4	<input type="radio"/> 0.7	<input type="radio"/> 1
Height Difference 2 to 4 Storeys	<input type="radio"/> 0.7	<input type="radio"/> 0.9	<input type="radio"/> 1
Height Difference < 2 Storeys	<input type="radio"/> 1	<input type="radio"/> 1	<input checked="" type="radio"/> 1
None			

Factor D 1.0

**3.5 Site Characteristics - Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective**

Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant	Factor E 1.0
None	

**3.6 Other Factors - for allowance of all other relevant characteristics of the building**

For ≤ 3 storeys - Maximum value 2.5  
 otherwise - Maximum value 1.5.  
 No minimum.

Factor F 2.5

**Record rationale for choice of Factor F:**

Lightweight building, good wall length

**3.7 Performance Achievement Ratio (PAR)**  
 (equals A x B x C x D x E x F)

PAR  
 Longitudinal 2.50

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**Table IEP-3 Initial Evaluation Procedure Step 3**

**Step 3 - Assessment of Performance Achievement Ratio (PAR)**

(Refer Appendix B - Section B3.2)

**b) Transverse Direction**

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
<b>3.1 Plan Irregularity</b> Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None	Factor A	1.0
<b>3.2 Vertical Irregularity</b> Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None	Factor B	1.0
<b>3.3 Short Columns</b> Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None	Factor C	1.0
<b>3.4 Pounding Potential</b> (Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)		

**a) Factor D1: - Pounding Effect**

*Note:*  
 Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

**Factor D1 For Transverse Direction:** 1.0

Table for Selection of Factor D1	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant Sep>.01H
Alignment of Floors within 20% of Storey Height	<input type="radio"/> 1	<input type="radio"/> 1	<input checked="" type="radio"/> 1
Alignment of Floors not within 20% of Storey Height	<input type="radio"/> 0.4	<input type="radio"/> 0.7	<input type="radio"/> 0.8
None			

**b) Factor D2: - Height Difference Effect**

**Factor D2 For Transverse Direction:** 1.0

Table for Selection of Factor D2	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant Sep>.01H
Height Difference > 4 Storeys	<input type="radio"/> 0.4	<input type="radio"/> 0.7	<input type="radio"/> 1
Height Difference 2 to 4 Storeys	<input type="radio"/> 0.7	<input type="radio"/> 0.9	<input type="radio"/> 1
Height Difference < 2 Storeys	<input type="radio"/> 1	<input type="radio"/> 1	<input checked="" type="radio"/> 1
None			

Factor D 1.0

**3.5 Site Characteristics - Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective**

Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant	Factor E	1.0
None		

**3.6 Other Factors - for allowance of all other relevant characteristics of the building**

For ≤ 3 storeys - Maximum value 2.5  
 otherwise - Maximum value 1.5.  
 No minimum.

Factor F 1.50

**Record rationale for choice of Factor F:**

Lightweight building, large opening to one wall, no ceiling diaphragm to distribute torsion loads.

**3.7 Performance Achievement Ratio (PAR)**  
 (equals A x B x C x D x E x F)

**PAR**  
 Transverse 1.50

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**Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7**

**Step 4 - Percentage of New Building Standard (%NBS)**

	Longitudinal	Transverse
4.1 Assessed Baseline %NBS (%NBS) <sub>b</sub> (from Table IEP - 1)	24%	24%
4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2)	2.50	1.50
4.3 PAR x Baseline (%NBS) <sub>b</sub>	60%	35%
4.4 Percentage New Building Standard (%NBS) (Use lower of two values from Step 4.3)		35%

**Step 5 - Potentially Earthquake Prone?** (Mark as appropriate) %NBS ≤ 34

**Step 6 - Potentially Earthquake Risk?** (Mark as appropriate) %NBS < 67

**Step 7 - Provisional Grading for Seismic Risk based on IEP** Seismic Grade

Additional Comments (items of note affecting IEP score)

Evaluation Confirmed by [ s 9(2)(a) ] Signature  
 [Redacted] Name  
 1003026 CPEng. No

**Relationship between Grade and %NBS:**

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	33 to 20	< 20

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**Table IEP-5 Initial Evaluation Procedure Step 8**

**Step 8 - Identification of potential Severe Critical Structural Weaknesses that could result in significant risk to a significant number of occupants**

- 8.1 Number of storeys above ground level 1
- 8.2 Presence of heavy concrete floors and/or concrete roof? (Y/N) N

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

Proactive Release

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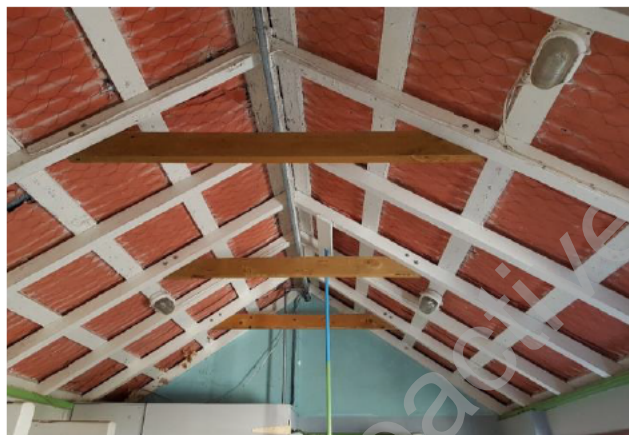
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**Table IEP-1a Additional Photos and Sketches**

Add any additional photographs, notes or sketches required below:

*Note: print this page separately*



Project Release

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