

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 8 - Covered Yard	Date:	7/06/2016
City:	Napier	Revision No.:	0

Table IEP-1 Initial Evaluation Procedure Step 1

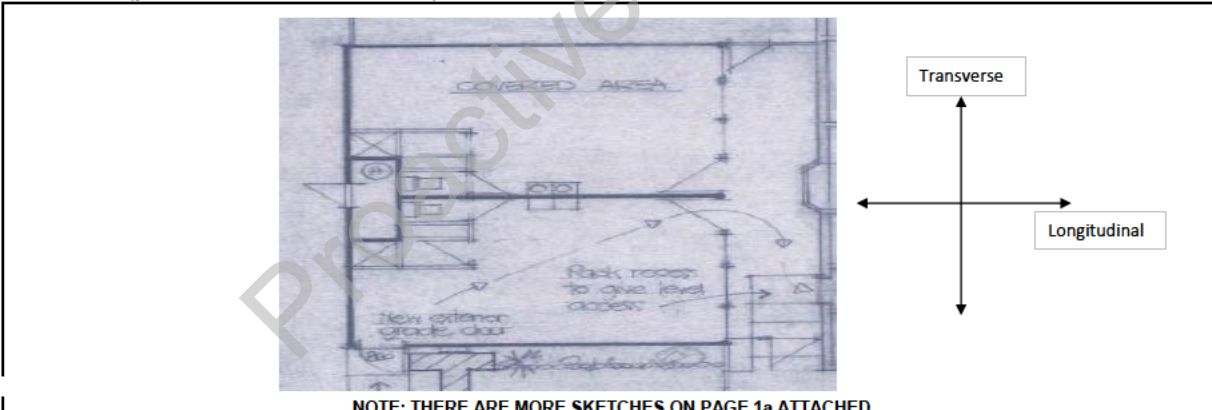
Step 1 - General Information

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: Exercise Yard
 Structural bracing system: Timber framed walls in the longitudinal direction. Transverse direction consists of timber framed walls at the rear of the block and steel framed (angled and square sections) with mesh on the entrance side.
 Roof: Steel framed roof with mesh.
 Foundation system: Assumed to be concrete slab on grade.
 Structure appears to be internally and externally lined with timber boards.

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)_b

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

2.1 Determine nominal (%NBS) = (%NBS)_{nom}

	<u>Longitudinal</u>	<u>Transverse</u>
a) Building Strengthening Data		
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) Year of Design/Strengthening, Building Type and Seismic Zone		
	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:		
c) Soil Type		
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
d) Estimate Period, T		
Comment:		
	h _n = 3	3 m
	A _c = 1.00	1.00 m ²
Moment Resisting Concrete Frames: $T = \max(0.09h_n^{0.75}, 0.4)$	<input type="radio"/>	<input type="radio"/>
Moment Resisting Steel Frames: $T = \max(0.14h_n^{0.75}, 0.4)$	<input type="radio"/>	<input type="radio"/>
Eccentrically Braced Steel Frames: $T = \max(0.08h_n^{0.75}, 0.4)$	<input type="radio"/>	<input type="radio"/>
All Other Frame Structures: $T = \max(0.06h_n^{0.75}, 0.4)$	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Concrete Shear Walls: $T = \max(0.09h_n^{0.75}/A_c^{0.5}, 0.4)$	<input type="radio"/>	<input type="radio"/>
Masonry Shear Walls: $T \leq 0.4\text{sec}$	<input type="radio"/>	<input type="radio"/>
User Defined (input Period):	<input type="radio"/>	<input type="radio"/>
Where h _n = height in metres from the base of the structure to the uppermost seismic weight or mass.	T: 0.40	0.40
e) Factor A: Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	Factor A: 1.00	1.00
f) Factor B: Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	Factor B: 0.03	0.03
g) Factor C: For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	Factor C: 1.00	1.00
h) Factor D: 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
(%NBS)_{nom} = AxBxCxD	(%NBS)_{nom} = 2%	2%

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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

Transverse

$N(T,D)$: 1

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:

μ = 2.00

2.00

b) Factor H

For pre 1976 (maximum of 2) = k_{μ}
For 1976 onwards = 1

Factor H: 1.57

1.57

(where k_{μ} 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)_b

(equals (%NBS)_{nom} x E x F x G x H x 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
3.1 Plan Irregularity Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None		Factor A 1.0
3.2 Vertical Irregularity Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None		Factor B 1.0
3.3 Short Columns 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 2.0

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 2.00

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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
3.1 Plan Irregularity Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant Large opening in one wall, consider 30% reduction to severe, use F factor below instead		Factor A 1.0
3.2 Vertical Irregularity Effect on Structural Performance <input type="radio"/> Severe <input type="radio"/> Significant <input checked="" type="radio"/> Insignificant None		Factor B 1.0
3.3 Short Columns 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 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, no bracing to front wall, no ceiling diaphragm to redistribute forces in torsion

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) _b (from Table IEP - 1)	24%	24%
4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2)	2.00	1.50
4.3 PAR x Baseline (%NBS) _b	45%	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
 [s 9(2)(a)] 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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Table IEP-1a Additional Photos and Sketches

Add any additional photographs, notes or sketches required below:

Note: print this page separately



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