Initial Evaluation Procedure (IEP) Assessment - Completed for Client

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Street Number & Name:	**29 Kenepuru Drive**	**Job No.:**	**20252104**
AKA:		**By:**	**EJK**
Name of building:	**Flooring Xtra**	**Date:**	**6/11/2025**
City:	**Porirua**	**Revision No.:**	**1**

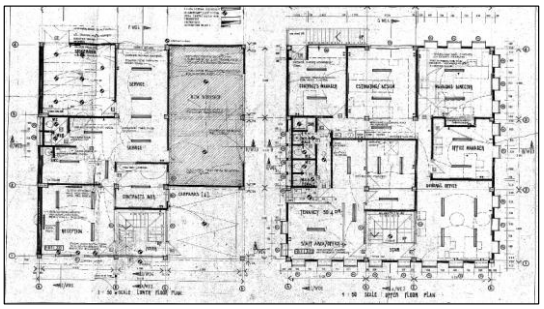
Table IEP-1 Initial Evaluation Procedure Step 1

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)

- Building is a two-storey reinforced concrete moment frame building. Believed to have been constructed in 1976, probable design 1975 though some design work may have been done in 1976.
- Ground floor columns appear to be 300 x 300, with the exception of two ground floor columns on the north face which are 700x300 and two on the east face which are 400x300, first floor columns appear to be 300 x 300.
- First floor comprises a 150 mm reinforced concrete slab, details unknown but D12s at 200 centers would have been common practice at the time.
- Light roof supported by steel beam (welded together and bolted into column) and timber rafters.
- Northeast face includes 150 concrete block panels in lower level bays between columns.
- Ply panel shed adjacent to building but does not form part of structure.
- Both levels include timber frame walls.

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	**Specifications**	☐
Visual Inspection of Interior	☑	**Geotechnical Reports**	☑
Drawings (note type)	☑	**Other (list)**	☐

Architectural drawings, publicly available geotechnical data from NZGD and GNS maps, Wellington Regional Council Seismic Hazard Map.

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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)*$_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
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	○	○
1935-1965	○	○
1965-1976	◉	◉
1976-1984	○	○
1984-1992	○	○
1992-2004	○	○
2004-2011	○	○
Post Aug 2011	○	○
Building Type:	Others	Others
Seismic Zone:	Zone A	Zone A
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	C Shallow Soil	C Shallow Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	Not applicable	Not applicable
d) Estimate Period, *T*		
Comment: Two-storey 6 meter tall reinforced concrete frame structure.		
h_n =	6	6 m
A_c =	6.41	1.00 m^2
Moment Resisting Concrete Frames: $T = \max\{0.09h_n^{0.75}, 0.4\}$	◉	◉
Moment Resisting Steel Frames: $T = \max\{0.14h_n^{0.75}, 0.4\}$	○	○
Eccentrically Braced Steel Frames: $T = \max\{0.08h_n^{0.75}, 0.4\}$	○	○
All Other Frame Structures: $T = \max\{0.06h_n^{0.75}, 0.4\}$	○	○
Concrete Shear Walls $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$	○	○
Masonry Shear Walls: $T \leq 0.4$sec	○	○
User Defined (input Period):	○	○
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:** 0.08	0.08
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 and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0.	**Factor D:** 1.00	1.00
***(%NBS)*$_{nom}$ = AxBxCxD**	***(%NBS)*$_{nom}$** 8%	8%

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Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

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

		Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)	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: Porirua — **Refer right for user-defined locations**

Z =	0.4	(from NZS1170.5:2004, Table 3.3)
Z_{1992} =	1.2	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} =	0.4	(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

	Longitudinal	Transverse
Factor F:	2.50	2.50

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 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.)

	Longitudinal	Transverse
I =	1	1

b) Design Risk Factor, R_o

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

	Longitudinal	Transverse
R_o =	1	1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level) *Choose Importance Level*

	Longitudinal	Transverse
	○ 1 ◉ 2 ○ 3 ○ 4	○ 1 ◉ 2 ○ 3 ○ 4
R =	1.0	1.0

d) Factor G = IR_o/R

	Longitudinal	Transverse
Factor G:	1.00	1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

Assumption of Ductility 2 rather than 3 is conservative, but appropriate absent the original structural drawings.

		Longitudinal	Transverse
μ =		2.00	2.00

b) Factor H

		k_μ Longitudinal	k_μ Transverse
For pre 1976 (maximum of 2)	=	1.57	1.57
For 1976 onwards	=	1	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)

	Longitudinal	Transverse
Tick if light timber-framed construction in this direction	☐	☐
S_p =	0.70	0.70

b) Structural Performance Scaling Factor = $1/S_p$

	Longitudinal	Transverse
Factor I:	1.43	1.43

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

	Longitudinal	Transverse
2.7 Baseline *%NBS* for Building, $(\%NBS)_b$ (equals $(\%NBS)_{nom}$ x E x F x G x H x I)	**43%**	**43%**

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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	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor A** 1.0
High degree of regularity in the concrete frame structure, irregularity introduced by presence of concrete block panels is not significant.				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor B** 1.0
No vertical irregularity.				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor C** 1.0
One isolated short column only.				

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	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

No adjacent buildings in the longitudinal direction close enough to create a risk of pounding.

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	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	◉ 1
Height Difference < 2 Storeys	○ 1	○ 1	○ 1

No adjacent buildings in the longitudinal direction close enough to create a risk of pounding.

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 ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor E** 1.0

Site is identified as being at moderate risk in Porirua City's integrated seismic hazard map, the site is not within an area considered at high or moderate risk of liquefaction as per the city's seismic hazard map.

3.6 Other Factors - *for allowance of all other relevant characterstics of the building* **Factor F** 1.6

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

Record rationale for choice of Factor F:

There is evidence of relatively poor workmanship in some of the concrete elements, including poor vibration (evidence of this visible in the first floor slab), and one column is known to have needed repairwork. No evidence of seismic damage or differential settlement observed.

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

PAR
Longitudinal **1.60**

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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 ○ Severe ○ Significant ◉ Insignificant	**Factor A** 1.0
	High degree of regularity in the concrete frame structure, concrete block panels not observed in the transverse direction	
3.2 Vertical Irregularity		
	Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant	**Factor B** 1.0
	No vertical irregularity.	
3.3 Short Columns		
	Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant	**Factor C** 1.0
	Not applicable in transverse direction.	

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	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

No adjacent buildings in the transverse direction close enough to create a risk of pounding.

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	◉ 1
Height Difference < 2 Storeys	○ 1	○ 1	○ 1

No adjacent buildings in the transverse direction close enough to create a risk of pounding.

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 ○ Severe ○ Significant ◉ Insignificant **Factor E** 1.0

Site is identified as being at moderate risk in Porirua City's integrated seismic hazard map, the site is not within an area considered at high or moderate risk of liquefaction as per the city's seismic hazard map.

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

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

Factor F 1.60

Record rationale for choice of Factor F:

There is evidence of relatively poor workmanship in some of the concrete elements, including poor vibration (evidence of this visible in the first floor slab), and one column is known to have needed repairwork. No evidence of seismic damage or differential settlement observed.

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

	PAR
Transverse	**1.60**

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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)	43%	43%
4.2	**Performance Achievement Ratio (PAR)** (from Table IEP - 2)	1.60	1.60
4.3	**PAR x Baseline *(%NBS)*** $_b$	70%	70%
4.4	**Percentage New Building Standard *(%NBS)* - Seismic Rating** (Use lower of two values from Step 4.3)		70%

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade B

Additional Comments (items of note affecting IEP based seismic rating)

Seismic damage to the elements of the building (beams, columns, floor slabs) was not observed during our inspection of the building. In particular, evidence of cracking was not observed in plastic hinge zones. Repeated remodelling of the building is likely to have improved the building's structural performance under seismic conditions.

Factors that stood in the way of a higher rating were the lack of original building drawings (creating uncertainty about the form of construction), the indicators of poor quality construction, and the fact that the building's design and construction likely date from the beginning of the period at which reinforced concrete moment frame structures could be designed for ductility = 3.

Diaphragm action is highly likely to exist in the first floor slab and in the roof plane, enabling some ductile behaviour of the structure under lateral loading.Computer modelling predicts low level of drift under lateral seismic loading, for the assumptions made as to concrete member reinforcement.

Further investigative and strengthening works would be necessary to increase the seismic rating of the building, if this were desired.

Relationship between Grade and *%NBS*:

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

Initial Evaluation Procedure (IEP) Assessment - Completed for Client **Page 7**

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Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	2
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	Y

Potential Severe Structural Weaknesses (SSWs):

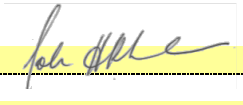
Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

1. None identified
2. Weak or soft storey (except top storey)
3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements
4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections
5. No identifiable connection between primary structure and diaphragms
6. Ledge and gap stairs

IEP Assessment Confirmed by  **Signature**

John H Klimenko **Name**

17580 **CPEng. No**

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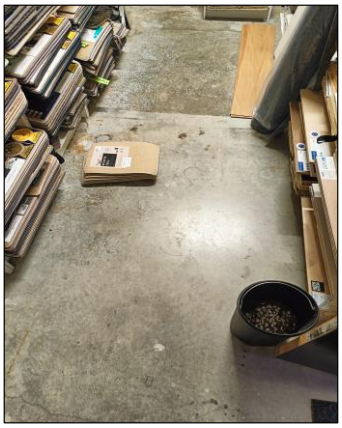
Table IEP-1a Additional Photos and Sketches

Add any additional photographs, notes or sketches required below:

Note: print this page separately



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DISCLOSURE STATEMENT

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2. Bayleys and the Vendor do not warrant the accuracy or completeness of the information and recommends that all recipients undertake their own due diligence, obtain their own reports to their satisfaction and seek independent advice prior to committing to purchaser.