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Norman Kirk Courts Quantitative Engineering Evaluation

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Executive Summary- Block A

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block A building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block A				
Building Location ID	PRO 1137	B001 Multiple Building Site Y				
Building Address	183 Strickla	nd Street, Addington No. of residential units				
Soil Technical Category	N/A	Importance Level 2		Approximate Year Built	1974	
Foot Print (m ²)	320	Storeys above ground 3		Storeys below ground	0	
Type of Construction	Light roof,	roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Quantitative L5 Report Results Summary						
Building Occupied	Y	The Norman Kirk Courts Block A is currently in use.				
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block A is suitable for continued occupation.				
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.				
Critical Structural						

Critical Structural Weaknesses (CSW)	nesses (CSW) N There were no critical structural weaknesses found.	
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	50%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block B

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block B building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block B			
Building Location ID	PRO 1137	B002 Multiple Building Site Y			Y
Building Address	183 Strickla	and Street, Addington No. of residential units 2			2
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974
Foot Print (m ²)	124	Storeys above ground	1	Storeys below ground	0
Type of Construction	Light roof,	concrete masonry walls, concr	ete strip foot	ings, slab on grade floor.	
Quantitative L5 Report Results Summary					
Building Occupied	Y	The Norman Kirk Courts Block B is currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block B building is suitable for continued occupancy.			
Key Damage Summary	Y	Refer to summary of building	damage Se	ction 3.1 report body.	
Critical Structural Weaknesses (CSW)	N	There were no critical structu	ıral weaknes	ses found.	
Levels Survey Results	Y	Floor levels are acceptable.			
Building %NBS From Analysis	40%	Based on an analysis of capacity and demand.			
Approval					
	. /				

Author Signature

MI fordalow

Approver Signature

Simone

	· /		
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block C

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block C building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block C			
Building Location ID	PRO 1137	NO 1137 B003 Multiple Building Site Y			
Building Address	183 Strickland Street, AddingtonNo. of residential units5				5
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974
Foot Print (m ²)	135	Storeys above ground	3	Storeys below ground	0
Type of Construction	Combination of timber framing, lightly reinforced concrete blockwork walls, concrete precast floor slabs and strip foundations.				

Quantitative L5 Report Results Summary

Building Occupied	Y	Norman Kirk Courts Block C is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block C is suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	41%	Based on an analysis of capacity and demand and limited by the shear connection between the concrete floor diaphragm and the blockwork walls.

Approval

Author Signature	C.T. 6lf	Approver Signature	Ein Smoone
Name	Callum Lillywhite	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block D

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block D building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block D				
Building Location ID	PRO 1137	B004		Multiple Building Site	Y	
Building Address	183 Strickla	and Street, Addington		No. of residential units	5	
Soil Technical Category	N/A	Importance Level 2		Approximate Year Built	1974	
Foot Print (m ²)	241	Storeys above ground	1	Storeys below ground	0	
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.					
Quantitative L5 Report Results Summary						
Building Occupied	Y	The Norman Kirk Courts Block D is currently in use.				
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block D building is suitable for continued occupancy.				
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.				
Critical Structural	N	There were no critical structu	ral weaknes	There were no critical structural weaknesses found.		

Weaknesses (CSW)	IN	There were no chilcal structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	43%	Based on an analysis of capacity and demand.

Approval

Author Signature

MArdalay

Approver Signature

En Smoore

Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block E

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block E building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block E			
Building Location ID	PRO 1137	B005	3005 Multiple Building Site Y		
Building Address	183 Strickla	and Street, Addington	No. of residential units	8	
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974
Foot Print (m ²)	240	Storeys above ground	3	Storeys below ground	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Qualitative L5 Report Results Summary					
Building Occupied	Y	Norman Kirk Courts Block E is currently in use.			
Suitable for Continued	Y	The Norman Kirk Courts Block E is suitable for continued occupation.			

Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block E is suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	43%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block F

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block F building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block F			
Building Location ID	PRO 1137	B006		Multiple Building Site	Y
Building Address	183 Strickla	and Street, Addington	No. of residential units	7	
Soil Technical Category	N/A	Importance Level 2 Approximat		Approximate Year Built	1974
Foot Print (m ²)	220	Storeys above ground	3	Storeys below ground	0
Type of Construction	Light roof,	concrete masonry walls, concrete strip footings, slab on grade floor.			
Qualitative L5 Report Results Summary					
Building Occupied	Y	Norman Kirk Courts Block F is currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block F is suitable for continued occupation.			
Key Damage Summary	Y	Refer to summary of building	Refer to summary of building damage section 3.1 report body.		

Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	51%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block G

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block G building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block G			
Building Location ID	PRO 1137	B007		Multiple Building Site	Y
Building Address	183 Strickla	and Street, Addington		No. of residential units	3
Soil Technical Category	N/A	Importance Level 2		Approximate Year Built	1974
Foot Print (m ²)	95	Storeys above ground	1	Storeys below ground	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Qualitative L5 Report Results Summary					
Building Occupied	Y	Norman Kirk Courts Block G is currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block G is suitable for continued occupation.			

Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	51%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block H

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block H building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Block H				
Building Location ID	PRO 1137	B008 Multiple Building Site Y				
Building Address	183 Strickland Street, Addington			No. of residential units	5	
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974	
Foot Print (m ²)	135	Storeys above ground	3	Storeys below ground	0	
Type of Construction	Combination floor slabs	Combination of timber framing, lightly reinforced concrete blockwork walls, concrete precast floor slabs and strip foundations.				
Overstätetive I. 5. Den est De suite Overseens						

Quantitative L5 Report Results Summary

Building Occupied	Y	Norman Kirk Courts Block H is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block H is suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	41%	Based on an analysis of capacity and demand and limited by the shear connection between the concrete floor diaphragm and the blockwork walls.

Approval

Author Signature	C.T. 6lf	Approver Signature	Ein Smoone
Name	Callumn Lilly white	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary-Block I

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block I building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts- Block I				
Building Location ID	PRO 1137	B009		Multiple Building Site	Y	
Building Address	183 Strickla	and Street, Addington		No. of residential units	10	
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974	
Foot Print (m ²)	360	Storeys above ground	1	Storeys below ground	0	
Type of Construction	Light roof, o	concrete masonry walls, concre	ete strip foot	ings, slab on grade floor.		
Quantitative L5 Repo	ort Resul	ts Summary				
Building Occupied	Y	The Norman Kirk Courts Block I is currently in use.				
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block I building is suitable for continued occupancy.				
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.				
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.				
Levels Survey Results	Y	Floor levels are acceptable.				
Building %NBS From Analysis	41%	Based on an analysis of capacity and demand and limited by the shear connection between the concrete floor diaphragm and the blockwork walls.				
Approval						

Author SignatureMMMMMM
MMMMMMApprover SignatureEnclineNameManoochehr ArdalanyNameEric SimeoneTitleStructural EngineerTitleStructural Engineer

Executive Summary- Block J

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block J building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts- Block J					
Building Location ID	PRO 1137	B010			Multiple	e Building Site	Y
Building Address	183 Strickla	and Street, Addington			No. of r	residential units	5
Soil Technical Category	N/A	Importance Level		2	Approx	imate Year Built	1974
Foot Print (m ²)	420	Storeys above grou	und	1	Storeys	s below ground	0
Type of Construction	Light roof, o	concrete masonry wal	ls, concre	ete strip footi	ngs, slab	on grade floor.	
Quantitative L5 Report Results Summary							
Building Occupied	Y	The Norman Kirk Co	ourts Bloc	ck J is curren	tly in use		
Suitable for Continued Occupancy	Y	The Norman Kirk Co	The Norman Kirk Courts Block J building is suitable for continued occupancy.				ancy.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.					
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.					
Levels Survey Results	Y	Floor levels are acceptable.					
Building %NBS From Analysis	44%	Based on an analysi	is of capa	acity and den	nand.		
Approval							
Author Signature	M	Ardalay		Approver Si	gnature	Ein Sim	one.
Name	Manoochel	nr Ardalany			Name	Eric Simeone	

Title

Structural Engineer

Title

Structural Engineer

Executive Summary- Garages 3-4

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 3-4 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Norman Kirk Courts Garages 3-4				
Y				
-				
1974				
0				
Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Qualitative L5 Report Results Summary				

Building Occupied	I	Norman Nink Oburts Garages 5-4 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 3-4 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garage 5

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 5 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts- Garage 5				
Building Location ID	PRO 1137	B012		Multiple Building Site	Y	
Building Address	183 Strickla	and Street, Addington		No. of residential units	-	
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974	
Foot Print (m ²)	17	Storeys above ground	1	Storeys below ground	0	
Type of Construction	Light roof,	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Quantitative L5 Repo	ort Resul	ts Summary				
Building Occupied	Y	The Norman Kirk Courts Garage 5 is currently in use.				
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 5 building is suitable for continued use.				
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.				
Critical Structural Weaknesses (CSW)	N	There were no critical structu	ral weaknes	ses found.		

Building Occupied	Y	The Norman Kirk Courts Garage 5 is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 5 building is suitable for continued use.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Ν	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

Approval

Author Signature	Mardalow	Approver Signature	Ein Simone
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 6-7

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 6-7 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Name	Norman Kirk Courts Garages 6-7				
PRO 1137	B013		Multiple Building Site	Y	
183 Strickla	83 Strickland Street, Addington No. of residential units -				
N/A	Importance Level	Approximate Year Built	1974		
33	Storeys above ground	1	Storeys below ground	0	
Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.					
Qualitative L5 Report Results Summary					
Y	Norman Kirk Courts Garage	Norman Kirk Courts Garages 6-7 are currently in use.			
	Name PRO 1137 183 Strickla N/A 33 Light roof, o t Results	NameNorman Kirk CourtPRO 1137013183 StrickStreet, Addington183 StrickStoreys above ground33Storeys above ground11Storeys above ground12Storeys above ground13Storeys above ground14Storeys above ground15SummaryYNorman Kirk Courts Garages	NameNorman Kirk Courts GaragePRO 1137913183 Strick-Instruct Street, Addington12N/AImportance Level233Storeys above ground1Light roof, correte masonry walls, concrete strip foot2YNorman Kirk Courts Garages 6-7 are curt	NameNorman Kirk Courts Garages 6-7PRO 1137Importance Istreet, AddingtonMultiple Building Site183 StrickStoret, AddingtonNo. of residential unitsN/AImportance Level2Approximate Year Built33Storetys above ground1Storetys below groundLight root, reter masonry walls, constructive strip for stripts, slab on grade floorStoretys below groundYYNorman Kirk Courts Garages 6-7 are stripts in use.	

gp.o.	•	
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 6-7 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary Garages 10-13

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 10-13 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Garages 10-13				
Building Location ID	PRO 1137	B014		Multiple Building Site	Y	
Building Address	183 Strickla	183 Strickland Street, Addington No. of residential units -				
Soil Technical Category	N/A	Importance Level	2	1974		
Foot Print (m ²)	68	Storeys above ground	Storeys below ground	0		
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.					
Quantitative L5 Report Results Summary						
Building Occupied	Y	Y The Norman Kirk Courts Garages 10-13 is currently in use.				

Y	The Norman Kirk Courts Garages 10-13 is currently in use.
Y	The Norman Kirk Courts Garages 10-13 building is suitable for continued use.
Y	Refer to summary of building damage Section 3.1 report body.
N	There were no critical structural weaknesses found.
N	Access to the garage was not possible.
44%	Based on an analysis of capacity and demand.
	Y Y Y N N 44%

Approval

Author Signature	Mardalow	Approver Signature	Ein Sincone
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

aurecon

Executive Summary- Garages 14-15

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 14-15 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Garages 14-15				
Building Location ID	PRO 1137	RO 1137 B015 Multiple Building Site Y				
Building Address	183 Strickla	and Street, Addington	No. of residential units	-		
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974	
Foot Print (m ²)	33	Storeys above ground	1	Storeys below ground	0	
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.					
Qualitative L5 Report Results Summary						

Building Occupied	Y	Norman Kirk Courts Garages 14-15 are currently in use.		
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 14-15 are suitable for continued occupation.		
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.		
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.		
Levels Survey Results	Y	Floor levels are acceptable.		
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.		

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garage 18

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 18 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts- Garage 18				
Building Location ID	PRO 1137	B016		Multiple Building Site	Y	
Building Address	183 Strickla	and Street, Addington		No. of residential units	-	
Soil Technical Category	N/A	Importance Level	Importance Level 2		1974	
Foot Print (m ²)	17	Storeys above ground	1	Storeys below ground	0	
Type of Construction	Light roof, o	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Quantitative L5 Report Results Summary						
Building Occupied	Y	The Norman Kirk Courts Garage 18 is currently in use.				
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 18 building is suitable for continued use.				
	V	Defer to summary of building	damaga Ca	ation 0.1 report hady		

Key Damage Summary	Ŷ	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Ν	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

Approval

Author Signature

M Ardalay

Approver Signature

En Simone

Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 24-25

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 24-25 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Garages 24-25				
Building Location ID	PRO 1137	RO 1137 B017 Multiple Building Site Y				
Building Address	183 Strickla	183 Strickland Street, Addington No. of residential units -				
Soil Technical Category	N/A	Importance Level 2 Approximate 1		Approximate Year Built	1974	
Foot Print (m ²)	33	Storeys above ground	Storeys below ground	0		
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.					
Qualitative L5 Report Results Summary						

Building Occupied	Y	Norman Kirk Courts Garages 24-25 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 24-25 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garage 2

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 2 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts- Garage 2			
Building Location ID	PRO 1137	B018		Multiple Building Site	Y
Building Address	183 Strickla	and Street, Addington		No. of residential units	-
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974
Foot Print (m ²)	17	Storeys above ground	1	Storeys below ground	0
Type of Construction	Light roof,	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.			
Quantitative L5 Report Results Summary					
Building Occupied	Y	The Norman Kirk Courts Garage 2 is currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 2 is suitable for continued use.			
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.			
Critical Structural Weaknesses (CSW)	N	There were no critical structu	ral weaknes	ses found.	

Levels Survey Results	Ν	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

Approval

Author Signature	Mardalow	Approver Signature	Ein Smoore
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 8-9

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 8-9 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Garages 8-9				
Building Location ID	PRO 1137	B019		Multiple Building Site	Y	
Building Address	183 Strickla	3 Strickland Street, Addington No. of residential units -				
Soil Technical Category	N/A	Importance Level	1974			
Foot Print (m ²)	33	Storeys above ground	1	Storeys below ground	0	
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.					
Qualitative L5 Report Results Summary						
Building Occupied	Y	Norman Kirk Courts Garage	Norman Kirk Courts Garages 8-9 are currently in use.			

Durining Cooupled	•	
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 8-9 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 16-17

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 16-17 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Garages 16-17				
Building Location ID	PRO 1137	137 B020 Multiple Building Site				
Building Address	183 Strickla	and Street, Addington	No. of residential units	0		
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974	
Foot Print (m ²)	33	Storeys above ground	1	Storeys below ground	0	
Type of Construction	Light roof,	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary

Building Occupied	Y	Norman Kirk Courts Garages 16-17 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 16-17 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	47%	Based on an analysis of bracing capacity and demand.

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 19-21

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 19-21 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts Garages 19-21			
Building Location ID	PRO 1137	Multiple Building Site Y			
Building Address	183 Strickla	and Street, Addington	No. of residential units	11	
Soil Technical Category	N/A	Importance Level	2	Approximate Year Built	1974
Foot Print (m ²)	33	Storeys above ground	1	Storeys below ground	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Qualitative 5 Repor	rt Roculta	Summary			

Qualitative L5 Report Results Summary

Building Occupied	Y	Norman Kirk Courts Garages 19-21 are currently in use.	
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 19-21 are suitable for continued occupation.	
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.	
Critical Structural Weaknesses (CSW)	Ν	There were no critical structural weaknesses found.	
Levels Survey Results	Y	Floor levels are acceptable.	
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.	

Approval

Author Signature	Alfollon.	Approver Signature	Ein Smoone
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garage 26

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 26 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	Name	Norman Kirk Courts- Garage 26			
Building Location ID	PRO 1137	7 B022 Multiple Building Site Y			
Building Address	183 Strickla	Strickland Street, Addington No. of residential units -			
Soil Technical Category	N/A	Importance Level 2		Approximate Year Built	1974
Foot Print (m ²)	17	Storeys above ground	1	Storeys below ground	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Quantitative L5 Rep	antitative L5 Report Results Summary				
Building Occupied	Y	The Norman Kirk Courts Garage 26 is currently in use.			

Y	The Norman Kirk Courts Garage 26 is suitable for continued use.
Y	Refer to summary of building damage Section 3.1 report body.
N	There were no critical structural weaknesses found.
N	Access to the garage was not possible.
44%	Based on an analysis of capacity and demand.
	Y Y N N 44%

Approval

Author Signature	Mardalow	Approver Signature	En Smoore
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

1 Introduction

1.1 General

On 4 June 2013 Aurecon engineers visited the Norman Kirk Courts to carry out a quantitive building damage assessment on behalf of Christchurch City Council. Detailed visual inspections were carried out to assess the damage caused by the earthquakes on 4 September 2010, 22 February 2011, 13 June 2011, 23 December and related aftershocks.

The scope of work included:

- Assessment of the nature and extent of the building damage
- Visual assessment of the building strength particularly with respect to safety of occupants if the building is currently occupied
- Assessment of requirements for detailed engineering evaluation including geotechnical investigation, level survey and any areas where linings and floor coverings need removal to expose structural damage.

This report outlines the results of our Qualitative Assessment of damage to Norman Kirk Courts and is based on the Detailed Engineering Evaluation Procedure document issued by the Structural Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

2 Description of the Building

2.1 Building Age and Configuration

Built in 1974 the Norman Kirk Courts housing development contains multiple buildings with a combination of single and three storey building sections. The site also contains garages in different layout combinations.

2.1.1 Single Storey

The single storey sections have a high pitched roof, where light steel tray roofing is supported by timber purlins and rafters. The roof is supported by blockwork walls, the exterior blockwork walls have a reinforced inner layer, and an unreinforced veneer cladding. The internal blockwork walls are reinforced. Some internal blockwork walls support blockwork firewalls extending into the roof space. The single storey section also has some timber framed partition walls. Blockwork walls are supported by reinforced concrete strip footing and the ground floor is concrete slab on grade.

2.1.2 Three Storey

The three storey section roof has timber rafters and beams supporting the lightweight galvanised PVC coated trough section roofing. The ply sarking is supported by the timber purlins. The gable side of the roof has an asbestos cement flat sheet external cladding.

The second level of the building is of timber framed construction. The internal timber framed walls are lined with plasterboard and support the timber roof. The ground and the first level of the building have single-skin reinforced concrete block internal walls. The load bearing internal walls are all 15 series block. Some of these walls are completely core filled and some only have the blockwork cells

containing reinforcement filled with concrete. Internal non-load bearing walls are 10 series block and are lightly reinforced and partially filled. The first and second level floors consist of precast concrete rib slab panels spanning onto concrete bond beams and load bearing walls. A 64mm thick reinforced topping slab is installed over the precast panels. The load bearing walls also provide support for the in-situ concrete stairs and balconies.

The external load bearing walls are constructed from double-skin concrete blockwork walls. The inner 15 series block skin and 10 series outer block skin are both reinforced. All blockwork cells containing reinforcement are filled with concrete. These load bearing walls support the concrete bond beams. Refer to the Levels Survey in Appendix A for plans and locations of the different wall types.

The concrete ground floor slab on grade and the walls around the building are supported by the reinforced concrete strip foundations.

2.1.3 Garages

The garages are arranged in several combinations; single, double, triple and quad. The construction type is the same for all of these, while the walls have a slightly different layout.

The roofs are of high pitched sawtooth design. The steel tray roofing is supported by timber trusses, which are connected to timber top plates and bolted into a concrete bond beam at the top of the supporting walls. Partially reinforced, fully filled blockwork form the structural sections of the walls. Timber infill panels form the remaining walls. The floor is concrete slab on grade with strip footings under the walls. The concrete floor has a built in slope, with the rear of the garage designed to be 50mm higher than the front.

2.2 Building Designations

Label	Units	Туре
Block A	1-6E	Combination Single and Triple storey
Block B	7-8	Single Storey Residential
Block C	9A-9E	Triple Storey Residential
Block D	10-14	Single Storey Residential
Block E	15A-18	Combination Single and Triple storey
Block F	19-21E	Combination Single and Triple storey
Block G	22-24	Single Storey Residential
Block H	25A-25E	Triple Storey Residential
Block I	26-31E	Combination Single and Triple storey
Block J	32-36	Single Storey Residential
Single Garage	1,2,5,18,22,23,26	Garage
Double Garage	3-4,6-7,8-9,14-15, 16-17,24-25	Garage
Triple Garage	19-21	Garage
Quad Garage	10-13	Garage

Table 1: General information about buildings

Locations of buildings found in Figure 1 on the following page.



Figure 2: General information about buildings

2.3 Building Structural Systems Vertical and Horizontal

2.3.1 Single Storey

The single storey section of Norman Kirk Courts is a simple, regular structure. Its lightweight steel roof is supported on timber trusses that transfer loads to the external and internal blockwork walls. The walls which provide the lateral support for the structure are supported on concrete strip footings.

2.3.2 Three Storey

The load path for the Norman Kirk Courts three storey buildings to the concrete strip footings is well defined for both vertical and horizontal loads.

The vertical loads that originate from the timber roof are distributed to the Level 2 floor slab, via the timber framed walls and columns and their connections. The concrete slab systems at both levels transfer the vertical loads to the external and internal load bearing reinforced and partially reinforced blockwork walls. These blockwork walls then carry the loads to the foundations.

The lateral load carrying system is similar for both the Along direction (North-South) and the Across direction (East-West) of the building. The lateral loads generated at roof level are distributed to the timber framed walls through the ceiling diaphragm. In both directions the timber framed walls of the top storey carry the loads in-plane to the Level 2 slab. The Level 1 and 2 slabs are rigid diaphragms to transfer the lateral loads generated to the reinforced and partially reinforced concrete blockwalls. These blockwalls carry the lateral loads in-plane to the foundations.

2.3.3 Garages

The vertical loads in the garages have a simple load path whereby they transfer directly to blockwork walls, there is a lintel above the garage door to transfer loads to blockwork walls either side of this.

The lateral loads are transferred through the timber trusses to the bond beams. The blockwork walls take the lateral loads out of planes around the opening for the garage door. At the rear of the building, return walls will take the lateral load in-plane.

2.4 Reference Building Type

The Norman Kirk Courts is a basic structure with well reinforced blockwork for its age and style. This type of building has typically performed well under seismic loading.



2.5 Building Foundation System and Soil Conditions

The Norman Kirk Courts foundations, as discussed above consist of concrete strip footings concrete slab on grade ground floor. Although Norman Kirk Courts is classified as urban non-residential, the land that surrounds of Norman Kirk Courts has been zoned as TC2 which means minor to moderate damage from liquefaction is possible in future significant earthquakes. There were no signs in the vicinity of Norman Kirk Courts of liquefaction bulges and boils at the inspection date. However aerial photos taken soon after the 13 June earthquake shows minor liquefaction in the vicinity of the building.

2.6 Available Structural Documentation and Inspection Priorities

Structural and architectural drawings were available for Norman Kirk Courts. The structure was measured and intrusively investigated to confirm the building structure. The generic building type for

the Norman Kirk Courts is a lightly reinforced partially filled concrete masonry building constructed in the 1970s. This type of structure has performed well during the Canterbury Earthquakes.

2.7 Available Survey Information

A floor level survey was undertaken to establish the level of unevenness across the floors. The results of the survey are presented in Appendix A. All of the levels were taken on top of the existing floor coverings which may have introduced some margin of error.

The Ministry of Business, Innovation and Employment (MBIE) published the guideline "Repairing and rebuilding houses affected by the Canterbury earthquakes" in 2012, which recommends some form of re-levelling or rebuilding of the floor

- 1. If the slope is greater than 0.5% for any two points more than 2 m apart, or
- 2. If the variation in level over the floor plan is greater than 50 mm, or
- 3. If there is significant cracking of the floor.

It is important to note that these figures are recommendations and are only intended to be applied to residential buildings.

Code requirements covering acceptability criteria for the floors of buildings are written for new buildings and are not appropriate for older buildings which will have settled with time.

The floor levels for the Norman Kirk Courts were mostly found to be within acceptable levels. The units with floor levels outside of the acceptable levels were typically level within individual rooms, and variations were between rooms and with different floor coverings. Variations in floor level that were recorded were likely pre-existing. Consequently, the floor levels for the Norman Kirk Courts are considered to be adequate, no foundation re-levelling or rebuilding is recommended and no geotechnical investigation is required.

3 Structural Investigation

3.1 Summary of Building Damage

The Norman Kirk Courts are currently in use and were occupied at the time the damage assessment was carried out.

A damage assessment was performed on 4 June 2013 at the Norman Kirk Courts and the following damage was observed.



Building	Damage		
	Single Storey section:		
	 Cracking in the plasterboard wall and ceiling linings. These cracks are mostly located at the joints between different plasterboard panels; Hairline cracks to blockwork veneer mortar; Hairline cracks to foundation walls; and Cracking to exterior concrete pathways. 		
Block A	 Three Storey Section: Cracking in the plasterboard wall and ceiling linings in top storey. These cracks are mostly located at the joints between different plasterboard panels; Minor step cracking in the mortar of the external blockwall on the Eastern side; and Evidence of movement between the blockwalls and internal finishes. 		
	 Racking of window timber joinery in top storey. 		
Block B	 Minor crack around door frame. Minor cracks in the blockwork walls. Minor cracks in plasterboard walls and ceiling. 		
Block C	 Cracking in the plasterboard wall and ceiling linings for the top storey. These cracks are mostly located at the joints between different plasterboard panels. Minor step cracking in the mortar of the external blockwall on the Eastern side. Concrete spalling of the balcony on Level 2. Evidence of movement between the blockwalls and internal finishes. 		
Block D	Minor cracks in the blockwork walls.Minor cracks in plasterboard walls and ceiling.		
Block E	Similar to Block A		
Block F	Similar to Block A		
Block G	 Minor cracks in the blockwork walls Minor cracks in plasterboard walls and ceiling Racking of timber joinery 		
Block H	Similar to Block C		
Block I	 Crack in the walkway around building Minor cracks in the blockwork walls Minor cracks in plasterboard walls and ceiling Cracking between three-storey and one storey buildings 		

Table 2: Damage Summary

Block J	 Minor crack to blockwork walls Cracks in the roof ceiling 	

Single Garage	-
Double Garage	-
Triple Garage	-
Quad Garage	Garage 10 was found to be out of level, and had the roof was leaking.

3.2 Record of Intrusive Investigation

Concrete blockwalls were scanned using a reinforcement scanner and this confirmed the reinforcement shown on the drawings. An intrusive investigation was undertaken on 6 June 2013 to establish the connection between the reinforced blockwork inner leaf and veneer outer leaf in the walls of the single storey area. The investigation found that ties were present at 400mm centres both horizontally and vertically. No significant damage was noted so further intrusive investigations were neither warranted nor undertaken for Norman Kirk Courts.

3.3 Damage Discussion

There was minimal observed damage to the Norman Kirk Courts. This is expected due to its regular shape and density of walls in the building. The main damage noted was minor cracking in the plasterboard walls and ceilings and blockwork mortar.

4 Building Review Summary

4.1 Building Review Statement

The finishes of the Norman Kirk Courts obstructed the viewing in some parts of the structure. Nevertheless, a damage assessment was undertaken assuming that the damage to the finishes of the building would indicate a commensurate level of displacement damage on the building's structure.

As no original calculations were available, assumptions had to be made in order to complete calculations using current NZ standards and NZSEE guidelines as referenced in Appendix B.

4.2 Critical Structural Weaknesses

In the three storey blocks the shear connectors between the floor diaphragms and the walls can be considered a brittle failure mechanism and therefore a critical structural weakness. This has been

taken into consideration in the calculations and factors have been applied appropriately with the minimum strength calculated at 41% NBS as detailed in the next section. As this is above 33% NBS it is therefore not considered a critical structural weakness.

5 Building Strength (Refer to Appendix C for background information)

5.1 General

The Norman Kirk Courts buildings, consisting of a lightweight timber roof on reinforced concrete blockwork masonry walls, are intrinsically robust and have stood up well in the recent seismic events. This is evidenced by the low level of displacement damage described in section 3.1 above.

5.2 Existing Building Strength

We consider that the damage to the building has not resulted in any measurable reduction in the strength of the building and so our strength assessment is based on the pre-earthquake condition of the building.

Selected assessment seismic parameters are tabulated in the Table below.

Seismic Parameter	Quantity	Comment/Reference
Site Soil Class	D	NZS 1170.5:2004, Clause 3.1.3, Deep or Soft Soil
Site Hazard Factor, Z	0.30	DBH Info Sheet on Seismicity Changes (Effective 19 May 2011)
Return period Factor, R_u	1.0	NZS 1170.5:2004, Table 3.5
Ductility Factor, μ	1.25	Blockwork walls
Ductility Factor μ	2.00	Timber framed walls lined with plasterboard

Table 3: Parameters used in the Seismic Assessment

5.2.1 Single Storey Sections

5.2.1.1 Blockwork Walls

Double skinned blockwork walls form the exterior walls, with the inner skin reinforced and partially filled. The outer skin is an unfilled, unreinforced, veneer – which is tied to the inner skin with steel ties. These walls were typically found to be limited to the out of plane behaviour, either cantilevering from the base, or by the flexural capacity of the bond beam.

5.2.1.2 Blockwork Fire Walls

Blockwork fire walls rise above a bond beam over double skinned reinforced blockwork, these are of different heights depending on the structure. The firewall is assumed to cantilever above the ceiling level as the roof tray decking is unlikely to be able to support it as a diaphragm.


5.2.1.3 Plywood Walls

A plywood wall is present in some units to provide out of plane support to the blockwork fire wall.

5.2.2 Three Storey Section

5.2.2.1 Blockwork Walls

Double skinned reinforced blockwork exterior walls and single skin reinforced blockwork internal walls. As all walls are reinforced, and connected to concrete floor above, out of plane behaviour does not generally govern for these buildings. In plane wall capacity is an issue in some configurations of the three storey buildings.

5.2.2.2 In-situ Concrete Floor

The precast concrete floor has a topping which is connected distributes lateral loads. The shear connectors for these floors were checked as possible critical structural weaknesses.

5.2.2.3 Timber Framed Top Storey

The timber framed walls on the top storey were checked using a higher ductility than the lower sections of the structure. Timber sarking distributed forces from the roof to the walls.

5.2.3 Garages

The garages have fully filled partially reinforced blockwork walls, these structures are limited by the out of plane behavior of these walls.

5.2.4 Summary

A summary of the strength of the various buildings is provided in Table below. Full summaries of building elements can be found in Appendix B.

Building	Direction	%NBS
Block A	Along	50
	Across	51
Block B	Along	77
	Across	40
Block C	Along	59
	Across	41
Block D	Along	43
	Across	54
Block E	Along	52
	Across	43
Block F	Along	51

Building	Direction	%NBS
	Across	100
Block G	Along	51
	Across	50
Block H	Along	59
	Across	41
Block I	Along	54
	Across	41
Block J	Along	44
	Across	44
Single Garage	Along	100
	Across	44
Double Garage	Along	100
	Across	44
Triple Garage	Along	100
	Across	44
Quad Garage	Along	100
	Across	44

5.3 **Results Discussion**

This quantitative analysis was undertaken using the assumed approximate bracing capacity of the blockwork and timber walls to the New Zealand Society of Earthquake Engineering (NZSEE) guidelines for the Assessment and Improvement of the Structural Performance of Buildings in Earthquakes and NZS 4230:2004, Design of Reinforced Concrete Masonry Structures.

The potential critical structural weakness of shear collectors was identified during the assessment, these collectors were found to be have a strength of 41%NBS, therefore the building does not have a CSW.

6 Conclusions and Recommendations

As noted within the report, only very low levels of visible damage was observed in the damage assessment and the levels survey has shown that the floor levels are generally within acceptable limits. This is further supported by the building strength analysis that was undertaken. It is therefore considered that the Norman Kirk Courts is **suitable for continued occupancy**.

We recommend all damage is repaired by a licensed building practitioner. Repair works should include:-

- Cracking to internal wall and ceiling fibrous plaster linings should be repaired similar to that used for GIB linings in accordance with GIB 'Guidelines for repairing GIB plasterboard linings in wind and earthquake damaged properties';
- Grout repair cracking to the masonry joints; and
- External slabs (pathways) will likely need to be replaced.

The building has performed well in the recent earthquake events. The building has several elements between 50-67%NBS. We recommend building be strengthened to a minimum of 67%NBS or 100%NBS if economically viable.

Possible strengthening required is as follows:

- Bracing in roof space of single storey section to restrain full height firewall;
- Strengthen out of plane bond beams with steel channels;
- Infill windows in blockwork wall at ground floor level to increase shear and moment capacity and;
- Install steel angles under floor slab in three storey building to connect diaphragm to walls.

7 Explanatory Statement

The inspections of the building discussed in this report have been undertaken to assess structural earthquake damage. No analysis has been undertaken to assess the strength of the building or to determine whether or not it complies with the relevant building codes, except to the extent that Aurecon expressly indicates otherwise in the report. Aurecon has not made any assessment of structural stability or building safety in connection with future aftershocks or earthquakes – which have the potential to damage the building and to jeopardise the safety of those either inside or adjacent to the building, except to the extent that Aurecon expressly indicates otherwise in the report.

This report is necessarily limited by the restricted ability to carry out inspections due to potential structural instabilities/safety considerations, and the time available to carry out such inspections. The report does not address defects that are not reasonably discoverable on visual inspection, including defects in inaccessible places and latent defects. Where site inspections were made, they were restricted to external inspections and, where practicable, limited internal visual inspections.

To carry out the structural review, existing building drawings were obtained from the Christchurch City Council records. We have assumed that the building has been constructed in accordance with the drawings.

While this report may assist the client in assessing whether the building should be strengthened, that decision is the sole responsibility of the client.

This review has been prepared by Aurecon at the request of its client and is exclusively for the client's use. It is not possible to make a proper assessment of this review without a clear understanding of the terms of engagement under which it has been prepared, including the scope of the instructions and directions given to and the assumptions made by Aurecon. The report will not address issues which would need to be considered for another party if that party's particular circumstances, requirements and experience were known and, further, may make assumptions about matters of which a third party is not aware. No responsibility or liability to any third party is accepted for any loss or damage whatsoever arising out of the use of or reliance on this report by any third party.

Without limiting any of the above, Aurecon's liability, whether under the law of contract, tort, statute, equity or otherwise, is limited as set out in the terms of the engagement with the client.

Appendices





Appendix A Photos and Levels Survey Results

Aerial photograph of Norman Kirk Courts – Showing along and across for buildings



4 June 2013 – Norman Kirk Courts site photographs

Norman K	irk Courts – Single Storey Blocks
1. Single Storey Elevation	
2. Full height firewall in single storey section.	





	Three Storey Section
10. Three Storey northern elevation.	
11. Three storey southern elevation.	
12. View of timber framed ceiling with plywood sarking.	



16. Signs of minor displacement of the walls at fixings.	

Intrusive Investiagtaion						
Int1. Intrusive investigation on block B (Unit 7)						
Int2. Photo of veneer tie approximately 4 mm diameter with hook at the end						

Int3. Photo of bars connecting the exterior unreinforced blockwork wall with interior reinforced blockwork wall



Garages						
Gar1. View of typical double garage.						
Gar2. Top plate connection to blockwork walls						























TWO 90mm LEAF PARTIALLY REINFORCED

90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK

BLOCKWORK FIREWALL

WALL (NON-LOAD BEARING) TIMBER FRAMED WALL

CP CARPET

VNL VINYL

PRELIMINARY NOT FOR CONSTRUCTION REV DATE REVISION DETAILS APPROVAL aurecon DRAWN DESIGNED D.Hunia R.So-Beer 183 STRICKLAND STREET 232539 L.Castillo LEVEL SURVEY UNIT 3 SIZE A4 SCALE 1:100 DATE Christchurch City Council
 B
 16.07.13
 LEVEL SURVEY-SHEETS RENUMBERED

 A
 31.01.13
 LEVEL SURVEY
 DRAWING No. REV SK-A-03 B L. Howard









BLOCK A
UNIT 5
1:100







ENT	
Christchurch	
City Council	В
City Council 💊 🗸	A

 B
 16.07.13
 LEVEL SURVEY-SHEETS RENUMBERED

 A
 31.01.13
 LEVEL SURVEY

DATE L. Howard

L.Castillo

LEVEL SURVEY UNIT 6A AND 6B







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 B
 16.07.13
 LEVEL SURVEY-SHEETS RENUMBERED

 A
 31.01.13
 LEVEL SURVEY

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L.Howard	L. Howard	ł		SK-A-07	В



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TIMBER FRAMED WALL

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140mm THICK REINFORCED BLOCKWORK WALL

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TIMBER FRAMED WALL



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SIZE A4







BLOCK G GARAGE 22 1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

+ FLOOR LEVEL READING

CP CARPET

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L. Howard

UNIT 25C AND 25D





SIZE A4

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DATE

L. Howard

UNIT 25E

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L.Castillo

L. Howard

DATE

LEVEL SURVEY UNIT 30

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TIMBER FRAMED WALL

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BLOCK J GARAGE 1 1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

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190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

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WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

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GARAGE 18 1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

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WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL



LEGEND

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Appendix B Building Element Strengths

Block A

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane along	50
	Out of plane across	51
	Shear	93
	Flexure	100
Firewalls – Single Storey	Out of plane	56
Plywood Walls - Single Storey	Hold down	77
Blockwork walls - Three Storey	Flexure out of plane	82
	Flexure in plane	53
	Shear	56
Precast Concrete floor	CSW – Shear connectors	88
Timber walls - three storey	Shear (along)	78
	Shear (across)	100

Block B

Building Element	Failure Mode	%NBS
Blockwork walls - Single storey	Shear along	100
	Flexure along	77
	Shear across	100
	Flexure across	100
Fire walls- Single storey	Flexure	81
Bond beam	Flexure	40
Timber walls	Shear along	100
	Shear across	69

Block C

Building Element	Failure Mode	%NBS
Level 2 timber framed walls	Shear (along)	100
	Shear (across)	100
Ground Level and Level 1 blockwork walls	Shear (along)	100
	Shear (across)	79
10 series blockwork external walls	Out of plane	100
15 series blockwork external walls	Out of plane	100
10 series blockwork internal walls	Out of plane	73
15 series blockwork internal walls	Out of plane	100
Precast Concrete Floor diaphragm	Flexure Along	100
	Flexure Across	100
	CSW – Shear connectors	41

Block D

Building Element	Failure Mode	%NBS
Blockwork walls - Single storey	Shear along	53
	Flexure along	43
	Shear across	100
	Moment across	100
Fire walls- Single storey	Flexure	76
Bond beam	Flexure	54
Timber walls	Shear along	100
	Shear across	54
Block E

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane -along	43
	Shear	100
	Flexure	100
Firewalls – Single Storey	Out of plane – across	52
Three storey – Identical to Block A	NA	NA

Block F

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane -across	51
	Shear	100
	Flexure	100
Firewalls – Single Storey	Out of plane	100
Three storey – Identical to Block A	NA	NA

Block G

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane –across	51
	Shear	100
	Flexure	100
	Bond beam – along	50
Firewalls – Single Storey	Out of plane – along	52

Block H

Building Element	Failure Mode	%NBS
Level 2 timber framed walls	Shear (along)	100
	Shear (across)	100
Ground Level and Level 1 blockwork walls	Shear (along)	100
	Shear (across)	79
10 series blockwork external walls	Out of plane	100
15 series blockwork external walls	Out of plane	100
10 series blockwork internal walls	Out of plane	73
15 series blockwork internal walls	Out of plane	100
Precast Concrete Floor diaphragm	Flexure Along	100
	Flexure Across	100
	CSW – Shear connectors	41

Block I

Building Element	Failure Mode	%NBS
Blockwork walls – Single storey	Shear along	86
	Flexure along	54
	Shear across	100
	Moment across	100
Fire walls – Single storey	Flexure	74
Bond beam	Flexure	-
Timber walls	Shear along	66
	Shear across	100
Precast Concrete Floor diaphragm	Flexure along	100
	Flexure across	100
	CSW – Shear connectors	41
Attached garage	Flexure out of plane	41

Block J

Building Element	Failure Mode	%NBS
Blockwork walls – Single storey	Shear along	60
	Flexure along	57
	Shear across	100
	Moment across	100
Fire walls - Single storey	Flexure	67
Bond beam	Flexure	44
Timber walls	Shear along	61
	Shear across	68
Attached garage	Flexure out of plane	44

Appendix C References

- 1. Engineering Advisory Group (EAG): Guidance on Detailed Engineering Evaluation of Earthquake Affected Non-residential Buildings in Canterbury: July 2011
- 2. Ministry of Business, Innovation and Employment (MBIE) "Repairing and rebuilding houses affected by the Canterbury earthquakes", December 2012
- 3. New Zealand Society for Earthquake Engineering (NZSEE), "Assessment and Improvement of the Structural Performance of Buildings in Earthquakes", April 2012
- 4. Standards New Zealand, "AS/NZS 1170 Part 0, Structural Design Actions: General Principles", 2002
- 5. Standards New Zealand, "AS/NZS 1170 Part 1, Structural Design Actions: Permanent, imposed and other actions", 2002
- 6. Standards New Zealand, "NZS 1170 Part 5, Structural Design Actions: Earthquake Actions New Zealand", 2004
- 7. Standards New Zealand, "NZS 3101 Part 1, The Design of Concrete Structures", 2006
- 8. Standards New Zealand, "NZS 4230, Design of Reinforced Concrete Masonry Structures", 2004

Appendix D Strength Assessment Explanation

New building standard (NBS)

New building standard (NBS) is the term used with reference to the earthquake standard that would apply to a new building of similar type and use if the building was designed to meet the latest design Codes of Practice. If the strength of a building is less than this level, then its strength is expressed as a percentage of NBS.

Earthquake Prone Buildings

A building can be considered to be earthquake prone if its strength is less than one third of the strength to which an equivalent new building would be designed, that is, less than 33%NBS (as defined by the New Zealand Building Act). If the building strength exceeds 33%NBS but is less than 67%NBS the building is considered at risk.

Christchurch City Council Earthquake Prone Building Policy 2010

The Christchurch City Council (CCC) already had in place an Earthquake Prone Building Policy (EPB Policy) requiring all earthquake-prone buildings to be strengthened within a timeframe varying from 15 to 30 years. The level to which the buildings were required to be strengthened was 33%NBS.

As a result of the 4 September 2010 Canterbury earthquake the CCC raised the level that a building was required to be strengthened to from 33% to 67% NBS but qualified this as a target level and noted that the actual strengthening level for each building will be determined in conjunction with the owners on a building-by-building basis. Factors that will be taken into account by the Council in determining the strengthening level include the cost of strengthening, the use to which the building is put, the level of danger posed by the building, and the extent of damage and repair involved.

Irrespective of strengthening level, the threshold level that triggers a requirement to strengthen is 33%NBS.

As part of any building consent application fire and disabled access provisions will need to be assessed.

Christchurch Seismicity

The level of seismicity within the current New Zealand loading code (AS/NZS 1170) is related to the seismic zone factor. The zone factor varies depending on the location of the building within NZ. Prior to the 22nd February 2011 earthquake the zone factor for Christchurch was 0.22. Following the earthquake the seismic zone factor (level of seismicity) in the Christchurch and surrounding areas has been increased to 0.3. This is a 36% increase.

For this assessment, the building's earthquake resistance is compared with the current New Zealand Building Code requirements for a new building constructed on the site. This is expressed as a percentage of new building standard (%NBS). The new building standard load requirements have been determined in accordance with the current earthquake loading standard (NZS 1170.5:2004 Structural design actions - Earthquake actions - New Zealand).

The likely capacity of this building has been derived in accordance with the New Zealand Society for Earthquake Engineering (NZSEE) guidelines 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes' (AISPBE), 2006. These guidelines provide an Initial Evaluation Procedure that assesses a buildings capacity based on a comparison of loading codes from when the building was designed and currently. It is a quick high-level procedure that can be used when undertaking a Qualitative analysis of a building. The guidelines also provide guidance on calculating a modified Ultimate Limit State capacity of the building which is much more accurate and can be used when undertaking a Quantitative analysis.

The New Zealand Society for Earthquake Engineering has proposed a way for classifying earthquake risk for existing buildings in terms of %NBS and this is shown in Figure C1 below.

Description	Grade	Risk	%NBS	Existing Building Structural Performance		Improvement of St	ructural Performance
					_►	Legal Requirement	NZSEE Recommendation
Low Risk Building	A or B	Low	Above 67	Acceptable (improvement may be desirable)		The Building Act sets no required level of structural improvement (unless change in use)	100%NBS desirable. Improvement should achieve at least 67%NBS
Moderate Risk Building	B or C	Moderate	34 to 66	Acceptable legally. Improvement recommended		This is for each TA to decide. Improvement is not limited to 34%NBS.	Not recommended. Acceptable only in exceptional circumstances
High Risk Building	D or E	High	33 or lower	Unacceptable (Improvement		Unacceptable	Unacceptable

Figure C1: NZSEE Risk Classifications Extracted from table 2.2 of the NZSEE 2006 AISPBE Guidelines

Table C1 below compares the percentage NBS to the relative risk of the building failing in a seismic event with a 10% probability of exceedance in 50 years (i.e. 0.2% in the next year). It is noted that the current seismic risk in Christchurch results in a 6% probability of exceedance in the next year.

Percentage of New Building Standard (%NBS)	Relative Risk (Approximate)
>100	<1 time
80-100	1-2 times
67-80	2-5 times
33-67	5-10 times
20-33	10-25 times
<20	>25 times

Table C1: Relative Risk of Building Failure In A

Appendix E Background and Legal Framework

Background

Aurecon has been engaged by the Christchurch City Council (CCC) to undertake a detailed engineering evaluation of the building

This report is a Qualitative Assessment of the building structure, and is based on the Detailed Engineering Evaluation Procedure document (draft) issued by the Structural Advisory Group on 19 July 2011.

A qualitative assessment involves inspections of the building and a desktop review of existing structural and geotechnical information, including existing drawings and calculations, if available.

The purpose of the assessment is to determine the likely building performance and damage patterns, to identify any potential critical structural weaknesses or collapse hazards, and to make an initial assessment of the likely building strength in terms of percentage of new building standard (%NBS).

At the time of this report, no intrusive site investigation, detailed analysis, or modelling of the building structure had been carried out. Construction drawings were made available, and these have been considered in our evaluation of the building. The building description below is based on a review of the drawings and our visual inspections.

Compliance

This section contains a brief summary of the requirements of the various statutes and authorities that control activities in relation to buildings in Christchurch at present.

Canterbury Earthquake Recovery Authority (CERA)

CERA was established on 28 March 2011 to take control of the recovery of Christchurch using powers established by the Canterbury Earthquake Recovery Act enacted on 18 April 2011. This act gives the Chief Executive Officer of CERA wide powers in relation to building safety, demolition and repair. Two relevant sections are:

Section 38 – Works

This section outlines a process in which the chief executive can give notice that a building is to be demolished and if the owner does not carry out the demolition, the chief executive can commission the demolition and recover the costs from the owner or by placing a charge on the owners' land.

Section 51 – Requiring Structural Survey

This section enables the chief executive to require a building owner, insurer or mortgagee carry out a full structural survey before the building is re-occupied.

We understand that CERA will require a detailed engineering evaluation to be carried out for all buildings (other than those exempt from the Earthquake Prone Building definition in the Building Act). It is anticipated that CERA will adopt the Detailed Engineering Evaluation Procedure document (draft) issued by the Structural Advisory Group on 19 July 2011. This document sets out a methodology for both qualitative and quantitative assessments.

The qualitative assessment is a desk-top and site inspection assessment. It is based on a thorough visual inspection of the building coupled with a review of available documentation such as drawings and specifications. The quantitative assessment involves analytical calculation of the buildings strength and may require non-destructive or destructive material testing, geotechnical testing and intrusive investigation.

It is anticipated that factors determining the extent of evaluation and strengthening level required will include:

- The importance level and occupancy of the building
- The placard status and amount of damage
- The age and structural type of the building
- Consideration of any critical structural weaknesses
- The extent of any earthquake damage

Building Act

Several sections of the Building Act are relevant when considering structural requirements:

Section 112 – Alterations

This section requires that an existing building complies with the relevant sections of the Building Code to at least the extent that it did prior to any alteration. This effectively means that a building cannot be weakened as a result of an alteration (including partial demolition).

Section 115 – Change of Use

This section requires that the territorial authority (in this case Christchurch City Council (CCC)) be satisfied that the building with a new use complies with the relevant sections of the Building Code 'as near as is reasonably practicable'. Regarding seismic capacity 'as near as reasonably practicable' has previously been interpreted by CCC as achieving a minimum of 67%NBS however where practical achieving 100%NBS is desirable. The New Zealand Society for Earthquake Engineering (NZSEE) recommend a minimum of 67%NBS.

Section 121 – Dangerous Buildings

The definition of dangerous building in the Act was extended by the Canterbury Earthquake (Building Act) Order 2010, and it now defines a building as dangerous if:

- in the ordinary course of events (excluding the occurrence of an earthquake), the building is likely to cause injury or death or damage to other property; or
- in the event of fire, injury or death to any persons in the building or on other property is likely because of fire hazard or the occupancy of the building; or
- there is a risk that the building could collapse or otherwise cause injury or death as a result of earthquake shaking that is less than a 'moderate earthquake' (refer to Section 122 below); or
- there is a risk that that other property could collapse or otherwise cause injury or death; or
- a territorial authority has not been able to undertake an inspection to determine whether the building is dangerous.

Section 122 – Earthquake Prone Buildings

This section defines a building as earthquake prone if its ultimate capacity would be exceeded in a 'moderate earthquake' and it would be likely to collapse causing injury or death, or damage to other property. A moderate earthquake is defined by the building regulations as one that would generate ground shaking 33% of the shaking used to design an equivalent new building.

Section 124 – Powers of Territorial Authorities

This section gives the territorial authority the power to require strengthening work within specified timeframes or to close and prevent occupancy to any building defined as dangerous or earthquake prone.

Section 131 – Earthquake Prone Building Policy

This section requires the territorial authority to adopt a specific policy for earthquake prone, dangerous and insanitary buildings.

Christchurch City Council Policy

Christchurch City Council adopted their Earthquake Prone, Dangerous and Insanitary Building Policy in 2006. This policy was amended immediately following the Darfield Earthquake of the 4th September 2010.

The 2010 amendment includes the following:

- A process for identifying, categorising and prioritising Earthquake Prone Buildings, commencing on 1 July 2012;
- A strengthening target level of 67% of a new building for buildings that are Earthquake Prone;
- A timeframe of 15-30 years for Earthquake Prone Buildings to be strengthened; and,
- Repair works for buildings damaged by earthquakes will be required to comply with the above.

The council has stated their willingness to consider retrofit proposals on a case by case basis, considering the economic impact of such a retrofit.

We anticipate that any building with a capacity of less than 33%NBS (including consideration of critical structural weaknesses) will need to be strengthened to a target of 67%NBS of new building standard as recommended by the Policy.

If strengthening works are undertaken, a building consent will be required. A requirement of the consent will require upgrade of the building to comply 'as near as is reasonably practicable' with:

- The accessibility requirements of the Building Code.
- The fire requirements of the Building Code. This is likely to require a fire report to be submitted with the building consent application.

Building Code

The building code outlines performance standards for buildings and the Building Act requires that all new buildings comply with this code. Compliance Documents published by The Department of Building and Housing can be used to demonstrate compliance with the Building Code.

After the February Earthquake, on 19 May 2011, Compliance Document B1: Structure was amended to include increased seismic design requirements for Canterbury as follows:

- Hazard Factor increased from 0.22 to 0.3 (36% increase in the basic seismic design load)
- Serviceability Return Period Factor increased from 0.25 to 0.33 (80% increase in the serviceability design loads when combined with the Hazard Factor increase)

The increase in the above factors has resulted in a reduction in the level of compliance of an existing building relative to a new building despite the capacity of the existing building not changing.

Appendix F Standard Reporting Spread Sheets

- PRO 1137 B001 Block A
- PRO 1137 B002 Block B
- PRO 1137 B003 Block C
- PRO 1137 B004 Block D
- PRO 1137 B005 Block E
- PRO 1137 B006 Block F
- PRO 1137 B007 Block G + Garage 22
- PRO 1137 B008 Block H
- PRO 1137 B009 Block I + Garage 23
- PRO 1137 B010 Block J + Garage 1
- PRO 1137 B011 Garages 3-4
- PRO 1137 B012 Garage 5
- PRO 1137 B013 Garages 6-7
- PRO 1137 B014 Garages 10-13
- PRO 1137 B015 Garages 14-15
- PRO 1137 B016 Garage 18
- PRO 1137 B017 Garages 24-25
- PRO 1137 B018 Garage 2
- PRO 1137 B019 Garages 8-9
- PRO 1137 B020 Garages 16-17
- PRO 1137 B021 Garages 19-21
- PRO 1137 B022 Garage 26

Detailed Engineering Evaluation Summary Data				V1.11
ocation	Norman Kirk Courts - Block A	I	Reviewer	Lee Howard
Building Address	Unit	No: Street	CPEng No Company	1008889
Legal Description	Pt Lot 1 DP 30139	. sejonenand	Company project number	232536
	Degrees	Min Sec	Company priorie number	
GPS south GPS eas	43 t: 172	32 52.84 37 36.74	Date of submission Inspection Date	30/07/2013 4/06/2013
Building Unique Identifier (CCC	:PRO 1137 B001	Ι	Revision Is there a full report with this summary?	2 Ves
	·		· · ·	·
ite				
Site slope	r flat	Į	Max retaining height (m)	·
Site Class (to NZS1170.5	: D		Soli Prolite (il avaliable)	
Proximity to waterway (m, if < 100m Proximity to clifftop (m, if < 100m			If Ground improvement on site, describe	
Proximity to cliff base (m,if <100m	d	l	Approx site elevation (m)	
uilding				
No. of storeys above ground Ground floor split	3	single storey = 1	Ground floor elevation (Absolute) (m)	0.00
Storeys below groun		† †	if Foundation too to globald (iii)	
Building height (m	9.20	height from ground to level of up	opermost seismic mass (for IEP only) (m)	0
Age of Building (years	320		Date of design	1965-1976
		_		
Strengthening present	? <u>no</u>	Ι	If so, when (year) And what load level (%q)	
Use (ground floor Use (upper floors	: multi-unit residential		Brief strengthening description	
Use notes (if required		•		
importance level (to NZS1170.5	.[ILZ			
ravity Structure Gravity System	load bearing walls	I		
Roo Floors	timber truss concrete flat slab		truss depth, purlin type and cladding slab thickness (mm	2400,Timber, Corrugated Steel 100mm Rib precast slab, 64mm topping
Beams	i none		overall depth x width (mm x mm typical dimensions (mm x mm)	10 series and 15 series block walls
Walls	partially filled concrete masonry	1	thickness (mm)	140
ateral load resisting structure		Notes De Constant		
Lateral system along Ductility assumed, p	r partially filled CMU 1.25	Note: Define along and across in detailed report!	note total length of wall at ground (m)	
Period along Total deflection (ULS) (mm	0.40	##### enter height above at H31	estimate or calculation	estimated
maximum interstorey deflection (ULS) (mm	:		estimate or calculation?	
Lateral system across	partially filled CMU		noto total langth of wall	
Ductility assumed, µ Period across		##### enter height above at H31	note total length of wall at ground (m) estimate or calculation?	estimated
Total deflection (ULS) (mm maximum interstorey deflection (ULS) (mm			estimate or calculation	
eparations:				
north (mm		leave blank if not relevant		
east (mm south (mm	/ /:			
west (mm	4			
on-structural elements Stairs	: cast insitu		notes	
Wall clading	: exposed structure		describe	blockwork exposed
Hoor Cladding Glazing	timber frames		describe	Mainly timber
Ceiling: Services(list	. plaster, fixed			0/1
vailable documentation	alful		original designer name/date	Christchurch City Council/1974
Structura	il full		original designer name/date	Christchurch City Council/1974
Electric	al none	+	original designer name/date	
Geotech repo	tinone		original designer name/date	
amage				
te: Site performance afer DEE Table 4-2)	Good		Describe damage	minor cracks in walls
Settlemen Differential settlemen	none observed		notes (if applicable)	
Liquefaction	none apparent		notes (if applicable)	
Lateral Spread Differential lateral spread	i none apparent		notes (if applicable) notes (if applicable)	
Ground cracks Damage to area	none apparent		notes (if applicable) notes (if applicable)	
uilding:				
Current Placard Status	green	Ι		
long Damage ratio	r:0%.		Describe how damage ratio arrived at	
Describe (summary	۹	(% NBS (be	efore) - % NBS (after))	
cross Damage ratio Describe (summary	0%	$Damage _Ratio = \frac{(37133)}{\%}$	NBS (before)	
ianhranms D	2 no		Dor-ih-	
apringins Damage		I T	Describe	
Sws: Damage'	:[no		Describe	·
ounding: Damage	no		Describe	
on-structural: Damage'	: yes		Describe	cracks in plasterboard ceiling
Level of repair/strengthening required	: minor structural	Į į	Describe	Strengthening of bondbeam and diaphragm
Building Consent required Interim occupancy recommendations	full occupancy		Describe Describe	
long Assessed %NRS before e'quake	50%	##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quake	j		methodology	
cross Assessed %NBS before e'quakes	51%	##### %NBS from IEP below		
Assessed %NBS after e'quakes	4 51%			
P Ileo of this	method is not mandatory - more detailed a	nalysis may give a different answer which	would take precedence. Do not fill in	fields if not using IEP
	1005 1070	and you may give a unterent answer, which		
Period of design of building (from above	. 1965-1976		h₀ from above	: um
Seismic Zone, if designed between 1965 and 1992	: <u>B</u>		not required for this age of building not required for this age of building	
			along	201000
		Period (from above):	aiong 0.4	0.4
		(%NBS)nom from Fig 3.3:		
Note:1 for specifica	Ily design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1. Note 2: for RC buildin	.33; 1965-1976, Zone B = 1.2; all else 1.0 gs designed between 1976-1984, use 1.2	
		Note 3: for buildings designed prior to	p 1935 use 0.8, except in Wellington (1.0)	
		F i 1 (11100)	along	across

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT PATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name	Norman Kirk Courts - Block B	1	Reviewer	Lee Howard
Building Address	7.8	No: Street	CPEng No: Company	1008889
Legal Description:	Pt Lot 1 DP 30139	Toolothoniana	Company project number:	232536
000 1	Degrees	Min Sec	Company priorie number.	00/07/00/01
GPS south: GPS east:	1 43	32 52.54 37 38.21	Date of submission: Inspection Date:	4/06/2013
Building Unique Identifier (CCC):	PRO 1137 B002	1	Revision: Is there a full report with this summary?	yes
			· · ·	·
Site				
Site slope:	flat	1	Max retaining height (m):	
Soli type Site Class (to NZS1170.5):	D		Soil Profile (if available):	
Proximity to waterway (m, if <100m): Proximity to clifftop (m, if < 100m):			If Ground improvement on site, describe	
Proximity to cliff base (m,if <100m):			Approx site elevation (m):	
Building				
No. of storeys above ground	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Storeys below ground	0	1	Ground noor elevation above ground (m).	0.00
Foundation type: Building height (m):	2.60	height from ground to level of u	ppermost seismic mass (for IEP only) (m):	5.4
Floor footprint area (approx): Age of Building (years):	124		Date of design:	1965-1976
· · · · · ·		-	· ·	
Strengthening present?	?[no	1	If so, when (year)?	
Use (ground floor):	multi-unit residential	1	Brief strengthening description:	
Use (upper floors): Use notes (if required):	2	1		
Importance level (to NZS1170.5):	1 L2			
Gravity Structure	load bearing walls	I		
Roof	timber truss		truss depth, purlin type and cladding	2400, Timber, Corrugated Steel
Floors Beams	none		overall depth x width (mm x mm)	
Columns: Walls:	partially filled concrete masonry	1	typical dimensions (mm x mm) thickness (mm)	2 100 mm seriesblock walls 200
Lateral load resisting structure				
Lateral system along Ductility assumed	partially filled CMU 1 25	Note: Define along and across in detailed report!	note total length of wall at ground (m)	Blockwork wall reinforced @800mm
Total definition (III Control definition)	0.40	##### enter height above at H31	estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm)		1	estimate or calculation?	
Lateral system across:	partially filled CMU]		Blockwork wall reinforced @800mm
Ductility assumed, µ: Period across	1.25	##### enter height above at H31	note total length of wall at ground (m): estimate or calculation?	estimated
Total deflection (ULS) (mm):	0.10		estimate or calculation?	
maximum mersioney denection (OE3) (mm).	1	1	estimate or calculations	
Separations: north (mm):		leave blank if not relevant		
east (mm): south (mm)		-		
west (mm):		1		
Non-structural elements		т		
Stars. Wall cladding:	exposed structure	1	describe	No Mainly blockwork and partially Plasterboard
Roof Cladding: Glazing:	Metal timber frames	+	describe	Steel Sheeting Mainly timber
Ceilings: Services(list)	plaster, fixed	-		No
		-		
Available documentation	Inartial	T	original designer name/date	Christehurch City Council/1974
Structura	Inone	+	original designer name/date	
Electrica	Inone	1	original designer name/date	
Geotech repon	Inone	1	original designer name/date	
Damage				
Site: Site performance: (refer DEE Table 4-2)	Good	1	Describe damage:	Some cracks in few walls
Settlement: Differential settlement	none observed	1	notes (if applicable):	
Liquefaction	none apparent	ļ	notes (if applicable):	
Differential lateral spread:	none apparent	1	notes (if applicable): notes (if applicable):	
Ground cracks: Damage to area:	none apparent		notes (if applicable): notes (if applicable):	
Building:				
Current Placard Status	green	1		
Along Damage ratio	0%		Describe how damage ratio arrived at	
Lescribe (summary):	1	(% NBS (be	efore) – % NBS (after))	
Across Damage ratio: Describe (summary):	0%	$Damage _Ratio =$	b NBS (before)	
Diaphragms Damage?	Ino	Т	Describe	
CSWs: Damage?	ino	1	Describe	
Pounding:	100	Т	Describe.	
Pounding: Damage?	100	1	Describe:	
Non-structural: Damage?	.lyes		Describe	cracks in plasterboard ceiling
Recommendations				
Level of repair/strengthening required: Building Consect required	minor structural		Describe	Strengthening of bondbeam required
Interim occupancy recommendations:	full occupancy	1	Describe	
Along Assessed %NBS before e quakes	. 77%	##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes:	177%	4	methodology	
Across Assessed %NBS after e/guakes: Assessed %NBS after e/guakes	40% 40%	##### %NBS from IEP below		
IEP Use of this m	nethod is not mandatory - more detailed a	analysis may give a different answer, which	h would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above):	: 1965-1976		h₁ from above	: 5.4m
Seismic Zone, if designed between 1965 and 1992	(B	1	not required for this age of building	
			not required for this age of building	
		D=2 1/2 1	along	across
		(%NBS)nom from Fig 3.3:	0.4	0.4
Note:1 for specifical	lly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1	.33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 2: for RC buildin Note 3: for buildings designed prior t	ngs designed between 1976-1984, use 1.2 o 1935 use 0.8, except in Wellington (1.0)	└──────────────────────────────────
			along	across
		51 J (0/ NDO)	00/	

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT FATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.4 Demonstrate New Duild'	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name	Norman Kirk Courts Block C	I	Beviewer	Lee Howard
Building Address:	Unit 9A.9B.9C.9D.9E	No: Street 183 Strickland Street	CPEng No Company	1008889 Aureon
Legal Description:	Pt Lot 1 DP 30139		Company project number	232539
GPS south	Degrees	Min Sec	Date of submission	30/07/2013
GPS east:	172	37 38.80	Inspection Date	4/06/2013
Building Unique Identifier (CCC):	PRO 1137 B003	Ι	Is there a full report with this summary?	ves 2
Site				
Site slope: Soil type:	flat		Max retaining height (m) Soil Profile (if available)	
Site Class (to NZS1170.5): Provimity to waterway (m. if <100m)	D		If Ground improvement on site describe	
Proximity to valerway (m, if < 100m): Proximity to clifftop (m, if < 100m):			Assess site elevation (m)	
Proximity to clim base (m,il <100m):		<u> </u>	Approx site elevation (m)	
Building				
No. of storeys above ground: Ground floor split?	no 3	single storey = 1	Ground floor elevation (Absolute) (m) Ground floor elevation above ground (m)	0.00
Storeys below ground Foundation type:	strip footings		if Foundation type is other, describe	
Building height (m): Floor footprint area (approx):	9.20	height from ground to level of u	ppermost seismic mass (for IEP only) (m)	
Age of Building (years):	39	I	Date of design	1965-1976
Strengthening present?	Ino	T	If so when (year)?	
Lise (ground floor)	multi-unit residential	I	And what load level (%g)?	
Use (globina floors):	multi-unit residential		Dier strengtriening description	
Importance level (to NZS1170.5):	IL2			
Gravity Structure				
Gravity System: Roof:	load bearing walls timber framed		rafter type, purlin type and cladding	steel trough roofing
Floors: Beams:	precast concrete with topping cast-insitu concrete		unit type and depth (mm), topping overall depth x width (mm x mm	100mm Rib precast slab, 64mm topping varies
Columns: Walls:	load bearing walls partially filled concrete masonry		typical dimensions (mm x mm thickness (mm	10 series and 15 series block walls 140
Lateral load resisting structure				
Lateral system along:	partially filled CMU	Note: Define along and across in detailed report!	note total length of wall at groups (m)	
Period along:	0.40	###### enter height above at H31	estimate or calculation	estimated
Total deflection (ULS) (mm): maximum interstorey deflection (ULS) (mm):	1		estimate or calculation	
Lateral system across:	partially filled CMU	I		
Ductility assumed, µ: Period across:	1.25	##### enter height above at H31	note total length of wall at ground (m) estimate or calculation?	estimated
Total deflection (ULS) (mm): maximum interstorev deflection (ULS) (mm):			estimate or calculation	
Separations:				
separations: north (mm):		leave blank if not relevant		
east (mm): south (mm):				
west (mm):		l		
Non-structural elements Stairs:	cast insitu	I	notes	
Wall cladding: Boof Cladding:	plaster system Metal		describe	painted CMU, plasterboard walls Steel trough section roofing
Glazing	plantar fived		Goborise	
Services(list):				I
Available documentation Architectura	partial	I	original designer name/date	Christchurch City Council
Structura Mechanica	full none		original designer name/date original designer name/date	Christchurch City Council
Electrica Geotech report	none		original designer name/date original designer name/date	
			· · ·	
Damage Site: Site performance:	Good	Ī	Describe damage	Minor cracking in CMU and plasterboard.
(refer DEE Table 4-2) Settlement	25-100m		notes (if annlicable)	
Differential settlement	none observed		notes (if applicable)	
Lateral Spread	none apparent		notes (il applicable)	
Differential lateral spread Ground cracks	none apparent		notes (if applicable) notes (if applicable)	
Damage to area	none apparent		notes (if applicable)	
Building: Current Placard Status:	green			
Along Damage ratio	0%	I	Describe how damage ratio arrived at	
Describe (summary):		(OL NDC (L	$e_{fore} = \% NRS(after))$	
Across Damage ratio	0%	$Damage _Ratio = \frac{(\% NBS)(be}{0.000}$	NBS (before)	
Disphrame Discribe (suffitting)		1		
ORMAN Damage ?		1	Describe	دا ۲
Damage?		1	Describe	را
Pounding: Damage?	.ino		Describe	
Non-structural: Damage?	.yes		Describe	Minor cracking in plasterboard joints
Recommendations				
Level of repair/strengthening required	minor structural		Describe	Improve connection of slabs to walls
Interim occupancy recommendations:	full occupancy		Describe	
Along Assessed %NBS before e'quakes:	59%	##### %NBS from IEP below	If IEP not used, please detail assessmen	Quantitative Assessment
Assessed %NBS after e'quakes	59%	1	methodology	
Across Assessed %NBS before e'quakes Assessed %NBS after e'quakes	41%	##### %NBS from IEP below		
IEP Use of this m	ethod is not mandatory - more detailed a	nalysis may give a different answer, which	n would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above):	1965-1976		hn from above	m
Seismic Zone, if designed between 1965 and 1992	B	Ι	not required for this age of building	
			not required for this age of building	
		Period (from above):	along 0.4	across 0.4
		(%NBS)nom from Fig 3.3:		
Note:1 for specifical	ly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1	.33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 3: for buildings designed prior to	o 1935 use 0.8, except in Wellington (1.0)	
			along	across
		Final (%NBS)nom	0%	0%

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT PATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name	Norman Kirk Courts - Block D	1	Beviewer	Lee Howard
Building Address	Unit 10,11,12,13,14	No: Street 183 Strickland	CPEng No Company	1008889
Legal Description	1 Pt Lot 1 DP 30139		Company project number Company phone number	232536
GPS south	Degrees 11 43	Min Sec 32 52.49	Date of submission	30/07/2013
GPS east	172	37 38.47	Inspection Date Revision	4/06/2013
Building Unique Identifier (CCC)	: PRO 1137 B004	Ι	Is there a full report with this summary'	2 yes
ite Site slope	r flat	1	Max retaining height (m)	-
Soil type Site Class (to NZS1170.5)	mixed		Soil Profile (if available)	
Proximity to waterway (m, if <100m) Proximity to cliffton (m, if <100m)			If Ground improvement on site, describe	0
Proximity to cliff base (m,if <100m)		1	Approx site elevation (m)	1
hilding				
No. of storeys above ground	1	single storey = 1	Ground floor elevation (Absolute) (m)	0.00
Storeys below ground	3 0'		if Cauadatian trans is atless describe	0.00
Building height (m)	2.60	height from ground to level of u	ppermost seismic mass (for IEP only) (m)	5.4
Age of Building (years)	39		Date of design	1965-1976
	-	т		
Strengthening present	? <u>no</u>		If so, when (year) And what load level (%g)	2
Use (ground floor) Use (upper floors)	multi-unit residential		Brief strengthening description	
Use notes (if required) Importance level (to NZS1170.5)	IL2			
ravity Structure				
Gravity System: Boof	load bearing walls		truss depth, purlin type and cladding	2400, Timber, Corrugated Steel
Floors	concrete flat slab		slab thickness (mm overall depth x width (mm x mm	100
Columns	load bearing walls		typical dimensions (mm x mm thickness (mm	2*100 series block walls
ateral load resisting structure	generally most concrete masterily	+	เกมตรร (กกก	200
Lateral system along	partially filled CMU	Note: Define along and across in detailed report!	note total length of well at around (m)	Blockwork wall reinforced @800mm
Period along	1.25	###### enter height above at H31	estimate or calculation	estimated
rotal deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)			estimate or calculation estimate or calculation	2
Lateral system across	: partially filled CMU			Blockwork wall reinforced @800mm
Ductility assumed, μ Period across	1.25	##### enter height above at H31	note total length of wall at ground (m) estimate or calculation	estimated
Total deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)		-	estimate or calculation estimate or calculation	2
eparations:				
north (mm) east (mm)	[leave blank if not relevant		
south (mm)				
Ion-structural elements	1	1		
Stairs Wall cladding		Į		No Mainly blockwork and partially Plasterboard
Roof Cladding	Metal	+	describ	Steel Sheeting
Ceilings	plaster, fixed	+		No
Ger Vices (list)	*	1		
vailable documentation		T		
Architectura	i partial I none		original designer name/date original designer name/date	e Christchurch City Council
Mechanica	i none	-	original designer name/date original designer name/date	
Geotech repor	tinone		original designer name/date	9
Damage				
Site: Site performance refer DEE Table 4-2)	. Good	<u> </u>	Describe damage	
Settlement Differential settlement	none observed		notes (if applicable) notes (if applicable)	
Liquefaction Lateral Spread	none apparent		notes (if applicable) notes (if applicable)	
Differential lateral spread Ground cracks	none apparent		notes (if applicable) notes (if applicable)	
Damage to area	none apparent	1	notes (if applicable)	
uilding: Current Placard Status	areen			
long Damage ratio	n	I	Describe how damage ratio arrived at	
Describe (summary)	:	(0) NDC (1	afora) 0/ MDC (afora))	1
cross Damage ratio	0%	$Damage _Ratio = \frac{(\% NBS (be))}{0}$	vore) – % NBS (after))	
Describe (summary)		1 %	(bejore)	
iapriragilis Damage?		1	Describe	۹L
Damage?		1	Describe	۹L
ounding: Damage?	:[no		Describe	۵ <u>ــــــــــــــــــــــــــــــــــــ</u>
on-structural: Damage?	: yes		Describe	Cracks in plasterboard ceiling
ecommendations				
Level of repair/strengthening required Building Consent required	minor structural		Describe	Strengthening of the bondbeams, Plasterb
Interim occupancy recommendations	: full occupancy	1	Describe	d
long Assessed %NBS before e'quakes	43%	##### %NBS from IEP below	If IEP not used, please detail assessmen	t Quantitative Assessment
	43%	##### %NRS from IEB hole	methodology	
Assessed %NBS before e'quakes Assessed %NBS after e'quakes	54%	##### 70INDS IFOM IEP DEIOW		
EP Use of this n	nethod is not mandatory - more detailed a	analysis may give a different answer, which	n would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above)	: 1965-1976		hn from above	: 5.4m
Seismic Zone, if designed between 1965 and 1992	: B		not required for this age of building not required for this age of building	
			along	across
		Period (from above):	0.4	0.4
Notort for an affer	ally design public buildings, to the code of the	day: pre-1965 - 1.25: 1965 1976 Zong A. 1	33: 1965-1976, Zone B = 1.3: all alc = 1.0	
Note: For specifica	coarger paone bandings, to the code of the	Note 2: for RC buildin	gs designed between 1976-1984, use 1.2	
		Note 3. for buildings designed prior to	use u.o, except in Wellington (1.0)	
		Final (% NPC)	along	across

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT FATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
.ocation Building Name:	Norman Kirk Courts - Block E		Reviewer	Lee Howard
Building Address:	Unit 15A,15B,15C,15D,15E,16,17,18	No: Street 183 Strickland	CPEng No Company	: 1008889 : Aureon
Legal Description:	Pt Lot 1 DP 30139		Company project number Company phone number	232536
GPS south: GPS east	43 172	32 53.75 37 37 03	Date of submission	30/07/2013
Building Unique Identifier (CCC):	PBO 1137 B005		Revision Is there a full report with this summary	2 2
ite				
Site slope: Soil type:	flat mixed		Max retaining height (m) Soil Profile (if available)	
Site Class (to NZS1170.5): Proximity to waterway (m, if <100m):	D		If Ground improvement on site, describe	
Proximity to clifftop (m, if < 100m): Proximity to cliff base (m, if <100m):			Approx site elevation (m)	:
No. of storeys above ground:	3	single storey = 1	Ground floor elevation (Absolute) (m)	. 0.00
Ground thoor split? Storeys below ground Foundation tuna:	no 0		Ground floor elevation above ground (m)	. 0.00
Building height (m): Floor fontorint area (annrox)	9.20 240	height from ground to level of up	permost seismic mass (for IEP only) (m)	0
Age of Building (years):	39		Date of design	: 1965-1976
Strengthening present?	Ino		If so, when (year)?	
Use (around floor):	multi-unit residential		And what load level (%g)? Brief strengthening description	2
Use (upper floors): Use notes (if required):				
Importance level (to NZS1170.5):	IL2			
iravity Structure Gravity System:	load bearing walls			
Roof: Floors:	timber truss concrete flat slab		truss depth, purlin type and cladding slab thickness (mm	2400,Timber, Corrugated Steel 100mm Rib precast slab, 64mm topping
Beams: Columns:	load bearing walls		overall depth x width (mm x mm typical dimensions (mm x mm	10 series and 15 series block walls
Walls:	partially filled concrete masonry		thickness (mm	140
ateral load resisting structure Lateral system along:	partially filled CMU	Note: Define along and across in		
Ductility assumed, µ: Period along:	1.25	detailed report! ##### enter height above at H31	note total length of wall at ground (m) estimate or calculation?	estimated
Total deflection (ULS) (mm): maximum interstorey deflection (ULS) (mm):			estimate or calculation	
Lateral system across:	partially filled CMU			
Ductility assumed, µ: Period across:	1.25	##### enter height above at H31	note total length of wall at ground (m) estimate or calculation?	estimated
Total deflection (ULS) (mm): maximum interstorey deflection (ULS) (mm):			estimate or calculation?	2
eparations:				
north (mm): east (mm):		leave blank if not relevant		
south (mm): west (mm):				
Ion-structural elements				
Stars: Wall cladding:	exposed structure		describe	s blockwork exposed
Root Cladding: Glazing:	Metal timber frames		describe	Mainly timber
Services(list):	plaster, lixed			
vailable documentation				
Architectural	full		original designer name/date	Christchurch City Council/1974
Mechanical	none		original designer name/date	
Geotech report	none		original designer name/date	
Damage				
Site: Site performance: refer DEE Table 4-2)	Good		Describe damage	minor cracks in walls
Settlement: Differential settlement:	none observed none observed		notes (if applicable) notes (if applicable)	
Liquefaction: Lateral Spread:	none apparent none apparent		notes (if applicable) notes (if applicable)	
Differential lateral spread: Ground cracks:	none apparent none apparent		notes (if applicable) notes (if applicable)	
Damage to area:	none apparent		notes (if applicable)	
uilding: Current Placard Status:	green			
long Damage ratio:	0%		Describe how damage ratio arrived at	
Describe (summary):		D (% NBS (be)	fore) – % NBS (after))	
cross Damage ratio: Describe (summary):	0%	$Damage _Ratio = \frac{(a + b)}{\%}$	NBS (before)	
iaphragms Damage?:	no		Describe	
SWs: Damage?:	no		Describe	
ounding: Damage?:	no		Describe	
on-structural: Damage?:	yes		Describe	cracks in plasterboard ceiling
ecommendations Level of repair/strengthening required:	minor structural		Describe	Strengthening of bondbeam and diaphragm
Building Consent required: Interim occupancy recommendations:	no full occupancy		Describe	
long Assessed %NBS before e quakes:	52%	##### %NBS from IEP below	If IEP not used, please detail assessmen	t Quantitative Assessment
Assessed %NBS after e'quakes:	52%		methodology	
cross Assessed %NBS before e'quakes: Assessed %NBS after e'quakes:	43% 43%	##### %NBS from IEP below		
P Use of this m	ethod is not mandatory - more detailed an	nalysis may give a different answer, which	would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above):	1965-1976		hn from above	: 0m
Seismic Zone, if designed between 1965 and 1992:	В		not required for this age of building not required for this age of building	
			along	across
		Period (from above): (%NBS)nom from Fig 3.3:	0.4	0.4
Note:1 for specifical	ly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976. Zone A =1.3	33; 1965-1976, Zone B = 1.2: all else 1.0	
		Note 2: for RC building Note 3: for buildings designed prior to	s designed between 1976-1984, use 1.2 1935 use 0.8, except in Wellington (1.0)	
			along	across
		Final (% NPC)	0%	00/

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT FATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.4 Demonstrate New Duild'	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name:	Norman Kirk Courts - Block F		Reviewer	Lee Howard
Building Address:	Unit 19,20,21A,21B,21C,21D,21E	No: Street 183 Strickland	CPEng No Company	: 1008889 : Aureon
Legal Description:	Pt Lot 1 DP 30139	Min. Con	Company project number Company phone number	232536
GPS south: GPS east	43 172	32 54.69 37 38 14	Date of submission	30/07/2013
Building Unique Identifier (CCC):	PBO 1137 B006	57/50.14	Revision Is there a full report with this summary	2
ite				
Site slope: Soil type:	flat mixed		Max retaining height (m) Soil Profile (if available)	
Site Class (to NZS1170.5): Proximity to waterway (m, if <100m):	D		If Ground improvement on site, describe	
Proximity to clifftop (m, if < 100m): Proximity to cliff base (m, if <100m):			Approx site elevation (m)	
heilding				
No. of storeys above ground: Ground floor split?	3	single storey = 1	Ground floor elevation (Absolute) (m)	0.00
Storeys below ground Foundation type:	0 mat slab		if Foundation type is other, describe	
Building height (m): Floor footprint area (approx):	9.20	height from ground to level of up	permost seismic mass (for IEP only) (m)	. 0
Age of Building (years):	39		Date of design	: 1965-1976
Strengthening present?	no		If so, when (year)	2
Use (ground floor)	multi-unit residential		Brief strengthening description	
Use notes (if required): Importance lavel (to NZC1170.5)				
importance level (to N23 1170.3).	122			
Gravity System: Boof:	load bearing walls timber truss		truss depth, purlin type and cladding	2400 Timber, Corrugated Steel
Floors: Beams:	concrete flat slab none		slab thickness (mm overall depth x width (mm x mm	100mm Rib precast slab, 64mm topping
Columns: Walls:	load bearing walls partially filled concrete masonry		typical dimensions (mm x mm thickness (mm	10 series and 15 series block walls 140
ateral load resisting structure		Nete Def		
Lateral system along: Ductility assumed, µ:	partially filled CMU 1.25	Note: Define along and across in detailed report!	note total length of wall at ground (m)	:
Period along: Total deflection (ULS) (mm): maximum interchereu deflection (ULS) (mm):	0.40	###### enter neight above at H31	estimate or calculation estimate or calculation	
l steral evistem across:	partially filled CMU		estimate or calculation:	
Ductility assumed, µ:	1.25 0.40	##### enter beight above at H31	note total length of wall at ground (m) estimate or calculation	: estimated
Total deflection (ULS) (mm): maximum interstorey deflection (ULS) (mm):	0.10		estimate or calculation estimate or calculation	2
eparations:				
north (mm): east (mm):		leave blank if not relevant		
south (mm): west (mm):				
Ion-structural elements				
Stars: Wall cladding: Reaf Cladding:	cast insitu exposed structure		notes describe	blockwork exposed
Glazing: Ceilings	timber frames		uescribe	Mainly timber
Services(list):				
vailable documentation				
Architectural Structural	full full		original designer name/date original designer name/date	Christchurch City Council/1974 Christchurch City Council/1974
Mechanical Electrical	none		original designer name/date original designer name/date	9
Geolech report	none		onginai designer name/date	
lamage ite: Site performance:	Good		Describe damage	minor cracks in walls
efer DEE Table 4-2) Settlement:	none observed		notes (if applicable)	
Differential settlement: Liquefaction:	none observed none apparent		notes (if applicable) notes (if applicable)	
Lateral Spread: Differential lateral spread:	none apparent none apparent		notes (if applicable) notes (if applicable)	
Ground cracks: Damage to area:	none apparent none apparent		notes (if applicable) notes (if applicable)	
uilding:				
Current Placard Status:	lgreen		Describe how domage anti-	·
Damage ratio: Describe (summary):	0%	(0) NDC (1	forma) (% MDS (۹ <u>ــــــــــــــــــــــــــــــــــــ</u>
cross Damage ratio: Describe (summary):	0%	$Damage _Ratio = \frac{(\% NBS (be))}{\%}$	NBS (before)	
iaphragms Damana?	no		Describe	()
SWs: Damage?:	no		Describe	
ounding: Damage?:	no		Describe	:
on-structural: Damage?:	yes		Describe	cracks in plasterboard ceiling
Level of repair/strengthening required:	minor structural		Describe	Strengthening of bondbeam and diaphragm
Interim occupancy recommendations:	full occupancy		Describe	
long Assessed %NBS before e'quakes: Assessed %NBS after e'quakes:	51%	##### %NBS from IEP below	If IEP not used, please detail assessmen methodology	t Quantitative Assessment
Cross Assessed %NRS before a guides	100%	##### %NBS from IFP below	memodology	
Assessed %NBS after e'quakes:	100%			
P Use of this m	ethod is not mandatory - more detailed a	nalysis may give a different answer, which	would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above):	1965-1976	, , ,	ha from above	: 0m
Seismic Zone, if designed between 1965 and 1992	B		not required for this age of building	,
			not required for this age of building	
		Period (from above):	along 0.4	across 0.4
		(%NBS)nom from Fig 3.3:	00. 1005 1070 7 D 10 "	
Note:1 for specifical	y design public buildings, to the code of the c	uay. pre-1905 = 1.25; 1965-1976, Zone A =1.3 Note 2: for RC building	so, 1905-1976, Zone B = 1.2; all else 1.0 s designed between 1976-1984, use 1.2 1935 use 0.8 except in Wallington (1.0)	
		note 3. for buildings designed prior to	along	201000
		Final (% MDC)	0%	0%

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT FATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.4 Demonstrate New Duild'	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
.ocation Building Name	e: Norman Kirk Courts - Block G	ſ	Reviewer	Lee Howard
Building Address	Unit s: 22,23,24	No: Street 183 Strickland	CPEng No: Company:	1008889 Aureon
Legal Description	1: Pt Lot 1 DP 30139		Company project number Company phone number	232536 33660821
GPS south	Degrees 43	Min Sec 32155.43	Date of submission	30/07/2013
GPS eas	t:172	37 38.85	Inspection Date Revision	4/06/2013
Building Unique Identifier (CCC	1: PRO 1137 B007	[Is there a full report with this summary?	yes
ite Site slope	o flat	r	May rataining height (m)	1
Site Class (to NZS1170 5	e: mixed		Soil Profile (if available):	
Proximity to waterway (m, if <100m		•	If Ground improvement on site, describe	
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	
h didina				
No. of storeys above ground	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Storeys below groun	d0		Ground noor elevation above ground (m).	0.00
Building height (m	3.30	height from ground to level of u	ppermost seismic mass (for IEP only) (m):	0
Age of Building (years	39		Date of design:	1965-1976
	-	r		
Strengthening present	? no		If so, when (year)? And what load level (%g)?	
Use (ground floor Use (upper floors	: multi-unit residential		Brief strengthening description:	
Use notes (if required Importance level (to NZS1170.5	1: IL2			
ravity Structure				
Gravity System Roo	load bearing walls		truss depth, purlin type and cladding	2400 mm, Timber, Corrugated Steel
Floors Beams	concrete flat slab		slab thickness (mm) overall depth x width (mm x mm)	100mm floor slab
Columns Walls	i load bearing walls partially filled concrete masonry		typical dimensions (mm x mm) thickness (mm)	2 - 10 series block walls 100
ateral load resisting structure			(((()))	
Lateral system along Ductility assumed	partially filled CMU	Note: Define along and across in detailed report!	note total length of wall at ground (m)	
Total deflection (ULS) (mm	3: 0.40	##### enter height above at H31	estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm			estimate or calculation?	
Lateral system across	: partially filled CMU		note total length of wall at ground (m)	
Period across	. 0.40	##### enter height above at H31	estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm			estimate or calculation?	
eparations:				
north (mm east (mm):	leave blank if not relevant		
south (mm west (mm				
Ion-structural elements				
Stairs Wall cladding	cast insitu exposed structure		notes describe	blockwork exposed
Roof Cladding Glazing	: Metal g: timber frames		describe	Steel Sheeting Mainly timber
Ceiling: Services(list	: plaster, fixed			No
wailable documentation Architectura	alfull	1	original designer name/date	Christchurch City Council/1974
Structura Mechanica	al full al none		original designer name/date original designer name/date	Christchurch City Council/1974
Electric: Geotech repo	al none rt none		original designer name/date original designer name/date)
amage lite: Site performance	e: Good		Describe damage:	minor cracks in walls
efer DEE Table 4-2) Settlemen	t: none observed		notes (if applicable):	
Differential settlemen	t: none observed		notes (if applicable)	
Lateral Spread Differential lateral spread	I: none apparent d: none apparent		notes (if applicable) notes (if applicable)	
Ground cracks Damage to area	: none apparent		notes (if applicable) notes (if applicable)	
uilding:			notos (ii appiidabild).	
Current Placard Status	s: green			
long Damage ratio	0%		Describe how damage ratio arrived at	
cross		Damaga Patio - (% NBS (be	efore) – % NBS (after))	
Damage ratio Describe (summary):	$Samage _Kano =$	NBS (before)	
iaphragms Damage'	?: no		Describe	
SWs: Damage	?: no	[Describe	
ounding: Damage	?: no		Describe	
Ion-structural: Damage	?: yes		Describe	cracks in plasterboard ceiling
ecommendations Level of repair/strengthening required	d: minor structural		Describe	Strengthening of bondbeam and diaphraom
Building Consent required Interim occupancy recommendations	I: no s: full occupancy		Describe: Describe:	
long Assessed %NBS before e'auakes	s:51%	##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes	\$1		methodology	
cross Assessed %NBS before e'quakes	50%	##### %NBS from IEP below		
ASSESSED WINDS Aller e'quakes	50%			
P Use of this	method is not mandatory - more detailed a	nalysis may give a different answer, which	would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above): 1965-1976		hn from above	: 0m
Seismic Zone, if designed between 1965 and 1992	2: <u>B</u>	[not required for this age of building	
			not required for this age of building	
		Period (from above):	along 0.4	across 0.4
		(%NBS)nom from Fig 3.3:		
Note:1 for specifica	ally design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1 Note 2: for RC buildin	.33; 1965-1976, Zone B = 1.2; all else 1.0 gs designed between 1976-1984, use 1.2	
		Note 3: for buildings designed prior to	p 1935 use 0.8, except in Wellington (1.0)	
		First (0/NDO)	along	across

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT PATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name	Norman Kirk Courts Block H	I	Beviewer	Lee Howard
Building Address:	Unit 25A.25B.25C.25D.25E	No: Street 183 Strickland Street	CPEng No Company	1008889 Aureon
Legal Description:	Pt Lot 1 DP 30139		Company project number	232539
GPS south	Degrees	Min Sec	Date of submission	30/07/2013
GPS east:	172	37 39.43	Inspection Date	4/06/2013
Building Unique Identifier (CCC):	PRO 1137 B008	Ι	Is there a full report with this summary?	yes
Site				
Site slope: Soil type:	flat		Max retaining height (m): Soil Profile (if available)	
Site Class (to NZS1170.5): Provimity to waterway (m. if <100m)	D		If Ground improvement on site describe	
Proximity to valerway (m, if < 100m): Proximity to clifftop (m, if < 100m):			Access site elevation (m)	
Proximity to clim base (m,il <100m):		<u> </u>	Approx site elevation (m).	
Building				
No. of storeys above ground: Ground floor split?	no 3	single storey = 1	Ground floor elevation (Absolute) (m): Ground floor elevation above ground (m):	0.00
Storeys below ground Foundation type:	0 strip footings		if Foundation type is other, describe	
Building height (m): Floor footprint area (approx):	9.20	height from ground to level of u	ppermost seismic mass (for IEP only) (m):	
Age of Building (years):	39	I	Date of design:	1965-1976
Strengthening present?	Ino	I	If so, when (year)?	· · · · · · · · · · · · · · · · · · ·
Lise (ground floor)	multi-unit residential	I	And what load level (%g)?	
Use (globina floors):	multi-unit residential		Diel strengthening description.	
Importance level (to NZS1170.5):	IL2			
Gravity Structure		T		
Gravity System: Roof:	load bearing walls timber framed		rafter type, purlin type and cladding	steel trough roofing
Floors: Beams:	precast concrete with topping cast-insitu concrete		unit type and depth (mm), topping overall depth x width (mm x mm)	100mm Rib precast slab, 64mm topping varies
Columns: Walls:	load bearing walls		typical dimensions (mm x mm) thickness (mm)	10 series and 15 series block walls 140
Lateral load resisting structure			(IIII)	
Lateral system along	partially filled CMU	Note: Define along and across in detailed report!	note total length of wall at ground (m)	
Period along:	0.40	###### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm): maximum interstorey deflection (ULS) (mm):	1		estimate or calculation?	
Lateral system across:	partially filled CMU	I		
Ductility assumed, µ: Period across:	1.25	##### enter height above at H31	note total length of wall at ground (m): estimate or calculation?	estimated
Total deflection (ULS) (mm): maximum interstorev deflection (ULS) (mm):			estimate or calculation?	
Separations:			connuc or ouronation.	
separations: north (mm):		leave blank if not relevant		
east (mm): south (mm):				
west (mm):		l		
Non-structural elements Stairs:	cast insitu	I	notes	
Wall cladding: Boof Cladding:	plaster system Metal		describe	painted CMU, plasterboard walls Steel trough section roofing
Glazing	plantar fived		doorbe	
Services(list):	plaster, fixed			I
Available documentation Architectura	partial	I	original designer name/date	Christchurch City Council
Structura Mechanica	full none		original designer name/date original designer name/date	Christchurch City Council
Electrica Geotech report	none		original designer name/date original designer name/date	
			· · ·	
Damage Site: Site performance:	Good	Ī	Describe damage	Minor cracking in CMU and plasterboard.
(refer DEE Table 4-2) Settlement	25-100m		notes (if annlicable)	
Differential settlement	none observed		notes (if applicable).	
Lateral Spread	none apparent		notes (if applicable):	
Differential lateral spread Ground cracks	none apparent		notes (if applicable): notes (if applicable):	
Damage to area	none apparent		notes (if applicable):	
Building: Current Placard Status:	green	[
Along Damage ratio	0%	I	Describe how damage ratio arrived at	
Describe (summary):		(CL NDC (L	efore) = % NRS(after))	
Across Damage ratio	0%	$Damage _Ratio = \frac{(\% NBS)(bb}{o}$	NBS (before)	
Disphragms			D "	
Diaprinagins Damage?	10	I T	Describe:	L]
CSWS: Damage?	INO		Describe	
Pounding: Damage?	Ino		Describe	
Non-structural: Damage?	yes		Describe	Minor cracking in plasterboard joints
Recommendations				
Level of repair/strengthening required	minor structural		Describe	Improve connection of slabs to walls
Interim occupancy recommendations	full occupancy	1	Describe	
Along Assessed %NBS before e'quakes	59%	##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes	59%		methodology:	
Across Assessed %NBS before e'quakes: Assessed %NBS after e'quakes	41%	##### %NBS from IEP below		
IEP Use of this m	ethod is not mandatory - more detailed a	nalysis may give a different answer, which	n would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above):	1965-1976		he from above	m
Seismic Zone, if designed between 1965 and 1992	B	I	not required for this age of building	
			not required for this age of building	
		Period (from above):	along 0.4	across 0.4
		(%NBS)nom from Fig 3.3:	0.1	
Note:1 for specifical	ly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1	.33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 2: for HC buildin Note 3: for buildings designed prior t	o 1935 use 0.8, except in Wellington (1.0)	
			along	across
		Final (%NBS)	0%	0%

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT FATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name	Norman Kirk Courts Block I	Ī	Reviewer	Lee Howard
Building Address:	Unit 26,27,28,29,30,31A,31B,31C,31D,31E	No: Street 183 Strickland Street	CPEng No Company	1008889
Legal Description:	Pt Lot 1 DP 30139		Company project number Company phone number	232539
GPS south	Degrees 43	Min Sec 32 54.85	Date of submission	30/07/2013
GPS east	172	37 39.45	Inspection Date Revision	4/06/2013
Building Unique Identifier (CCC):	PRO 1137 B009	Ι	Is there a full report with this summary?	ves
Site		т		
Site slope: Soil type:	tlat mixed		Max retaining height (m) Soil Profile (if available)	
Site Class (to NZS1170.5): Proximity to waterway (m, if <100m):	D		If Ground improvement on site, describe	
Proximity to clifftop (m, if < 100m): Proximity to cliff base (m,if <100m):			Approx site elevation (m)	
Building No. of storeys above ground:	. 3	single storey = 1	Ground floor elevation (Absolute) (m)	
Ground floor split? Storeys below ground	no 0		Ground floor elevation above ground (m)	. 0.00
Foundation type: Building height (m):	strip footings 9.20	height from ground to level of u	if Foundation type is other, describe uppermost seismic mass (for IEP only) (m)	
Floor footprint area (approx): Age of Building (years):	135		Date of design	1965-1976
		•		
Strengthening present?	no	Ι	If so, when (year)? And what load level (%o)?	
Use (ground floor): Use (upper floors)	multi-unit residential	I	Brief strengthening description	
Use notes (if required):		+ +		
	122	<u> </u>		
Gravity System:	load bearing walls		rofter has surfice to the test	ateal trough reaft-
Roof. Floors	precast concrete with topping		unit type and depth (mm), topping	100mm Rib precast slab, 64mm topping
Beams: Columns:	load bearing walls		overall depth x width (mm x mm typical dimensions (mm x mm	10 series and 15 series block walls
Walls:	partially filled concrete masonry	·	thickness (mm)	140
Lateral load resisting structure Lateral system along	partially filled CMU	Note: Define along and across in		
Ductility assumed, μ Period along	0.40	detailed report! ###### enter height above at H31	note total length of wall at ground (m) estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)			estimate or calculation	
Lateral system across	partially filled CMU	Ī		
Ductility assumed, μ. Period across	1.25	##### enter height above at H31	note total length of wall at ground (m) estimate or calculation	estimated
Total deflection (ULS) (mm): maximum interstorev deflection (ULS) (mm):	0.10		estimate or calculation	
Separations:		1	estimate or calculation	
separations: north (mm):	1	leave blank if not relevant		
east (mm): south (mm):				
west (mm):		l		
Non-structural elements Stairs:	cast insitu	Ι	notes	
Wall cladding: Roof Cladding:	plaster system Metal		describe describe	Steel trough section roofing
Glazing: Ceilings:	plaster, fixed	+		
Services(list):		Ι		
Available documentation				
Architectura	partial	Į	original designer name/date	Christchurch City Council
Mechanica	none	•	original designer name/date	
Geotech report	none	1	original designer name/date	
Domogo				
Site: Site performance:	Good	Ι	Describe damage	Minor cracking in CMU and plasterboard.
(refer DEE Table 4*2) Settlement	25-100m	Į	notes (if applicable)	
Differential settlement: Liquefaction	none apparent		notes (if applicable) notes (if applicable)	
Lateral Spread Differential lateral spread	none apparent none apparent	-	notes (if applicable) notes (if applicable)	
Ground cracks: Damage to area:	none apparent		notes (if applicable) notes (if applicable)	
Building:				
Current Placard Status	green			
Along Damage ratio Describe (summary)	0%		Describe how damage ratio arrived at	
Across Damage ratio		$Damage _Ratio = \frac{(\% NBS (b))}{2}$	efore) – % NBS (after))	
Describe (summary):		9	% NBS (before)	
Diaphragms Damage?	no		Describe	
CSWs: Damage?	no		Describe	
Pounding: Damage?:	no	Ι	Describe	
Non-structural: Damage?	yes	Ι	Describe	Minor cracking in plasterboard joints
Pasammandationa				
Level of repair/strengthening required	minor structural		Describe	Improve connection of slabs to walls
Interim occupancy recommendations	full occupancy	1	Describe	
Along Assessed %NBS before e'quakes	54%	##### %NBS from IEP below	If IEP not used, please detail assessmen	Quantitative Assessment
Assessed %NBS after e'quakes	54%		methodology	
Across Assessed %NBS before e'quakes: Assessed %NBS after e'quakes:	41%	##### %NBS from IEP below		
IEP Use of this m	ethod is not mandatory - more detailed a	nalysis may give a different answer, whic	h would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above):	1965-1976		hn from above	: m
Seismic Zone, if designed between 1965 and 1992	В	I	not required for this age of building	
			nou requirea for this age of building	
		Period (from above):	along 0.4	across 0.4
		(%NBS)nom from Fig 3.3:	L	
Note:1 for specifical	ly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A = Note 2: for RC building	1.33; 1965-1976, Zone B = 1.2; all else 1.0 ngs designed between 1976-1984, use 1.2	<u> </u>
		Note 3: for buildings designed prior	to 1935 use 0.8, except in Wellington (1.0)	
			along	across

2.2 Near Fault Scaling Factor		Near Fault scaling f	actor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault s	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z fo	r site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildin	g Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		201005
2.5 Ductility Scaling Factor	Assessed du	ctility (less than max in Table 3.2)	aiong		401000
	Ductility scaling factor: =1 from 1976 onwards; of	r =kµ, if pre-1976, fromTable 3.3:			
		Dustiity Sasling Faster Faster D	0.00		0.00
		Suchity Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scalin	g Factor:	Sp:			
	Structural Perfe	ormance Scaling Eactor Factor F	#DIV/01		#DIV/01
	on detail a rene	and the obtaining reason ractor E.			
		******	(DI) ((0)		1011 (A)
2.7 Baseline %NBS, (NBS%)6 = (%I	NBS)nom X A X B X C X D X E	%NB56:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	as: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:	Insignificant				
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Factor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	indigninoun	Separati	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	fH 0.7	0.8	1
F	leight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	fH 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/none
		Separat	ion 0 <sep<.005h< td=""><td>005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 store	evs 0.4	0.7	1
		Height difference 2 to 4 store	eys 0.7	0.9	1
		Height difference < 2 store	ys 1	1	1
			Along		Aorooo
3.6. Other factors, Factor F	For < 3 storeys, max value -2.5, other	vise max valule =1.5, no minimum	1.0		1.0
	Ratio	nale for choice of F factor, if not 1	1.0		
Detail Critical Structural Weakness	es: (refer to DEE Procedure section 6)				
List ar	ny: Refer also	section 6.3.1 of DEE for discussion of F fact	or modification for other crit	ical structural weaknes	sses
			1 00		
3.7. Overall Performance Achieven	tent ratio (PAR)		1.00		1.00
		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.3 PAR x (%NBS)b:					
4.3 PAR x (%NBS)b:					

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name	Norman Kirk Courts - Block J	Ι	Reviewer	Lee Howard
Building Address	Unit: 32,33,34,35,36	No: Street 183 Strickland	CPEng No Company	: 1008889 : Aureon
Legal Description	: Pt Lot 1 DP 30139		Company project number Company phone number	232536
GPS south	Degrees 43	Min Sec 32 54.76	Date of submission	30/07/2013
GPS east	172	37 39.47	Inspection Date Revision	4/06/2013
Building Unique Identifier (CCC)	PRO 1137 B010		Is there a full report with this summary'	lyes
Site Slope	a flat	1	Max retaining height (m)	
Soil type Site Class (to NZS1170.5)	mixed D		Soil Profile (if available)	
Proximity to waterway (m, if <100m) Proximity to clifftop (m, if < 100m)			If Ground improvement on site, describe	4
Proximity to cliff base (m,if <100m)			Approx site elevation (m)	
Building				
No. of storeys above ground Ground floor split?	2 2 no	single storey = 1	Ground floor elevation (Absolute) (m) Ground floor elevation above ground (m)	0.00
Storeys below ground Foundation type	l 0 mat slab		if Foundation type is other, describe	0
Building height (m) Floor footprint area (approx)	2.60	height from ground to level of u	ppermost seismic mass (for IEP only) (m)	5.4
Age of Building (years)	39	1	Date of design	: 1965-1976
Strengthening present?	?no	Ι	If so, when (year)	2
Use (ground floor)	multi-unit residential]	Brief strengthening description	
Use notes (if required)				
importance level (to NZS1170.5)				
Gravity System:	load bearing walls		truce doption and the time	2400 mm Timber Ormer's 1.01
Floors	concrete flat slab		slab thickness (mm	100 100
Beams Columns	load bearing walls		typical dimensions (mm x mm thiskness (mm x mm	2*100 series block walls
ateral load resisting structure	Derivany meet concrete masonry	4	unickness (MM	200
Lateral system along	partially filled CMU	Note: Define along and across in detailed report!	note total length of wall at ground (m)	Blockwork wall reinforced @800mm
Period along Total deflection (μ. β) (μ. β)	0.40	###### enter height above at H31	estimate or calculation	estimated
maximum interstorey deflection (ULS) (mm)	- da	1	estimate or calculation	2
Lateral system across	partially filled CMU		note total length of wall at ground (m)	Blockwork wall reinforced @800mm
Period across	0.40	##### enter height above at H31	estimate or calculation	estimated
maximum interstorey deflection (ULS) (mm)		1	estimate or calculation	2
Separations:		leave blank if not relevant		
east (mm)				
west (mm)		1		
Non-structural elements Stairs		Ţ		No
Wall cladding Roof Cladding	Metal		describ	Mainly blockwork and partially Plasterboard
Glazing Ceilings	timber frames			Mainly timber No
Services (list)		I		
Available documentation				
Architectura Structura	l partial I none		original designer name/date original designer name/date	e Christchurch City Council
Mechanica Electrica	none none		original designer name/date original designer name/date	9
Geotech repor	t none		original designer name/date	9
Damage				
Site: Site performance refer DEE Table 4-2)	Good	1	Describe damage	c
Settlement Differential settlement	none observed		notes (if applicable) notes (if applicable)	
Liquefaction Lateral Spread	none apparent	-	notes (if applicable) notes (if applicable)	
Differential lateral spread Ground cracks	none apparent	-	notes (if applicable) notes (if applicable)	
Damage to area	Inone apparent		notes (if applicable)	· · · · · · · · · · · · · · · · · · ·
Current Placard Status	green	Ι		
Nong Damage ratio	0%		Describe how damage ratio arrived at	•
Describe (summary)	1	Demons Deri (% NBS (be	efore) – % NBS (after))	
Damage ratio Describe (summary)	0%	Damage _ Katio =%	b NBS (before)	
iaphragms Damage?	no	1	Describe	d
SWs: Damage?	no	1	Describe	d
Pounding: Damage?	no	I	Describe	d
Ion-structural: Damage?	yes	I	Describe	cracks in plasterboard ceiling
Level of repair/strengthening required	significant structural	ļ	Describe	Strengthening of the bondbeams. Some pla
Building Consent required Interim occupancy recommendations	: full occupancy		Describe	
long Assessed %NBS before e'quakes	: 44%	##### %NBS from IEP below	If IEP not used, please detail assessmen	Quantitative Assessment
Assessed %NBS after e'quakes	.144%		methodology	
cross Assessed %NBS before e'quakes Assessed %NBS after e'quakes	44%	##### %NBS from IEP below		
EP Use of this n	nethod is not mandatory - more detailed a	nalysis may give a different answer, which	h would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above)	: 1965-1976		hn from above	: 5.4m
Seismic Zone, if designed between 1965 and 1992	B	1	not required for this age of building not required for this age of building	
			along	across
		Period (from above): (%NBS)nom from Fig 3.3:	0.4	0.4
Note:1 for specifica	ly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976. Zone A =1	.33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 2: for RC buildin Note 3: for buildings designed prior t	ngs designed between 1976-1984, use 1.2 o 1935 use 0.8, except in Wellington (1.0)	
		ge and ge and prior t	along	across
		Final (%NBS)	0%	0%

2.2 Near Fault Scaling Factor		Near Fault scaling f	actor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault s	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z fo	r site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildin	g Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		201005
2.5 Ductility Scaling Factor	Assessed du	ctility (less than max in Table 3.2)	aiong		401000
	Ductility scaling factor: =1 from 1976 onwards; of	r =kµ, if pre-1976, fromTable 3.3:			
		Dustiity Sasling Faster Faster D	0.00		0.00
		Suchity Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scalin	g Factor:	Sp:			
	Structural Perfe	ormance Scaling Eactor Factor F	#DIV/01		#DIV/01
	on detail a rene	and the obtaining reason ratio E.			
		******	(DI) ((0)		1011 (A)
2.7 Baseline %NBS, (NBS%)6 = (%I	NBS)nom X A X B X C X D X E	%NB56:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	as: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:	Insignificant				
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Factor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	indigninoun	Separati	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	fH 0.7	0.8	1
F	leight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	fH 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/none
		Separat	ion 0 <sep<.005h< td=""><td>005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 store	evs 0.4	0.7	1
		Height difference 2 to 4 store	eys 0.7	0.9	1
		Height difference < 2 store	ys 1	1	1
			Along		Aoroca
3.6. Other factors, Factor F	For < 3 storeys, max value -2.5, other	vise max valule =1.5, no minimum	1.0		1.0
	Ratio	nale for choice of F factor, if not 1	1.0		
Detail Critical Structural Weakness	es: (refer to DEE Procedure section 6)				
List ar	ny: Refer also	section 6.3.1 of DEE for discussion of F fact	or modification for other crit	ical structural weaknes	sses
			1 00		
3.7. Overall Performance Achieven	tent ratio (PAR)		1.00		1.00
		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.3 PAR x (%NBS)b:					
4.3 PAR x (%NBS)b:					

Detailed Engineering Evaluation Summary Data			V1.11
Location Building Name	Norman Kirk Courte - Garages 3-4	Paviewor	Lee Howard
Building Address	Garages 3-4	No: Street CPEng No: 183 Strickland Company	1008889 Aureon
Legal Description	Pt Lot 1 DP 30139	Company project number Company phone number	232536
GPS south	Degrees 43	Min Sec Date of submission	30/07/2013
GPS east	172	37 40.01 Inspection Date: Bevision	4/06/2013
Building Unique Identifier (CCC)	PRO 1137 B018	Is there a full report with this summary?	ves
Site	flat	May rataining bright (m)	
Soit you Soit you	mixed	Soil Profile (if available):	
Proximity to waterway (m, if <100m)		If Ground improvement on site, describe	
Proximity to cliftlop (m, if < 100m) Proximity to clift base (m,if <100m)		Approx site elevation (m):	
Building No. of storeys above ground		single storey = 1 Ground floor elevation (Absolute) (m):	0.00
Ground floor split' Storeys below ground	no 0	Ground floor elevation above ground (m):	0.00
Foundation type Building height (m)	mat slab 4.00	if Foundation type is other, describe: height from ground to level of uppermost seismic mass (for IEP only) (m):	0
Floor footprint area (approx) Age of Building (years)	34	Date of design:	1965-1976
Strengthening present	no	If so, when (year)? And what load level (%g)?	
Use (ground floor) Use (upper floors)	parking	Brief strengthening description	
Use notes (if required)	12		
Gravity Structure		1	
Gravity System:	load bearing walls	true doub putto two and station	2400 Timber, Consumated Steel
Floors	concrete flat slab	slab thickness (mm)	100
Beams Columns	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially med concrete masonry	tnickness (mm)	140
Lateral system along	partially filled CMU	Note: Define along and across in	
Ductility assumed, µ Period along	1.25	##### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)		estimate or calculation? estimate or calculation?	
Lateral system across	partially filled CMU	Ι	
Ductility assumed, μ Period across	1.25	note total length of wall at ground (m): ###### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorev deflection (ULS) (mm)		estimate or calculation? estimate or calculation?	
Senarations:	1		
north (mm)		leave blank if not relevant	
south (mm)			
west (mm)		1	
Non-structural elements Stairs		Į	No
Wall cladding Roof Cladding	: Metal	describe	Blockwork Steel Sheeting
Glazing Ceilings	timber frames plaster, fixed		Mainly timber No
Services(list)		1	
Available documentation			
Architectura Structura	partial	original designer name/date original designer name/date	Christchurch City Council
Mechanica	i none	original designer name/date original designer name/date	
Geotech repor	none	original designer name/date	
Damage			
Site: Site performance	Good	Describe damage	
Settlement	none observed	notes (if applicable)	
Liquefaction	none apparent	notes (i applicable)	
Lateral Spread Differential lateral spread	none apparent	notes (if applicable) notes (if applicable)	
Ground cracks Damage to area	none apparent	notes (if applicable) notes (if applicable)	
Building:		T	
Current Placard Status	Igreen	1	
Along Damage ratio Describe (summary)	0%	Describe how damage ratio arrived at	
Across Damage ratio	. 0%	$Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{(\% NBS (1 - \%))}$	
Describe (summary)	1	% NBS (before)	
Diaphragms Damage?	Ino	Describe	
CSWs: Damage?	no	Describe	
Pounding: Damage?	no	Describe	
Non-structural: Damage?	ves	Describe	
Pacommendations			
Level of repair/strengthening required	minor structural	Describe	
Interim occupancy recommendations	full occupancy	Describe	
Along Assessed %NBS before e'quakes	100%	##### %NBS from IEP below If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes	100%	methodology	
Across Assessed %NBS before e'quakes Assessed %NBS after e'quakes	44%	##### %NBS from IEP below	
IEP Use of this n	ethod is not mandatory - more detailed a	analysis may give a different answer, which would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above)	: 1965-1976	h₀ from above	m
Seismic Zone, if designed between 1965 and 1992	В	not required for this age of building	
		not required for this age of building	
		Period (from above): 0.4	across 0.4
		(%NBS)nom from Fig 3.3:	
Note:1 for specifica	ly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0 Note 2: for RC buildings designed between 1976-1984, use 1.2	
		Note 3: for buildings designed prior to 1935 use 0.8, except in Wellington (1.0)	
		Einal (%NBS)	across

2.2 Near Fault Scaling Factor		Near Fault scaling f	actor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault s	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z fo	r site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildin	g Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		201005
2.5 Ductility Scaling Factor	Assessed du	ctility (less than max in Table 3.2)	aiong		401000
	Ductility scaling factor: =1 from 1976 onwards; of	r =kµ, if pre-1976, fromTable 3.3:			
		Dustiity Sasling Faster Faster D	0.00		0.00
		Suchity Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scalin	g Factor:	Sp:			
	Structural Perfe	ormance Scaling Eactor Factor F	#DIV/01		#DIV/01
	on detail a rene	and the obtaining reason ractor E.			
		******	(DI) ((0)		1011 (A)
2.7 Baseline %NBS, (NBS%)6 = (%I	NBS)nom X A X B X C X D X E	%NB56:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	as: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:	Insignificant				
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Factor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	indigninoun	Separati	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	fH 0.7	0.8	1
F	leight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	fH 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/none
		Separat	ion 0 <sep<.005h< td=""><td>005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 store	evs 0.4	0.7	1
		Height difference 2 to 4 store	eys 0.7	0.9	1
		Height difference < 2 store	ys 1	1	1
			Along		Aoroca
3.6. Other factors, Factor F	For < 3 storeys, max value -2.5, other	vise max valule =1.5, no minimum	1.0		1.0
	Ratio	nale for choice of F factor, if not 1	1.0		
Detail Critical Structural Weakness	es: (refer to DEE Procedure section 6)				
List ar	ny: Refer also	section 6.3.1 of DEE for discussion of F fact	or modification for other crit	ical structural weaknes	sses
			1 00		
3.7. Overall Performance Achieven	tent ratio (PAR)		1.00		1.00
		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.3 PAR x (%NBS)b:					
4.3 PAR x (%NBS)b:					

Detailed Engineering	Evaluation Summary Data			V1.11
Location				
	Building Name:	Norman Kirk Courts - Garage 5 Unit	No: Street CPEng No:	Lee Howard 1008889
	Building Address: Legal Description:	Garage 5 Pt Lot 1 DP 30139	183 Strickland Company: Company project number:	Aureon 232536
	· · ·	Degrees	Min Sec	33660821
	GPS south:	43	32 53.12 Date of submission:	30/07/2013
	GPS east:	1/2	37 38.46 inspection Date: Revision:	4/06/2013
	Building Unique Identifier (CCC):	PRO 1137 B012	Is there a full report with this summary?	<u>yes</u>
Site	011			
	Site slope: Soil type:	flat mixed	Max retaining height (m): Soil Profile (if available):	
	Site Class (to NZS1170.5): Proximity to waterway (m, if <100m):	D	If Ground improvement on site, describe:	
	Proximity to clifftop (m, if < 100m): Proximity to cliff base (m.if < 100m):		Approx site elevation (m):	
	· · ••••••••••••••••••••••••••••••••••		· ••••	
Building				
	No. of storeys above ground: Ground floor split?	1 no	single storey = 1 Ground floor elevation (Absolute) (m): Ground floor elevation above ground (m):	0.00
	Storeys below ground Foundation type:	0 mat slab	if Foundation type is other, describe	
	Building height (m):	2.00	height from ground to level of uppermost seismic mass (for IEP only) (m):	5.4
	Age of Building (years):	39	Date of design:	1965-1976
	Strengthening present?	no	If so, when (year)? And what load level (%o)?	
	Use (ground floor):	parking	Brief strengthening description:	
	Use notes (if required):			
	importance level (to NZS1170.5):			
Gravity Structure	Gravity System:	load bearing walls		
	Roof:	timber truss concrete flat slab	truss depth, purlin type and cladding	2400, Timber, Corrugated Steel
	Beams:	none	overall depth x width (mm x mm)	
	Columns: Walls:	load bearing walls partially filled concrete masonry	typical dimensions (mm x mm) thickness (mm)	2*10 seriesblock walls 200
Lateral load resisting str	ructure			
	Lateral system along:	partially filled CMU	Note: Define along and across in detailed report	Blockwork wall reinforced @800mm
	Period along:	0.40	##### enter height above at H31 estimate or calculation?	estimated
maximu	um interstorey deflection (ULS) (mm):		estimate or calculation? estimate or calculation?	
	Lateral system across:	partially filled CMU		Blockwork wall reinforced @800mm
	Ductility assumed, µ:	1.25	note total length of wall at ground (m):	actimated
	Total deflection (ULS) (mm):	0.40	##### enter height above at HST estimate or calculation? estimate or calculation?	
maximu	um interstorey deflection (ULS) (mm):		estimate or calculation?	
Separations:	north (mm):		leave blank if not relevant	
	east (mm): south (mm):			
	west (mm):			
Non-structural elements	<u>s</u>	Г		
	Wall cladding:			Blockwork
	Roof Cladding: Glazing:	Metal timber frames	describe	Steel Sheeting Mainly timber
	Ceilings: Services(list):	plaster, fixed		No
Available documentat	lion			
	Architectural Structural	none	original designer name/date original designer name/date	Christchurch City Council
	Mechanical Electrical	none	original designer name/date original designer name/date	
	Geotech report	none	original designer name/date	
Damage				
Site:	Site performance:	Good	Describe damage:	
(refer DEE Table 4-2)	Settlement:	none observed	notes (if applicable):	
	Differential settlement: Liquefaction:	none observed none apparent	notes (if applicable): notes (if applicable):	
	Lateral Spread: Differential lateral spread	none apparent	notes (if applicable):	
	Ground cracks:	none apparent	notes (i applicable): notes (i applicable):	
0.11	Damage to area:		notes (ii applicable):	
Building:	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):		$(d \text{ NDC}(1, f_{\text{end}}), d \text{ NDC}(1, f_{\text{end}}))$	
Across	Damage ratio:	0%	$Damage _Ratio = \frac{(\% NBS(before) - \% NBS(after))}{(\% NBS(before))}$	
	Describe (summary):		%INDS (DEJOTE)	
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	
Recommendations	evel of repair/strengthening roguized	minor structural	Describe	
	Building Consent required:	yes	Describe:	
	Intorim occurrency record and the	full occupancy		· · ·
1 Alaan	Interim occupancy recommendations:	full occupancy	Describe:	
Along	Interim occupancy recommendations: Assessed %NBS before e'quakes: Assessed %NBS after e'quakes:	full occupancy 100% 100%	##### %NBS from IEP below If IEP not used, please detail assessment methodology	Quantitative Assessment

Assessed %NBS before e'quakes: 44% ##### %N Assessed %NBS after e'quakes: 44%	BS from IEP below			
Use of this method is not mandatory - more detailed analysis may	y give a different answer, which would ta	ke precedence. Do not	fill in fields if not usir	ng IEP.
Period of design of building (from above): 1965-1976		h₁ from a	pove: 5.4m	
Seismic Zone, if designed between 1965 and 1992:[B	not	required for this age of bu required for this age of bu	ilding	
	Period (from above): (%NBS)nom from Fig 3.3:	along 0.4		across 0.4
Note:1 for specifically design public buildings, to the code of the day: pre-196	5 = 1.25; 1965-1976, Zone A =1.33; 1965-1 Note 2: for RC buildings designer e 3: for buildings designed prior to 1935 use	976, Zone B = 1.2; all else d between 1976-1984, use 0.8, except in Wellington	e 1.0 e 1.2 (1.0)	
	Final (%NBS)nom:	along 0%		across 0%
2.2 Near Fault Scaling Factor	Near Fault scaling fa	ctor, from NZS1170.5, cl	3.1.6:	
Near Fault sc	aling factor (1/N(T,D), Factor A:	along #DIV/0!		across #DIV/0!
2.3 Hazard Scaling Factor	Hazard factor Z for	site from AS1170.5, Table Z ₁₉₉₂ , from NZS4203 azard scaling factor, Fact	9 3.3: 1992 or B:	#DIV/0!
2.4 Return Period Scaling Factor	Building Return Period Scaling fa	Importance level (from ab actor from Table 3.1, Fact	ove): or C:	2
2.5 Ductility Scaling Factor Assessed duc Ductility scaling factor: =1 from 1976 onwards; or	tility (less than max in Table 3.2) =ku, if pre-1976, fromTable 3.3:	along		across
, , , , , , , , , , , , , , , , , , ,	uctiity Scaling Factor, Factor D:	0.00		0.00
2.6. Structural Barformanoa Scaling Factor:	So:	0.00		0.00
2.0 Structural Performance Scaling Factor. Structural Perfor	mance Scaling Factor Factor E:	#DIV/0!		#DIV/0!
2.7 Baseline %NBS, (NBS%)b = (%NBS)nom x A x B x C x D x E	%NBS6:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)				
3.1. Plan Irregularity, factor A: insignificant 1				
3.3. Short columns, Factor C: insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
34 Pounding potential Pounding effect D1 from Table to right 10	Alignment of floors within 20% of	on <u>0<sep<.005h< u=""></sep<.005h<></u>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
Height Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	Н 0.4	0.8	0.8
Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/none
3.5. Site Characteristics insignificant 1	Separatio	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
	Height difference > 4 store	ys 0.4 vs 0.7	0.7	1
	Height difference < 2 store	ys 1	1	1
		Along		Across
3.6. Other factors, Factor F For ≤ 3 storeys, max value =2.5, otherwi Ration	se max valule =1.5, no minimum ale for choice of F factor, if not 1	1.0		1.0
Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6) List any:	section 6.3.1 of DEE for discussion of F fact	tor modification for other o	ritical structural weakn	lesses
3.7. Overall Performance Achievement ratio (PAR)		1.00		1.00
4.3 PAR x (%NBS)b:	PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.4 Percentage New Building Standard (%NBS), (before)				#DIV/0!

Detailed Engineering Evaluation Summary Data			V1.11
Location Building Name	Norman Kirk Courte - Garages 6-7	Baviewor	Lee Howard
Building Address	Garages 6-7	No: Street CPEng No: 183 Strickland Company	1008889 Aureon
Legal Description	Pt Lot 1 DP 30139	Company project number Company phone number	232536
GPS south	Degrees 43	Min Sec 32/52/49 Date of submission	30/07/2013
GPS east	172	2 37 40.01 Inspection Date: Bevision	4/06/2013
Building Unique Identifier (CCC)	: PRO 1137 B013	Is there a full report with this summary?	ves
Site	flat	May rataining bright (m)	
Solt Side Solt 20170	mixed	Soil Profile (if available):	
Proximity to waterway (m, if <100m)		If Ground improvement on site, describe	
Proximity to clifftop (m, if < 100m) Proximity to cliff base (m,if <100m)		Approx site elevation (m):	
Building No. of storeys above ground	1	single storey = 1 Ground floor elevation (Absolute) (m):	0.00
Ground floor split Storeys below ground	/ no d0	Ground floor elevation above ground (m):	0.00
Foundation type Building height (m)	mat slab 4.00	if Foundation type is other, describe: height from ground to level of uppermost seismic mass (for IEP only) (m):	0
Floor footprint area (approx) Age of Building (years)	34	Date of design:	1965-1976
Strengthening present	/ <u>no</u>	If so, when (year)? And what load level (%g)?	
Use (ground floor) Use (upper floors)	parking	Brief strengthening description	
Use notes (if required)	12		
Gravity Structure	1	1	
Gravity System:	load bearing walls	tage doub pude too and station	2400 Timber, Considered Steel
Floors	concrete flat slab	slab thickness (mm)	100
Beams Columns	load bearing walls	overail deptn x width (mm x mm) typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	L thickness (mm)	<u>140</u>
Lateral load resisting structure Lateral system along	partially filled CMU	Note: Define along and across in	
Ductility assumed, µ Period along	1.25	ocetailed report! note total length of wall at ground (m): ##### enter height above at H31	estimated
Total deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)		estimate or calculation? estimate or calculation?	
Lateral system across	partially filled CMU	-	
Ductility assumed, µ Period across	. 1.25	note total length of wall at ground (m): ###### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorev deflection (ULS) (mm)		estimate or calculation? estimate or calculation?	
Separatione:	*L		
north (mm)		leave blank if not relevant	
east (mm) south (mm)		-	
west (mm)	1		
Non-structural elements Stairs		1	No
W all cladding Roof Cladding	Metal	describe	Blockwork Steel Sheeting
Glazing Ceilings	timber frames plaster, fixed		Mainly timber No
Services(list)	4	<u>]</u>	
Available documentation			
Architectura	l partial	original designer name/date original designer name/date	Christchurch City Council
Mechanica	none	original designer name/date original designer name/date	
Geotech repor	tinone	original designer name/date	
Damage			
Site: Site performance	Good	Describe damage	
Settlement	none observed	notes (if applicable)	
Liquefaction	none apparent	notes (ii applicable) notes (if applicable)	
Lateral Spread Differential lateral spread	none apparent	notes (if applicable): notes (if applicable):	
Ground cracks Damage to area	none apparent	notes (if applicable) notes (if applicable)	
Building:		7	
Current Placard Status	: green		
Along Damage ratio Describe (summary)	0%	Describe how damage ratio arrived at	
Across Damage ratio	0%	$Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{(\% NBS (before))}$	
Describe (summary)		% NBS (before)	
Diaphragms Damage?	no	Describe	
CSWs: Damage?	no	Describe	
Pounding: Damage?	no	Describe	
Non-structural: Damage?	yes	Describe	
Level of repair/strengthening required	minor structural	Describe	
Building Consent required Interim occupancy recommendations	full occupancy	Describe: Describe:	
Along Assessed %NBS before e'quakes	100%	##### %NBS from IEP below If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes	100%	methodology.	
Across Assessed %NBS before e'quakes Assessed %NBS after e'quakes	44%	##### %NBS from IEP below	
IEP Use of this r	nethod is not mandatory - more detailed a	analysis may give a different answer, which would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above)	: 1965-1976	h _n from above	m
Seismic Zone, if designed between 1965 and 1992	B	not required for this age of building	
		not required for this age of building	
		along Period (from above): 0.4	across 0.4
		(%NBS)nom from Fig 3.3:	
Note:1 for specifica	Ily design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0 Note 2: for RC buildings designed between 1976-1984, use 1.2	
		Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)	
		along	across

2.2 Near Fault Scaling Factor		Near Fault scaling f	actor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault s	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z fo	r site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildin	g Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		201005
2.5 Ductility Scaling Factor	Assessed du	ctility (less than max in Table 3.2)	aiong		401000
	Ductility scaling factor: =1 from 1976 onwards; of	r =kµ, if pre-1976, fromTable 3.3:			
		Dustiity Sasling Faster Faster D	0.00		0.00
		Suchity Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scalin	g Factor:	Sp:			
	Structural Perfe	ormance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Official Fore	and the obtaining reason ratio E.			
		******	(DI) ((0)		1011 (A)
2.7 Baseline %NBS, (NBS%)6 = (%I	NBS)nom X A X B X C X D X E	%NB56:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	as: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:	Insignificant				
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Factor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	indigninoun	Separati	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	fH 0.7	0.8	1
F	leight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	fH 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/none
		Separat	ion 0 <sep<.005h< td=""><td>005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 store	evs 0.4	0.7	1
		Height difference 2 to 4 store	eys 0.7	0.9	1
		Height difference < 2 store	ys 1	1	1
			Along		Aoroca
3.6. Other factors, Factor F	For < 3 storeys, max value -2.5, other	vise max valule =1.5, no minimum	1.0		1.0
	Ratio	nale for choice of F factor, if not 1	1.0		
Detail Critical Structural Weakness	es: (refer to DEE Procedure section 6)				
List ar	ny: Refer also	section 6.3.1 of DEE for discussion of F fact	or modification for other crit	ical structural weaknes	sses
			1 00		
3.7. Overall Performance Achieven	tent ratio (PAR)		1.00		1.00
		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.3 PAR x (%NBS)b:					
4.3 PAR x (%NBS)b:					
Detailed Engineering Evaluation Summary Data				V1.11	
--	---	--	---	----------------------------------	
Location Ruikling Name	Nerman Kirk Courte Caragos 10 12	Ţ	Paviawar	Loo Howard	
Building Name.	Unit	No: Street	CPEng No:	1008889	
Legal Description:	Pt Lot 1 DP 30139	163 Sinckiand	Company project number	232536	
	Degrees	Min Sec	Company phone number	33660821	
GPS south: GPS east:	43	32 53.14 37 37.34	Date of submission: Inspection Date:	30/07/2013 4/06/2013	
Building Unique Identifier (CCC)	PBO 1137 B014		Revision	2	
Suitaing Chique Romanoi (CCC).		<u>.</u>	io aloro a lan roport war and ballinay.		
Site Site slope:	flat	I	Max retaining height (m):		
Soil type: Site Class (to NZS1170.5):	D	-	Soil Profile (if available):		
Proximity to waterway (m, if <100m) Proximity to clifftop (m, if <100m)			If Ground improvement on site, describe		
Proximity to cliff base (m,if <100m)			Approx site elevation (m):		
Building No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00	
Ground floor split? Storeys below ground	no0	-	Ground floor elevation above ground (m):	0.00	
Foundation type: Building height (m):	mat slab 2.00	heiaht from ground to level of u	if Foundation type is other, describe opermost seismic mass (for IEP only) (m);	5.4	
Floor footprint area (approx):	17		Date of design	1965-1976	
rigo of Damaning (youro).		1	Bate of doorgin		
Strengthening present?	no	Ι	If so, when (year)?		
Use (ground floor):	parking	I	Brief strengthening description		
Use (upper floors): Use notes (if required):		-			
Importance level (to NZS1170.5):	IL2				
Gravity Structure	load bearing walls	I			
Bravity System: Roof:	timber truss		truss depth, purlin type and cladding	2400mm, Timber, Corrugated Steel	
Floors: Beams:	none		overall depth x width (mm x mm)	100	
Columns: Walls:	load bearing walls partially filled concrete masonry		typical dimensions (mm x mm) thickness (mm)	2*10 seriesblock walls 200	
Lateral load resisting structure					
Lateral system along:	partially filled CMU	Note: Define along and across in detailed report!	note total length of wall at around (m)	Blockwork wall reinforced @800mm	
Period along	0.40	##### enter height above at H31	estimate or calculation?	estimated	
Total deflection (ULS) (mm): maximum interstorey deflection (ULS) (mm):			estimate or calculation? estimate or calculation?		
Lateral system across	partially filled CMU	T		Blockwork wall reinforced @800mm	
Ductility assumed, µ	1.25	##### enter beight shove at H31	note total length of wall at ground (m):	ostimated	
Total deflection (ULS) (mm):	0.40	##### enter neight above at HST	estimate or calculation?		
maximum interstorey deflection (ULS) (mm):	•	1	estimate or calculation's		
Separations: north (mm):		leave blank if not relevant			
east (mm):					
west (mm):		1			
Non-structural elements					
Stairs: Wall cladding:				No Blockwork	
Roof Cladding: Glazing:	Metal timber frames	-	describe	Steel Sheeting Mainly timber	
Ceilings Services(list)	plaster, fixed			No	
		•			
Available documentation		T			
Architectura Structura	none	-	original designer name/date original designer name/date	Christchurch City Council	
Mechanica Electrica	none	-	original designer name/date original designer name/date		
Geotech report	none	1	original designer name/date		
Damara					
Site: Site performance:	Good	Ι	Describe damage		
Settlement:	none observed		notes (if applicable):		
Differential settlement: Liquefaction:	none observed none apparent		notes (if applicable) notes (if applicable)		
Lateral Spread Differential lateral spread	none apparent		notes (if applicable): notes (if applicable)		
Ground cracks:	none apparent		notes (if applicable): notes (if applicable):		
Building:			notos (ii applicable).		
Current Placard Status:	green	Ι			
Along Damage ratio	0%		Describe how damage ratio arrived at		
Describe (summary):		(% NRS (b)	efore) - % NBS(after))		
Across Damage ratio	0%	$Damage _Ratio = \frac{(101703)(100)}{00}$	NBS (before)		
Diaphragme Discribe (aufilitidity).		I A	D=- "		
Diaphinagins Damage?		I T	Describe	را ۱	
Cows: Damage?			Describe		
Pounding: Damage?	. Ino		Describe		
Non-structural: Damage?	yes		Describe		
Personmandations					
Level of repair/strengthening required	minor structural		Describe]	
Building Consent required Interim occupancy recommendations	full occupancy		Describe Describe		
Along Assessed %NBS before e'quakes	100%	##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment	
Assessed %NBS after e'quakes	100%		methodology		
Across Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below			
Assessed %NBS after e'quakes	44%				
IEP Use of this m	nethod is not mandatory - more detailed a	nalysis may give a different answer, which	would take precedence. Do not fill in	fields if not using IEP.	
Devied of design of huilding (from the	1965, 1976	,, allo a amorola anower, which	ha the proceedings, bond in m	5.4m	
Ferrod or design of building (from above):	1000-1070	T	ne trom above:		
Seismic Zone, if designed between 1965 and 1992	ß		not required for this age of building not required for this age of building		
			along	across	
		Period (from above):	0.4	0.4	
		(761005)110m from Fig 3.3:			
Note:1 for specifical	iy design public buildings, to the code of the	uay: pre-1965 = 1.25; 1965-1976, Zone A =1 Note 2: for RC buildin	.33, 1965-1976, Zone B = 1.2; all else 1.0 igs designed between 1976-1984, use 1.2		
		Note 3: for buildings designed prior to	o 1935 use 0.8, except in Wellington (1.0)		
		F (1 (1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	along	across	

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT PATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.4 Demonstrate New Duild'	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data			V1.11
Location Building Name	Norman Kirk Courte - Garages 14-15	Paviewor	Lee Howard
Building Address	Garages 14-15	No: Street CPEng No: 183 Strickland Company	1008889 Aureon
Legal Description	Pt Lot 1 DP 30139	Company project number Company phone number	232536
GPS south	Degrees 43	Min Sec Date of submission	30/07/2013
GPS east	172	37 36.71 Inspection Date: Bevision	4/06/2013
Building Unique Identifier (CCC)	PRO 1137 B015	Is there a full report with this summary?	ves
Site	flat	May rataining bright (m)	
Soit you Soit you	mixed	Soil Profile (if available):	
Proximity to waterway (m, if <100m)		If Ground improvement on site, describe	
Proximity to cliff base (m, if <100m) Proximity to cliff base (m, if <100m)		Approx site elevation (m):	
Building No. of storeys above ground	. 1	single storey = 1 Ground floor elevation (Absolute) (m):	0.00
Ground floor split Storeys below ground	no 1 0	Ground floor elevation above ground (m):	0.00
Foundation type Building height (m)	1 mat siab : 4.00	If Foundation type is other, describe height from ground to level of uppermost seismic mass (for IEP only) (m):	0
Fioor footprint area (approx) Age of Building (years)	34	Date of design:	1965-1976
		7	
Strengtnening present	no	T so, when (year) a And what load level (%g)?	
Use (ground floor) Use (upper floors)	l parking	Brief strengthening description.	
Use notes (if required) Importance level (to NZS1170.5)	IL2		
Gravity Structure		т	
Gravity System: Roof	load bearing walls timber truss	truss depth, purlin type and cladding	2400, Timber, Corrugated Steel
Floors Beams	concrete flat slab	slab thickness (mm) overall depth x width (mm x mm)	100
Columns Walls	load bearing walls partially filled concrete masonry	typical dimensions (mm x mm) thickness (mm)	150 Series Blockwork 140
Lateral load resisting structure		•	
Lateral system along	partially filled CMU 1 25	Note: Define along and across in detailed report! note total length of wall at ground (m)	
Total deflection (III C) (III C)	0.40	##### enter height above at H31 estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm)		estimate or calculation?	
Lateral system across	partially filled CMU	note total length of well at around (m)	
Period across	0.40	##### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)		estimate or calculation estimate or calculation?	
Separations:		7	
north (mm) east (mm)		leave blank if not relevant	
south (mm) west (mm)			
Non-structural elements		-	
Stairs Wall cladding			No Blockwork
Roof Cladding Glazing	Metal	describe	Steel Sheeting Mainly timber
Ceilings Services (list)	plaster, fixed		No
	,	<u>.</u>	
Available documentation	Inartial	orininal designer name/date	Christchurch City Council
Structura	I none	original designer name/date	
Electrica	Inone	original designer name/date	
Geotech repor	Tione		
Damage			
Site performance (refer DEE Table 4-2)	Good	Describe damage:	
Settlement Differential settlement	none observed	notes (if applicable) notes (if applicable)	
Liquefaction Lateral Spread	none apparent	notes (if applicable) notes (if applicable)	
Differential lateral spread Ground cracks	none apparent	notes (if applicable) notes (if applicable)	
Damage to area	Inone apparent	notes (if applicable).	
Building: Current Placard Status	green	1	
Along Damage ratio	0%	Describe how damage ratio arrived at	
Describe (summary)		(% NRS (before) - % NRS (after))	
Across Damage ratio Describe (summary)	0%	$Damage _Ratio = \frac{(NIDB(0.601C) - NIDB(0.601C))}{\% NBS(before)}$	
Diaphragms Damage?	no	Deceibe	
CSWs: Damage	no	Describe	
Pounding: Damage?		Describe	
Non-structural:	Tuge	L Describe	
Damage?	1.000	Describe	
Recommendations	[1	
Level of repair/strengthening required Building Consent required	no structural	Describe: Describe:	
Interim occupancy recommendations	In accupancy	Describe	
Along Assessed %NBS before e'quakes Assessed %NBS after e'quakes	100%	##### אמאט trom IEP below If IEP not used, please detail assessment methodology:	Quantitative Assessment
Across Assessed %NBS before e'quakes	44%	##### %NBS from IEP below	
Assessed %NBS after e'quakes	44%		
IEP Use of this n	nethod is not mandatory - more detailed a	analysis may give a different answer, which would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above)	: 1965-1976	h. from obvio	m
Saismin Zono, if designed between 1005 and 1000	-B		
Seismic zone, il designed between 1965 and 1992	<u></u>	not required for this age of building not required for this age of building	
		along	across
		Period (from above): 0.4 (%NBS)nom from Fig 3.3:	0.4
Note:1 for specifica	lly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 2: for RC buildings designed between 1976-1984, use 1.2 Note 3: for buildings designed prior to 1935 use 0.8, except in Wellington (1.0)	
		along	across
		Final (%NBS)nom: 0%	0%

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, ,	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT PATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineerin	ng Evaluation Summary Data			V1.11
Location				
	Building Name:	Norman Kirk Courts - Grage 18 Unit	No: Street CPEng No:	Lee Howard 1008889
	Building Address: Legal Description:	Garage 18 Pt Lot 1 DP 30139	183 Strickland Company: Company project number:	Aureon 232536
	· · ·	Degrees	Company phone number:	33660821
	GPS south:	43	32 54.72 Date of submission:	30/07/2013
	GPS east.	1/2	37 37.34 inspection Date: Revision:	4/06/2013
	Building Unique Identifier (CCC):	PRO 1137 B016	Is there a full report with this summary?	yes
Site	0:1	n .		
	Site slope: Soil type:	flat mixed	Max retaining height (m): Soil Profile (if available):	
	Site Class (to NZS1170.5): Proximity to waterway (m, if <100m):	D	If Ground improvement on site, describe:	
	Proximity to clifftop (m, if < 100m): Provimity to cliff base (m if < 100m):			
	r toximity to can base (m,a < toom).			
Building				
	No. of storeys above ground: Ground floor split?	1	single storey = 1 Ground floor elevation (Absolute) (m): Ground floor elevation above ground (m):	0.00
	Storeys below ground	0 mat slab	if Foundation two is other described	
	Building height (m):	2.00	height from ground to level of uppermost seismic mass (for IEP only) (m):	5.4
	Hoor tootprint area (approx): Age of Building (years):	17	Date of design:	1965-1976
	Strengthening present?	no	If so, when (year)?	
	Use (ground floor):	parking	Brief strengthening description:	
	Use (upper floors): Use notes (if required):			
	Importance level (to NZS1170.5):	IL2		
Gravity Structure	Growity Durch	load bearing walls		
	Roof:	timber truss	truss depth, purlin type and cladding	2400mm,Timber, Corrugated Steel
	Floors: Beams:	none	slab thickness (mm) overall depth x width (mm x mm)	100
	Columns: Walls:	load bearing walls partially filled concrete masonry	typical dimensions (mm x mm) thickness (mm)	2*10 seriesblock walls 200
Lateral load resisting	structure		· · ·	
Laterarioad resisting	Lateral system along:	partially filled CMU	Note: Define along and across in	Blockwork wall reinforced @800mm
	Ductility assumed, µ: Period along:	1.25	detailed report! note total length of wall at ground (m): ##### enter height above at H31 estimate or calculation?	estimated
maxi	Total deflection (ULS) (mm): imum interstorev deflection (ULS) (mm):		estimate or calculation? estimate or calculation?	
		portiolly filled CMU		Pleakwork well reinferend @900mm
	Ductility assumed, µ:	partially filled Civid 1.25	note total length of wall at ground (m):	
	Period across: Total deflection (ULS) (mm):	0.40	##### enter height above at H31 estimate or calculation? estimate or calculation?	estimated
maxi	imum interstorey deflection (ULS) (mm):		estimate or calculation?	
Separations:	north (mm);	[loovo black if not relevant	
	east (mm):			
	south (mm): west (mm):			
Non-structural eleme	ents			
	Stairs: Wall cladding:			No Blockwork
	Roof Cladding:	Metal	describe	Steel Sheeting
	Ceilings:	plaster, fixed		No
	Services(list):			
Available document	tation			
Available document	Architectural	partial	original designer name/date	Christchurch City Council
	Mechanical	none	original designer name/date original designer name/date	
	Electrical Geotech report	none	original designer name/date original designer name/date	
Damage Site:	Site performance:	Good	Describe damage	
(refer DEE Table 4-2	2)	none observed		
	Differential settlement:	none observed	notes (ii applicable): notes (if applicable):	
	Liquefaction: Lateral Spread:	none apparent	notes (if applicable): notes (if applicable):	
	Differential lateral spread: Ground cracks:	none apparent none apparent	notes (if applicable): notes (if applicable):	
	Damage to area:	none apparent	notes (if applicable):	
Building:		araan		
	Current Placard Status:	Giceli		
Along				
Along	Damage ratio: Describe (summary):	0%	Describe how damage ratio arrived at:	
Across	Damage ratio: Describe (summary): Damage ratio:	0%	Describe how damage ratio arrived at: Damage $Ratio = \frac{(\% NBS (before) - \% NBS (after))}{(\% NBS (before))}$	
Across	Damage ratio: Describe (summary): Damage ratio: Describe (summary):	0%	$Describe how damage ratio arrived at:$ $Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$	
Across Diaphragms	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?:	0%	$Describe how damage ratio arrived at:$ $Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe:	
Across Diaphragms CSWs:	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?: Damage?:	0% 0% no	$Describe how damage ratio arrived at:$ $Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe: Describe:	
Across Diaphragms CSWs: Pounding:	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?: Damage?: Damage?:	0% 0% no no	Describe how damage ratio arrived at: $Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe: Describe: Describe:	
Across Diaphragms CSWs: Pounding: Non-structural-	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?: Damage?: Damage?: Damage?:	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	Describe how damage ratio arrived at: $Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe: Describe: Describe:	
Across Diaphragms CSWs: Pounding: Non-structural:	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?: Damage?: Damage?:	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	Describe how damage ratio arrived at: $Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe: Describe: Describe:	
Across Diaphragms CSWs: Pounding: Non-structural: Recommendations	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?: Damage?: Damage?:	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	Describe how damage ratio arrived at: Damage _ Ratio = $\frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe: Describe: Describe:	
Across Diaphragms CSWs: Pounding: Non-structural: Recommendations	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?	0% 0% 0% 0% no no no yes minor structural yes	Describe how damage ratio arrived at: Damage _ Ratio = $\frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe: Describe: Describe: Describe: Describe: Describe:	
Across Diaphragms CSWs: Pounding: Non-structural: Recommendations	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?: Damage?: Damage?: Damage?: Damage?: Damage?: Level of repair/strengthening required: Building Consent required: Building Consent required:	no 0% no 10% no	Describe how damage ratio arrived at: $Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe:	
Across Diaphragms CSWs: Pounding: Non-structural: Recommendations Along	Damage ratio: Describe (summary): Damage ratio: Describe (summary): Damage?: Damage?: Damage?: Damage?: Damage?: Damage?: Damage?: Damage?: Damage?: Damage?: Suilding Consent required: Building Consent required: Building Consent required: Suilding Consent required	no no no yes minor structural yes full occupancy 100%	Describe how damage ratio arrived at: DamageRatio = $\frac{(\% NBS (before) - \% NBS (after))}{\% NBS (before)}$ Describe:	Quantitative Assessment

Assessed %NBS before e'quakes: 44% ##### %N Assessed %NBS after e'quakes: 44%	IBS from IEP below			
Use of this method is not mandatory - more detailed analysis ma	y give a different answer, which would tak	e precedence. Do not	ill in fields if not usir	ng IEP.
Period of design of building (from above): 1965-1976		h₁ from al	oove: 5.4m	
Selsmic Zone, if designed between 1965 and 1992: B	not n not n	equired for this age of bu equired for this age of bu	ilding	
	Period (from above): (%NBS)nom from Fig 3.3:	along 0.4		across 0.4
Note:1 for specifically design public buildings, to the code of the day: pre-196 Note:1 for specifically design public buildings, to the code of the day: pre-196 Note:100 Not	5 = 1.25; 1965-1976, Zone A =1.33; 1965-19 Note 2: for RC buildings designed te 3: for buildngs designed prior to 1935 use (976, Zone B = 1.2; all else between 1976-1984, use 0.8, except in Wellington	e 1.0 e 1.2 (1.0)	
	Final (%NBS)nom:	along 0%		across 0%
2.2 Near Fault Scaling Factor	Near Fault scaling fac	tor, from NZS1170.5, cl 3	3.1.6:	
Near Fault so	caling factor (1/N(T,D), Factor A:	along #DIV/0!		across #DIV/0!
2.3 Hazard Scaling Factor	Hazard factor Z for s	ite from AS1170.5, Table Z ₁₉₉₂ , from NZS4203 zard scaling factor, Fact	9 3.3: 1992 Dr B:	#DIV/0!
2.4 Return Period Scaling Factor	Building lu Return Period Scaling fac	mportance level (from ab ctor from Table 3.1, Fact	ove): or C:	2
2.5 Ductility Scaling Factor Assessed dur Ductility scaling factor: =1 from 1976 onwards; or	ctility (less than max in Table 3.2)	along		across
· · · · ·	Ductiity Scaling Factor, Factor D:	0.00		0.00
2.6. Structural Barformance Scaling Factor:	So:	0.00		0.00
2.0 Structural Performance Scaling Factor. Structural Perfor	mance Scaling Factor Factor E:	#DIV/0!		#DIV/0!
2.7 Baseline %NBS, (NBS%) _b = (%NBS) _{nom} x A x B x C x D x E	% NBS ь:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)				
3.1. Plan Irregularity, factor A: insignificant 1				
3.3. Short columns. Factor C: insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
34 Pounding notential Pounding effect D1 from Table to right 1.0	Alignment of floors within 0001 of the	n 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
Height Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of F	- 0.7 - 0.4	0.8	0.8
Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/none
3.5. Site Characteristics insignificant 1	Separation	n 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
	Height difference > 4 storey Height difference 2 to 4 storey	s 0.4 s 0.7	0.7	1
	Height difference < 2 storey	s 1	1	1
		Along		Across
3.6. Other factors, Factor F For ≤ 3 storeys, max value =2.5, otherw Ration	ale for choice of F factor, if not 1	1.0		1.0
Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6) List any:	section 6.3.1 of DEE for discussion of F factor	or modification for other c	ritical structural weakn	lesses
3.7. Overall Performance Achievement ratio (PAR)		1.00		1.00
4.3 PAR x (%NBS)b:	PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.4 Percentage New Building Standard (%NBS), (before)				#DIV/0!

Detailed Engineering Evaluation Summary Data			V1.11
Location Building Name	Norman Kirk Courts - Garages 24-25	Boviewer	Lee Howard
Building Address	Garages 24-25	No: Street CPEng No: 183 Strickland Company	1008889 Aureon
Legal Description	Pt Lot 1 DP 30139	Company project number: Company phone number:	232536
GPS south	Degrees	Min Sec	30/07/2013
GPS east	172	37 40.03 Date of submission Brade of submission Bradience	4/06/2013
Building Unique Identifier (CCC)	PRO 1137 B017	Is there a full report with this summary?	2 Ves
Site			
Site slope Soil type	flat mixed	Max retaining height (m): Soil Profile (if available):	
Site Class (to NZS1170.5) Proximity to waterway (m. if <100m)	D	If Ground improvement on site, describe	
Proximity to clifftop (m, if < 100m) Proximity to cliff base (m if <100m)		Approx site elevation (m)	
· · · · · · · · · · · · · · · · · · ·			
Building			0.00
Ground floor split?	no	Ground floor elevation (Absolute) (m). Ground floor elevation above ground (m):	0.00
Foundation type	mat slab	if Foundation type is other, describe	0
Floor footprint area (approx)	4.00	neight from ground to level of uppermost seismic mass (for IEP only) (m):	
Age of Building (years)	. 39	Late of design.	1965-1976
Strengthening present?	no	If so, when (year)?	
Use (ground floor)	parking	And what load level (%g)? Brief strengthening description:	
Use (upper floors) Use notes (if required)			
Importance level (to NZS1170.5)	IL2		
Gravity Structure	load bearing walls		
Roof	timber truss	truss depth, purlin type and cladding	2400, Timber, Corrugated Steel
Floors Beams	none	size inteches (mm) overall depth x width (mm x mm)	160 Series Bleekwerk
Columns Walls:	partially filled concrete masonry	typical dimensions (mm x mm) thickness (mm)	130 Genes DiockWORK 140
Lateral load resisting structure		T	
Lateral system along Ductility assumed, μ	partially filled CMU 1.25	Note: Define along and across in detailed report! note total length of wall at ground (m):	
Period along Total deflection (ULS) (mm)	0.40	##### enter height above at H31 estimate or calculation? estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm)		estimate or calculation?	
Lateral system across Ductility assumed u	partially filled CMU 1.25	note total length of wall at ground (m):	
Period across	0.40	##### enter height above at H31 estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm)		estimate or calculation	
Separations:			
north (mm) east (mm)		leave blank if not relevant	
south (mm) west (mm)		-	
Non-structural elements		•	
Stairs Wall cladding		1	No
Roof Cladding	Metal	describe	Steel Sheeting Majak timbor
Ceilings	plaster, fixed	•	No
Services(list)			
Available documentation		7	
Architectura Structura	partial none	original designer name/date original designer name/date	Christchurch City Council
Mechanica Electrica	none	original designer name/date original designer name/date	
Geotech repor	none	original designer name/date	
Damage			
Site: Site performance (refer DEE Table 4-2)	Good	Describe damage:	
Settlement	none observed	notes (if applicable)	
Liquefaction	none apparent	notes (if applicable)	
Lateral Spread Differential lateral spread	none apparent	notes (if applicable) notes (if applicable)	
Ground cracks Damage to area	none apparent	notes (if applicable) notes (if applicable)	
Building:			
Current Placard Status	green		
Along Damage ratio Describe (summary)	0%	Describe how damage ratio arrived at	
Across Damage ratio	0%	Damage $Ratio = \frac{(\% NBS (before) - \% NBS (after))}{(\% NBS (after))}$	
Describe (summary)		% NBS (before)	
Diaphragms Damage?	no	Describe	
CSWs: Damage?	no	Describe	
Pounding: Damage?	no	Describe	
Non-structural: Damage?	yes	Describe	
Recommendations Level of repair/strengthening required	minor structural	Describe	
Building Consent required Interim occupancy recommendations	no full occupancy	Describe Describe	
Along Assessed %NBS before e'quakes	100%	##### %NBS from IEP below If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes	100%	methodology	
Across Assessed %NBS before e'quakes	44%	##### %NBS from IEP below	
ASSESSED 701705 SILER & QUAKES	44%	1	
IEP Use of this n	ethod is not mandatory - more detailed a	analysis may give a different answer, which would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above)	1965-1976	h₀ from above:	m
Seismic Zone. if designed between 1965 and 1992	В	pot required for this age of huilding	
		not required for this age of building	
		Period (from above): 0.4	across
		(%NBS)nom from Fig 3.3:	0.4
Note:1 for specifica	ly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 3: for buildings designed prior to 1935 use 0.8, except in Wellington (1.0)	
		along	across
		Final (%NBS)nom	0%

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, ,	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT FATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data				V1.11
Location Building Name	Norman Kirk Courte - Garage 2	T	Paviovor	Lee Howard
Building Name	Unit	No: Street	CPEng No:	1008889
Building Address Legal Description	Pt Lot 1 DP 30139	Toojotiickiand	Company project number	232536
	Degrees	Min Sec	Company phone number:	33660821
GPS south GPS east	43	32 52.99 37 40.17	Date of submission: Inspection Date:	30/07/2013 4/06/2013
Building Unique Identifier (CCC)	: PRO 1137 B018	1	Revision: Is there a full report with this summary?	ves 2
0 %				
Site slope	flat	Į	Max retaining height (m):	
Soil type Site Class (to NZS1170.5)	D	1	Soil Profile (if available):	
Proximity to waterway (m, if <100m) Proximity to clifftop (m, if < 100m)		-	If Ground improvement on site, describe	۱ <u>ــــــــــــــــــــــــــــــــــــ</u>
Proximity to cliff base (m,if <100m)	1	1	Approx site elevation (m):	
No. of storeys above ground	. 1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split Storeys below ground	/ no 30	1	Ground floor elevation above ground (m):	0.00
Foundation type Building height (m)	mat slab 2.00	height from ground to level of up	if Foundation type is other, describe: permost seismic mass (for IEP only) (m);	5.4
Floor footprint area (approx)	17	1	Date of design	1965-1976
, go of Banang (Jouro)	00	†	But of doligh	
Strengthening present	? <u>no</u>	1	If so, when (year)?	
Use (ground floor)	parking	I	And what load level (%g)? Brief strengthening description:	
Use (upper floors) Use notes (if required)		4		
Importance level (to NZS1170.5)	IL2	1		
Gravity Structure	<u></u>	т		
Gravity System: Roof	timber truss	1	truss depth, purlin type and cladding	2400mm, Timber, Corrugated Steel
Floors Reams	concrete flat slab		slab thickness (mm) overall depth x width (mm x mm)	100
Columns	load bearing walls		typical dimensions (mm x mm)	2*10 seriesblock walls
wais.	partially filled concrete masonry	1	thickness (mm)	200
Lateral load resisting structure Lateral system along	partially filled CMU	Note: Define along and across in		Blockwork wall reinforced @800mm
Ductility assumed, µ Period along	1.25	detailed report! ##### enter height above at H31	note total length of wall at ground (m): estimate or calculation?	estimated
Total deflection (ULS) (mm)			estimate or calculation?	
maximum interstorey delection (OE3) (min)		1	estimate of calculations	
Lateral system across Ductility assumed, µ	partially filled CMU 1.25	5	note total length of wall at ground (m):	Blockwork wall reinforced @800mm
Period across Total deflection (LILS) (mm)	0.40	##### enter height above at H31	estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm)		1	estimate or calculation?	
Separations:		1		
north (mm) east (mm)		leave blank if not relevant		
south (mm)	8	ŧ.		
woor (min)	۹ <u>ــــــــــــــــــــــــــــــــــــ</u>	1 		
Non-structural elements Stairs	4	Į		No
Wall cladding Roof Cladding	Metal	1	describe	Blockwork Steel Sheeting
Glazing Ceilings	timber frames	+		Mainly timber
Services(list)	1 	1		· · · · · · · · · · · · · · · · · · ·
Available desumentation				
Available documentation Architectura	I partial	Į	original designer name/date	Christchurch City Council
Structura Mechanica	none	1	original designer name/date original designer name/date	·
Electrica Geotech repor	l none	+	original designer name/date original designer name/date	
		<u> </u>	• •	
Damage	Card	Т	Describe demons	[]
(refer DEE Table 4-2)		1	Describe damage.	
Settlement Differential settlement	none observed	1	notes (if applicable): notes (if applicable):	
Liquefaction Lateral Spread	none apparent	+	notes (if applicable): notes (if applicable):	
Differential lateral spread	none apparent	-	notes (if applicable):	
Damage to area	none apparent	t	notes (if applicable):	
Building:				
Current Placard Status	green	1		
Along Damage ratio	0%		Describe how damage ratio arrived at	
Aarooo Do		Damaga Patin _ (% NBS (be	fore) – % NBS (after))	
Damage ratio Describe (summary)	0%	$Dunage _Kallo =$	NBS (before)	
Diaphragms Damage?	no		Describe	
CSWs: Damage?	ino		Describe	
Pounding	* po		Des 1	J
Damage :		1	Describe:	<u>ر ا</u>
Non-structural: Damage?	.lyes	1	Describe	
Recommendations				
Level of repair/strengthening required	minor structural		Describe	
Interim occupancy recommendations	full occupancy	1	Describe	
Along Assessed %NBS before e'quakes	100%	##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes	100%	1	methodology	
Across Assessed %NBS before e'quakes	44%	##### %NBS from IEP below		
Assessed %IND aller e'quakes	44%	1		
IEP Use of this r	nethod is not mandatory - more detailed a	analysis may give a different answer, which	would take precedence. Do not fill in	fields if not using IEP.
Period of depian of huilding (from the	1965-1976		h from ob a sec	5.4m
end or design of building (from above)			In from above:	
Seismic Zone, if designed between 1965 and 1992	1 <mark>8</mark>	1	not required for this age of building not required for this age of building	
			along	across
		Period (from above):	0.4	0.4
		(%NBS)nom from Fig 3.3:		
Note:1 for specifica	inv design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1.1	33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 2: for RC building	gs designed between 1976-1984, use 1.2	
		Note 2: for RC building Note 3: for buildings designed prior to	gs designed between 1976-1984, use 1.2 1935 use 0.8, except in Wellington (1.0)	

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT FATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data			V1.11
Location Building Name	Norman Kirk Courte - Garages 8-9	Paviewor	Lee Howard
Building Address	Garages 8-9	No: Street CPEng No: 183 Strickland Company	1008889 Aureon
Legal Description	Pt Lot 1 DP 30139	Company project number Company phone number	232536
GPS south	Degrees 43	Min Sec Date of submission	30/07/2013
GPS east	172	37 37.74 Inspection Date: Bevision	4/06/2013
Building Unique Identifier (CCC)	: PRO 1137 B019	Is there a full report with this summary?	ves
Site	flat	May rataining bright (m)	
Solt Side Solt 20170	mixed	Soil Profile (if available):	
Proximity to waterway (m, if <100m)		If Ground improvement on site, describe	
Proximity to cliff base (m, if < 100m) Proximity to cliff base (m, if <100m)		Approx site elevation (m):	
Building No. of storeys above ground	1	single storey = 1 Ground floor elevation (Absolute) (m):	0.00
Ground floor split Storeys below ground	no 0	Ground floor elevation above ground (m):	0.00
Foundation type Building height (m)	mat slab 4.00	if Foundation type is other, describe: height from ground to level of uppermost seismic mass (for IEP only) (m):	0
Floor footprint area (approx) Age of Building (years)	34	Date of design:	1965-1976
Strengthening present	/ <u>no</u>	If so, when (year)? And what load level (%g)?	
Use (ground floor) Use (upper floors)	parking	Brief strengthening description	
Use notes (if required) Importance level (to NZS1170.5)	112		
Gravity Structure		1 	
Gravity System:	load bearing walls	truce don'th purific turce and eladding	2400 Timber, Consusted Steel
Floors	concrete flat slab	slab thickness (mm)	100
Beams Columns	load bearing walls	overall deptn x width (mm x mm) typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140
Lateral load resisting structure Lateral system along	partially filled CMU	Note: Define along and across in	
Ductility assumed, µ Period along	1.25	detailed report! note total length of wall at ground (m): ##### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)		estimate or calculation? estimate or calculation?	
Lateral system across	partially filled CMU	I	
Ductility assumed, µ Period across	. 1.25	note total length of wall at ground (m): ###### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorev deflection (ULS) (mm)		estimate or calculation?	
Separations:	1	estimate of calculators	
separations: north (mm)	l	leave blank if not relevant	
east (mm) south (mm)		-	
west (mm)		1	
Non-structural elements Stairs	4	Ι	No
W all cladding Roof Cladding	Metal	describe	Blockwork Steel Sheeting
Glazing Ceilings	timber frames	-	Mainly timber No
Services(list)	4	I	
Available documentation			
Architectura	I partial	original designer name/date	Christchurch City Council
Mechanica	I none	original designer name/date	
Geotech repor	tinone	original designer name/date	
Damara			
Site performance	Good	Describe damage	
Settlement	none observed	notes (if applicable)	
Liquefaction	none apparent	notes (ii appicable) notes (if applicable)	
Lateral Spread Differential lateral spread	none apparent	notes (if applicable): notes (if applicable):	
Ground cracks Damage to area	none apparent	notes (if applicable) notes (if applicable)	
Building:		T	
Current Placard Status	I green		
Along Damage ratio Describe (summary)	0%	Describe how damage ratio arrived at	
Across Damage ratio	0%	$Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{(\% NBS (before))}$	
Describe (summary)	4	% NBS (before)	
Diaphragms Damage?	no	Describe	
CSWs: Damage?	no	Describe	
Pounding: Damage?	no	Describe	
Non-structural: Damage?	yes	Describe	
Desembled			
Level of repair/strengthening required	minor structural	Describe	
Building Consent required Interim occupancy recommendations	full occupancy	Describe: Describe:	
Along Assessed %NBS before e'quakes	: 100%	##### %NBS from IEP below If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes	100%	methodology.	
Across Assessed %NBS before e'quakes Assessed %NBS after e'quakes	44%	##### %NBS from IEP below	
IEP Use of this r	nethod is not mandatory - more detailed a	analysis may give a different answer, which would take precedence. Do not fill in	fields if not using IEP.
Period of design of building (from above)	: 1965-1976	h _n from above	m
Seismic Zone, if designed between 1965 and 1992	B	not required for this age of building	
		not required for this age of building	
		along Period (from above): 0.4	across 0.4
		(%NBS)nom from Fig 3.3:	
Note:1 for specifica	Ily design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0 Note 2: for RC buildings designed between 1976-1984. use 1.2	
		Note 3: for buildings designed prior to 1935 use 0.8, except in Wellington (1.0)	
		along	across

2.2 Near Fault Scaling Factor		Near Fault scaling	factor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault so	caling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z f	or site from AS1170.5, Table	a 3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Factor	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildi	ng Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		301066
2.5 Ductility Scaling Factor	Assessed dur	ctility (less than max in Table 3.2)	aong		801055
, .	Ductility scaling factor: =1 from 1976 onwards; o	r =kµ, if pre-1976, fromTable 3.3:			
		Ductiity Cooling Foster Factor D	0.00		0.00
	·	Succinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scaling	Factor:	Sp:			
	Structural Parts	rmance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structural 1 Silo	Infance ocaling racion racion E.	#014/0:		#010/0:
2.7 Baseline %NB5, (NB5%)6 = (%N	BS)nom X A X B X C X D X E	%NBSb:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesse	s: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:					
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Eactor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
	mogrimouri	Separa	tion 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% of	of H 0.7	0.8	1
н	aight Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	of H 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Sovere	Significant	Insignificant/none
		Separa	tion 0 <sep< 005h<="" td=""><td>005csepc 01H</td><td>Sen> 01H</td></sep<>	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 stor	evs 0.4	0.7	1
		Height difference 2 to 4 stor	evs 0.7	0.9	1
		Height difference < 2 stor	eys 1	1	1
3.6 Other factors Factor F	For < 3 storeys may value -2.5, otherw	vise max valule –1.5. no minimum	Along 1.0		ACTOSS 1.0
	Ration	nale for choice of F factor, if not 1	1.0		
Datail Critical Structural Weaknesse	s: (refer to DEE Procedure section 6)				
List an	y: Refer also :	section 6.3.1 of DEE for discussion of F fac	tor modification for other crit	ical structural weaknes	sses
			1.00		4.00
3.7. Overall Performance Achievem	BRT PATIO (PAH)		1.00		1.00
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
A A Demonstrate New Duild' Of	and (0(NDC) (hefere)				#DIV/01

Detailed Engineering Evaluation Summary Data			V1.11
Location Building Name	Norman Kirk Courte - Garages 16-17	Paviewor	Lee Howard
Building Address	Garages 16-17	No: Street CPEng No: 183 Strickland Company	1008889 Aureon
Legal Description	Pt Lot 1 DP 30139	Company project number Company phone number	232536
GPS south	Degrees 43	Min Sec Date of submission	30/07/2013
GPS east	172	37 37.14 Inspection Date: Bevision	4/06/2013
Building Unique Identifier (CCC)	PRO 1137 B020	Is there a full report with this summary?	ves
Site Site slope	flat	May rataining bright (m)	
Solity Side Side Solity Solity Solity Side Side Side Side Side Side Side Side	mixed	Soil Profile (if available):	
Proximity to waterway (m, if <100m)		If Ground improvement on site, describe	
Proximity to cliff base (m, if <100m) Proximity to cliff base (m, if <100m)		Approx site elevation (m):	
Building No. of storeys above ground	1	single storey = 1 Ground floor elevation (Absolute) (m):	0.00
Ground toor split: Storeys below ground	no 1 0	Ground floor elevation above ground (m):	0.00
Foundation type Building height (m)	4.00	If Foundation type is other, describe height from ground to level of uppermost seismic mass (for IEP only) (m):	0
Fioor footprint area (approx) Age of Building (years)	34	Date of design:	1965-1976
		T	
Strengthening present:	no	T so, when (year) a And what load level (%g)?	
Use (ground floor) Use (upper floors)	i parking	Brief strengthening description.	
Use notes (if required) Importance level (to NZS1170.5)	IL2		
Gravity Structure			
Gravity System: Roof	load bearing walls timber truss	truss depth, purlin type and cladding	2400, Timber, Corrugated Steel
Floors Beams	concrete flat slab	slab thickness (mm) overall depth x width (mm x mm)	100
Columns Walls:	load bearing walls partially filled concrete masonry	typical dimensions (mm x mm) thickness (mm)	150 Series Blockwork 140
Lateral load resisting structure		•	
Lateral system along	partially filled CMU 1 25	Note: Define along and across in detailed report! note total length of wall at ground (m):	
Period along Total deflection (III C) (area)	0.40	##### enter height above at H31 estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm)		estimate or calculation?	
Lateral system across	partially filled CMU	note total longth of well at around (m)	
Period across	0.40	##### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm) maximum interstorey deflection (ULS) (mm)		estimate or calculation? estimate or calculation?	
Separations:		~	
north (mm) east (mm)		leave blank if not relevant	
south (mm) west (mm)		-	
Non-structural elements		•	
Stairs Wall cladding			No Blockwork
Roof Cladding Glazing	Metal	describe	Steel Sheeting Mainly timber
Ceilings Services(list)	plaster, fixed		No
(,		• •	
Available documentation	Inartial	orininal designer name/date	Christchurch City Council
Structura	I none	original designer name/date	
Electrica	Inone	original designer name/date	
Georech repor	Tione	unginar designer namerdate	
Damage			[]
Site performance (refer DEE Table 4-2)	Good	Describe damage:	
Settlement Differential settlement	none observed	notes (if applicable) notes (if applicable)	
Liquefaction Lateral Spread	none apparent	notes (if applicable) notes (if applicable)	
Differential lateral spread Ground cracks	none apparent	notes (if applicable) notes (if applicable)	
Damage to area	none apparent	notes (if applicable):	
Building: Current Placard Status	: green		
Along Damage ratio		Describe how damage ratio arrived at	
Describe (summary)		(% NRS (before) - % NRS (after))	
Across Damage ratio Describe (summary)	0%	$Damage _Ratio = \frac{(NHDS(00,000) - NHDS(00,000))}{\% NBS(before)}$	
Diaphraoms Damage?	no	Decribe	
CSWs: Damage?	ino	Describe	
Poundina: Domoso?	100		
Nen ets studius): Damage ?	100	I Describe	
Damage?	1900	Describe	
Recommendations		T	
Level of repair/strengthening required Building Consent required	Iminor structural	Describe Describe	
Interim occupancy recommendations	Ituli occupancy	Describe	
Along Assessed %NBS before e'quakes Assessed %NBS after e'quakes	100%	##### %NBS from IEP below If IEP not used, please detail assessment methodology	Quantitative Assessment
Across Assessed %NBS before e'quakes	44%	##### %NBS from IEP below	
Assessed %NBS after e'quakes	44%		
EP Lies of this m	nethod is not mandatory - more detailed a	inalysis may give a different apswer, which would take precedence. Do not fill in	fields if not using IFP
Derived of devices of the first first	- 1065 1076	and your may give a different answer, which would take precedence. Do not fill in	m
Period or design of building (from above)	. 1303-1970	n _n from above	
Seismic zone, if designed between 1965 and 1992	D	not required for this age of building not required for this age of building	
		along	across
		Period (from above): 0.4 (%NBS)nom from Fig 3.3:	0.4
Note:1 for specifica	lly design public buildings, to the code of the	day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0	
		Note 2: for RC buildings designed between 1976-1984, use 1.2 Note 3: for buildings designed prior to 1935 use 0.8, except in Wellington (1.0)	
		along	across
		Final (%NBS)non" 0%	0%

2.2 Near Fault Scaling Factor		Near Fault scaling f	actor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault s	scaling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z fo	r site from AS1170.5, Table	3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Fact	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildin	g Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		201005
2.5 Ductility Scaling Factor	Assessed de	uctility (less than max in Table 3.2)	aiong		401000
	Ductility scaling factor: =1 from 1976 onwards;	or =kµ, if pre-1976, fromTable 3.3:			
		Dustiity Sealing Faster Faster D	0.00		0.00
		Ductinty Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scalin	g Factor:	Sp:			
	Structural Part	ormance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structurar Peri	ormanoo ocaning racion racion E.	#D14/0:		
		******	1011/01		11D11 (10)
2.7 Baseline %NBS, (NBS%)b = (%		%NB56:	#DIV/0!		#DIV/0!
Global Critical Structural Weakness	es: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:	insignificant				
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Factor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
5.5. Short columns, r actor 0.	insignificant	Separat	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% o	fH 0.7	0.8	1
	Height Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% o	fH 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/pone
		Separat	on Ocsenc 005H	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 store	0.4	0.7	1
		Height difference 2 to 4 store	vs 0.7	0.9	1
		Height difference < 2 store	ys 1	1	1
			Alama		A
3.6 Other factors Factor F	For < 3 storeys max value -2.5 other	wise max valule -1.5, no minimum	Along		ACTOSS 1.0
	Ratio	onale for choice of F factor, if not 1			1.0
Detail Critical Structural Weakness	es: (refer to DEE Procedure section 6)				
List a	ny: Refer also	section 6.3.1 of DEE for discussion of F fact	or modification for other cri	ical structural weaknes	sses
			4.00		
	nent ratio (PAR)		1.00		1.00
3.7. Overall Performance Achiever					
3.7. Overall Performance Achiever					
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!

Detailed Engineering Evaluation Summary Data			V1.11
Location Building Name	Norman Kirk Courts - Garages 19-21	Paviewer	Lee Howard
Puilding Address	Unit	No: Street CPEng No	1008889
Legal Description:	Pt Lot 1 DP 30139	Company project number	232536
	Degrees	Min Sec	33660821
GPS south: GPS east:	43	32 55.10 Date of submission 37 40.03 Inspection Date	<u>30/07/2013</u> 4/06/2013
Building Unique Identifier (CCC)	PBO 1137 B021	Revision	2
		······································	
Cit-			
Site slope:	flat	Max retaining height (m)	
Soil type: Site Class (to NZS1170.5):	D	Soil Profile (if available)	
Proximity to waterway (m, if <100m): Proximity to clifftop (m, if < 100m):		If Ground improvement on site, describe	
Proximity to cliff base (m,if <100m)		Approx site elevation (m)	
Ruilding			
No. of storeys above ground	1	single storey = 1 Ground floor elevation (Absolute) (m)	0.00
Storeys below ground	10 10	Ground hoor elevation above ground (m)	0.00
Foundation type: Building height (m):	mat slab 4.00	if Foundation type is other, describe height from ground to level of uppermost seismic mass (for IEP only) (m)	0
Floor footprint area (approx): Age of Building (years):	51	Date of design	1965-1976
J		· · · · · · · · · · · · · · · · · · ·	
Strengthening present?	no	If so, when (year):	
Use (ground floor):	parking	Brief strengthening description	
Use (upper floors): Use notes (if required):			
Importance level (to NZS1170.5)	11.2		
Gravity Structure Gravity System:	load bearing walls		
Roof.	timber truss concrete flat slab	truss depth, purlin type and cladding slab thickness (mm	2400, Timber, Corrugated Steel
Beams	none	overall depth x width (mm x mm	150 Series Pleakwork
Columns: Walls:	partially filled concrete masonry	typicai dimensions (mm x mm) thickness (mm)	140
Lateral load resisting structure			
Lateral system along Ductility assumed, µ	partially filled CMU 1.25	Note: Define along and across in detailed report! note total length of wall at ground (m)	
Period along Total deflection (ULS) (mm)	0.40	##### enter height above at H31 estimate or calculation?	estimated
maximum interstorey deflection (ULS) (mm):		estimate or calculation	
Lateral system across	partially filled CMU		
Period across	1.25	##### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm): maximum interstorey deflection (ULS) (mm):		estimate or calculation? estimate or calculation?	
Senarations:			
north (mm):		leave blank if not relevant	
east (mm): south (mm):			
west (mm):	-		
Non-structural elements Stairs:			No
Wall cladding: Roof Cladding	Matal	describe	Blockwork Steel Sheeting
Glazing	timber frames	uesuno:	Mainly timber
Services(list):			
Available documentation Architectura	partial	original designer name/date	Christchurch City Council
Structura Mechanica	none	original designer name/date original designer name/date	
Electrica Geotech report	none	original designer name/date original designer name/date	
Damage	Coord	Describe domage	
(refer DEE Table 4-2)		Describe damage	
Settlement: Differential settlement:	none observed	notes (if applicable) notes (if applicable)	
Liquefaction: Lateral Spread	none apparent	notes (if applicable) notes (if applicable)	<u> </u>
Differential lateral spread Ground cracks	none apparent	notes (if applicable) notes (if applicable)	
Damage to area	none apparent	notes (if applicable)	
Building:	areen		
Gurrent Placard Status:	grout		
Along Damage ratio Describe (summary):	0%	Describe how damage ratio arrived at	
Across Damage ratio	0%	$Damage _Ratio = \frac{(\% NBS (before) - \% NBS (after))}{(\% NBS (after))}$	
Describe (summary):		% NBS (before)	
Diaphragms Damage?	no	Describe	
CSWs: Damage?	no	Describe	
Pounding: Damage?	no	Describe	
Non-structural: Damage?	yes	Describe	
Recommendations	minor structural		
Building Consent required	no full occupancy	Describe	
	(000)	##### %NBS from IEP below If IEP activitied alread data?	Quantitative Assessment
Assessed %NBS before e'quakes Assessed %NBS after e'quakes	100%	mmmm vordes from iter below If iter not used, please detail assessmen methodology	www.initative Assessment
Across Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below	
Assessed %NBS after e'quakes	44%		
IFD Use of this m	nethod is not mandatory - more detailed -	nalvsis may rive a different apswer, which would take proceedence. Dr+ fill in	fields if not using IEP
	1005 1070	and the precedence. Do not fill in	
Period of design of building (from above):	1965-1976	h₀ from above	
Seismic Zone, if designed between 1965 and 1992	B	not required for this age of building not required for this age of building	
		along	across
		Period (from above): 0.4	0.4
	to design as the table of the		
Note:1 for specifical	ly design public buildings, to the code of the c	uay. pre-1905 = 1.25, 1905-1976, 20ne A =1.33; 1905-1976, 2one B = 1.2; all else 1.0 Note 2: for RC buildings designed between 1976-1984, use 1.2	
		Note 3: for buildings designed prior to 1935 use 0.8, except in Wellington (1.0)	
		Einel (%NBS) 0%	across

2.2 Near Fault Scaling Factor		Near Fault scaling f	actor, from NZS1170.5, cl 3	3.1.6:	
			along		across
	Near Fault s	scaling factor (1/N(T,D), Factor A:	#DIV/0!		#DIV/0!
2.3 Hazard Scaling Factor		Hazard factor Z fo	r site from AS1170.5, Table	3.3:	
			Z1992, from NZS4203:	1992	
			Hazard scaling factor, Fact	or B:	#DIV/0!
2.4 Return Period Scaling Factor		Buildin	g Importance level (from ab	ove):	2
		Return Period Scaling	factor from Table 3.1, Fact	or C:	
			along		201005
2.5 Ductility Scaling Factor	Assessed de	uctility (less than max in Table 3.2)	aiong		401000
	Ductility scaling factor: =1 from 1976 onwards;	or =kµ, if pre-1976, fromTable 3.3:			
		Dustiity Sealing Faster Faster D	0.00		0.00
		Ducting Scaling Factor, Factor D.	0.00		0.00
2.6 Structural Performance Scalin	g Factor:	Sp:			
	Structural Part	ormance Scaling Eactor Factor F	#DIV/01		#DIV/01
	Structurar Peri	ormanoo ocaning racion racion E.	#D14/0:		
		******	1011/01		11D11 (10)
2.7 Baseline %NBS, (NBS%)b = (%		%NB56:	#DIV/0!		#DIV/0!
Global Critical Structural Weakness	es: (refer to NZSEE IEP Table 3.4)				
3.1. Plan irregularity, factor A:	insignificant				
3.2. Vertical irregularity, Factor B:	insignificant 1				
3.3 Short columns Factor C:	insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
5.5. Short columns, r actor 0.	insignificant	Separat	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
3.4. Pounding potential	Pounding effect D1, from Table to right 1.0	Alignment of floors within 20% o	fH 0.7	0.8	1
	Height Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% o	fH 0.4	0.7	0.8
	Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/pone
		Separat	on Ocsenc 005H	005csepc 01H	Sen> 01H
3.5. Site Characteristics	insignificant 1	Height difference > 4 store	0.4	0.7	1
		Height difference 2 to 4 store	vs 0.7	0.9	1
		Height difference < 2 store	ys 1	1	1
			Alama		A
3.6 Other factors Factor F	For < 3 storeys max value -2.5 other	wise max valule -1.5, no minimum	Along		ACTOSS 1.0
	Ratio	onale for choice of F factor, if not 1			1.0
Detail Critical Structural Weakness	es: (refer to DEE Procedure section 6)				
List a	ny: Refer also	section 6.3.1 of DEE for discussion of F fact	or modification for other cri	ical structural weaknes	sses
			4.00		
	nent ratio (PAR)		1.00		1.00
3.7. Overall Performance Achiever					
3.7. Overall Performance Achiever					
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.3 PAR x (%NBS)b:		PAR x Baselline %NBS:	#DIV/0!		#DIV/0!

			V1.11
Location			
Building Nam	Norman Kirk Courts - garage 26 Unit	No: Street CPEng No:	Lee Howard 1008889
Building Addres	s: Garage 26	183 Strickland Company:	Aureon
Legar Descriptio		Company project number: Company phone number:	33660821
GPS sout	Degrees 1 43	Min Sec 32 55.12 Date of submission:	30/07/2013
GPS eas	t: 172	37 40.03 Inspection Date:	4/06/2013
Building Unique Identifier (CCC): PRO 1137 B022	Is there a full report with this summary?	yes
Site Site slop	e: flat	Max retaining height (m):	
Soil ty Site Class (to NZS1170 F	: mixed	Soil Profile (if available):	
Proximity to waterway (m, if <100m):	If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m Proximity to cliff base (m, if <100m):	Approx site elevation (m):	
Building			
No. of storeys above groun	1	single storey = 1 Ground floor elevation (Absolute) (m):	0.00
Storeys below groun	d0	Circuita noor elevation above ground (m).	0.00
Foundation typ Building height (m	2: mat slab): 2.00	if Foundation type is other, describe: height from ground to level of uppermost seismic mass (for IEP only) (m):	5.4
Floor footprint area (approx	17	Date of design:	1965 1976
Age of Building (years	33	Date of design.	1303-1370
Strenathenina presen	? no	If so, when (vear)?	
	Parking	And what load level (%g)?	
Use (upper floors): 	Dier strengtnening description:	
Use notes (if required Importance level (to NZS1170.5):): IL2		
Crowity Structure			
Gravity Structure Gravity System	: load bearing walls		
Roc	f: timber truss s: concrete flat slab	truss depth, purlin type and cladding slab thickness (mm)	2400 mm, Timber, Corrugated Steel 100
Beam	s: none	overall depth x width (mm x mm)	
Valis	partially filled concrete masonry	thickness (mm)	2°10 seriesblock walls 200
Lateral load resisting structure			
Lateral system alon	partially filled CMU	Note: Define along and across in	Blockwork wall reinforced @800mm
Ductility assumed, Period alon	1.25	detailed report! note total length of wall at ground (m): ###### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm):	estimate or calculation?	
maximum interstorey deflection (ULS) (mm):	estimate or calculation?	
Lateral system acros	s: partially filled CMU	note total length of wall at ground (m):	Blockwork wall reinforced @800mm
Period acros	3: 0.40	##### enter height above at H31 estimate or calculation?	estimated
Total deflection (ULS) (mm maximum interstorey deflection (ULS) (mm):	estimate or calculation? estimate or calculation?	
Concretioner			
north (mm):	leave blank if not relevant	
o o ot (mm			
south (mm):		
south (mm west (mm): : :		
Von-structural elements):):):):		
east (iiii south (mm <u>Non-structural elements</u> Stair Wall claddin	5 5 5 5 5 5 5 5 5 5 5 5 5 5		No Blockwork
east (im south (mm <u>Non-structural elements</u> Stair Wall claddin Roof Claddin Claddin);); ; s: (Metal v limber (rames	describe	No Blockwork Steel Sheeting Mainly Unber
Non-structural elements Stair Wall claddin Roof Claddin Glazin Ceiling); ; s: t: Metal t: limber frames s: plaster, fixed	describe	No Blockwork Steel Sheeting Mainly timber No
Non-structural elements Stair Wall claddin Roof Claddin Ceiling Services(lis	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	describe	No Blockwork Steel Sheeting Mainly timber No
Non-structural elements Non-structural elements Stair Wall claddin Roof Claddin Glazir Ceiling Services(lis	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	describe	No Blockwork Steel Sheeting Mainly timber No
Von-structural elements Stair Non-structural elements Stair Wall claddin Roof Claddin Glazar Ceiling Services(lis Available documentation	s s Metal limber frames plaster, fixed s partial	describe 	No Blockwork Steel Sheeting Mainly timber No Christchurch City Council
Available documentation Available documentation Architectur	s Metal Metal Metal Splaster, fixed partial al none	describe original designer name/date original designer name/date	No Blockwork Blockwork No Christchurch City Council
Available documentation Available documentation Architectur Structural elements	>:	describe original designer name/date original designer name/date original designer name/date original designer name/date	No Blockwork Blockwork Nainly timber No Christchurch City Council
Available documentation Available documentation Available documentation Architectur Structur	i i i Metal i Imber frames i plaster, fixed i partial al partial al none al none al none al none al none al none anone	describe original designer name/date original designer name/date original designer name/date original designer name/date original designer name/date	No Blockwork Blockwork NeilSheeting Mainly timber No Christchurch City Council
Available documentation Available documentation Damage Damage	i i i Metal i Imber frames i Inter frames i plaster, fixed i Inter frames al partial anone al none al none al none anone al none anone	describe original designer name/date original designer name/date original designer name/date original designer name/date original designer name/date	No Blockwork Steel Sheeting Mainly timber No Christchurch City Council
Validable documentation Available documentation Architectur Structur Stite Site	i i i Metal i Imber frames i Ipatient i Ipatient al partial anone al none al none al none anone al none anon	describe original designer name/date original designer name/date	No Blockwork Blockwork No No Christchurch City Council
Non-structural elements Stair Non-structural elements Stair Wall caddin Roof Claddin Glazin Celling Services(lis Services(lis Available documentation Architectur Structur Mechanic Electric Geotech repc Damage Site Site: Site performanc (refer DEE Table 4-2) Settlemert	Image: Second	describe original designer name/date original designer name/date	No Blockwork Steel Sheeting Main'y timber No Christchurch City Council
Non-structural elements Stain Non-structural elements Stain Wall claddin Root Claddin Glazin Celling Services(lis Services(lis Available documentation Architectur Structure Glazin Geotech repc Structure State Site performanc (refer DEE Table 4-2) Settlement Differential settlement Limeterinki	Image: Second	describe original designer name/date original designer name/date origin	No Blockwork Steel Sheeting Mainly timber No Christchurch City Council
Non-structural elements Stain Non-structural elements Stain Wall claddin Roof Claddin Glazin Celling Services(lis Services(lis Available documentation Architectur Structur Mechanic Electric Geotech repc Damage Site Site: Site performanc (refer DEE Table 4-2) Settlemer Differential settlemer Liquefactio Lateral Spread Lateral Spread	S S S S S S S S S S S S S S S S S S S	describe original designer name/date original designer name/date origin	No Blockwork Steel Sheeling Mainy Imber No Christchurch City Council
Non-structural elements Stain Non-structural elements Stain Wall claddin Roof Claddin Glazin Celling Services(lis Services(lis Available documentation Architectur Mechanic Electric Geotech repc Structur Damage Site: Site: Site performanc (refer DEE Table 4-2) Settlemer Differential stettlemer Liquefaction Lateral Sprea Differential stereal sprea Ground crack Ground crack	S S S S S S S S S S S S S S S S S S S	describe original designer name/date original designer name/date origin	No Blockwork Steel Sheeling Mainy Imber No Christchurch City Council
Damage Site: Site performance (refer DEE Table 4-2) Settlemert Lateral Spread Differential asettlemert Damage Differential asettlemert Lateral Spread Differential asettlemert Lateral Spread Differential asettlemert Damage to are Differential asettlemert	S S S S S S S S S S S S S S S S S S S	describe original designer name/date original designer name/date origin	No Blockwork Steel Sheeling Mainy Imber No Christehurch City Council
Damage Site: Site: (refer DEE Table 4-2) Settlemert Differential lateral sprea Differential settlemert Liquefacto Carpange Site: Site performanc (refer DEE Table 4-2) Settlemert Damage Differential settlemert Liquefacto Differential settlemert Liquefacto Differential settlemert Liquefacto Differential settlemert Differential settlemert Differential settlemert Differential settlemert Differential settlemert Differential settlemert Differential settlemert Differential settlemert Differential settlemert Building: Differential settlemert	S S S S S S S S S S S S S S S S S S S	describe original designer name/date original designer name/date origin	No Blockwork Steel Sheeling Mainly timber No Christehurch City Council
Damage Site: Site: Site: Site: Site: Differential settlement	S S S S S S S S S S S S S S S S S S S	describe original designer name/date original designer name/date origin	No Blockwork Steel Sheeling Mainly timber No Christchurch City Council
Damage Stite Damage Stite Stite: Stite performance (refer DEE Table 4-2) Settlemert Building: Current Placard Statu Along Damage ration	S S S S S S S S S S S S S S S S S S S	describe original designer name/date original designer name/date origin	No Biockwork Steel Sheeling Mainly timber No Christchurch City Council
Damage Site: Settlemer Site: Site: Settlemer Differential lateral sprea Corrund rakes of Cardinal Settlemer Building: Current Placard Statu Along Damage ratin		describe original designer name/date original designer name/date origin	No Biockwork Steel Sheeling Mainly timber No Christchurch City Council
Damage Site: Site: Site: Site: Differential lateral sprea Ground crack Damage Site: Site: Differential lateral sprea Ground crack Damage site: Site: Site: Current Placard Statu Along Damage rati Describe (surmary Across Damage rati Describe (surmary		describe original designer name/date original designer name/date origin	No Biockwork Steel Sheeling Mainly Imber No Christchurch City Council
Damage Site: Celored and the second and th		describe original designer name/date original designer name/date notes (if applicable): notes (if a	No Biockwork Steel Sheeting Mainly Imber No Christchurch City Council
Damage Site: Current Placard Statu Damage Site: Site: Current Placard Statu Along Damage rati Describe (summar) Across Damage rati Describe (summar) Across Damage rati Describe (summar) Diaphragms Damage Tage rati		describe original designer name/date original designer name/date origin	No Biockwork Steel Sheeting Mainly Imber No Christchurch City Council
Non-structural elements Stain Non-structural elements Stain Wall claddin Glazin Glazin Ceiling Servicestis Servicestis Available documentation Architectur Mechanic Electric Geotech repc Site Site: Site performanc (refer DEE Table 4-2) Settlemer Differential lateral sprea Ground crack Damage Current Placard Statu Along Damage rati Describe (summar) Describe (summar) Across Damage rati Diaphragms Damage rati CSWs: Damage rati	Image: Second	describe $describe$ $describe$ $describe$ $describe$ $describe damage:$ $notes (if applicable):$ $notes (if applicable$	No Blockwork Steel Sheeting Mainly timber No
Non-structural elements Stain Non-structural elements Stain Wall caddin Glazin Ceiling Services(lis Available documentation Architectur Mechanic Electric Geotech repc Sittle Sittle: Site performanc (refer DEE Table 4-2) Settlemer Differential settlemer Liquetacito Lateral Sprea Ground crack Damage Current Placard Statu Along Damage raii Describe (summary Across Diaphragms Damage raii CSWs: Damage Pounding: Damage	2	describe $describe$ $describe$ $describe damage:$ $notes (f applicable):$	No Blockwork Steel Sheeting Main'y timber No Christchurch City Council
Non-structural elements Stain Non-structural elements Stain Wall caddin Root Claddin Glazin Celling Services(lis Services(lis Available documentation Architectur Structural Structural Bamage Site Site: Site performanc (refer DEE Table 4-2) Settlemer Differential settlemer Liquetacito Lateral Sprea Ground crack Damage Settlemer Site: Current Placard Statu Along Damage rati Describe (summary Across Damage rati Describe (summary Across Damage rati Diaphragms Damage Structural: Damage	Image: Second	describe original designer name/date original designer name/date origin	No Blockwork Steel Sheeting Mainy timber No Christchurch City Council
Damage Site: Settlemer Differential settlemer Liquetack Damage Site: Site: Settlemer Differential settlemer Liquetack Damage Site: Current Placard Statu Along Damage rati Describe (summar) Across Damage rati Diaphragms Damage CSWs: Damage Pounding: Damage Non-structural: Damage	Image: Second	describe $describe$ $describe$ $describe amage:$ $notes (f applicable):$ n	No Blockwork Steel Sheeting Mainy Imber No Christchurch City Council
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Non-structural elements Stain Non-structural elements Stain Wall claddin Roof Claddin Glazin Celling Services(lis Services(lis Available documentation Architectur Structurit Mechanic Electrinic Geotech repc Damage Site Site: Site performance (refer DEE Table 4-2) Settlemer Differential sateral sprea Ground crack Damage Settlemer Site: Current Placard Statu Along Damage rati Describe (summary Describe (summary Diaphragms Damage CSWs: Damage Pounding: Damage Non-structural: Damage Recommendations Level of repair/strengthening require Briding Consent require Briding Consent require	Image: Second	describe original designer name/date original designer name/date notes (if applicable): notes (if applicable): no	No Blockwork Steel Sheeting Mainy Imber No Christchurch City Council
Non-structural elements Stain Non-structural elements Stain Wall claddin Roof Claddin Glazan Ceiling Services(lis Services(lis Available documentation Architectur Structurit Mechanic Electrinic Geotech repc Damage Site Site: Site performanc (refer DEE Table 4-2) Settlemer Differential settlemert Liquelactio Liquelactio Lateral Sprea Ground crack Damage tai Building: Current Placard Statu Along Damage rati Describe (summary) Describe (summary) Diaphragms Damage rati Diaphragms Damage Recommendations Level of repair/strengthening require Building Consent require Building Consent require	Image: Second	describe original designer name/date original designer name/date notes (if applicable): notes	No Blockwork Steel Sheeling Mainy Imber No Christchurch City Council Christchurch City Council
Non-structural elements Stain Non-structural elements Stain Wall claddin Roof Claddin Glazin Celling Services(lis Services(lis Available documentation Architectur Structurit Mechanic Electric Geotech repc Damage Site Site: Site performance (refer DEE Table 4-2) Settlemer Differential settlemert Liquefaction Liquefaction Lateral Sprea Differential lateral sprea Ground crack Damage to are Building: Current Placard Statu Damage rati Describe (summar) Across Damage Damage rati Describe (summar) Describe (summar) Across Damage CSWs: Damage Pounding: Damage Non-structural: Damage Recommendations Level of repair/strengthening require Building Consent require Interim occupancy recommendation Along Assessed %NBS before e'quaked	Image: Second	describe original designer name/date Describe Describe Describe Describe	No Blockwork Steel Sheeling Mainy Imber No Christchurch City Council

Assessed %NBS before e'quakes: 44% ##### %N Assessed %NBS after e'quakes: 44%	BS from IEP below			
Use of this method is not mandatory - more detailed analysis may	y give a different answer, which would ta	ke precedence. Do not	fill in fields if not usir	ng IEP.
Period of design of building (from above): 1965-1976		h₁ from a	pove: 5.4m	
Seismic Zone, if designed between 1965 and 1992:[B	not	required for this age of bu required for this age of bu	ilding	
	Period (from above): (%NBS)nom from Fig 3.3:	along 0.4		across 0.4
Note:1 for specifically design public buildings, to the code of the day: pre-196	5 = 1.25; 1965-1976, Zone A =1.33; 1965-1 Note 2: for RC buildings designer e 3: for buildings designed prior to 1935 use	976, Zone B = 1.2; all else d between 1976-1984, use 0.8, except in Wellington	e 1.0 e 1.2 (1.0)	
	Final (%NBS)nom:	along 0%		across 0%
2.2 Near Fault Scaling Factor	Near Fault scaling fa	ctor, from NZS1170.5, cl	3.1.6:	
Near Fault sc	aling factor (1/N(T,D), Factor A:	along #DIV/0!		across #DIV/0!
2.3 Hazard Scaling Factor	Hazard factor Z for	site from AS1170.5, Table Z ₁₉₉₂ , from NZS4203 azard scaling factor, Fact	9 3.3: 1992 or B:	#DIV/0!
2.4 Return Period Scaling Factor	Building Return Period Scaling fa	Importance level (from ab actor from Table 3.1, Fact	ove): or C:	2
2.5 Ductility Scaling Factor Assessed duc Ductility scaling factor: =1 from 1976 onwards; or	tility (less than max in Table 3.2) =ku, if pre-1976, fromTable 3.3:	along		across
, , , , , , , , , , , , , , , , , , ,	uctiity Scaling Factor, Factor D:	0.00		0.00
2.6. Structural Barformanoa Scaling Factor:	So:	0.00		0.00
2.0 Structural Performance Scaling Factor. Structural Perfor	mance Scaling Factor Factor E:	#DIV/0!		#DIV/0!
2.7 Baseline %NBS, (NBS%)b = (%NBS)nom x A x B x C x D x E	%NBS6:	#DIV/0!		#DIV/0!
Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)				
3.1. Plan Irregularity, factor A: insignificant 1				
3.3. Short columns, Factor C: insignificant 1	Table for selection of D1	Severe	Significant	Insignificant/none
34 Pounding potential Pounding effect D1 from Table to right 10	Alignment of floors within 20% of	on <u>0<sep<.005h< u=""></sep<.005h<></u>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
Height Difference effect D2, from Table to right 1.0	Alignment of floors not within 20% of	Н 0.4	0.8	0.8
Therefore, Factor D: 1	Table for Selection of D2	Severe	Significant	Insignificant/none
3.5. Site Characteristics insignificant 1	Separatio	on 0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
	Height difference > 4 store	ys 0.4 vs 0.7	0.7	1
	Height difference < 2 store	ys 1	1	1
		Along		Across
3.6. Other factors, Factor F For ≤ 3 storeys, max value =2.5, otherwi Ration	se max valule =1.5, no minimum ale for choice of F factor, if not 1	1.0		1.0
Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6) List any:	section 6.3.1 of DEE for discussion of F fact	tor modification for other o	ritical structural weakn	lesses
3.7. Overall Performance Achievement ratio (PAR)		1.00		1.00
4.3 PAR x (%NBS)b:	PAR x Baselline %NBS:	#DIV/0!		#DIV/0!
4.4 Percentage New Building Standard (%NBS), (before)				#DIV/0!

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