RISA TECHNOLOGIES WEBINAR

Masonry Design in RISA

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Program Version







Today's Topics

- A Brief Review of Wall Panels
- In-Plane Design
- Out-of-Plane Design
- Masonry Design Rules
- Design Results (ASD vs Strength)
- Wall Stiffness (Diaphragms and Deflection)

OVERVIEW























	_		Wa	/all Panel U.C. Parameters	
Unity C	heck Concrete W	/all (Rebar) Concrete	Wall (Misc) Masonry W	Wall Masonry In Masonry Out Masonry Lintel Wood Wall (Studs) Wood Wall (Fasteners)	
	Label	Max Bending Chk	Max Shear Chk		
1	Typical	1	1]	

			_	Masonry Wall	Panel Parameters			
Unity C	heck Concrete	Wall (Rebar) Concre	ete Wall (Misc <mark>)</mark> Ma	sonry Wall Masor	nry In Masonry Out	Masonry Lintel Wood Wall (Studs)	Wood Wall (Fasteners)	
	Label	Block Nom Width	Block Grouting	Reinforced	Wall Area Method			
1	Typical	10"	Partially Grouted	V	NCMA			

🔺 Masonry Wall Panel In Plane Parameters											
Unity C	heck Concrete W	/all (Rebar) Co	ncrete Wall (Misc) Masonry Wall Masonry I	Masonry Out Masonry Li	ntel 🛛 Wood Wa	ll (Studs) Wood	Wall (Fasteners)			
	Label	Vert Bar Size	Bars Per Cell	Min Bound Zone Width[in]	Max Bound Zone Width[in]	Horz Bar Size	1.5x Shear Inc	Transfer Load			
1	Typical	#5	1	8	40	#5	Z	V			

, é ,				Masonry Wal	I Panel Out of	Plane Paramete	ers		- • ×
Unity (Check Concrete W	/all (Rebar)	Concrete Wall (M	lisc) Masonry Wa	all 🛛 Masonry In 👘	Masonry Out Mas	sonry Lintel Wood Wall (Studs)	Wood Wall (Fast	teners)
	Label	Bar Size	Bar Space Min	Bar Space Max	Bar Placement	Mortar Type	Cement Type	Transfer Load	
1	Typical	#5	8"	72"	Center	Type M or S	Portland, Lime/Mortar		

,é,	A Masonry Wall Panel Lintel Parameters												
Unity Check Concrete Wall (Rebar) Concrete Wall (Misc) Masonry Wall Masonry In Masonry Out Masonry Lintel Wood Wall (Studs) Wood Wall (Fasteners)													
	Label	Depth[in]	Bear Length[in]	Bar Size	Min # Bars Per Layer	Max # Bars Per Layer	Num of Layers	c/c Sp of Layers[in]	Dist to Bot[in]	Stirrup Size			
1	1 Typical 16		8	#5 1		3	1	N/A	3.5	#4			

WALL DESIGN RULES



é		_					Wall	Panel U.C. P	arameters				- • ×
U	nity Che	eck C	Concrete Wa	all (Rebar)	Concrete	Wall (Misc)	Masonry Wa	I Masonry In	Masonry Out	Masonry Lintel	Wood Wall (Studs)	Wood Wall (Fasteners)	
•		L	abel	Max Bend	ding Chk	Max She	ar Chk						
	1	Typical		1		1							

Max Bending Chk

-Wall will be optimized to not exceed this value for bending/axial U.C.

Max Shear Chk

-Wall will be optimized to not exceed this value for shear U.C.

UNITY CHECK



,é.			_	Masonry Wall	Panel Parameters			- • ×
Unity C	heck Concrete	Wall (Rebar) Concre	ete Wall (Misc) Ma	sonry Wall Masor	nry In Masonry Out	Masonry Lintel Wood Wall (Studs)	Wood Wall (Fasteners)	
	Label	Block Nom Width	Block Grouting	Reinforced	Wall Area Method			
1	Typical	10"	Partially Grouted	V	NCMA			

Block Nom Width -Nominal Width of Wall Block Grouting -Ungrouted, Partial, or Fully Reinforced -Allows Unreinforced Walls Wall Area Method -NCMA (Face Shell Mortar Only) or **RMEH (Mortar Bed includes Webs)**

MASONRY WALL



💉 Masonry Wall Panel In Plane Parameters 🗖											
Unity C	heck Concrete W	/all (Rebar) Co	ncrete Wall (Misc) Masonry Wall Masonry I	n Masonry Out Masonry Li	ntel 🛛 Wood Wal	ll (Studs) Wood	Wall (Fasteners)			
	Label	Vert Bar Size	Bars Per Cell	Min Bound Zone Width[in]	Max Bound Zone Width[in]	Horz Bar Size	1.5x Shear Inc	Transfer Load			
1	Typical	#5	1	8	40	#5	Z	V			

Bar Sizes -Vertical and Horizontal Boundary Zone -Specify limits for Width Bars per Cell -One or Two 1.5x Shear Increase -Shear Stress Increase for Seismic (older codes only) Transfer Load -If checked, no reinf. Bridges Load to adjacent regions

IN PLANE



Masonry Wall Panel Out of Plane Parameters											
Unity C	heck Concrete W	all (Rebar)	Concrete Wall (M	lisc) 🛛 Masonry Wa	all Masonry In	Masonry Out Mas	sonry Lintel Wood Wall (Studs)	Wood Wall (Fast	teners)		
	Label	Bar Size	Bar Space Min	Bar Space Max	Bar Placement	Mortar Type	Cement Type	Transfer Load			
1	Typical	#5	8"	72"	Center	Type M or S	Portland, Lime/Mortar	V			

- Bar Size
 - -Vertical
- Bar Spacing
 - -Specify limits for Spacing
- Bars Placement
 - -Centered, Each Face, or Staggered
- Mortar and Cement Types
- Transfer Load -If checked, no reinf is used. Spans Horizontally

OUT OF PLANE



🔸 Masonry Wall Panel Lintel Parameters												
Unity	Check Concrete W	/all (Rebar)	Concrete Wall (M	lisc) Mas	onry Wall Masonry In	Masonry Out Masonry Li	ntel Wood Wall (Studs) Wood Wall (F	asteners)			
	Label	Depth[in]	Bear Length[in]	Bar Size	Min # Bars Per Layer	Max # Bars Per Layer	Num of Layers	c/c Sp of Layers[in]	Dist to Bot[in]	Stirrup Size		
1	1 Typical 16 8 #		#5	1	3	1	N/A	3.5	#4			

Depth

-Should be in increments of 8"

Bar Size

-Bending Steel and Stirrups

Layer Information

-Allows Multiple Layers (deep) of rebar

Bearing Length

-Defines how lintel bears on adajcent regions

LINTEL



RISA Help File

RISA General Reference Manual

www.risa.com

ADDITIONAL RESOURCES



Questions?

Please let us know if you have questions.

We will answer as many questions as time permits during the webinar.

Once the webinar is closed, we will post all Q&A's, as well as any supporting materials to our website:

www.risa.com

For further information, contact us at: info@risa.com

THANK YOU FOR ATTENDING