J.B. SPEED SCHOOL OF ENGINEERING

Structural Masonry Designs Software
Afternoon Sessions

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MASONRY SEMINAR
Masonry Institute of Hawaii
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Outline

- Overview of some Structural Masonry Design software
  - Present SMDS
  - Present Elem Design software
  - Introduce Direct Design Software

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SMDS

- Design Basis – Up to TMS 402 13 – IBC 2015
- ASD – Strength Design – ASD with Alternative Load combos - Concrete or clay masonry -
- Point out software does address new f'_m tables in 2016, updated C90 block and Type S mortar now f'_m =2000 psi.
- Demo – Design basis, CMU prop, Unit size

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SMDS

- Do Wall Design OOP, 8" Cmu =22 ft tall (simple supports), Fully grouted
- ASD loads (P = 600 lb - e = 2.48 in. ft W = 33.3 psf) – Typically critical
- Try centered bars # 5 rebar – 32 " OC or #6 at 48 " OC

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SMDS

- Do Wall Design IP, 8" Cmu =18 ft tall, 20 ft long , Fully grouted
- ASD loads (P = 18. kips, V = 25 kips) (.6 D+0.6 W) Typically critical
- Try centered bars # 5 rebar – 120" OC middle zone or #5 at at end in end zone (1 cell – 8 ")

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SMDS

- Lintel Design – 4 ft height , 10 ft span - #5 bars must fit, use 500 ll/ft dead, 1000 lb/ft live. 24 in OC grout, defaults rest.

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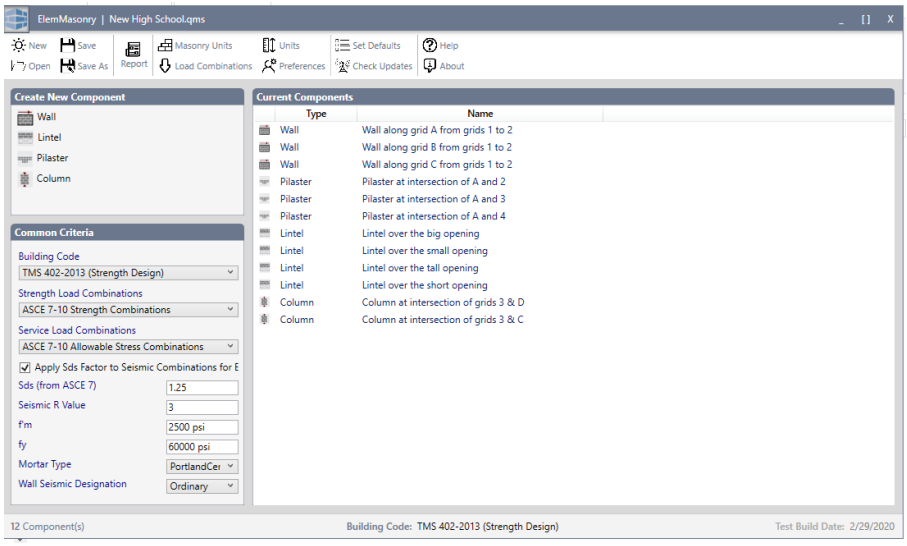
Elem Masonry Software



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Elem Masonry Software

- Do Wall Design OOP, 8" Cmu =20 ft tall (2 ft parapet) (simple supports), Fully grouted 20 ft long
- SD loads (P_D = 1000 lb/ft - e = 2.48 in. ft W = 33.3 psf) – Typically critical
- Try centered bars # 5 rebar – 32 " OC or #6 at 48 " OC
- SD loads (V = 25 kips Typically critical (0.9 D + W critical)

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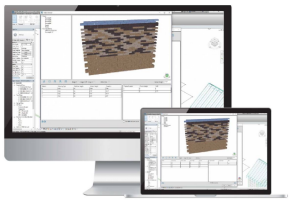
Evolution of Design

With these changes…new tools are needed.

Direct Design



3DiQ
MasonryiQ
Masonry Design Software Plug-In For Revit

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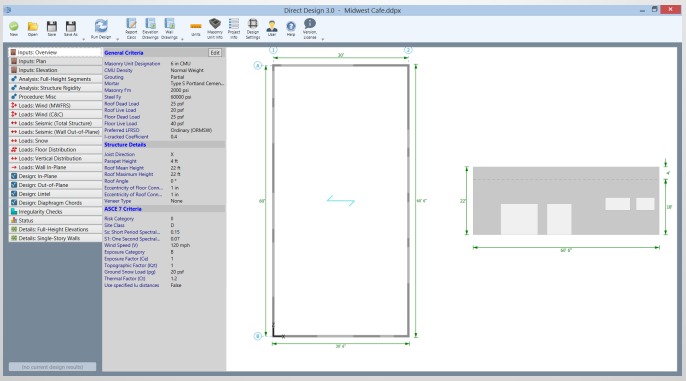
Software Inputs

What you need to design a project:

- Building location
- Building dimensions
- Loading information



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Summary

- Overview of some Structural Masonry Design
- Present SDS
- Present Elem Design software
- Introduce Direct Design Software

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THANK YOU !
QUESTIONS?
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