Documentation for the use of the *tikzcivil* package

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Contents

Chapter 1

Drawing for the Structural Analysis

1.1 Dynamic

1.1.1 `\MassWithSpring` command

This command draws a typical mass-spring system. It supports also an optional damper and displacement. The basic behavior of this command is shown in fig. 1.1.

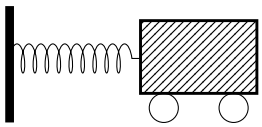


Figure 1.1: Mass-Spring system

```
\begin{tikzpicture}[scale=1]
    \MassWithSpring[]
\end{tikzpicture}
```

More interesting behaviours can be achieved using the optional key values, as shown in fig (1.2).

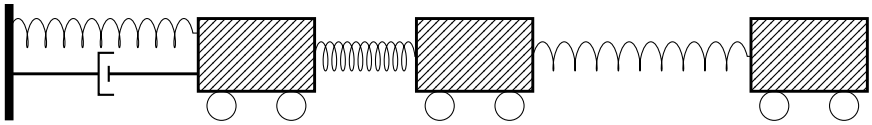


Figure 1.2: More complex mass-spring system

```
\begin{tikzpicture}[scale=1]
    \MassWithSpring[displacement = 2em, with damper = true]
    \MassWithSpring[displacement = -1em,  with wall = false, position
       = {10.5em,0em}]
    \MassWithSpring[displacement = 3em,  with wall = false, position =
        {18.0em,0em}]
\end{tikzpicture}
```

1.1.2 \Frame command

Thus command draws a frame with its mass concentrated above. It is a very common model to describe later a multi-story building in 2D. This command has many options, useful to change the displacement, position, use of supports, damper, among others. In the fig. 1.3 can be seen the normal output of the command without any options.

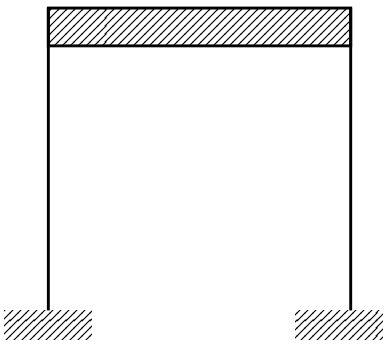


Figure 1.3: Using the \Frame command with defaults options.

```
\begin{tikzpicture}[scale=1]
    \Frame[]
\end{tikzpicture}
```

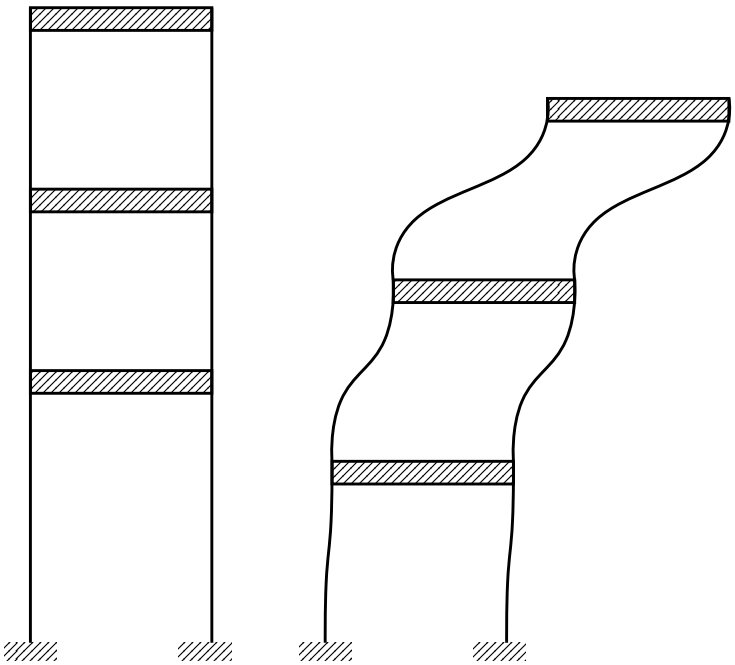
The available options to pass to this command are listed below. The default options are shown in **bold** at the end of each description.

Table 1.1: Options for the `\Frame` command

Option	Description	default
`height`	defines the height of the frame/story	(**4cm**)
`widht`	defines de width of the frame	(**4cm**)
`mass thickness`	defines the thickness of the concentrated mass	(**0.4cm**)
`position`	(tuple) defines the position of the base of the left column	(**{0,0}**)
`with support`	boolean option, that allows to show supports or not	(**true**)
`with damper`	boolean option, that defines the presence of a damper in the system	(**false**)
`displacement`	defines the amount of horizontal displacement on the top of the frame	(**0cm**)

Dibujo izquierdo

```
\begin{tikzpicture}[scale=0.6]
  \Frame[position = {0em,0em}]
  \Frame[position = {0em,10em}, with support = false]
  \Frame[position = {0em,20em}, with support = false]
\end{tikzpicture}
```



Dibujo derecho

```
\begin{tikzpicture}[scale=0.6]
  \Frame[position = {0em,0em}, displacement = 0.15em]
  \Frame[position = {0.15em,10em}, with support = false,
  displacement = 1.35em]
  \Frame[position = {1.5em,20em}, with support = false,
  displacement = 3.4em]
\end{tikzpicture}
```

Chapter 2

Dibujos relacionados con la mecánica de suelos