

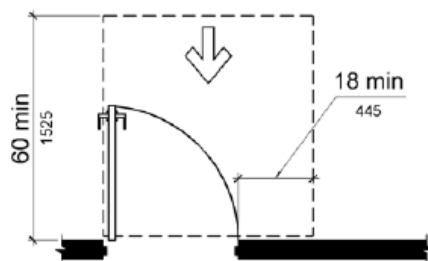
# ADA Door Clearances in Revit

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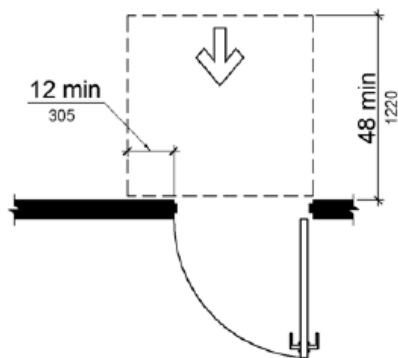
## Overview

Architects in the United States are required by law to design in compliance with the Americans with Disabilities Act (ADA). These requirements are found in the ADA Accessibility Guidelines that all practicing architects are familiar with. Here's the [online PDF](#)

In this tutorial we modify a Revit door family to enable ADA clearance checking between the door and other model elements such as walls. The evaluation can be determined by hovering over a door to see clearances or by using Revit's Interference Check tool. This door Type specifically tests minimum front approach clearances for a door as defined by ADA guideline Sect 3:121 - illustrations (a) & (c). These represent very common door clearance conditions.



(a)  
front approach, pull side

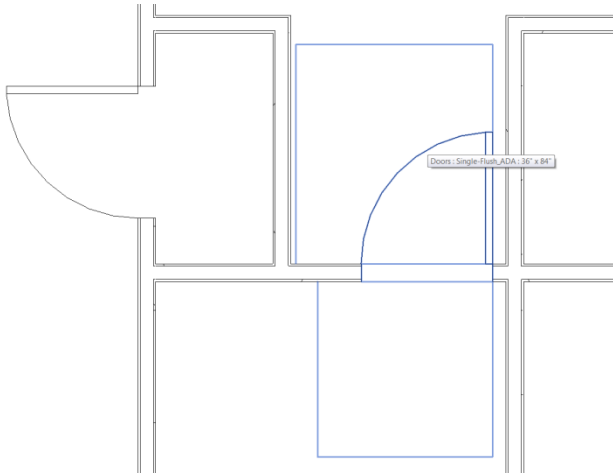


(c)  
front approach, push side, door  
provided with both closer and latch

Minimum ADA approach clearances

## **Workflow**

Our custom door will allow ADA clearance checking to be used in two ways – By hovering over a door or by using the Interference Check tool.



**Hovering over door displays ADA clearance boudaries**

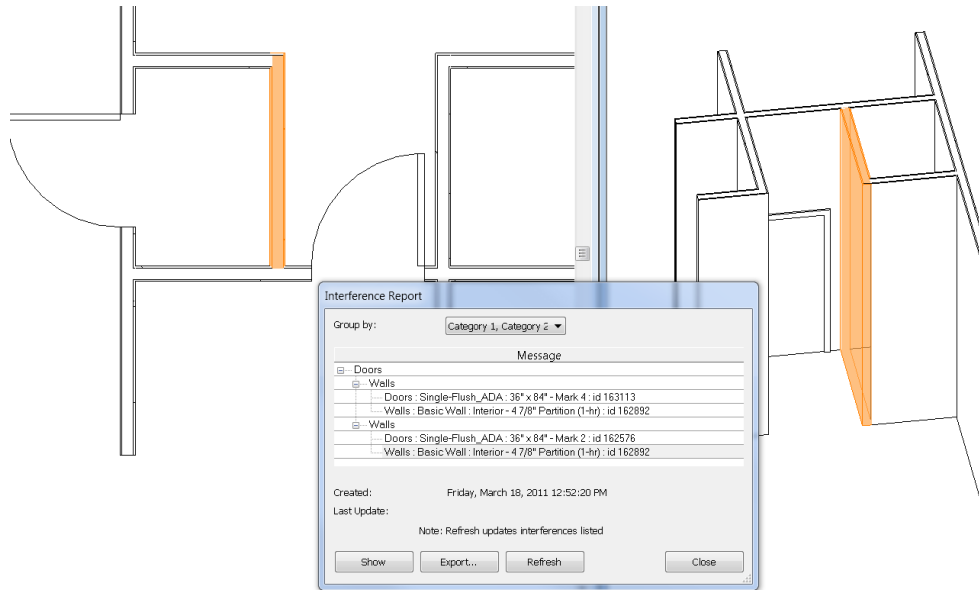
## **Highlighted Door**

When you hover over the door type outline linework displays to indicate the minimum ADA clearance area. Similar display occurs when the door is selected. The outline linework is selectable so you can use it with useful tools such as Align.

The linework is created in the door family uses an invisible linetype & is controlled by Type parameters.



Even though the extrusions are hidden in the model, Interference Check will detect collisions between them and other objects.



Highlighted wall interferes with ADA door clearance

## Limitations

- ❖ This door only accounts for frontal approach clearances so another door type would need to be used to test side approach conditions.
- ❖ It's fairly easy to get false positive findings from the Interference tool when door clearances overlap or the ADA door is used in shallow spaces such as a coat closet.

## Conclusion

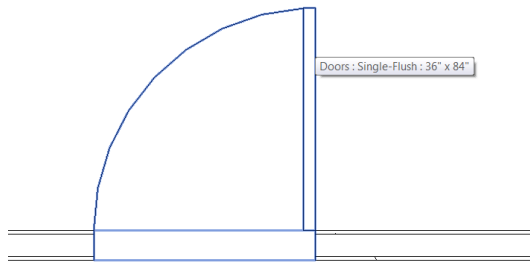
Checking ADA clearances is an architectural task that happens on most building types other than single family residential. Using customized door families will make this process easier and ultimately reduces errors in your design.

## Content Creation

We will now edit a door family by adding 2D graphic content for the plan display & separate 3D extrusions for the interference checking capability.

An easy way to make your new ADA door type is to start with a default Revit door then edit and save it as a new family. If you want you could also start with your own door family.

- ❖ Start a new project in Revit
- ❖ Add a wall and a default Revit door (Doors: Single Flush:....)



#### Default door in a project

### Make a New Door Type

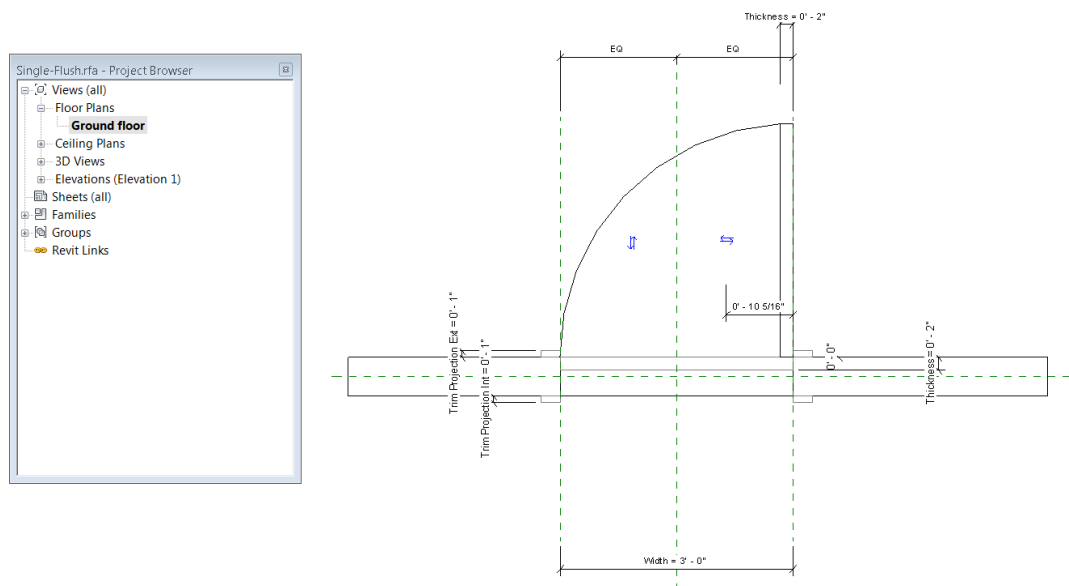
To avoid confusion later, this is a good point to make a new Door Type.

- ❖ In the Project Browser expand 'Families' category > expand 'Doors' category > select 'Doors: Single-Flush' > right click > Rename to: 'Single-Flush\_ADA'

### Make Parameter Driven Plan Graphics

We will now make the linework that displays the ADA boundaries in plan.

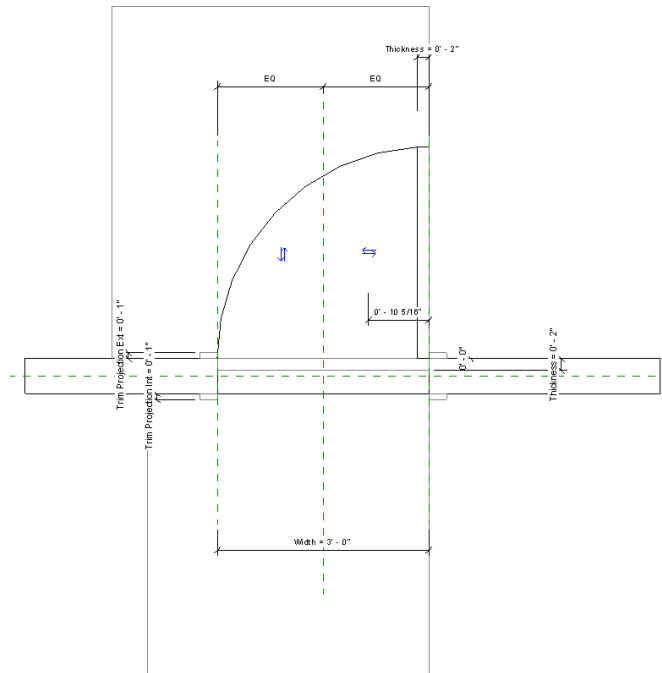
- ❖ Select the door then pick 'Edit Family' from the ribbon to activate the Family Editor.
- ❖ In the Family Editor, set your view to Floor Plans > Ground Floor



#### Door family in Ground Floor View

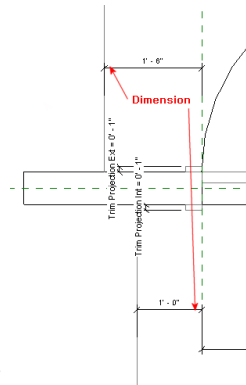
- ❖ Select Symbolic Line from the Annotate tab of the ribbon
- ❖ In property palette select '<invisible lines>' for Subcategory

- ❖ Draw three sided clearance outlines to the dimensions required



Plan Linework

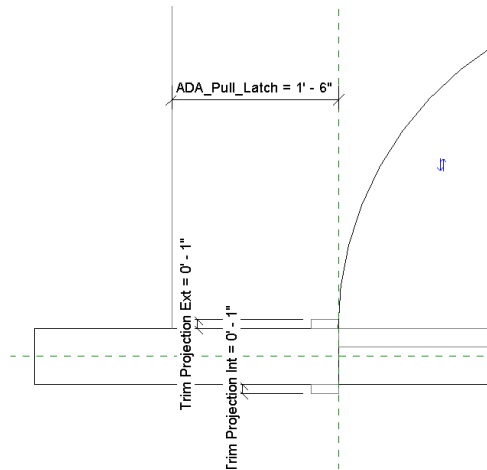
- ❖ Add dimensions from the door latch side reference plane to the boundary line on the push &



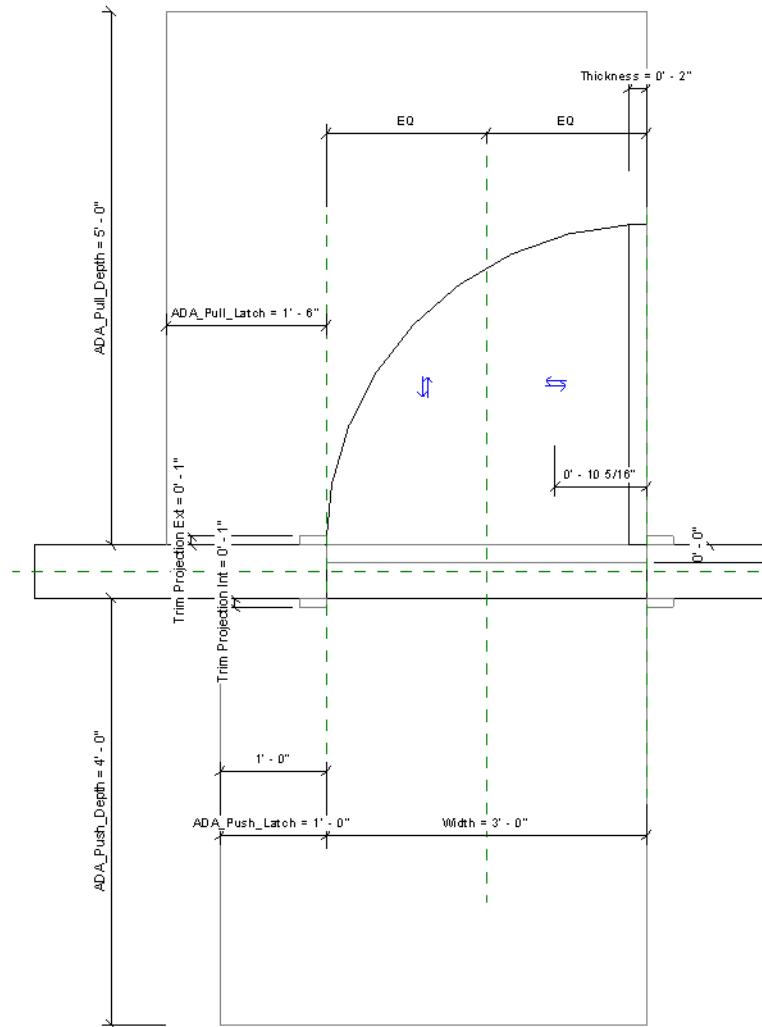
pull sides of the door

- ❖ Select the 1'-6" dimension on the pull side of the door > select the Label dropdown from the Options Bar > select <Add parameter>
- ❖ The Parameter Properties dialog displays > name your parameter 'ADA\_Pull\_Latch' > select OK

- ❖ Your dimension appearance changes to reflect your new parameter

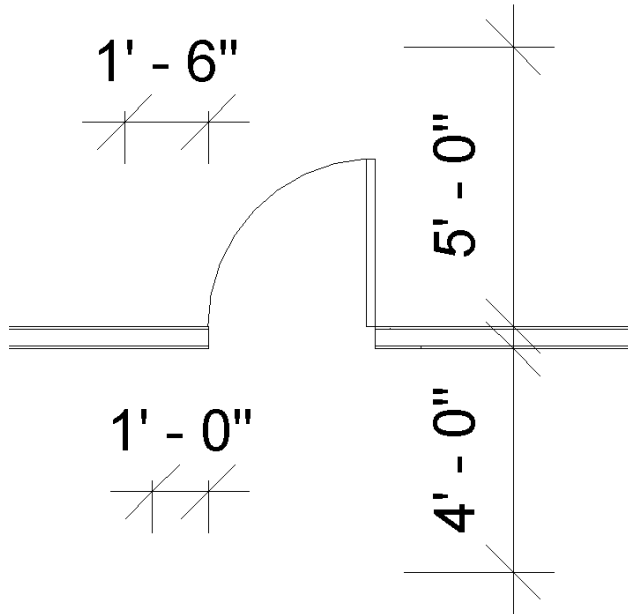


- ❖ Repeat the above steps for the push side of the door, pull side depth & push side depth



Plan Parameters Complete

- ❖ Select the 'Load into Project' button from the ribbon > In the Family Already Exists dialog select 'Overwrite the existing version and its parameter values'
- ❖ Check that your parameters are working by flexing your door and the hosting wall. A simple way to check that your boundaries remain consistent is to dimension them in the project before flexing. Select the door & in Property Palette change to different sizes within the Type verifying that your clearance dimensions remain consistent. Now change the Wall Type.



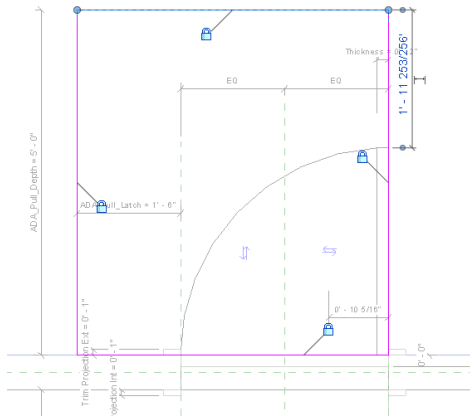
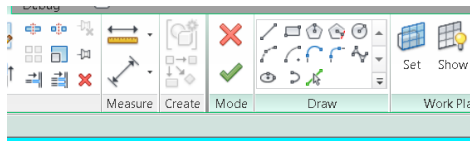
## Make Interference Extrusions

For interference checking we need to make extrusions in our Door Family to match the plan boundaries & extruded them to the ADA requirement of 80".

- ❖ Select the door then pick 'Edit Family' from the ribbon to activate the Family Editor.
- ❖ From the ribbon Home tab select 'Extrusion' > in Property Palette set 'Extrusion End' to 80" (6'-8") > select the rectangle draw tool & draw a rectangle within the pull side boundary (don't worry about the dimensions)
- ❖ Use the Align tool to align each side of the rectangle to the plan boundary lines. After each align be sure to select the little lock icon. Select the rectangle after aligning to verify that the edges

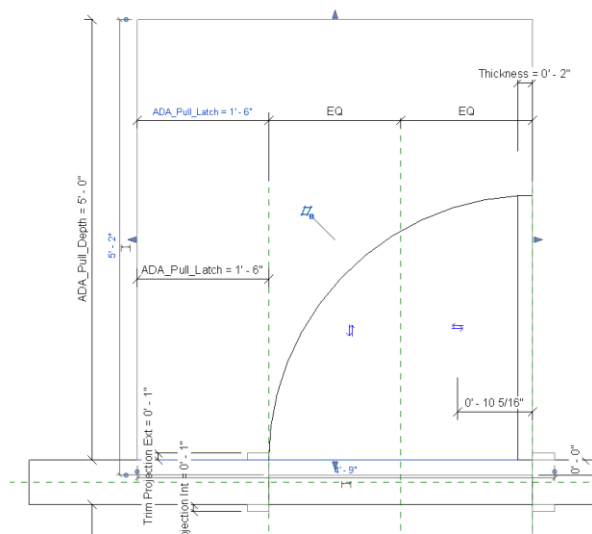


are locked



#### Locked Extrusion Boundary

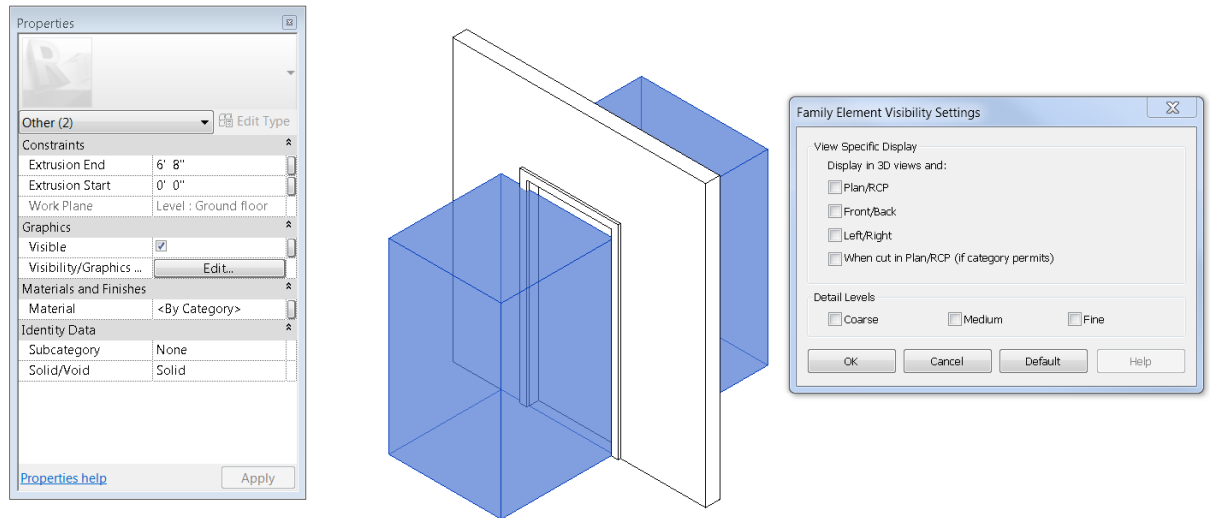
- ❖ Select the 'Finish Edit' checkbox from the ribbon to complete the extrusion
- ❖ To constrain the extrusion we will add a dimension from the latch side reference line to the latch edge of the extrusion > Select the dimension & add the 'ADA\_Pull\_Latch = 1'-6"' Label from the Options Bar



#### Constrained Extrusion

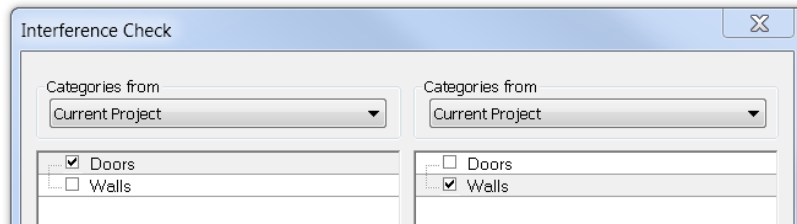
- ❖ Repeat the above steps to make the push side extrusion using the 'ADA\_Push\_Latch = 1'-0"' Label
- ❖ Switch to a 3D view in your family & select both extrusions > select Visibility Graphics button in Property palette > In Family Element Visibility Settings dialog uncheck all display boxes > select

OK > select Yes in the dialog

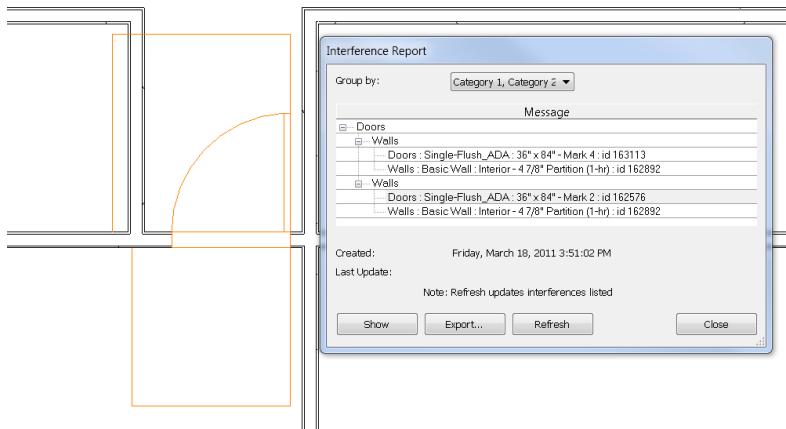


### Family Extrusion Visibility Settings

- ❖ Select the 'Load into Project' button from the ribbon > In the Family Already Exists dialog select 'Overwrite the existing version and its parameter values'
- ❖ Test your extrusions by adding walls to your project that cross the extrusion boundaries > select Interference Check button from the Collaboration tab of the ribbon > select Doors and Walls



- ❖ After selecting OK you will see the Interference Report dialog if interferences are present in your project or a 'No Interferences Found' message if none exist. Selecting an interference in the dialog will highlight it in the project & selecting the 'Show' button will zoom to the interference



## Save Your Family

Don't forget to save a copy of your new Revit family.

- ❖ Reopen your door family > close the family > select Yes when prompted to save the file & save it where you keep your custom Revit content.