



*Member*  
**STEEL STUD MANUFACTURERS ASSOCIATION**

***Cold-Formed Steel Details***





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## **DISCLAIMER**

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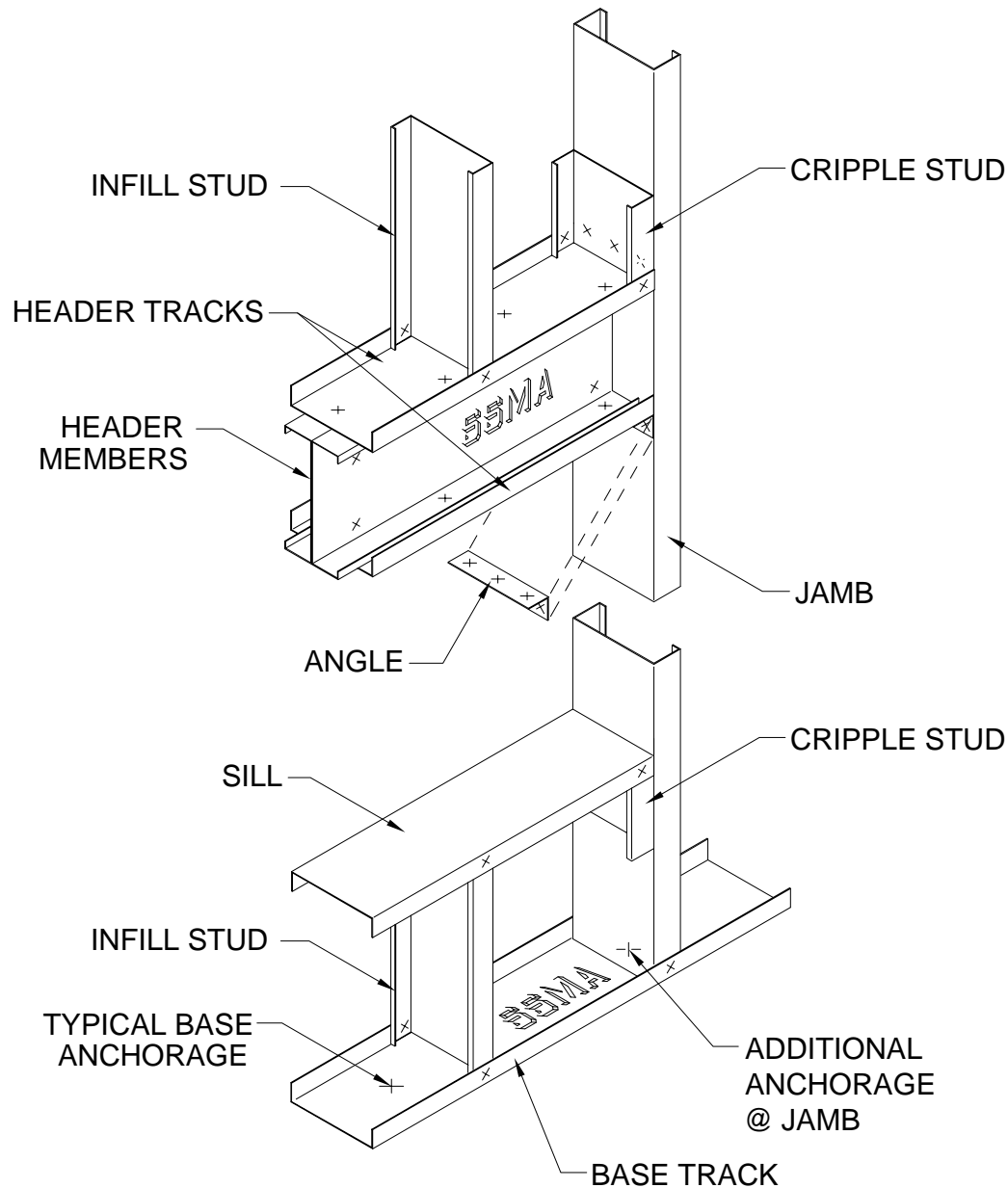
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# Window - Load Bearing Back to Back Header Single Jamb



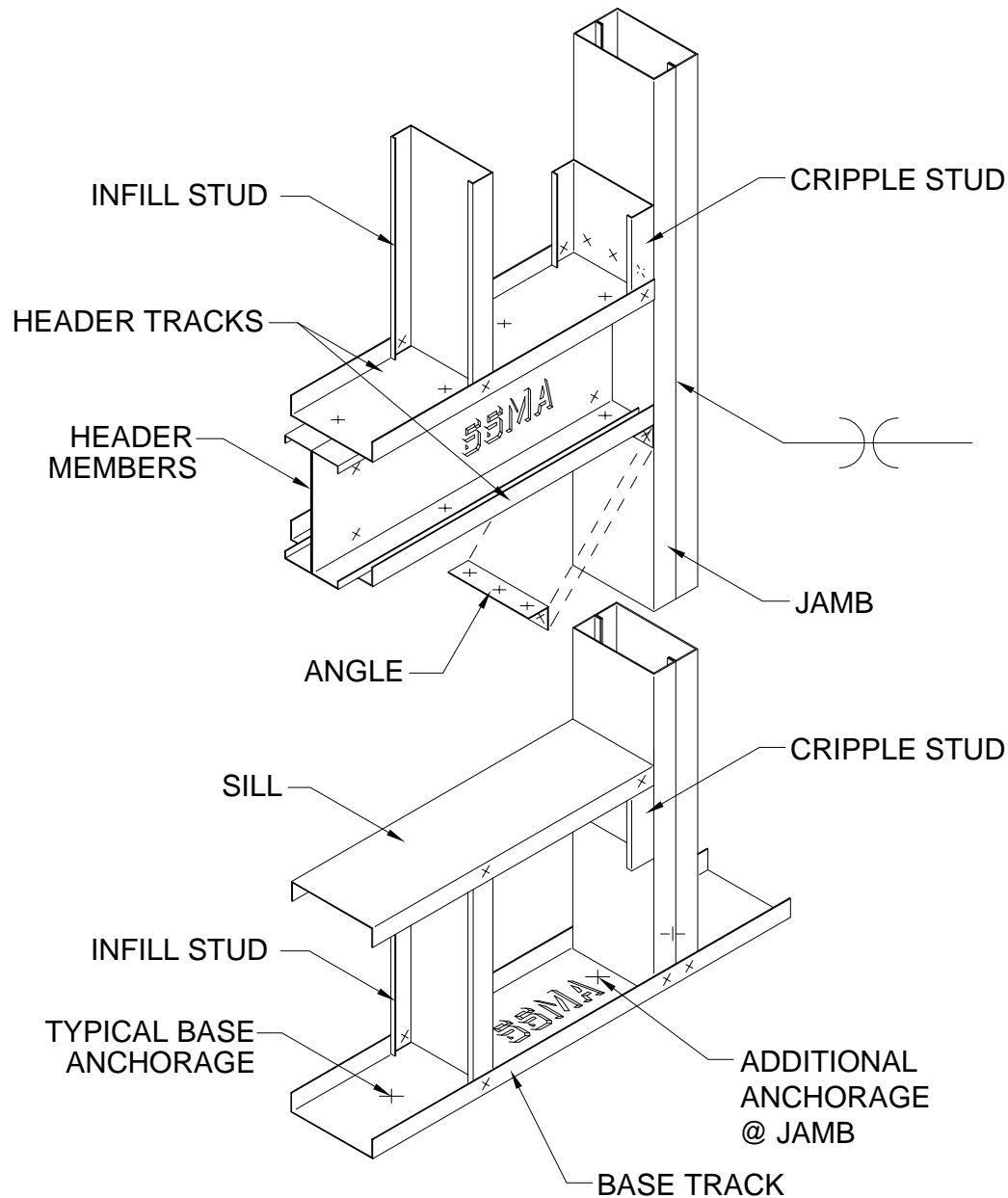
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Back to back header reduces web-crippling reinforcement requirements.
3. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
4. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Back to back headers will not provide backing for attaching window covering support.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.

# Window - Load Bearing Back to Back Header Boxed Jamb



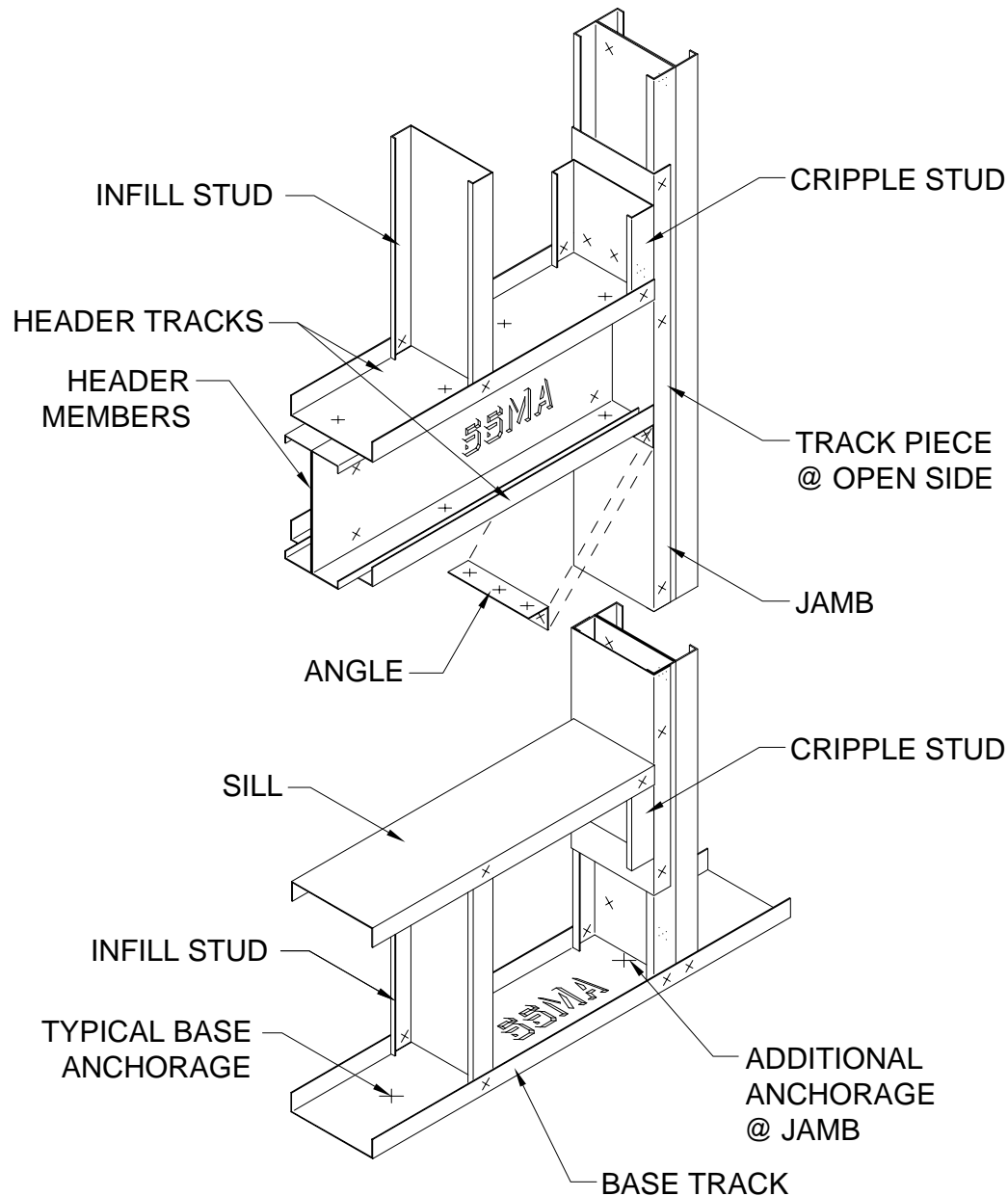
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Back to back header reduces web-crippling reinforcement requirements.
3. Boxed jamb studs welded together reduces material build-up and finish problems.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Back to back headers will not provide backing for attaching window covering support.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. Requires 43 mil and thicker jamb stud material so weld can be made easily.

# Window - Load Bearing Back to Back Header Back to Back Jamb



## ADVANTAGES:

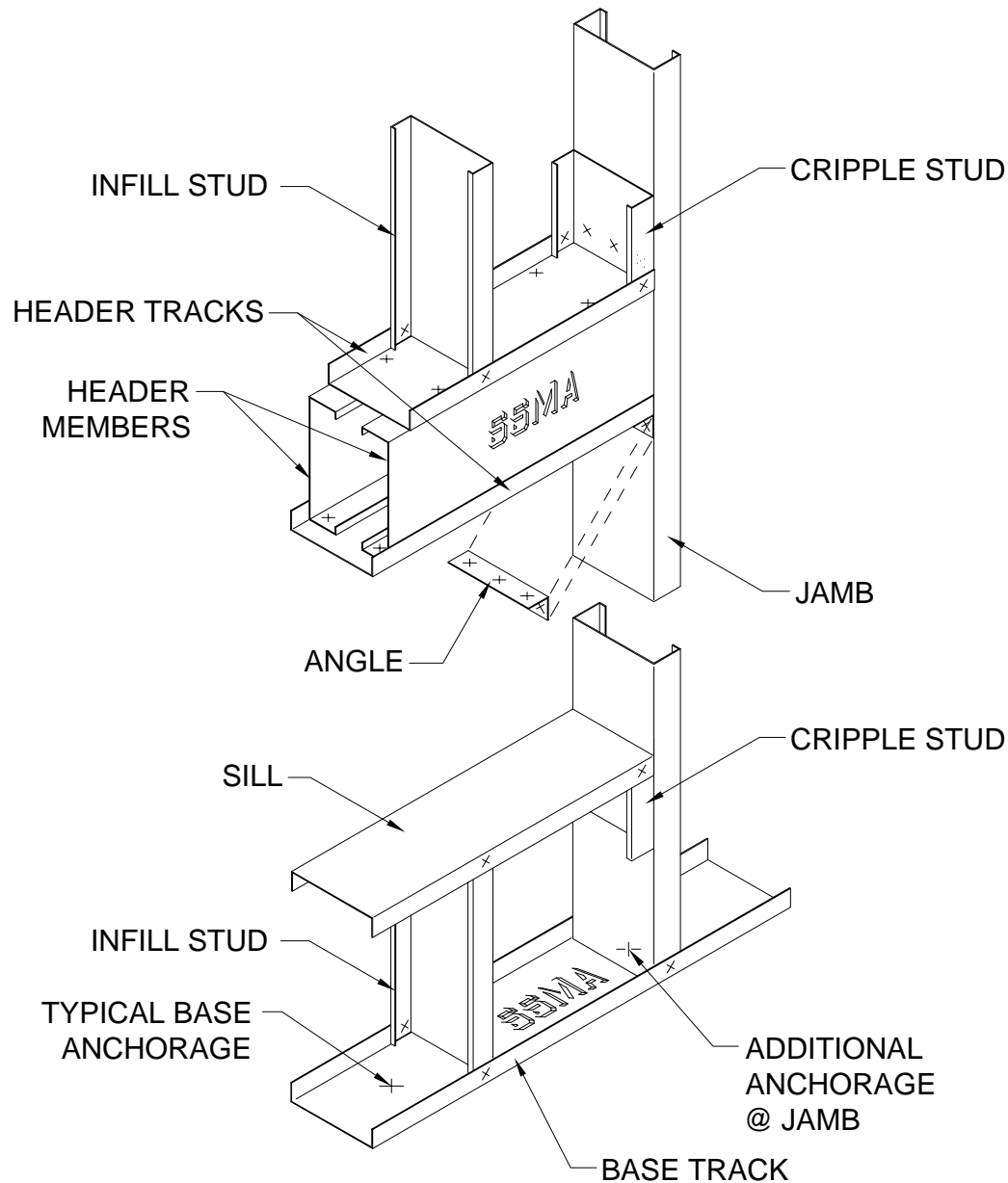
1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Back to back header reduces web-crippling reinforcement requirements.
3. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
4. Reduces the need to reinforce the web at the end reactions of the jamb studs.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Back to back headers will not provide backing for attaching window covering support.
3. Material build-up at the jamb studs can cause finish and window frame problems.



# Window - Load Bearing Boxed Header Single Jamb



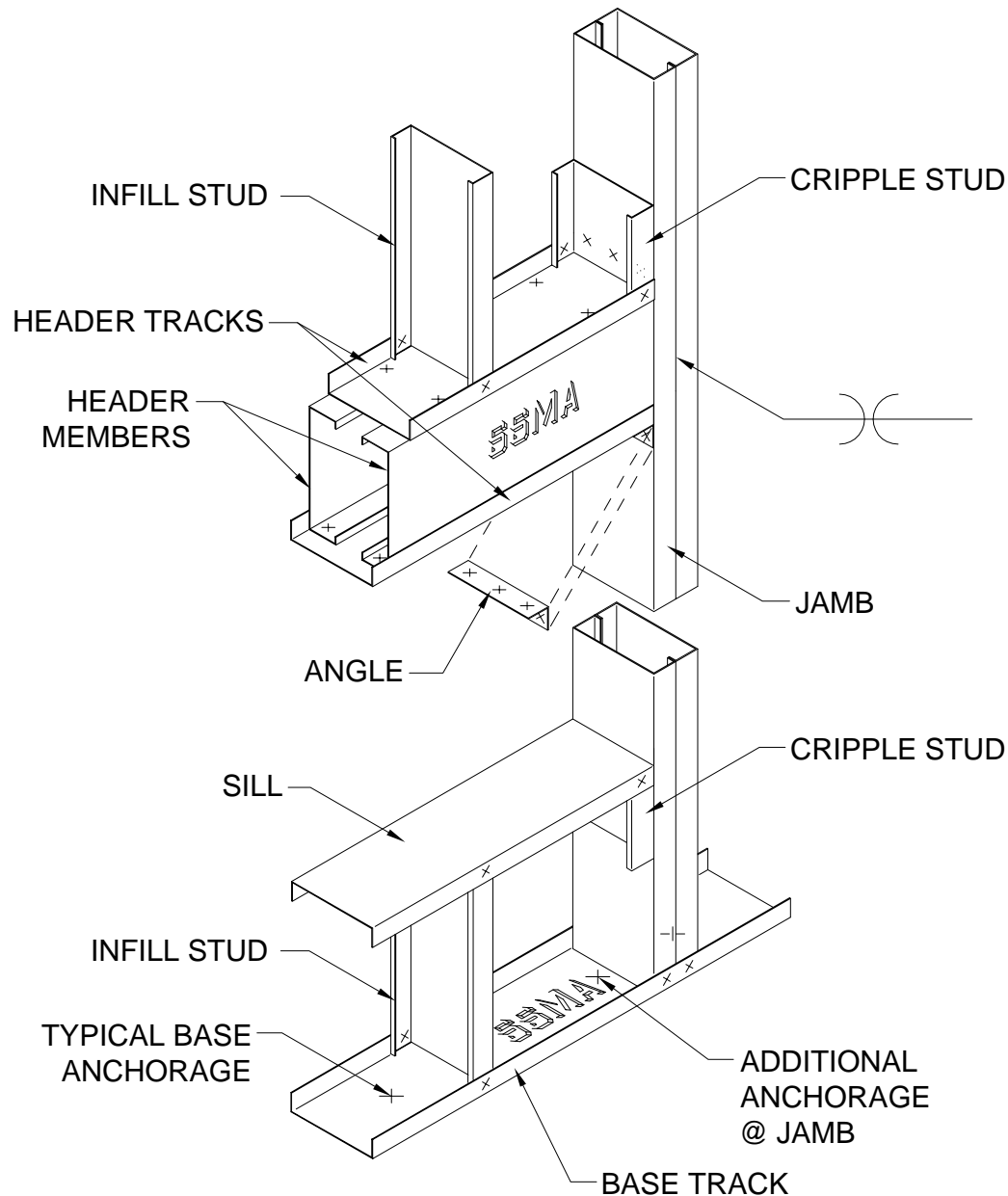
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed header members provide backing for attachment of window covering support.
3. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
4. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Boxed header increases web-crippling reinforcement being required at each end of the header vs. back to back headers.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.

# Window - Load Bearing Boxed Header Boxed Jamb



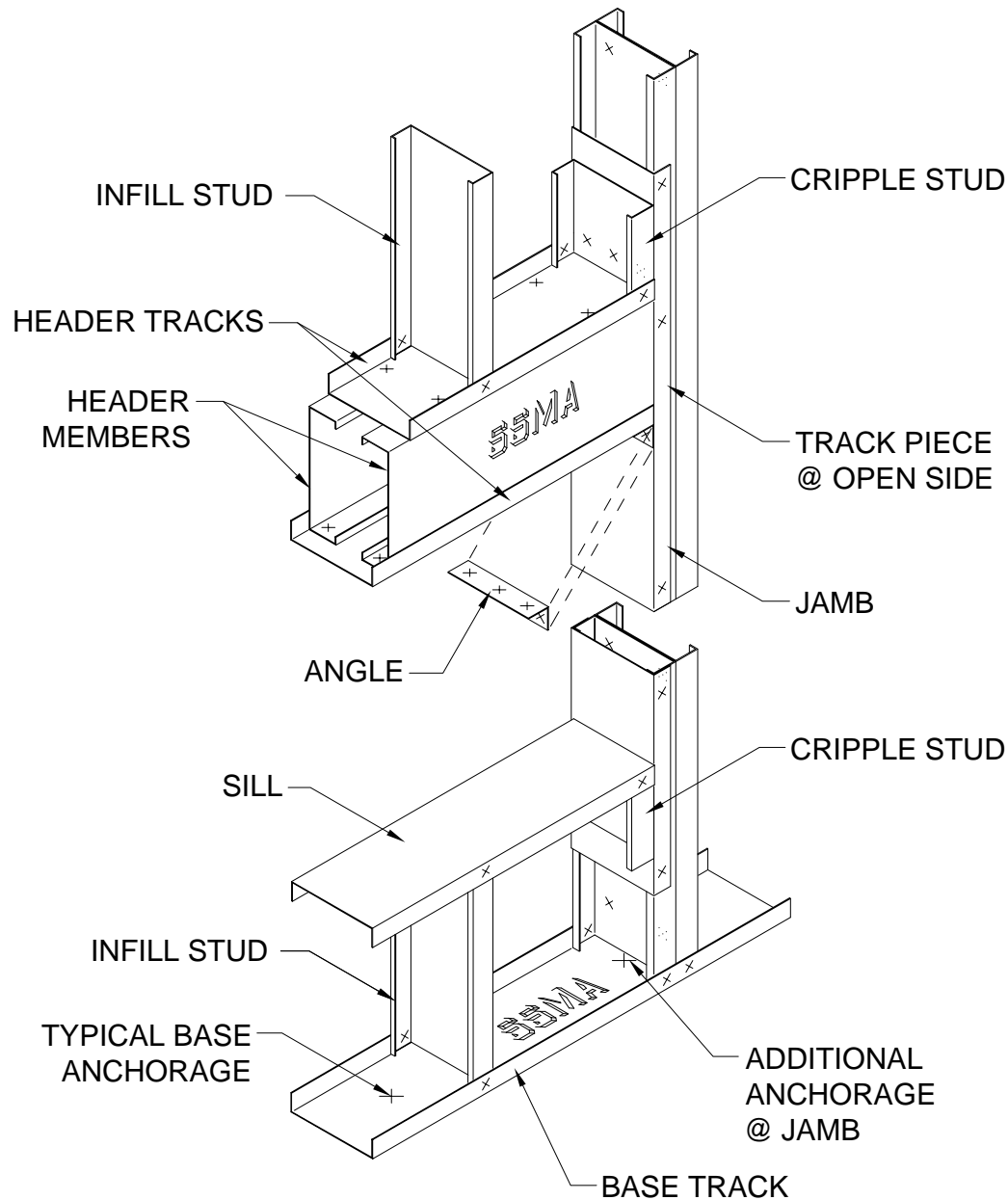
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed jamb studs welded together reduces material build-up and finish problems.
3. Boxed header members provide backing for attachment of window covering support.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Boxed header increases web-crippling reinforcement being required at each end of the header vs. back to back headers.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. Requires 43 mil and thicker jamb stud material so weld can be made easily.

# Window - Load Bearing Boxed Header Back to Back Jamb



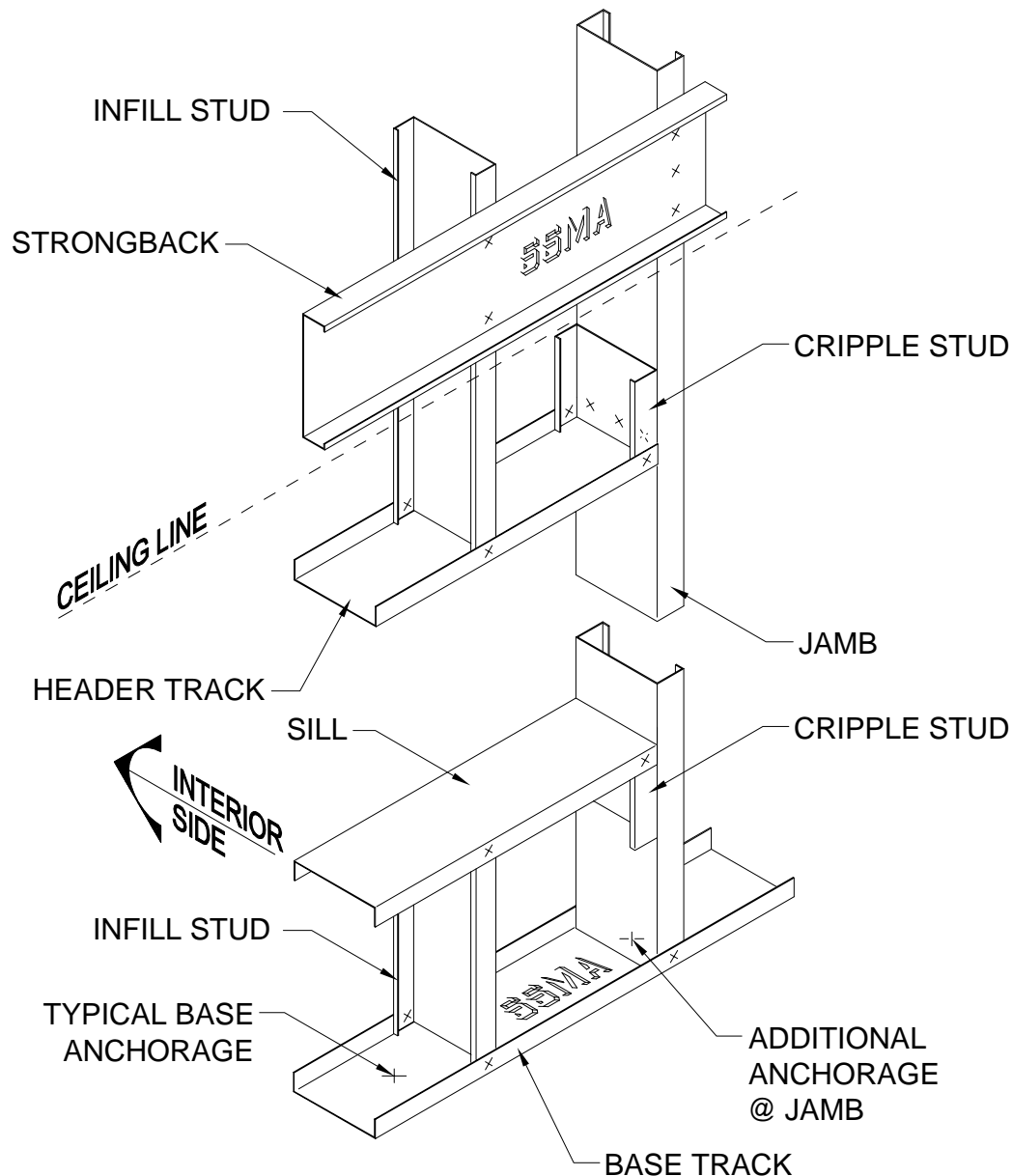
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed jamb studs welded together reduces material build-up and finish problems.
3. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
4. Reduces the need to reinforce the web at the end reactions of the jamb studs.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Boxed header increases web-crippling reinforcement being required at each end of the header vs. back to back headers.
3. Material build-up at the jamb studs can cause finish and window frame problems.

# Window - Load Bearing Single Header with Strongback Single Jamb



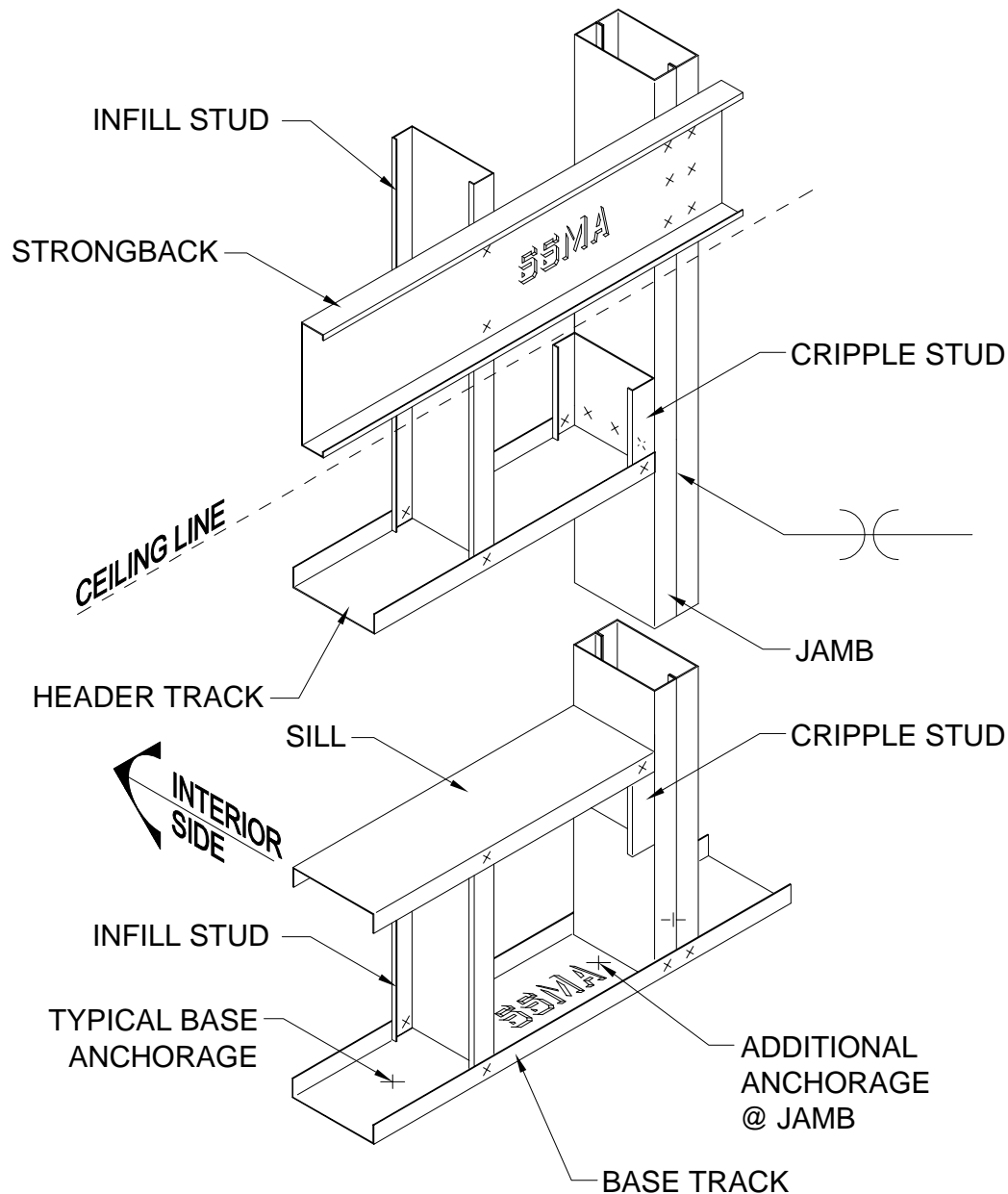
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Strongback header minimizes number of members to be installed vs. back to back or boxed header.
3. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
4. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.
5. Provides good vertical load transfer at each strongback header into jamb stud.
6. Reduces web-crippling reinforcement being required at end of strongback header.

## DISADVANTAGES:

1. Requires a ceiling being installed to hide vertical strongback.
2. Strongback would interfere with installing interior wall covering at the strongback.
3. Back to back headers will not provide backing for attaching window covering support.
4. May require a thicker or wider flange head track member with only one member being installed to resist the horizontal load from the opening.

# Window - Load Bearing Single Header with Strongback Boxed Jamb



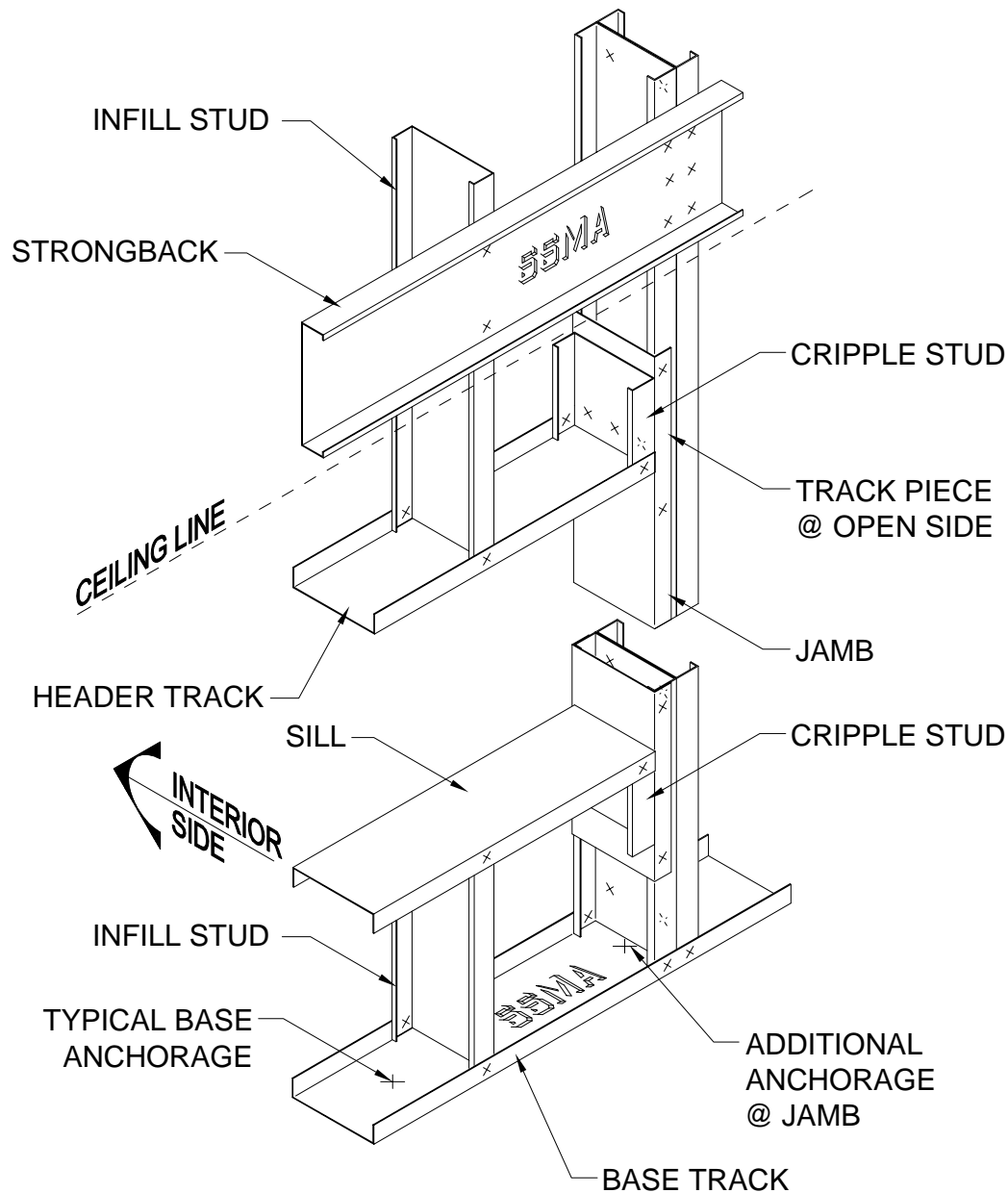
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Strongback header minimizes number of members to be installed vs. back to back or boxed header.
3. Boxed jamb studs welded together reduces material build-up and finish problems.
4. Provides good vertical load transfer at each strongback header into jamb stud.
5. Reduces web-crippling reinforcement being required at end of strongback header.

## DISADVANTAGES:

1. Requires a ceiling being installed to hide vertical strongback.
2. Strongback would interfere with installing interior wall covering at the strongback.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. May require a thicker or wider flange head track member with only one member being installed to resist the horizontal load from the opening.
5. Requires 43 mil and thicker jamb stud material so weld can be made easily.

# Window - Load Bearing Single Header with Strongback Back to Back Jamb



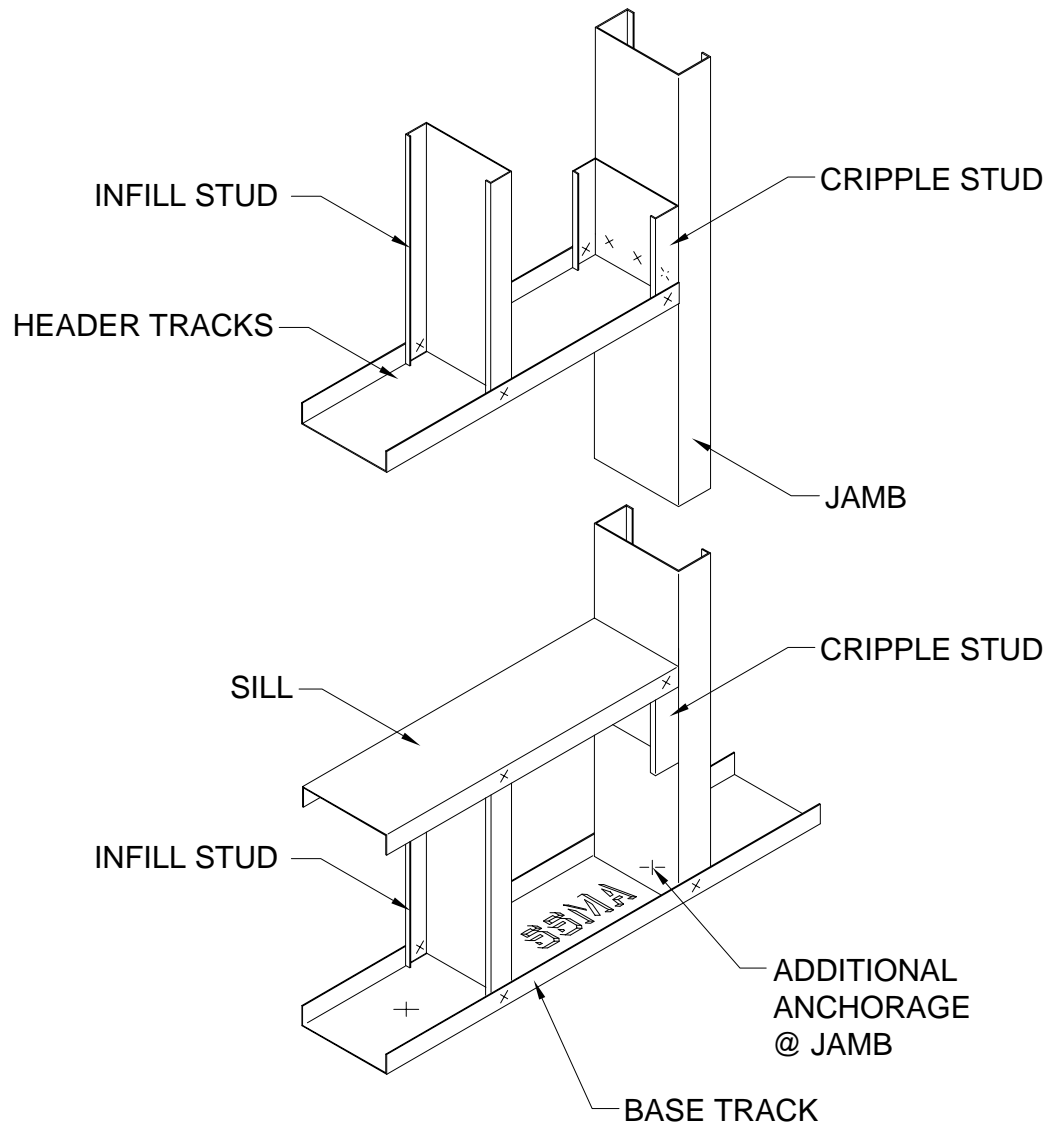
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Strongback header minimizes number of members to be installed vs. back to back or boxed header.
3. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
4. Reduces the need to reinforce the web at the end reactions of the jamb studs.
5. Provides good vertical load transfer at each strongback header into jamb stud.
6. Reduces web-crippling reinforcement being required at end of strongback header.

## DISADVANTAGES:

1. Requires a ceiling being installed to hide vertical strongback.
2. Strongback would interfere with installing interior wall covering at the strongback.
3. Material build-up at the jamb studs can cause finish and window frame problems.
4. May require a thicker or wider flange head track member with only one member being installed to resist the horizontal load from the opening.

# Window - Non-Load Bearing Single Track Header Single Jamb



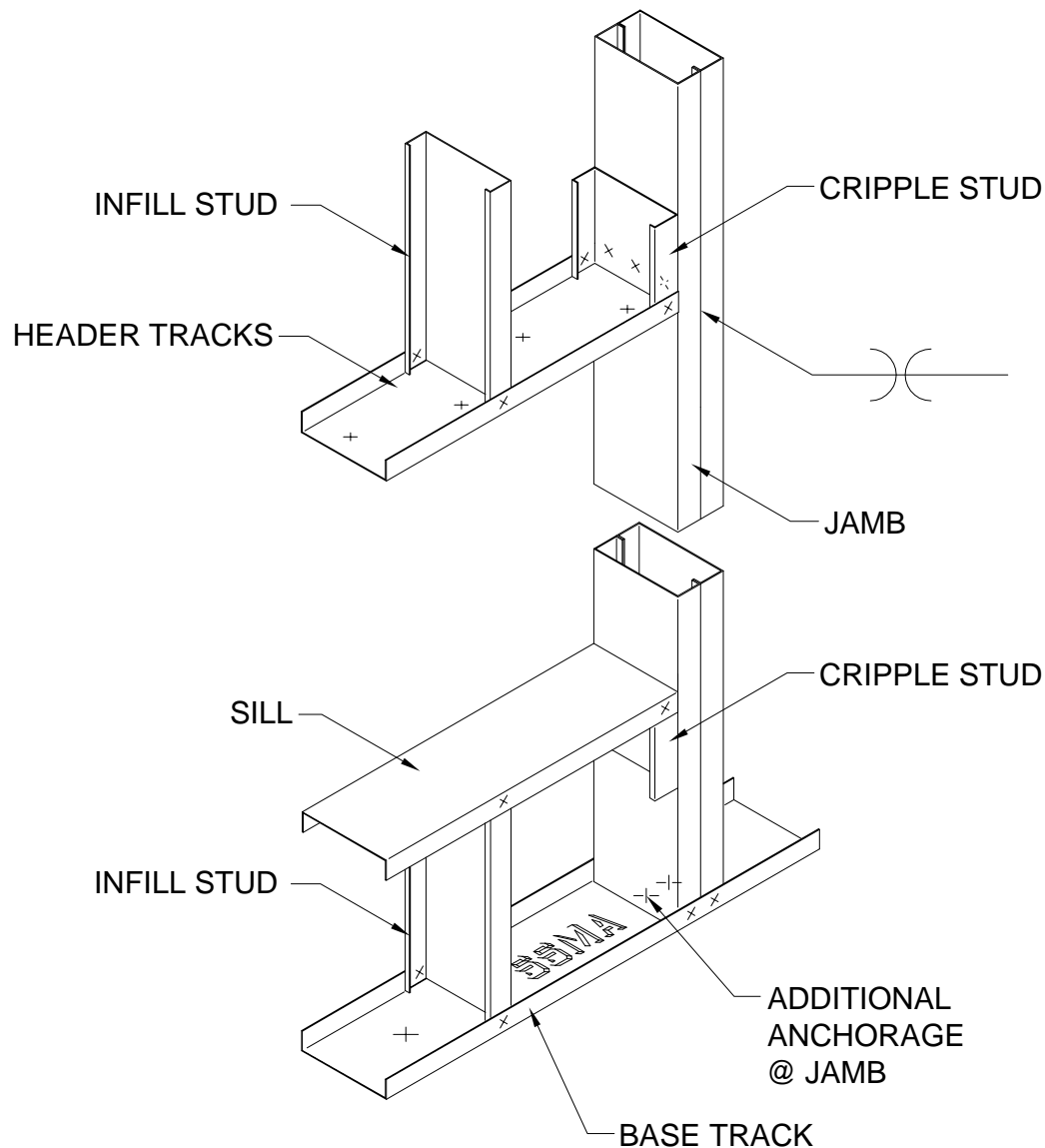
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
3. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.

## DISADVANTAGES:

1. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.

# Window - Non-Load Bearing Single Track Header Boxed Jamb



## ADVANTAGES:

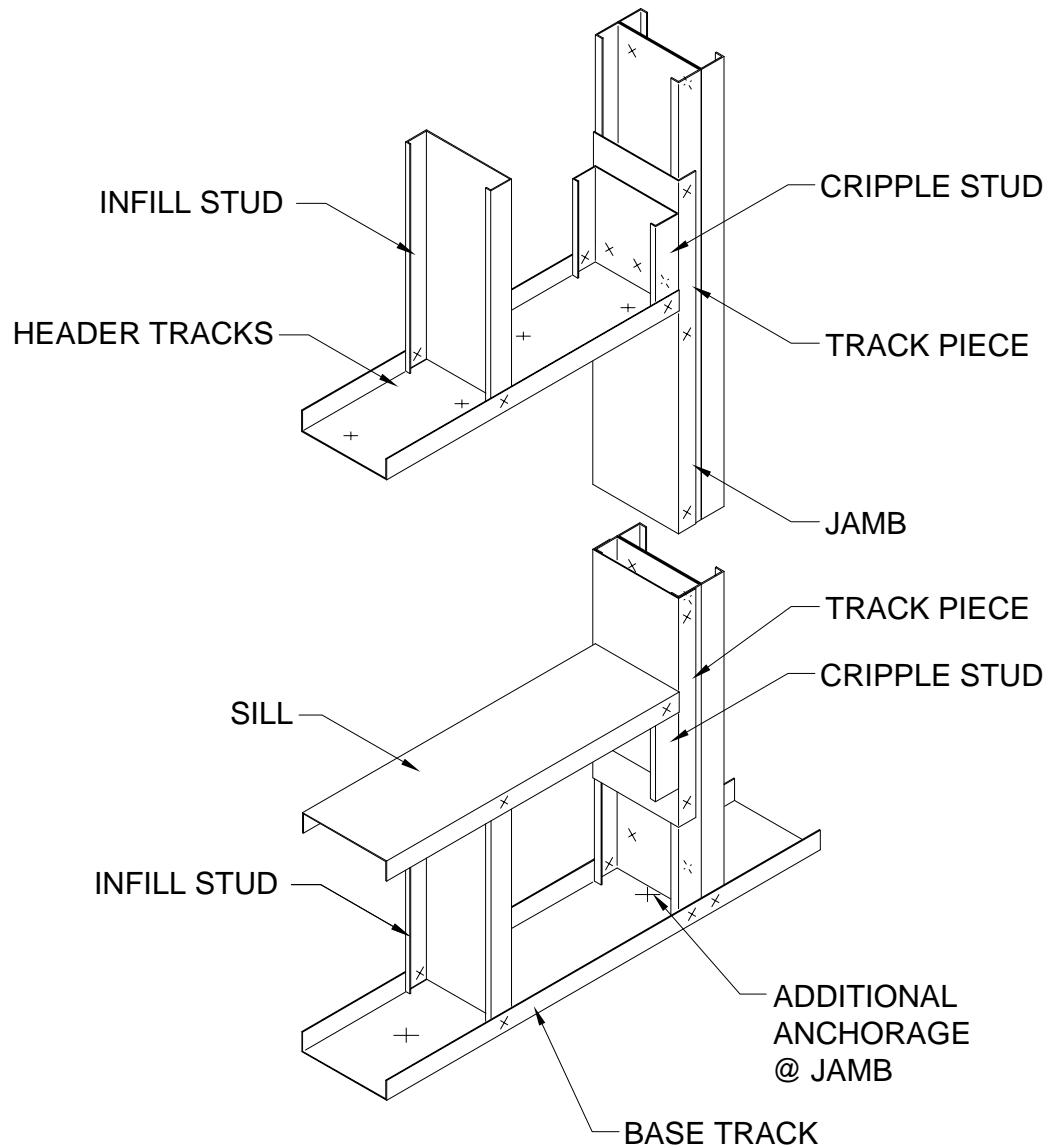
1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed jamb studs welded together reduces material build-up and finish problems.

## DISADVANTAGES:

1. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
2. Requires 43 mil and thicker jamb stud material so weld can be made easily.



# Window - Non-Load Bearing Single Track Header Back to Back Jamb



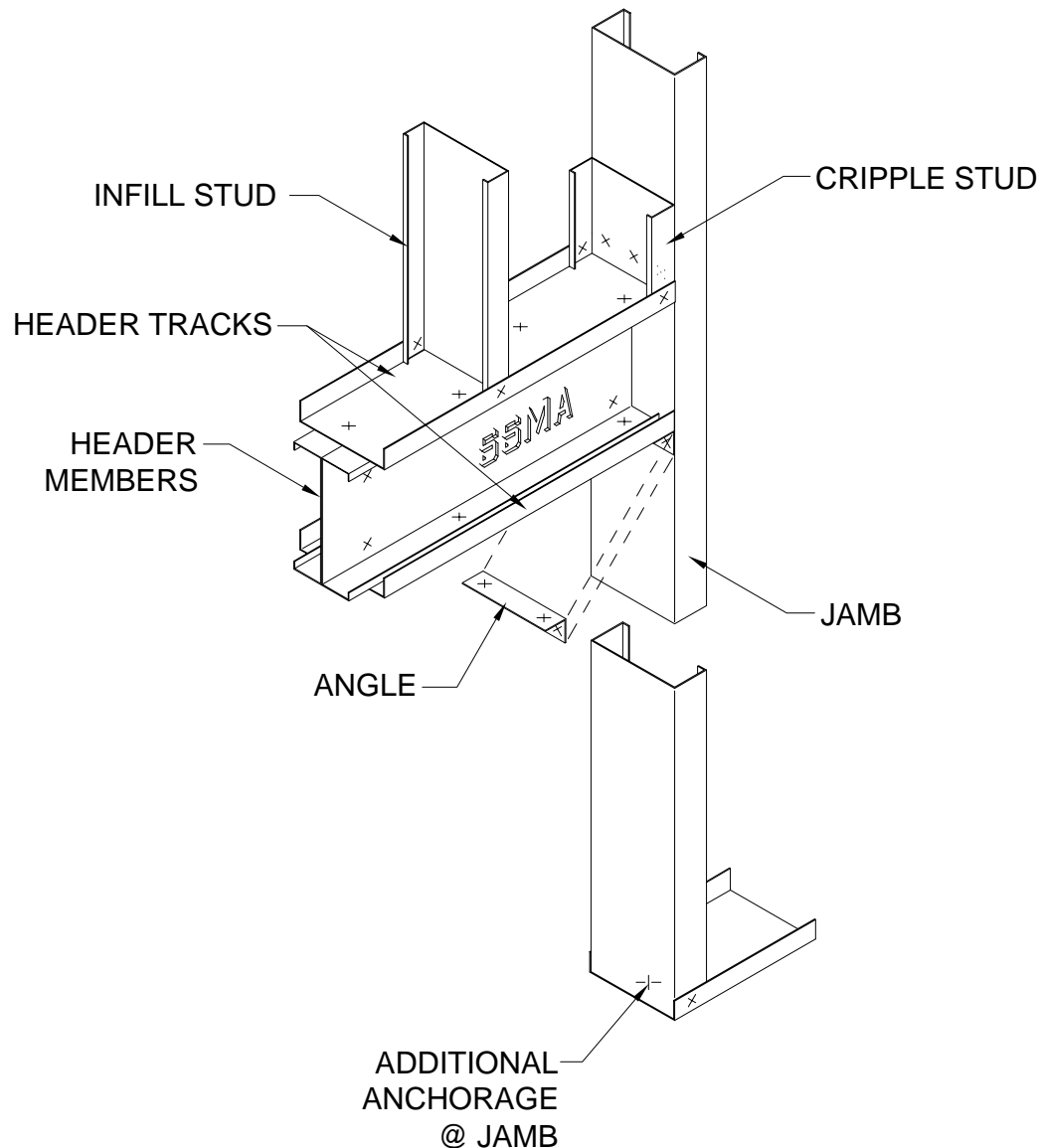
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
3. Reduces the need to reinforce the web at the end reactions of the jamb studs.

## DISADVANTAGES:

1. Material build-up at the jamb studs can cause finish and window frame problems.

# Door - Load Bearing Back to Back Header Single Jamb



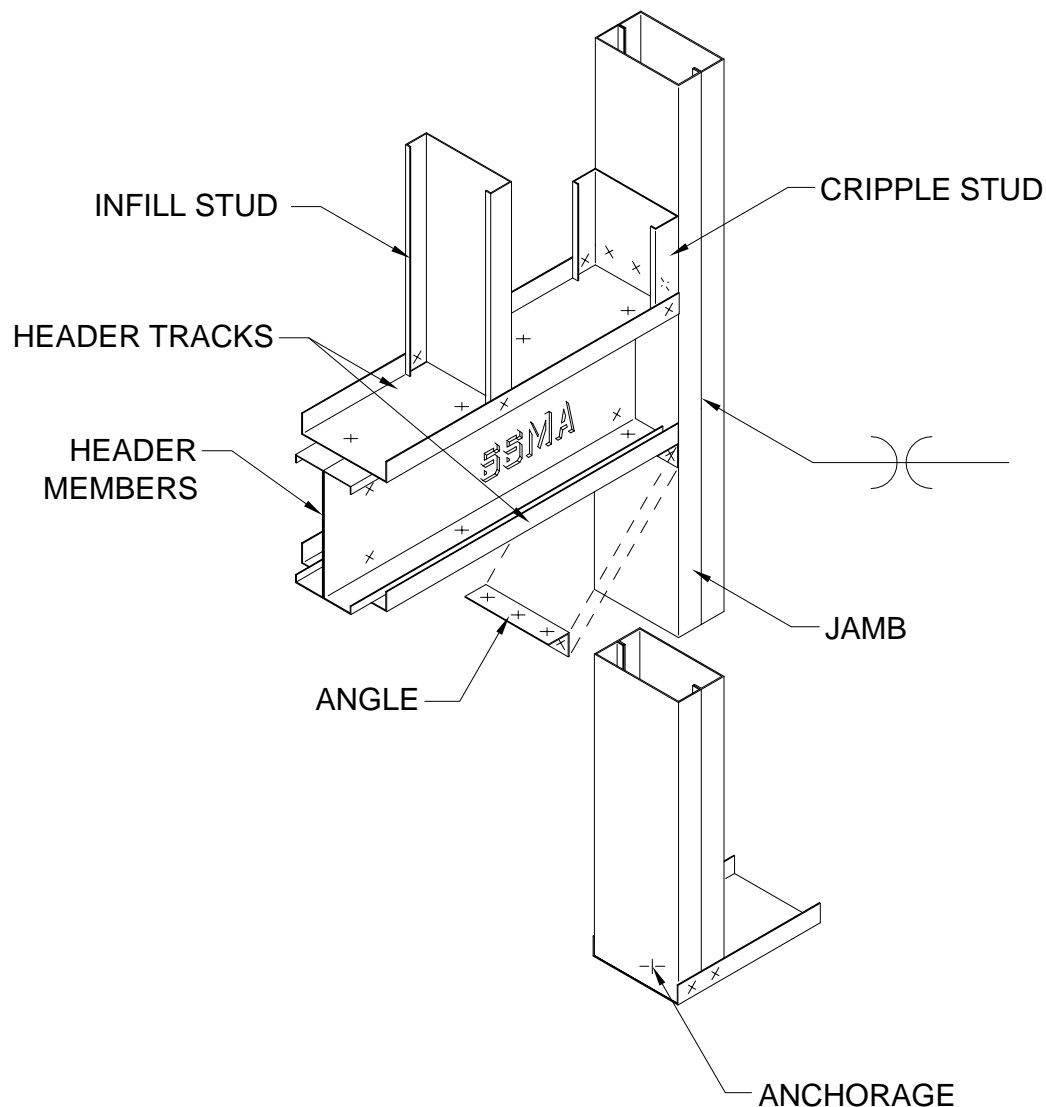
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Back to back header reduces web-crippling reinforcement requirements.
3. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
4. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Back to back headers will not provide backing for attaching window covering support.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. Base track may require reinforcement with clip angle and direct attachment to transfer end reaction from jamb stud.

# Door - Load Bearing Back to Back Header Boxed Jamb



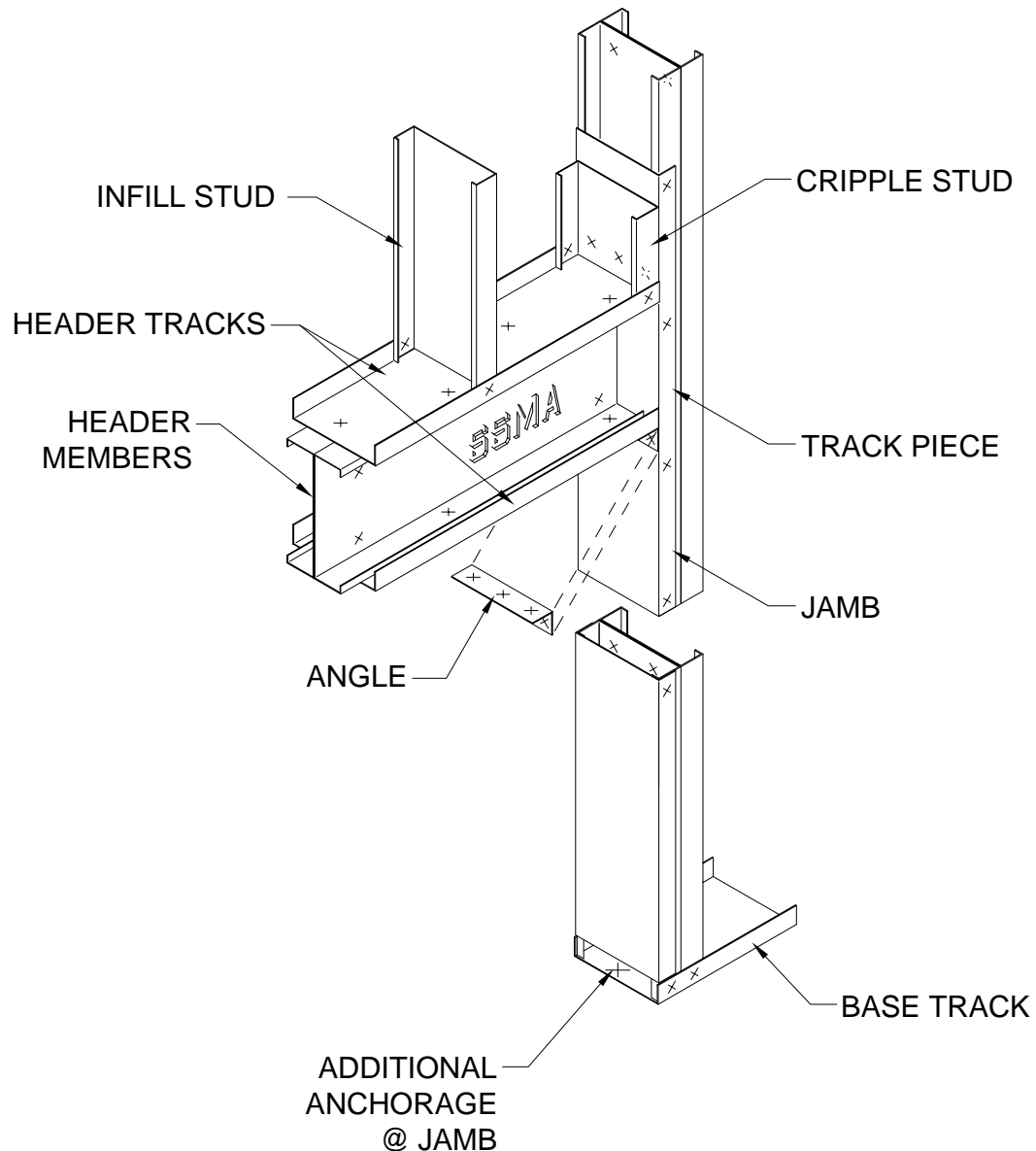
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at jamb studs helps maintain alignment of finishes.
2. Back to back header reduces web-crippling reinforcement requirements.
3. Boxed jamb studs welded together reduces material build-up and finish problems.
4. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Back to back headers will not provide backing for attaching window covering support.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. Requires 43 mil and thicker jamb stud material so weld can be made easily.

# Door - Load Bearing Back to Back Header Back to Back Jamb



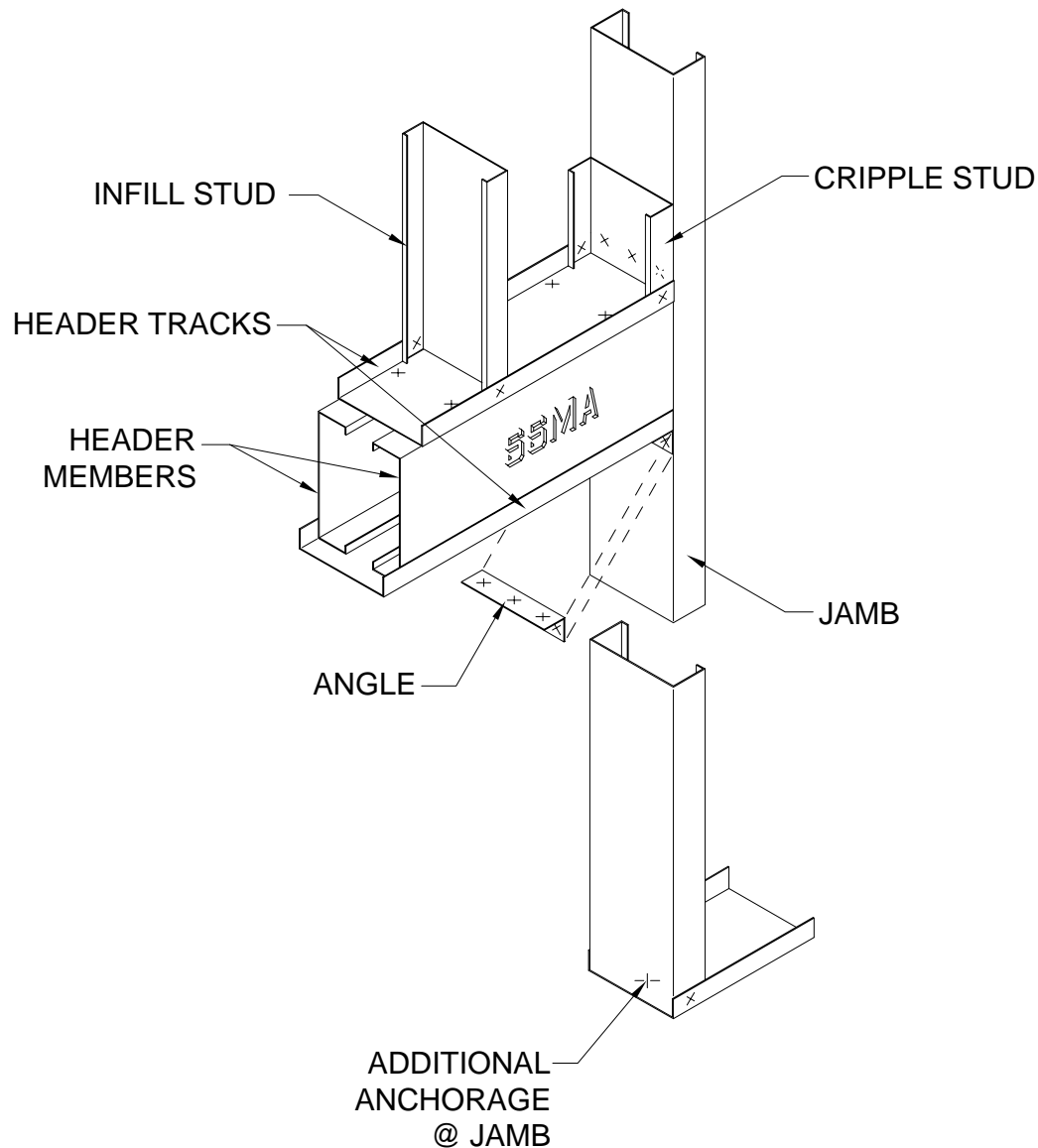
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Back to back header reduces web-crippling reinforcement requirements.
3. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
4. Reduces the need to reinforce the web at the end reactions of the jamb studs.
5. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Back to back headers will not provide backing for attaching window covering support.
3. Material build-up at the jamb studs can cause finish and window frame problems.

# Door - Load Bearing Boxed Header Single Jamb



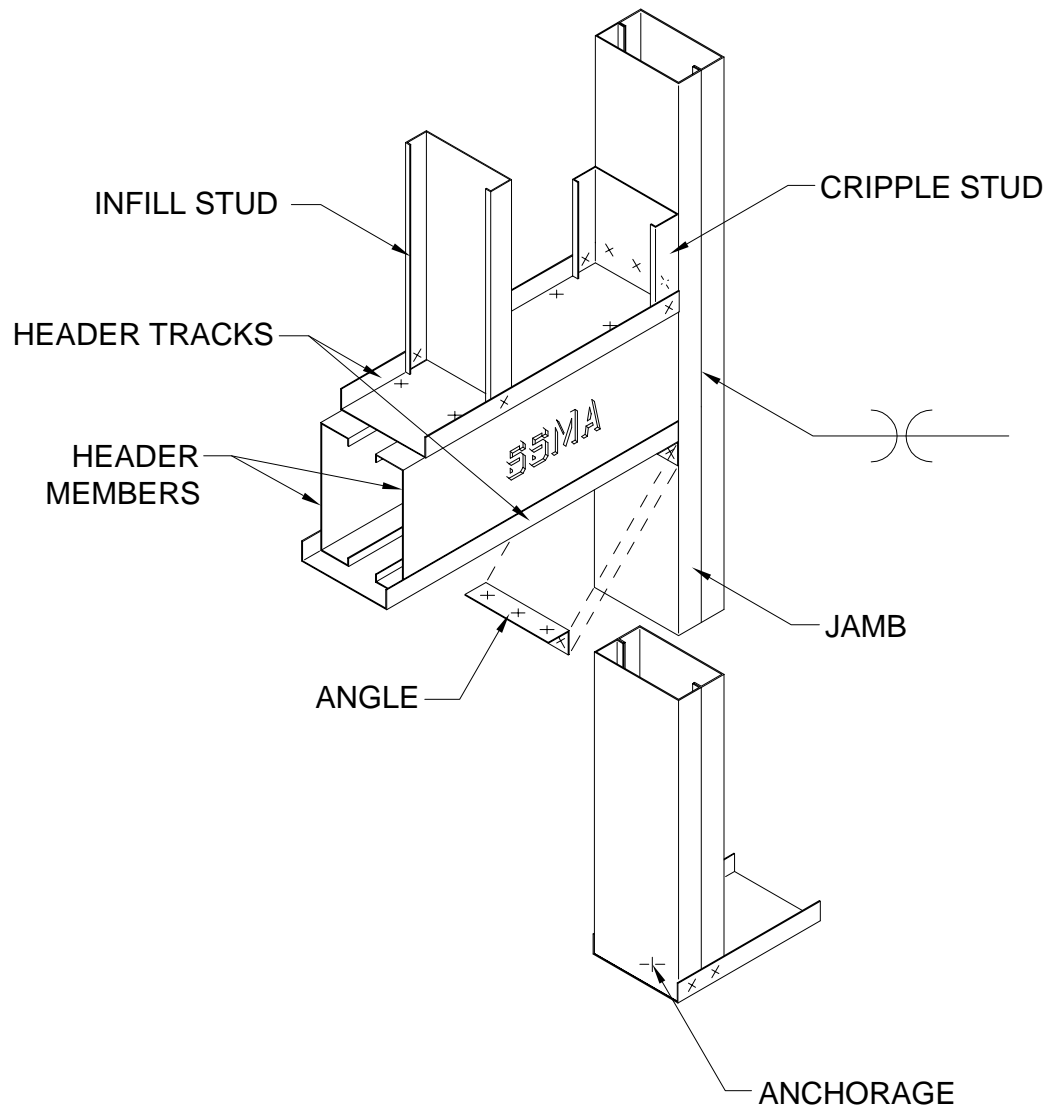
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed header members provide backing for attachment of window covering support.
3. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
4. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Boxed header increases web-crippling reinforcement being required at each end of the header vs. back to back headers.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. Base track may require reinforcement with clip angle and direct attachment to transfer end reaction from jamb stud.

# Door - Load Bearing Boxed Header Boxed Jamb



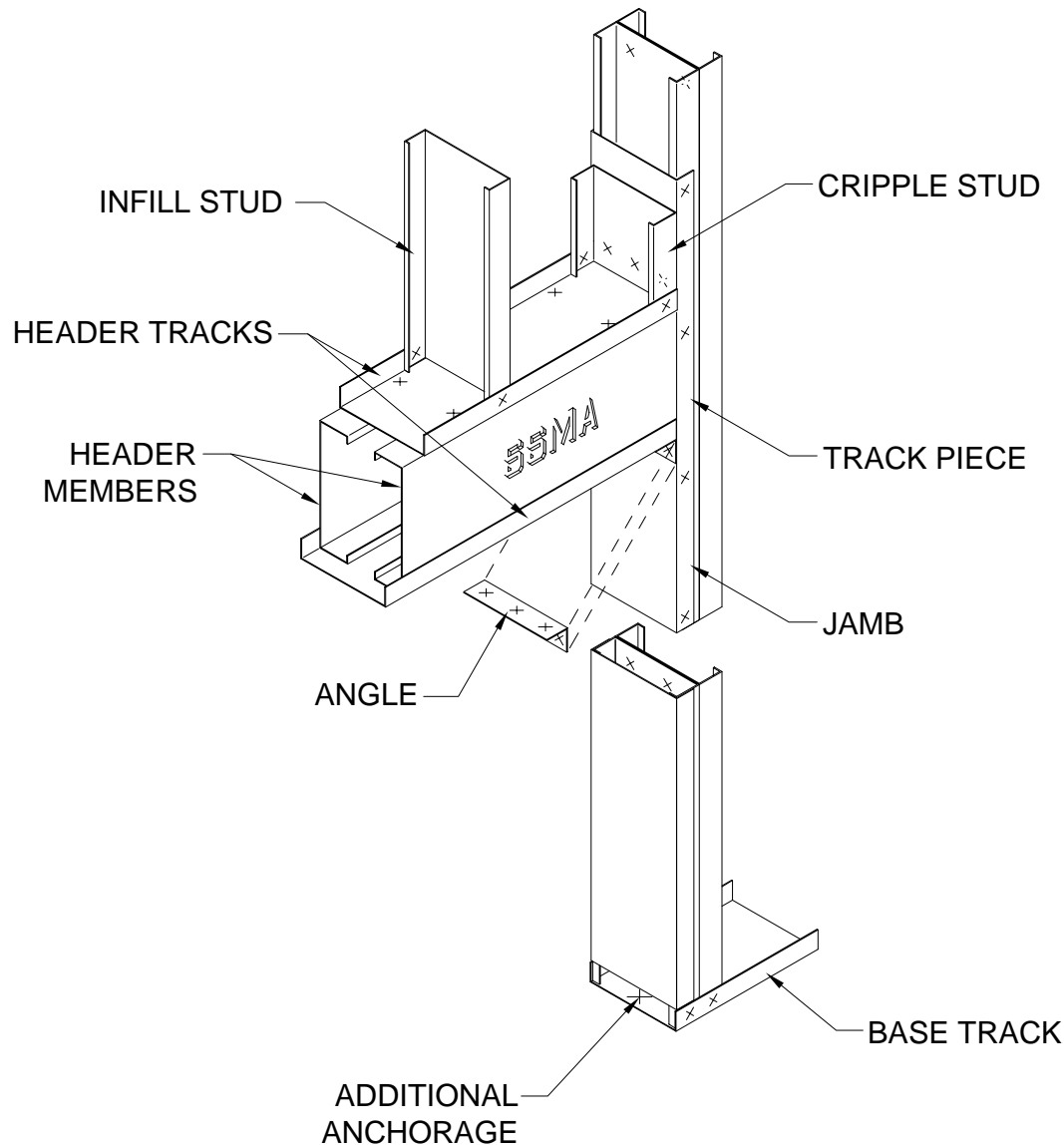
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed jamb studs welded together reduces material build-up and finish problems.
3. Boxed header members provide backing for attachment of window covering support.
4. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Boxed header increases web-crippling reinforcement being required at each end of the header vs. back to back headers.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. Requires 43 mil and thicker jamb stud material so weld can be made easily.

# Door - Load Bearing Boxed Header Back to Back Jamb



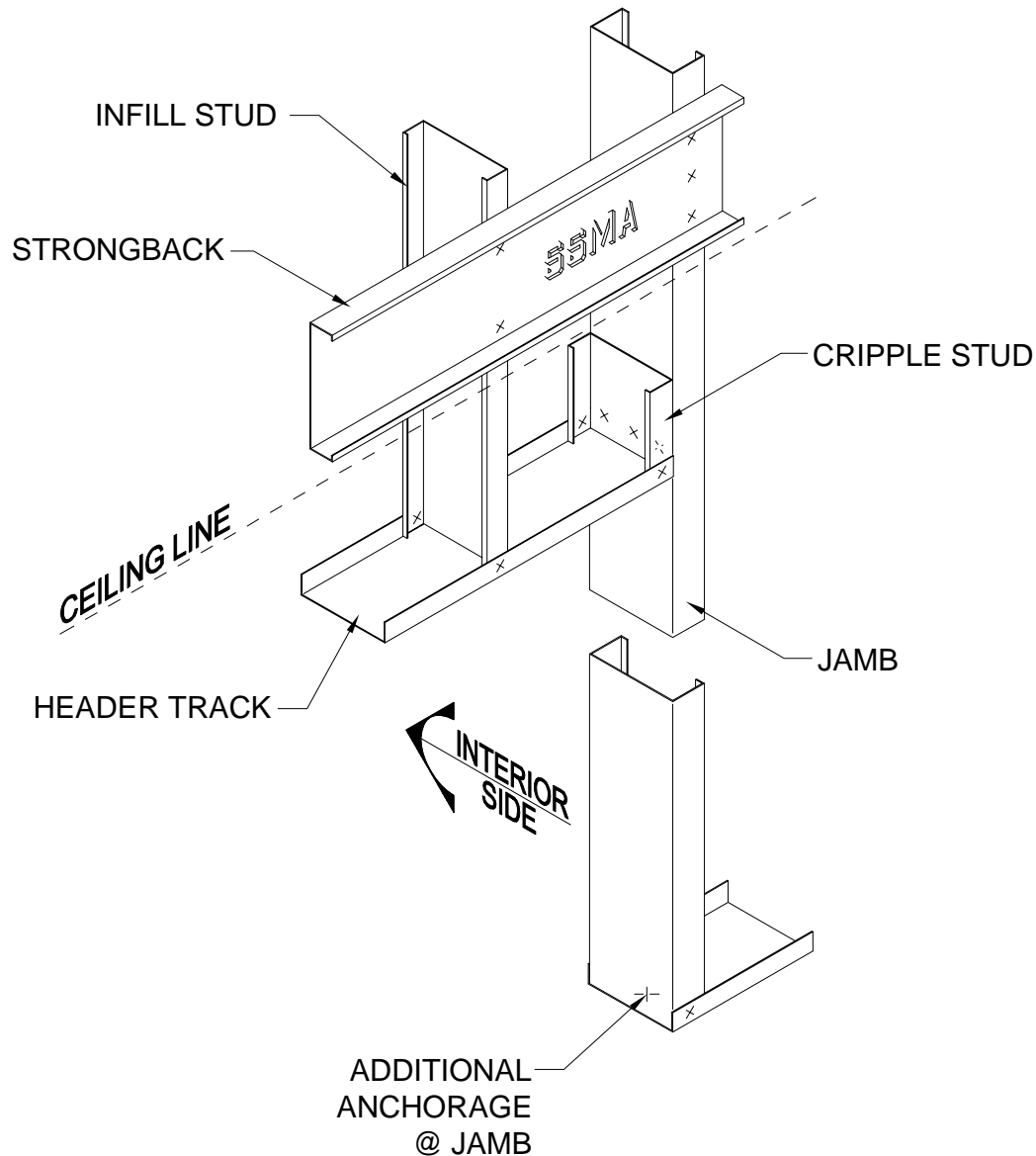
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed jamb studs welded together reduces material build-up and finish problems.
3. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
4. Reduces the need to reinforce the web at the end reactions of the jamb studs.
5. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. Requires the clip angle below the head track to be sized to transfer the vertical load from the head into the jamb.
2. Boxed header increases web-crippling reinforcement being required at each end of the header vs. back to back headers.
3. Material build-up at the jamb studs can cause finish and window frame problems.

# Door - Load Bearing Single Header with Strongback Single Jamb



## ADVANTAGES:

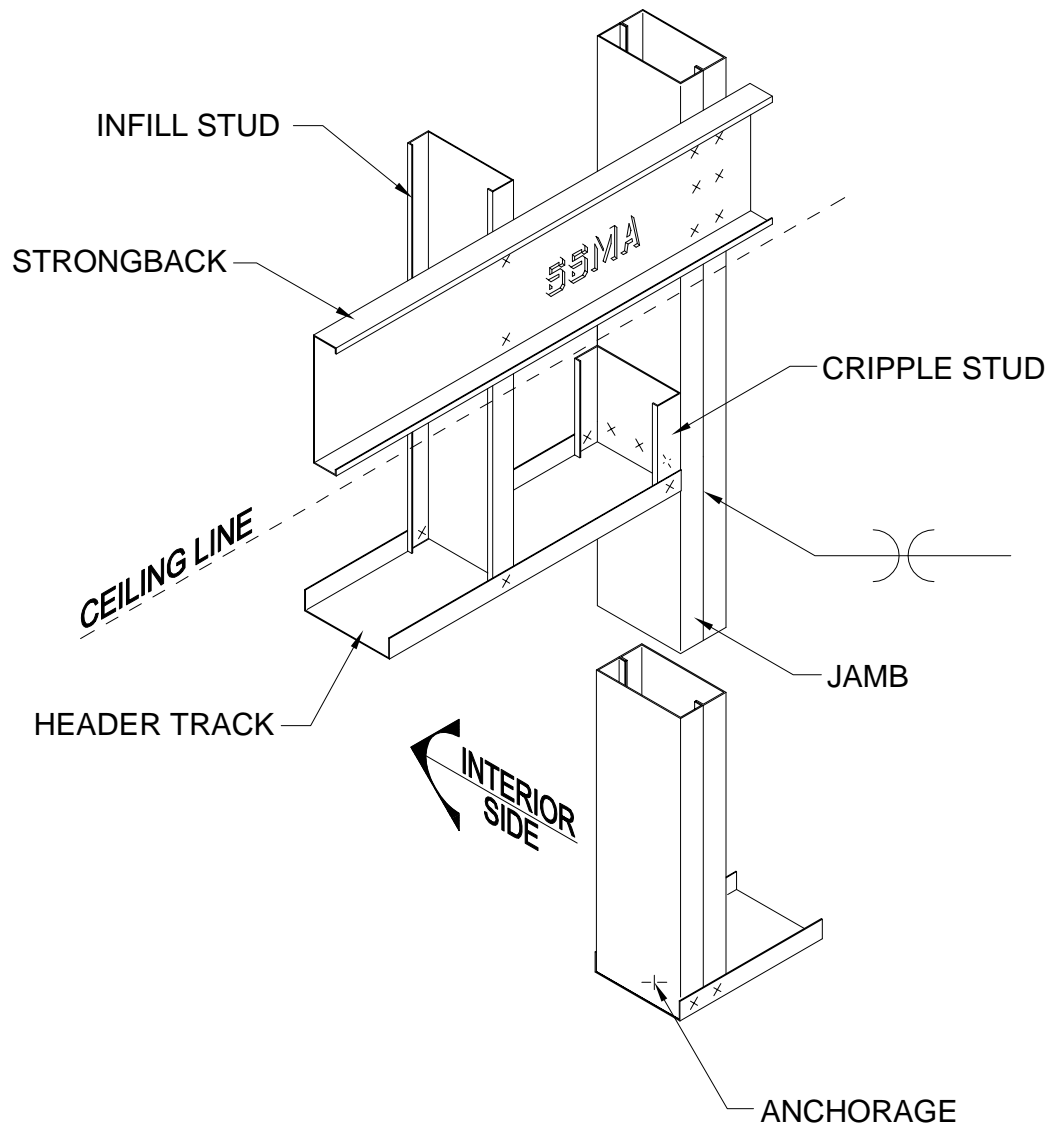
1. Use of cripple stud to receive head/sill tracks at jamb studs helps maintain alignment of finishes.
2. Strongback header minimizes number of members to be installed vs. back to back or boxed header.
3. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
4. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.
5. Provides good vertical load transfer at each strongback header into jamb stud.
6. Reduces web-crippling reinforcement being required at end of strongback header.

## DISADVANTAGES:

1. Requires a ceiling being installed to hide vertical strongback.
2. Strongback would interfere with installing interior wall covering at the strongback.
3. May require a thicker or wider flange head track member with only one member being installed to resist the horizontal load from the opening.
4. Base track may require reinforcement with clip angle and direct attachment to transfer end reaction from jamb stud.



# Door - Load Bearing Single Header with Strongback Boxed Jamb



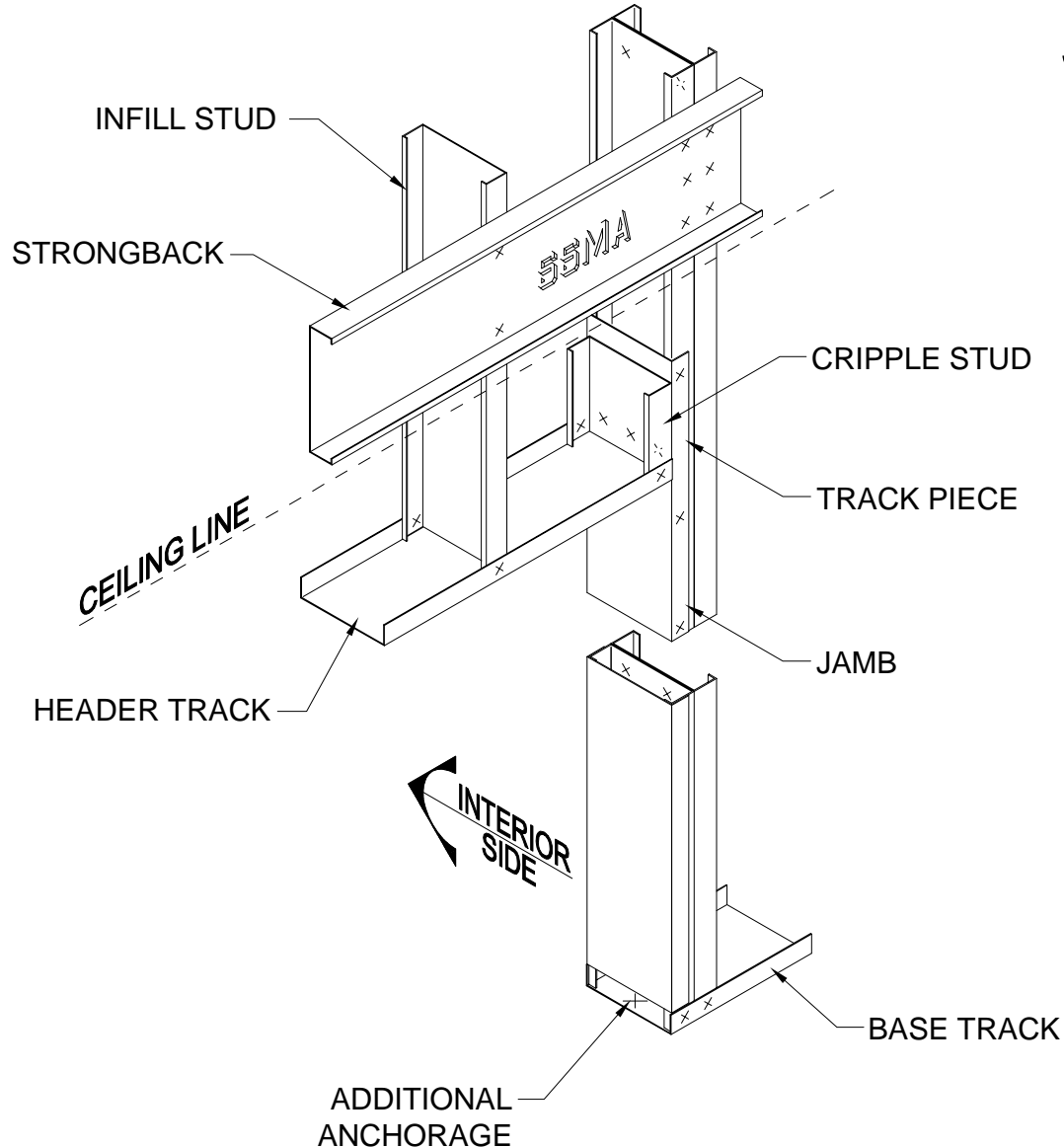
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at jamb studs helps maintain alignment of finishes.
2. Strongback header minimizes number of members to be installed vs. back to back or boxed header.
3. Boxed jamb studs welded together reduces material build-up and finish problems.
4. Provides good vertical load transfer at each strongback header into jamb stud.
5. Reduces web-crippling reinforcement being required at end of strongback header.
6. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. Requires a ceiling being installed to hide vertical strongback.
2. Strongback would interfere with installing interior wall covering at the strongback.
3. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
4. May require a thicker or wider flange head track member with only one member being installed to resist the horizontal load from the opening.
5. Requires 43 mil and thicker jamb stud material so weld can be made easily.

# Door - Load Bearing Single Header with Strongback Back to Back Jamb



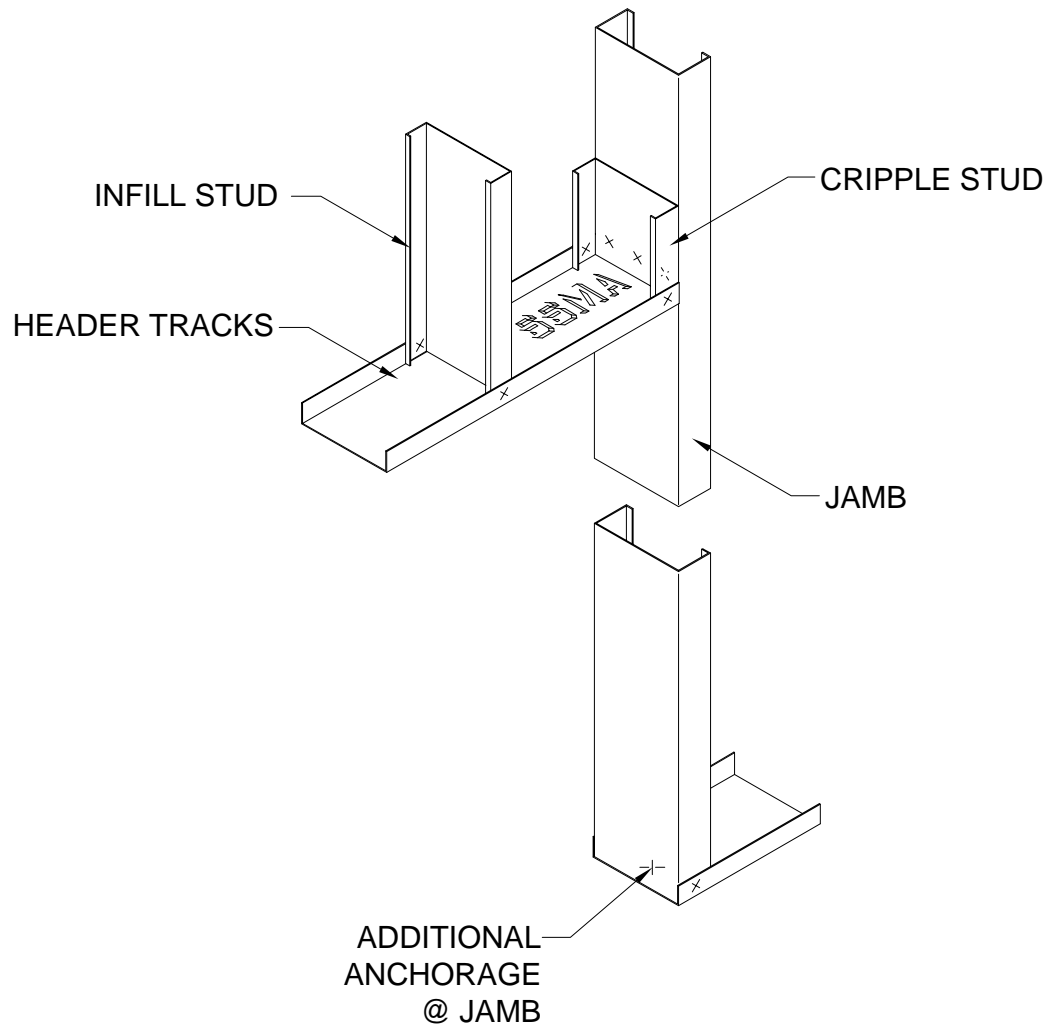
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at jamb studs helps maintain alignment of finishes.
2. Strongback header minimizes number of members to be installed vs. back to back or boxed header.
3. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
4. Reduces the need to reinforce the web at the end reactions of the jamb studs.
5. Provides good vertical load transfer at each strongback header into jamb stud.
6. Reduces web-crippling reinforcement being required at end of strongback header.
7. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. Requires a ceiling being installed to hide vertical strongback.
2. Strongback would interfere with installing interior wall covering at the strongback.
3. Material build-up at the jamb studs can cause finish and window frame problems.
4. May require a thicker or wider flange head track member with only one member being installed to resist the horizontal load from the opening.

# Door - Non-Load Bearing Single Track Header Single Jamb



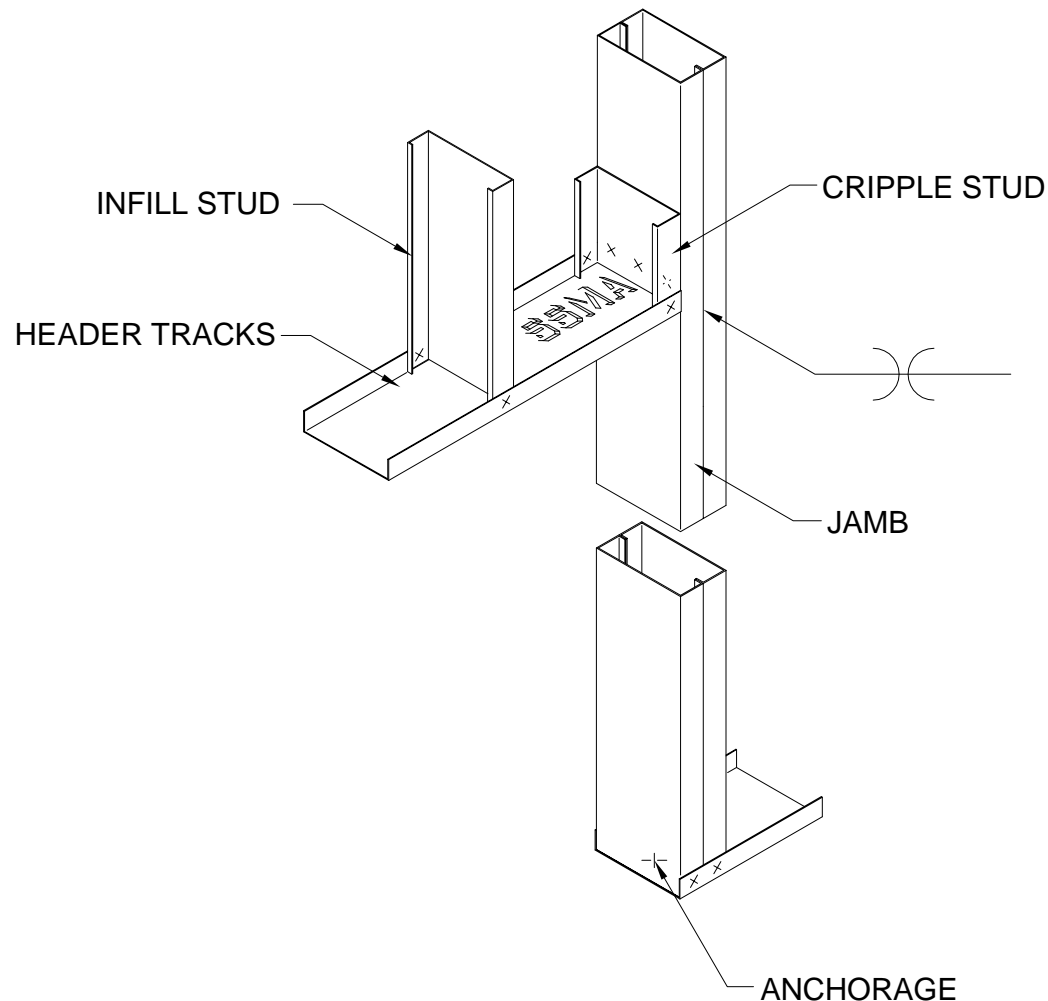
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Using a wider flange and thicker jamb stud material reduces cost of installation compared to built-up jamb studs.
3. Using a wider flange reduces possibility of installing a wall stud as a jamb stud.

## DISADVANTAGES:

1. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
2. Base track may require reinforcement with clip angle and direct attachment to transfer end reaction to jamb stud.

# Door - Non-Load Bearing Single Track Header Boxed Jamb



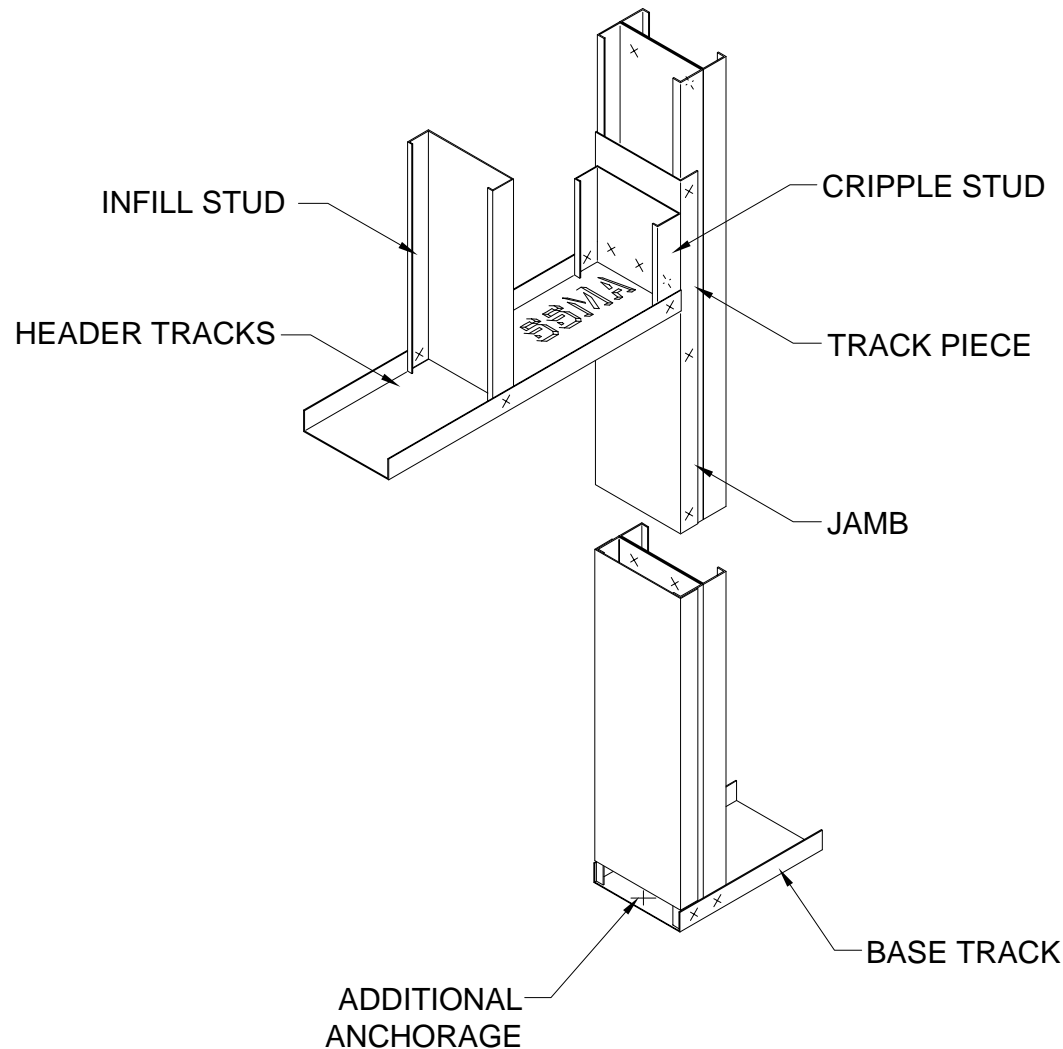
## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Boxed jamb studs welded together reduces material build-up and finish problems.
3. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.
2. Requires 43 mil and thicker jamb stud material so weld can be made easily.

# Door - Non-Load Bearing Single Track Header Back to Back Jamb



## ADVANTAGES:

1. Use of cripple stud to receive head/sill tracks at the jamb studs helps maintain alignment of finishes.
2. Using a back to back jamb with a track cap piece at the opening eliminates welding so that thinner material can be used depending on the load requirements.
3. Reduces the need to reinforce the web at the end reactions of the jamb studs.
4. Provides better load transfer from jamb stud to base track vs. single jamb stud.

## DISADVANTAGES:

1. Material build-up at the jamb studs can cause finish and window frame problems.
2. High-end reactions for single web jamb studs may require reinforcement to reduce web-crippling failure.

# Deflection Track Assembly

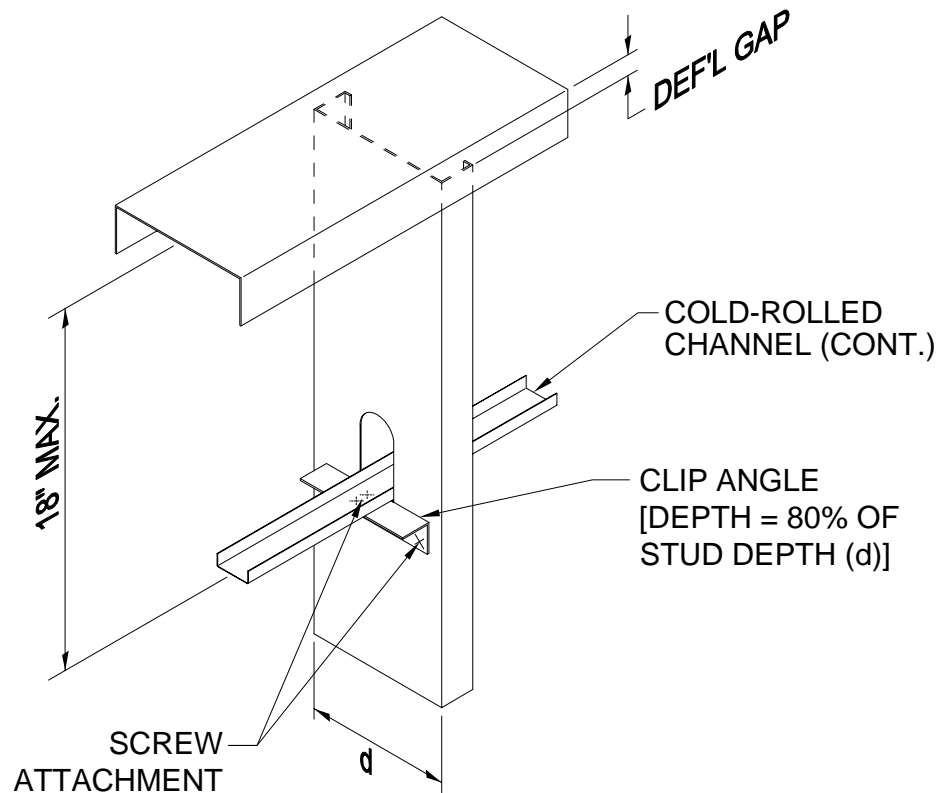
## Single Track with Cold-rolled Channel

### ADVANTAGES:

1. Allows both vertical and horizontal movement of the structure above which supports the deflection track.

### DISADVANTAGES:

1. Difficult to hold stud in place until cladding is installed.
2. Doesn't provide lateral support of the studs parallel to the wall other than the use of the cladding material.



# Deflection Track Assembly

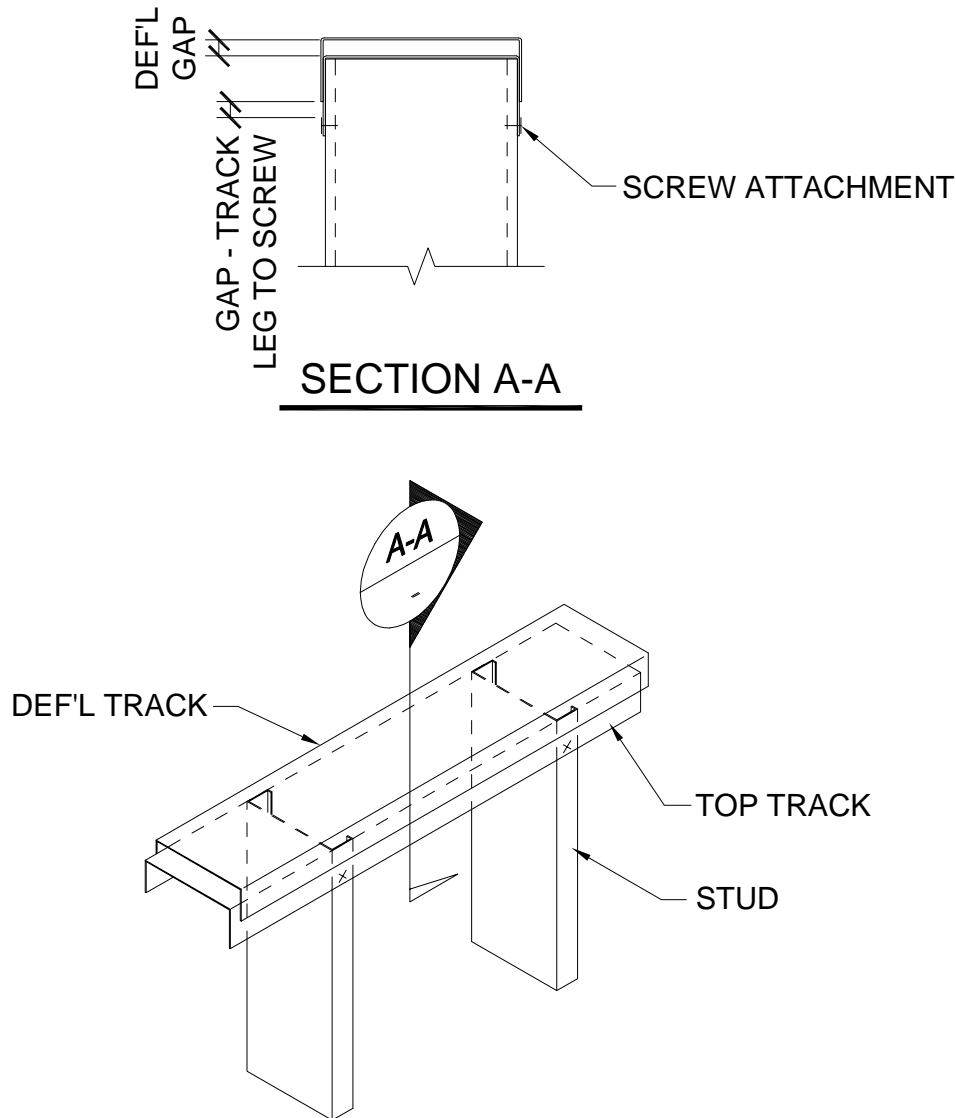
## Double Deflection Track

### ADVANTAGES:

1. Provides lateral connection of the studs together without relying on cladding for lateral support parallel to the wall.
2. Allows both vertical and horizontal movement of the structure above which supports the deflection track.

### DISADVANTAGES:

1. *Difficult to build - usually requires temporary support of nested track to deflection track - Temporary support must be removed prior to installation of cladding.*



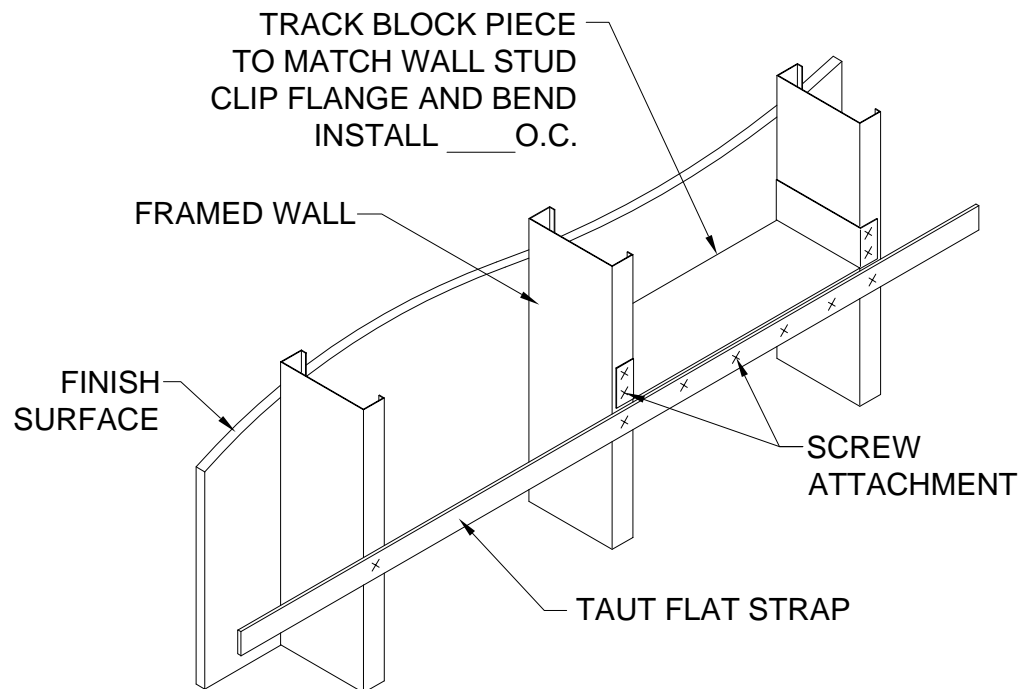
# Bridging Single Flat Strap With Blocking

## ADVANTAGES:

1. Good torsional resistance for studs of all depths.

## DISADVANTAGES:

1. Requires the pre-tensioning of the flat strap to provide torsional restraint.
2. Difficult to install unless access to the flat strap side of the wall is available.





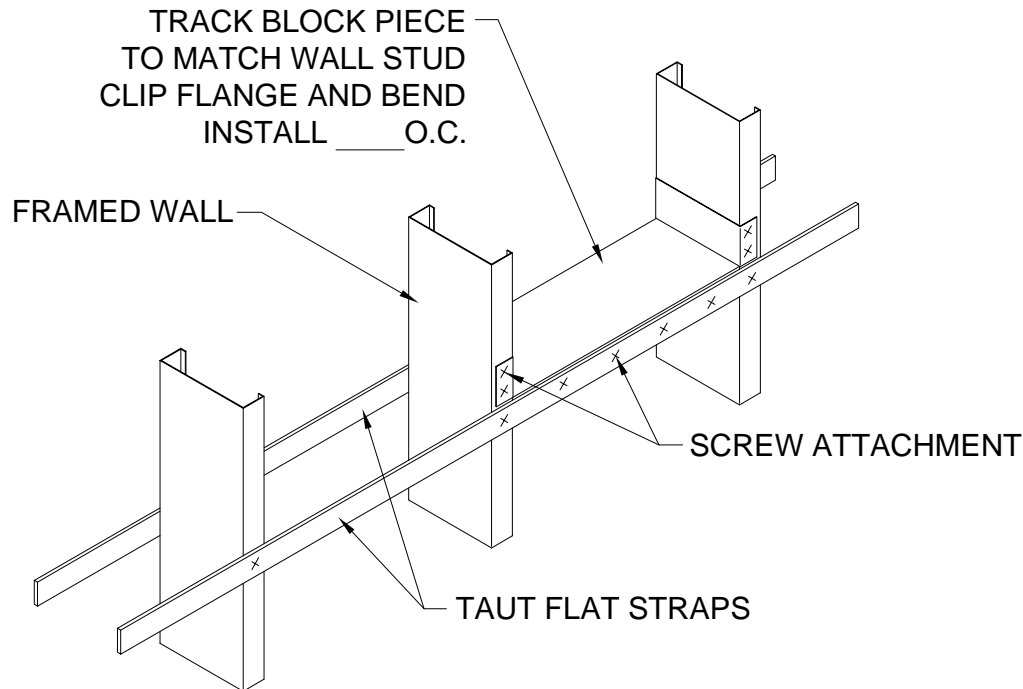
# Bridging Double Flat Strap With Blocking

## ADVANTAGES:

1. Provides good torsional restraint for axially-loaded studs for all stud sizes.
2. Strap layout is independent of punchout location.

## DISADVANTAGES:

1. Requires access to both sides of wall for installation.



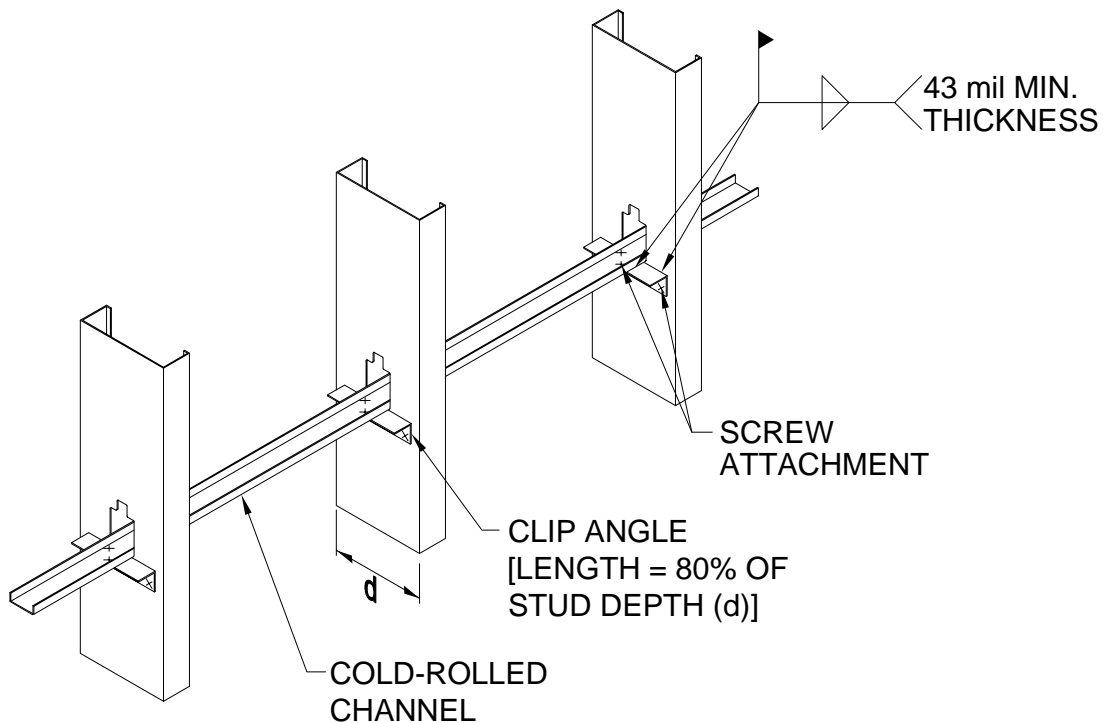
# Bridging Cold-rolled Channel With Clip Angle

## ADVANTAGES:

1. Ease of installation of cold-rolled channel through pre-aligned stud punchouts.

## DISADVANTAGES:

1. Requires stud punchouts to align.
2. Centerline bridging not very effective for torsional resistance for studs greater than 6 inches in depth.



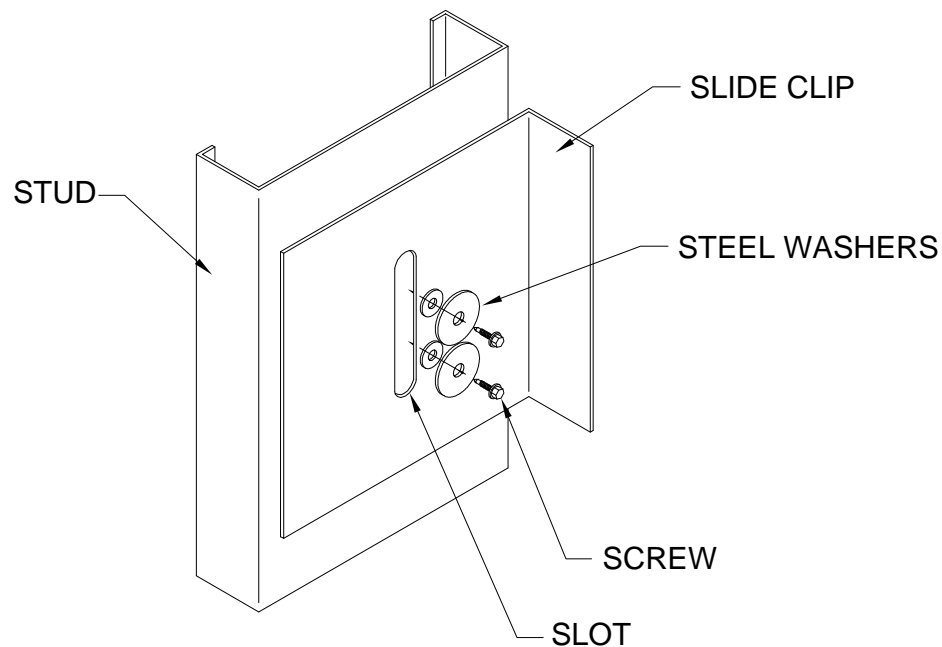
# Full-height Curtain Wall Deflection Clip

## ADVANTAGES:

1. Allows floor/roof to move vertically without imparting any axial load to wall framing.
2. Provides support for out-of-plane wind and seismic loads and for in-plane seismic loads.
3. Accommodates variation of slab edge to maintain wall alignment.

## DISADVANTAGES:

1. *Does not accommodate for lateral displacement parallel to wall or horizontal drift between floors/roof.*



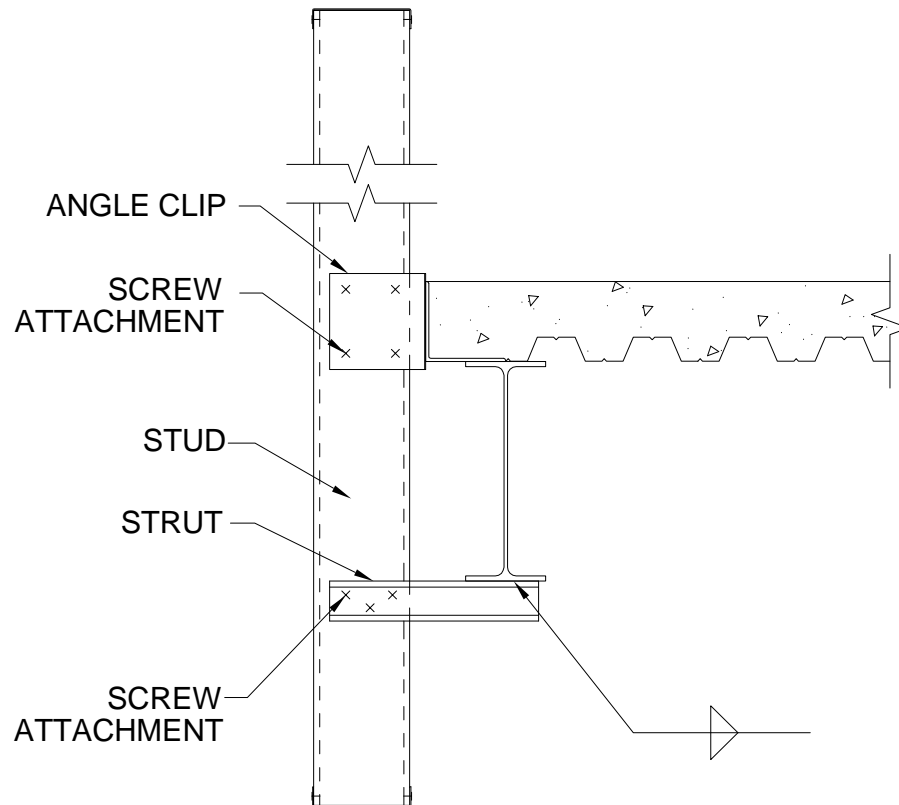
# Spandrel Curtain Wall Sticker to Beam

## ADVANTAGES:

1. Ease of installation.

## DISADVANTAGES:

1. Lateral load is transferred into bottom of beam and may require additional bracing to support bottom of beam.



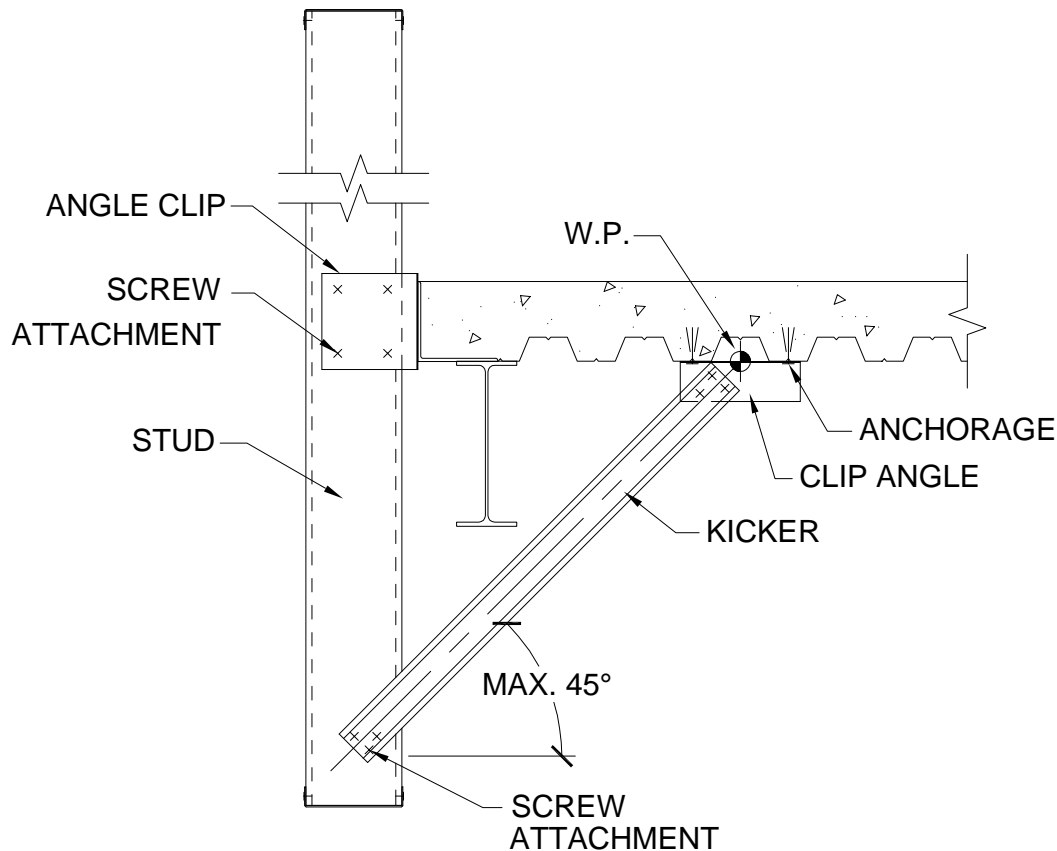
# Spandrel Curtain Wall Diagonal Brace

## ADVANTAGES:

1. Ease of installation.
2. Increases spacing between support points which reduces lateral support reactions and decreases deflections.

## DISADVANTAGES:

1. Requires edge clip support to take vertical load from brace in addition to lateral and dead loads.



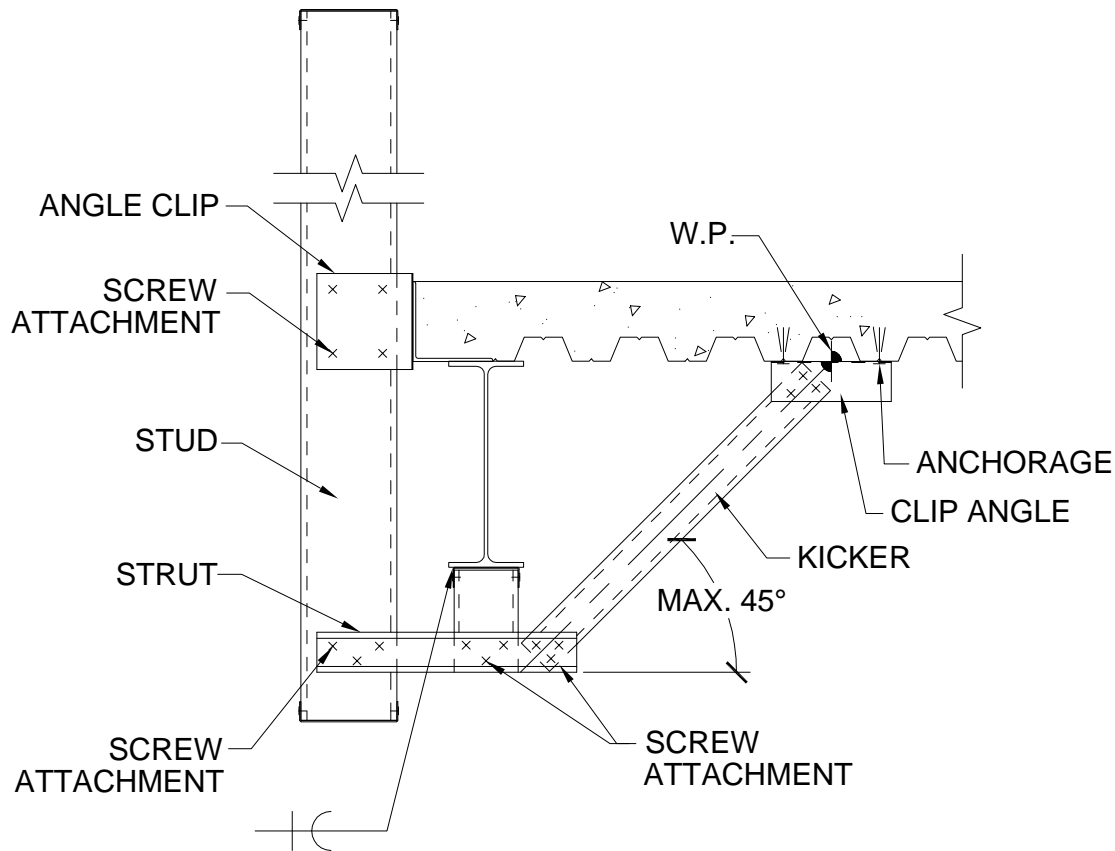
# Spandrel Curtain Wall Sticker with Vertical Drop And Diagonal Brace

## ADVANTAGES:

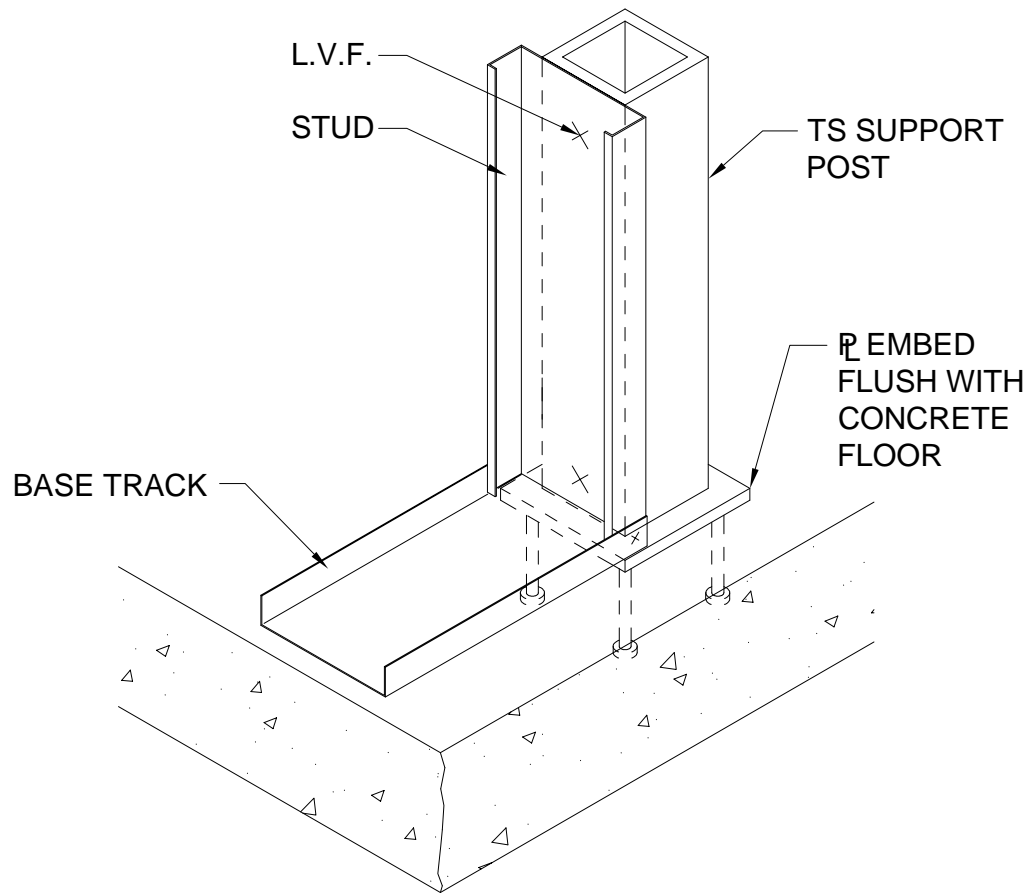
1. Increases spacing between support points which reduces support reactions and decreases deflections.
2. Transfers vertical load from the brace into bottom of beam rather than the wall.
3. Allows support at floor/roof to be sized to take lateral and dead loads from wall only, rather than the brace.

## DISADVANTAGES:

1. Costly to install.



# Spandrel Framing At Pony Wall Steel Post with Embed



## ADVANTAGES:

1. Provides lateral support for pony wall with spandrel glass.
2. Eliminates costly retrofitting.

## DISADVANTAGES:

1. Requires coordination with building structural engineer and installation of embed prior to slab placement.

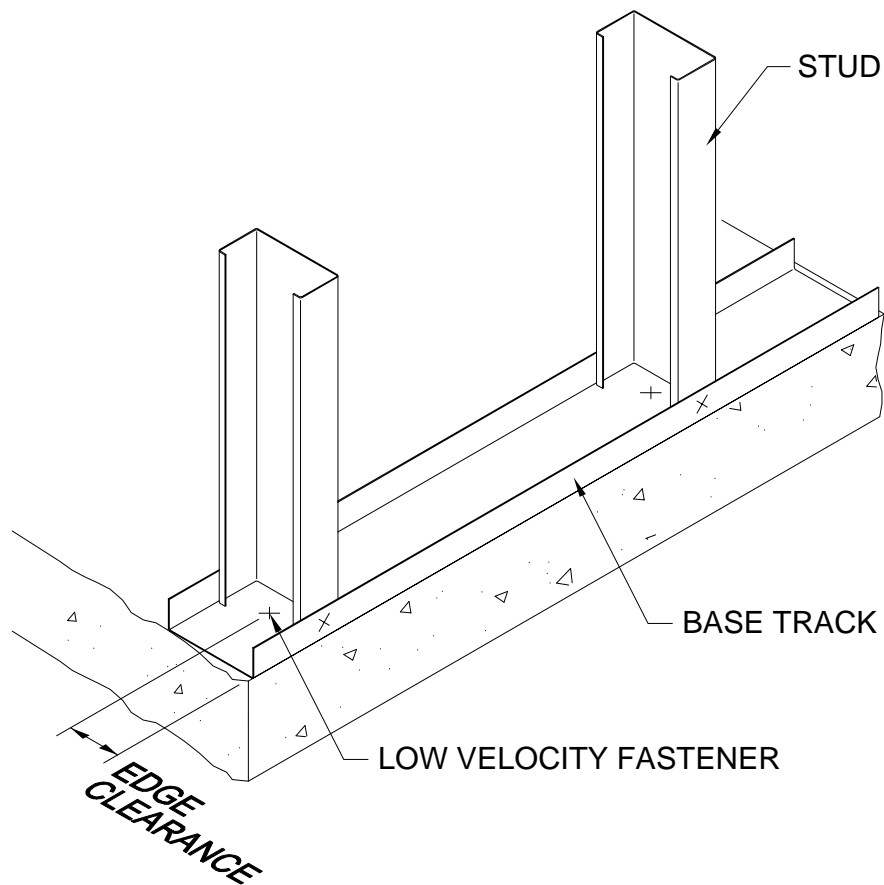
# Bottom Track Anchorage Low Velocity Fastener

## ADVANTAGES:

1. Economical to install vs. wedge anchor.

## DISADVANTAGES:

1. Requires adequate edge clearance to develop anchorage.





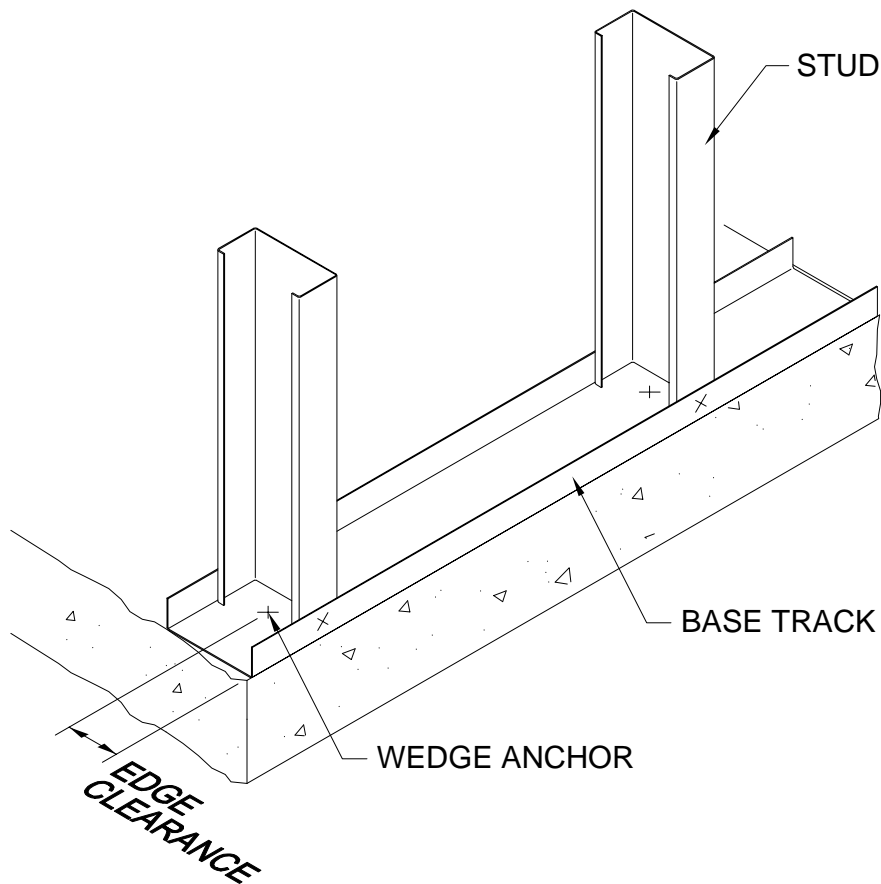
# Bottom Track Anchorage Wedge Anchor

## ADVANTAGES:

1. Edge clearance requirement is minimized.
2. Good holding capacity allows fewer anchors to be installed.

## DISADVANTAGES:

1. *More costly to install vs. low velocity fastener.*



# Backing

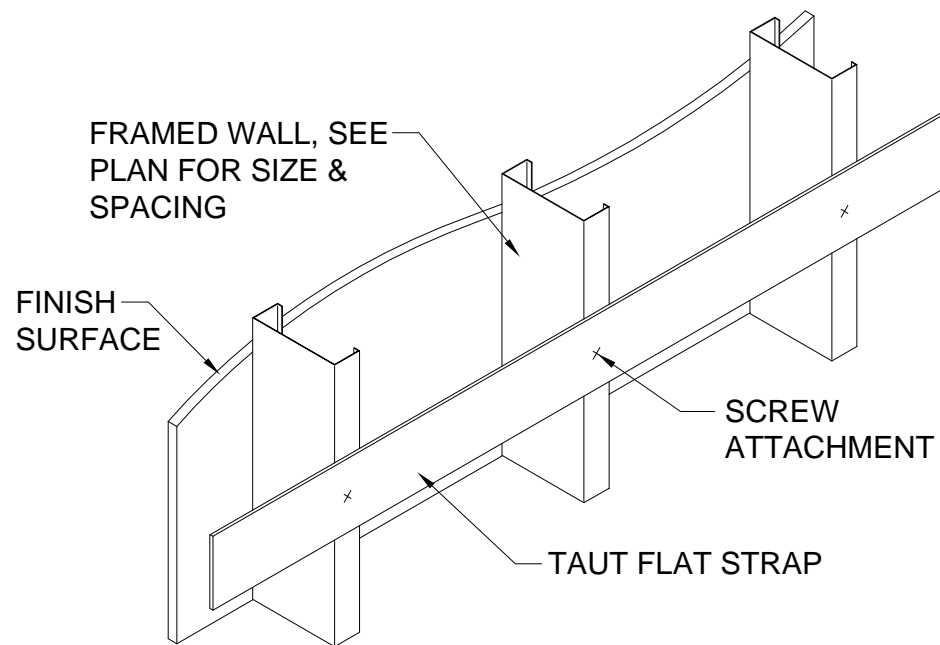
## Flat Strap - Lightly Loaded (Paper towel dispensers, towel bars, toilet paper holders)

### ADVANTAGES:

1. Ease of installation.

### DISADVANTAGES:

1. *Not to be used for heavily loaded bracket support.*



# Backing

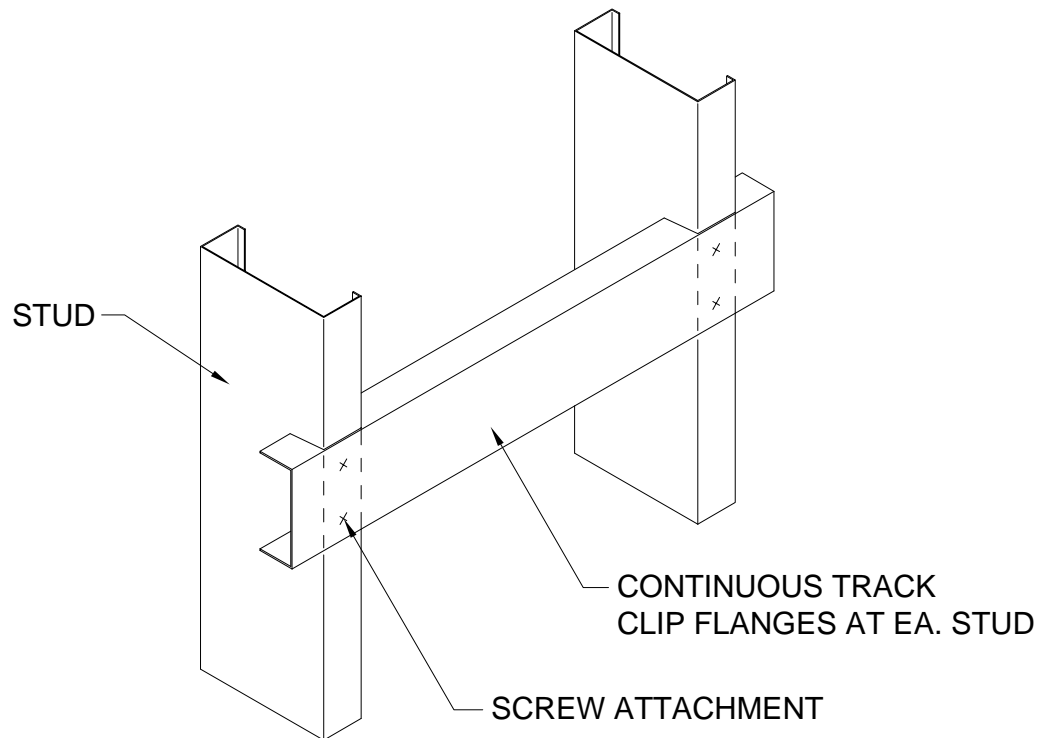
## Clipped Track - Heavily Loaded (Grab bars, handrails, wall hung cabinets)

### ADVANTAGES:

1. Good load carrying capacity.

### DISADVANTAGES:

1. Requires notching of track at each stud.



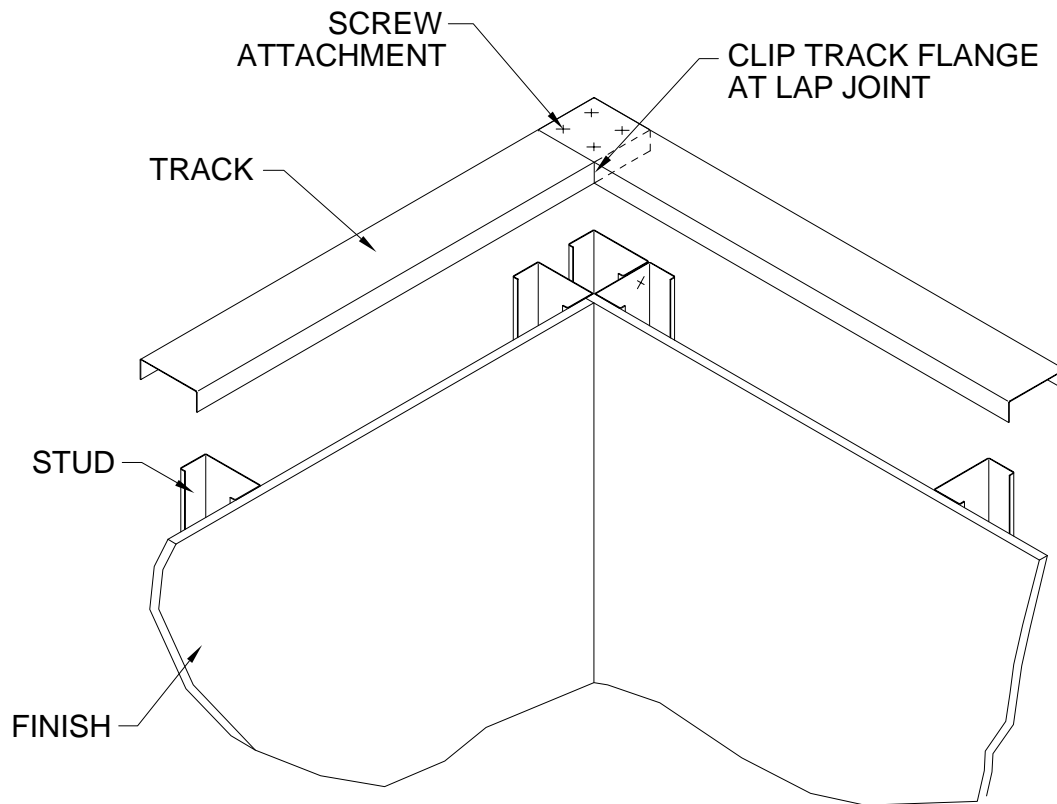
# Wall Framing at Corner Track Lap Connection

## ADVANTAGES:

1. Provides good load transfer.
2. Ties interior walls together.

## DISADVANTAGES:

1. Requires flange of one track to be clipped.



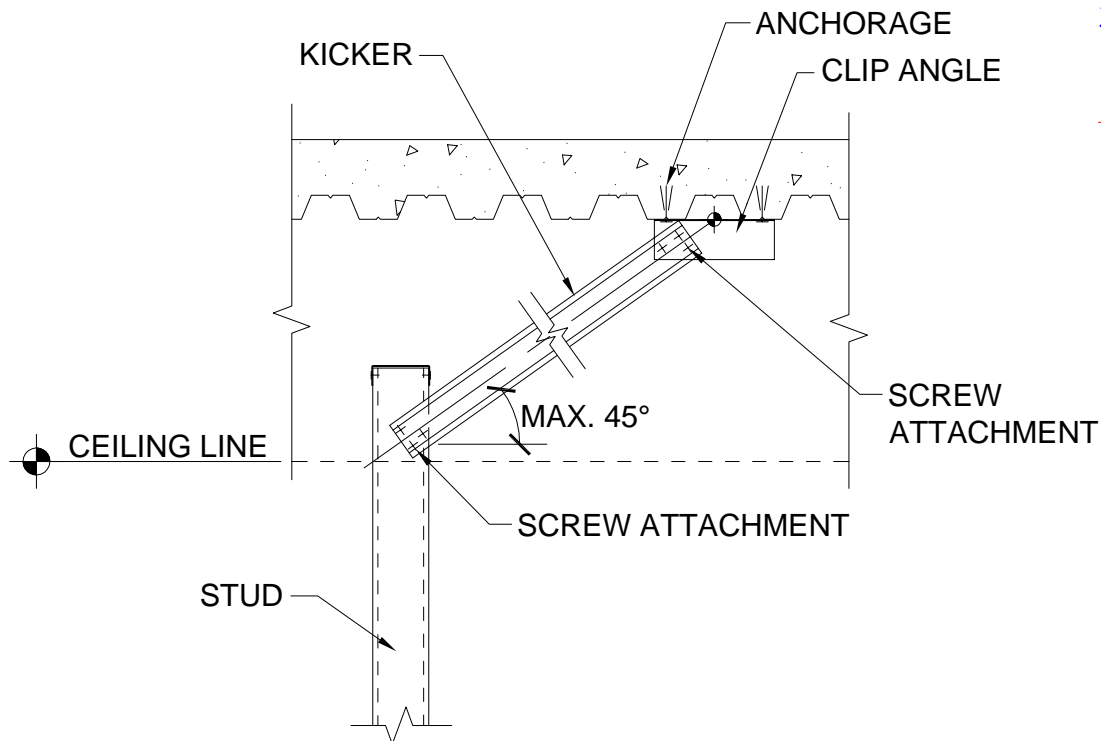
# Non-Load Bearing Interior Wall Framed Above Ceiling with Diagonal Kicker

## ADVANTAGES:

1. Provides good load transfer from wall to kicker.
2. Kicker does not place twisting load on wall top track.

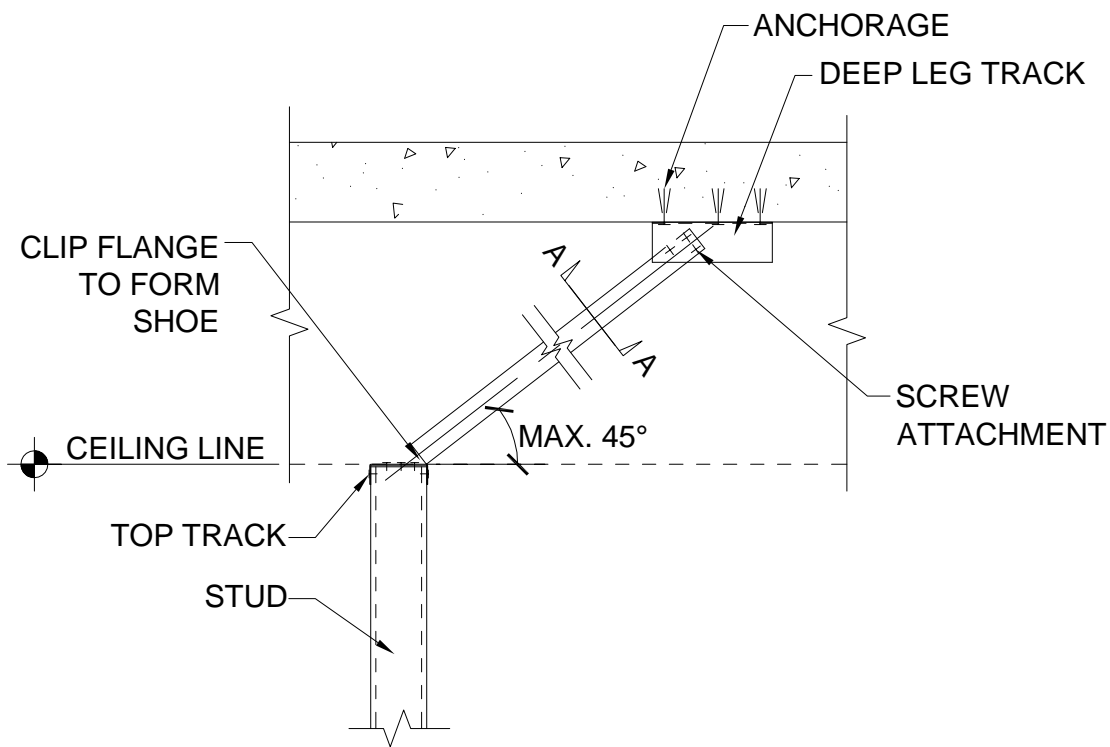
## DISADVANTAGES:

1. Requires the wall to be framed approximately 6-8 inches above the ceiling.
2. Requires the kicker to be sized to take both compression and tension loads unless alternately kickers are used.



# Non-Load Bearing Interior Wall Framed to Ceiling with Diagonal Kicker

SECTION A-A



## ADVANTAGES:

1. Eliminates extending wall above top of ceiling.

## DISADVANTAGES:

1. Kicker places a twisting load on wall to track.
2. Requires the kicker to be sized to take both compression and tension loads unless alternately kickers are used.

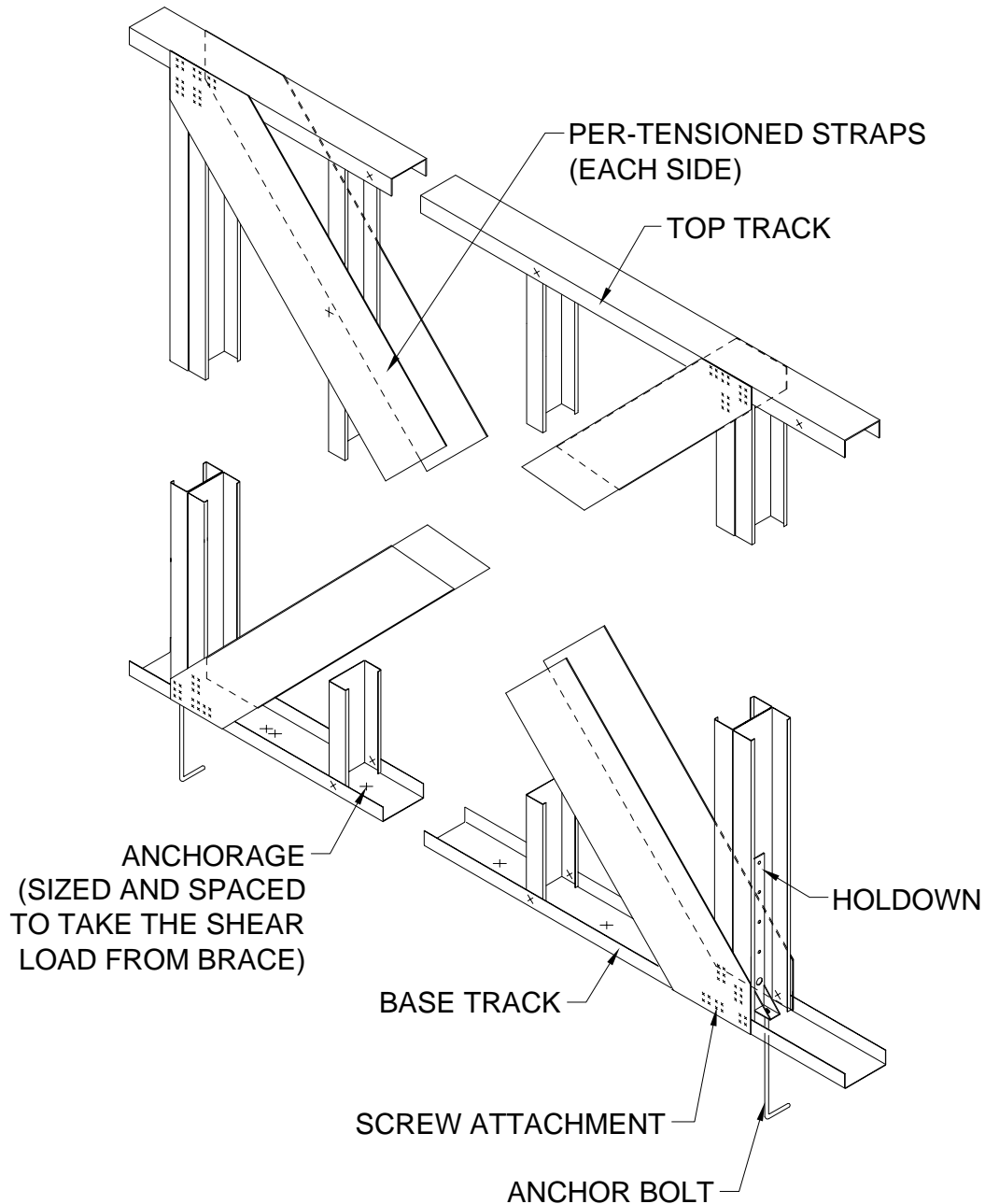
# Shearwall X-Bracing

## ADVANTAGES:

1. Wide flat straps eliminate doubling the number of screws if corner gussets are used.
2. A thin flat strap reduces the material build-up that can create finish problems.

## DISADVANTAGES:

1. X-braces thinner than stud or track material at the end connection increases number of screws required.
2. Requires x-brace to be pre-tensioned so lateral load is immediately transferred to the x-brace without movement in the wall before load is transferred.



# Typical Floor Framing

## ADVANTAGES:

1. Locating web stiffener on back side of web is easier to install than fitting the stiffener between joist flanges.
2. Using screws to connect the web stiffeners is more economical than using a series of weld segments.

