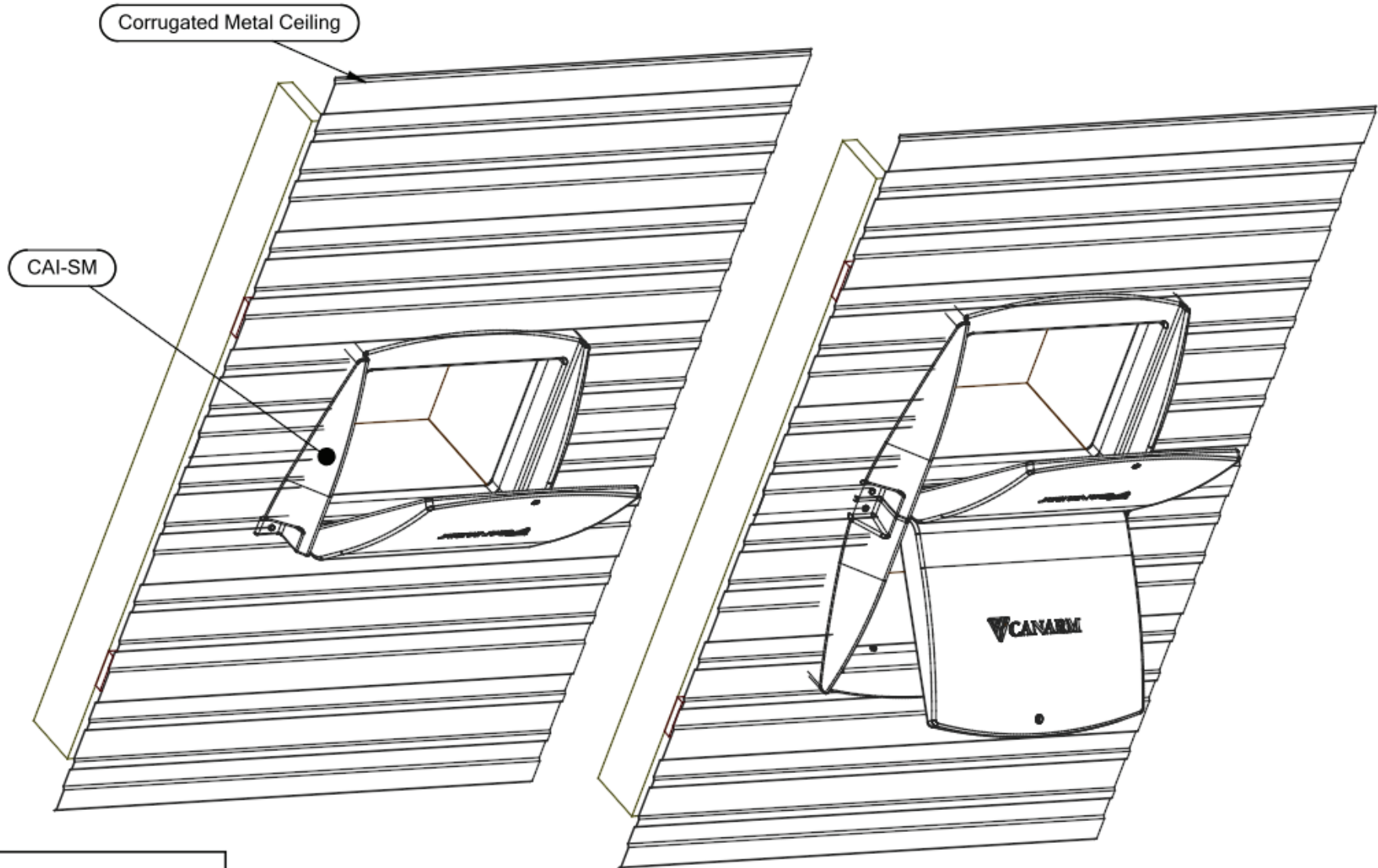


# CAI-SM AND CAI-SM X2 FRAMING AND INSTALL GUIDE

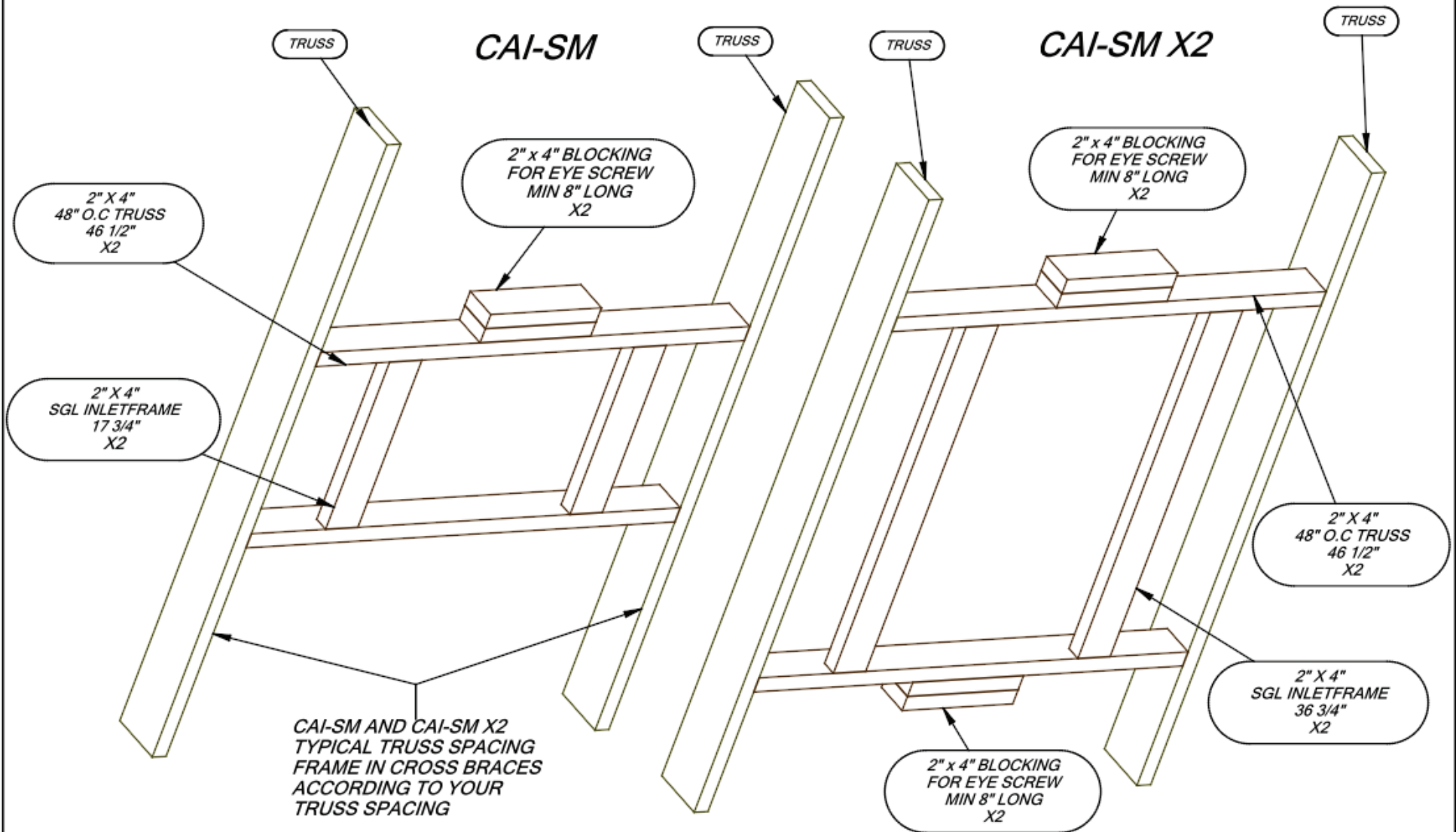


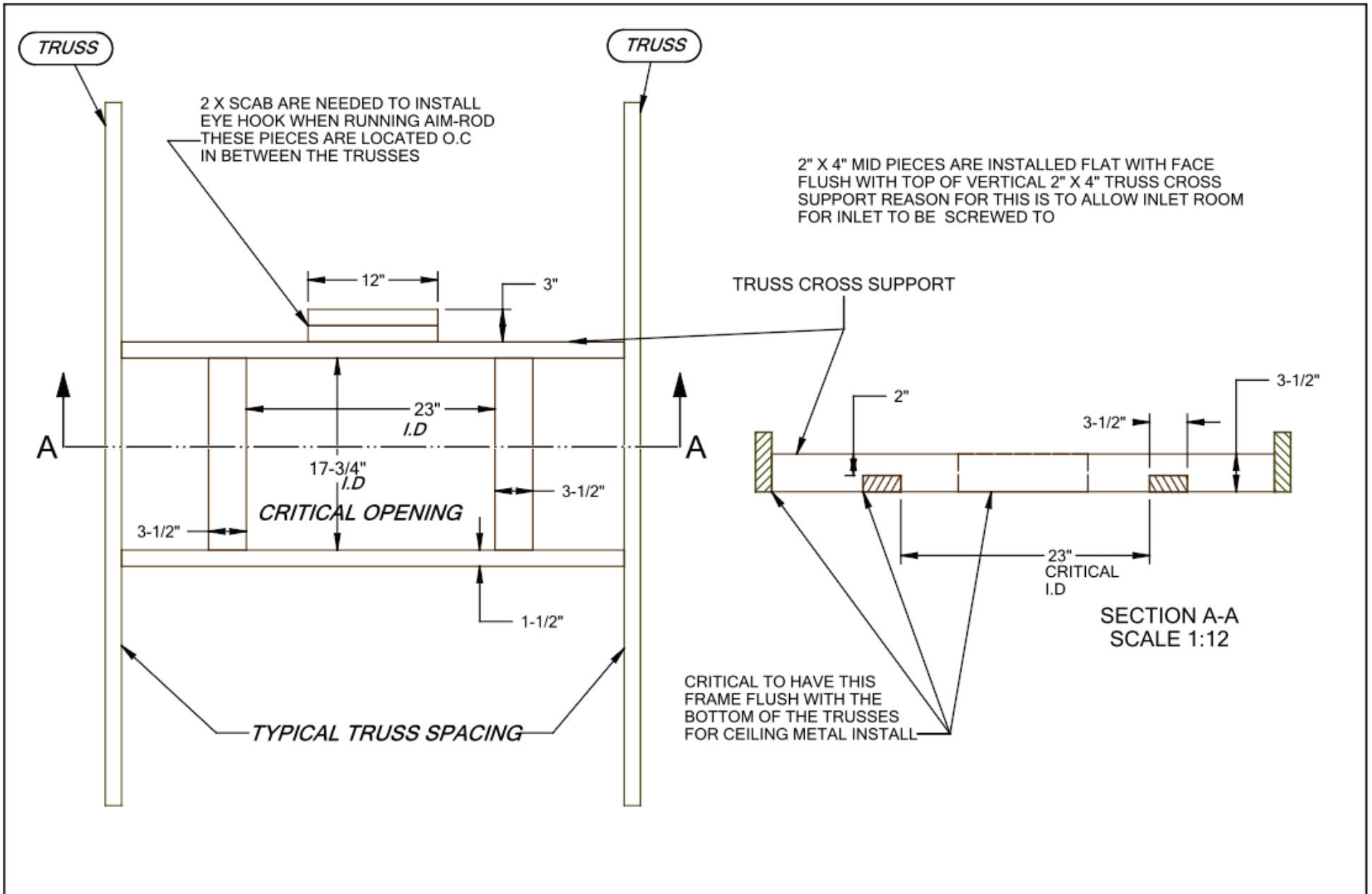
PRODUCT LINE INSTRUCTIONS
CURRENT REVISION REV 1

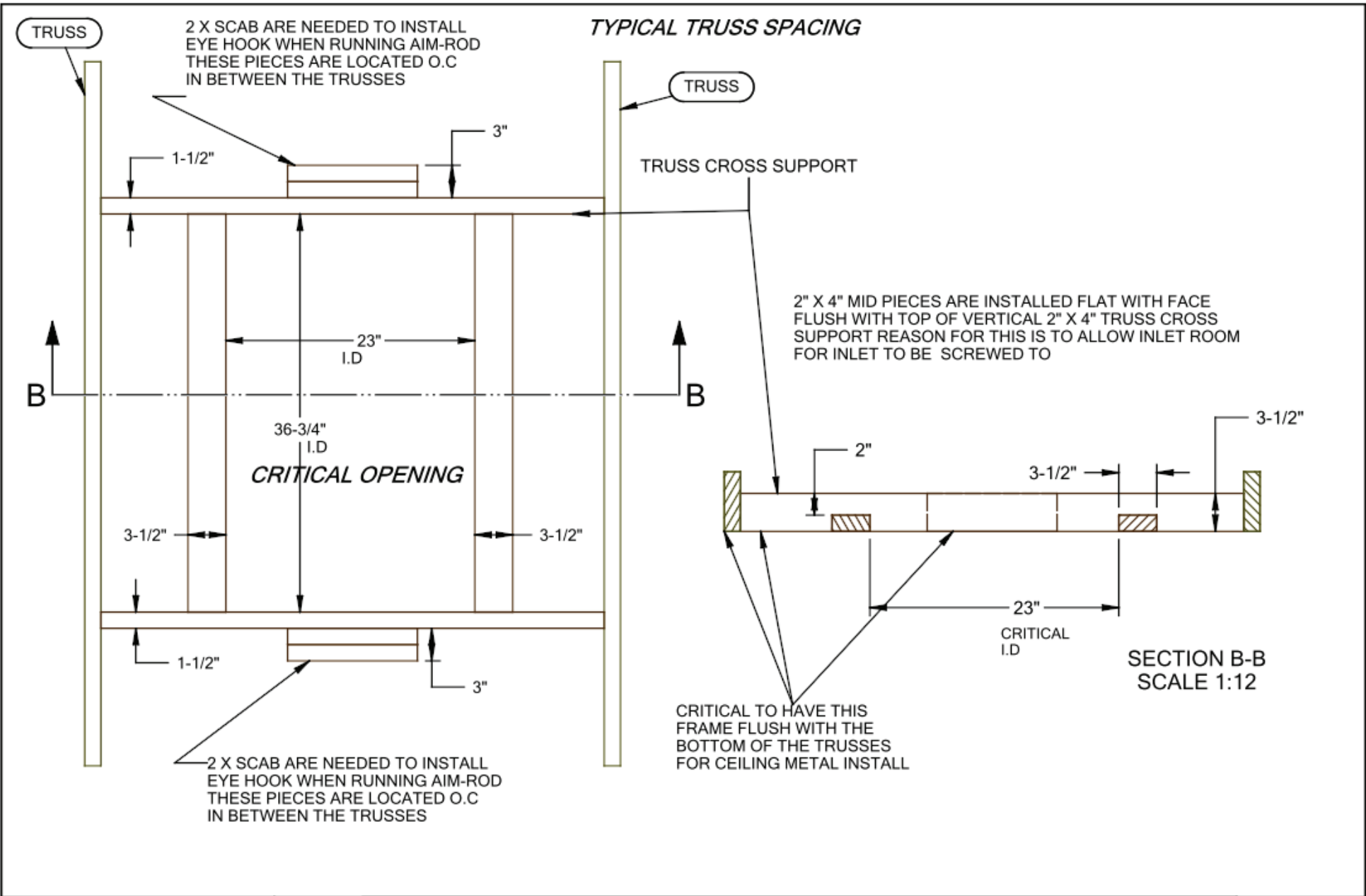
INITIALS M.M
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PART DESCRIPTION: FRAMING AND INSTALL OF INLETS
DWG NO. CAI-SM-FRAMING & INSTALL

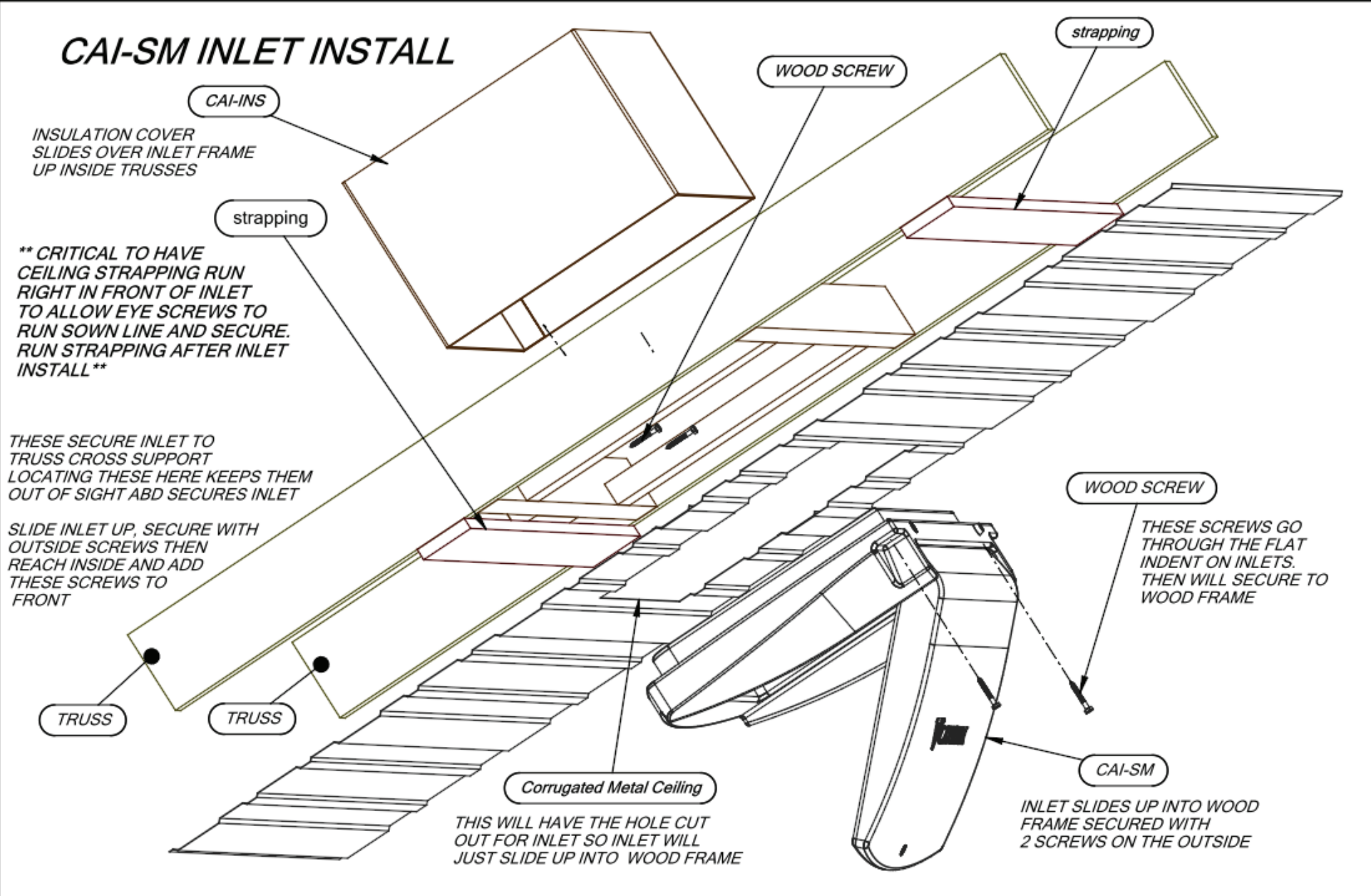
# SUGGESTED FRAMING DETAILS FOR CAI-SM AND CAI-SM X2







# CAI-SM INLET INSTALL



**CAI-INS**  
 INSULATION COVER  
 SLIDES OVER INLET FRAME  
 UP INSIDE TRUSSES

**\*\* CRITICAL TO HAVE  
 CEILING STRAPPING RUN  
 RIGHT IN FRONT OF INLET  
 TO ALLOW EYE SCREWS TO  
 RUN SOWN LINE AND SECURE.  
 RUN STRAPPING AFTER INLET  
 INSTALL \*\***

THESE SECURE INLET TO  
 TRUSS CROSS SUPPORT  
 LOCATING THESE HERE KEEPS THEM  
 OUT OF SIGHT AND SECURES INLET

SLIDE INLET UP, SECURE WITH  
 OUTSIDE SCREWS THEN  
 REACH INSIDE AND ADD  
 THESE SCREWS TO  
 FRONT

**WOOD SCREW**  
 THESE SCREWS GO  
 THROUGH THE FLAT  
 INDENT ON INLETS.  
 THEN WILL SECURE TO  
 WOOD FRAME

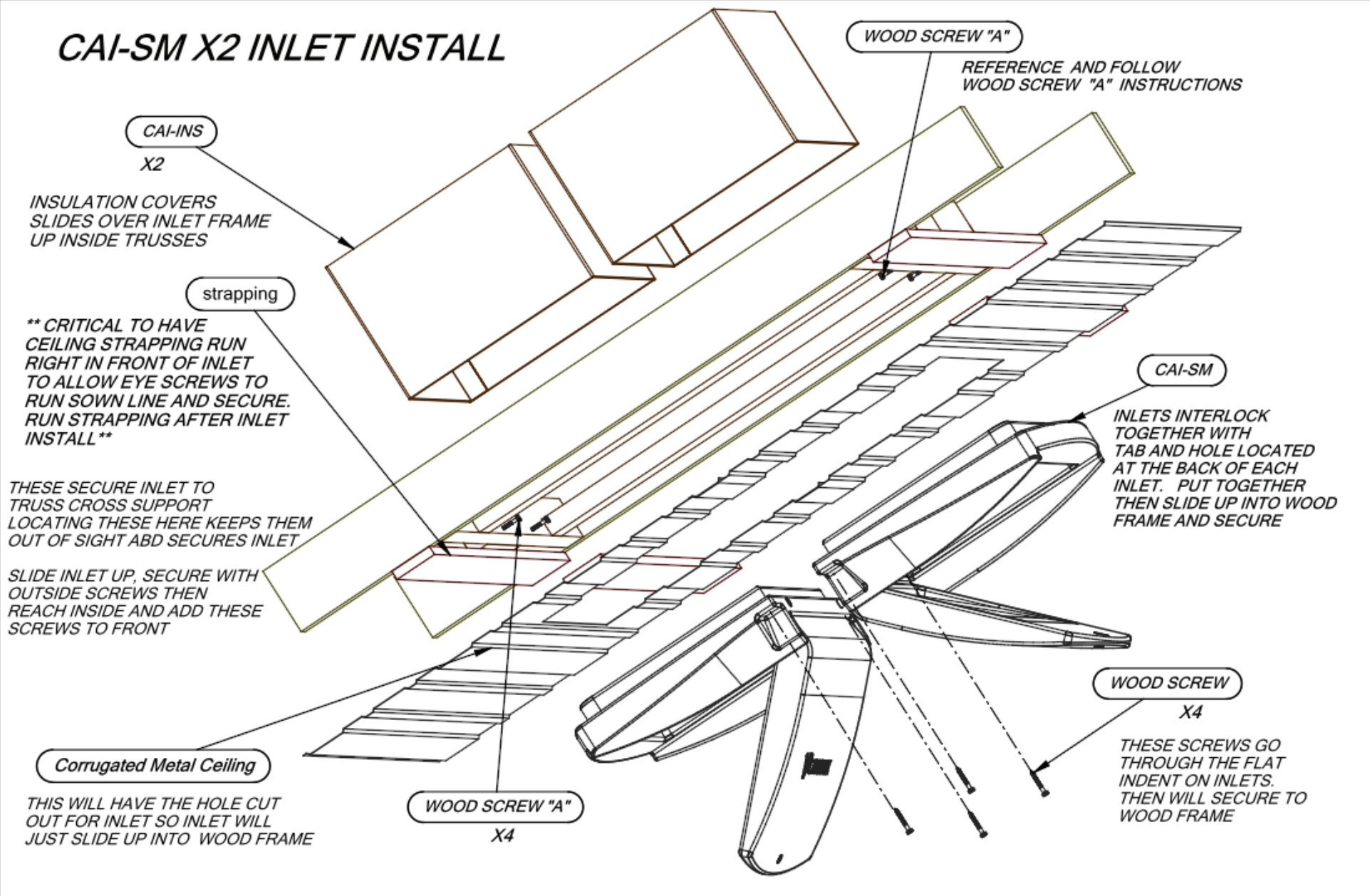
THIS WILL HAVE THE HOLE CUT  
 OUT FOR INLET SO INLET WILL  
 JUST SLIDE UP INTO WOOD FRAME

INLET SLIDES UP INTO WOOD  
 FRAME SECURED WITH  
 2 SCREWS ON THE OUTSIDE



PART DESC	FRAMING AND INSTALL OF INLETS
DWG NO.	CAI-SM-FRAMING & INSTALL

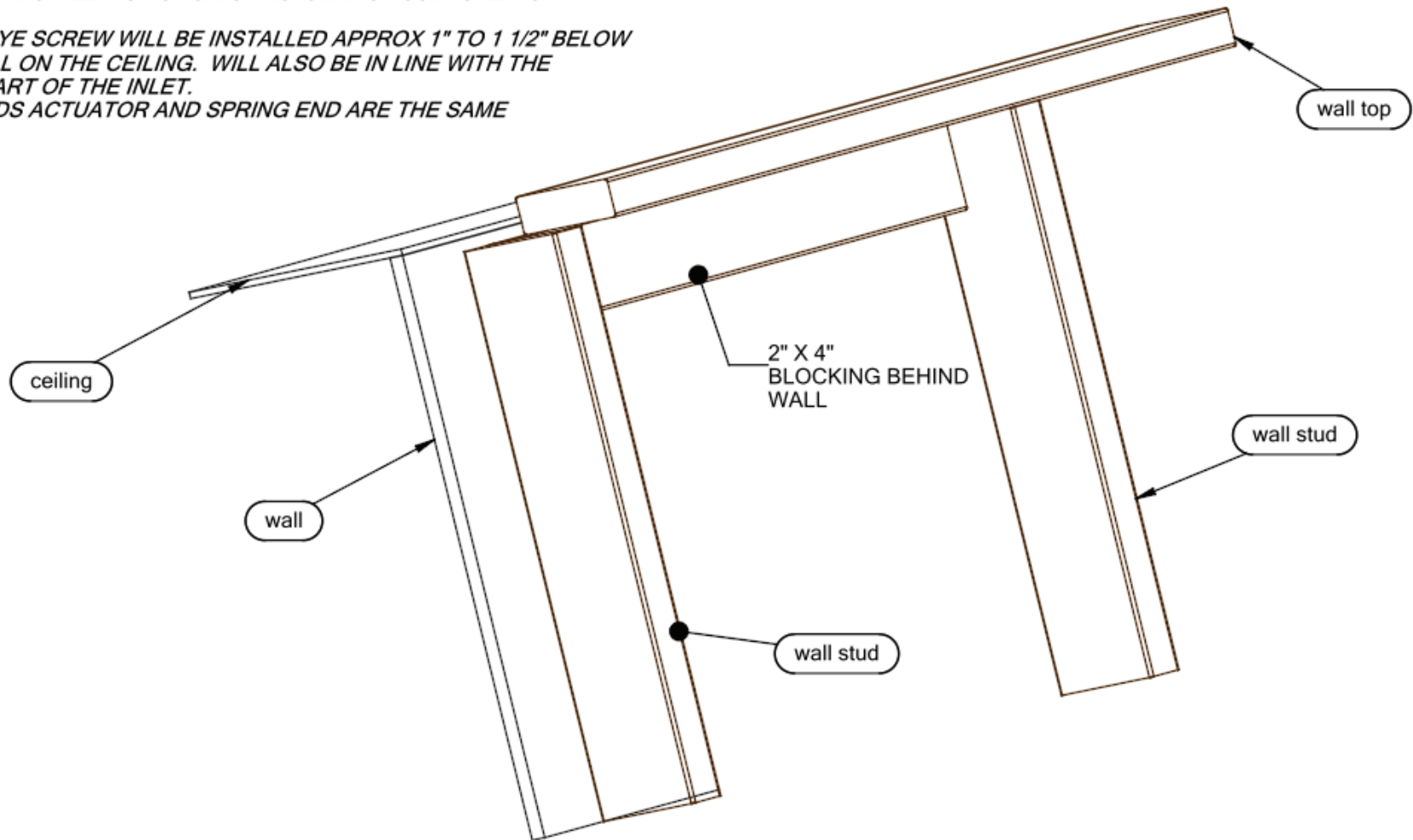
# CAI-SM X2 INLET INSTALL



## BLOCKING AT BOTH ENDS OF CAI-SM ROW IN WALLS

ADD 2"X4" PIECE BETWEEN STUDS AT TOP OF WALL. THE BOARD SHOULD BE FLUSH WITH THE INSIDE OF THE WALL TO MAKE INSTALL OF PLASTIC FLAT. THIS SHOULD BE PUT PLACE BEFORE PLASTIC ON WALL TO AVOID HAVING TO REMOVE PLASTIC OR ANYTHING ELSE UPON INSTALLATION OF CAI-SM AUTOMATION COMPONENTS.

**NOTE:** EYE SCREW WILL BE INSTALLED APPROX 1" TO 1 1/2" BELOW THE STEEL ON THE CEILING. WILL ALSO BE IN LINE WITH THE FRONT PART OF THE INLET. BOTH ENDS ACTUATOR AND SPRING END ARE THE SAME

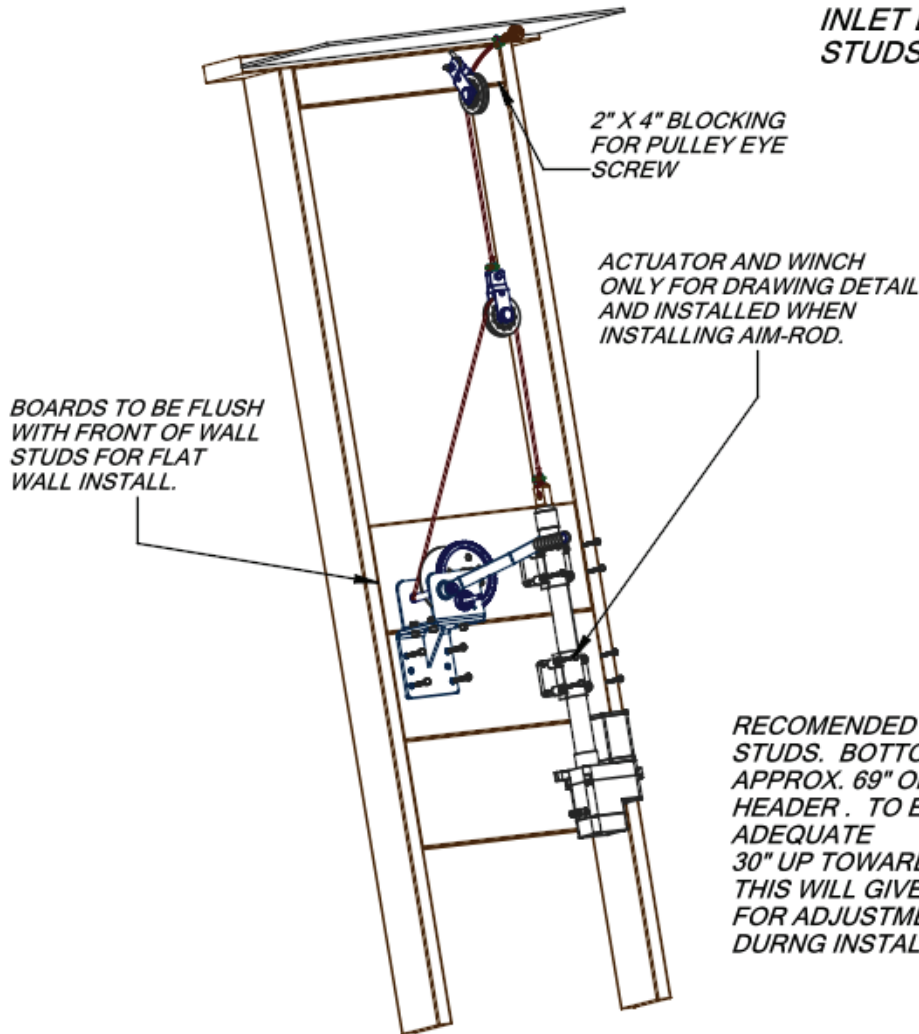


## ACTUATOR BLOCKING RECOMENDATIONS

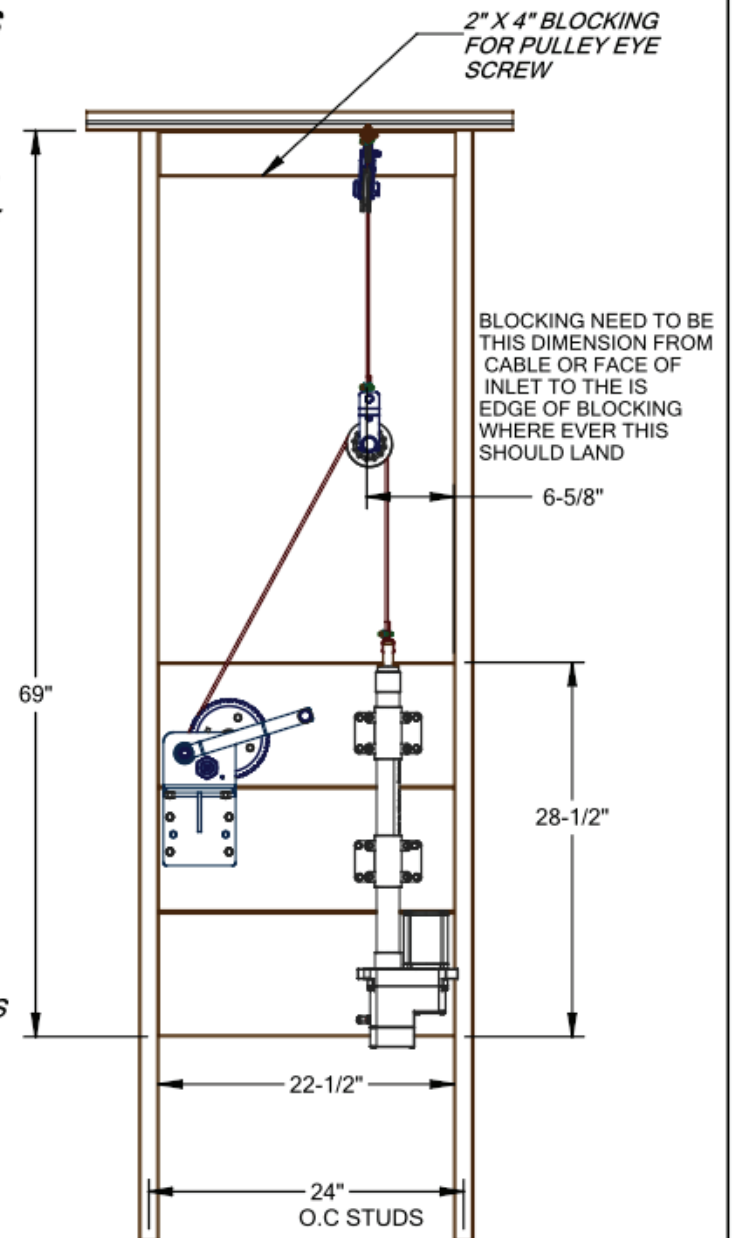
ACTUATOR BLOCKING IS IMPORTANT FOR SECURING THE ACTUATOR TO UPON INSTALL. THE ACTUATOR HAS A DESIRED HEIGHT OFF CEILING AND SO SHOULD THE BLOCKING TO SUPPORT THAT.

**MINIMUM ACTUATOR BLOCKING \* 22 1/2" X 28 1/2" \***

**FRAMING SHOWN AS IF INLET LINE IS IN MIDDLE STUDS**



**RECOMENDED 2" X 10" BETWEEN STUDS. BOTTOM OF BOARD AT APPROX. 69" OFF INSIDE OF TOP HEADER. TO ENSURE BLOCKING IS ADEQUATE 30" UP TOWARDS HEADER. THIS WILL GIVE ENOUGH ROOM FOR ADJUSTMENTS NEEDED DURNG INSTALL**





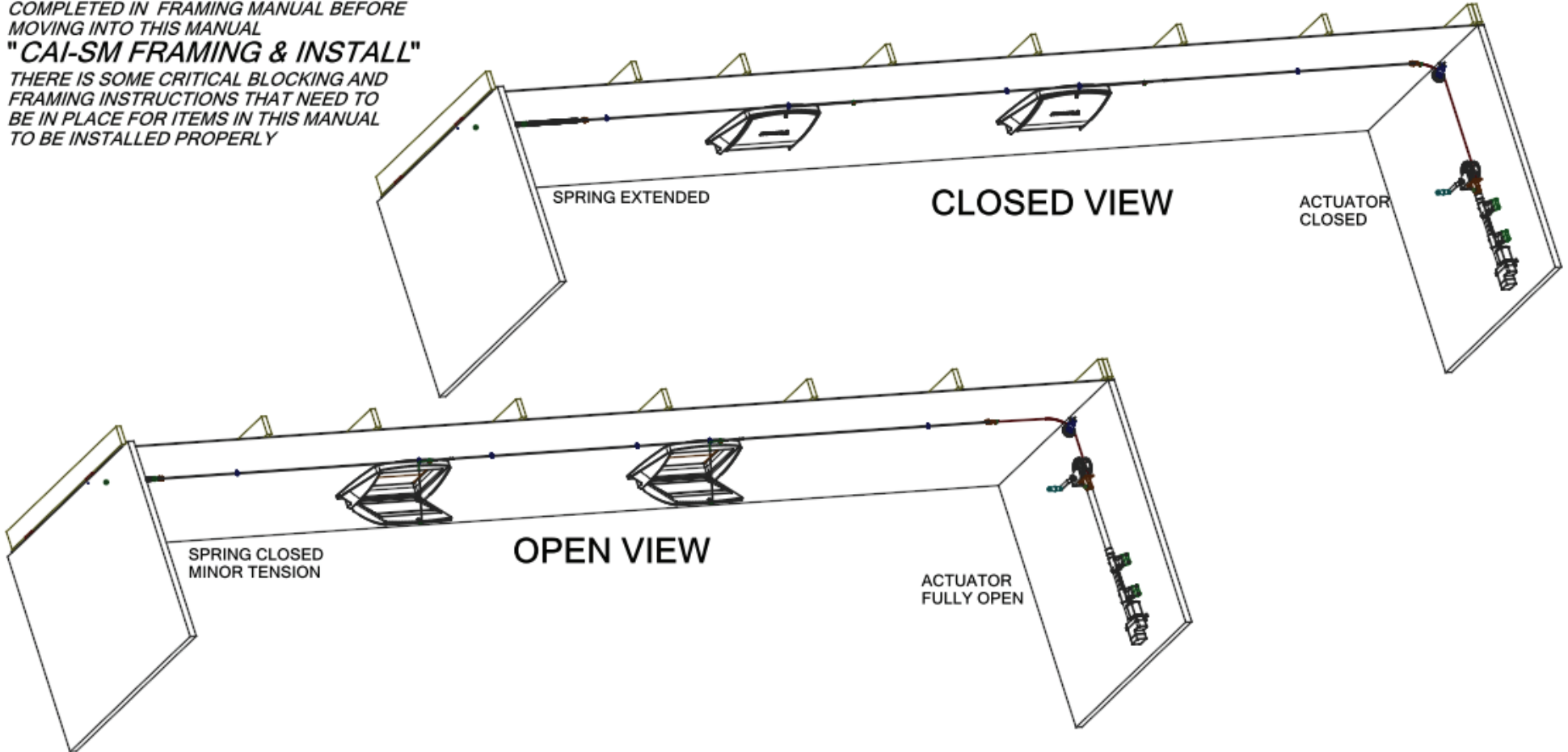
# CEILING INLET AIR ROD/ SPRING INSTALLATION MANUAL

**NOTE :**

PLEASE ENSURE ALL STEPS HAVE BEEN COMPLETED IN FRAMING MANUAL BEFORE MOVING INTO THIS MANUAL

**"CAI-SM FRAMING & INSTALL"**

THERE IS SOME CRITICAL BLOCKING AND FRAMING INSTRUCTIONS THAT NEED TO BE IN PLACE FOR ITEMS IN THIS MANUAL TO BE INSTALLED PROPERLY



**NOTE: BEFORE STARTING SHOULD MAKE SURE THERE IS ENOUGH BLOCKING BEHIND WALLS FOR EYE SCEWS, PULLEY AND ACTUATOR. THESE WILL NEED SOMETHING TO SECURE INTO. PLEASE REF CAI-SM FRAMING & INSTALL MANUAL**



PRODUCT LINE	INSTRUCTION MANUAL
CURRENT REVISION	REV 1

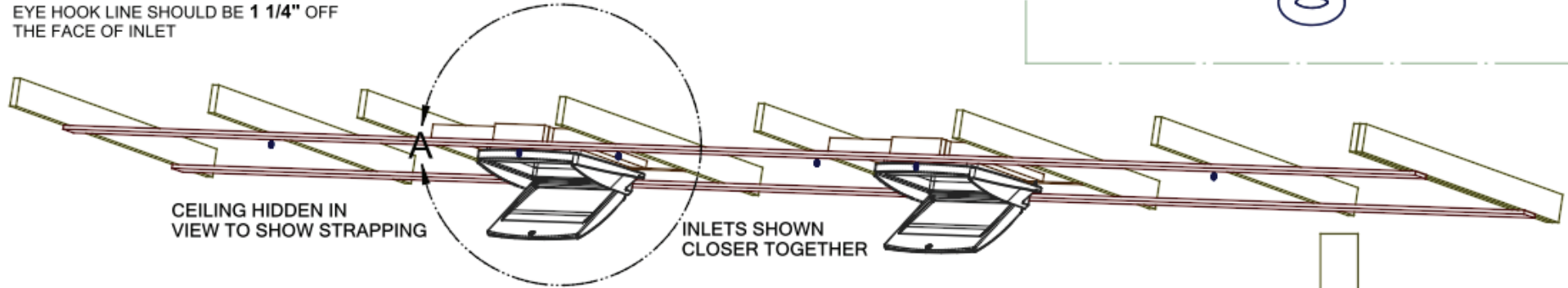
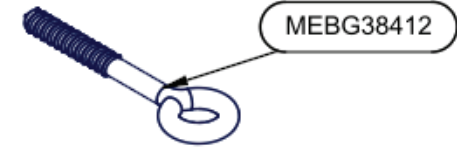
INITIALS	M.M
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PART DESCRIPTION:	CEILING INLET AIR ROD/ SPRING INSTALL MANUAL
DWG NO.	CAI-SM-SPRING INSTALL

## STEP 1 -- EYE HOOK INSTALLATION

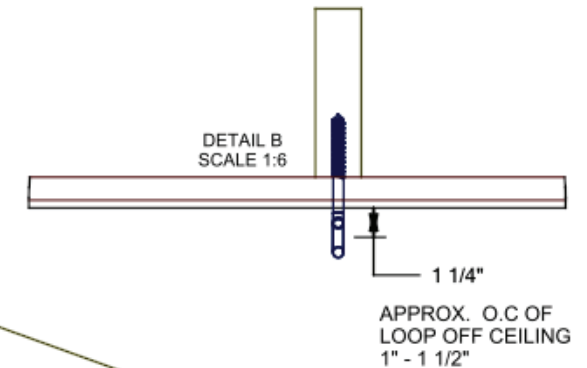
GO DOWN ROW AND INSTALL EYE HOOKS ON EVERY OTHER TRUSS APPROX. **EVERY 8'**. IF USING THE TRUSS LOCATION. THERE SHOULD BE STRAPPING RAN DOWN THE SAME LINE UNDER CEILING ENSURE TO LEAVE THE APPROPRIATE DISTANCE AWAY FROM INLET EYE HOOK ( **REF BOTTOM NOTE**) AND THEN RUN APPROX EVERY 8' -- TRY TO KEEP AWAY FROM CONNECTORS. IDEAL LOCATION OF EYE LOOP FOR INLET WOULD BE O.C OF THE FACE OF INLET. **REF DETAIL A.** EYE HOOK LINE SHOULD BE **1 1/4"** OFF THE FACE OF INLET

### PARTS USED IN THIS STEP

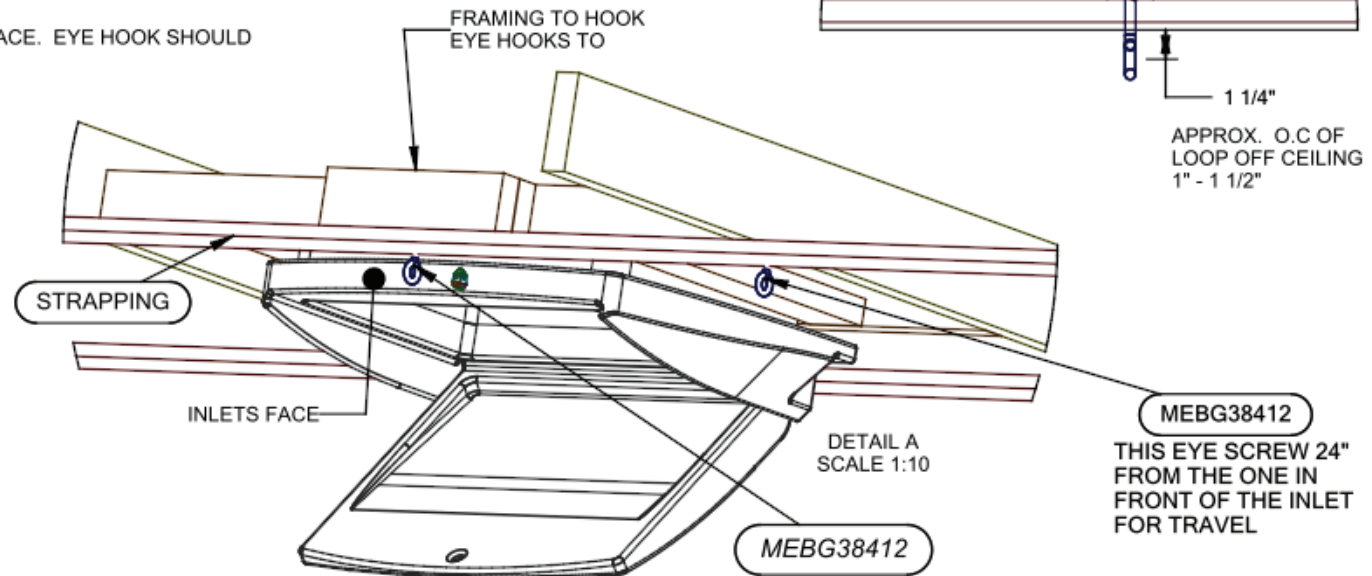


THERE MUST BE AN EYE SCREW INSTALLED INFRONT OF EVERY INLET. THERE SHOULD BE ADDITIONAL 2X4'S AND STRAPPING IN PLACE FOR THIS TO HAPPEN. **REF -- RSO FOR FRAMING DETAILS**

THE LOOP HOLE SHOULD BE O.C OF THE INLET FACE. EYE HOOK SHOULD BE **1 1/4"** OFF FACE OF INLET.



**NOTE:**  
WHEN INSTALLING EYE HOOKS THE EYE HOOKS TO THE ACTUATOR SIDE MUST BE AT LEAST 24" FROM INLET CENTER EYE HOOK. THIS WILL ALLOW THE ROPE CONNECTORS TO TRAVEL THE 18" WITHOUT BINDING ON NEXT EYE HOOK.



## STEP 2 -- AIM ROD AND COUPLER INSTALLATION

START TO INSERT AIM ROD THROUGH LOOPS AT SPRING END. FIRST AIM ROD ON SPRING END WILL GET "CAI-EN" THREADED ON. THIS HAS TO BE DONE AFTER AIM ROD INSTALLED GOING TOWARDS SPRING END.

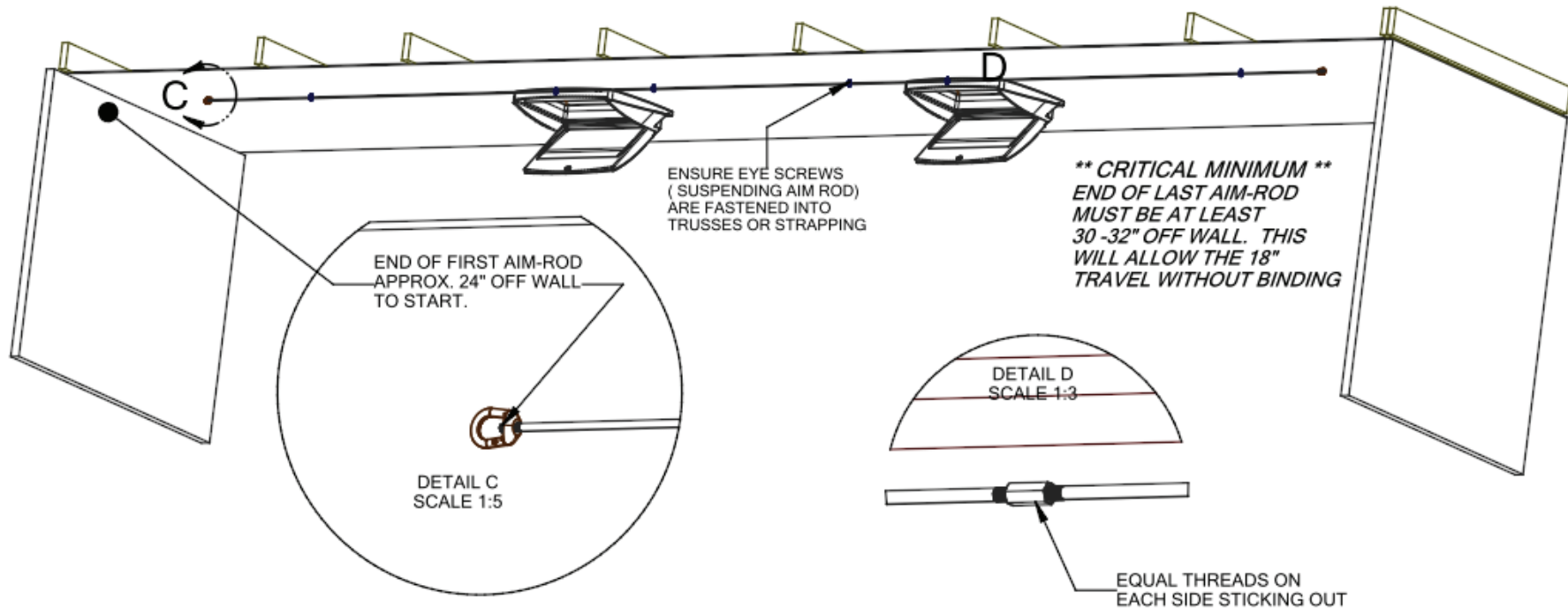
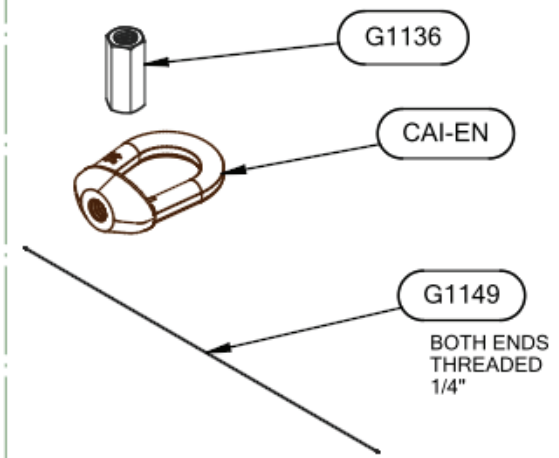
ONCE THAT IS COMPLETE MOVE ON DOWN THE ROW CONNECTING EACH AIM ROD WITH "G1136" CONNECTOR.

**NOTE:** HERE YOU CAN USE LOCKTITE IF YOU WANT BUT ENSURE YOU HAVE THE SAME AMOUNT OF THREAD STICKING OUT BOTH SIDES OF CONNECTOR.

WHEN YOU GET TO ACTUATOR END AND YOU HAVE MADE SURE YOU HAVE AT LEAST THE DESIRED MINIMUM DIMENSION OFF WALL THEN ADD "CAI-EN" TO THE END OF LAST AIM ROD.

**NOTE:** IF YOU ARE UNABLE TO REACH THE MINIMUM REQUIREMENT GO BACK ONE AIM ROD AND FOLLOW CONNECTION INSTRUCTIONS. CABLE WILL JUST LONGER.

### PARTS USED IN THIS STEP



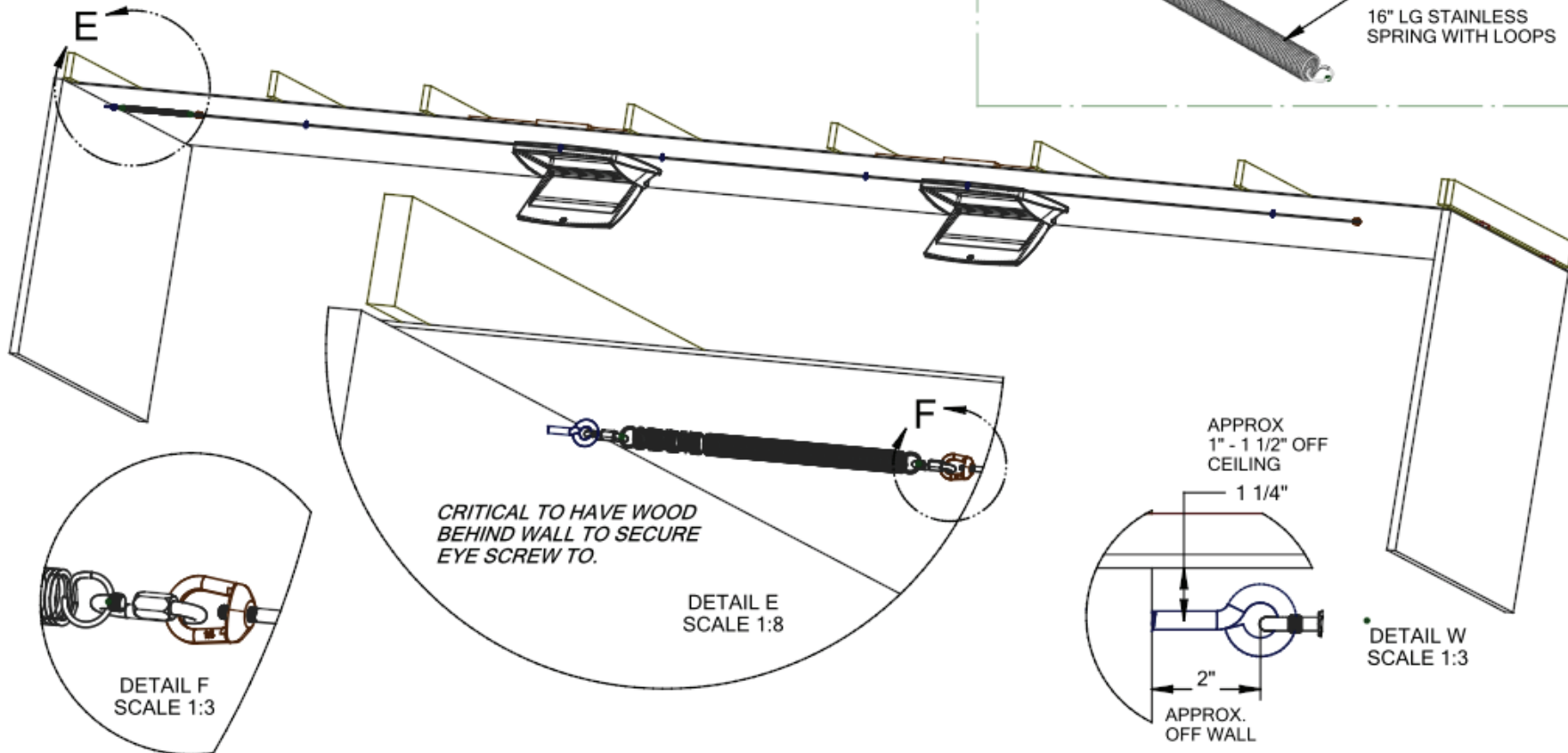
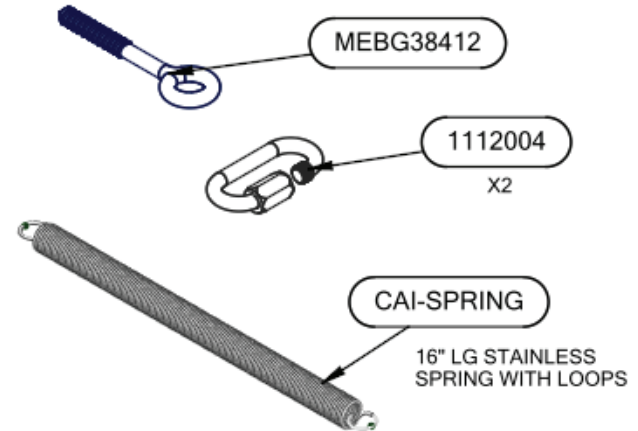
### STEP 3 -- ATTACHING SPRING TO AIM ROD

FIRST ATTACH EYE BOLT "MEBG38412" TO OUTSIDE WALL. EYE LOOP SHOULD BE ON THE SAME LINE AS AIM ROD HOLDING EYE HOOKS. THAT DIMENSION IS 1" - 1 1/2" O.C FROM CEILING.

**NOTE:** THERE NEEDS TO BE WOOD BEHIND THE WALL TO ATTACH THE EYE SCREW TO SO IT WILL BE SECURE.

ATTACH SPRING TO AIM ROD AND WALL EYE SCREW USING "2 X 1112004" QUICK CONNECTS.

#### PARTS USED IN THIS STEP



## STEP 4 -- ADDING EYE HOOK AND PULLEY

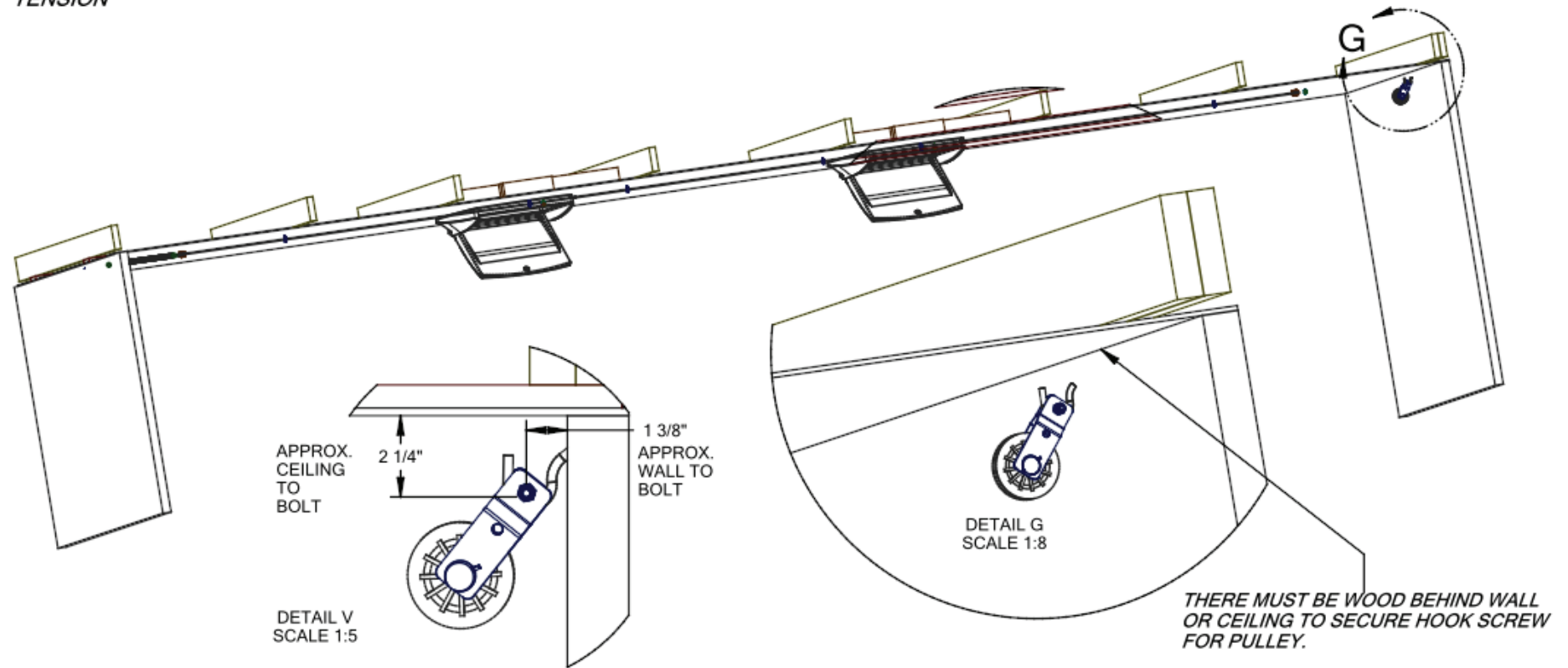
BEFORE SECURING EYE HOOK AND PULLEY "08-330-11" THERE MUST BE WOOD BEHIND THE WALL OR CEILING FOR SCREW TO GO INTO. YOU CAN ALSO GO INTO CORNER IF SPACE ALLOWS.

### NOTE:

EYE HOOK SHOULD BE 1 1/4" TO 1 1/2" OFF WALL (O.C OF HOOK TO WALL)

THE EYE HOOK SHOULD ALSO BE ON SAME LINE AS THE ALREADY INSTALLED AIM ROD. TRY TO AVOID HAVING THE PULLEY TOO LOW FROM CEILING THIS WILL CAUSE THE AIM ROD TO GO DOWN TOWARDS PULLEY CAUSING TENSION

## PARTS USED IN THIS STEP



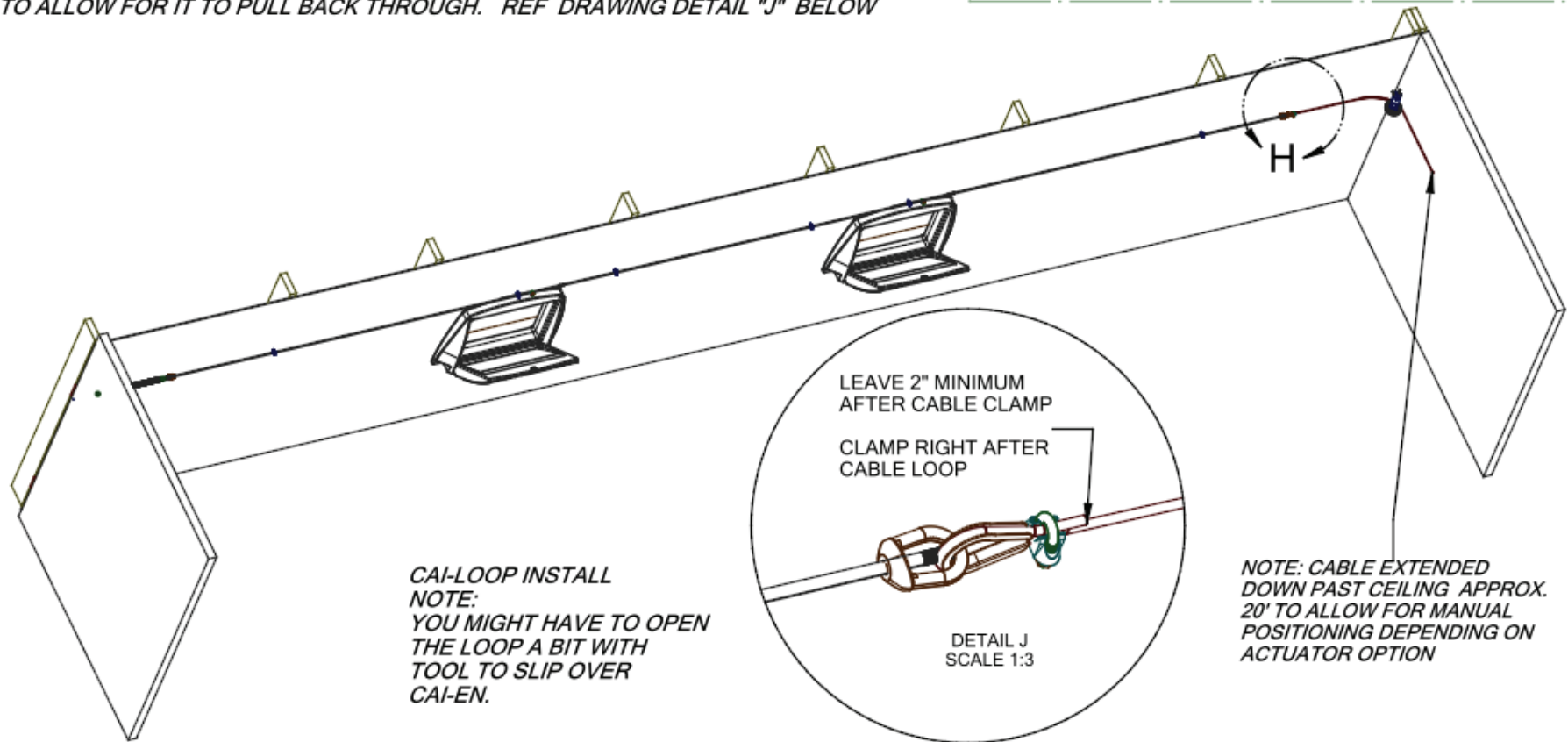
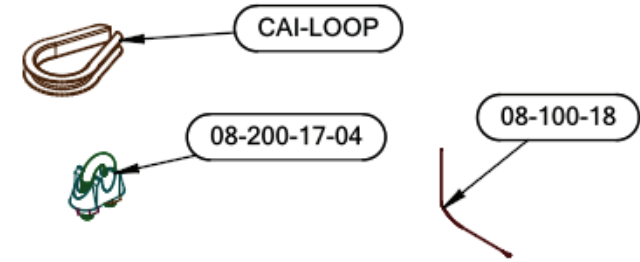
## STEP 5 -- ATTACHING CABLE TO AIM ROD

USING "CAI-LOOP" ATTACH CABLE TO AIM ROD END NUT. FIRST OPEN AND SLIDE LOOP OVER END NUT. WHEN THIS IS COMPLETE YOU CAN THEN RUN THE CABLE THROUGH LOOP AND USE "08-200-17-04" CABLE CLAMP TO SECURE IN PLACE.

RUN CABLE THROUGH ALREADY INSTALLED PULLEY AND LEAVE 20' OF CABLE HANGING FROM CEILING. SUGGESTED TO LEAVE MORE AND CUT TO DESIRED LENGTH TO ROLL ONTO WINCH.

**NOTE:** KEEP AT LEAST 2" OF WIRE TAIL PAST WIRE CLAMP SO NOT TO ALLOW FOR IT TO PULL BACK THROUGH. REF DRAWING DETAIL "J" BELOW

### PARTS USED IN THIS STEP



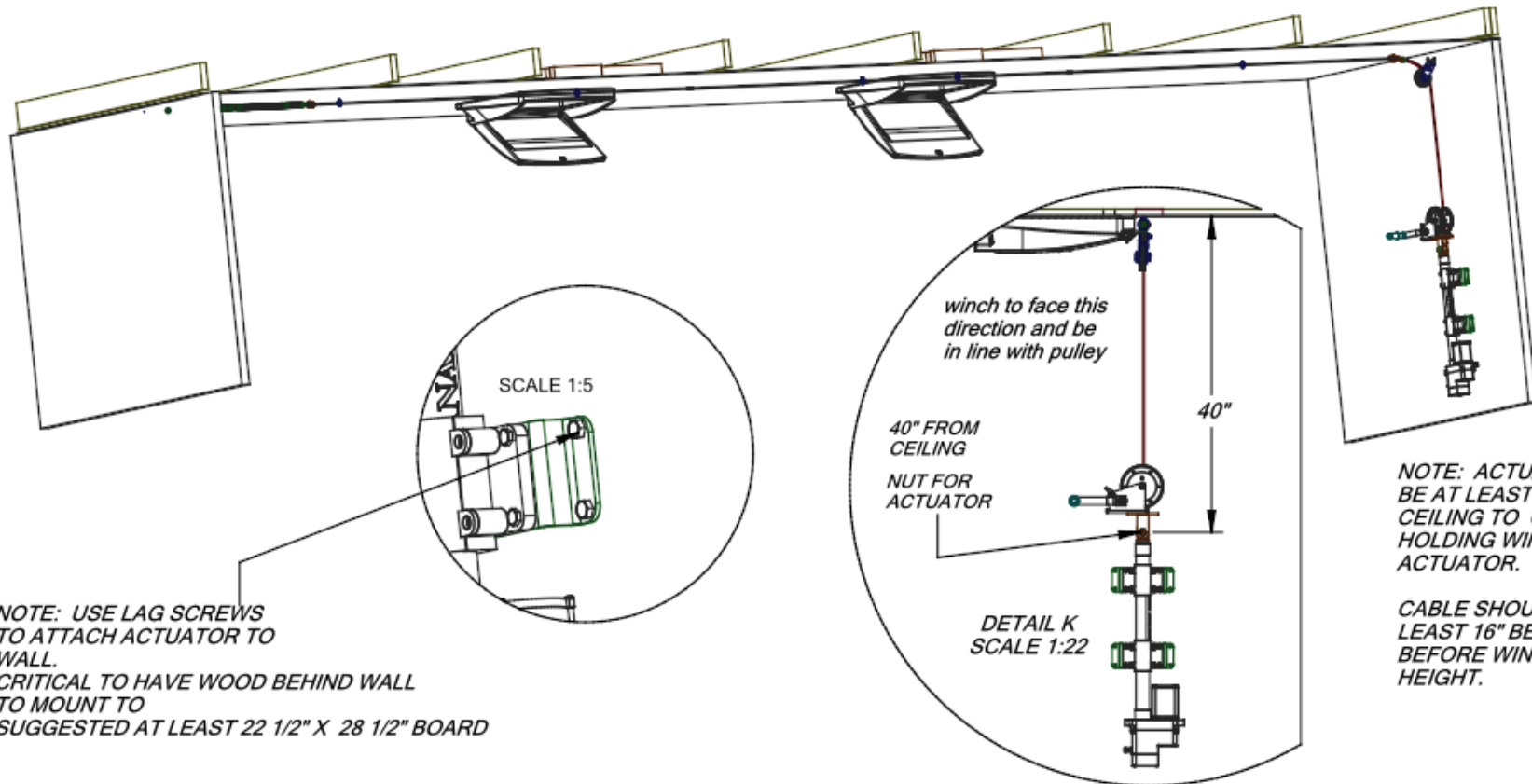
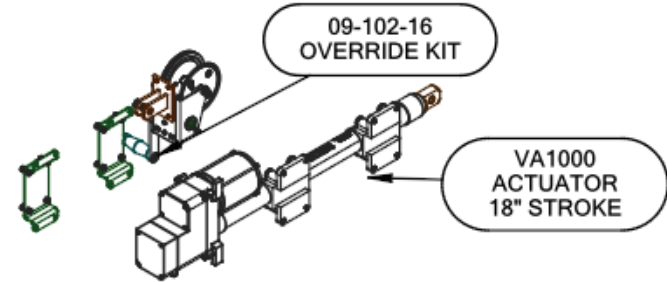
## STEP 6 -- INSTALLING ACTUATOR AND OVERRIDE KIT

**BEFORE INSTALLING ACTUATOR TO WALL PLEASE REFERENCE INSTRUCTIONS FOR OVERRIDE KIT FOR ACTUATOR 09-102-16.**

LOCATE ACTUATOR ON WALL AT LEAST 40" TO O.C OF NUT SHOWN IN **DETAIL K**. THIS ALLOWS FOR ROOM FOR WINCH HANDLE WHEN ACTUATOR IS FULLY OPEN AND NOT HITTING CEILING.

**NOTE: FOR LINING ACTUATOR UP WITH ALREADY INSTALLED PULLEY KEEP THE CABLE RUNNING DOWN THE OUTSIDE FACE OF WINCH SO CABLE IS NICE AND STRAIGHT**

### PARTS USED IN THIS STEP



**NOTE: USE LAG SCREWS TO ATTACH ACTUATOR TO WALL. CRITICAL TO HAVE WOOD BEHIND WALL TO MOUNT TO SUGGESTED AT LEAST 22 1/2" X 28 1/2" BOARD**

**NOTE: ACTUATOR SHOULD BE AT LEAST 40" FROM CEILING TO O.C OF BOLT HOLDING WINCH TO ACTUATOR.**

**CABLE SHOULD HANG AT LEAST 16" BELOW WINCH BEFORE WINDING AT ANY HEIGHT.**

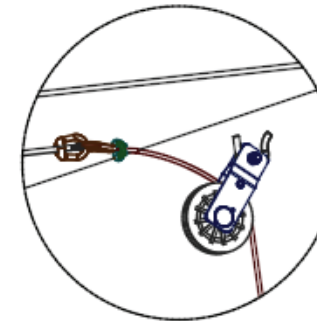
## STEP 7 -- CABLE TO WINCH/ CLOSED INLET CABLE SETTING

ATTACH AND WIND EXTRA LENGTH OF CABLE TIGHT ON WINCH.  
WIND UNTIL ALL EXTRA CABLE HAS BEEN WOUND AND THE LINE IS SNUG.

WHEN TIGHT YOU CAN NOW WIND THE WINCH AROUND 1 OR 2 FULL TURNS TO ALLOW FOR STARTING TENSION ON THE SPRING. THE SPRING SHOULD START TO EXTEND 1 -2".

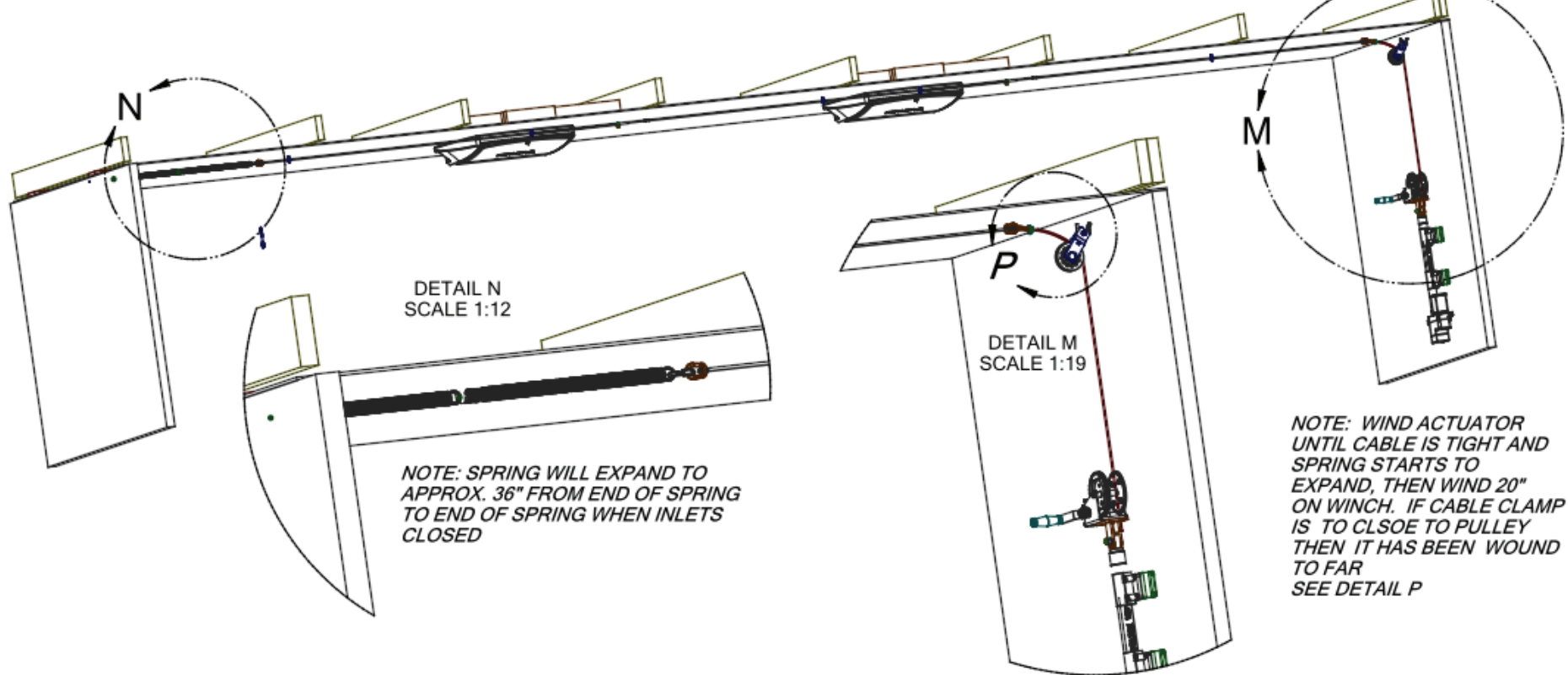
**NOTE: THIS WILL KEEP TENSION ON THE SPRING WHEN ACTUATOR OPENS THE INLETS AND KEEP THE SPRING FROM SAGGING.**

AFTER THE STARTER TENSION HAS BEEN ESTABLISHED WIND APPROX. 20" OF CABLE ON TO THE WINCH TO EXTEND THE SPRING AND BRING THE AIM ROD TO THE INLET CLOSED POSITION. **NOTE: THIS WILL ALLOW YOU IN NEXT STEP TO HOOK UP INLETS IN THE CLOSED POSITION AS SHOWN IN VIEWS**



DETAIL P  
SCALE 1:9

**CRITICAL  
DO NOT LET  
CLAMP GET  
TOO CLOSE TO  
PULLEY IN  
CLOSED  
POSITION**



DETAIL N  
SCALE 1:12

**NOTE: SPRING WILL EXPAND TO APPROX. 36" FROM END OF SPRING TO END OF SPRING WHEN INLETS CLOSED**

DETAIL M  
SCALE 1:19

**NOTE: WIND ACTUATOR UNTIL CABLE IS TIGHT AND SPRING STARTS TO EXPAND, THEN WIND 20" ON WINCH. IF CABLE CLAMP IS TOO CLOSE TO PULLEY THEN IT HAS BEEN WOUND TOO FAR SEE DETAIL P**



## SPECIALTY ACTUATOR SET UP -- HALF PULL LAYOUT

AFTER CABLE IS ATTACHED TO AIM ROD RUN CABLE THROUGH CORNER PULLEY AND ATTACH TO SECONDARY PULLEY. THIS PULLEY WILL HANG THERE SUSPENDED AFTER ATTACHED. USE CABLE CLAMP WITH 1-2" TAIL TO ENSURE CABLE DOES NOT COME BACK THROUGH.

**NOTE: MINIMUM DISTANCE TO START WITH OFF CEILING IS 22" - 24" TO O.C OF PULLEY.**

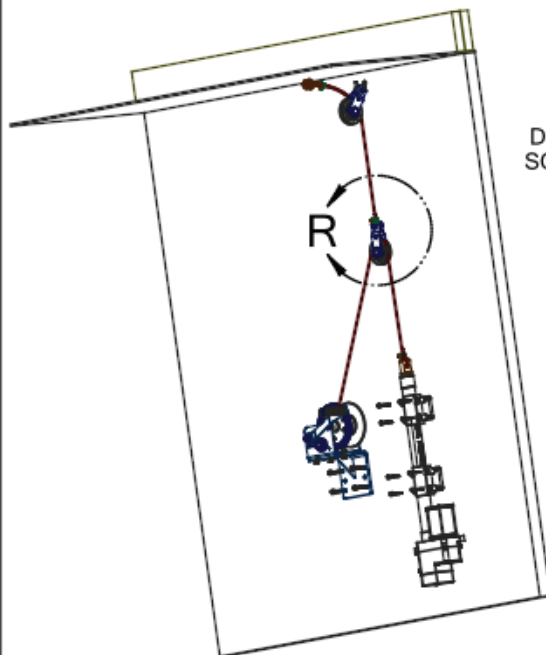
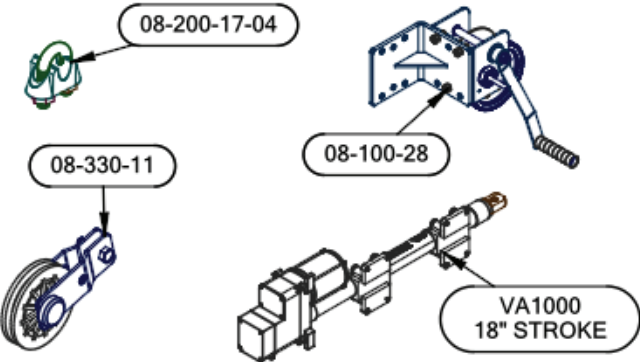
LINE UP ACTUATOR SO IT IS IN LINE WITH THE OUTSIDE OF THE PULLEY TO KEEP CABLE STRAIGHT. LOCATE WINCH BESIDE ACTUATOR AND OFFSET AS PER DRAWING DIMENSIONS BELOW.

**NOTE: BOTH ACTUATOR AND WINCH WILL NEED BLOCKING BEHIND WALL TO PROPERLY SECURE WOOD LAGS TO. SHOULD BE INSTALLED 22 1/2" X 28 1/2" MINIMUM.**

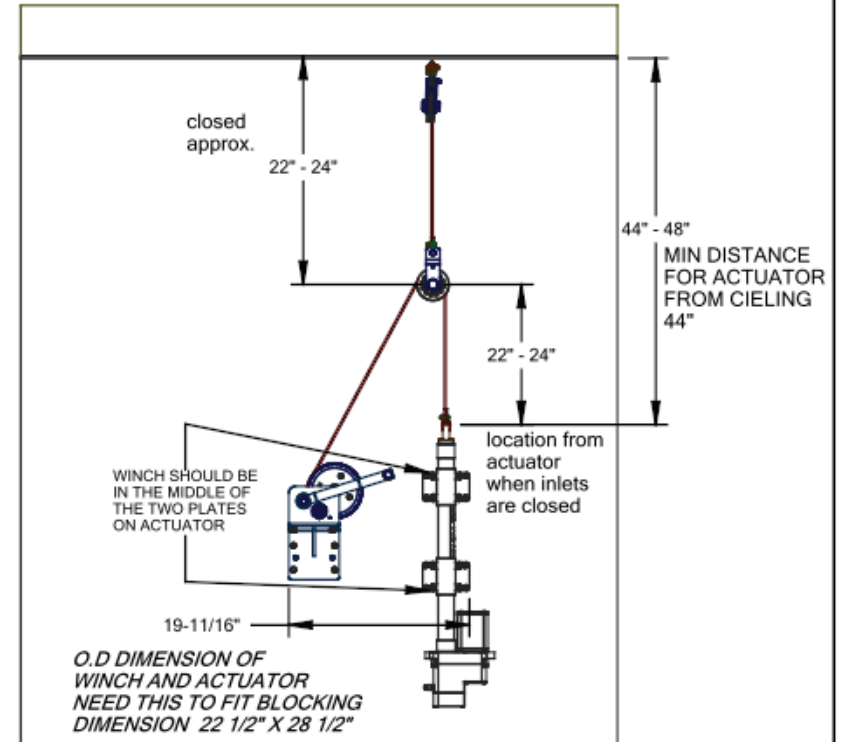
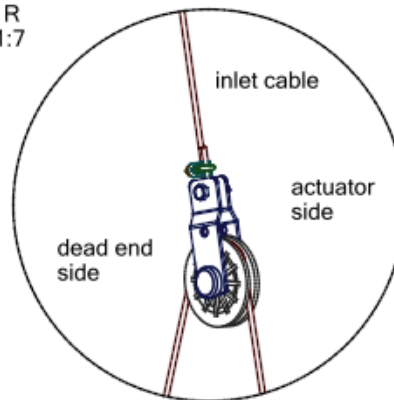
ATTACH CABLE THROUGH ACTUATOR TOP HOLE WITH CABLE CLAMP SUPPLIED. RUN CABLE THROUGH PULLEY FROM AIM ROD AND ATTACH TO WINCH. ENSURE TO LEAVE 16" PAST WINCH TO GET THE WINCH STARTED WHEN TIGHTENING.

**USE THE WINCH TO BRING THE SUSPENDED PULLEY DOWN TO REQUIRED LENGTH OFF ACTUATOR. NOTE: THIS PROCESS USES THE FULL 18" STROKE BUT WILL ONLY PRODUCE 9" OF TRAVEL ON INLET AIM ROD.**

### PARTS USED IN THIS STEP



DETAIL R  
SCALE 1:7



## STEP 8 -- ASSEMBLING INLET DOOR TO AIM ROD

ROPE THAT COMES IN PACKAGE **08-150-16** GETS FED THROUGH THE OUTSIDE (LOGO SIDE) TO THE INSIDE. THE ROPE WILL GO IN THROUGH HOLE, SLIDE A WASHER ON THE ROPE AND TIE IN A KNOT OR TWO. THIS WILL ALLOW THE ROPE TO NOT MAKE IT'S WAY OUT OF THE INLET. REF DETAIL U  
**NOTE: PULL TIGHT SO ROPE GOES SNUGLY INTO HOLE**

TAKE OTHER END OF ROPE AND PUT IT THROUGH THE EYE SCREW CONNECTED TO THE CEILING THE AIM ROD GOES THROUGH. WHILE HOLDING THE INLET DOOR CLOSED ONCE AGAIN PULL THE ROPE TIGHT TO ENSURE THE KNOT IS SNUGLY IN THE INLET DOOR.

**NOTE: AT THIS POINT KEEP TENSION ON THE ROPE TO KEEP KNOT INSIDE INLET DOOR SECURE.**

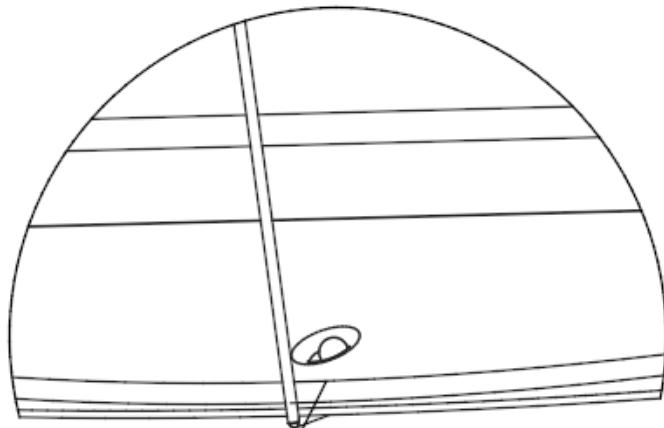
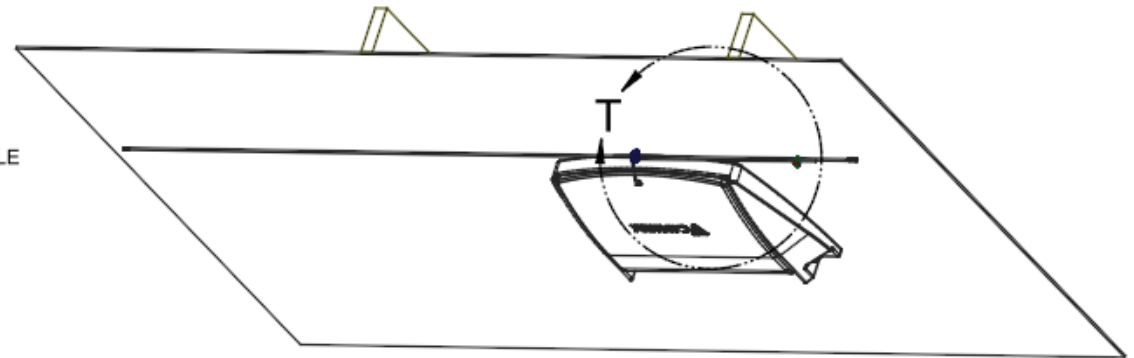
FOLLOWING THE CRITICAL DRAWING IN DETAIL "T" BELOW ATTACH THE CABLE CLAMP 20" AWAY FROM THE INLET EYE SCREW AS WE ARE INSTALLING THESE DOORS WHEN THE SYSTEM IS FULLY CLOSED.  
 NOTE: MAKE SURE TO READ THE CRITICAL DETAIL "T" DIAGRAM FOR DIMENSIONS NEEDED EITHER WAY. ALSO MAKE SURE CABLE CLAMP IS TIGHT AND SECURE.

CUT OFF ANY EXCESS ROPE YOU MIGHT HAVE AFTER INSTALLING THE CABLE CLAMP AS THIS WILL ONLY GET INTO THE WAY.

### PARTS USED IN THIS STEP

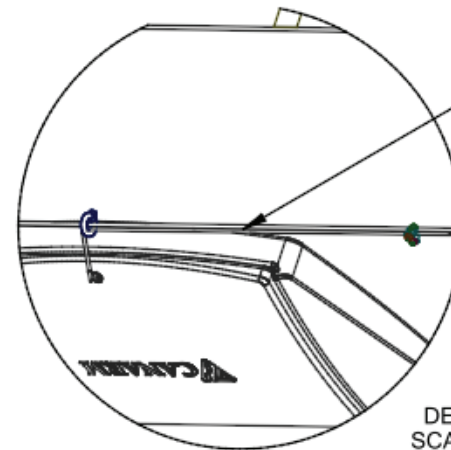
CAI INLET PACKAGE 08-150-16  
 INCLUDES

ROPE, CABLE CLAMP AND WASHER



DETAIL U  
 SCALE 1:3

ROPE UP THROUGH HOLE  
 THEN THROUGH WASHER PROVIDED.  
 TIE IN KNOT AND PULL TIGHT INTO HOLE.



**CRITICAL TO HAVE 20" SPACE  
 BETWEEN CABLE CLAMP AND  
 EYE SCREW IN FRONT OF INLET  
 WHEN INLET CLOSED AND 20"  
 FROM NEXT EYE SCREW TO  
 ACTUATOR PULL SIDE WHEN  
 OPEN TO ALLOW FOR FREE  
 TRAVEL EITHER WAY.**

DETAIL T  
 SCALE 1:10