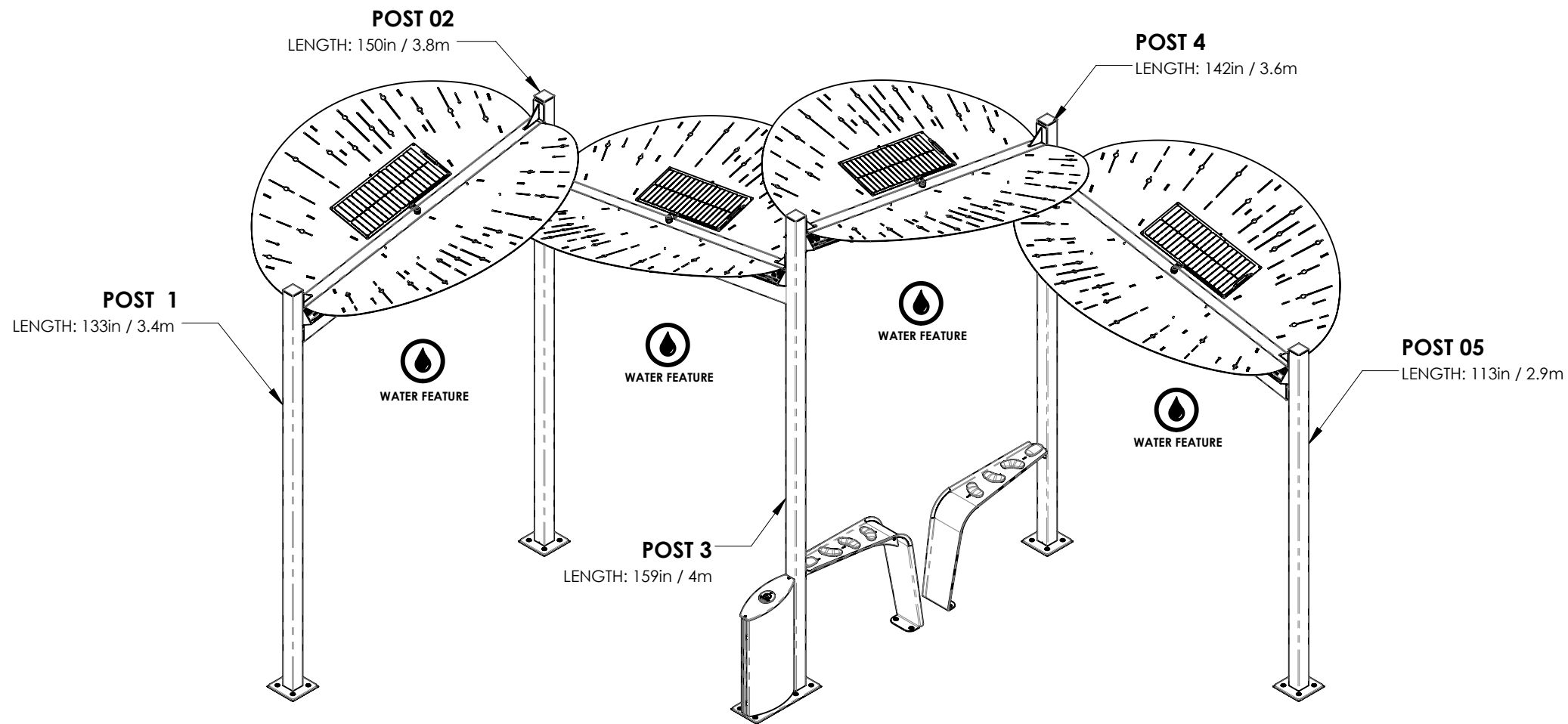
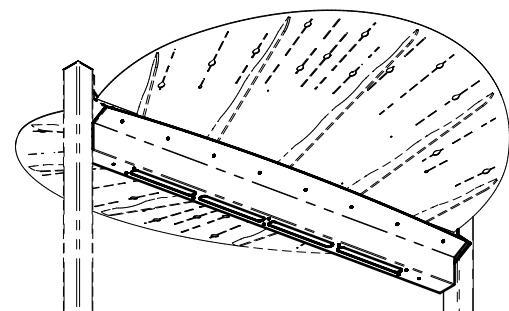
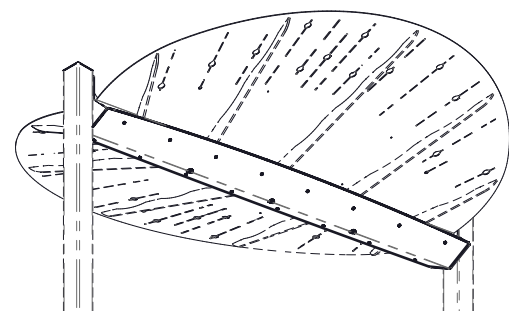




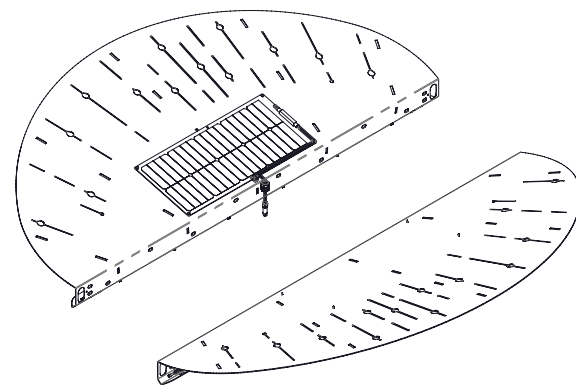
WATER FEATURE OPTIONS



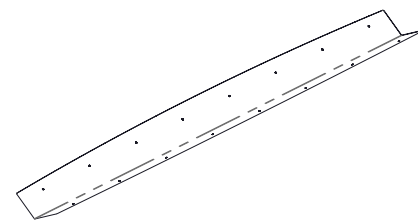
SOFT RAIN



MIST

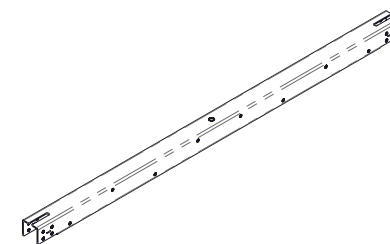


8X CANOPY
4X WITH SOLAR PANEL
4X WITHOUT SOLAR PANEL

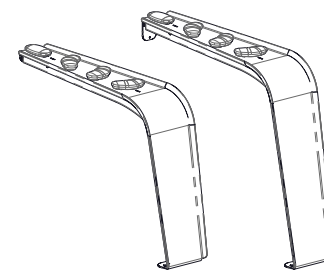


1X CANOPY COVER

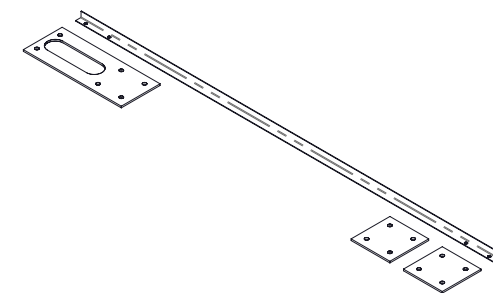
DEFAULT PARTS



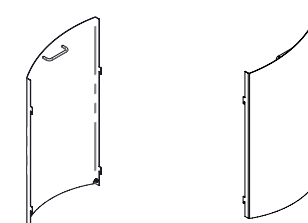
4X BEAMS



2X RIVER MAZE



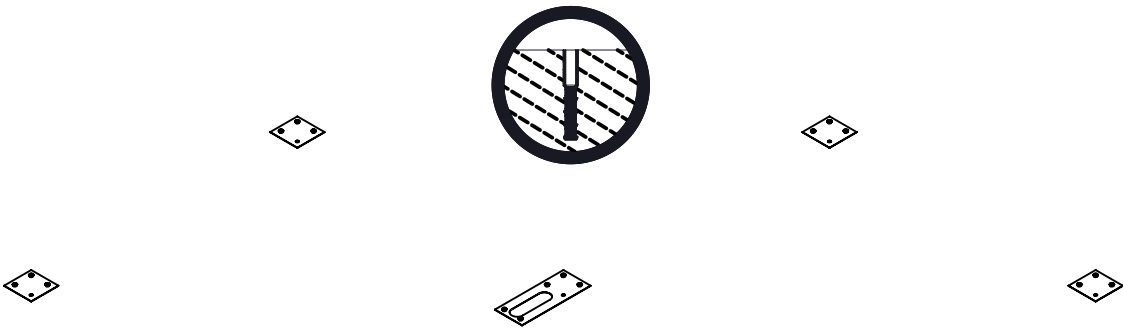
1X ANCHORING JIGS KIT



1X WMS CASING LEFT SIDE PANEL
1X WMS CASING RIGHT SIDE PANEL

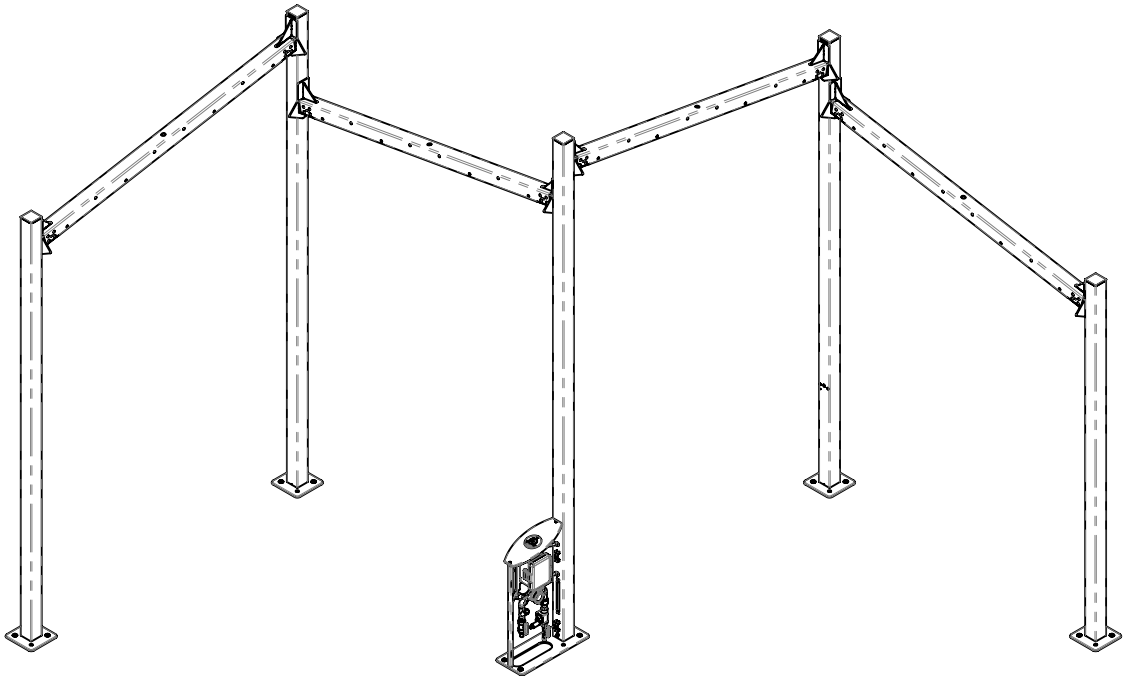
ABRIO 03 - VOR 3503 BOM & OPTIONS

#1



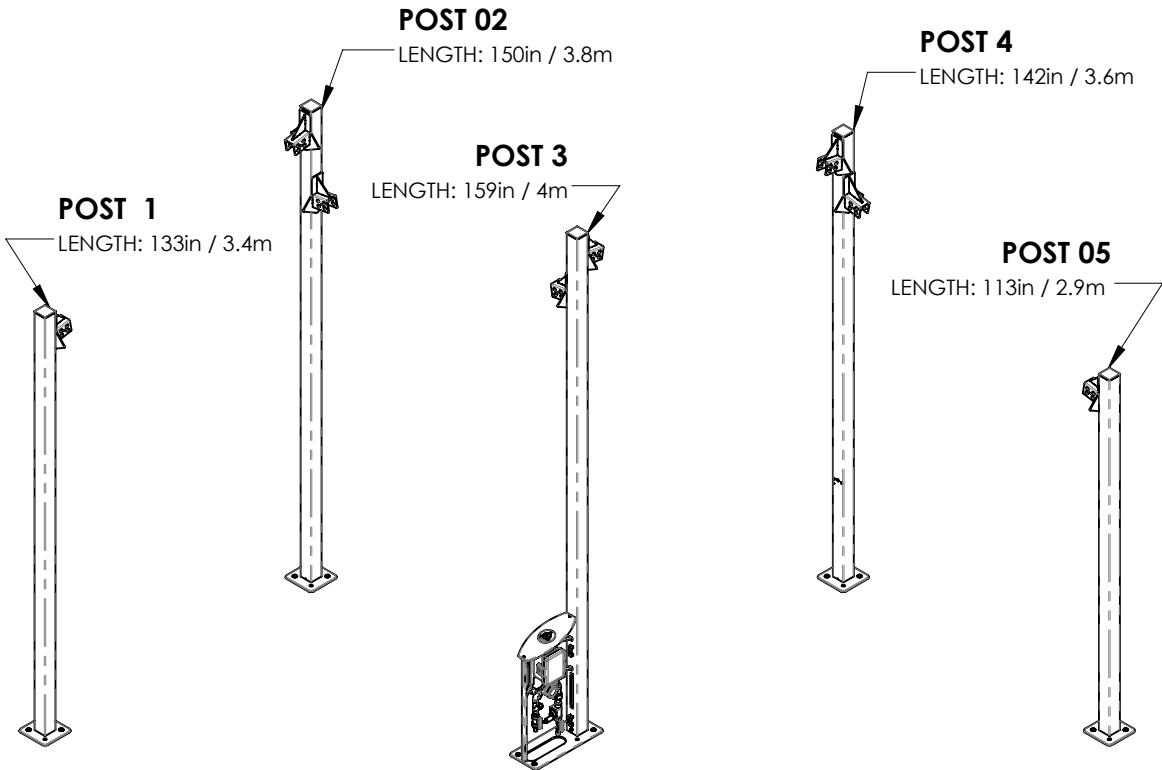
POST ANCHORS' INSTALLATION
REFER TO ANCHORING MARKING METHOD ON P. **TYP - 01**
REFER TO ANCHOR ASSEMBLY DETAIL ON P. **TYP - 02**
USE INSTALLATION DARWING MEASUREMENTS FOR MORE DETAILS

#3



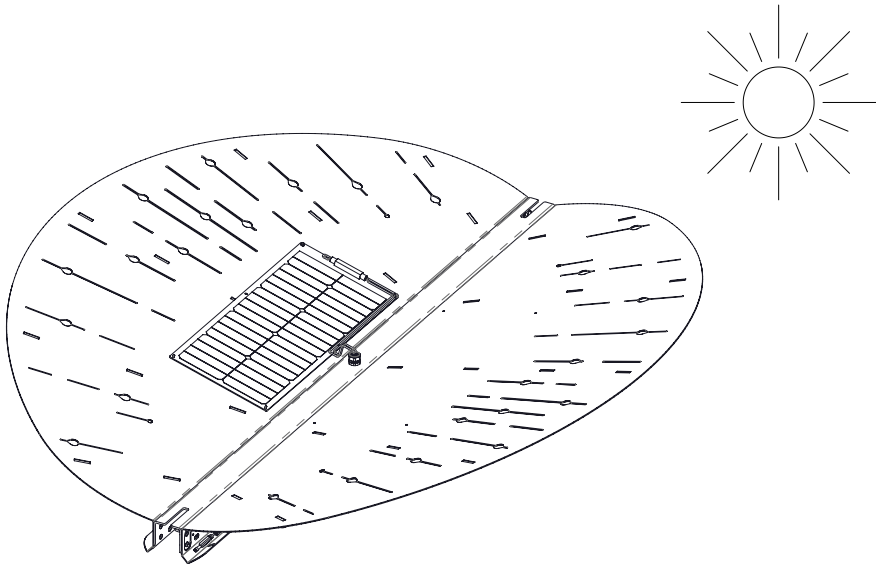
BEAMS INSTALLATION
FULLY SECURE THE POSTS WITH TOOLS AFTER ALL BEAMS ARE INSTALLED
REFER TO BEAM ASSEMBLY DETAIL ON P. **TYP - 07**

#2



POSTS INSTALLATION
HAND-TIGHTEN THE POSTS ON THE GROUND
REFER TO WMS POST ASSEMBLY DETAIL ON P. **TYP - 03**
REFER TO POST ASSEMBLY DETAIL ON P. **TYP - 06**

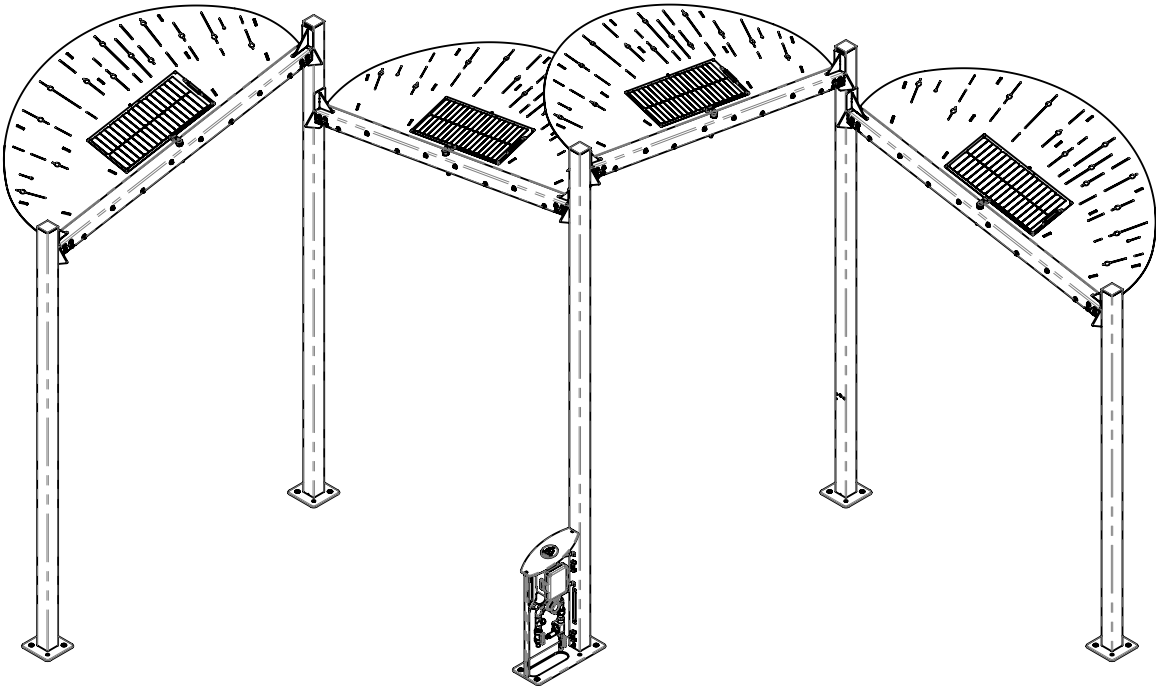
#4.A



CANOPIES WITH SOLAR PANEL ORIENTATION
CANOPIES WITH SOLAR PANEL MUST BE INSTALLED TOWARDS THE SUN
(SOLAR PANEL FACING SOUTH IN NORTH HEMISPHERE / FACING NORTH IN SOUTH HEMISPHERE) AVOID
SHADOW AND OBSTRUCTED AREAS
REFER TO CANOPY ASSEMBLY DETAIL ON P. **TYP - 09**

**IF YOU HAD SEVERAL DAYS WITHOUT SUN (3 OR MORE), THE SYSTEM WILL GO TO A SLEEP
MODE, WHICH WILL SHUTDOWN THE SYSTEM TO PROTECT THE CONTROLLER AND
THE BATTERY UNTIL IT'S RECHARGED TO 20% (3-5 SUNNY HOURS).**

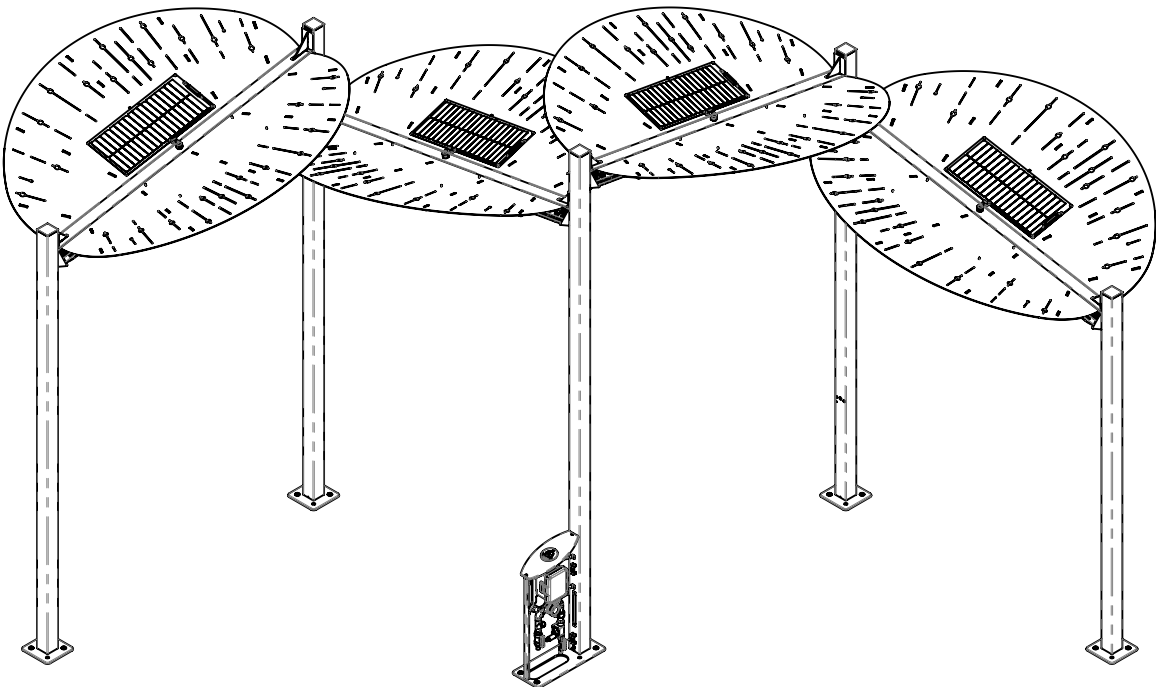
#4.B



CANOPIES WITH SOLAR PANEL INSTALLATION

FROM THE HIGHEST CANOPY TO THE LOWEST (REFER TO SEQ. ORDER AS DESCRIBE ABOVE)
REFER TO CANOPY ASSEMBLY DETAIL ON P. **TYP - 08**

#4.C

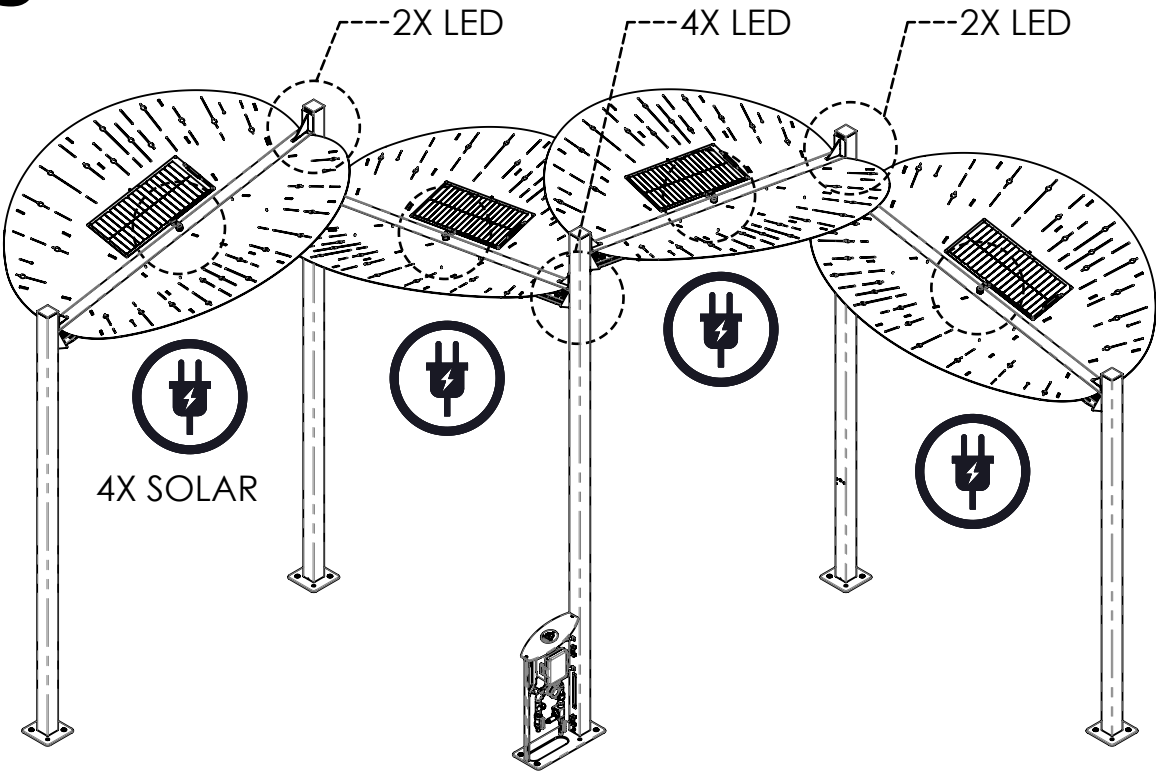


CANOPIES INSTALLATION

FROM THE HIGHEST CANOPY TO THE LOWEST (REFER TO SEQ. ORDER AS DESCRIBE ABOVE)
REFER TO CANOPY ASSEMBLY DETAIL ON P. **TYP - 08**

#5

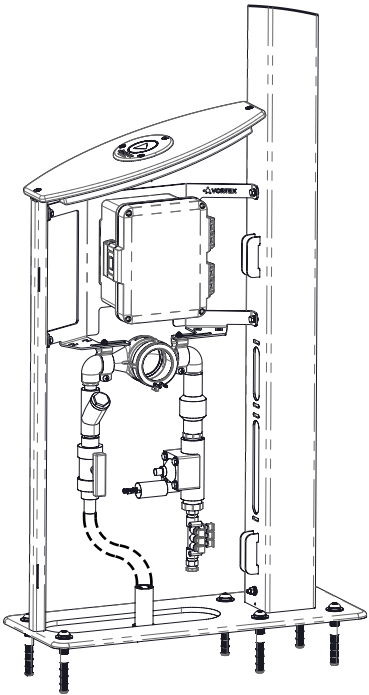
CRITICAL STEP
MAKE SURE ALL CABLES ARE CONNECTED



ELECTRIC CONNECTION OF LEDS

REFER TO CANOPY ASSEMBLY DETAIL ON P. **TYP - 10 & P. TYP - 14**
REFER TO ABRIO 03 ELECTRICAL CABLE MANAGEMENT

#6



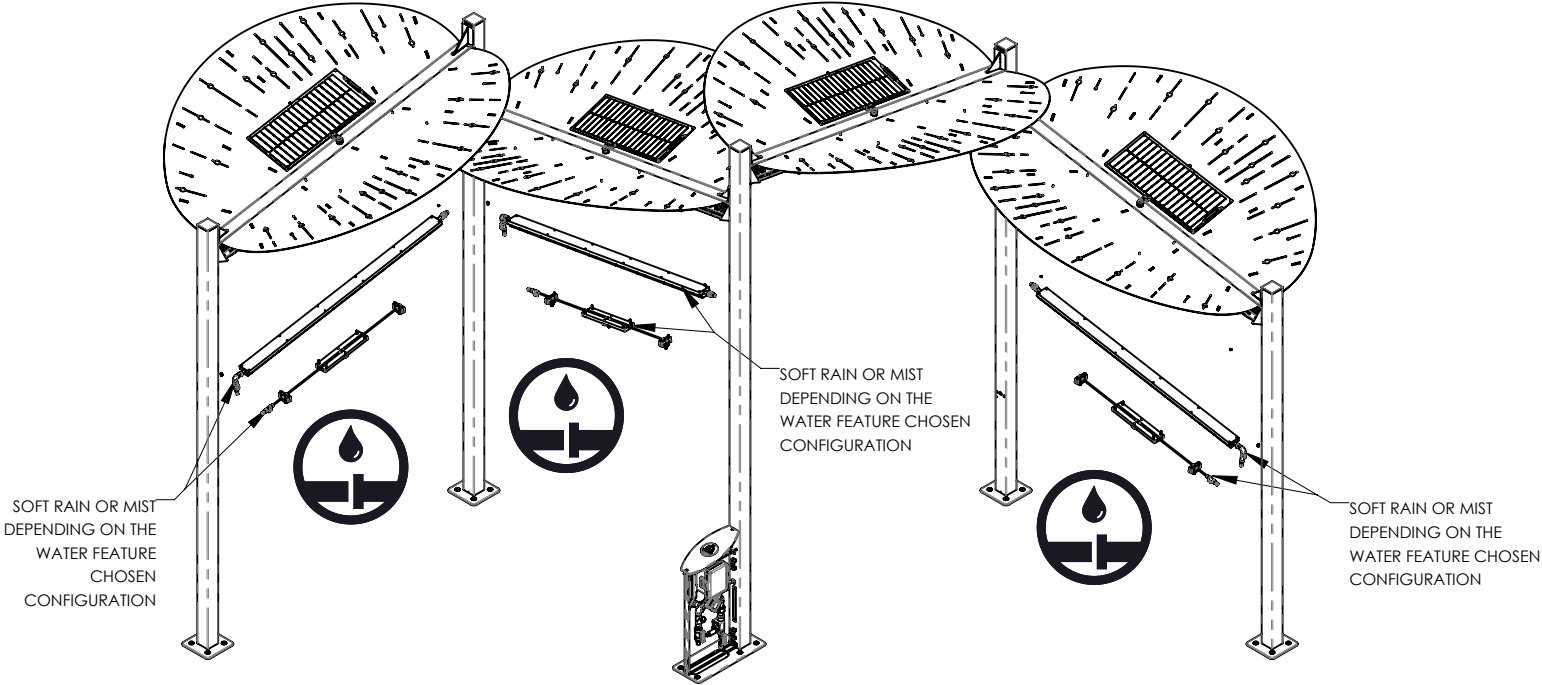
TESTING STEPS:

- 1- CONNECT WATER LINE INLET TO WATER MANAGEMENT SYSTEM
- 2- CONNECT TUBINGS TO THE MANIFOLDS
- 3- OPEN MAIN VALVE
- 4- PRESS THE PLAYSTART ACTIVATOR
- 5- LET WATER FLOW FROM THE OTHER ENDS OF THE TUBINGS DURING 4 MIN SEQUENCE

WATER TESTING

TEST IF WATER FLOW THROUGH THE MANIFOLD

#7

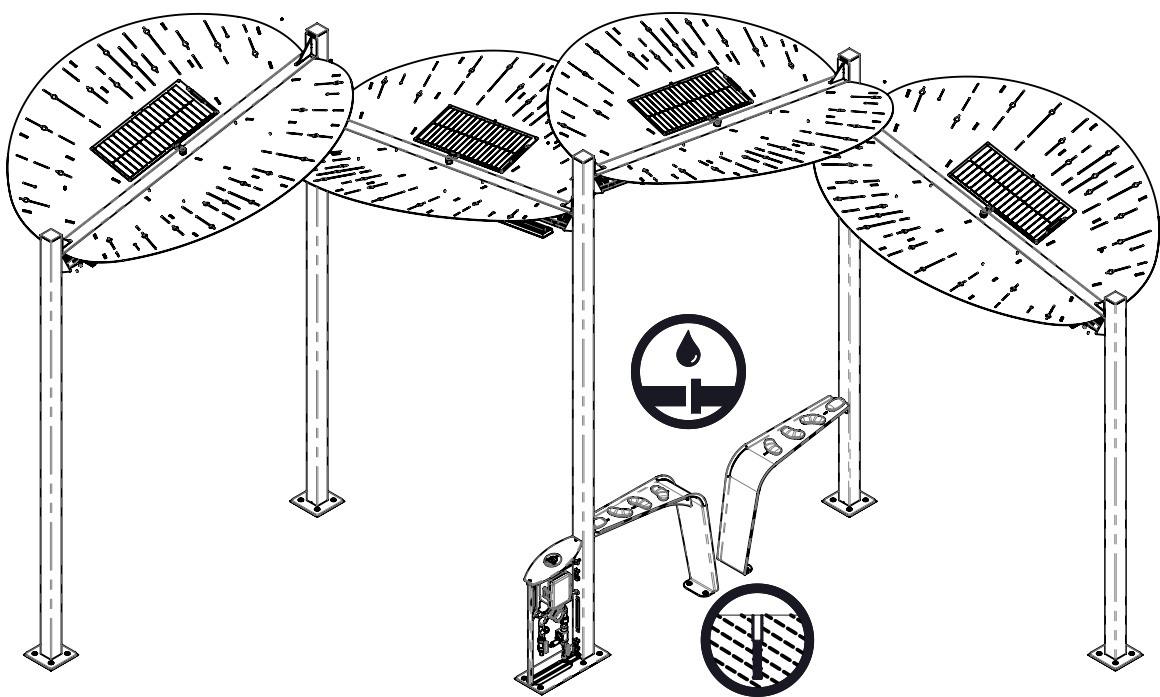


SOFT RAIN & MIST INSTALLATION

WATER FEATURE TYPES MAY VARY

REFER TO MIST ASSEMBLY DETAIL ON P. **TYP - 15** / REFER TO SOFT RAIN ASSEMBLY DETAIL ON P. **TYP - 17**
REFER TO ABRIO 03 WATER TUBING MANAGEMENT

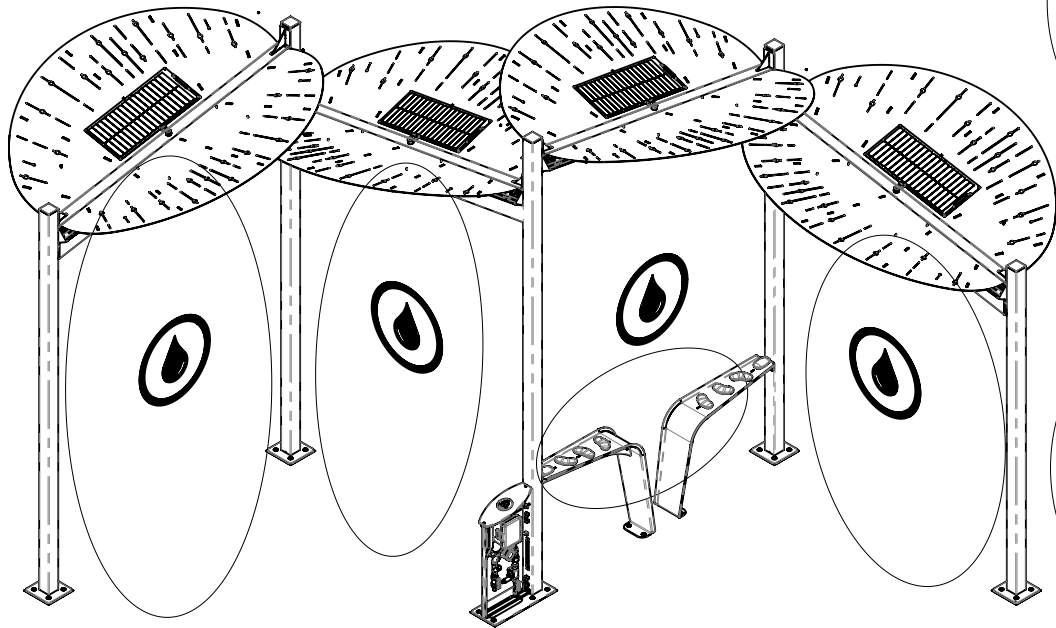
#8



RIVER MAZES INSTALLATION

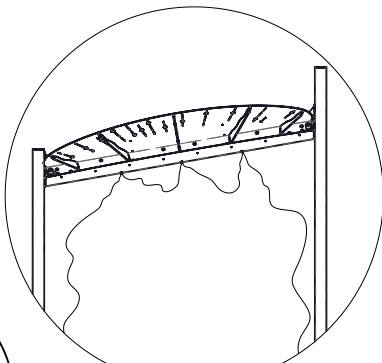
REFER TO RIVER MAZE ASSEMBLY DETAIL ON P. **TYP - 19**
REFER TO ABRIO 03 WATER TUBING MANAGEMENT

#9

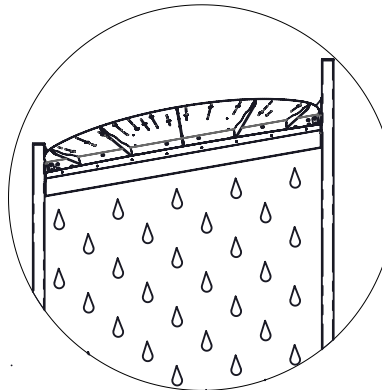


WATER FEATURES TESTING

TEST IF WATER FLOW THROUGH ALL WATER FEATURES
BY PRESSING THE ACTIVATOR



WATER FEATURE
MIST

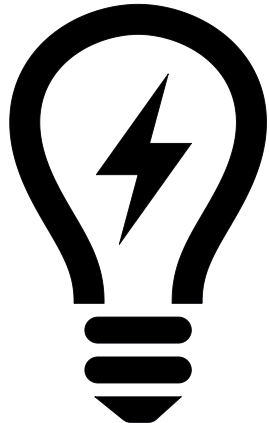
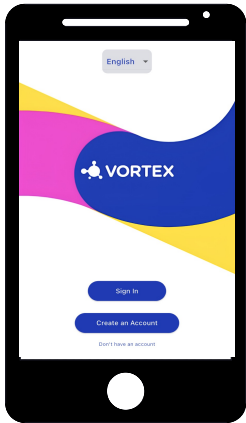


WATER FEATURE
SOFT RAIN

#10

DOWNLOAD VORTEX SmartConnect™ APP

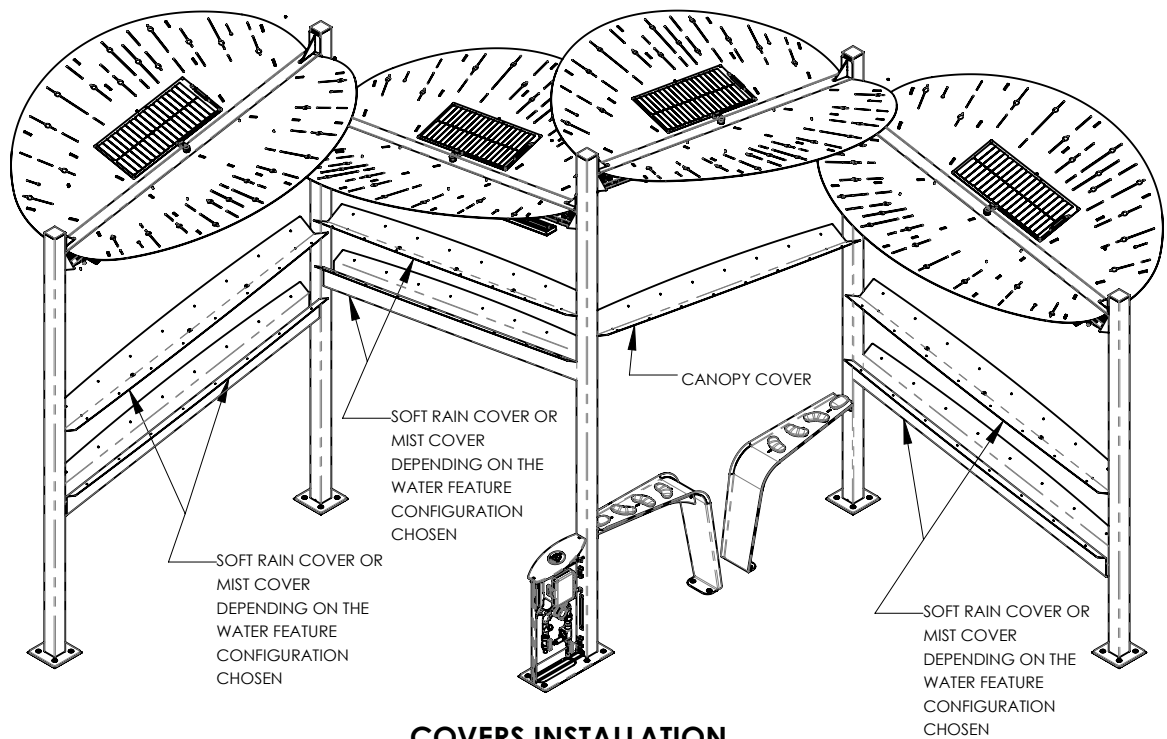
APP INSTRUCTIONS



APPLICATION TESTING

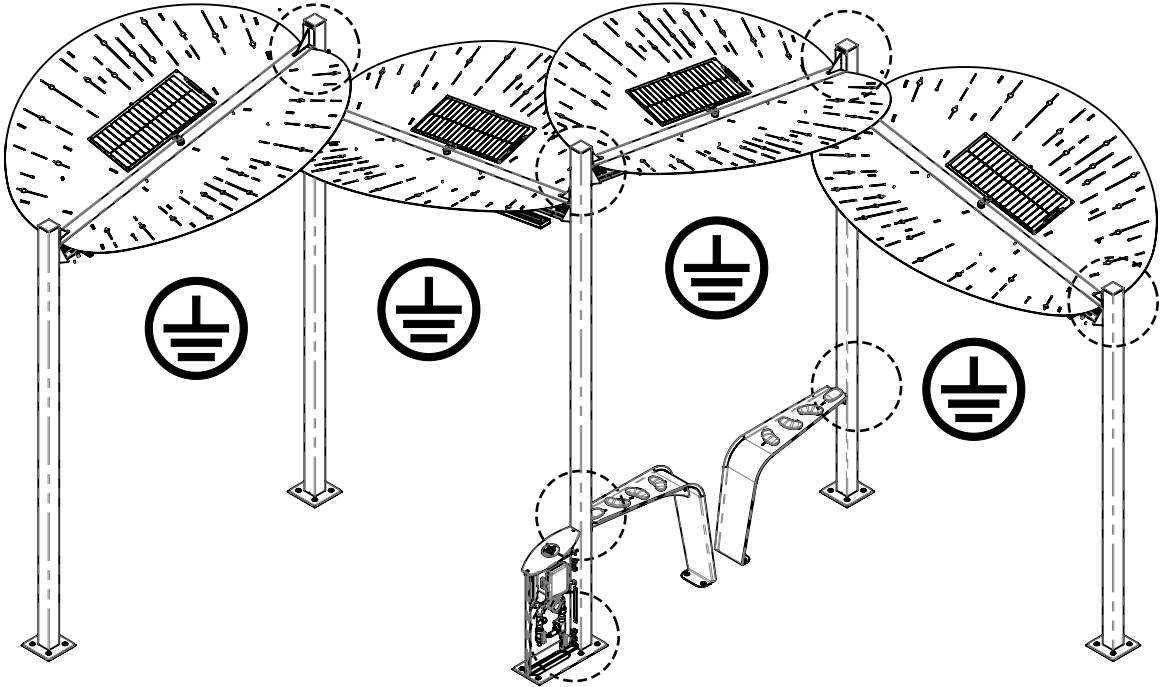
CONNECT THE ABRIO WITH THE CELLPHONE APPLICATION'S
AND DO LIGHTNING TESTING FROM THE APPLICATION

#11



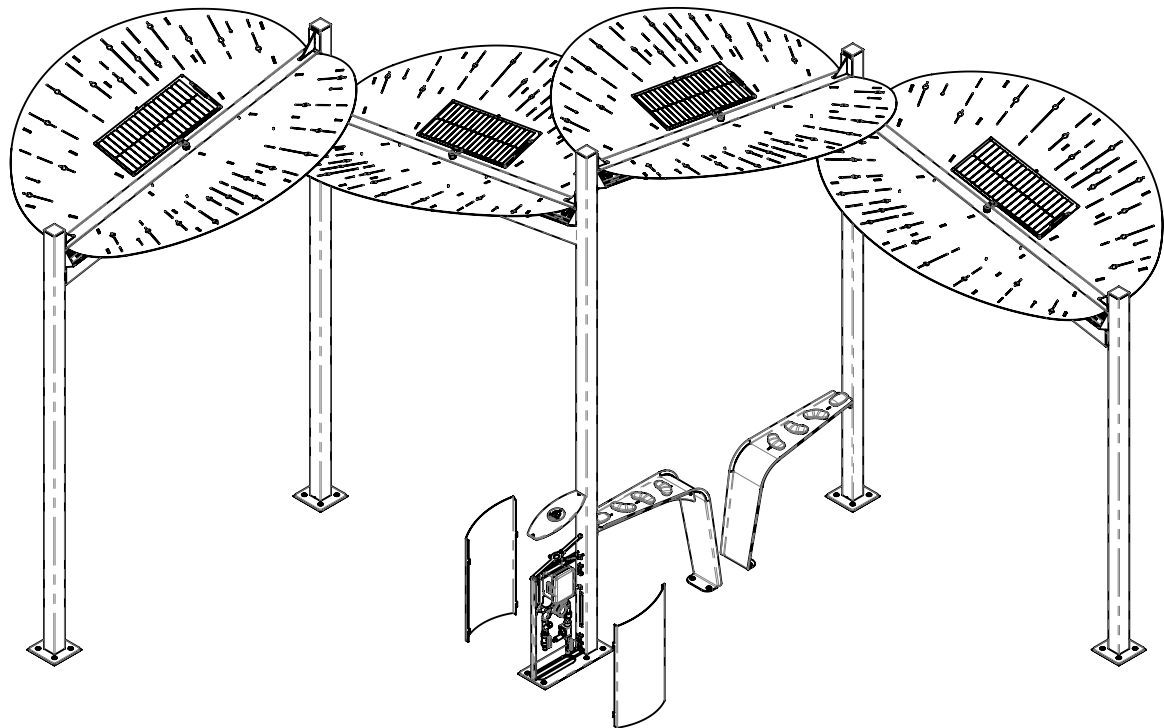
COVERS INSTALLATION
COVER TYPE MAY VARY DEPENDING ON WATER FEATURE
REFER TO COVER ASSEMBLY DETAIL ON P. **TYP - 23**

#12



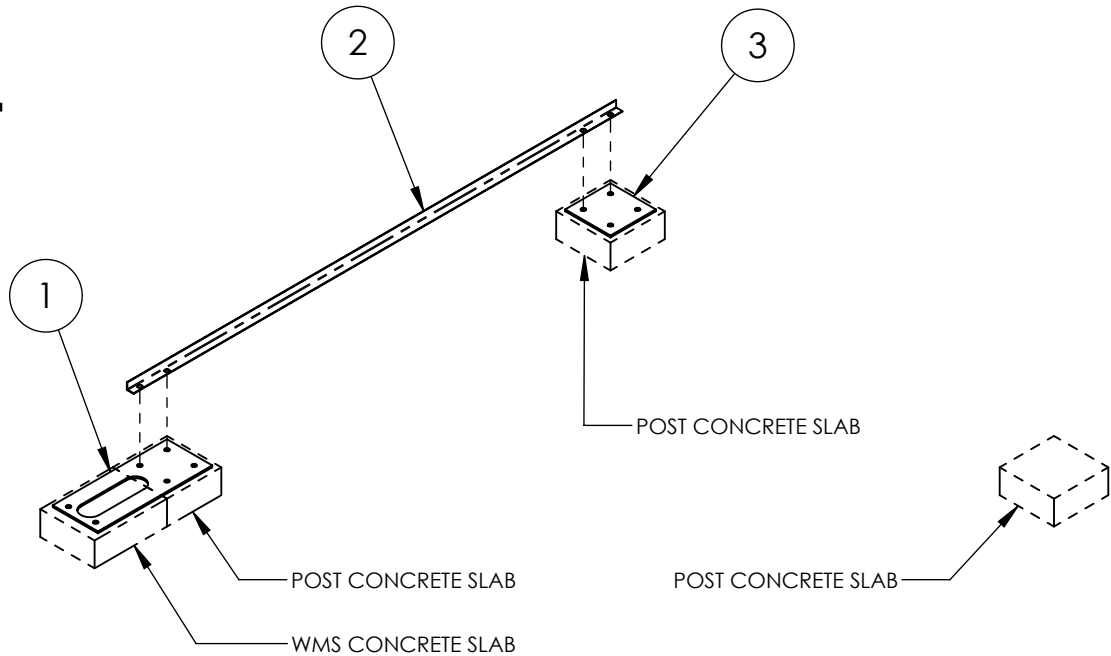
GROUND AND BONDING VERIFICATION
8X ON CANOPIES / 2X ON RIVER MAZES / 1X ON WMS POST

#13

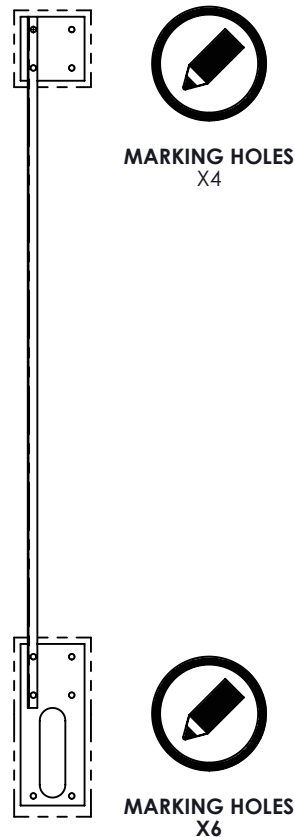


WMS SIDE PANELS INSTALLATION
REMOVE ACTIVATOR PLATE TO INSTALL THE WMS SIDE PANELS
REFER TO WMS POST ASSEMBLY DETAIL ON P. **TYP - 05**

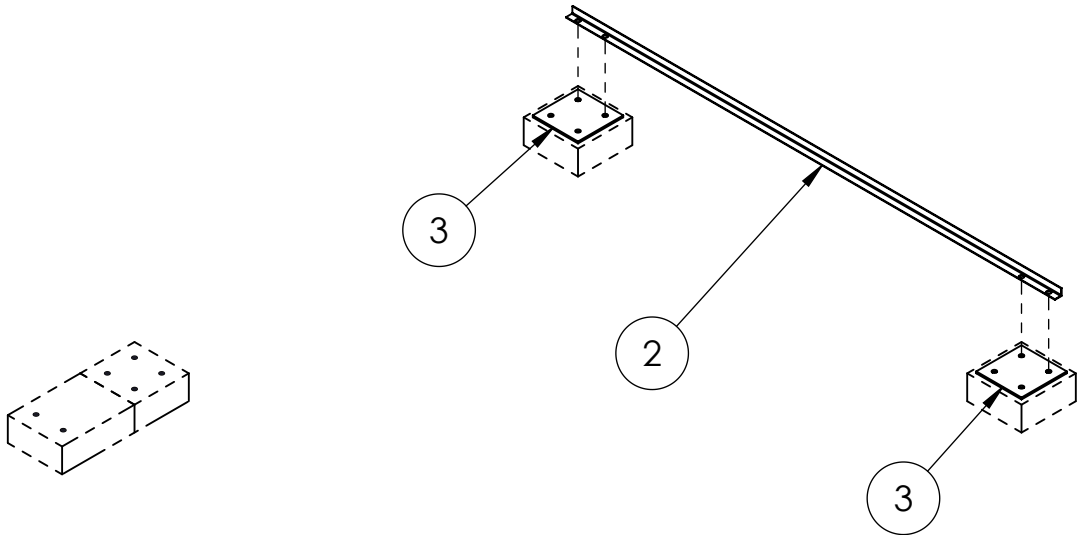
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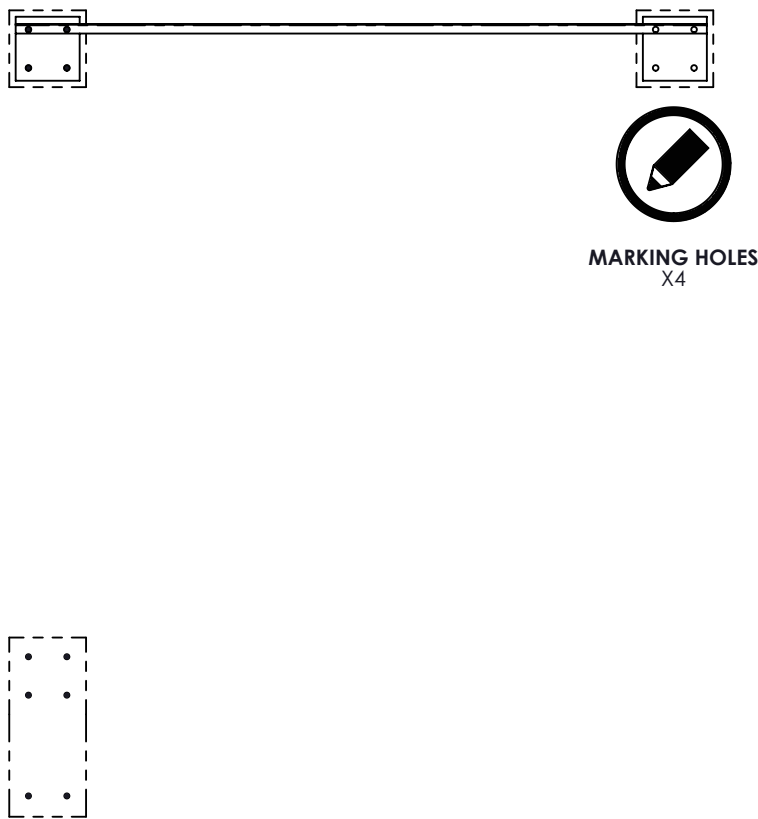
#2



#3



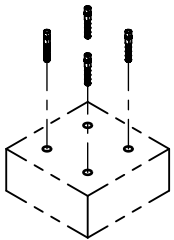
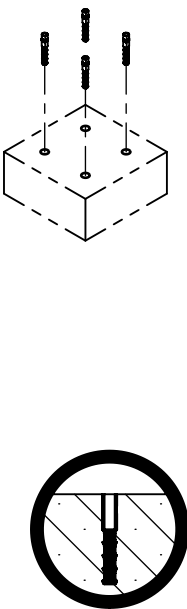
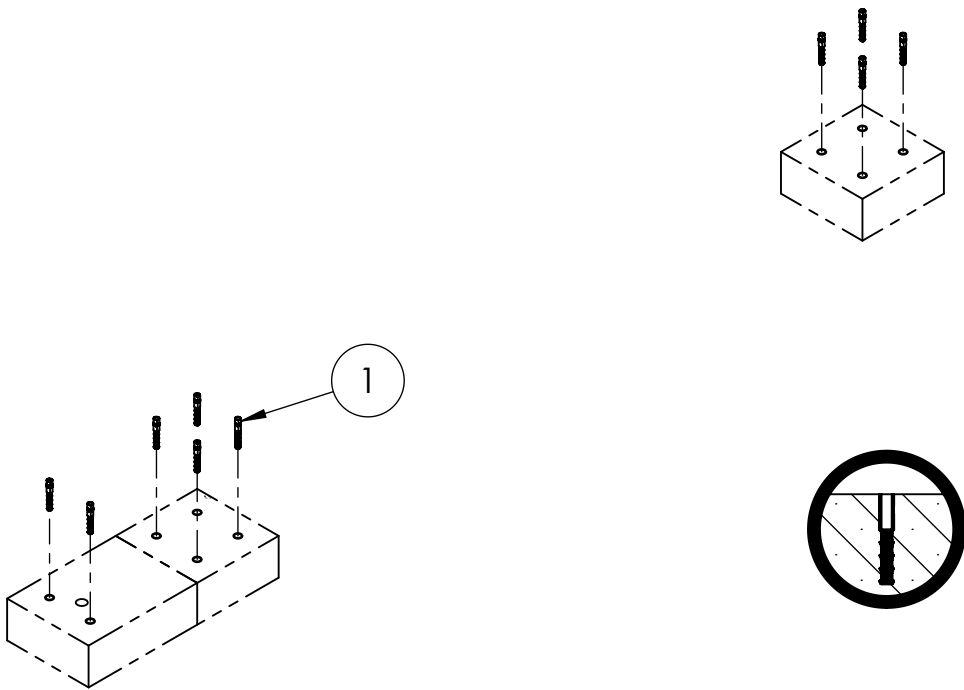
#4



ANCHORING MARKING METHOD

ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	135991	ABRIO_WMS ANCHOR PLATE JIG
2	1	134893	ABRIO_ANCHOR PLATE POSITIONING JIG
3	2	135998	ABRIO_ANCHOR PLATE JIG

NOTES:
CENTER THE PLATE JIGS AS PRECISELY AS POSSIBLE. IF THE ANCHORING IS ON A CONCRETE SLAB, YOU MUST TAKE MEASUREMENT, REFER TO INSTALLATION DRAWING;
YOU MAY USE THE PLATE JIGS AS GUIDE FOR DRILLING THE ANCHOR HOLES

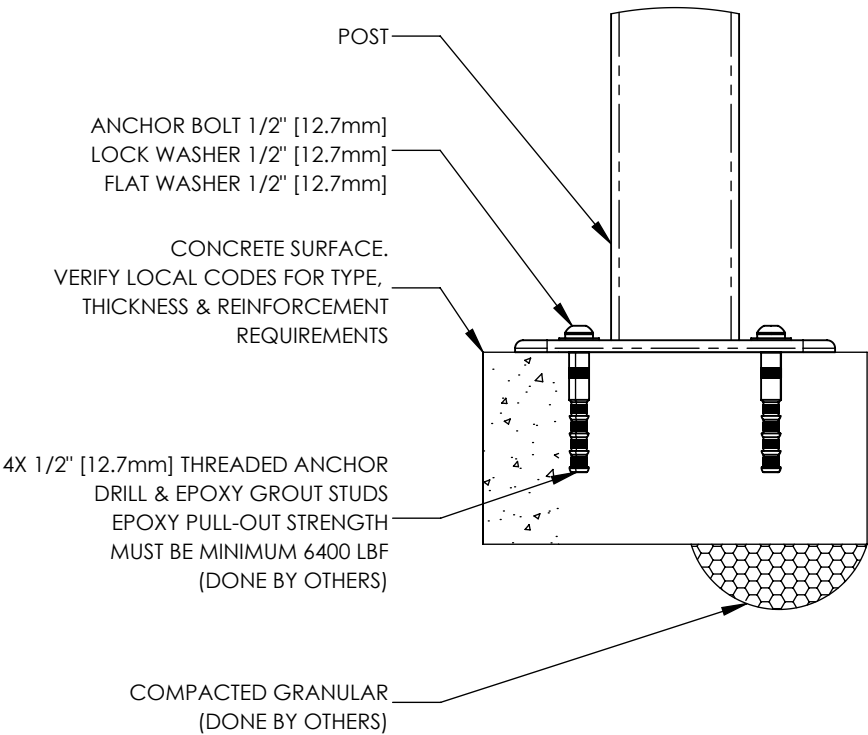


POSTS TYPICAL ANCHORING STEPS (DONE BY OTHERS)

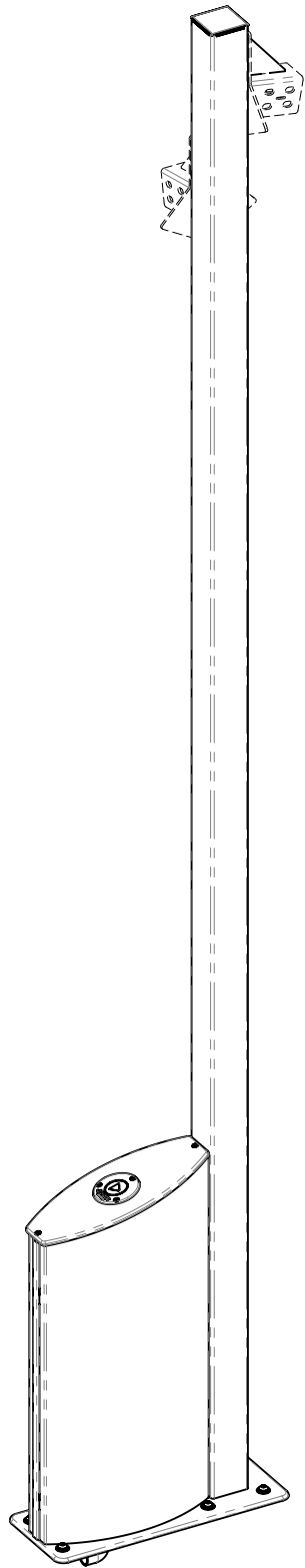
*REFER TO ANCHORING POSITIONS PAGE

1.
- PLACE ANCHORING JIGS AS DETAILED IN THE VORTEX' ASSEMBLY GUIDE
2.
- MARK ON CONCRETE FOOTING OR SLAB, THE POST'S ANCHORING HOLES' POSITIONS.
3.
- DRILL ON HOLES' MARKINGS WITH 3/4" DRILL BIT SIZE.
4.
- CLEAN THE DRILLED HOLES.
5.
- PUT ANCHORS IN HOLES WITH EPOXY (EPOXY ANCHORING ADHESIVE PULL-OUT STRENGTH MUST BE MINIMUM 6400 LBF).
6.
- WAIT FOR EPOXY'S CURING TIME
7.
- ASSEMBLE THE POSTS AS PER VORTEX' ASSEMBLY GUIDE.

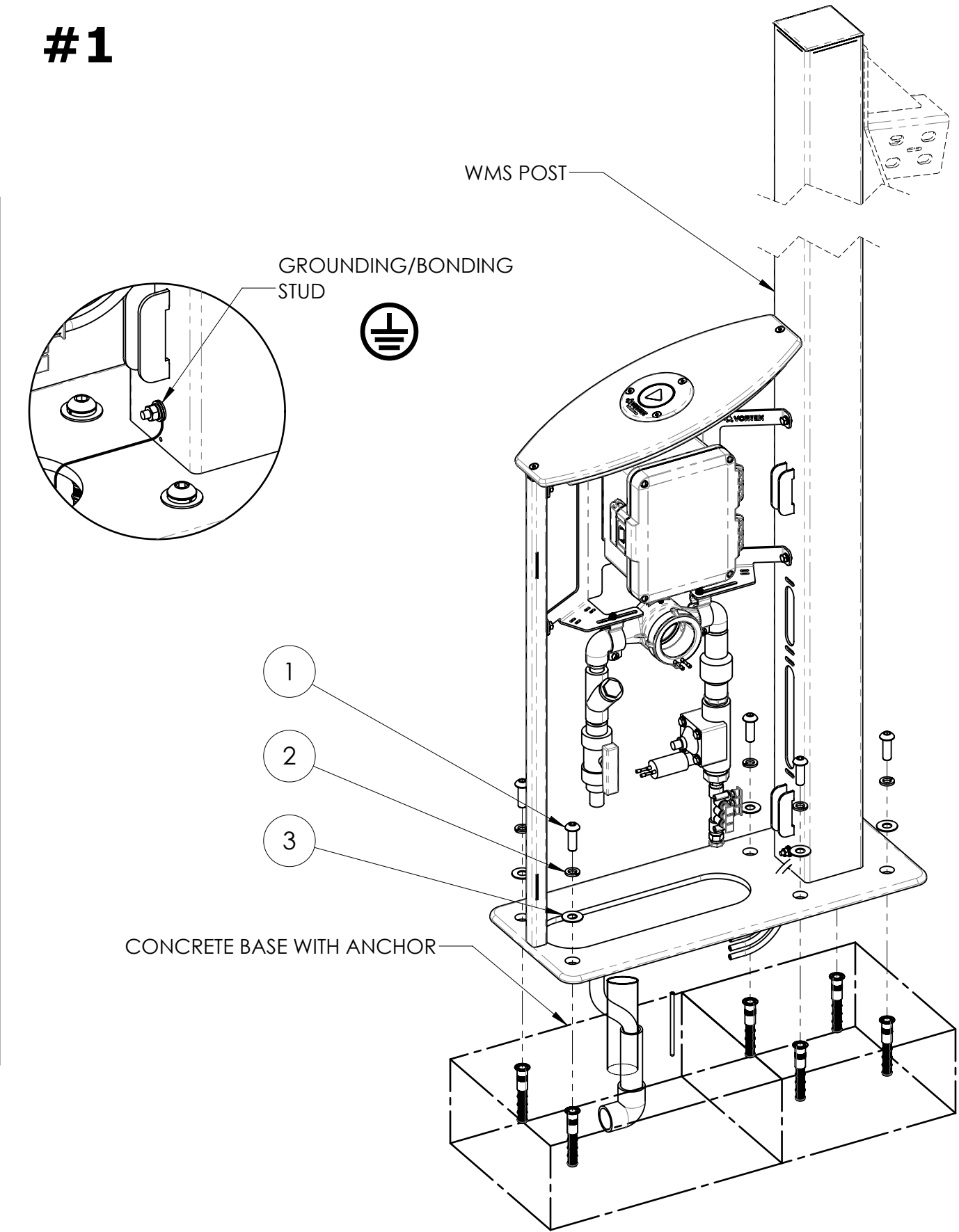
POST TYPICAL ANCHORING DETAIL



ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	4X PER POST 6X PER WMS POST	134450	ADHESIVE-GRIP CONCRETE ANCHOR, 1/2"-13 FNPT, ZINC PLATED STEEL



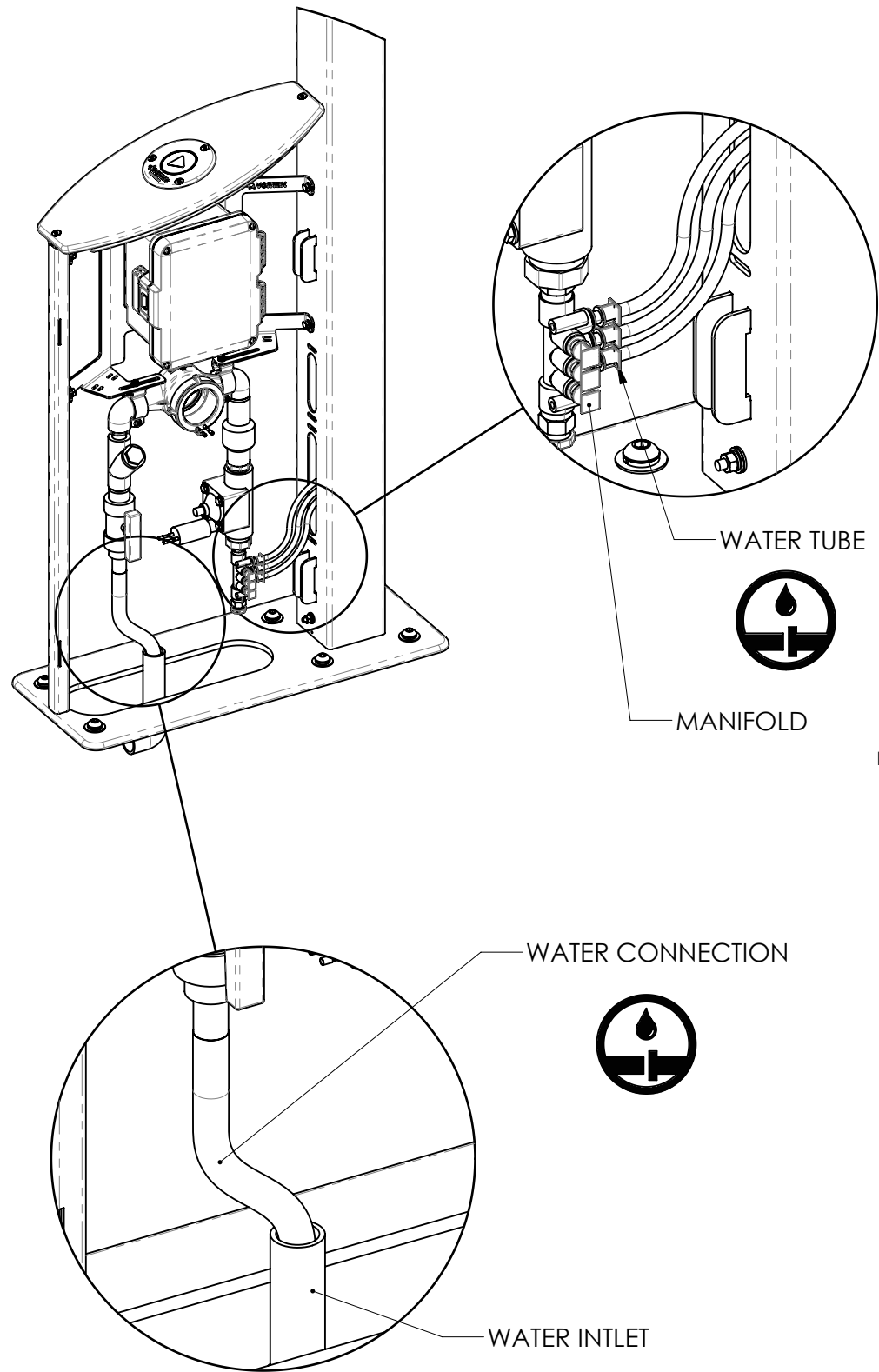
#1



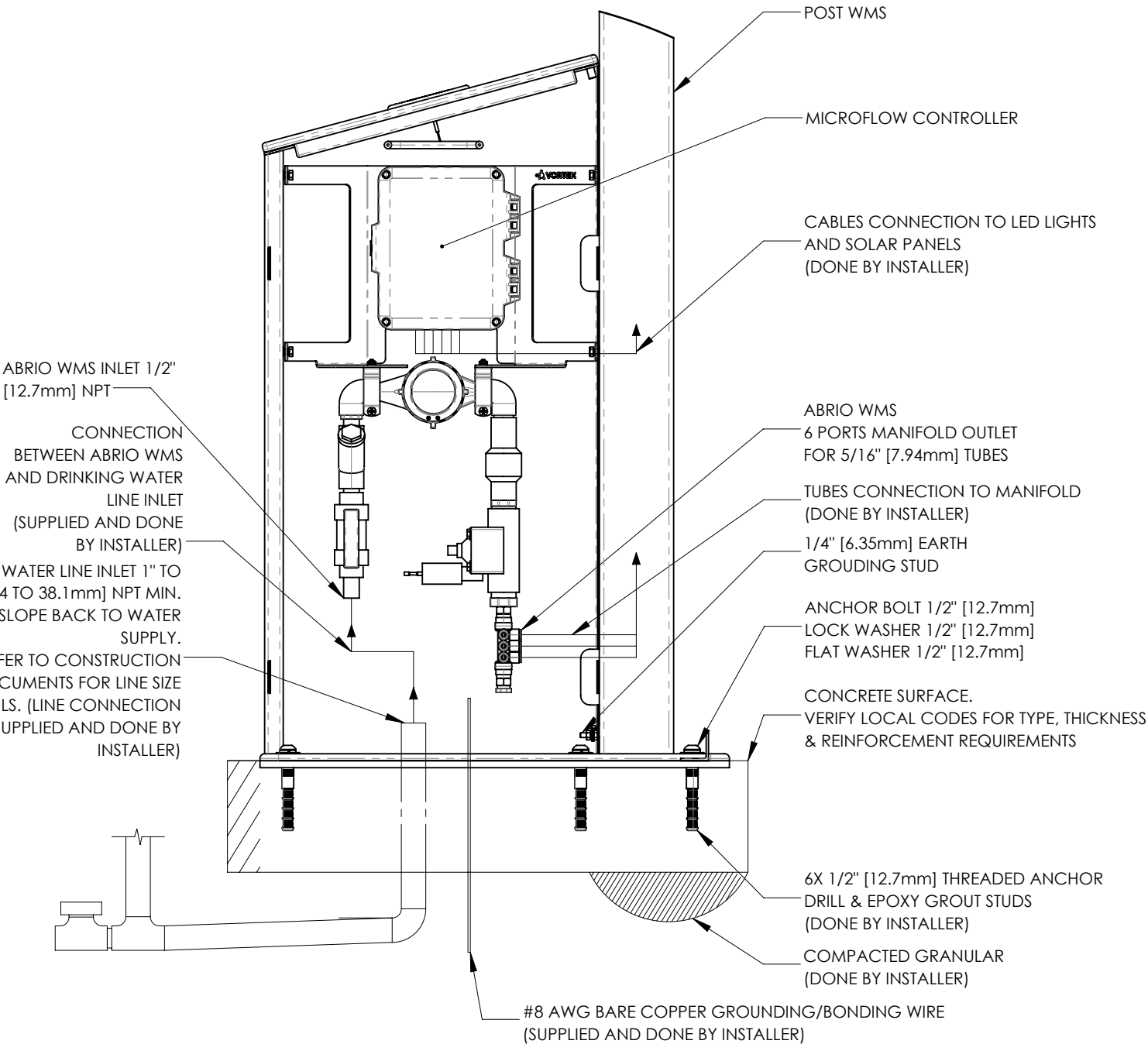
ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	6	134671	BUTTON SOCKET CAP SCREW 1/2"-13 X 1 1/2" FULL THREAD ZINC PLATED
2	6	103394	SPLIT LOCK WASHER 1/2"
3	6	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
4	1	134204	ABRIO_WMS CASING_LEFT SIDE PANEL_ASSEMBLY
5	1	134200	ABRIO_WMS CASING_RIGHT SIDE PANEL_ASSEMBLY

NOTES:
HAND TIGHT THE ANCHOR HARDWARE UNTIL POSTS AND BEAMS ARE ASSEMBLED;
THE GROUNDING MUST BE DONE BY THE INSTALLER WITH THE GROUNDING/BONDING STUD;
WMS SIDE PANELS INSTALLATION IS THE LAST STEP OF THE ABRIO ASSEMBLY

WMS POST ASSEMBLY DETAIL



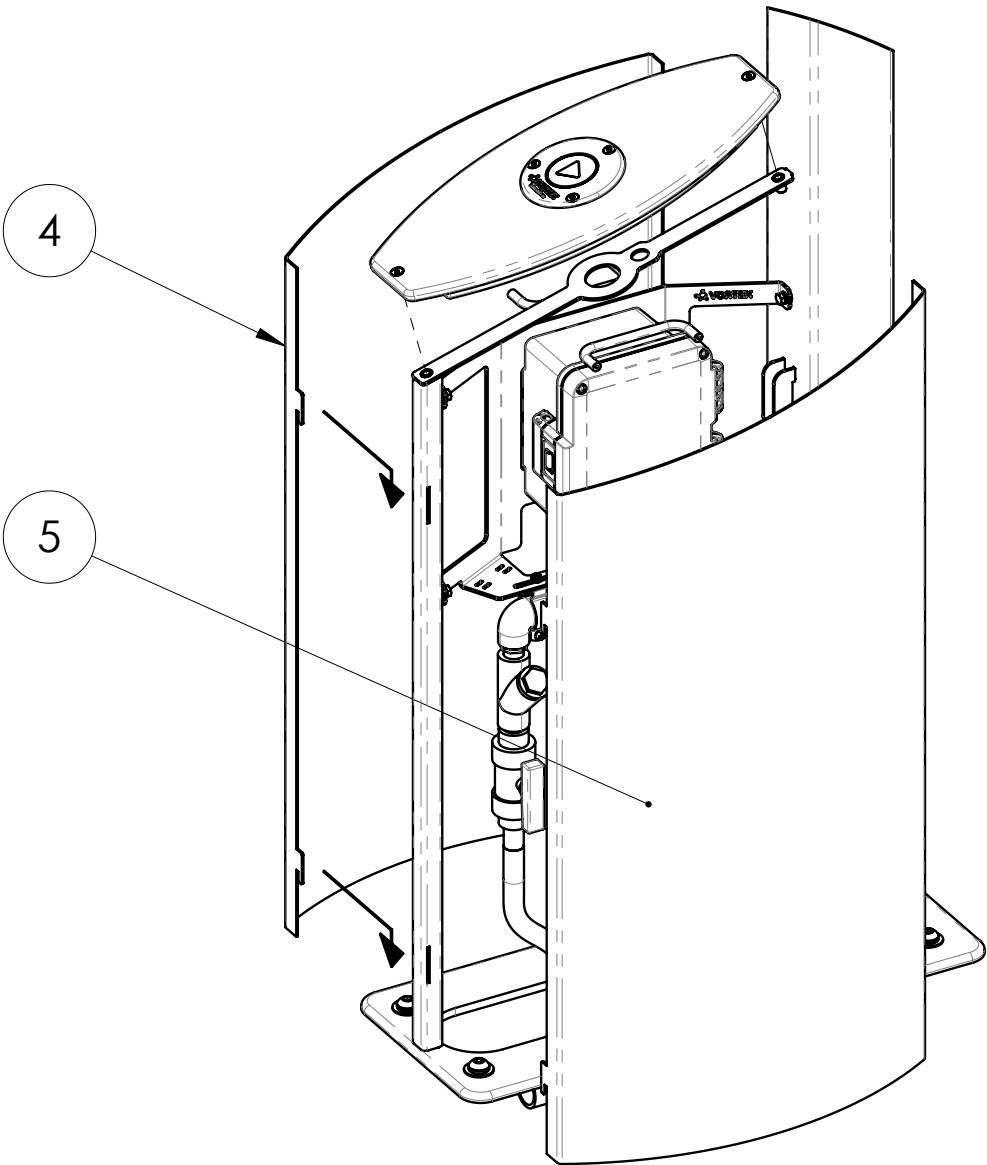
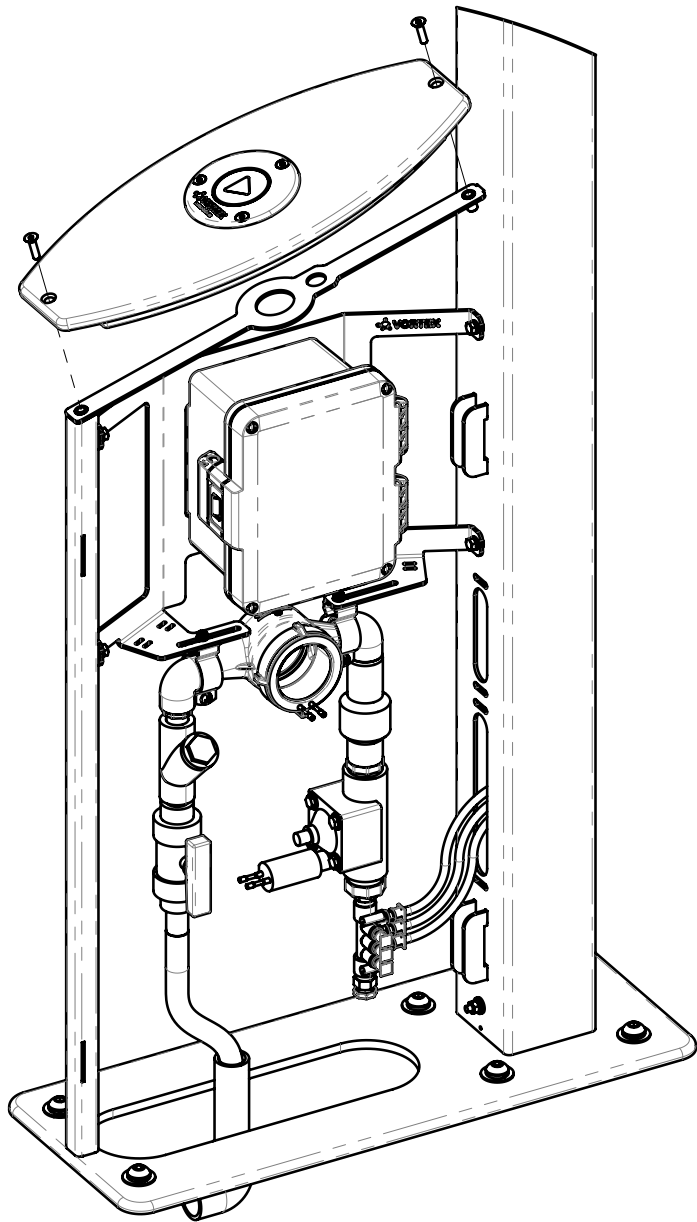
POST WMS TYPICAL
ANCHORING DETAIL



WMS POST ASSEMBLY DETAIL

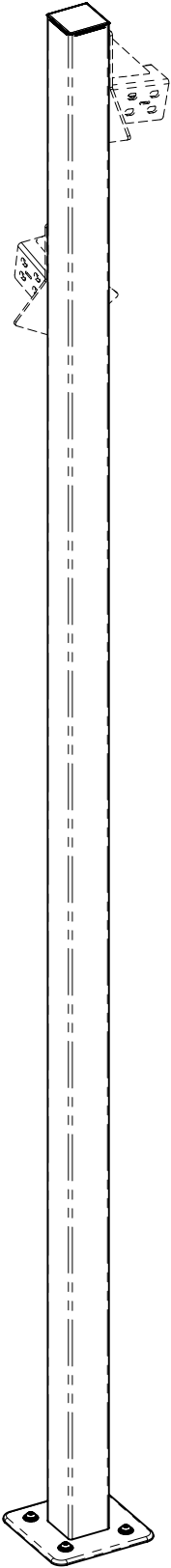
#3

WMS SIDE PANELS INSTALLATION IS THE LAST STEP OF THE ABRIO ASSEMBLY

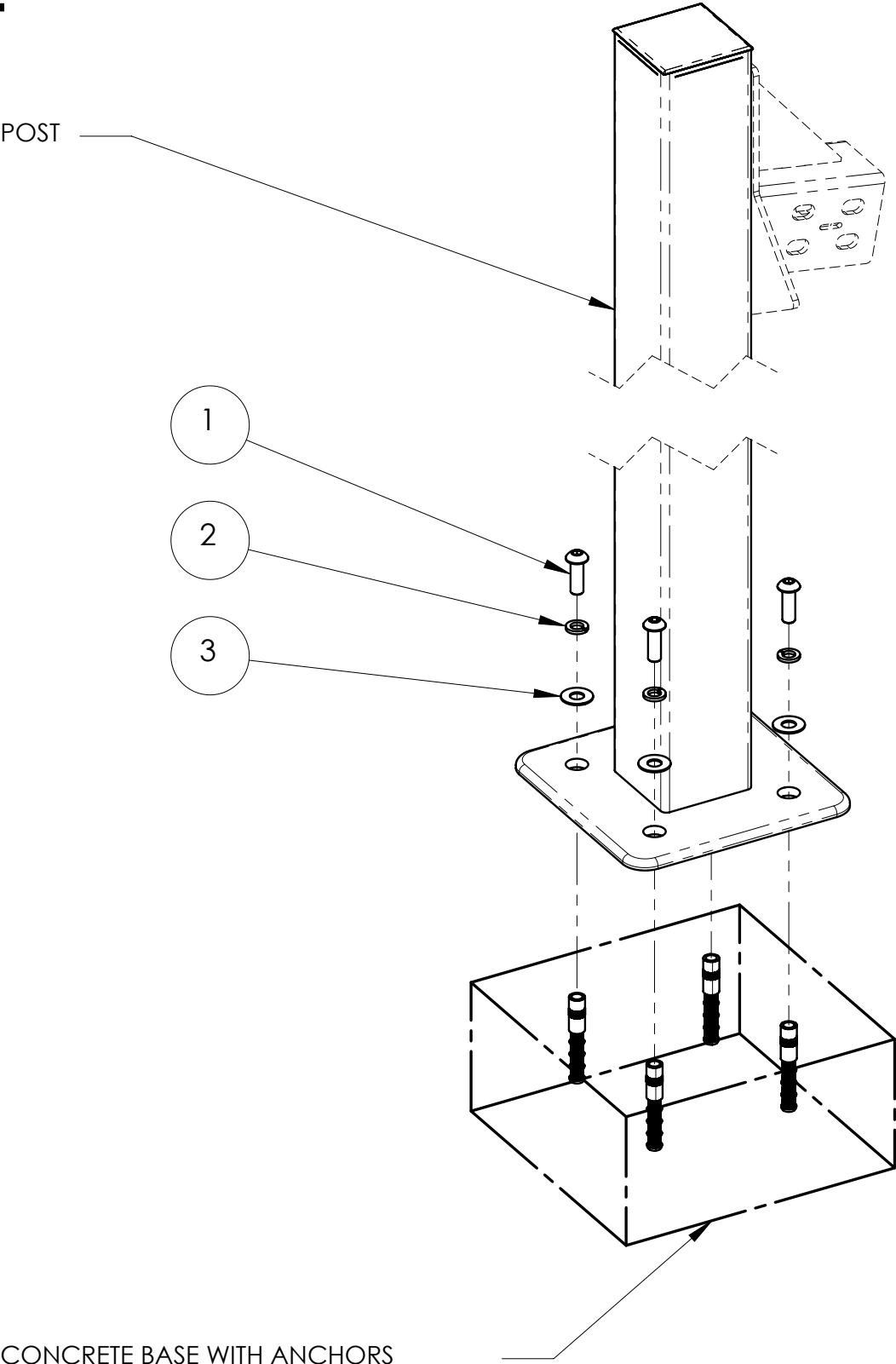


WMS POST ASSEMBLY DETAIL

#1



#2

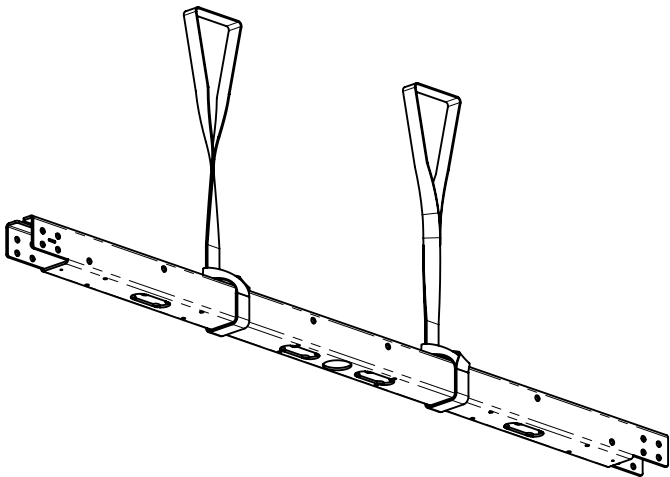


ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	4	134671	BUTTON SOCKET CAP SCREW 1/2"-13 X 1 1/2" FULL THREAD ZINC PLATED
2	4	103394	SPLIT LOCK WASHER 1/2"
3	4	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD

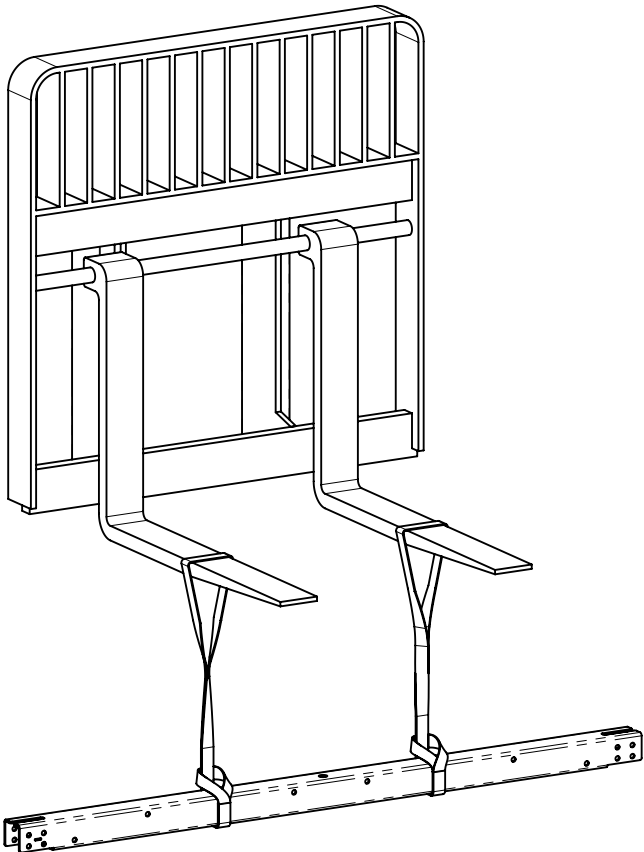
NOTES:
HAND TIGHT THE ANCHOR HARDWARE UNTIL POSTS AND BEAMS ARE ASSEMBLED

BEAM ASSEMBLY DETAIL

LIFTING METHOD



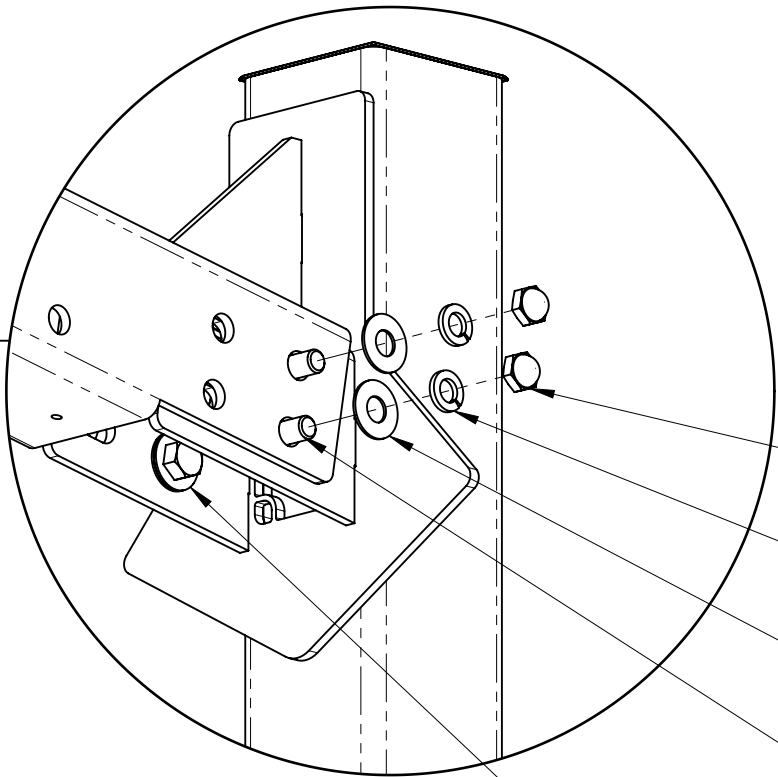
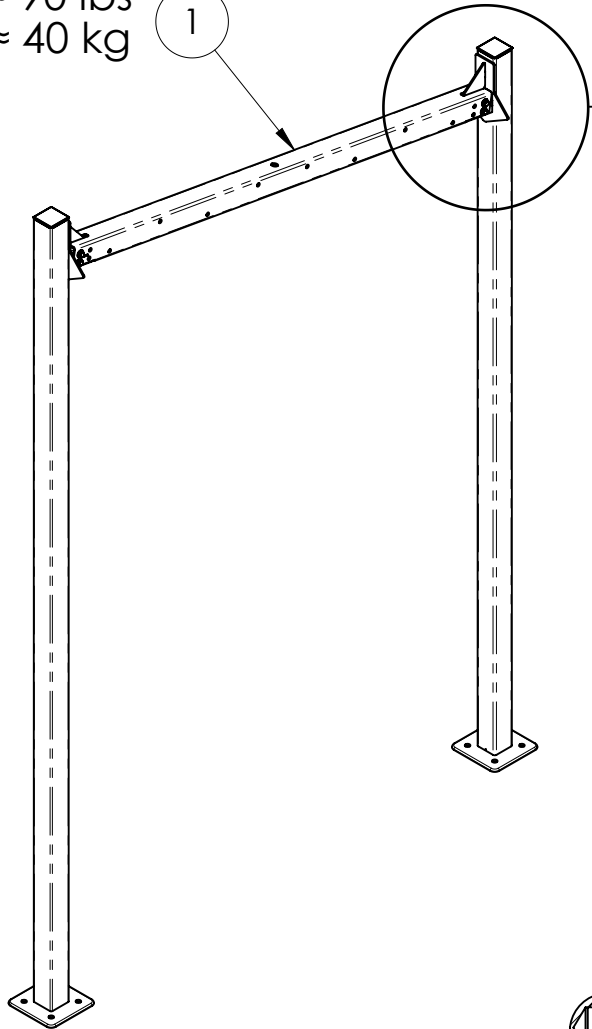
LIFT THE BEAM WITH STRAPS RATED FOR MINIMUM 200 LBS BY PASSING IT AROUND THE BEAM (AS SHOWN ABOVE)



USE FORKLIFT AND STRAPS TO LIFT THE BEAM (STRAP NOT INCLUDED)

≈ 90 lbs
≈ 40 kg

1



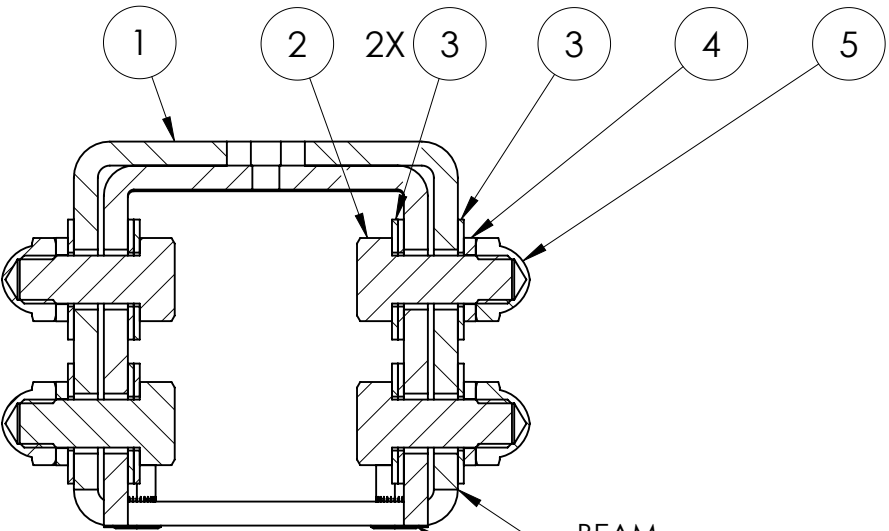
2X 3

5

4

3

2



1

2

2X

3

3

4

5

BEAM

POST BRACKET

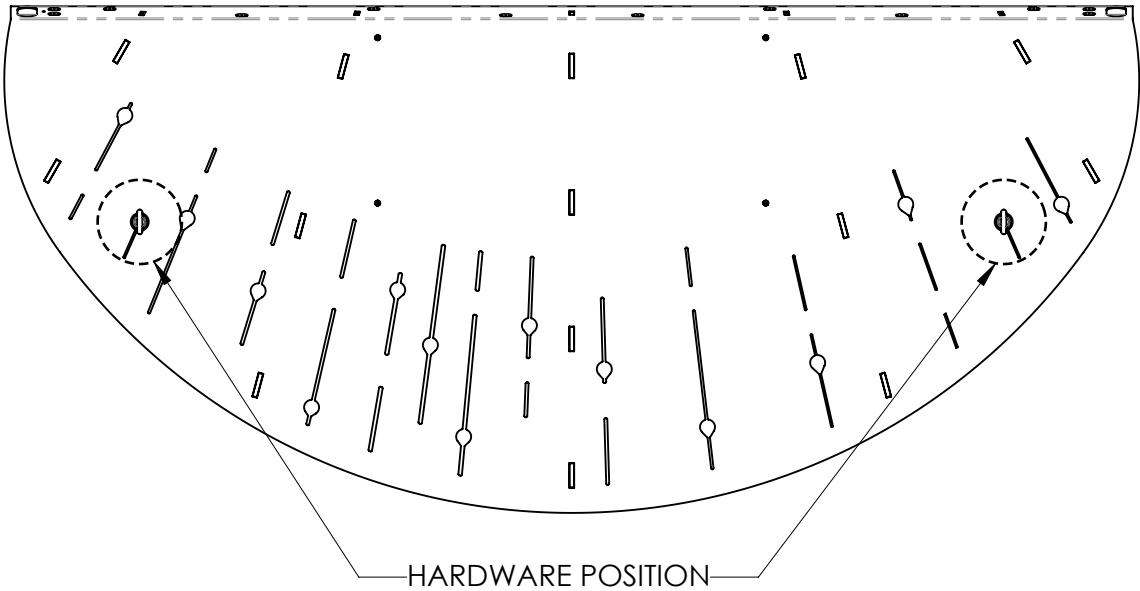
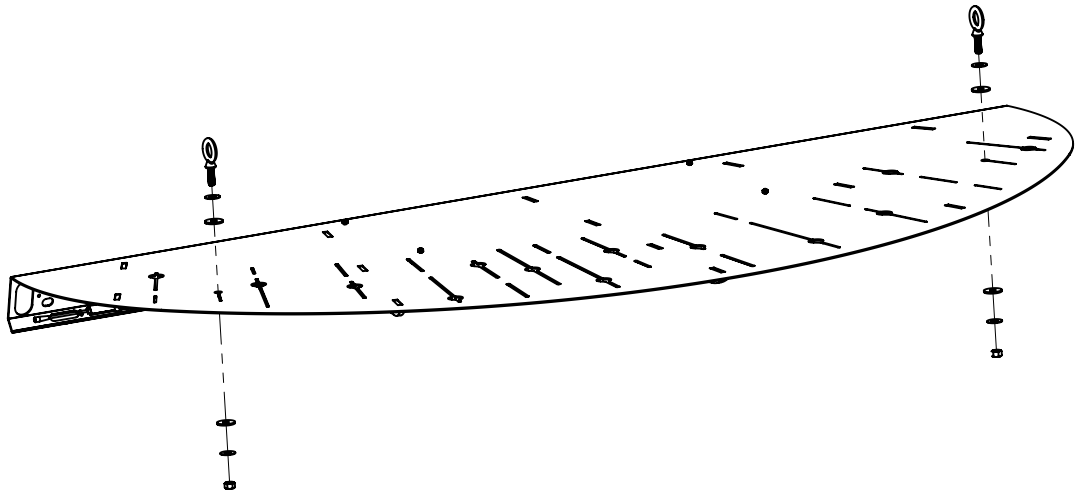
CRITICAL NOTE

USE ANTI-SEIZE ON ALL STAINLESS STEEL THREADS.

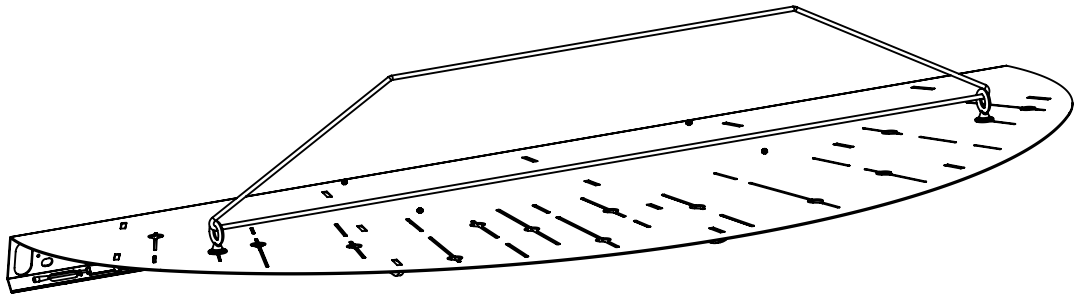
BEAM ASSEMBLY DETAIL

ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	134231	ABRIO_CANOPY_BEAM_ASSEMBLY
2	8	104788	HEX BOLT 1/2"-13 X 1 1/4" FULL THREAD
3	24	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
4	8	103394	SPLIT LOCK WASHER 1/2"
5	8	134530	CAP NUT 1/2"-13 LOW PROFILE

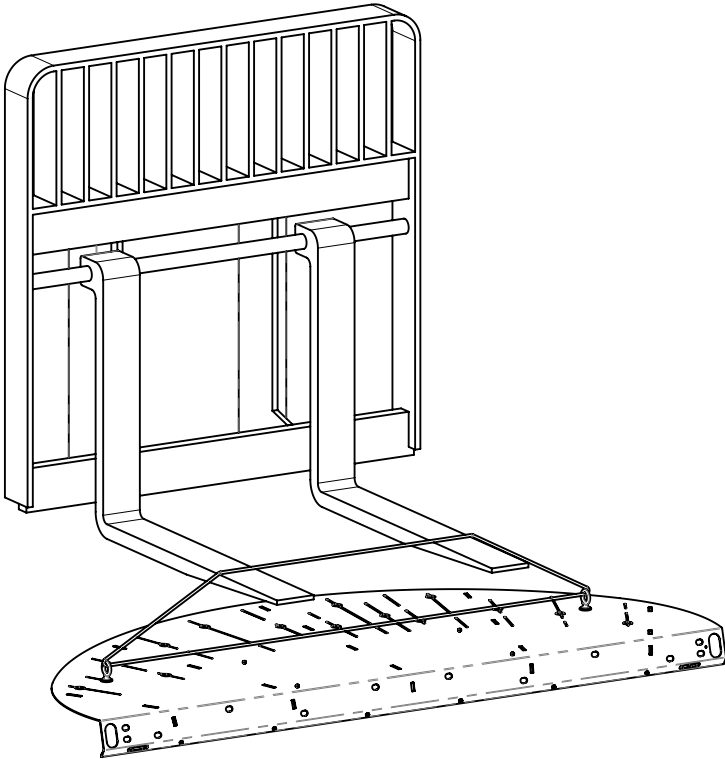
#1



#2



STRAP THE CANOPY WITH CABLE RATED FOR MIN 200 LBS BY PASSING IT THROUGH THE EYEBOLT ON THE CANOPY (STRAP NOT INCLUDED)

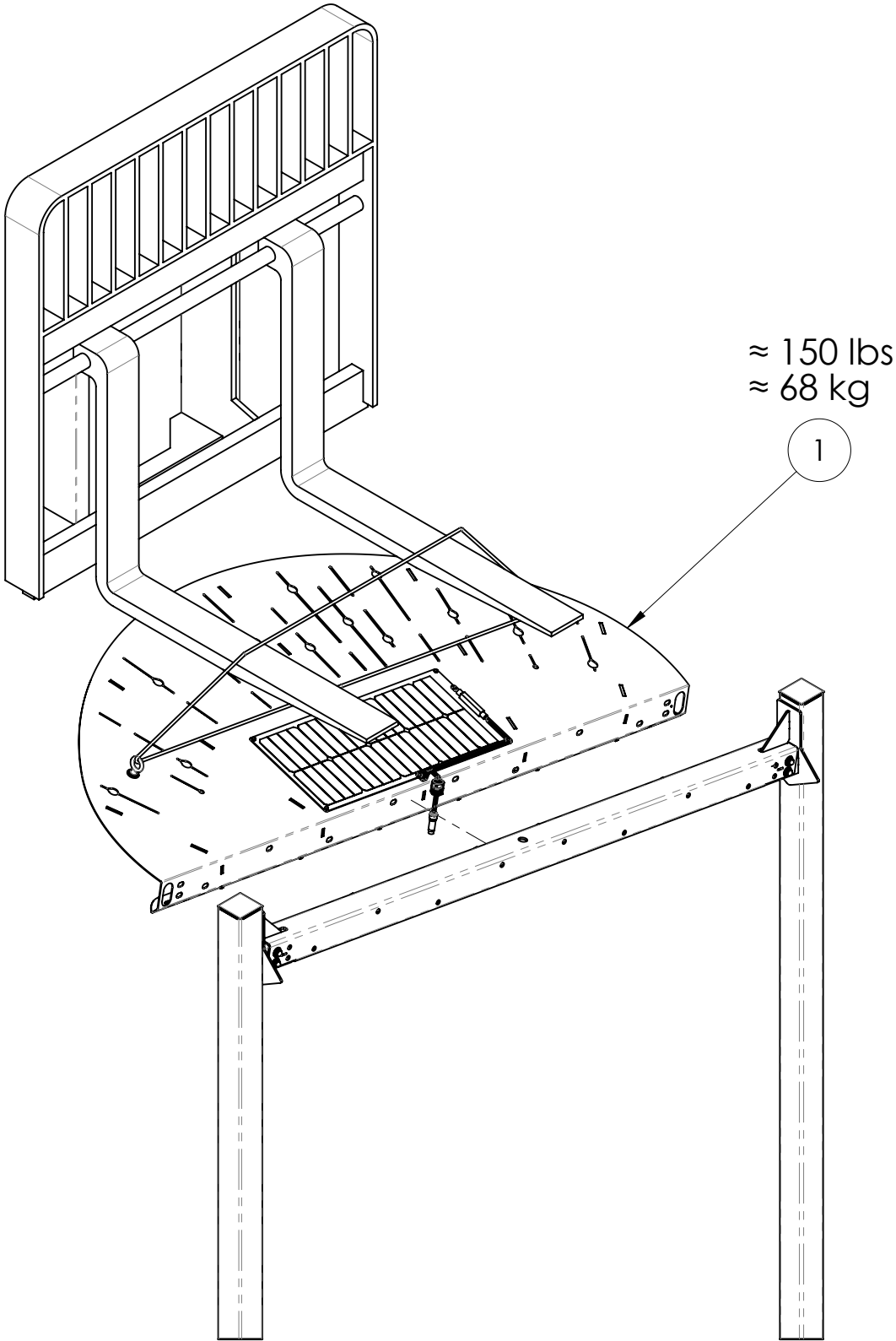


USE FORKLIFT AND STRAP TO LIFT THE CANOPIES

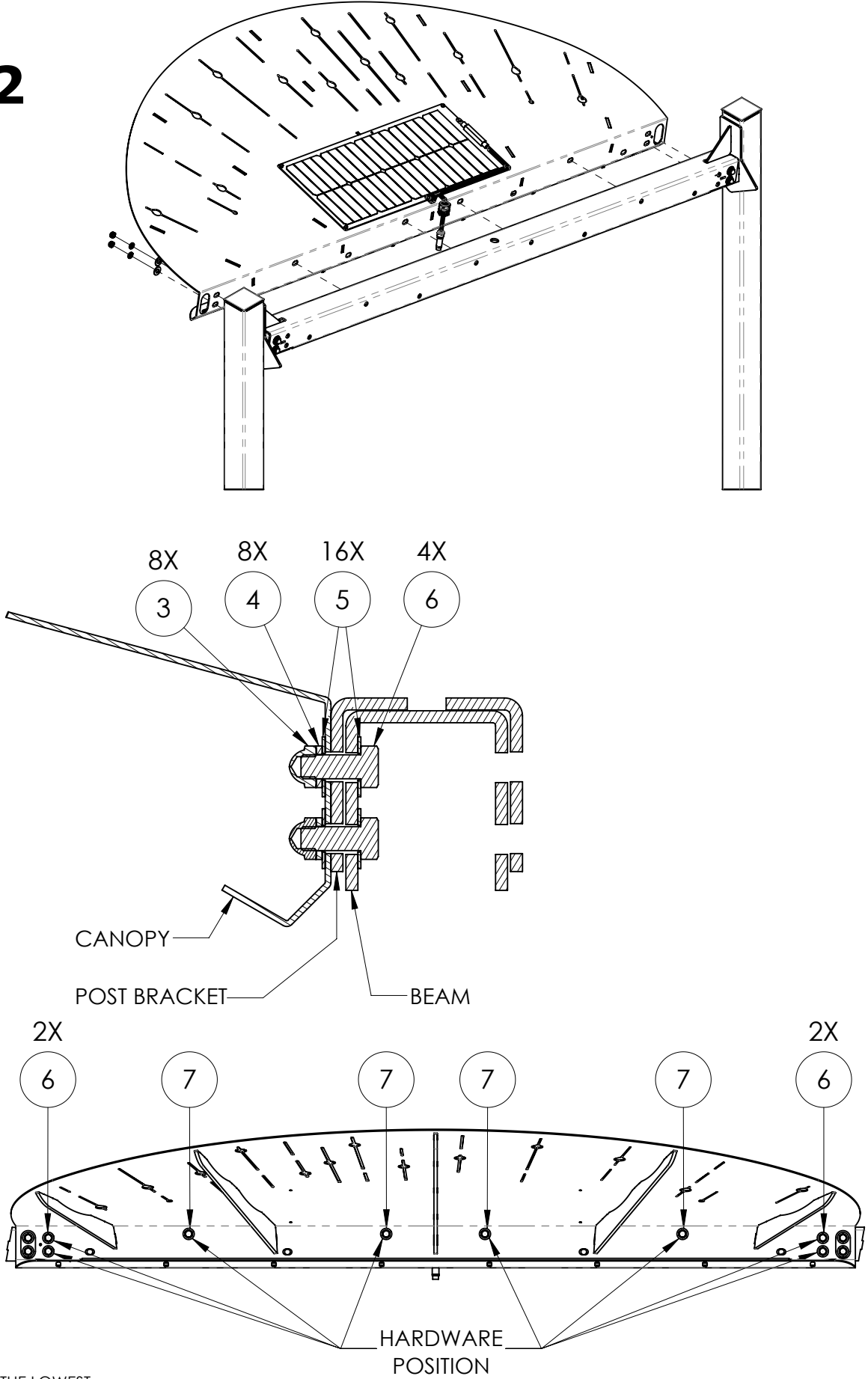
ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
2	4	103739	GASKET 1 1/2"OD X 1/2"ID X 1/8"TH
3	4	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
4	2	102455	STEEL EYEBOLT WITH SHOULDER FOR LIFTING,1/2"-13 TH
5	2	100957	HEX NUT 1/2"-13

NOTES:
REMOVE LIFTING HARDWARE ONCE THE CANOPY ASSEMBLY IS DONE

#1



#2

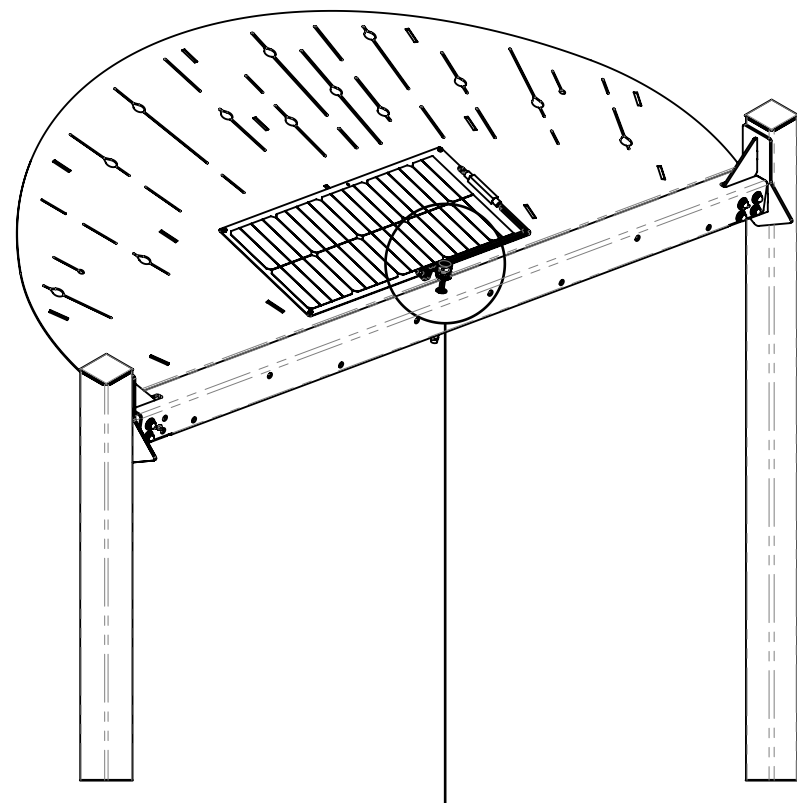


ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	135036	ABRIO_CANOPY_DESIGN PATTERN 01_SOLAR & LED ASSEMBLY
2	1	134208	ABRIO_CANOPY_DESIGN PATTERN 01_LED ASSEMBLY
3	20	134530	CAP NUT 1/2"-13 LOW PROFILE
4	20	103394	SPLIT LOCK WASHER 1/2"
5	40	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
6	8	104788	HEX BOLT 1/2"-13 X 1 1/4" FULL THREAD
7	8	135025	HEX BOLT 1/2"-13 X 1" FULL THREAD
8	4	134529	HEX BOLT 1/2"-13 X 4 3/4" PARTIAL THREAD
9	2	130681	HEX HEAD TAPPING SCREW 1/4"-14 X 1" FULL THREAD STAINLESS STEEL 410

NOTES:
ALWAYS START ASSEMBLING THE CANOPY BY THE HIGHEST ONE TO THE LOWEST;
USE FORK LIFT TO ASSEMBLE BOTH CANOPIES;
CANOPIES WITH SOLAR PANEL MUST BE INSTALLED TOWARDS THE SUN (SOLAR PANEL FACING SOUTH IN NORTH HEMISPHERE / FACING SOUTH IN SOUTH HEMISPHERE);
AVOID SHADOW AND OBSTRUCTED AREAS

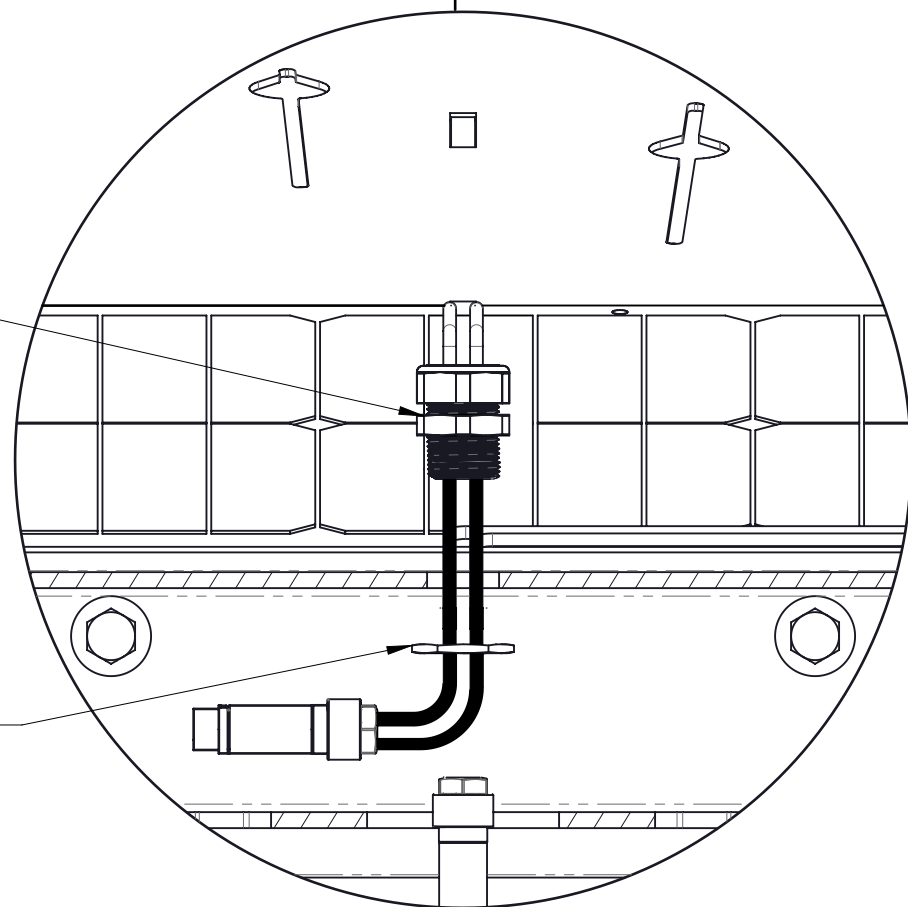
CANOPY ASSEMBLY DETAIL

#3



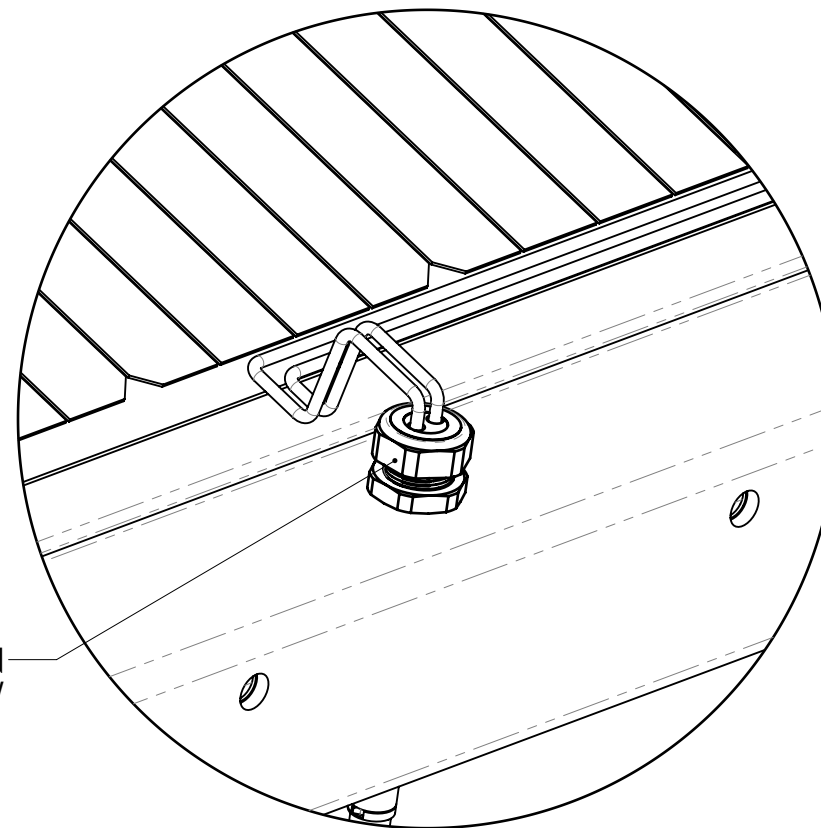
SCREW

NUT



#4

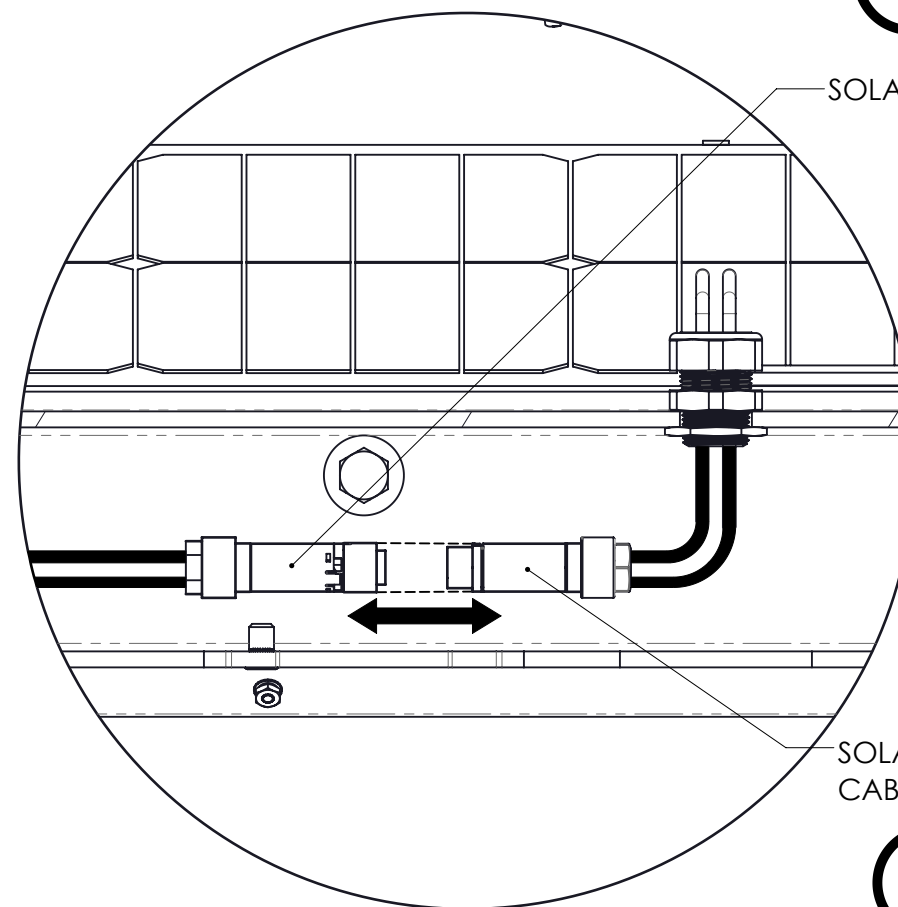
TIGHTEN
TOP SCREW



#5

SOLAR PANEL CABLE

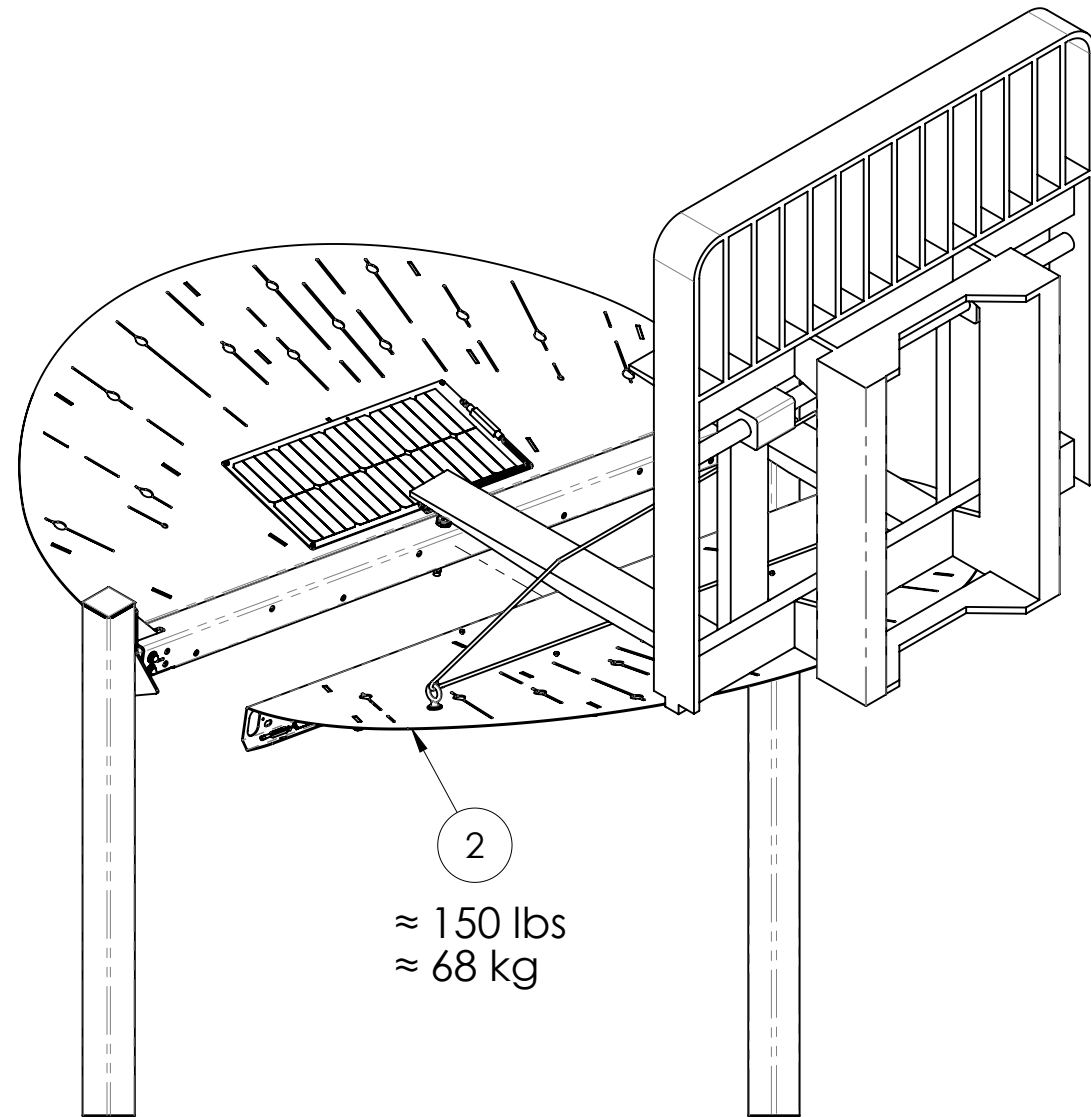
SOLAR PANEL POWER
CABLE



CRITICAL STEP
MAKE SURE ALL SOLAR PANEL CABLES ARE CONNECTED
ONE CONNECTION PER CANOPY

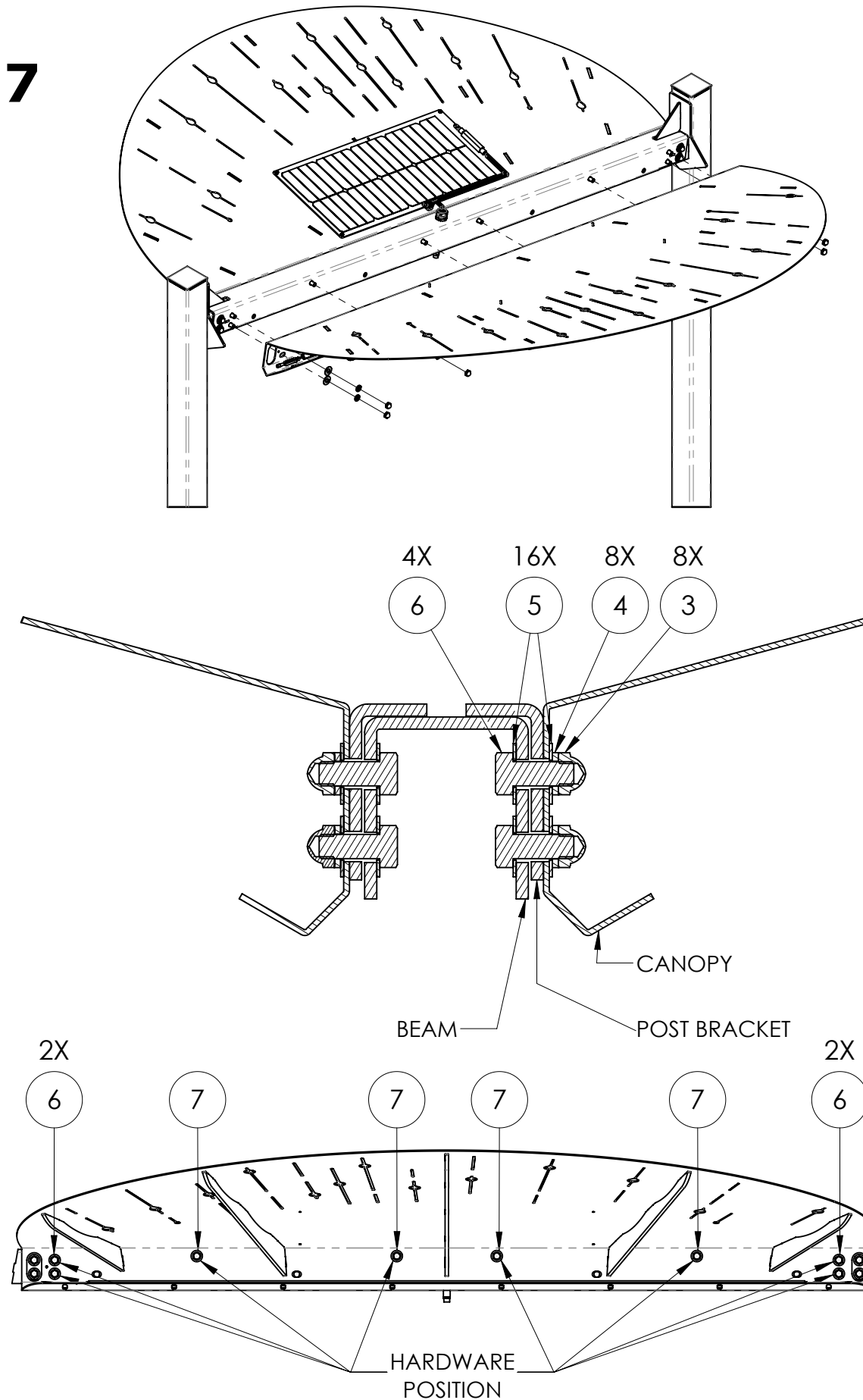
#6

REPEAT STEPS #1 AND #2 FROM CANOPY LIFTING METHOD TO STRAP NEXT CANOPY

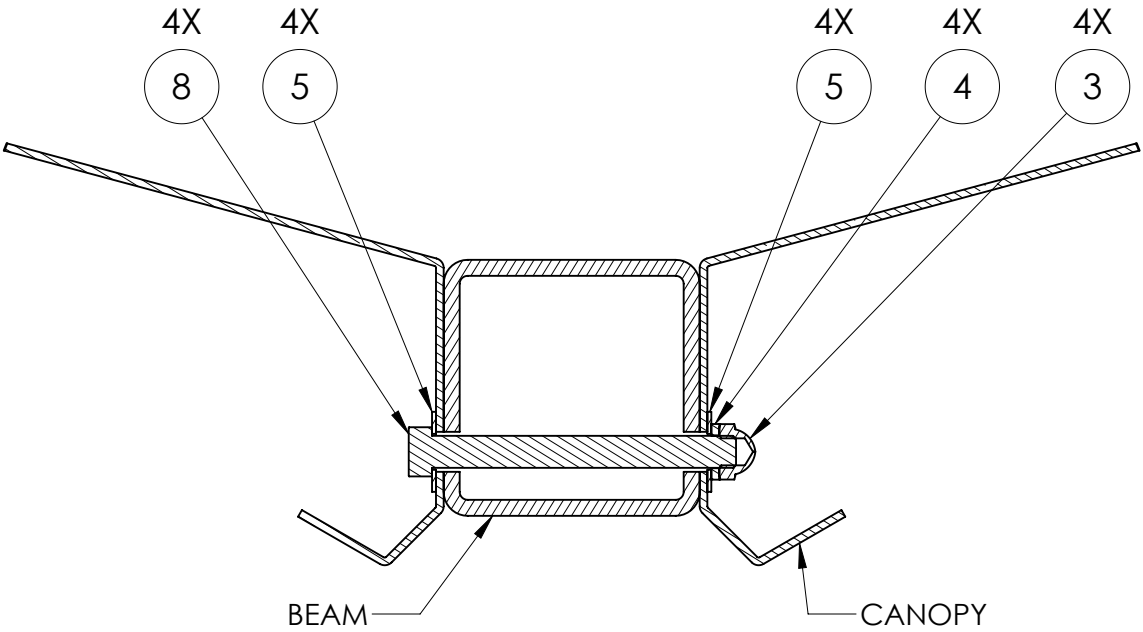
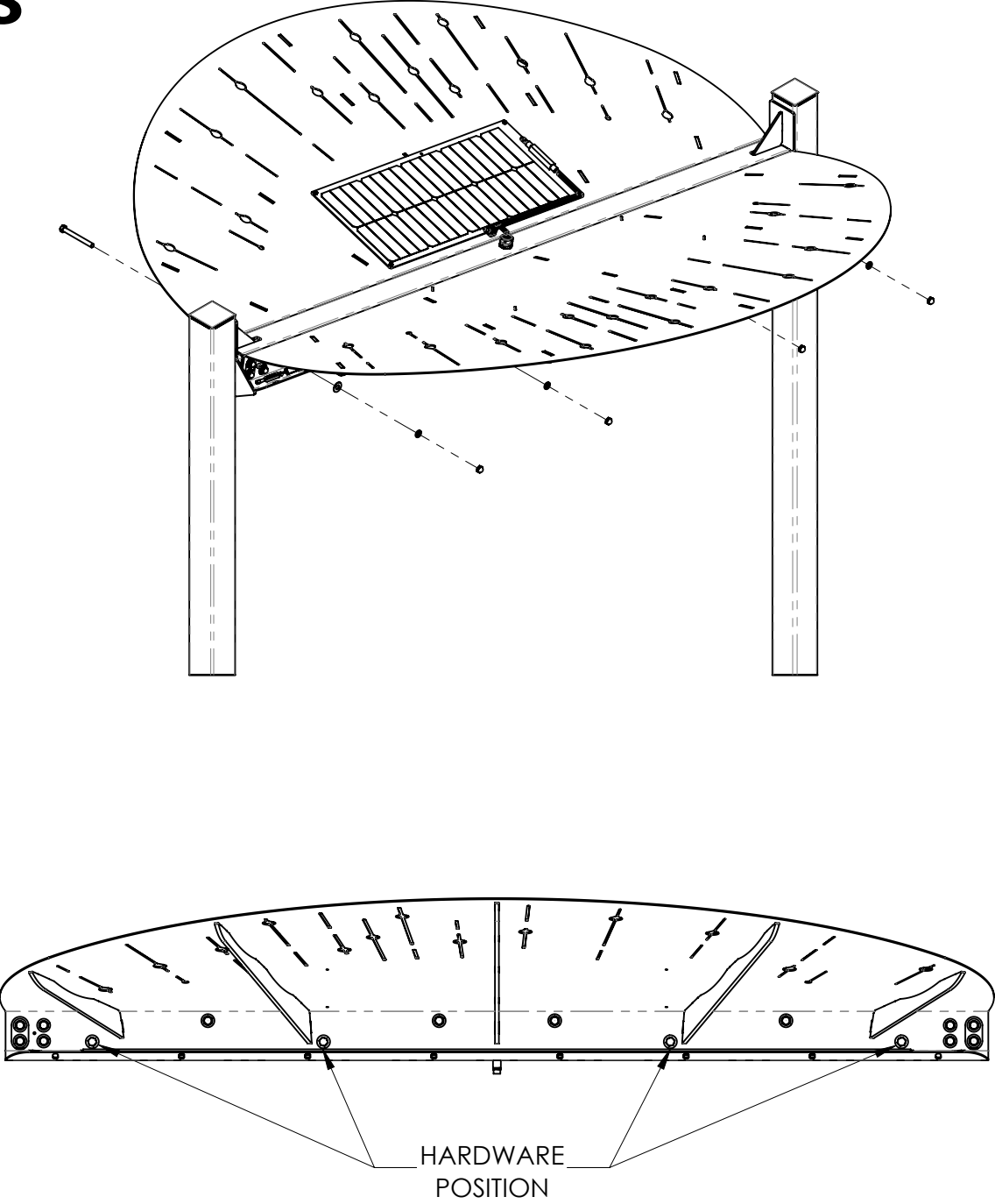


≈ 150 lbs
≈ 68 kg

#7

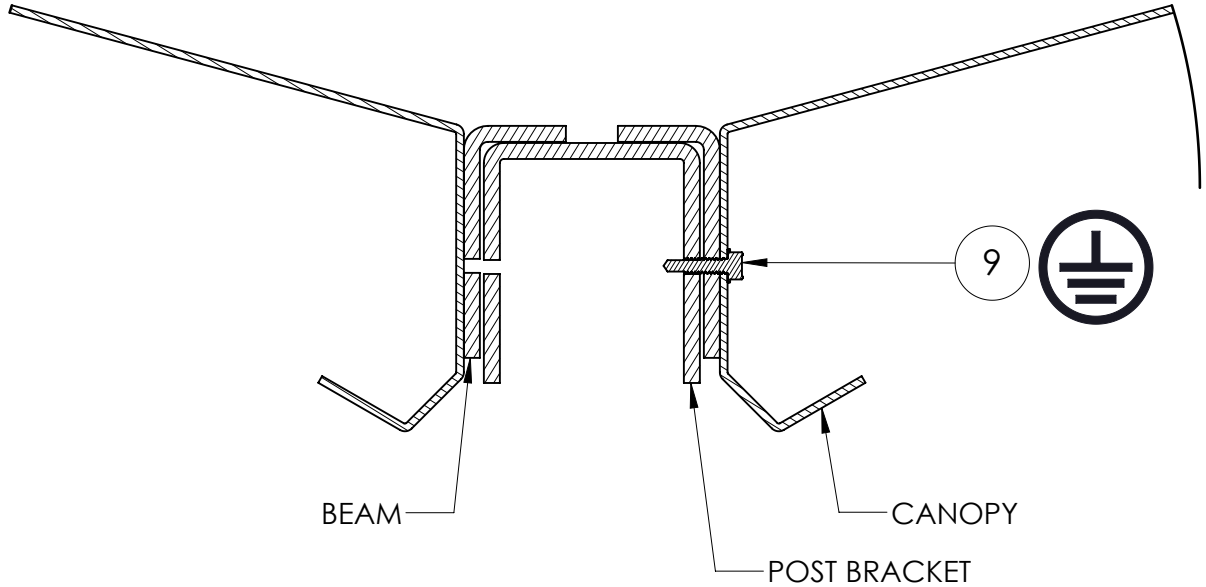
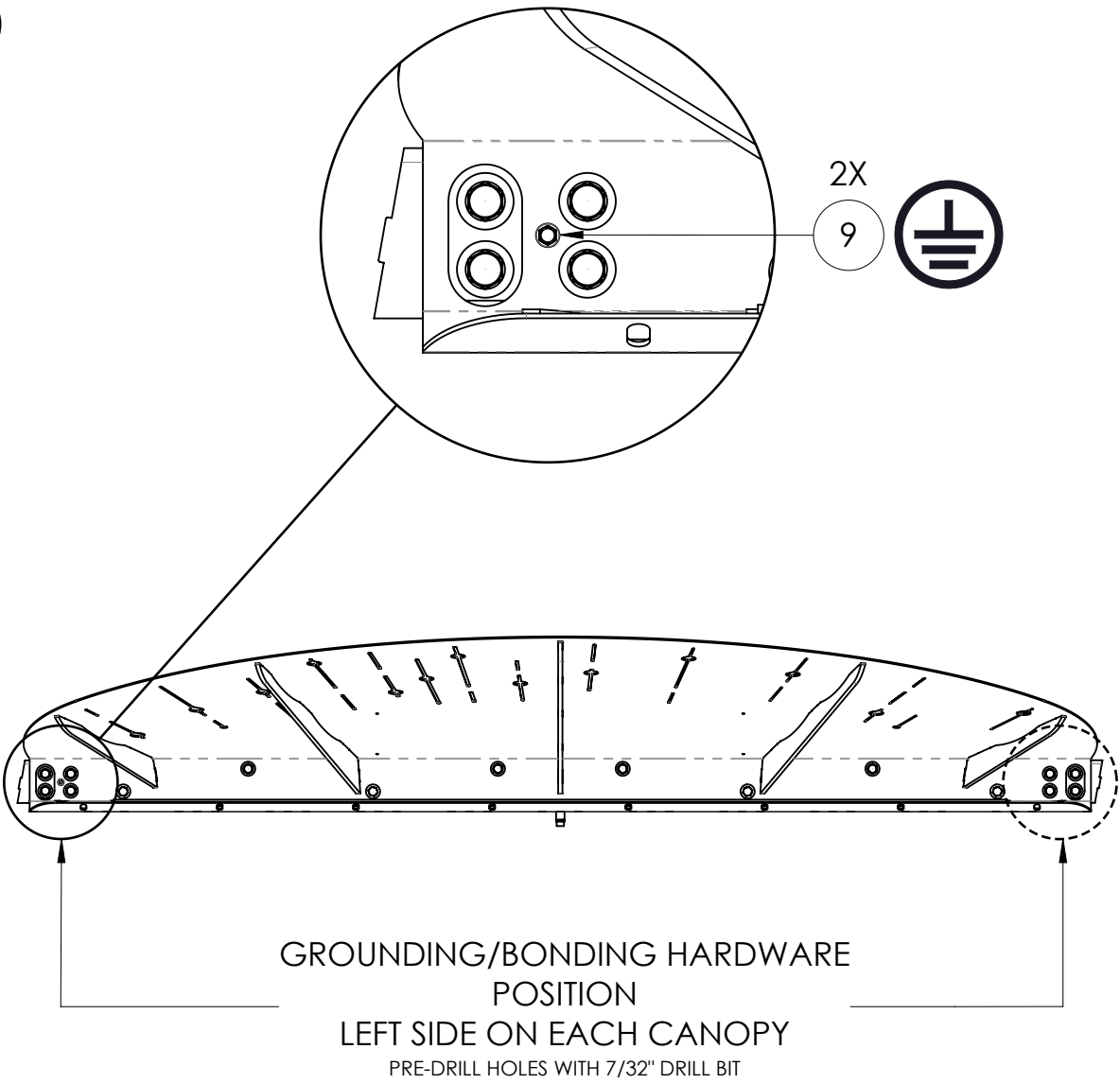


#8



CANOPY ASSEMBLY DETAIL

#9

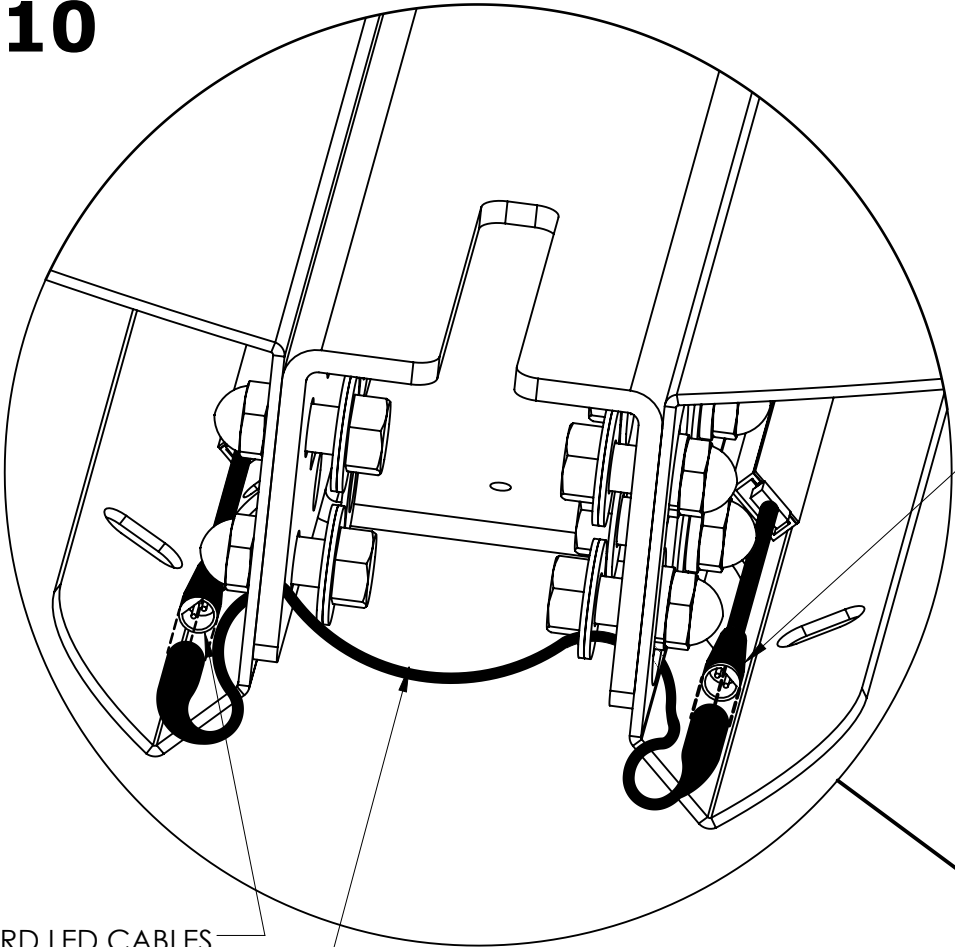


CANOPY ASSEMBLY DETAIL

#10



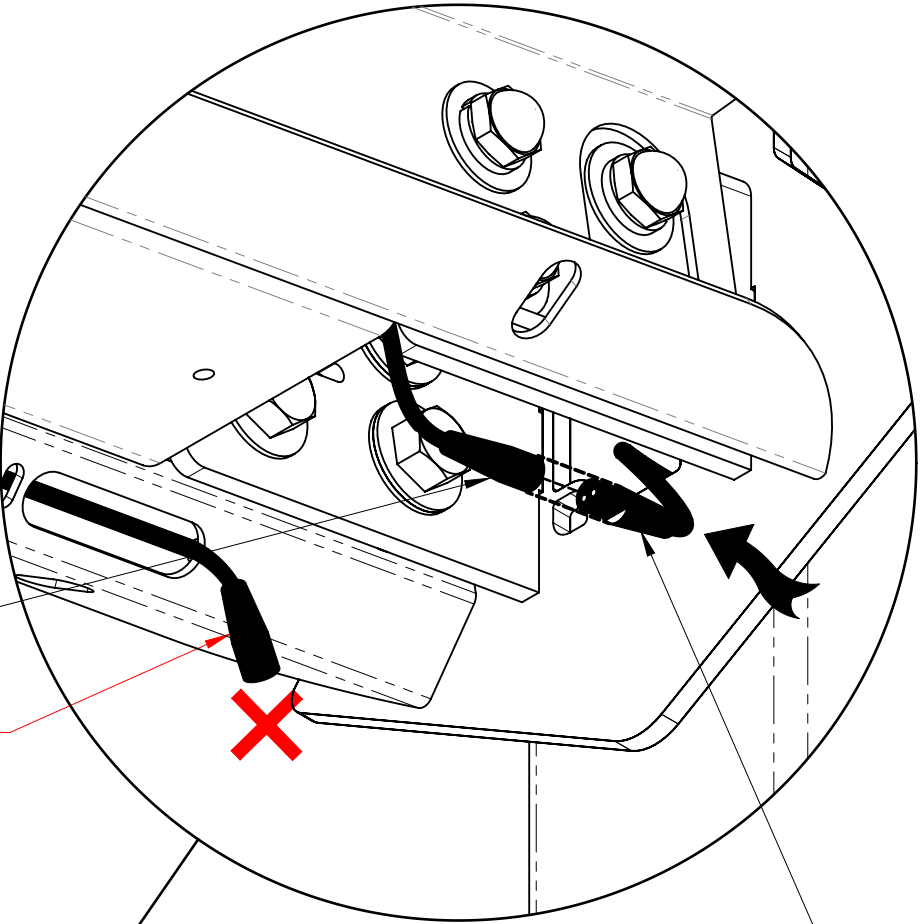
CRITICAL STEP
MAKE SURE PROPER ALL LED CABLES ARE
CONNECTED
REPEAT STEPS FOR EACH CANOPY



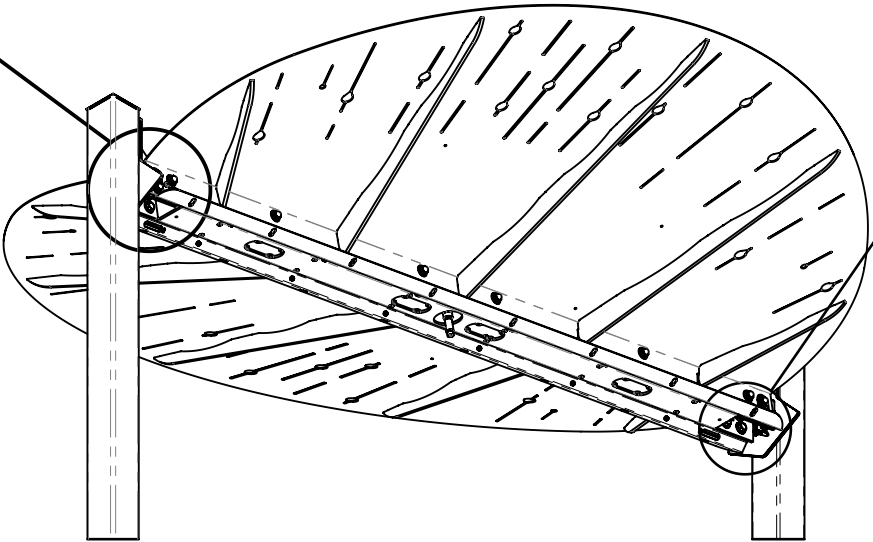
SECOND LED CABLES
PASS T'HROUGH THE OBLONG
OF THE CANOPY

FIRST LED CABLES
PASS THROUGH THE OBLONG
OF THE CANOPY

NO CONNECTION REQUIRED
IN FOURTH LED CABLES



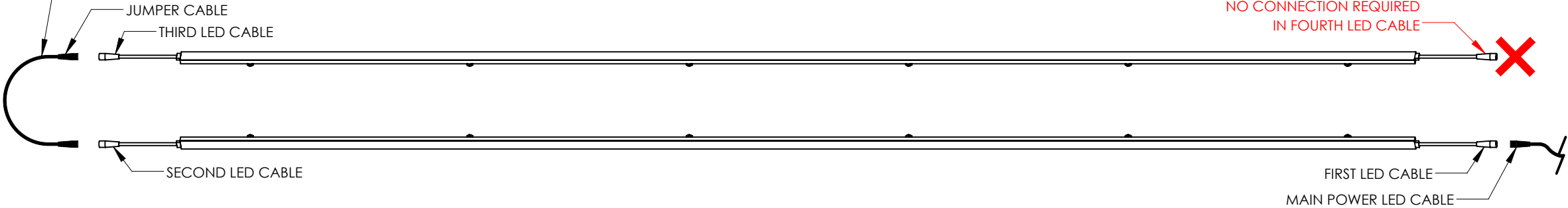
MAIN POWER LED CABLE
RUNS UP THROUGH THE WMS POST



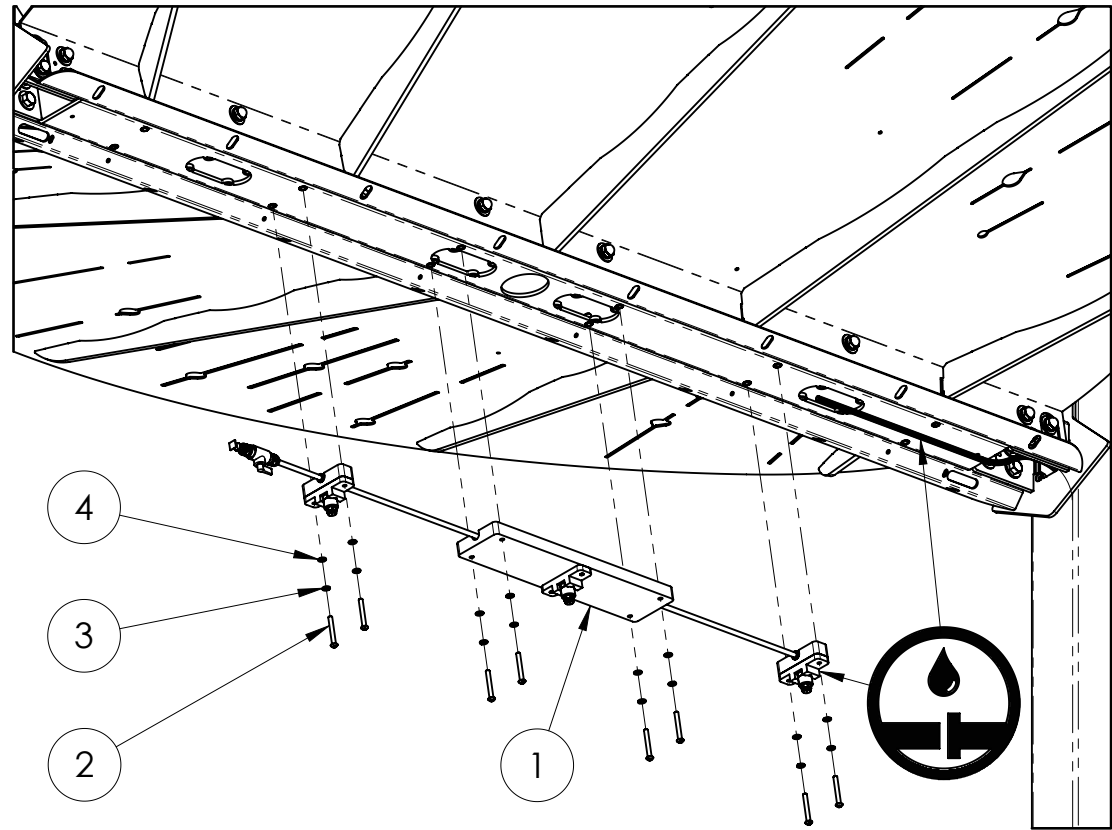
THIRD LED CABLES
PASS THROUGH THE OBLONG
OF THE CANOPY

JUMPER CABLE
PASS THROUGH THE OBLONG
OF THE CANOPY TO CONNECT
THE SECOND AND THIRD LED CABLE **140662**
FLEXIBLE LED STRIP CABLE 24IN WITH
MALE CONNECTORS AT EACH END

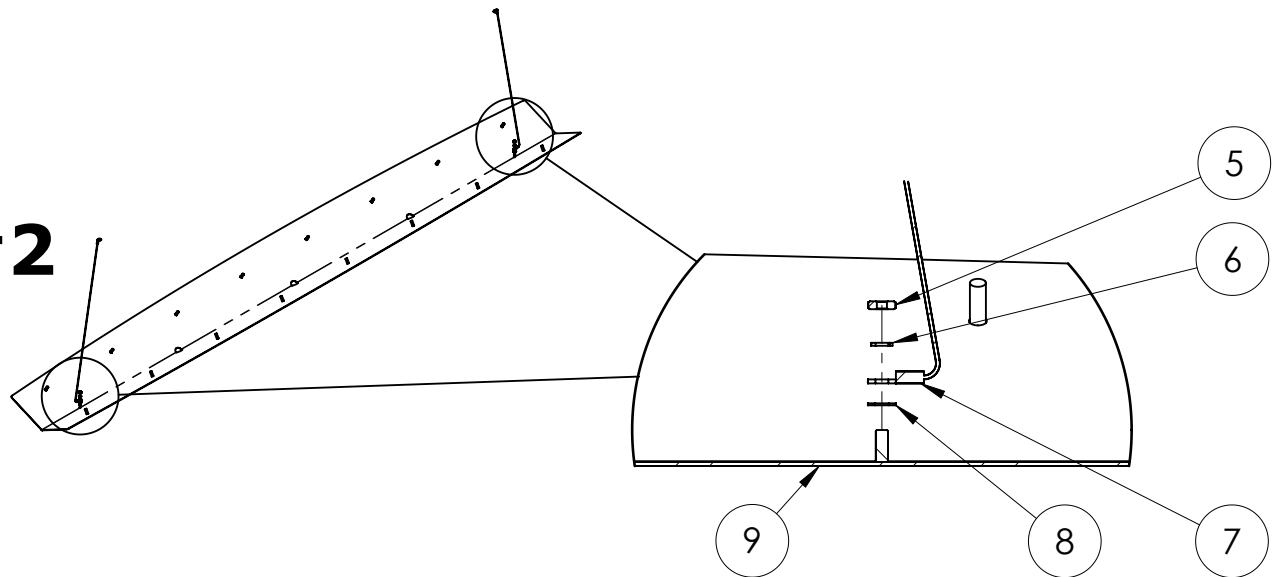
WIRING DIAGRAM FOR LED CABLES CONNECTION



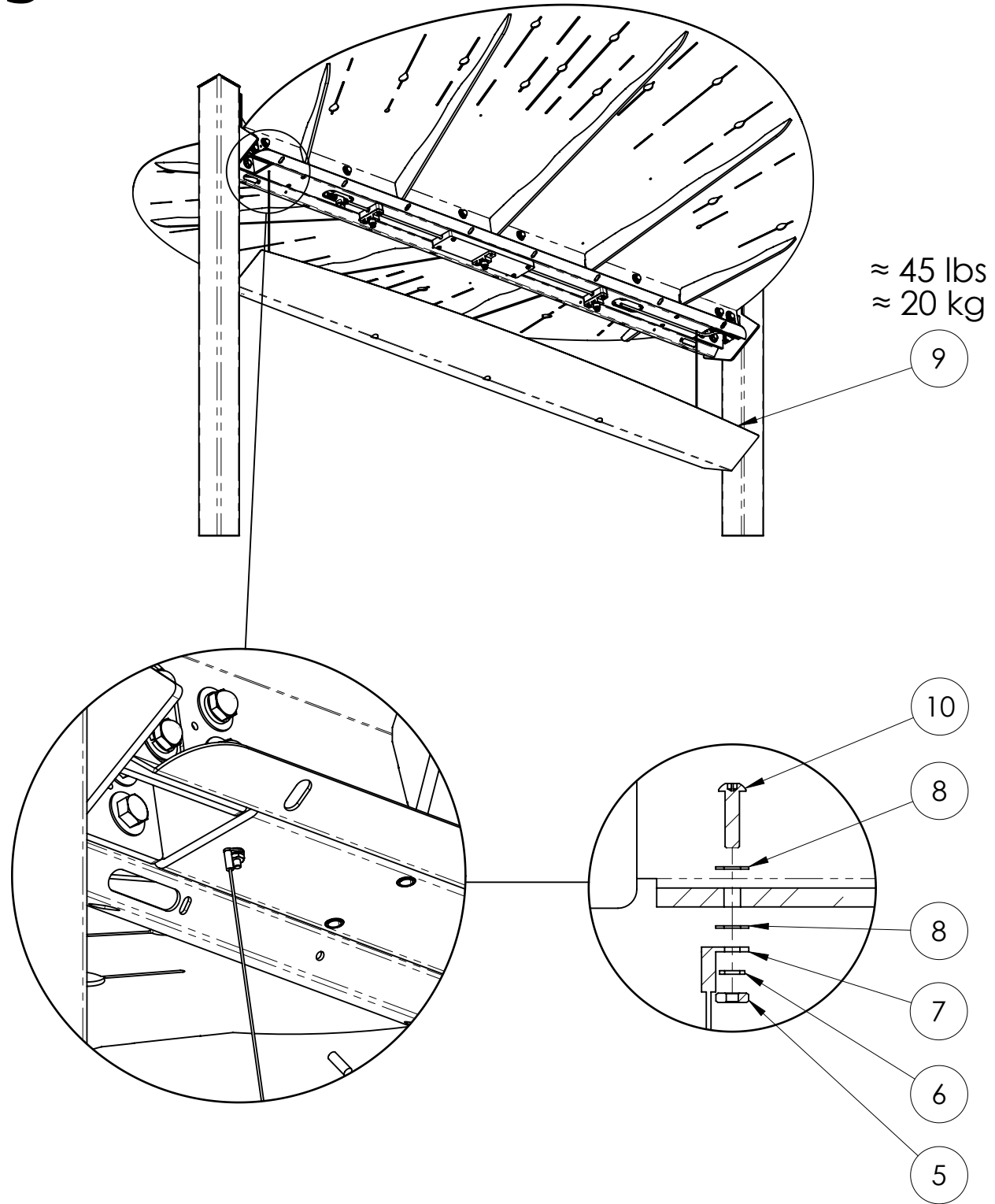
#1



#2



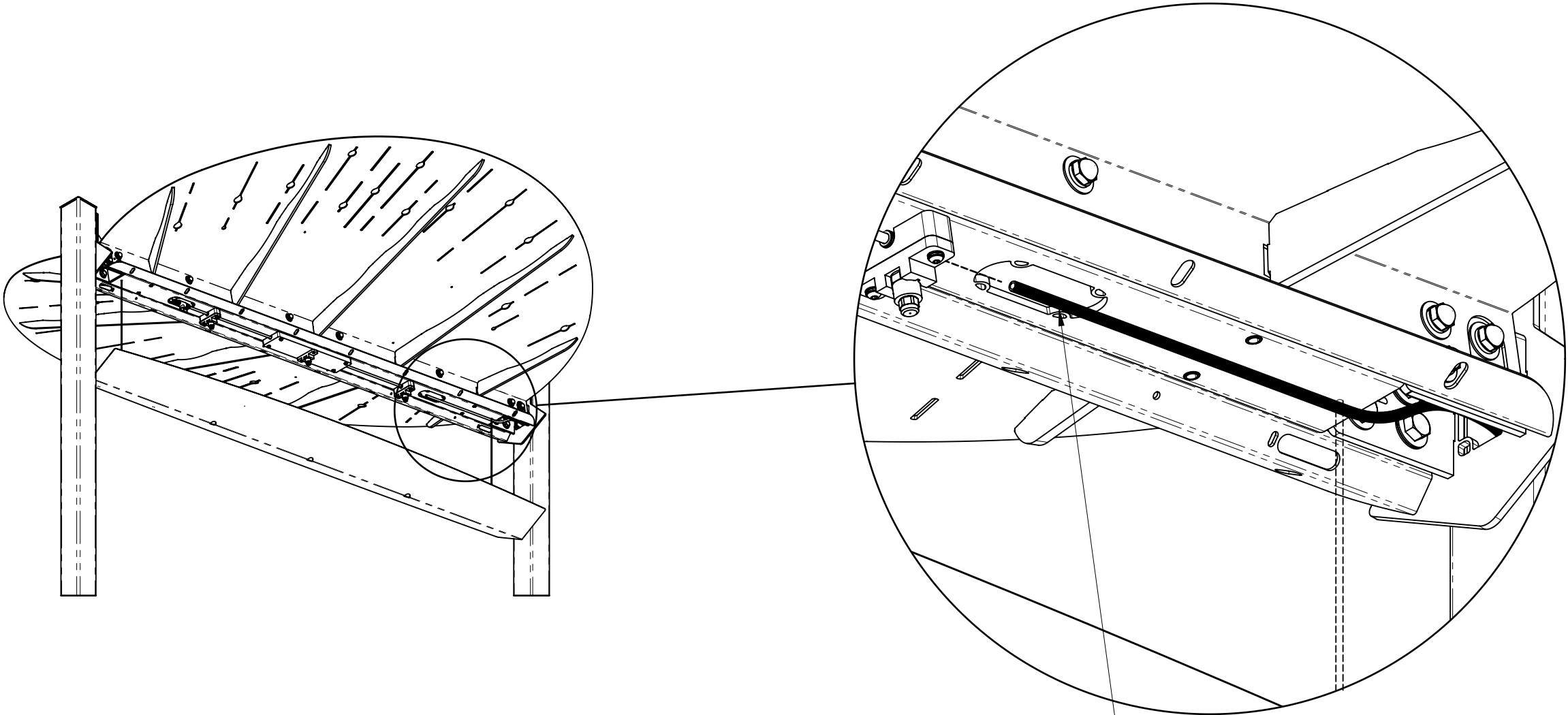
#3



ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	134791	ABRIO_MIST_WMS ASSEMBLY
2	8	104245	BUTTON SOCKET CAP SCREW 1/4"-20 X 2" FULL THREAD
3	8	103395	SPLIT LOCK WASHER 1/4"
4	8	103864	FLAT WASHER 1/4" X 1/2"OD GP SMALL OD
5	4	104943	HEX NUT #10-32
6	4	103398	SPLIT LOCK WASHER #10
7	2	134511	CABLE LANYARD, EYE-TO-90 DEGREE-EYE, 1/16" DIA, 24" LG, NYLON COATING
8	6	104806	FLAT WASHER #10 X 7/16"OD GP SMALL OD
9	1	134812	ABRIO_MIST_COVER_PAINTING
10	2	100610	SECURITY BUTTON CAP SCREW #10-32 X 3/4"

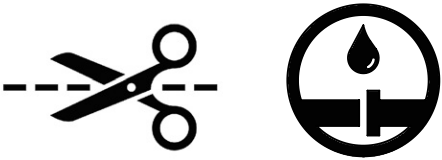
NOTES:
MIST WMS ④ MUST ALWAYS BE INSTALL WITH THE ELBOW ON THE LOWER SIDE OF THE BEAM
PRE ASSEMBLE THE MIST COVER WITH ITS SECURITY CABLES;
REFER TO AQUATIC CONNECTIONS TO PLUG THE FEATURE WITH WATER TUBING

#4



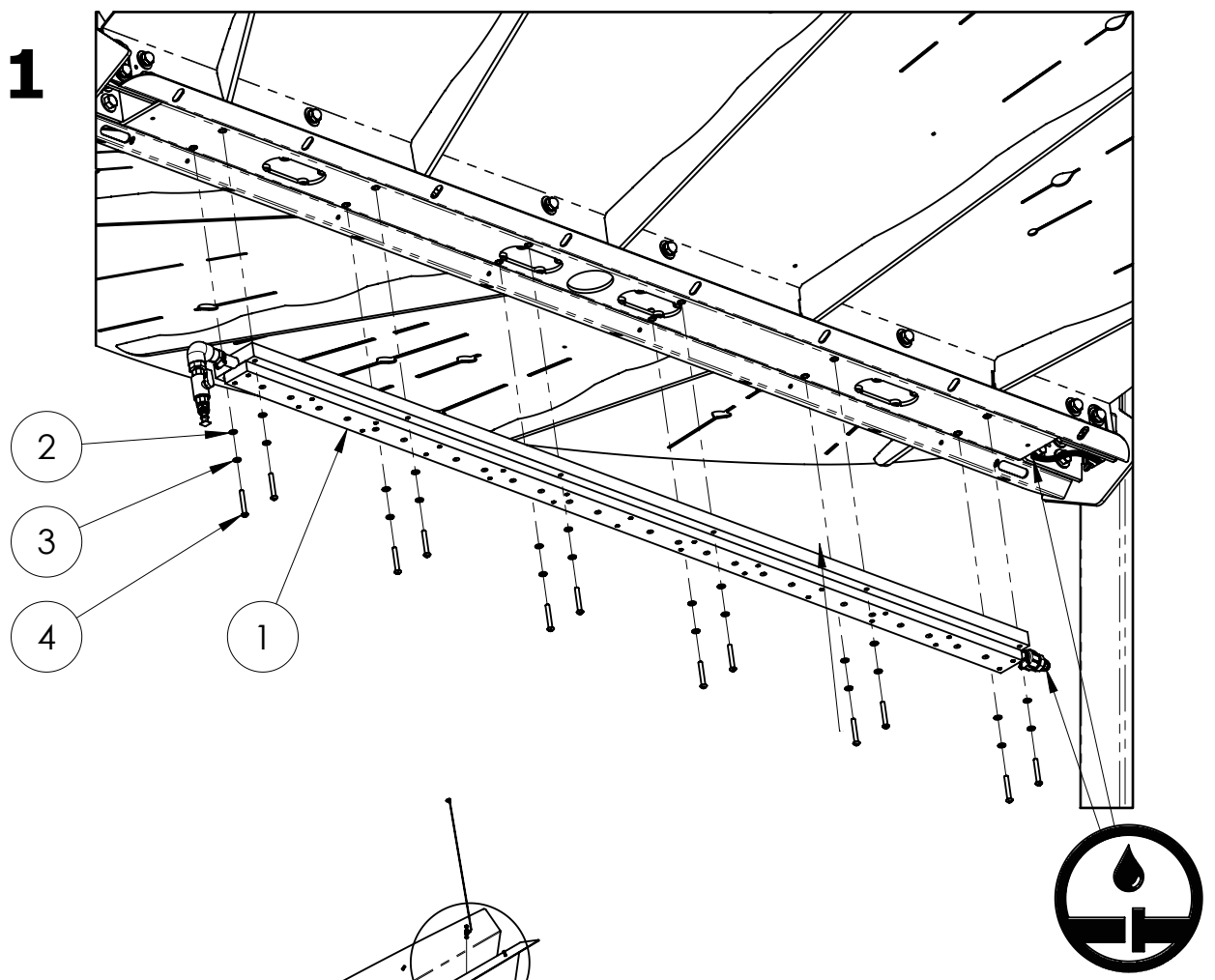
CRITICAL STEP
MAKE SURE WATER TUBE IS FERMLY CONNECTED

WATER CONNECTION
CUT EXCESS TUBING IF NEEDED

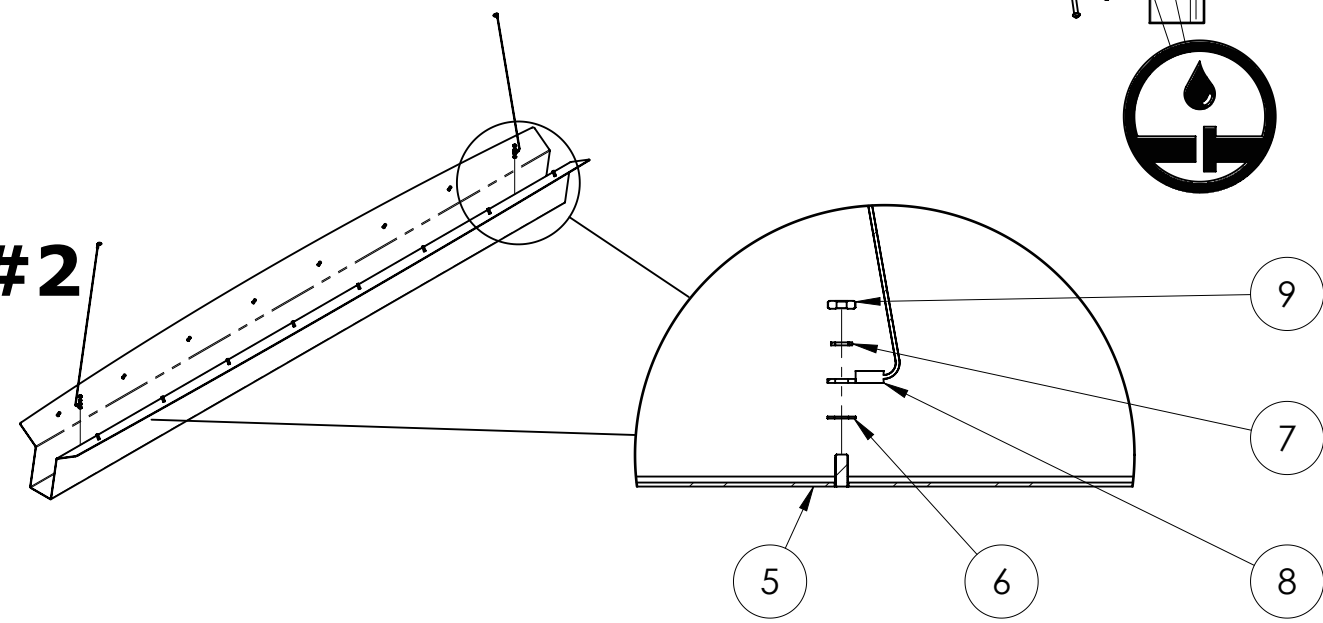


SOFT RAIN ASSEMBLY DETAIL

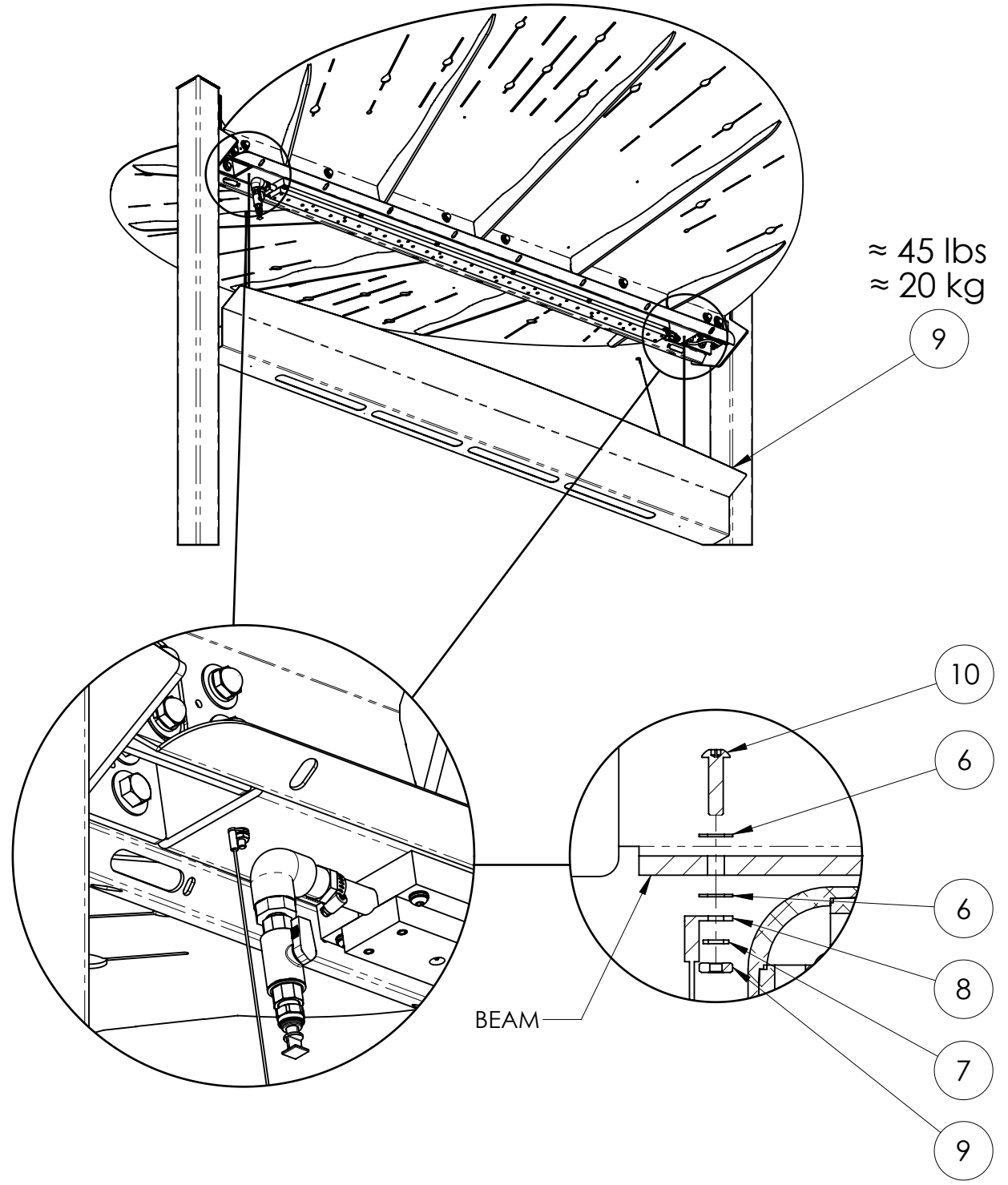
#1



#2



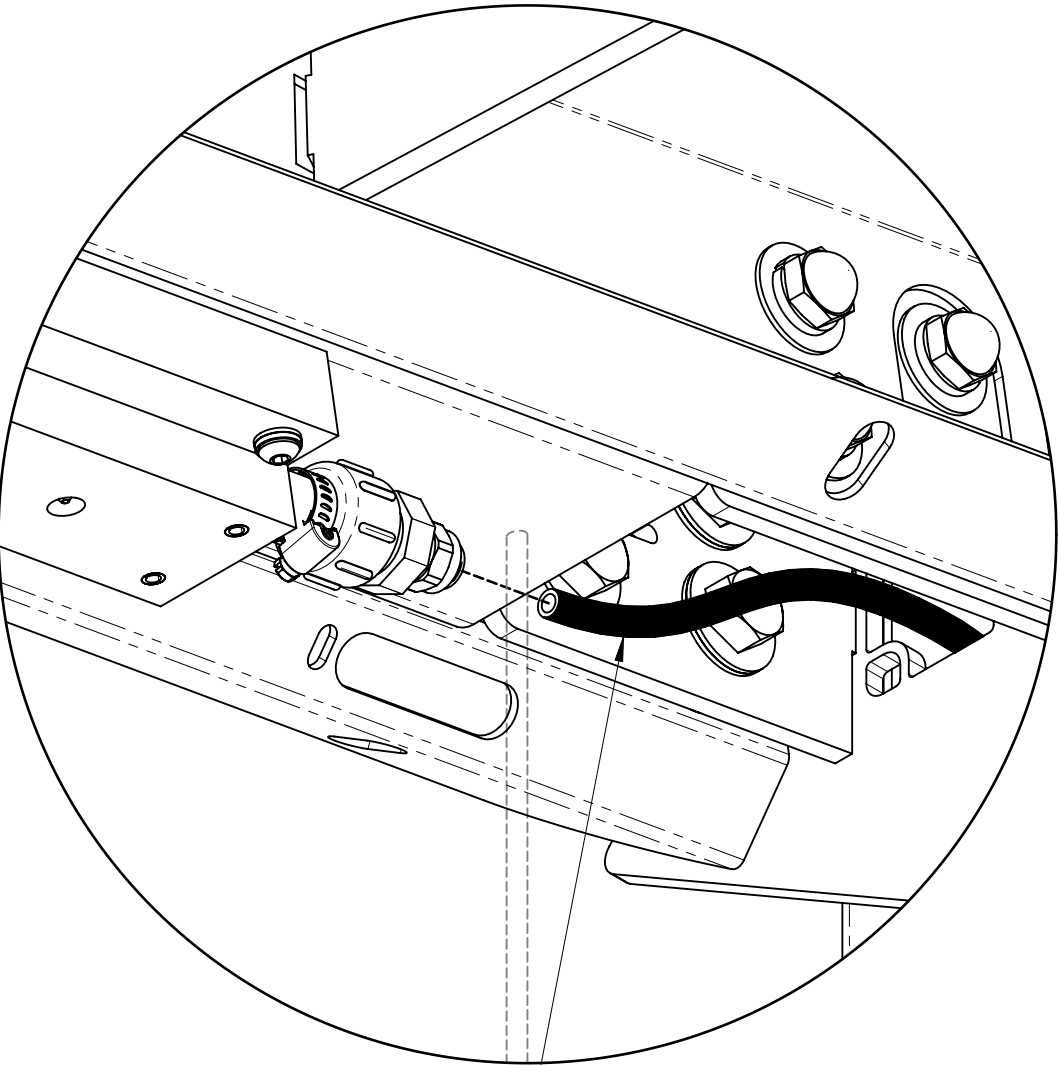
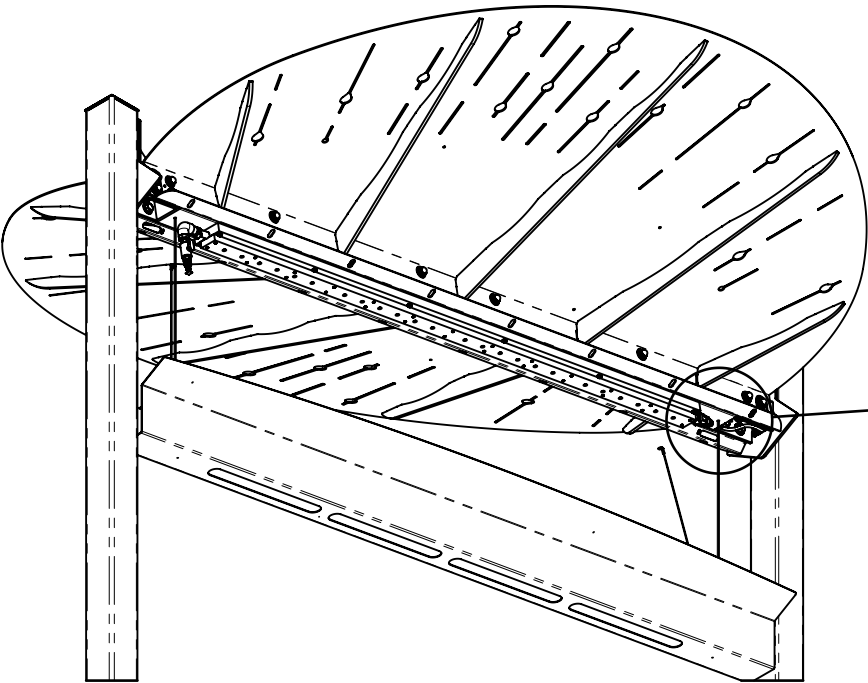
#3



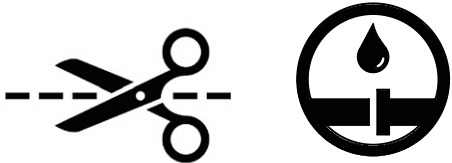
ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	134813	ABRIO_SOFT RAIN_WMS ASSEMBLY
2	12	103864	FLAT WASHER 1/4" X 1 1/2"OD GP SMALL OD
3	12	103395	SPLIT LOCK WASHER 1/4"
4	12	107423	BUTTON SOCKET CAP SCREW 1/4"-20 X 1 3/4" FULL THREAD
5	1	134866	ABRIO_SOFT RAIN_COVER_ASSEMBLY
6	8	104806	FLAT WASHER #10 X 7/16"OD GP SMALL OD
7	4	103398	SPLIT LOCK WASHER #10
8	2	134511	CABLE LANYARD, EYE-TO-90 DEGREE-EYE, 1/16" DIA, 24" LG, NYLON COATING
9	4	104943	HEX NUT #10-32
10	2	100610	SECURITY BUTTON CAP SCREW #10-32 X 3/4"

NOTES:
SOFT RAIN WMS ④ MUST ALWAYS BE INSTALL WITH THE ELBOW ON THE LOWER SIDE OF THE BEAM;
PRE-ASSEMBLE THE SOFT RAIN COVER WITH ITS SECURITY CABLES;
CUT THE EXTRA LENGTH OF WATER TUBING WHILE CONNECTING THE WMS SOFT RAIN

#4



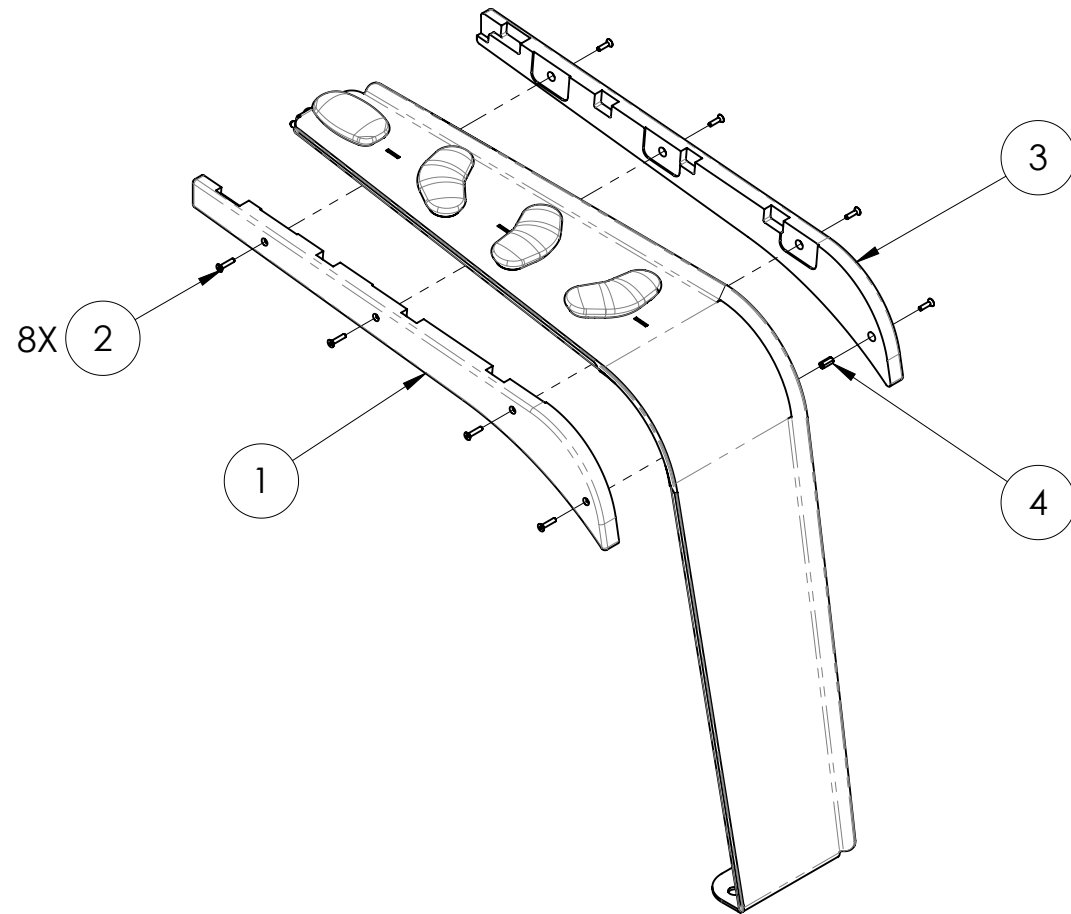
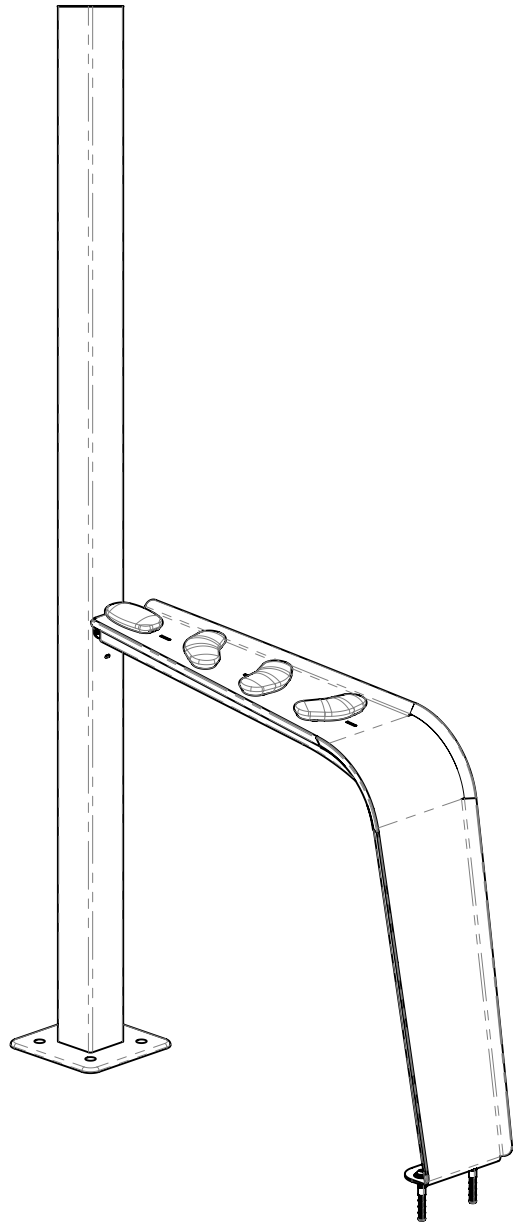
WATER CONNECTION
CUT EXCESS TUBING IF NEEDED



SOFT RAIN ASSEMBLY DETAIL

RIVER MAZE ASSEMBLY DETAIL

#1

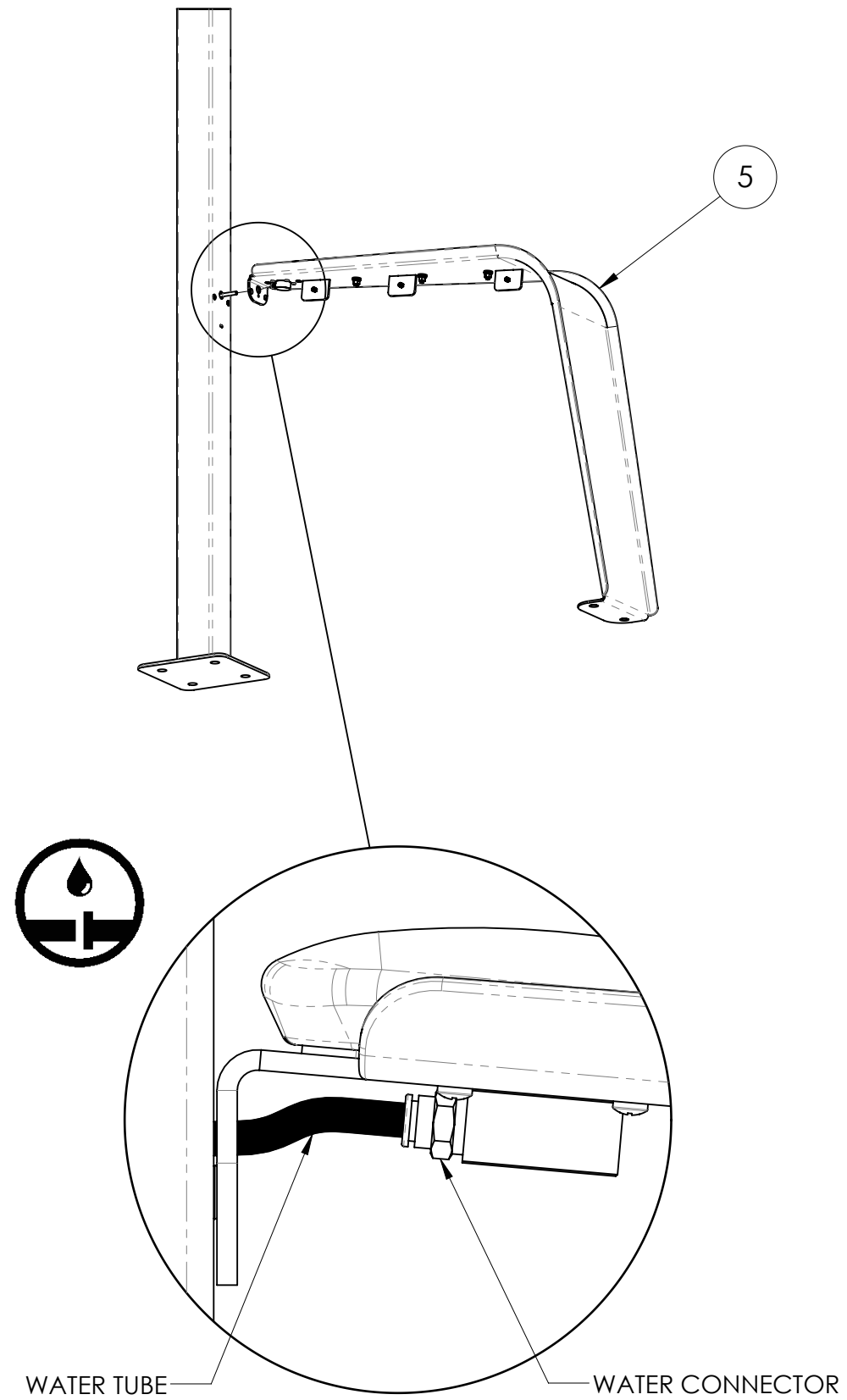


DISASSEMBLE SIDE PANELS WITH ITS HARDWARE

ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	134403	RIVER MAIN BODY PANEL LEFT
2	10	100604	SECURITY FLAT CAP SCREW 1/4"-20 X 1"
3	1	134404	RIVER MAIN BODY PANEL RIGHT
4	1	108153	COUPLING NUT 1/4"-20 X 7/8"
5	1	134352	RIVER MAIN BODY
6	1	130681	HEX HEAD TAPPING SCREW 1/4"-14 X 1" FULL THREAD STAINLESS STEEL 410
7	2	134671	BUTTON SOCKET CAP SCREW 1/2"-13 X 1 1/2" FULL THREAD ZINC PLATED
8	2	103394	SPLIT LOCK WASHER 1/2"
9	2	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
10	2	134450	ADHESIVE-GRIP CONCRETE ANCHOR, 1/2"-13 FNPT, ZINC PLATED STEEL

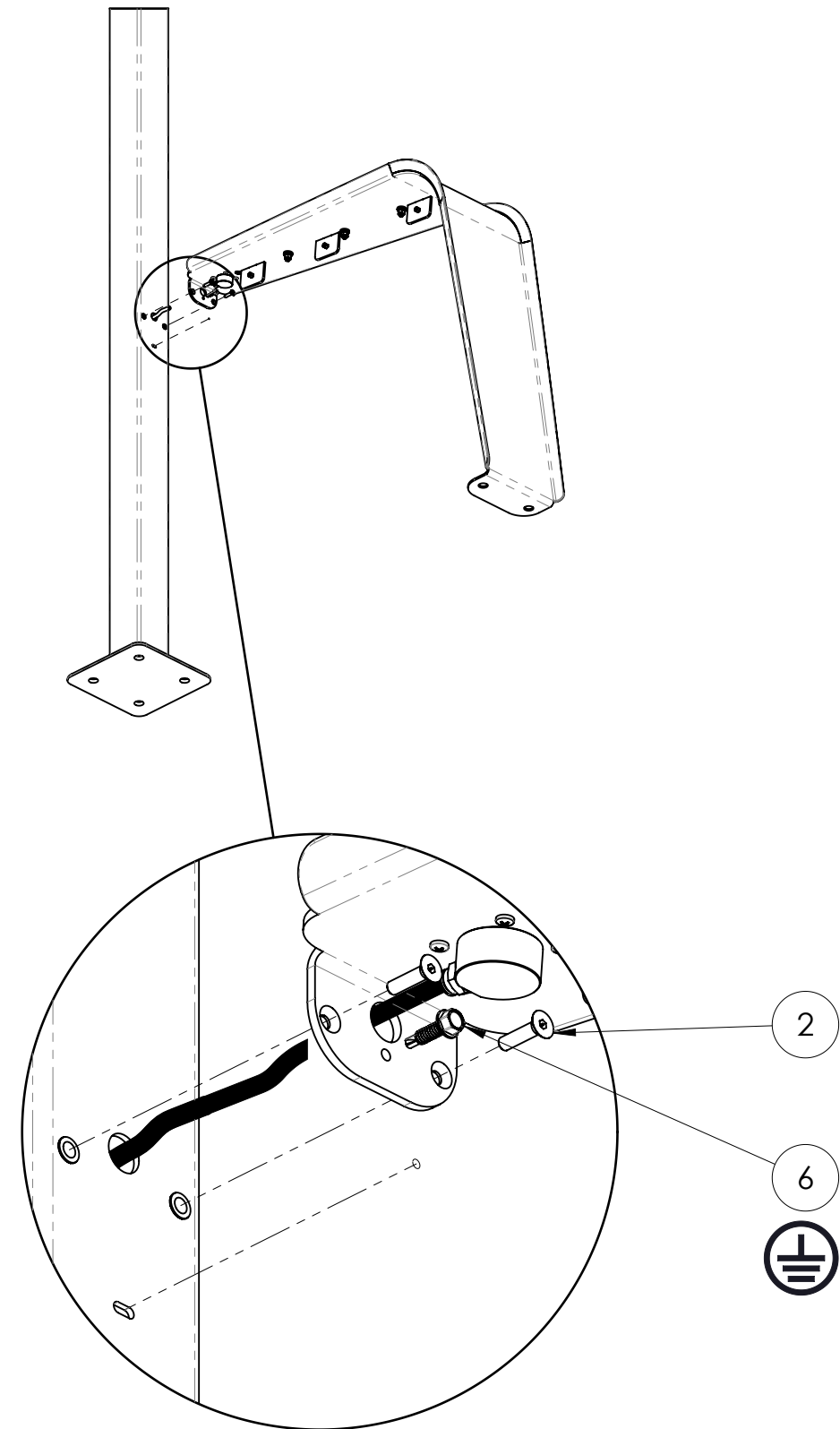
NOTES:
REINSTALL SIDE PANELS AFTER TEST;
USE LEG'S HOLES TO POSITIONATE AND DRILL THE ANCHOR'S HOLES;
PROTECT LEG WITH MASKING TAPE DURING DRILLING AND EPOXY

#2



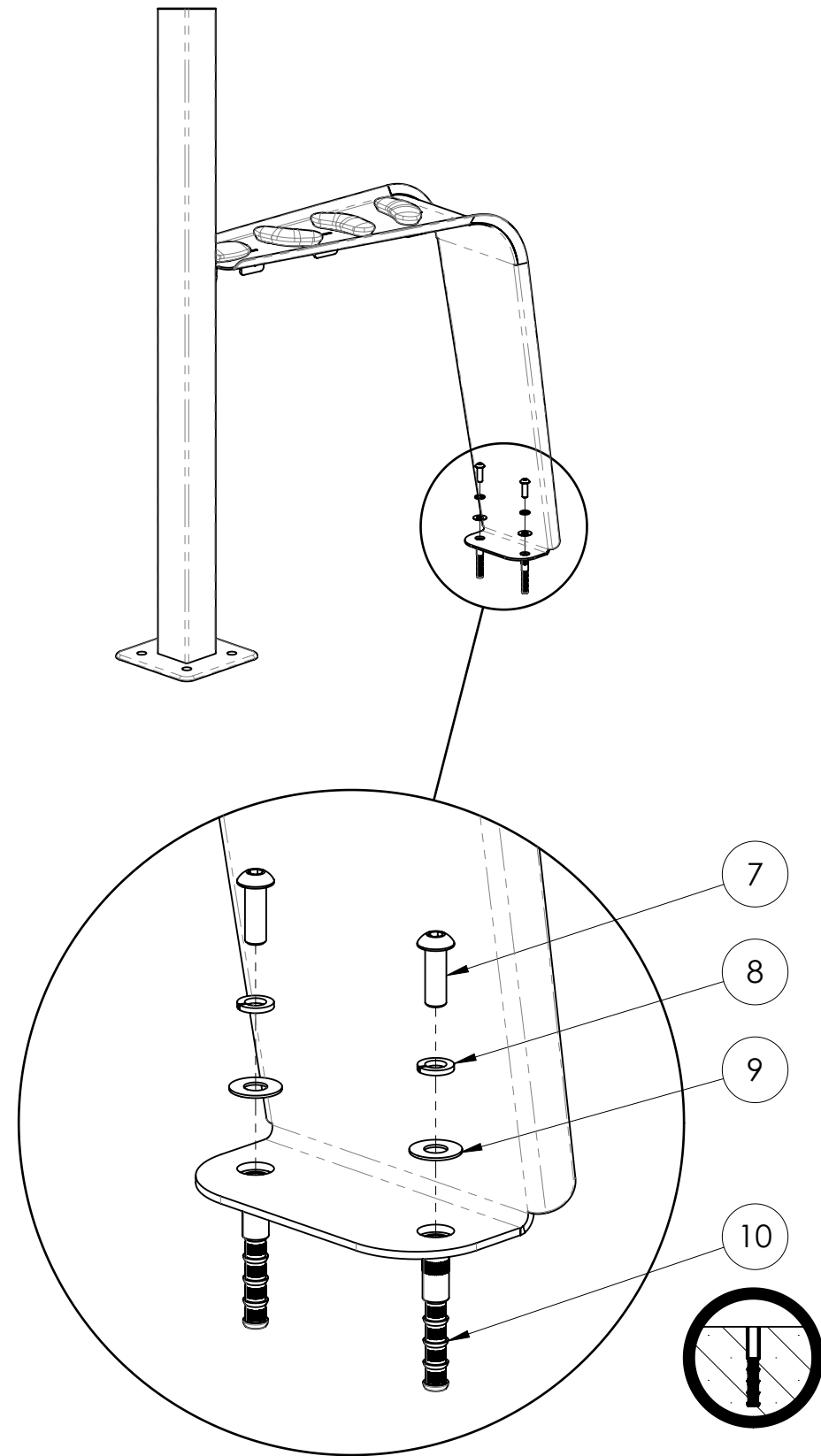
CRITICAL STEP
MAKE SURE WATER TUBE IS FERMLY CONNECTED

#3



RIVER MAZE ASSEMBLY DETAIL

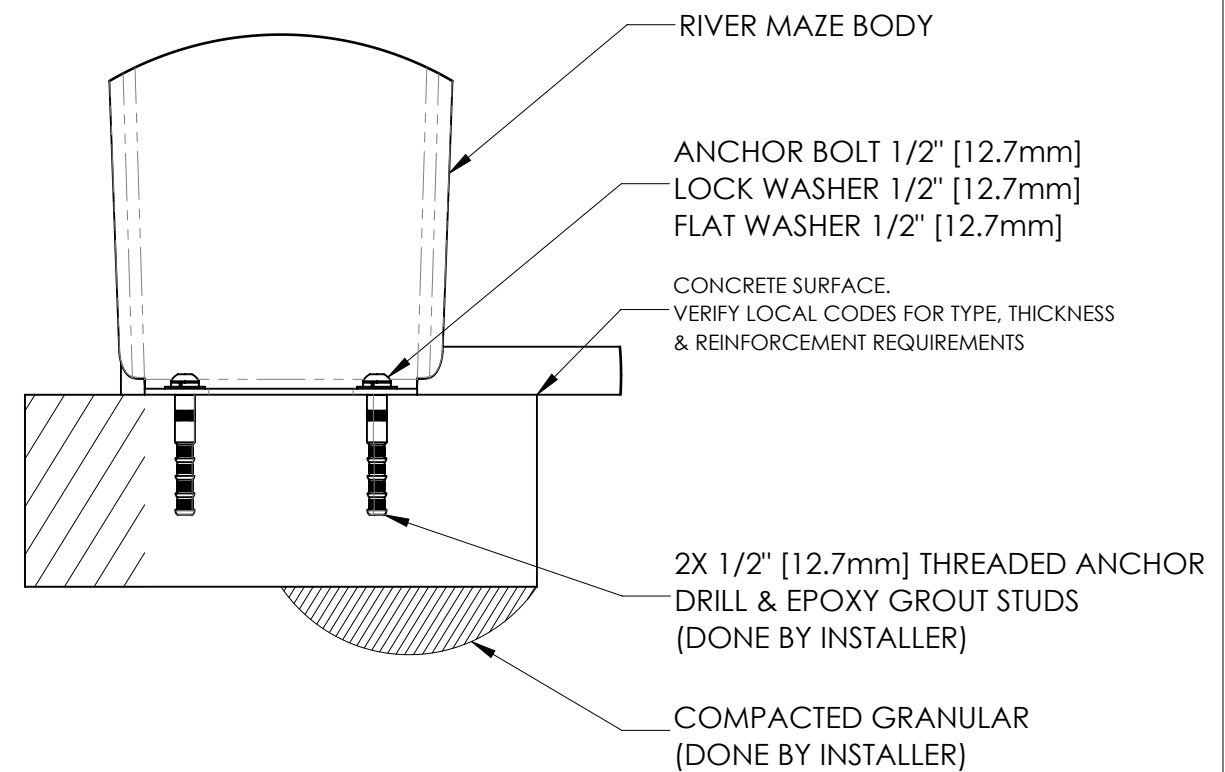
#4



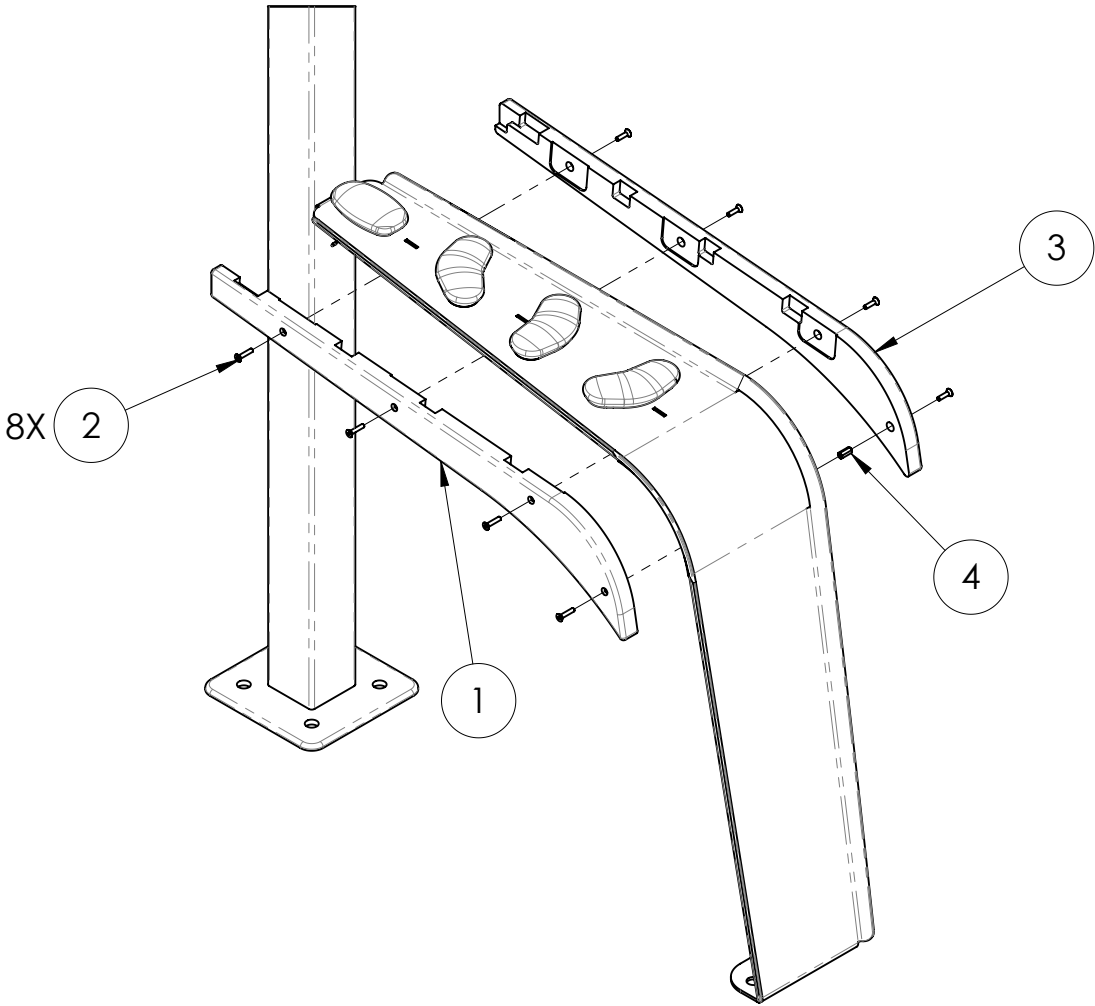
RIVER MAZE TYPICAL ANCHORING STEPS (DONE BY OTHERS):

1. ASSEMBLE RIVER MAZE ON POST, USING SUPPLIED HARDWARE.
2. MARK ON CONCRETE FOOTING OR SLAB, THE RIVER MAZE LEG ANCHORING HOLES' POSITIONS.
3. REMOVE RIVER MAZE.
4. DRILL ON HOLES' MARKINGS WITH 3/4" DRILL BIT SIZE.
5. CLEAN THE DRILLED HOLES.
6. PUT ANCHORS IN HOLES WITH EPOXY (EPOXY ANCHORING ADHESIVE PULL-OUT STRENGTH MUST BE MINIMUM 6400 LBF).
7. WAIT FOR EPOXY'S CURING TIME.
8. ASSEMBLE THE RIVER MAZE AS PER VORTEX' ASSEMBLY GUIDE.

RIVER MAZE TYPICAL ANCHORING DETAIL



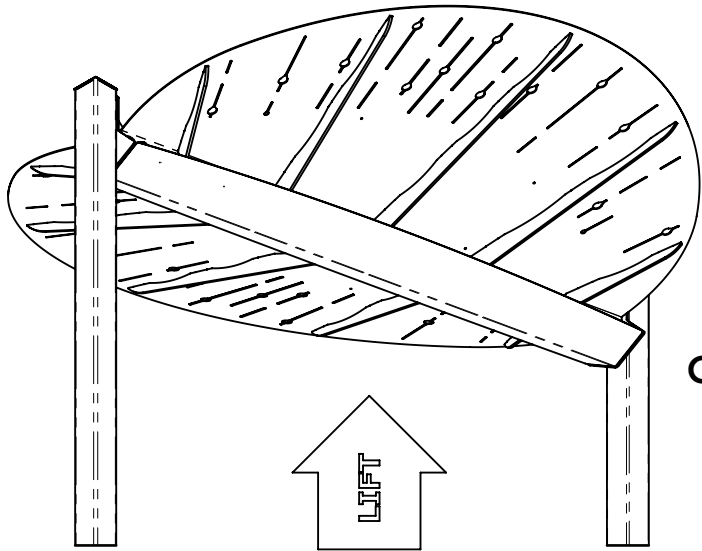
#5



ASSEMBLE SIDE PANELS WITH ITS HARDWARE

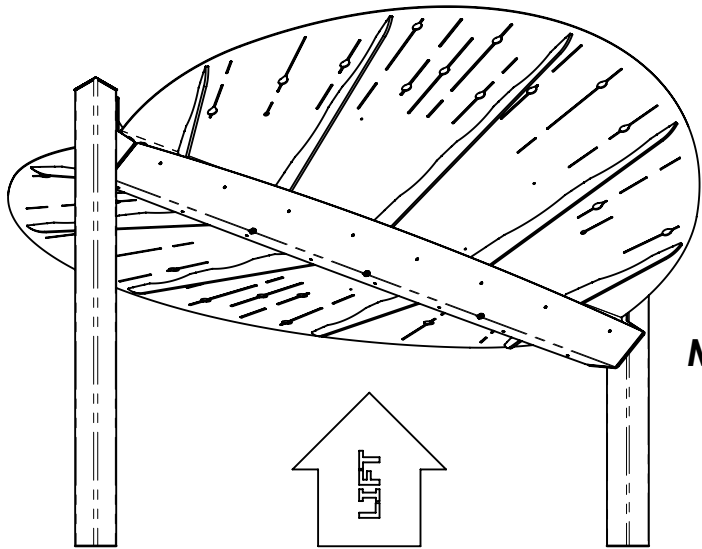
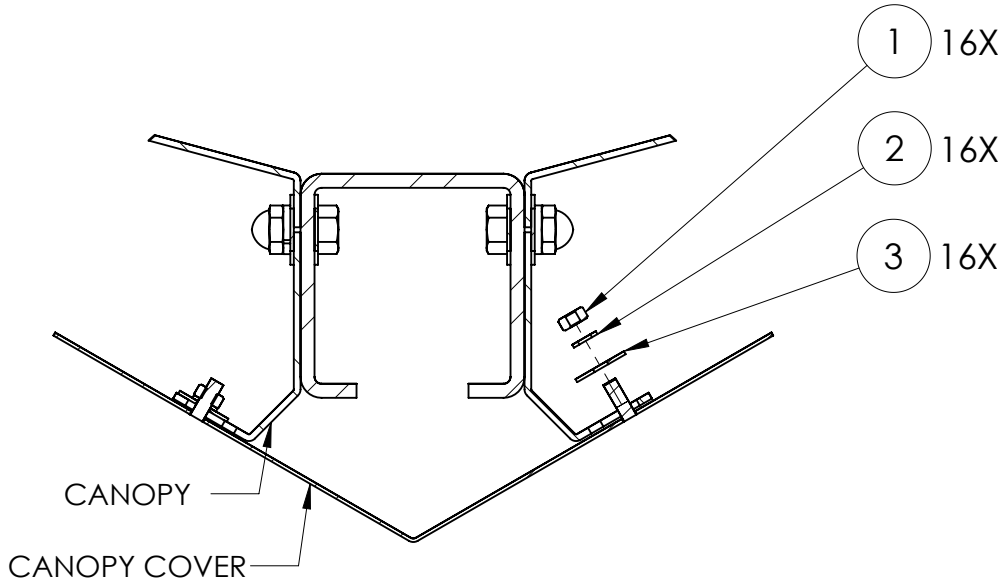
RIVER MAZE ASSEMBLY DETAIL

#1
PER COVER

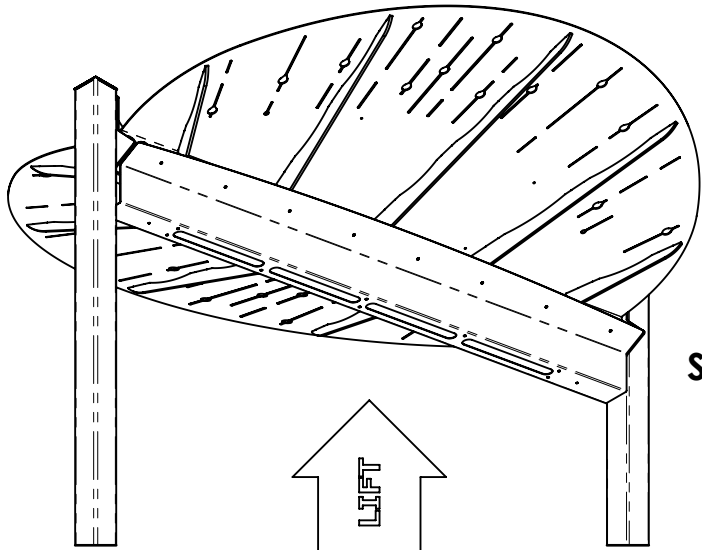
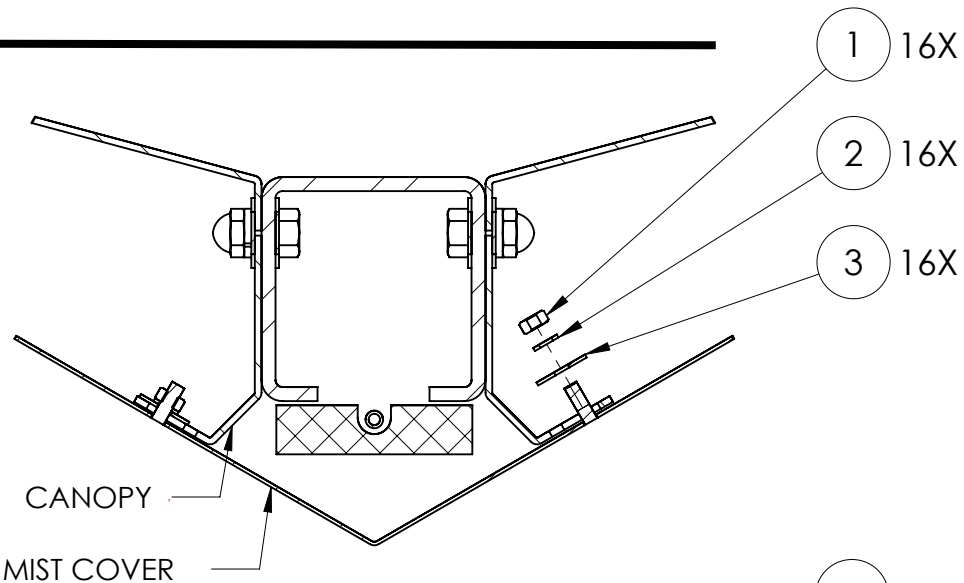


CANOPY COVER

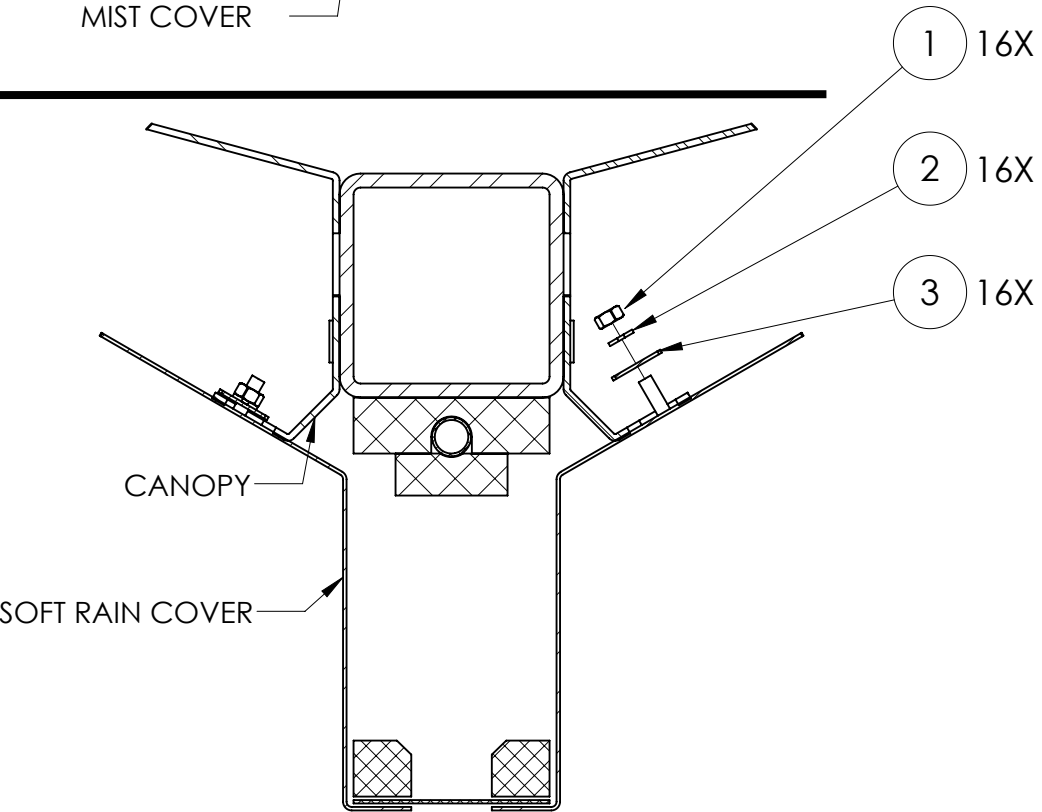
#2
PER COVER



MIST COVER



SOFT RAIN COVER



ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	16	103267	HEX NUT 1/4"-20
2	16	103395	SPLIT LOCK WASHER 1/4"
3	16	103865	FLAT WASHER 1/4" X 1"OD FENDER WASHER

COVER ASSEMBLY DETAIL