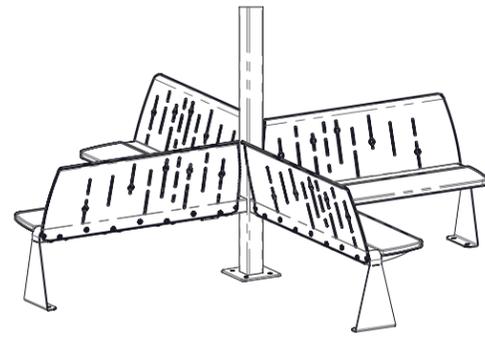
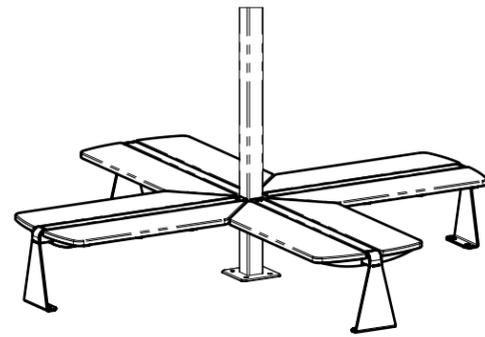


**ABRIO 05 - VOR 3505 & 3505B
 BOM & OPTIONS**

BENCH OPTIONS

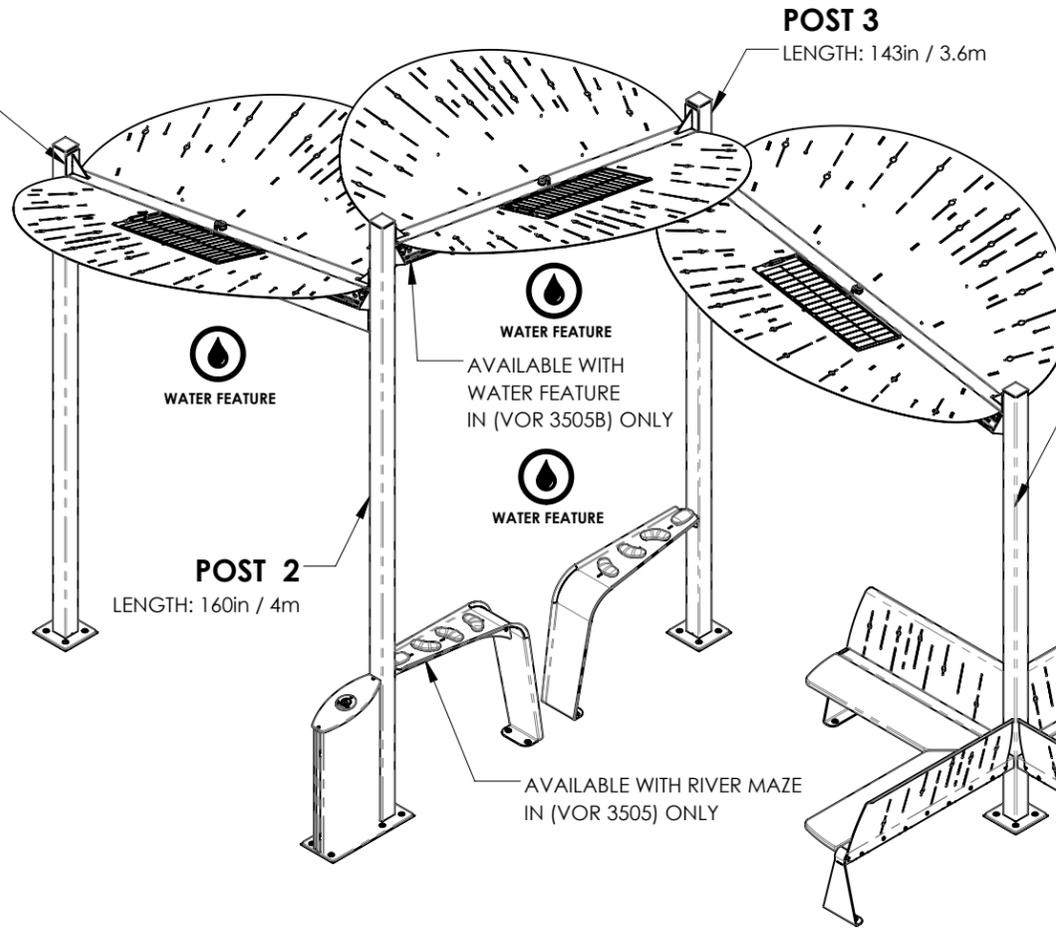


BENCH BACKREST SEATING



BENCH FLAT SEATING

POST 1
 LENGTH: 130in / 3.3m

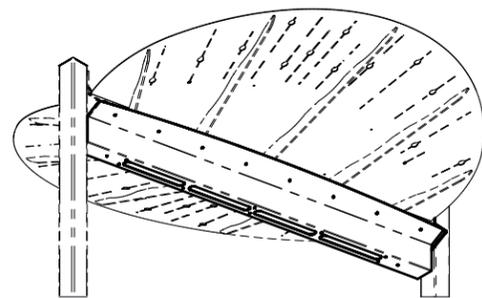


POST 3
 LENGTH: 143in / 3.6m

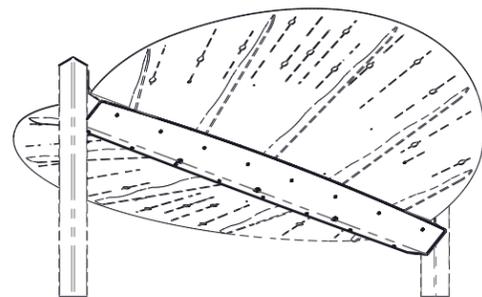
POST 4
 LENGTH: 114in / 2.9m

FOR THE BENCHES,
 REFER TO THE
 TWO POSSIBLE OPTIONS

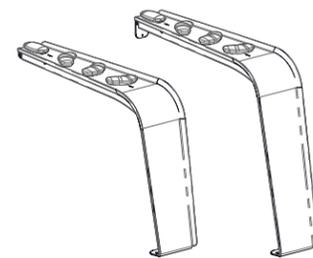
WATER FEATURE OPTIONS



SOFT RAIN

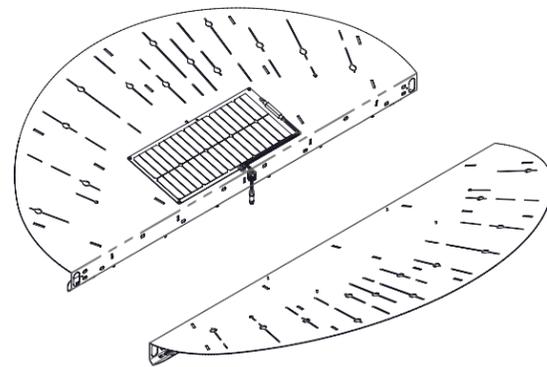


MIST

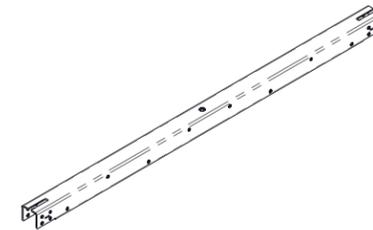


2X RIVER MAZE
 INCLUDED IN VOR 3504 ONLY

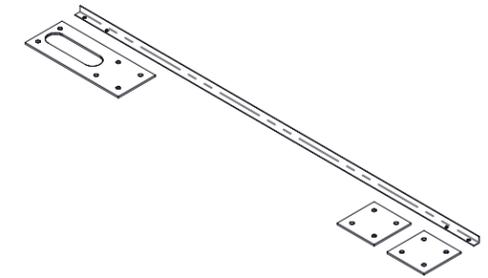
DEFAULT PARTS



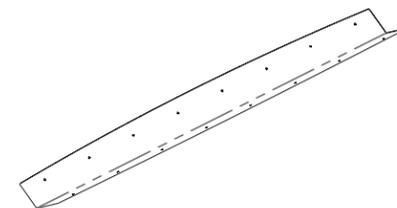
6X CANOPY
 3X WITH SOLAR PANEL
 3X WITHOUT SOLAR PANEL



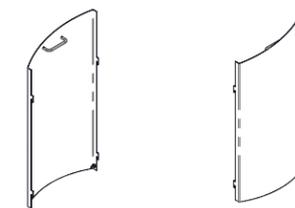
3X BEAMS



1X ANCHORING JIGS KIT

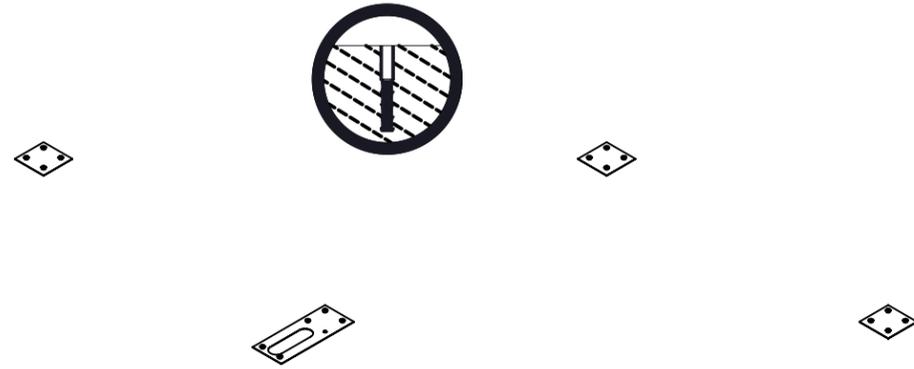


2X CANOPY COVER (VOR 3505)
 1X CANOPY COVER (VOR 3505B)



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

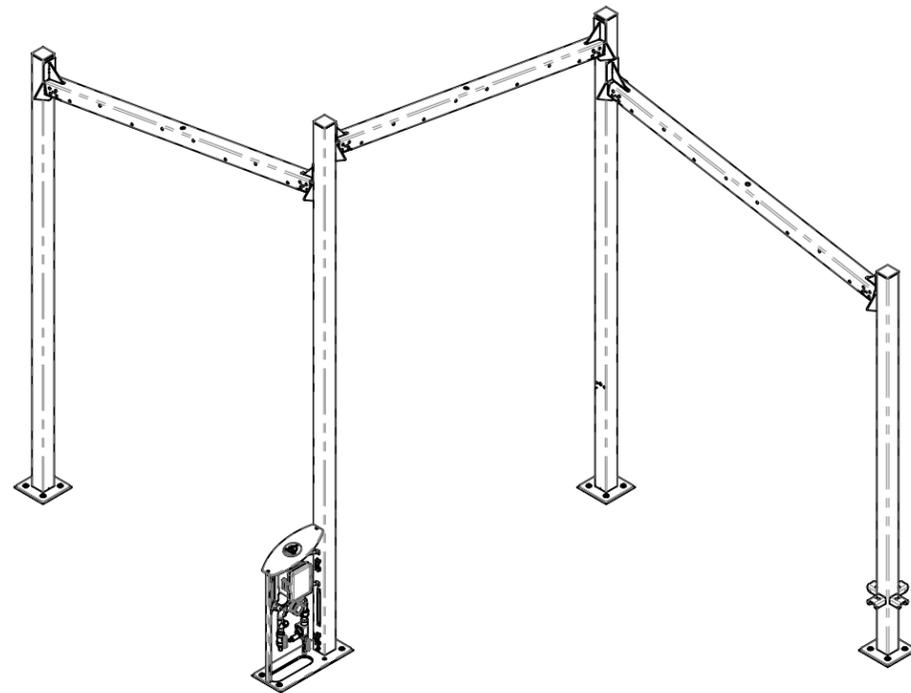
#1



POST ANCHORS' INSTALLATION

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

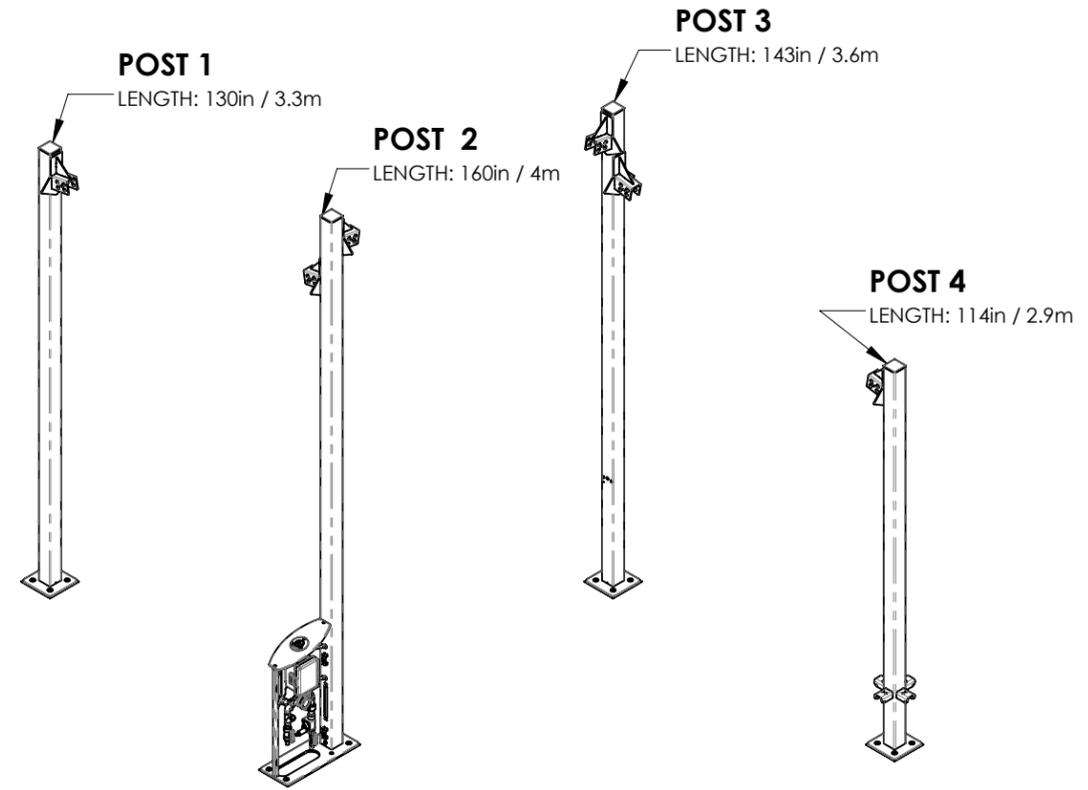
#3



BEAMS INSTALLATION

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

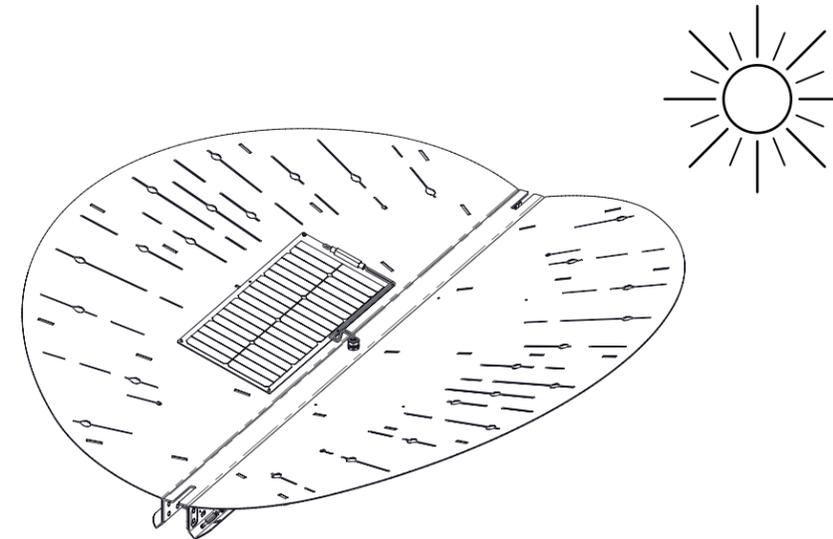
#2



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

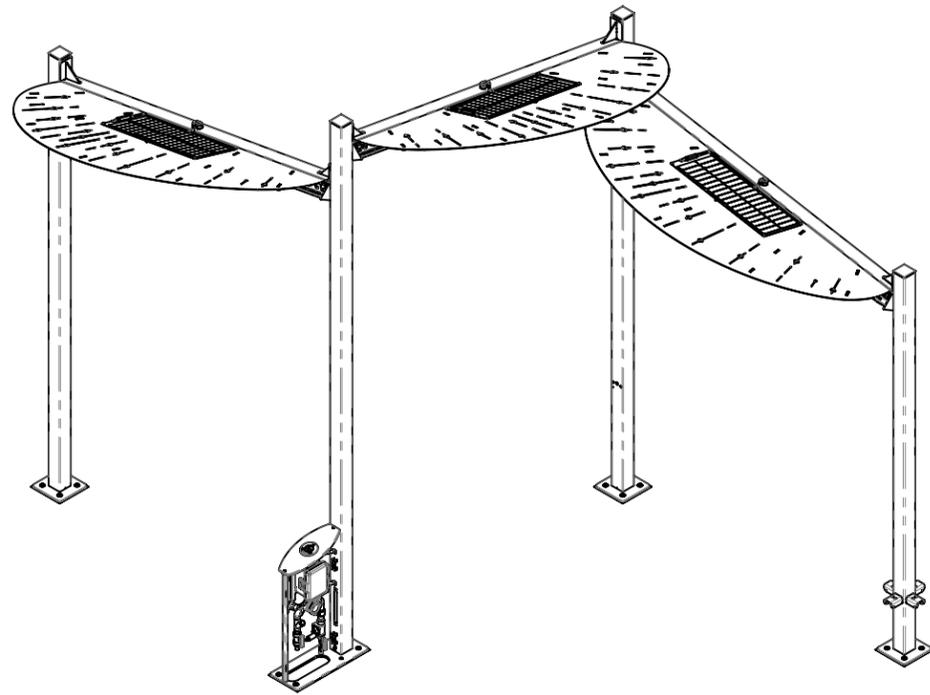


CANOPIES WITH SOLAR PANEL ORIENTATION

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).

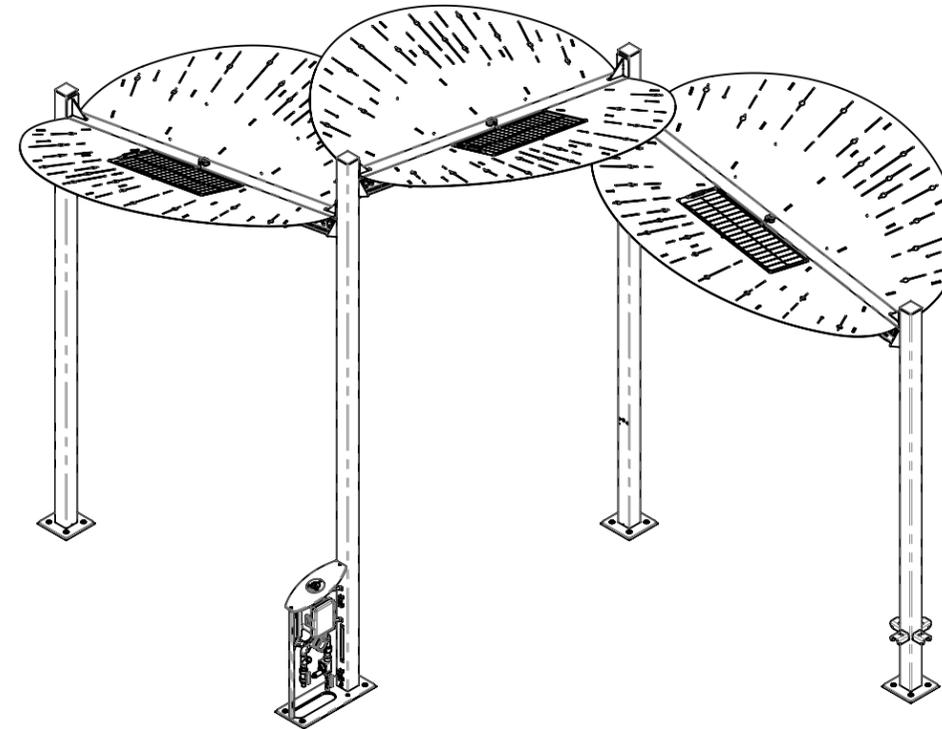
#4.B



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

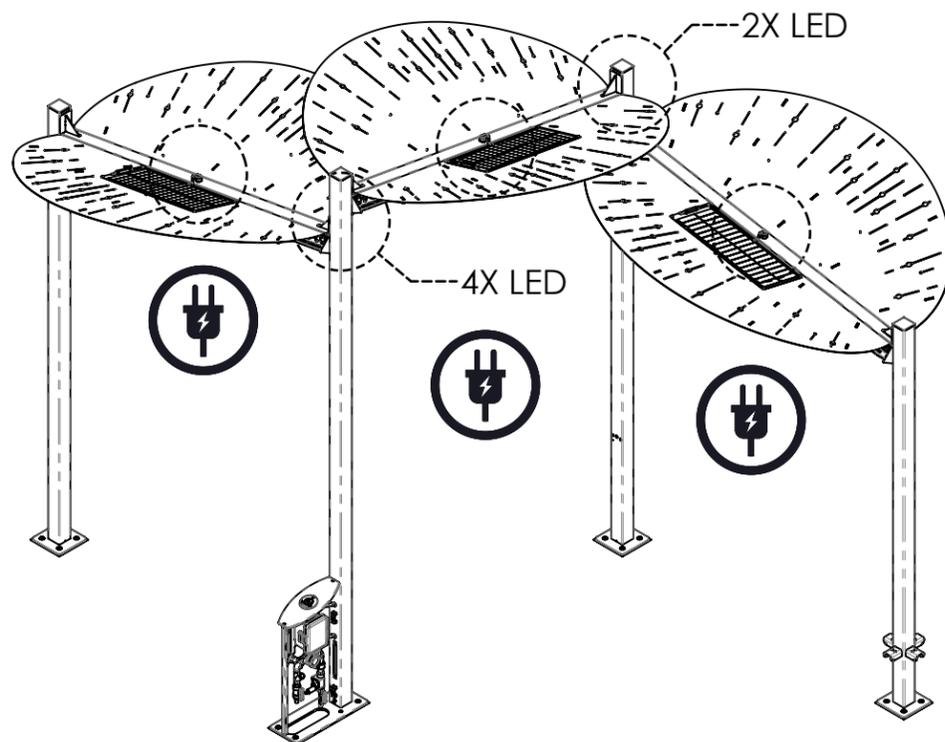


CANOPIES INSTALLATION

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

#5

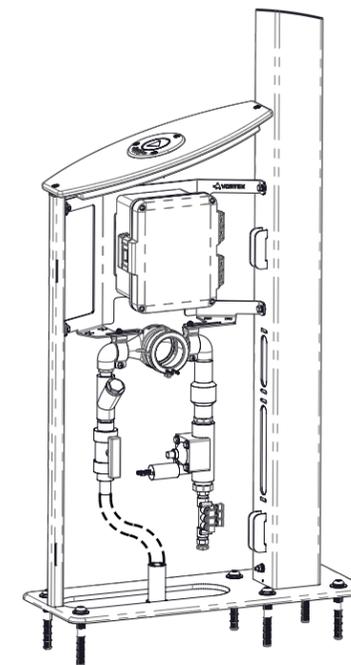
CRITICAL STEP
MAKE SURE ALL CABLES ARE CONNECTED



ELECTRIC CONNECTION OF LEDS

REFER TO CANOPY ASSEMBLY DETAIL ON P. **TYP - 10 & P. TYP - 14**
REFER TO ABRIO 05 ELECTRICAL CABLE MANAGEMENT

#6



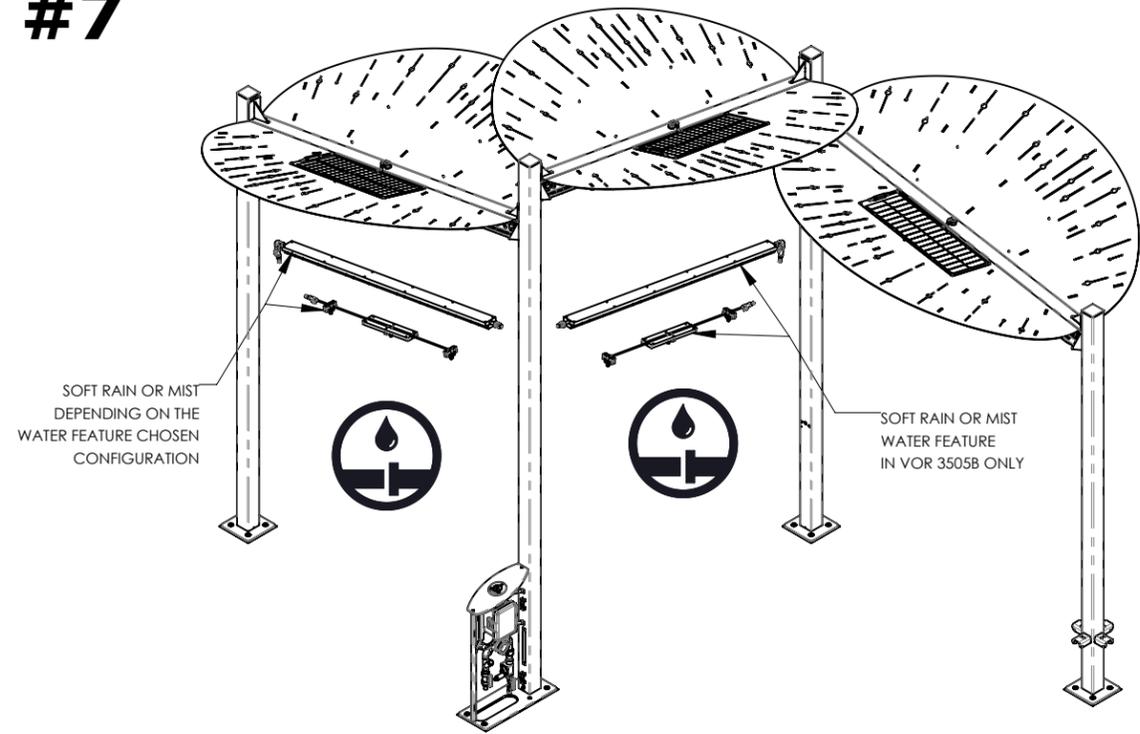
TESTING STEPS:

- 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



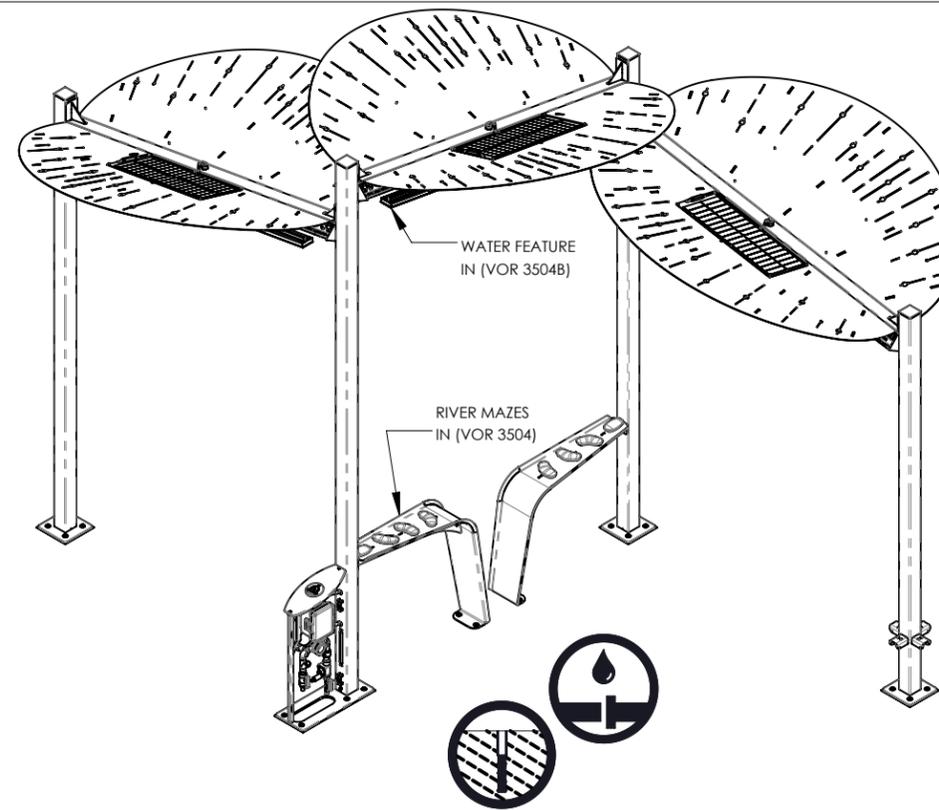
SOFT RAIN & MIST INSTALLATION

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 05 WATER TUBING MANAGEMENT

#8

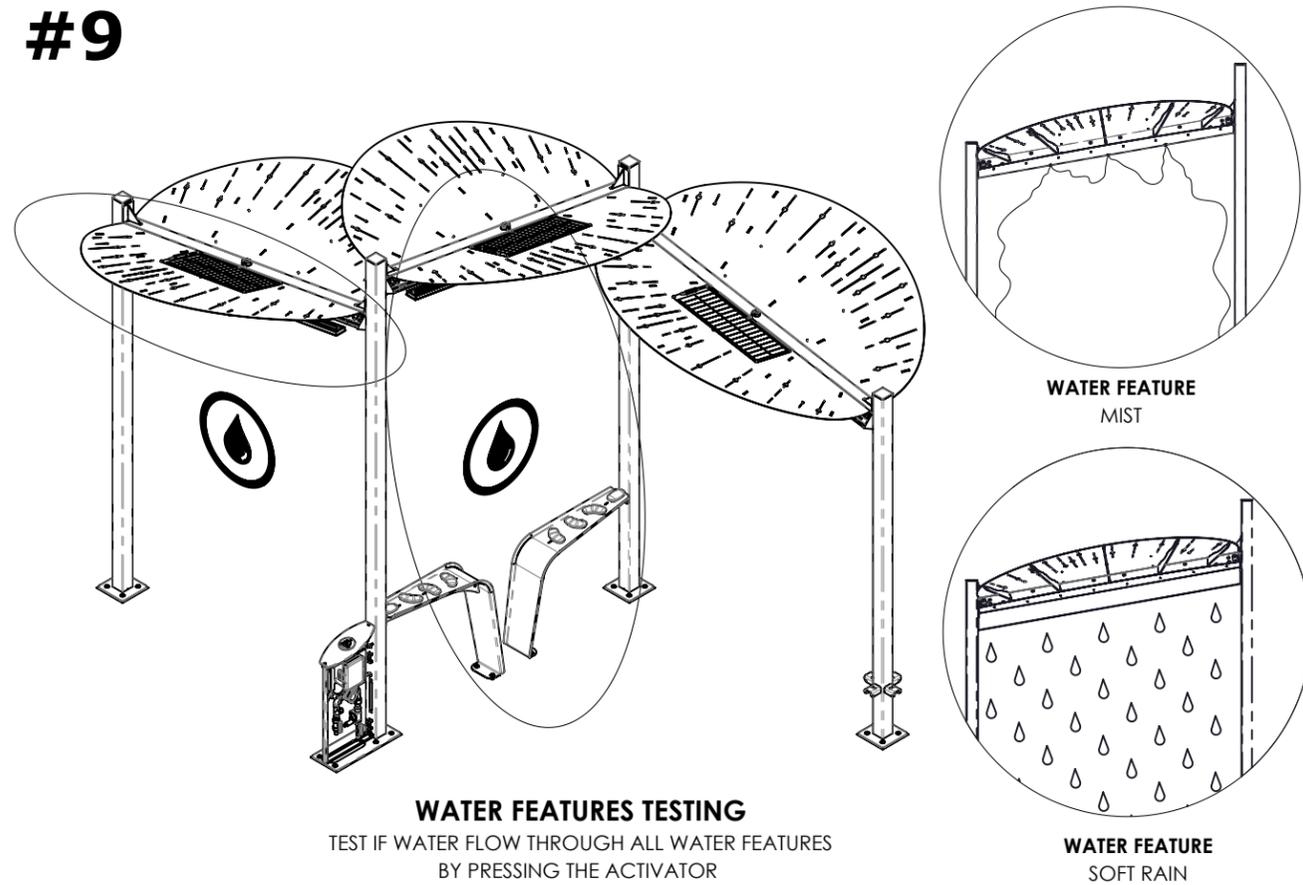


RIVER MAZES INSTALLATION

REFER TO RIVER MAZE ASSEMBLY DETAIL ON P. **TYP - 19**

REFER TO ABRIO 05 WATER TUBING MANAGEMENT

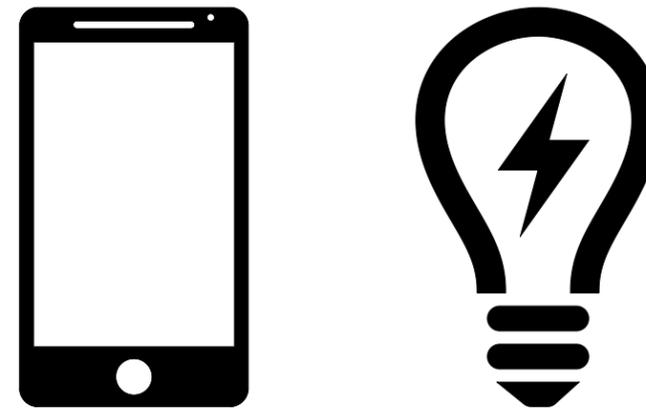
#9



WATER FEATURES TESTING

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

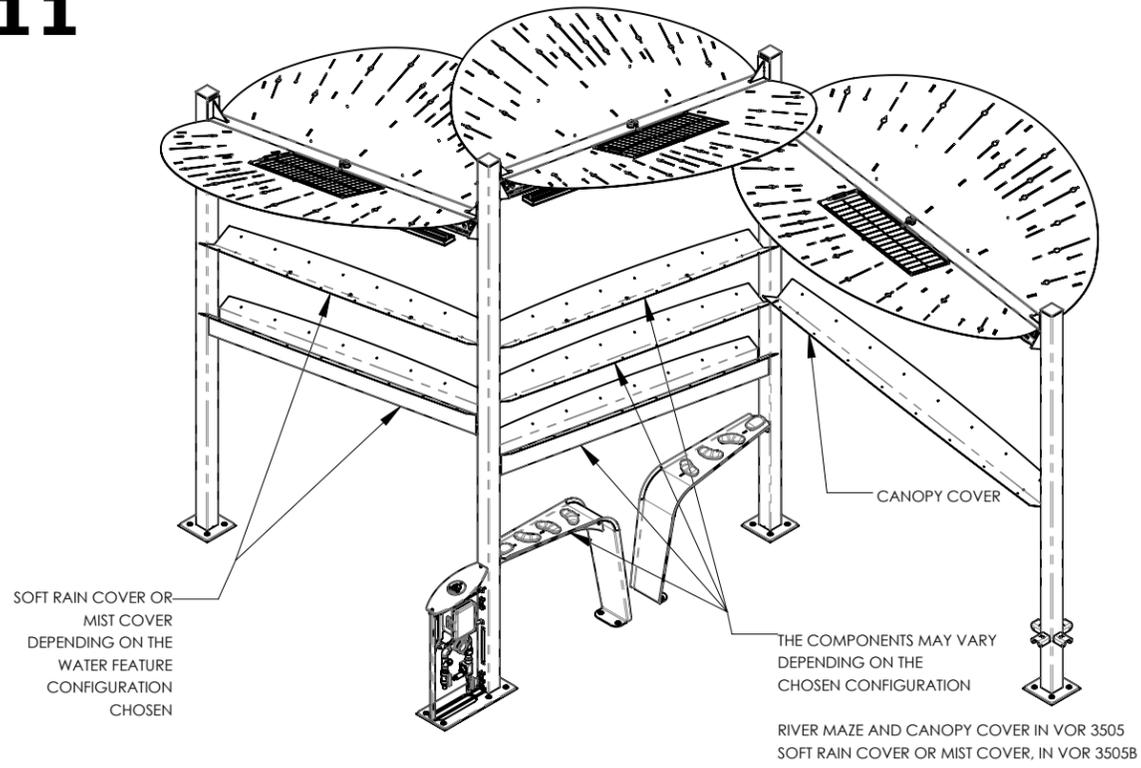
#10



APPLICATION TESTING

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

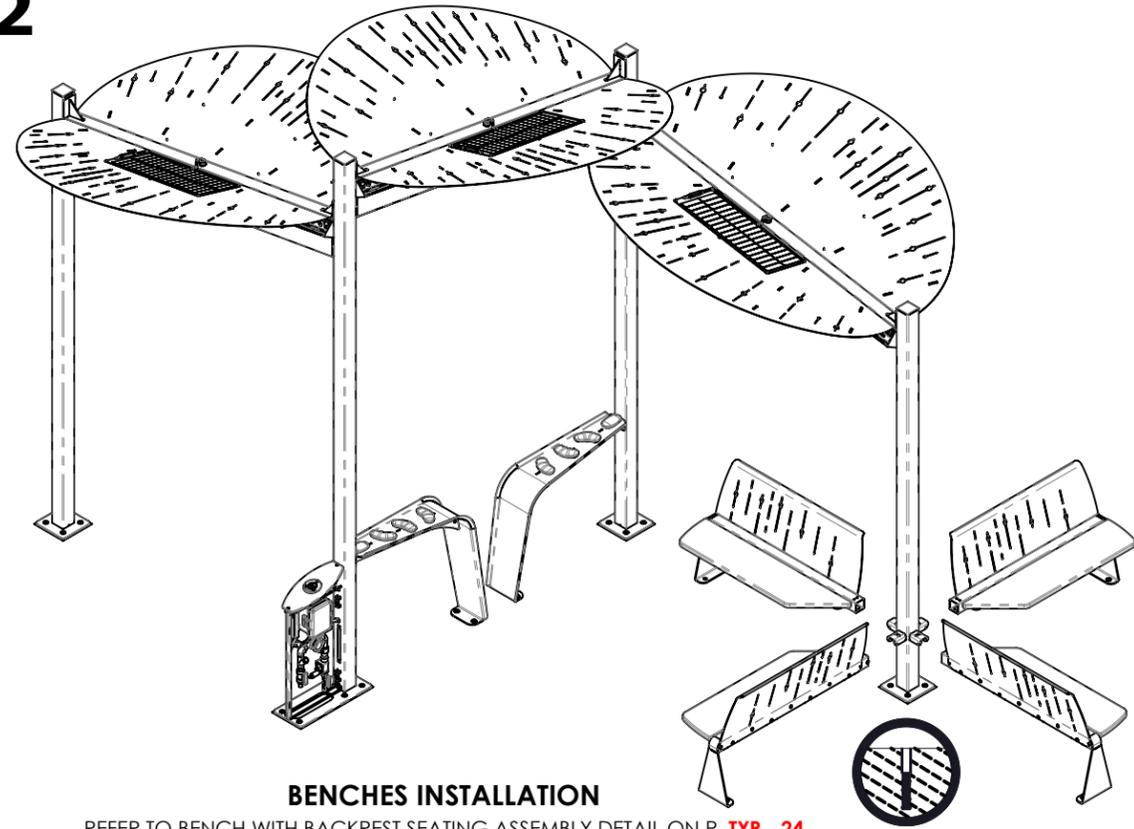
#11



COVERS INSTALLATION

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

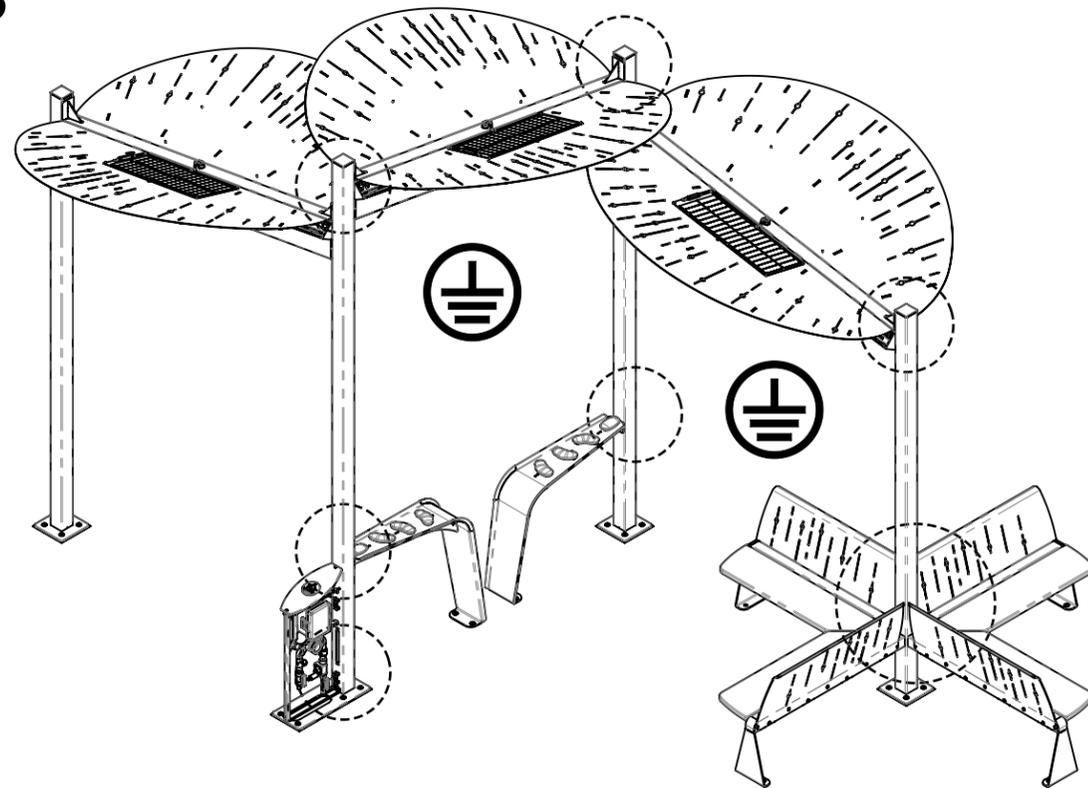
#12



BENCHES INSTALLATION

REFER TO BENCH WITH BACKREST SEATING ASSEMBLY DETAIL ON P. **TYP - 24**
REFER TO BENCH FLAT SEATING ASSEMBLY DETAIL P. **TYP - 28**

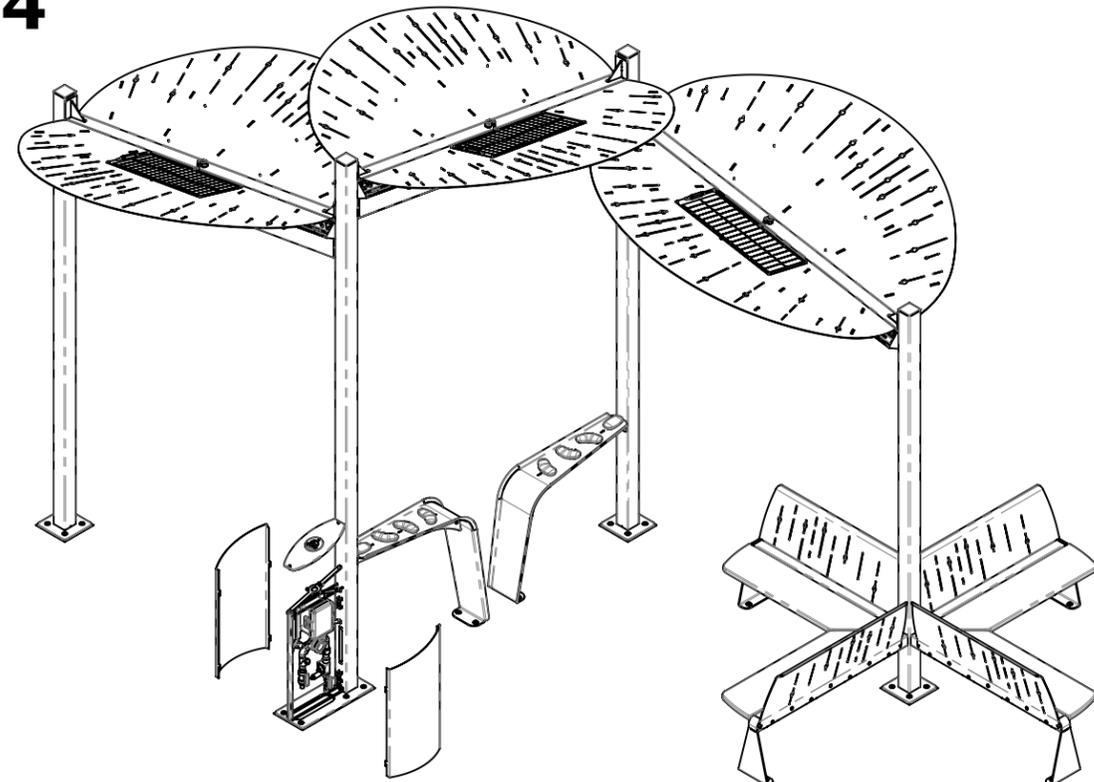
#13



GROUND AND BONDING VERIFICATION

4X ON BENCHES / 6X ON CANOPIES / 2X ON RIVER MAZES / 2X ON WMS POST

#14

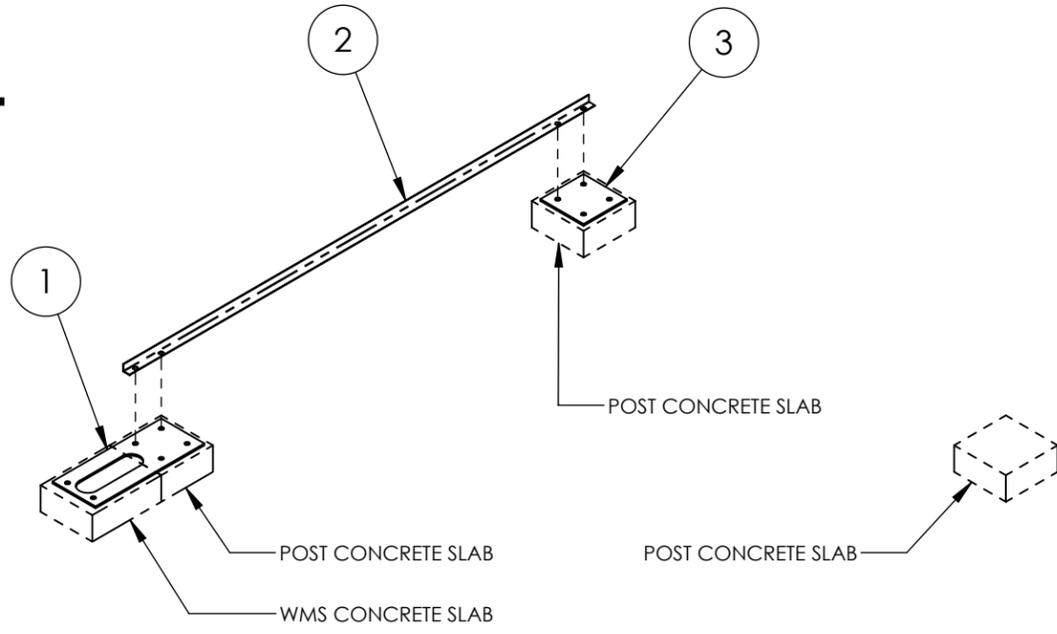


WMS SIDE PANELS INSTALLATION

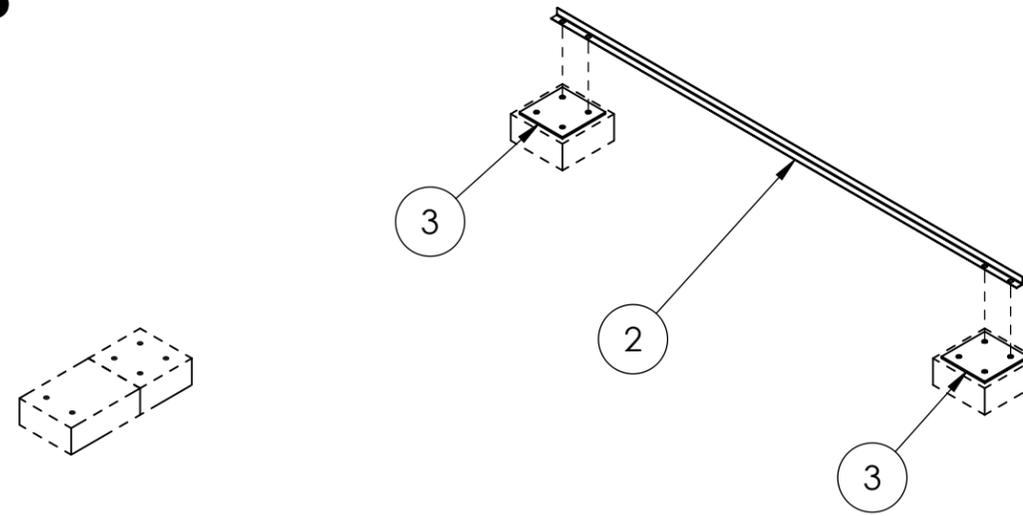
REMOVE ACTIVATOR PLATE TO INSTALL THE WMS SIDE PANELS
REFER TO WMS POST ASSEMBLY DETAIL ON P. **TYP - 05**

COPYRIGHT VORTEX AQUATIC STRUCTURES INTERNATIONAL-THIS DOCUMENT AND THE IDEAS, RENDERINGS AND OTHER CONTENTS CONTAINED THEREIN ARE THE SOLE PROPERTY OF VORTEX AQUATIC STRUCTURES INTERNATIONAL AND MAY NOT BE DISSEMINATED, COPIED, REPRODUCED OR OTHERWISE USED WITHOUT PRIOR WRITTEN CONSENT OF VORTEX AQUATIC STRUCTURES INTERNATIONAL.
 CE DOCUMENT EST EN TOUT TEMPS LA PROPRIÉTÉ DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC. ET NE PEUT ÊTRE UTILISÉ OU REPRODUIT SANS UN CONSENTEMENT ÉCRIT DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC.

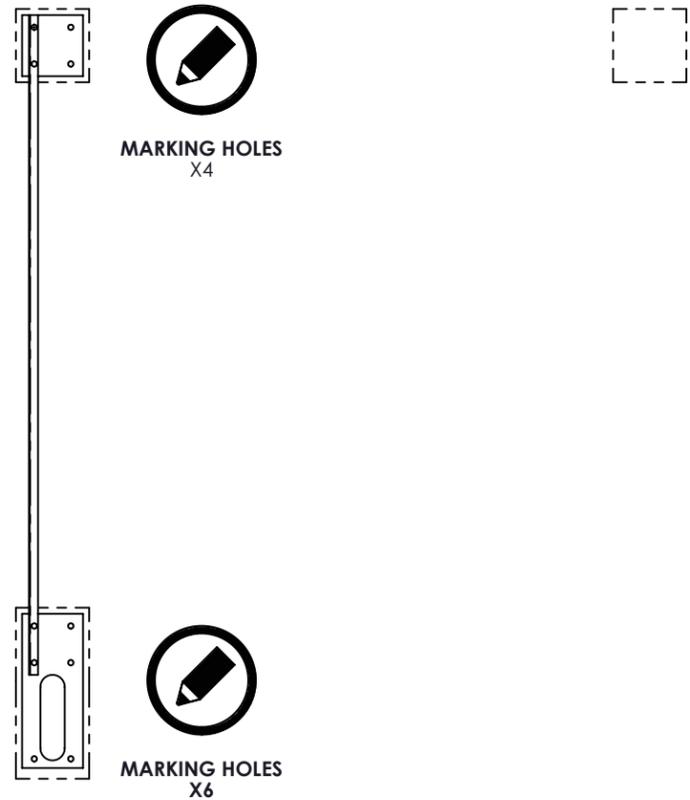
#1



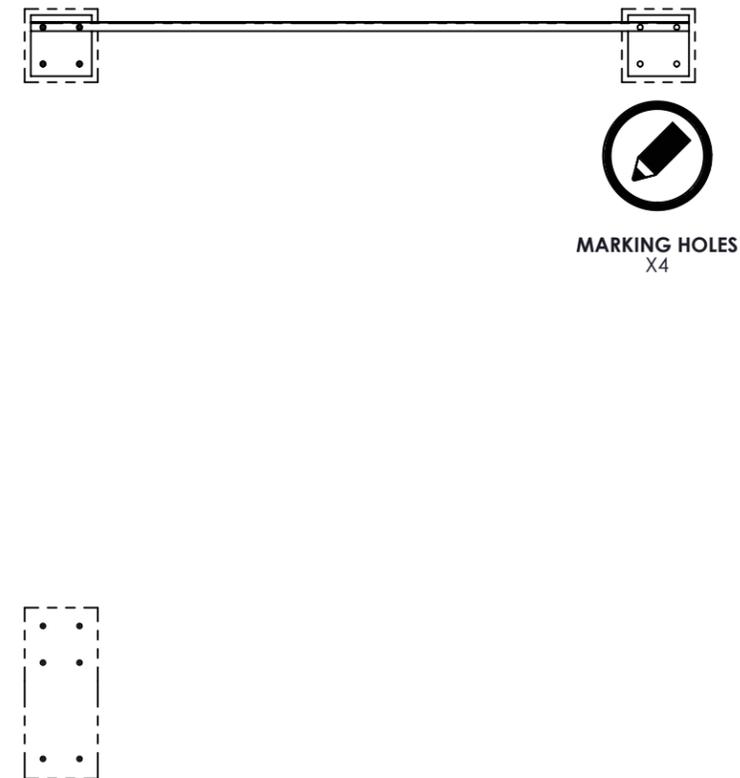
#3



#2



#4



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

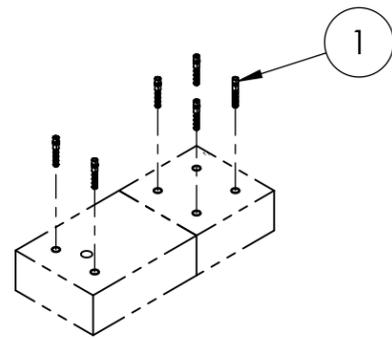
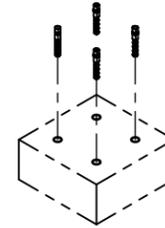
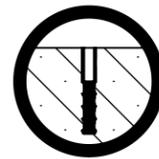
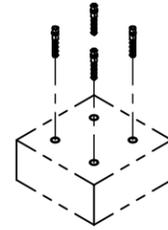
ANCHORING MARKING METHOD

#5

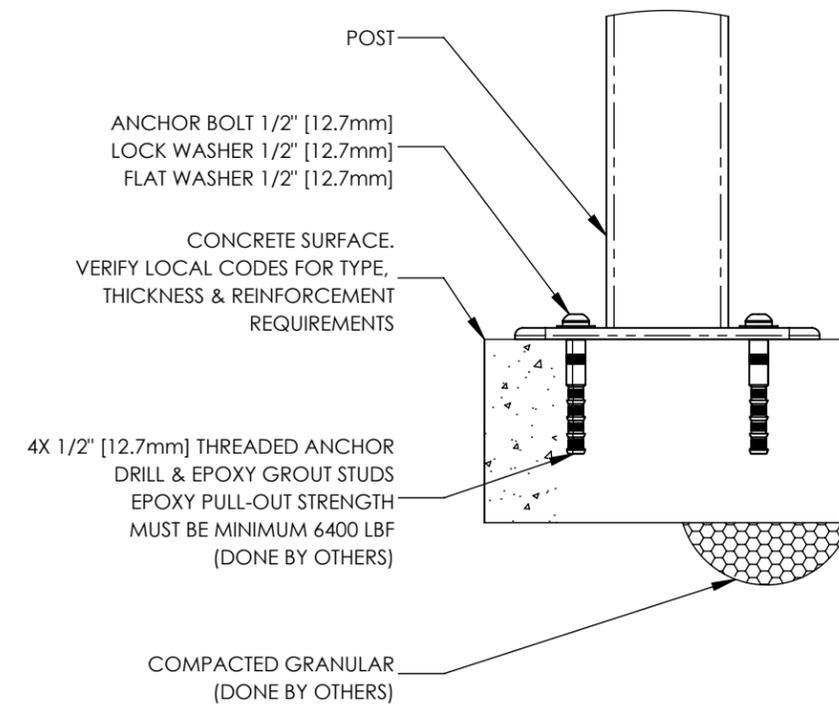
POSTS TYPICAL ANCHORING STEPS (DONE BY OTHERS)

*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.

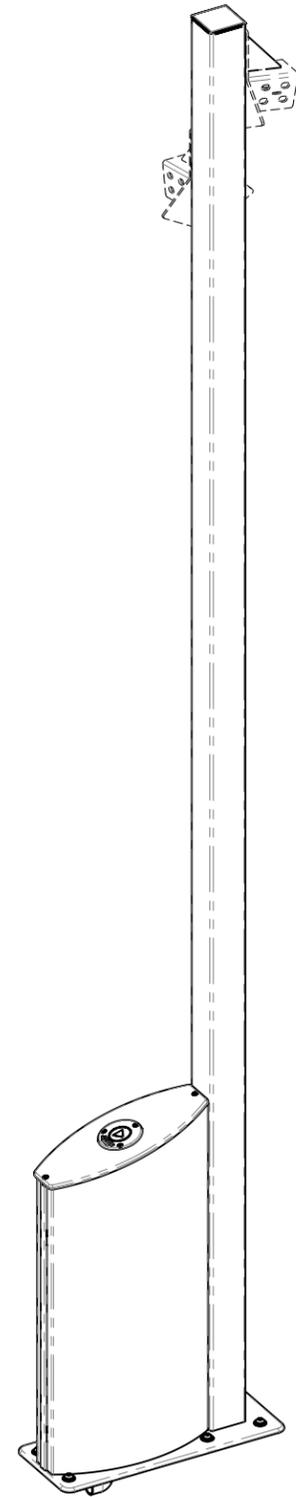


POST TYPICAL ANCHORING DETAIL

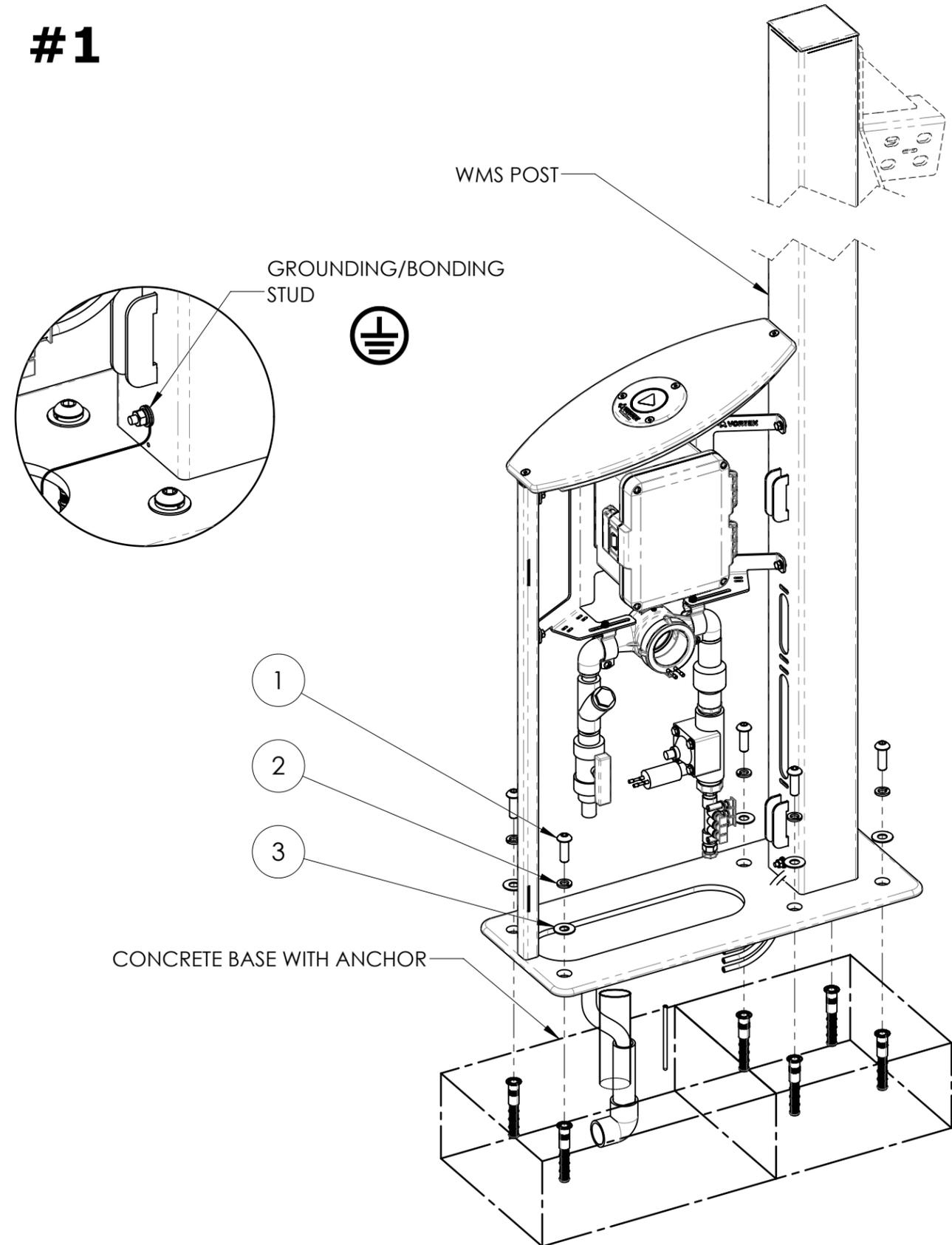


ANCHOR ASSEMBLY DETAIL

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



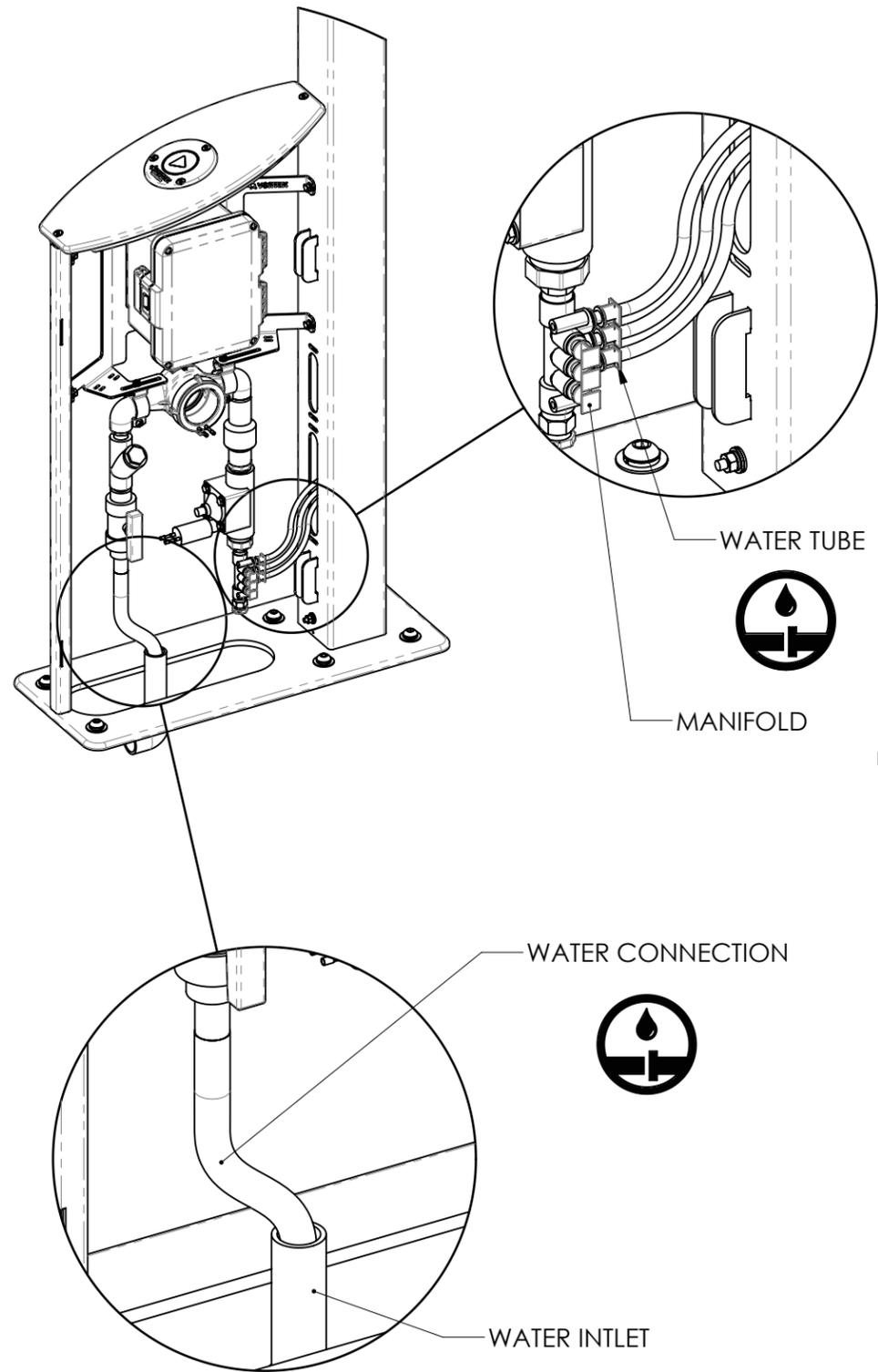
WMS POST ASSEMBLY DETAIL

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

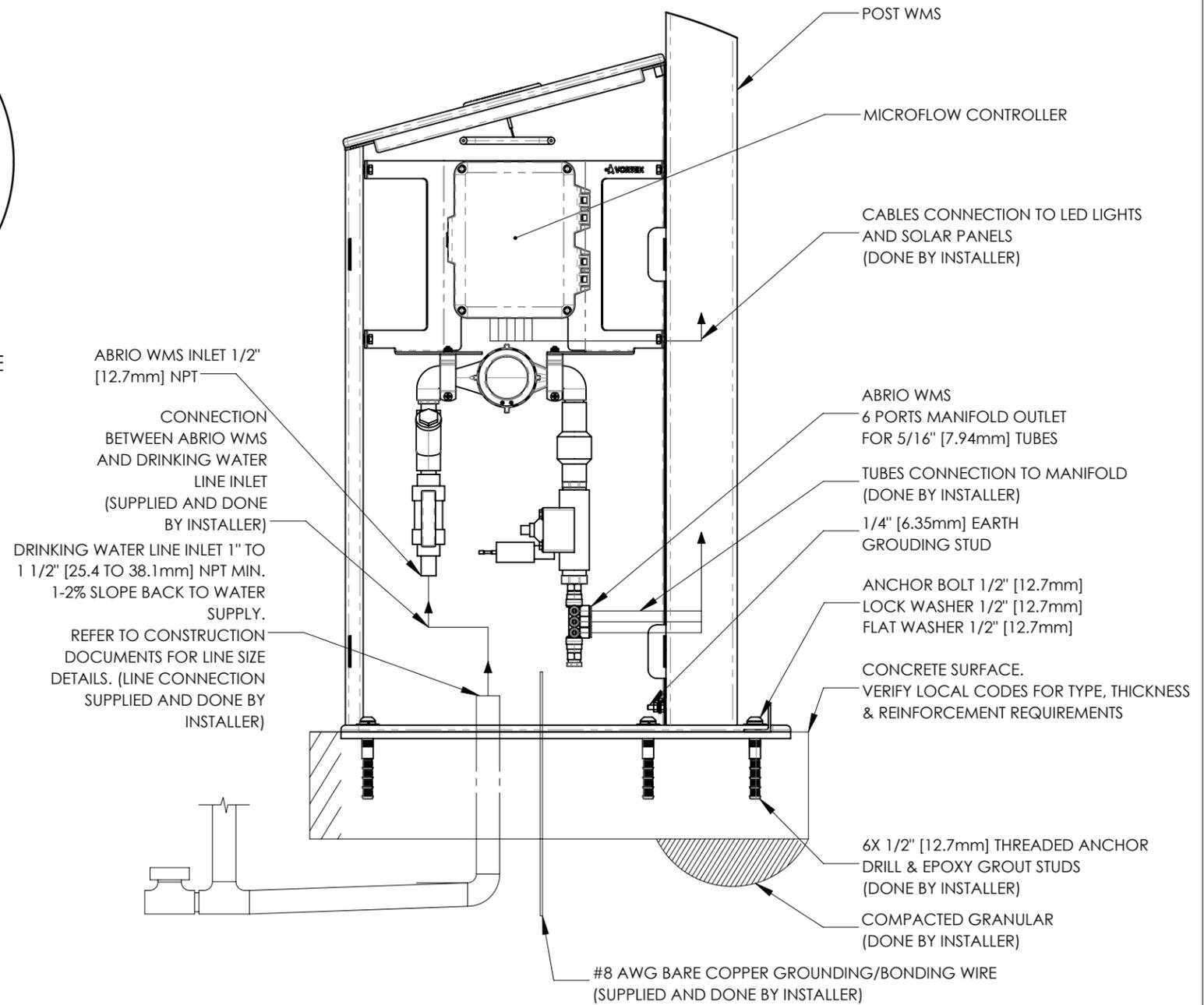
NOTES:
 HAND TIGHT THE ANCHOR HARDWARE UNTIL POSTS AND BEAMS ARE ASSEMBLED;
 THE GROUNDING MUST BE DONE BY THE INSTALLER WITH THE GROUNDING/BONDING STUD;
 WMS SIDE PANELS INSTALLATION IS THE LAST STEP OF THE ABRIO ASSEMBLY

#2

COPYRIGHT VORTEX AQUATIC STRUCTURES INTERNATIONAL-THIS DOCUMENT AND THE IDEAS, RENDERINGS AND OTHER CONTENTS CONTAINED THEREIN ARE THE SOLE PROPERTY OF VORTEX AQUATIC STRUCTURES INTERNATIONAL AND MAY NOT BE DISSEMINATED, COPIED, REPRODUCED OR OTHERWISE USED WITHOUT PRIOR WRITTEN CONSENT OF VORTEX AQUATIC STRUCTURES INTERNATIONAL.
 CE DOCUMENT EST EN TOUT TEMPS LA PROPRIÉTÉ DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC. ET NE PEUT ÊTRE UTILISÉ OU REPRODUIT SANS UN CONSENTEMENT ÉCRIT DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC.

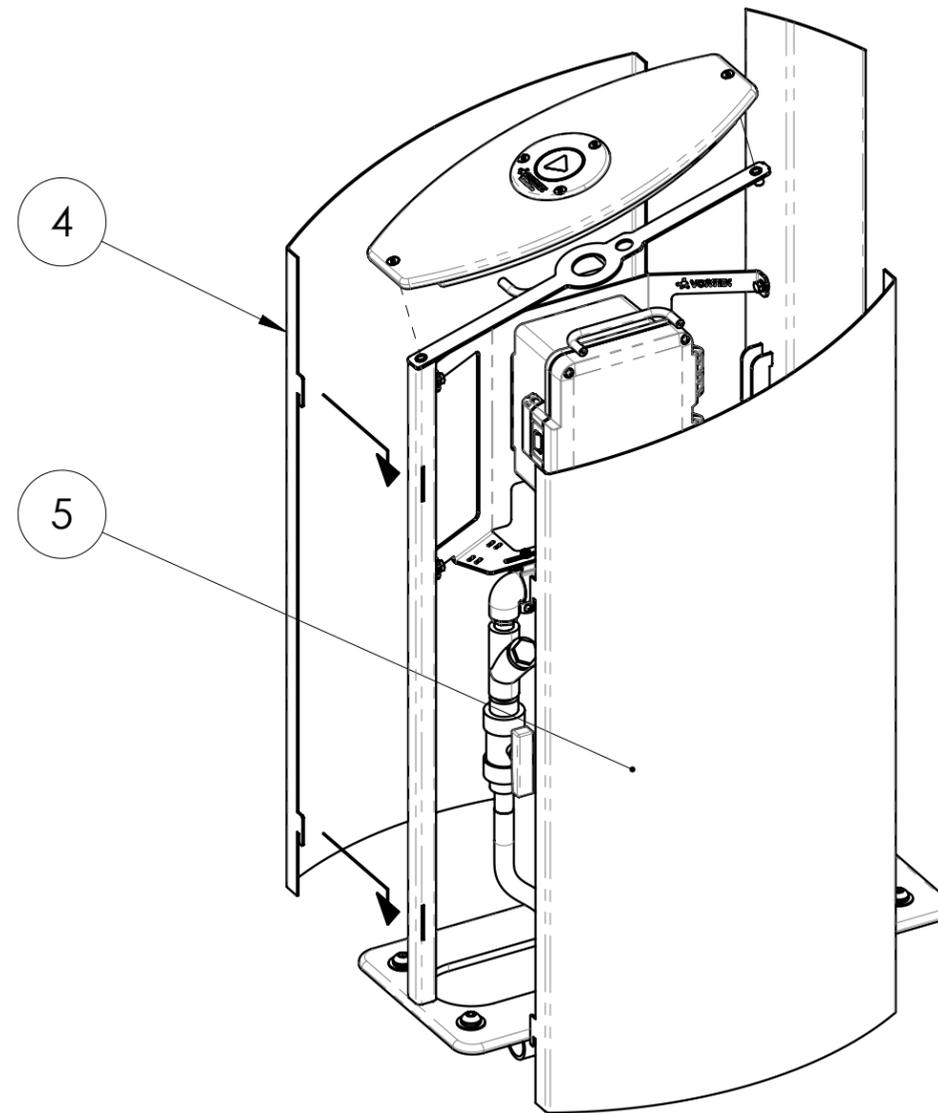
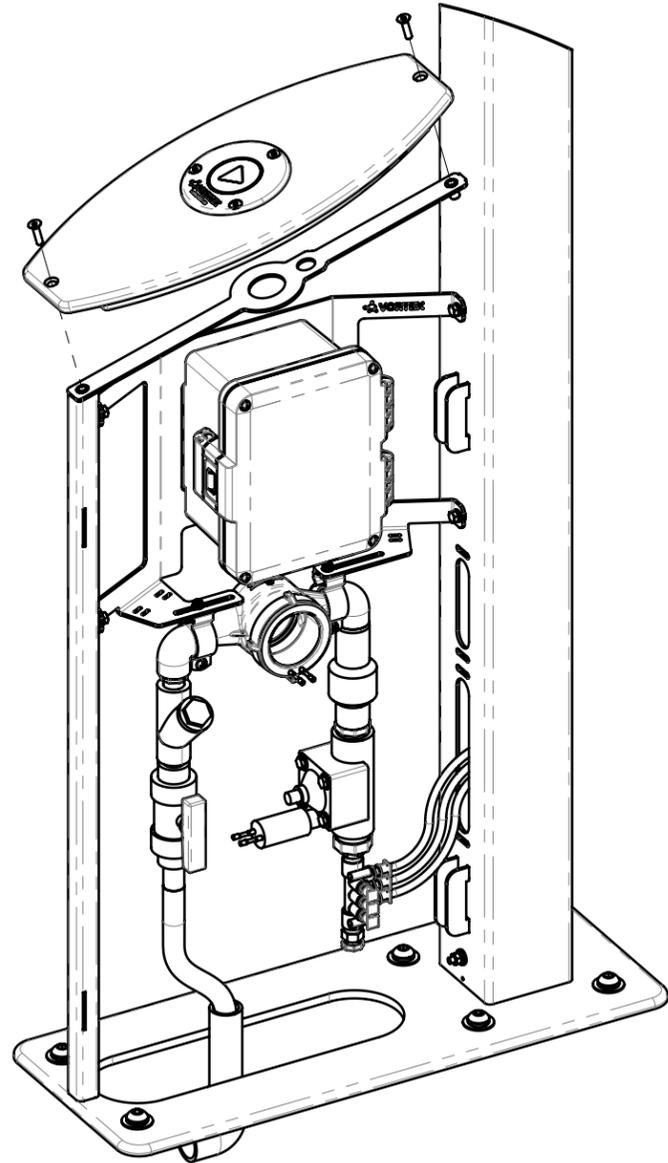


POST WMS TYPICAL ANCHORING DETAIL



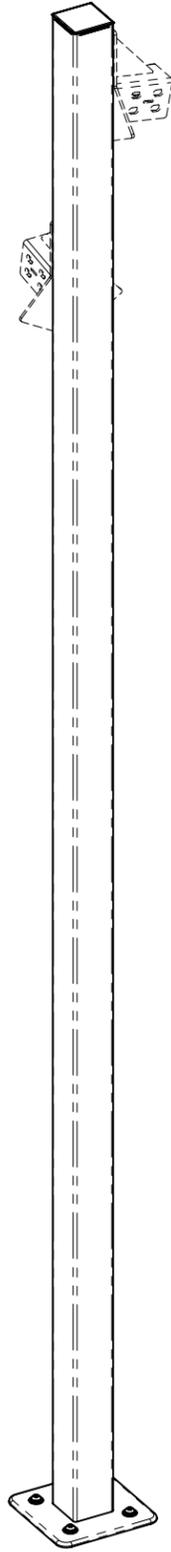
WMS POST ASSEMBLY DETAIL

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

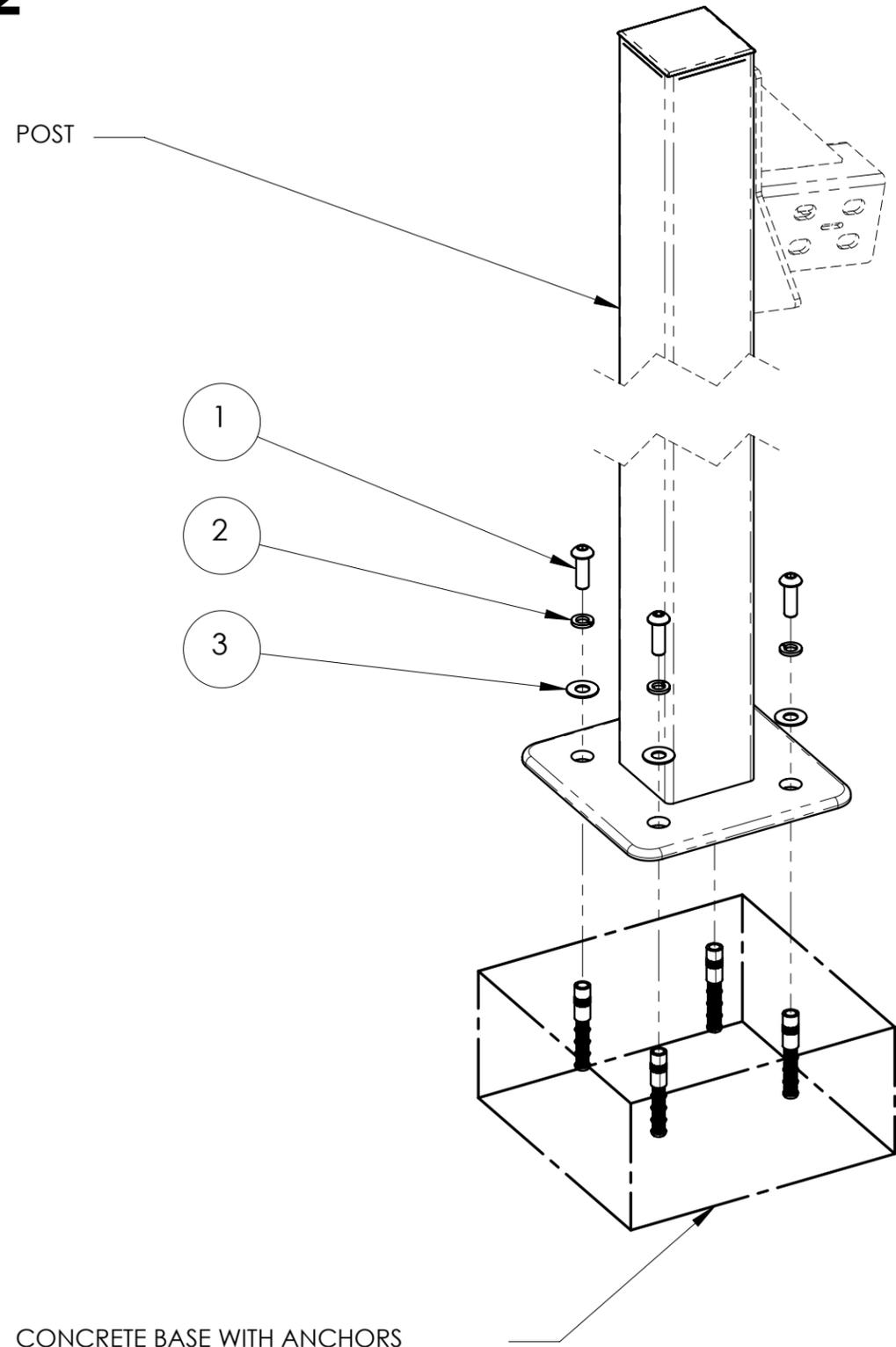


WMS POST ASSEMBLY DETAIL

#1



#2

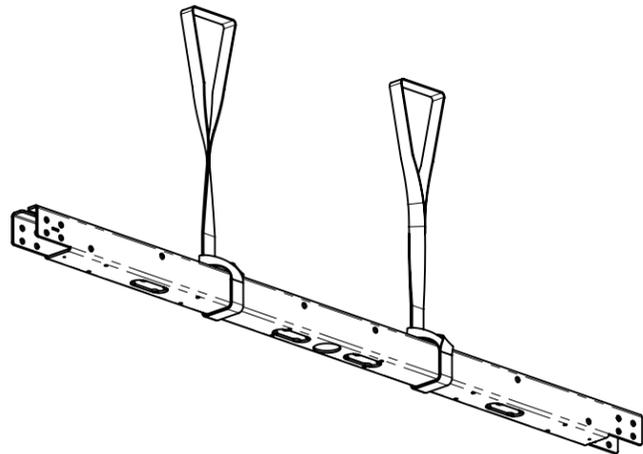


BEAM ASSEMBLY DETAIL

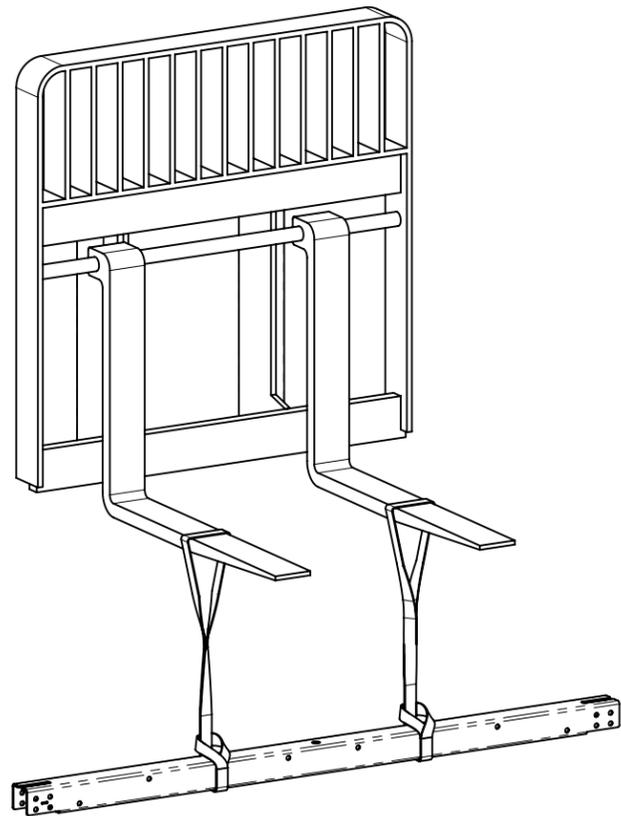
ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	4	134671	BUTTON SOCKET CAP SCREW 1/2"-13 X 1 1/2" FULL THREAD ZINC PLATED
2	4	103394	SPLIT LOCK WASHER 1/2"
3	4	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD

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

LIFTING METHOD



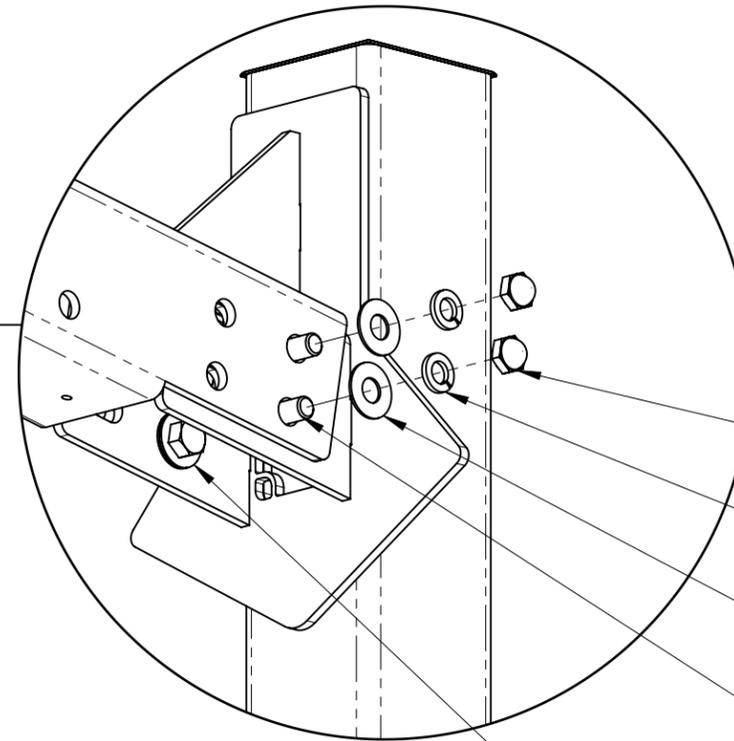
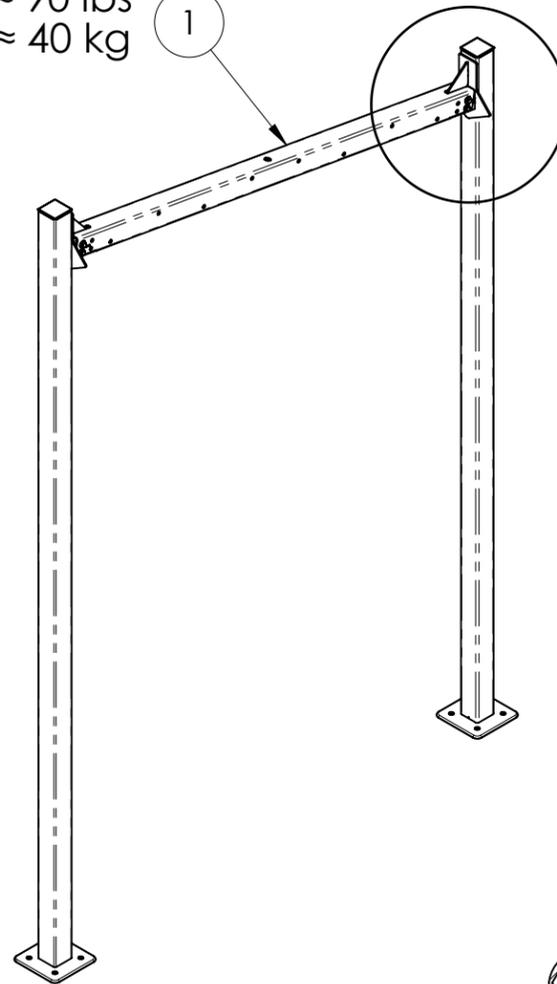
LIFT THE BEAM WITH STRAPS RATED FOR MINIMUM 200 LBS BY PASSING IT AROUND THE BEAM (AS SHOWN ABOVE)



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

≈ 90 lbs
≈ 40 kg

1



5

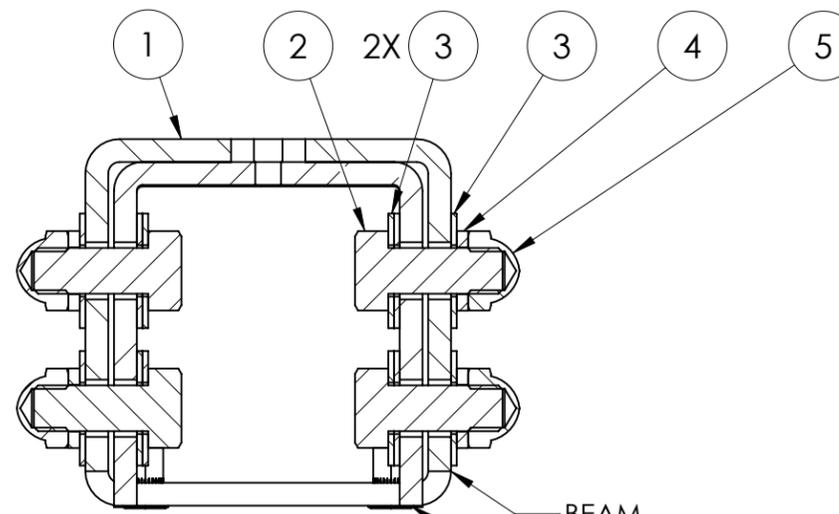
4

3

2

2X 3

1 2 2X 3 3 4 5



BEAM

POST BRACKET

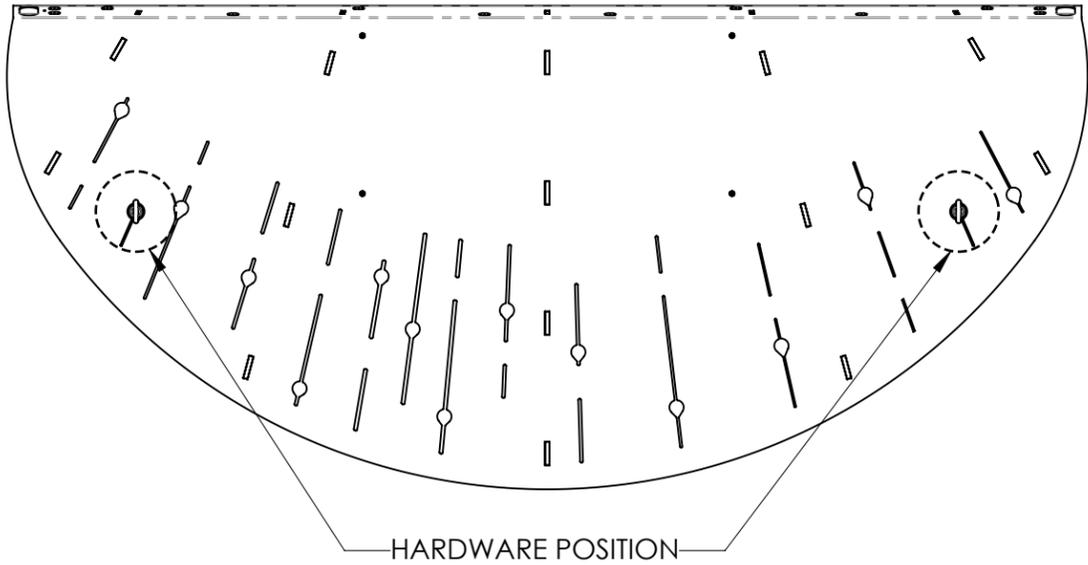
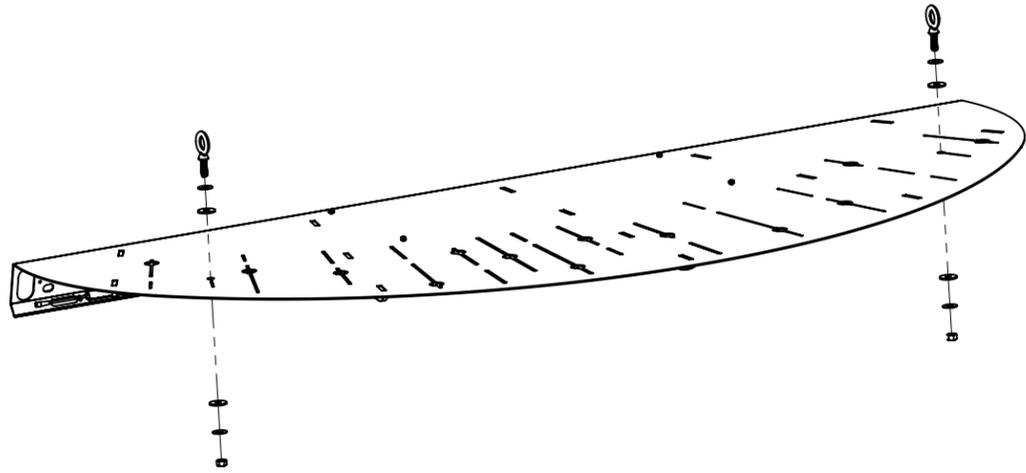
CRITICAL NOTE

USE ANTI-SEIZE ON ALL STAINLESS STEEL THREADS.

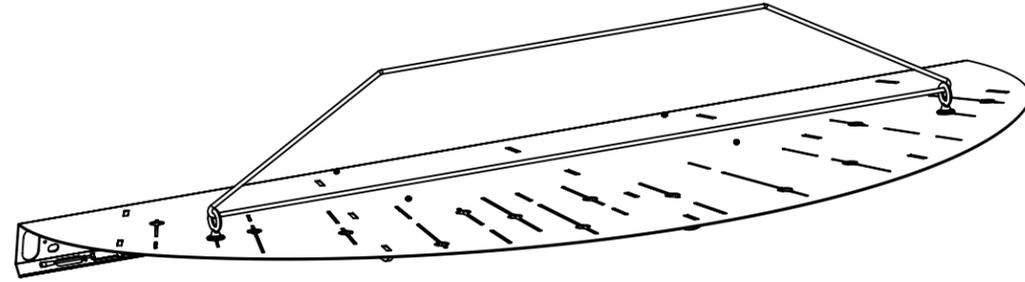
BEAM ASSEMBLY DETAIL

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

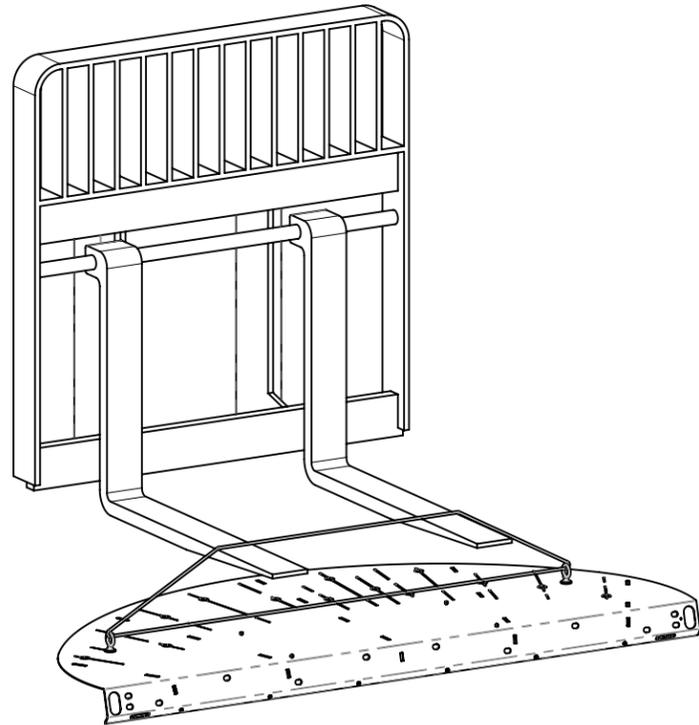
#1



#2



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



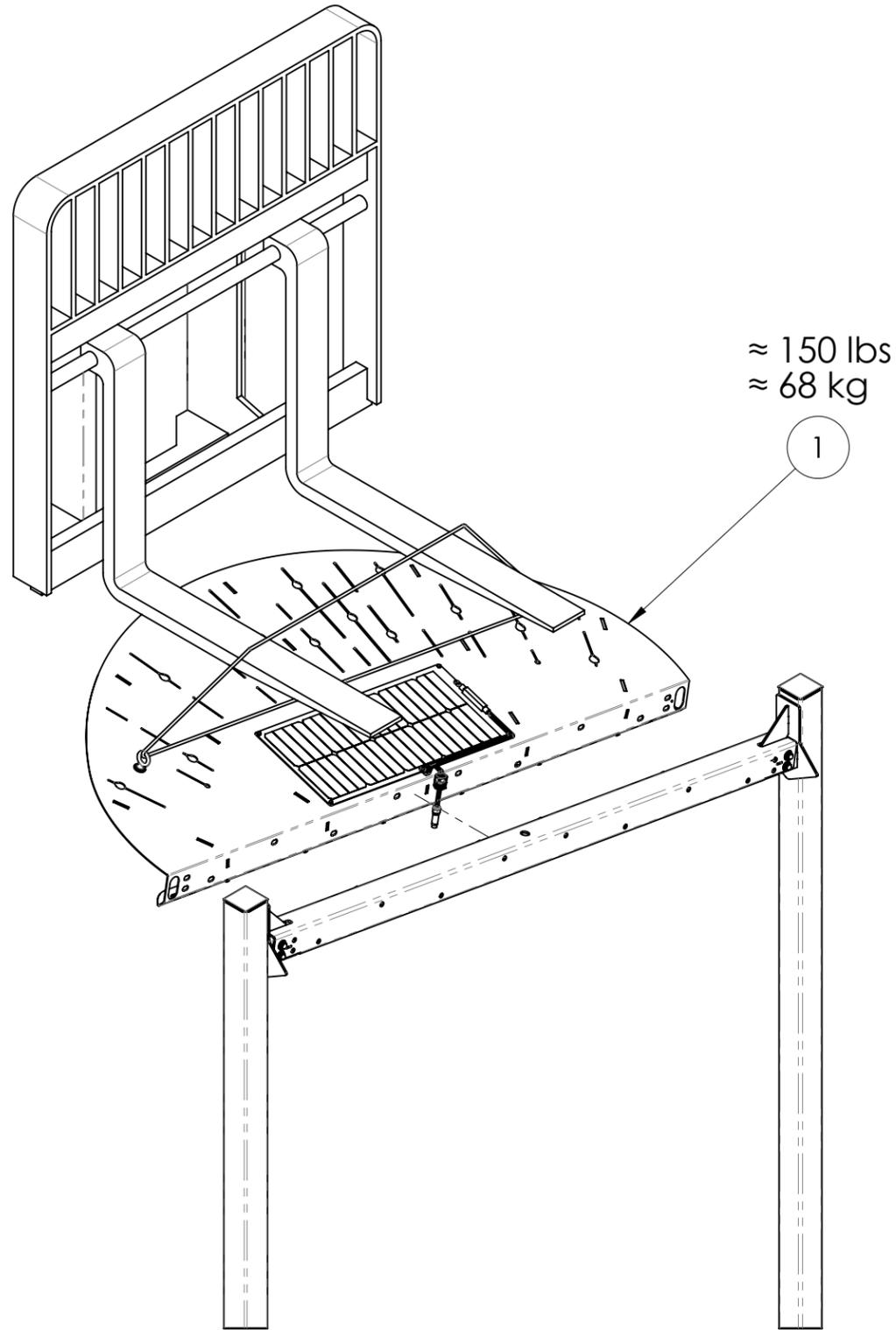
USE FORKLIFT AND STRAP TO LIFT THE CANOPIES

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

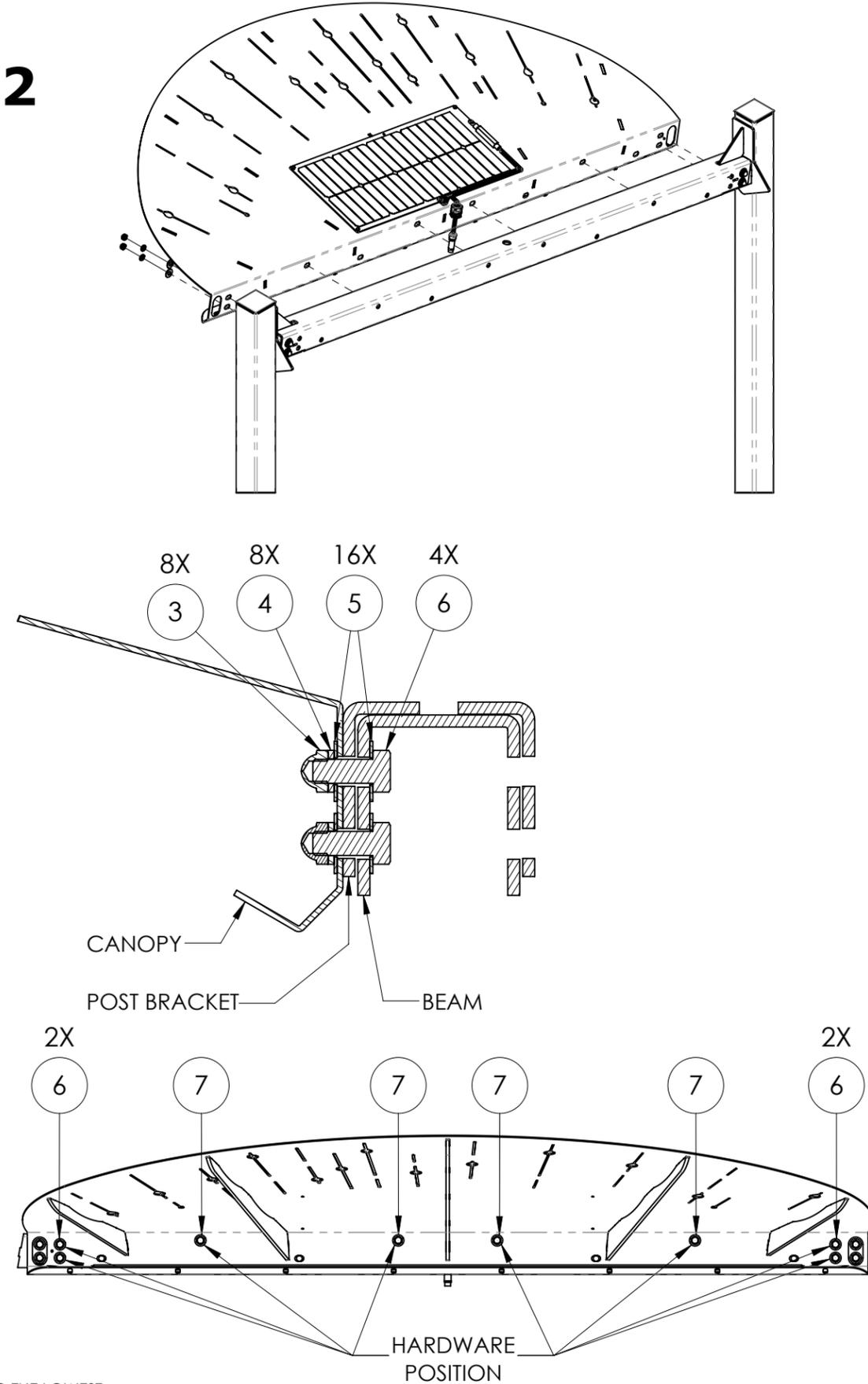
NOTES:
REMOVE LIFTING HARDWARE ONCE THE CANOPY ASSEMBLY IS DONE

CANOPY LIFTING METHOD

#1



#2



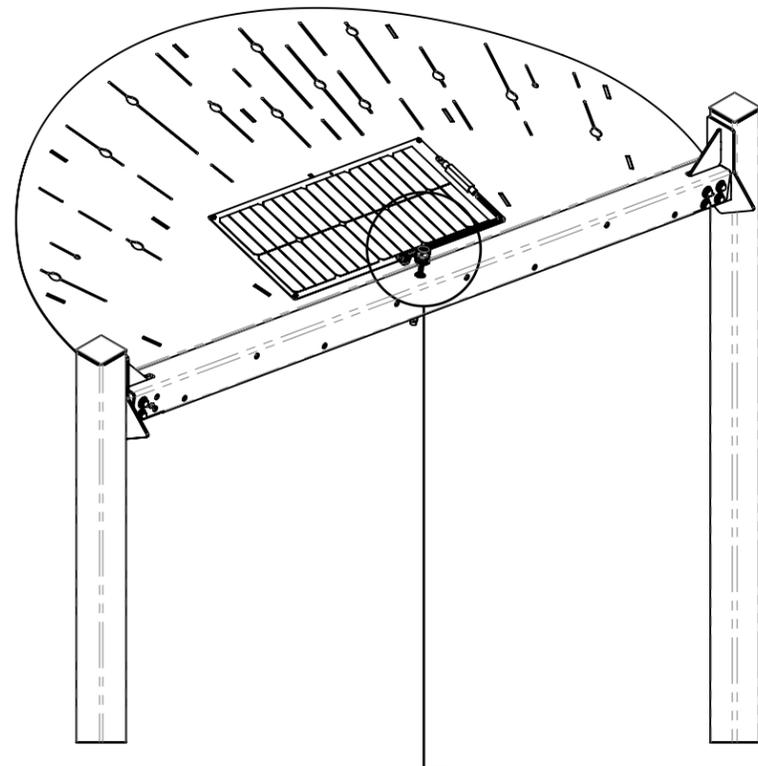
ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	135036	ABRIO_CANOPY_DESIGN PATTERN 01_SOLAR & LED ASSEMBLY
2	1	134208	ABRIO_CANOPY_DESIGN PATTERN 01_LED ASSEMBLY
3	20	134530	CAP NUT 1/2"-13 LOW PROFILE
4	20	103394	SPLIT LOCK WASHER 1/2"
5	40	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
6	8	104788	HEX BOLT 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:

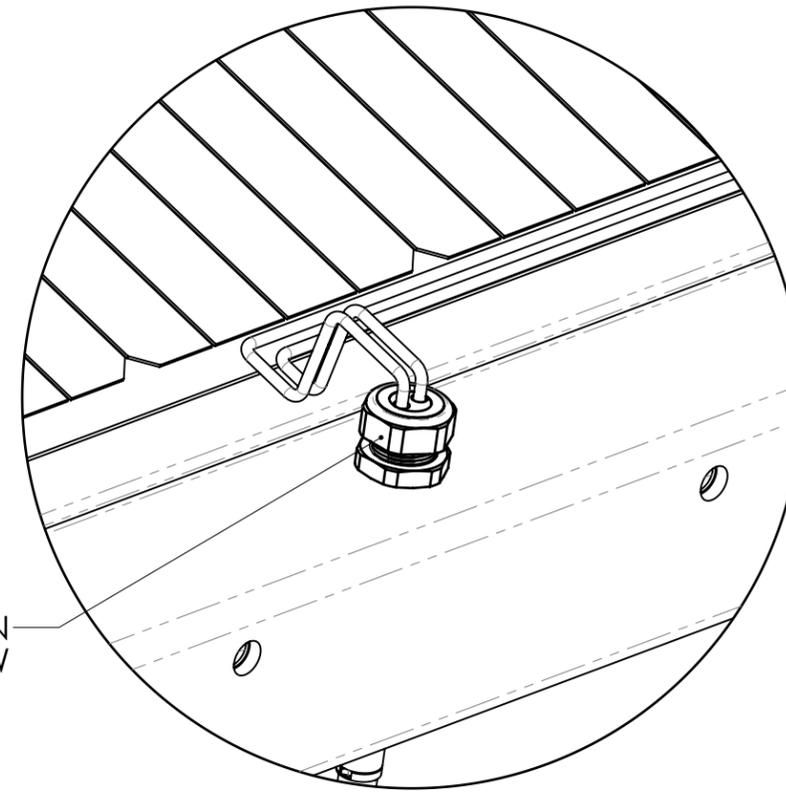
ALWAYS START ASSEMBLING THE CANOPY BY THE HIGHEST ONE TO THE LOWEST;
 USE FORK LIFT TO ASSEMBLE BOTH CANOPIES;
 CANOPIES WITH SOLAR PANEL MUST BE INSTALLED TOWARDS THE SUN (SOLAR PANEL FACING SOUTH IN NORTH HEMISPHERE / FACING SOUTH IN SOUTH HEMISPHERE);
 AVOID SHADOW AND OBSTRUCTED AREAS

CANOPY ASSEMBLY DETAIL

#3



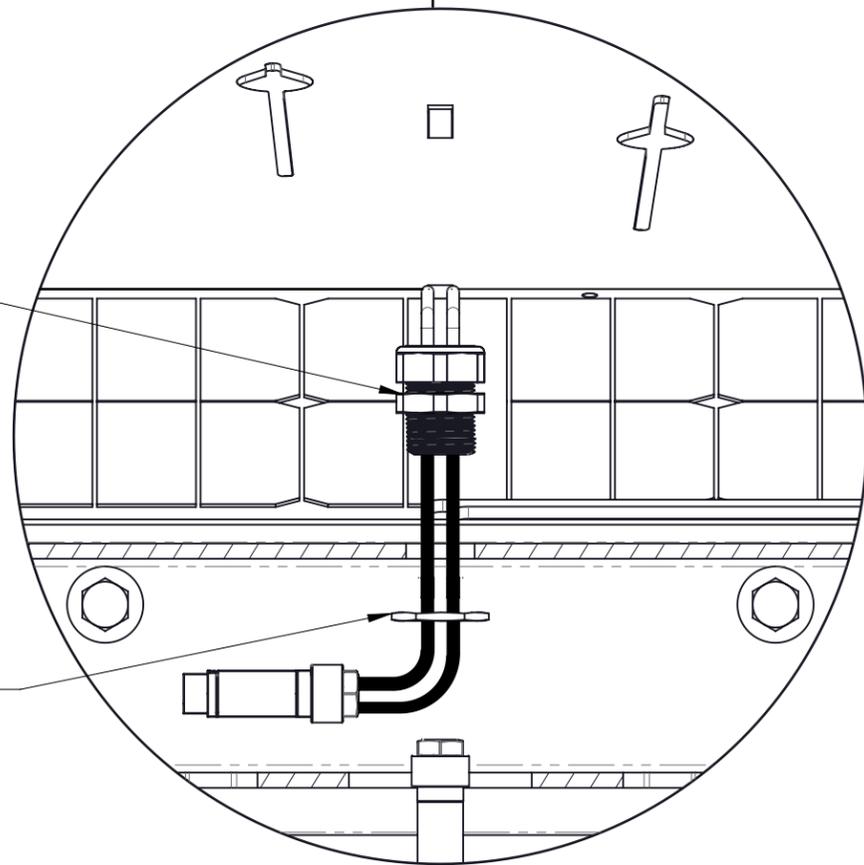
#4



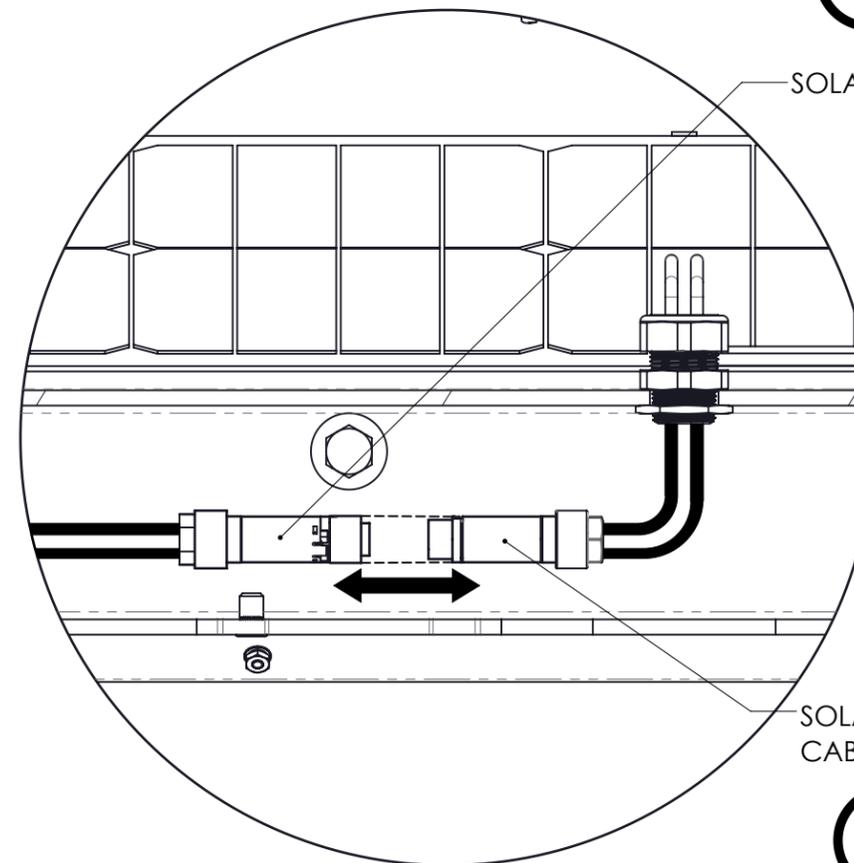
TIGHTEN
TOP SCREW

SCREW

NUT



#5

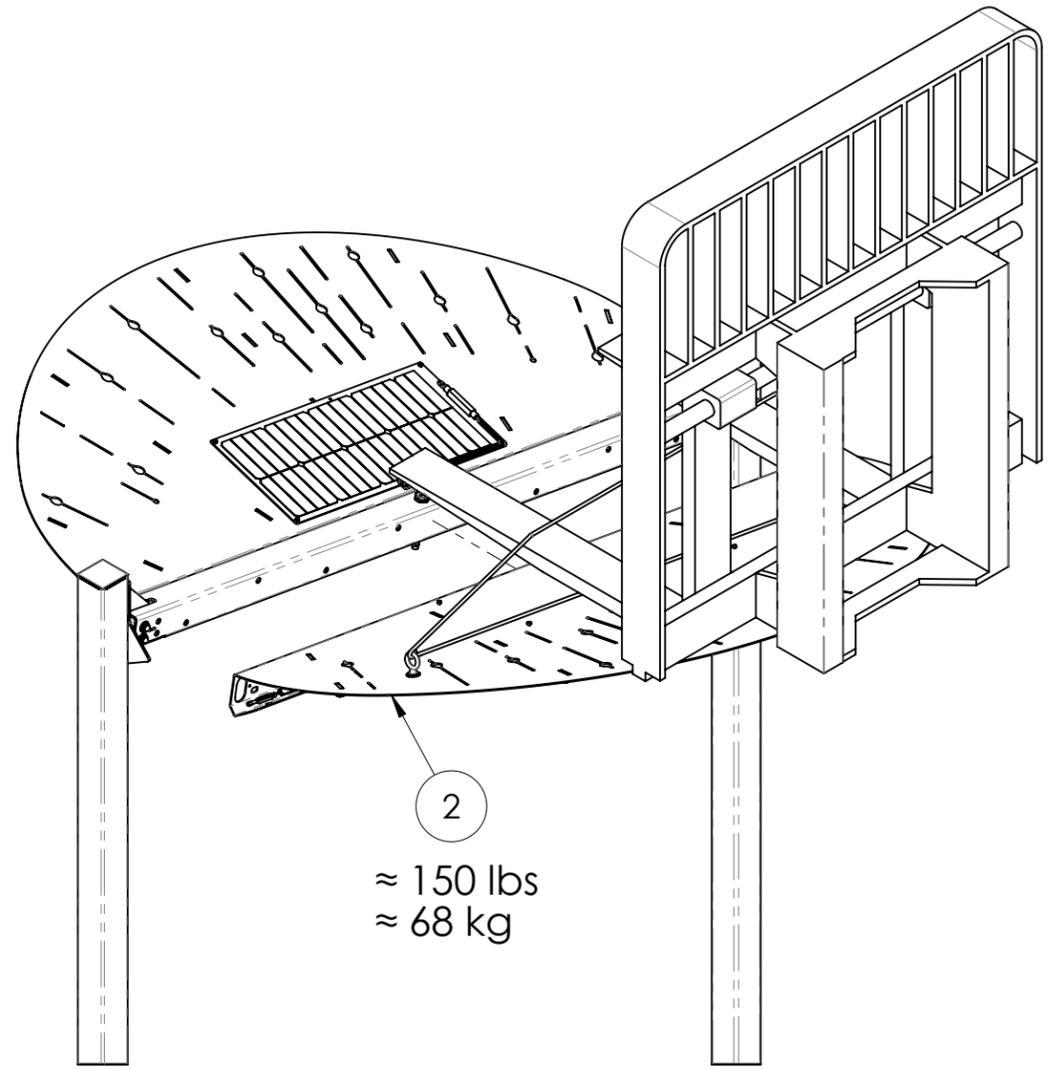


SOLAR PANEL CABLE

SOLAR PANEL POWER
CABLE

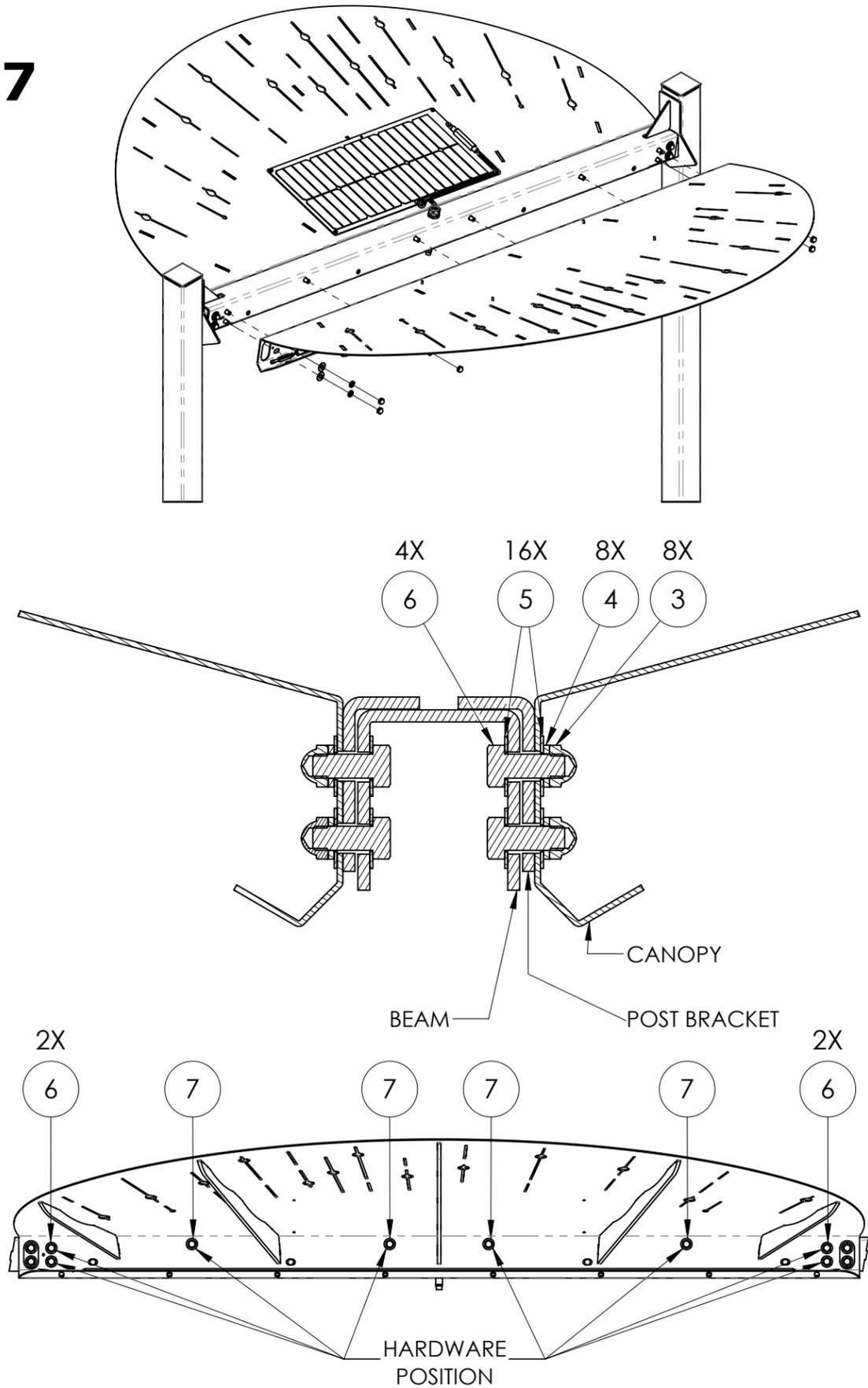
CRITICAL STEP
 MAKE SURE ALL SOLAR PANEL CABLES ARE CONNECTED
 ONE CONNECTION PER CANOPY

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



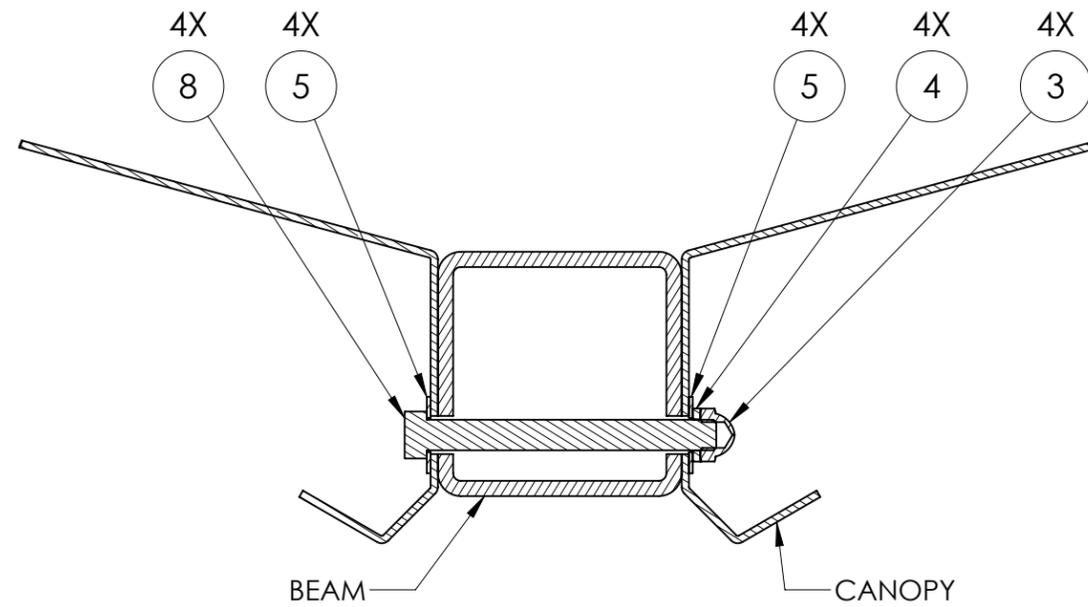
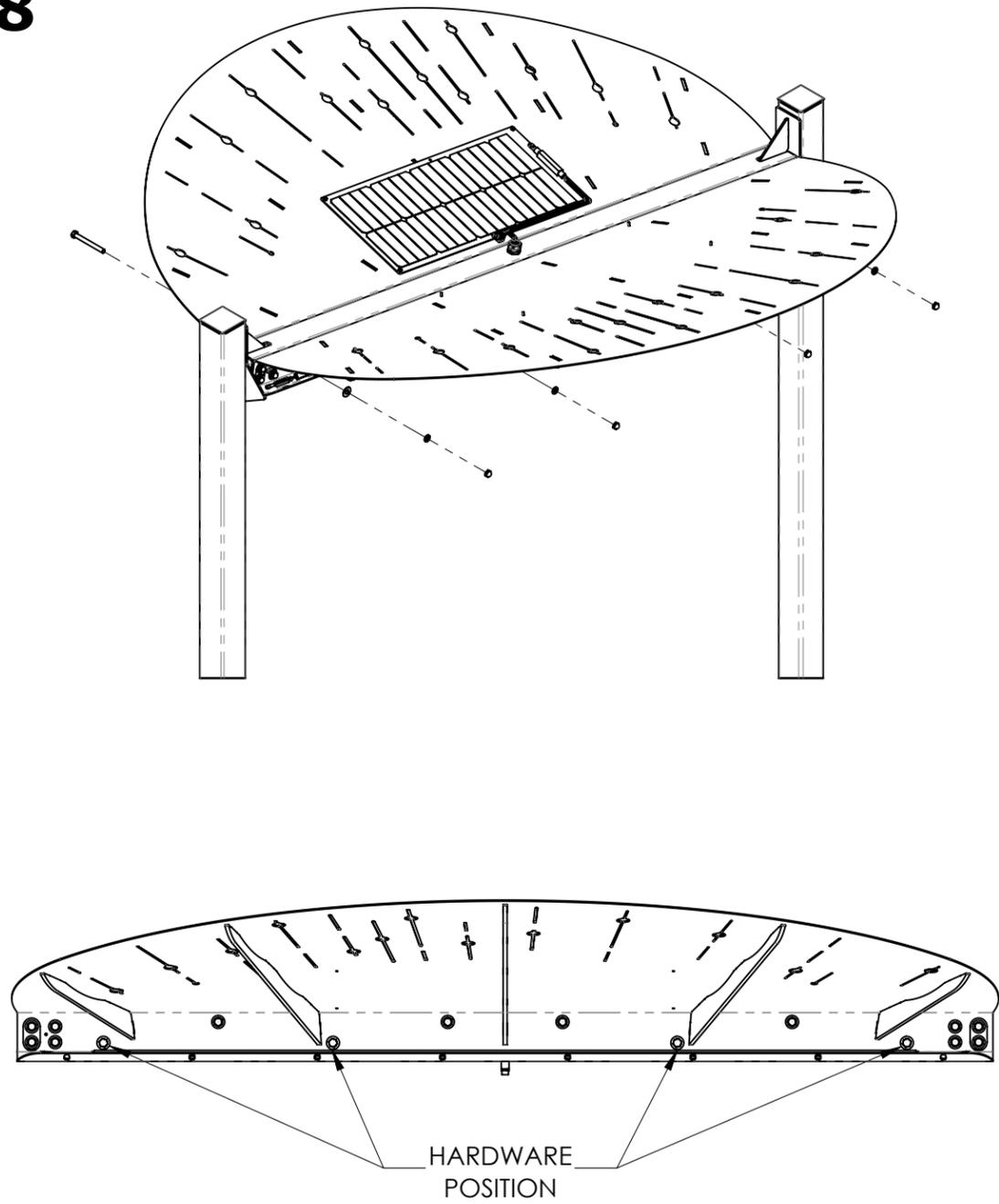
2
 ≈ 150 lbs
 ≈ 68 kg

#7



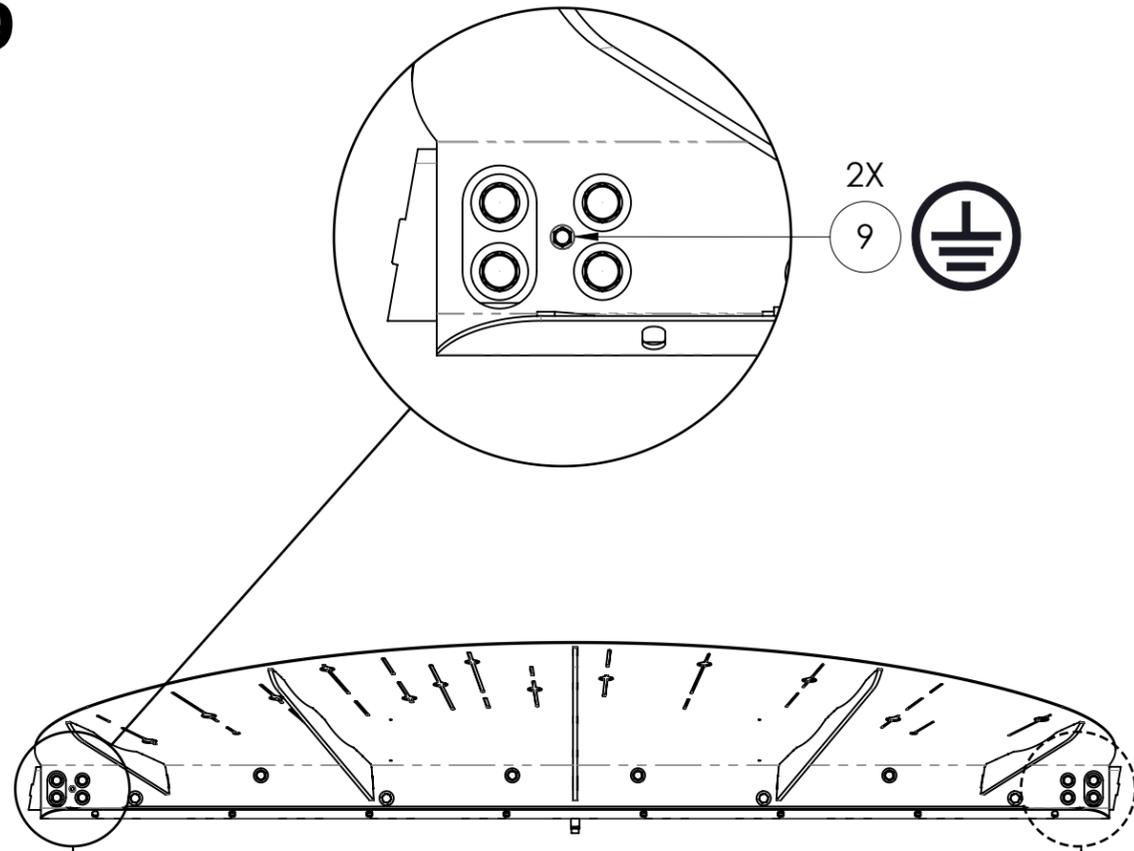
CANOPY ASSEMBLY DETAIL

#8

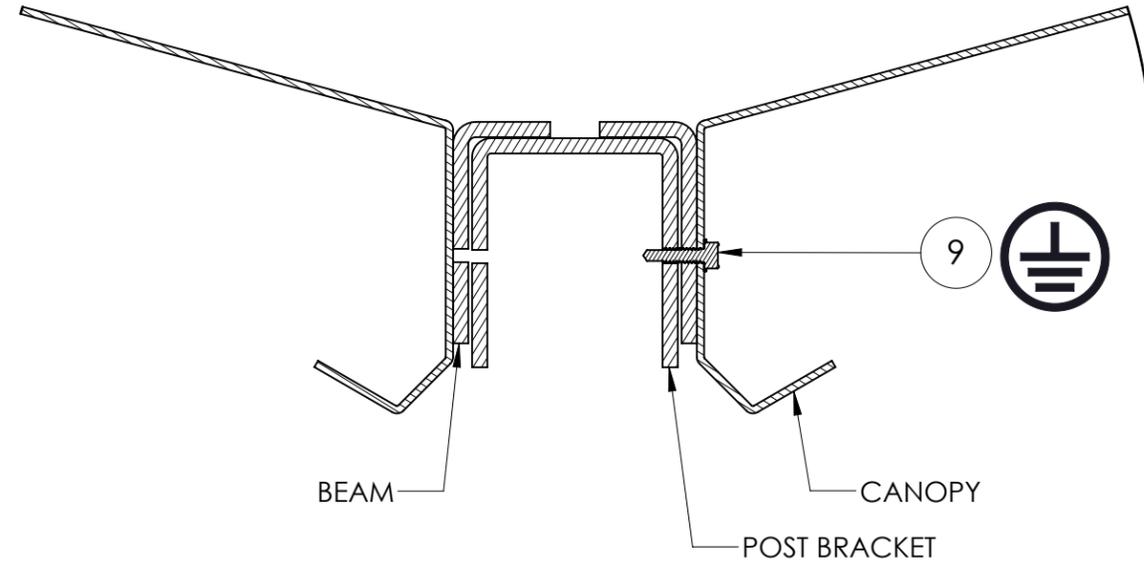


CANOPY ASSEMBLY DETAIL

#9



GROUNDING/BONDING HARDWARE
POSITION
LEFT SIDE ON EACH CANOPY
PRE-DRILL HOLES WITH 7/32" DRILL BIT



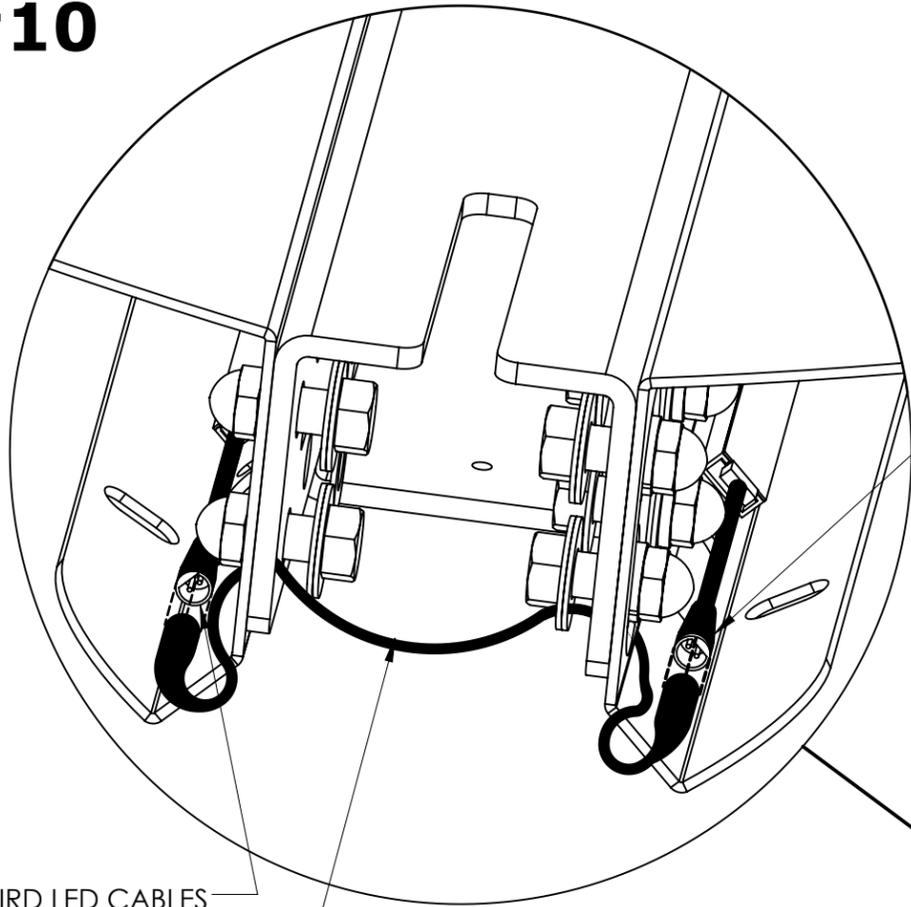
CANOPY ASSEMBLY DETAIL

#10



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

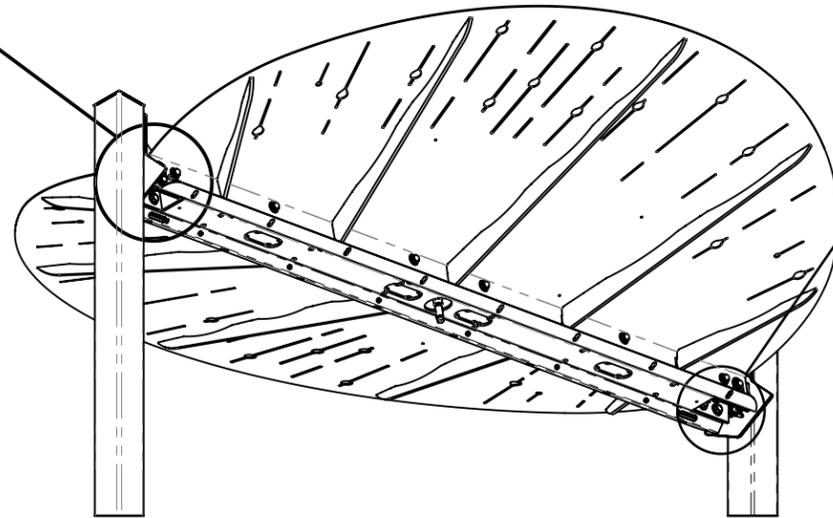
COPYRIGHT VORTEX AQUATIC STRUCTURES INTERNATIONAL-THIS DOCUMENT AND THE IDEAS, RENDERINGS AND OTHER CONTENTS CONTAINED THEREIN ARE THE SOLE PROPERTY OF VORTEX AQUATIC STRUCTURES INTERNATIONAL AND MAY NOT BE DISSEMINATED, COPIED, REPRODUCED OR OTHERWISE USED WITHOUT PRIOR WRITTEN CONSENT OF VORTEX AQUATIC STRUCTURES INTERNATIONAL.
CE DOCUMENT EST EN TOUT TEMPS LA PROPRIÉTÉ DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC. ET NE PEUT ÊTRE UTILISÉ OU REPRODUIT SANS UN CONSENTEMENT ÉCRIT DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC.



SECOND LED CABLES
PASS THROUGH THE OBLONG
OF THE CANOPY

THIRD LED CABLES
PASS THROUGH THE OBLONG
OF THE CANOPY

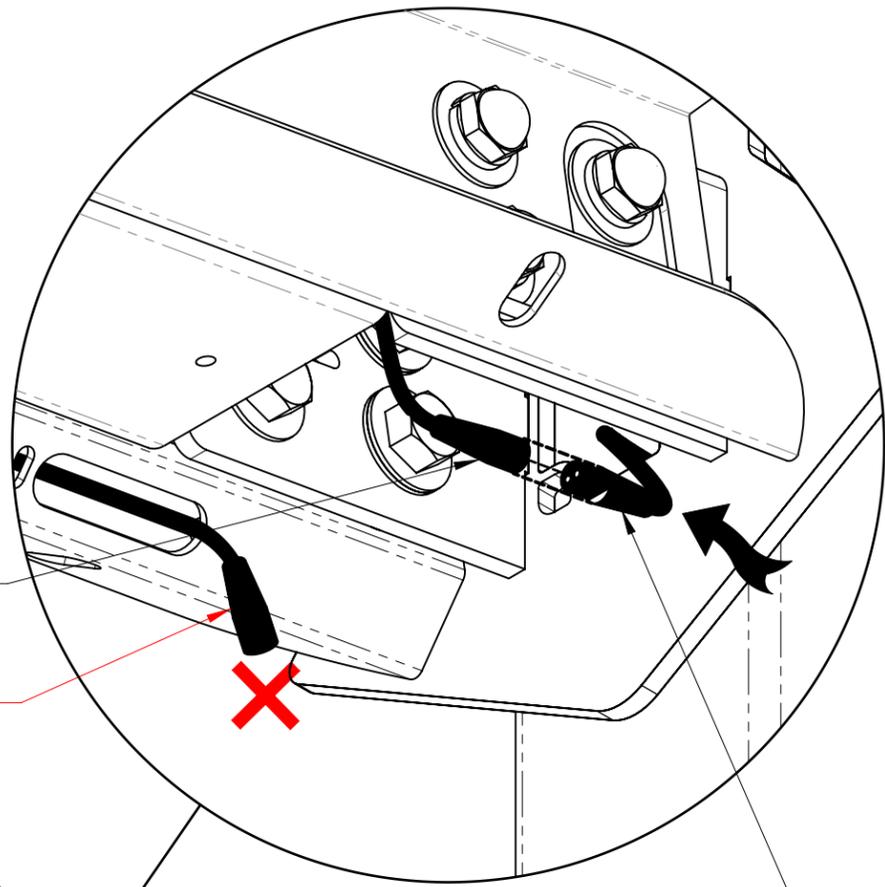
JUMPER CABLE
PASS THROUGH THE OBLONG
OF THE CANOPY TO CONNECT
THE SECOND AND THIRD LED CABLE **140662**
FLEXIBLE LED STRIP CABLE 24IN WITH
MALE CONNECTORS AT EACH END



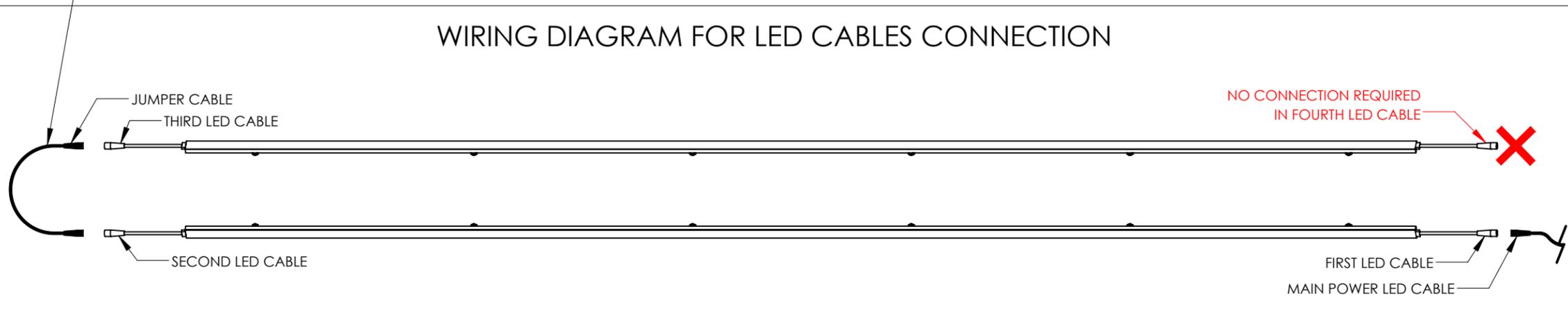
FIRST LED CABLES
PASS THROUGH THE OBLONG
OF THE CANOPY

NO CONNECTION REQUIRED
IN FOURTH LED CABLES

MAIN POWER LED CABLE
RUNS UP THROUGH THE WMS POST

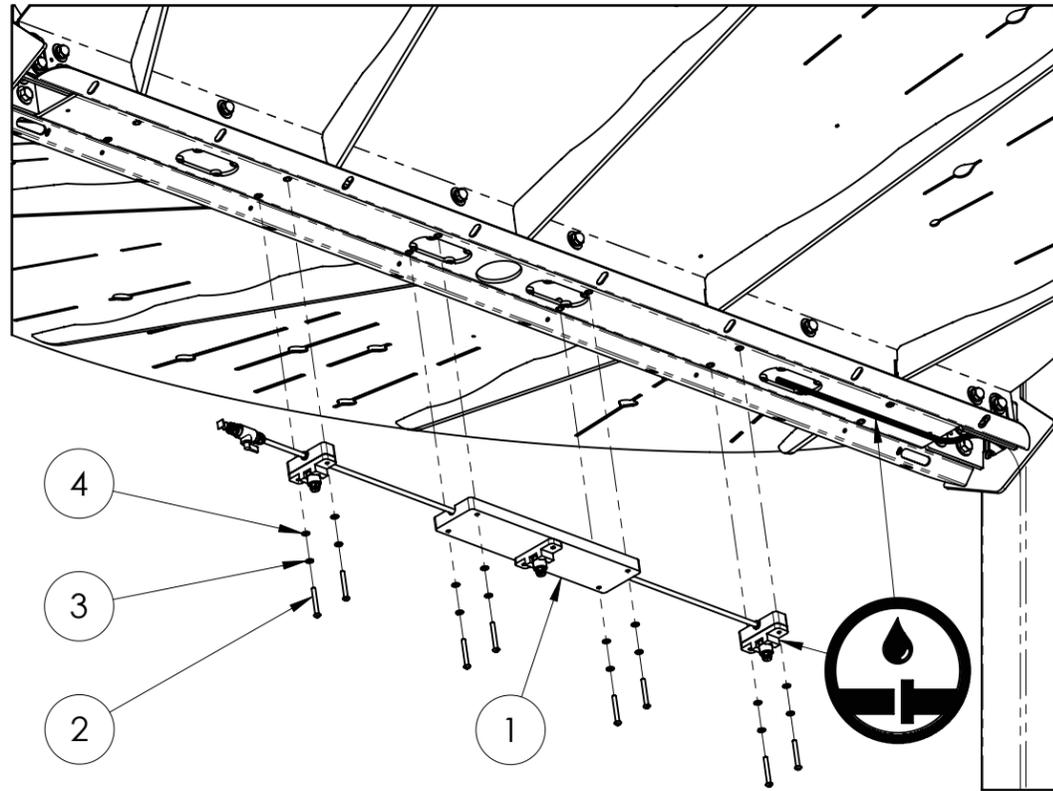


WIRING DIAGRAM FOR LED CABLES CONNECTION

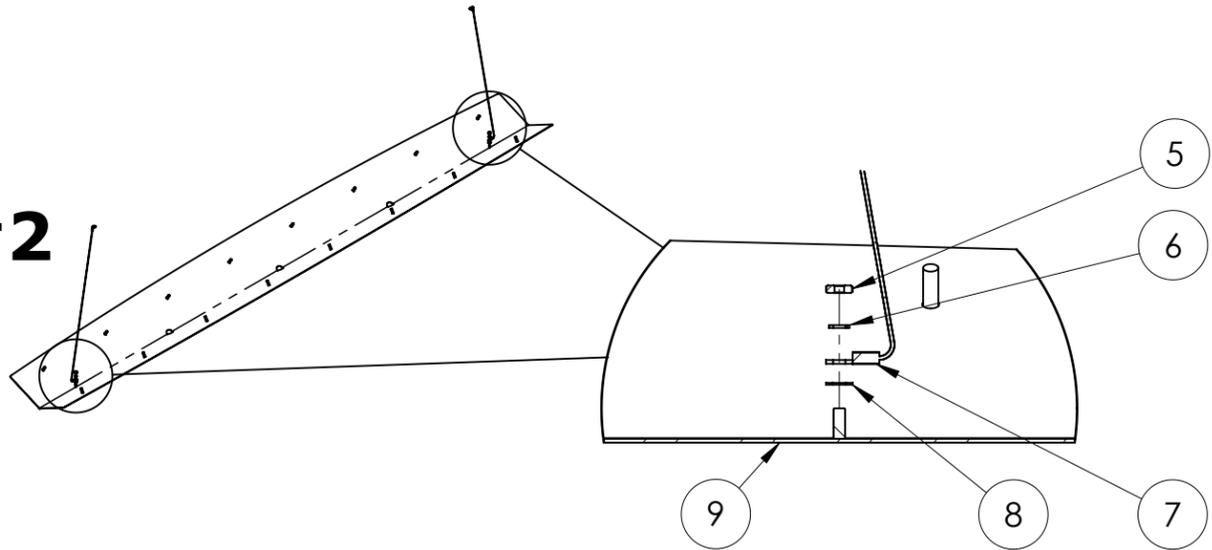


CANOPY ASSEMBLY DETAIL

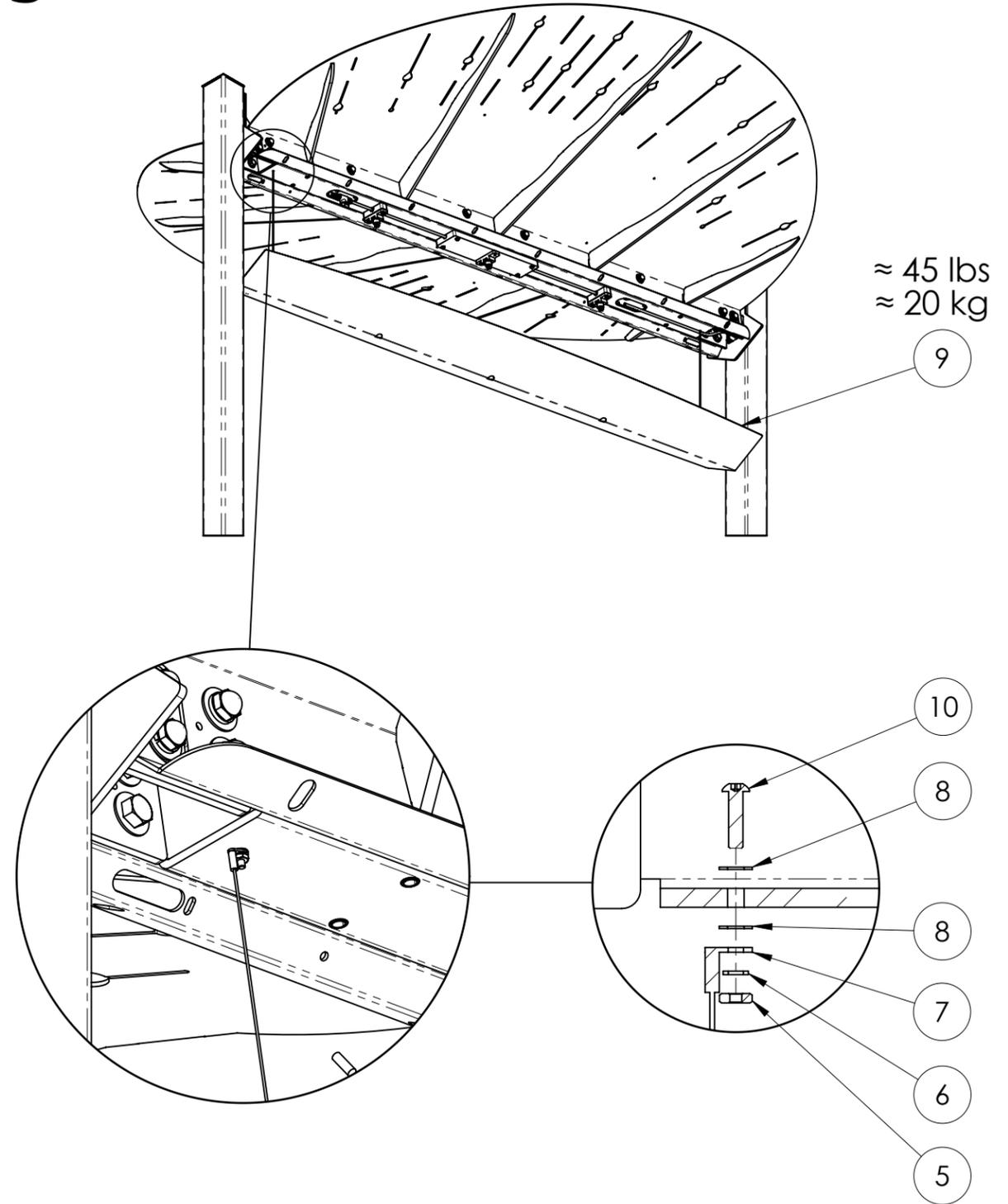
#1



#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"

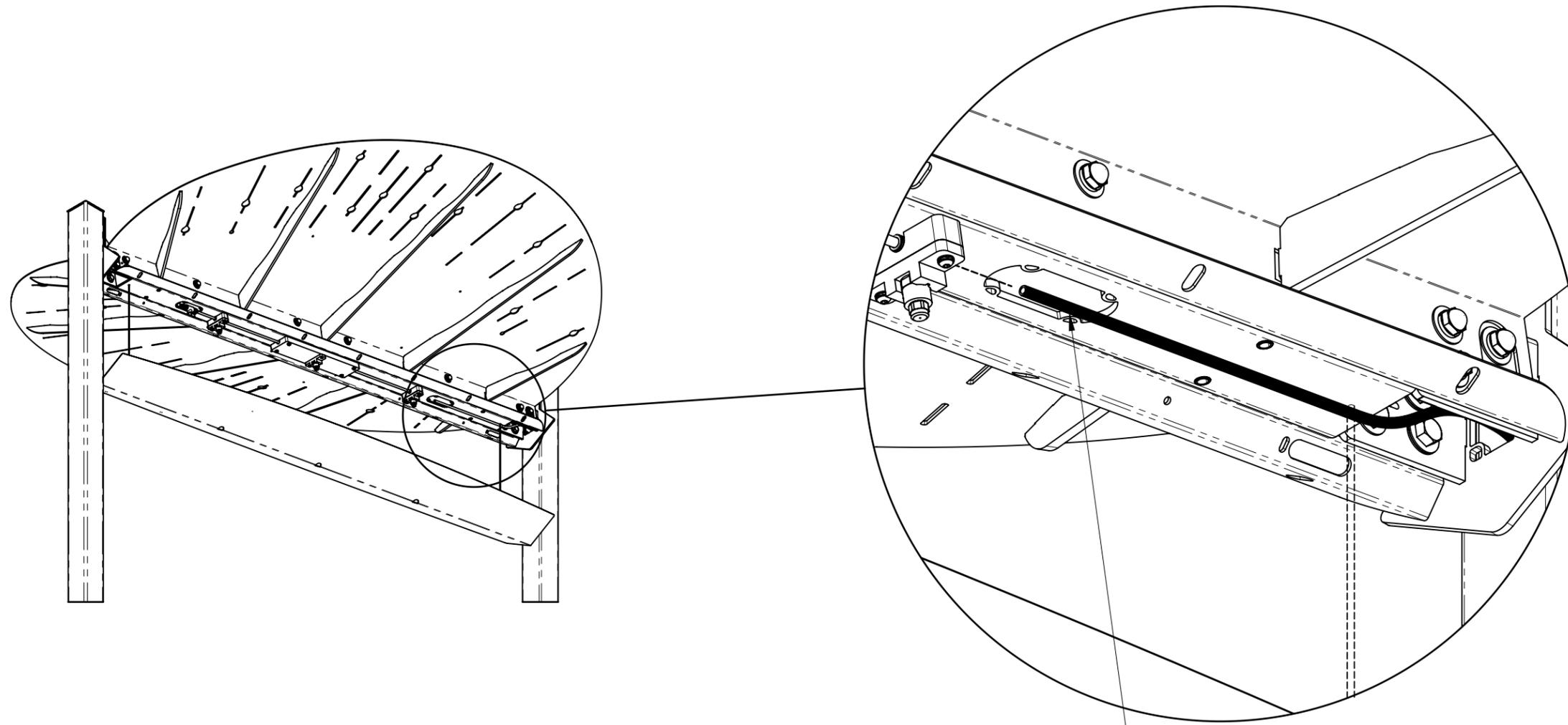
NOTES:

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

MIST ASSEMBLY DETAIL

#4

CRITICAL STEP
MAKE SURE WATER TUBE IS FERMLY CONNECTED



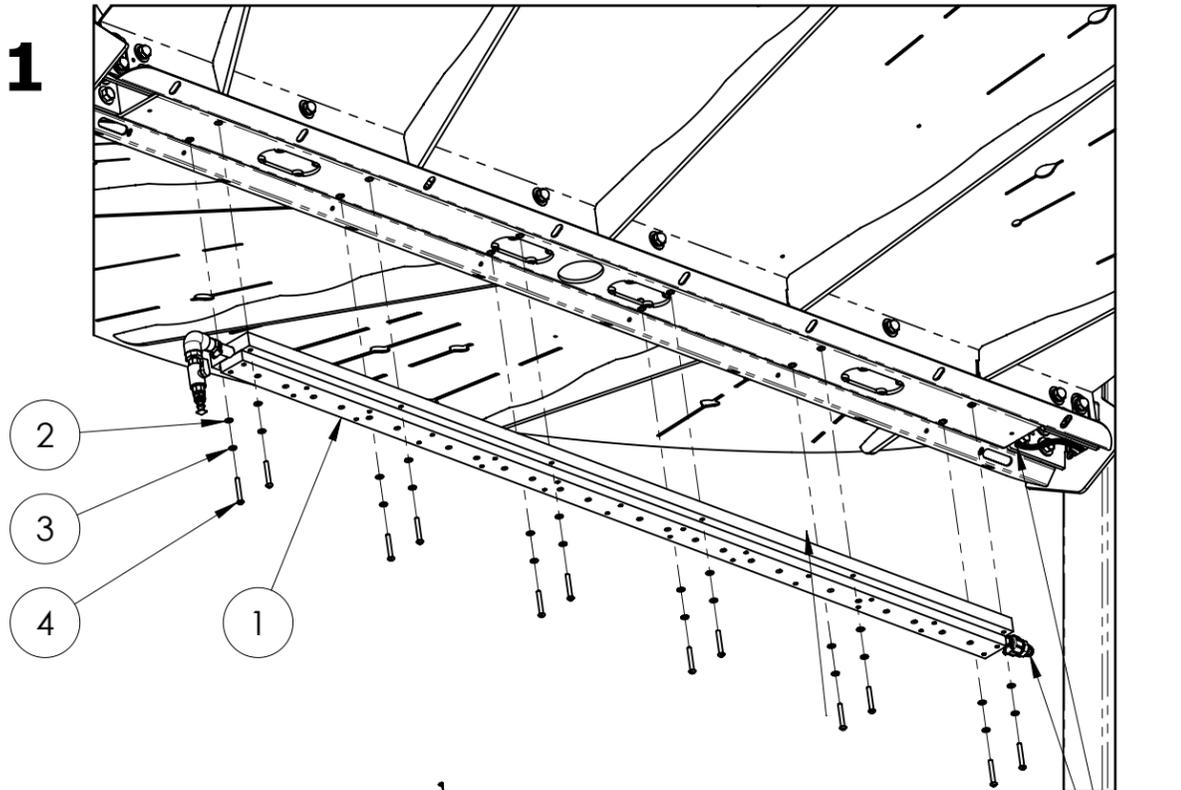
WATER CONNECTION
CUT EXCESS TUBING IF NEEDED



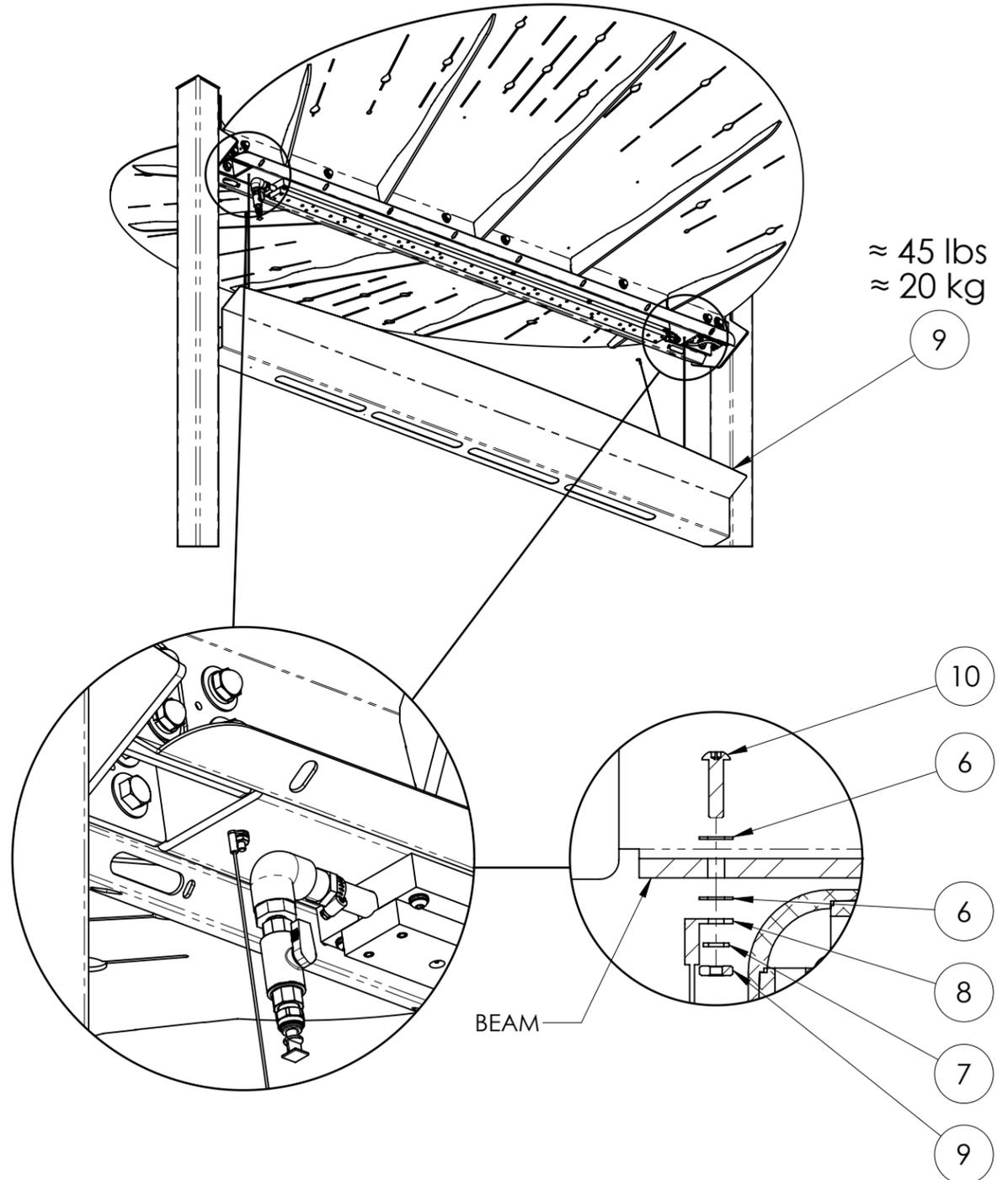
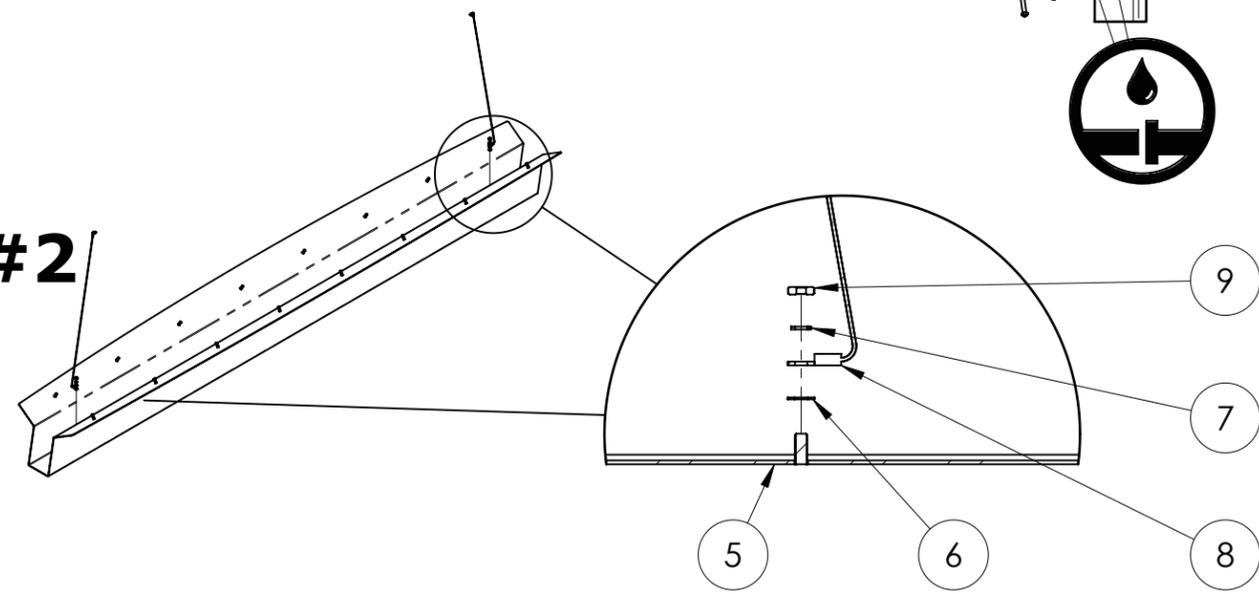
MIST ASSEMBLY DETAIL

#1

#3



#2



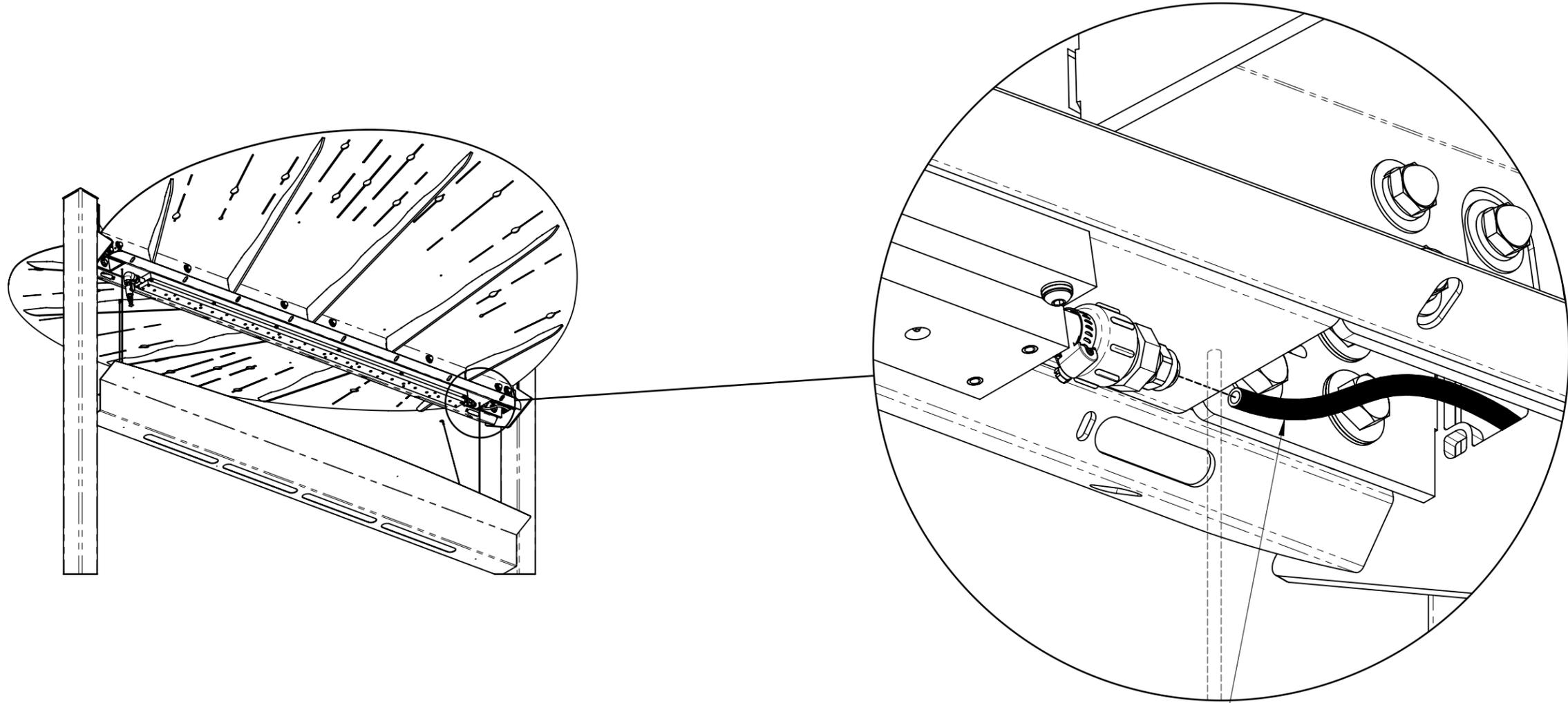
ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	1	134813	ABRIO_SOFT RAIN_WMS ASSEMBLY
2	12	103864	FLAT WASHER 1/4" X 1/2"OD GP SMALL OD
3	12	103395	SPLIT LOCK WASHER 1/4"
4	12	107423	BUTTON SOCKET CAP SCREW 1/4"-20 X 1 3/4" FULL THREAD
5	1	134866	ABRIO_SOFT RAIN_COVER_ASSEMBLY
6	8	104806	FLAT WASHER #10 X 7/16"OD 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

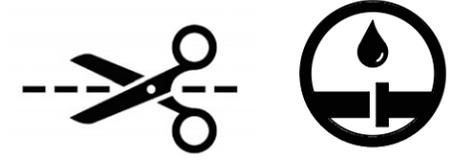
SOFT RAIN ASSEMBLY DETAIL

#4

CRITICAL STEP
MAKE SURE WATER TUBE IS FERMLY CONNECTED

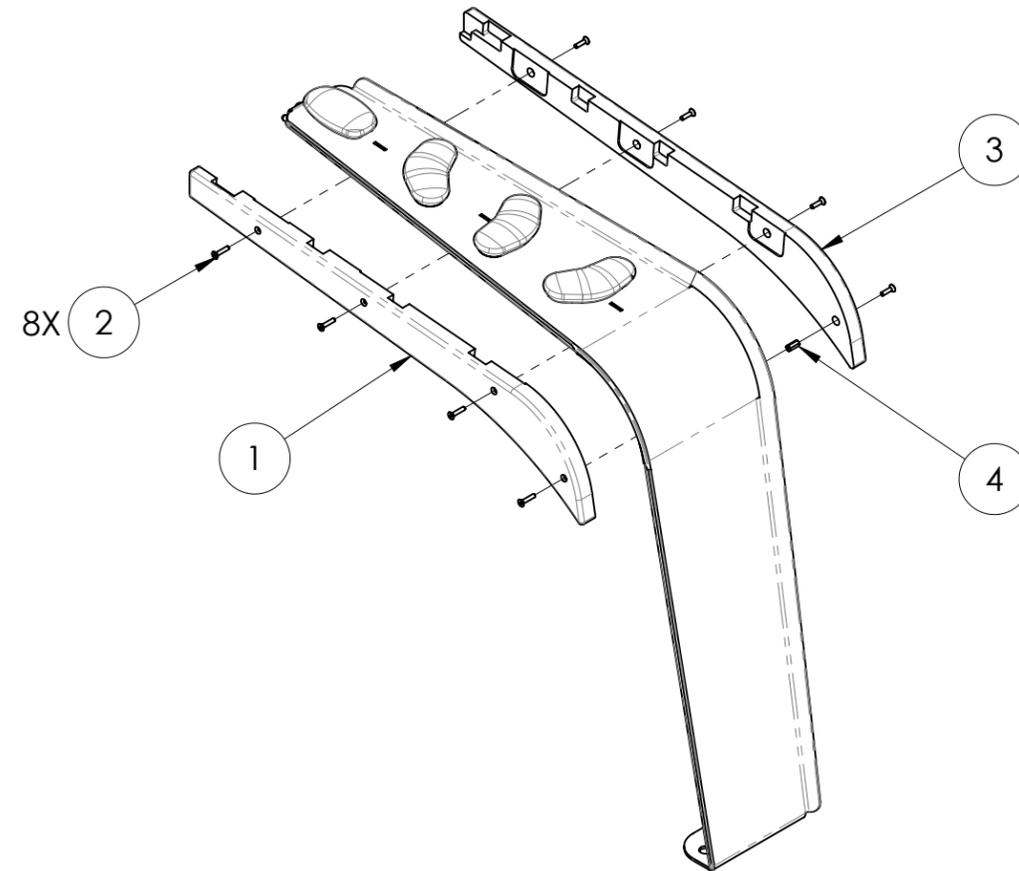
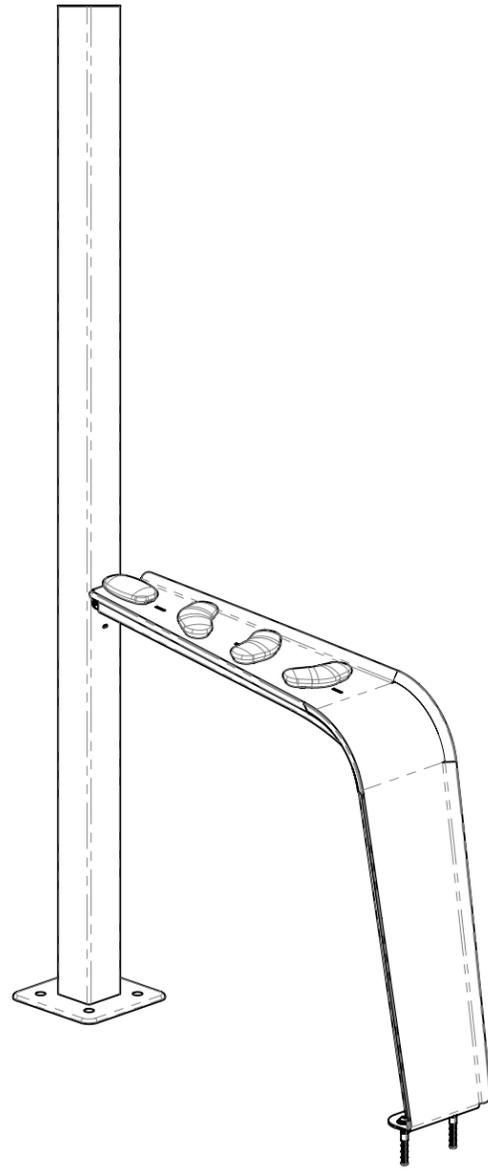


WATER CONNECTION
CUT EXCESS TUBING IF NEEDED



SOFT RAIN ASSEMBLY DETAIL

#1



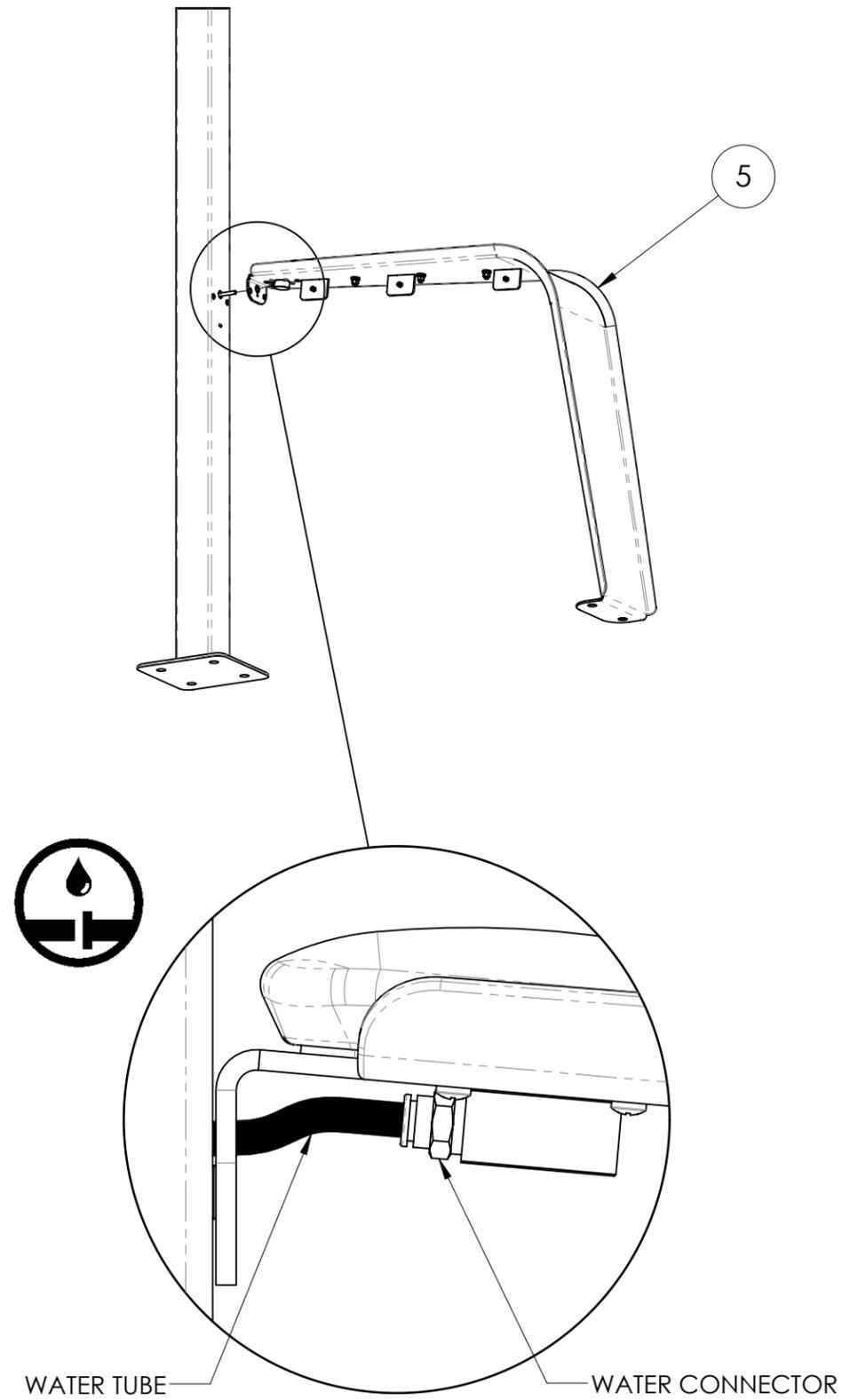
DISASSEMBLE SIDE PANELS WITH ITS HARDWARE

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

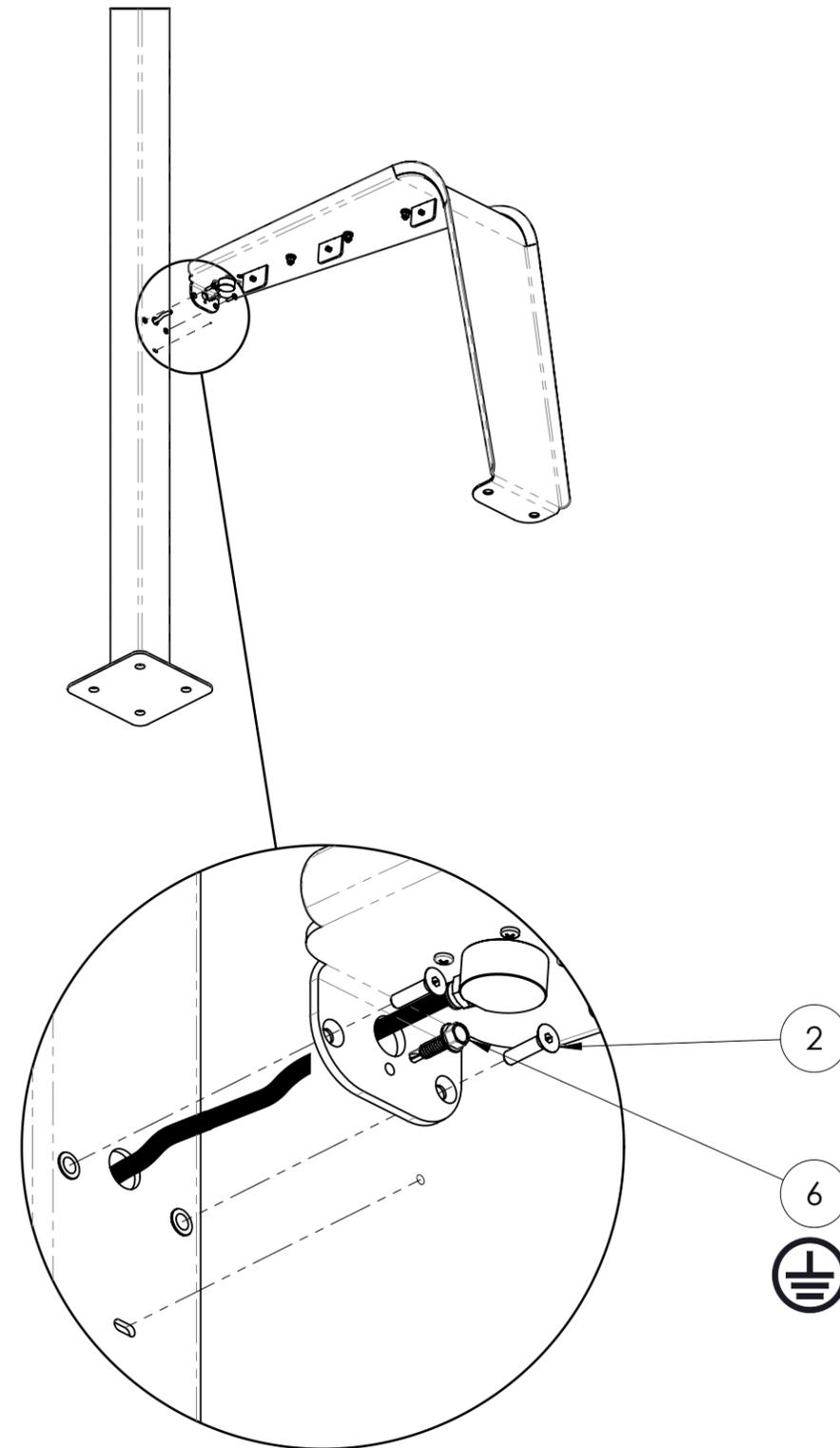
RIVER MAZE ASSEMBLY DETAIL

#2



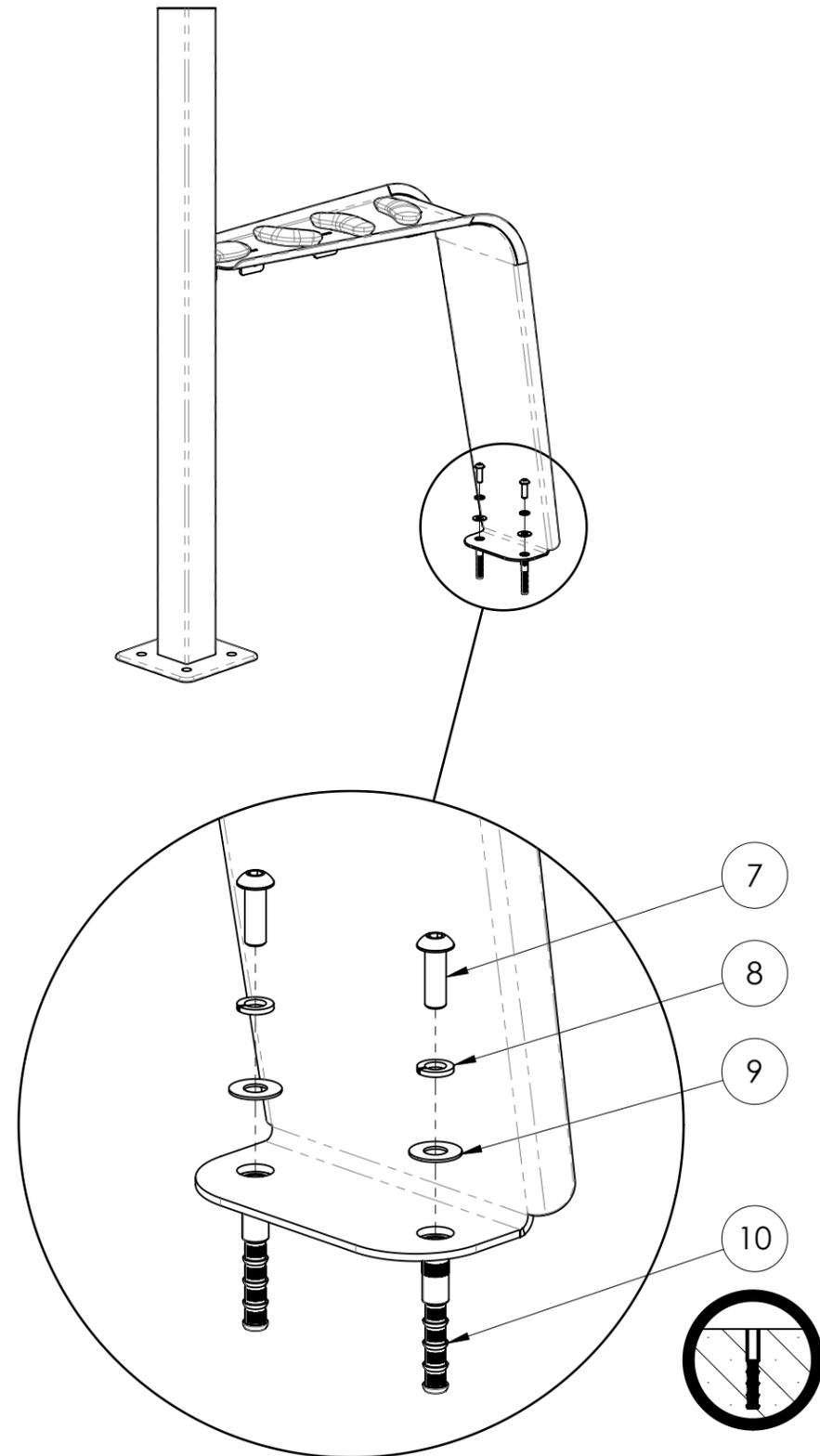
CRITICAL STEP
 MAKE SURE WATER TUBE IS FERMLY CONNECTED

#3



RIVER MAZE ASSEMBLY DETAIL

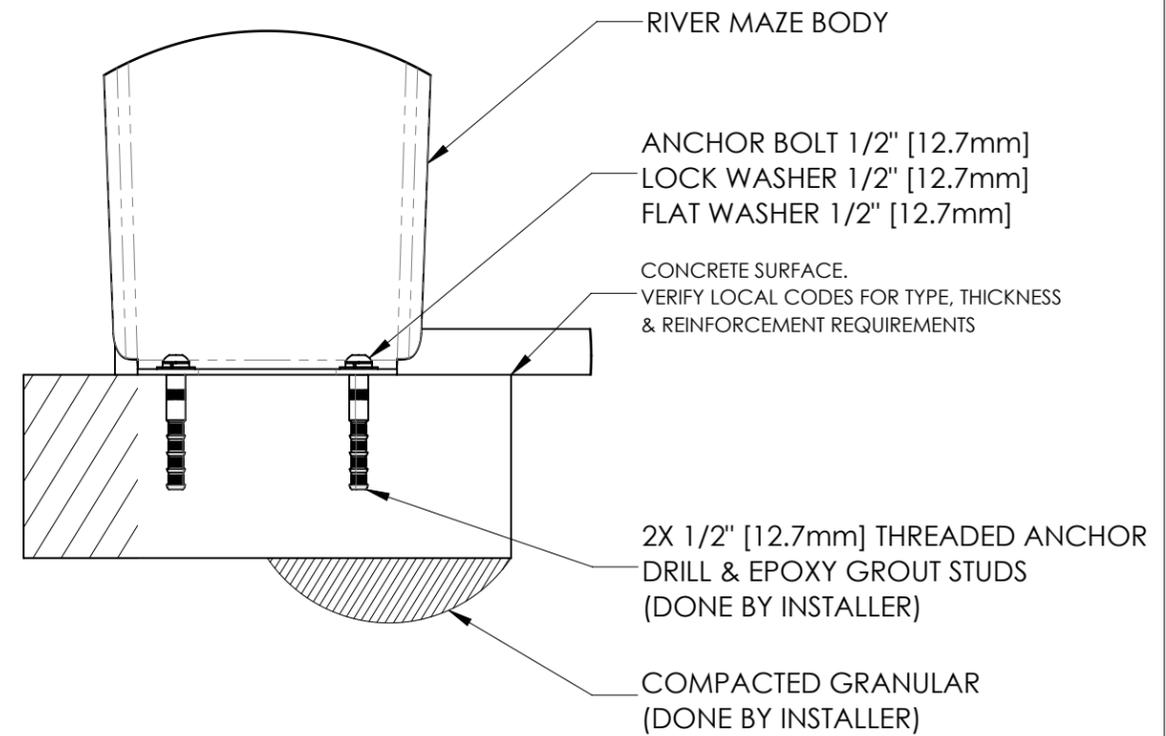
#4



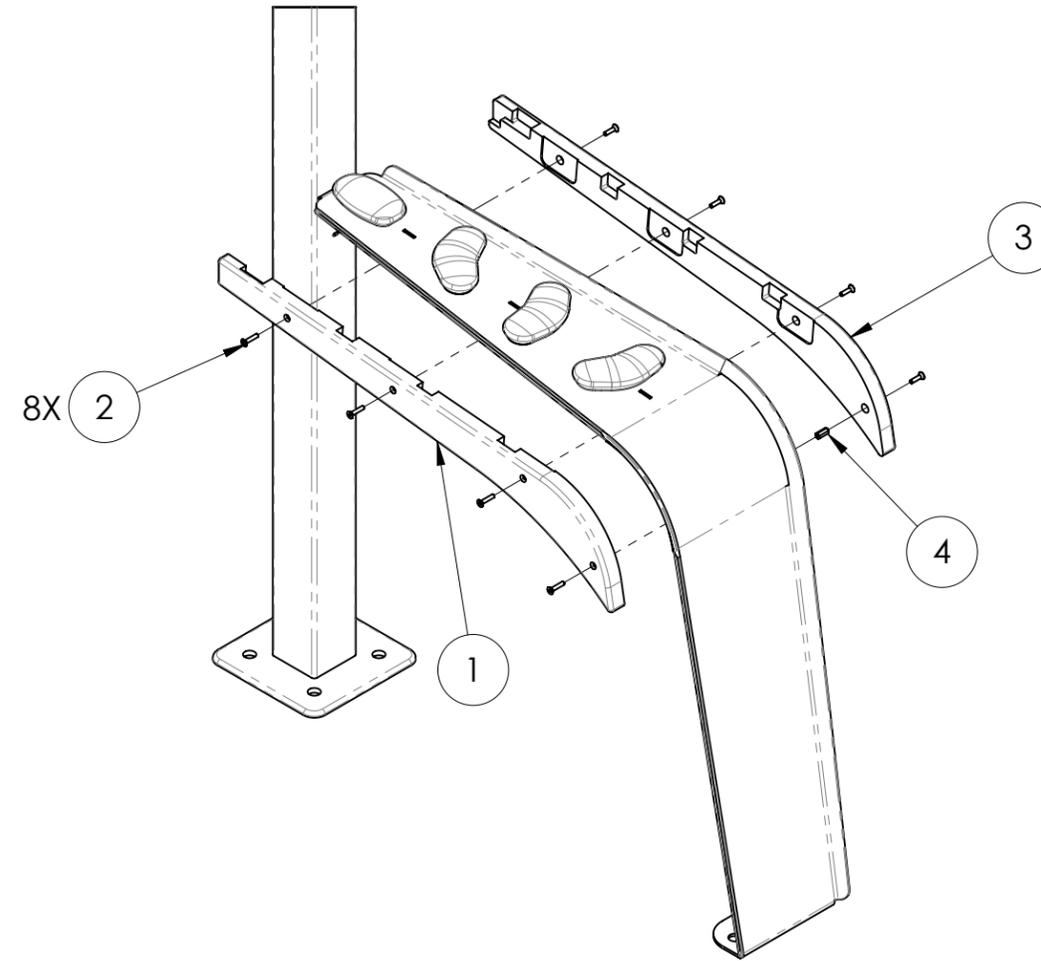
RIVER MAZE TYPICAL ANCHORING STEPS (DONE BY OTHERS):

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



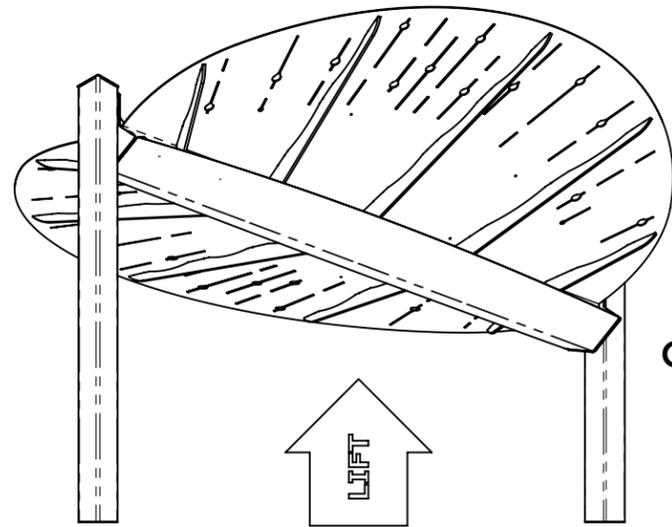
#5



ASSEMBLE SIDE PANELS WITH ITS HARDWARE

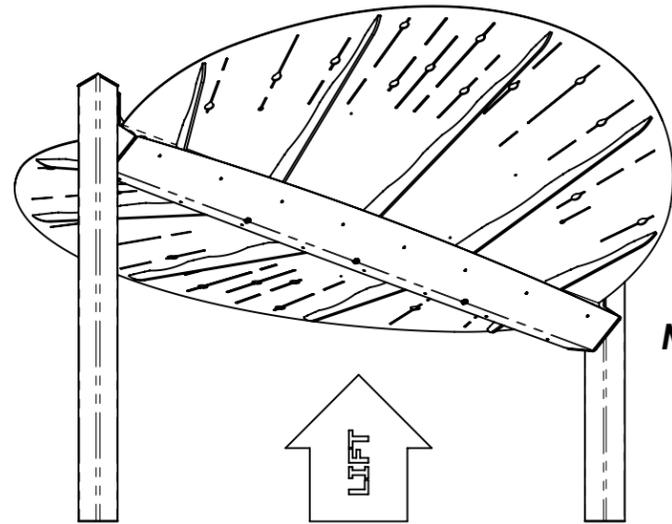
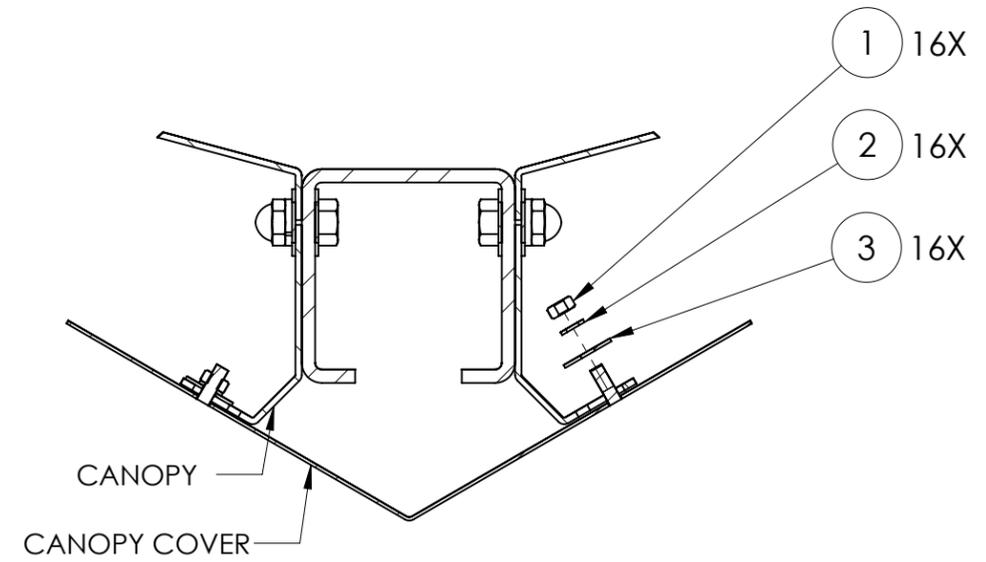
RIVER MAZE ASSEMBLY DETAIL

#1
PER COVER

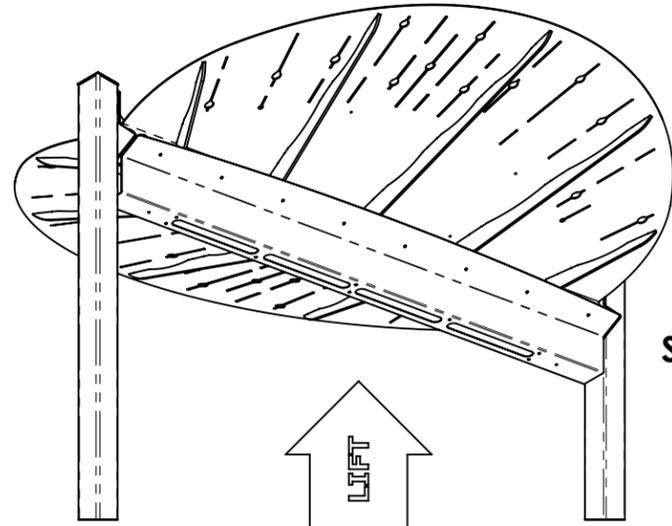
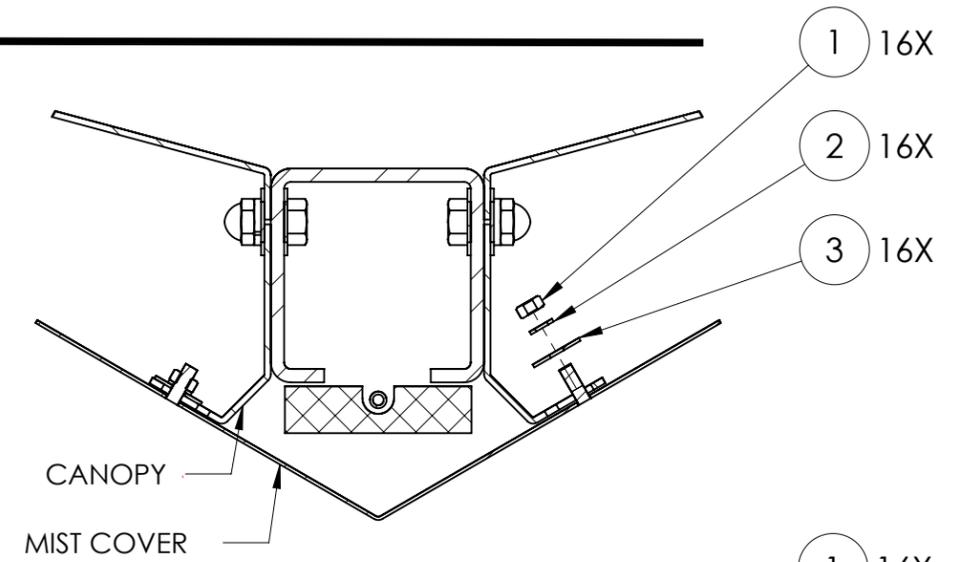


CANOPY COVER

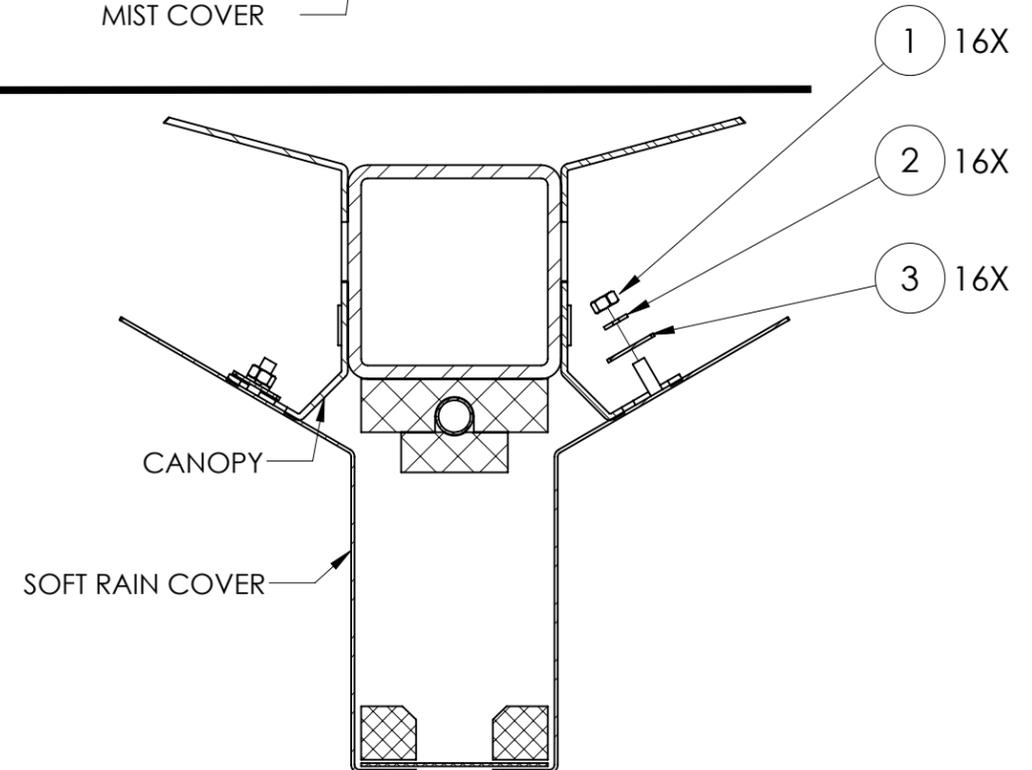
#2
PER COVER



MIST COVER



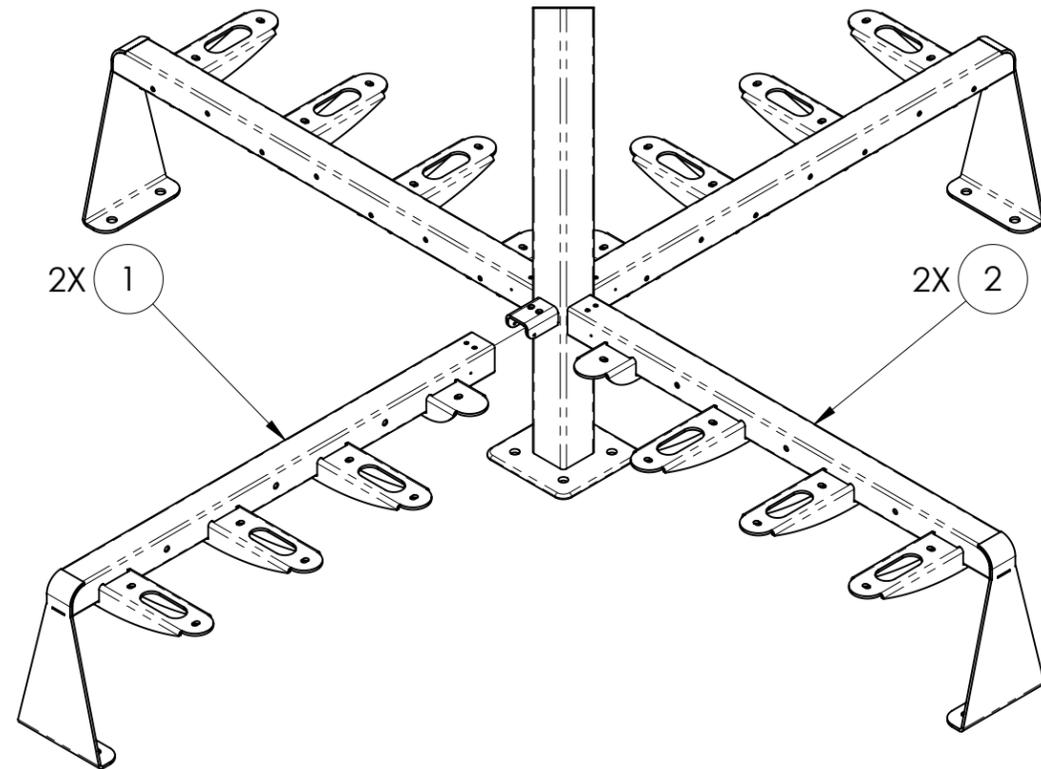
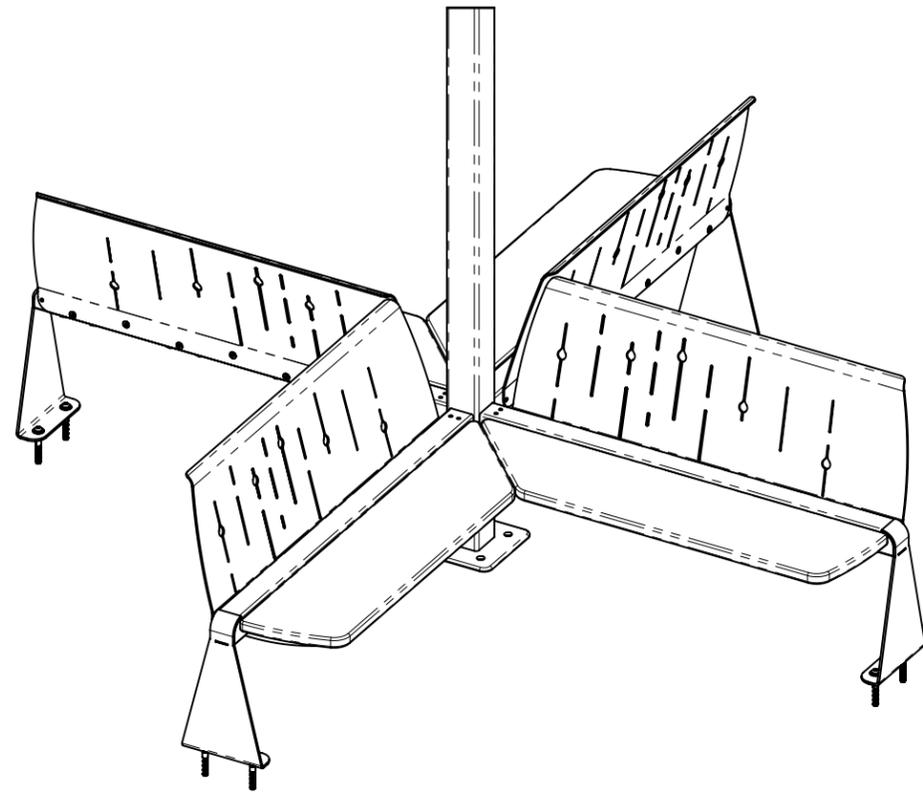
SOFT RAIN COVER



COVER ASSEMBLY DETAIL

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

#1



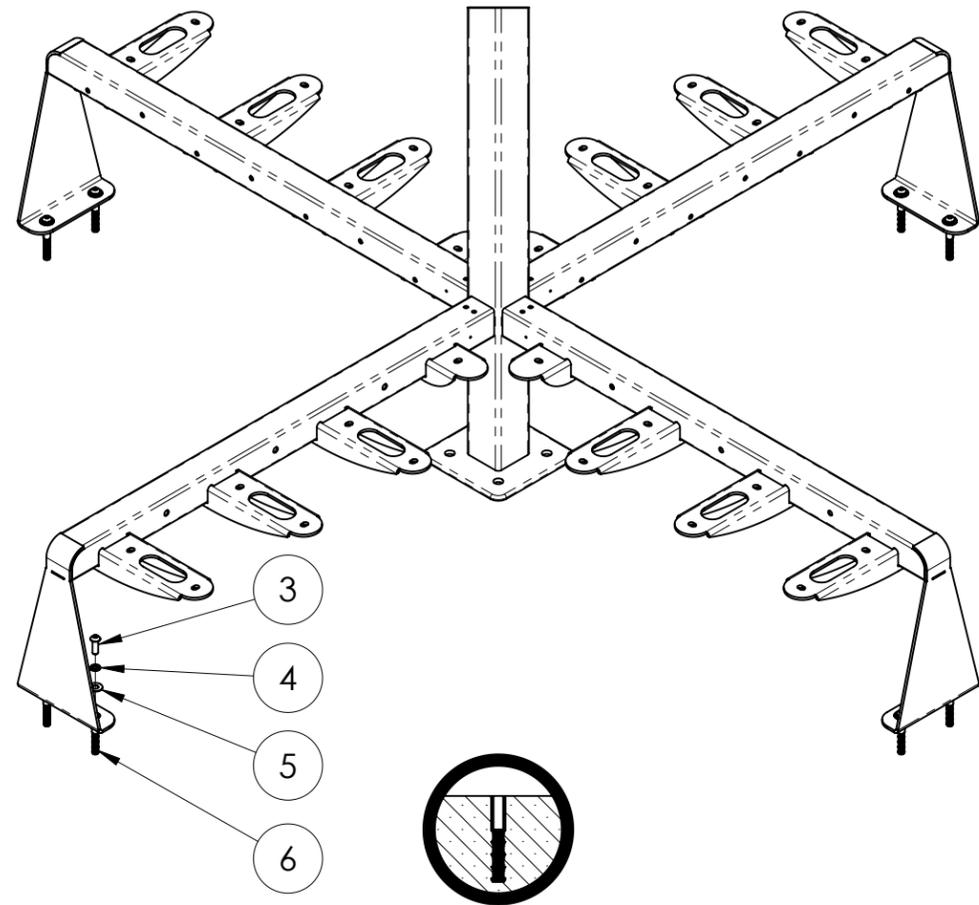
ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	2	134556	ABRIO_BENCH_LEFT BACKREST SEATING FRAME_PAINTING
2	2	134588	ABRIO_BENCH_RIGHT BACKREST SEATING FRAME_PAINTING
3	14	134671	BUTTON SOCKET CAP SCREW 1/2"-13 X 1 1/2" FULL THREAD ZINC PLATED
4	14	103394	SPLIT LOCK WASHER 1/2"
5	14	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
6	14	134450	ADHESIVE-GRIP CONCRETE ANCHOR, 1/2"-13 FNPT, ZINC PLATED STEEL
7	8	103858	FLAT WASHER 3/8" X 7/8"OD GP SMALL OD
8	8	103390	SPLIT LOCK WASHER 3/8"
9	8	103266	HEX NUT 3/8"-16
10	4	135002	ABRIO_BENCH BACKREST_PAINTING
11	28	103874	FLAT SOCKET CAP SCREW 3/8"-16 X 3" FULL THREAD
12	28	102753	SECURITY BARREL NUT 3/8"-16 X 5/8"
13	2	134280	ABRIO_BENCH_RIGHT SEATING TOP_ASSEMBLY
14	2	134273	ABRIO_BENCH_LEFT SEATING TOP_ASSEMBLY
15	28	103860	FLAT WASHER 3/8 X 1"OD GP LARGE OD
16	28	103390	SPLIT LOCK WASHER 3/8"
17	28	100600	SECURITY BUTTON CAP SCREW 3/8"-16 X 7/8"
18	4	136375	FLAT HEAD TAPPING SCREW #10-16 X 1" FULL THREAD STAINLESS STEEL 410

NOTES:

USE LEG'S HOLES TO POSITIONATE AND DRILL THE ANCHOR'S HOLE;
 PROTECT LEG WITH MASKING TAPE DURING DRILLING AND EPOXY;
 HAND TIGHT THE BENCH SEATINGS UNTIL ALL BENCH SEATINGS ARE ASSEMBLED

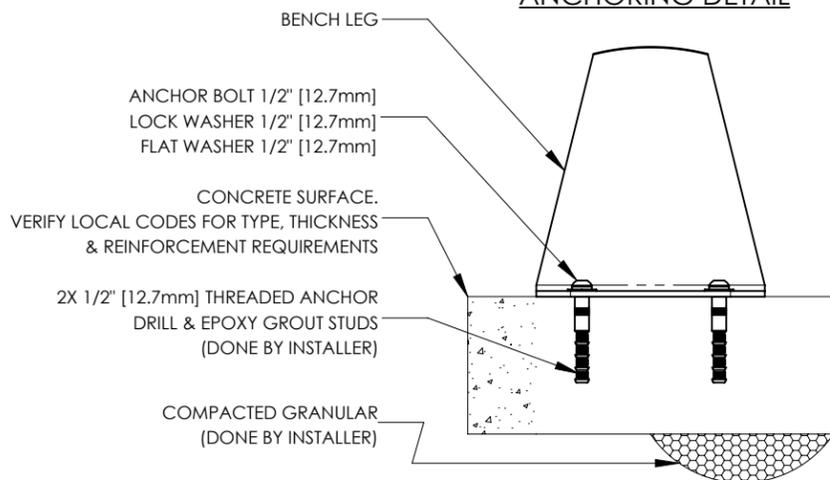
BENCH BACKREST SEATING ASSEMBLY DETAIL

#2



MAKE SURE ALL BENCH STRUCTURES ARE LEVELED

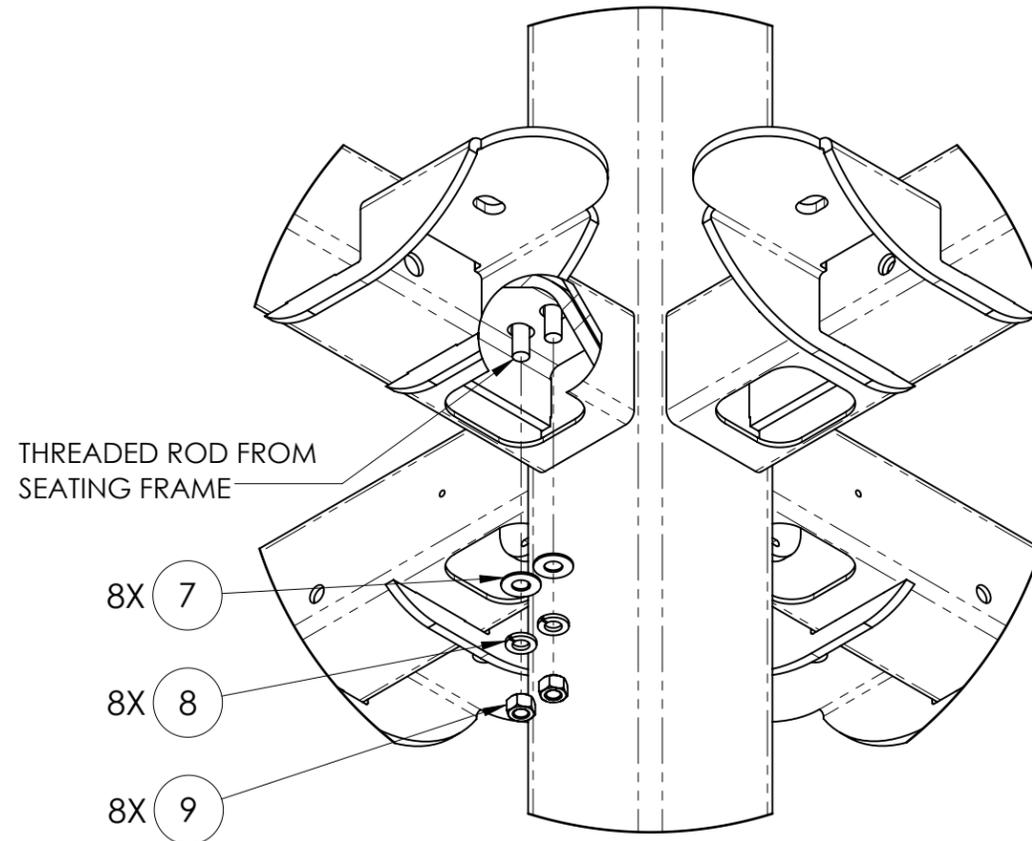
BENCH TYPICAL ANCHORING DETAIL



BENCH TYPICAL ANCHORING STEPS (DONE BY OTHERS):

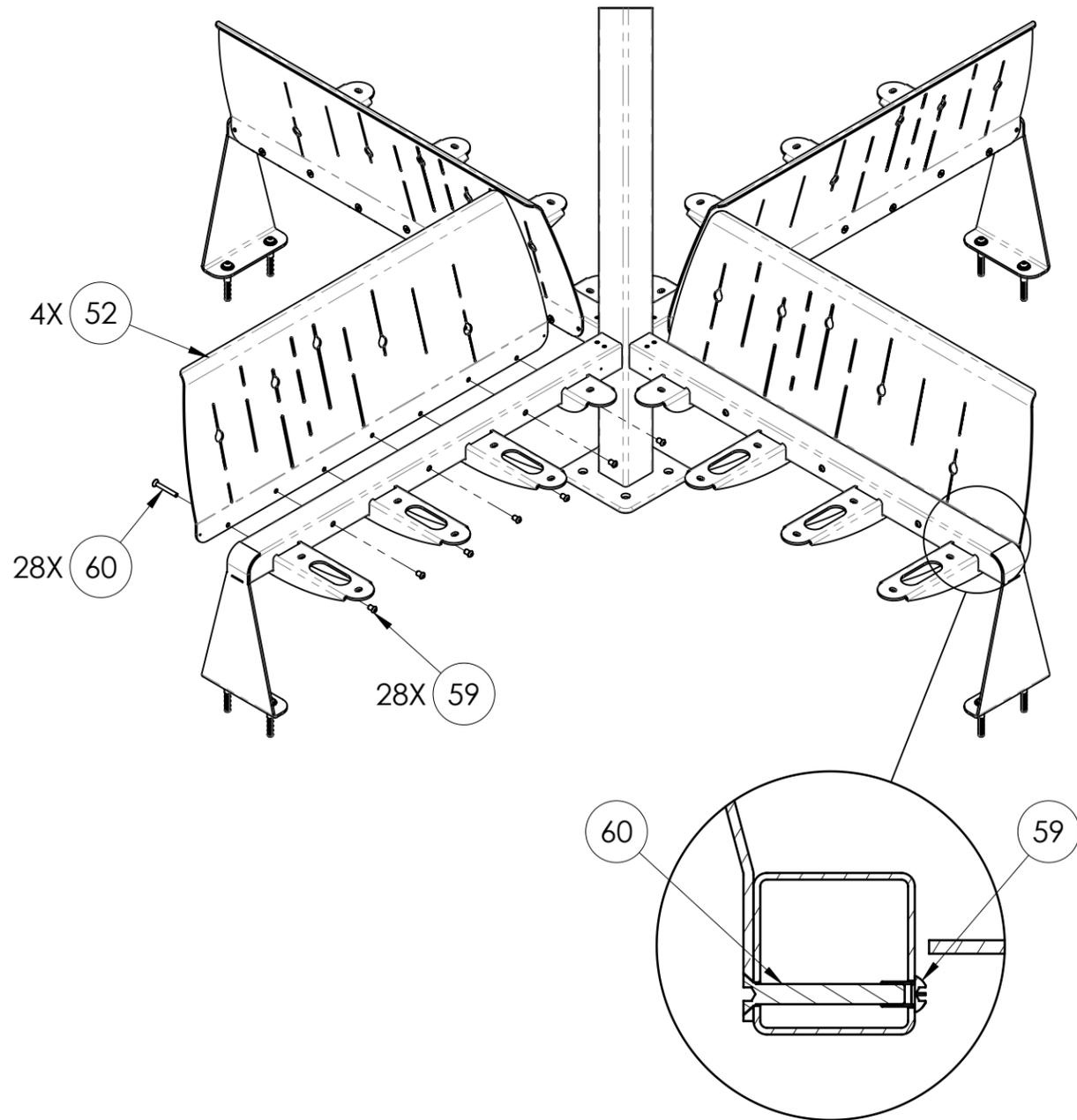
1. PLACE BENCH ON POST BRACKET.
2. MARK ON CONCRETE FOOTING OR SLAB, THE BENCH LEG ANCHORING HOLES' POSITIONS.
3. REMOVE BENCH.
4. DRILL ON HOLES' MARKINGS WITH 3/4" DRILL BIT SIZE.
5. CLEAN THE DRILLED HOLES.
6. PUT ANCHORS IN HOLES WITH EPOXY (EPOXY ANCHORING ADHESIVE PULL-OUT STRENGTH MUST BE MINIMUM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

#3

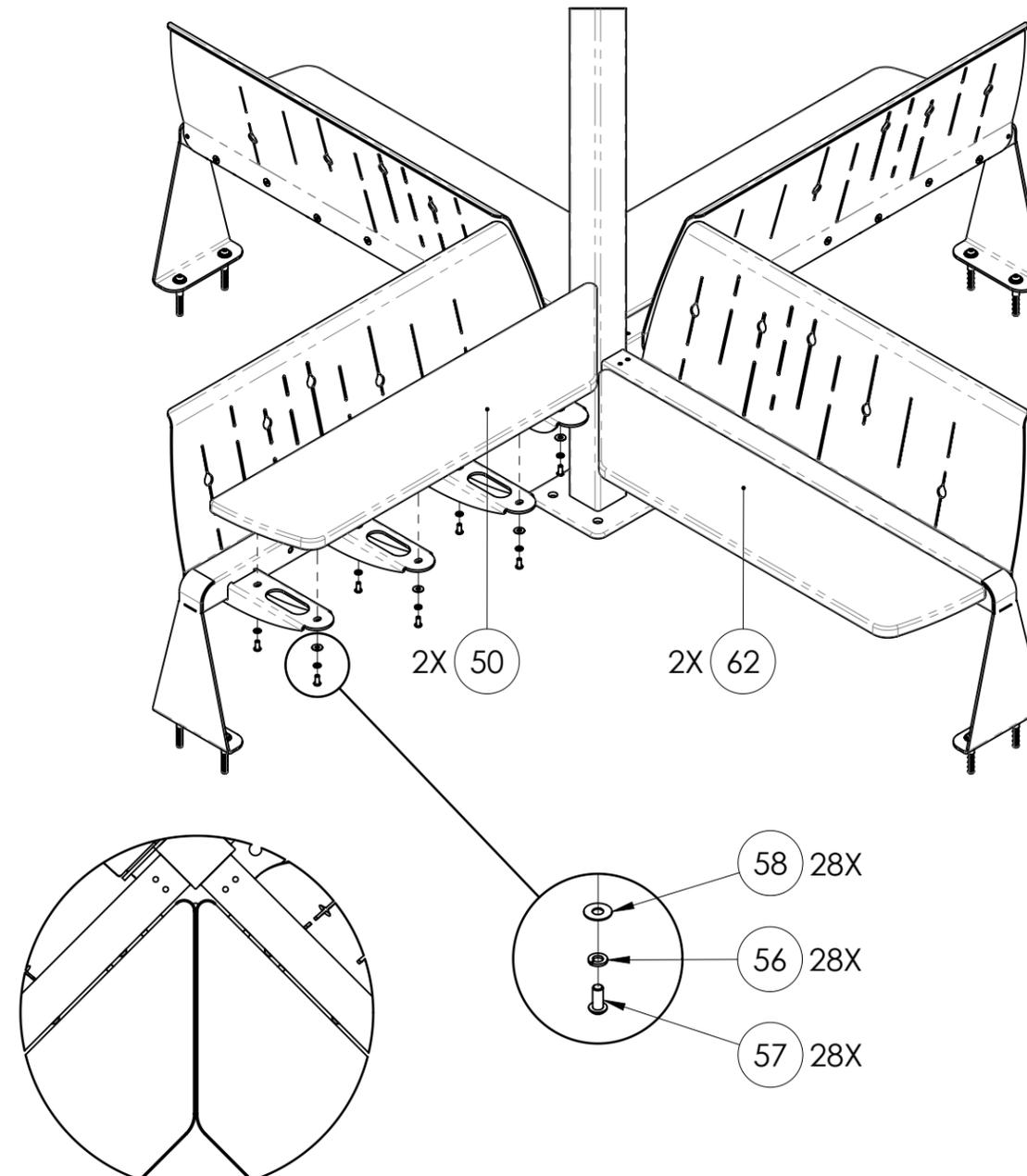


BENCH BACKREST SEATING ASSEMBLY DETAIL

#4



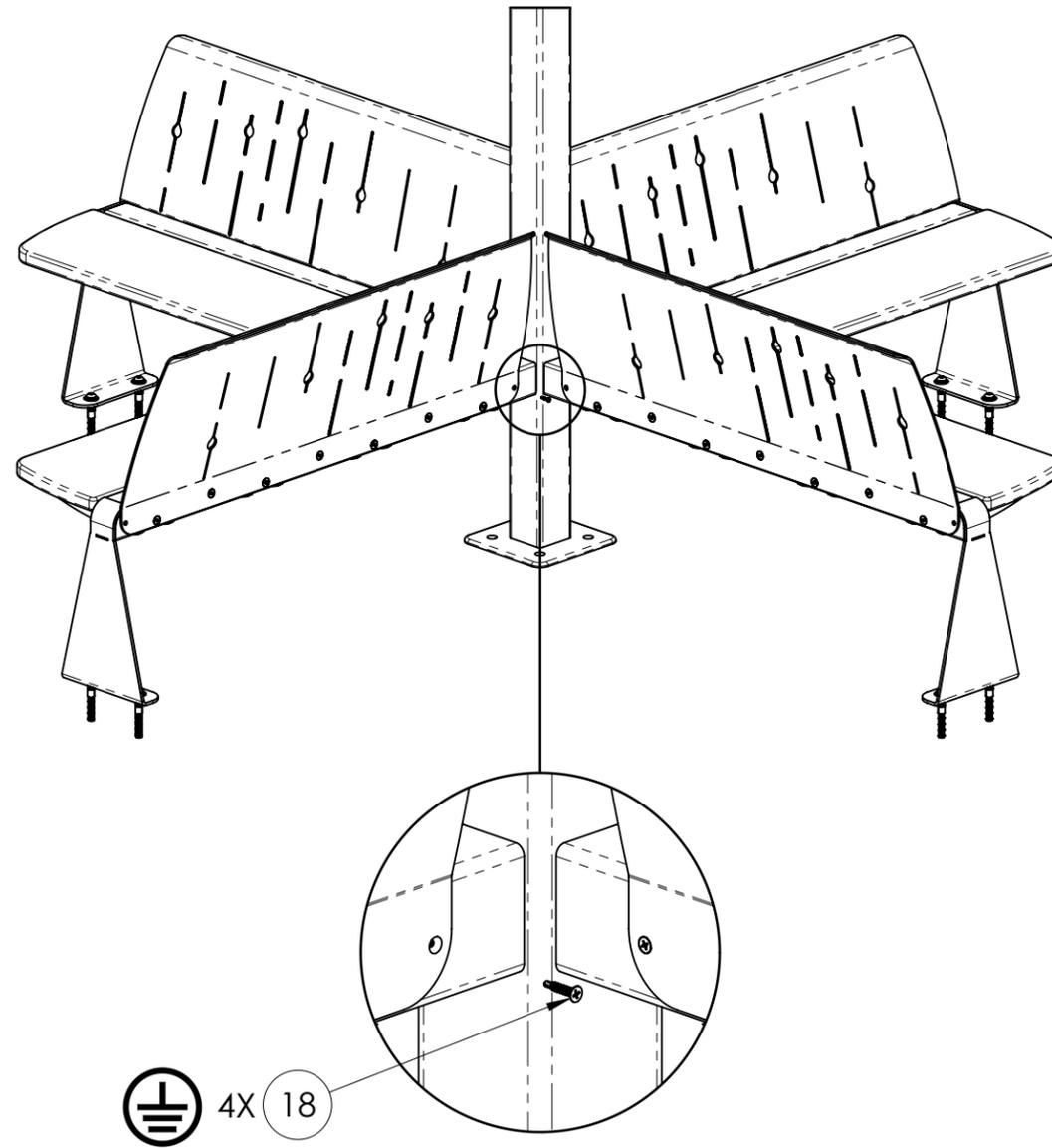
#5



MAXIMUM OF 0.25in OF GAP
BETWEEN EACH SEATINGS

BENCH BACKREST SEATING ASSEMBLY DETAIL

#6



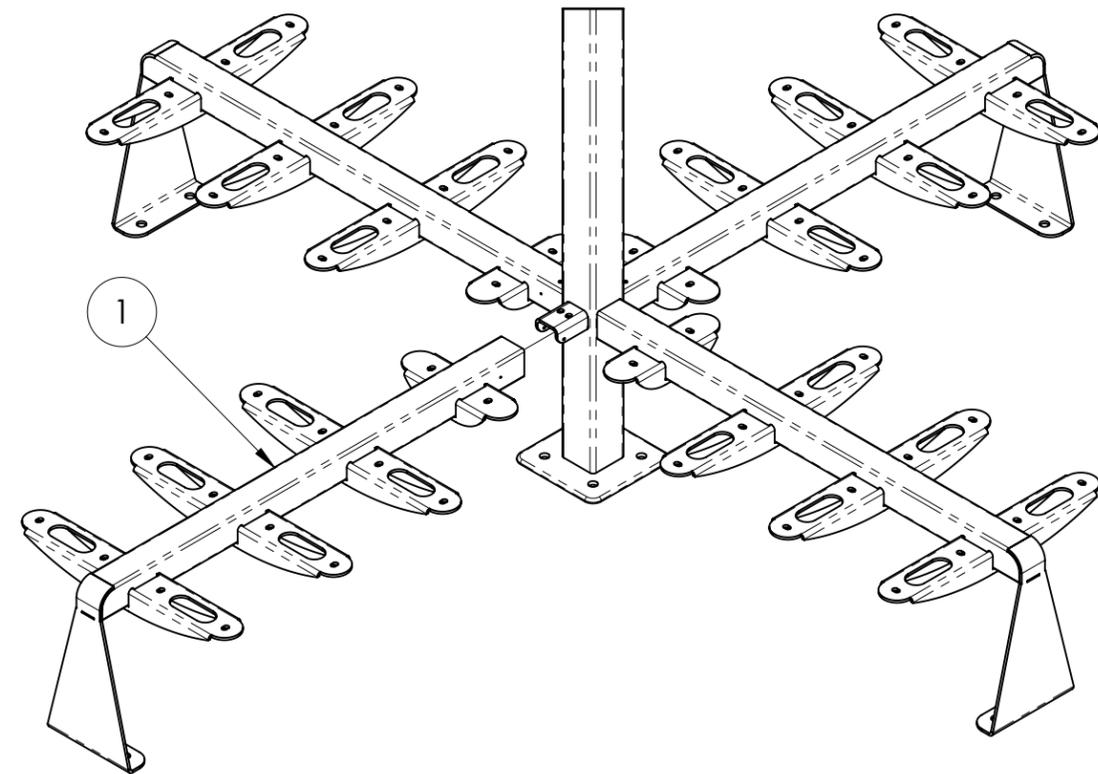
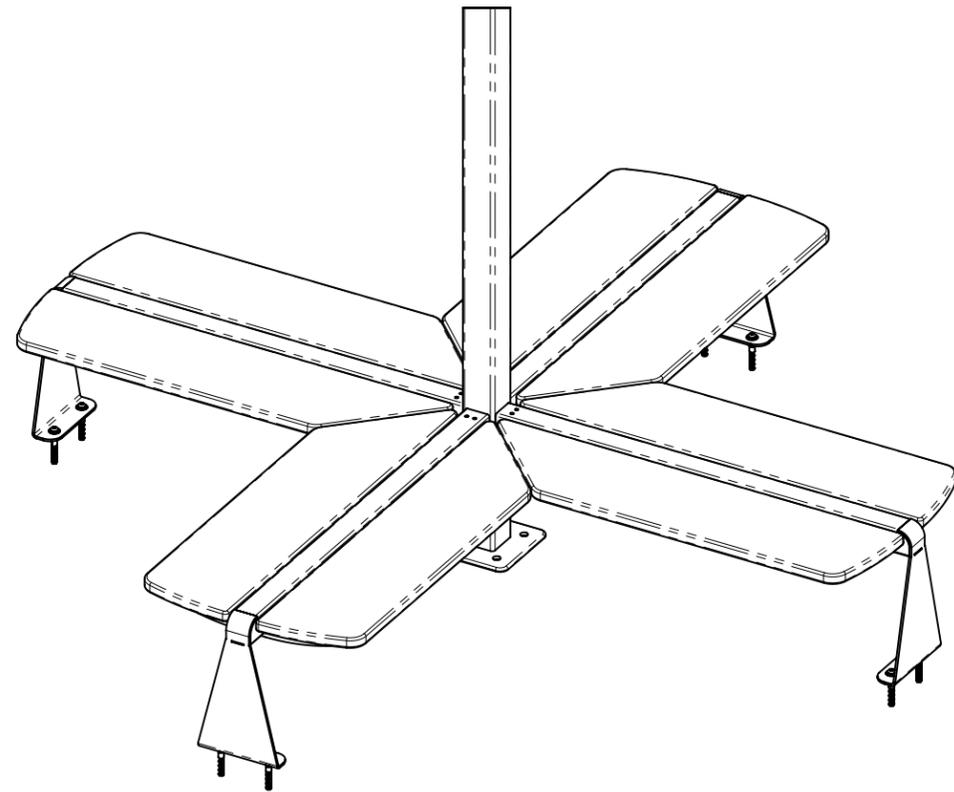
VORTEX AQUATIC STRUCTURES INTL
7800 Autoroute Trans Canadienne
Pointe Claire (Montreal)
Québec, Canada H9R 1C6
Toll-free: 1.877.5VORTEX
www.vortex-intl.com

COPYRIGHT VORTEX AQUATIC STRUCTURES INTERNATIONAL-THIS DOCUMENT AND THE IDEAS, RENDERINGS AND OTHER CONTENTS CONTAINED THEREIN ARE THE SOLE PROPERTY OF VORTEX AQUATIC STRUCTURES INTERNATIONAL AND MAY NOT BE DISSEMINATED, COPIED, REPRODUCED OR OTHERWISE USED WITHOUT PRIOR WRITTEN CONSENT OF VORTEX AQUATIC STRUCTURES INTERNATIONAL.

CE DOCUMENT EST EN TOUT TEMPS LA PROPRIÉTÉ DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC. ET NE PEUT ÊTRE UTILISÉ OU REPRODUIT SANS UN CONSENTEMENT ÉCRIT DE VORTEX STRUCTURES AQUATIQUES INTERNATIONALES INC.

**BENCH BACKREST SEATING
ASSEMBLY DETAIL**

#1



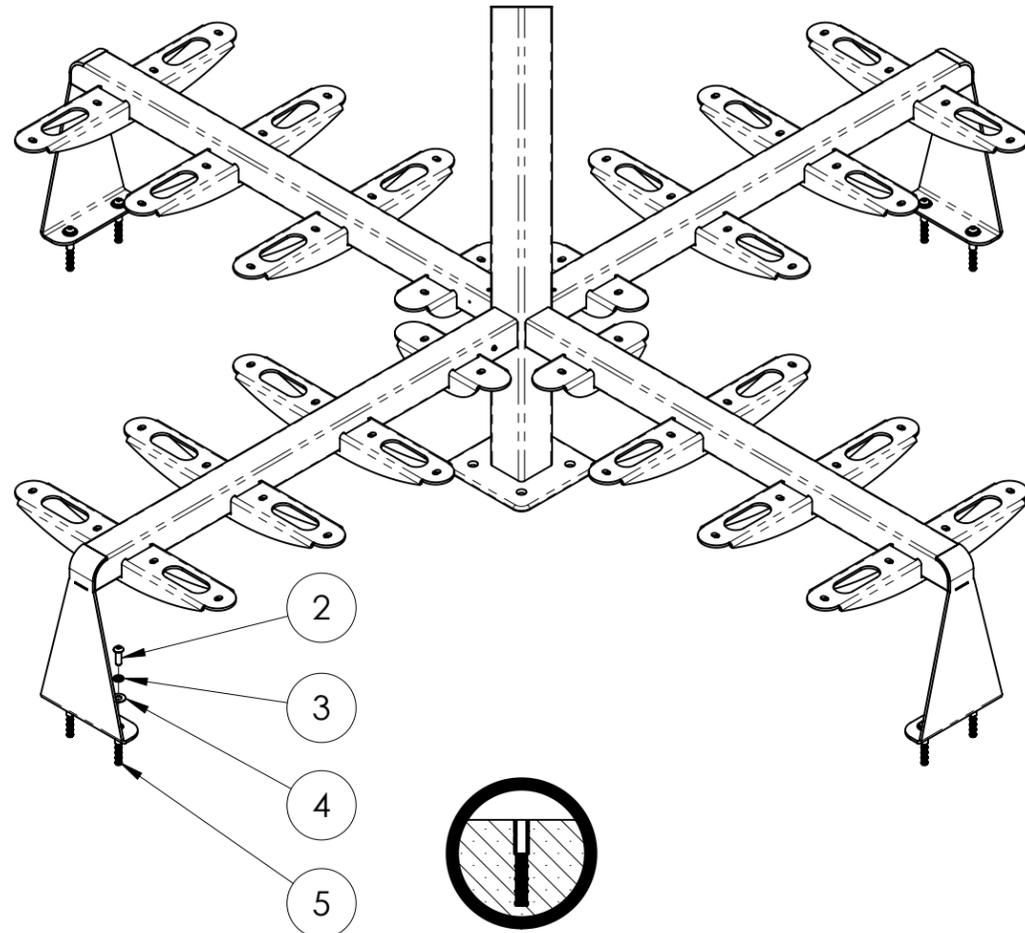
BENCH FLAT SEATING ASSEMBLY DETAIL

ITEM NO.	QTY.	ITEM NUMBER	DESCRIPTION
1	4	134260	ABRIO_BENCH_FLAT SEATING FRAME_PAINTING
2	16	134671	BUTTON SOCKET CAP SCREW 1/2"-13 X 1 1/2" FULL THREAD ZINC PLATED
3	16	103394	SPLIT LOCK WASHER 1/2"
4	16	103867	FLAT WASHER 1/2" X 1 1/4"OD GP SMALL OD
5	16	134450	ADHESIVE-GRIP CONCRETE ANCHOR, 1/2"-13 FNPT, ZINC PLATED STEEL
6	8	103858	FLAT WASHER 3/8" X 7/8"OD GP SMALL OD
7	8	103390	SPLIT LOCK WASHER 3/8"
8	8	103266	HEX NUT 3/8"-16
9	4	136373	HEX HEAD TAPPING SCREW #10-16 X 3/4" FULL THREAD STAINLESS STEEL 410
10	4	134273	ABRIO_BENCH_LEFT SEATING TOP_ASSEMBLY
11	4	134280	ABRIO_BENCH_RIGHT SEATING TOP_ASSEMBLY
12	56	103860	FLAT WASHER 3/8 X 1"OD GP LARGE OD
13	56	103390	SPLIT LOCK WASHER 3/8"
14	56	100600	SECURITY BUTTON CAP SCREW 3/8"-16 X 7/8"

NOTES:

USE LEG'S HOLES TO POSITIONATE AND DRILL THE ANCHOR'S HOLE;
 PROTECT LEG WITH MASKING TAPE DURING DRILLING AND EPOXY;
 HAND TIGHT THE BENCH SEATINGS UNTIL ALL BENCH SEATINGS ARE ASSEMBLED

#2



MAKE SURE ALL BENCH STRUCTURES ARE LEVELED

BENCH TYPICAL ANCHORING DETAIL

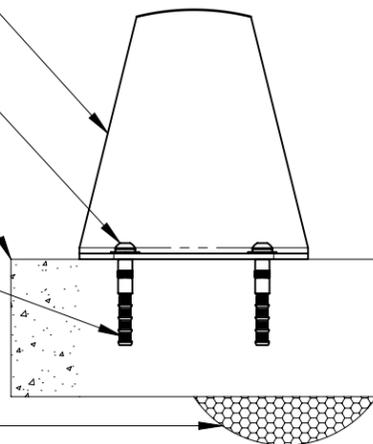
BENCH LEG

ANCHOR BOLT 1/2" [12.7mm]
LOCK WASHER 1/2" [12.7mm]
FLAT WASHER 1/2" [12.7mm]

CONCRETE SURFACE.
VERIFY LOCAL CODES FOR TYPE, THICKNESS
& REINFORCEMENT REQUIREMENTS

2X 1/2" [12.7mm] THREADED ANCHOR
DRILL & EPOXY GROUT STUDS
(DONE BY INSTALLER)

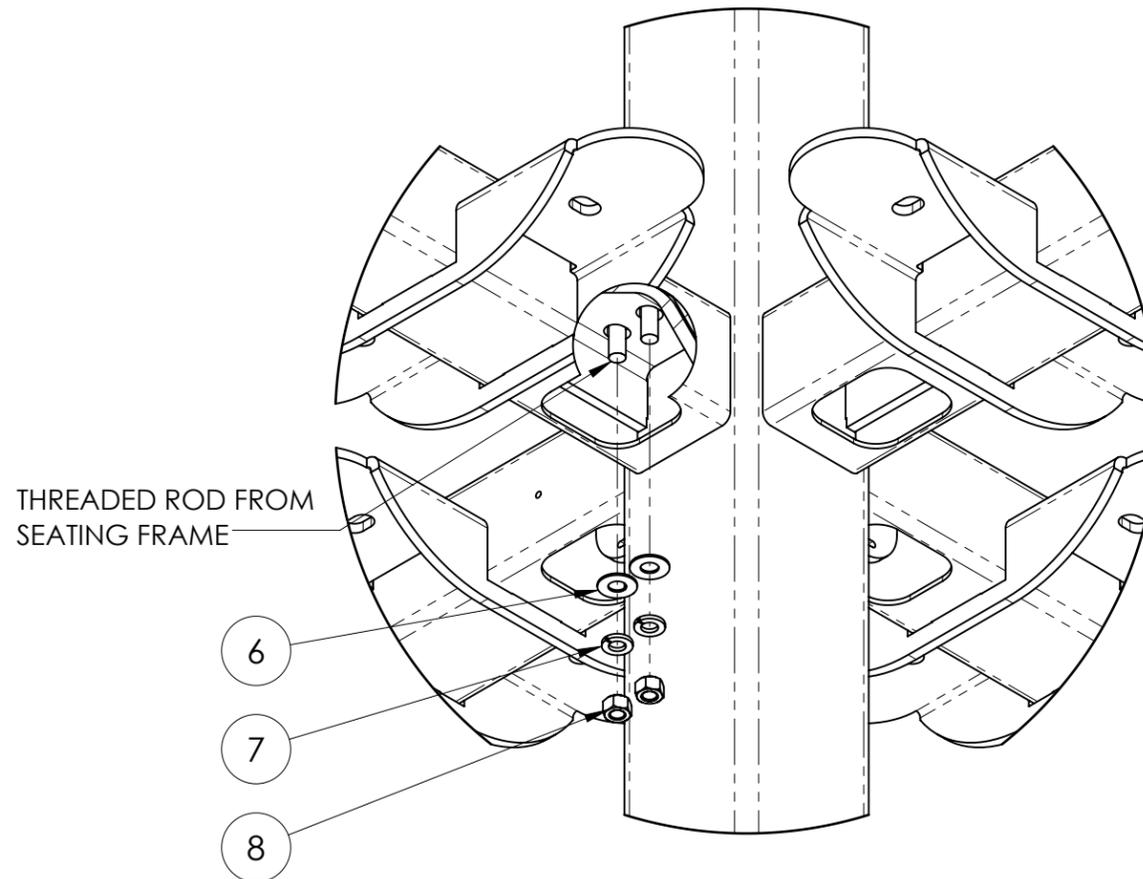
COMPACTED GRANULAR
(DONE BY INSTALLER)



BENCH TYPICAL ANCHORING STEPS (DONE BY OTHERS):

1. PLACE BENCH ON POST BRACKET.
2. MARK ON CONCRETE FOOTING OR SLAB, THE BENCH LEG ANCHORING HOLES' POSITIONS.
3. REMOVE BENCH.
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 BENCH AS PER VORTEX' ASSEMBLY GUIDE.

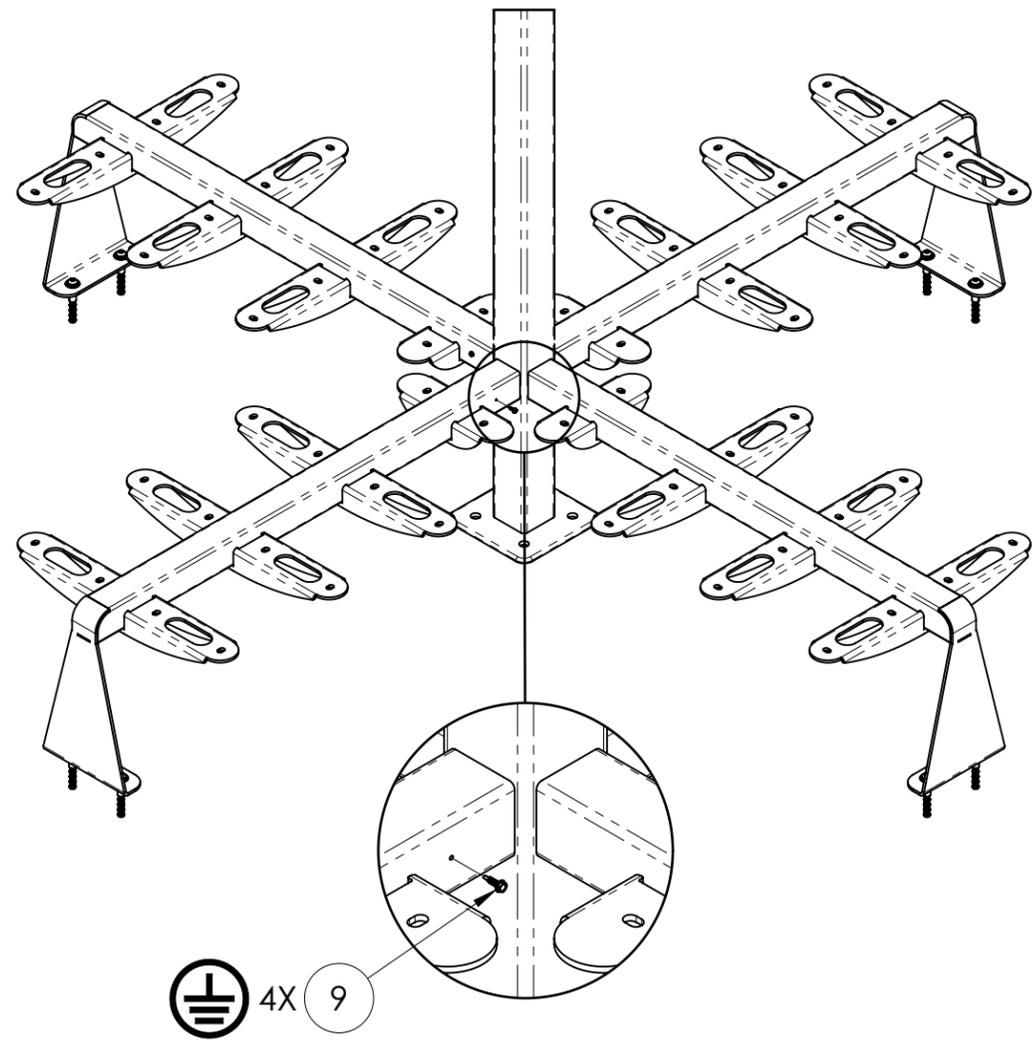
#3



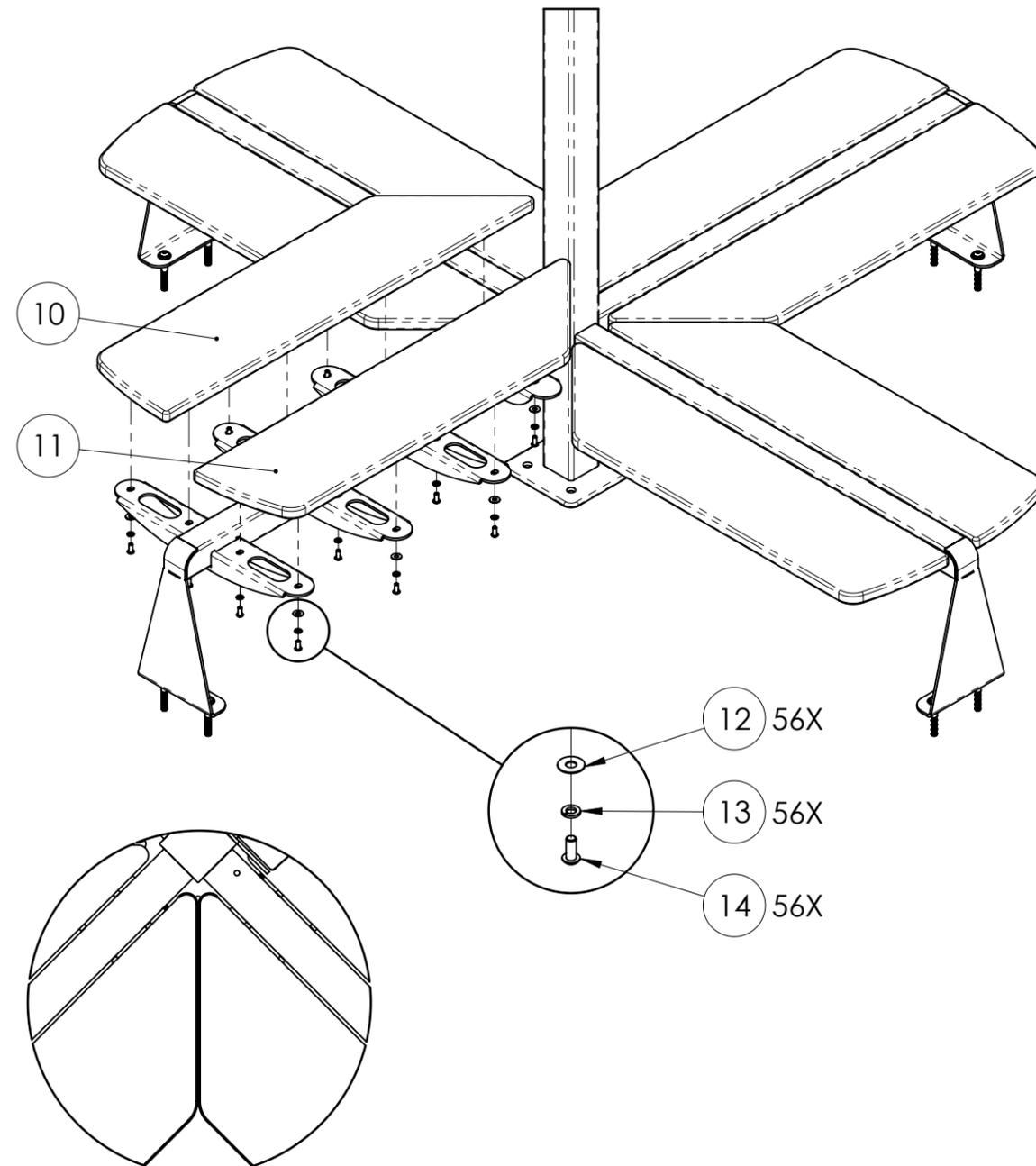
THREADED ROD FROM SEATING FRAME

BENCH FLAT SEATING ASSEMBLY DETAIL

#4



#5



MAXIMUM OF 0.25in OF GAP
BETWEEN EACH SEATINGS

BENCH FLAT SEATING ASSEMBLY DETAIL