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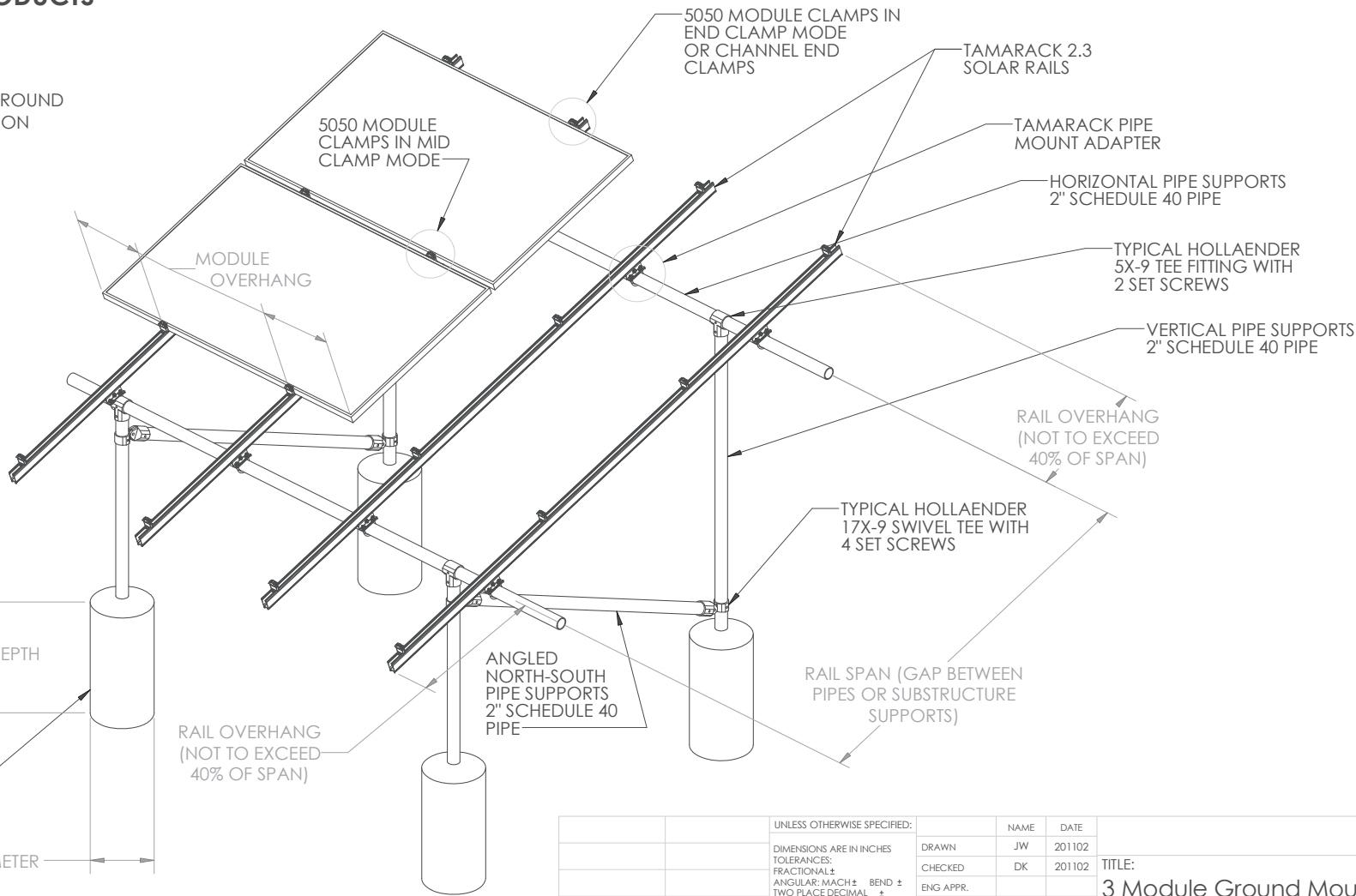
# TAMARACK SOLAR PRODUCTS

## GROUND MOUNT SOLAR MOUNTING SYSTEM

SHOWING TYPICAL PIPE BASED GROUND MOUNT STRUCTURE CONFIGURATION

TORQUE ALL FASTENERS TO 12 FT-LBS

TORQUE ALL HOLLAENDER SET SCREWS TO HOLLAENDER SPECIFICATIONS



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TYPICAL CONCRETE PIER FOUNDATION

PIER DEPTH

PIER DIAMETER

RAIL OVERHANG (NOT TO EXCEED 40% OF SPAN)

ANGLED NORTH-SOUTH PIPE SUPPORTS 2" SCHEDULE 40 PIPE

RAIL SPAN (GAP BETWEEN PIPES OR SUBSTRUCTURE SUPPORTS)

RAIL OVERHANG (NOT TO EXCEED 40% OF SPAN)

TYPICAL HOLLAENDER 5X-9 TEE FITTING WITH 2 SET SCREWS

VERTICAL PIPE SUPPORTS 2" SCHEDULE 40 PIPE

TYPICAL HOLLAENDER 17X-9 SWIVEL TEE WITH 4 SET SCREWS

HORIZONTAL PIPE SUPPORTS 2" SCHEDULE 40 PIPE

TAMARACK PIPE MOUNT ADAPTER

TAMARACK 2.3 SOLAR RAILS

5050 MODULE CLAMPS IN END CLAMP MODE OR CHANNEL END CLAMPS

5050 MODULE CLAMPS IN MID CLAMP MODE

MODULE OVERHANG

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|             |         |  |                   |      |  |        |
|-------------|---------|--|-------------------|------|--|--------|
|             |         | UNLESS OTHERWISE SPECIFIED:  | NAME              | DATE | TITLE:<br><b>3 Module Ground Mount System 2.3 Rail</b> |        |
|             |         | DIMENSIONS ARE IN INCHES   | DRAWN             | JW   |  | 201102 |
|             |         | TOLERANCES:  | CHECKED           | DK   |  | 201102 |
|             |         | FRACTIONAL: ±  | ENG APPR.         |      |  |        |
|             |         | ANGULAR: MACH ± BEND ±<br>TWO PLACE DECIMAL ±<br>THREE PLACE DECIMAL ± | MFG APPR.         |      |  |        |
|             |         | INTERPRET GEOMETRIC TOLERANCING PER:                                   | Q.A.              |      |  |        |
|             |         | MATERIAL   | COMMENTS:         |      |  |        |
| NEXT ASSY   | USED ON | FINISH   |                   |      | SIZE DWG. NO. REV<br><b>B GM-3M2R B</b>                |        |
| APPLICATION |         | DO NOT SCALE DRAWING   | SCALE: DNSWEIGHT: |      | SHEET 1 OF 4   |        |

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**TAMARACK SOLAR PRODUCTS**  
**GROUND MOUNT**  
**SOLAR MOUNTING SYSTEM**

SHOWING SYSTEM RAILS, SPLICES  
 MOUNTS, 5050 MODULE CLAMPS  
 (WORK IN MID OR END CONDITION),  
 AND CHANNEL END CLAMPS.

SHOWN WITH PIPE MOUNT, WHICH CLAMPS  
 THE RAILS TO STANDARD 2" SCHEDULE 40 PIPE  
 (PIPE NOT SHOWN IN RENDERINGS)

TORQUE ALL FASTENERS TO 12 FT-LBS

5050 CLAMPS

NOTE ORIENTATION OF 5050 CLAMP  
 WHEN USED AS AN END CLAMP.  
 FLAT SURFACE OF PLASTIC SPRING  
 PART SHOULD FACE AWAY FROM  
 THE MODULE

TAMARACK  
 2.3 RAIL

RAIL SPLICE GAP  
 SHOULD BE  
 1/8" TO 3/8"

PIPE NOT SHOWN

CHANNEL END CLAMPS  
 ALLOW RAILS TO BE CUT  
 FLUSH TO EDGE OF ARRAY

RAIL SPLICE IS FRICTION FIT BETWEEN THE RAILS.  
 SQUEEZE THE TOP OF THE SPLICE TO ALLOW IT  
 TO BE SLID INTO THE CHANNEL OF THE RAIL

PIPE MOUNT  
 ASSEMBLY

5/16" U BOLT TO  
 FIT 2" SCHEDULE  
 40 PIPE

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|-------------|---------|--------------------------------------|---------------------------------------|----------------|--------------|
|             |         | UNLESS OTHERWISE SPECIFIED:          | NAME                                  | DATE           |              |
|             |         | DIMENSIONS ARE IN INCHES             | DRAWN                                 | JW             | 201102       |
|             |         | TOLERANCES:                          | CHECKED                               | DK             | 201102       |
|             |         | FRACTIONAL ±                         | ENG APPR.                             |                |              |
|             |         | ANGULAR: MACH ± BEND ±               | MFG APPR.                             |                |              |
|             |         | TWO PLACE DECIMAL ±                  | Q.A.                                  |                |              |
|             |         | THREE PLACE DECIMAL ±                | COMMENTS:                             |                |              |
|             |         | INTERPRET GEOMETRIC TOLERANCING PER: | TITLE:                                |                |              |
|             |         | MATERIAL                             | 3 Module Ground Mount System 2.3 Rail |                |              |
|             |         | FINISH                               | SIZE                                  | DWG. NO.       | REV          |
| NEXT ASSY   | USED ON |                                      | <b>B</b>                              | <b>GM-3M2R</b> | <b>B</b>     |
| APPLICATION |         | DO NOT SCALE DRAWING                 | SCALE: DNSWEIGHT:                     |                | SHEET 2 OF 4 |

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# TAMARACK SOLAR PRODUCTS

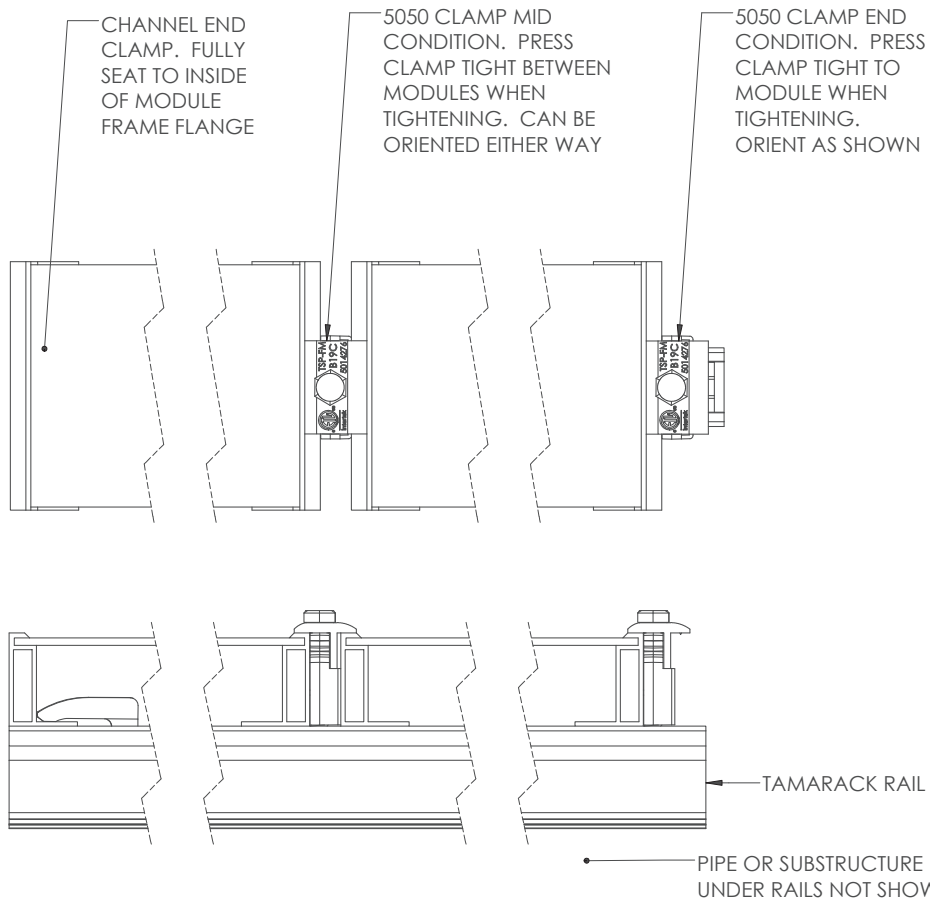
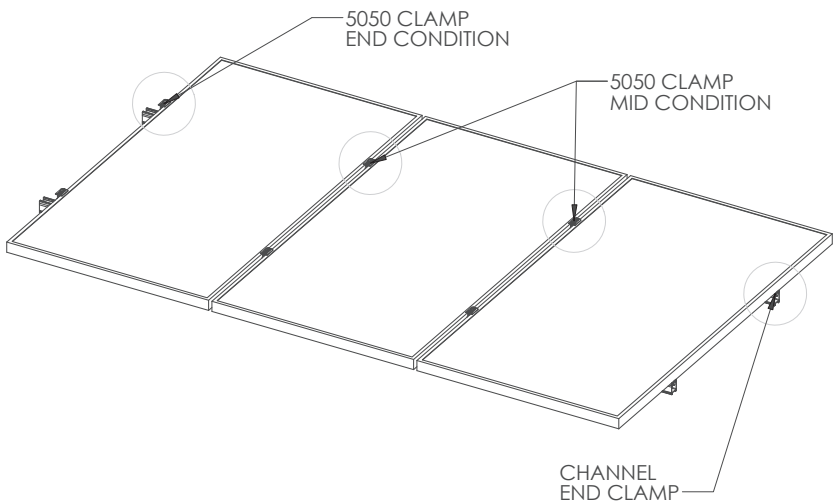
## GROUND MOUNT SOLAR MOUNTING SYSTEM

### MODULE CLAMP DETAILS

5050 CLAMPS CAN BE INSTALLED IN EITHER MID OR END CLAMP CONDITIONS AS SHOWN. HALF INCH MODULE GAP. IN END CONDITION OPEN SIDE OF PLASTIC SPRING SHOULD FACE IN TO THE MODULE AS SHOWN

CHANNEL END CLAMPS INSTALL IN THE RAIL CHANNEL AND ALLOW THE MODULE FRAMES TO BE FLUSH TO THE END OF THE MOUNTING RAILS

TORQUE ALL FASTENERS TO 12 FT-LBS



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|           |         |                                      |  |                      |      |  |        |
|-----------|---------|--------------------------------------|--|----------------------|------|--|--------|
|           |         | UNLESS OTHERWISE SPECIFIED:          |  | NAME                 | DATE | TITLE:<br><b>3 Module Ground Mount System 2.3 Rail</b> |        |
|           |         | DIMENSIONS ARE IN INCHES             |  | DRAWN                | JW   |  | 201102 |
|           |         | TOLERANCES:                          |  | CHECKED              | DK   |  | 201102 |
|           |         | FRACTIONAL ±                         |  | ENG APPR.            |      |  |        |
|           |         | ANGULAR: MACH ± BEND ±               |  | MFG APPR.            |      |  |        |
|           |         | TWO PLACE DECIMAL ±                  |  | Q.A.                 |      |  |        |
|           |         | THREE PLACE DECIMAL ±                |  | COMMENTS:            |      |  |        |
|           |         | INTERPRET GEOMETRIC TOLERANCING PER: |  |                      |      |  |        |
|           |         | MATERIAL                             |  |                      |      | SIZE DWG. NO. REV                                      |        |
|           |         | FINISH                               |  |                      |      | <b>B GM-3M2R B</b>                                     |        |
| NEXT ASSY | USED ON | APPLICATION                          |  | DO NOT SCALE DRAWING |      | SCALE: DNSWEIGHT: SHEET 3 OF 4                         |        |

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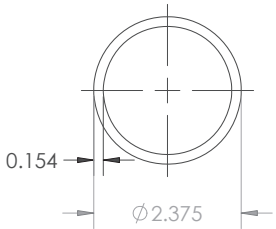
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# TAMARACK SOLAR PRODUCTS

## GROUND MOUNT 2 OR 3 RAILS PER COLUMN SOLAR MOUNTING SYSTEM

TYPICAL CONFIGURATION OF ARRAY WITH  
3 MODULE COLUMNS, 2 RAILS PER COLUMN

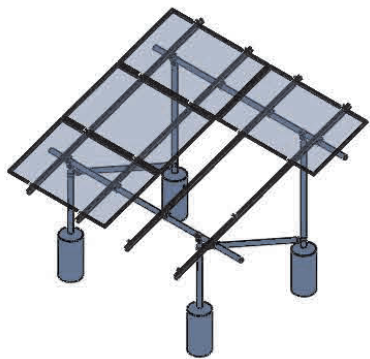
REFER TO STRUCTURAL ENGINEERING TABLES  
FOR PIER AND SPAN VALUES BASED ON LOCAL  
DESIGN VALUES.



APPROVED 2" PIPE  
SPECIFICATIONS:

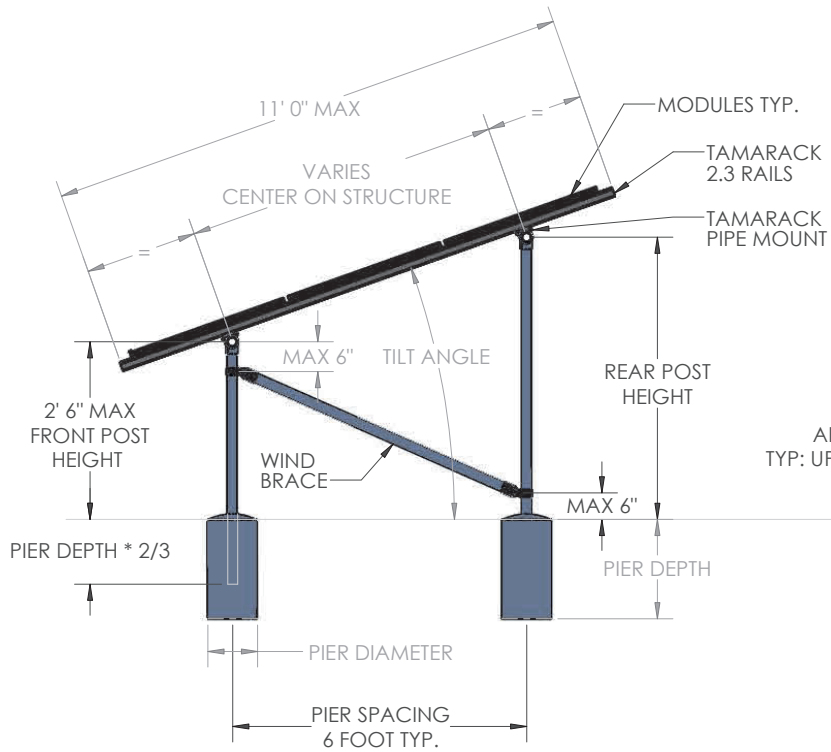
ASTM A53 GR B  
35 KSI MINIMUM YIELD STRENGTH  
HOT DIPPED GALVANIZED

OUTSIDE DIAMETER: 2.375"  
WALL THICKNESS: 0.154"

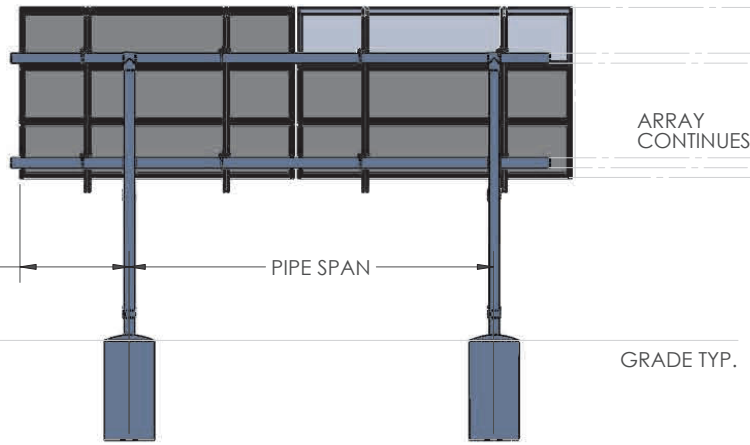


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ARRAY OVERHANG  
TYP: UP TO 40% OF PIPE SPAN



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|                   |          |   |  |      |        |
|-------------------|----------|---|--|------|--------|
|                   |          | UNLESS OTHERWISE SPECIFIED:             | NAME                                     | DATE |        |
|                   |          | DIMENSIONS ARE IN INCHES                | DRAWN                                    | JW   | 201102 |
|                   |          | TOLERANCES:                             | CHECKED                                  | DK   | 201102 |
|                   |          | FRACTIONAL: ±                           | ENG APPR.                                |      |        |
|                   |          | ANGULAR: MACH ± BEND ±                  | MFG APPR.                                |      |        |
|                   |          | TWO PLACE DECIMAL ±                     | Q.A.                                     |      |        |
|                   |          | THREE PLACE DECIMAL ±                   | COMMENTS:                                |      |        |
|                   |          | INTERPRET GEOMETRIC<br>TOLERANCING PER: |  |      |        |
|                   |          | MATERIAL                                |  |      |        |
|                   |          | FINISH                                  |  |      |        |
| NEXT ASSY         | USED ON  |   |  |      |        |
| APPLICATION       |          | DO NOT SCALE DRAWING                    |  |      |        |
|                   |          |   | TITLE:                                   |      |        |
|                   |          |   | 3 Module Ground Mount<br>System 2.3 Rail |      |        |
|                   | SIZE     | DWG. NO.                                | REV                                      |      |        |
|                   | <b>B</b> | <b>GM-3M2R</b>                          | <b>B</b>                                 |      |        |
| SCALE: DNSWEIGHT: |          |   | SHEET 4 OF 4                             |      |        |

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