Rainwater Catch Drain for Film-Covered Greenhouses and High Tunnels

NEW CONSTRUCTION

IMPORTANT! READ THESE INSTRUCTIONS BEFORE YOU BEGIN CONSTRUCTION OF YOUR HIGH TUNNEL OR GREENHOUSE.

EXISTING GREENHOUSE OR HIGH TUNNEL

FOLLOW THE INSTRUCTIONS IN THIS MANUAL TO ATTACH THIS RAINWATER CATCH DRAIN SYSTEM TO YOUR EXISTING BUILDING.

*Actual building may differ from what is shown.

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**Important Information**

**READ THIS DOCUMENT BEFORE YOU BEGIN**
Thank you for purchasing this rainwater catch drain system. When properly assembled and maintained, this system will provide years of reliable service. This guide includes information needed to safely assemble and maintain the system. Read these instructions *before* you begin.

**ABOUT THIS RAINWATER CATCH DRAIN KIT**
This kit includes the parts needed to attach the system to high tunnels and greenhouses with roll-up or drop-down sides and covered with film or 5.2 oz material. It is not designed for use on any building with polycarbonate sides or roof coverings. Consult with your sales representative if the cladding for your building is something other than film or 5.2 oz material.

**New Building:** If you have purchased this kit to install on a building that has not been constructed, read this guide and the instructions included with the building to determine the best way to proceed. In most cases, it is best to first assemble the building frame and then to install this kit *before you install* the roof covering. Additionally, install any roll-up or drop-down side components after installing the components in this rainwater catch drain kit.

**Existing Building:** To install this system on an existing building with a film or 5.2 oz cover, it will be necessary to partially loosen the lower edge of the roof covering. *Do not attempt to install this system on windy days or when such conditions are expected.* Doing so may cause extensive damage to the roof film, building, and building contents and may cause personal injury.

**CUSTOMER-SUPPLIED MATERIALS REQUIRED**
To properly attach the gutters of this rainwater catch drain system to the frame, a 1" x 4" ribbon board must first be installed. This board runs the length of the building.

For systems that use a reservoir to collect water at the end of the gutter, extend the ribbon board beyond the building frame to provide a surface to mount the gutters. See pages 4 & 11 for an example.

*Customer is responsible for supplying the materials for the ribbon board.*

Recommended lumber: Treated 1" x 4" boards purchased locally.

**ASSEMBLY PROCEDURE**
This manual describes how to install the rainwater catch drain system. The steps outlining the process are as follows:

1. Unpack the contents of the shipment and place where you can easily inventory the parts. Refer to the Bill of Materials/Spec Sheets.
2. Verify that all parts listed on the Bill of Materials/Spec Sheets are present. If anything is missing or you have questions, consult the Pictorial Parts Guide and all diagrams for clarification, or contact Customer Service.
3. Read and understand these instructions and all additional documentation included with the shipment *before* you begin.
4. Gather the required tools.
5. For best results, assemble the components in the order they are presented in these instructions.

**SAFETY PRECAUTIONS**
- Wear eye protection.
- Wear gloves when handling system parts.
- Use a portable GFCI (Ground Fault Circuit Interrupter) when working with electric power tools and cords.

**REQUIRED TOOLS**
The following list identifies the main tools needed to assemble the system. *Additional tools and supports may be needed.*

- Tape measure and marker
- Variable speed drill to drive Tek screws
- Transit, string line, or chalk line
- Tool to cut film material
**PICTORIAL GUIDE**

The following graphics and photos will help identify the different parts of the system. (Some parts are not shown.)

*WF1576
*112711

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**Important Information**

- *WF1576
- *112711

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**BASIC INSTALLATION STEPS**

Sample buildings are shown in the diagrams. Actual building may differ.

**ATTENTION:** Field adjustments to these steps may be required during installation. If you are not familiar with the assembly and installation of greenhouse and high tunnel buildings that include a film or fabric roof cover, consult with a knowledgeable contract before you begin.

These are the basic installation steps:

1. Attach the 111613Z144 to the building above the ribbon boards for the building drop-down or roll-up sides.
2. Determine the required slope of the gutter system and mark the bracket and/or customer-supplied ribbon board position on the building frame.

**NOTE:** Install the 113074 brackets when the curve of the rafter is too great to allow for the installation of customer-supplied 1" x 4" boards. Brackets help to plumb the boards and gutter brackets when installed.

3. Attach 113074 brackets to the rafters and customer-supplied 1" x 4" boards to the 113074 brackets. *If brackets are not needed, attach the customer-supplied boards directly to the rafters.*
4. Secure the 2' wide section of film to the 111613Z144 and to the u-channel attached to the building using the 102198 spring wire.
5. Attach the 113623 gutter brackets to the 1" x 4" boards (Step 2).
6. Secure main cover film in u-channel using the 102198 spring wire.
7. Snap the 10' gutter sections onto the 113623 gutter brackets. Secure each gutter splice using 113624 gutter connector and 113628 sealant.
8. Install the 113627 drop outlet and the left (113625) and right (113626) gutter end caps. Seal using the 113628 sealant.
9. If a reservoir was purchased, use the 2" and 3" pvc components included with this kit to direct water to the reservoir. Additional parts may be needed for custom water collection systems. Contact your sales representative to purchase additional pvc components.
10. Place the free end of the cover film inside the gutter. Cut as needed to allow film to fit around the vinyl gutter brackets and into the gutter.
11. Make 1" vertical cuts in cover and thread the fiberglass rods through these to secure the cover material in the gutter.
When installed, the rainwater catch drain system runs along each side of the building from end-to-end. A reservoir (additional purchase required) is typically installed at the drain end of the gutter to store water. Gutter slopes throughout its length to ensure proper drainage.

*Actual building may differ. Side panel is not shown.
Rainwater Catch Drain System

Exploded end view showing a sample building and the rainwater catch drain kit components.

- **11613Z144** Secure to rafter using *FA4482B Tek screws.
- **2' Wide Film**
- **113623 Gutter Bracket**
- **1" x 4" Ribbon Board** Secure board to 113074 bracket using *FA4484B Tek screws. Countersink screws for best results.
- **113074 Bracket** Secure to rafter using *FA4482B Tek Screws.
- Not to exceed 16".

*Included with rainwater catch drain kit.

**Supplied by customer.

Ribbon board and u-channel for drop-down or roll-up side panel. See main building instructions if applicable.

Installed rainwater catch drain kit with gutter attached.

- Single u-channel attached to each end rafter. Included with building.
- Free end of cover film anchored inside installed gutter.

Revision date: 12.17.14
Complete these steps:

1. If main cover film is installed, remove the spring wire that secures the cover in the u-channel until the lower edge of the cover is loose. Also, remove the cover from the end rafter u-channel to allow for the installation of the 111613Z144.

   **NOTE:** Dashed line identifies the u-channel that must be removed to allow for the installation of the rainwater catch drain components. For a new construction, first install the ribbon board as instructed in the building instruction manual and then install the 111613Z144 as noted in these diagrams.

2. Using the diagram, determine where to install the 111613Z144 that runs the length of the building frame along the side.

3. Mark height at both ends ensuring that the 111613Z144 will be level along the side. Use a string line or chalk line to mark each rafter.

4. Attach the 111613Z144 to building rafters using FA4482B Tek screws included with the kit. Install one screw every 48" on-center to secure.

   **ATTENTION:** Building design must include a roll-up or drop-down side. If your building does not include either of these, contact customer service to purchase additional u-channel and spring wire. Do not continue with the installation of this kit without consulting with customer service.

   *Included with rainwater catch drain kit.**

   **Supplied by customer.**

   Diagram shows the 111613Z144 installed.

Not to exceed 16".

Secure to rafter using *FA4482B Tek screws.

**Ribbon board and u-channel for drop-down or roll-up side panel. See main building instructions to install.

Single u-channel is shown. Depending on building design, double u-channel may also be in this position to secure roof material and roll-up side.
5. Determine the gutter slope using the example to the right.

6. On the first end rafter, mark the height of gutter to indicate the high end. Gutter position is between the ribbon board for the drop-down or roll-up side of the building and the 111613Z144. (See diagrams on previous page.) For best results, mount the gutter 3"-4" above the ribbon board for the drop-down and roll-up sides.

7. Move to the low end and mark end rafter to set the required slope. Snap a chalk line, or mark each rafter using a string line stretched end-to-end. Use these to install the 113074 gutter brackets (if used) or the customer-supplied 1" x 4" ribbon boards if the 113074 brackets are not used.

CALCULATING GUTTER SLOPE

A slope of 1/4" (.25") per 10' run of gutter is recommended to ensure proper drainage. To calculate the slope of the gutter for your building, take the building length and multiply it by .025. Example below shows calculating the gutter slope for a 20' building.

Building Length: 20'
Required Slope: .25" per 10'

20' (length) x .025 (multiplier) = .5" (Recommended slope is 1/2").
8. If using the 113074 brackets to plumb the gutter on frame, align brackets with slope lines on each rafter (previous page). Attach brackets every 48” using two (2) FA4482B Tek screws for each. Next, attach customer-supplied 1” x 4” ribbon board to each 113074 bracket using two (2) FA4484B Tek screws. Countersink Tek screws in ribbon board for best results. To prevent conflicts with gutter bracket installation, install screws so they are 1-1/2” below the top of ribbon board. Ribbon board runs along building end-to-end. Extend ribbon board past end rafter at drain end to allow for gutter install beyond frame.

If rafters are straight where the gutter will be installed, 113074 brackets are typically not used. Attach customer-supplied 1” x 4” ribbon board to rafters using FA4484B Tek screws. Countersink heads of screws below board surface for best results. Install screws so they are 1-1/2” below top of ribbon board to prevent interfering with the vinyl gutter bracket installation.

*Align ribbon board with slope lines to set required gutter slope from end-to-end.*
9. After attaching the ribbon board, secure the 2’ section of film (sent with the kit) between the 111613Z144 and the u-channel attach to the side of the building used for the main cover and/or roll-up sides. Use the 102198 spring wire sent with the kit for both connections. Install the 2’ film and spring wire over the roll-up side panel if panel is installed. U-channel supplied with the building may be single or double. Single is shown below.

10. With the film installed, attach the vinyl gutter brackets (113623) **over the film** and to the ribbon board using the FA4652 wood screws.

*Included with rainwater catch drain kit.*

*Secured 2’ wide film in building u-channel using 102198 spring wire from kit.*
11. Next, secure the main roof cover material to the upper channel of the installed 111613Z144. Do not trim the excess roof material. The free edge of the cover will be anchored inside the gutter in Procedure 2.

12. Beginning at the high end of the gutter, slide or snap the 113622 gutter sections onto the gutter brackets. Position high end flush with the outer edge of the building rafter. Use the 113624 connectors to join each 10’ section and glue each connection using the 113628 cement.
13. At the drain end of the gutter, determine how you want to end the gutter run and where you want to install the 113627 drop outlet. Consider the amount of gutter that remains and where you want the reservoir (additional purchase required) to sit. Install the drop outlet in the desired position and seal with the 113628 cement. Install the end cap and glue in place using the 113628 cement.

14. Return to the high end of the gutter and install that end cap. Glue in place.

15. Continue by securing the roof material in the gutter.

*Actual building frame may differ from the example shown.

Additional purchase required for reservoir.
SECURE END OF MAIN COVER IN GUTTER

After attaching the gutter components to the building, place the free edge of the building roof cover material inside the gutter and complete the steps that follow.

1. Pull lower edge of building cover down and press into the gutter.
2. Use a utility knife or similar tool to make a cut at the first gutter bracket. Cut to the edge of the cover.
3. Next, cut cover to allow the material to form around and under gutter bracket.
4. Remove excess material so cover can press easily into the gutter and around gutter bracket.
5. Repeat the steps to cut the cover at each gutter bracket. When complete, press cover down and into the gutter.
6. Beginning at 2” in from one end of the cover, mark a 1” vertical line on the cover material. Continue marking the cover throughout its length in 12” intervals. Cut on each side of each gutter bracket. See circle in photo above.
7. Make a 1" cut through cover at each mark using a utility knife or similar cutting tool.

8. Take one 109108 fiberglass stake and, beginning at one end, thread the stake through the slits in the cover.

9. Continue threading the stake through each cut as shown.

10. Verify that the stake passes under each gutter bracket. When installed correctly, the stake will anchor cover in the gutter.

11. Make additional cuts as needed when adding stakes or custom-fitting the stakes in the channel.

12. Verify that all edges around the gutter brackets are secured with the stake.