AERIAL DRONE COMPETITION PRO

RECF

MISSION 2026-2027

OFF GRID

FIELD ASSEMBLY & LAYOUT INSTRUCTIONS

Version 2.1

RECF DRONE COMPETITIONS

RECF Aerial Drone Competition Pro Mission 2026-2027: Off Grid

Game Element Assembly & Layout Instructions Version 2.1

November 10, 2026

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Overview

Additional assembly instructions and tips are available in the following resources.

- ADC Pro Skills Field Assembly Guides
- ADC Pro Teamwork Field Assembly Guides
- Instructions for Assembling the ADC Pro Teamwork Field Perimeter
    - PVC Pipes & Connectors (½ field)
- Instructions for Assembling an ADC Pro Off Grid Comms Tower
- Instructions for Assembling an ADC Pro Off Grid Cooling Pool
- Instructions for Assembling an ADC Pro Off Grid Pump

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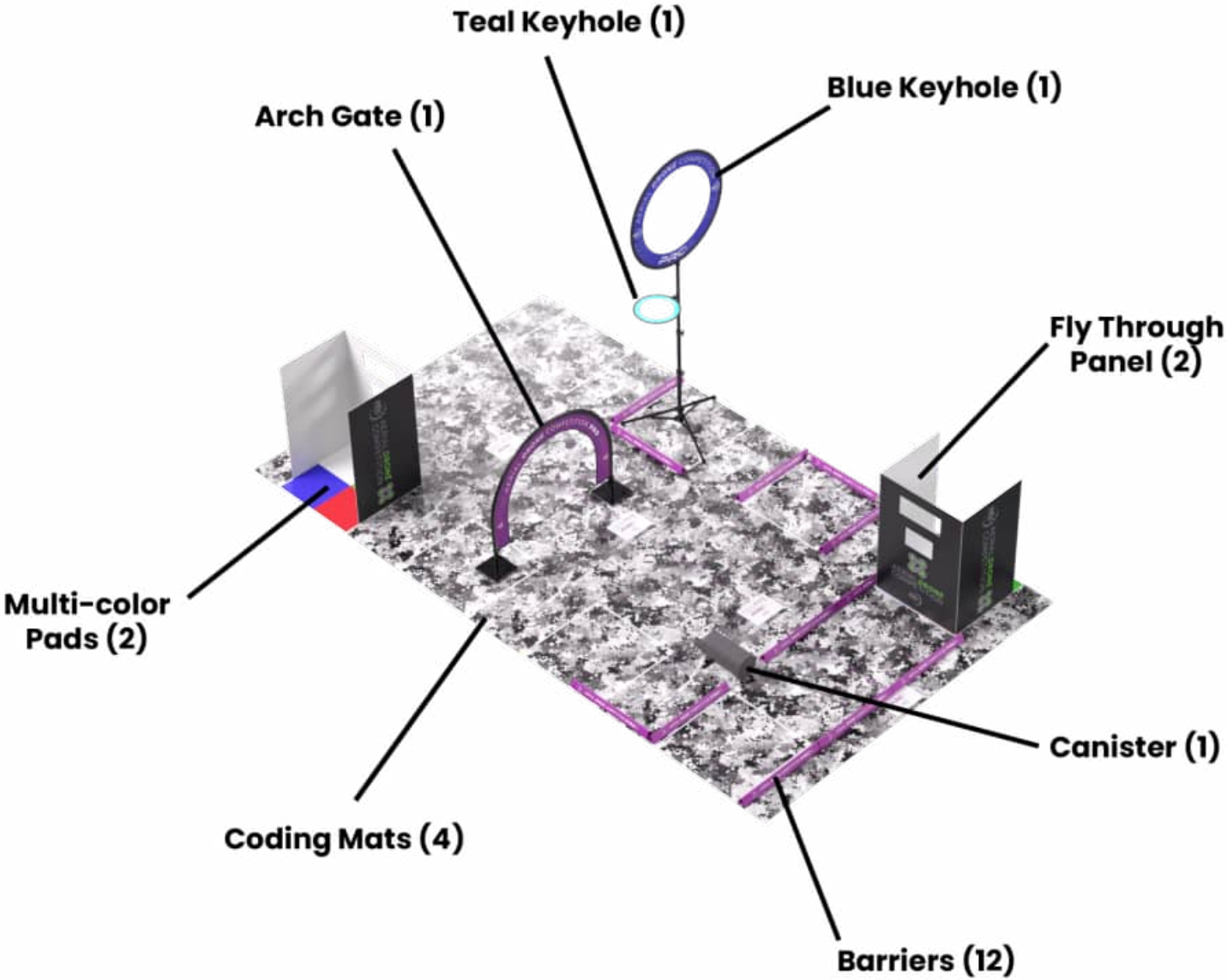
Section 1: Setting up the Solo Mission Field



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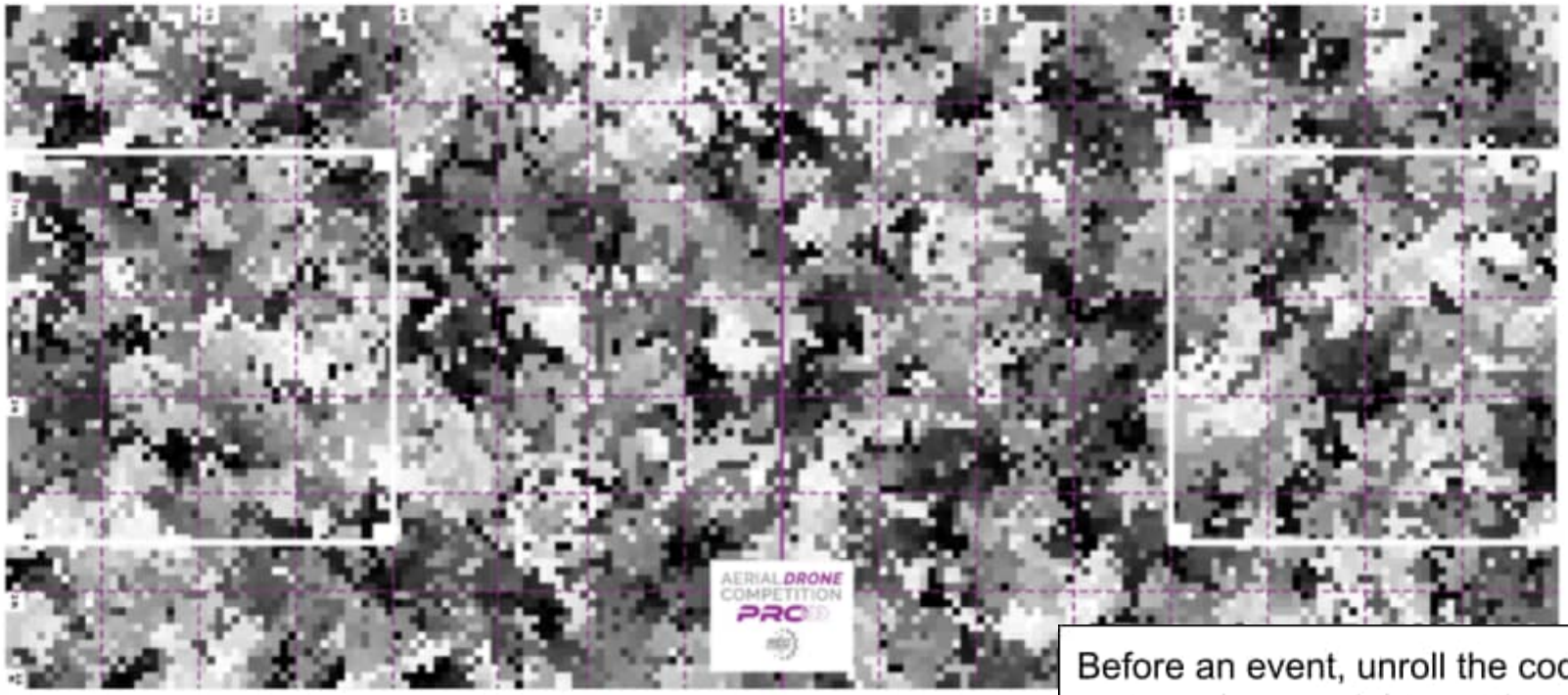
1.1 Solo Mission Field Setup Step 1: Place the Mats



Before an event, unroll the coding mats and use weights on the end so that the mats lay flat during the competition. Place the four sections of coding mat in order, with long sides adjacent, and attach them together with gaffer's tape (or other tape) on the back side. Use additional tape as needed to secure the edges of the mat to the venue floor if the corners are curling.

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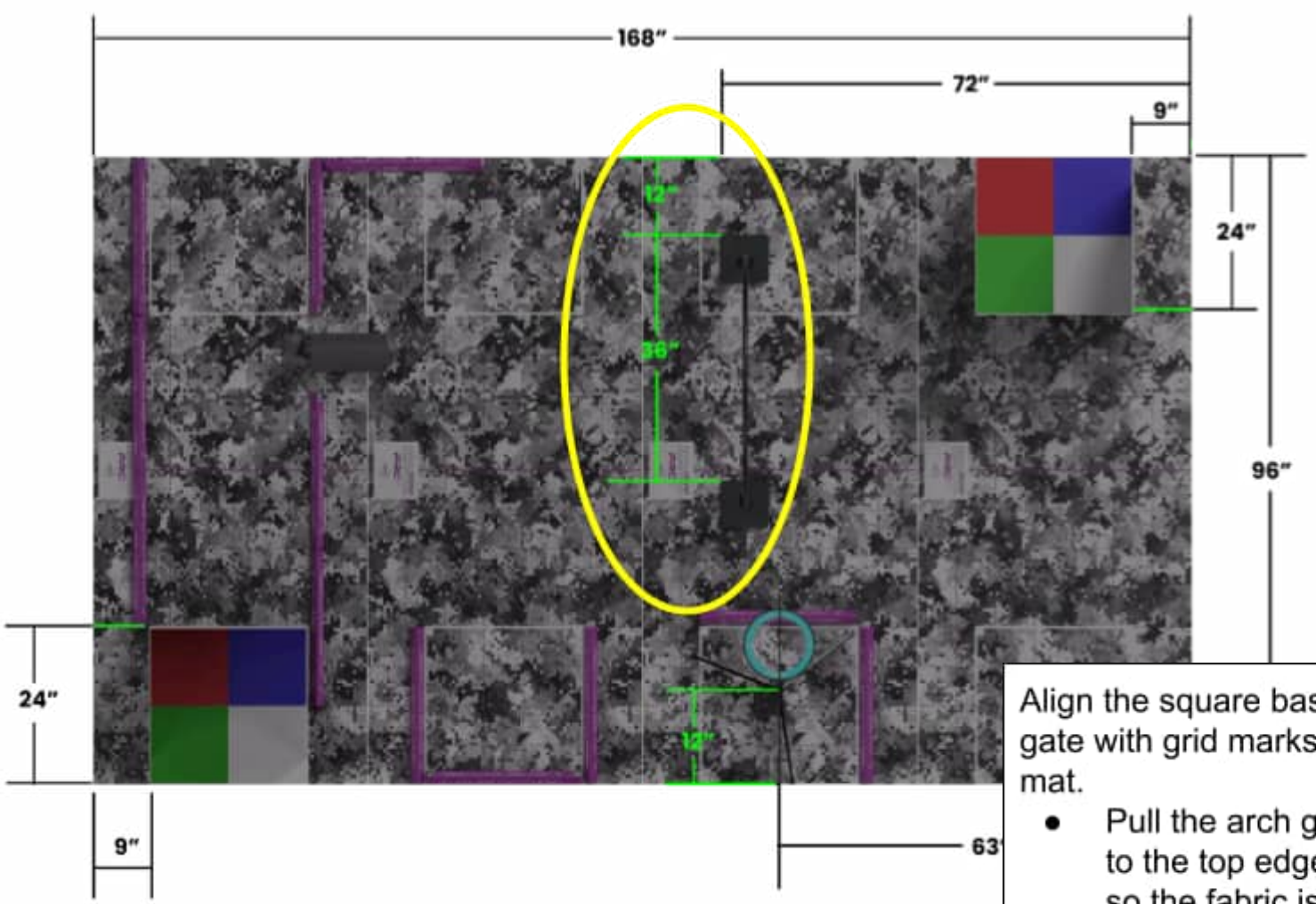
1.2 Solo Mission Field Setup Step 2: Place the Arch Gate



Align the square bases of the arch gate with grid marks on the coding mat.

- Pull the arch gate fabric down to the top edges of the bases so the fabric is tight.
- Position the string at approximately 4.5" from the ground, no lower than 4".

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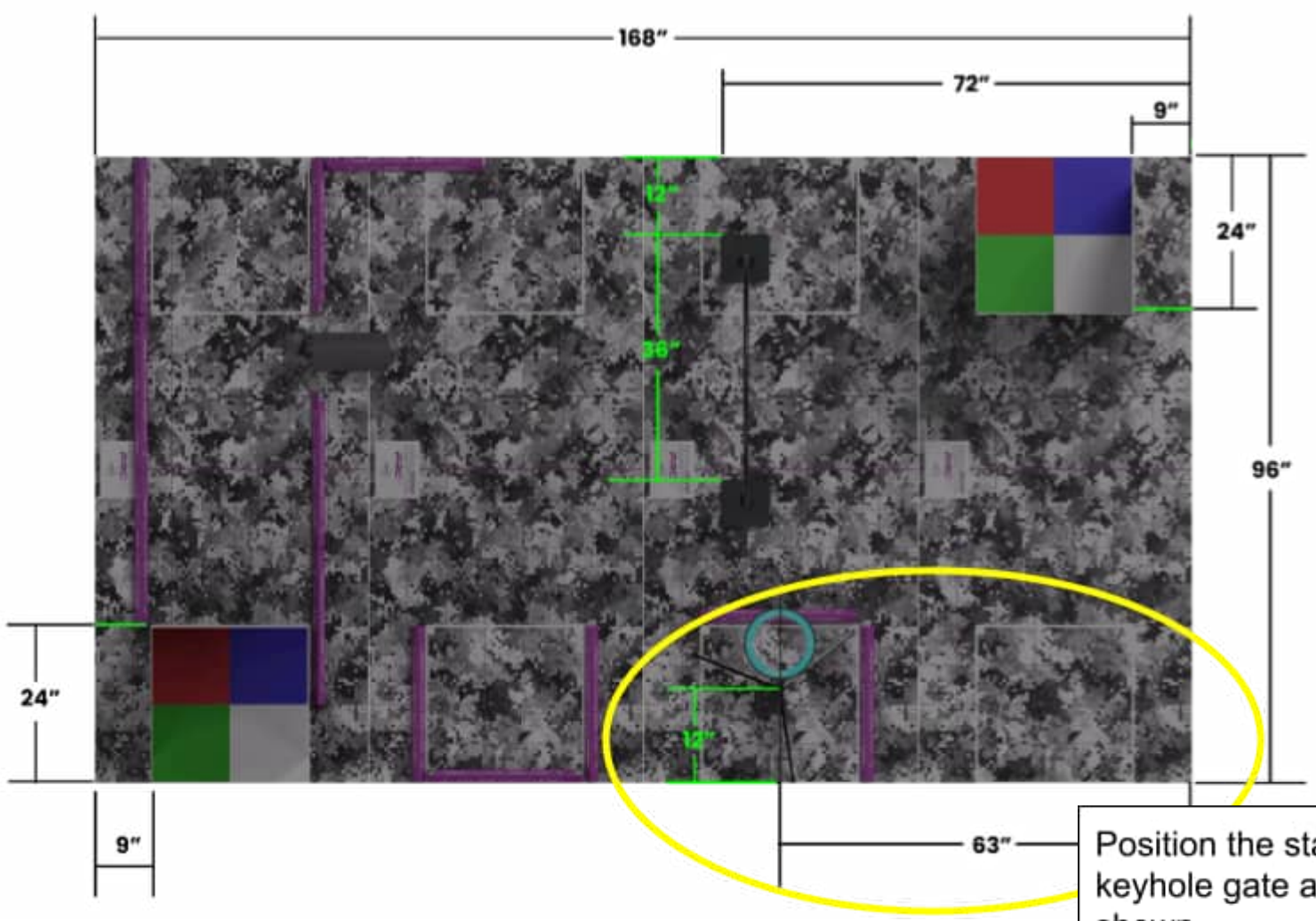
1.3 Solo Mission Field Setup Step 3: Place Supports for the Keyhole Assembly



Position the stand for the keyhole gate assembly as shown.

- One leg of the base may extend slightly beyond the coding mat.

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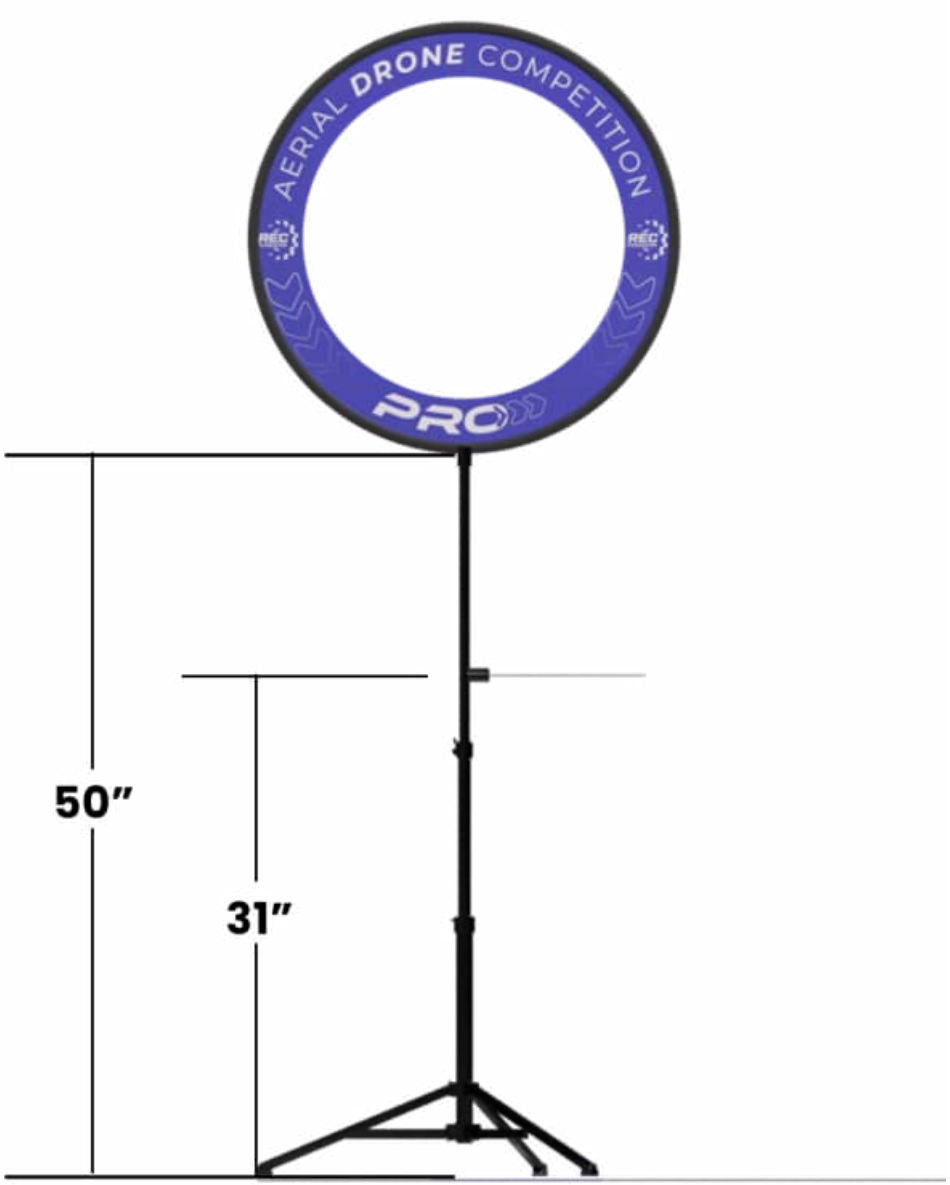
1.4 Solo Mission Field Setup Step 4: Add Blue & Teal Keyhole Gates



Attach the keyhole gates.

- Attach the blue keyhole gate and adjust it so the bottom of the blue keyhole is 50” above the mat.
- Attach the teal keyhole gate using a metal T-bracket and adjust it so the bottom of the teal keyhole is 31” above the mat.

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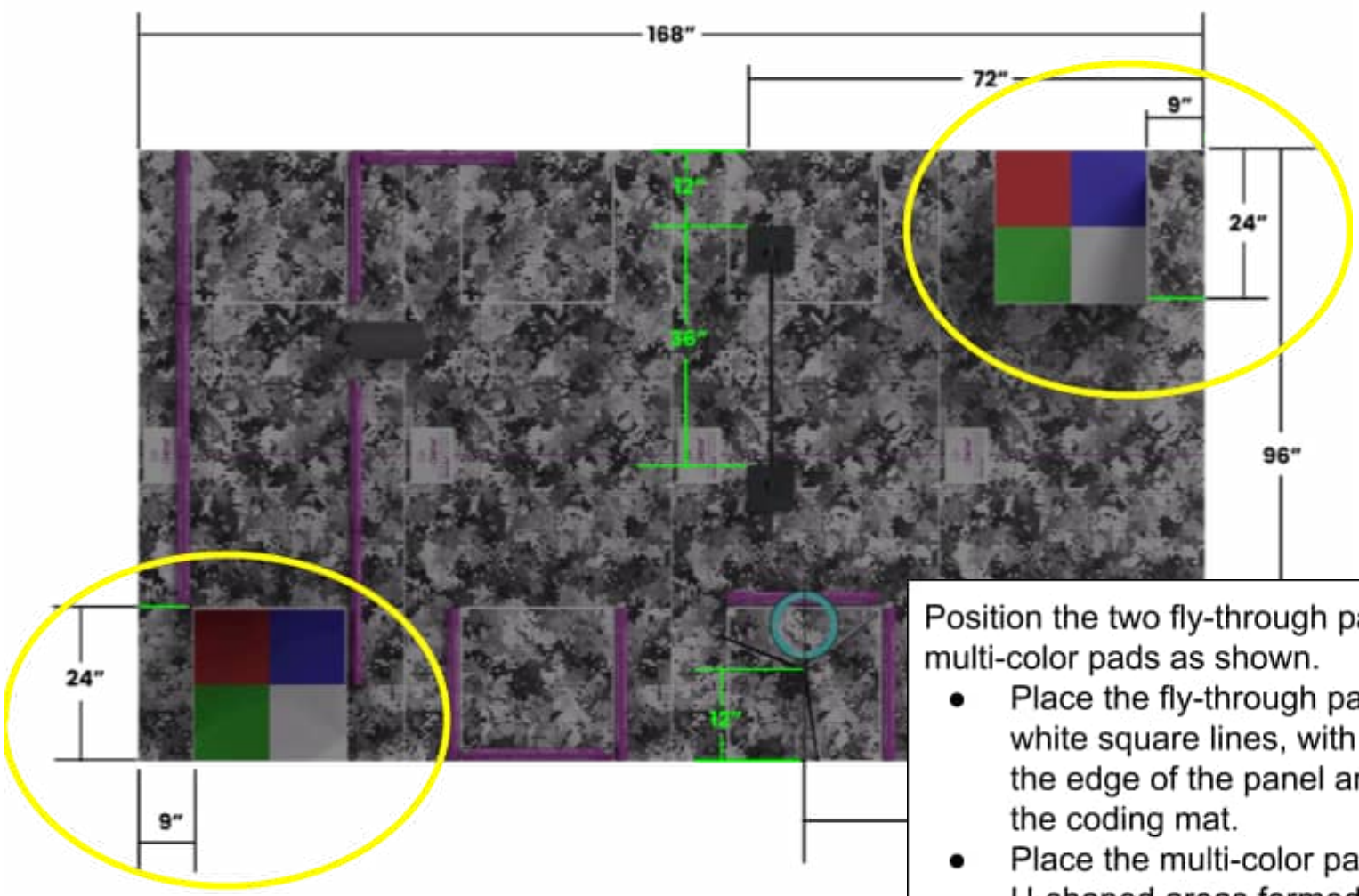
1.5 Solo Mission Field Setup Step 5: Position the Fly-Through Panels and Multi-Color Pads



Position the two fly-through panels and two multi-color pads as shown.

- Place the fly-through panels on the white square lines, with a gap between the edge of the panel and the edge of the coding mat.
- Place the multi-color pads inside the U-shaped areas formed by the fly-through panels, covering the white outline.
- Make sure the multi-color pads are oriented correctly.

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1.6 Solo Mission Field Setup Step 6: Assemble the Barriers (12 total)





Fold and secure all of the barrier segments.

- Fold the barrier at the crease lines with strong pressure.
- Fold the shorter panel in first, then continue folding into a triangular shape.
- Secure both ends with clear tape.
- Secure the long edge with clear tape.

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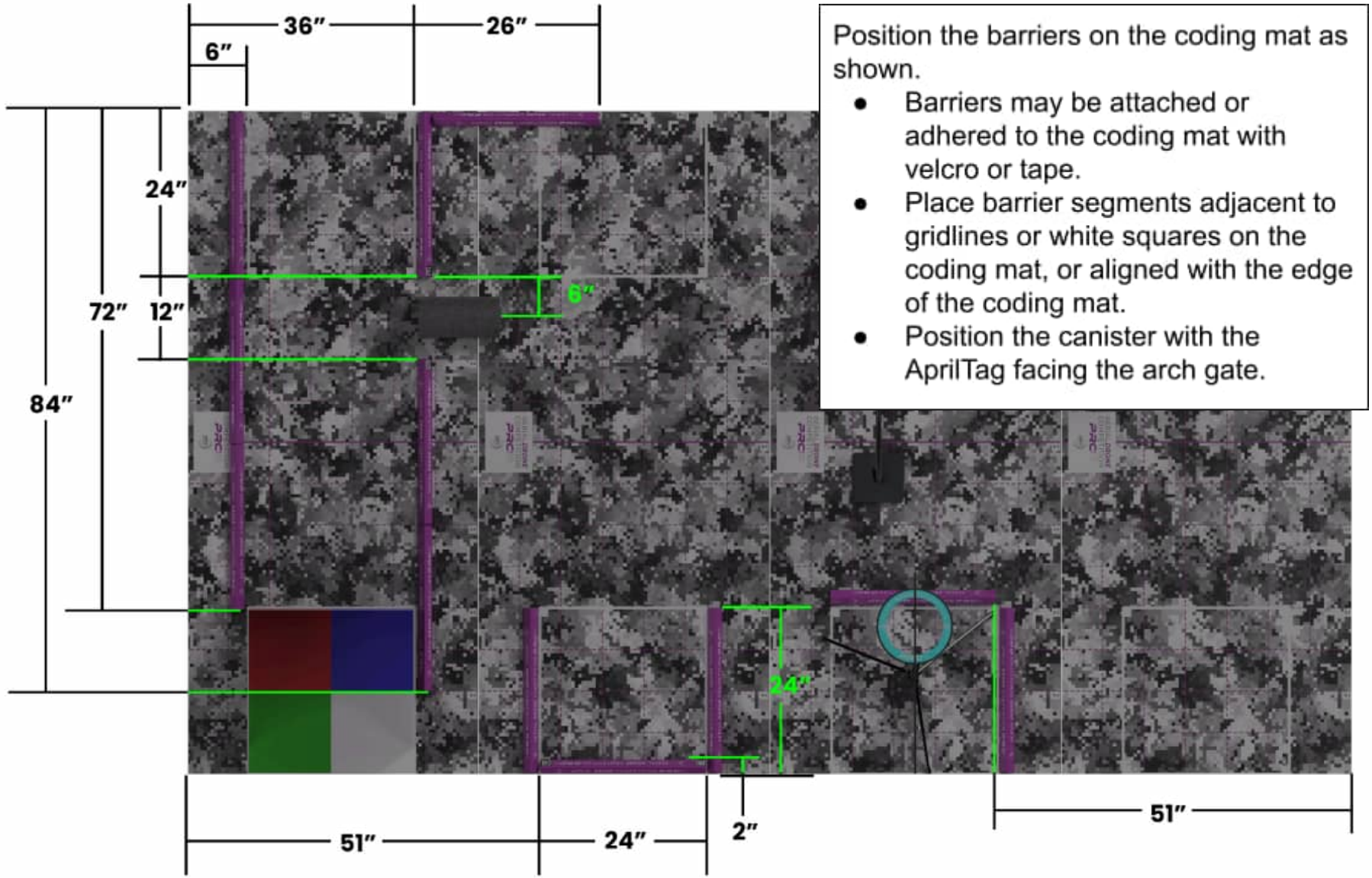
1.7 Solo Mission Field Setup Step 7: Place the Barriers and Canister



Position the barriers on the coding mat as shown.

- Barriers may be attached or adhered to the coding mat with velcro or tape.
- Place barrier segments adjacent to gridlines or white squares on the coding mat, or aligned with the edge of the coding mat.
- Position the canister with the AprilTag facing the arch gate.

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1.8 Solo Mission Field Setup Step 8: Place AprilTag Stickers on Fly-Through Panel 1



Place stickers 001 & 002 on fly-through panel 1.

- Align AprilTag 001 with the bottom-left corner on the front side.
- Align AprilTag 002 with the bottom-right corner on the front side.

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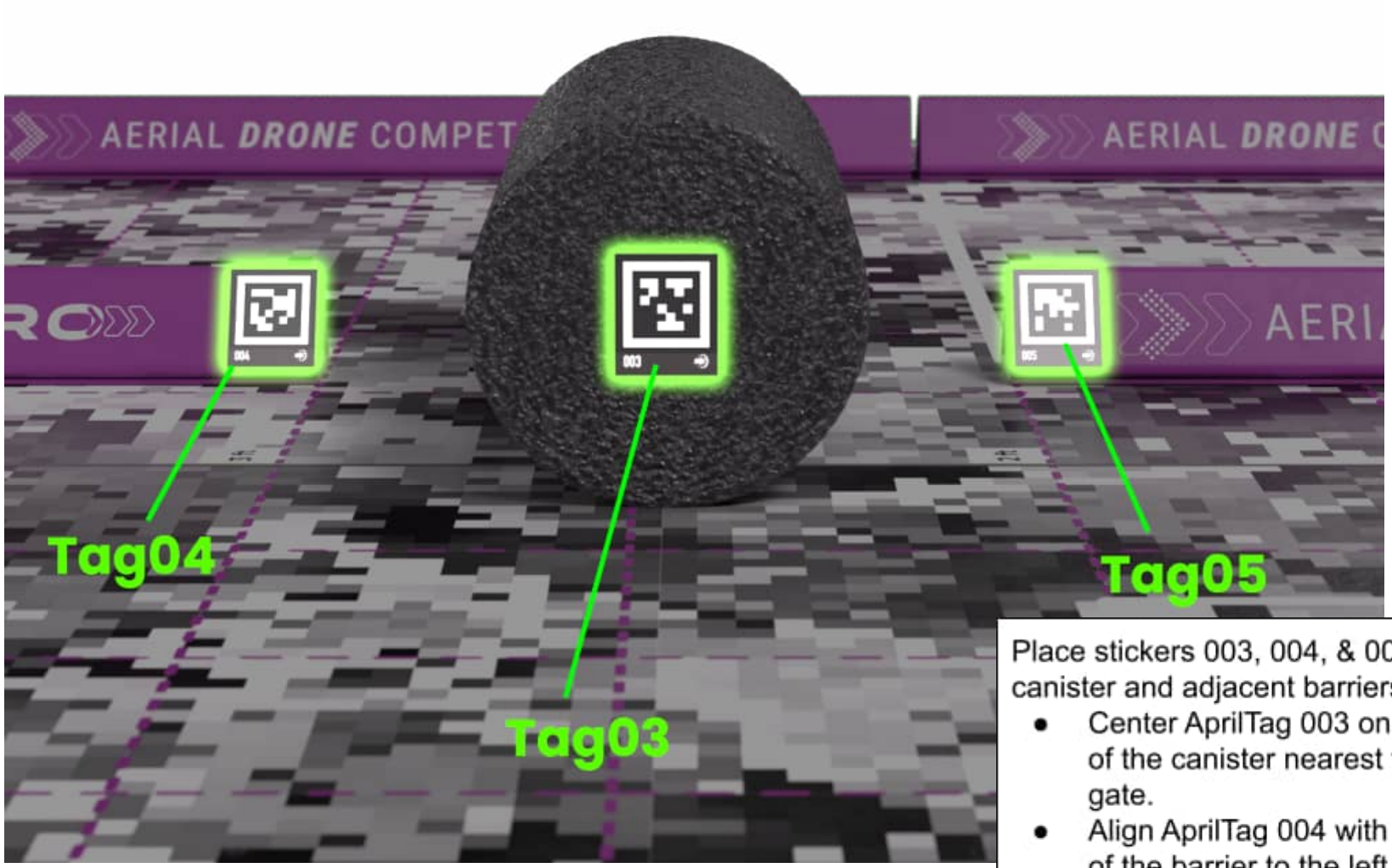
1.9 Solo Mission Field Setup Step 9: Place AprilTag Stickers on Barrier & Canisters



Place stickers 003, 004, & 005 on the canister and adjacent barriers.

- Center AprilTag 003 on the end of the canister nearest the arch gate.
- Align AprilTag 004 with the end of the barrier to the left of the canister.
- Align AprilTag 005 with the end of the barrier to the left of the canister.

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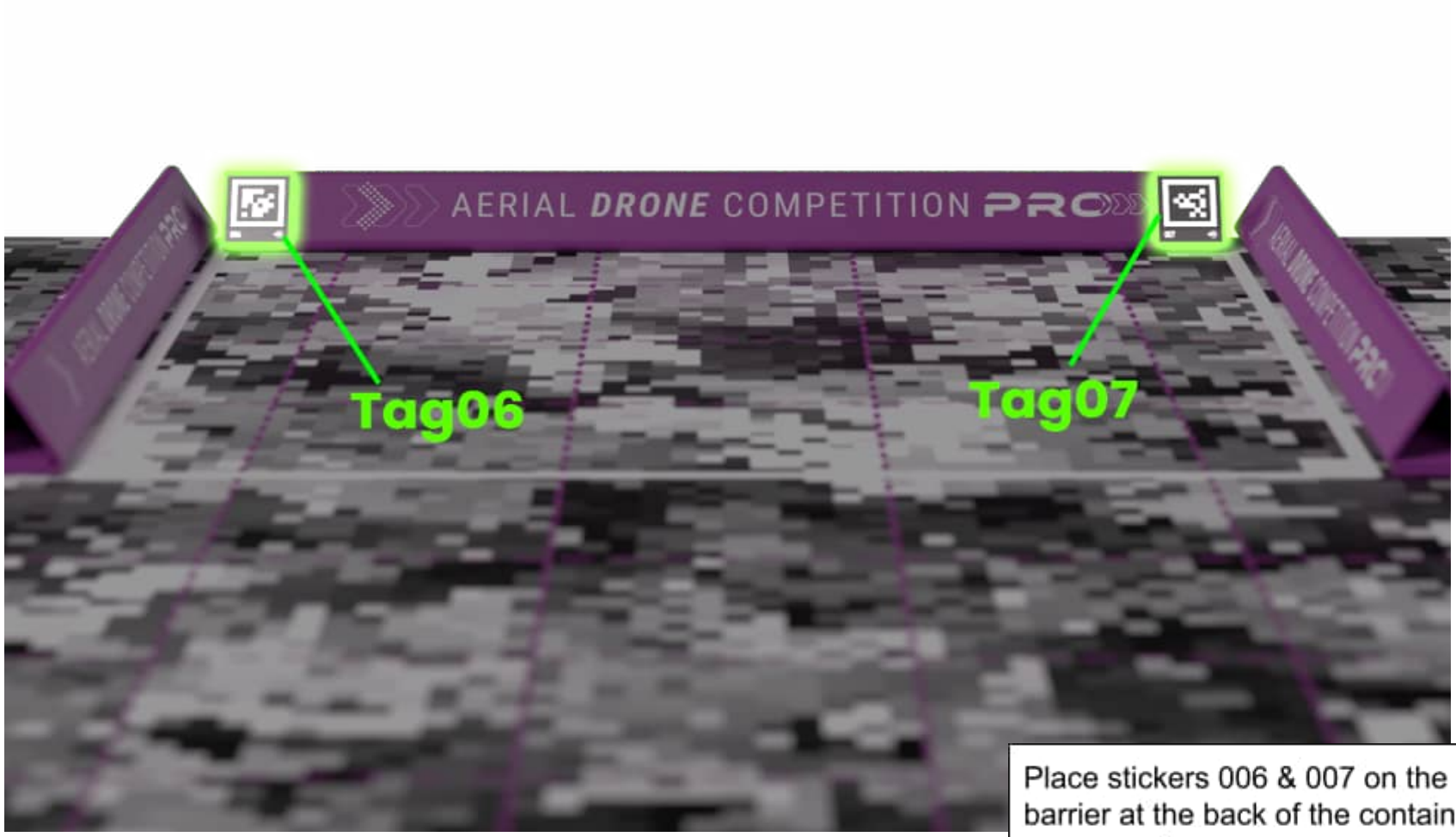
1.10 Solo Mission Field Setup Step 10: Place AprilTag Stickers in Containment Bay



Place stickers 006 & 007 on the barrier at the back of the containment zone, as shown.

- Align AprilTag 006 with the left end of the barrier.
- Align AprilTag 007 with the right end of the barrier.

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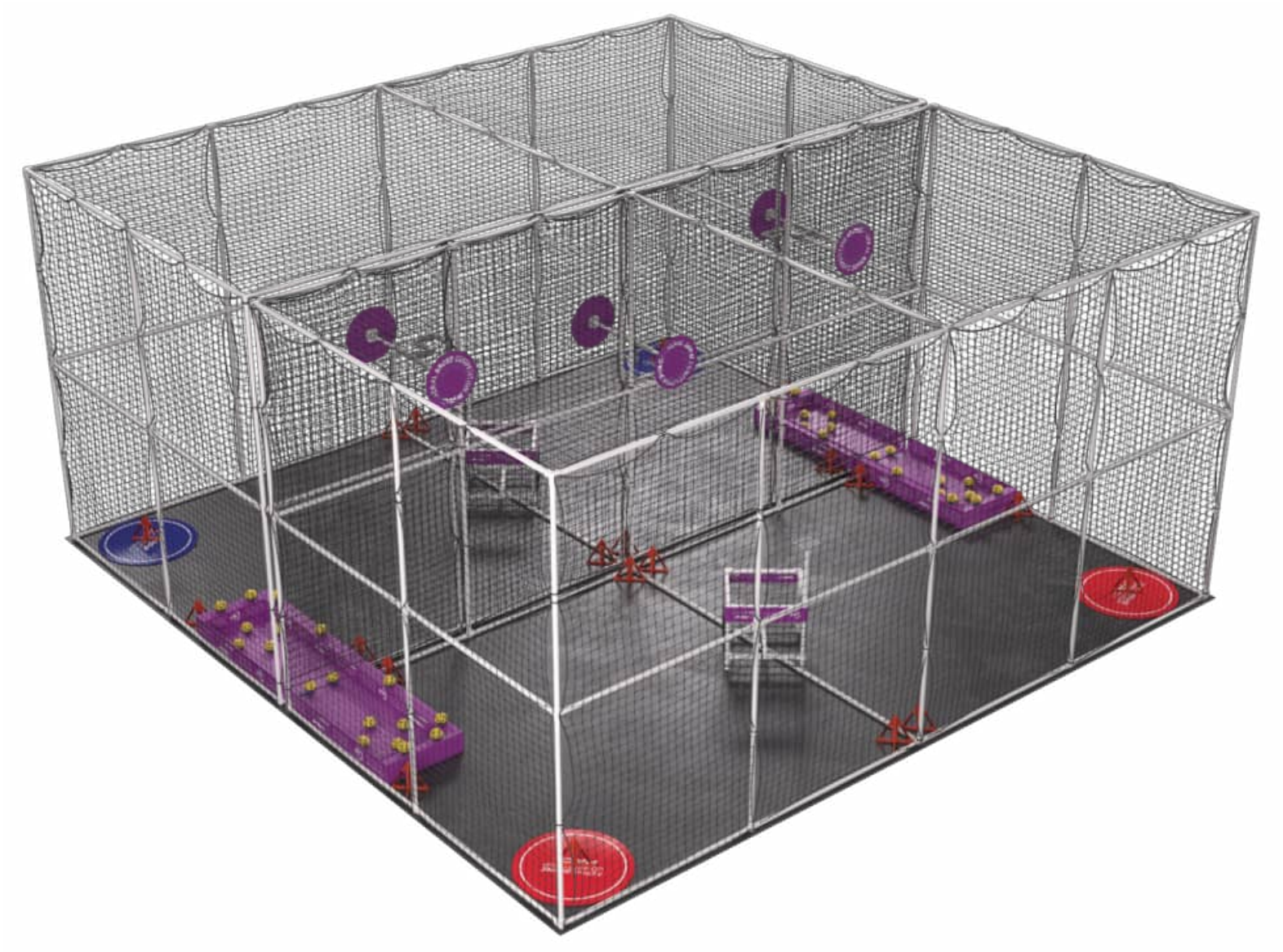
Section 2: Setting up the Alliance/Teamwork Mission Field



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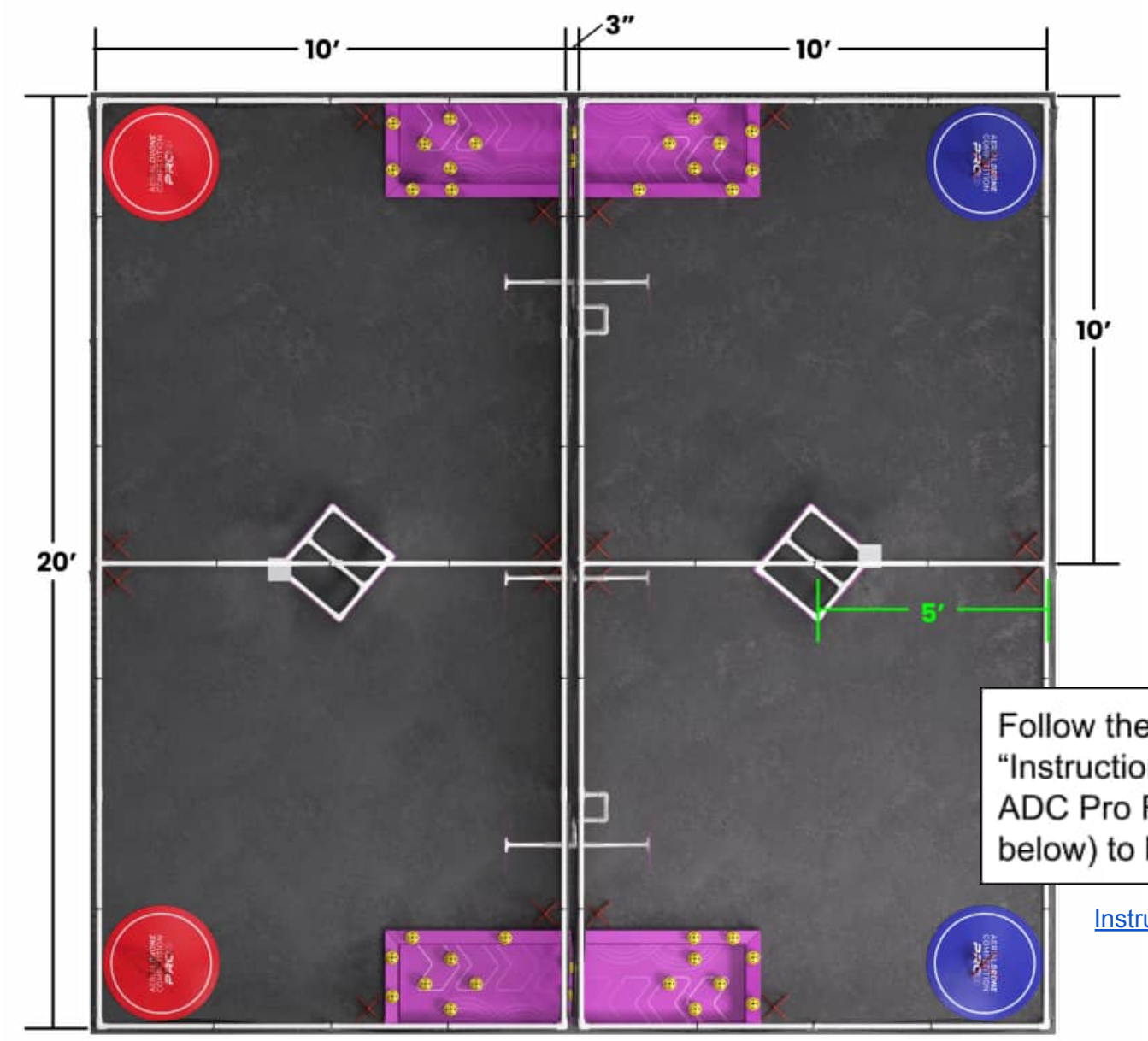
2.1 Alliance/Teamwork Mission Field Layout Step 1: Build the Perimeter



Follow the steps in the "Instructions for Assembling the ADC Pro Field Perimeter" (link below) to build the field enclosure.

[Instructions for Assembling the ADC Pro Teamwork Field Perimeter]

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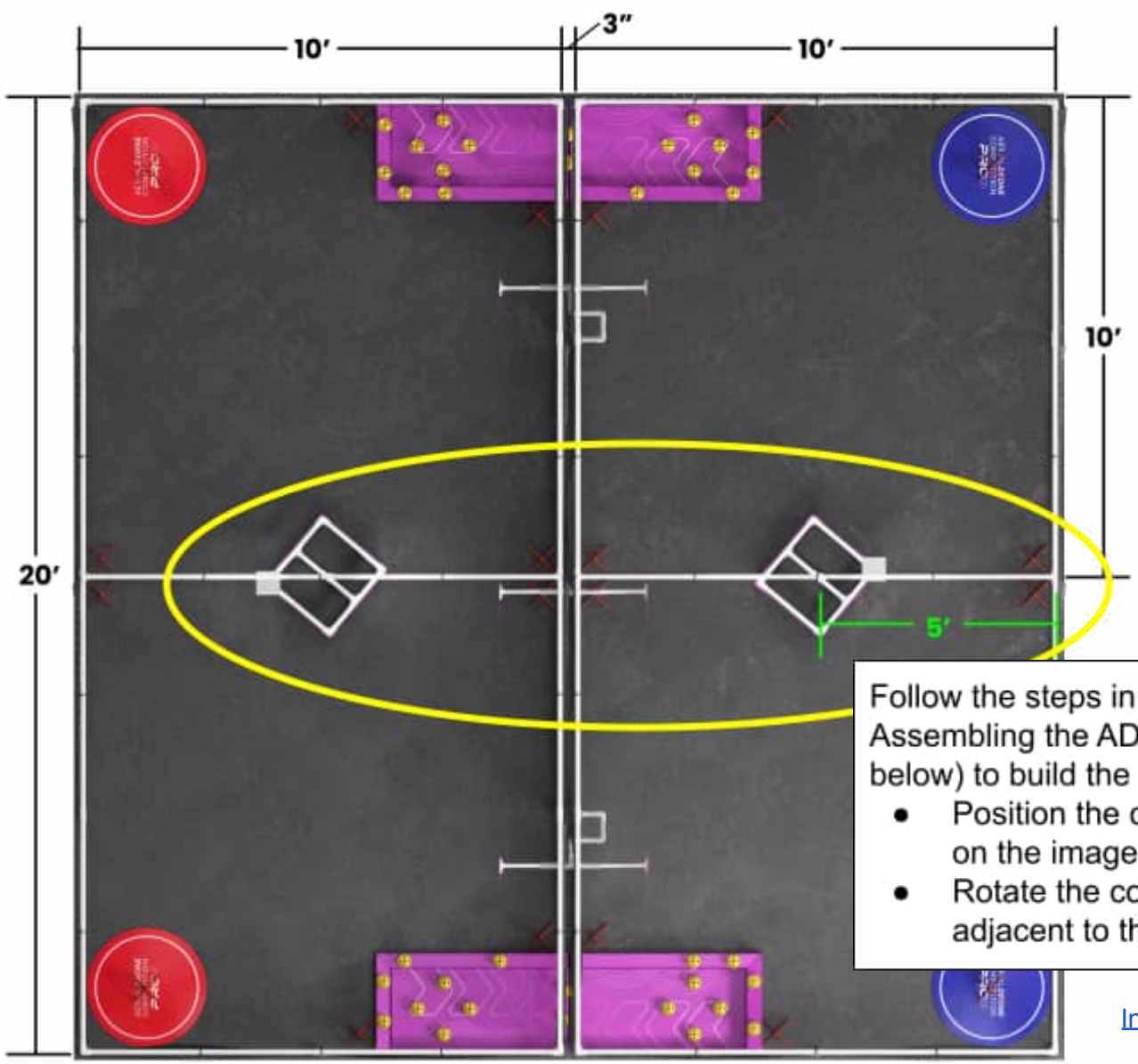
2.2 Alliance/Teamwork Mission Field Layout Step 2: Build and Place the Comms Towers



Follow the steps in the “Instructions for Assembling the ADC Pro Comms Tower” (link below) to build the two comms towers.

- Position the comms towers as highlighted on the image to the left.
- Rotate the comms towers so the legs are adjacent to the field perimeter.

Instructions for Assembling the ADC Pro Off Grid Comms Tower

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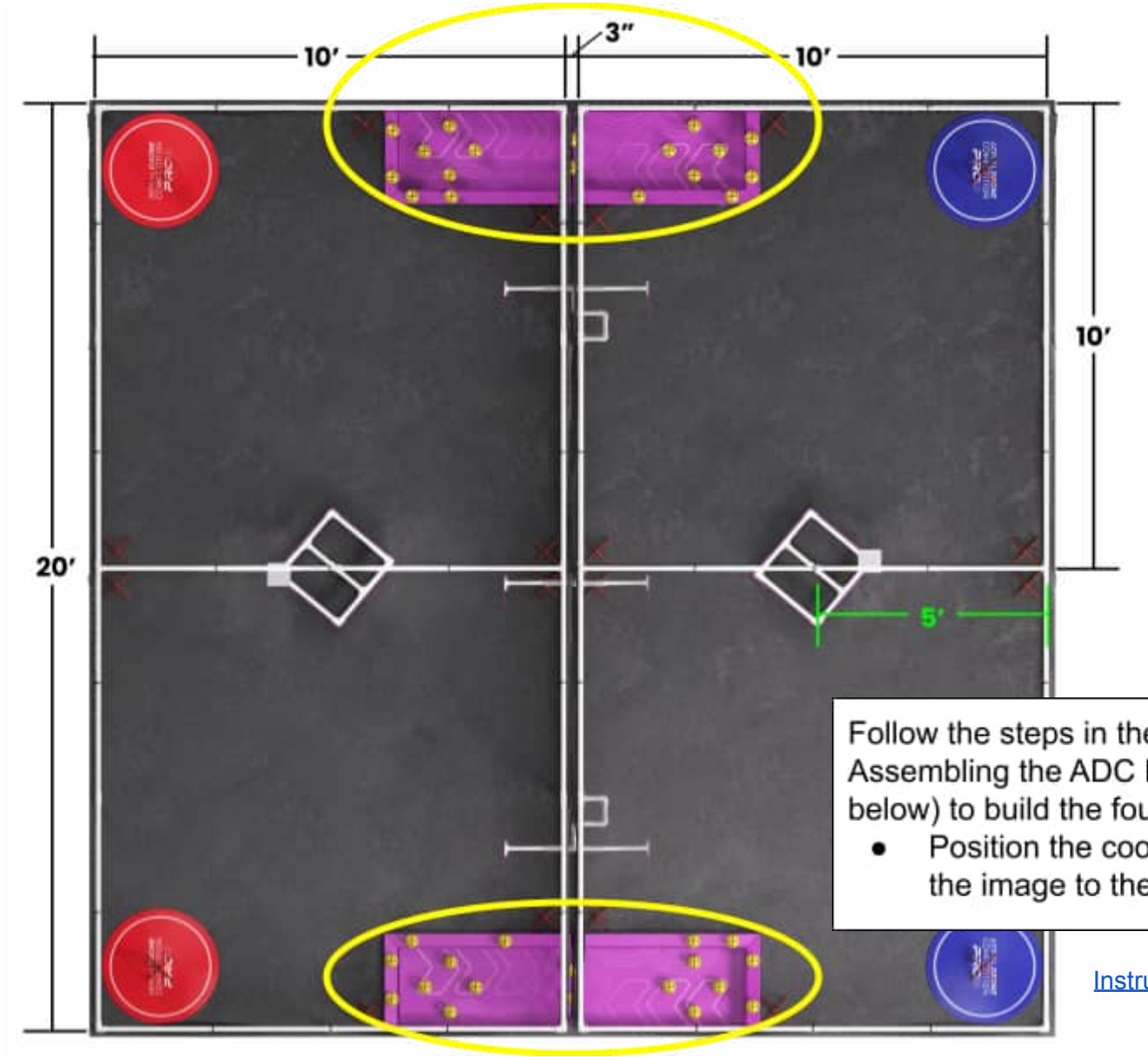
2.3 Alliance/Teamwork Mission Field Layout Step 3: Build and Place the Cooling Pools



Follow the steps in the “Instructions for Assembling the ADC Pro Cooling Pools” (link below) to build the four cooling pools.

- Position the cooling pools as highlighted on the image to the left.

[Instructions for Assembling the ADC Pro Off Grid Cooling Pool]

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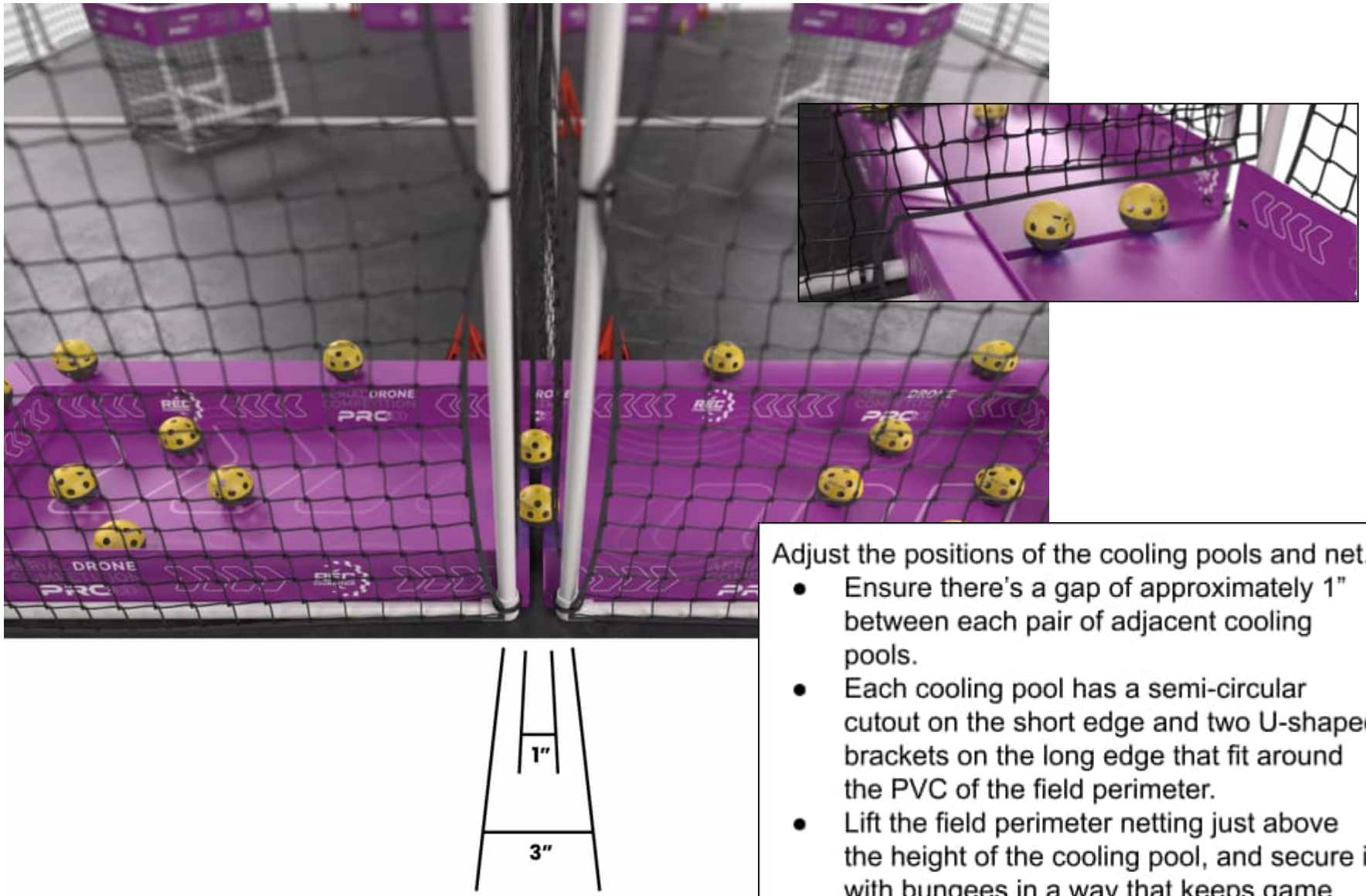
2.4 Alliance/Teamwork Mission Field Layout Step 4: Adjust Cooling Pool & Net Positions



Adjust the positions of the cooling pools and net.

- Ensure there's a gap of approximately 1" between each pair of adjacent cooling pools.
- Each cooling pool has a semi-circular cutout on the short edge and two U-shaped brackets on the long edge that fit around the PVC of the field perimeter.
- Lift the field perimeter netting just above the height of the cooling pool, and secure it with bungees in a way that keeps game elements in the field.

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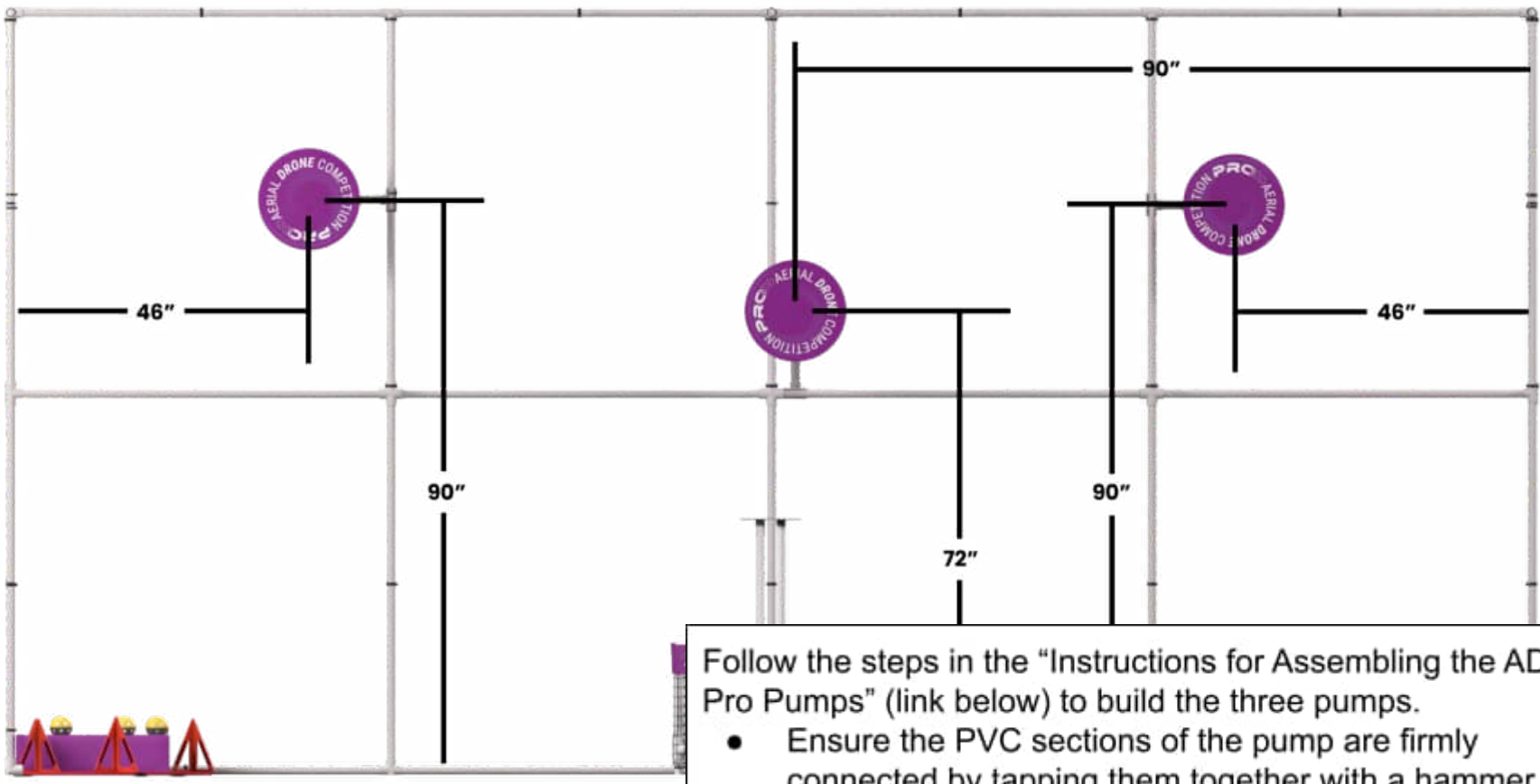
2.5 Alliance/Teamwork Mission Field Layout Step 5: Build and Place the Pumps



Follow the steps in the “Instructions for Assembling the ADC Pro Pumps” (link below) to build the three pumps.

- Ensure the PVC sections of the pump are firmly connected by tapping them together with a hammer and/or glueing them together.
- Position the pumps as highlighted on the image above, spanning the two halves of the field perimeter.
- The center pump can be attached on either side of the 4-way PVC connector.
- Ensure that the pumps are level when tightening the pump brackets to the PVC field perimeter.

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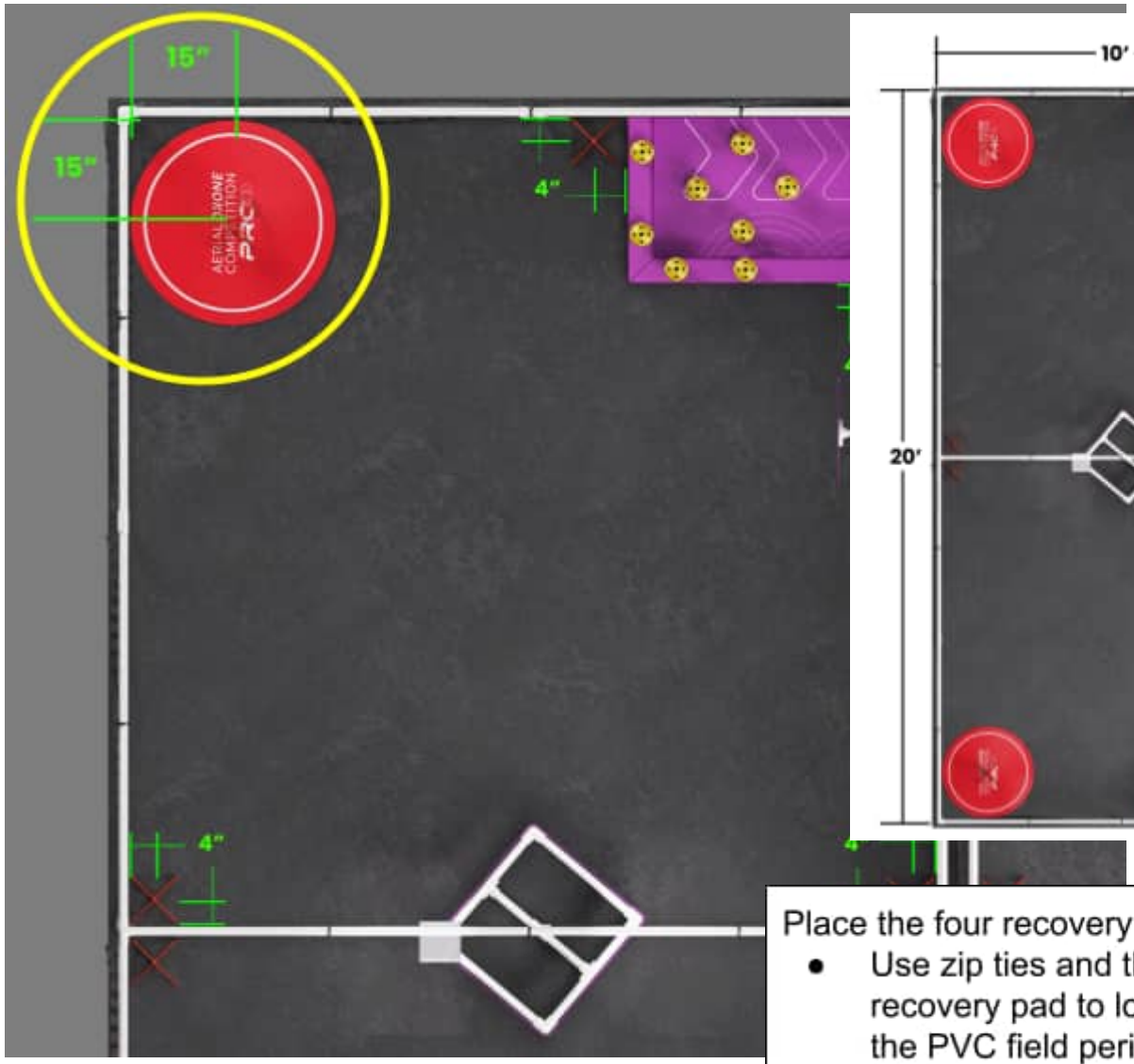
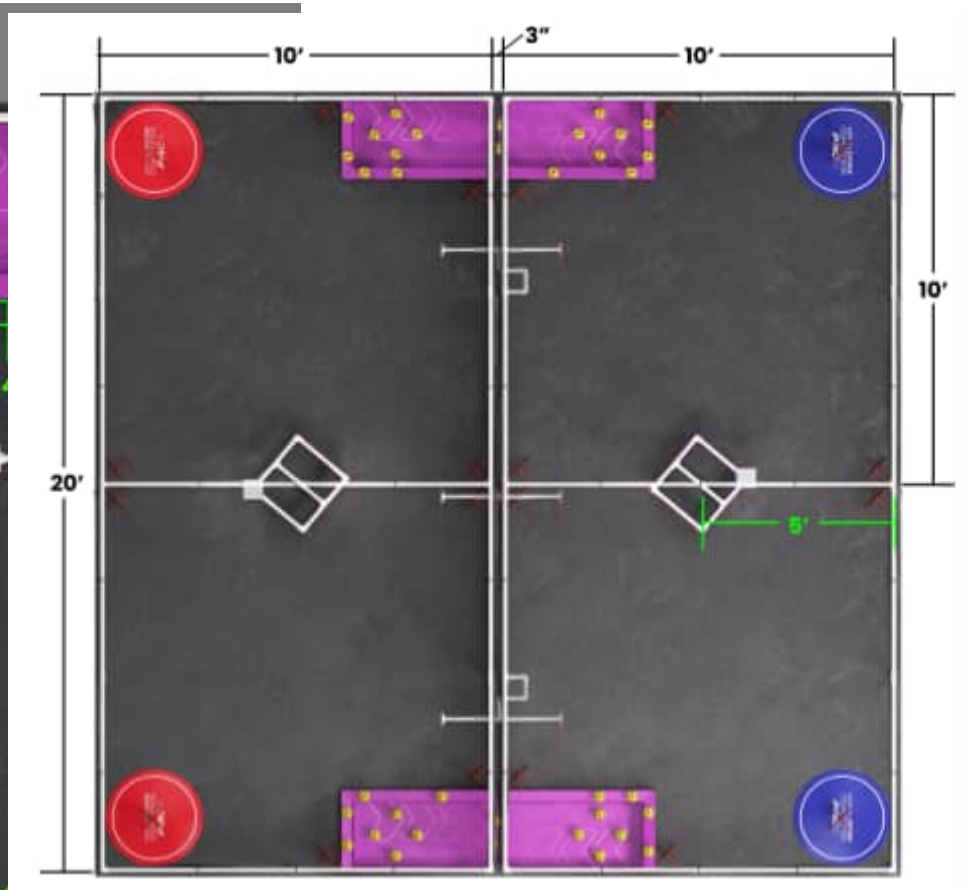
2.6 Alliance/Teamwork Mission Field Layout Step 6: Build and Place the Recovery Pads





Place the four recovery pads in corners as shown.

- Use zip ties and the small tabs on two sides of each recovery pad to loosely secure the recovery pad to the PVC field perimeter.
- Ensure that the recovery pad is still flat on the floor while secured.

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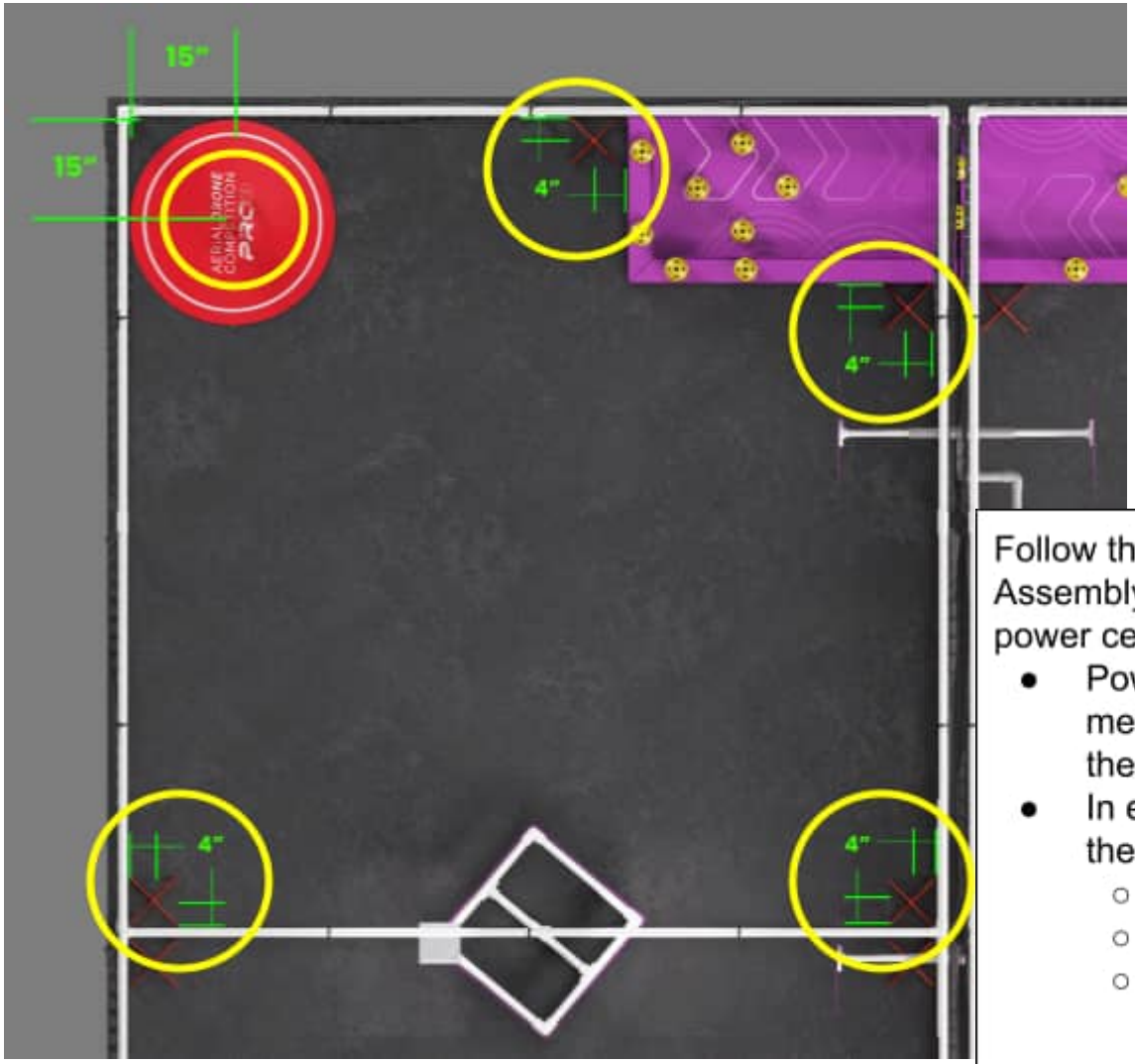
2.7 Alliance/Teamwork Mission Field Layout Step 7: Assemble and Place the Power Cells



Follow the steps in the “ADC Pro Teamwork Field Assembly Guides” (link below) to build the 20 power cells.

- Power cell rotation is not specified; measurements shown in the image are to the center points of the power cell.
- In each quadrant, position power cells in the the following locations:
  - 1 centered on the recovery pad
  - 2 in corners made by the cooling pool
  - 2 in corners at the PVC segment between the alliance’s two quadrants

ADC Pro Teamwork Field Assembly Guides

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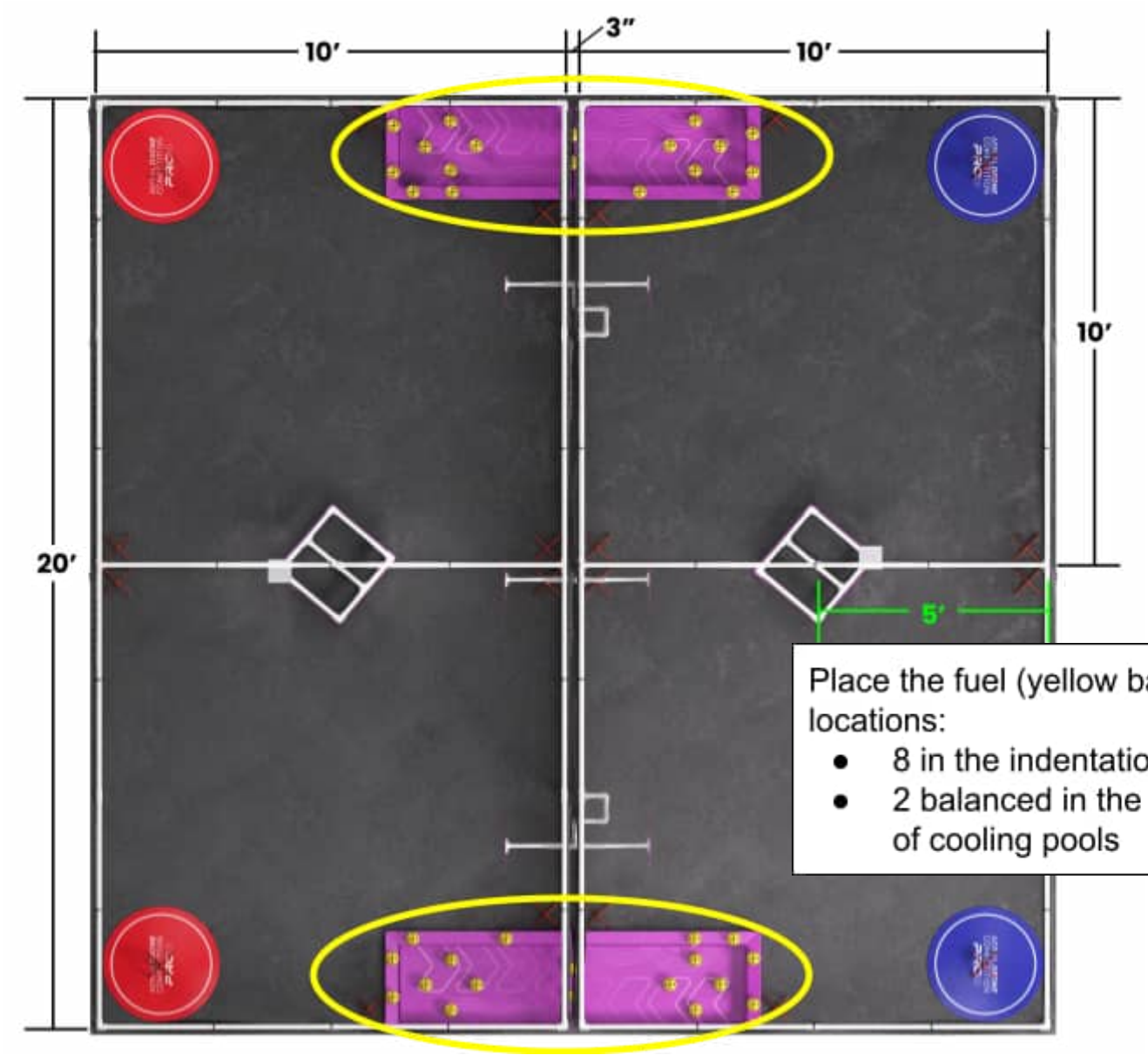
2.8 Alliance/Teamwork Mission Field Layout Step 8: Place the Fuel



Place the fuel (yellow balls) in the following starting locations:

- 8 in the indentations in each cooling pool
- 2 balanced in the 1” gap between each pair of cooling pools

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