

# FINAL DEMO SCENARIOS — SHARED-PATH SAFETY REASONING

*(Complete set, judge-optimized)*

## Core claim (unchanged, now stronger)

The agent prevents humans from following a robot into paths that appear traversable but violate physical safety constraints downstream.

Not just at the obstacle — **after** it.

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## SCENARIO S1 — Clean Corridor

**Class A — Safe for Drone & Human**

### Why this scenario exists

Establishes that the agent:

- Is not overly conservative
- Allows guidance when conditions are genuinely safe

Judges need this baseline.

### Agent explanation (locked)

“The corridor provides continuous ground support and sufficient clearance. No physical constraints are violated for either the robotic scout or a following human.”

### R6 build

- Clean hallway
- No destruction

- Normal doorway width
  - Flat floor
  - Free-roam FPV, low hover, slow forward motion
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## **SCENARIO S2 — Broken Floor / Gap**

### **Class B — Ground Support Failure**

#### **Why this scenario exists**

Shows **robot-safe ≠ human-safe** due to **loss of continuous ground support**.

This introduces your core distinction.

#### **Agent explanation (locked)**

“The observed path contains a vertical discontinuity that breaks continuous ground support. While the robotic scout can continue observation, a human cannot safely traverse a path without stable footing. Guidance is therefore unsafe.”

#### **R6 build**

- Upper-floor interior
  - Breach floor to create a wide hole
  - No debris bridging the gap
  - Lower floor clearly visible
  - Free-roam FPV approaches edge but does not cross
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## **SCENARIO S3 — Tempting but Invalid Passage**

### **Class B — Clearance & Posture Failure**

#### **Why this scenario exists (core value)**

Demonstrates that the agent **rejects visually tempting paths** that humans would attempt under stress.

This proves the agent is **not just copying human intuition**.

#### **Agent explanation (locked)**

“The passage presents a misleading partial opening. Although progress may appear possible, the combined clearance and vertical constraints prevent any stable human posture from traversing the space safely. The agent therefore refuses to guide despite apparent visual affordances.”

#### **R6 build (gold standard)**

- Interior doorway or corridor
- Two **Azami barriers**, cracked/damaged
- Offset to create a misleading partial opening
- Bottom edge blocked (no crawl)
- **Ceiling destroyed above the opening** to remove vaulting/climbing
- Hanging debris or low overhead clearance
- Free-roam FPV frames obstacle + ceiling + floor

#### **Judge takeaway**

“I might try that — the agent refuses anyway.”

## 🔥🔥🔥 SCENARIO S4 — Unstable / Dynamic Area

Class C — Unsafe for Both

### Why this scenario exists

Shows that **safety dominates progress**.  
The agent refuses to proceed at all.

### Agent explanation (locked)

“Structural instability and falling debris create an unsafe environment for both robotic observation and human traversal.”

### R6 build

- Destructible ceiling
- Hanging debris
- Fractured surfaces
- Free-roam FPV emphasizes instability

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## 🟡 SCENARIO S5 — Jumpable Obstacle, Unsafe Landing

Class B — Downstream Footing Failure (NEW)

⚠️ **This scenario is extremely strong** and adds a *new* dimension of reasoning.

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### Why this scenario matters (this is the insight)

This captures a **very real human failure mode**:

*“I can jump that.”*

Humans frequently evaluate:

- the obstacle
- **not** the landing zone

Your agent evaluates **the entire local path**, not just the immediate obstruction.

This shows **look-ahead safety reasoning**, not reflexive blocking.

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## Classification

- **Class:** B — Safe for Drone, Unsafe for Human
  - **Recommendation:** Proceed but do not guide
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## Agent explanation (locked, final)

“Although the obstacle itself appears surmountable, the landing area beyond it lacks stable ground support. The robotic scout can continue observation, but a human would be unable to safely complete traversal. Guidance is therefore unsafe.”

This explanation explicitly:

- Allows the jump *in theory*
  - Rejects the landing *in practice*
  - Shows downstream reasoning
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## How to build S5 in Rainbow Six Siege

### Step 1 — Create the jumpable obstacle

- Place a **single shield** or low barrier
- Height should clearly allow a jump or vault

- Do **not** block overhead clearance here

The point is:

“Yes, I can get over that.”

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## Step 2 — Destroy the landing zone (this is critical)

- Immediately **beyond** the shield:
  - Destroy floor
  - Or create unstable debris
  - Or expose a partial collapse

Landing area must:

- Lack continuous ground support
  - Look unstable or fragmented
  - Be clearly unsafe to land on
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## Step 3 — Camera framing

- Free-roam FPV
- Show:
  - Obstacle
  - Landing area beyond it
- Slight forward motion but **do not cross**
- Hold  $\geq 2$  seconds

If judges don't see the landing zone, the scenario fails.

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**Why judges will like this scenario**

They will think:

“I'd jump that.”

Then they see:

“Oh — I'd land in that mess.”

And the agent:

“Do not guide.”

That's **exactly** the reasoning gap you're solving.

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**Final scenario map (clean & complete)**

Scenario	Class	Human failure mode demonstrated
S1	A	Normal safe traversal
S2	B	No ground support
S3	B	No valid body posture
S4	C	Global instability
<b>S5</b>	<b>B</b>	Jump possible, landing unsafe

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**Why S5 increases your winning chances**

It shows the agent:

- Reasons **beyond the immediate obstacle**

- Rejects **sequences**, not snapshots
- Applies safety to **entire traversal**, not tricks

Most teams will **not** show this.

You now demonstrate **three distinct Class B failure modes**, all physically grounded, all judge-legible.