DEMO SCENARIOS — RAINBOW SIX SIEGE BLUEPRINT

Global rules (apply to all scenarios):

- Mode: **Custom / Solo**
- Enemies: **Disabled**
- HUD: **Off** (or cropped out)
- Camera motion: **Slow, steady**
- POV: Prefer **drone gadget POV**; FPS POV acceptable if drone POV limits setup
- Clip length: **5–10 seconds**
- Start already **inside the building**
- End immediately at **classification**

SCENARIO S1 — Class A (Safe for Drone & Human)

Purpose

Baseline sanity check. Proves the agent **allows guidance** when conditions are safe.

Environment setup (R6)

Map type

- Clean interior corridor or room connection

What to do

- Leave floor intact
- No barricades
- No debris
- Normal doorway width
- Good visibility

What NOT to add

- No barbed wire
- No broken walls
- No vertical holes

Video structure

Start

- Drone already in corridor
- Clear forward path visible
- Exit direction assumed: **Forward**

During

- Drone moves slowly forward
- No new hazards appear

End

- Freeze at clean corridor

Expected agent output

Item	Result
Detected hazards	None
Drone safety	✅ Safe
Human-follow safety	✅ Safe
Exit direction	Forward
Classification	**Class A**
Recommendation	Proceed and guide
Explanation	“The corridor is clear, terrain is stable, and clearance is sufficient for both drone and human traversal.”

SCENARIO S2 — Class B (Gap / Broken Floor)

🔥 Signature scenario (most important)

Environment setup (R6)

Map type

- Upper floor interior

What to do

- Use explosives to:
  - Create a **hole in the floor**
  - Large enough for a human to fall
- Leave surrounding area intact
- Drone can clearly see the gap

Key detail

- The gap must be **avoidable by flight** but **not walkable**

Video structure

Start

- Drone hovering or rolling toward the gap
- Gap clearly visible
- Exit direction assumed: **Forward**

During

- Drone approaches the edge
- No camera crossing over the gap

End

- Freeze with gap fully visible

Expected agent output

Item	Result
Detected hazards	Gap / vertical discontinuity
Drone safety	✅ Safe (fly over)
Human-follow safety	❌ Unsafe
Exit direction	Forward
Classification	**Class B**

Recommendation	Proceed but do not guide
Explanation	“The drone can safely traverse the gap, but the lack of continuous ground support makes the path unsafe for a human to follow.”

This scenario **must be perfect**.

SCENARIO S3 — Class B (Narrow Passage / Clearance)

Purpose

Proves Class B is **not just about gaps**.

Environment setup (R6)

Map type

- Hallway or doorway between rooms

What to do

- Barricade doorway
- Partially destroy barricade so:
  - Drone can pass
  - Human clearance is insufficient
- Optional: add debris on sides

Video structure

Start

- Drone facing the narrow opening
- Exit direction assumed: **Forward**

During

- Drone moves closer, showing clearance clearly

End

- Freeze at doorway

Expected agent output

Item	Result
Detected hazards	Narrow passage
Drone safety	⚠️ Possible
Human-follow safety	❌ Unsafe
Exit direction	Forward
Classification	**Class B**
Recommendation	Proceed but do not guide
Explanation	“The available clearance is sufficient for aerial navigation but does not support safe human passage.”

SCENARIO S4 — Class C (Dynamic / Unstable Area)

Purpose

Shows **safety dominance over exit intent**.

Environment setup (R6)

Map type

- Construction-like area or destructible ceiling

What to do

- Destroy ceiling panels
- Leave hanging debris
- Create visually unstable structure
- Optional: break multiple surfaces

Key

- Area must look **physically unsafe for both agents**

Video structure

Start

- Drone facing unstable structure
- Exit direction assumed: **Forward**

During

- Slight camera movement emphasizing instability

End

- Freeze on hazard

Expected agent output

Item	Result
Detected hazards	Dynamic debris / unstable structure
Drone safety	❌ Unsafe
Human-follow safety	❌ Unsafe
Exit direction	Forward
Classification	**Class C**
Recommendation	Hold position
Explanation	“Structural instability and falling debris create an unsafe environment for both drone navigation and human traversal.”

OPTIONAL SCENARIO S5 — Class C (Low Ceiling + Clutter)

Use **only if easy**.

Setup

- Destroy ceiling to reduce clearance
- Add debris
- Tight vertical space

Expected

- Both unsafe
- Hold position
- Class C

HOW MANY TO SHOW IN DEMO

- **Show:** S1, S2, S3, S4
- **Document only:** S5 (optional)

This gives:

- Baseline
- Two strong Class B examples
- One strong Class C

Perfect balance.

FINAL CHECKLIST BEFORE RECORDING

Before you hit record, confirm:

- Hazard visible within 2 seconds
- Human implied as follower
- Exit direction assumed
- No HUD or UI noise
- Clip ends at classification
- Hazard matches taxonomy exactly

If all boxes are checked → the scenario is valid.

You’re thinking about the exact objection a judge (or any roboticist) will have:

> “If the human can see the hazard too, what’s the value of the drone?”

The answer is **not** “the drone sees better.”
The answer is **the drone reasons differently and earlier, with a safety contract the human doesn’t reliably apply**.

Here’s the clean positioning that matches your project framing.

The value proposition (locked)

The drone’s value is *not vision,* it’s shared-safety reasoning + non-misleading guidance

Humans often misjudge or over-trust a robot guide. Your system prevents a specific failure mode:

> **A robot/dronelike guide moves forward and a human follows, assuming it’s safe.**
> But the drone can tolerate hazards (or bypass them) that a human cannot.

So your agent’s job is:

- **Evaluate whether the path is safe for the follower**
- **Refuse to guide if it’s not**
- **Explain why**

That’s the core.

Three “defensible” reasons the drone is valuable even if the human can see

1) Humans misinterpret “robot moved there” as “safe for me”

This is the shared-path trap.

- Drone passes (flies over gap, squeezes through clearance)
- Human assumes it’s safe
- Human gets hurt

Your system’s signature Class B prevents exactly this.

Judge-safe line:

> “The drone’s movement is not a reliable proxy for human traversability; the agent explicitly models that gap.”

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2) The drone provides *consistent, rule-based safety decisions under uncertainty*

Even when humans can see hazards, they:

- underestimate risk
- take shortcuts
- overestimate stability (rubble, loose debris, smoke zones)
- act differently under stress

The drone agent applies:

- a deterministic hazard taxonomy
- plausibility checks
- consistent thresholds

This matters especially in:

- smoke/dust
- unstable debris zones

- narrow passages with unclear clearance

Judge-safe line:

> “The agent provides consistent, explainable safety gating when human intuition is unreliable.”

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3) The drone can be ahead (or in harm’s way) so the human doesn’t have to

Even if the human *could* see the hazard by walking closer, that’s the point:

- The drone goes first
- Detects/infers hazards early
- Stops guidance before the human enters the risk zone

This is not about better eyes; it’s about **risk exposure**.

Judge-safe line:

> “The drone reduces human exposure by evaluating hazards before a person commits to a path.”

What about exits — does it “already know” them?

Use this stance (consistent with your plan):

✅ Exit awareness is a *directional prior*, not a map

The drone does not need to “know the building.” It only needs:

- “Exit likely ahead” (from prior observation, signage, layout cues, or mission input)
- “Safer zone is left” (from memory over last frames)

Then it decides:

- **Among safe actions**, bias toward the exit direction
- If exit direction is unsafe for human, it vetoes and says reroute/hold

This keeps you out of mapping/planning.

Judge-safe line:

> “We assume a perceived exit direction and evaluate whether it is safe for a human to follow step-by-step.”

How to phrase the “decision of where to move” without implying control

You should not claim:

- “the drone navigates”
- “it autonomously moves”
- “it plans routes”

You should claim:

> “It recommends a next action / direction for the drone and whether to guide a human, based on shared-path safety.”

That’s fully aligned with your non-goals.

A tight 2–3 sentence value statement (use in README/demo narration)

Here are two options; pick one and reuse it everywhere.

Option A (most crisp)

> “The drone is a forward scout that prevents misleading guidance. Even when hazards are visible, humans often treat ‘the robot moved forward’ as proof the route is safe to follow. Our agent explicitly distinguishes drone-safe actions from human-safe traversal and refuses to guide when that assumption would be dangerous.”

Option B (more operational)

> “The agent reduces human exposure by evaluating hazards ahead of the team and producing step-by-step, explainable safety gating. It does not plan routes or control flight; it recommends whether to proceed, reroute, or hold, and whether a human can safely follow toward a perceived exit direction.”

How to make this obvious in the demo (important)

At the end of Class B scenarios, show a line like:

> **“Key insight: Drone-safe ≠ Human-safe. Do not guide.”**

This makes the value undeniable.