

1 Risk Identification (Data Entry)

Who:

 Site Engineer / Supervisor

What happens:

- Risk is noticed on site
 - Example: *Cracks in slab, Unsafe scaffolding, Material delay*

System Action:

- Engineer creates a **Risk Entry** in the app/system
- Fields:
 - Risk Type (Safety / Quality / Cost / Schedule)
 - Description
 - Location
 - Photo upload
 - Date & Time

✓ This is the **input layer**

2 Risk Assessment (Impact & Probability)

Who:

 Site Engineer / Project Engineer

What happens:

- Engineer selects:
 - **Impact:** Low / Medium / High
 - **Probability:** Low / Medium / High

System Logic (Core Matrix):

`riskScore = impact × probability`

Example:

- Impact = High (3)
- Probability = Medium (2)
- Risk Score = 6 → ● High Risk

✓ This is where the **risk matrix logic** runs

3 Risk Classification (Matrix Decision)

System Automatically Classifies Risk:

Score Risk Level

1–2	Low
3–4	Medium
6	High
9	Critical

✓ No manual bias – **rule-based classification**

4 Escalation Decision Engine

System checks escalation rules:

```
IF riskLevel == Low
  assignTo = Site Engineer
ELSE IF riskLevel == Medium
  assignTo = Project Manager
ELSE IF riskLevel == High
  assignTo = Construction Manager
ELSE IF riskLevel == Critical
  assignTo = Top Management + Client
```

✓ This is the **heart of escalation logic**

5 Auto Notifications & Alerts

System triggers:

- Push Notification
- Email
- SMS / WhatsApp (optional)

Example:

📍 Critical Safety Risk detected at Tower B – Level 12

✓ Immediate awareness = faster decisions

6 📁 Action & Mitigation Tracking

Who:

Assigned authority (PM / Manager)

Actions recorded:

- Stop work
- Call consultant
- Order rework
- Add safety measures

System tracks:

- Action taken
- Responsible person
- Target resolution date

✓ Risk becomes **traceable**

7 📁 Status Updates & Reassessment

Statuses:

- Open
- In Progress
- Under Review
- Closed

Re-evaluation:

- Impact/probability updated
- Risk level may downgrade

✓ Dynamic risk handling

8 Audit Trail & Reporting

Stored data:

- Who reported
- Who approved
- Response time
- Resolution time

Reports:

- High-risk count
- Safety violations
- Delay risks
- Monthly escalation summary

✓ Used for audits & client meetings

Complete Flow (Simple Diagram)

```
Risk Identified
  ↓
Risk Logged (Engineer)
  ↓
Impact & Probability Selected
  ↓
Risk Matrix Calculation
  ↓
Risk Level Decided
  ↓
Escalation Triggered
  ↓
Authority Action
  ↓
Risk Closed / Monitored
```