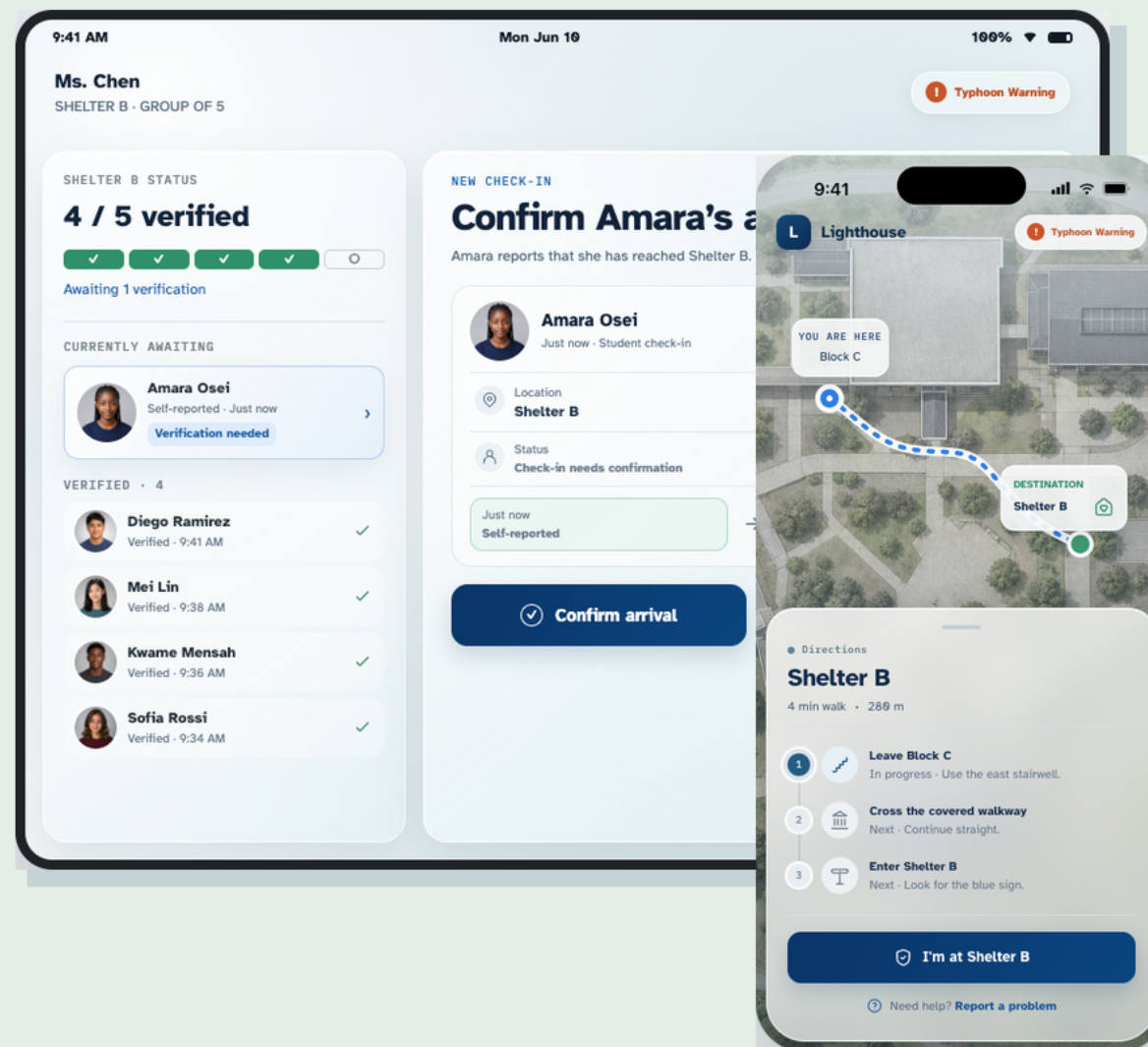


THE STUDENT LIGHTHOUSE

A connected emergency response system for students, teachers, and school teams.



WHY STUDENT LIGHTHOUSE?

When Hurricane Helene closed my school, I remember how uncertain everything felt—even after the warning.

From a student’s perspective, the hardest part is not receiving an alert. It is knowing where to go, whether an adult knows you arrived, and how to ask for help without leaving the emergency flow. That is why I designed Student Lighthouse: to connect every step from warning to all-clear.

PROJECT DETAILS

ROLE TIMELINE	UX & Interaction Design 8 weeks
SCOPE OUTPUT	Student · Teacher · Admin High-fidelity interactive prototype



SEPTEMBER 30, 2024

The school closure was extended after Hurricane Helene—turning an abstract emergency into something I had personally experienced.

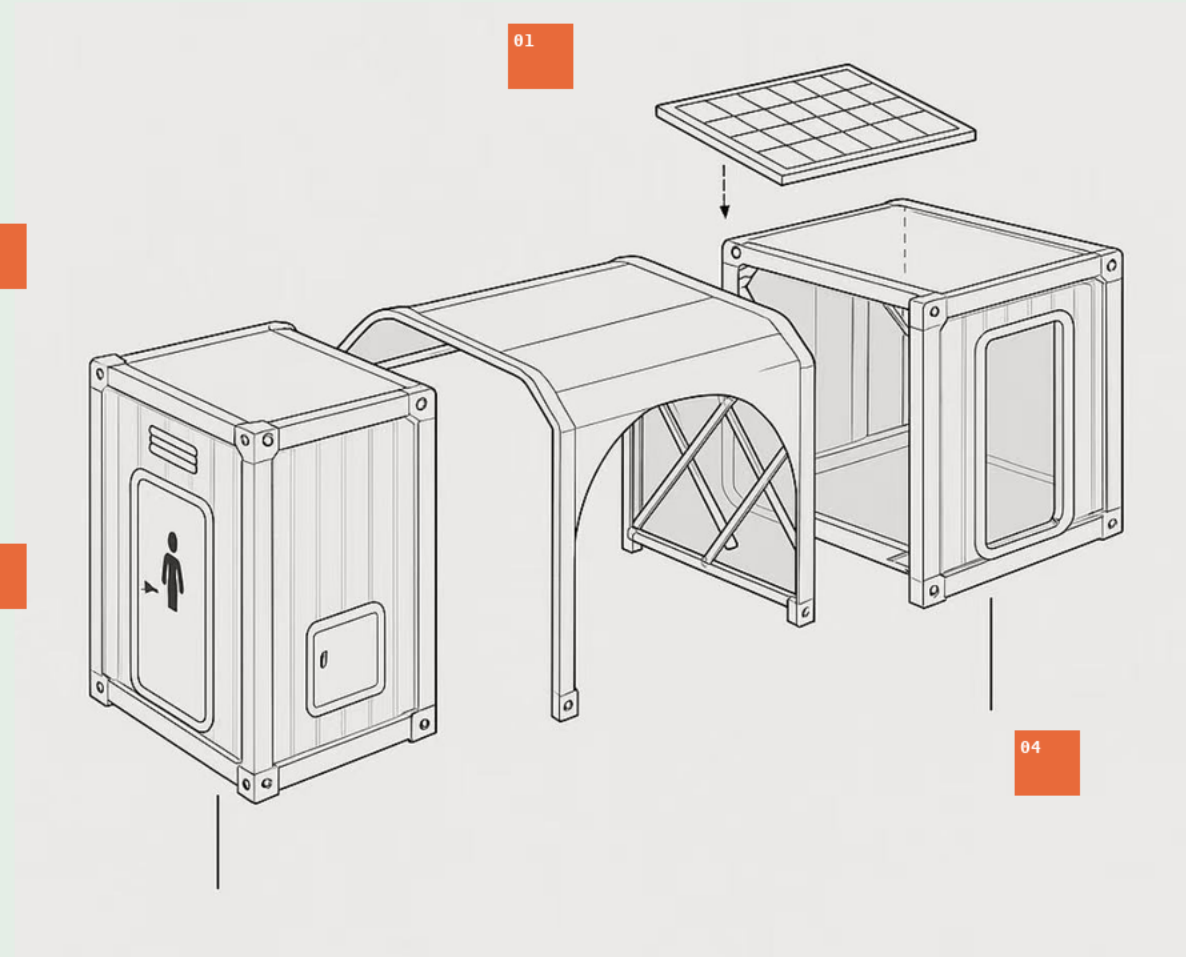
THE FIRST LIGHTHOUSE WAS PHYSICAL

EARLY CONCEPT

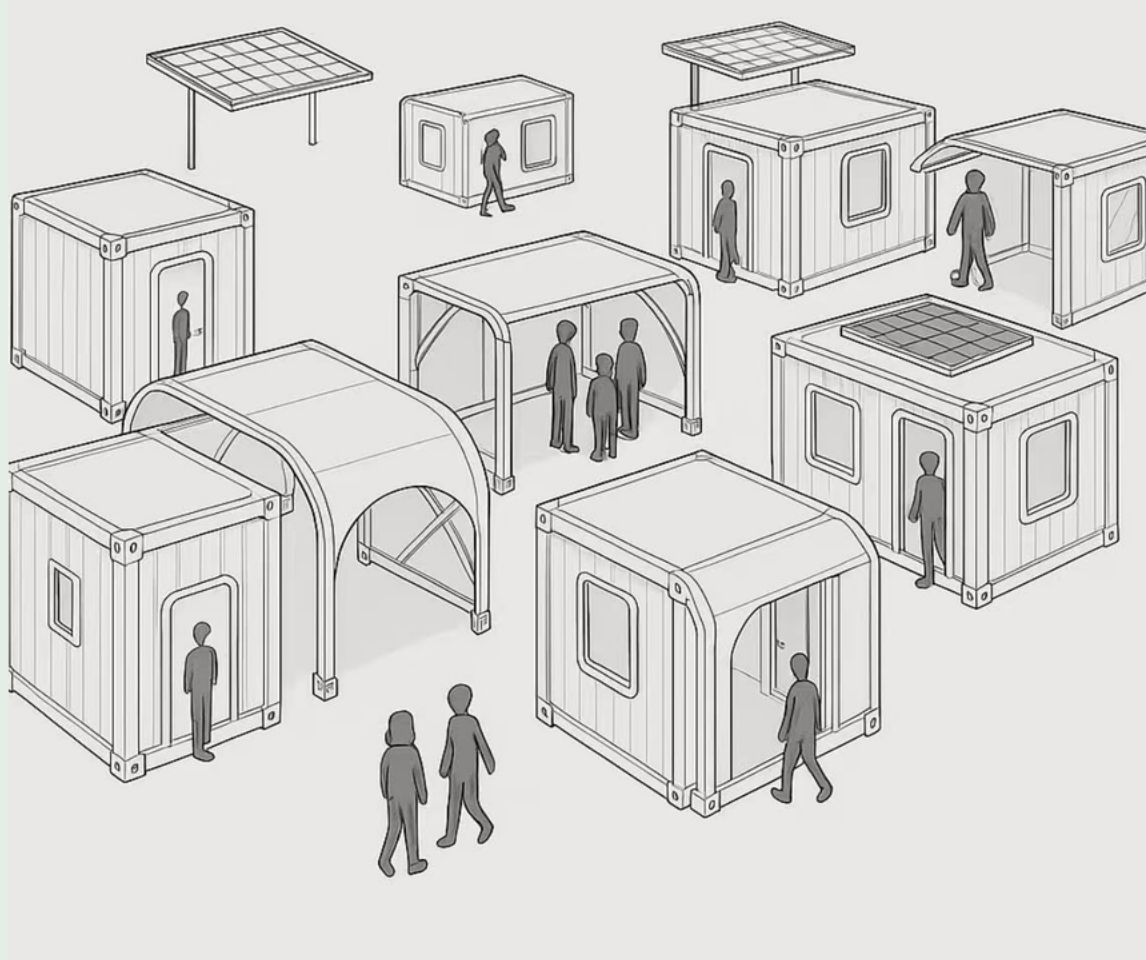
I first responded to Hurricane Helene by designing a portable shelter for moments when normal school infrastructure failed.

The concept combined protection, independent power, emergency communication, hygiene, and expandable space in one modular structure.

- 01 INDEPENDENT POWER
- 02 EMERGENCY COMMUNICATION
- 03 HYGIENE + CARE
- 04 EXPANDABLE SPACE



A MODULAR SHELTER BECAME A CAMPUS SYSTEM



SYSTEM THINKING

One unit could protect a small group. Multiple units could form a distributed shelter network across campus.

- 01 Deploy close to students
- 02 Expand as groups arrive
- 03 Connect shelter and shared space

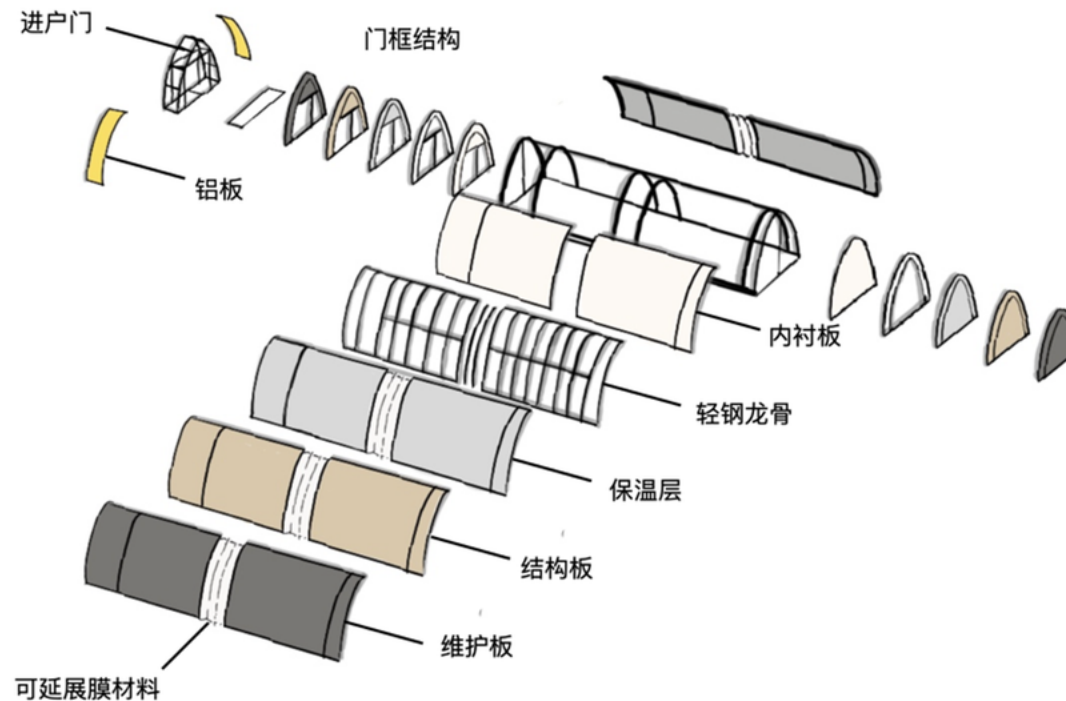
THE STRUCTURE COULD EXPAND WITH THE EMERGENCY

STRUCTURAL EXPLORATION

The center section was designed to unfold between two rigid modules, creating more usable space without changing the core units.

The layered envelope explored a lightweight frame, insulation, protective panels, and an extendable membrane.

The object created protection. The next question was how people would coordinate around it.



A SAFE PLACE DID NOT CREATE A SAFE PROCESS

STUDENT PERSPECTIVE

Even with a shelter, a student still has four immediate questions:

- 01 Where do I go?
- 02 Does anyone know I arrived?
- 03 If I need help, who is listening?
- 04 When is it actually safe to leave?

The physical prototype answered shelter.
The UX system had to answer coordination.



RESEARCH: FOLLOWING THE HANDOFFS

RESEARCH SAMPLE

12

PARTICIPANTS

04 ROLES

03 METHODS

01 SHARED SCENARIO

WHO I SPOKE WITH

STUDENTS

Students who have experienced an evacuation, campus closure, or severe-weather alert.

TEACHERS

Teachers or advisors responsible for shelter attendance and physical roll call.

OPERATIONS

School safety or operations staff who coordinate shelters, support, and the all-clear.

CARE STAFF

Nurses, counselors, or residential staff who receive student concerns and escalations.

HOW I LEARNED

1:1 INTERVIEWS

Reconstructed a real alert or closure from the first message to the point of feeling safe.

SCENARIO WALKTHROUGHS

Replayed warning → shelter → concern → support → all-clear and identified unclear ownership.

ARTIFACT REVIEW

Compared current alerts, shelter maps, attendance procedures, and escalation protocols.

CORE QUESTION

Where does certainty break between the alert, movement, verification, support, and release?

THE ALERT WAS CLEAR; THE HANDOFFS WERE NOT

Across the interviews and walkthroughs, confidence dropped whenever responsibility moved from one person to another.

9/12

Understood the first action

Most participants could explain what to do immediately after receiving an alert.

4/12

Knew who confirmed arrival

The largest drop in certainty happened between self-reporting and physical verification.

8/12

Expected visible ownership

After requesting help, participants wanted to see who was responding and what would happen next.

10/12

Wanted a reason for release

The all-clear felt trustworthy only when attendance, shelters, and open incidents were resolved.

The design opportunity was not another alert. It was a shared state that made every handoff visible.

THREE ROLES CAME FROM THREE LEVELS OF RESPONSIBILITY

I grouped each emergency decision by who had the context and authority to act.



01 INDIVIDUAL LEVEL

STUDENT

Moves, checks in, and asks for help.

Owns personal status—not group verification.



02 GROUP LEVEL

TEACHER

Verifies attendance and triages concerns.

Owns the on-site response for one shelter.



03 CAMPUS LEVEL

SCHOOL RESPONSE

Dispatches support and issues the all-clear.

Owns cross-shelter priorities and release.

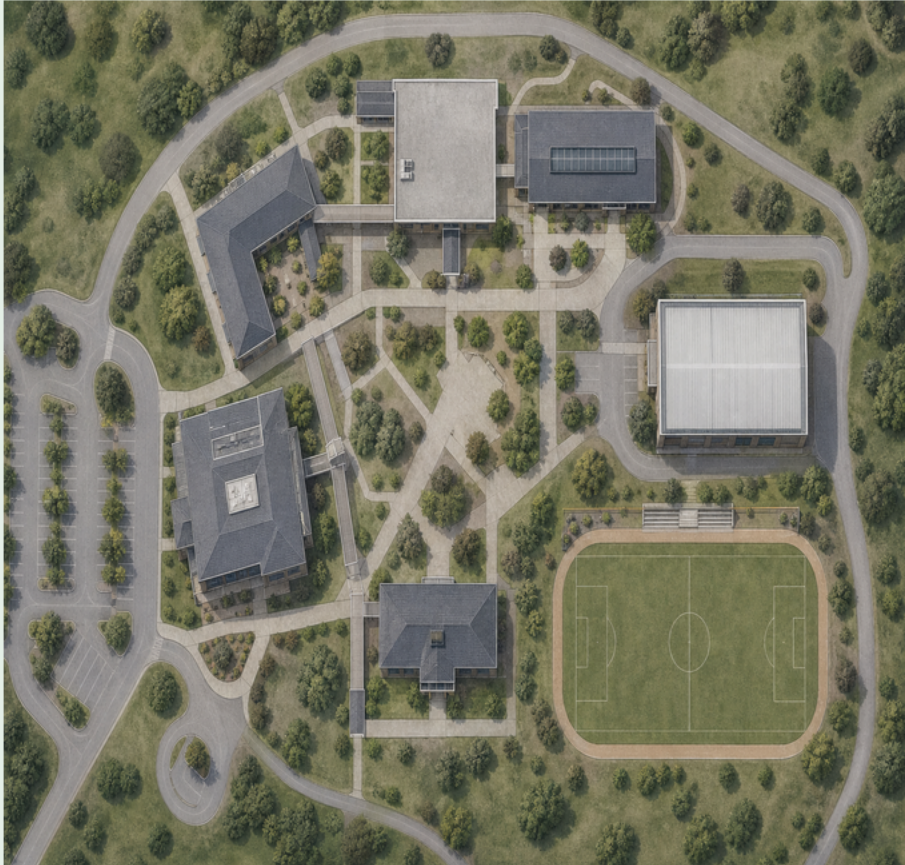
MAPPING THE INCIDENT EXPOSED THE HANDOFF GAPS

The same event looked different to each role. The risky moments appeared when responsibility changed hands.

	01 ALERT	02 MOVE	03 CHECK-IN	04 PROBLEM	05 RESPONSE	06 ALL-CLEAR
STUDENT	Reads the warning and assigned shelter	Follows the route to Shelter B	Reports arrival	Reports a concern without leaving the flow	Waits and sees who is responding	Follows departure guidance
TEACHER	Receives the Shelter B roster	Watches for students who are missing	Verifies physical presence	Triages and escalates when needed	Confirms when help arrives	Confirms the group is ready
SCHOOL RESPONSE	Monitors six shelter assignments	Sees coverage gaps across campus	Tracks verified totals	Receives the exception with context	Dispatches support	Issues the all-clear

The design needed to keep place, attendance, support, and release in one shared state.

ONE SHARED CAMPUS MODEL CONNECTED THE HANDOFFS



DESIGN RESPONSE

Instead of three separate tools, I anchored every role to the same places and incident state.

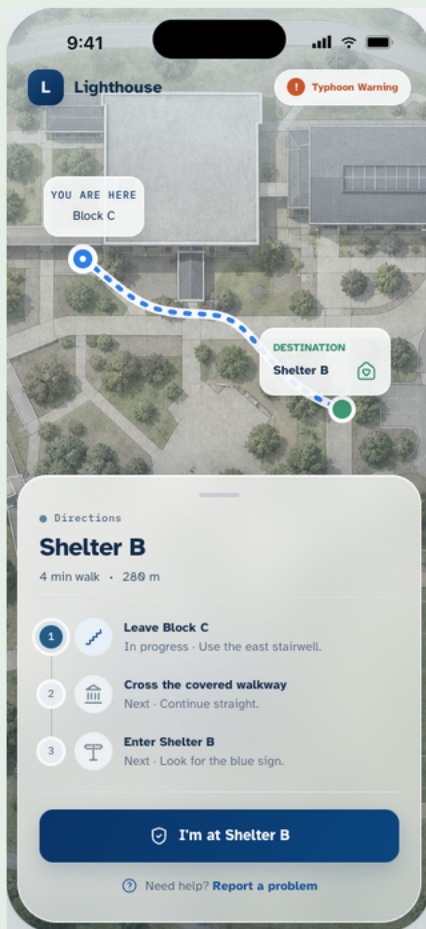
- 01** Use place as the common reference
Routes, shelter rosters, and support requests point to the same campus location.
- 02** Turn handoffs into visible state changes
A student check-in becomes teacher verification; a concern becomes school response.
- 03** Let shared completion unlock release
The all-clear appears only after attendance and open incidents are resolved.

This system model became three connected, role-specific interfaces.

STUDENT: MOVE, CHECK IN, AND ASK FOR HELP

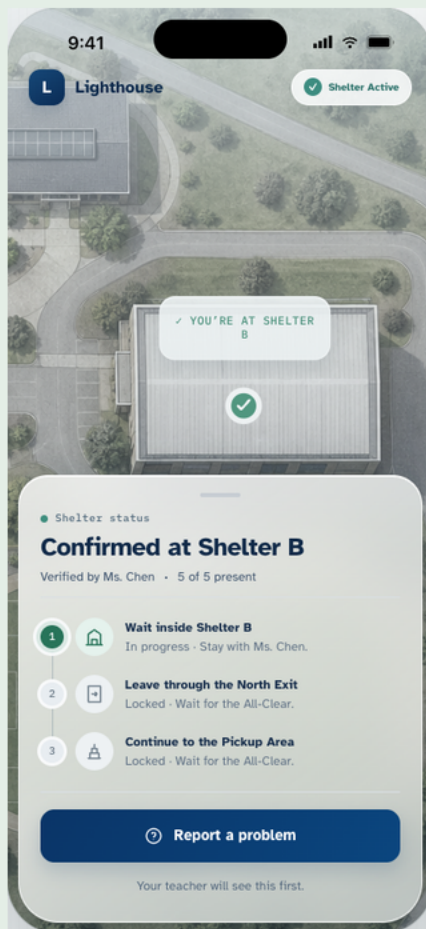
MOBILE EXPERIENCE

One view keeps the next action visible as the emergency



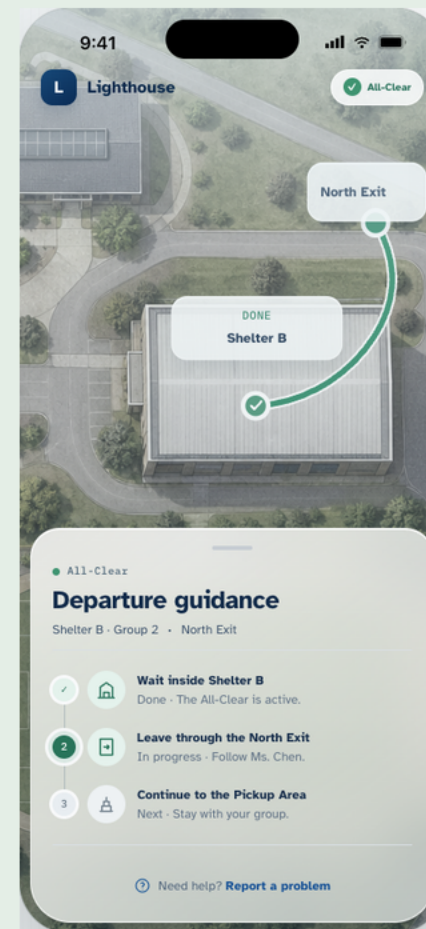
01 MOVE

Route to Shelter B



02 CHECK IN + REPORT

Confirm arrival and keep help accessible



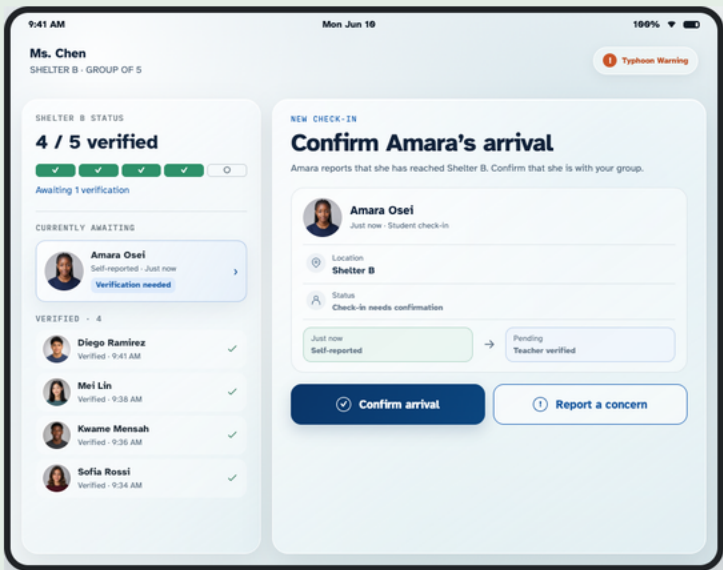
03 DEPART

Leave only after the all-clear

TEACHER: VERIFY, TRIAGE, AND CLOSE THE LOOP

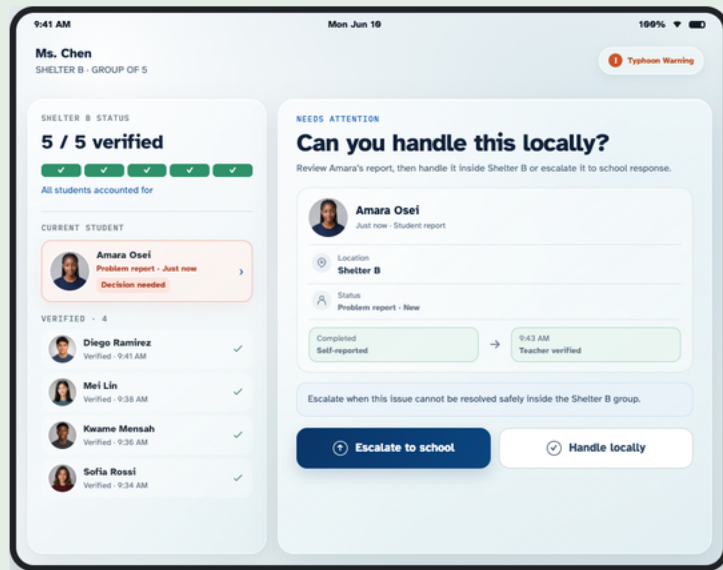
The same roster stays visible while the teacher moves from verification to response.

01 VERIFY ARRIVAL



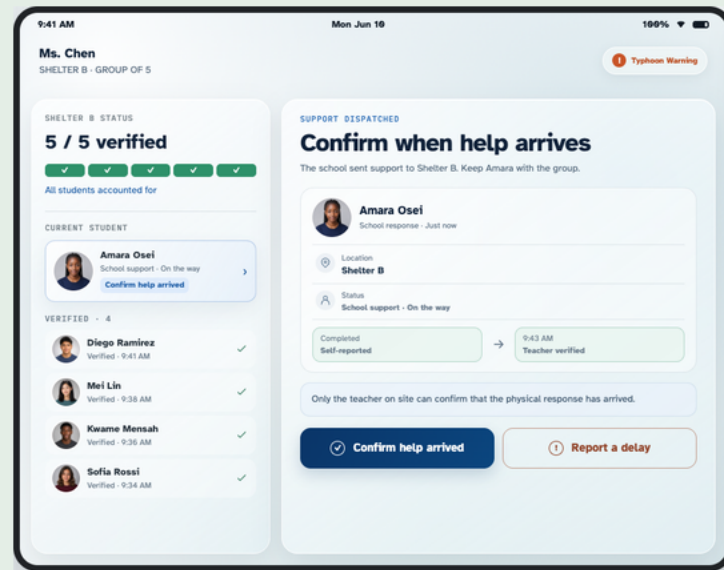
Confirm the student who is physically present.

02 TRIAGE THE CONCERN



Handle locally or escalate with context.

03 CONFIRM HELP ARRIVED

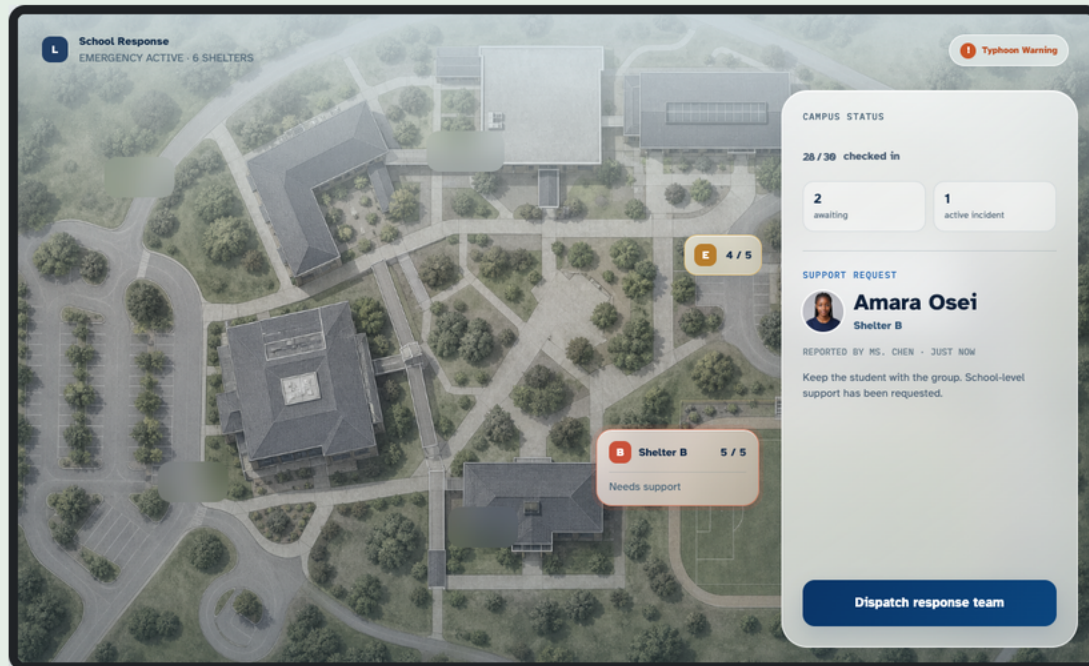


Close the return path after support reaches the shelter.

The teacher is the named on-site verifier at every critical handoff.

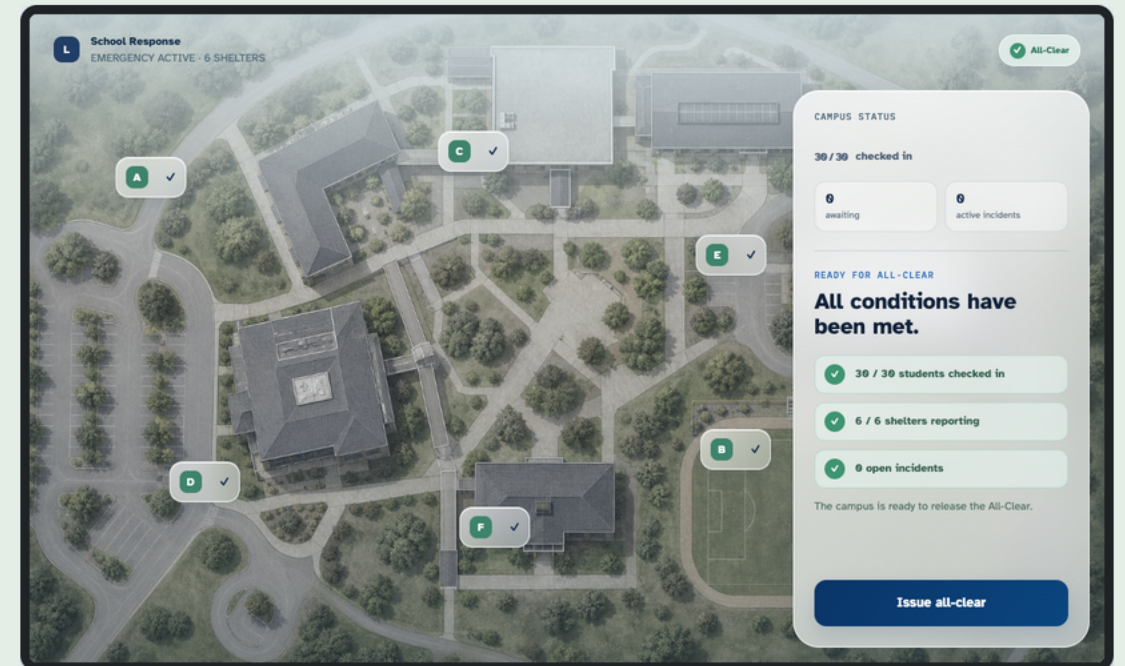
SCHOOL RESPONSE: PRIORITIZE EXCEPTIONS, THEN RELEASE

One campus view moves from a support request to a conditions-based all-clear.



01 DISPATCH SUPPORT

See the exception without losing the campus picture.



02 RELEASE THE CAMPUS

Issue the all-clear only after every shared condition is met.

A SHELTER BECAME A CONNECTED CAMPUS RESPONSE

OUTCOME + REFLECTION

The physical Student Lighthouse won a Gold Medal at the 23rd ARCA International Exhibition of Innovation.

This UX project extends that idea beyond the shelter itself: students know where to go, teachers verify what happened, and school response coordinates the campus.

The key design shift was making every handoff visible.

