

# Specialized Engineering — HR Certification Portal (Internal IIS Web Portal)

## Project Description (Summary)

Build a simple internal HR web portal for Specialized Engineering to **track employee certification requests** and manage the **certification agency + certification catalog** that powers the request form dropdowns. The portal will run on the **CES IIS server**, be accessible **only on the local network**, and will not require user authentication (per requirements). The application will support standard CRUD workflows and provide a clean, practical UI for daily use by two internal HR users.

## Confirmed Requirements (Non-Negotiable)

### Access / Deployment

- **No authentication / no login** (system is internal-only, local network).
- Deploy to **CES IIS prod server**.
- Users access via **desktop shortcut** and/or **bookmark** to internal server IP.

### Core Data Capture (from provided reference form)

Certification Request must capture:

- Employee Name
- Request Date
- Manager
- Certification Agency (DropDown 1)
- Certification Desired (DropDown 2, filtered by Agency)
- Request Type (radio): **Review Session, Written Exam, Practical Exam, Reciprocity** (and/or Recertification if later clarified)

### DropDown Lists

- DropDown 1 agencies (minimum):
  - ACI, MARTCP, ICC, WACEL, NICET, NRMCA, VDOT, OSHA, WVDOH, AWS
  - Plus **Other** category
- DropDown 2 certification list:
  - Pre-seeded from the provided PDF list
  - Must be **filtered based on DropDown 1 selection**
  - Certifications not mapped to listed agencies go under **Other**

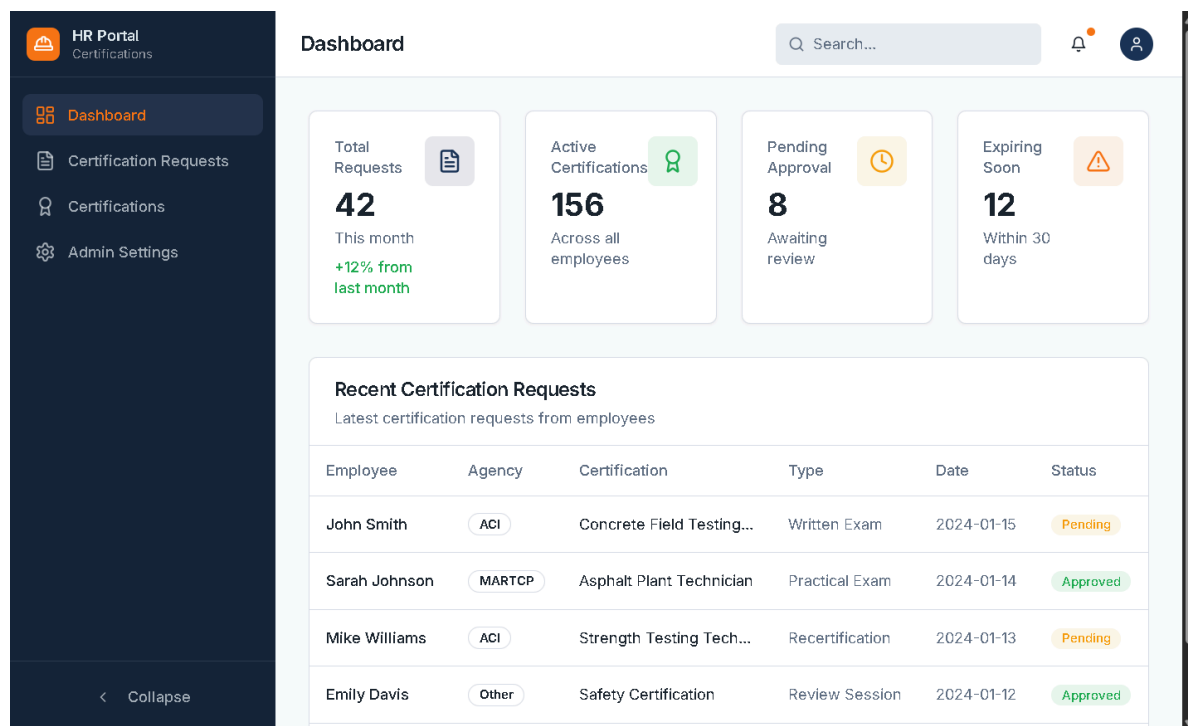
## Core Functionality

- Create, view, edit, and delete **Certification Requests**
- Maintain a list/table of Certifications obtained and details
- Maintain the **Agency list** and **Certification list** in the portal (Admin Settings page):
  - Add agencies
  - Add certifications
  - Assign certification to agency
  - Prefer **Deactivate** over hard-delete to prevent data breaks (safe operations)

## Proposed Portal Pages & Rough Design (within 30–40 hours)

### 1. Dashboard

- Summary counts (e.g., total requests, recent requests)
- “Recent Requests” table



### 2. Certification Requests

- Purpose: List + create + edit + delete + manage certification request
- Agency → Certification filtered dropdown behavior

- Radio type selection

**HR Portal**  
Certifications

Dashboard  
**Certification Requests**  
Certifications  
Admin Settings

Collapse

**Certification Requests**

View Requests

New Request

All Certification Requests

Search requests...

All...

All Status

Employee	Manager	Agency	Certification	Date	Status	Actions
John Smith	David Lee	ACI	Concrete Field Testin...	2024-01-15	Pending	<div></div> <div></div> <div></div>
Sarah Johnson	David Lee	MARTCP	Asphalt Plant Technician	2024-01-14	Approved	<div></div> <div></div> <div></div>
Mike Williams	Jennifer Clark	ACI	Strength Testing Tech...	2024-01-13	Pending	<div></div> <div></div> <div></div>
Emily Davis	Jennifer Clark	Other	OSHA Safety Certificat...	2024-01-12	Approved	<div></div> <div></div> <div></div>
Robert Brown	David Lee	ACI	Aggregate Testing Te...	2024-01-11	Rejected	<div></div> <div></div> <div></div>

### 3. Certifications (Catalog)

- View/search list of certifications and their agency assignment
- Purpose: to view/edit certification details

HR Portal

Certifications

Dashboard

Certification Requests

Certifications

Admin Settings

< Collapse

Certifications

Q Search...

Employee Certifications

Q Search certifications...

All...

All Status

Export

Employee ↑↓	Agency	Certification	Cert #	Expiry Date ↑↓	Status	Actions
Emily Davis	Other	OSHA Safety Certificat...	OSHA-2021-1234	2023-08-22	Expired	👁
James Wilson	ACI	Concrete Laboratory T...	ACI-2023-0234	2024-02-18	Expiring Soon	👁
John Smith	ACI	Concrete Field Testin...	ACI-2024-0012	2026-01-20	Active	👁
Lisa Martinez	MARTCP	Soils & Aggregate Tec...	MARTCP-2024-0089	2026-01-05	Active	👁
Mike			ACI-	2024-03-	Expiring	

## 4. Admin Settings

- Manage Agencies (add/edit/deactivate)
- Manage Certifications (add/edit/deactivate, assign to agency)

HR Portal

Certifications

Dashboard

Certification Requests

Certifications

Admin Settings

< Collapse

Admin Settings

Q Search...

Agencies

Certification Types

Certification Agencies

Manage certification agencies and their associated certifications

Add New Agency

Short Name / Abbreviation

Full Name

e.g., ACI

e.g., American Concrete Instit

+ Add Agency

Abbreviation	Full Name	Certifications	Actions
ACI	American Concrete Institute	12 certifications	✎ 🗑
MARTCP	Maryland Asphalt Road Testing Certification Program	8 certifications	✎ 🗑
Other	Other Certifications	5 certifications	✎ 🗑

# Architecture & Tech Stack

## Application

- **ASP.NET Core Razor Pages** (modular structure; scalable for future additions)
- **Entity Framework Core** for data access
- Server-side validation + consistent error handling

## Database

- **PostgreSQL** (single database instance for the portal)
- EF Core migrations used for repeatable schema management
- Seed data for:
  - Agencies (including Other)
  - Certifications list + agency mapping

## Deployment (IIS)

- Publish as IIS-hosted ASP.NET Core application
- Configuration via appsettings + environment variables (connection string, etc.)
- Access limited to internal network

## Security Considerations (Given “No Auth” Requirement)

Even without login, the solution will implement baseline protections appropriate for internal apps:

- Constrain network exposure (expected: internal-only routing/firewall/VLAN policies)
- Input validation on all forms/fields
- Safe admin operations:
  - Prefer deactivate over delete to avoid orphaning references
- Optional: basic operational logging for troubleshooting

## Estimated Effort (Strictly 30–40 Hours)

This estimate assumes a clean, simple UI (no custom design system) and focuses on core workflows.

## Work Breakdown

1. Project design and setup + Razor layout + navigation structure: **3–5 hrs**
2. Database schema + EF migrations + seed data: **6–8 hrs**
3. Certification Requests CRUD + dropdown filtering logic: **10–12 hrs**

4. Admin Settings (Agencies + Certifications management): **6–8 hrs**
5. Dashboard summary + recent requests: **3–4 hrs**
6. QA/testing + IIS deployment packaging + smoke tests: **2–3 hrs**

**Total Estimate: 30–40 hours**

## **Deliverables / Outcome**

At completion, CES/Specialized Engineering receives:

- Working internal IIS web portal
- PostgreSQL-backed database
- Seeded agencies + certifications
- CRUD workflows for requests and catalog maintenance
- Project documentation & deployment/config notes for IIS