Powerhouse Contracting

Application System
Complete Reference Guide

A comprehensive reference showing every workflow, integration, and operation in the Powerhouse Contracting job application system — from position selection through hiring pipeline sync.

Bilingual Job Application System (English / Spanish)

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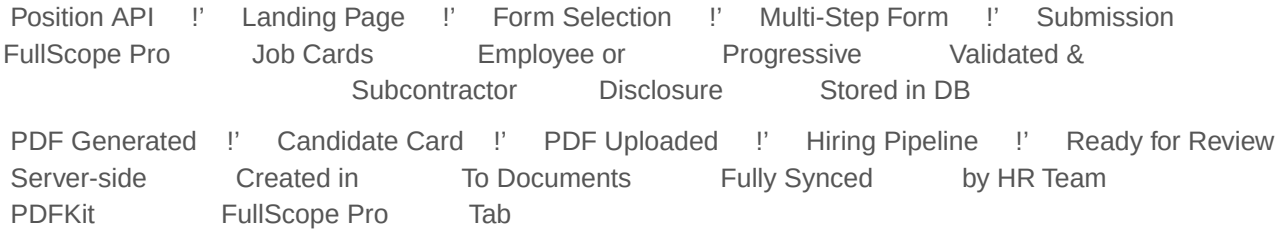
1. System Overview & Architecture

The Powerhouse Contracting Application System is a bilingual (English/Spanish) web application that manages the complete job application lifecycle. It connects applicants to open positions, collects comprehensive application data through multi-step forms, generates professional PDF documents, and automatically syncs candidates to the FullScope Pro hiring pipeline.

Technology Stack

LAYER	TECHNOLOGY & PURPOSE
Frontend	React + TypeScript + Vite (SPA with mobile-first design)
Backend	Express.js + TypeScript (RESTful JSON API)
Database	PostgreSQL via Drizzle ORM (application storage)
AI Integration	OpenAI GPT-4o Vision (license scanning / OCR)
PDF Generation	PDFKit (server-side document creation)
Form Management	react-hook-form + Zod (shared validation)
UI Components	Shadcn/ui + Radix UI + Tailwind CSS
Routing	Wouter (lightweight client-side routing)
State	TanStack React Query (server state management)

High-Level System Map



2. Landing Page & Position Selection

The landing page serves as the entry point for all applicants. It dynamically fetches available positions from the FullScope Pro hiring pipeline API and displays them as interactive job cards. Each position routes to the appropriate application form based on its type.

Position Fetching Flow

%Application loads !’ GET /api/positions called automatically
%Server authenticates with FullScope Pro API using Bearer token
%Positions returned with: ID, title, department, description, employment type, location
%Positions rendered as job cards on the landing page
%User clicks a position card to begin applying

Position-Based Routing

The system determines the correct form based on position type:

POSITION TYPE	ROUTE & FORM
Employee (default)	/apply/:positionId !’ Employee Application Form
Contractor	/apply-subcontractor/:positionId !’ Subcontractor Form

Job Card Display

- Position title and department shown prominently
- Job description with key responsibilities
- Employment type badge (Full-Time, Part-Time, Contract)
- Location information when available
- "Apply Now" button linking to the correct form
- Bilingual toggle (English/Spanish) available site-wide

3. Employee Application — Complete Workflow

The employee application form uses progressive disclosure across 4 steps to collect comprehensive applicant information without overwhelming mobile users. Each step validates before allowing progression.

Step 1: Personal Information

Collects basic identity and contact details. Features AI-powered license scanning for auto-fill.

- AI License Scanner — Camera capture or image upload, OCR extracts name, DOB, address
- First Name, Last Name (required)
- Date of Birth (required)
- Email Address (required, validated format)
- Phone Number (required)
- Full Address: Street, City, State, Zip Code (all required)
- Position Applying For (auto-filled from selected position)
- Desired Pay (required)
- Profile Photo capture via device camera

Step 2: Work History & Employment Disclosures

Captures previous employment and critical employment eligibility information.

- Up to 3 previous employers (accordion-style entry)
- Per employer: Company Name, Supervisor Name/Phone/Email, Hire Date, Last Day, Reason for Leaving
- Employment Disclosures (Yes/No with conditional explanation fields):
    - • Contact previous employers permission
    - • Background check consent
    - • Reliable transportation
    - • Valid driver's license
    - • Drug test consent
    - • Legal work eligibility (US)
    - • Non-compete / NDA obligations

Step 3: Education & Training

- Highest education level (radio selection): High School, Some College, Associate's, Bachelor's, Master's, Doctorate, Trade School, Other
- Conditional 'Other' text field when 'Other' is selected
- Certifications & Licenses (free text)
- Referral source: How did you hear about us?

Step 4: Photo & Review

- Profile photo capture or upload (camera integration)
- Complete application review showing all entered data
- Review sections: Personal Info, Work History, Disclosures, Education
- Edit capability — navigate back to any step to make corrections
- Submit button with loading state and validation

Employee Submission Flow

%% User clicks 'Submit Application'
%% Client-side Zod validation runs on all fields
%% POST /api/applications with full application data
%% Server validates with insertApplicationSchema
%% Application saved to PostgreSQL database
%% Background: Candidate card created in FullScope Pro
%% Background: PDF generated and uploaded to candidate's Documents tab
%% Success confirmation displayed to applicant

4. Subcontractor Application — Complete Workflow

The subcontractor application is a 5-step form that collects company information, licensing, insurance details, legal agreements, and an integrated W-9 tax form — eliminating the need for a separate W-9 document.

Step 1: Specialties

- Multi-select specialty checkboxes:
  - Carpentry, Painting, Electrical, Plumbing, Flooring, Roofing, HVAC, Remodeling, Texture, Other
- Conditional 'Other' text field for custom specialties

Step 2: Company Information

- Company Legal Name (required)
- Full Business Address: Street, City, State, Zip Code
- Primary Contact: First Name, Last Name, Email, Phone
- Alternate Phone Number
- Owner Name(s)
- Position Applying For (auto-filled from selected position)

Step 3: License & Insurance

- License Number
- FEIN or SSN (required)
- Years in Business (required)
- Workers' Compensation expiration date
- General Liability expiration date
- Willingness to obtain required insurance (Yes/No)
- Display of Powerhouse Contracting insurance requirements

Step 4: Agreements & Acknowledgments

Four separate legal agreements, each requiring explicit checkbox acknowledgment:

- Subcontractor Agreement — Terms of engagement, scope, and obligations
- Insurance Addendum — Required coverage types and minimums
- Indemnification Agreement — Hold harmless and liability terms
- Non-Compete Agreement — Restrictions on competing services

Step 5: W-9 Tax Form & Submission

Complete IRS W-9 form integrated directly into the application flow:

- Name as shown on income tax return (required)
- Business name / disregarded entity name
- Tax classification: Individual, C Corp, S Corp, Partnership, Trust/Estate, LLC, Other
- LLC type (if applicable): C, S, or P
- Address and City/State/ZIP for tax purposes
- Taxpayer ID: SSN or EIN (at least one required)
- W-9 Certification checkbox with IRS penalty disclosure
- Signature date
- Final acknowledgment checkbox
- Download links for W-9 form in English and Spanish

Subcontractor Submission Flow

%% User clicks 'Submit Application'
%% Client-side Zod validation on all 5 steps of data
%% POST /api/subcontractor-applications with complete data
%% Server validates with insertSubcontractorApplicationSchema
%% Application saved to PostgreSQL with W-9 data
%% Background: Candidate card created in FullScope Pro
%% Background: PDF with W-9 section generated and uploaded
%% Success confirmation displayed to applicant

5. AI-Powered License Scanning

The employee application includes an AI-powered driver's license / ID scanner that uses OpenAI's GPT-4o Vision model to extract personal information from a photo of the applicant's ID, automatically filling in form fields.

Scanning Workflow

1. Applicant clicks 'Scan License' button on Step 1
2. Camera activates via browser MediaDevices API (or file upload)
3. Photo captured as base64 data URL
4. Image sent to POST /api/scan-license endpoint
5. Server forwards image to OpenAI GPT-4o Vision API
6. AI extracts: First Name, Last Name, Date of Birth, Address, City, State, Zip Code
7. Extracted data returned as structured JSON
8. Form fields auto-populated with extracted data
9. Applicant reviews and corrects any inaccuracies

AI Configuration

PARAMETER	VALUE
Model	GPT-4o (gpt-4o)
Vision Detail	High resolution
Max Tokens	500
Output Format	Structured JSON (no markdown)
Error Handling	Graceful fallback to manual entry
Rate Limiting	429 responses handled with retry message

Extracted Fields

FIELD	JSON KEY
First Name	firstName
Last Name	lastName
Date of Birth	dateOfBirth (YYYY-MM-DD)
Street Address	address
City	city
State	state (2-letter)
Zip Code	zipCode

6. PDF Generation & Document Management

The system generates professional PDF documents for every submitted application, containing all collected data. These PDFs are both downloadable by administrators and automatically uploaded to the FullScope Pro hiring pipeline.

Employee Application PDF Contents

- Header: 'Job Application' title with submission date
- Personal Information: Full name, DOB, email, phone, complete address
- Position Details: Position title, desired pay
- Work History: Up to 3 employers with supervisor info and employment dates
- Employment Disclosures: All 7 disclosure items with Yes/No answers and explanations
- Education & Training: Education level, certifications, referral source
- Photos: Embedded profile photo and driver's license image (if provided)

Subcontractor Application PDF Contents

- Header: 'Subcontractor Application' title with submission date
- Specialties: List of selected trade specialties
- Company Information: Legal name, address, phone, owner(s)
- Contact Person: Name, email, alternate phone
- License & Insurance: License number, FEIN/SSN, years in business, insurance expirations
- Agreements: Status of all 4 legal agreements (Accepted/Not Accepted)
- W-9 Information (separate page): Name, business name, tax classification, TIN, address
- W-9 Certification: IRS certification statements and acknowledgment

PDF Download Endpoints

ENDPOINT	DESCRIPTION
GET /api/applications/:id/pdf	Download employee application PDF
GET /api/subcontractor-applications/:id/pdf	Download subcontractor application PDF
GET /api/system-reference/pdf	Download this system reference guide

7. FullScope Pro Hiring Pipeline Integration

Every submitted application automatically creates a candidate card in the FullScope Pro hiring pipeline and uploads the complete application PDF to the candidate's Documents tab. This happens in the background after the applicant receives their success confirmation.

Integration Flow — Employee Application

1. Application saved to local database (immediate)
2. Success response sent to applicant (immediate)
3. Background: POST to /api/external/applicants on FullScope Pro
4. Candidate card created with: name, email, phone, position ID, referral source
5. Candidate ID received from FullScope Pro
6. PDF generated with all application data and photos
7. POST to /api/external/applicants/:id/documents/upload-url for presigned URL
8. PDF uploaded to presigned URL via PUT request
9. Document record created linking PDF to candidate
10. Complete — candidate visible in FullScope Pro with attached PDF

Integration Flow — Subcontractor Application

Follows the same pattern as employee integration, with subcontractor-specific data mapping:

- Contact person's first/last name used as candidate name
- Contact email and phone mapped to candidate fields
- Referral source set to 'Subcontractor Application Form'
- PDF includes W-9 information section
- Document notes: 'Subcontractor application with W-9 information'

Required Configuration

ENVIRONMENT VARIABLE	PURPOSE
HIRING_PIPELINE_URL	Base URL (default: https://fullscopepro.app)
HIRING_PIPELINE_API_KEY	Bearer token for API authentication
HIRING_PIPELINE_POSITION_ID	Default position ID (optional with routing)

API Endpoints Used

ENDPOINT	PURPOSE
GET /api/external/positions	Fetch available positions for landing page
POST /api/external/applicants	Create candidate card
POST .../documents/upload-url	Get presigned upload URL
PUT (presigned URL)	Upload PDF to object storage
POST .../documents	Create document record in candidate profile

8. Bilingual Support (English / Spanish)

The entire application system supports full English and Spanish translations. Users can toggle between languages at any point during the application process. All form labels, validation messages, instructions, legal agreements, and UI elements are translated.

Translation System Architecture

- Centralized translation file: /client/src/lib/translations.ts
- useLanguage() React hook provides t() translation function
- Language toggle button available on all pages (header area)
- Selected language persists during the application session
- All Zod validation messages translated for both languages

Translated Content Areas

AREA	COVERAGE
Form Labels	All input labels, placeholders, and descriptions
Step Titles	All form step names and navigation labels
Validation Errors	Required field messages, format errors
Disclosure Questions	All 7 employment disclosure items
Legal Agreements	Subcontractor terms, insurance, indemnification, non-compete
W-9 Form	All tax form labels and IRS certification text
UI Elements	Buttons, headers, success/error messages
Education Options	All education level choices
Specialty Labels	All trade specialty options
Landing Page	Position cards, apply buttons, descriptions

9. Data Model & Database Schema

The application uses PostgreSQL with Drizzle ORM. Two main tables store application data. Zod schemas derived from the Drizzle schema provide consistent validation on both client and server.

Table: applications (Employee)

COLUMN	TYPE	DESCRIPTION
id	UUID (PK)	Auto-generated unique identifier
firstName / lastName	Text	Applicant's legal name
dateOfBirth	Text	Date of birth
email	Text	Contact email address
phone	Text	Contact phone number
address / city / state / zip	Text	Full mailing address
positionApplyingFor	Text	Position title
positionId	Text	FullScope Pro position UUID
desiredPay	Text	Desired compensation
workHistory	JSONB	Array of up to 3 employer records
disclosures	JSONB	7 disclosure items with answers/reasons
educationLevel	Text	Highest education completed
certifications	Text	Professional certifications
profilePhoto	Text	Base64-encoded profile image
licenseImage	Text	Base64-encoded ID/license image
howDidYouHear	Text	Referral source
createdAt	Timestamp	Submission timestamp

Table: subcontractor_applications

COLUMN	TYPE	DESCRIPTION
id	UUID (PK)	Auto-generated unique identifier
specialties	Text[]	Array of selected trade specialties
companyName	Text	Legal business name
streetAddress / city / ...	Text	Business address fields
contactFirstName / Last	Text	Primary contact person
contactEmail / Phone	Text	Contact information
ownerNames	Text	Business owner name(s)
positionApplyingFor	Text	Position title
positionId	Text	FullScope Pro position UUID
licenseNumber	Text	Business license number
feinOrSsn	Text	Federal EIN or SSN
yearsInBusiness	Integer	Years operating
workersComp / GenLiab	Text	Insurance expiration dates
agreesTo... (4 fields)	Boolean	Legal agreement acceptances
w9... (10+ fields)	Various	Complete W-9 tax form data
createdAt	Timestamp	Submission timestamp

10. API Reference

All API endpoints are served under the /api/ prefix. The server uses Express.js with JSON request/response bodies. Validation uses Zod schemas shared between client and server.

Position Endpoints

METHOD	ENDPOINT	DESCRIPTION
GET	/api/positions	Fetch available positions from FullScope Pro

Employee Application Endpoints

METHOD	ENDPOINT	DESCRIPTION
POST	/api/applications	Submit new employee application
GET	/api/applications	List all employee applications
GET	/api/applications/:id	Get single application by ID
GET	/api/applications/:id/pdf	Download application as PDF

Subcontractor Application Endpoints

METHOD	ENDPOINT	DESCRIPTION
POST	/api/subcontractor-applications	Submit new subcontractor application
GET	/api/subcontractor-applications	List all subcontractor applications
GET	/api/subcontractor-applications/:id	Get single application by ID
GET	/api/subcontractor-applications/:id/pdf	Download application as PDF

AI & Utility Endpoints

METHOD	ENDPOINT	DESCRIPTION
POST	/api/scan-license	AI-powered license/ID OCR scanning
GET	/api/system-reference/pdf	Download system reference guide (this PDF)

11. Security & Error Handling

Security Measures

- API responses never expose internal error details (stack traces, DB errors)
- License images excluded from applicant-facing API responses
- Zod schema validation on both client and server prevents malformed data
- FullScope Pro API authentication via Bearer token (server-side only)
- OpenAI API key stored as environment secret, never exposed to client
- Image format validation before AI processing (must be data:image/* URL)
- No admin endpoints exposed without authentication (license images, etc.)

Error Handling Strategy

SCENARIO	HANDLING
Validation Error (400)	Zod error details returned to help applicant fix fields
Database Error (500)	Generic message to client; full details logged server-side
AI Rate Limit (429)	Retry message shown; graceful fallback to manual entry
AI Parse Failure	Friendly error message; manual entry remains available
Pipeline Sync Failure	Application still saved; sync logged as failed
Position Fetch Failure	Empty array returned; page shows no positions

Server-Side Logging

All application submissions and pipeline syncs are logged with timestamps:

- Application ID, applicant name, email, position
- Database save confirmation
- FullScope Pro sync success/failure with candidate ID
- PDF upload confirmation
- Error messages and stack traces (server logs only)

12. External Integrations Map

The application system connects to external services for AI processing, hiring management, and position data.

Integration Summary

SERVICE	PURPOSE	DETAILS
FullScope Pro	Hiring Pipeline	Position fetching, candidate creation, PDF upload
OpenAI (GPT-4o)	AI Vision / OCR	License scanning and data extraction
PostgreSQL (Neon)	Database	Application data persistence via Drizzle ORM

FullScope Pro Integration Detail

DIRECTION	DESCRIPTION
Inbound	Positions fetched from FullScope Pro !' Landing Page
Outbound	Candidate cards created in FullScope Pro !• Application
Outbound	PDF documents uploaded to candidate profiles !• Server

OpenAI Integration Detail

CONFIGURATION	VALUE
API Key Variable	AI_INTEGRATIONS_OPENAI_API_KEY
Base URL Variable	AI_INTEGRATIONS_OPENAI_BASE_URL
Model Used	GPT-4o with Vision capabilities
Use Case	Driver's license / ID card OCR extraction

13. Complete Data Flow Diagram

This section shows the complete end-to-end data flow from an applicant visiting the landing page through the final candidate appearing in the FullScope Pro hiring pipeline.

Phase 1: Position Discovery

%A Applicant visits landing page
%R React app loads !’ TanStack Query fetches GET /api/positions
%E Express server authenticates with FullScope Pro (Bearer token)
%F FullScope Pro returns available positions
%P Positions rendered as interactive job cards
%L Language toggle allows English !” Spanish switching

Phase 2: Application Entry

%A Applicant selects a position !’ routed to correct form type
%E Employee: 4-step form (Personal !’ Work History !’ Education !’ Review)
%S Subcontractor: 5-step form (Specialties !’ Company !’ License !’ Agreements !’ W-9)
%O Optional: AI license scanning fills personal info fields
%R React-hook-form manages state; Zod validates each step

Phase 3: Submission & Storage

%A Applicant submits !’ POST to /api/applications or /api/subcontractor-applications
%S Server validates with Zod schema (insertApplicationSchema)
%A Application saved to PostgreSQL via Drizzle ORM
%U UUID assigned; timestamp recorded
%S Success response returned immediately to applicant

Phase 4: Pipeline Sync (Background)

%C Candidate card created: POST /api/external/applicants
%P PDF generated server-side with PDFKit (all data + photos)
%P Presigned upload URL obtained from FullScope Pro
%P PDF uploaded to object storage via presigned URL
%D Document record created linking PDF to candidate
%C Candidate now visible in FullScope Pro with complete application PDF

Data Flow Summary

Applicant !’ React Frontend !’ Express API !’ PostgreSQL (stored)
!“
FullScope Pro API (candidate + PDF)
!“
HR Team reviews in FullScope Pro