V8 Processing System – Design Specification

# Overview

The V8 Processing System automates the combination and formatting of fire alarm inspection reports submitted by multiple technicians in Excel format. The system is divided into two main components:  
  
- Part 1: A standalone Python-based application that merges highlighted data from multiple technician files into a master workbook.  
- Part 2: A set of Office Scripts embedded in the master workbook, which are manually triggered to apply sheet-specific formatting and data marking.

# Part 1 – Technician Report Combiner (Python + xlwings)

## Purpose

To merge highlighted data from multiple technician Excel files into a unified master workbook while preserving formatting, tracking attribution, and identifying conflicts.

## Input

- Multiple .xlsx files submitted by technicians  
- Files selected manually via drag-and-drop or file dialog  
- Input files must follow a known sheet structure and naming convention

## Sheet Handling

- Sheets listed in an exclusion list (e.g., 'ULC Coverpage') are ignored  
- Only sheets with highlighted cells are processed  
- Sheet-specific logic defines data regions, with fixed start rows and dynamic end detection when needed

## Merge Rules

- Identical data (value and formatting) across files is merged  
- Conflicts are flagged with pink highlighting and cell comments  
- Each row is tagged with a hidden 'Technician' column indicating the source file or technician

## Output

- Saved to the user's Desktop by default  
- Filename format: <Address>, <System Date>, V8.xlsx  
- System date is used to avoid errors from outdated technician inputs  
- If a file with the same name exists, a version number is appended (e.g., \_v2, \_v3)

## Summary

A summary of the merge process is displayed in the standalone application and written into a hidden column on the Coverpage sheet. It includes:  
- List of included sheets  
- List of skipped sheets  
- Conflict log (sheet name, cell, and value sources)  
- Technician attribution for each row or section  
- Merge timestamp

# Part 2 – Office Script Processor (Excel Embedded)

## Purpose

To allow processors to manually review and apply standardized formatting and marking to individual sheets in the master workbook.

## Execution

- Each sheet includes a dedicated button to trigger its corresponding script  
- No scripts run automatically; they are executed after manual review by the processor

## Functional Scope

1. Convert Highlighting to Logical Marks:  
 - Green → Checkmark  
 - Red → X  
 - Blue → R, RP, or RB depending on context  
 - Yellow → 'No Access' unless overridden by existing markings  
  
2. Formatting Enforcement:  
 - Standard font and size  
 - Borders applied to data cells  
 - Page breaks adjusted to fit data properly  
  
3. Quality Control:  
 - Detects text truncation or cutoff  
 - Does not flag missing marks as technicians only highlight, not mark

## Output and Workflow

- A clean, formatted Excel file ready for export  
- Final files (Excel and PDF) are uploaded to ServiceTrade and the local office server