

# Memorandum



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To: Whatcom County Council  
Through: Rob Ney, Project and Operations Manager, Tyler Schroder, Deputy Executive  
From: Lauri Strauss, AIA, LEED AP BD&C, President CEO, design2 LAST, inc  
Date: July 18, 2019  
Re: design2 LAST, inc Scope of Work for Existing Jail

We concur with Mr. Ney's outline of the history regarding the research, presentation and decisions made regarding the Smoke Evacuation system. In addition, we offer the following:

**October 11, 2016:** It is important to note the context of the phase 1A report, which was that the existing Jail was being replaced and the county wanted only to address the most serious issues to ensure the Jail would survive another 5-7 years. design2 LAST was awarded the contract to complete a Facility Condition Assessment on both the Jail and Work Center Buildings. During this assessment, our Jail Expert realized the Jail did not have a smoke evacuation system and this was included in our report. The estimate of ~\$817,000 was based solely on comparable systems in new facilities and not on any actual research of this facility.

**July 17, 2017:** You will note that this Phase 1B report contained much more detail regarding the smoke evacuation system. The research and conclusions documented here were based on review of as-built design drawings, review of the existing structural system, review of the existing HVAC system, review of the existing electrical system, and review of past and current building codes. This report documented the extensive demolition and new construction work that could be anticipated to install a new code compliant smoke evacuation system. The design team tried to capture all the major issues, and include concept sketches, knowing once design begins, there will be unforeseen circumstances yet to address. The estimate from the information presented in this report indicates a cost of ~\$4.1 million. Upon completion of this research our recommendation to the council was to not move forward with this scope of work. (*The following page describes the scope of work presented in Phase 1B report to install a smoke evacuation system.*)

**November 28, 2017:** The original plan for the charrette was to confirm the recommended scope listed in the Phase 1B report, which did not include the smoke system. Since this occurred shortly after the second county vote where funding for the new jail did not pass, the meeting became more of a reevaluation on the priorities at the existing jail repairs. While several new scope items were added, the smoke evacuation system was not.

Since our presentation to the council in **January of 2018**, when this concept design study was tabled, we have done no further research or cost estimates for the smoke evacuation system. **Moving forward with design may prove problematic. My current design team has expressed great concern regarding the risk they would undertake to design such a complex system in the existing jail. We do not believe the construction can be done if the jail is intended to remain occupied during that process.**

**Present:** After the charrette, our team agreed to accelerate the detention door scope as the top priority for the County. We are currently in the construction administration phase of that scope. Now that the work is underway, we plan to pick back up on design of the scope for the other tasks. We are approximately 50% at this time, having made several scope adjustments at the Counties request.

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## Smoke Evacuation System - scope of work

Scope Option 7-1 –Provide a code-compliant smoke control system in each of the two-story housing units to maintain the smoke layer 6 feet above the floor level of the upper cell. Refer to attached sketch M7.01.01 through M7.01.05.

- a) Two 7.5hp upblast type exhaust fans (similar to Greenheck TAUB 42H) will be installed on the roof of each housing unit centered between the upper cell wall and the duct enclosure on the east wall. Fans will provide independent smoke exhaust systems for each housing unit.
- b) 48x18 exhaust ductwork will be routed just below the ceiling of the housing units, outside the cells, between the two exhaust fans and on the outside of each exhaust fan (refer to sketches). The ductwork shall have multiple 18x13 exhaust grilles installed in the side of the ductwork (refer to sketches for quantity). Each grille shall have a balancing damper with an access door for field modulation of each pair of balancing dampers. Exhaust grilles shall be similar to Kruger series 1310. Ductwork will be enclosed in protective gyp cover like the existing sprinkler piping.
- c) 48x24 make-up air openings will be required in the walls of the lower cells. Each opening will require a thermally insulated isolation damper. Openings will receive security bars similar to the existing ones at the cell windows.
- d) The existing pipe chases will be used as a pathway for make-up air drawn to the roof. A 24x24 security type grille similar to Kruger series 1310 will be installed per pipe chases at the lower cell level. An intake penthouse will be installed on the roof for each pipe chase at approximately 34x34 in size, installed on a roof curb, and provided with a motorized isolation damper. The make-up grille will have a balancing damper. Refer to attached sketches for quantity.
- e) Draft curtains will be installed 4 feet apart on either side of the lower cell doors. Refer to attached sketches.
- f) Install a new generator and connect the new equipment to the new emergency power system. The new equipment will connect to the fire alarm system.
- g) The cell doors will connect to the fire alarm system or be manually opened by the deputies in order for the make-up air to get to the exhaust fan. (In order for the make-up air to get to the exhaust fan, the lower level cell doors will need to be opened).
- h) The gunnite and insulation on the outside of the west wall will be removed and an estimated new 4"-6" +/- thick reinforced shotcrete layer added to carry the roof load.
- i) A new foundation wall will be added to the outside of the existing foundation wall in this location.
- j) The roof openings would be placed in each 8' wide hollowcore slab, which will require the removal of the entire 27'-4" spanning hollowcore roof slab over the housing units. Removal of the hollowcore slab will require a crane to lift the individual hollowcore slabs as they are sawcut free. The existing concrete at each end of the hollowcore will need to be carefully chipped away to free the panel from the wall dowels and embed connections. Each roof panel will be replaced by an approximately 12" thick conventionally reinforced concrete slab. This process will need to be phased, with replacement work occurring simultaneously with the removal work, so that the bearing walls are not left unbraced due to a missing roof diaphragm for long periods of time.
- k) Remove the existing abandoned generator. (The existing facility emergency/standby power system (described below) would not support the new smoke control system.)
- l) Provide new emergency/standby diesel engine generator to be installed in the basement generator room where the abandoned generator was removed. Conceptual generator system size is 300kW/375 kVA.
- m) Provide new 600 Amp ATS and output distribution panelboard and associated normal and emergency feeders.
- n) Provide branch panelboard(s), motor controllers and branch circuits to supply smoke management fans, dampers and associated controls.
- o) Provide fire alarm detection, signaling and smoke management system controls.