Attachment A

City of
Moose Jaw

COMMUNICATION # CC-2020-0232

TITLE: **Allocation of Reserve Funds - Heritage Advisory Committee Projects**

TO: **City Council**

FROM: **Department of Parks and Recreation**

DATE: **September 10, 2020**

PUBLIC: **PUBLIC DOCUMENT**

RECOMMENDATION

THAT the allocation of $20,000 from the Heritage Reserve for the construction of a stand for the original City Hall bell be considered during the 2021 Capital Budget deliberations; and,

THAT the replacement of the City Hall clock face and the restoration of the City Hall bell be considered and prioritized in the 2021-2025 Parks and Recreation Capital Budget submission.

EXECUTIVE SUMMARY

At the March 9, 2020 regular meeting of City Council, two (2) separate resolutions from the Heritage Advisory Committee were referred to Administration for a report on the use of reserve funds.

The Heritage Advisory Committee motions recommended that a maximum of $15,000 be allocated from the Heritage Reserve for the construction of a stand for the original City Hall bell and that a maximum of $45,000 be allocated from the Facilities Reserve for repairs to the glass in the City Hall clock tower and the restoration of the City Hall bell.

Administration has obtained pricing and designs for both items and is recommending that the projects be referred to the 2021 Capital Budget deliberations.

If the projects are approved at budget, the following items would be referred to the Heritage Advisory Committee for review and input:

- Feedback on the design of the historic town bell stand.
- Feedback on the installation location of the town bell stand and a recommendation to City Council on the final location.
- Recommendation to City Council on the intended use of the restored City Hall bell.

BACKGROUND

At the February 19, 2020 Heritage Advisory Committee meeting, the following resolutions were submitted to City Council for approval:

THAT approval be granted to the allocation of funds to a maximum of $15,000 from the Heritage Reserve account for the stand for the original City Hall bell.

THAT approval be granted to the allocation of funds to a maximum of $45,000 from the Facilities Reserve account for repairs to the glass in the City Hall tower clock and the City Hall bell.

At the March 9, 2020 regular meeting of City Council, the Heritage Advisory Committee resolutions were considered by City Council, and the following resolutions were passed:

THAT the motion regarding approval of the allocation of funds to a maximum of $15,000 from the Heritage Reserve account for the stand for the original City Hall bell be referred back to Administration for a report on the use of reserve funds.

THAT the motion regarding approval for the allocation of funds to a maximum of $45,000 from the Facilities Reserve account for repairs to the glass in the City Hall tower clock and the City Hall bell be referred to Administration for a report on the use of reserve funds.

DISCUSSION

The Parks and Recreation Department has reviewed the projects being proposed by the Heritage Advisory Committee and has obtained budgetary pricing and initial design concepts.

Project # 1 – Stand for Historic Town Bell

Bell History

- 1902 – Bell was purchased and erected on a derrick at the rear of Town Hall on Main Street and River.
- 1904 – Bell was moved to City Hall on Fairford and used for fire alarm and curfew calls.
- 1951 – Bell was removed from City Hall and moved to St. George's Church.
- 1972 – Bell donated to the Arts Museum and displayed in Crescent Park.
- Approx. 2010 – Bell was removed from Crescent Park and stored at City Yards.
- 2018 – Bell was refurbished by Saskatchewan Polytechnic students (pictures attached to report)

Steady Metalworks of Moose Jaw has reached out to the Heritage Advisory Committee and offered to build a stand for the bell so that it can be proudly displayed in the community. Their time would be donated and would only charge for the materials and transport. They have also completed an initial design and provided a cost estimate of $16,125 plus taxes to build and install it. The proposed design is attached to the report.

Administration supports the recommendation to access the Heritage Reserve to fund the project. If the current design proposal is accepted, the budget will need to be increased to $20,000. The current balance of the Heritage Reserve is $21,358.

The Heritage Reserve account was developed largely by the Heritage Advisory Committee contributing money towards this account intending it to be spent on rehabilitating the Natatorium. In 2018 the old town bell was restored in partnership with Sask. Polytech with approximately $4,500 in Heritage Reserve funds being spent towards the project.

Project # 2 – Replace City Hall Clock Face and Restore the Bell

The second project recommended by the Heritage Advisory Committee is the replacement of the City Hall clock face and the restoration of the City Hall bell with the addition of an automated bell striker.

The clock face has faded and deteriorated significantly and will need to be replaced in the near future. It is also recommended that this be completed prior to activating the bell again as the bell vibration could further expose the issues with the clock face.

Information on how the clock face would be refurbished is attached to the report. The projected cost of this project is $25,000.

Quotes have also been received on the installation of an automated bell striker for the City Hall bell and further information on that project is attached. The projected cost is $20,000.

The Heritage Advisory Committee has recommended that this project be funded through the Facilities Reserve which has a balance of $408,181. After review, the Parks and Recreation Department feels this project would not meet the purpose of this reserve and would prefer to prioritize the project in its 2021 – 2025 Capital Budget request. The Facilities Reserve is historically used to fund emergency repairs to City Facilities that do not have a source of funding.

OPTIONS TO RECOMMENDATION

- Rather than refer the Town Bell Stand Project to budget deliberations, City Council may choose to immediately proceed with the source of funding being the Heritage Reserve.

COMMUNICATION PLAN

The decisions made by City Council will be communicated to the Heritage Advisory Committee.

STRATEGIC PLAN

This report supports the strategic objective of Branding the Moose Jaw Story as significant pieces of Moose Jaw's history would be restored for the benefit of Moose Jaw residents and visitors.

OFFICIAL COMMUNITY PLAN

The report supports the Official Community Plan Cultural Heritage objective to identify, conserve and interpret the built heritage of Moose Jaw in a planned, selective and economically feasible manner for the benefit of present and future generations of Moose Jaw residents and visitors.

PRESENTATION

The Director of Parks and Recreation will provide a brief overview of this report.

ATTACHMENTS

A. Before and After Pictures of Refurbished Town Bell

B. Town Bell Design Concept

C. Clock Face Replacement Project

D. City Hall Automated Bell Proposal

REPORT APPROVAL

Written by: Derek Blais, Director of Parks and Recreation
Reviewed by: Myron Gulka-Tiechko, City Clerk/Solicitor
Approved by: Jim Puffalt, City Manager
Approved by: Fraser Tolmie, Mayor

To be completed by the Clerk's Department only.

Presented to Regular Council or Executive Committee on _____.

Resolution No. _____

Report Approval Details

Document Title:	Allocation of Reserve Funds - Heritage Advisory Committee Projects - CC-2020-0232.docx
Attachments:	- Before and After Pictures.pdf - Proposed Bell Stand Design.pdf - Clock Face Restoration Info.pdf - Moose Jaw Bell Proposal.pdf
Final Approval Date:	Sep 16, 2020

This report and all of its attachments were approved and signed as outlined below:

Tracy Wittke

Jim Puffalt

Fraser Tolmie

BEFORE

AFTER

Proposed Bell Stand Design – Steady Metalworks

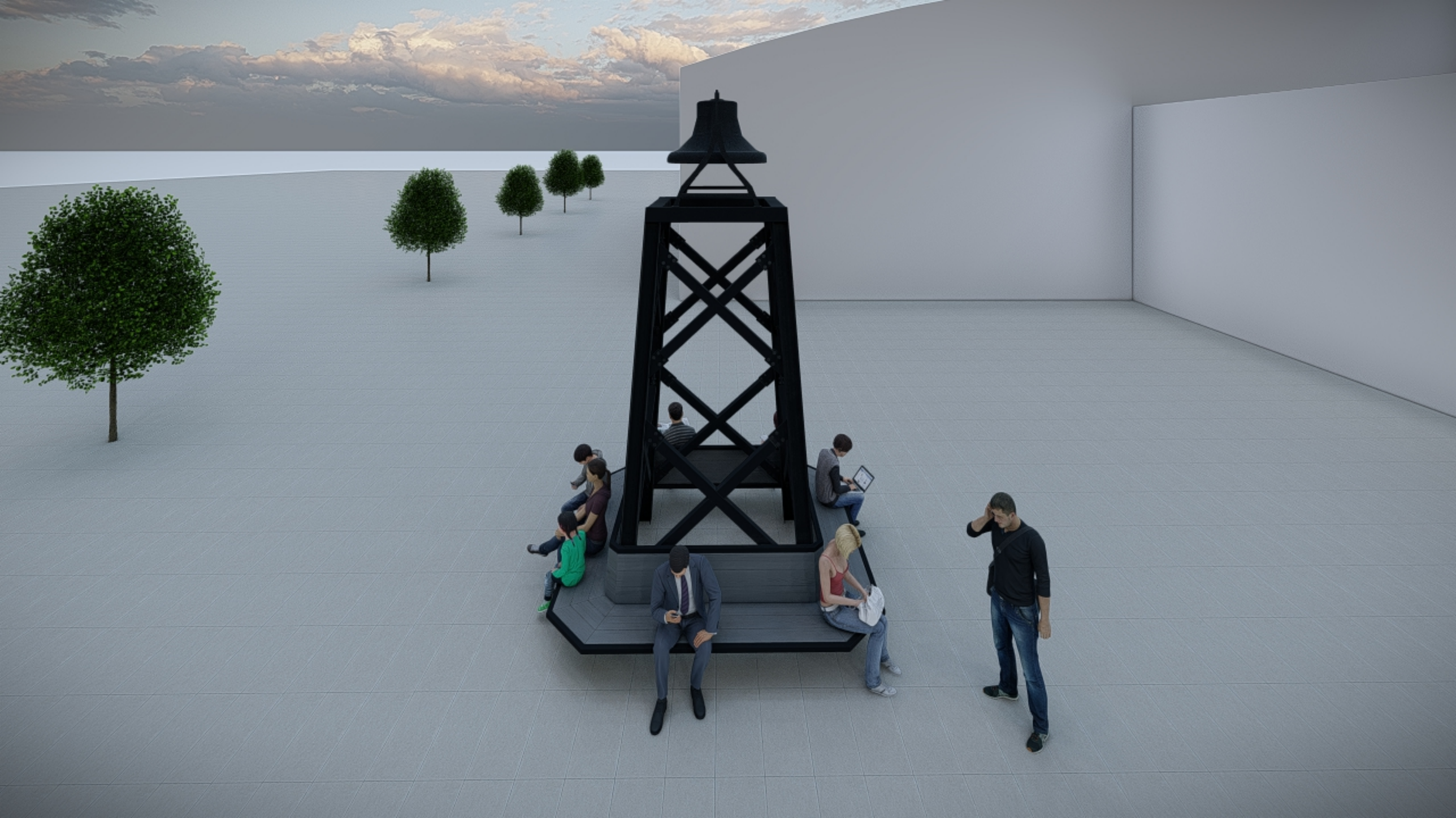
We took design cues from early 20th century structures to try and match the stand to the time period of the bell. Lots of old train bridges and buildings were built in a similar way with cross bracing and rivets. We had an idea to add a bench around the stand and make this a functional piece as well.

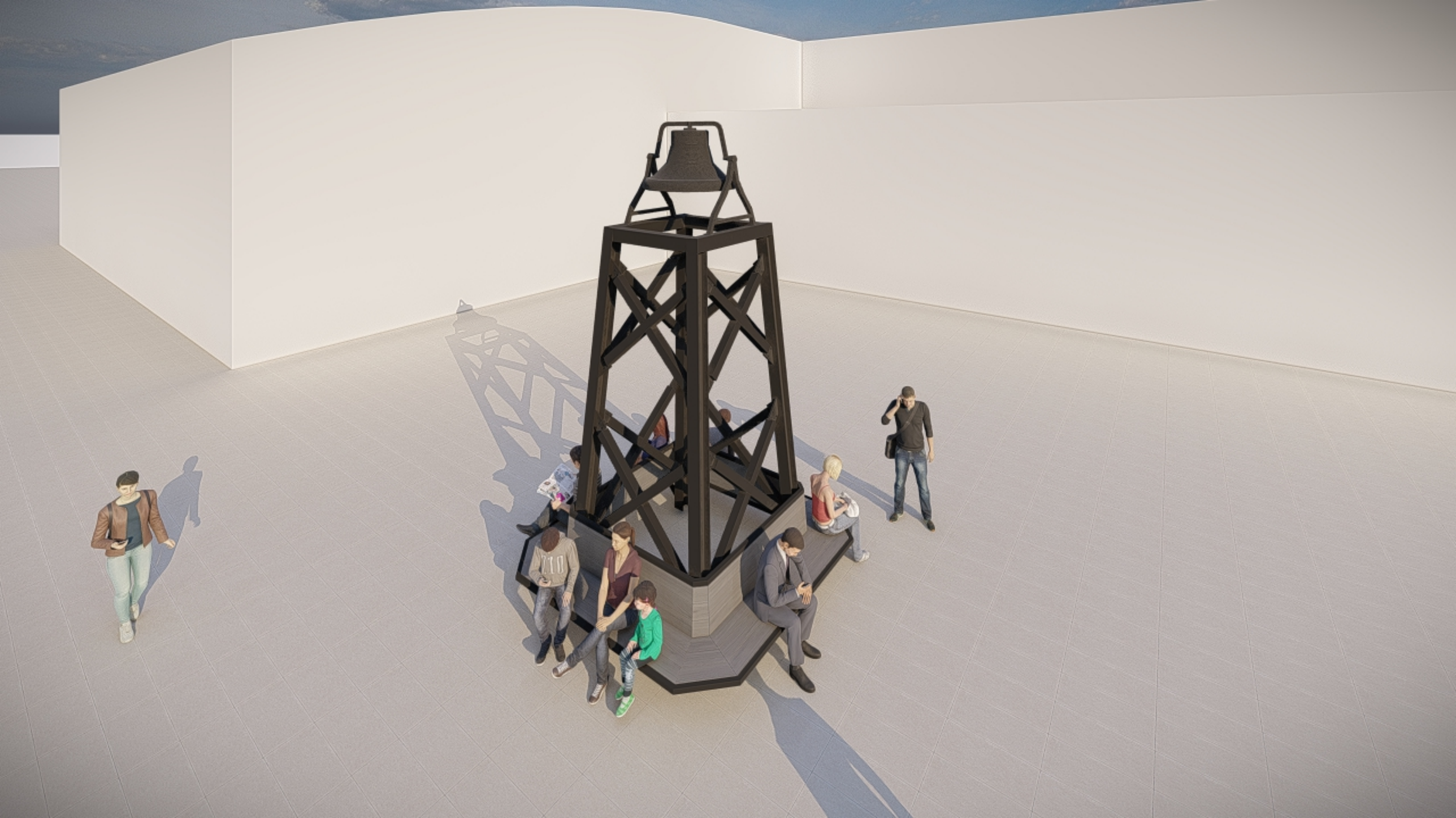
We would like to add a plaque to the frame that displays some information about the history and the significance of this bell to the city.

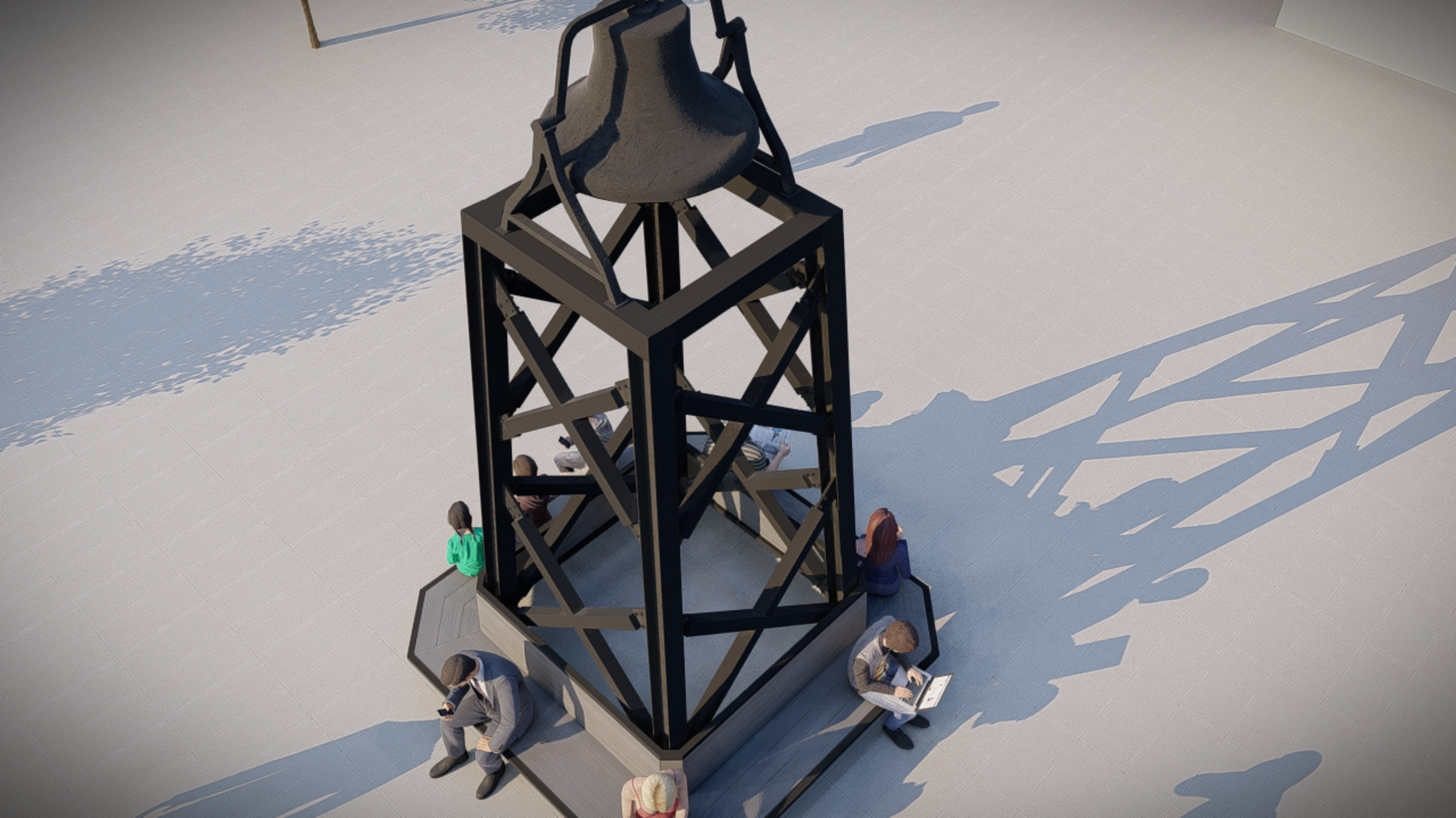
The size - currently in our renderings, the stand is 12 feet tall, plus the height of the bell which is around 3 feet. The base of the stand is 10 feet X 10 feet to the outside of the bench seats. The steel frame without the bench is around 6 feet X 6 feet. We wanted to make the stand big enough to make a statement since the bell is so large and heavy. We can make the stand smaller if necessary. It also keeps the bell high enough off the ground to discourage vandalization.

The bench - This would be an additional feature from our initial design ideas, but we think it would be great to make some use out of the stand and make it functional. We designed the stand as an all steel structure with composite deck boards on the bench, so it is designed to hold up well to the outdoor weather.

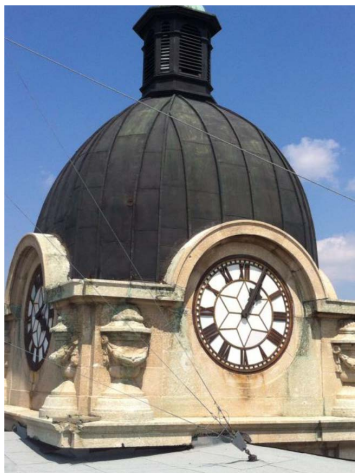
We were initially picturing a pretty basic structure but once we started the design we came up with a few ideas and kept rolling with it. We can certainly make a more basic stand if this option is over your budget. If we eliminate the bench idea and just do the derrick stand, we could get the cost down a bit, but we really think the bench is a great feature.








Mosaic Place



Moose Jaw City Hall Clock Face restoration.
Research has shown that all Plastic based materials produced as a substitute, for window glass, are prone to discolouration over time.
Stained Glass has stood the test of time, lasting centuries with no discolouration.
The main weakness of Stained Glass is the fact, that it is more prone to breakage. This is unacceptable.
Our plan to minimize this weakness, is to supply a ballistic film, will be custom applied to the inside of each piece of glass installed in the restoration of the Moose Jaw City Hall Clock Faces. Our choice of film is based on strength, cost and ease of application. We feel that based on these criteria the finished product will be approximately bomb proof, but not bullet proof. However, no matter what condition the glass is subjected to, it will never shatter, virtually eliminating any inherent safety concerns.
Each clock face has 24 individually mounted pieces of glass. With 4 clock faces this makes 96 individual pieces of glass, individually mounted in the steel frame of each clock face.
We consider this to be 96 separate projects. Our research has also shown that there are very few pieces that are actually the same exact size and shape as any other. To the best of our inspection on the clock faces, it would appear that on each clock face at the same location, the individual piece of glass on all 4 faces may be the same dimensions. This is important: if the same piece of glass can be removed at the same time frame then 4 similar pieces can be cut and the project time frame is more quantifiable.
Based on previous experience, two workers are required. This insures each existing piece of glass can be removed from its frame, hopefully unbroken. No matter the present state of deterioration of the glass, or if the glass does break, our extraction method allows absolute minimal shattering of the glass.
As mentioned there are 96 pieces of glass making up this restoration. 6 pieces make up the star in each clock face. 6 pieces are fill around star pieces in each face, and 12 pieces behind the numbers on each face. The numbers and design seen from street level is another frame mounted approx. 4” in front of

the glass frame.
The glass pieces behind the numbers are of the most interest. They will be very custom cuts. This is due to the shape of the clock face frame. The metal framing constructed 104 years ago was, manufactured to jog in line with the "minute hand" metal framing in front of the clock face frame. This extra framing was done so no odd shadows would be seen from street level. Glass tends to want to break when small pieces are left on big pieces of glass during the cutting process. The original glass cutters left the edges rounded to minimize these small pieces breaking off.

Job Breakdown:

Day 1

-goto job site, mount "Maneuvering Frames" to each piece of glass in same location on each clock face frame with silicon. Apply thin coat of silicon to remaining exposed glass. Let set 24hrs. Leave job site.

Day 2

-goto job site, secure "safety system" to "Maneuvering Frame", remove old securing pins and blocks. Remove caulking or glue or silicon. Slowly work glass from metal frame. Apply orientation sticker to street side bottom of glass. Mark face and piece number on sticker. Clean glass and place in Glass carrier. Repeat for next 3 pieces.
-One worker transports glass to studio while one worker cleans metal frame where old piece was.
-goto studio. Cut 4, hopefully same dimension, pieces of glass. Install orientation sticker and identify each piece.
-clean glass and apply ballistic film. Let dry 24 hrs.
-remove and clean "Maneuvering Frames" from old pieces of glass.
-goto job site and mount "Maneuvering Frames" to next piece to be removed. The next piece should not be adjacent to missing glass piece location. Let set 24hrs.

Day 3

-studio, place ballistic glass in carrier goto jobsite
-prepare frame with butyl caulking, apply suction cup carriers to ballistic glass on film side.
-remove orientation sticker

-place glass in frame, secure with new pin and block, apply butyl and smooth out.
-goto job site, secure safety system to "Maneuvering Frame", remove old securing pins and blocks. Remove caulking or glue or silicon. Slowly work glass from metal frame. Apply orientation sticker to street side bottom of glass. Mark face and piece number on sticker. Clean glass and place in Glass carrier. Repeat for next 3 pieces.
-One worker transports glass to studio while one worker cleans metal frame where old piece was.
-goto studio. Cut 4, hopefully same dimension, pieces of glass. Install orientation sticker and identify each piece.
-clean glass and apply ballistic film. Let dry 24 hrs.
-remove and clean "Maneuvering Frames" from old pieces of glass.
-goto job site and mount "Maneuvering Frames" to next piece to be removed. The next piece should not be adjacent to missing glass piece location. Let set 24hrs.

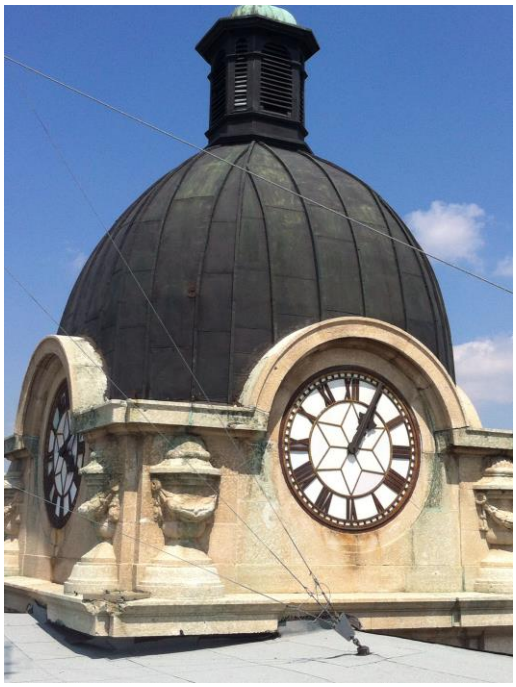
Day 4 and on are hopefully perfect repeats of Day 3

Materials:

-Fabricate Maneuvering Frames
-Silicone
-Tie off Safety rope or string to mount to maneuvering frames and suction cups
-Blades for Vibrating Tool
-Heavy duty Olfa Blades
-Wire brush and hand broom
-Respirators, Hearing protection, work gloves
-Glass transport enclosures
-white stained glass
-glass cutting blades
-glass cleaner
-ballistic film and magic adhesion product, water application bottle
-pins and blocks
-butyl adhesive
-fall restraint
-scaffolding

Design, Development, Fabrication & Installation

Bell Automation



DESIGN, DEVELOPMENT, AND FABRICATION

I. BELL RINGING EQUIPMENT

Cast Bronze Bells: The customer has an existing 33-1/4" diameter bronze Bell(cast in 1913) installed in the tower. The following equipment is offered to automate the ringing of this bell.

Mechanical Bell Ringing Equipment: One Verdin Outside (VO) Bell Striker Unit will be provided for the bell described above.

The Verdin VO Striker Units are custom designed to ring stationary bells. Strikers are arranged to strike the correct striking point on the exterior of the bell. The clapper pivot is bushed with nylon igus type bearings. The clapper is operated by electromagnetic coils that operate on a nominal voltage of 240 volts DC, which is furnished by an associated driver board. Clapper operates on stainless steel shaft with igus bushings. Each striker is equipped with necessary mounting hardware for mounting to the bell frame. The Verdin VO striker is treated with yellow zinc chromate plating and then finished with an exterior grade, satin black powder coating. This double protection against corrosion will give the striker a long life.

Bell Support Bolts: New stainless steel support bolts will be manufactured for the proper support of the bell. The Verdin Company will install the new support bolts as part of this agreement.

Digital Bell Ringing Controller: Verdin shall provide an electronic bell controller. This electronic device will be the primary user interface and will allow simple and reliable operation of your bell system. Each digital bell ringing controller is specifically configured to properly operate the bell ringing equipment as listed above.

Digital Bell Controller 870: The bell control module is designed to control both stationary bells and swinging bells. The driver boards will be furnished with the stationary bell solenoid strikers. The striker price will include these driver boards. Driver boards are solid state devices which will convert to 220 VAC to approximately 200 VDC through a bridge rectifier to operate the D. C. solenoids. Each driver board is equipped with an automatic cut-out circuit. The automatic cut-out circuit will be activated by any short circuit in a solenoid, rectifier, or if the circuit should cause the solenoid to be ON more than three continuous minutes. After the defect has been corrected, there is a re-set button to place the driver unit back into operation. For swinging bells, the driver boards, as used with stationary bells, will be replaced with solid state relays, one for each bell.

A. Dimensions: 13.0" L x 7.5" H x 2.25" D. The modules are metal and will be painted in matte black/ gold finish. Keypad operation can be inhibited via a user pass code. The electrical current requirement will be 1 amp at 115 volts AC. The output control voltage is 12 volts DC.

B. The all new Digital Bell Controller 870 is furnished as a shelf mounted unit or a wall mounted unit where required. The time will be adjusted unattended in the Spring and the Fall of the year (to accommodate Daylight Savings Time).

C. The enclosure will contain basic components for operation of the bell(s) as follows:

1. Parent solid state control board.
2. 1 Push Button for instant toll. (Each time the instant toll button is depressed, the largest bell of system will strike one blow.)
3. 1 Stop Button (used to stop any bell function.)
4. 1 Fuse block.
5. 1 AC power cord.
6. Cover panels and labels.
7. Plug in for output control wires.
8. 5 Quick start buttons

D. The Verdin DBC 870 Bell Controller is a micro-processor directed program control system comprising a highly accurate crystal-controlled clock with a digital time base program memory, programming keypad and display, and required input and output interfacing especially designed for the control of bell ringing schedules. This system can also operate and tower clock synchronization, and time-strike functions, if these functions have been ordered for this installation.

E. The control system maintains accurate present time in accordance with internal crystal-controlled time base. One or more independent program control channels may be provided, which shall be used to control assigned bell ringing function(s).
Program times may be programmed at any minute interval of the day, and a given time of operation may be on each day of the week or on one or more days only. For daily operation at a given time, only one program instruction is required. The DB870 has 10,000 program points.

F. In case of power failure, internal time base is maintained by means of internal backup batteries (which are constantly kept charged when normal power is available). A programming electronic key-code is provided to prevent unauthorized use. All program times are held in Non Volatile flash memory that does not require a battery.

G. All initial time setting and bell ringing schedule programming is done by means of a simple, twenty character touch keypad mounted on the panel with associated alpha/numeric display. Programming is simplified with easily understood prompts being furnished to the user at all steps during programming or setting.

H. The system is provided with fully automatic daylight saving time set feature. At any time a time change is to occur, the master clock will then set itself automatically to the new time (and will at the same time reset any tower clock(s) that may be controlled by this system to the new time).

1. **Doppler**. This solid state device is designed to simulate the effect of a swinging bell through the use of a stationary bell striker. The modular printed circuit board is provided with three (3) adjustments for regulating tempo or rate of

striking, regulating alternate hard/soft strikes and for regulating rhythm; thus all functions may be adjusted for the weight of the bell to be struck.

2. **Funeral Toll**. The largest bell in the tower is controlled by the microprocessor to toll one (1) blow each ten (10) seconds. Depressing the toll switch one (1) time allows the bell to toll continuously until the stop switch is depressed or for five (5) minutes, with automatic shut off.

3. **Hour and Half-Hour Strike**. This microprocessor-controlled time strike system shall be included as a part of the Master Program Controller.

   The mode of operation is as follows:

   a) The proper number of each hour will be struck on the bell being controlled, (at a standard rate of one strike each three seconds), at all hours when the hour strike is programmed to be in operation.

   b) One strike on the bell will mark the half hour, if the system is programmed to do so. The unit can be programmed to omit striking at any desired hour, half-hour, or range of hours.

I. Interface: The interface is necessary for the conversion of low voltage triggers to operate high voltage equipment.

PHOTO GALLERY

Existing Bell

Inside of Bell – Support Bolts

Top of Bell – Space between bell & beam

Existing Bell Striker

Example of Badly Corroded Bell Support Bolts

Example of Bell with Verdin VO Bell Striker

Verdin Relay Panel

Verdin DBC 870 Bell Controller