



FEASIBILITY REPORT

Hamilton City Hall - Power Assisted Doors

Revision - March 17, 2014

INVIZIJ ARCHITECTS INC.

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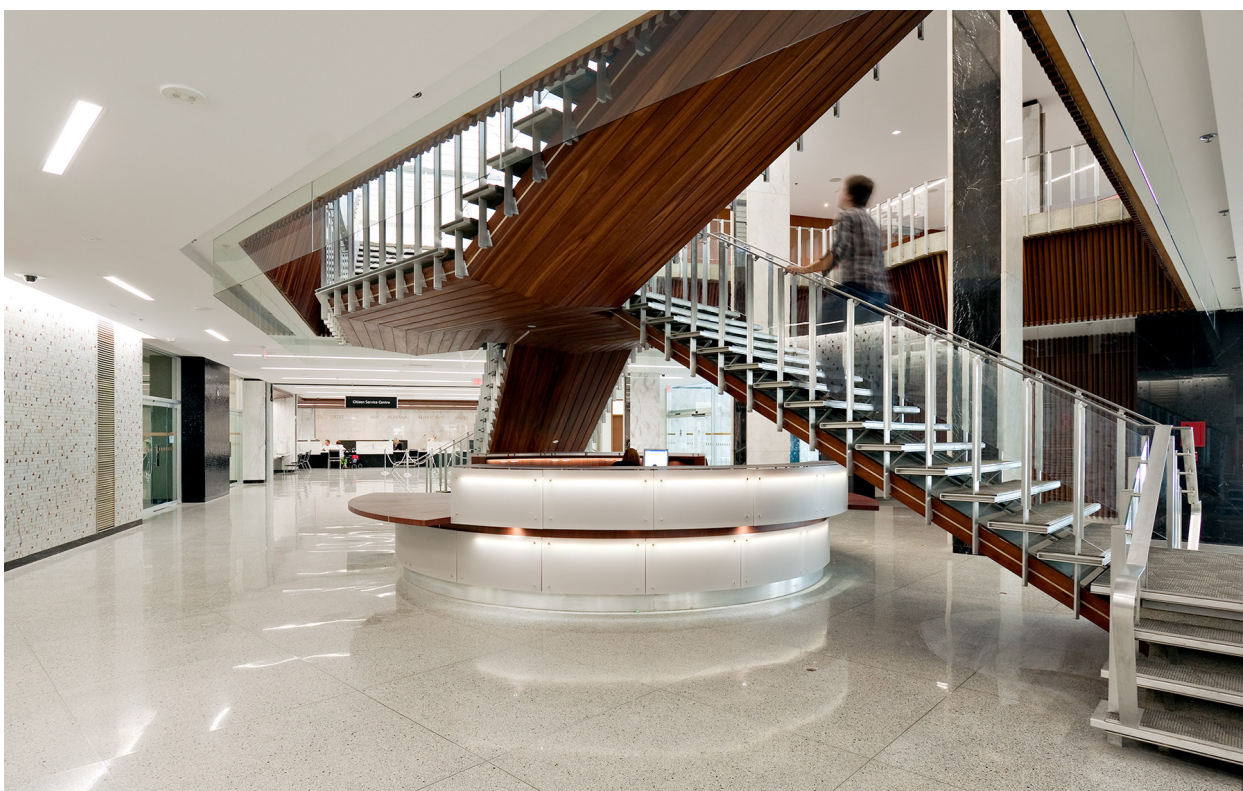


1. INTRODUCTION

Hamilton City Hall is located at 71 Main Street West in Hamilton, Ontario.

INVIZIJ ARCHITECTS INC. was commissioned by The City of Hamilton in December 2012 to investigate the feasibility of provided power door operators on existing doors used by the public leading to the Council Chamber and various meeting rooms as detailed in this report. Invizij has retained the services of Trinity Access Consultants to provide recommendations on a per door basis for how to achieve the power door operator installation while maintaining heritage designations. Invizij has retained Hanscomb to provide a Cost Estimate on a per door basis for the scope of work defined in this report.

On January 09, 2013 and January 18, 2013 the consultant team and client visited the site to evaluate the existing conditions of these doors. The following report outlines our findings, recommendations and associated costs.



2. EXECUTIVE SUMMARY

PAGE 2

The following is a summary of each section of the report outlines our key findings, recommendations and associated costs.

Section 3 - Stakeholder Comments

This section summarizes comments/questions received from various stakeholders including General Stakeholder comments, Built Environment Sub-Committee (BESC) comments and Heritage Comments. Each comment/question includes a response based on the recommended solutions for each door.

Section 4 - Observations & Recommendations

This section summarizes the existing conditions and scope of work recommendations in order to provide barrier free access for each door. The work generally includes hardware revisions and related electrical work, frost glazing transoms to conceal new hardware and repairs to surrounding materials and components required for the hardware installations/revisions.

Door 220A - Council Chamber Doors has two options and involves full replacement of the glazed wall system in either option. A summary of advantages, disadvantages and the scope of work required for each option is detailed in this report on pages 7-13.

This section also identifies the doors requiring a heritage permit which would need to be obtained prior to submitting for Building Permit. There are 14 doors out of the total 25 doors in question that will require a Heritage Permit.

Section 5 - Cost Estimate

Hanscomb Limited prepared a Construction Cost Summary for work related to these 25 doors. The Construction cost and Overall Project Costs are summarized below. Refer to page 3 and 4 of the cost estimate for a full list of exclusions in the Construction Cost.

Option 1 Construction Cost (based on Door 220A as Horton Automatics HD-Slide) \$231,700 + HST

Option 1 Overall Project Cost (based on Door 220A as Horton Automatics HD-Slide) \$332,860 + HST

Option 2 Construction Cost (based on Door 220A as Besam Unislide Telescopic) \$244,800 + HST

Option 2 Overall Project Cost (based on Door 220A as Besam Unislide Telescopic) \$349,580 + HST

Appendix

The appendix includes specifications on the two options for Door 220A, Specifications for switchable glass proposed for Door 220A, Key Plans locating the doors in question, Door type diagrams showing the elevations of each door and a Door Schedule which summarizes the door/frame information including the cost per door and a Project Schedule

Project Schedule

Two Schedule options have been included in Section F & G of the appendix.

Option 1 has a Project Start date of May 05, 2014 and Final Completion Date of May 25, 2015

Option 2 has a Project Start date of March 02, 2015 and Final Completion Date of March 24, 2016



3. STAKEHOLDER COMMENTS

Invizij Architect met with the various stakeholders on April 18, 2013 to review the details of the following report. During this meeting and in emails following this meeting the stakeholders provided us with their comments, questions and concerns. Invizij Architect also met with the Heritage Sub-Committee on June 24, 2013.

GENERAL STAKEHOLDERS COMMENTS

DOOR LOCKING/OPERATING

Comment/Question 1

For doors with an existing lockset (turn-key in the door) where we intend to install an operator and new strike is there a way to program it so when the lock is turned to unlock the door it then turns on the operator and when the lock is turned to lock the door it turns off the operator?

Response (2 Parts)

Part 1 - Since the locksets are mechanical only the easiest method of turning the operator into an on/off position would be the addition of a keyswitch (electrical) beside the opening.

Part 2 - The existing doors have cylindrical locks. The locks would have to be replaced with a mortise lock (requires different door prep) which would wire to function with the Electric Strike. Many of the openings have narrow frames however which would mean replacing door and frame-This is an issue with heritage doors.

Comment/Question 2

Can we install a switch that is not as high as the operator that links to the operator to switch it off so that they don't need ladders, stools etc. to switch it off?

Response

A1. Yes (see A1 Part 1)

Comment/Question 3

For doors that have power operators added and already have card readers can you use the Card reader only- When you swipe card it activates operator and opens the door. Push button on the inside of the door?

Response

Yes.



3. STAKEHOLDER COMMENTS...CONTINUED

Comment/Question 4

Some doors have existing Card Readers. Where we are adding power operators to these doors can the following occur: Swipe card to activate the operator and then push the button to open the door or push the door open?

Response

Yes. You can have a two stage system whereby the card only unlocks the door but pushing an adjacent actuator activates the auto operator.

(Please note these responses were provided by our Hardware Consultant Trinity Access Consultants)

Door 220A Comments - Refer to Page 7-8.

BUILT ENVIRONMENT SUB-COMMITTEE (BESC) COMMENTS

Comment/Question 1

The committee members felt that the City should automate all doors to all meeting rooms where the public would have access to, since you cannot predict when or if someone with a disability would need to access the room and may need assistance to enter if there is not an automatic door operator installed. They feel that all doors should have the operators. They thought that the report was fairly comprehensive

Response

The report includes all public meeting rooms.

Comment/Question 2

The committee understands that funding may be a problem and create difficulty trying to make these changes all at once so they suggested that the meeting room doors on the first and second floors be automated first then move to the floors above from 3 - 8 until all doors to public meeting rooms have been automated. They have also requested the the City consider extending another elevator to the 8th floor so that there are two elevators that can deliver passengers to this floor and also in cases where one elevator malfunctions or is being serviced then there is a second one to use.

Comment/Question 3 - Specific to Council Chamber Doors 220A. Refer to Page 9 for this comment.

(Please note these comments were provided by Maxine Carter)



3. STAKEHOLDER COMMENTS...CONTINUED

HERITAGE COMMENTS

Comment 1

From a heritage perspective, status quo is the preferred option for most of these doors. However, in each case there are better and worse approaches.

Comment 2

Under the Ontario Heritage Act, Council is required to consult with its Municipal Heritage Committee prior to approval of any alterations to heritage properties. My feeling is that we should consult with the Heritage Permit Review Subcommittee, at least on a preliminary basis, prior to Council approval of any of these options. The Subcommittee's next meeting is May 22.

Note-This meeting took place June 26, 2013.

Comment 3 - Specific to Council Chamber Doors 220A. Refer to Page 9 for this comment.

(Please note these comments were provided by Meghan House)

4. OBSERVATIONS & COMMENTS

GROUND FLOOR



INTERVIEW ROOM - DOOR 118A

EXISTING CONDITIONS

This door is an existing **Heritage** aluminum framed glass door system. There are two operable leafs. The existing hardware includes a floor closer and lockset (bolt above). The door is in good working order.

RECOMMENDATIONS

- Maintain existing door
- Install Heavy Duty Surface Mounted Automatic Door Operator and actuator (One Leaf Only) & related Electrical Work.

Note: Heritage has advised that a Heritage Permit is required for this door. We anticipate the process for approval of this door will be difficult due to location of push button installation & therefore heritage provisions will be made in the cost portion of this proposal.

Note: Owner will need to ensure that when, the door is in the locked position, the power operator is switched off.



CONFERENCE ROOM-DOOR 192 & CONFERENCE ROOM DOOR 193

EXISTING CONDITIONS

These doors are existing stained wood doors in a stained wood frame with a glass transom above. These doors are not heritage. The existing hardware includes a lever lockset. The doors are in good working order.

RECOMMENDATIONS

- Maintain existing doors
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.
- Frost glazing above doors to conceal power operator.

Additional work if wood frames are too narrow for an electric strike:

- Remove existing locksets & install new master keyed deadlocks door pulls.

SECOND FLOOR



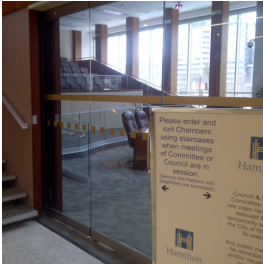
COUNCIL CHAMBER - DOOR 220A

EXISTING CONDITIONS

This door is an existing glass door system that is the main entrance to the council chamber. This door is not heritage. There are two functions for this door.

Function 1: There are two leaves that pivot.

Function 2: The entire system opens into a pocket on either side of the door system. This allows Council Chamber to host larger events.



This existing door system is not in good working order. The process of opening the entire door system into the pockets is time consuming, inflexible and not safe for the individual doing so as the individual panels are large and heavy. The hardware at the bottom of the door system for where the panels lock into also cause tripping hazards. The configuration of the existing door system will not allow the addition of power operation.

RECOMMENDATIONS

It is our recommendation that a new door system is installed in order to achieve power operation, flexibility and safety.

We investigated various possible options for this door. Based on the investigation of these various options we have narrowed it down to 2 recommended and feasible options. See following page.

Refer to Appendix for Door Specifications

Note: Heritage has advised that although this door is not a heritage door a Heritage Permit is required for this door due to the heritage surfaces that will be affected around the door.

We anticipate the process will be difficult if Option 2 is chosen and therefore heritage provisions have been made for this door in the cost proposal.

Option for Switchable Glass:

For either option switchable glass could be considered to provide privacy and eliminate the need for the existing blinds.

Switchable glass can be clear or 100% translucent with the flick of a switch.

Refer to Appendix for Switchable Glass Information

SECOND FLOOR



COUNCIL CHAMBER - DOOR 220A

GENERAL STAKEHOLDER COMMENTS

Comment/Question 1

Happy with both Options with respect to the doors themselves. Either option will make it easier for maintenance staff to open the doors and are safer options. Cost should play a large part in which Option is chosen

Comment/Question 2

We love the switchable glass idea. This will really assist and go a long way in removing the current screen which gets stuck constantly on the tracking.

Comment/Question 3

If the work can be done during the Summer Schedule July 15 to to August 9th there are no Committees or Council meetings scheduled.

Comment/Question 4

There is a Camera which is positioned in the middle just above the projector screen. So, we need to ensure that if that camera is to be removed for the glass installation, that it is replaced

Response

Removing and replacing the camera can be added to the project scope.

Comment/Question 5

What is the Maintenance and Warranty for the Switchable Glass

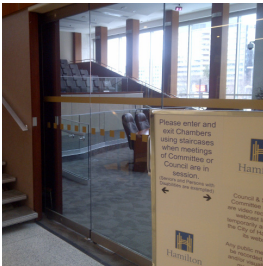
Response

3 years unlimited warranty for operation and 5 year warranty against delamination.

-No periodic maintenance

-Lifespan is expected to be beyond the at minimum 10 years.

(Please note this information was provided by Schott Glass)



SECOND FLOOR



COUNCIL CHAMBER - DOOR 220A

Comment/Question 6

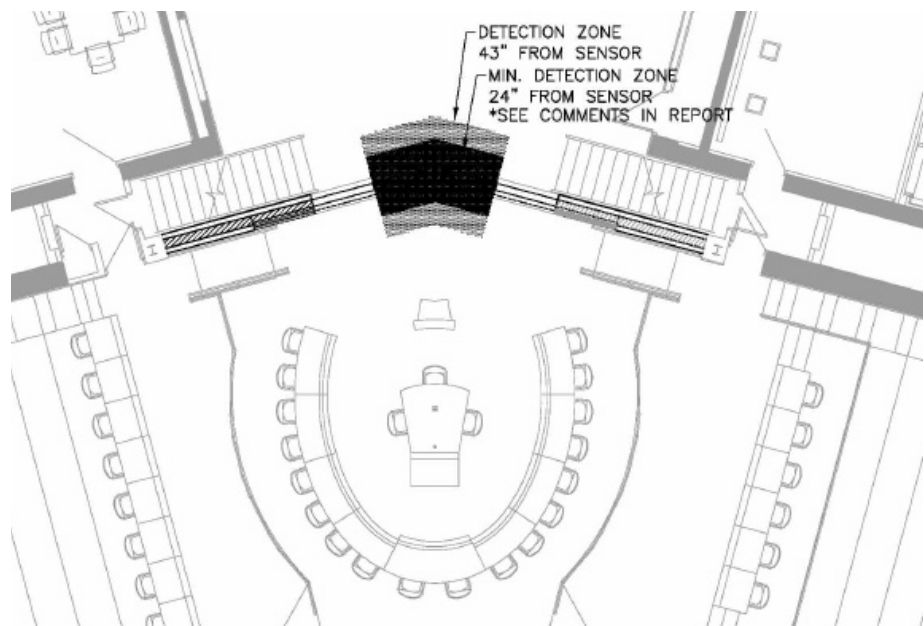
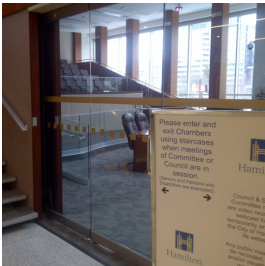
- Comment was: Can we ensure that the sensor is situated so as to not be triggered if someone is a ways away from the door. Or, is there a way during meetings that we can lock the door so it is inactive, and only activate it if a Senior or Disabled person needed to get through during a meeting?

Response

There is some risk that the door will automatically open by someone moving within the detection zone of the "sensor". It is possible to turn off the detection system during Council meetings but it would be required to be turned back on for anyone who wishes to enter or exit, not just a senior or disabled person.

While the depth of the detection zone is adjustable and can be reduced to as little as 24" from the door, there is some risk that a person will accidentally walk into the door before it is open. The manufacturer therefore recommends that the zone depth be not less than 43". Both conditions are illustrated in the diagram below.

To hopefully minimize unintentional door opening by people inadvertently walking through the detection zone, the carpet tile flooring within Council Chamber could be changed to a contrasting yet complementary color. The existing flooring on the Lobby side of the doors is heritage terrazzo which cannot be changed.



SECOND FLOOR



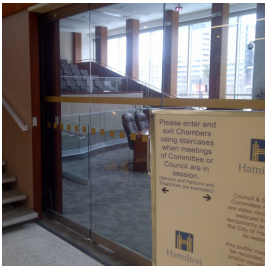
COUNCIL CHAMBER - DOOR 220A

BUILT ENVIRONMENT SUB-COMMITTEE (BESC) COMMENTS

Option 2 is the preferred option. In order for the doors to open the full range of 18' each direction. They do not think that the 9' is adequate especially if two wheel chairs are entering or existing together or at the same time.

Clarifications to Comment.

- It should be understood that automatic sliding doors will make some audible noise every time they open and close. This will be especially true if the doors are not properly maintained. We anticipate the doors will open and close numerous times during a meeting as people are free to come and go unless the meeting is in camera.
- To minimize the potential for disruption, we recommend that only one of the door leafs be enabled to act automatically when the glass wall is "closed" and the meeting is underway. This will provide an approximate 4'-6" wide opening which far exceeds the 3'-1.5" width specified in the City's Barrier-Free Design Guideline (BFDG). Before and after the meeting, 2 door leafs could be activated enabling an approximate 9' wide opening.
- When the glass wall is "opened" for additional lobby seating during a meeting, the clear opening width will be approximately 9 ft for Option 1 and 18 ft for Option 2. What is potentially more of a problem is that persons moving between the Council Chamber proper and the Lobby during the meeting will be forced to move through the centre 9 ft of the opening if Option 1 is adopted, thereby potentially interrupting the view of the those seated in the Lobby. For this reason, Option 2 may be preferable.



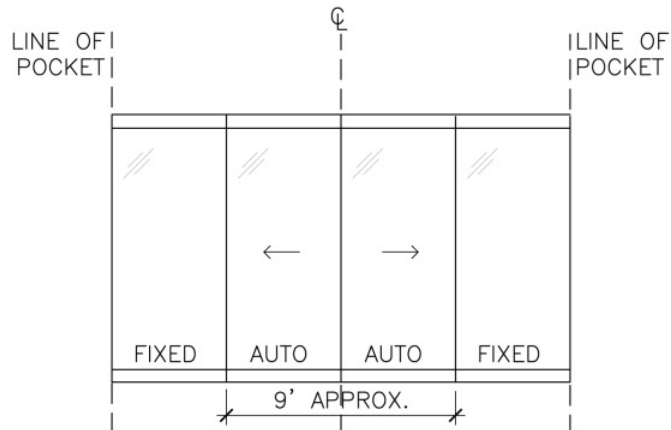
HERITAGE COMMENTS

Option 1 is the preferred option as it is the least invasive option.

SECOND FLOOR

OPTION 1 (BASED ON HORTON AUTOMATICS HD-SLIDE SERIES 2500 ELEGANT)

Install Single Slider/Side Lite on either side of door system.

**Advantages:**

- Provides Automatic Entrance
- Matches current appears in terms of no vertical stiles
- Ease of Operation
- No modifications to the existing wall/ramp required.

Disadvantages:

- Does not provide a fully unobstructed opening (Overall opening is Approx. 9')
- Structural Capacity of overhead framing TBD
- Doesn't match current quantity of individual panel

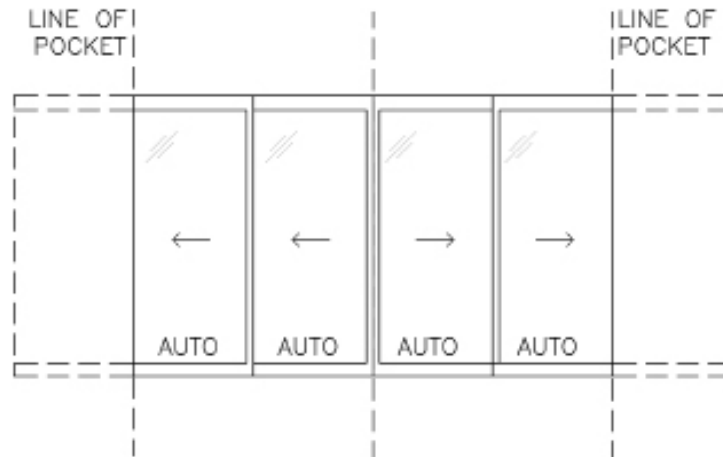
Scope of Work Associated with this option:

- Remove existing door system
- Modify structure above if necessary for new door system (will be hung from structure above)
- Close off existing pocket openings
- Install new door system
- Modify existing floor and door header to accommodate new door system
- Install all associated electrical components required.

SECOND FLOOR

OPTION 2 (BASED ON BESAM UNISLIDE TELESCOPIC)

Install Unislide Telescopic - 2 Panels (Slides & gathers along wall)



Advantages:

- Provides Automatic Entrance
- Ease of Operation
- Provide fully unobstructed opening when required

Disadvantages:

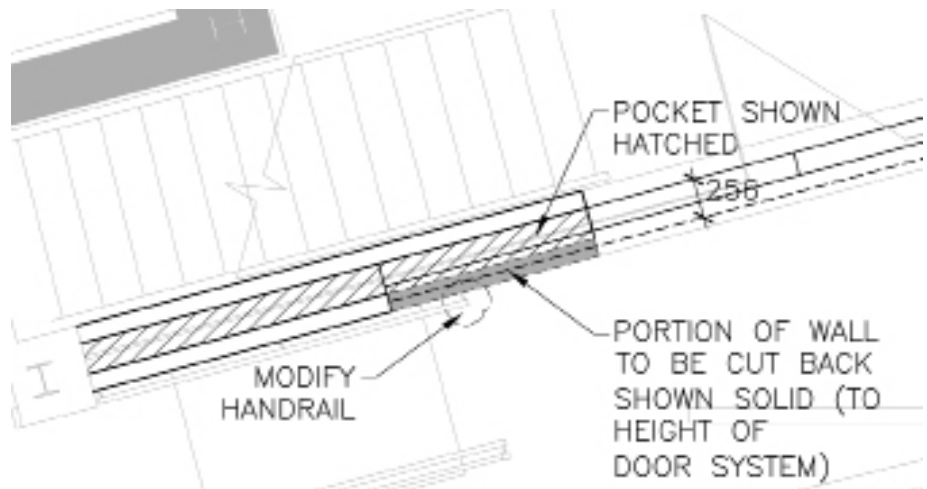
- Width of pocket an issue: Modification to Floor, Ramp, ramp handrail, Stairs, Wall & header required.
- Modification to blind system will be required
- Higher Cost
- Does not match current configuration-vertical stiles
- Structural Capacity of overhead framing TBD
- Disrupts the function of the council chamber

Scope of Work Associated with this option:

- Remove existing door system
- Modify structure above if necessary for new door system
- Remove existing blind system
- Modify existing handrail as required to accommodate sliding door system-detach from wall and install vertical support.

SECOND FLOOR

- Remove existing wall (council chamber side) to the extent of the width of the sidelight panel & refinish ends as necessary for new finish.



- Install new door system
- Modify existing floor and door header to accommodate new door system
- Install all associated electrical components required.

Option A

- Install switchable glass in new door system (existing blinds removed).

Option B

- Install new surface mounted black out blinds on council chamber side.

SECOND FLOOR



COUNCIL CHAMBER - DOOR 220C

EXISTING CONDITIONS

This door is an existing **Heritage** stained wood slat/acoustic panel door in a stained wood frame. The size of the door/frame, height of ceiling compared to the top of the door, floor closer and the heritage designation presents issues with how the power operator could be installed. The existing hardware includes a floor closer. The door is in fairly good working order however rubs slightly against the frame.

RECOMMENDATIONS

- Maintain existing door
- Install In-Floor Automatic Door Operators and actuators and complete related Electrical Work and existing door preparation.
- Repair floor where required.

Note: Heritage has advised that a Heritage Permit is required for this door.

COUNCIL CHAMBER - DOOR 220F



EXISTING CONDITIONS

This door is an existing **Heritage** stained wood slat/acoustic panel door in a stained wood frame. The size of the door/frame, height of ceiling compared to the top of the door, floor closer and the heritage designation presents issues with how the power operator could be installed. The existing hardware includes a floor closer. The door is in fairly good working order however rubs slightly against the frame.

RECOMMENDATIONS

- Maintain existing door
- Install In-Floor Automatic Door Operators and actuators and complete related Electrical Work and existing door preparation.
- Repair floor where required.

Note: Heritage has advised that a Heritage Permit is required for this door.

SECOND FLOOR



MEDIA ROOM - DOOR 221

EXISTING CONDITIONS

This door is an existing **Heritage** stained wood door with a grille at the bottom in a stained wood frame. The existing hardware includes a lever lockset. The door is in good working order.

RECOMMENDATIONS

- Maintain existing door
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.

Note: Heritage has advised that a Heritage Permit is required for this door.



CONFERENCE ROOM - DOOR 222

EXISTING CONDITIONS

This door is an existing **Heritage** aluminum framed glass door system. The existing hardware includes a floor closer and lockset (at floor). The door is in good working order.

RECOMMENDATIONS

- Maintain existing door
- Install Heavy Duty Surface Mounted Automatic Door Operator and actuators and complete related Electrical Work.

Note: Heritage has advised that a Heritage Permit is required for this door. We anticipate the process for approval of this door will be difficult due to location of push button installation & therefore heritage provisions will be made in the cost portion of this proposal.

Note: Owner will need to ensure that when, the door is in the locked position, the power operator is switched off.

SECOND FLOOR



BOARD ROOM - DOOR 264A & 264C

EXISTING CONDITIONS

These doors are existing aluminum framed glass door systems. These doors are not heritage. The existing hardware includes a dead bolt lockset. The doors are in good working order.

RECOMMENDATIONS

- Maintain existing door
- Install Heavy Duty Surface Mounted Automatic Door Operator and actuators and complete related Electrical Work.
- Frost glazing above door to conceal power operator.

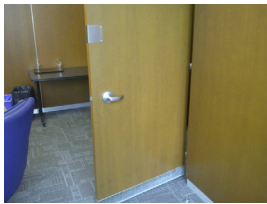
Note: Owner will need to ensure that when, the door is in the locked position, the power operator is switched off.



COUNCILOR'S LOUNGE- DOOR 270B & CTM BREAKOUT DOOR 287A

EXISTING CONDITIONS

These doors are existing **Heritage** stained wood door with a grille at the bottom in a stained wood frame. The existing hardware includes a lever lockset, closer at the top of the door, card reader, and maglock. The doors are in good working order.



RECOMMENDATIONS

- Maintain existing doors
- Install Heavy Duty Surface Mounted Automatic Door Operator and actuators and complete related Electrical Work.

Note: Heritage has advised that a Heritage Permit is required for these doors.



SECOND FLOOR



CTM BREAKOUT DOOR 287C

EXISTING CONDITIONS

This door is an existing **Heritage** stained wood door with a grille at the bottom in a stained wood frame. The existing hardware includes a lever lockset, closer at the top of the door and card reader. The door is in good working order.

RECOMMENDATIONS

- Maintain existing doors
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.

Note: Heritage has advised that a Heritage Permit is required for this door.

THIRD FLOOR



CONSULT ROOM DOOR 316, CONSULT ROOM DOOR 317 & CONSULT OFFICE DOOR 333B

EXISTING CONDITIONS

These doors are existing stained wood door with a PLAM finish in painted hollow metal frame with a glass transom above. These doors are not heritage. The existing hardware includes a lever lockset and closer at the top of the door. The frame at the top of the door small and therefore the operator will be visible in the glazing. These door is in good working order.

RECOMMENDATIONS

- Maintain existing doors
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.
- Frost glazing above door to conceal power operator.

Note: Heritage has advised that although door 333B is not a heritage door a Heritage Permit is required for this door due to the heritage surfaces that will be affected around the door. We anticipate the process for approval of this door will be difficult due to location of push button installation & therefore heritage provisions will be made in the cost portion of this proposal.

FOURTH FLOOR

CONSULT ROOM DOOR 416 & BOARD ROOM DOOR 433B

EXISTING CONDITIONS

These doors are existing stained wood door with a PLAM finish in painted hollow metal frame with a glass transom above. These doors are not heritage. The existing hardware includes a lever lockset and closer at the top of the door. The frame at the top of the door small and therefore the operator will be visible in the glazing. These door is in good working order.

RECOMMENDATIONS

- Maintain existing doors
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.
- Frost glazing above door to conceal power operator.

Note: Heritage has advised that although door 433B is not a heritage door a Heritage Permit is required for this door due to the heritage surfaces that will be affected around the door. We anticipate the process for approval of this door will be difficult due to location of push button installation & therefore heritage provisions will be made in the cost portion of this proposal.

FIFTH FLOOR

BOARD ROOM DOOR 533B

EXISTING CONDITIONS

This door is an existing stained wood door with a PLAM finish in painted hollow metal frame with a glass transom above. This door is not heritage. The existing hardware includes a lever lockset and closer at the top of the door. The frame at the top of the door small and therefore the operator will be visible in the glazing. This door is in good working order.

RECOMMENDATIONS

- Maintain existing doors
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.
- Frost glazing above door to conceal power operator.

Note: Heritage has advised that although door 533B is not a heritage door a Heritage Permit is required for this door due to the heritage surfaces that will be affected around the door. We anticipate the process for approval of this door will be difficult due to location of push button installation & therefore heritage provisions will be made in the cost portion of this proposal.

SIXTH FLOOR**CONSULT ROOM DOOR 616, CONSULT OFFICE DOOR 617 & BOARD ROOM DOOR 634B****EXISTING CONDITIONS**

These doors are existing stained wood door with a PLAM finish in painted hollow metal frame with a glass transom above. These doors are not heritage. The existing hardware includes a lever lockset and closer at the top of the door. The frame at the top of the door small and therefore the operator will be visible in the glazing. These door is in good working order.

RECOMMENDATIONS

- Maintain existing doors
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.
- Frost glazing above door to conceal power operator.

Note: Heritage has advised that although door 634B is not a heritage door a Heritage Permit is required for this door due to the heritage surfaces that will be affected around the door. We anticipate the process for approval of this door will be difficult due to location of push button installation & therefore heritage provisions will be made in the cost portion of this proposal.

SEVENTH FLOOR**BOARD ROOM DOOR 734B****EXISTING CONDITIONS**

This door is an existing stained wood door with a PLAM finish in painted stained wood frame with a glass transom above. This door is not heritage. The existing hardware includes a lever lockset and closer at the top of the door. The frame at the top of the door small and therefore the operator will be visible in the glazing. This door is in good working order.

RECOMMENDATIONS

- Maintain existing doors
- Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.
- Frost glazing above doors to conceal power operator.

Additional Work if wood frames are too narrow for an electric strike:

-Remove existing locksets and install new master keyed deadlocks and back to back door pulls.

-Remove the exit sign (not required)

Note: Heritage has advised that although this door is not a heritage door a Heritage Permit is required for this door due to the heritage surfaces that will be affected around the door. We anticipate the process for approval of this door will be difficult due to location of push button installation & therefore heritage provisions will be made in the cost portion of this proposal.

EIGHTH FLOOR**MEETING ROOM DOOR 816A & 830****EXISTING CONDITIONS**

These doors are existing stained wood door in an aluminum frame with a glass transom above and a glass sidelite on one side (both sides for DOOR 830A). There are two operable leafs. These doors are not heritage. The existing hardware includes a lever lockset. The frame at the top of the door small and therefore the operator will be visible in the glazing. These door is in good working order.

RECOMMENDATIONS

-Maintain existing doors

-Install Standard Duty Surface Mounted Automatic Door Operators, actuators, relays and electric strikes and complete related Electrical Work.

-Frost glazing above doors to conceal power operator.

Additional Work if wood frames are too narrow for an electric strike:

-Remove existing locksets and install new master keyed deadlocks and back to back door pulls.

-Remove the exit sign (not required) - Door 830 only

Note: Owner will need to ensure that when in the locked position the power operator is switched off.



5. COST ESTIMATE

HANSCOMB

**HAMILTON CITY HALL
POWER ASSISTED DOORS
HAMILTON, ONTARIO**

FEASIBILITY STUDY

February 28, 2013

Hanscomb

**HAMILTON CITY HALL
POWER ASSISTED DOORS
HAMILTON, ONTARIO**

FEASIBILITY STUDY

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February 28, 2013

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B - Option 2 (based on Door 220A as Besam Unislide Telescopic)

1. INTRODUCTION

- 1.1 Purpose: This Feasibility Study is intended to provide a realistic allocation of direct and indirect construction costs for the Hamilton City Hall, Power Assisted Doors, located in Hamilton, Ontario, with exceptions of items listed in 1.4 below.
- 1.2 Methodology: From the documentation and information provided, quantities of all major elements were assessed or measured where possible and priced at rates considered competitive for a project of this type under a stipulated sum form of contract in Hamilton, Ontario.
- Pricing shown reflects probable construction costs obtainable in the Hamilton, Ontario area on the effective date of this report. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the work.
- 1.3 Specifications: For building components and systems where specifications and design details are not available, quality standards have been established based on discussions with the design team.
- 1.4 Exclusions: This Feasibility Study does not provide for the following, if required:
- Land acquisition costs and impost charges
 - Development charges
 - Legal fees and expenses
 - Right of way charges
 - Easement costs
 - Financing costs
 - Fund raising costs
 - Owner's staff and associated management
 - Relocation of existing facilities, including furniture and equipment
 - Professional fees and expenses
 - Cost of contaminated soil removal
 - Kitchen equipment
 - Laundry equipment
 - Laboratory equipment
 - Window washing equipment
 - Maintenance equipment

1. INTRODUCTION

1.4 Exclusions: (continued)

- Loose furniture, furnishings and equipment
- Systems furniture (other than that indicated in estimate)
- Escalation contingency
- Construction contingency
- Preventative maintenance contracts
- Building permit
- Project management fees
- Consultant fees
- Testing and inspections
- Harmonized Sales Tax

2. DOCUMENTATION

- This Feasibility Study has been prepared from the documentation provided by the architect.

All of the above documentation was received from Invizij Architects Inc. and was supplemented with information gathered in meeting(s) and telephone conversations with the design team, as applicable.

Design changes and/or additions made subsequent to this issuance of the documentation noted above have not been incorporated in this report.

3. COST CONSIDERATIONS

- 3.1 Cost Base: All costs are estimated on the basis of competitive bids (a minimum of 5 general contractor bids and at least 3 subcontractor bids for each trade) being received in February 2013 from general contractors and all major subcontractors and suppliers based on a stipulated sum form of contract.
- 3.2 Escalation: No allowance has been made for construction cost escalation that may occur between February 2013 and the anticipated bid date of for the project.
- 3.3 Contingencies: An allowance of 10% has been included to cover design and pricing unknowns. This allowance is not intended to cover any program space modifications but rather to provide some flexibility for the designers and cost planners during the remaining contract document stages.
- No separate allowance has been made to cover construction (post contract) unknowns. This amount is not included in the Total Construction Estimate Cost.
- 3.4 Unit Rates: The unit rates in the preparation of this Feasibility Study include labour and material, equipment, subcontractor's overheads and profits.
- 3.5 Taxes: No provision has been made for the Harmonized Sales Tax. It is recommended that the owner make separate provision for HST in the project budget.
- 3.6 Statement of Probable Costs: Hanscomb has no control over the cost of labour and materials, the contractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of experience, qualifications and best judgment of the professional consultant familiar with the construction industry. Hanscomb cannot and does not guarantee that proposals, bids or actual construction costs will not vary from this or subsequent cost estimates.

3. COST CONSIDERATIONS (cont'd)

**3.6 Statement of
Probable Costs:
(continued)**

Hanscomb has prepared this estimate in accordance with generally accepted principles and practices. Hanscomb's staff is available to discuss its contents with any interested party.

**3.7 Ongoing Cost
Control:**

Hanscomb recommends that the Owner and design team carefully review this document, including line item description, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to Hanscomb within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that a final update estimate be produced by Hanscomb using Bid Documents to determine overall cost changes that may have occurred since the preparation of this estimate. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. Hanscomb cannot reconcile bid results to any estimate not produced from bid documents including all addenda.

4. GROSS FLOOR AND SITE DEVELOPED AREAS

GROSS FLOOR AREA:

Description	m2
N/A	
Total	N/A

SITE DEVELOPED AREA:

Description	m2
Area of Site	N/A
Building Foot Print Area	N/A
Site Developed Area	N/A

Site Developed Area is the area of the site less the foot-print area of the building.

The above areas have been measured in accordance with the Canadian Institute of Quantity Surveyors' Method of Measurement of Buildings by Area and Volume.

5a. CONSTRUCTION COST ESTIMATE SUMMARY

COST SUMMARY:

Power Assisted Door Feasibility Study

Option 1 (based on Door 220A as Horton Automatics HD-Slide)	\$231,700
Option 2 (based on Door 220A as Besam Unislide Telescopic)	\$244,800

**Appendix
A - Option 1**

Project	: HAMILTON CITY HALL	Report date	: 28 Feb 2013
	: POWER ASSISTED DOOR STUDY (OPTION 1)	Page No.	: A - 1
Location	: HAMILTON, ONTARIO	Bldg Type	: 310
Owner	: CITY OF HAMILTON	C.T. Index	: 0.0
Consultant	: INVIZIJ ARCHITECTS	GFA	: 1 Sum

ELEMENTAL COST SUMMARY

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per Sum		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A SHELL		1 Sum			0		0.00	0.0
A1 SUBSTRUCTURE					0		0.00	0.0
A11 Foundations				0		0.00		
A12 Basement Excavation				0		0.00		
A13 Special Conditions				0		0.00		
A2 STRUCTURE					0		0.00	0.0
A21 Lowest Floor Construction				0		0.00		
A22 Upper Floor Construction				0		0.00		
A23 Roof Construction				0		0.00		
A3 EXTERIOR ENCLOSURE					0		0.00	0.0
A31 Walls Below Grade				0		0.00		
A32 Walls Above Grade				0		0.00		
A33 Windows & Entrances				0		0.00		
A34 Roof Coverings				0		0.00		
A35 Projections				0		0.00		
B INTERIORS		1 Sum			179,400		179,400.00	85.2
B1 PARTITIONS & DOORS					179,400		179,400.00	85.2
B11 Partitions				0		0.00		
B12 Doors	24.000	24 No.	7,475.00	179,400		179,400.00		
B2 FINISHES					0		0.00	0.0
B21 Floor Finishes				0		0.00		
B22 Ceiling Finishes				0		0.00		
B23 Wall Finishes				0		0.00		
B3 FITTINGS & EQUIPMENT					0		0.00	0.0
B31 Fittings & Fixtures	1.000	1 Sum	0.00	0		0.00		
B32 Equipment	1.000	1 Sum	0.00	0		0.00		
B33 Elevators				0		0.00		
B34 Escalators				0		0.00		
C SERVICES		1 Sum			6,500		6,500.00	3.1
C1 MECHANICAL					0		0.00	0.0
C11 Plumbing & Drainage	1.000	1 Sum	0.00	0		0.00		
C12 Fire Protection	1.000	1 Sum	0.00	0		0.00		
C13 HVAC	1.000	1 Sum	0.00	0		0.00		
C14 Controls	1.000	1 Sum	0.00	0		0.00		
C2 ELECTRICAL					6,500		6,500.00	3.1
C21 Service & Distribution	1.000	1 Sum	2,000.00	2,000		2,000.00		
C22 Lighting, Devices & Heating	1.000	1 Sum	2,000.00	2,000		2,000.00		
C23 Systems & Ancillaries	1.000	1 Sum	2,500.00	2,500		2,500.00		
NET BUILDING COST - EXCLUDING SITE					\$ 185,900		185,900.00	88.3
D SITE & ANCILLARY WORK		1 Sum			0		0.00	0.0
D1 SITE WORK					0		0.00	0.0
D11 Site Development				0		0.00		
D12 Mechanical Site Services				0		0.00		
D13 Electrical Site Services				0		0.00		
D2 ANCILLARY WORK					0		0.00	0.0
D21 Demolitions				0		0.00		
D22 Alterations				0		0.00		
NET BUILDING COST - INCLUDING SITE					\$ 185,900		185,900.00	88.3
Z1 GENERAL REQUIREMENTS & FEE					24,700		24,700.00	11.7
Z11 General Requirements		10.0 %		18,600		18,600.00		
Z12 Fee		3.0 %		6,100		6,100.00		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES					\$ 210,600		210,600.00	100.0
Z2 ALLOWANCES					21,100		21,100.00	
Z21 Design & Pricing Allowance		10.0 %		21,100		21,100.00		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES					\$ 231,700		231,700.00	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE					\$ 231,700	\$	231,700.00	

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

Report date : February 2013

Page No. : A - 2

B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors				
1	Interview Room - Door 118A	1 Sum	5,500.00	5,500
	- Installation of surface mounted automatic door openers (heavy duty type)	1 No.	3,200.00	3,200
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800
	- Allowance for heritage provisions	1 Sum	1,000.00	1,000
2	Conference Room - Door 192	1 Sum	4,700.00	4,700
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
	- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pull	1 Sum	500.00	500
3	Conference Room - Door 193	1 Sum	4,700.00	4,700
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
	- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pull	1 Sum	500.00	500
4	Council Chamber - Door 220A	1 Sum	30,900.00	30,900
	- Remove existing door system	1 Sum	1,000.00	1,000
	- Modify existing structure above to support new door system	1 Sum	5,000.00	5,000
	- Infill existing pocket openings	1 Sum	1,500.00	1,500
	- Installation of 2 - 2 panel, telescoping slider	1 No.	20,000.00	20,000
(Continued)				

Carried Forward : 45,800

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

Report date : February 2013

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	45,800
4 Council Chamber - Door 220A	(Continued)			
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Modify and make good floor and door header to accommodate new door system	1 Sum	2,500.00	2,500	
5 Extra over for door privacy switchable glass to above location	1 Sum	13,000.00	13,000	
6 Extra over for door privacy, remove existing blind to above location	1 Sum	1,200.00	1,200	
7 Council Chamber - Door 220C	1 Sum	15,200.00	15,200	
- Installation of in-floor mounted automatic door opener	1 No.	12,100.00	12,100	
- Allowance for preparation for concealed hardware and recessed floor work	1 No.	1,000.00	1,000	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new in-floor operator	1 No.	1,200.00	1,200	
8 Council Chamber - Door 220F	1 Sum	15,200.00	15,200	
- Installation of in-floor mounted automatic door opener	1 No.	12,100.00	12,100	
- Allowance for preparation for concealed hardware and recessed floor work	1 No.	1,000.00	1,000	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new in-floor operator	1 No.	1,200.00	1,200	
9 Media Room - Door 221	1 Sum	4,000.00	4,000	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
	(Continued)			
			Carried Forward :	94,400

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

Report date : February 2013

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	94,400
9 Media Room - Door 221	(Continued)			
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
10 Conference Room - Door 222	1 Sum	5,500.00	5,500	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
11 Board Room - Door 264A	1 Sum	4,600.00	4,600	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
12 Board Room - Door 264C	1 Sum	4,600.00	4,600	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
13 Councilor's Lounge - Door 270B	1 Sum	4,400.00	4,400	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
			Carried Forward :	113,500

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

Report date : February 2013

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	113,500
14	CTM Breakout Door - Door 287A	1 Sum	4,400.00	4,400
	- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
15	CTM Breakout Room - Door 287C	1 Sum	4,000.00	4,000
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
16	Consult Room - Door 316	1 Sum	4,200.00	4,200
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
17	Consult Room - Door 317	1 Sum	4,200.00	4,200
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
18	Consult Office - Door 333B	1 Sum	5,300.00	5,300
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	(Continued)			
Carried Forward :				135,600

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

Report date : February 2013

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	135,600
18 Consult Office - Door 333B	(Continued)			
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
19 Consult Room - Door 416	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
20 Consult Office - Door 433B	1 Sum	5,300.00	5,300	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
21 Board Room - Door 533B	1 Sum	5,300.00	5,300	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
22 Consult Room - Door 616	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
(Continued)				
			Carried Forward :	154,600

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

Report date : February 2013

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	154,600
22 Consult Room - Door 616	(Continued)			
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
23 Consult Room - Door 617	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
24 Board Room - Door 634B	1 Sum	5,300.00	5,300	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
25 Board Room - Door 734B	1 Sum	5,800.00	5,800	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pulls	1 Sum	500.00	500	
			Carried Forward :	169,900

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

Report date : February 2013

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	169,900
26	Meeting Room - Door 816A	1 Sum	4,700.00	4,700
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
	- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pulls	1 Sum	500.00	500
27	Meeting Room - Door 830	1 Sum	4,800.00	4,800
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
	- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pulls	1 Sum	500.00	500
	- Possible Add'l Work: remove existing exit light	1 Sum	100.00	100
B12 Doors	TOTAL : \$	24 No.	7,475.00	179,400

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 1)
HAMILTON, ONTARIO**

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C2 ELECTRICAL		Quantity	Unit rate	Amount
C21 Service & Distribution				
1	Modifications and additions to Service and Distribution	1 Sum	2,000.00	2,000
	- Provide 15A single pole breaker in branch panelboard to feed operators (allow 1 per floor)	8 No.	125.00	1,000
	- Allow for updated panel directories	1 Sum	1,000.00	1,000
C21 Service & Distribution		TOTAL : \$	1 Sum	2,000.00
C22 Lighting, Devices & Heating				
1	Allow for firestopping	1 Sum	2,000.00	2,000
C22 Lighting, Devices & Heating		TOTAL : \$	1 Sum	2,000.00
C23 Systems & Ancillaries				
1	Allow for connections to fire alarm c/w relays to operator	1 Sum	2,500.00	2,500
C23 Systems & Ancillaries		TOTAL : \$	1 Sum	2,500.00

**Appendix
B - Option 2**

Project	: HAMILTON CITY HALL	Report date	: 28 Feb 2013
	: POWER ASSISTED DOOR STUDY (OPTION 2)	Page No.	: A - 1
Location	: HAMILTON, ONTARIO	Bldg Type	: 310
Owner	: CITY OF HAMILTON	C.T. Index	: 0.0
Consultant	: INVIZIJ ARCHITECTS	GFA	: 1 Sum

ELEMENTAL COST SUMMARY

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per Sum		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A SHELL		1 Sum			0		0.00	0.0
A1 SUBSTRUCTURE					0		0.00	0.0
A11 Foundations				0		0.00		
A12 Basement Excavation				0		0.00		
A13 Special Conditions				0		0.00		
A2 STRUCTURE					0		0.00	0.0
A21 Lowest Floor Construction				0		0.00		
A22 Upper Floor Construction				0		0.00		
A23 Roof Construction				0		0.00		
A3 EXTERIOR ENCLOSURE					0		0.00	0.0
A31 Walls Below Grade				0		0.00		
A32 Walls Above Grade				0		0.00		
A33 Windows & Entrances				0		0.00		
A34 Roof Coverings				0		0.00		
A35 Projections				0		0.00		
B INTERIORS		1 Sum			189,900		189,900.00	85.4
B1 PARTITIONS & DOORS					189,900		189,900.00	85.4
B11 Partitions				0		0.00		
B12 Doors	24.000	24 No.	7,912.50	189,900		189,900.00		
B2 FINISHES					0		0.00	0.0
B21 Floor Finishes				0		0.00		
B22 Ceiling Finishes				0		0.00		
B23 Wall Finishes				0		0.00		
B3 FITTINGS & EQUIPMENT					0		0.00	0.0
B31 Fittings & Fixtures	1.000	1 Sum	0.00	0		0.00		
B32 Equipment	1.000	1 Sum	0.00	0		0.00		
B33 Elevators				0		0.00		
B34 Escalators				0		0.00		
C SERVICES		1 Sum			6,500		6,500.00	2.9
C1 MECHANICAL					0		0.00	0.0
C11 Plumbing & Drainage	1.000	1 Sum	0.00	0		0.00		
C12 Fire Protection	1.000	1 Sum	0.00	0		0.00		
C13 HVAC	1.000	1 Sum	0.00	0		0.00		
C14 Controls	1.000	1 Sum	0.00	0		0.00		
C2 ELECTRICAL					6,500		6,500.00	2.9
C21 Service & Distribution	1.000	1 Sum	2,000.00	2,000		2,000.00		
C22 Lighting, Devices & Heating	1.000	1 Sum	2,000.00	2,000		2,000.00		
C23 Systems & Ancillaries	1.000	1 Sum	2,500.00	2,500		2,500.00		
NET BUILDING COST - EXCLUDING SITE					\$ 196,400		196,400.00	88.3
D SITE & ANCILLARY WORK		1 Sum			0		0.00	0.0
D1 SITE WORK					0		0.00	0.0
D11 Site Development				0		0.00		
D12 Mechanical Site Services				0		0.00		
D13 Electrical Site Services				0		0.00		
D2 ANCILLARY WORK					0		0.00	0.0
D21 Demolitions				0		0.00		
D22 Alterations				0		0.00		
NET BUILDING COST - INCLUDING SITE					\$ 196,400		196,400.00	88.3
Z1 GENERAL REQUIREMENTS & FEE					26,100		26,100.00	11.7
Z11 General Requirements		10.0 %		19,600		19,600.00		
Z12 Fee		3.0 %		6,500		6,500.00		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES					\$ 222,500		222,500.00	100.0
Z2 ALLOWANCES					22,300		22,300.00	
Z21 Design & Pricing Allowance		10.0 %		22,300		22,300.00		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES					\$ 244,800		244,800.00	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE					\$ 244,800	\$	244,800.00	

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 2)
HAMILTON, ONTARIO**

Report date : February 2013

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B1 PARTITIONS & DOORS

Quantity Unit rate Amount

B12 Doors

1	Interview Room - Door 118A	1 Sum	5,500.00	5,500
	- Installation of surface mounted automatic door openers (heavy duty type)	1 No.	3,200.00	3,200
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800
	- Allowance for heritage provisions	1 Sum	1,000.00	1,000
2	Conference Room - Door 192	1 Sum	4,700.00	4,700
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
	- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pull	1 Sum	500.00	500
3	Conference Room - Door 193	1 Sum	4,700.00	4,700
	- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800
	- Provide power connection to door operator	1 Sum	500.00	500
	- Provide rough-in and wiring for push button operator	1 Sum	350.00	400
	- Frosted glass applique to transom above	1 Sum	150.00	200
	- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300
	- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pull	1 Sum	500.00	500
4	Council Chamber - Door 220A	1 Sum	39,600.00	39,600
	- Remove existing door system	1 Sum	1,000.00	1,000
	- Modify existing structure above to support new door system	1 Sum	5,000.00	5,000
	- Remove existing blind system	1 Sum	1,200.00	1,200
	- Remove and modify adjacent handrail system	1 Sum	1,000.00	1,000

(Continued)

Carried Forward : 54,500

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 2)
HAMILTON, ONTARIO**

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	54,500
4 Council Chamber - Door 220A	(Continued)			
- Remove and make good portion of wall to accept new side lite	1 Sum	2,000.00	2,000	
- Installation of 2 - 3 panel, c/w fixed panel in wall pocket	1 No.	26,000.00	26,000	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Modify and make good floor and door header to accommodate new door system	1 Sum	2,500.00	2,500	
5 Extra over for Option 1: Door privacy switchable glass to above location	1 Sum	13,000.00	13,000	
6 Extra over for Option 2: Blackout blinds to above location	1 Sum	3,000.00	3,000	
7 Council Chamber - Door 220C	1 Sum	15,200.00	15,200	
- Installation of in-floor mounted automatic door opener	1 No.	12,100.00	12,100	
- Allowance for preparation for concealed hardware and recessed floor work	1 No.	1,000.00	1,000	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new in-floor operator	1 No.	1,200.00	1,200	
8 Council Chamber - Door 220F	1 Sum	15,200.00	15,200	
- Installation of in-floor mounted automatic door opener	1 No.	12,100.00	12,100	
- Allowance for preparation for concealed hardware and recessed floor work	1 No.	1,000.00	1,000	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new in-floor operator	1 No.	1,200.00	1,200	
9 Media Room - Door 221	1 Sum	4,000.00	4,000	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
	(Continued)			
			Carried Forward :	104,900

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 2)
HAMILTON, ONTARIO**

Report date : February 2013

Page No. : A - 4

B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	104,900
9 Media Room - Door 221	(Continued)			
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
10 Conference Room - Door 222	1 Sum	5,500.00	5,500	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
11 Board Room - Door 264A	1 Sum	4,600.00	4,600	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
12 Board Room - Door 264C	1 Sum	4,600.00	4,600	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
13 Councilor's Lounge - Door 270B	1 Sum	4,400.00	4,400	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Provide power connection to door operator	1 Sum	500.00	500	
(Continued)				
			Carried Forward :	124,000

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 2)
HAMILTON, ONTARIO**

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	124,000
13 Councilor's Lounge - Door 270B	(Continued)			
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
14 CTM Breakout Door - Door 287A	1 Sum	4,400.00	4,400	
- Installation of surface mounted automatic door opener (heavy duty type)	1 No.	3,200.00	3,200	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
15 CTM Breakout Room - Door 287C	1 Sum	4,000.00	4,000	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
16 Consult Room - Door 316	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
17 Consult Room - Door 317	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
(Continued)				
			Carried Forward :	140,800

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POWER ASSISTED DOOR STUDY (OPTION 2)
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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	140,800
17 Consult Room - Door 317	(Continued)			
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
18 Consult Office - Door 333B	1 Sum	5,300.00	5,300	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
19 Consult Room - Door 416	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
20 Consult Office - Door 433B	1 Sum	5,300.00	5,300	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
21 Board Room - Door 533B	1 Sum	5,300.00	5,300	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
(Continued)				
			Carried Forward :	160,900

**HAMILTON CITY HALL
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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	160,900
21 Board Room - Door 533B	(Continued)			
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
22 Consult Room - Door 616	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
23 Consult Room - Door 617	1 Sum	4,200.00	4,200	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
24 Board Room - Door 634B	1 Sum	5,300.00	5,300	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
25 Board Room - Door 734B	1 Sum	5,800.00	5,800	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator, designated heritage location	1 Sum	750.00	800	
(Continued)				
			Carried Forward :	180,400

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 2)
HAMILTON, ONTARIO**

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		Brought Forward :	180,400
25 Board Room - Door 734B	(Continued)			
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance for heritage provisions	1 Sum	1,000.00	1,000	
- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pulls	1 Sum	500.00	500	
26 Meeting Room - Door 816A	1 Sum	4,700.00	4,700	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pulls	1 Sum	500.00	500	
27 Meeting Room - Door 830	1 Sum	4,800.00	4,800	
- Installation of surface mounted automatic door opener	1 No.	2,800.00	2,800	
- Provide power connection to door operator	1 Sum	500.00	500	
- Provide rough-in and wiring for push button operator	1 Sum	350.00	400	
- Frosted glass applique to transom above	1 Sum	150.00	200	
- Allowance to repair and make good finishes at new operator	1 Sum	250.00	300	
- Possible Add'l Work: replace lockset with new master keyed dead lock and back to back door pulls	1 Sum	500.00	500	
- Possible Add'l Work: remove existing exit light	1 Sum	100.00	100	
B12 Doors	TOTAL : \$	24 No.	7,912.50	189,900

**HAMILTON CITY HALL
POWER ASSISTED DOOR STUDY (OPTION 2)
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C2 ELECTRICAL		Quantity	Unit rate	Amount
C21 Service & Distribution				
1	Modifications and additions to Service and Distribution	1 Sum	2,000.00	2,000
	- Provide 15A single pole breaker in branch panelboard to feed operators (allow 1 per floor)	8 No.	125.00	1,000
	- Allow for updated panel directories	1 Sum	1,000.00	1,000
C21 Service & Distribution		TOTAL : \$	1 Sum	2,000.00
C22 Lighting, Devices & Heating				
1	Allow for firestopping	1 Sum	2,000.00	2,000
C22 Lighting, Devices & Heating		TOTAL : \$	1 Sum	2,000.00
C23 Systems & Ancillaries				
1	Allow for connections to fire alarm c/w relays to operator	1 Sum	2,500.00	2,500
C23 Systems & Ancillaries		TOTAL : \$	1 Sum	2,500.00



APPENDIX

DOOR 220A SPECIFICATIONS

SWITCHABLE GLASS INFORMATION

KEY PLANS

DOOR TYPES

DOOR SCHEDULE



® 4242 Baldwin Boulevard
Corpus Christi, Texas
USA 78405-3399
Tel: 800-531-3111, 361-888-5591
Fax: 800-531-3108, 361-888-6510
www.hortondoors.com
The Automatic Choice

ARCHITECTURAL DETAILS

AUTOMATIC COMMERCIAL SLIDE DOORS

HD-Slide® Series 2500 Elegant®

Type: 310 Biparting SO-SX-SX-SO

A4.21

Mar 11

Standard Packages

Unit Width	Slide Opening	Breakout Opening	Slide Panel Width	Sidelite Width	Rough Opening Width
9'-0" (2743)	3'-6" (1067)	7'-9 1/2" (2375)	2'-3" (686)	2'-3 1/2" (699)	9'-0 1/2" (2756)
10'-0" (3048)	4'-0" (1219)	8'-9 1/2" (2680)	2'-6" (762)	2'-6 3/4" (781)	10'-0 1/2" (3061)
12'-0" (3658)	5'-0" (1524)	10'-9 1/2" (3289)	3'-0" (914)	3'-0 3/4" (933)	12'-0 1/2" (3670)
14'-0" (4267)	6'-0" (1829)	12'-9 1/4" (3899)	3'-6" (1067)	3'-6 3/4" (1086)	14'-0 1/2" (4280)

Unit Height: 7'-8" (2337)	Rough Opening Height: 7'-8 1/4" (2343)
Glazing: Standard unit provided with 1/2" (13) clear tempered glass.	
Threshold: 1/2" (13) tall x 4" (102) wide (See page A5.3).	

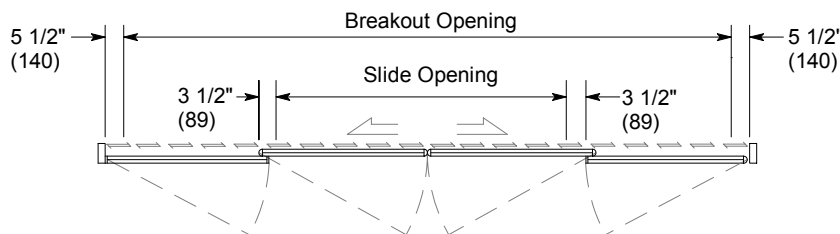
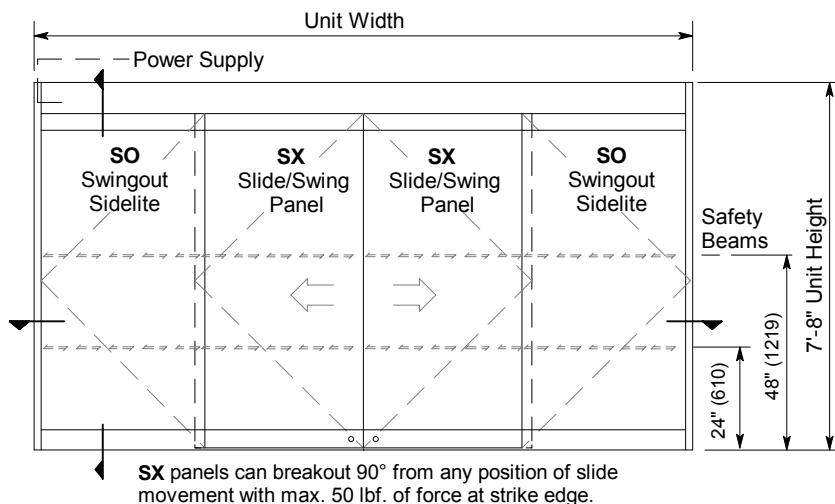
Anodized Finish: Clear or Dark Bronze

Options

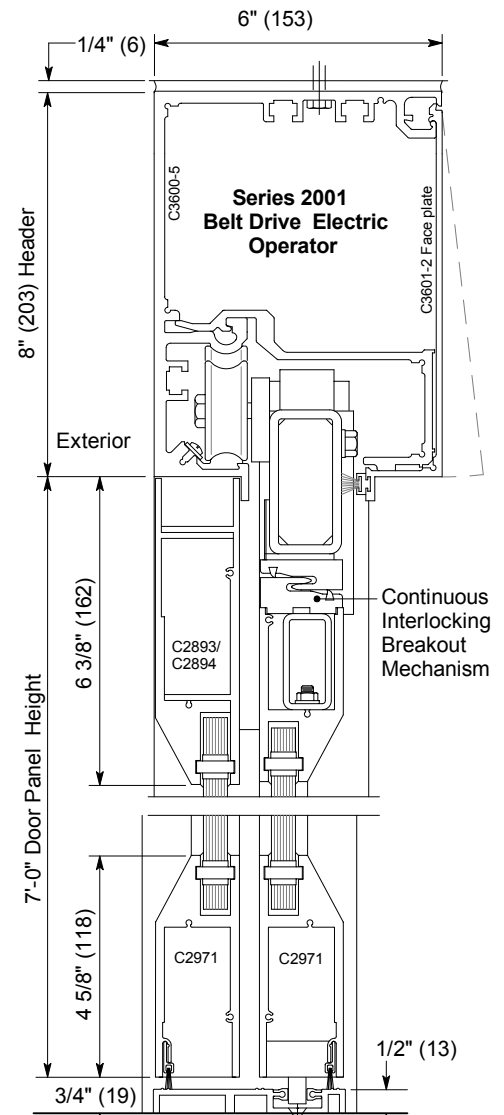
- Custom unit widths between 9'-0" & 14'-0".
- Tinted Grey or Bronze glass.
- Transom or extra wide sidelite.
- Custom anodized or paint finish or stainless steel cladding

Installation and Operation

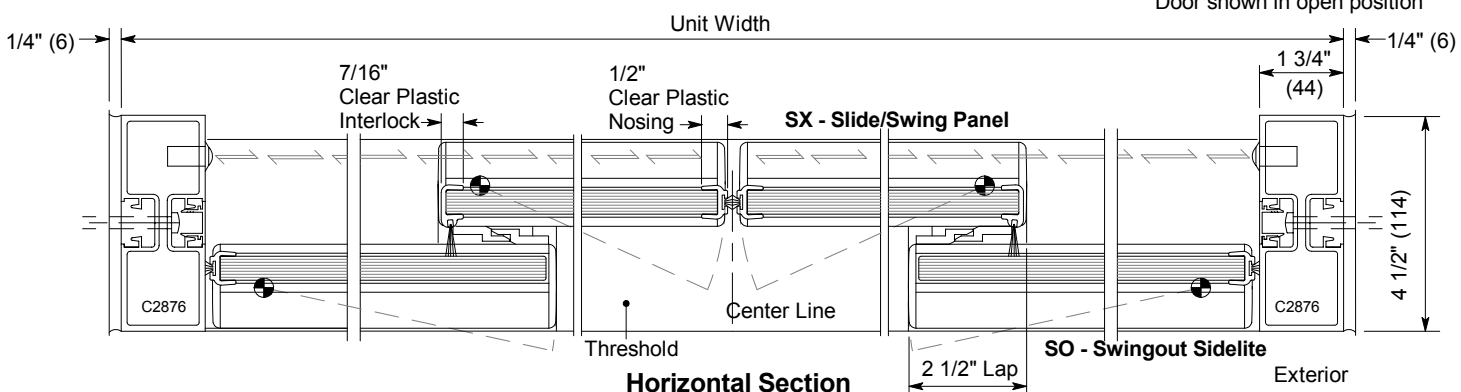
- Door perimeter mounted within rough opening with 1/4" minimum shim space at header & jambs. Finish floor not to exceed 1/4" out of level. (See page A.3)
- Electrical: Provide 120 VAC, 60 cycle, single phase, 15 amp service (in conduit) to each unit on dedicated 20 amp circuit breaker routed to header. Maximum current draw is 3.15 amps.
- Door actuated with header mounted motion sensor at interior and exterior for detection of traffic in each direction. Door closes after time delay expires. (See page A.4)
- Manual Locking: Exterior keylock into threshold provided at bottom rail. (Optional fail-safe or fail-secure autolock)



Exterior Elevation and Floor Plan



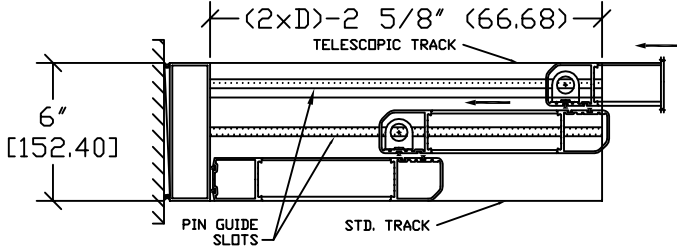
Vertical Section
Door shown in open position



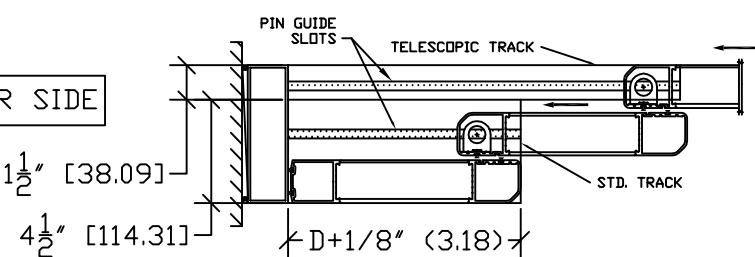
Horizontal Section

NOTE: THE STANDARD PACKAGE CONSISTS OF:
THE AUTOMATIC OPERATOR & WEATHERSTRIP, FRAMES,
DOORS & SIDELITES WITH VERTICAL WEATHERSTRIP,
EMERGENCY BREAKAWAY, 1-POINT LOCK, OPTIONAL
5 OR 3 POSITION SWITCH (OFF-EXIT ONLY-AUTO-REDUCED
OPENING-HOLD OPEN OR OFF, AUTO, HOLD OPEN)
MOTION/PRESENCE SENSORS.
STANDARD FINISH: DARK BRONZE - AA-C23-A44.
CLEAR - AA-C23-A31.
SPECIAL FINISHES ARE AVAILABLE. FOR CLADDING, SEE
DRAWING US23-3300-07 FOR SQUARE COVER, CAP, SENSOR
AND SWITCH.
THIS PACKAGE WILL ACCEPT UP TO 5/8" (15.9) INSULATED GLASS.
NOTE DRAWING IS DIMENSIONED IN BOTH ENGLISH AND METRIC
REF. AS FOLLOWS 1" (25.4) ALL METRIC SIZES ARE MILLIMETERS.
FOR MAXIMUM CURRENT DRAW PER OPERATOR, SEE PRODUCT
SPECIFICATION, INSTALLATION INSTRUCTIONS, OR THE UL
LABEL ON THE EQUIPMENT.
REFER TO RELEVANT (LOCAL, STATE, NATIONAL OR AHJ) BUILDING
CODE FOR MIN DOOR HEIGHT & MIN/MAX WIDTH ALLOWABLE.
FOR EGRESS REQUIREMENT IN CONJUNCTION WITH TABLE BELOW.

RECESSED TRACK CUT LENGTHS
OPTION "A"- EQUAL LENGTHS

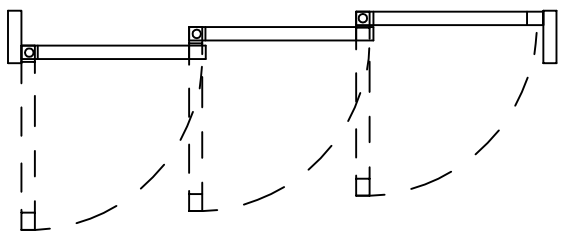


OPTION "B"- DIFFERENT LENGTHS



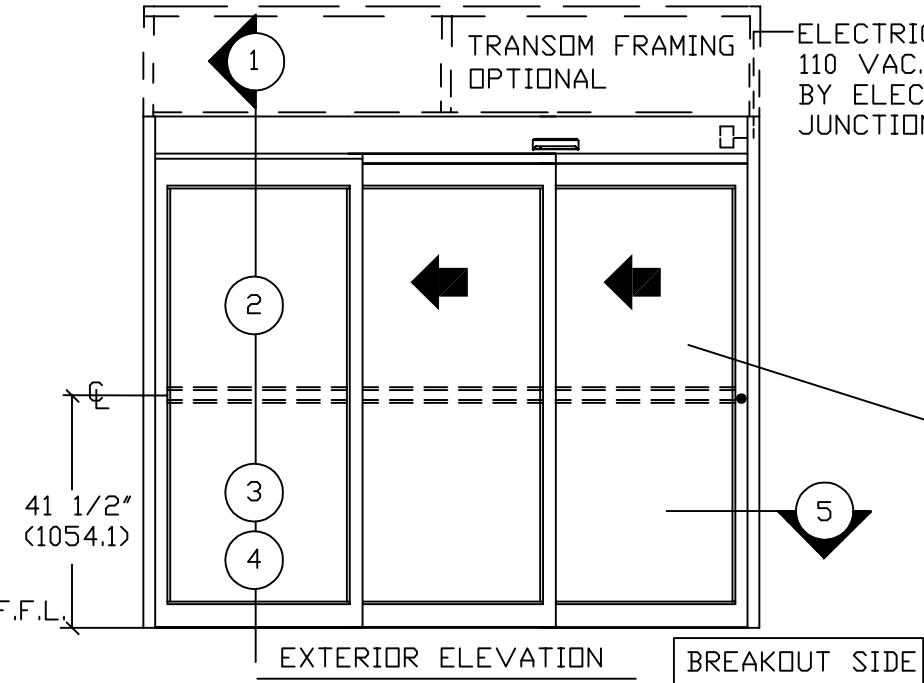
FULL OPEN POSITION

L.H.S. SHOWN (R.H.S. OPPOSITE)

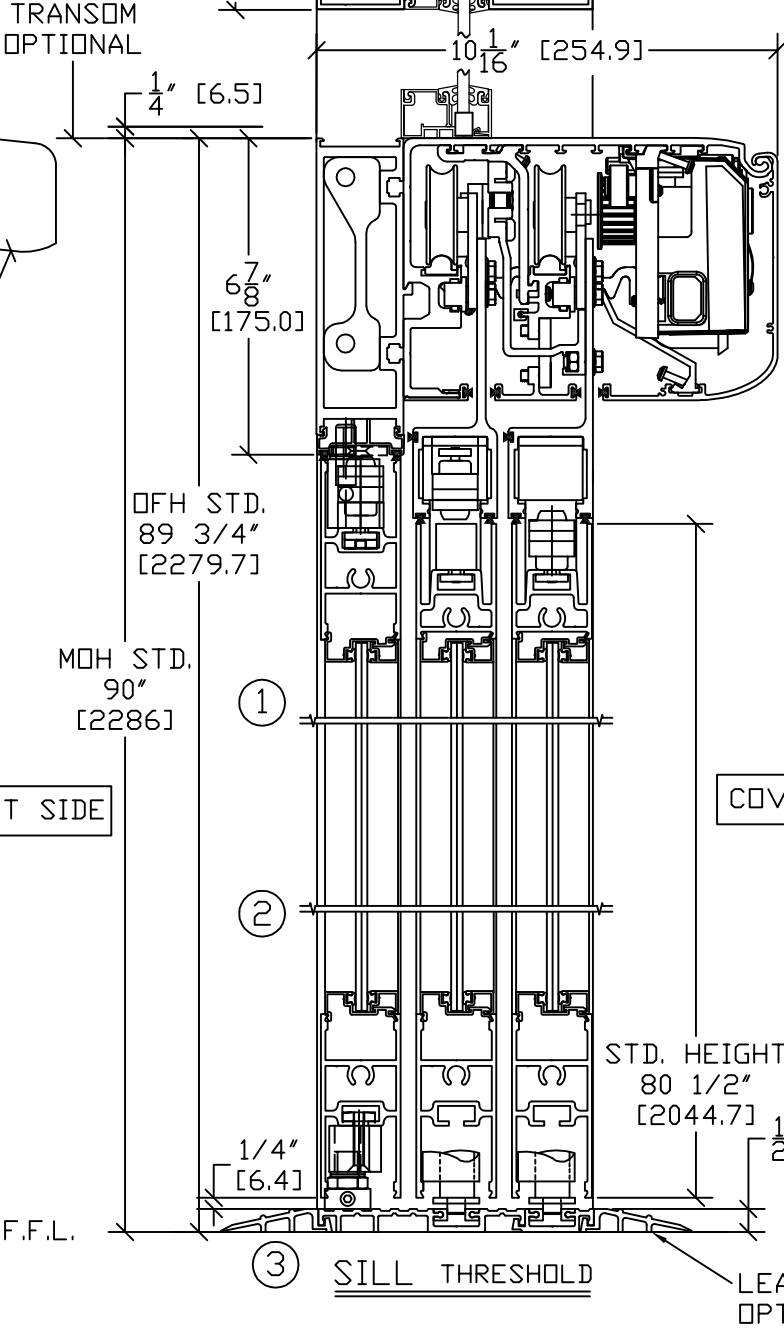
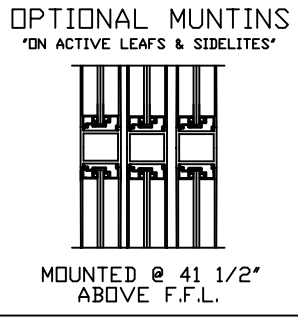
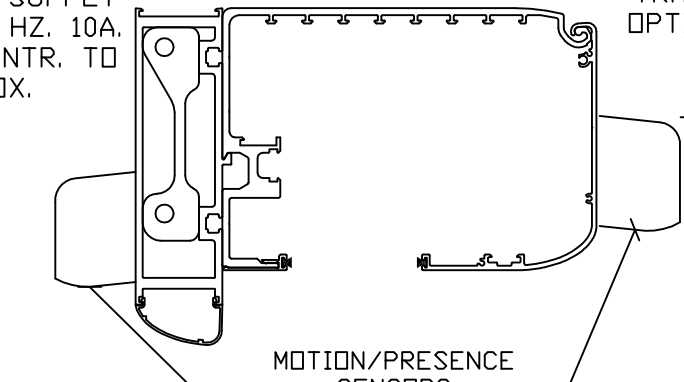


VIEW FROM BREAKOUT SIDE
L.H.S. SHOWN (R.H.S. OPPOSITE)

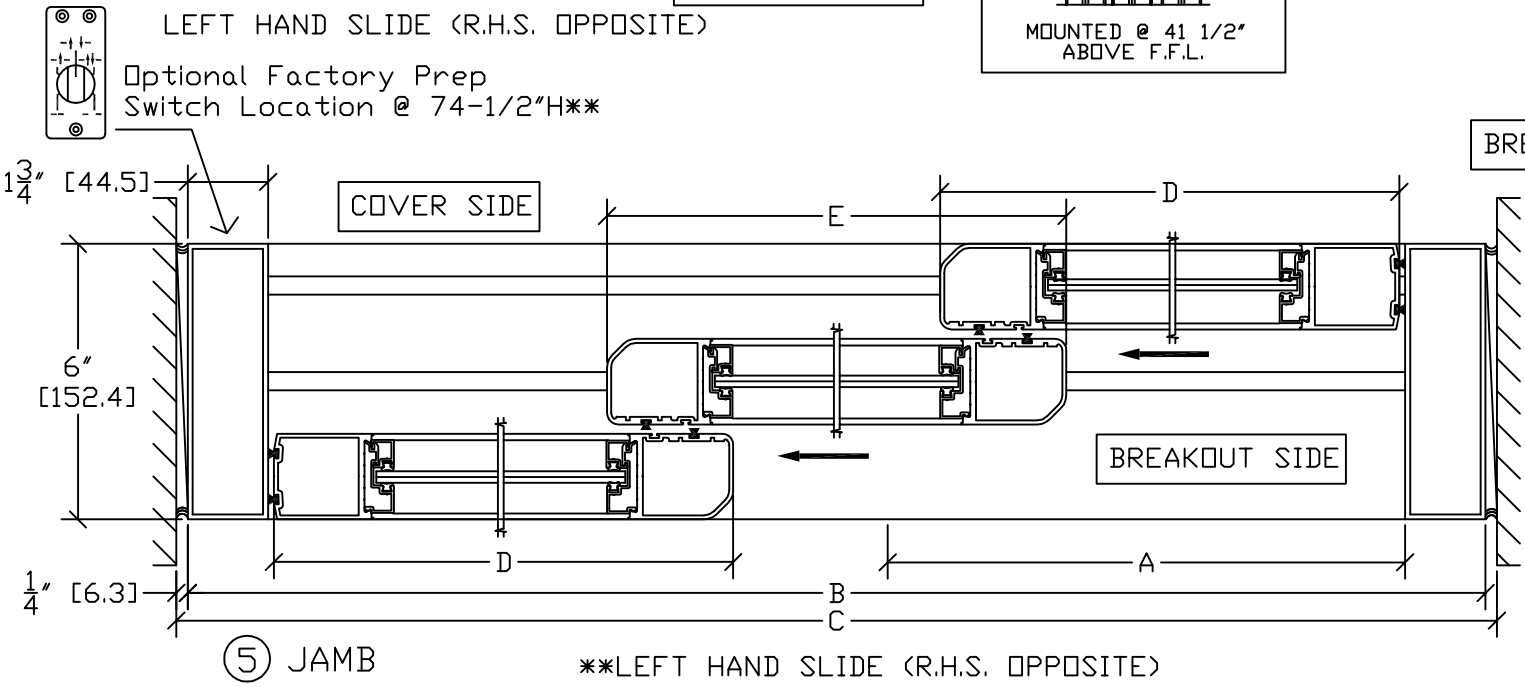
DWG NO.	US23-3300-03
DRN BY	CLW
DATE	1/15/05
CHK BY	JAW
DATE	1/15/05
REV.	M
DATE	3/17/11



ELECTRICAL SUPPLY
110 VAC. 60 HZ. 10A.
BY ELEC. CONTR. TO
JUNCTION BOX.



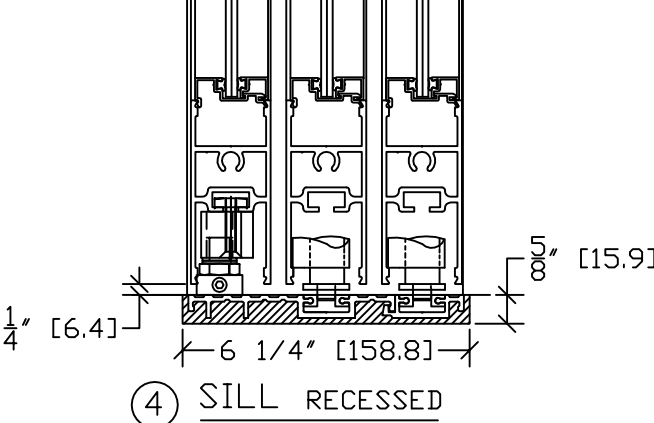
DFH STD.
89 3/4" [2279.7]
MOH STD.
90" [2286]



UNISLIDE OVERHEAD CONCEALED	DOOR OPENING A	OVERALL FRAME WIDTH B	MASONRY OPENING WIDTH C	ACTIVE & SIDELITE LEAF WIDTH D & E
6'	36 7/16" (925.5)	72" (1828.8)	72 1/2" (1841.5)	24 9/16" (623.9)
7'	44 7/16" (1128.7)	84" (2133.6)	84 1/2" (2146.3)	28 9/16" (725.5)
8'	52 7/16" (1331.9)	96" (2438.4)	96 1/2" (2451.1)	32 9/16" (827.1)
9'	60 7/16" (1535.1)	108" (2743.2)	108 1/2" (2755.9)	36 9/16" (928.7)
10'	68 7/16" (1738.3)	120" (3048)	120 1/2" (3060.7)	40 9/16" (1030.3)
11'	76 7/16" (1941.5)	132" (3352.8)	132 1/2" (3365.5)	44 9/16" (1131.9)
12'	84 7/16" (2144.7)	144" (3657.6)	144 1/2" (3670.3)	48 9/16" (1233.5)
KEY	(2B/3)-11 9/16 (2B/3)-(293.7)	(C-1/2") (C-12.7)	(B+1/2") (B+12.7)	(B/3)+9/16" (B/3)+(14.3)

STD. GLASS SIZE KEY*	WIDTH - "D" & "D"	(B/3)-4 1/4" (B/3)-(107.95)
	WIDTH- "E"	(B/3)-4 3/8" (B/3)-(111.13)
	HEIGHT	DFH-15 3/4" DFH-(400.1)

* NARROW STILE RAILS w/ 1/4" GUTTER, NO MUTTINS



SILL RECESSED

Transparency at the touch of a button

Switchable glass, flexible use

SCHOTT MAGIRA® SmartView switchable glass ensures discretion that can be switched on or off as often as you'd like. The electrically-controlled change between opaque and transparent quality paves the way for flexible, multi-functional use of one room.

Future oriented technology

The core of the symmetric glass structure is a polymer matrix of liquid crystal molecules. This liquid crystal film is encased by electroconductive foils and is sandwiched between two thin cover glass panes. At rest, the liquid crystals spread out amorphously to create a translucent appearance. When current flows through the matrix, the crystals arrange themselves in such a way that light refraction disappears and the glass turns transparent.

Versatile in use

In the business world, MAGIRA® SmartView switchable glass can be used in conference rooms and offices to allow people to work without being disturbed. When opaque, it can also make an excellent back projection screen. MAGIRA® SmartView switchable glass adds dynamic presentation effects to the display cases showing goods and objects; other applications can be used wherever discretion is temporarily needed, in high-end residential buildings, for example, changing rooms or restrooms, restaurants or event locations.

Durable and easy to clean

Despite the innovative and high-tech nature of MAGIRA® SmartView switchable glass, its installation, maintenance and care are a snap. It can be used anywhere. Power is supplied economically (with an upstream transformer) via the normal power grid. This special glass can be controlled not only with wall switches and remote controls, but it can also be automated with timers, motion detectors or door lock contacts.

MAGIRA® SmartView

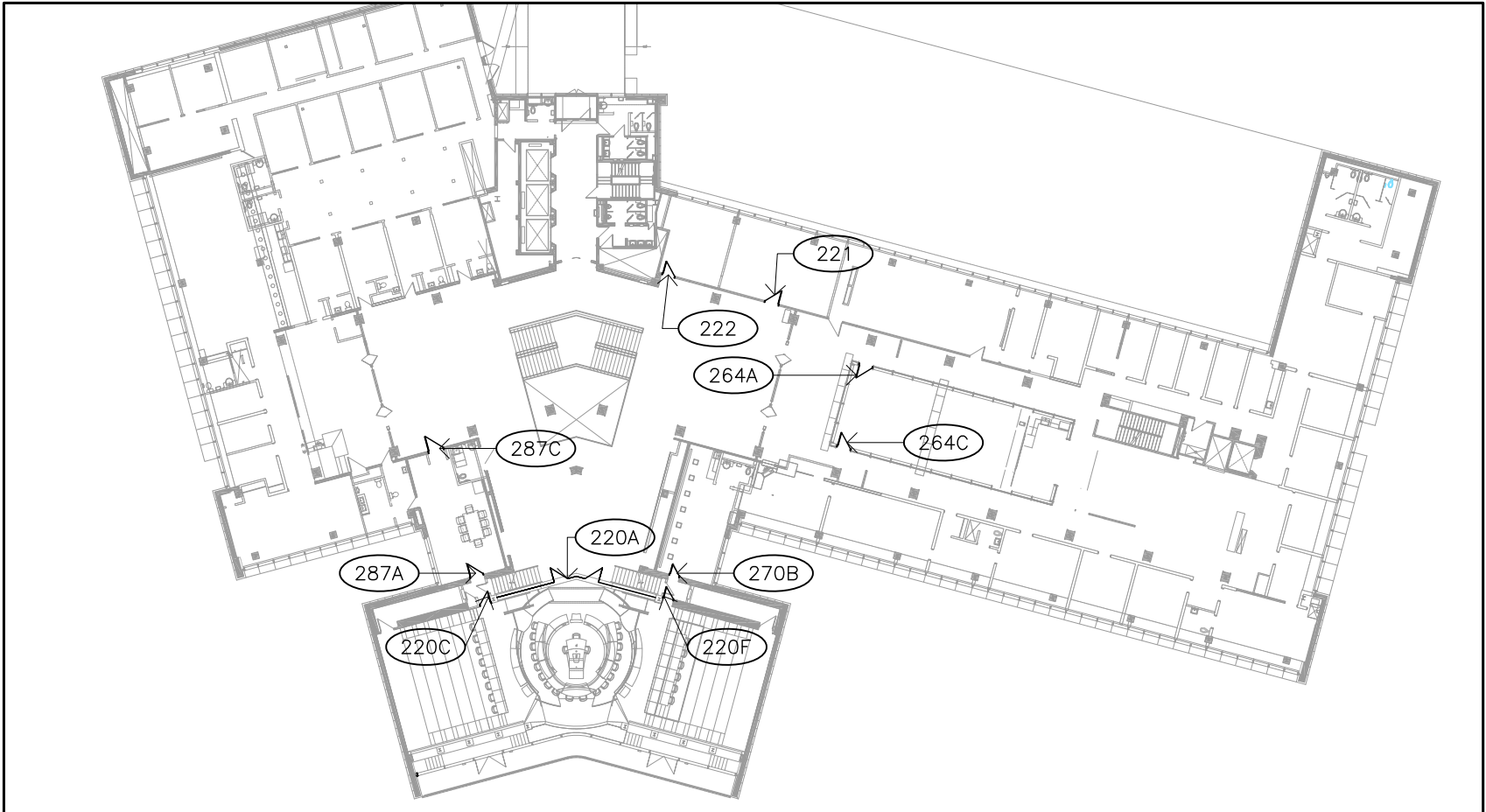
- > switchable glass
- > Electrically switchable
- > Durable
- > Low-maintenance
- > Easy to clean

Right: Thanks to MAGIRA® SmartView switchable glass, rooms can be easily used for different purposes. In the opaque state, the glass can even be used as a back projection screen.

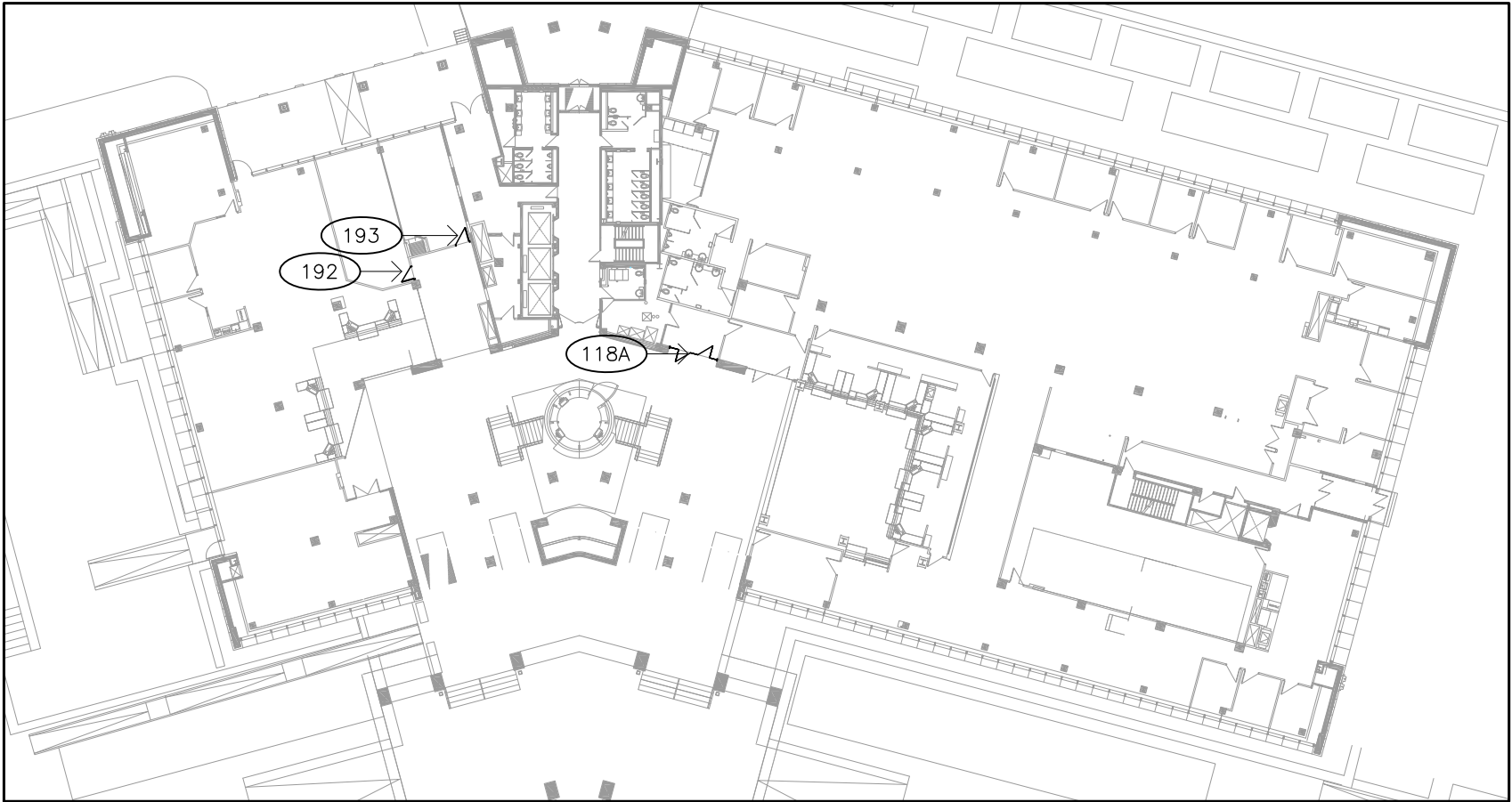
Opposite page: MAGIRA® SmartView switchable glass used in an office. By pressing the on-off switch, the opaque glass turns transparent. MAGIRA® SmartView switchable glass offers creative design options for architects and planners. Photos: Goldbach Kirchner



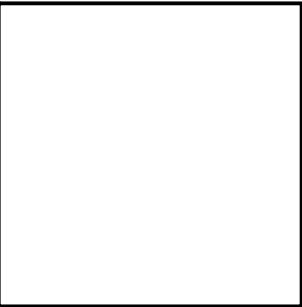




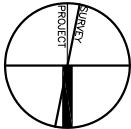
SECOND FLOOR PLAN 2
SCALE = 1:500 A2.1



FIRST FLOOR PLAN 1
SCALE = 1:500 A2.1

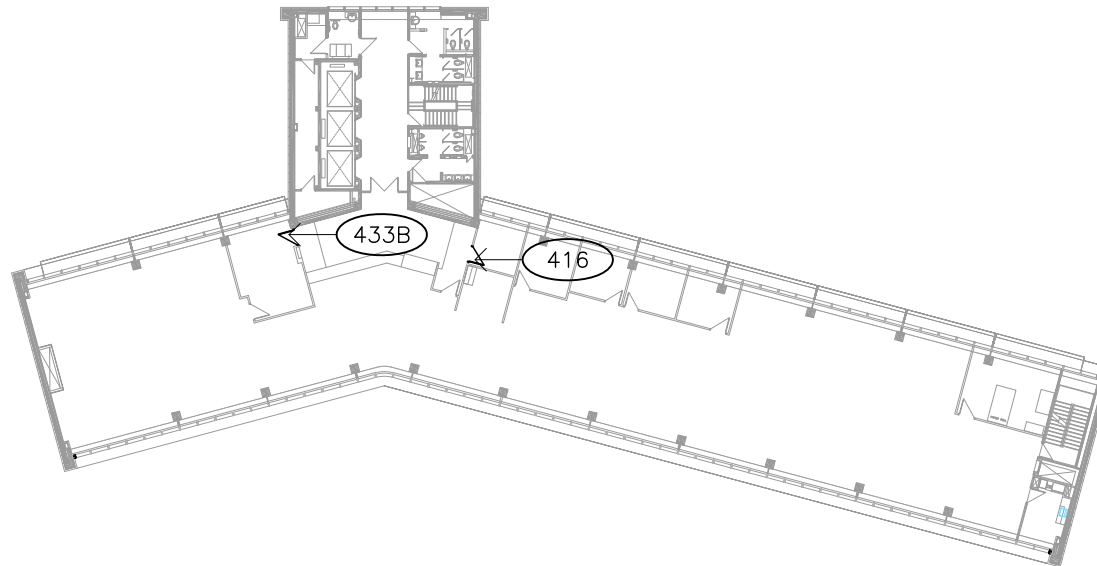


REV.	DESCRIPTION	DATE
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2	ISSUED FOR COORDINATION	01/09/13
1	ISSUED FOR SITE REVIEW	01/08/13

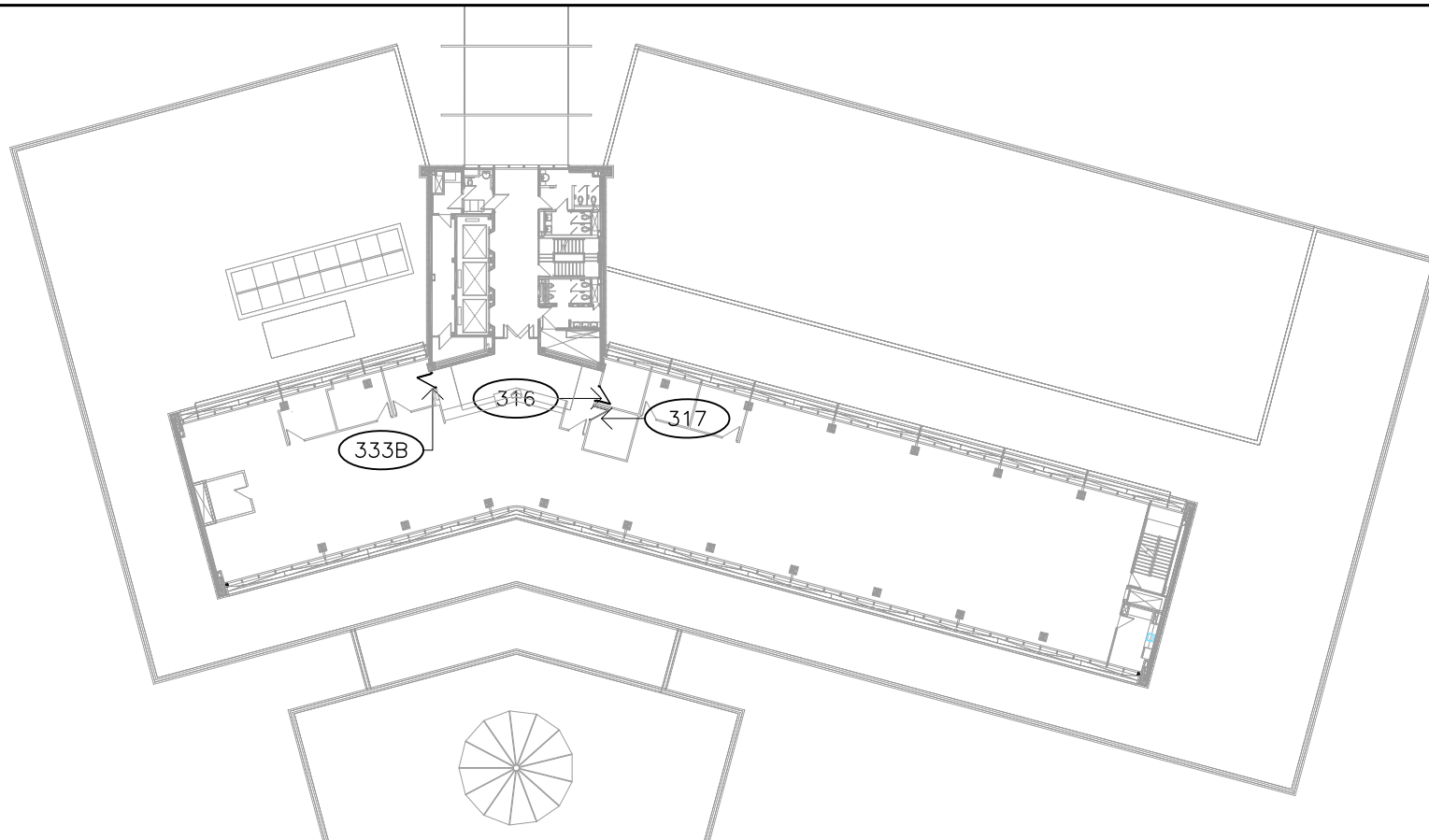


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PROJECT NAME:	CITY HALL ACCESSIBILITY DOORS
PROJECT ADDRESS:	71 MAIN STREET WEST HAMILTON, ONTARIO
PROJECT NO.:	12-033
DRAWING TITLE:	FIRST & SECOND FLOOR PLANS
PLOT DATE:	14-Feb-13
DRWN.:	AM
CHKD.:	-
DATE:	JAN 02, 2013
SCALE:	1:500
DRAWING NO.:	

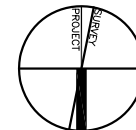


FOURTH FLOOR PLAN 2
SCALE = 1:500 A2.2



THIRD FLOOR PLAN 1
SCALE = 1:500 A2.2

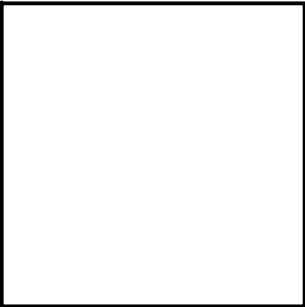
REV.	DESCRIPTION	DATE
3	ISSUED FOR FEASIBILITY STUDY	02/14/13
2	ISSUED FOR COORDINATION	01/09/13
1	ISSUED FOR SITE REVIEW	01/08/13



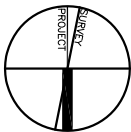
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PROJECT NAME:	CITY HALL ACCESSIBILITY DOORS
PROJECT ADDRESS:	71 MAIN STREET WEST HAMILTON, ONTARIO
PROJECT NO.:	12-033
DRAWING TITLE:	THIRD & FOURTH FLOOR PLANS
PLOT DATE:	14-Feb-13
DRWN.:	AM
CHKD.:	-
DATE:	JAN 02, 2013
SCALE:	1:500
DRAWING NO.:	

A2.2



3	ISSUED FOR FEASIBILITY STUDY	02/14/13
2	ISSUED FOR COORDINATION	01/09/13
1	ISSUED FOR SITE REVIEW	01/08/13
REV.	DESCRIPTION	DATE



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PROJECT NAME:
CITY HALL
ACCESSIBILITY DOORS

PROJECT ADDRESS:
71 MAIN STREET WEST
HAMILTON, ONTARIO

PROJECT NO.:
12-033

DRAWING TITLE:
FIRST & SECOND
FLOOR PLANS

PLOT DATE: 14-Feb-13

DRWN.: AM

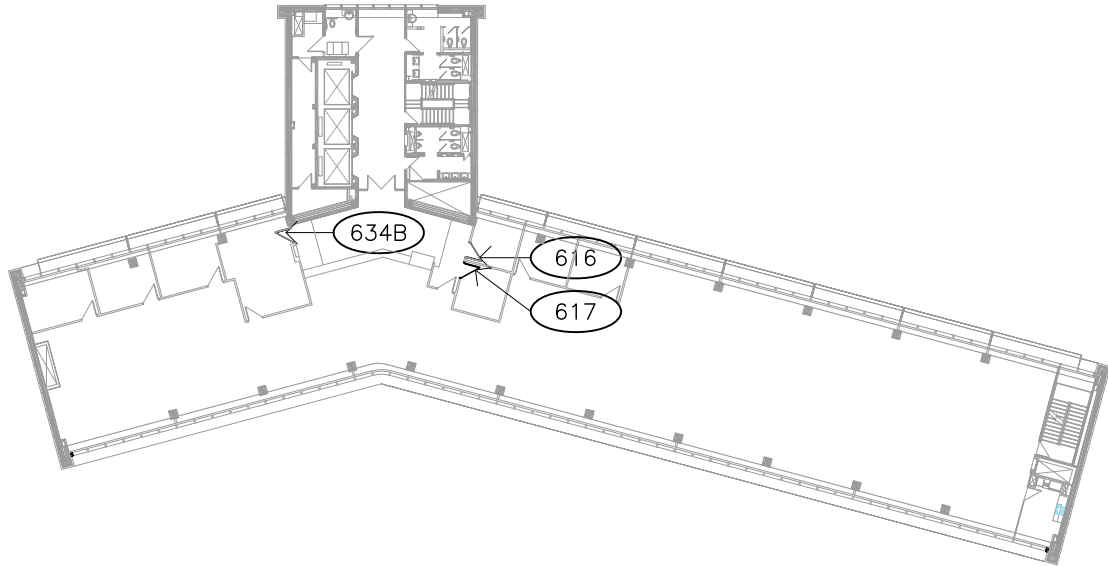
CHKD.: -

DATE: JAN 02, 2013

SCALE: 1:500

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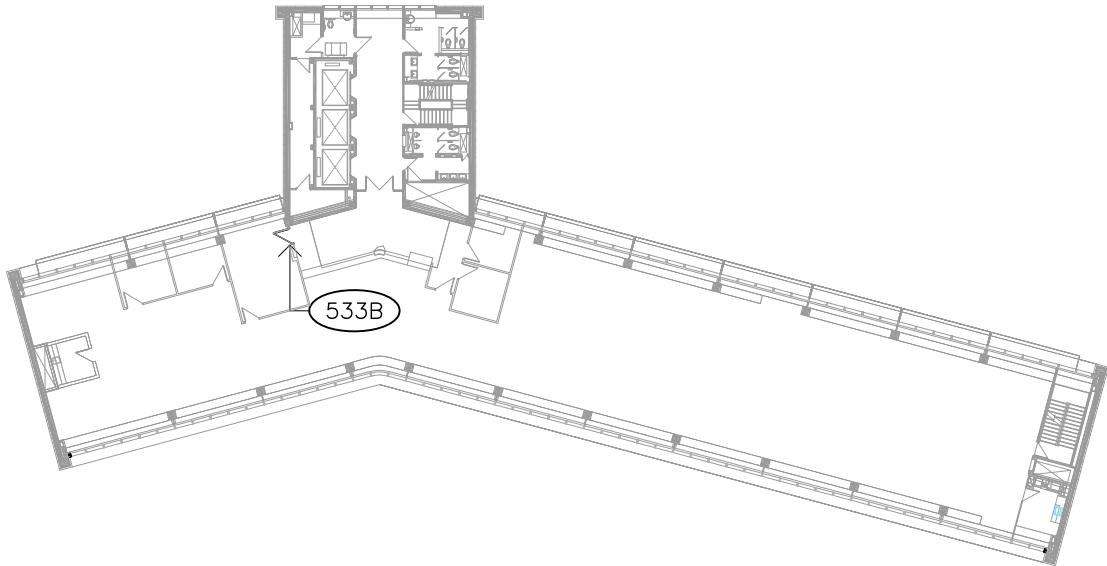
A2.3



SIXTH FLOOR PLAN

SCALE = 1:500

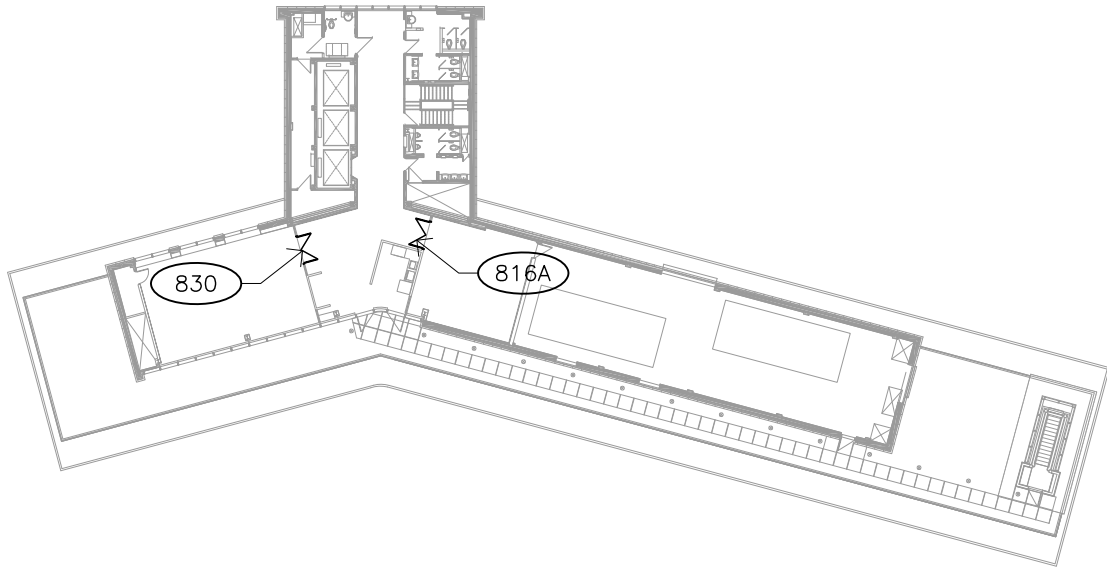
2
A2.3



FIFTH FLOOR PLAN

SCALE = 1:500

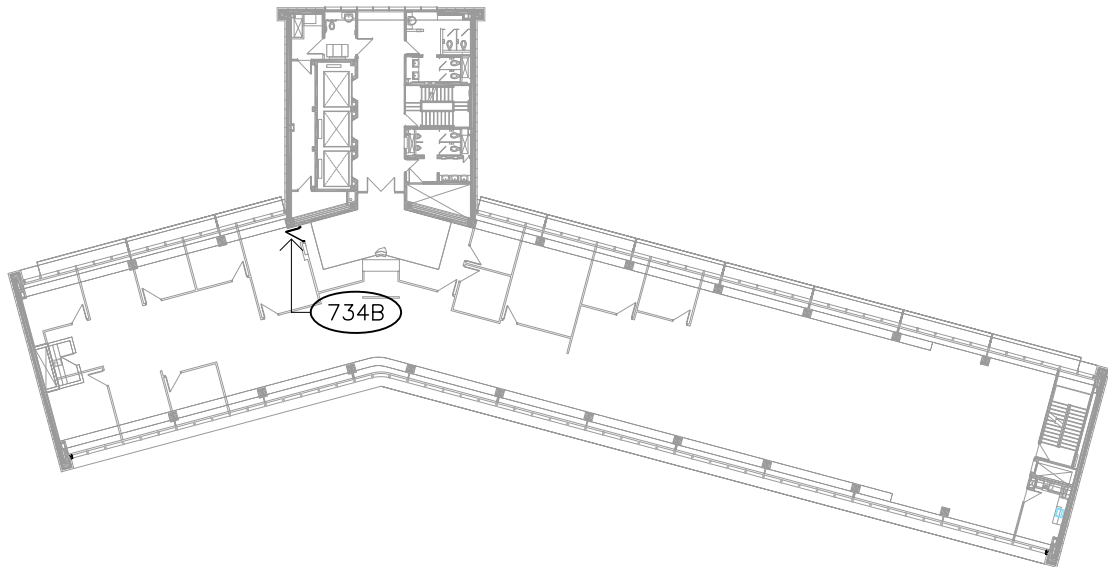
1
A2.3



EIGHTH FLOOR PLAN

SCALE = 1:500

2
A2.4

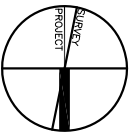


SEVENTH FLOOR PLAN

SCALE = 1:500

1
A2.4

REV.	DESCRIPTION	DATE
3	ISSUED FOR FEASIBILITY STUDY	02/14/13
2	ISSUED FOR COORDINATION	01/09/13
1	ISSUED FOR SITE REVIEW	01/08/13



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PROJECT NAME:

CITY HALL
ACCESSIBILITY DOORS

PROJECT ADDRESS:

71 MAIN STREET WEST
HAMILTON, ONTARIO

PROJECT NO.:

12-033

DRAWING TITLE:

SEVETH & EIGHTH
FLOOR PLANS

PLOT DATE:

14-Feb-13

DRWN.:

AM

CHKD.:

-

DATE:

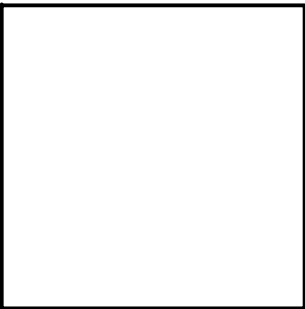
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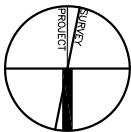
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DRAWING NO.:

A2.4



2	ISSUED FOR FEASIBILITY REPORT	02/14/13
1	ISSUED FOR COORDINATION	01/09/13
REV.	DESCRIPTION	DATE



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PROJECT NAME:
CITY HALL
ACCESSIBILITY DOORS

PROJECT ADDRESS:
71 MAIN STREET WEST
HAMILTON, ONTARIO

PROJECT NO.:
12-033

DRAWING TITLE:
DOOR & FRAME
TYPES

PLOT DATE: 14-Feb-13

DRWN.: AM

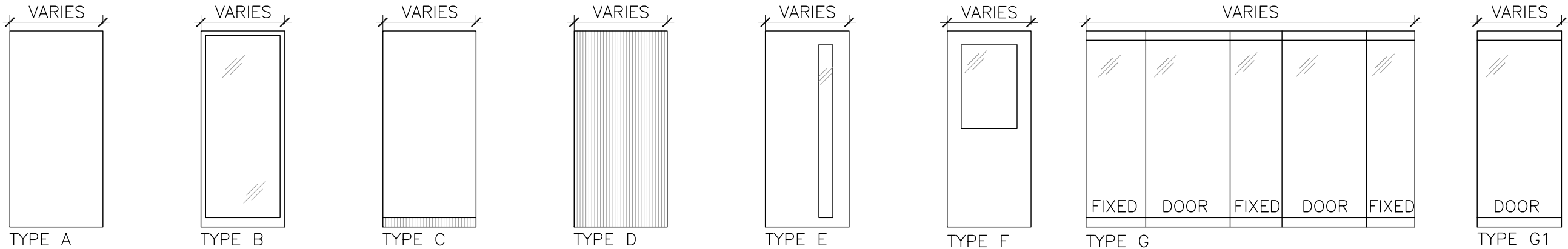
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DATE: JAN 02, 2013

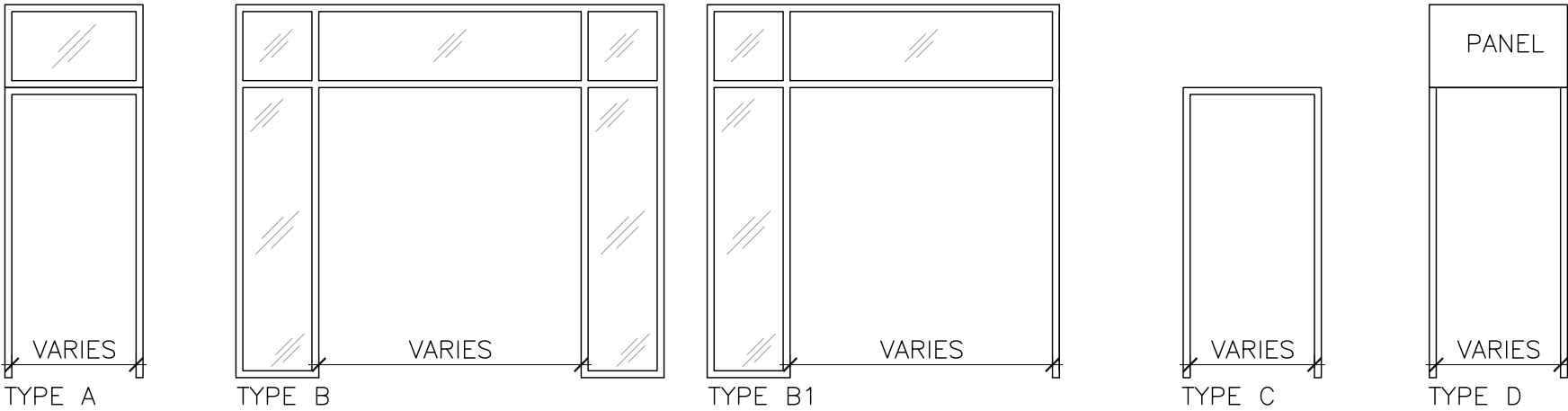
SCALE: 1:50

DRAWING NO.:

A0.0



DOOR TYPES



DOOR FRAME TYPES

Door and Frame Schedule

Room Description		Door								Frame				Door & Frame				
Floor #	Room Name	Door #	(E)/New	Type	Width (mm)	Height (mm)	Material	Finish	Gl.	Elevation	Material	Finish	Gl.	Heritage	Heritage Permit	Cost	(E) Hardware	Comments
1	Interview Room	118A	(E)	G	2 @ ±876	±2134	GL	CLR	TEMP	A	AL	CLR	TEMP	He	Yes	\$5,500.00	(E) FlrCls, (E) LS-bolt @ Top	
1	Conference Room	192	(E)	A	±900	±2108	WD	ST	-	A	WD	ST	TEMP	-	-	\$4,700.00	(E) LS	
1	Conference Room	193	(E)	A	±1003	±2108	WD	ST	-	A	WD	ST	TEMP	-	-	\$4,700.00	(E) LS	
2	Council Chamber	220A	New	See Report	±2796 (R0) (x2)	±2490 (R0)	See Report	-		See Report	-	-		-	Yes	Option1 - \$30,900 Option2 - \$39,600	-	These options do not included the switchable glass or blind options. See Cost Estimate for this information.
2	Council Chamber	220C	(E)	D	±838	±2007	WD	ST	-	C	WD	PT	-	He	Yes	\$15,200.00	(E) FlrCls	
2	Council Chamber	220F	(E)	D	±838	±2007	WD	ST	-	C	WD	PT	-	He	Yes	\$15,200.00	(E) FlrCls	
2	Media Room	221	(E)	C	±1137	±2223	WD	ST	TEMP	D	WD	ST	-	He	Yes	\$4,000.00	(E) LS	
2	Conference Room	222	(E)	G1	±876	±2134	GL	AL	TEMP FR	A	AL	CLR	TEMP ER	He	Yes	\$5,500.00	(E) LS @ Floor, (E) FlrCls	
2	Board Room	264A	(E)	B	±1016	±2134	AL	CLR	TEMP	A	AL	CLR	TEMP	-	-	\$4,600.00	(E) LS	
2	Board Room	264C	(E)	B	±1016	±2134	AL	CLR	TEMP	A	AL	CLR	TEMP	-	-	\$4,600.00	(E) LS	
2	Councilor's Lounge	270B	(E)	C	±978	±2134	WD	ST	-	D	WD	ST	-	He	Yes	\$4,400.00	(E) LS, (E) Cls, (E) CR, (E) Maglock	
2	CTM Breakout	287A	(E)	C	±978	±2134	WD	ST	-	D	WD	ST	-	He	Yes	\$4,400.00	(E) LS, (E) Cls, (E) CR, (E) Maglock	
2	CTM Breakout	287C	(E)	C	±900	±2223	WD	ST	-	D	WD	ST	-	He	Yes	\$4,400.00	(E) Cls, (E) LS, (E) CR	
3	Consult Room	316	(E)	F	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	-	\$4,200.00	(E) LS & (E) Cls	
3	Consult Room	317A	(E)	F	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	-	\$4,200.00	(E) LS & (E) Cls	
3	Consult Office	333B	(E)	F	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	Yes	\$5,300.00	(E) LS & (E) Cls	
4	Consult Room	416	(E)	F	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	-	\$4,200.00	(E) LS & (E) Cls	
4	Board Room	433B	(E)	E	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	Yes	\$5,300.00	(E) LS & (E) Cls	
5	Board Room	533B	(E)	E	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	Yes	\$5,300.00	(E) LS & (E) Cls	
6	Consult Room	616	(E)	F	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	-	\$4,200.00	(E) LS & (E) Cls	
6	Consult Office	617	(E)	F	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	-	\$4,200.00	(E) LS & (E) Cls	
6	Board Room	634B	(E)	E	±1003	±2108	WD	PLAM	TEMP	A	HM	PT	TEMP	-	Yes	\$5,300.00	(E) LS & (E) Cls	
7	Board Room	734B	(E)	E	±1003	±2108	WD	PLAM	TEMP	A	WD	ST	TEMP	-	Yes	\$5,800.00	(E) LS & (E) Cls	
8	Meeting Room	816A	(E)	A	2 @ 915	±2108	WD	PLAM	-	B	AL	CLR	TEMP	-	-	\$4,700.00	(E) LS	
8	Meeting Room	830	(E)	A	2 @ 915	±2108	WD	PLAM	-	B1	AL	CLR	TEMP	-	-	\$4,800.00	(E) LS	
Abbreviations (E) : Existing WD: Wood PLAM: Plastic Laminate														See Report for Scope of Work for All Doors, See Cost Estimate for all costs associated with doors and for overall total that includes other prices				
				TEMP: Tempered	PT: Painted	GL: Glazing/Glass				HE: Heritage								
				AL: Aluminum	ST: Stained	LS: Lock Set				FR: Frosted								
				HM: Hollow Metal	CLR: Clear	FLRCLS: Recessed Floor Closer				CR: Card Reader								

Hamilton City Hall Accessibility Doors

