Access to Justice. Dissemination findings

Very early on in the design of **Access to Justice** I needed to identify three different types of metal that could withstand the extreme range of year-round temperatures in Toronto, as well as not be affected by the high levels of salt used to treat road and thoroughfares in the City. This attention to detail had been a rust-related problem in other city-wide sculptures and the commissioners were determined it would not be the case with Access to Justice.

A conservator from **Toronto Art Restoration** (**TAR**) was appointed to scrutinize my proposal and she compiled a document which interrogated in detail my proposed materials, methods of fabrication, gauge of metal, fixings, H&S factors, foundations, durability, etc. This was called the TAR report. In addition, my contract with The Law Society of Upper Canada stipulated I would need to liaise with a number of Government Engineers in order to agree the precise location of the sculpture and that it didn't create an obstruction to the main thoroughfare between The Civic Centre and University Drive.

A site meeting with the fabrication team and City Engineers

- As a result of the TAR report the gauge of the Corten steel was agreed at 6mm, rather than 3mm.
- The specification of the painted metal doors was changed from mild steel to stainless steel, and painted with a two-part epoxy similar to that used on aircraft.
- Air holes were included in the artwork to allow for condensation to be released from the interior of the sculpture, rather than coating the interior of the sculpture with oil
- A rubber-buffer was designed as a separator between different metals to obviate the risk of galvanic corrosion.
- A bituminous coating was applied to the below-grade portions of the sculpture.

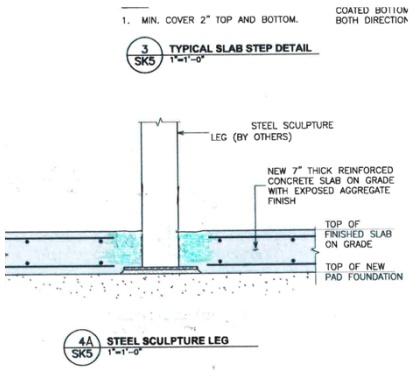
Although I specified the use of 6mm plate stainless steel for the bright-polished surfaces of the sculpture, the fabricator sub-contracted this part of the job to another contractor without my knowledge who used 3mm stainless steel (Plate 2 below) claiming that his method of fabrication would obviate any risk of "canning" undulations on the flat surfaces of the stainless steel as a result of welding i.e. the heating and cooling of metal. He used an elaborate system of ice bags to pack where spot-welding took place prior to seam- welding each section of the gate structure. Needless to say, this system didn't work and the contractor had to revert to my 6mm specification at his own cost. See Plate 1 below.

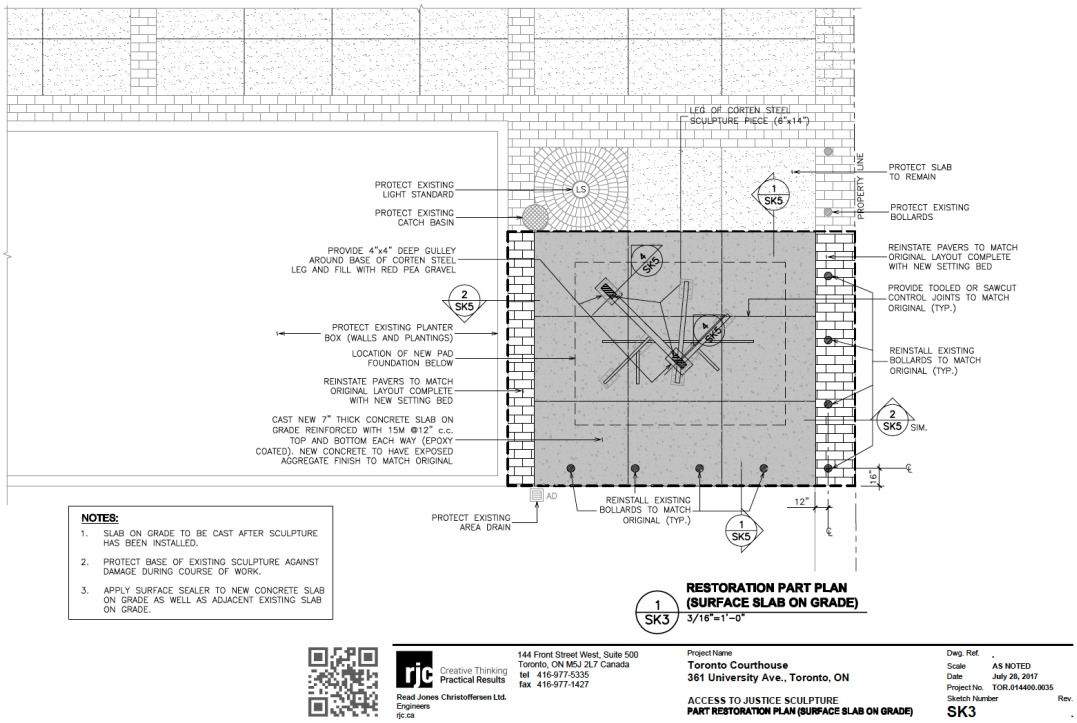
Expert advice from Prof Geoff Wilcox (Emeritus Professor of Surface Engineering and Corrosion Loughborough University). Hon. Editor-in-Chief, Transactions of the Institute of Materials Finishing

I worked closely with TAR as well as the Archives of Ontario representative, on the precise specifications of steel. There was a concern that the Corten (weathering steel) steel would bleed onto the pavement during its curing process. Corten usually takes 8 months to properly cure (Plate 5, below) at which time the top surface becomes impervious to the weather and is recognised as one of the most robust metals. To mitigate this concern, I consulted Prof Geoff Wilcox (Emeritus Professor of Surface Engineering and Corrosion Loughborough University) and designed shallow troughs (Plate 3) around the base of each Corten footing to enable the bleed to gather and be dispersed by a simple drainage pipe into the nearby drains as approved by the Mayoral Engineer. My fabricator had also come-up with a recipe for accelerating the cure time of weathering steel, but Prof. Wilcox cautioned against this citing evidence that patina formation is slow and needs wet/dry periods to form the 'tight' oxide that colours and protects the metal surface. (see plate 5)

Element	Content (%)
Iron, Fe	98.5
Manganese, Mn	1.25
Carbon, C	0.220
Sulphur, S	0.050

Prof Geoff Wilcox also advised on the reliability of this and other metals in order to assure TAR as to the durability of the materials. For example, an issue raised by TAR was the potential for corrosion if the stainless-steel base of the sculpture came into contact with the concrete foundations. Prof. Wilcox was able to reassure TAR that since the stainless steel used was autensic grade 316 the alkaline nature of concrete would render the metal passive. 316 is more resistant to chlorides (in the concrete from de-icing salts) than 304 ss because of its molybdenum content. (Plate 6 below)





My choice of metals and colour had specific meanings: the Corten steel (rust-coloured metal) was intended to evoke the heavy industry of Ontario: The stainless-steel sections were a metaphor for the present day, capturing the light and vivacity of a bustling city centre: the blue painted metal referred to the Great Lakes. The criss-crossing of these metal portals also referred to the intersection, the warp & weft of a multicultural society assimilating under the flag of Canada.

The range of metals used in the fabrication of Access to Justice

I also employed the services of a Structural Engineer who had experience of working with the fabrication team, Lafontaine Iron Werks inc. The Structural Engineer prepared the engineering drawings (Plate 4) for the sculpture based on the CAD model I supplied as well as my hand-built scale model (Plate 7) of Access to Justice.

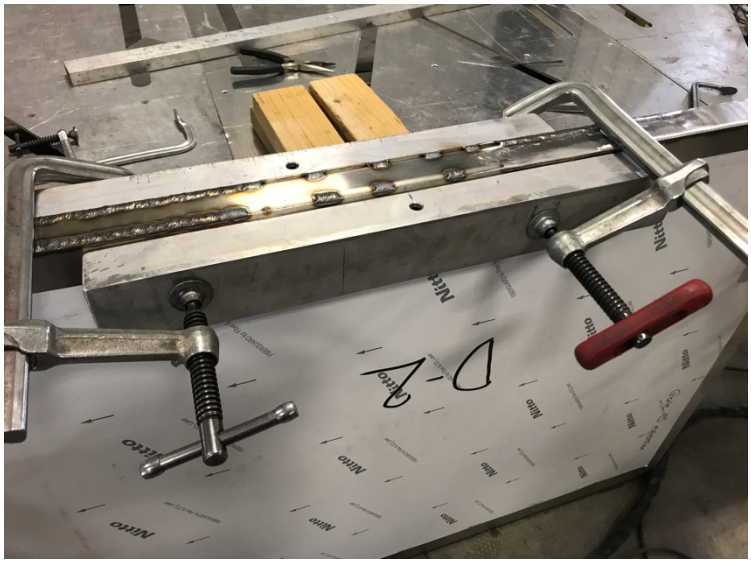
My sculpture and its attendant message of access to justice is promoted by Calibrate, a Toronto based agency, in order to endorse their services to indigenous communities, and a range of other matters relating to accessing the justice system.

Access to Justice is also used as a dissemination tool by the Ontario Justice Education Network to promote understanding of access to justice to the disadvantaged and young people in Ontario: building engagement and the legal capacity of the community.

Plate 1

The upright stainless teel section of the sculpture demonstrates undesirable “canning” undulations on the surface of the metal.

Plate 2



The rig and bracing used in a flawed test to use 2mm stainless steel and avoid canning of the metal surface

Plate 3

This is the trough constructed at the base of the Corten steel sections of the artwork to capture any bleed from the rust patinated surface of the sculpture. The trough was filled with red pea-shingle as a design aesthetic and method of capturing rust- bleed into an attractive and controlled surface.

Plate 4

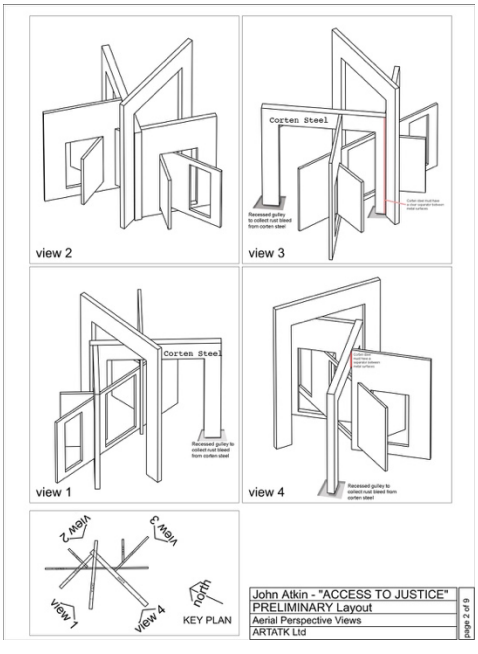


Plate 5

The Corten (weathering) steel sections of the sculpture are fabricated first to enable weathering of the surfaces and patination. The precise hue of rust colour is dependent on the atmospheric conditions the artwork is permanently located in.

Plate 6

Detail of how the base of the sculpture is bolted and resin-anchored to the concrete foundations

Plate 7

The scale-model of Access to Justice, made at Lafontaine Iron Works, using sheet timber and paint. This model was used alongside CAD drawings & visualisations to enable a comprehensive understanding of the sculpture to all concerned in its manufacture and installation

Plate 8

The exterior and interior workshop spaces of Lafontaine Iron Werks inc. Tiny. Ontario

Plate 9

Members of the Law Society of Upper Canada at the unveiling ceremony of the sculpture.

Left to Right. Paul Schabus, (Treasurer Law Society of Ontario) | John Tory (Mayor of Toronto) |
Seymour Epstein (Chairman Epstein Enterprises) | Hon. Judge Gloria Epstein | Judge Roy McMurtry (centre)