

**EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.**

31 JULY 1986

INTRODUCTION

The following architectural and structural assessment was carried out on July 21, 1986, by Etienne Gaboury - Gaboury Associates Architects, James Kacki - Gaboury Associates Architects, David Kilgour - Crosier Kilgour & Partners Ltd. The assessment was based on a walk through of the following buildings:

1. East Yards Power House
2. The Training Building
3. Canadian National Express Garage
4. Johnson Terminal
5. The B & B Building

Page 2,
31 July 1986

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

BUILDING ONE

Name:

East Yards Power House

Date of Building

(Possibly 1949; to be confirmed)

Past Uses:

Power House

Present Use:

East Yards Power House generating steam from coal. Delivery of coal by East Yards Service Tracks. Steam supplied to Union Station, undertrack service area, the Manitoba Club, the Fort Garry Hotel.

Main Features - Exterior

Rectangular two to three storey brick faced structure with flat roof. Utilitarian detailing. A large chimney and steel framed coal delivery chute are attached structures.

Roof

A roof penthouse structure runs the length of the building and is approximately one storey high. The roof of the main building and the penthouse is a tar and gravel roof in reasonably good condition.

Main Feature Interior

The interior is a utilitarian structure of 1940's vintage with masonry interior walls, a steel frame exposed structure, a narrow second floor office structure on the north west end of the building, open steel stairs and a steel grate catwalk structure. The main interior features of the building are the two storey high "Vickers Keeler" water tube boilers, which fill the space.

Vertical Circulation

Open steel grate stairs.

Page 3,
31 July 1986

**EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.**

Windows and Doors

Windows are single pane steel industrial type.

Insulation and Vapour Barrier

There is no insulation or vapour barrier in the walls or roof.

Heating and Electrical

Adequate for existing task.

Conclusion/Re-Use Potential

The building could continue to serve its present function until such time as the transfer tracks which supply coal to the boilers are removed from the East Yards. When the building is no longer serving its power house function, it is possible that it could serve as part of a historical display as the large boilers may have some historical interest relevant to East Yards development. However, due to the relatively recent vintage of the boilers when compared to much older historical events and artifacts in the East Yards, the building may not warrant the costs necessary to convert it into a year round industrial display. Another possible use of the building is to remove the boilers and use the interior space for some other function. However the architecture is not significant enough to warrant the costs that would be necessary to re-use this building for some other purpose. A newer structure more suited to its function would be a more appropriate solution.

Cost of Renovations

Page 4,
31 July 1986

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

BUILDING TWO

Name:

Training Centre Building (originally Canadian Northern Stables)

Architect

Warren and Wetmore (designers of Union Station and Grand Central Station in New York)

Date of Building

1909

Past Uses:

Originally stables until 1929, the garage of the National Cartage and Storage Company until 1937, Canadian National Stationary Stores until 1972, Canadian National Railways Fitness Centre from 1973 to present.

Present Use:

Canadian National Railways Fitness Centre

Main Features - Exterior

The exterior of the building is a two storey pitched roof, masonry clad structure. It is a simple industrial style of architecture with minimal detailing, however its proportions and massing are well handled for this type of building. The exterior of the building has undergone some alterations (windows bricked-in etc.) however the exterior of the building could be restored to its original state (or something approximating its original state) with little difficulty.

Roof

Re-roofed in 1985.

**EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.**

Main Feature Interior

The main architectural feature is the space created by the two central masonry bearing walls that form a continuous central space through the middle of the building from one exterior end wall to the other. This central space is marked on the exterior by large barn type doors surmounted by a semi circular archway opening which has since been filled in with masonry. This feature is the most interesting in terms of future re-use and renovation of the structure for other purposes. Another feature of the interior is its structure which is described more fully in the structural assessment by Crosier Kilgour Partners Ltd. The second floor has been renovated as a fitness centre while the main floor remains as a garage and storage function. The floor of the second floor is refinished hardwood maple flooring. At the time of writing it is unknown whether this maple floor was part of the original construction, however it is likely that it may have been added during one of the many renovations of the building.

Vertical Circulation

There are 3 new fire stairs in the training centre. The main entrance is a new structure on the north side of the building clad in light steel and enclosing a new steel fire exit stair. Another fire exit stair is an exterior steel fire escape. The third stair is near the centre of the west end wall of the building and services the office portions of the second floor.

Windows and Doors

Single pane wood windows.

Insulation and Vapour Barrier

There is a space between the exterior wythe of brick and the interior wythe of brick, however it is unlikely due to the time of construction and type of renovations, that insulation has been installed in the walls. There is no insulation in the roof, according to CN officials.

Heating and Electrical

Heating is from the East Yards steam power plant and the electrical appears to be sufficient for its existing use as a training centre.

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

Conclusion/Re-Use Potential

Architecturally these buildings have some merit as historical industrial structures. Due to the central space through the middle of the building inherent in the structure, a very interesting adaptive re-use space could be created on the interior. The scale of the building is well suited to its location in the East Yards next to the river bank and adjacent to the railway structure of the mainline. Its location near Main Street gives good pedestrian and parking access. The spaces could be adaptable to a wide variety of uses but is especially suitable for public gathering functions. Renovations to adapt to any year round use would of necessity be extensive. The entire building would have to be insulated and a vapour barrier added. A new heating system would be required and it is unlikely that the electrical system would have sufficient capacity to handle a major public function and would therefore have to be replaced. New fire stairs would be required and the entire structure would have to be fire rated or otherwise adapted to meet new building code requirements. All new windows and doors would be required. Although it would not produce "cheap space", this building has excellent potential to be renovated and used for other purposes as part of a new East Yards development.

Cost of Renovations

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

BUILDING THREE

Name:

Canadian National Railways Express Garage

Date of Building

1910

Past Uses:

Originally stables then garage, then miscellaneous railway uses.

Present Use:

The building is presently used by the CN Police for various functions which CN was unwilling to discuss, presumably for security reasons.

Main Features - Exterior

This building is identical to the adjacent Training Centre Building previously described with the following exceptions. Shorter in length, new attached garage structure, the roof overhang has been cut back all around the building, large exposed steel through-wall anchors at the second floor line.

Roof

Re-roofed in 1985.

Main Feature Interior

The centre bearing walls are similar to those in the Training Centre Building however the rest of the structure has been altered from the original construction removing all columns on the main floor and replacing them with new steel trusses that span from outside masonry wall to interior masonry wall. The anchor bolts for these trusses are visible on the exterior of the building at the second floor line. The condition of the interior could not be established as we were not able to gain entry to most of the building for security reasons.

Vertical Circulation

Unknown.

Windows and Doors

Similar to Training Centre Building.

Page 8,
31 July 1986

**EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.**

Insulation and Vapour Barrier

Probably similar to the Training Centre Building.

Heating and Electrical

The heating is probably similar to the Training Centre Building, the electrical capacity and electrical system is unknown.

Conclusion/Re-Use Potential

The same conclusions as for the Training Centre Building hold true for the Canadian National Express Garage Building. The building has had several structural and constructural alterations that will probably mean added difficulties and expenses for any renovations. However, due to its architectural merit, historical significance, and adaptable space, this building, like the Training Centre is a good candidate for possible renovation and re-use.

Cost of Renovations

Page 9,
31 July 1986

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

BUILDING FOUR

Name:

Johnson Terminal

Date of Building

1928 - 1930

Past Uses:

Warehouse

Present Use:

Vacant

Main Features Exterior

At approximately 240' in length and 90' in width and 4 stories high, this building is the largest in the East Yards. It is a typical warehouse structure similar to that found in the Exchange District. It has a masonry exterior cladding. An unusual feature is that one corner of the building is notched to accommodate the turning radius of train cars which stop against the east wall of the building. The style of the building is simple and utilitarian with no outstanding architectural features.

Roof

The tar and gravel roof appears to be in generally fair condition. Some roof drains have been damaged and there is evidence of some ponding in certain areas of the roof. The roof drains run down through the interior of the building and there does not appear to be any emergency scuppers draining water to the outside. Some of the interior masonry walls extend up through the roof to a height of approximately 3 to 4" indicating that these could be considered as fire walls. There is stair tower access onto the roof.

Page 10
31 July 1986

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

Main Feature Interior

The interior of all floors is basically large open warehouse space divided only by 3 masonry bearing walls which run across the width of the building dividing it into 4 sections. The wood columns are on approximately 15' centres (dimensions to be checked) which is common for warehouse space of this type. The floors are primarily softwood planks which have been damaged by years of heavy use, overlaid in sections by hardwood flooring. The interior finish of the exterior walls as well as the interior walls is masonry. The ceilings are open wood joists and planks in relatively good condition in most areas. On each floor there are a number of offices located on the west wall of the building adjacent to the fire stairs. These are in relatively poor condition. The exposed heavy timber columns beams, joists and plank flooring is an interesting feature of the building and is described more fully in the structural assessment section of the report.

Vertical Circulation

Two enclosed steel fire stairs leading directly to the exterior. Four freight elevators, one in each section of the building.

Windows and Doors

The windows throughout the building are steel framed single paned wired glass industrial windows.

Insulation and Vapour Barrier

The building has no insulation or vapour barrier apparent.

Heating and Electrical

Since the building has been vacant for some time it is difficult to determine the condition of the heating and electrical system, although it is reasonable to assume that the heating is provided by the East Yards power house and that the electrical was sufficient for its warehouse function, but would not be sufficient for any other function.

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

Conclusion/Re-Use Potential

The scale and character of this building is much more suitable to the Exchange District than it is to the riverside. If it is re-used, considerable attention should be paid to renovating the exterior of the building to visually reduce the scale and open the main floor so that the building can relate better to its site and to public access. As a conclusion regarding site compatibility the character of the Johnson Terminal in this location is much less suitable for redevelopment as a public building on a riverside location than the previous two garage buildings. However given the amount of space that is available and the generally good condition of the building it would be wise to consider attempting to re-use it and re-design the exterior to minimize its negative characteristics.

The structure, foundations and shell of the building appear to be in good condition and capable of re-use. The rest of the building would have to be new construction. This would include all exterior windows and doors, all elevators and possibly stairs and the entire mechanical and electrical system. The building would have to be insulated. Vapour barrier continuity would be a problem between floors and between masonry fire walls. However this is a problem common to all renovations of this type. Depending on its new use the floors may have to be fire rated which would mean covering the existing exposed wood joists. In terms of renovations and re-use this building is very similar to the Ashdown's Warehouse which is currently being considered for re-use as residential accommodation. This is a possible re-use function for the upper floors of this building and the Ashdown Warehouse example could be used as a model in terms of costs and renovations techniques. The upper floors are also suitable for office accommodation (if enough offices can be found). Due to the column spacing the building is not suitable for large open areas which restricts the type of functions that can be accommodated especially on the main floor of the building, where public functions are appropriate. A market or shops for instance are functions that would be compatible with the existing structure while open area functions such as theatres or halls would not be appropriate without major and expensive structural alterations.

There is evidence of considerable water penetration into the building, and this condition must be rectified as a priority in any renovation. The possible causes of the penetrations are either:

- .1 Damaged roof drains and/or
- .2 Water entering the basement through ground level windows or through the basement walls or floor. The water has already caused damage in certain areas such as buckling of the wood floors on the main floor and plaster deterioration.

Cost of Renovations

Page 12,
31 July 1986

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

BUILDING FIVE

Name:

B & B Building (Northern Pacific and Manitoba Railway Engine House)

Date of Building

1889

Past Uses:

Engine and train car maintenance

Present Use:

Storage and workshop

Main Features - Exterior

This building is a 1 storey T-shaped building with masonry exterior finish materials. It is a low building the peaked roof of which has been altered to become a flat roof building with mansard type roof edges. Its original function as an engine and train car service building is still apparent by the large wooden doors across both ends of the building. The exterior of the building is not in good condition at the present time, with major cracks apparent in some locations. Grade has been built-up around the building so that original door thresholds are in some cases 1 to 2' below grade with step alterations to accommodate this situation. While the proportions and design of the building are not outstanding, the interest of this building lies in its character as an early railroad services structure.

"Long paired windows along both sides of the brick structure have segmented voussoir heads and sills of either concrete or stone. A small amount of brick work in the form of corbelling and wall detailing into bays constitutes the extent of deliberate ornamentation." Sheila Grover - Historic Buildings Committee

Roof

The flat roof has deteriorated to a point where in some sections there is no roofing material left, thereby exposing the wooden roof structure. The evident water penetration through the roof has contributed to the significant deterioration of the wood structure inside the building. The original peaked roof was completely replaced in 1936 with the present flatened gambrel roof. To accommodate the new roof profile the walls on the two ends of the building have been built up on the sides with new masonry. There are a number of wood ventilator enclosures on the roof. These have deteriorated beyond repair in most cases.

Page 13,
31 July 1986

**EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.**

Main Features - Interior

The interior of the main section of the building is one large open space which was the engine and train car repair area. The main architectural features are the wooden columns and trusses which create an extremely interesting interior space. These trusses are in extremely poor condition due to water damage from rain through the roof and/or steam damage from years of railroad engine use. The T section of the building which was originally a blacksmith shop and now a machine room/work room, has a similar structure that is in good condition. This work room is separated from the main area by a masonry wall.

Vertical Circulation

N/A

Windows and Doors

The long windows along both sides of the brick structure are single pane and presently in poor condition. The doors are of wood construction and are in a similar condition.

Insulation and Vapour Barrier

Non-existent.

Heating and Electrical

It was not possible to fully assess the condition of the heating and electrical system during this walk through, however it is safe to assume that both systems would have to be replaced if the building was to be renovated.

Conclusion/Re-Use Potential

This is the most difficult building to assess conclusively in terms of re-use potential since it is historically one of the most significant of the buildings described, but it is also in the worst condition. If the building is to be re-used, its most likely and appropriate use would be as a railroad museum continuing its past use and retaining the spacial configuration of the building. It is safe to assume that much of the building would have to be re-built and the renovation would be extremely costly however it might be warranted if its historical value is deemed to be significant.

Page 14,
31 July 1986

EAST YARD TASK FORCE STUDY
ASSESSMENT OF FIVE BUILDINGS IN THE EAST YARDS
(SOUTHERN PORTION)
GABOURY ASSOCIATES ARCHITECTS INC.

If the building was not to be used as a railroad museum, then the re-use of this structure would be questionable. In this case the significant costs for renovation would not be balanced by a use which reinforces its primary positive feature which is its historic significance as railroad services structure. A summary conclusion might be that if the building was re-used as railroad museum the significant cost associated with its renovations may be worthwhile, but if it is not to be used as a rail museum, then the cost associated with its renovations would probably not be worthwhile.

Cost of Renovations



CROSIER, KILGOUR & PARTNERS LTD.
 Consulting Structural Engineers

Winnipeg-Calgary
 Saskatoon-Vancouver



July 24, 1986

Our File No. 86-0306

Intergroup Consultants Ltd.
 604 - 283 Portage Avenue
 Winnipeg, Manitoba
 R3B 2B5

Attention: Ms. C. Vann, Manager

Dear Ms. Vann:

Re: Inspection - CN East Yard - Existing Buildings

A	N	Date	R	Fwd	FILE
X	EJG				
	AJG	7/8			
X	JN				
	DS				
X	JK	JK/RS/m			
	DAC				
	FILE	R. J. Adams			

As requested I toured five buildings at the above site in order to determine their general condition. The five buildings were identified in the following manner.

1. The Power House
2. Training Centre
3. C.N. Express Garage
4. Johnson Building
5. B. & B. Building

Descriptions of the buildings and their structural systems and conditions are appended hereto. You should note that it is not possible to determine the type of foundations used without having the original as-built drawings or without exploratory excavations. It is possible however to comment on how the foundations have performed and whether there is any visible evidence of building settlement.

I trust this report is sufficient for your immediate requirements. If you have any queries or need additional explanations and/or investigations please contact me.

Yours truly,

David M. Kilgour, P. Eng.

DMK/bcs

cc: Mr. J. Kacki, Gaboury & Associates.

Printers
 A. Crosier, P. Eng.
 M. Kilgour, P. Eng.
 C. Gibbs, P. Eng.
 W. Scheidt

THE POWER HOUSE

According to a worker in the building it was built in 1949 and was founded on piles.

The building consists of a large open space containing the boilers and an overhead coal bin. There is a narrow basement along one side of the building which is used to clean out ashes from furnaces. There are mezzanine service areas and a penthouse which encloses the top of the coal bin.

The building structure consists of structural steel beams, columns, and trusses and the roof deck in the main roof and the penthouse roof is a precast concrete slab system. The mezzanine floor consists mostly of steel grating with some areas of concrete.

The basement is of reinforced concrete construction and the exterior walls are non-bearing brick masonry.

The building was solidly built and is in reasonably good structural condition with no evidence of foundation movements.

There has been some corrosion of reinforcing steel in the precast concrete roof slabs, resulting in spalling of the concrete around the corroded bars. This is likely due to roof leaks over an extended period of time. If the building is to be incorporated into a new development some of these slabs will have to be repaired or replaced subject to a more detailed examination.

THE CN EXPRESS BUILDING

Access to this building was limited, however it generally appears to have originally been identical to the Training Centre. The following differences were noted.

There have been more significant foundation movements at one corner of the building in particular. This does not appear however to be critical and may well have stabilized.

The interior columns on the outside bays which held up the second floor in the Training Centre Building have been removed in this building and replaced with a truss system to provide a clear span in these areas. The bottom chords of these new trusses consists of two large diameter steel rods which are bolted through the masonry bearing walls. For reasons unknown the bars are larger on one bay than they are on the other. (Perhaps the design live loads were different.) The steel trusses could only be seen through the windows so that a general inspection of all of the trusses could not be done at this time.

The exterior overhangs on this building appear to have been shortened as compared to the Training Centre Building.

It is not possible to form an overall opinion as to the condition of the building without getting complete access, but those parts of the building which could be seen were in reasonable condition subject to the foregoing comments.

THE TRAINING CENTRE

This is a two storey building with exterior brick bearing walls. It is divided into 3 bays by 2 longitudinal interior brick bearing walls which support the two outside bays of the second floor structure and all three bays of the roof structure. The interior bay of the second floor structure is supported on independent steel columns, adjacent to the brick bearing walls.

The ground floor is a concrete slab on grade which is at different levels in the different bays. The floor in some areas could be asphalt although this could not be determined for sure without digging an exploratory hole.

The second floor consists generally of wood flooring on wood joists on steel beams which are supported on steel columns and the masonry bearing walls as described above. In some areas the floor joists are much heavier than typical indicating that they were designed for heavier loads. There has been some water damage to some of the wood joists and a more detailed examination will be necessary to determine whether any corrective measures are required.

The roof structure consists of wood sheathing on wood joists on structural steel trusses with a sloping top chord and a horizontal bottom chord. The bottom chord is located at the plane of the ceiling. These trusses span to and are supported by the four brick bearing walls. The roof joists cantilever out beyond the exterior walls to form an overhang.

There are several cracks in the exterior masonry wall indicating that there have been some foundation movements over the years. These however appear to be relatively nominal in nature and are not considered serious. There are some major cracks over a drive-in doorway indicating that the original steel lintel was undersized. A new lintel should be installed prior to repairing the brickwork.

In general, this building is in reasonable structural condition although it will need a nominal amount of upgrading in order to extend its life.

THE JOHNSON BUILDING

This is a large four storey storage building of brick and heavy timber construction. It has a basement, with reinforced concrete columns, a concrete floor and concrete basement wall.

The roof has high brick parapet walls with a concrete coping. The roof structure is built with slopes to drains and it is noted that one drain at least appeared to be blocked. There were no overflow scuppers in the parapets.

The top three floors appeared to be identical in nature and consisted of heavy wood decking on heavy wood purlins supported in turn by heavy wood beams. The connections are of cast iron and/or steel plates and bolts. The columns are heavy timbers. All of the floors have posters indicating a storage load capacity of 250 lbs. per square foot.

The timber was in generally good condition although some horizontal splitting of floor beams was noted indicating possible overloading at some time. At the exterior walls, the ends of the beams had water stains indicating leakage. The part of the wood that could be seen at these locations appeared to be in good condition.

Inspection of the basement was limited due to poor lighting, however it appeared to be built in massive proportions as would be required by the posted live load of 600 lbs. per square foot. The structural framing consisted of large timber purlins on steel beams which were supported on large concrete columns. The floor was wet although it was not flooded.

In general the building was massively constructed and is in good structural condition with no indications of any foundation movements. Any incorporation of this building into a future development would likely require considerably less live load than the building was designed for, which would more than compensate for the checking of beams, etc. described above. I would recommend prior to renovating, that the ends of the beams be examined where they are built into the walls to determine whether there has been any rotting and whether remedial work is necessary.

THE B. & B. BUILDING

This building is a one storey structure which is Tee-shaped in plan. It has brick exterior walls, a concrete floor slab on grade and a heavy timber truss roof.

The exterior brick masonry is in poor condition with many cracks indicating that the building has had foundation problems. Some of the masonry pilasters on the main bearing wall appear to be out of plumb.

The roof trusses are of timber construction with the diagonal timber compression members and vertical steel rod tension members. Many of the timbers in the main wing appear from ground level to be in poor condition due to moisture from the leaking roof. Most of the trusses appear to have significant deflections. This area used to service steam locomotives and the effects of smoke and steam may have been the reasons for the deterioration which is evident.

The smaller wing of the structure appears to be in better condition perhaps because of a different use which resulted in a less harsh environment than existed in the larger wing.

In conclusion this building is in generally very poor structural condition with evidence of foundation problems and a more detailed and extensive investigation would be necessary if it were considered desirable to recycle it. From this preliminary investigation it is my opinion that it would not be economically feasible to restore this building so that its life could be extended.