

# CHES Manitoba Chapter Education Day



Patient & Resident Lifts  
April 24, 2018

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Crosier Kilgour & Partners Ltd.

CONSULTING STRUCTURAL ENGINEERS

# The Code:



Z10535.2-17

**Lifts for the transfer of persons —  
Installation, use, and maintenance**



## **Standard Covers:**

- Installation
- Commissioning
- Inspection
- Maintenance
- Testing
- Care & Use
- Cleaning & Infection Control

# The Plans

## Health Care Facility (HCF) shall have:

- **Client Transfer Plan (Policy and Procedure)**
  - Equipment checks
  - Risk Assessment
  - Lift procedures
  - Reporting procedures
- **Quality System Plan**
  - Regular review of Client Transfer Plan
  - Personnel policies for training, qualifications, responsibilities, reporting.
  - Process Control
  - Periodic review for continual improvement
- **Yearly Maintenance**
  - Inspection
  - Testing



# Installation

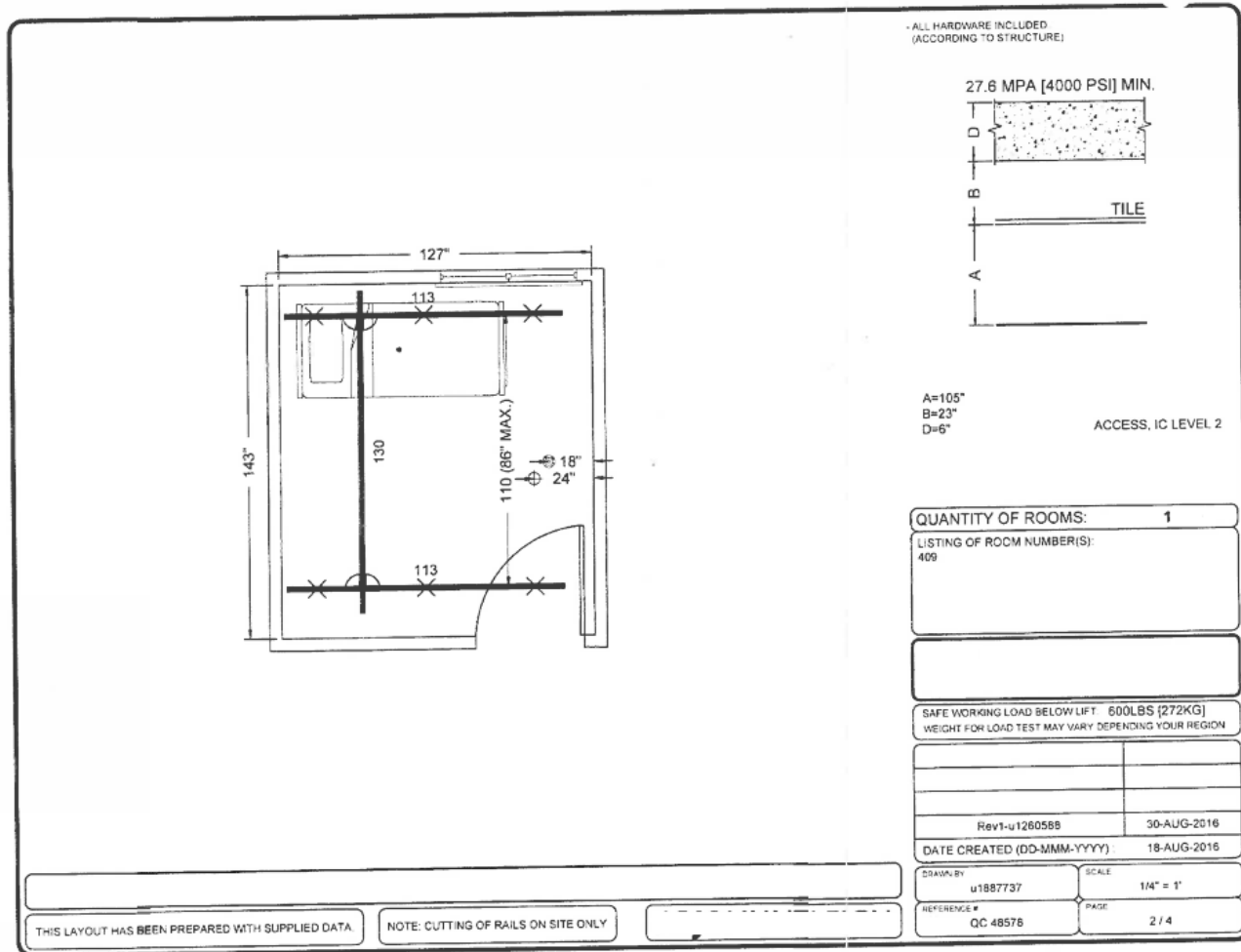


## Installation:

- Capacity of Building Structure
  - HCF (EOR)
- Design of Lift
  - Manufacturer (CSA Z10535.1), capacities reviewed by HCF (EOR)
- Anchorage
  - Manufacturer (CSA Z10535.1), reviewed by HCF (EOR)
- Inspection of installation
  - Initial (Commissioning) by manufacturer
  - Yearly by HCF



# Drawings



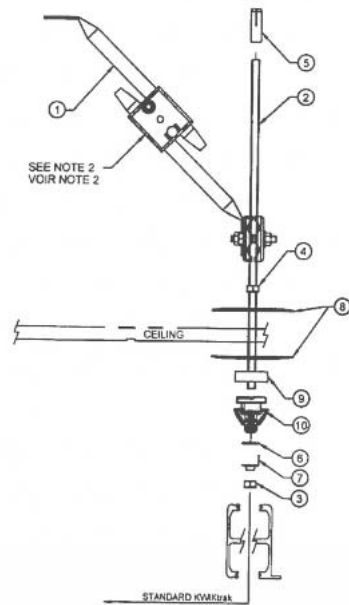
# Drawings

## NOTES

1. THIS DRAWING IS VALID ONLY WITH THE USE OF REFERENCE DOCUMENT "AM-ING-007-1 EN" (GENERAL INSTALLATION NOTES).  
DESIGN VALIDE UNIQUEMENT AVEC L'UTILISATION CONJOINTE DU DOCUMENT "AM-ING-007-1" (NOTES GÉNÉRALES D'INSTALLATION).
2. FOR ADJUSTABLE LATERAL BRACE, USE PART #700 11360 OR 700 11360 DEPENDING ON CEILING HEIGHT.  
POUR LE RENFORT LATÉRAL AJUSTABLE, UTILISER LA PIÈCE #700.11360 OU 700.11360 DÉPENDANT DE LA HAUTEUR DU PLAFOND.  
REFER TO LATERAL BRACE REQUIREMENTS ANNEX.  
SE RÉFÉRER À L'ANNÉE DES RENFORTS LATÉRAUX.
3. THE CONTRACTOR RESPONSIBLE OF THE CEILING HAS TO BE AWARE THAT THE LIPS OF THE EMBEDDED TYPE TRACK ARE FOR AESTHETIC USE ONLY. THEREFORE SURROUNDING CEILING MUST BE SUPPORTED INDEPENDENTLY.  
L'ENTREPRENEUR CHARGÉ DE L'INSTALLATION DU PLAFOND DOIT ÊTRE AVERTI QUE LES LÈVRES DU RAIL ENCASTRÉ SONT SEULEMENT POUR FIN ESTHÉTIQUE; LE PLAFOND AUTOUR DOIT ÊTRE SUPPORTÉ INDÉPENDAMMENT.

- ALL HARDWARE INCLUDED  
(ACCORDING TO STRUCTURE)

Item	Qty/Impérial	Description (EN)	Qty
10	750 11130	TRACK BRACKET KVAKTRAK	1
8	200 11170	TRMM KVAKTRAK BRACKET'S RM	1
6	200 11145	CEILING PLATE #100MM	2
7	200 04435	TAB WASHER M10; PLAIN STEEL	1
4	200 04435	FLAT WASHER M10; ZINC PLATED STEEL	1
5	200 00423	CONCRETE ANCHOR F10x18	1
4	200 00405	MU 3/8-18 ZINC PLATED STEEL	1
3	200 00402	COCKRUIT COVER 3/8-18 ZINC PLATED STEEL	1
2	200 00394	THREADED ROD 3/8-18 x 12 ZINC PLATED STEEL	AR
1	—	ADJUSTABLE LATERAL BRACE	AR



STANDARD INSTALLATION

**QUANTITY OF ROOMS:**

**NOTE:**  
THE STRUCTURAL ENGINEER ON RECORD OF THE BUILDING IS RESPONSIBLE TO VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE LOAD.

SAFE WORKING LOAD BELOW LIFT 600LBS [272KG]  
WEIGHT FOR LOAD TEST MAY VARY DEPENDING YOUR REG CN

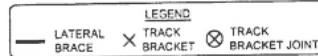
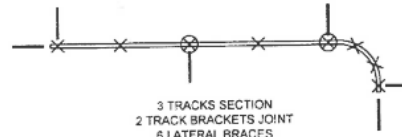
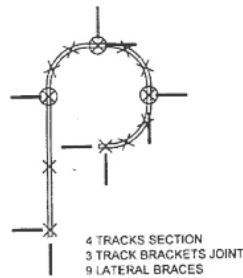
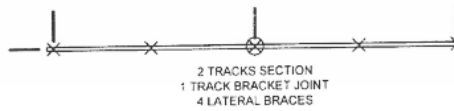
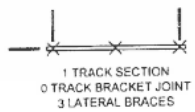
Rev1-u1260588 30-AUG-2016  
DATE CREATED (DD-MMM-YYYY) : 18-AUG-2016

DRAWN BY u1887737	SCALE 1/4" = 1"
REFERENCE # QC 48578	PAGE 3 / 4

31210.01 REV-4

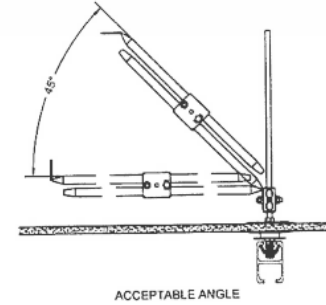
# Drawings

## LATERAL BRACE REQUIREMENTS REV-3

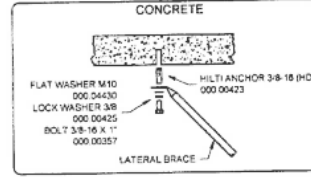
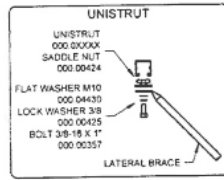
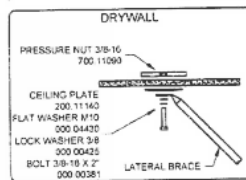


- MINIMUM 3 LATERAL BRACES  
- NUMBER OF LATERAL BRACE = (NUMBER OF TRACK BRACKET JOINT X 2) + 2.

- ALL HARDWARE INCLUDED  
(ACCORDING TO STRUCTURE)



### POSSIBLE ANCHOR LATERAL TO THE CEILING OR TO THE WALL



### QUANTITY OF ROOMS:

**NOTE:**  
THE STRUCTURAL ENGINEER ON RECORD  
OF THE BUILDING IS RESPONSIBLE TO  
VERIFY THE ADEQUACY OF THE  
STRUCTURE TO SUPPORT THE LOAD.

SAFE WORKING LOAD BELOW LIFT: 600LBS [272KG]  
WEIGHT FOR LOAD TEST MAY VARY DEPENDING YOUR REGION

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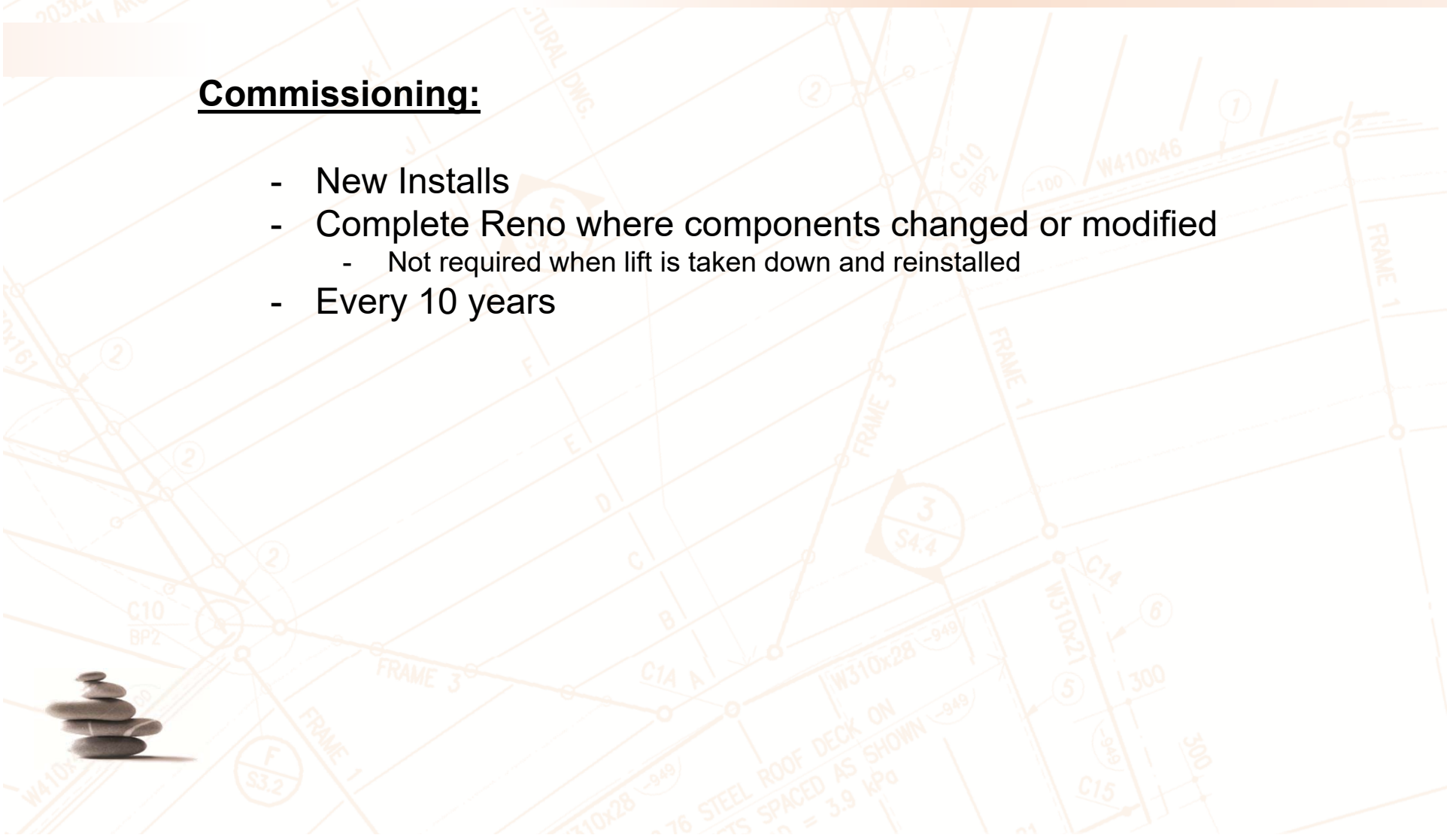
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# Commissioning



## Commissioning:

- New Installs
- Complete Reno where components changed or modified
  - Not required when lift is taken down and reinstalled
- Every 10 years



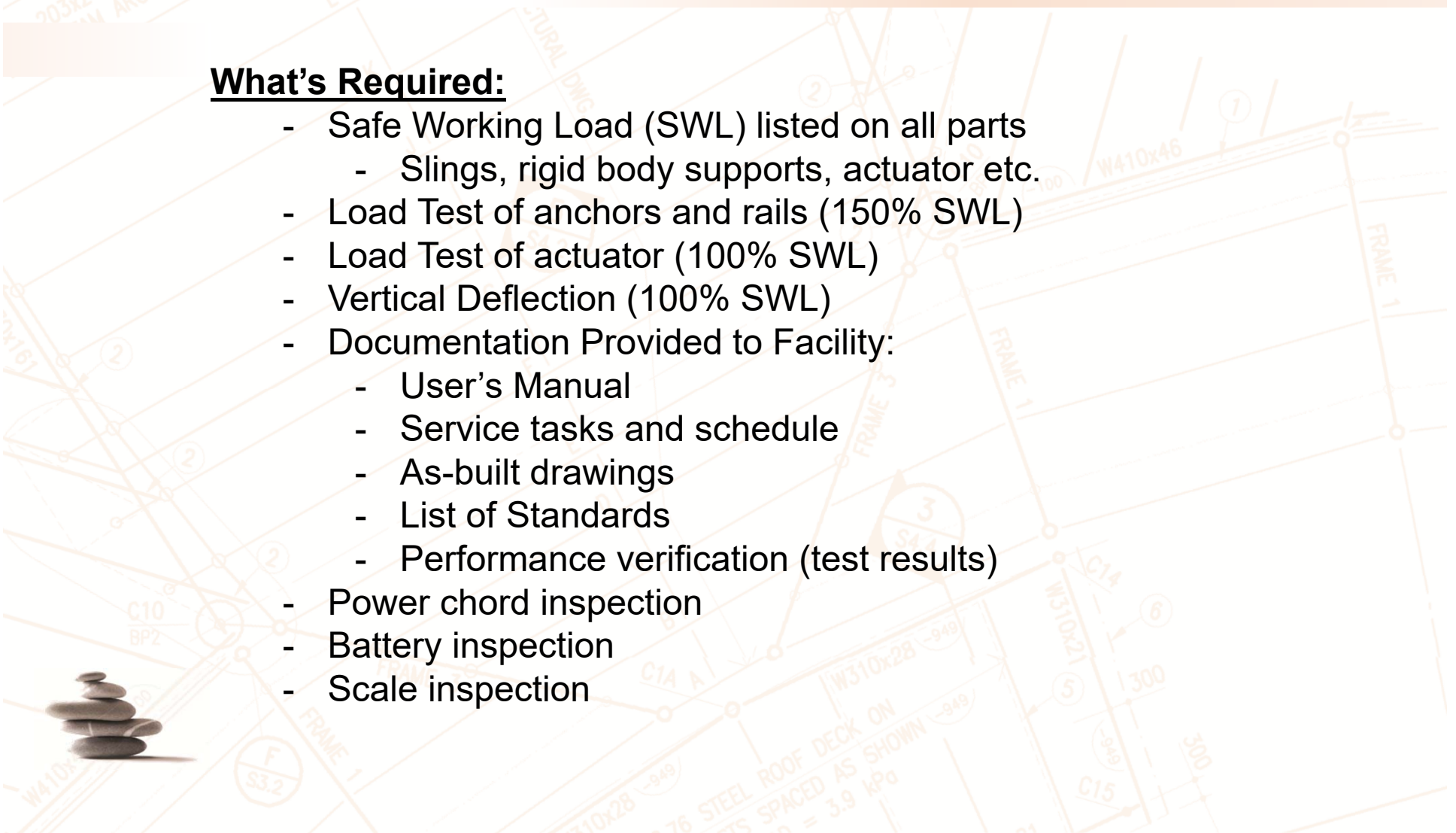


# Commissioning



## What's Required:

- Safe Working Load (SWL) listed on all parts
  - Slings, rigid body supports, actuator etc.
- Load Test of anchors and rails (150% SWL)
- Load Test of actuator (100% SWL)
- Vertical Deflection (100% SWL)
- Documentation Provided to Facility:
  - User's Manual
  - Service tasks and schedule
  - As-built drawings
  - List of Standards
  - Performance verification (test results)
- Power chord inspection
- Battery inspection
- Scale inspection



# The Report

## Field Observation Report

Project: PATIENT LIFT TRACK SYSTEM  
Location: ST. BONIFACE HOSPITAL, WINNIPEG, MB

Report No.: 02  
Date and Time of Site Visit: April 12<sup>th</sup>, 2017

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### ROOM E2022

Loading test of a Guldman GH3+ 770lbs patient lift with a maximum lifting capacity of 770 lbs was witnessed in room E2032. Maximum allowed vertical deflection based on the length of the moving rail is 14.45 mm.

The following values for vertical deflection at 150% of service load (1155lbs). Enclosed sketch SK-2 to be read in conjunction with the tabulated results below.

	Initial Deflection (mm)	5-Minute Deflection (mm)
A:	1.5	2.0
B:	1.0	0.0
C:	2.0	0.0
D:	1.0	0.0
E:	1.0	0.0
F:	1.0	0.0
*G:	11.0	11.5

The following values for initial vertical deflection at service load (770lbs).

	Initial Deflection (mm)
A:	1.0
B:	1.0
C:	1.0
D:	1.0
E:	1.0
F:	1.0
*G:	7.5

\*Note: this measurement is the total vertical deflection at midspan of the moveable track including the deflection of the track and deflection of the supporting fixed tracks. The deflection of the movable track relative to its ends can be calculated by subtracting the average of measurements A, B, D, and E from measurement G.

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The patient lift track system passed testing which was witnessed by Crosier Kilgour & Partners. Based on our experience testing patient lifts, it is not uncommon to have low deflections with small track rail spans. Typically, more deflections occur in systems that have larger track spans.

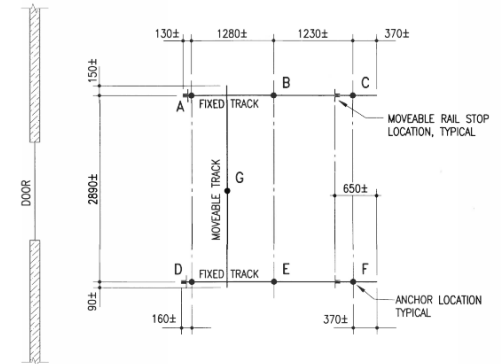
We trust that this provides the information required. Upon your review, please contact the undersigned at your convenience to discuss our findings in further detail.

Yours truly,

Brock Cornelsen, EIT

Reviewed by:

Tom Malkiewicz, P.Eng, FEC, Vice-President



### PATIENT LIFT TRACK

1:50

- TOTAL VERTICAL DEFLECTION NOTED AT POINTS A TO G CAN BE FOUND IN FIELD OBSERVATION REPORT.

320-275 Carlton Street Winnipeg, Manitoba R3C 5A6 T 204-943-7921 F 204-943-7507	Project: ST. BONIFACE HOSPITAL WINNIPEG		MANITOBA
	Sheet Title: PATIENT LIFT E2032 TRACK SYSTEM		
Crosier Kilgour & Partners Ltd. CONSULTING STRUCTURAL ENGINEERS	Design: BCC	Drawn: CL	Date: 2018-04-13 File: 2018-0279

# The System



# The System



# Testing



# Safe Working Load



**GH3+ 350 120 0110**  
**max 350 kg/770 lbs**

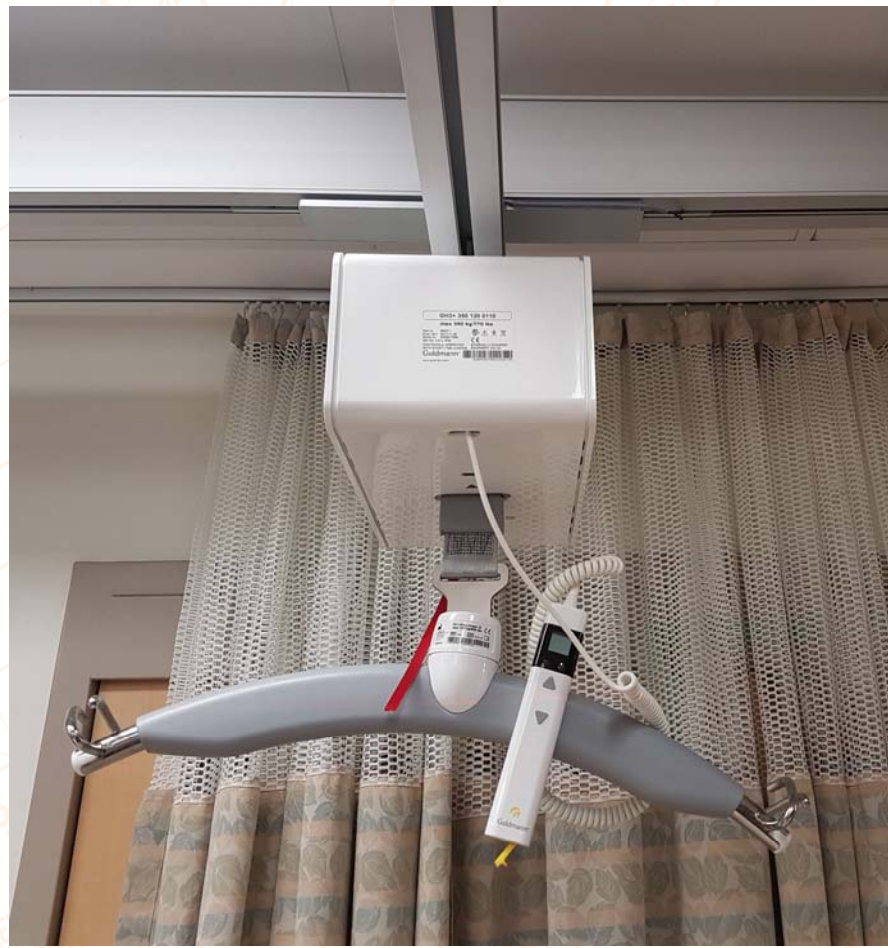
Part no. 552011  
Prod. date 2017-11-30  
Serial no. 0000017560  
33V AC, 2.5 A, IP20  
CONTINUOUS OPERATION WITH SHORT-TIME LOADING

INTERNALLY POWERED EQUIPMENT 24V DC

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C10  
BP2

# Checklist

## Once a year:

- Review manufactures documentation
- Inspect:
  - Rails
    - Stability
    - Condition
    - Mounts
    - End stops
  - Cleanliness
  - Components in tact
  - Hardware (screws, bolts tight?)
  - Physical damage
  - Above ceiling
    - Welds
    - Structural components
    - anchorage
  - Electrical plugs, wheels, bearings, cables, labels, controls, slings, scales, spreader bars
- Testing to 100% SWL



# Caregiver

## See HCF Client Transfer Plan:

- Should be trained
- Shall not use lift if there are any outstanding questions on condition or safety
- Shall check environment
  - Chords, furniture, curbs, other tripping hazards.
- Equipment:
  - Visually inspect rails & lift for physical damage
  - Patient weight compared to system SWL
  - Compatible components
  - Inspect sling for wear
  - Sling/accessories compatible with client condition
  - Cleanliness
  - Locate emergency stop and release
  - Advise supervisor if there are any issues and request maintenance







# QUESTIONS?

