
1. GENERAL:

1. GENERAL REQUIREMENTS:

1. Conform to Division General Requirements and all related sections.

2. INSTRUCTIONS:

1. This Contractor shall report in writing to the General Contractor and to the Architect any defects of surfaces or work prepared by other trades which affect the quality or dimensions of this Contractor's work.
Commencement of this Contractor's work shall imply complete acceptance of all work by other trades.

2. QUALIFICATIONS:

1. STANDARDS:

1. To establish a standard for tendering purposes, the Drawings and Specifications are based on **Schindler Elevator Co Ltd – 3300 MRL, Machine Room-Less Gearless Traction Elevator. See specifics below.**

1. Approved alternates:

1. Shall be submitted for approval a minimum of seven days before tender closing.

2. QUALITY ASSURANCE:

1. Employ fully trained mechanics who are regularly employed in this field and elevator contractors who have been satisfactorily supplying and installing similar elevator installations over a period of at least the immediate past five years.

3. SHOP DRAWINGS:

1. Submit five (5) copies of all shop drawings for the Architect to review.
Do not commence work until reviewed drawings have been returned.

4. WARRANTY:

1. The Elevator Contractor shall warranty the work and materials and will make good any defects, not due to ordinary wear and tear, or to improper use or care, which may develop within one year from the date of completion provided same has been properly used, oiled and cared for, and provided all payments due by the terms of this contract shall have been made in full when due.
2. Workmanship and any materials supplied and used in this work to be in strict accordance with this specification.

5. ENVIRONMENT:

1. Composite wood resins laminate adhesives shall not contain added urea-formaldehydes
6. MEASUREMENTS:
 1. General Contractor to confirm all hoist way measurements and plumbness as per Elevator shop drawings.
7. MAINTENANCE:
 1. A quality maintenance service consisting of regular examinations at least once a month, adjustments and lubrication of the elevator equipment shall be provided by the Elevator Contractor for a period of **twelve (12)** months after the elevator has been turned over for the owner's use and this service shall not be subcontracted. All work shall be performed by competent employees during regular working hours of regular working days and shall include emergency 24 hour call back service. This service shall not cover adjustments or repairs due to negligence, misuse, abuse or accidents caused by persons other than the Elevator Contractor. Only genuine parts and supplies as used in the manufacture and installation of the original equipment shall be provided. This service shall be supplied by the elevator contractor and shall not be subcontracted.
8. SCOPE OF WORK
 1. Elevator Contractor shall do all work related to the elevator from the main power disconnect to the finished installation of elevator and accessories except for items listed in s.2.9. WORK BY OTHERS.
 2. Electrical Contractor to provide main power disconnect and install wire connection into controller.
 3. Elevator Contractor shall obtain and pay for all inspections by T.S.S.A. and other local authorities.
9. WORK NOT INCLUDED UNDER THIS CONTRACT BUT SUPPLIED AND/OR INSTALLED BY OTHER SECTIONS:
 4. A properly framed and enclosed legal hoistway, including adequate guards and protection of hoistway during the erection period.
 5. **Hoistway and all applicable fire ratings in accordance with elevator, safety, electrical and building Codes.** The hoistway must be plumb within 25 mm and not less than the dimensions shown on this layout. All ledges over 100 mm to be bevelled 75° to the horizontal (top and bottom).
 6. **No conduit, wiring, or piping other than that pertaining to the elevator(s) is permitted in the hoistway.**
 7. **Sleeves for oil and electric ducts to hoistway as required.** All other

blockouts, underpinning, pockets, patching, cutouts, grouting and concrete work where required. For remote control room / control space, provide fire rated service space around elevator electrical conduit as required by the applicable building code.

8. Access to the machine room and/or machinery space as required by the governing code or authority having jurisdiction.
9. ***The Schindler 3300 MRL Elevator, the test panel is built directly into a standard door frame at the top landing (Elevator Vestibule Upper Level 201). The Schindler 3300 MRL Elevator does not require a machine room or control closet.***
10. Machinery space in hoistway lighting level to be minimum 200 LX. Space to contain a 120 VAC light fixture, switch, and GFCI convenience outlet. Switch placed as shown on drawings.
11. ***A lockable fused disconnect switch with auxiliary contact for each elevator, per the Canadian Electric Code with feeder or branch wiring to controller(s) or starter.*** An additional non-fused disconnect switch for each elevator to be located in the hoistway placed as shown on drawings. Permanent single phase and permanent or temporary three phase power must be available for elevator equipment installation. Temporary power must meet the specified power requirements.
12. A fused 120 VAC, 15 Amp, single phase, disconnect to each controller for cab lighting. Additional, fused 120 VAC, 15 Amp, single phase disconnect for dispatch controller (required for triplex and greater installations) and / or any in-car GFCI duplex receptacles (one disconnect per elevator).
13. Venting of the hoist way as required by the governing code or authority, Temperature control is required to be maintain between 10 degrees C to 32 degrees C. Maximum allowed humidity is 95% non-condensing.
14. ***Reserved.***
15. ***A lockable fused disconnect switch or circuit breaker with auxiliary contact for each elevator per the Canadian Electric Code with feeder or branch wiring to controller or starter.***
16. Adequate supports for machine beams, buffers, hydraulics, rail brackets, including spreader beams between multiple hoistway if required. Maximum bracket spacing as required by elevator contractor. Design for the reaction forces shown on elevator drawings.
17. Front entrance partition walls are not to be constructed until after door frames are in place. If front walls are poured concrete bearing walls, rough openings are to be provided to accept entrance frames and filled in after frames are set. Entrance frames are not designed to support overhead wall loads. Suitable supports for these loads must be provided. If decorative material is applied to listed/certified frames it shall conform to

the requirements of the certifying organization.

18. Recesses, as required, to accommodate hall signal fixtures.
19. Entrance wall pocket at rear serving floor(s) as shown. Furring where required.
20. Dry pit reinforced to sustain normal vertical forces from rails and impact loads from buffers and hydraulic jack systems, cylinder heads and earth loading.
21. Continuous chemical applied pit waterproofing, install Volclay Water stop-RX on all footings to foundations and other concrete forming joints.
22. Pit drain always required for elevators with Firefighters' Emergency Operation. Sump pump external to the shaft, where required. Sump hole to be outside hoistway and 600 mm deeper than pit, with trap and backwater check valve. Pit drain/sump pump minimum capacity to be 11.4m³/hr (3000 usg/hr) per elevator.
23. At access to a pit is by means of the lowest hoistway entrance, vertical iron pit ladder extending 1220 mm (4'-0") minimum above sill of lowest access door with centreline of rung 115 mm from wall with 300 mm vertically between rungs. Ladder width is 400 mm. Ladder location as shown on elevator shop drawings. Ladder and attachments shall sustain a minimum load of 135 kg.
24. Any cutting, patching, and painting of walls, floors, or partitions together with finish painting of entrance doors and frames.
25. Necessary electric power for light, tools, hoists, etc., during erection as well as electric current for starting, testing and adjusting the elevator. (light fixture with switch located adjacent to the access door).
26. A hoist beam must be installed in the hoistway overhead as per drawing requirements for elevator construction and maintenance.
27. Pit lighting level to be minimum 100 LX. Pit to contain a 120 VAC light fixture, switch and GFCI convenience outlet. Switch to be accessible from pit access. All conduits in hoistway to be EMT. Light and convenience outlet to be on a dedicated circuit.
28. **Reserved.**
29. Elevator feeders, dedicated ground wire and lockable, fused disconnects wired to the elevator controller.
30. **Reserved.**
31. Elevator signalling device in each car wired to terminals in the elevator controller (by Elevator Contractor). Others to provide communication

wiring from the elevator controller to the following: 1) For buildings with a rise of less than 18 m – single or multiple elevators – Each to have a separate connection to a location staffed by authorized personnel (may be on or off site). Multiple elevators may be connected to an on-site consolidator (by others). 2) For buildings with a rise of 18 m or more – single and multiple elevators – To a connection at a location within the building that is readily accessible to authorized personnel. A communication control station (supplied by Elevator Contractor) to be provided. General Contractor to supply suitable installation location, others to supply and install wiring from the communication station to elevator controller(s). Depending upon communication station model, a 120VAC, 15 Amp power supply may be required (by others).

32. ***Provide telephone connection except for the wire from the controller in the machine room, control room or control location to elevator.***
33. ***For elevators with hall or car security features, general contractor to provide (1) "NORMALLY OPEN" dry contact per secure hall or car call rated for 120 VAC @ 1 Amp.***
34. Fire alarm initiating devices (FAIDs) to be smoke or heat detectors not pull stations. All FAIDs to be wired to a building fire panel (by others). Building fire panel to have (4) "normally open" dry contacts rated for 24 VDC @ 1 Amp. Contact #1 - for main recall level lobby. Contact #2 - for other building floor levels combined. Contact #3 - this is a common contact for a) machine room / control room / control space not located at the recall level and / or b) all hoistway FAIDs above the recall level. Contact #4 - this is a common contact for a) machine room / control room / control space at the recall level and / or b) all hoistway FAIDs at or below recall level. Appropriate contact to close when alarm is initiated. If required, additional fire recall switch (supplied by Elevator Contractor) to be installed by others in building fire panel. All wiring and conduit from building fire panel to elevator controller(s) for FAIDs and additional recall switch by others.
35. Where an emergency or standby power system is provided to operate an elevator in the event of normal power supply failure, then (2) "NORMALLY OPEN" dry contacts rated for 120 VAC @ 1 Amp are to be provided from the emergency power transfer switch and wired (by others) to the elevator controller. One contact (E-POWER) to close when emergency or standby power is in effect. Other contact (pending) to close 10 seconds prior to E-POWER testing to allow elevator to stop at nearest landing. In addition, the following is also required during testing (from normal to e-power and vice versa) and prior to switching from e-power to normal power under regular operation: After the (pending) contact time period has elapsed, e-power system to remove all power from the elevator controller for 15 seconds prior to restart.
36. Finished porcelain tile flooring in elevator cab.
37. Install guide rail support concrete wall inserts as provided by Elevator Contractor in the location as specified on the shop drawings.

38. General Contractor to pay for the elevator licence at time of inspection.
39. Backfill around pit.
40. Provide backfill material

10. CODES:

1. Installation, elevator, components, accessories and operation must comply with CSA B44 Elevator Code currently in effect and all governing Codes and By-Laws.
2. All welding of elevator components shall be done by a CWB certified company according to CSA Standards W47 and W59.

11. PERMIT AND INSPECTIONS:

1. The elevator contractor shall furnish all licenses and permits and shall arrange for and make all inspections and tests required thereby.
2. The General Contractor must complete the TSSA pre-inspection checklist prior to an initial inspection being scheduled.
3. Submit T.S.S.A. Inspection Report at Owner takeover time indicating all work is complete and accepted or listing work still outstanding. All items outstanding to be completed within 30 days and submit an updated T.S.S.A. report at that time.

12. KNOW SITE CONDITIONS:

1. The Elevator Contractor to be familiar with job conditions on the site.

13. MAINTENANCE CONTROL PROGRAM

1. The Elevator Contractor must provide and leave on site a Maintenance Control Program in compliance with the requirements of the CSA B44 Elevator Code. The procedures and logbook of records must be available to the TSSA upon request.

3. PRODUCTS:

1. ELEVATOR:

1. MRL Gearless Traction:

1. Wide Orientation, Front and Rear Doors

2. Rated Load:

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1. 1135 kg (2,500 lbs) capacity
 3. Rated Speed:
 1. 0.75 m/s
 4. Car Inside Dimensions:
 1. 1135 kg – 2066 mm wide x 1343 mm deep
 5. Hoistway Size:
 1. Wide Orientation, Front and Rear Doors
1135 kg - 2540 mm (8'-4") W x 1834 mm (6'-5 5/8") D, minimum
 2. Coordinate with Architectural drawings.
 6. Operation: Selective Collective (Simplex)
 7. Car Controls: Illuminated type with faceplate, stainless steel #4 finish.
 8. Hall Call Stations: Illuminated type, stainless steel #4 cover plates.
 9. Hoistway Entrances Size: Coordinate with shop drawings.
 10. Entrance Type: **Center opening** (Wide Car), Two Speed (Deep Car)
 11. Door Operator: Automatic operator for hoistway and car. Opening and closing speed to suit handicapped requirements.
 12. Travel: Coordinate with Architectural Drawings
 13. Stops: Coordinate with Architectural Drawings
 14. Openings: Coordinate with Architectural Drawings
 15. Power Supply:
 1. 575 VAC, 3 phase, 60 Hertz
 16. Lighting Supply: 120 Volts, 60 Hertz, 15 amp.
 17. Elevator(s) must comply with CSA-B44 (Latest Version Including Supplements) Code for Passenger and Freight Elevators. Elevators must meet the appendix E handicapped requirements.
 18. Emergency Monitoring: Provide 24 hours / 7 days emergency monitoring service for the extent of the 1-year warranty period.
2. CAR CAB SPECIFICATIONS:

MRL
MACHINE ROOM-LESS GEARLESS TRACTION ELEVATOR
Addendum 6

Mulock House Adaptive Re-use, Newmarket
Project No. 22275

1. Shell Enclosure:

1. Car Top: 14 ga. (1.9mm) furniture steel, blk. enamel finish
2. Shell Walls: 16 ga. (1.52mm) furniture steel - cage frame type construction
3. Strike Column: 16 ga. (1.52mm) Stainless steel #4.
4. Fascia: 16 ga. (1.52mm) Stainless steel #4, full width, straight type.
5. Car Doors: 16 ga. (1.52mm) Stainless steel #4 clad car door.

2. Architectural Features:

1. Side Walls: raised hang-on vertically applied panels removable from inside the car of 19mm (3/4") plywood with Type 304 stainless steel with #4 (satin) finish on all exposed faces and edges. Reveals between panels shall also be Type 304 satin finished stainless steel #4
2. Front Return: Stainless steel #4
3. Car Door: Stainless steel #4
4. Base: Stainless Steel #4
5. Reveals: Stainless Steel #4
6. Flooring: Porcelain tile shall be supplied and installed by flooring contractor. (coordinate with shop drawings for thickness and weight)
7. Hoistway Doors and Frames: Stainless Steel #4

3. Supplementary Features:

1. Lighting: Stainless Steel #4 panels with LED down lights, 6 panel drop ceiling
2. Ventilation: Two speed fan
3. Emergency Exit: Top exit in car in accordance with CSA B44 Elevator code.
4. Car Sills: Extruded Aluminum
5. Overall Height: 2366mm (7'-9") (2265mm (7'-5 3/16")) clear inside)
6. Car Operating Station Buttons: Top row of buttons located in

compliance with CSA B44 Elevator Code Appendix E for accessibility, maximum 1420mm (4' 8") from floor for accessibility by the handicapped.

7. Handrail: Located on all non-entrance walls: 38mm Round exterior diameter, Stainless Steel #4.
8. Pad Hooks: Required / included
9. Protective Pads: One set
4. Other Control Features:
 1. Other Buttons: Emergency stop switch, alarm button, door open button, door close button, phone button to activate conversation.
5. Service Cabinet. Provide the following:
 1. Fan toggle or key switch
 2. Light Key switch
 3. Emergency light key switch
 4. Run stop key switch
 5. Access key switch
 6. 110 vac receptacle
6. Emergency Car Lighting: An emergency power unit employing a 6 volt sealed rechargeable battery and totally static circuits shall be provided that shall illuminate the elevator car and provide current to the alarm bell in the event of normal power failure. The equipment shall comply with the requirements of the current CSA B44 Code.
7. Entrances: Shall be manufactured in accordance with procedures established by fire testing authorities and shall be labelled for a minimum of 1.5 hours.
8. Labels: Entrances shall be manufactured in accordance with procedures established by Under-Writers laboratories and shall be so labelled.
9. Sight Guards: Sight guards shall be furnished on the leading edge of the doors to conceal the hoist way beyond the doors. Finish matching door panels.
10. Car Floor Indicator: One (1) to be installed in car as part of the car station
11. Hall Floor Indicator: One (1) to be installed at each landing
12. Certificate Frame: Stainless Steel #4, mounted on elevator cab wall
13. Car Lantern and Gong: A directional lantern visible from the corridor shall be provided in the car entrance on the same side as the car operating station.

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14. Low Pressure Switch
 15. Firefighters emergency Operation: Provide all requirements for FEO Phase 1 and Phase 2 in each elevator.
 16. Emergency Power Sequencing: Automatic Standby Building Emergency Power Operation to conform to CSA B44 Elevator Code to allow automatic and manual selection of individual cars to run on emergency power.
3. MACHINE AND MOTOR
 1. The machine shall be of the gearless traction type in accordance with the applicable requirements of the CSA B44 Elevator Code. It shall have the motor, brakes and traction drive sheave compactly arranged in one integral assembly and set on steel beams.
 2. Machine Location: Overhead at the top within or above the hoistway.
 3. The motor shall have VVVF speed control.
 4. The machine brake shall be electrically released and spring applied and designed to give smooth stops under variable loads.
 4. HOIST ROPES
 1. The ropes shall be constructed of traction steel and be of adequate size and number to give proper elevator operation and satisfactory wear. The ropes shall meet the requirements of the CSA B44 Elevator Code.
 5. SAFETY DEVICES
 1. The elevator shall be protected from over-speeding in the down direction by a governor in the machine space and Type A or Type B (as required by the CSA B44 Elevator Code) safety devices on the elevator car frame. The governor shall be equipped with a remote means for testing and resetting.
 2. Rope Brake: A rope gripper safety device shall be installed as a secondary emergency braking means in addition to the emergency brakes as integrated with the drive. Provide a detection system which detects over-speed in either direction and activate the rope gripper. Provide detection to protect against failures which result in slow speed movement away from the floor with the doors open and apply the rope gripper and stop the elevator within the distances required by the CSA B44 Elevator Code.
 6. LEVELLING DEVICE:
 1. The elevator shall be provided with an automatic levelling device which will bring the car to a stop within 6mm (1/4") of the landing level regardless of load or direction of travel. Landing level will be maintained within the

levelling zone irrespective of the hoistway doors being open or closed.

7. CONTROLLER

1. A microprocessor controller shall be provided, including necessary starting switches of adequate size together with all relays, switches and hardware required to accomplish the operation specified. Overload protection shall be provided to protect the motor against overloading.

8. WIRING

1. All wiring and electrical interconnections shall comply with the governing Codes. Insulated wiring shall have flame retardant and moisture-proof outer covering, and shall be run in conduit, tubing or electrical wire-ways. Travelling cables shall be flexible and suitably suspended to relieve strain on individual conductors.

9. HOISTWAY OPERATING DEVICES

1. Normal terminal stopping devices shall be provided. When an emergency terminal stopping device is also required, it shall be furnished and the controller switches and circuitry arranged in accordance with the requirements of the CSA B44 Elevator Code.

10. COUNTERWEIGHT

1. A structural steel frame which carries steel plate counterweights shall be provided to properly balance the car.

11. PLATFORM

1. The car platform shall have a fabricated frame of formed and structural steel shapes, rigidly welded. Sub-flooring shall be wood floor. The underside of the platform shall be fireproofed. The platform shall be manufactured by a CWB certified shop and be equipped with an aluminium threshold.

12. CAR FRAME

1. A suitable car frame fabricated from formed or structural steel members shall be provided with adequate bracing to support the platform and car enclosure. The crosshead shall be of sufficient strength to lift the fully loaded car when slung from the lifting points on the crosshead.

13. GUIDES:

1. Steel elevator guide rails shall be furnished to guide the car, erected plumb and securely fastened to the building structure.
2. Sliding Guides: Guides shall be mounted on top and bottom of the car and counterweight for car speeds up to 0.75 m/s.

3. Roller Guides: Spring loaded roller guides shall be mounted on top and bottom of the car and counterweight for car speeds 1.0 m/s and higher.

14. DOOR OPERATION:

1. Doors on the car and at the hoistway entrances shall be power operated by means of a quality operator mounted on top of the car. The motor shall have positive control over the door movement for smooth operation. The car door shall have a safety shoe to cause instant re-opening should contact be made with any obstruction during the closing cycle.
2. Door operation shall be automatic at each landing with door opening being initiated as the car arrives at the landing and closing taking place after expiration of a time interval. A car door electric contact shall prevent starting the elevator away from the landing unless the car door is in its closed position.
3. An approved positive interlock shall be provided for each hoistway entrance which shall prevent operation of the hydraulic unit unless all doors for that elevator are closed and shall maintain the doors in their closed position while the elevator is away from the landing. Provide emergency access to the hoistway as required by governing codes.
4. The elevator contractor shall install at each landing served, a hoistway entrance of the type and size as previously described. Each entrance shall consist of flush hollow metal doors with build in hanger assembly, frames assembled for one piece unit installation, extruded aluminum sill, fascia, toe guard, hanger cover, header, hanger track assembly, and formed structural strut supports. Entrance design and construction must be in compliance with NBC 2005 requirements for fire labels.
5. Sill supporting angles required for flush hoistway construction shall be furnished by the elevator contractor.

15. TELEPHONE:

1. An ADA-approved AUTODIAL telephone shall be furnished and installed as part of the car station. **A separate phone line to the elevator controller shall be provided under another section of the specifications.**

16. PAINTING:

1. All exposed metal work furnished under this section shall be properly painted after erection by the elevator contractor unless otherwise specified. All painting to conform to Section 09900.

17. REGENERATIVE DRIVE

1. Include Regenerative Drive Technology to enhance energy efficiency and reduce operating costs.

18. OPTIONAL FEATURES

1. Provision for Security System in car operating panel (space in panel for card reader (Card Reader Provided and Installed by Others) and travelling cable wiring from elevator to controller).
2. Standby Building Emergency Power generator Operation
Manual – selective lowering and running of elevators
3. Battery Powered Emergency Lowering Operation / evacuation.
4. Provide equipment according to Seismic zone.
5. Lobby Panel:
 1. **Provide lobby panel.** Lobby panel to include for Special Emergency Service Phase I and Phase II, emergency power and one (1) position indicator per elevator.
6. Non-Proprietary Controls:
 1. Elevating device control equipment must be non-proprietary. If a site specific service tool or on-board diagnostic tool is required to render the control equipment non-proprietary, it must be provided with the elevating device. The tool must allow full access to fault codes and maintenance related parameters and must allow complete and thorough maintenance service to be performed by any properly licensed and qualified Elevator Contractor. The tool must come with a user's manual that also defines and explains all error codes, including required fixes. The service tool must remain property of the building owner.
7. Pit scupper drain (where sanitary line grades allow gravity feed), pit sump pit where scupper drain option does not have suitable slopes – both have back flow preventer and feed to oil interceptor where by connecting to sanitary lines.
8. Security CCTV Camera

3. EXECUTION

3.1 EXAMINATION

1. Pre-inspect the construction and all requirements for work by others before the installation commences.

3.2 INSTALLATION

1. Install all components of the elevator system that are specified in this Section to be provided and that are required by jurisdictional authorities to licence the elevator.

2. All installation work of this Section will be performed by trained employees of the manufacturer.

3. Obtain and pay for all inspections by T.S.S.A. and other local authorities.

3.3 ARRANGEMENT OF EQUIPMENT

1. ***Arrange equipment so that equipment can be removed for repairs or replacement without dismantling or removing other equipment components.***
2. Accommodate equipment in space indicated.

3.4 GUIDE RAILS AND BRACKETS

1. Erect guide rails plumb and parallel with maximum deviation of 3 mm.
2. Use material shims only and provide lock washers under all nuts and tapped bolts.
3. Compensate for expansion and contraction of guide rails.
4. Use splice plate and guide rails with contact surfaces accurately machined to form smooth joints.
5. Include steel reinforcement and backing for car guide rails where necessary.

3.5 ERECTION

1. Set entrances in perfect alignment with car openings and true with plumb hoistway lines.
2. Erect elevator closures to labelling requirements.

3.6 PROTECTION

1. Provide protective coverings for finished surfaces.

3.7 TOUCH-UP

1. Upon completion, touch-up and restore to new condition, damaged or defaced factory finished surfaces.
2. Remove protective coverings and clean exposed surfaces after completion and leave in first class condition.

3.8 FIELD QUALITY CONTROL

1. Perform and meet tests required by latest issue of CAN3 B44.

2. Submit test and approval certificates issued by jurisdictional authorities.
3. Demonstrate complete operation of elevator to Owner's representative.

3.9 MACHINE ROOM

1. ***A machine room is not required for the Schindler 3300 MRL Machine Room-Less Gearless Traction Elevator.***
2. ***In the Schindler 3300 MRL Machine Room-Less Gearless Traction Elevator, the inspection and test panel is built directly into a standard elevator door frame at the top landing (Elevator Vestibule Upper Level 201).***

End of Section 14 21 23