PWG SC
CRA Office Fit Up
Canada Revenue Agency

ELECTRICAL ADDENDUM NO. E-01

32-36 Church Street – St. Catharine, ON
PWGSC Project No.: **R.065355.001**

Date: January 03, 2014
Total Number of Pages: 15

This Addendum becomes part of the Bid Documents and will be considered to have been included in the Tender. Additions, deletions, and revisions shall be incorporated in the Bid Documents as hereinafter described.

1.0 SPECIFICATIONS

1.1 Replace section 26 05 01 in its entirety with the attached ADD. E-01.

2.0 DRAWINGS

2.1 **Reference Drawing E-001:** Electrical Legends, Drawing List, and Key plans:

2.1.1 Abbreviate C/W complete with.

2.2 **Reference Drawing E-101:** Demolition – Ground & Second Floors Power & Systems plans:

1.2.1 Delete Electrical devices on Ground & Second floors as indicated. Refer to attached sketch SKE-101.1.

2.3 **Reference Drawing E-200**: Ground Floor New Lighting Plan:

2.3.1 Add fixture types FA1 and CA1 as indicated on sketch SKE-200.1.

2.3.2 Revise key notes applied to Exit signs & Emergency remote heads as indicated on attached sketch SKE-200.1.

2.4 **Reference Drawing E-201**: Second Floor New Lighting Plan:

2.4.1 Add fixture type FA1 as indicated on attached sketch SKE-201.1

2.4.2 Add Emergency remote heads type EM2 as indicated on attached sketch SKE-201.1.

2.5 **Reference Drawing E-300**: Ground Floor Power & Systems Plan:

2.5.1 Revise Furniture System Layout as indicated. Refer to attached Sketches SKE-300.1, SKE-300.2 and SKE-300.3.

2.6 **Reference Drawing E-301**: Second Floor Power & Systems Plan:

2.6.1 Add keynotes 10, 11 and 12 as indicated. Refer to attached Sketch SKE-301.1.

2.6.2 Revise power & system layouts in Training room A, B & C as indicated. Refer to Sketches SKE-301.1, SKE-301.2 and SKE-301.3.

2.7 Reference Drawing E-400: Electrical Details:

2.7.1 Move Luminaire Schedule from E-500 to E-400 and revise the schedule as indicated. Refer to Sketch SKE-400.1.

2.8 **Reference Drawing E-500**: Electrical Schedules:

2.8.1 Revise Existing Receptacle Panel Schedule RP-1G as indicated. Refer to Sketches SKE-500.1.

2.8.2 Add Existing Receptacle Panel Schedule RP-1D and Relay Panel Schedule LCP-1A. Refer to Sketches SKE-500.2 and SKE-500.3.

Total Number of Pages: 30 (includes 13 sketches)

END OF ELECTRICAL ADDENDUM E -01

PART 1 - GENERAL

1.1 REFERENCES

.1 Adhere to the latest Canadian Standards Association (CSA International)
.1 CSA-C22.1-12, Canadian Electrical Code, Part 1 (21st Edition), Safety Standard for Electrical Installations.
.2 CAN3-C235-83, Preferred Voltage Levels for AC Systems, 0 to 50,000 V.

.2 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.3 The Ontario Electrical Safety Code, and all bulletins (Ontario).

.4 Electrical Safety Authority (ESA) requirements and local applicable codes and regulations.

1.2 DESIGN REQUIREMENTS

.1 Operating voltages: to CAN3-C235.

.2 Control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
.1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

.3 Language operating requirements: provide identification nameplates and labels for control items in English.

1.3 SUBMITTALS

.1 Submittals: in accordance with Section 01 11 00.

.2 Product Data: submit WHMIS MSDS.

.3 Shop drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario.
.2 Submit 6 number of copies of drawings and product data to authority having jurisdiction.
.3 If changes are required, notify Departmental Representative of these changes before they are made.

1.3 SUBMITTALS (Cont'd)

.4 Quality Control: in accordance with Section 01 11 00.
.1 Provide CSA certified equipment and material.
.2 Where CSA certified equipment and material is not available, submit such equipment and material to authority having jurisdiction for special approval before delivery to site.
.3 Submit test results of installed electrical systems and instrumentation.
.4 Permits and fees: in accordance with General Conditions of contract. Pay associated fees. Departmental Representative will provide drawings and specifications required by Electrical Inspection Department and Supply Authority at no cost.
.5 Submit, upon completion of Work, load balance report as described in PART 3 - Load Balance.
.6 Submit certificate of acceptance from Electrical Safety Authority having jurisdiction upon completion of Work to Departmental Representative.

1.4 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01 11 00.

.2 Qualifications: electrical Work to be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices as per the conditions of Provincial Act respecting manpower vocational training and qualification.
.1 Employees registered in provincial apprentices program: permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.
.2 Permitted activities: determined based on training level attained and demonstration of ability to perform specific duties.

.3 Site Meetings:
.1 In accordance with Section 01 32 17 and Section 01 32 18.

.4 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Material Delivery Schedule: provide Departmental Representative with schedule within 2 weeks after award of Contract.

.2 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 11 00.

1.6 SYSTEM STARTUP

.1 Instruct Departmental Representative and operating personnel in operation, care and maintenance of systems, system equipment and components.

PART 2 - PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

.1 Materials and products in accordance with Section 01 11 00.

2.2 MATERIALS AND EQUIPMENT

.1 Provide material and equipment in accordance with Section 01 11 00.

.2 Material and equipment to be CSA certified. Where CSA certified material and equipment are not available, obtain special approval from authority having jurisdiction before delivery to site and submit such approval as described in PART 1 - Submittals.

.3 Factory assemble control panels and component assemblies.

2.3 WARNING SIGNS

.1 Warning signs: in accordance with requirements of authority having jurisdiction.

2.4 WIRING TERMINATIONS

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.5 EQUIPMENT IDENTIFICATION

.1 Identify electrical equipment with nameplates and labels as follows:

.1 Nameplates: plastic laminate 3 mm thick plastic engraving sheet, matt white finish face, black core, mechanically attached with self tapping screws.

.2 Sizes as follows:

Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	6 mm high letters

.2 Labels: embossed plastic labels with 6 mm high letters unless specified otherwise.

.3 Wording on nameplates and labels to be approved by Departmental Representative prior to manufacture.

.4 Allow for minimum of twenty-five (25) letters per nameplate and label.

.5 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.6 Identify equipment with Size 3 labels engraved "ASSET INVENTORY No. " as directed by Departmental Representative.

.7 Disconnects, starters and contactors: indicate equipment being controlled and voltage.

.8 Terminal cabinets and pull boxes: indicate system and voltage.

.9 Transformers: indicate capacity, primary and secondary voltages.

2.6 WIRING IDENTIFICATION

.1 Identify wiring with permanent indelible identifying markings, coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour coding: to CSA-C22.1.

.4 Use colour coded wires in communication cables, matched throughout system.

2.7 CONDUIT AND CABLE IDENTIFICATION

.1 Colour code conduits, boxes and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.

.3 Colours: 25 mm wide prime colour and 20mm wide auxiliary colour.

	Prime	Auxiliary
up to 250 V	Yellow	
up to 600 V	Yellow	Green
Telephone	Green	
Other Communication Systems	Green	Blue
Fire Alarm	Red	
Emergency Voice	Red	Blue

2.8 FINISHES

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

2.9 DISTRIBUTION SYSTEM

.1 120/208V, 3 phase, 4W, 60 Hz.

.2 Inform other Divisions of electrical system characteristics.

2.10 WIRING SYSTEM

.1 Power and lighting circuits in EMT and/or described in other sections.

.2 Use heavy wall rigid conduit where required by codes.

.3 RW-90, XLPE insulated wire for panel feeder and branch circuits, GTF insulated wire for final fixture connection.

.4 #12 AWG minimum wire size, #10 AWG or larger shall be stranded.

.5 Copper conductors.

.6 Size branch circuits and panel feeders for maximum 2% voltage drop.

.7 Provide insulated green ground conductor in all EMT conduits.

.8 Provide nylon insulated bushings on the ends of all conduits in junction boxes, pullboxes, panelboards, etc.

.9 Minimum size conduit for lighting and power circuits is 21 mm.

2.11 GROUNDING

.1 Ground equipment with approved conductors and connectors.

.2 Make tests required by code and authorities having jurisdiction.

2.12 MOTOR AND CONTROL WIRING

.1 Provide wiring and connections for motors and electrical equipment supplied under other Divisions.

.2 Mechanical Divisions shall wire control circuits 50 volts and under.

2.13 PANELBOARD

.1 Provide panelboard of the circuit breaker type.

.2 Install branch circuit breakers shown on panel schedule.

.3 Panel to be in dead front metal cabinet with hinged door and catches.

2.13 PANELBOARD (Cont'd)

.4 Breakers: toggle type, bolt-on, quick-make, quick-break, 40°C ambient temperature compensated and trip-free of operating handles on overloads.

.5 Lock-on handle devices for breakers not controlling lighting. 2P and 3P breakers to be with single handle common trip type.

.6 Typed directory card showing load supplied by each circuit, mounted inside cabinet door.

.7 Mount panel at 1500 mm above finished floor with the top of panel not higher than 2000 mm.

.8 Copper bus with neutral of same ampere rating as mains.

.9 Provide two 27 mm spare empty conduits from recessed panels into ceiling space above panel and terminate in an accessible location.

2.14 OUTLET BOXES

.1 Light fixture outlet boxes: standard, octagonal or square as required.

.2 Switch outlet boxes: standard, single or ganged as required.

.3 Receptacle outlet boxes: standard.

.4 Steel construction.

.5 Standard FS conduit fittings for surface mounted outlets in exposed areas.

2.15 SWITCHES

.1 Specification grade, toggle type, 20 amps, 120V back and side wired, chrome plated yoke, silver cadmium oxide contacts, switch mechanism on neoprene cushion.

.2 Locate switches on latch side of door, 1.5 m above finished floor unless noted otherwise.

2.16 RECEPTACLES

.1 Specification grade, 15 amp, 125 volt, AC, 'U' ground parallel blade slots, triple wiping contacts, double grounding terminals, break- off feature for separate feeds, built-in strap in

2.16 RECEPTACLES (Cont'd)

.1 (Cont'd) plastic moulded body and back and side wiring terminals.

.2 Locate receptacles 400 mm above finished floor unless noted otherwise.

.3 Provide outlets with various configurations as indicated on electrical drawings.

2.17 COVER PLATES

.1 Common cover plate at ganged outlet boxes. Split plates not allowed.

2.18 FIXTURE MOUNTING

.1 Provide mounting and supports required for safe installation to Departmental Representative's satisfaction.

2.19 LIGHTING FIXTURES

.1 Provide lighting fixtures with lamps as illustrated in electrical standard details.

.2 Shop drawings to consist of catalogue cuts and photometric data from an independent test lab.

2.20 FLUORESCENT FIXTURES

.1 Ballast: electronic high power factor, energy saving type automatic resetting, thermal protection, pressure sensitive capacitor protection, lowest sound level available.

.2 Body: minimum 0.952 mm thick (20 gauge) steel, white baked enamel finish, reflectance value minimum 85%.

.3 Lens: 100% pure acrylic, low brightness, sparkling crystal prismatic pattern, maximum efficiency, and direct glare control. ULC certified.

.4 CSA rated for continuous row mounting.

2.21 LAMPS

.1 Fluorescent lamps: 1220 mm length unless specified otherwise, bi-pin, rapid start, premium grade, 18,000 hour life expectancy, 3,200 initial lumen output, cool/warm white.

2.22 DISCONNECT SWITCHES

.1 Heavy duty, quick-make, quick-break.

.2 Enclosure EEMAC 1R for interiors.

2.23 TELEPHONE SYSTEM

.1 Empty conduit system and outlets.

.2 E.M.T. conduit from terminal board/telephone closet to outlets unless indicated otherwise.

.3 Fish wire in each conduit.

.4 Co-ordinate with the Owner.

2.24 FIRE ALARM SYSTEMS

.1 Refer to Section 28 31 00.

2.25 DATA SYSTEM

.1 Empty conduit system and outlets.

.2 E.M.T. conduit from terminal board/data closet to outlets unless indicated otherwise.

.3 Fish wire in each conduit.

.4 Co-ordinate with the Owner.

2.26 WORK IN EXISTING BUILDING

.1 The Work of the specification shall be read in conjunction with and be governed by the requirements with this section.

.2 Maintain life safety systems to all existing buildings at all times during construction.

.3 Maintain electrical continuity to all portions of existing building during all work. Submit letter to Owner requesting off-hours shut-down. Provide all temporary power and wiring required to achieve this.

2.27 ELECTRICAL COMMISSIONING

.1 Related Sections

.1 This section of the Specification shall be read in conjunction with and be governed by the requirements of Division 01.

2.28 SUMMARY OF COMMISSIONING

.1 Commissioning (Cx) is a systematic quality process of ensuring that building systems perform and interact according to the Owner's and the Design Engineers' Project Requirements and contract documents.

.2 Desired Outcomes
.1 A commissioned building provided optimized energy and occupant comfort, and sets the stage for minimal operation and maintenance costs. It serves as a tool for both the Owner and the Contractor to minimize post-occupancy remedial work.

.3 Commissioning Goals
.1 The Commissioning Process for a project typically focuses on systems and assemblies having to do with the performance objectives meeting the Owner's Project Requirements (OPR). Contractors, associated Sub-Contractors, equipment and material Suppliers are to support and ensure the requirements for commissioning are met in their respective work.

2.29 DEFINITIONS

.1 Owner's Project Requirements (OPR)
.1 The documentation of the functional performance requirements of the facility and the Owner's expectations of how it will be used and operated. This document is analogous to what has traditionally been referred to as the Owner Program.

.2 Basis of Design (BOD)
.1 A project-specific s et of assumptions and design parameters for system and product selections to meet the OPR and applicable regulatory requirements.

.3 Commissioning Agent (CxA)
.1 An Owner designated member, not otherwise associated with the Architectural and Engineering Teams or the Contractor's Team. The CxA facilitates and coordinates the commissioning activities. Involvement of CxA shall not void any guarantees or warranties nor shall it relieve the Contractor of any contractual responsibilites.

.4 Deficiency/Issue
.1 A condition in the i nstallation or function of a component or system that is not in

2.29 DEFINITIONS (Cont'd)

.4 (Cont'd)
.1 (Cont'd)
compliance with the construction contract documents and/or Owner's requirements.

.5 Start-up/Pre-Functional The initial starting or activating of dynamic equipment, including the checkout of components and devices and completing static installation checklists.

.6 Functional Performance Testing (FPT)
.1 Testing performed by the Construction Team to verify that specific components, assemblies, systems, and integrated systems function and perform in accordance with the Owner's objectives and the contract documents. Tests are generally performed after the Contractor's start-up and initial checkouts are completed.

2.30 COMMISSIONING PLAN

.1 The CxA will develop a Commissioning Plan unique to the project.

.2 The Commissioning Plan identifies the strategies, aspects, and responsibilities within the commissioning process for all project team members.

.3 The Commissioning Plan contains the following information:
.1 Commissioning Program Overview
.1 Goals and objectives
.2 General project information
.3 Systems to be commissioned.
.2 Commissioning Team
.1 Team members, roles, and responsibilites.
.2 Communication protocol, coordination, meetings, and management.
.3 Commissioning Process Activities
.1 Documenting the owner's project requirements.
.2 Preparing the basis of design.
.3 Developing systems functional performance test procedures.
.4 Verifying systems performance.
.5 Reporting deficiencies and the resolution process.
.4 List of systems and assemblies to be commissioned.
.5 The Contractor and the Sub-Contractors shall carryout commissioning activities as per the Commissioning Plan.

2.31 COMMISSIONING DOCUMENTATION

.1 The Commissioning Process includes a significant documentation and paper component. Commissioning documents include but are not limited to:
.1 Drawings and Specifications.
.2 Shop Drawings.
.3 Pre-Functional Check Sheets.
.4 OEM/Contractor Start Up/Test Forms and Records.
.5 As Built Drawings.
.6 Functional Performance Test Plans and Results.

PART 3 - EXECUTION

3.1 GENERAL

.1 Turnover all existing equipment that is no longer required to the Owner. Remove from site any equipment that the Owner may decide upon. Package all HID fixtures individually.

.2 Protect all removed (to be retained) equipment from damage. Replace damaged equipment.

.3 Provide temporary power feeder from new electrical room to existing 600A service until permanent feeder is installed.

3.2 COMMISSIONING PROCESS

.1 Commissioning Meetings
.1 Commissioning during the Construction Phase begins with a team kick off meeting, conducted by the CxA, where the Commissioning Plan is reviewed with the Commissioning Team and roles and responsibilities are clarified. Additional meetings will be held throughout construction, to be conducted by the CxA with the Commissioning Team and if required with other necessary parties attending (for example, a supplier of a product or system), to plan, scope, coordinate, and schedule ongoing commissioning activities and resolve issues / problems. The commissioning meetings will normally be at the call of the CxA in coordination with the Commissioning Team.

.2 Pre-Functional Verification
.1 The Electrical Contractor will develop the Pre-Functional Check Sheets and provide to the Commissioning Agent for review. These pre-functional check sheets are to be completed

3.2 COMMISSIONING PROCESS (Cont'd)

.2 (Cont'd)
.1 (Cont'd)
by the Contractor during their normal installation and start up process.
.2 The equipment start up shall be in accordance with all related specifications and OEM requirements. The installing Contractor or Sub-Contractor shall under their own direction, plan, execute and document the installation verification and perform start up and checkout. The Contractor needs to verify that other building systems being installed will not compromise the operation and functional performance of the commissioned systems.
.3 Notify the CxA a minimum of two (2) weeks in advance of equipment and system start up and/or installation verification testing. The CxA verifies the Contractor completed check sheets, checks installation and the startup checks/documentation.
.4 Evaluation of the results will be conducted by the CxA. The CxA will evaluate whether the installed systems meet the criteria for the project.

.3 Functional Performance Testing
.1 All Pre-Functional Check sheets and Processes shall be completed and signed off by the CxA prior to starting equipment or system Functional Performance Testing
.2 Systems functional performance testing occurs once all system components are installed, energized, programmed, and otherwise ready for operation.

.4 Testing includes each process in the sequence of operation under central and packaged equipment control.

.5 Systems performance testing relies on the testing procedures developed by the CxA specifically for the systems to be tested.

.6 All equipment / systems shall be functionally tested by the Contractor and Subs prior to demonstration to the CxA. It is the responsibility of the Contractor and Subs to ensure all equipment /systems are functioning properly according to the contract documents before this demonstration occurs.

.7 The Contractor is required to demonstrate functional performance to the CxA, as required by the CxA. The CxA will evaluate whether the

3.2 COMMISSIONING PROCESS (Cont'd)

.7 (Cont'd) system performance meets the criteria set forth by contract documents and the owner's project requirements.

.8 Evaluation of the results will be conducted by the CxA. The CxA will evaluate whether the installed systems meet the criteria for the project.

3.3 SYSTEMS TO BE COMMISSIONED

.1 Lighting and Electrical Distributions.

.2 Life Safety.

NOTE: These systems contain components and individual pieces of equipment. This equipment will require specific commissioning activities.

3.4 ELECTRICAL CONTRACTOR RESPONSIBILITIES

.1 The Contractor shall be responsible for the commissioning process detailed here and in the Electrical Specifications sections.

.2 The Contractor shall coordinate and cooperate with the General and Mechanical Contractor as detailed in the specification sections of the Mechanical and Electrical Specifications.

.3 The Contractor shall only utilize employees with previous experience in testing procedures as they relate to a particular subject.

.4 The Contractor shall hire the Manufacturers' technicians who will conduct tests on their equipment.

.5 Provide a schedule showing commissioning activities and milestones and allow adequate time for testing, commissioning and re-work if required.

.6 Explain and ensure the Sub-Contractors understand commissioning requirements.

.7 Establish and keep separate record of tests, during construction and the post construction phase.

.8 Understand quality standards contained in the specifications and ensure by inspections, review by others and testing that they are being met by the Sub-Contractors.

3.4 ELECTRICAL CONTRACTOR RESPONSIBILITIES (Cont'd)

.9 Arrange samples, test equipment, etc., required by specifications.

.10 0 Ensure Sub-Contractors' testing is performed and complete prior to turnover.

.11 Develop Pre-Functional Check Sheets.

.12 Completion of Pre-Functional Check Sheets and Functional Performance Test Plans.

Commissioning Team Roles and Responsibilities

Commissioning Activities and Milestones	OEM(s)	Contractor(s)	Consultant(s) & Designers	Owner	Commissioning Agent(CxA)
Commissioning Plan		Provides input re: schedule	Reviews	Reviews	Develops
Briefing Contractors Milestones		Participates	Attends	Attends	Briefs
Pre-Functional Check Sheets		Develops/ Executes			Reviews
Pre-Functional Inspection (Installation & start-up)	Performs start-up as required	Performs start-up and executes Pre-Functional Check Sheet	Witness as Required	Witness as Required	Review installation & start-up execution and documentation
Functional Performance Testing Plans	Assists with development and execution where required	Assists with development and execution where required	Reviews and comments as required		Develops test procedures
Functional Performance Testing and Verification	Demonstrates operation to CxA	Demonstrates operation to CxA	Witness as required	Witness as required	Witness, verify and document results

END

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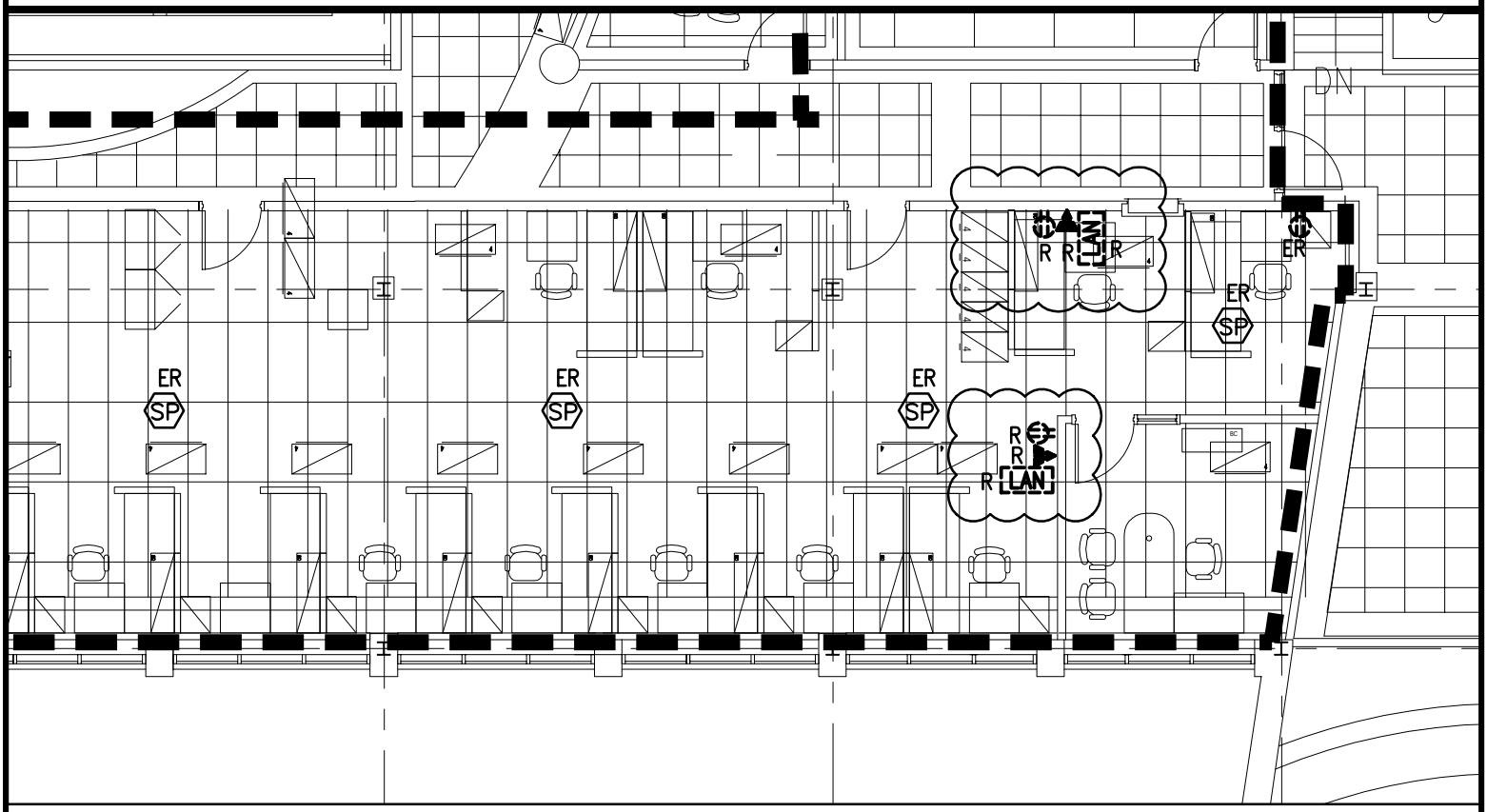
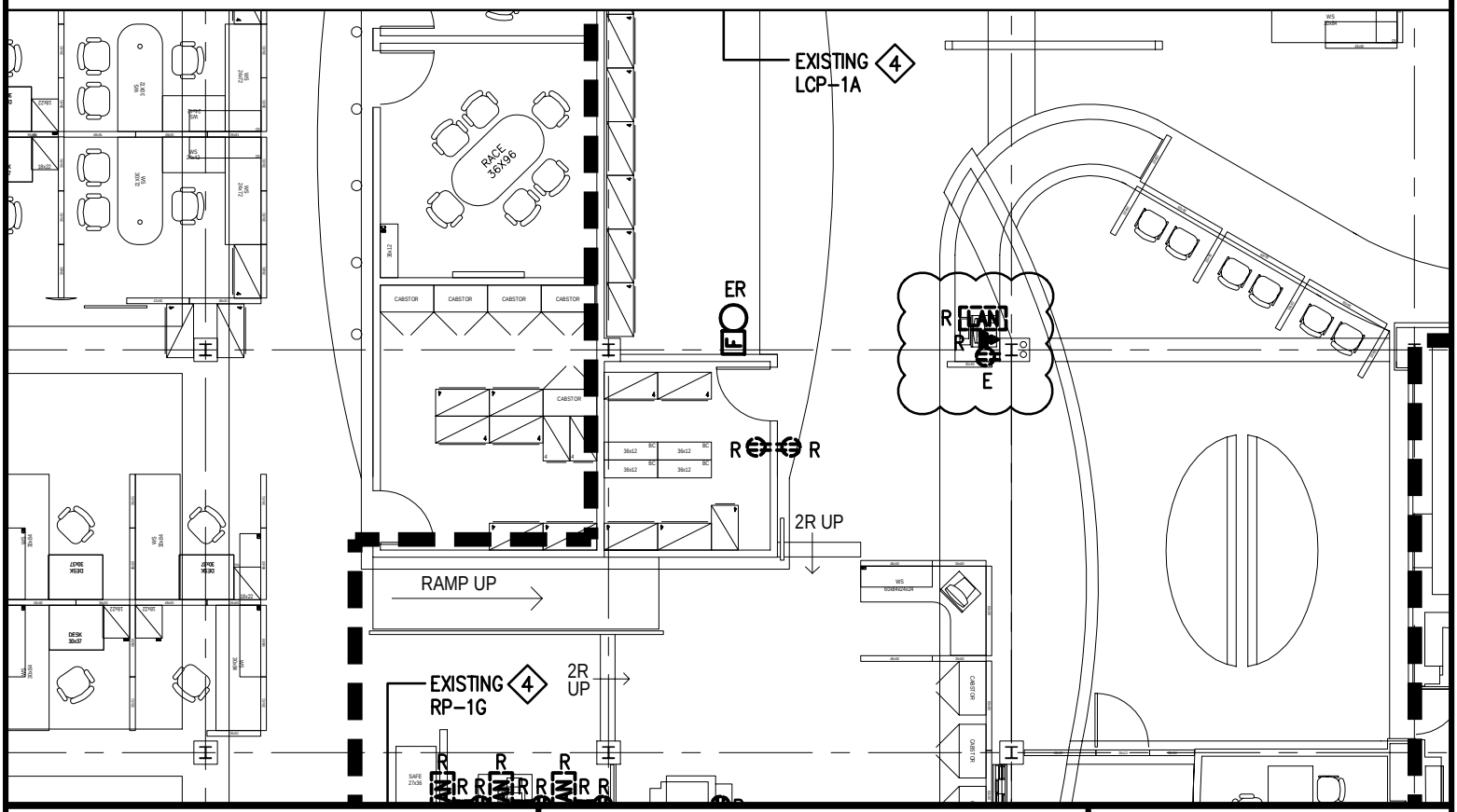




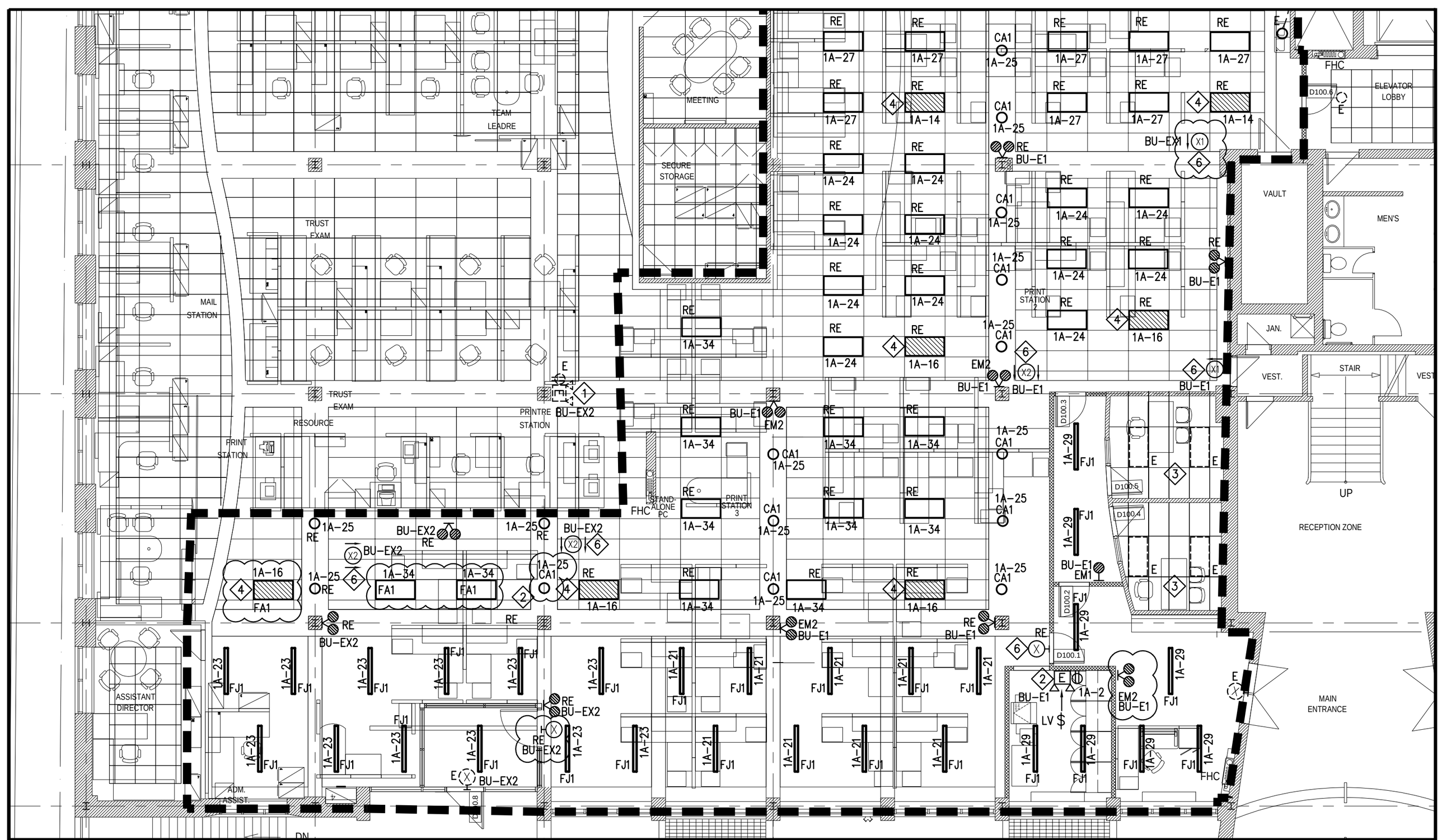
Project title: **ST_CATHARINES**
CRA_OFFICE_FITUP
32-36_CHURCH_STREET
ST_CATHARINES_ON.

OFFICE_FIT_UP

Drawing title: ADDENDUM-E-001
DEMOLITION GROUND & SECOND FL
POWER & SYSTEMS PLANS

Designed by : LN
Drawn by : LN
Approved by : AO
Tender:
Plot scale : NTS

Drawing no.: **SKE-E101.1**
Project no.: **R.065355.001**
Project date : 14-01-03
Date plotted :
Cadd file : E-101.1



Project title: **ST_CATHARINES**
CRA_OFFICE_FITUP
32-36_CHURCH_STREET
ST_CATHARINES_ON.

OFFICE_FIT_UP

Drawing title: ADDENDUM-E-001
GROUND FLOOR
NEW LIGHTING PLAN

Designed by : LN
Drawn by : LN
Approved by : AO
Tender:
Plot scale : NTS

Drawing no.: **SKE-E200.1**
Project no.: **R.065355.001**
Project date : **14-01-03**
Date plotted :
Cadd file : **E-200.1**

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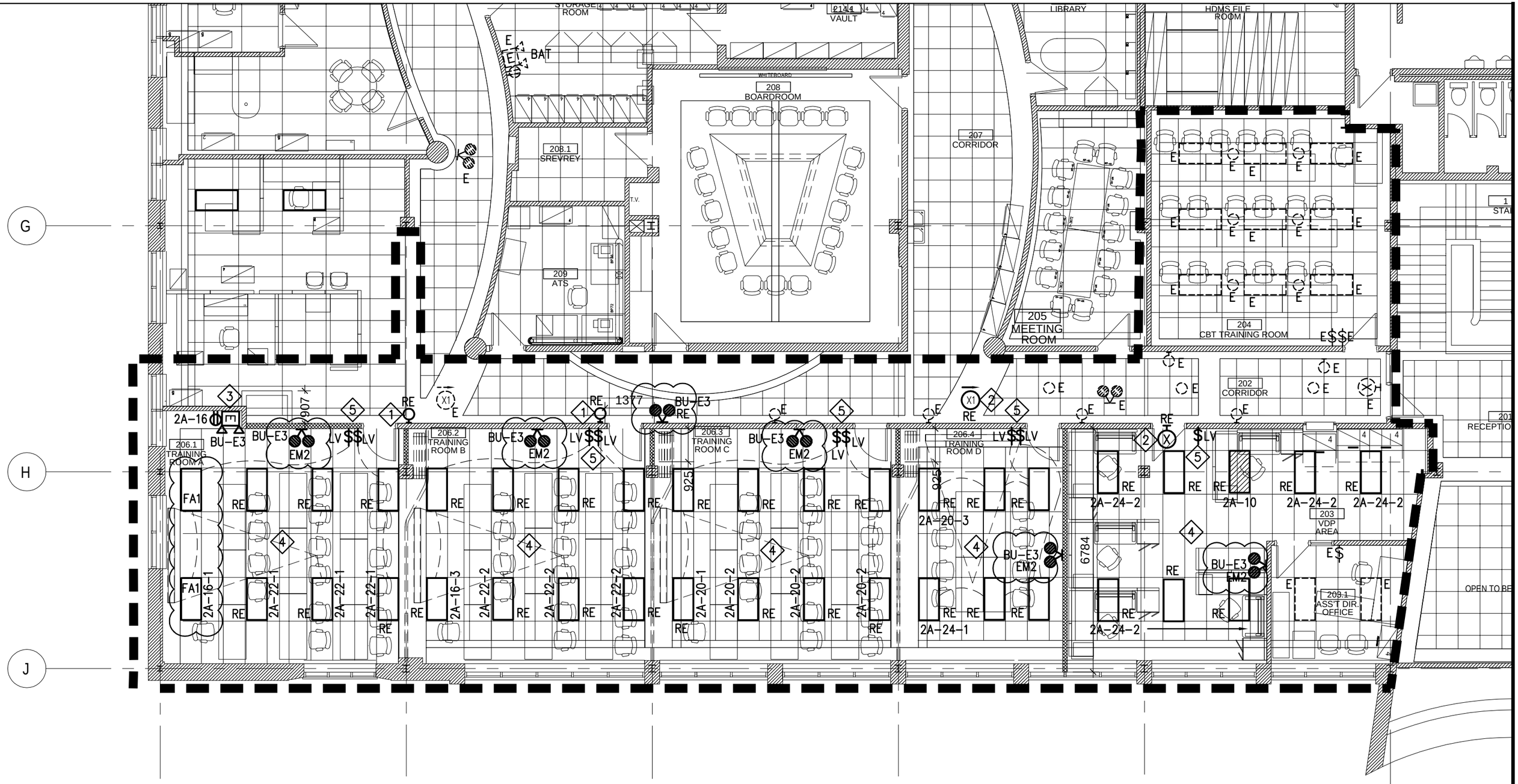

Project title: **ST_CATHARINES** CRA_OFFICE_FITUP 32-36_CHURCH_STREET ST_CATHARINES_ON. **OFFICE_FIT_UP**	Drawing title: ADDENDUM-E-001 SECOND FLOOR NEW LIGHTING PLAN	Designed by : **LN** / Tender:	Drawing no.: **SKE-E201.1**
		Drawn by : **LN**	Project no.: **R.065355.001**
		Approved by : **AO** / Plot scale : **NTS**	Project date : **14-01-03** Date plotted : Cadd file : **E-201.1**

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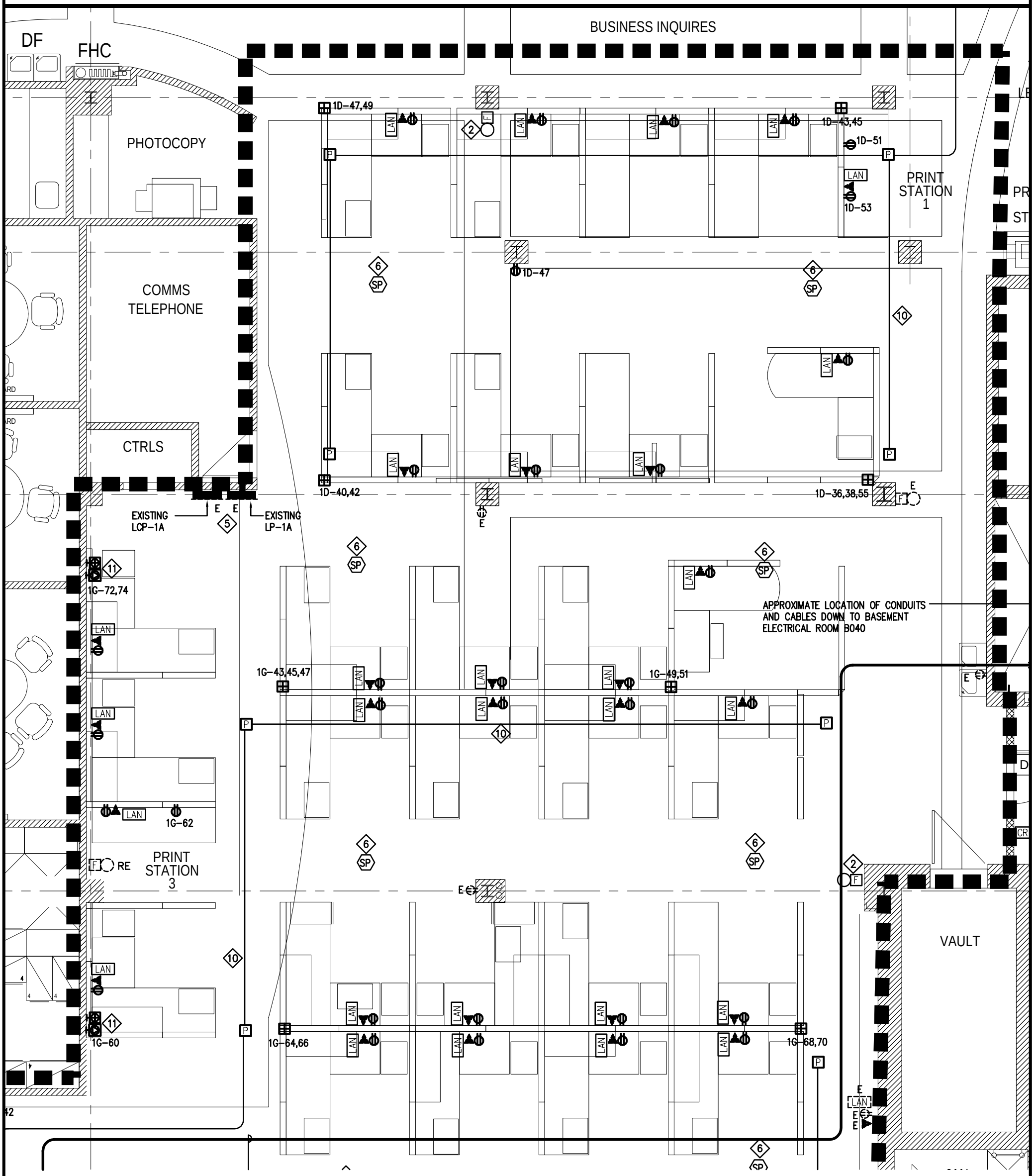

11 POWER AND SYSTEMS BASE FEED WHIP CONNECTION. MAKE PROVISIONS AND ALLOW FOR WALL MOUNTED BASE FEED FURNITURE WHIP CONNECTIONS COMPLETE WITH RECESSED PULL BOXES; COVER PLATE WITH CENTER CONNECTION AND FLEXIBLE CONDUIT WITH 90 DEGREE CONNECTION TO DEVICES THROUGH THE SYSTEM FURNITURE ASSEMBLY. ALLOW FOR ENOUGH WIRE SLACK TO REACH WORKSTATION DEVICES. CO-ORDINATE EXACT LOCATIONS FOR EACH OF THESE CONNECTIONS WITH SYSTEM FURNITURE SUPPLIER/INSTALLER PRIOR TO ROUGHING-IN.

Project title: **ST_CATHARINES**
CRA_OFFICE_FITUP
32-36_CHURCH_STREET
ST_CATHARINES_ON.

OFFICE_FIT_UP

Drawing title: ADDENDUM-E-001
GROUND FLOOR
POWER & SYSTEM NEW PLAN

Designed by : LN
Drawn by : LN
Approved by : AO
Tender:
Plot scale : **NTS**

Drawing no.: **SKE-E300.1**
Project no.: **R.065355.001**
Project date : 14-01-03
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Cadd file : E-300.1

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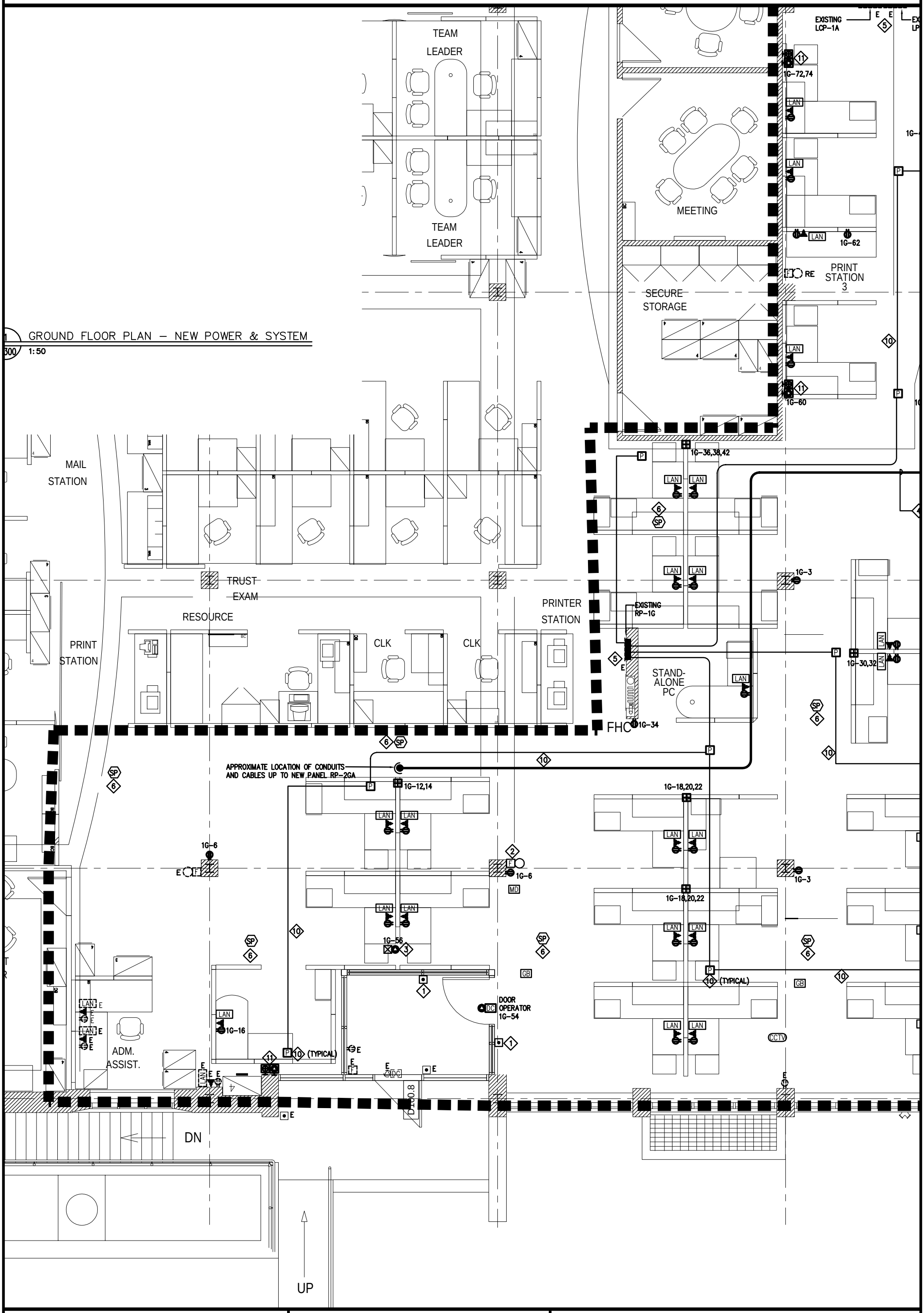

1 GROUND FLOOR PLAN – NEW POWER & SYSTEM
300 1:50

Project title: ST_CATHARINES CRA_OFFICE_FITUP 32-36_CHURCH_STREET ST_CATHARINES_ON. OFFICE_FIT_UP	Drawing title: ADDENDUM-E-001 GROUND FLOOR POWER & SYSTEM NEW PLAN	Drawing no.: SKE-E300.2
	Designed by : LN Drawn by : LN Approved by : AO	Tender: Plot scale : NTS	Project no.: R.065355.001 Project date : 14-01-03 Date plotted : Cadd file : E-300.2

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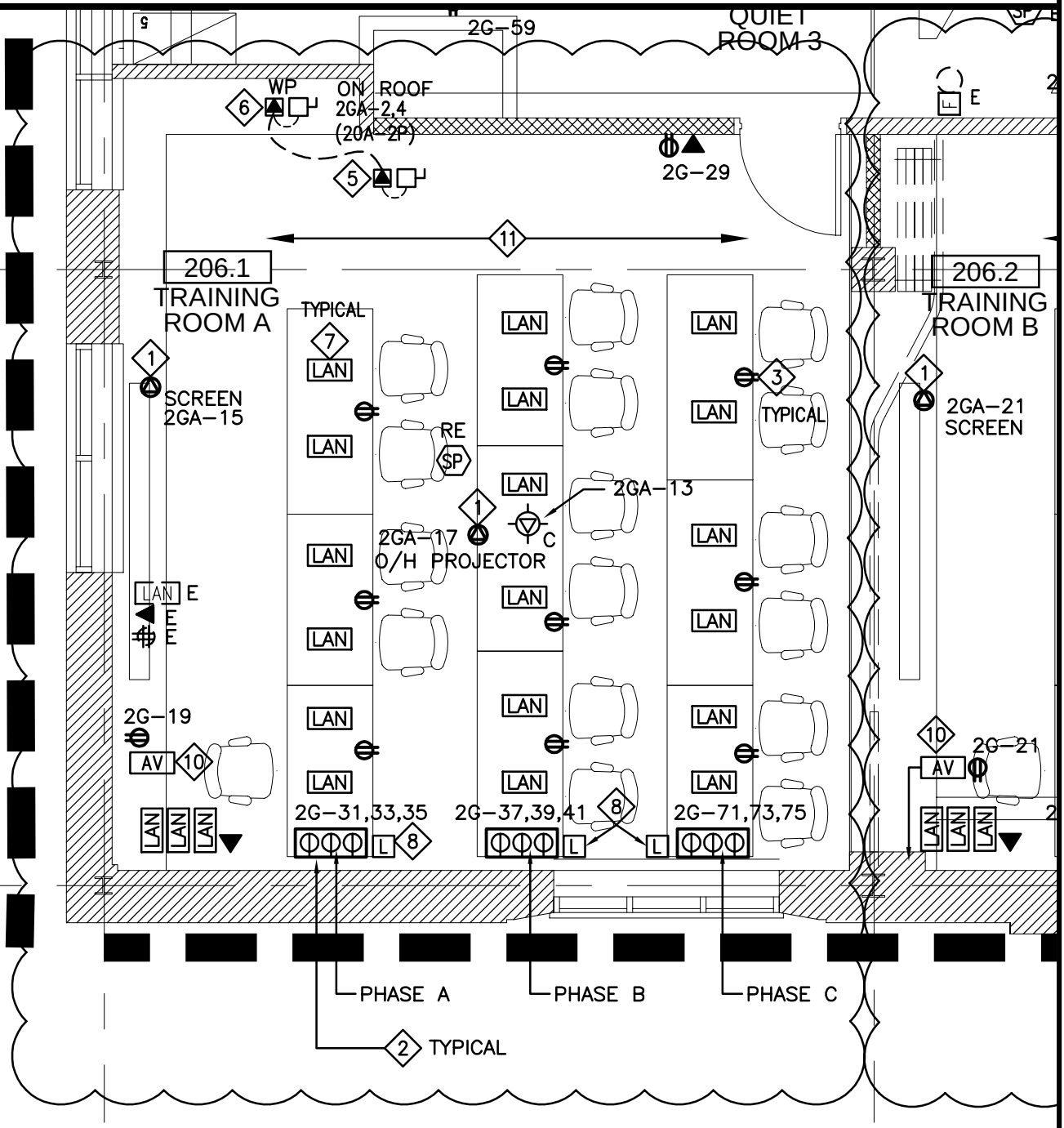
Travaux publics et Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

MEETING
SECURE STORAGE
PRINT STATION 3
PRINTER STATION
EXISTING RP-1G
STAND-ALONE PC
FHC
PRINT STATION 2
VAULT
JAN.
VEST.
D100.1
D100.2
D100.3
D100.4
D100.5
1G-3
1G-34
1G-36,38,42
1G-43,45,47
1G-49,51
1G-60
1G-62
1G-64,66
1G-68,70
1G-78
1G-18,20,22
1G-24,26,28
1G-30,32
1G-40
1G-44
1G-46
10 (TYPICAL)
9 (TYPICAL)
CCTV
GB
LAN
RE
MD
CR

Project title: ST_CATHARINES CRA_OFFICE_FITUP 32-36_CHURCH_STREET ST_CATHARINES_ON. OFFICE_FIT_UP	Drawing title: ADDENDUM-E-001 GROUND FLOOR POWER & SYSTEM NEW PLAN	Drawing no.: SKE-E300.3
	Designed by : LN Drawn by : LN Approved by : AO	Tender: Plot scale : NTS	Project no.: R.065355.001 Project date : 14-01-03 Date plotted : Cadd file : E-300.3



10 REFER TO DETAIL 1/E-400 FOR AV DEVICES. EXACT LOCATION AND ARRANGEMENTS OF DEVICES SHALL BE DETERMINED ON SITE PRIOR TO ROUGHING-IN.

11 EXACT LOCATIONS OF ALL DEVICES IN THESE ROOMS MUST BE VERIFIED AND CO-ORDINATED WITH ALL TRADES ON SITE PRIOR TO ROUGHING-IN.

12 POWER AND SYSTEMS BASE FEED WHIP CONNECTION. MAKE PROVISIONS AND ALLOW FOR WALL MOUNTED BASE FEED FURNITURE WHIP CONNECTIONS COMPLETE WITH RECESSED PULL BOXES; COVER PLATE WITH CENTER CONNECTION AND FLEXIBLE CONDUIT WITH 90 DEGREE CONNECTION TO DEVICES THROUGH THE SYSTEM FURNITURE ASSEMBLY. ALLOW FOR ENOUGH WIRE SLACK TO REACH WORKSTATION DEVICES. CO-ORDINATE EXACT LOCATIONS FOR EACH OF THESE CONNECTIONS WITH SYSTEM FURNITURE SUPPLIER/INSTALLER PRIOR TO ROUGHING-IN.

Project title: **ST_CATHARINES**
CRA_OFFICE_FITUP
32-36_CHURCH_STREET
ST_CATHARINES_ON.

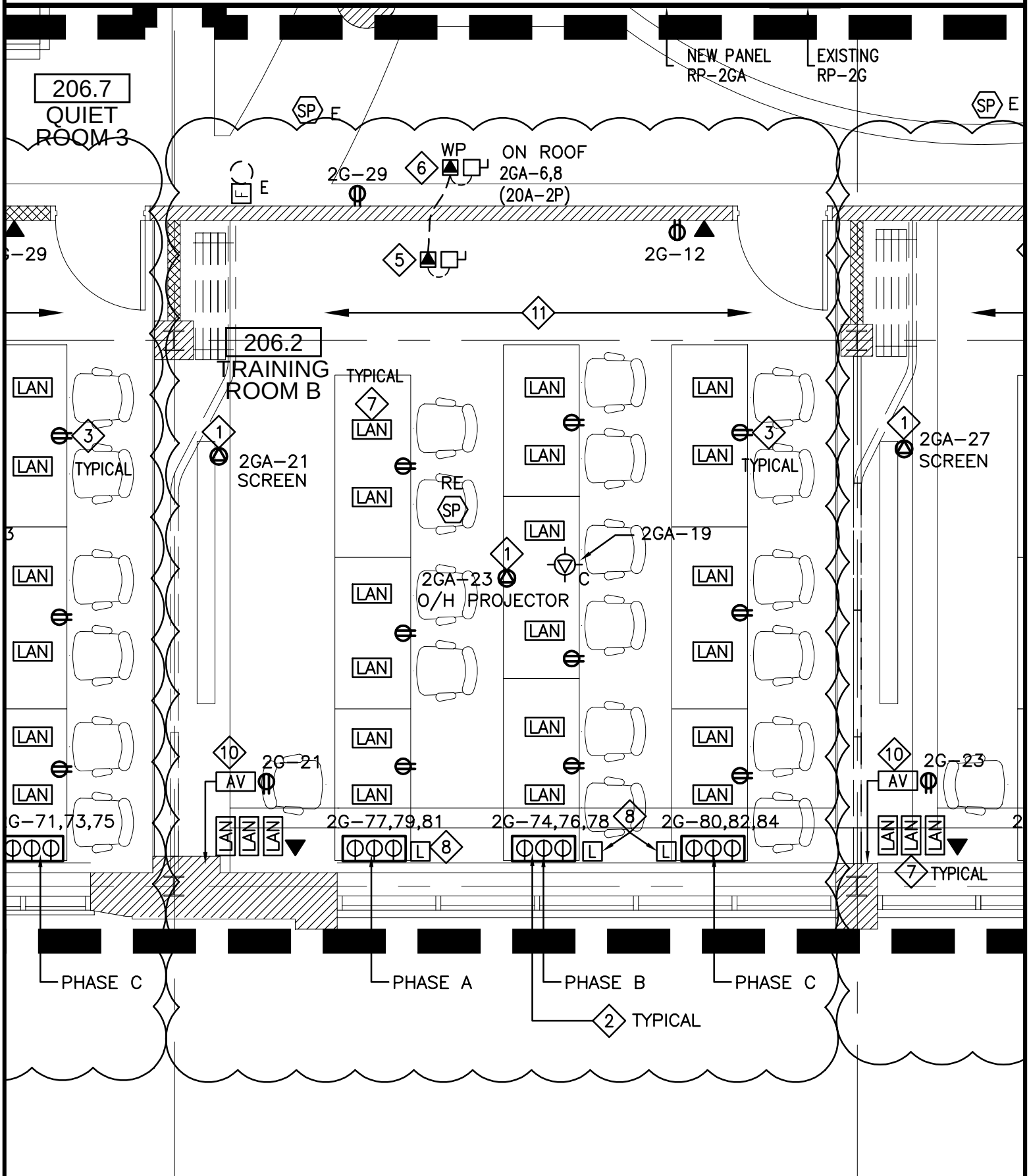
OFFICE_FIT_UP

Drawing title: ADDENDUM-E-001
SECOND FLOOR
POWER & SYSTEMS PLAN

Designed by : LN	Tender:	Drawing no.:	SKE-E301.1
Drawn by : LN		Project no.:	R.065355.001
Approved by : AO	Plot scale : NTS	Project date :	14-01-03
		Date plotted :	
		Cadd file :	E-301.1

Public Works and Government Services Canada
Architectural and Engineering Services
Ontario Region

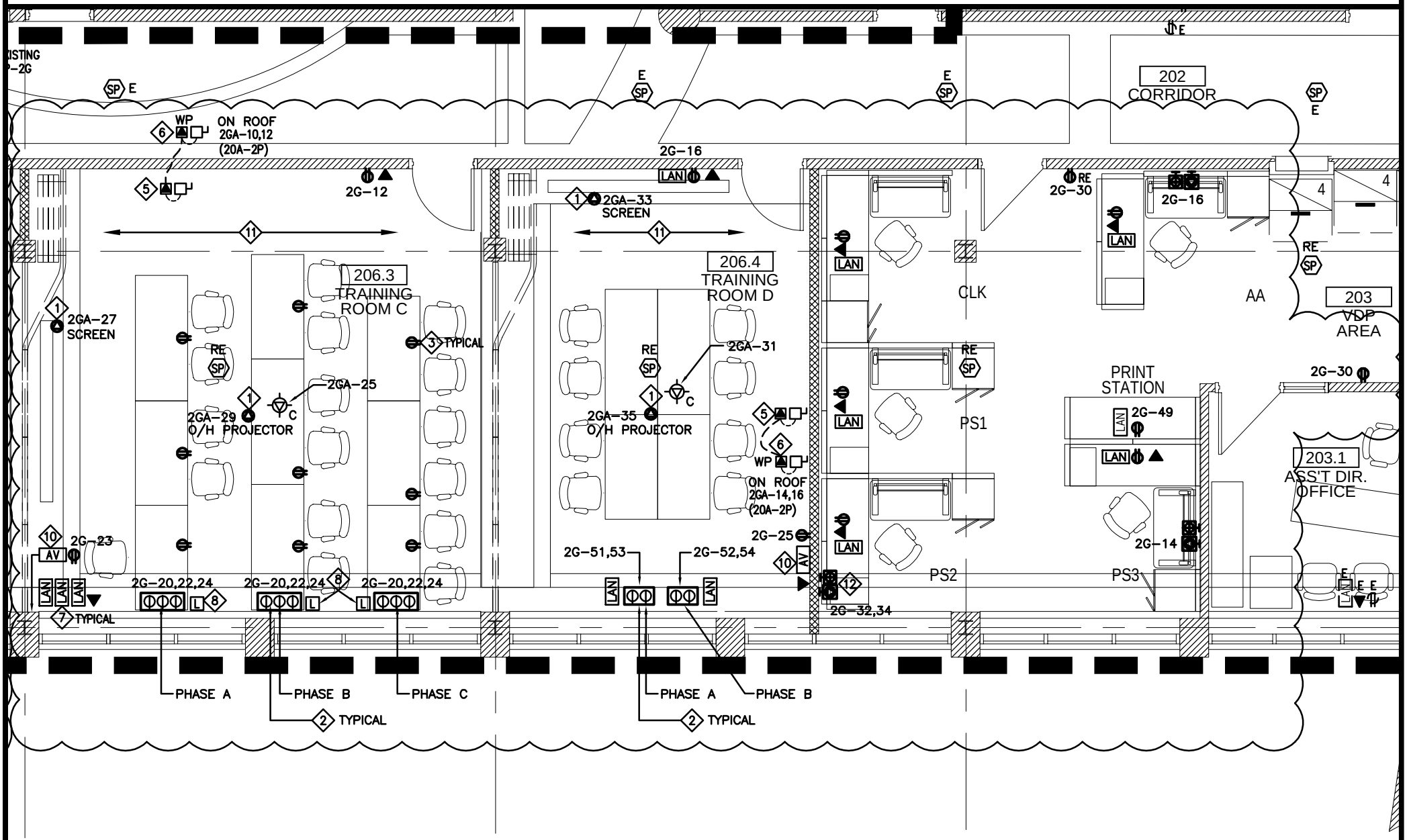
Travaux publics et Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario



Project title: ST_CATHARINES CRA_OFFICE_FITUP 32-36_CHURCH_STREET ST_CATHARINES_ON. OFFICE_FIT_UP	Drawing title: ADDENDUM-E-001 SECOND FLOOR POWER & SYSTEMS PLAN	Drawing no.: SKE-E301.2
	Designed by : LN Drawn by : LN Approved by : AO Tender: Plot scale : NTS	Project no.: R.065355.001 Project date : 14-01-03 Date plotted : Cadd file : E-301.2

Public Works and Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario



Project title: **ST_CATHARINES**
CRA_OFFICE_FITUP
32-36_CHURCH_STREET
ST_CATHARINES_ON.

OFFICE_FIT_UP

Drawing title: ADDENDUM-E-001
SECOND FLOOR
POWER & SYSTEMS PLAN

Designed by : LN
Drawn by : LN
Approved by : AO
Tender:
Plot scale : **NTS**

Drawing no.: **SKE-E301.3**
Project no.: **R.065355.001**
Project date : 14-01-03
Date plotted :
Cadd file : E-301.3

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP/WATTAGE	MANUFACTURER
FA1	NEW 2FTX4FT RECESSED IN T–BAR GRID, PARABOLIC DEEP LOUVER FLUORESCENT C/W ELECTRONIC BALLAST 120V TO MATCH EXISTING BUILDING STANDARDS	2–32W T8	COLUMBIA P4 24–2 SERIES
FJ1	NEW 8FT LINEAR FLUORESCENT DIRECT/INDIRECT PENDANT 2–LAMPS WITH PERFORATED PARABOLIC LOUVER , MATTE WHITE FINISH, ELECTRONIC BALLAST 120V. MOUNTED WITH FIELD ADJUSTABLE AIRCRAFT CABLES. SUSPENSION HEIGHT TO BE DETERMINED	2–32W T8	METALUMEN AVITAR SERIES C3M
CA1	NEW 6" DIAMETER RECESSED OPEN REFLECTOR DOWNLIGHT COMPLETE WITH ONE (1) 32W TRIPLE TUBE ELECTRONIC COMPACT FLUORESCENT TO MATCH EXISTING BUILDING STANDARDS	1–32W	CFT 632EB INTELECT SERIES
EM1/EM2	NEW EMERGENCY SINGLE OR DOUBLE REMOTE HEAD(S) 24V 18WATT WHITE FINISH TO MATCH EXISTING	18WATT QUARTZ	LUMACELL MT/MQ SERIES OR APPROVED EQUAL
BU–E1/BU–E3	NEW EMERGENCY BATTERY LIGHTING UNIT 24V 360WATTS 1HR RUNTIME TO MATCH EXISTING	360WATT	LUMACELL RGLD SERIES OR APPROVED EQUAL
X1	NEW 120VAC SINGLE–FACE STENCIL CEILING MOUNTED RECESSED EXIT SIGN TO MATCH EXISTING	2–3WATT	
X2	NEW 120VAC DOUBLE–FACE STENCIL CEILING MOUNTED RECESSED EXIT SIGN TO MATCH EXISTING	2–3WATT	
X5	120VAC STENCIL SURFACE MOUNT EDGE–LIT EXIT SIGN TO MATCH EXISTING	2–3WATT	
X7	120VAC END WALL SURFACE MOUNT EDGE–LIT EXIT SIGN TO MATCH EXISTING WHERE SHOWN	2–3WATT	

St. Catharine

Panel Schedule

Job No. **12356.101**

Panel: **RP-1G (Existing)**

Date: 18/11/2013

Voltage: **120 / 208**

Panel Mains: 225 amps

Mounting: Recessed

Ph/Wire: **3/4**

Tub Type: Double

Location:

Fed from: **Existing Power Panel**

Main Breaker NO

BRKR	*	DESCRIPTION	C [W]	d.f.	D [W]	cct	bus	cct	D [W]	d.f.	C [W]	DESCRIPTION	*	BRKR
15A-1P		EX RECEPTS	600	0.5	300	**1**	a	**2**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW RECEPTACLES**	600	0.5	300	**3**	b	**4**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**5**	c	**6**	300	0.5	**600**	**NEW RECEPTACLES**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**7**	a	**8**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**9**	b	**10**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**11**	c	**12**	480	0.6	**800**	**POWER POLE (TL4)**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**13**	a	**14**	480	0.6	**800**	**POWER POLE (TL4)**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**15**	b	**16**	480	0.6	**800**	**POWER POLE (TL4)**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**17**	c	**18**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**19**	a	**20**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**21**	b	**22**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**23**	c	**24**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**25**	a	**26**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**27**	b	**28**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**29**	c	**30**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**31**	a	**32**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**33**	b	**34**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**35**	c	**36**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**37**	a	**38**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**39**	b	**40**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**41**	c	**42**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**43**	a	**44**	300	0.5	**600**	**NEW PHOTOCOPIER**		**15A-1P**
15A-1P		**POWER POLE**	**800**	0.6	480	**45**	b	**46**	480	0.8	**600**	**NEW MAIL ROOM REC**		**15A-1P**
15A-1P		**POWER POLE**	**800**	0.6	480	**47**	c	**48**	480	0.8	600	EX RECEPTS		**15A-1P**
15A-1P		**POWER POLE**	**800**	0.6	480	**49**	a	**50**	240	0.3	800	EX DOOR OPERATOR		**15A-1P**
15A-1P		**POWER POLE**	**800**	0.6	480	**51**	b	**52**	120	0.3	400	EX POWER CONN		**15A-1P**
15A-1P		**POWER POLE**	**800**	0.6	480	**53**	c	**54**	240	0.3	**800**	**NEW DOOR OPERATOR**		**15A-1P**
15A-1P		**POWER POLE**	**800**	0.6	480	**55**	a	**56**	240	0.8	**300**	**NEW FORCE FLOW HEATER**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**57**	b	**58**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	1	600	**59**	c	**60**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	1	600	**61**	a	**62**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P				1	0	**63**	b	**64**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P				1	0	**65**	c	**66**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P				1	0	**67**	a	**68**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P				1	0	**69**	b	**70**	480	0.6	**800**	**POWER POLE**		**15A-1P**
15A-1P				1	0	**71**	c	**72**	360	0.6	**600**	**NEW RECEPTACLES**		**15A-1P**
15A-1P				1	0	**73**	a	**74**	360	0.6	**600**	**NEW RECEPTACLES**		**15A-1P**
15A-1P				1	0	**75**	b	**76**	0	0.6				**15A-1P**
15A-1P				1	0	**77**	c	**78**	0	1				**15A-1P**
15A-1P				1	0	**79**	a	**80**	0	1				**15A-1P**
15A-1P				1	0	**81**	b	**82**	0	1				**15A-1P**
15A-1P				1	0	**83**	c	**84**	0	1				**15A-1P**

CONNECTED 'A'	**16100 W**
CONNECTED 'B'	**14800 W**
CONNECTED 'C'	**15400 W**

9060 W	DEMAND 'A'
8220 W	DEMAND 'B'
8880 W	DEMAND 'C'

Notes:

Remarks: EXISTING LOADS SHOWN ARE NOT REFLECTING ACTUAL CONDITION, AS THERE IS NO SITE MEASUREMENT

TOTAL DEMAND AMPS	**72.6**	**A**
TOTAL CONNECTED LOAD	**46.3**	**kW**
TOTAL DEMAND LOAD	**26.2**	**kW**

Project title: **ST_CATHARINES**
CRA_OFFICE_FITUP
32-36_CHURCH_STREET
ST_CATHARINES_ON.

OFFICE_FIT_UP

Drawing title: ADDENDUM-E-001
ELECTRICAL SCHEDULES

Designed by : LN
Drawn by : LN
Approved by : AO
Tender:
Plot scale : **NTS**

Drawing no.: **SKE-E500.1**
Project no.: **R.065355.001**
Project date : 14-01-03
Date plotted :
Cadd file : E-500.1

St. Catharine

Panel Schedule

Job No. **12356.101**

Panel: **RP-1D (Existing)**

Date: 18/11/2013

Voltage: **120 / 208**

Panel Mains: 225 amps

Mounting: Recessed

Ph/Wire: **3/4**

Tub Type: Double

Location:

Fed from: **Existing Power Panel**

Main Breaker NO

BRKR	*	DESCRIPTION	C [W]	d.f.	D [W]	cct	bus	cct	D [W]	d.f.	C [W]	DESCRIPTION	*	BRKR
15A-1P		EX RECEPTS	600	0.5	300	**1**	a	**2**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**3**	b	**4**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**5**	c	**6**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**7**	a	**8**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**9**	b	**10**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**11**	c	**12**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**13**	a	**14**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**15**	b	**16**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**17**	c	**18**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**19**	a	**20**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**21**	b	**22**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**23**	c	**24**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**25**	a	**26**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**27**	b	**28**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**29**	c	**30**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**31**	a	**32**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**33**	b	**34**	400	0.5	**800**	**NEW POWER FEED**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**35**	c	**36**	480	0.6	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**37**	a	**38**	480	0.6	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**39**	b	**40**	480	0.6	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P		EX RECEPTS	600	0.5	300	**41**	c	**42**	480	0.6	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P		**NEW POWER POLE**	**800**	0.6	480	**43**	a	**44**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW POWER POLE**	**800**	0.6	480	**45**	b	**46**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW POWER POLE**	**800**	0.6	480	**47**	c	**48**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW POWER POLE**	**800**	0.6	480	**49**	a	**50**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW POWER RECEPTACLE**	**500**	0.6	300	**51**	b	**52**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW POWER RECEPTACLE**	**500**	0.6	300	**53**	c	**54**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW POWER POLE**	**800**	0.6	480	**55**	a	**56**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P		**NEW POWER POLE**	**800**	0.6	480	**57**	b	**58**	300	0.5	600	EX RECEPTS		**15A-1P**
15A-1P				1	0	**59**	c	**60**	400	0.5	**800**	**NEW POWER FEED**		**15A-1P**
15A-1P				1	0	**61**	a	**62**	300	0.5	**600**	**NEW POWER RECEPTACLE**		**15A-1P**
15A-1P				1	0	**63**	b	**64**	400	0.5	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P				1	0	**65**	c	**66**	400	0.5	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P				1	0	**67**	a	**68**	400	0.5	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P				1	0	**69**	b	**70**	400	0.5	**800**	**NEW POWER POLE**		**15A-1P**
15A-1P				1	0	**71**	c	**72**	400	0.5	**800**	**NEW POWER FEED**		**15A-1P**
15A-1P				1	0	**73**	a	**74**	400	0.5	**800**	**NEW POWER FEED**		**15A-1P**
15A-1P				1	0	**75**	b	**76**	0	0.6				**15A-1P**
15A-1P				1	0	**77**	c	**78**	0	1				**15A-1P**
15A-1P				1	0	**79**	a	**80**	0	1				**15A-1P**
15A-1P				1	0	**81**	b	**82**	0	1				**15A-1P**
15A-1P				1	0	**83**	c	**84**	0	1				**15A-1P**

CONNECTED 'A'	**15000 W**
CONNECTED 'B'	**14300 W**
CONNECTED 'C'	**13700 W**

7820 W	DEMAND 'A'
7440 W	DEMAND 'B'
7140 W	DEMAND 'C'

Notes:

Remarks: EXISTING LOADS SHOWN ARE NOT REFLECTING ACTUAL CONDITION, AS THERE IS NO SITE MEASUREMENT

TOTAL DEMAND AMPS	**62.2**	**A**
TOTAL CONNECTED LOAD	**43.0**	**kW**
TOTAL DEMAND LOAD	**22.4**	**kW**

Project title: **ST_CATHARINES**
CRA_OFFICE_FITUP
32-36_CHURCH_STREET
ST_CATHARINES_ON.

OFFICE_FIT_UP

Drawing title: ADDENDUM-E-001
ELECTRICAL SCHEDULES

Drawing no.: **SKE-E500.2**

Project no.: **R.065355.001**

Designed by : LN

Drawn by : LN

Approved by : AO

Tender:

Plot scale : **NTS**

Project date : 14-01-03

Date plotted :

Cadd file : E-500.2

EXISTING RELAY PANEL LCP-1A

Location: Main Floor East Electrical Room

RELAY	CIRCUIT	LOAD CONTROLLED	RELAY	CIRCUIT	LOAD CONTROLLED
1		EXISTING LIGHTING	13		EXISTING LIGHTING
2		SPARE	14		EXISTING LIGHTING
3		EXISTING LIGHTING	15		EXISTING LIGHTING
4		SPARE	16		EXISTING LIGHTING
5		EXISTING LIGHTING	17		EXISTING LIGHTING
6		SPARE	18		EXISTING LIGHTING
7		EXISTING LIGHTING	19		**NEW OFFICE LIGHTING**
8		EXISTING LIGHTING	20		**NEW OFFICE LIGHTING**
9		EXISTING LIGHTING	21		**NEW OFFICE LIGHTING**
10		EXISTING LIGHTING	22		**NEW OFFICE LIGHTING**
11		EXISTING LIGHTING	23		**NEW OFFICE LIGHTING**
12		EXISTING LIGHTING	24		EXISTING LIGHTING

RELAY	CIRCUIT	LOAD CONTROLLED	RELAY	CIRCUIT	LOAD CONTROLLED
25		**NEW OFFICE LIGHTING**	37		SPARE
26		**NEW OFFICE LIGHTING**	38		SPARE
27		EXISTING LIGHTING	39		SPARE
28		EXISTING LIGHTING	40		SPARE
29		EXISTING LIGHTING	41		SPARE
30		EXISTING LIGHTING	42		SPARE
31		EXISTING LIGHTING	43		SPARE
32		SPARE	44		SPARE
33		EXISTING LIGHTING	45		SPARE
34		SPARE	46		SPARE
35		EXISTING LIGHTING	47		SPARE
36		SPARE	48		SPARE