PROJECT MANUAL FOR THE:
FIRST FEDERAL OF LAKEWOOD
FFL CENTER, BUILDING RENOVATION AND ADDITION
NORTH OLMSTED, OHIO 44070

FOR:

FIRST FEDERAL LAKEWOOD

FIRST FEDERAL OF LAKEWOOD
14806 DETROIT AVENUE
LAKEWOOD, OHIO 44107

PREPARED BY:

JEFFREY A. GRUSENMEYER & ASSOCIATES, INC. ARCHITECTS

21245 Lorain Road, Suite 203
Fairview Park, Ohio 44126
PH:440-333-1165 FAX:440-333-1185
www.grusenmeyerarchitects.com

MAY 20, 2011 BID & PERMIT

ATTACHMENTS

DRAWINGS

NO.	**TITLE**
COVER	COVER

CIVIL DRAWINGS

ARCHITECTURAL DRAWINGS

END OF TABLE OF CONTENTS

BIDDING PROCEDURES

AIA Document "A701-1997 Instructions to Bidders" shall apply unless modified within these specifications. All AIA documents are available from the printer or at www.aia.org.

The time and place for receiving bids shall be as contained in the invitation to bid. The bidders list is by invitation.

CONTRACT

AIA Document "A101–2007 Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum" shall be used unless agreed to otherwise by the Owner and Contractor. All AIA documents are available from the printer or at www.aia.org.

GENERAL CONDITIONS

AIA Document "A201–2007 General Conditions of the Contract for Construction" shall apply unless modified within these specifications. All AIA documents are available from the printer or at www.aia.org.

A. Other conditions:
   1. All dimensions are nominal, the Contractor shall verify all proposed drawing dimensions, equipment/material dimensions, and existing conditions before initiating the work. The Architect cannot be responsible for changes made in the field or changes due to field conditions. All discrepancies between the drawings and field conditions, as well as any unforeseen uncovered conditions which may impact the work shall be promptly reported to the Architect for a clarification before proceeding with the work.
   2. The Contractor shall coordinate with the Owner or Tenants agents to facilitate the installation of equipment and systems that are to be installed by the Owner's or Tenant's forces or contractors. These include but are not limited to: banking equipment, security systems, signs, telephone systems, computer systems, and communications systems.
   3. The Contractor shall call each utility or the Ohio Utility Protection Service 1(800)362-2764 at least 48 hours before any excavation.
   4. The Contractor shall provide all temporary shoring, bracing, and support required by the construction.
   5. The Contractor shall obtain written permission from any adjacent land owners prior to performing work on the property of others.
   6. All work shall be completed in accordance with the Ohio Building Code, OSHA requirements, the National Electrical Code's latest edition, City regulations, and all other applicable codes and ordinances.
   7. The Architect cannot be responsible for changes made in the field or changes due to field conditions. All systems and materials shall be installed as recommended by their respective manufacturers. Unless otherwise noted, the Contractor shall be responsible for the complete installation of all items and systems including trim pieces, required

accessories, etc. All work shall be completed by a skilled tradesman with at least 5 years of experience in the work involved.

8. Provide temporary enclosures, fencing, and taped visqueen barriers as required for water tightness, security, and cleanliness. The Contractor shall also provide temporary toilets, power, heat, and any other temporary facilities required for construction.
9. Properly dispose of all debris, including unused excavated material, from the site.
10. The Architect cannot be responsible for information or plans provided by others.
11. The Contractor shall pay all permit fees, secure all required permits. The architect may have applied for plan review prior to contract signing. The contractor shall be responsible for paying all unpaid plan review and permit fees.
12. The Contractor shall warrant that he has visited the site and is familiar with local soil conditions and construction procedures
13. Substitutions may be made only with the approval of the Owner and Architect.
14. In general, the Contractor is responsible to provide a completed structure, ready for legal occupancy, except for those items expressly exempted by the drawings and specifications.
15. Patch all areas disturbed by demolition and new work. Provide a 1 year written guarantee for all materials and workmanship.
16. The Architect and Owner shall not have control over and shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work, since these are solely the Contractor's responsibility.
17. The Contractor shall be responsible for submitting any samples of finishes or specific materials required for review and approval by the Building Department.
18. Suppliers indicated on the drawings or within the specifications are for informational purposes only. There is no requirement to purchase materials from these suppliers if other sources are available.
19. Perform all work in accordance with the attached geotechnical recommendations.
20. Achieve substantial completion of the AT&T shell space no later than August 20, 2011. Coordinate all scheduling with the Owner.
21. Repair all areas disturbed by the demolition or new work.
22. Certain testing or the employment of testing agencies to verify conditions will be the responsibility of the contractor. This includes concrete, footing soil bearing, and proof rolling for pavement sub-grade. Refer to other portions of this specification for additional information.

END OF GENERAL CONDITIONS

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY OF WORK

A. Project: First Federal of Lakewood, FFL Center Building Renovation and Addition, Lorain Road, North Olmsted, Ohio 44116

B. Owner: First Federal Savings & Loan Association of Lakewood, 14806 Detroit Road, Lakewood, Ohio 44107 Contact: Gerald Buck, Executive Vice President 440-529-2700.

C. Architect: Jeffrey A. Grusenmeyer & Associates, Inc., 21245 Lorain Road, Fairview Park, Ohio 44126 440-333-1165.

D. The Work consists of alterations and additions to an existing shopping center building; interior tenant improvements for a branch bank; preparation of a shell space for an additional tenant; selective demolition; demolition complete of the existing branch bank building; addition of a drive through canopy; site work including landscaping, walks, curbing, and paving; and other work as described in the Contract Documents.

1.2 WORK RESTRICTIONS

A. Contractor's Use of Premises: During construction, the Contractor will be required to phase the construction and avoid as much as possible disturbances to the Owner’s or existing tenant’s operations. Phasing of the work shall require the Contractor to complete the tenant improvements for the branch bank complete before demolishing the existing bank building. Contractor's use of premises is limited by Owner's right to perform work or employ other contractors on portions of Project. The Contractor shall coordinate all work phasing with the Owner’s and tenant’s operations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01100

SECTION 01200 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 ALLOWANCES

A. Include the following allowances in the Contract Sum:
   1. Voluntary allowances may be submitted by the Contractor with the bid. All work shall be bid and priced as specified and voluntary allowances will not be effective unless explicitly accepted by the Owner in writing.

B. Obtain proposals for each allowance and submit to Architect with recommendations. Purchase products selected by Architect.

C. Advise Architect of the date when selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

D. Submit invoices to show cost of products furnished under each allowance. Reconciliation of Allowance amounts with actual costs will be by Change Order.

1.2 ALTERNATES

A. An alternate is an amount proposed by bidder for certain work that may be added to or deducted from the Base Bid amount if Owner accepts the Alternate. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

B. Voluntary alternates may be submitted by the Contractor with the bid. All work shall be bid and priced as specified and voluntary alternates will not be effective unless explicitly accepted by the Owner in writing.

1.3 CONTRACT MODIFICATION PROCEDURES

A. On Owner's approval of a proposal from Contractor, Architect will issue a Change Order on AIA Document G701, for all changes to the Contract Sum or the Contract Time.

B. When Owner and Contractor disagree on the terms of a proposal, Architect may issue a Construction Change Directive on AIA Document G714, instructing Contractor to proceed with the change. Construction Change Directive will contain a description of the change and designate the method to be followed to determine changes to the Contract Sum or the Contract Time.

1.4 PAYMENT PROCEDURES

A. Submit a Schedule of Values at least 10 days before the first Application for Payment. In Schedule of Values, break down the Contract Sum into at least one line item for each

Specification Section. Correlate the Schedule of Values with Contractor's Construction Schedule.

B. Submit 3 copies of each application for payment on AIA Document G702/703, according to the schedule established in Owner/Contractor Agreement.

1. For the second Application for Payment through the Application for Payment submitted at Substantial Completion, submit partial releases of liens from each subcontractor or supplier for whom amounts were included in the previous Application for Payment.
2. Submit final Application for Payment after completion of Project closeout procedures with release of liens and supporting documentation. Include consent of surety to final payment and insurance certificates.

a. Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01200

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

A. Coordinate construction to ensure efficient and orderly installation of each part of the Work.

B. Conduct progress meetings at Project site every two weeks. Notify Owner and Architect of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved with planning or coordination of future activities.

1. Record minutes and distribute to parties involved, including Owner and Architect.

1.2 SUBMITTAL PROCEDURES

A. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
2. Architect will not accept submittals from sources other than Contractor.
3. Identify deviations from the Contract Documents.
4. Submit three (3) copies of each submittal.

B. Place a permanent label or title block on each submittal for identification. Provide a 4- by 5-inch (100- by 125-mm) space on the label or beside title block to record review and approval markings and action taken. Include the following information on the label:

1. Project name.
2. Date.
3. Name and address of Contractor.
4. Name and address of subcontractor or supplier.
5. Number and title of appropriate Specification Section.

C. Architect will review each action submittal, mark as appropriate to indicate action taken, and return copies less those retained. Compliance with specified requirements remains Contractor's responsibility.

D. Construction Schedule Submittal Procedure:

1. Submit schedule within seven (7) days after date established for Commencement of the Work. Distribute copies to Owner, Architect, subcontractors, and parties required to comply with dates.
2. Revise the schedule after each meeting or activity where revisions have been made. As Work progresses, mark each bar to indicate actual completion. Distribute revised copies to Owner, Architect, subcontractors, and parties required to comply with dates.

2.1 ACTION SUBMITTALS

A. Product Data: Mark each copy to show applicable choices and options. Include the following:

1. Data indicating compliance with specified standards and requirements.
2. Notation of coordination requirements.
3. For equipment data, include rated capacities, dimensions, weights, required clearances, and furnished specialties and accessories.

B. Shop Drawings: Submit Project-specific information drawn to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit 1 reproducible print and 1 blue- or black-line print on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (762 by 1067 mm). Architect will return the reproducible print. Include the following:

1. Dimensions, profiles, methods of attachment, large scale details, and other information, as appropriate for the Work.
2. Identification of products and materials.
3. Notation of coordination requirements.
4. Notation of dimensions established by field measurement.

C. C. Samples: Submit Samples finished as specified and identical with the material proposed. Where variations are inherent in the material, submit sufficient units to show full range of the variations. Include name of manufacturer and product name on label.

2.2 INFORMATION SUBMITTALS

A. Construction Schedule: Prepare a horizontal bar-chart Contractor's construction schedule.

1. Provide a separate time bar for each activity, using same breakdown of Work indicated in the Schedule of Values, and a vertical line to identify the first workday of each week.
2. Coordinate each element with other activities. Show each activity in proper sequence. Indicate sequences necessary for completion of related Work.
3. Indicate Substantial Completion and allow time for Architect's procedures necessary for certifying Substantial Completion.

B. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01300

SECTION 01400 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Testing and inspecting services are specified in other Sections of these Specifications or are required by authorities having jurisdiction and shall be performed by independent testing agencies, u.o.n..
2. The contractor will be responsible for providing concrete testing as indicted in the concrete section, and for engaging and paying the agency who provided the soils report to verify that all footing bearing and pavement sub-grade conditions comply with the specifications and geotechnical recommendations, and to observe all proof rolling of the pavement sub-grade.
3. Owner will provide testing and inspecting services not specified to be provided by Contractor.
4. Contractor is responsible for scheduling inspections and tests and notifying testing agency.
5. Retesting and Reinspecting: Contractor shall pay for additional testing and inspecting required as a result of tests and inspections indicating noncompliance with requirements.

B. Performance and Design Criteria: Where design services or certifications by a professional engineer are required by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
2. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.

C. Submittals: Testing agency shall submit a certified written report of each inspection and test to Architect, Contractor, and to authorities having jurisdiction when authorities so direct. Reports of each inspection, test, or similar service shall include the following:

1. Name, address, and telephone number of testing agency.
2. Project title and testing agency's project number.
3. Date of report and designation (number).
4. Dates and locations where samples were taken or inspections and field tests made.
5. Ambient conditions at the time of sample taking and inspecting or field testing.
6. Names of individuals taking the sample or making the inspection or test.
7. Product and test method.
8. Inspection or test data including interpretation of test results and comments or professional opinion on whether inspected or tested Work complies with requirements.

9. Recommendations on retesting or reinspection.
10. Name and signature of laboratory inspector.

D. Testing Agency Qualifications: Agencies that specialize in the types of inspections and tests to be performed and are acceptable to authorities having jurisdiction.

E. Testing Agency Responsibilities: Testing agency shall cooperate with Architect and Contractor in performing its duties and shall provide qualified personnel to perform inspections and tests.

1. Agency shall promptly notify Architect and Contractor of deficiencies in the Work observed during performance of its services.
2. Agency shall not release, revoke, alter, or enlarge requirements of the Contract Documents nor approve or accept any portion of the Work.
3. Agency shall not perform duties of Contractor.

F. Auxiliary Services: Cooperate with testing agencies and provide auxiliary services as requested, including the following:

1. Access to the Work.
2. Incidental labor and facilities to assist inspections and tests.
3. Adequate quantities of materials for testing, and assistance in taking samples.
4. Facilities for storing and curing test samples.
5. Security and protection for samples and test equipment.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01400

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Use Charges: Owner will pay use charges for temporary utilities.

B. Use water and electric power from Owner's existing system without metering and without payment of use charges.

C. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

D. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained heaters with thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITIES

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

C. Heating and Cooling: Provide temporary heating and cooling required for curing materials or for protecting installed construction from adverse weather. Use equipment that will not have a harmful effect on completed installations or elements being installed.

3.2 TEMPORARY FACILITIES

A. Provide field offices, storage trailers, and other support facilities as necessary for the Work.

B. Collect waste daily and, when containers are full, legally dispose of waste off-site.

1. Handle hazardous, dangerous, or unsanitary waste materials in separate closed waste containers. Dispose of material according to applicable laws and regulations.

C. Provide temporary enclosures for protection of construction and workers from inclement weather and for containment of heat.

D. Install project identification and other signs in locations approved by Owner to inform the public and persons seeking entrance to Project.

3.3 TEMPORARY CONTROLS

A. Provide temporary environmental controls as required by authorities having jurisdiction including, but not limited to, erosion and sediment control, dust control, noise control, and pollution control.

B. Provide temporary barricades, warning signs, and lights to protect the public and construction personnel from construction hazards.

1. Enclose construction areas with fences with lockable entrance gates, to prevent unauthorized access.

C. Provide temporary fire protection until permanent systems supply fire-protection needs. Comply with NFPA 241.

3.4 TERMINATION AND REMOVAL

A. Remove temporary facilities and controls before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

END OF SECTION 01500

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Provide products of same kind from a single source. The term "product" includes the terms "material," "equipment," "system," and similar terms.

B. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
4. Store materials in a manner that will not endanger Project structure.
5. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

A. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.

1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.

B. Select products to comply with all of the following that are applicable:

1. Where only a single product or manufacturer is named, provide the item indicated. No substitutions will be permitted.
2. Where two or more products or manufacturers are named, provide one of the items indicated. No substitutions will be permitted.
3. Where products or manufacturers are specified by name, accompanied by the term "available products" or "available manufacturers," provide one of the named items or comply with provisions for "comparable product" to obtain approval for use of an unnamed product or manufacturer.
4. Where a single product is named as the "basis-of-design" together with the names of other manufacturers, provide the named product or comply with provisions for

"comparable product submittal" to obtain approval for use of a product of one of the other named manufacturers.

5. Where a single product is named as the "basis-of-design" and no other manufacturers are named, provide the named product or comply with provisions for "comparable product submittal" to obtain approval for use of a product of another manufacturer.
6. Where a product is described with required characteristics, provide a product that complies with those characteristics.
7. Where compliance with performance requirements is specified, provide products that comply and are recommended in writing by the manufacturer for the application.
8. Where compliance with codes, regulations, or standards, is specified, select a product that complies with the codes, regulations, or standards referenced.

C. Unless otherwise indicated, Architect will select color, pattern, and texture of each product from manufacturer's full range of options that includes both standard and premium items.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01600

SECTION 01701 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

A. Record Drawings: Maintain a set of the Contract Drawings as Record Drawings. Mark to show installation that varies from the Work originally shown.

B. Operation and Maintenance Data: Organize data into three-ring binders with identification on front and spine of each binder and pocket folders for folded sheet information. . Include the following:

1. Manufacturer's operation and maintenance brochures.
2. Emergency instructions.
3. Spare parts list.
4. Wiring diagrams.
5. Copies of warranties.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, plumb, smooth, clean, and free of deleterious substances; substrates within installation tolerances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Verify layout information shown on Drawings, in relation to property survey and existing benchmarks, before laying out the Work.

C. Prepare substrates and adjoining surfaces according to manufacturer's written instructions, including, but not limited to, filler and primer application.

D. Take field measurements as required to fit the Work properly. Where fabricated products are to be fitted to other construction, verify dimensions by field measurement before fabricating and, when possible, allow for fitting and trimming during installation.

3.2 CUTTING AND PATCHING

A. Do not cut structural members or operational elements without prior written approval of Architect.

B. For patching, provide materials whose installed performance will equal or surpass that of existing materials. For exposed surfaces, provide or finish materials to visually match existing adjacent surfaces to the fullest extent possible.

3.3 INSTALLATION

A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned. Clean exposed surfaces and protect from damage. If applicable, prepare surfaces for field finishing.

B. Clean Project site and work areas daily, including common areas.

3.4 FINAL CLEANING

A. Clean each surface or item as follows before requesting inspection for certification of Substantial Completion:

1. Remove labels that are not permanent.
2. Clean transparent materials, including mirrors. Remove excess glazing compounds. Replace chipped or broken glass.
3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean.
4. Vacuum carpeted surfaces and wax resilient flooring.
5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures and lamps.
6. Clean the site. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

3.5 CLOSEOUT PROCEDURES

A. Substantial Completion: Before requesting Substantial Completion inspection, complete the following:

1. Advise Owner of pending insurance changeover requirements.
2. Submit specific warranties, maintenance agreements, and similar documents.
3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
4. Submit Record Drawings and Specifications, operation and maintenance manuals, property surveys, and similar final record information.
5. Deliver tools, spare parts, extra materials, and similar items.
6. Changeover locks and transmit keys to Owner.
7. Complete startup testing of systems and instruction of operation and maintenance personnel.
8. Remove temporary facilities and controls.
9. Advise Owner of changeover information related to Owner's occupancy, operation, and maintenance.
10. Complete final cleaning requirements, including touchup painting.

11. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. On receipt of a request for inspection, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or advise Contractor of items that must be completed or corrected before the certificate will be issued.

C. Request inspection for certification of Final Completion, once the following are complete:

1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

D. Architect will reinspect the Work on receipt of notice that the Work has been completed.

1. On completion of reinspection, Architect will prepare a final Certificate for Payment. If the Work is incomplete, Architect will advise Contractor of the Work that is incomplete or obligations that have not yet been fulfilled.

3.6 DEMONSTRATION AND TRAINING

A. Provide experienced instructors for each piece of equipment that requires operation and maintenance to provide instruction to Owner's personnel. Include a detailed review of the following:

1. Include instruction for system design and operational philosophy, review of documentation, operations, adjustments, troubleshooting, maintenance, and repair.

END OF SECTION 01700

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Materials that the Owner desires to maintain shall remain the property of the Owner. Other demolished materials become Contractor's property. Verify materials that the Owner desires to maintain prior to initiating demolition. Remove all other materials from Project site.

B. Items indicated to be removed and salvaged remain Owner's property. Remove, clean, and deliver to Owner's designated storage area.

C. Comply with EPA regulations and disposal regulations of authorities having jurisdiction.

D. It is not expected that hazardous materials, other than those indicated in the testing agency report, will be encountered in the Work. If other materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Other hazardous materials will be removed by Owner. Materials indicated in the testing agency report shall be removed by the Contractor.

E. Building removal.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DEMOLITION

A. Maintain and protect existing utilities to remain in service before proceeding with demolition, providing bypass connections to other parts of the building.

B. Locate, identify, shut off, disconnect, and cap off utility services to be demolished.

C. Conduct demolition operations and remove debris to prevent injury to people and damage to adjacent buildings and site improvements.

D. Provide and maintain shoring, bracing, or structural support to preserve building stability and prevent movement, settlement, or collapse.

E. Protect building structure and interior from weather and water leakage and damage.

F. Protect walls, ceilings, floors, and exposed finishes that are to remain. Erect and maintain dustproof partitions. Cover and protect fixtures, furnishings, and equipment that are to remain.

G. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.

H. Promptly patch and repair holes and damaged surfaces of building caused by demolition. Restore exposed finishes of patched areas and extend finish restoration into remaining adjoining construction.

I. Promptly remove demolished materials from Owner's property and legally dispose of them. Do not burn demolished materials.

J. Building removal shall include the complete removal and capping of all utilities as required by all jurisdictions having authority. Remove all portions of the building and footings to a minimum depth of 24" below finished grade. Backfill and prepare for paving or other construction as defined in the soils report or other portions of this specification or drawings.

END OF SECTION 01732

SECTION 02822 – ORNAMENTAL FENCE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Ornamental picket fencing, posts, rails, gates, hardware, and accessories.

1.2 RELATED SECTIONS

A. Section 03300 - Cast in Place Concrete.

1.3 SUBMITTALS:

A. Shop Drawings: Layout of fence and gates with dimensions, details and finishes of component accessories, hardware, and post foundations.

1.4 Product Data: Manufacturer's catalogue cuts indicating material compliance and specified options.

A. Samples: Color selections for finishes. Samples of materials, (e.g. finials, caps, and accessories).

1.5 WARRANTY

A. Provide manufacturer's standard limited warranty that its ornamental fence system is free from defects in material and workmanship including cracking, peeling, blistering and corroding for a period of 15 years from the date of purchase.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Approved Manufacturer: Ameristar Fence Products, 1555 N. Mingo Road, Tulsa, Oklahoma 74116 1-800-321-8724. www.ameristar.com
   1. Ornamental Picket Fence:
   2. Style: Egis II Majestic 3 Rail.
   3. Height and Gates: As indicated.

B. Approved Manufacturer: Monumental Iron Works/Master Halco Inc, 1704 Trimble Road, Edgewood, Maryland 21040. (Phone 800-229-5615 - fax 410-676-7098).
   1. Ornamental Picket Fence:

2. Style: Imperial Fence Style B 3 Rail.
3. Height and Gates: As indicated.

C. Substitutions: See Section 01600 - Product Requirements.
1. Products from other qualified manufacturers having a minimum of 5 years experience manufacturing ornamental picket fencing.

2.2 ORNAMENTAL PICKET FENCE

A. Fence materials and installation shall be in full compliance with the Approved Manufacturer's standard specifications.
1. Pickets: Galvanized square steel tubular members. Minimum size pickets 1" (25 mm). Space pickets 3-15/16" maximum (100 mm) face to face. Minimum gauge wall thickness 16 gauge.
2. Rails: Minimum 1-1/2" (38mm) x 1-3/8" (35mm) x 1-1/2" (38mm). Punch rails to receive pickets.
3. Posts: Galvanized square steel tubular members. Minimum post size 2.5" (63 mm). Provide 4" square tubular members where recommended by the manufacturer to support the gate size, or as indicated on the drawings.
4. Accessories: Assembled panels with ornamental accessories attached to prevent removal and vandalism.
5. Finish: All pickets, channels, posts, fittings and accessories coated individually after drilling and layout, to ensure maximum corrosion protection. Color: Black.

B. ACCESSORIES
1. Manufacturer's standard.
2. Ornamental Picket Fence Accessories: Provide indicated items required to complete fence system. Galvanize each ferrous metal item in accordance with ASTM B695 and finish to match framing.
3. Post Caps: Formed steel, cast of malleable iron or aluminum alloy, weather tight closure cap. Provide one ball style post cap for each post.
4. Picket Tops : Manufacturer's standard.

C. SETTING MATERIAL
1. Concrete: Minimum 28 day compressive strength of 3000 psi (20 MPa).
2. Flanged Posts: Provide flange type base plates with 4 holes for surface mounting of posts where indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify areas to receive fencing are completed to final grades and elevations.

B. Ensure property lines and legal boundaries of work are clearly established.

3.2 INSTALLATION

A. Install fence in accordance with manufacturer's instructions.

B. Space posts uniformly at 7'8-3/4" (2356 mm) maximum face to face unless otherwise indicated.

C. Concrete Set Posts: Drill hole in firm, undisturbed or compacted soil. Holes shall have diameter 4 times greater than nominal outside dimension of post, and depths approximately 6" (152 mm) deeper than post bottom. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads. Set post bottom 36" minimum (914 mm) below surface when in firm, undisturbed soil, subject to approval of the soils engineer. Place concrete around post in a continuous pour. Trowel finish around posts and slope to direct water away from posts.

D. Bore for posts where required to install in existing concrete.

E. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.

F. Align fence panels between posts. Firmly attach rail brackets to posts with 1/4" (6 mm) bolt and lock nut, ensuring panels and posts remain plumb.

G. Firmly install fence to brick piers where indicated.

3.3 ACCESSORIES

A. Install post caps and other accessories to complete fence.

3.4 CLEANING

A. Clean up debris and unused material, and remove from site.

END OF SECTION 02822

SECTION 02920 - LAWNS AND GRASSES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: planting schedule.

B. Sod: Comply with TPI's "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in its "Guideline Specifications to Turfgrass Sodding."

C. Maintenance: Water, fertilize, weed, mow, trim, and establish lawns. Replant nonuniform, bare, or eroded grassed areas and remulch. Maintain for not less than 90 days.

PART 2 - PRODUCTS

2.1 GRASSES

A. Seed Species: State-certified seed of grass species, as follows:

1. Seed Mixture:

Proportion	Name	Min. Pct. Germ.	Min. Pct. Pure Sd.	Max. Pct. Weed Sd.
50 pct.	Kentucky bluegrass (Poa pratensis)	80	85	0.50
30 pct.	Chewings red fescue (Festuca rubra variety)	85	98	0.50
10 pct.	Perennial rye grass (Lolium perenne)	90	98	0.50
10 pct.	Redtop (Agrostis alba)	85	92	1.00

2.2 SOILS AND AMENDMENTS

A. Topsoil: ASTM D 5268, free of stones 1/2 inch (12 mm) or larger.

B. Lime: ASTM C 602, Class T, agricultural limestone.

C. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8.

D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

E. Commercial Fertilizer: Commercial-grade complete fertilizer, consisting of 1 lb/1000 sq. ft. (0.5 kg/100 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

F. Slow-Release Fertilizer: Granular fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium; 20 percent nitrogen; 10 percent phosphorous; and 10 percent potassium; by weight.

G. Straw Mulch: Clean, mildew- and seed-free salt hay or threshed straw.

2.3 PLANTING SOIL MIX

A. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content of topsoil. Report suitability of topsoil for growth of applicable planting material. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce a satisfactory topsoil.

PART 3 - EXECUTION

3.1 PREPARATION

A. Loosen subgrade, remove stones, sticks, existing grass, vegetation, and other extraneous materials.

1. At newly graded subgrades, spread planting soil mixture to a depth of 6 inches (150 mm) but not less than required to meet finish grades.
2. At unchanged grades, apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches (100 mm) of soil. Till soil to a homogeneous mixture of fine texture.

B. Grade lawn areas to a smooth, even surface with loose, uniformly fine texture. Moisten before planting.

3.2 PLANTING

A. Seeding Lawns: Evenly distribute seed by sowing with a spreader or a seeding machine. Rake seed lightly into top 1/8 inch (3 mm) of topsoil, roll lightly, and water with fine spray. Protect seeded areas by spreading straw mulch 1-1/2 inches (38 mm) in loose depth.

1. Seeding Rate: 5 to 8 lb/1000 sq. ft. (2.3 to 3.6 kg/92.9 sq. m).

B. Disposal: Remove surplus soil and waste material and legally dispose of off Owner's property.

END OF SECTION 02920

SECTION 02930 - EXTERIOR PLANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: planting schedule.

B. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."

C. Maintain trees and shrubs for 12 months. Maintain ground covers and plants for six months.

PART 2 - PRODUCTS

2.1 PLANTING MATERIALS

A. Tree and Shrub Material: Nursery-grown, with healthy root systems, well-shaped, fully branched, healthy, and free of insects, eggs, larvae, defects, and disfigurement.

1. Provide balled and burlapped or container-grown trees and shrubs.

B. Ground Covers and Plants: Established and well rooted in removable containers or integral peat pots.

2.2 SOIL AND AMENDMENTS

A. Topsoil: ASTM D 5268, free of stones ½ inch (25 mm) or larger.

B. Lime: ASTM C 602, Class T, agricultural limestone.

C. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8.

D. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

E. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

F. Bonemeal: Commercial, raw, finely ground; minimum of 4 percent nitrogen and 20 percent phosphoric acid.

G. Superphosphate: Commercial, phosphate mixture, soluble; minimum of 20 percent available phosphoric acid.

H. Commercial Fertilizer: Commercial-grade complete fertilizer, consisting of 1 lb/1000 sq. ft. (0.5 kg/100 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

I. Slow-Release Fertilizer: Granular fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium; 5 percent nitrogen; 10 percent phosphorous; and 5 percent potassium; by weight.

J. Organic Mulch: Shredded hardwood.

K. Weed-Control Barrier: Polypropylene or polyester nonwoven fabric.

2.3 PLANTING SOIL MIX

A. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content of topsoil. Report suitability of topsoil for growth of applicable planting material. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce a satisfactory topsoil.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ground Cover and Plant Bed Preparation: Loosen subgrade to a depth of 6 inches (150 mm). Remove stones sticks, roots, and rubbish. Spread planting soil mixture to a depth of 6 inches (150 mm) but not less than required to meet finish grades. Work first layer into top of loosened subgrade.

B. Trees and Shrubs: Excavate pits with sides sloped inward and with bottom of excavation slightly raised at center to assist drainage. Excavate approximately three times as wide as ball diameter. Scarify sides of plant pit smeared or smoothed during excavation.

1. Set trees and shrubs plumb and in center of pit with top of ball raised above adjacent finish grades.
2. Remove burlap and wire baskets from tops of balls and partially from sides, but do not remove from under balls. Carefully remove root balls from containers without damaging root ball or plant. Do not use planting stock if ball is cracked or broken before or during planting operation.
3. Place backfill around ball in layers, tamping to settle backfill and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Water again after placing and tamping final layer of planting soil mix.
4. Prune, thin, and shape trees and shrubs after planting.

C. Plant ground cover and plants in holes as indicated, dug large enough to allow root spread. Plant stock working soil around roots and leave a slight saucer around plants to hold water. Water after planting. Do not cover plant crowns with wet soil.

D. Mulching: Before mulching, install weed-control barriers,. Apply organic mulch, 3 inches (75 mm) thick, and finish level with adjacent finish grades. Do not place mulch against trunks or stems.

E. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02930

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data, concrete mix designs, and laboratory test reports.

B. Comply with ASTM C 94; ACI 301, "Specification for Structural Concrete"; ACI 117, "Specifications for Tolerances for Concrete Construction and Materials"; and CRSI's "Manual of Standard Practice."

C. Engage a qualified independent testing agency to design concrete mixes.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Deformed Reinforcing Bars: ASTM A 615/A 615M, Grade 60.

B. Steel Welded-Wire Fabric: ASTM A 185, flat sheets not rolls.

C. Portland Cement: ASTM C 150, Type I or II.

D. Fly Ash: ASTM C 618, Type C or F.

E. Aggregates: ASTM C 33, uniformly graded.

F. Air-Entraining Admixture: ASTM C 260.

G. Vapor Retarder: Reinforced polyethylene sheet, ASTM E 1745, Class C.

H. Slip-Resistive Aggregate: Factory-produced, rustproof, nonglazing, fused aluminum-oxide granules or crushed emery, unaffected by freezing, moisture, and cleaning materials.

I. Mineral Dry-Shake Floor Hardener: Packaged, dry combination of portland cement, graded quartz aggregate, and plasticizing admixture, unpigmented.

J. Joint-Filler Strips: ASTM D 1751, cellulosic fiber, or ASTM D 1752, cork.

K. Repair Underlayment: Factory-packaged, portland or blended hydraulic cement-based, polymer-modified, self-leveling underlayment with minimum 28-day compressive strength of 4100 psi (29 MPa).

L. Repair Topping: Factory-packaged, portland or blended hydraulic cement-based, polymer-modified, self-leveling traffic-bearing topping with minimum 28-day compressive strength of 5700 psi (39 MPa).

2.2 MIXES

A. Proportion normal-weight concrete mixes to provide the following properties:

1. Compressive Strength: 3,000 psi for footings, 4000 psi (27.6 MPa) at 28 days for all other concrete.
2. Slump Limit: 5 inches (125 mm) at point of placement.
3. Air Content: 5.5 to 7.0 percent for concrete exposed to freezing and thawing, 2 to 4 percent elsewhere.

PART 3 - EXECUTION

3.1 CONCRETING

A. Construct formwork and maintain tolerances and surface irregularities within ACI 117 limits of Class A for concrete exposed to view and Class C for other concrete surfaces.

B. Set water stops where indicated to ensure joint watertightness.

C. Place vapor retarder on prepared subgrade, with joints lapped 6 inches (150 mm) and sealed.

D. Accurately position, support, and secure reinforcement.

E. Install construction, isolation, and contraction joints where indicated, but not less than at column centerlines and defining areas not to exceed 400 s.f. interior or 25 s.f. exterior. Install full-depth joint-filler strips at isolation joints.

F. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.

G. Provide testing for each concrete batch that will show compressive strength at 7 and 28 days, and that verifies compliance with the specification requirements.

H. Protect concrete from physical damage, premature drying, and reduced strength due to hot or cold weather during mixing, placing, and curing.

I. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.

J. Slab Finishes: Scratch finish for surfaces to receive mortar setting beds, Float finish for interior steps and ramps and surfaces to receive waterproofing, roofing, or other direct-applied material, Troweled finish for floor surfaces and floors to receive floor coverings, paint, or other thin film-finish coatings, Nonslip-broom finish to exterior concrete platforms, steps, and ramps.

K. Uniformly spread 25 lb/100 sq. ft. (12 kg/10 sq. m) of dampened slip-resistive aggregate over initially floated surfaces; tamp and float. Expose nonslip aggregate after curing.

L. Uniformly spread 100 lb/100 sq. ft. (49 kg/10 sq. m) of mineral dry-shake floor hardener over initially floated surfaces, repeat float finishing to embed each application, and then apply a trowel finish.

M. Cure formed surfaces by moist curing for at least seven days.

N. Begin curing concrete slabs after finishing. Apply membrane-forming curing compound to concrete.

O. Owner will engage a testing agency to perform field tests and to submit test reports.

P. Protect concrete from damage. Repair surface defects in formed concrete and slabs.

Q. Repair slabs not meeting surface tolerances by grinding high areas and by applying a repair underlayment to low areas receiving floor coverings and a repair topping to low areas to remain exposed.

R. Do not apply any curing, finishing, or other compounds to any concrete slab that may interfere with the floor finish or are not recommended by the finish flooring manufacturer.

S. Repair/replace all areas of the existing slab that have been removed or damaged due to the work or the installation of under floor utilities.

SEE STRUCTURAL NOTES ON THE DRAWINGS FOR ADDITIONAL CONCRETE SPECIFICATIONS.

END OF SECTION 03300

SECTION 04810 - UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Samples for face brick.

B. Comply with ACI 530.1/ASCE 6/TMS 602.

C. Mockups: Construct a sample wall panel approximately 48 inches (1200 mm) long by 48 inches (1200 mm) high and no less than one pilaster to demonstrate aesthetic effects and set quality standards for materials and execution.

PART 2 - PRODUCTS

2.1 MASONRY UNITS

A. Concrete Masonry Units: ASTM C 90; Weight Classification, Normal Weight.

B. Face Brick: ASTM C 216, Grade SW, Type FBS.

1. Products:

   a. As indicated on the drawing schedule.

2. Size: Modular or Norman, see drawing schedule.
3. Solid brick with exposed surfaces finished for ends of sills and caps.
4. Special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

2.2 MORTAR AND GROUT

A. Mortar: ASTM C 270, proportion specification. Ready-mixed mortar.
1. Do not use calcium chloride in mortar.
2. For masonry below grade or in contact with earth, use Type S.
3. For reinforced masonry, use Type S.
4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions, and for other applications where another type is not indicated, use Type N.
5. Colored Mortar: For face brick, use colored cement or cement-lime mix of color selected.
6. Water-Repellent Additive: For mortar used with decorative concrete masonry units, use product recommended by manufacturer of units.

B. Grout: ASTM C 476 with a slump of 8 to 11 inches (200 to 280 mm).

2.3 REINFORCEMENT, TIES, AND ANCHORS

A. Steel Reinforcing Bars: ASTM A 615/A 615M, Grade 60.

B. Joint Reinforcement: ASTM A 951.

1. Coating: Hot-dip galvanized at both interior and exterior walls.
2. Wire Diameter for Side Rods: 3/16 inch.
3. Wire Diameter for Cross Rods: 9 ga.
4. For single-wythe masonry, provide ladder design.
5. For multiwythe masonry, provide ladder design with three tab design with single pair of adjustable (two-piece) tab design or eye-and-pintle design with single pair of side rods.

C. Rigid Anchors: Fabricate from steel bars 1-1/2 inches (38 mm) wide by 1/4 inch (6.4 mm) thick by 24 inches (600 mm) long, with ends turned up 2 inches (50 mm) or with cross pins.

D. Veneer Anchors: Two-piece adjustable masonry veneer anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to studs, and acceptable to authorities having jurisdiction. Provide stainless steel anchors wherever attachment is required to steel studs.

2.4 EMBEDDED FLASHING MATERIALS

A. Rubberized Asphalt Sheet Flashing: Pliable and highly adhesive rubberized asphalt compound, 26 mils (0.7 mm) thick, bonded to a polyethylene film, 4 mils (0.1 mm) thick, to produce an overall thickness of 30 mils (0.8 mm).

2.5 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded strips complying with ASTM D 1056, Grade 2A1.

B. Preformed Control-Joint Gaskets: Designed to fit standard sash block and to maintain lateral stability in masonry wall; made from styrene-butadiene rubber or PVC.

C. Weep Holes: Round polyethylene tubing, 3/8-inch (9.5-mm) OD.

D. Acidic Masonry Cleaner:

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cut masonry units with saw. Install with cut surfaces and, where possible, cut edges concealed.

B. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.

C. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry. Tooth in to existing masonry where adjacent.

D. Stopping and Resuming Work: Rack back units; do not tooth.

E. Fill cores in hollow concrete masonry units with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

F. Tool exposed joints slightly concave when thumbprint hard, unless otherwise indicated.

G. Keep cavities clean of mortar droppings and other materials during construction. Strike joints facing cavities flush.

3.2 LINTELS

A. Install steel lintels where indicated.

B. Minimum bearing of 8 inches (200 mm) at each jamb, unless otherwise indicated.

3.3 FLASHING AND WEEP HOLES

A. Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to the downward flow of water in the wall, and where indicated.

B. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing before covering with mortar.

1. Extend flashing 4 inches (100 mm) into masonry at each end and turn up 2 inches (50 mm) to form a pan.

C. Omit full head joint for weep holes.

3.4 FIELD QUALITY CONTROL

A. Owner will engage a qualified independent testing agency to perform the following tests for each 5000 sq. ft. (460 sq. m) of wall area or portion thereof:

1. Mortar: ASTM C 780.
2. Grout: ASTM C 1019.
3. Brick: ASTM C 67.
4. Concrete Masonry Units: ASTM C 140.

3.5 PARGING

A. Parge predampened masonry walls, where indicated, with Type S or Type N mortar applied in two uniform coats with a steel-trowel finish. Form a wash at top of parging and a cove at bottom. Damp cure parging for at least 24 hours.

3.6 CLEANING

A. Clean masonry as work progresses. Remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly cured, remove large mortar particles, scrub, and rinse unit masonry.

1. Wet wall surfaces with water before applying acidic cleaner, then remove cleaner promptly by rinsing thoroughly with clear water.

SEE STRUCTURAL NOTES ON THE DRAWINGS FOR ADDITIONAL MASONRY SPECIFICATIONS.

END OF SECTION 04810

SEE STRUCTURAL NOTES ON THE DRAWINGS FOR STRUCTURAL STEEL, STEEL JOISTS, AND STEEL DECK SPECIFICATIONS.

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Model code evaluation reports for treated wood and building wrap.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Provide dressed lumber, S4S, 19 percent maximum moisture content for 2-inch nominal (38-mm actual) thickness or less, marked with grade stamp of inspection agency.

B. Wood Structural Panels: DOC PS 2. Provide plywood complying with DOC PS 1, where plywood is indicated.

1. Comply with "Code Plus" provisions in APA Form No. E30K.

2.2 TREATED MATERIALS

A. Preservative-Treated Materials: AWPA C2 lumber and AWPA C9 plywood, labeled by an inspection agency approved by ALSC's Board of Review. After treatment, kiln-dry lumber and plywood to 19 and 15 percent moisture content, respectively. Treat indicated items and the following:

1. Wood members in connection with roofing, flashing, vapor barriers, and waterproofing.

B. Fire-Retardant-Treated Materials: Comply with performance requirements in AWPA C20 lumber and AWPA C27 plywood, labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to ASTM D 5664, for lumber and ASTM D 5516, for plywood.
2. Use Interior Type A High Temperature (HT), unless otherwise indicated.

2.3 LUMBER

A. Dimension Lumber: The following grades are per inspection agency indicated:
1. Framing Other Than Non-Load-Bearing Partitions: No. 2 : Douglas fir-larch: NLGA, WCLIB, or WWPA.

B. Concealed Boards: 19 percent maximum moisture content: Eastern softwoods: No. 3 Common per NELMA rules.

C. Miscellaneous Lumber: Construction, Stud, or No. 3 grade of any species for nailers, blocking, and similar members.

2.4 PANEL PRODUCTS

A. Polyisocyanurate-Foam Wall Sheathing: ASTM C 1289, Type I, Class 2; with aluminum foil facings. Foam-plastic core and facings shall have flame spread of 25 or less, when tested individually.

B. Plywood Wall Sheathing: Exterior, Structural I , Exposure 1 sheathing.

C. Telephone and Electrical Equipment Backing Panels: Plywood, Exposure 1, C-D Plugged, fire-retardant treated, not less than 1/2 inch (12.7 mm) thick.

2.5 MISCELLANEOUS PRODUCTS

A. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

1. Power-Driven Fasteners: CABO NER-272.
2. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

B. Metal Framing Anchors: Hot-dip galvanized steel of structural capacity, type, and size indicated or required by the condition.

C. Building Paper: Asphalt-saturated organic felt complying with ASTM D 226, Type I (No. 15 asphalt felt), unperforated.

D. Building Wrap: Air-retarder sheeting made from polyolefins; cross-laminated films, woven strands, or spun-bonded fibers; coated or uncoated; with or without perforations; and complying with ASTM E 1677, Type I.

E. Sill-Sealer: Glass-fiber insulation, 1-inch (25-mm) thick, compressible to 1/32 inch (0.8 mm).

F. Adhesives for Field Gluing Panels to Framing: APA AFG-01.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Securely attach rough carpentry to substrates, complying with the following:

1. CABO NER-272 for power-driven fasteners.
2. Published requirements of metal framing anchor manufacturer.
3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in the Building Code.

C. Fastening Methods: Comply with recommendations and "Code Plus" provisions in APA Form No. E30K and the following:
1. Sheathing: screw to framing.

D. Blocking: Provide blocking as required for attachment of cabinets, shelving, and all other items to be installed on the walls or ceiling. Items shall not be attached to gypsum board.

END OF SECTION 06100

SECTION 06200 - FINISH CARPENTRY

PART 1 - GENERAL (Not Applicable)

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.

B. Softwood Plywood: DOC PS 1.

C. Hardwood Plywood: HPVA HP-1.

2.2 EXTERIOR FINISH CARPENTRY

A. Exterior Lumber Trim: Smooth -textured, Grade B, western red cedar, or 2 Common (Sterling) eastern white, Idaho white, lodgepole, ponderosa, or sugar pine.

B. Plywood Siding: APA-rated siding, 1/2 inch (12.7 mm) thick 303-OL, medium-density overlay, Panel 15 or approved equal.

C. Aluminum Soffit Material: Alcoa Aluminum Soffit Traditional Select 6” Profile with trim pieces as required.

2.3 INTERIOR STANDING AND RUNNING TRIM

A. Interior Hardwood Lumber Trim: Clear, kiln-dried, white maple.

B. Wood Molding Patterns: Made to patterns in WMMPA WM 7 from kiln-dried stock graded under WMMPA WM 4.

1. Moldings for Transparent Finish: N-Grade white maple

2.4 MISCELLANEOUS MATERIALS

A. Fasteners for Exterior Finish Carpentry: hot-dip galvanized steel or aluminum nails.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Condition finish carpentry in installation areas for 24 hours before installing.

B. Prime and backprime lumber for painted finish exposed on the exterior.

C. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Scribe and cut to fit adjoining work. Refinish and seal cuts.

D. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.

END OF SECTION 06200

SECTION 06402 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data for solid-surfacing materials, Shop Drawings and Samples showing the full range of colors, textures, and patterns available for each type of finish.

B. Quality Standard: Architectural Woodwork Institute's "Architectural Woodwork Quality Standards."

C. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is completed, and HVAC system is operating.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hardboard: AHA A135.4.

B. Medium-Density Fiberboard: ANSI A208.2, Grade MD.

C. Particleboard: ANSI A208.1, Grade M-2.

D. Softwood Plywood: DOC PS 1.

E. Hardwood Plywood and Face Veneers: HPVA HP-1.

F. Thermoset Decorative Overlay: Comply with LMA SAT---1.

G. High-Pressure Decorative Laminate: NEMA LD 3.

1. Products:

a. Wilsonart, Formica, or approved equal.

H. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with material and performance requirements of ANSI Z124.3, Type 5 or Type 6, without a precoated finish.

2.2 CABINET HARDWARE AND ACCESSORY MATERIALS

A. Hardware Standards: Comply with BHMA A156 series standards.

B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated, Softwood or hardwood lumber, kiln dried to 15 percent moisture content.

2.3 INTERIOR WOODWORK

A. Complete fabrication before shipping to Project site to maximum extent possible. Disassemble only as needed for shipping and installing. Where necessary for fitting at Project site, provide for scribing and trimming.

B. Backout or groove backs of flat trim members, kerf backs of other wide, flat members, except for members with ends exposed in finished Work.

C. Interior Standing and Running Trim for Transparent Finish: Custom grade, made from white maple.

D. Laminate-Clad Cabinets (Plastic-Covered Casework): Custom grade.

1. AWI Type of Cabinet Construction: Flush overlay.
2. Laminate Cladding: Horizontal surfaces other than tops, HGS; postformed surfaces, HGP; vertical surfaces, HGS; Edges, HGS; semiexposed surfaces, CLS.
3. Drawer Sides and Backs: Thermoset decorative overlay.
4. Drawer Bottoms: Thermoset decorative overlay.

E. Plastic-Laminate Countertops: Custom grade.

1. Laminate Grade: HGS for flat countertops, HGP for post-formed countertops.
2. Grain Direction: Parallel to cabinet fronts.
3. Edge Treatment: Lumber edge for transparent finish matching wood species.

2.4 SHOP FINISHING OF INTERIOR ARCHITECTURAL WOODWORK

A. Finishes: Same grades as items to be finished.

B. Finish architectural woodwork at the fabrication shop; defer only final touch up until after installation.

1. Apply one coat of sealer or primer to concealed surfaces of woodwork.
2. Apply a vinyl wash coat to woodwork made from closed-grain wood before staining and finishing.
3. After staining, if any, apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.

C. Transparent Finish: AWI Finish System TR-4, conversion varnish.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Condition woodwork to prevailing conditions before installing.

B. Install woodwork to comply with AWI Section 1700 for grade specified.

C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm) for level and plumb.

D. Scribe and cut woodwork to fit adjoining work, seal cut surfaces, and repair damaged finish at cuts.

E. Install trim with minimum number of joints possible, using full-length pieces to greatest extent possible. Stagger joints in adjacent and related members.

F. Anchor countertops securely to base units. Seal space between backsplash and wall.

3.2 CABINET HARDWARE AND ACCESSORY SCHEDULE

A. Concealed (European-Type) Hinges: BHMA A156.9, B01602.

B. Pulls: Wire pulls, 4 inches (100 mm) long, 5/16 inches (8 mm) in diameter.

C. Catches: Magnetic catches, BHMA A156.9, B03141.

D. Adjustable Shelf Standards: BHMA A156.9, B04071; with shelf rests, BHMA A156.9, B04081.

E. Drawer Slides: Side-mounted, zinc-plated steel drawer slides with steel ball bearings, complying with BHMA A156.9, Grade 1 and rated for the following loads:

1. Box Drawer Slides: 100 lbf (440 N).
2. File Drawer Slides: 200 lbf (890 N).
3. Pencil Drawer Slides: 45 lbf (200 N).

F. Door Locks: BHMA A156.11, E07121.

G. Drawer Locks: BHMA A156.11, E07041.

H. Grommets for Cable Passage through Countertops: 1-inch- (25-mm-) OD brown, molded-plastic grommets with brown plastic cap.

I. Paper Slots: 12 inches (305 mm) long by 1-3/4 inches (45 mm) wide by 1 inch (25 mm) deep; brown, molded-plastic, paper-slot liner with 1/4-inch (6-mm) lip.

END OF SECTION 06402

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Surface-Burning Characteristics: ASTM E 84, and as follows:

1. Flame-Spread Index: 25 or less where exposed; otherwise, as indicated in Part 2 "Insulation Products".
2. Smoked-Developed Index: 50 or less where exposed; otherwise, as indicated in Part 2 “Insulation Products”.

PART 2 - PRODUCTS

2.1 INSULATION PRODUCTS

A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, with flame-spread index of 75 or less.

B. Foil-Faced Polyisocyanurate Board Insulation: ASTM C 1289, Type I, Class 1 or 2, faced on both sides with aluminum foil, with flame-spread index of 75 or less.

C. Mineral-Fiber-Blanket Insulation: ASTM C 665, Type III, Class A, foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on one face with fibers manufactured from glass, with flame-spread index of 25 or less.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.

END OF SECTION 07210

SECTION 07241 - EXTERIOR INSULATION AND FINISH SYSTEMS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Comply with EIFS Industry Members Association's (EIMA) "EIMA Guideline Specification for Exterior Insulation and Finish Systems (EIFS) Class PB" with standard impact classification.

B. Submittals: Product Data, model code evaluation report, and Samples of finishes. Manufacturer's standard details and product data. Indicate on the building elevation drawings where details are to be used in the installation.

C. Installer Qualifications: Certified in writing by system manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. STO Corporation or approved equal. 1-800-221-2397.
1. System: Provide STO Gold Coat over substrate and the StoTherm Classic NExt system.

2.2 MATERIALS

A. Reinforcing Mesh: Balanced, alkali-resistant, open-weave glass-fiber mesh treated for compatibility with other system materials, complying with ASTM D 578, and with minimum weight not less than 9.5 oz./sq. yd. (322 g/sq. m).

B. Base-Coat Materials: EIFS manufacturer's standard mixture of portland cement complying with ASTM C 150, Type I, and polymer-emulsion adhesive designed for use indicated.

C. Finish-Coat Materials: EIFS manufacturer's standard acrylic-based coating, consisting of polymer-emulsion binder, colorfast mineral pigments, sound stone particles, and fillers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 1397 and EIFS manufacturer's written instructions for installation of EIFS as applicable to each type of substrate indicated.

1. Install base coat in 2 applications, with a minimum total thickness at least 1/16 inch (1.6 mm), and completely covering reinforcing mesh so reinforcing-mesh color and pattern are not visible.

2. Apply finish coat over dry base coat, in thickness required by EIFS manufacturer to produce a uniform color and texture, free of variations.

B. Prepare joints and apply sealants to comply with applicable requirements of Division 7 Section "Joint Sealants" and with EIMA's "EIMA Guide for Use of Sealants with Exterior Insulation and Finish Systems Class PB."

C. Comply with manufacturer’s standard details and installation requirements.

END OF SECTION 07241

SECTION 07531 EPDM MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Shop Drawings of tapered and uniform thickness insulation.

B. Exterior Fire-Test Exposure: ASTM E 108, Class **A**.

C. Wind Exposure: FM I-90.

D. Warranties: Manufacturer's standard form, without monetary limitation, signed by roofing manufacturer agreeing to repair leaks due to defects in materials or workmanship for period of **15** years.

PART 2 - PRODUCTS

2.1 ROOFING MATERIALS

A. EPDM Sheet: ASTM D 4637, Type I, nonreinforced; 60 mils (1.5 mm) thick; black. Provide an alternate price to provide a Type II, scrim or fabric internally reinforced and puncture warrantee.

1. Products: Firestone Rubberguard LSFR or approved equal by Carlisle.

B. Auxiliary Materials: Recommended by roofing system manufacturer for intended use and as follows:

1. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM.
2. Seaming Material: Single-component, butyl splicing adhesive and splice cleaner.

2.2 ROOF INSULATION

A. Tapered and uniform thickness Polyisocyanurate Board Insulation: ISO 95+. Average minimum R=20, minimum thickness at drains 1 ½”.

B. Fabricate tapered insulation with slope of 1/4 inch per 12 inches (1:48), unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mechanically fasten each layer of insulation to deck.

B. Install EPDM sheet and provide/install all flashings according to roofing system manufacturer's written instructions and as follows:

1. Adhered Sheet Installation: Apply bonding adhesive to substrate and underside of sheet and allow to partially dry. Do not apply bonding adhesive to splice area of sheet.

C. Seams: Clean splices, apply splicing cement, and firmly roll side and end laps of overlapping sheets. Seal exposed edges of sheet terminations.

D. Install sheet flashings and preformed flashing accessories and adhere to substrates. Protect roofing from damage and wear during remainder of construction period.

E. Patch all metal roof deck areas that are deteriorated and openings left by the removal of equipment. Areas less than one square foot may be filled with a mechanically attached 16 gage galvanized steel plate. Areas greater than one square foot shall be filled with galvanized deck that matches the profile and gage of the existing roof deck.

F. Correct deficiencies in or remove and reinstall roofing and sheet flashing that does not comply with requirements.

END OF SECTION 07531

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data, Shop Drawings, and Samples.

B. Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

C. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 SHEET METAL

A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), Alloy 3003, 3004, 3105, or 5005, temper suitable for forming and structural performance required, but not less than H14; not less than 0.032 inch (0.8 mm) thick; and finished as follows:

1. Fluoropolymer 2-Coat System: Manufacturer's standard system with topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.

2.2 FLASHING AND TRIM

A. Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

2.3 ACCESSORIES

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Butyl Sealant: ASTM C 1311, solvent-release type, for expansion joints with limited movement.

C. Asphalt Mastic: SSPC-Paint 12, asbestos free, solvent type.

D. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

E. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft. (0.16 kg/sq. m).

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.

1. Roof-Edge Flashings: Secure metal flashings at roof edges according to FMG Loss Prevention Data Sheet 1-49 for specified wind zone.

B. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

C. Fabricate nonmoving seams in sheet metal with flat-lock seams. For aluminum, form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

1. Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), unless pre-tinned surface would show in finished Work.

D. Separation: Separate noncompatible metals or corrosive substrates with a coating of asphalt mastic or other permanent separation.

END OF SECTION 07620

SECTION 07841 - THROUGH-PENETRATION FIRESTOP SYSTEMS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and product certificates signed by manufacturer certifying that products furnished comply with requirements.

B. Provide firestopping systems with fire-resistance ratings indicated by reference to UL designations as listed in its "Fire Resistance Directory," or to designations of another testing agency acceptable to authorities having jurisdiction.

C. Provide through-penetration firestopping systems with F-ratings indicated, as determined according to ASTM E 814, but not less than fire-resistance rating of construction penetrated.

1. Provide through-penetration firestopping systems with T-ratings as well as F-ratings, as determined according to ASTM E 814, where indicated.

D. For exposed firestopping, provide products with flame-spread indexes of less than 25 and smoke-developed indexes of less than 450, as determined according to ASTM E 84.

PART 2 - PRODUCTS

2.1 FIRESTOP SYSTEMS

A. Any through-penetration firestop system that is classified by UL for the application and with F-rating and T-rating indicated may be used.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install firestopping systems to comply with requirements listed in testing agency's directory for indicated fire-resistance rating.

B. Install in all penetrations of fire wall, fire barrier, fire partitions, fire rated floor/roof/ceiling systems, or other fire rated construction systems.

END OF SECTION 07841

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F (4.4 deg C).

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.

B. Sealant for General Exterior Use Where Another Type Is Not Specified, One of the Following:

1. Single-component, nonsag polysulfide sealant, ASTM C 920, Type S; Grade NS; Class 12-1/2; Uses NT, M, G, A, and O.
2. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, NT, M, G, A, and O.
3. Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and Uses NT, M, A, and O.

C. Sealant for Exterior Traffic-Bearing Joints, Where Slope Precludes Use of Pourable Sealant:

1. Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, NT, M, G, A, and O.

D. Sealant for Exterior Traffic-Bearing Joints, Where Slope Allows Use of Pourable Sealant:

1. Single-component, pourable urethane sealant, ASTM C 920, Type S; Grade P; Class 25; Uses T, M, G, A, and O.

E. Sealant for Use in Interior Joints in Ceramic Tile and Other Hard Surfaces in Kitchens and Toilet Rooms and Around Plumbing Fixtures:

1. Single-component, mildew-resistant silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses NT, G, A, and O; formulated with fungicide.

F. Sealant for Interior Use at Perimeters of Door and Window Frames:

1. Latex sealant, single-component, nonsag, mildew-resistant, paintable, acrylic-emulsion sealant complying with ASTM C 834.

G. Acoustical Sealant for Exposed Interior Joints:

1. Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834.

H. Acoustical Sealant for Concealed Joints:

1. Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

2.2 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer.

B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 1193.

B. Comply with ASTM C 919 for use of joint sealants in acoustical applications.

END OF SECTION 07920

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and door schedule.

B. Comply with ANSI A 250.8.

C. Fire-Rated Door Assemblies: NFPA 80, tested per NFPA 252, and labeled and listed by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 1011/A 1011M.

B. Cold-Rolled Steel Sheets: ASTM A 1008/A 1008M or ASTM A 620/A 620M.

C. Galvanized Steel Sheets: ASTM A 653/A 653M, A40 or G40 coating.

2.2 STEEL DOORS AND FRAMES

A. Products:

1. Ceco, Amweld. Or approved equal.

B. Steel Doors: Complying with ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level indicated, 1-3/4-inch- (44-mm-) thick, unless otherwise indicated.

1. Interior Doors: Level 1 and Physical Performance Level C (Standard Duty), Model 1 Full Flush.
2. Exterior Doors: Level 2 and Physical Performance Level B (Heavy Duty), Model 1 Full Flush galvanized steel sheet faces.

C. Frames: ANSI A250.8; conceal fastenings, unless otherwise indicated.

1. Steel Sheet Thickness for Interior Doors: 0.042 inch (1.0 mm.)
2. Steel Sheet Thickness for Heavy-Duty Interior Doors: 0.053 inch (1.3 mm).
3. Steel Sheet Thickness for Exterior Doors: 0.053 inch (1.3 mm).
4. Steel Sheet Thickness for Extra-Heavy-Duty Exterior Doors: 0.067 inch (1.7 mm).
5. Fabricate with interior frames with mitered or coped and continuously welded corners.
6. Fabricate with exterior frames from galvanized steel sheet, with mitered or coped and continuously welded corners.

D. Glazing Stops: Nonremovable stops on outside of exterior doors and on secure side of interior doors; screw-applied, removable, glazing stops on inside.

E. Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.

F. Plaster Guards: Provide where mortar might obstruct hardware operation.

G. Supports and Anchors: Not less than 0.042-inch- (1.0-mm-) thick galvanized steel sheet.

H. Prepare doors and frames to receive mortised and concealed hardware according to ANSI A250.6 and ANSI A115 Series standards.

I. Reinforce doors and frames to receive surface-applied hardware.

J. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Place steel frames to comply with SDI 105.

1. Fire-Rated Frames: Install according to NFPA 80.

B. Install doors to comply with ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

1. Fire-Rated Doors: Install with clearances specified in NFPA 80.
2. Smoke-Control Doors: Comply with NFPA 105.

C. After installation, remove protective wrappings from doors and frames and touch up prime coat with compatible air-drying primer.

END OF SECTION 08110

SECTION 08211 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Quality Standard: NWWDA I.S.1-A.

PART 2 - PRODUCTS

2.1 FLUSH WOOD DOORS

A. Doors for Transparent Finish: Custom grade.

1. Faces: White maple.
2. Veneer Matching: Book and running match.
3. Pair matching.
4. Continuous matching for doors with transoms.
5. Doors for AT&T toilet rooms may be paint grade.

B. Interior Veneer-Faced Solid-Core Doors: Five-ply, structural composite lumber cores.

C. Provide structural composite lumber cores for doors with closers, exit devices and kick plates.

2.2 FABRICATION AND FINISHING

A. Factory fit doors to suit frame-opening sizes indicated and to comply with referenced quality standard.

1. Comply with NFPA 80 for fire-resistance-rated doors.

B. Factory machine doors for hardware that is not surface applied.

C. Cut and trim openings to comply with referenced standards.

1. Trim light openings with moldings indicated.
2. Factory install louvers in prepared openings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with WDMA's "How to Store, Handle, Finish, Install, and Maintain Wood Doors."

B. Align and fit doors in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining.

C. Repair, refinish, or replace factory-finished doors damaged during installation, as directed by Architect.

END OF SECTION 08211

SECTION 08311 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Fire-Rated Access Doors and Frames: Labeled by a testing and inspecting agency acceptable to authorities having jurisdiction based on testing per the following:

1. Vertical Access Doors: NFPA 252 or UL 10B.
2. Horizontal Access Doors and Frames: ASTM E 119.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 1011/A 1011M.

B. Cold-Rolled Steel Sheets: ASTM A 1008/A 1008M or ASTM A 620/A 620M.

C. Galvanized Steel Sheets: ASTM A 653/A 653M, A60 or G60 (ZF180 or Z180) coating.

D. Stainless-Steel Sheets: ASTM A 666, Type 304.

2.2 ACCESS DOORS AND PANELS

A. Products:

1. Milcor style ME or approved equal. White.

B. Locks: Flush to finished surface, key operated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install access doors and panels accurately in position. Adjust hardware and door and panels for proper operation.

END OF SECTION 08311

SECTION 08410 - ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Structural Performance: Provide systems, including anchorage, capable of withstanding loads indicated or required by the OBC.

1. Main-Framing-Member Deflection: Limited to 1/175 of clear span or 1/4 inch (6 mm), whichever is smaller.
2. Structural Testing: Systems tested according to ASTM E 330 at 150 percent of inward and outward wind-load design pressures do not evidence material failures, structural distress, deflection failures, or permanent deformation of main framing members exceeding 0.2 percent of clear span.

B. Air Infiltration: Limited to 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of system surface area when tested according to ASTM E 283 at a static-air-pressure difference as required by the OBC.

C. Water Penetration: Systems do not evidence water leakage when tested according to ASTM E 331 at minimum differential pressure of 20 percent of inward acting wind load design pressure but not less than 90 mph.

D. Submittals: Product Data, Shop Drawings, and color Samples.

1. For entrance systems, include hardware schedule and locations.

PART 2 - PRODUCTS

2.1 ALUMINUM-FRAMED STOREFRONTS

A. Products: Kawneer 451T center glazed at exterior applications and Kawneer 450 at interior applications.

B. Aluminum: ASTM B 209 (ASTM B 209M) sheet; ASTM B 221 (ASTM B 221M) extrusions.

C. Glazing: 1” clear low e insulated at exterior applications and ¼” clear at interior applications.

D. Sealants and Joint Fillers: For joints at perimeter of systems as specified in Division 7 Section "Joint Sealants."

E. Doors: Kawneer 350 series. 1-3/4-inch- (44.5-mm-) thick glazed doors with minimum 0.125-inch- (3.2-mm-) thick, extruded tubular rail and stile members, mechanically fastened corners with reinforcing brackets that are deep penetration and fillet welded or that incorporate concealed tie-rods, snap-on extruded-aluminum glazing stops, and preformed gaskets.

1. Exterior Doors: Provide compression weather stripping at fixed stops. At other locations, provide sliding weather stripping retained in adjustable strip mortised into door edge.
2. Hardware: Butt hinges. Norton 1601 closers. Adams Rite 1850 Dead Lock and Kawneer Controller Locking System. Architect's Classic Push/Pulls. Sealair weatherstripping and pile astragal. ADA Threshhold.

F. Fasteners and Accessories: Compatible with adjacent materials, corrosion-resistant, nonstaining, and nonbleeding. Use concealed fasteners except for application of door hardware.

G. Fabrication: Fabricate framing in profiles indicated for flush glazing (without projecting stops). Provide subframes and reinforcing of types indicated or, if not indicated, as required for a complete system. Factory assemble components to greatest extent possible. Disassemble components only as necessary for shipment and installation.

1. Door Framing: Reinforce to support imposed loads. Factory assemble door and frame units and factory install hardware to greatest extent possible. Reinforce door and frame units for hardware indicated. Cut, drill, and tap for factory-installed hardware before finishing components.

H. Aluminum Finish: Comply with NAAMMs "Metal Finishes Manual for Architectural and Metal Products." Color anodic, Architectural Class I: AA-M12C22A42/A44, complying with AAMA 611.

1. Color: Dark Bronze.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Isolate metal surfaces in contact with incompatible metal or corrosive substrates, including wood, by painting contact surfaces with bituminous coating or primer, or by applying sealant or tape recommended by manufacturer.

B. Install components to provide a weatherproof system.

C. Install framing components true in alignment with established lines and grades to the following tolerances:

1. Variation from Plane: Limit to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
2. Alignment: For surfaces abutting in line, limit offset to 1/16 inch (1.5 mm). For surfaces meeting at corners, limit offset to 1/32 inch (0.8 mm).
3. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

D. Install doors without warp or rack. Adjust doors and hardware to provide tight fit at contact points and smooth operation.

END OF SECTION 08410

SECTION 08710 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Schedule: See attached hardware schedule.

B. Submittals: Hardware Schedule.

C. Deliver keys to Owner.

D. For fire-rated openings provide hardware tested and listed by UL or FMG (NFPA 80). On exit devices provide UL or FMG label indicating "Fire Exit Hardware."

PART 2 - PRODUCTS

2.1 HARDWARE

A. Review requirements with the Owner and coordinate with door schedule. See attached hardware schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mount hardware in locations recommended by the Door and Hardware Institute, unless otherwise indicated.

END OF SECTION 08710

SECTION 09260 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

C. STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.

PART 2 - PRODUCTS

2.1 METAL FRAMING AND SUPPORTS

A. Steel Framing Members, General: ASTM C 754.

1. Steel Sheet Components: ASTM C 645, with manufacturer's standard corrosion-resistant zinc coating.

B. Partition and Soffit Framing:

1. Studs and Runners: In depth indicated and 0.0179 inch (0.45 mm) thick, unless otherwise indicated.
2. Flat Strap and Backing: 0.0179 inch (0.45 mm) thick.
3. Rigid Hat-Shaped Furring Channels: In depth indicated and 0.0179 inch (0.45 mm) thick.
4. Resilient Furring Channels: 1/2 inch (12.7 mm) deep, with single- or double-leg configuration.
5. Cold-Rolled Furring Channels: 0.0538 inch (1.37 mm) thick, 3/4 inch (19.1 mm) deep.
6. Z-Furring: In depth required by insulation, 1-1/4-inch (31.8-mm) face flange, 7/8-inch (22.2-mm) wall-attachment flange, and 0.0179 inch (0.45 mm) thick.

2.2 PANEL PRODUCTS

A. Provide in maximum lengths available to minimize end-to-end butt joints.

B. Gypsum Wallboard: ASTM C 36, in thickness indicated, with manufacturer's standard edges. Type X where indicated, Sag-resistant type for ceiling surfaces.

C. Glass-Mat, Water-Resistant Gypsum Backing Board: ASTM C 1178, of thickness indicated. Regular type, unless otherwise indicated.

1. Product: "Dens-Shield Tile Backer" manufactured by Georgia-Pacific Corp.

D. Cementitious Backer Units: ANSI A118.9.

2.3 ACCESSORIES

A. Trim Accessories: ASTM C 1047, formed from galvanized or aluminum-coated steel sheet, rolled zinc, or plastic. Use hot-dip galvanized steel sheet or rolled zinc at exterior soffits.

1. Provide cornerbead at outside corners, unless otherwise indicated.
2. Provide LC-bead (J-bead) at exposed panel edges.
3. Provide control joints where indicated.

B. Aluminum Accessories: Extruded-aluminum accessories indicated with manufacturer's standard corrosion-resistant primer.

C. Joint-Treatment Materials: ASTM C 475.

1. Joint Tape: Paper, unless otherwise recommended by panel manufacturer.
2. Joint Compounds: Setting-type compounds, Drying-type, ready-mixed, all-purpose compounds, Setting-type taping compound and drying-type, ready-mixed, compounds for topping.
3. Cementitious Backer Unit Joint-Treatment Materials: Products recommended by cementitious backer unit manufacturer.

D. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834.

E. Sound-Attenuation Blankets: ASTM C 665, Type I (unfaced).

F. Miscellaneous Materials: Auxiliary materials for gypsum board construction that comply with referenced standards.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation and with United States Gypsum's "Gypsum Construction Handbook."

B. Isolate steel framing from building structure, except at floor, to prevent transfer of loading imposed by structural movement.

1. Where studs are installed directly against exterior walls, install asphalt-felt or foam-gasket isolation strip between studs and wall.

C. Install and finish gypsum panels to comply with ASTM C 840 and GA-216.

1. Isolate gypsum board assemblies from abutting structural and masonry work. Provide edge trim and acoustical sealant.
2. Single-Layer Fastening Methods: Fasten gypsum panels to supports with screws.
3. Multilayer Fastening Methods: Fasten base layers and face layer separately to supports with screws.

D. STC-Rated Assemblies: Comply with ASTM C 919 for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies.

E. Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.

F. Cementitious Backer Units: Comply with ANSI A108.11.

G. Finishing Gypsum Board Assemblies:

1. Unless otherwise indicated, provide Level 4 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges.
2. At concealed areas, unless a higher level of finish is required for fire-resistance-rated assemblies, provide Level 1 finish: Embed tape at joints.
3. At substrates for tile, provide Level 2 finish: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges.

END OF SECTION 09260

SECTION 09310 - CERAMIC TILE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Floor Tiles: Static coefficient of friction not less than 0.6 for level surfaces and 0.8 for ramps, per ASTM C 1028.

PART 2 - PRODUCTS

2.1 CERAMIC TILE

A. Ceramic tile that complies with standard grade requirements in ANSI A137.1, "Specifications for Ceramic Tile."

B. Interior Ceramic Tile: Tile as indicated on the Room Finish Schedule.

C. Exterior Ceramic Tile:
1. Ceramic Tile at ATM Surround: Touch Stone, or approved equal, 6”x6”. Color: As selected by Architect from manufacturer’s standard range. Thomas Brick Co., 975 Crocker Road, Westlake, Ohio 44145. 440-892-9400.

D. Tile trim units that match characteristics of adjoining flat tile.

E. Where indicated, protect exposed surfaces of tile against adherence of mortar and grout by factory precoating them with a hot-applied continuous film of petroleum paraffin wax. Do not coat unexposed tile surfaces.

2.2 INSTALLATION MATERIALS

A. Setting and Grouting Materials: Comply with material standards in ANSI's "Specifications for the Installation of Ceramic Tile" that apply to materials and methods indicated.

1. Thin-Set Mortar Type: Latex- portland cement.

2. Grout Type: Standard cement, unless otherwise indicated.

3. Grout Color: As selected.

B. Setting-Bed Accessories: ANSI A108.1A.

C. Cementitious Backer Units: Complying with ANSI A118.9, of thickness indicated.

3.1 INSTALLATION

A. Comply with tile installation standards in ANSI's "Specifications for the Installation of Ceramic Tile" that apply to materials and methods indicated.

B. Comply with TCA's "Handbook for Ceramic Tile Installation."

C. Wall Tile Installation Method[**s**]:

1. Exterior Walls Over Concrete or Masonry: TCA W202 (latex-portland cement mortar over concrete or masonry).
2. Over Cementitious Backer Units: TCA W244 (thin-set mortar bonded to cementitious backer units).

D. Lay tile in grid pattern, unless otherwise indicated. Align joints where adjoining tiles on floor, base, walls, and trim are the same size.

E. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

END OF SECTION 09310

SECTION 09512 - ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and material Samples.

B. Surface-Burning Characteristics of Panels: ASTM E 1264, Class A materials, tested per ASTM E 84.

PART 2 - PRODUCTS

2.1 ACOUSTICAL TILE

A. Products:

1. USG Millennia Plus SQ 76505 2’ x 2’ x ¾” Class A.

2.2 SUSPENSION SYSTEM

A. Ceiling Suspension System: Direct hung; ASTM C 635, intermediate -duty structural classification.

1. Products:

a. USG Donn Centricitee Flat White.

B. Attachment Devices: Size for 5 times the design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.

C. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/ (A 641M), Class 1 zinc coating, soft temper.

1. Size: Provide yield strength at least 3 times the hanger design load (ASTM C 635, Table 1, Direct Hung), but not less than 0.106-inch- (2.69-mm-) diameter wire.

D. Access: Identify upward access tile with manufacturer's standard unobtrusive markers for each access unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Ceiling Suspension System Installation: Comply with ASTM C 636 and CISCA's "Ceiling Systems Handbook."

1. Additional Seismic Requirements: CISCA's "Recommendations for Direct-Hung Acoustical Tile and Lay-in Panel Ceilings--Seismic Zones 0-2."

END OF SECTION 09512

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Extra Materials: Deliver to Owner 1 box for every 50 boxes or fraction thereof, of each type and color of resilient floor tile installed.

PART 2 - PRODUCTS

2.1 VINYL COMPOSITION FLOOR TILE AND BASE.

A. Material: See Room Finish Schedule.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement- or blended hydraulic cement-based formulation provided or approved by flooring manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

C. Metal Edge Strips: Extruded aluminum in maximum available lengths to minimize joints.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Prepare concrete substrates according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

B. Lay out tiles so tile widths at opposite edges of room are equal and are at least one-half of a tile.

C. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged. Lay tiles in basket-weave pattern with grain direction alternating in adjacent tiles.

END OF SECTION 09651

SECTION 09681 - CARPET TILE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."

C. Extra Materials: Deliver to Owner carpet tiles equal to 5 percent of each type and color carpet tile installed, packaged with protective covering for storage.

PART 2 - PRODUCTS

2.1 CARPET TILE

A. Products: See Room Finish Schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with CRI 104, Section 13, "Carpet Modules (Tiles)."

B. Install borders parallel to walls.

C. Install same color tile in checkerboard pattern.

END OF SECTION 09681

SECTION 09910 - PAINTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Summary: Paint exposed surfaces, new and existing, unless otherwise indicated.

1. Paint the back side of access panels.
2. Color-code mechanical piping in accessible ceiling spaces.
3. Do not paint prefinished items, items with an integral finish, operating parts, and labels, unless otherwise indicated.

B. Submittals: Product Data and Samples.

C. Mockups: Full-coat finish Sample of each type of coating, color, and substrate, applied where directed.

D. Obtain block fillers and primers for each coating system from same manufacturer as finish coats.

E. Extra Materials: Deliver to Owner 1 gal. (3.8 L) of each color and type of finish coat paint used on Project, in containers, properly labeled and sealed.

PART 2 - PRODUCTS

2.1 PAINT

A. Products: See Room Finish Schedule.

B. Material Compatibility: Provide materials that are compatible with one another and with substrates.

C. Material Quality: Manufacturer's best-quality paint material of coating types specified that are formulated and recommended by manufacturer for application indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove hardware lighting fixtures and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.

B. Clean and prepare all surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

3.2 APPLICATION

A. Apply coatings by brush, roller, spray or other applicators according to coating manufacturer?s written instructions.

1. Use brushes only for exterior painting and where the use of other applicators is not practical.
2. Use rollers for finish coat on interior walls and ceilings.

B. Pigmented (Opaque) Finishes: Completely cover surfaces to provide a smooth, opaque surface of uniform appearance. Provide a finish free of cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections.

C. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.

3.3 EXTERIOR PAINT APPLICATION SCHEDULE

A. Metal (including bollards, doors, access panels):

1. Semi-Gloss, Acrylic Enamel: Two coats over primer.

3.4 INTERIOR PAINT APPLICATION SCHEDULE

A. Concrete and Masonry (Other Than Concrete Unit Masonry):
1. Low-Luster, Acrylic Enamel: Two coats primer.

B. Concrete Masonry Units:
1. Low-Luster, Acrylic Enamel: Two coats over block filler.

C. Gypsum Board:
1. Low-Luster, Acrylic Enamel: Two coats primer.

D. Plaster:
1. Low-Luster, Acrylic Enamel: Two coats primer.

E. Stained Woodwork:

1. Alkyd-Based, Satin Varnish: Two coats over sealer and wood stain.

F. Ferrous Metal:
1. Low-Luster, Acrylic Enamel: Two coats over ferrous metal primer.

END OF SECTION 09910

SECTION 10520 - FIRE- PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Fire Extinguishers: NFPA 10, listed and labeled for the type, rating, and classification of extinguisher.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHERS AND CABINETS

A. Fire Extinguishers General purpose fire extinguishers.: Quantity: 1 Rating: 4A:60B:C. Type: Multipurpose dry chemical (ammonium phosphate). Stored pressure type. 1 semi-recessed.

B. Fire Protection Cabinets: Enameled steel, surface-mounted cabinets for fire extinguisher.
   1. Trim Style: Trimless.
   2. Door and Trim Material: Enameled steel.
   3. Door Glazing: Acrylic.
   4. Door Style: Center panel.
   5. Accessories: Mounting brackets, Identification lettering.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cabinets and brackets at heights indicated or, if not indicated, at heights to comply with applicable regulations of authorities having jurisdiction.

END OF SECTION 10520

SECTION 10801 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 TOILET AND BATH ACCESSORIES

A. See Schedule below.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Install grab bars to withstand a downward load of at least 250 lbf (1112 N), when tested according to method in ASTM F 446.

B. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items. Remove temporary labels and protective coatings.

PART 4 - TOILET SPECIALTY SCHEDULE

4.1 AT& T Space:

A. Paper Towel Dispensers: Quantity (2); Bobrick B-262 Classic Series Paper Towel Dispenser, surface mounted.

B. Toilet Tissue Dispensers (2): Bobrick B-4288 Contura Series Multi-roll Toilet Tissue Dispenser, surface mounted.

C. Grab Bars: Quantity (2): Model 1 1/4” concealed mounting one piece peened grip B-5837.99

D. Mirror Units: Quantity (2): Model B1658-2036

E. Toilet Room Signs: Kroy Sign Systems, Injected Molded Stock ADA Regulatory Signs, Quantity (1) Men's: Model 2385222 and (1) Women's: Model 2385223

4.2 First Federal of Lakewood Space:

A. Paper Towel Dispensers: (2) Units to be provided by the Owner and installed by the Contractor.

B. Toilet Tissue Dispensers: (2) Units to be provided by the Owner and installed by the Contractor.

C. Waste Receptacles: (2) Units to be provided by the Owner and installed by the Contractor.

D. Grab Bars: Quantity (2): Model 1 1/4" concealed mounting one piece peened grip B-5837.99

E. Sanitary Napkin Disposal Units: (1) B271.

F. Mirror Units: (2) B1658-2436.

G. Toilet Room Signs: Kroy Sign Systems, Injected Molded Stock ADA Regulatory Signs, Quantity (1) Men's: Model 2385222 and (1) Women's: Model 2385223

END OF SECTION 10801

Geotechnical Engineering Report

Proposed Building and Pavement Additions
Existing Shopping Center
North Olmsted, Ohio

March 11, 2011
Terracon Project No. N6115007

Prepared for:
First Federal of Lakewood
Lakewood, Ohio

Prepared by:
Terracon Consultants, Inc.
Cleveland, Ohio

March 11, 2011

Terracon

First Federal of Lakewood
14806 Detroit Avenue
Lakewood, Ohio 44107

Attn: Mr. Aaron Krumhansl
Properties and General Services Manager

Re: Geotechnical Engineering Report
Proposed Building and Pavement Additions
Existing Shopping Center
North Olmsted, Ohio
Terracon Project No. N6115007

Dear Mr. Krumhansl:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. These services were performed in accordance with our proposal dated January 28, 2011. This geotechnical engineering report presents the results of the exploration study and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Lynton L. Price, P.E.
Manager – Geotechnical Services

STATE OF OHIO
LYNTON
L
PRICE
E-051447
REGISTERED
PROFESSIONAL ENGINEER

Stephen A. Bucher, P.E.
Principal

Copies to: Addressee (1 email & 2 bound copies)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

A geotechnical exploration has been performed for a proposed construction of building and pavement additions at an existing shopping center located at the northeast corner of Sparky Lane and Lorain Road in North Olmsted, Ohio. Terracon's geotechnical scope of work included the advancement of seven test borings to depths ranging between about 5 and 15 feet below existing site grades, laboratory testing on select soil samples and development of geotechnical design and construction recommendations for the proposed development.

Based on the information obtained from our subsurface exploration, the site is suitable for development of the proposed project. The following geotechnical considerations were identified:

- The predominant soil formations encountered within the site consist of medium stiff to hard, brown to gray lean clays. At test boring locations B-1, B-6 and B-7, a layer of loose, wet, fine to medium sand was encountered 3½ to 4 feet below the existing site grades. The sand appears to extend at least 5 to 5½ feet below the existing surface grades.

- The foundation for the building and drive-thru canopy additions may consist of shallow spread footings bearing within the medium stiff or better consistency, lean clays or loose sands. If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations.

- Conventional floor slab-on-grade and pavement construction is feasible. We recommend that the exposed subgrade be thoroughly evaluated after removing the existing pavement from the proposed building and pavement areas. We further recommend that the geotechnical engineer also be retained during the construction of the foundations to confirm the suitability of the bearing materials.

This geotechnical executive summary should be used in conjunction with the entire report for design and/or construction purposes. It should be recognized that specific details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled **General Comments** should be read for an understanding of the report limitations.

GEOTECHNICAL ENGINEERING REPORT
PROPOSED BUILDING AND PAVEMENT ADDITIONS
EXISTING SHOPPING CENTER
NORTH OLMSTED, OHIO

Terracon Project No. N6115007
March 11, 2011

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed construction of building and pavement additions at an existing shopping center in North Olmsted, Ohio. These services were performed in accordance with our proposal of January 28, 2011.

Our geotechnical engineering scope of work for this project included the advancement of seven test borings to depths ranging between about 5 and 15 feet below existing site grades, laboratory testing on select soil samples, and development of geotechnical design and construction recommendations relative to the proposed building and pavement construction.

The purpose of this Geotechnical Engineering Report is to describe the subsurface conditions encountered at the test borings, present the test data, and provide recommendations with respect to:

- Earthwork construction
- Foundation design
- Seismic design
- Subgrade preparation
- Floor slab and pavement design

Logs of the borings, along with a Boring Location Diagram, are included in Appendix A of this report. The results of the laboratory testing performed on select soil samples obtained from the site during the field exploration are included on the test boring logs. Descriptions of the field exploration and laboratory testing are included in their respective Appendices.

2.0 PROJECT INFORMATION

2.1 Project Description

ITEM	DESCRIPTION
Site layout	See Appendix A, Exhibit A-2, Boring Location Diagram

ITEM	DESCRIPTION
Proposed Structures	A single-story, retail building addition with a proposed footprint of approximately 2,500 square feet is to be constructed onto the east side of the existing shopping center building. An auto teller and ATM with a canopy is to be constructed on the north side of the existing building. New asphalt concrete pavement is planned.
Building construction	Building Addition – Masonry block load bearing walls Canopy – Steel frame
Finished floor elevation	996.0 feet to match the elevation in the existing building
Maximum loads	Column Loads: 60 kips (assumed) Wall Loads: No more than 2 kips per lineal foot (assumed). Floor Slab Load: 150 pounds per square foot (psf) (assumed)
Maximum allowable settlement	Columns: 1-inch (assumed) Walls: ¾ inches over 40 feet (assumed)
Grading	Less than about 2 feet of cut and fill is anticipated.

If the structural loads or proposed construction vary significantly from that described above, we should be notified immediately so that the applicability of the recommendations presented in this report can be re-evaluated and modified if necessary.

2.2 Site Location and Description

ITEM	DESCRIPTION
Location	This shopping center is located at the northeast corner of Lorain Road and Sparky Lane in North Olmsted, Ohio.
Existing improvements	Strip shopping center with a separate bank branch building to the east. The existing branch bank building is to be demolished as part of the shopping center renovation.
Current ground cover	Primarily asphalt pavement with an open lawn area located within the northeasterly site sectors.
Existing topography	Relatively level project site.

3.0 SUBSURFACE CONDITIONS

3.1 Typical Subsurface Profile

Specific conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for each of the borings can

be found on the boring logs included in Appendix A of this report. Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Existing Pavement

Boring Location	Asphalt Concrete (inches)	Granular Base Course[1] (inches)
B-1	3	2
B-2	5	14
B-3	3	6
B-4[2]	None	None
B-5	3	5
B-6	3	5
B-7	4	5

1. The granular base consisted of crushed limestone at all the locations except B-2. At B-2, the granular base consisted of a mixture of crushed slag and sand.
2. At B-4, 1.4 feet of fill consisting of sandy lean clay with rock fragments was encountered at the ground surface. Beneath the surface fill, 5 inches of concrete was encountered.

Soils

As noted in the table above, earth fill overlying a layer of concrete was encountered at boring location B-4. Fill soil was also encountered beneath the pavement at test boring locations B-3 and B-5. At these locations, the fill consisted of medium stiff to stiff lean clay with sand.

The predominant native soil formations encountered within the site consist of lean clay with sand and sandy lean clay. In general, the lean clays were medium stiff to stiff to depths ranging between about 8 and 13 feet below the existing surface grades and very stiff to hard at greater depths.

Medium dense, silty sand was found beneath the pavement at test boring location B-6 and extended to a depth of about 4 feet, where loose, wet, fine to medium sand was encountered. This wet sand layer was also encountered in borings B-1 and B-7. The sand extended to a depth of about 5½ feet in B-1 and to the bottom of borings B-1 and B-7, which were terminated at a depth of about 5 feet below the existing surface grades.

3.2 Groundwater

The boreholes were observed while drilling and after completion for the presence and level of groundwater. The water levels observed in the boreholes are noted on the attached boring logs, and are summarized below:

Boring Number	Approximate depth to groundwater while drilling, ft.	Approximate depth to groundwater after drilling, ft.
B-1	3.5	4.0
B-2	not encountered	not encountered

Boring Number	Approximate depth to groundwater while drilling, ft.	Approximate depth to groundwater after drilling, ft.
B-3	not encountered	not encountered
B-4	not encountered	not encountered
B-5	not encountered	not encountered
B-6	4.0	No accumulated free water
B-7	3.5	3.2

Groundwater encountered within test borings B-1, B-6 and B-7, appears to be perched water table conditions within the relatively pervious sand layer encountered at these borings locations.

Although, no groundwater was encountered in the remaining test holes for the short duration that the borings were allowed to remain open; this does not necessarily mean these borings terminated above groundwater. Due to the low permeability of the lean clay soils encountered in the borings, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole in these materials. Long term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The subsurface conditions encountered at the test boring locations are considered suitable for the support of shallow foundations.

The existing subgrade soils should also provide suitable support of proposed floor slabs and pavement, provided the earthwork operations are properly conducted in accordance with the guidelines offered in this report. The existing cohesive soils are common for this area and should compact readily using a sheepsfoot roller. However, they do not drain readily and will experience moderate shrinkage and swelling with changes in moisture content. As a consequence, good surface and subsurface drainage is important to maintain stability and reduce the potential of soil volume changes and frost heave.

We recommend that the exposed subgrade be thoroughly evaluated after removing the existing pavement and granular base course from the proposed building and pavement areas. We

further recommend that the geotechnical engineer be retained during the foundation construction to confirm the suitability of bearing formations.

Specific geotechnical engineering recommendations for foundation systems and other earth related phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing (which are presented in Appendices A and B), engineering analyses, and our current understanding of the proposed project.

4.2 Site Preparation and Earthwork

The proposed construction areas should be stripped of existing asphalt pavement, topsoil and other unsuitable material. Rubble resulting from the demolition of the existing bank building should be removed from the site. It is recommended that existing foundations be removed to a depth of at least 18 inches below the design subgrade elevations.

After stripping, the subgrade should be proof-rolled where possible to aid in locating loose or soft areas. Proof-rolling can be performed with a loaded tandem axle dump truck. Soft, subgrade areas observed at this time should be improved by scarifying, moisture conditioning and compacting the soil or by undercutting and replacing the soil with suitable compacted fill.

4.2.1 Fill Material Types

Compacted structural fill should meet the following material property requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
On-site cohesive soils	CL & SC	All locations and elevations with the exception of confined excavations and utility trenches that are inaccessible to larger compactors.
Well graded granular[2]	GW	All locations and elevations

1. Controlled, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
2. Maximum particle size of 3 inches.

4.2.2 Compaction Requirements

ITEM	DESCRIPTION
Fill Lift Thickness	8 inches or less in loose thickness when heavy, tamping foot compaction equipment is used 4 inches or less in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used
Compaction Requirements [1]	98% of the material's maximum standard Proctor dry density (ASTM D 698)

ITEM	DESCRIPTION
Moisture Content – Cohesive Soil	Within the range of -2% to +3% of the optimum moisture content as determined by the standard Proctor test at the time of placement and compaction
Moisture Content – Granular Material	Workable moisture levels. [2]

1. We recommend that compacted structural fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
2. Sufficient to achieve satisfactory compaction without the material pumping when proof rolled.

4.2.3 Construction Considerations

Although the exposed subgrade may be relatively stable upon initial exposure, unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. Should unstable subgrade conditions develop, stabilization measures will need to be employed.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

As a minimum, all temporary excavations should be sloped or braced as required by Occupational Health and Safety Administration (OSHA) regulations to provide stability and safe working conditions. Temporary excavations will be required during foundation and utility construction. The excavation contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required, to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, state and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

Based on the test boring results, it is anticipated that groundwater seepage will be encountered in footing and/or utility excavations which intercept the fine to medium sand layer observed at test boring locations B-1, B-6 and B-7. When seepage is encountered, we expect the volume of groundwater seepage into the excavations could be controlled with sump pits and pumps. The contractor is responsible for employing appropriate dewatering methods to control seepage and facilitate construction.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of building floor slabs.

4.3 Foundations

The building structure can be supported by a spread footing foundation system. Foundation design recommendations are presented in the following report sections.

4.3.1 Design Recommendations

DESCRIPTION	Column	Wall
Net allowable bearing pressure [1] ■ **Stiff to hard native clay**	2,500 psf	2,000 psf
Minimum embedment below finished grade for frost protection [2]	42 inches	42 inches
Anticipated total settlement [3]	<1 inch	<1 inch
Estimated differential settlement [3]	<½ inch between columns	<½ inch over 40 feet

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Assumes any unsuitable fill or soft soils, if encountered, will be undercut and replaced with engineered fill.
2. Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings. Interior footings, in heated building areas and not subject to frost heave, may bear a minimum of 24 inches below finished floor slab.
3. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. The above settlement estimates have assumed that the maximum footing size is 5 feet for column footings and 1.5 feet for continuous footings.

It is presumed that the existing building is supported on spread footings. Care should be exercised during construction to avoid undermining or disturbing the soils supporting the existing building foundations. When new foundations are constructed immediately adjacent to the existing foundations, there is a risk that building settlements could be generated due to additional stress imposition onto the soil. Bearing the new footings at the same elevation as the existing footings will reduce the potential of undermining or causing additional foundation settlement. Connections between the existing building and the new addition should allow for some differential movement or the foundations should be tied together to prevent this movement.

4.3.2 Construction Considerations

If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations.

The base of all footing excavations should be free of water and loose soil prior to placing concrete. Concrete placement should take place as soon as practical following excavation and placement of steel reinforcement to avoid bearing soil disturbance. Should bearing soils be disturbed, become saturated or frozen, the affected soil should be removed prior to concrete placement.

Footings, foundations, and masonry walls should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in masonry walls is recommended.

4.4 Seismic Considerations

DESCRIPTION	VALUE
2009 International Building Code Site Classification (IBC)	D[1]

1. In general accordance with the *2009 International Building Code,* Table 1613.5.2. IBC Site Class is based on the average characteristics of the upper 100 feet of the subsurface profile. The current scope does not include the required 100 foot soil profile determination. Borings were extended to a maximum depth of 15 feet, and this seismic site class definition considers that stiff soil continues below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.

4.5 Floor Slab

DESCRIPTION & RECOMMENDATIONS	
Floor slab subgrade	Stiff, native lean clay or approved structural fill[1]
Modulus of subgrade reaction	100 pounds per square inch per in (psi/in) for point loading conditions
Aggregate base course/capillary break [2]	Minimum 4 inches of free draining granular material

1. The subgrade should be maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become desiccated prior to construction of the floor slabs, the affected material should be removed or the materials scarified, moistened, and recompacted. Upon completion of grading operations in the building areas, care should be taken to maintain the recommended subgrade moisture content and density prior to construction of the building floor slabs.

2. The floor slab design should include a capillary break, comprised of free-draining, compacted, granular material, at least 4 inches thick. Free-draining granular material should have less than 5 percent fines (material passing the #200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

Positive separations and/or isolation joints should be provided between slabs and all foundations, columns or utility lines to allow independent movement. Interior trench backfill placed beneath slabs should be compacted in accordance with recommendations outlined in the Earthwork section of this report.

The use of a vapor retarder should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer and slab contractor should refer to ACI 302 and 360 for procedures and cautions regarding its use and placement.

4.6 Pavement Recommendations

4.6.1 Design Recommendations

Provided the existing soils and/or new engineered fill are tested, evaluated and prepared in accordance with the recommendations provided in this report, these materials should provide suitable pavement support. The subgrade materials within the proposed pavement areas are expected to consist primarily of lean clays. For these soils, a CBR value of 3 may be used for preliminary pavement design provided that the subgrade is compacted to at least 98% of the maximum Standard Proctor density.

Detailed traffic loads and frequencies were not available. However, we anticipate that traffic will consist primarily of passenger vehicles in the parking areas and passenger vehicles combined with garbage trucks and large multi-axle delivery trucks from time to time in driveways.

For the purposes of this report, the following traffic volumes and design period were used based on the design guidelines of the National Asphalt Pavement Association (NAPA), which is specific to low-volume pavements.

- Standard Duty Pavement - Traffic Class I (Residential driveways, parking stalls, parking lots for cars and pickup trucks, 7,000 ESAL)

- Heavy Duty Pavement - Traffic Class II (Residential streets without regular truck traffic or city buses; traffic consists of cars, delivery trucks, and garbage trucks, 27,000 ESAL)
- A design life of 20 years

Assuming that asphalt pavement will be used to stay consistent with the existing pavement within the existing retail strip center parking lot, the pavement sections listed below are recommended.

Traffic Area	Asphalt Concrete (inches)	Aggregate Base Course (inches)	Total (inches)
Standard Duty Areas	3	6	9
Heavy Duty Areas	4	8	12

We recommend that waste dumpster areas be constructed of at least 7 inches of reinforced concrete pavement and 4 inches of granular base. The concrete pad areas should be designed so that the vehicle wheels of the collection truck are supported on the concrete while the dumpster is being lifted to support the large wheel loading imposed during waste collection.

It is anticipated that concrete pavement will be used in the drive-thru canopy area. The concrete pavement section should consist of a minimum of 5 inches of concrete and 4 inches of granular base.

Proper joint spacing will also be required to reduce the potentials of excessive slab curling and shrinkage cracking. All joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

4.6.2 Construction Considerations

Materials and construction of pavements for the project should be in accordance with the requirements and specifications of the Ohio Department of Transportation (ODOT), or other approved local governing specification.

On most project sites, the site grading is accomplished relatively early in the construction phase. Fills are placed and compacted, and the initial surface is prepared in a relatively uniform manner. However, as construction proceeds, excavations will be made into these areas, rainfall and surface water may saturate some areas, heavy traffic from construction equipment disturbs the subgrade, and surface irregularities are often filled with loose materials. Due to this, we recommend that the pavement subgrades be carefully evaluated as the time for pavement construction approaches. Within a few days of planned paving, we recommend the pavement areas be rough graded and then proofrolled with a minimum 20 ton loaded tandem axle dump truck. Particular attention should be given to high traffic areas that have been rutted and disturbed, and to areas where backfilled trenches are located. Any areas found to be unstable should be repaired by removing and

replacing the materials with properly compacted fill, or by scarifying, air drying and recompacting the soils to the specified density and moisture limits.

Base course and pavement materials should not be placed when the surface is wet. Surface drainage should be directed away from the edges of paved areas to minimize lateral moisture transmission into the subgrade.

Subdrainage should be a primary consideration in the proposed pavement areas to prevent water from accumulating within the aggregate base course and causing softening of the subgrade, shrink/swell volume change or frost heave. To this end, we recommend the installation of pipe underdrains radiating from catch basins under low points of pavements. Subgrade surfaces should be fine graded so that water seepage under the pavements will flow to the underdrains. Establishing subgrade slopes during site grading to promote rapid surface and base course drainage away from the pavement will extend its useful life.

A regular pavement maintenance program should be implemented to repair occasional pavement defects and distress which may develop over time and extend the useful life of the pavement.

Pavement maintenance consists of both localized maintenance (e.g. crack sealing and patching) and global maintenance (e.g. surface sealing). Preventative maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

Support of pavements on or above existing fill soils is discussed in this report. However, even with the recommended construction testing services, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk

of unforeseen conditions cannot be entirely eliminated but can be reduced by performing additional testing and evaluation during construction.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, and bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A

FIELD EXPLORATION

Field Exploration Description

A total of seven test borings were drilled at the site on February 22, 2011. The boring locations were located at the site by Terracon personnel using a site plan provided by Grusenmeyer & Associates, Inc. and measuring from the existing site features. The locations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

The borings were drilled with a trailer-mounted drill rig using continuous flight hollow-stem augers to advance the boreholes. Samples of the soil encountered in the borings were obtained using split-barrel sampling procedures.

In the split barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a rope and cathead manual safety hammer with a free fall of 30 inches, is the standard penetration resistance value (SPT-N). This value is used to estimate the in-situ relative density of cohesionless soils and consistency of cohesive soils.

The split-spoon soil samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. A field log of each boring was prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling, as well as, the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's review of obtained soil samples, driller's field logs and include modifications based on laboratory tests of the samples.

At the completion of the drilling operations the borings were backfilled with the soil cuttings. The borings in pavement were capped with compacted asphalt cold patch to match the existing pavement.

THIS DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr: LLP	Project No. N6115007	Terracon Consulting Engineers and Scientists	Boring Location Diagram
Drawn By: LLP	Scale: No Scale	1414 E. Schaaf Road Brooklyn Heights, Ohio 44131 (216) 459-8278 (216) 459-8864	Geotechnical Engineering Report
Checked By: LLP	File No. ~		Proposed Building and Pavement Additions
Approved By: TFM	Date: 3-7-2011		NEC Sparky Lane and Lorain Road
			North Olmsted, Ohio

FIG. No. A-2

LOG OF BORING NO. B-1

CLIENT
First Federal of Lakewood

SITE
Lorain Road and Sparky Lane
North Olmsted, Ohio

PROJECT
Proposed Building Additions

Boring Location: See Boring Location Diagram

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES BLOWS / 6in. (SPT - N) **	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.25 **3" ASPHALT**									
	0.4 **2" LIMESTONE GRAVEL BASE**									
	SANDY SILTY CLAY WITH GRAVEL, light brown, medium stiff, moist		CL ML	1	SS	13	2-2-3 (5)	18		2000*
	3.5 ▽									
	FINE TO MEDIUM SAND WITH SILT, brown, loose, wet ▼		SP	2	SS	16	2-2-2 (4)			
	5.5	5								
	LEAN CLAY WITH SAND, trace gravel, gray, medium stiff to stiff, moist		CL	3	SS	15	2-3-3 (6)	17		3500*
			CL	4	SS	16	2-4-5 (9)	16		2500*
		10								
	13									
	LEAN CLAY WITH SAND AND ROCK FRAGMENTS, gray, hard, moist		CL	5	SS	15	8-16-45 (61)	12		>9000*
	15	15								
	END OF BORING									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Hand Penetrometer
**Safey Hammer w/Rope & Cathead

WATER LEVEL OBSERVATIONS, ft				
WL	▽ 3.5	WD	▼ 4.0	AB
WL	▼		▼	
WL				

Terracon

BORING STARTED			2-22-11
BORING COMPLETED			2-22-11
RIG	C-45	FOREMAN	Fay
APPROVED	LLP	JOB #	N6115007

BOREHOLE 99 LOGS.GPJ TERRACON TEST.GDT 3/11/11

LOG OF BORING NO. B-2

CLIENT **First Federal of Lakewood**

SITE **Lorain Road and Sparky Lane, North Olmsted, Ohio**

PROJECT **Proposed Building Additions**

Boring Location: See Boring Location Diagram

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES BLOWS / 6in. (SPT - N) **	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.4 **5" ASPHALT**									
	14" COARSE SAND WITH SLAG BASE 1.6		CL	1	SS	15	18-8-3 (11)	17		4000*
	SANDY SILTY CLAY, trace gravel, few roots, brown, stiff, moist 3.5									
	LEAN CLAY, trace sand, trace organics, gray and black mottled, stiff, moist 5.5		CL	2	SS	12	3-4-5 (9)	25		2500*
	LEAN CLAY WITH SAND, trace gravel, brown, medium stiff, moist 8	5	CL	3	SS	16	2-2-4 (6)	18		7000*
	LEAN CLAY WITH SAND, trace gravel, dark brown, very stiff, moist 12		CL	4	SS	18	5-8-12 (20)	14		>9000*
	LEAN CLAY, gray, hard, moist 15	10	CL	5	SS	18	12-17-26 (43)	10		>9000*
	END OF BORING	15								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Hand Penetrometer
**Safey Hammer w/Rope & Cathead

WATER LEVEL OBSERVATIONS, ft			
WL	None	WD *	AB
WL			
WL	*Caved and Dry @ 12.0'		

Terracon

BORING STARTED	2-22-11		
BORING COMPLETED	2-22-11		
RIG	C-45	FOREMAN	Fay
APPROVED	LLP	JOB #	N6115007

BOREHOLE 99 LOGS.GPJ TERRACON TEST.GDT 3/11/11

LOG OF BORING NO. B-3

CLIENT
First Federal of Lakewood

SITE
Lorain Road and Sparky Lane
North Olmsted, Ohio

PROJECT
Proposed Building Additions

Boring Location: See Boring Location Diagram

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES BLOWS / 6in. (SPT - N) **	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.25 **3" ASPHALT**									
	0.75 **6" LIMESTONE GRAVEL BASE**									
	FILL: LEAN CLAY WITH SAND, trace gravel, gray and brown, medium stiff, moist			1	SS	12	3-4-3 (7)	21		
	2 **LEAN CLAY WITH SAND**, trace organics, gray and black, trace brown, medium stiff, moist		CL	2	SS	11	2-3-3 (6)	21		2000*
	5.5 **LEAN CLAY WITH SAND**, trace gravel, brown, trace gray, stiff, moist	5	CL	3	SS	16	2-3-5 (8)	18		6000*
	8.5 **LEAN CLAY WITH SAND**, trace gravel, gray, very stiff, moist		CL	4	SS	18	6-9-12 (21)	11		>9000*
	11 **RESIDUAL LEAN CLAY**, gray, hard, moist	10	CL	5	SS	18	12-18-23 (41)	10		>9000*
	15 END OF BORING	15								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Hand Penetrometer
**Safey Hammer w/Rope & Cathead

WATER LEVEL OBSERVATIONS, ft			
WL	▽ None	WD	▼ * AB
WL	▼		▼
WL	*Caved and Dry		

Terracon

BORING STARTED	2-22-11		
BORING COMPLETED	2-22-11		
RIG	C-45	FOREMAN	Fay
APPROVED	LLP	JOB #	N6115007

BOREHOLE 99 LOGS.GPJ TERRACON TEST.GDT 3/11/11

LOG OF BORING NO. B-4

CLIENT **First Federal of Lakewood**

SITE **Lorain Road and Sparky Lane, North Olmsted, Ohio**

PROJECT **Proposed Building Additions**

Boring Location: See Boring Location Diagram

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES BLOWS / 6in. (SPT - N) **	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	FILL: SANDY LEAN CLAY WITH ROCK FRAGMENTS, some organics, brown, moist									
	1.4			1	SS	5	50			
	1.9 **5" CONCRETE**									
	LEAN CLAY, trace sand, brown, stiff, moist		CL	2	SS	16	3-5-5 (10)	24		5000*
	3.5									
	LEAN CLAY, trace sand, gray, medium stiff, moist		CL	3	SS	3	2-3-3 (6)	27		3000*
	5									
	END OF BORING	5								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Hand Penetrometer
**Safey Hammer w/Rope & Cathead

WATER LEVEL OBSERVATIONS, ft			
WL	None	WD *	AB
WL			
WL	*Caved and Dry		

Terracon

BORING STARTED	2-22-11		
BORING COMPLETED	2-22-11		
RIG	C-45	FOREMAN	Fay
APPROVED	LLP	JOB #	N6115007

BOREHOLE 99 LOGS.GPJ TERRACON TEST.GDT 3/11/11

LOG OF BORING NO. B-5

CLIENT **First Federal of Lakewood**

SITE **Lorain Road and Sparky Lane, North Olmsted, Ohio**

PROJECT **Proposed Building Additions**

Boring Location: See Boring Location Diagram

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES BLOWS / 6in. (SPT - N) **	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.25 **3" ASPHALT**									
	0.6 **5" LIMESTONE GRAVEL BASE**									
	1.5 **FILL: LEAN CLAY WITH SAND**, trace gravel, gray, stiff, moist			1	SS	12	5-4-5 (9)	16		
	LEAN CLAY, trace sand, gray and black mottled, medium stiff, moist									
			CL	2	SS	12	2-3-4 (7)	29		2000*
	5 END OF BORING	5								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Hand Penetrometer
**Safey Hammer w/Rope & Cathead

WATER LEVEL OBSERVATIONS, ft			
WL	None	WD *	AB
WL			
WL	*Caved and Dry		

Terracon

BORING STARTED	2-22-11		
BORING COMPLETED	2-22-11		
RIG	C-45	FOREMAN	Fay
APPROVED	LLP	JOB #	N6115007

BOREHOLE 99 LOGS.GPJ TERRACON TEST.GDT 3/11/11

LOG OF BORING NO. B-6

CLIENT **First Federal of Lakewood**

SITE **Lorain Road and Sparky Lane, North Olmsted, Ohio**

PROJECT **Proposed Building Additions**

Boring Location: See Boring Location Diagram

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES BLOWS / 6in. (SPT - N) **	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.25 **3" ASPHALT**									
	0.6 **5" LIMESTONE GRAVEL BASE**									
	SILTY SAND WITH GRAVEL, trace clay, brown, medium dense, moist		SM	1	SS	11	5-5-6 (11)	13		
	4 ▽ **FINE TO MEDIUM SAND WITH GRAVEL**, some clay, brown, loose, wet		SP	2	SS	15	2-2-2 (4)			
	5 END OF BORING	5								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Hand Penetrometer
**Safey Hammer w/Rope & Cathead

WATER LEVEL OBSERVATIONS, ft				
WL	▽ 4.0	WD	▼ *	AB
WL	▼		▼	
WL	*Caved and Dry @ 3.0'			

Terracon

BORING STARTED			2-22-11
BORING COMPLETED			2-22-11
RIG	C-45	FOREMAN	Fay
APPROVED	LLP	JOB #	N6115007

BOREHOLE 99 LOGS.GPJ TERRACON TEST.GDT 3/11/11

LOG OF BORING NO. B-7

CLIENT **First Federal of Lakewood**

SITE **Lorain Road and Sparky Lane, North Olmsted, Ohio**

PROJECT **Proposed Building Additions**

Boring Location: See Boring Location Diagram

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES BLOWS / 6in. (SPT - N) **	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.3 **4" ASPHALT**									
	0.75 **5" LIMESTONE GRAVEL BASE**									
	SANDY LEAN CLAY WITH GRAVEL, brown, medium stiff, moist		CL	1	SS	14	2-3-2 (5)	16		3000*
	3.5									
	FINE TO MEDIUM SAND, little silt, brown, loose, wet		SP	2	SS	16	1-2-2 (4)			
	5 END OF BORING	5								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Hand Penetrometer
**Safey Hammer w/Rope & Cathead

WATER LEVEL OBSERVATIONS, ft				
WL	▽ 3.5	WD	▼ 3.2	AB
WL	▼		▼	
WL				

Terracon

BORING STARTED			2-22-11
BORING COMPLETED			2-22-11
RIG	C-45	FOREMAN	Fay
APPROVED	LLP	JOB #	N6115007

BOREHOLE 99 LOGS.GPJ TERRACON TEST.GDT 3/11/11

APPENDIX B

LABORATORY TESTING

Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the General Notes and Unified Soil Classification System (USCS) described in Appendix C. At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

Laboratory tests were conducted on selected soil samples and the test results are presented on the test boring logs in Appendix A. The laboratory test results were used for the geotechnical engineering analyses, and the development of foundation and earthwork recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- Hand Penetrometer
- Water Content

APPENDIX C

SUPPORTING DOCUMENTS

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1-3/8" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube – 2" O.D., 3" O.D., unless otherwise noted	PA:	Power Auger (Solid Stem)
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling	BCR:	Before Casing Removal
WCI:	Wet Cave in	WD:	While Drilling	ACR:	After Casing Removal
DCI:	Dry Cave in	AB:	After Boring	N/E:	Not Encountered

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-value (SS) Blows/Ft.	Consistency
< 500	0 – 1	Very Soft
500 – 1,000	2 – 3	Soft
1,000 – 2,000	4 – 6	Medium Stiff
2,000 – 4,000	7 – 12	Stiff
4,000 – 8,000	13 – 26	Very Stiff
8,000+	26+	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 – 29	Medium Dense
30 – 49	Dense
50+	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	0 – 14
With	15 – 29
Modifier	30+

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Sand	#4 to #200 sieve (4.75 to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	0 – 4
With	5 – 12
Modifier	12+

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 – 10
Medium	11 – 30
High	30+

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification	
					Group Symbol	Group Name[B]
Coarse Grained Soils	Gravels	Clean Gravels	$Cu \geq 4$ and $1 \leq Cc \leq 3$[E]		GW	Well-graded gravel[F]
More than 50% retained	More than 50% of coarse fraction retained on No. 4 sieve	Less than 5% fines[C]	$Cu < 4$ and/or $1 > Cc > 3$[E]		GP	Poorly graded gravel[F]
on No. 200 sieve		Gravels with Fines More than 12% fines[C]	Fines classify as ML or MH		GM	Silty gravel[F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel[F,G,H]
	Sands	Clean Sands	$Cu \geq 6$ and $1 \leq Cc \leq 3$[E]		SW	Well-graded sand[I]
	50% or more of coarse fraction passes No. 4 sieve	Less than 5% fines[D]	$Cu < 6$ and/or $1 > Cc > 3$[E]		SP	Poorly graded sand[I]
		Sands with Fines More than 12% fines[D]	Fines classify as ML or MH		SM	Silty sand[G,H,I]
			Fines Classify as CL or CH		SC	Clayey sand[G,H,I]
Fine-Grained Soils	Silts and Clays	inorganic	PI > 7 and plots on or above "A" line[J]		CL	Lean clay[K,L,M]
50% or more passes the No. 200 sieve	Liquid limit less than 50		PI < 4 or plots below "A" line[J]		ML	Silt[K,L,M]
		organic	Liquid limit - oven dried	< 0.75	OL	Organic clay[K,L,M,N]
			Liquid limit - not dried			Organic silt[K,L,M,O]
	Silts and Clays	inorganic	PI plots on or above "A" line		CH	Fat clay[K,L,M]
	Liquid limit 50 or more		PI plots below "A" line		MH	Elastic Silt[K,L,M]
		organic	Liquid limit - oven dried	< 0.75	OH	Organic clay[K,L,M,P]
			Liquid limit - not dried			Organic silt[K,L,M,Q]
Highly organic soils	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

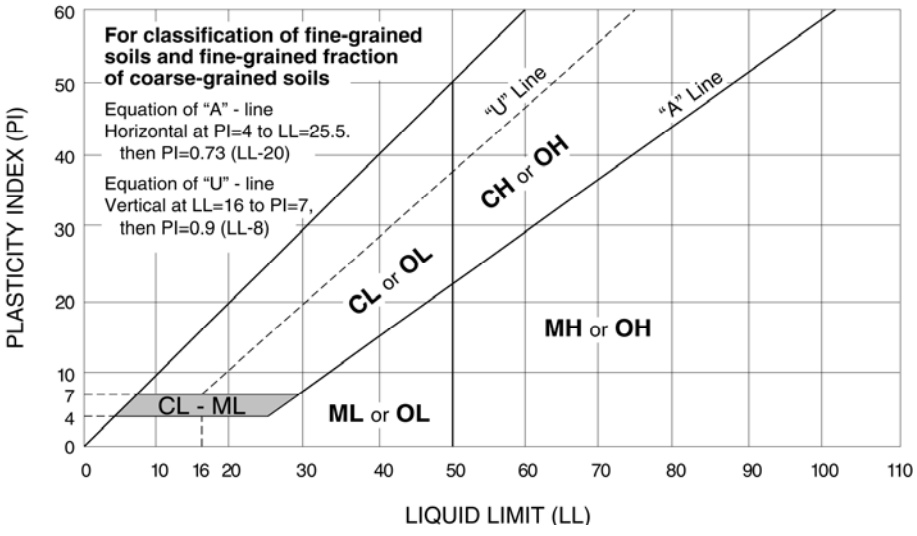
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Terracon

SCHEDULE OF FINISH HARDWARE

FOR

FIRST FEDERAL OF LAKEWOOD
NORTH OLMSTED, OHIO

ERG1269

ARCHITECT/DESIGNER:

JEFFREY A. GRUSENMEYER & ASSOCIATES, INC.
21245 LORAIN RD.
FAIRVIEW PARK, OH 44126
PHONE - 440-333-1165
FAX - 440-333-1185

SCHEDULE BY:

THE MIDLAND HARDWARE COMPANY
1521 WEST 117TH STREET
CLEVELAND, OHIO 44107
PHONE - 216-228-7721
FAX - 216-228-2946

CONSULTANT:

R H GEISSENHAINER, AHC

FIRST FEDERAL OF LAKEWOOD (ERG1269)
NORTH OLMSTED, OHIO

Date Prepared:
Consultant : R H GEISSENHAINER, AHC

Opening/ Door #	Door Type	Qty.	Hdw. Group	Heading Number	Sgl Pr.	Opening Degree	Hand	Keying	Location
100		1	A1		P				
101		1	A2		P				
102		1	1		S				
103		1	1		S				
104		1	2		S				
105		1	3		S				
106		1	4		S				
107		1	5		S				
108		1	6		S				
109A		1	3		S				
109B		1	7		S				
110		1	8		S				
111		1	6		S				
112A		1	1		S				
112B		1	9		P				
113		1	6		S				
114		1	10		S				
115A		1	11		S				
115B		1	12		P				
116		1	10		S				
117		1	6		S				
118A		1	A3		P				
118B		1	7		S				
119		1	10		S				
120		1	10		S				
121		1	A3		S				

FIRST FEDERAL OF LAKEWOOD
NORTH OLMSTED, OHIO

Group # 1	**Door Qty. = 1**	**Door #'s : 102, 103, 112A**	
3 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
1 LOCKSET	ML2051 NSA	626	CR
1 WALL BUMPER	406	US32D	RO
3 DOOR SILENCER	SR65		IV
Group # 2	**Door Qty. = 1**	**Door #'s : 104**	
2 SPRING HINGES	1502 4 1/2 X 4 1/2	26D	MC
1 LOCKSET	ML2051 NSA	626	CR
3 DOOR SILENCER	SR65		IV
Group # 3	**Door Qty. = 1**	**Door #'s : 105, 109A**	
2 SPRING HINGES	1502 4 1/2 X 4 1/2	26D	MC
1 POWER SUPPLY	BPS-24-1		SN
1 EXIT DEVICE	ED5200 X N910 D C6	630	CR
1 WALL BUMPER	406	US32D	RO
3 DOOR SILENCER	SR65		IV
Group # 4	**Door Qty. = 1**	**Door #'s : 106**	
3 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
1 LOCKSET	ML2055 NSA	626	CR
1 WALL BUMPER	406	US32D	RO
3 DOOR SILENCER	SR65		IV
Group # 5	**Door Qty. = 1**	**Door #'s : 107**	
3 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
1 PRIVACY SET	ML2030 NSA	626	CR
1 WALL BUMPER	406	US32D	RO
3 DOOR SILENCER	SR65		IV
Group # 6	**Door Qty. = 1**	**Door #'s : 108, 111, 113, 117**	
3 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
1 LOCKSET	ML2057 NSA	626	CR
1 WALL BUMPER	406	US32D	RO
3 DOOR SILENCER	SR65		IV
Group # 7	**Door Qty. = 1**	**Door #'s : 109B, 118B**	
3 HINGES	TA2314 4 1/2 X 4 1/2 NRP	32D	MC
1 EXIT DEVICE	ED5200 X TH959 M61 C6 C6	630	CR
1 CLOSER	CPS-7500 MS SMS	689	NO
1 SADDLE THRESHOLD	111 X 36" 1/4 X 1 3/4" TAP-CON	AL	NA
1 GASKETING	C627 A X 35.75" SMS-TEKS 6 X 3/4"		NA
1 GASKETING	5050 B-17 17'		NA
Group # 8	**Door Qty. = 1**	**Door #'s : 110**	
3 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
1 PASSAGE SET	ML2010 NSA	626	CR
1 WALL BUMPER	406	US32D	RO
3 DOOR SILENCER	SR65		IV

FIRST FEDERAL OF LAKEWOOD
NORTH OLMSTED, OHIO

Group # 9 Door Qty. = 1 Door #'s : 112B(P)			
6 HINGES	TA2314 4 1/2 X 4 1/2 NRP	32D	MC
2 FLUSH BOLTS	555 12"	US26D	RO
1 DEADLOCK	ML2013	626	CR
1 CYLINDER PULL	90	US26D	RO
2 OVERHEAD STOP	6-336	630	RX
1 SADDLE THRESHOLD	111 X 72" 1/4 X 1 3/4" TAP-CON	AL	NA
2 GASKETING	C627 A X 35.75" SMS-TEKS 6 X 3/4"		NA
1 GASKETING	5050 B-21 21'		NA
OVERLAPPING ASTRAGAL BY DOOR MFGR			
Group # 10 Door Qty. = 1 Door #'s : 114, 116, 119, 120			
3 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
1 PRIVACY SET	ML2030 NSA	626	CR
1 CLOSER	7500 MS SMS	689	NO
1 PROTECTION PLATE	K1050 8" X 34"	US32D	RO
1 WALL BUMPER	406	US32D	RO
3 DOOR SILENCER	SR65		IV
Group # 11 Door Qty. = 1 Door #'s : 115A			
3 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
1 LOCKSET	ML2057 NSA	626	CR
1 OVERHEAD STOP	6-336	630	RX
3 DOOR SILENCER	SR65		IV
Group # 12 Door Qty. = 1 Door #'s : 115B(P)			
6 HINGES	TA2714 4 1/2 X 4 1/2	26D	MC
2 FLUSH BOLTS	555 12"	US26D	RO
1 DUST PROOF STRIKE	570	US26D	RO
1 LOCKSET	ML2057 NSA	626	CR
2 OVERHEAD STOP	6-336	630	RX
2 DOOR SILENCER	SR65		IV
Group # A1 Door Qty. = 1 Door #'s : 100(P)			
1 POWER SUPPLY	BPS-24-4		SN
2 MAGNALOCK	M62D	US32D	SN
1 EXIT MOTION SENSOR	XMS		SN
1 EMERGENCY EXIT BUT.	EEB3N		SN
1 CYLINDER	3080-178-6	626	CR
BALANCE OF HARDWARE BY DOOR MFGR			
Group # A2 Door Qty. = 1 Door #'s : 101(P)			
2 MAGNALOCK	M62D	US32D	SN
1 EXIT MOTION SENSOR	XMS		SN
1 EMERGENCY EXIT BUT.	EEB3N		SN
1 CYLINDER	3080-178-6	626	CR
BALANCE OF HARDWARE BY DOOR MFGR			
Group # A3 Door Qty. = 1 Door #'s : 121, 118A(P)			
1 CYLINDER	3080-178-6	626	CR

FIRST FEDERAL OF LAKEWOOD
NORTH OLMSTED, OHIO

BALANCE OF HARDWARE BY DOOR MFGR

Total number of units: 122

MANUFACTURERS USED LIST
FIRST FEDERAL OF LAKEWOOD
NORTH OLMSTED, OHIO

CODE	MANUFACTURERS NAME
CR	CORBIN RUSSWIN INC.
IV	H.B IVES
MC	MCKINNEY
NA	NATIONAL GUARD
NO	YALE SECURITY INC. NORTON DIV.
RO	ROCKWOOD
RX	RIXSON-FIREMARK
SN	SECURITRON

L565472

CALL 1-800-999-3600

OPTEVA® 740 ADVANCED FUNCTION DRIVE-UP THROUGH THE WALL 4 HIGH WITH 13mm (½") SAFE

DIMENSIONS IN MILLIMETRES (DIMENSIONS IN INCHES)

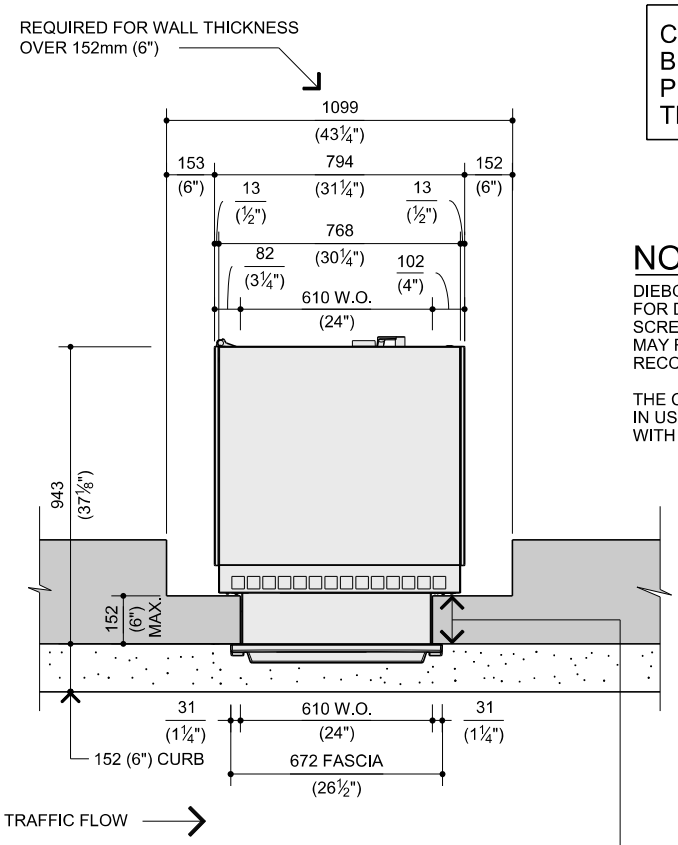
THIRD ANGLE PROJECTION

CONSULT WITH DIEBOLD INSTALLATION/SERVICE BRANCH FOR ADDITIONAL DETAILS AND INFORMATION. PLEASE SEE PLANNING AND SITE PREPARATION GUIDE TP-820883-001.

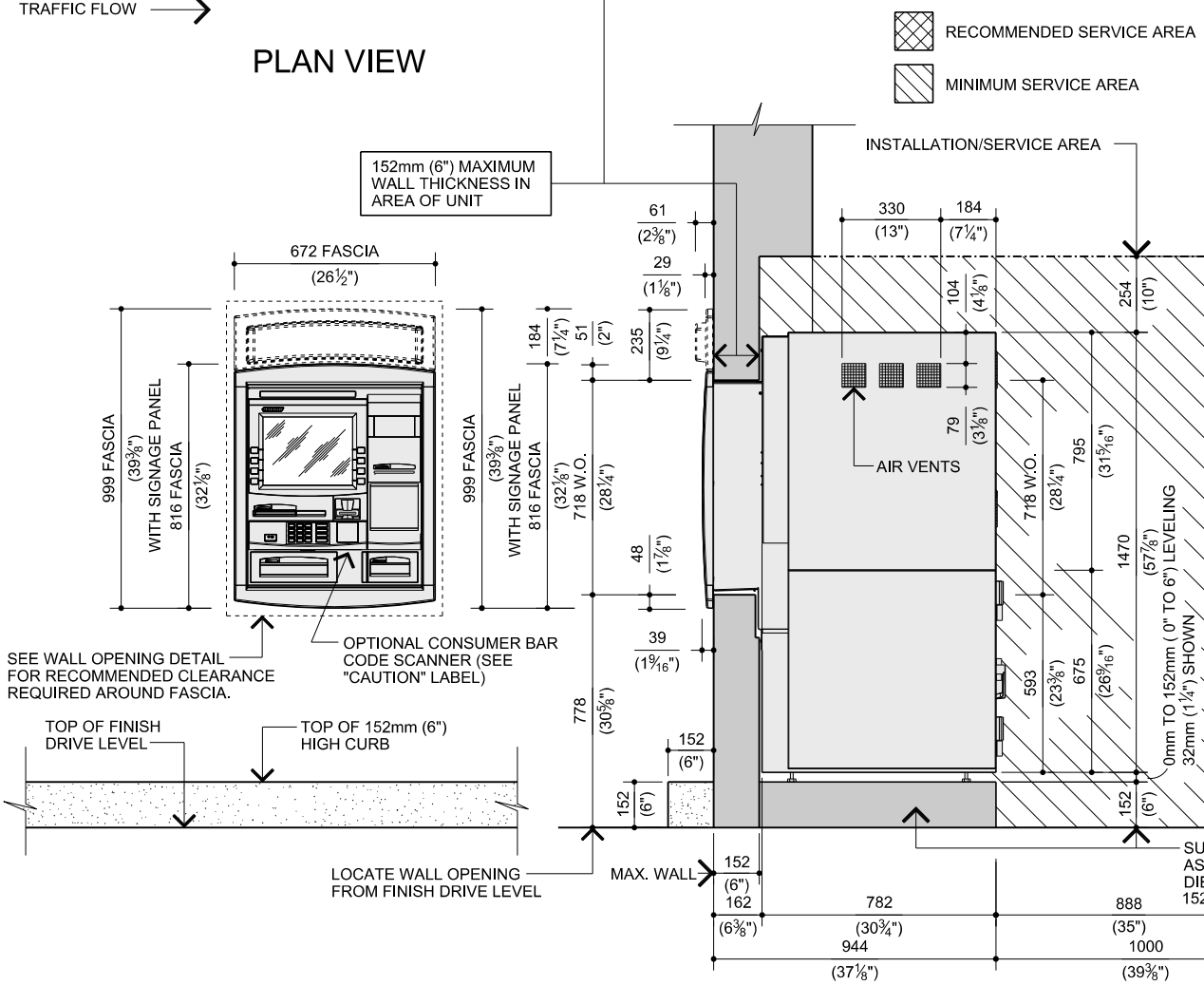
NOTE:

DIEBOLD ATMS ARE SPECIFICALLY DESIGNED TO MEET VARIOUS USER CRITERIA FOR DRIVE-UP AND WALK-UP APPLICATIONS INCLUDING REACH, PRIVACY AND SCREEN VIEW ABILITY. A DIEBOLD DRIVE-UP ATM USED IN A WALK-UP APPLICATION MAY RESULT IN REDUCED USER PRIVACY. AN OPTIONAL KEYPAD PRIVACY SHIELD IS RECOMMENDED IN THIS APPLICATION.

THE CUSTOMER ACCEPTS ALL RESPONSIBILITY FOR ANY REDUCTION IN USER CONVENIENCE, VISIBILITY AND PRIVACY RISK ISSUES ASSOCIATED WITH USING DIEBOLD ATMS OUTSIDE OF THEIR INTENDED APPLICATIONS.



PLAN VIEW



EXTERIOR ELEVATION

VERTICAL SECTION

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE"

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN INCHES)

THIRD ANGLE PROJECTION

CONDUIT AND JUNCTION BOX REQUIREMENTS

1. 25mm (1") METAL CONDUIT FROM ALARM CONTROL CABINET JUNCTION BOX TO 102mm (4") SQ. X 54mm (2⅛") DP. JUNCTION BOX (ALL BY OWNER'S E.C.) DIEBOLD TO PROVIDE FLAT COVER WITH TAMPER SWITCH.
2. WHEN "SECUROMATIC" AFTER HOUR DEPOSITORY IS TO BE CONNECTED TO ATM UNIT, OWNER'S E.C. TO RUN 19mm (¾") METAL CONDUIT FROM 102mm (4") SQ. X 54mm (2⅛") DP. JUNCTION BOX TO AFTER HOUR DEPOSITORY.
3. OWNER'S E.C. TO RUN 19mm (¾") LIQUID TIGHT FLEX METAL CONDUIT OR 19mm (¾") RIGID CONDUIT FROM JUNCTION BOX TO CABLE CONNECTING PLATE.
4. 19mm (¾") METAL CONDUIT AND UNSWITCHED ELECTRICAL SUPPLY TO 102mm (4") SQ. X 54mm (2⅛") DP. JUNCTION BOX WITH RECEPTACLE WITHIN 2,184mm (86") OF SIDE CONNECTING PLATE. BOTTOM CONNECTION MUST BE COMPENSATED ACCORDINGLY (ALL BY E.C.) (SEE POWER REQUIREMENTS).
5. OWNER'S E.C. TO SUPPLY COMPATIBLE RECEPTACLE FOR COUNTRY SPECIFIC PLUG-IN CONNECTOR SUPPLIED WITH UNIT. POWER CORD LENGTH 2,184mm (86") FROM SIDE OF UNIT.

NOTE:

JUNCTION BOXES MUST BE LOCATED WITHIN 2184mm (86") OF CONNECTING PLATE. (LENGTH OF ELECTRICAL POWER CABLE PROVIDED WITH UNIT). LOCATE IN AN EASILY ACCESSIBLE AREA.

BOXES CAN BE FLUSH MOUNTED WITH CONCEALED CONDUIT FOR NEW CONSTRUCTION OR BOXES CAN BE SURFACE MOUNTED WITH EXPOSED CONDUIT FOR EXISTING CONSTRUCTION.

PHYSICAL SECURITY

THE SECURITY SAFE MEETS THE BANK PROTECTION ACT 82 STAT 295, 12 USC 882, AND MEETS THE ATTACK TEST PER UL 291-15. THE SAFE DOOR HAS A POSITIVE RELOCKING FEATURE. THE SAFE DOOR SHOULD BE CONTROLLED BY A MINIMUM OF A GROUP 2M UL LISTED COMBINATION LOCK WITH OR WITHOUT KEYLOCKING DIAL CAPABILITY OR OPTIONAL ELECTRONIC LOCK.

ALARM PROTECTION

THE UL-LISTED SAFE IS EQUIPPED WITH A BASIC ALARM SENSOR PACKAGE. THE BASIC PACKAGE INCLUDES A SAFE DOOR OPEN SWITCH, ALARM SHUNTING SWITCH, AND RATE-OF-RISE HEAT SENSOR.

BUILDING AIR PRESSURE

BUILDING AIR PRESSURE DIFFERENCES AT THE ATM INSTALLATION LOCATION AFFECT THE INFILTRATION OF OUTSIDE AIR AND ACCOMPANY DIRT. THE ATM WILL OPERATE THROUGH ITS FULL RANGE OF FASCIA TEMPERATURES -34° C TO 54° C (-29° F TO 129° F) WITH ZERO (STATIC) OR POSITIVE AIR PRESSURE DIFFERENTIAL (MEASURED FROM THE INSIDE TO THE OUTSIDE OF THE BUILDING AT THE ATM INSTALLATION LOCATION). IF STATIC OR POSITIVE AIR PRESSURE CANNOT BE MAINTAINED, THE FASCIA LOWER LIMIT TEMPERATURE IS -20° C (-4° F). THE MAXIMUM NEGATIVE AIR PRESSURE ALLOWED IS 0.05" H_2O.

SIGNAL CABLE RUN CONSTRAINTS

THE FOLLOWING CHART ITEMIZES THE PHYSICAL SPACING REQUIREMENTS OF THE SIGNAL CABLE RUN WITH RESPECT TO OTHER POWER AND ELECTRICAL EQUIPMENT CABLE RUN.

	POWER OF ELECTRICAL RUN		
TYPE OF ELECTRICAL RUN	BELOW 2 KVA	2-5 KVA	ABOVE 5 KVA
FLUORESCENT, NEON OR INCANDESCENT LIGHTING FIXTURES	127mm (5")	127mm (5")	127mm (5")
UNSHIELDED POWER LINE OR ELECTRICAL EQUIPMENT	127mm (5")	305mm (12")	610mm (2'-0")
UNSHIELDED POWER LINES OR ELECTRICAL EQUIPMENT WITH SIGNAL CABLES ENCLOSED IN GROUNDED CONDUIT	64mm (2½")	152mm (6")	305mm (12")
POWER LINES IN GROUNDED CONDUIT WITH SIGNAL CABLES IN GROUNDED CONDUIT	30mm (1 3/16")	76mm (3")	152mm (6")

SIGNAL CABLE INSTALLATION CONSTRAINTS

RELATIVE CARE IS REQUIRED WHEN INSTALLING SIGNAL CABLES IN CONDUITS. UNLIKE POWER AND LIGHTING CABLE, SIGNAL CABLES HAVE SMALL CONDUCTORS AND LIGHT INSULATION AND WILL NOT WITHSTAND AS MUCH STRAIN IN INSTALLATION.

POWER REQUIREMENTS

THE ATM REQUIRES A SINGLE-PHASE, THREE-WIRE UNSWITCHED POWER RECEPTACLE. WIRING TO THE RECEPTACLE MUST INCLUDE A THIRD-WIRE EARTH GROUND (CONDUIT GROUND IS NOT ACCEPTABLE). THE ATM WILL PROVIDE A POWER CORD WITH A COUNTRY SPECIFIC POWER PLUG. THE POWER SUPPLIED MUST BE AS SPECIFIED BELOW.

100-127 VAC (+6%, -10%) 50Hz (± 1%) SINGLE-PHASE
100-127 VAC (+6%, -10%) 60Hz (± 1%) SINGLE-PHASE
200-240 VAC (±10%) 50Hz (± 1%) SINGLE-PHASE
200-240 VAC (±10%) 60Hz (± 1%) SINGLE-PHASE

POWER TO THE ATM IS TO BE A DEDICATED SERVICE AND MUST PROTECTED BY A SAFETY QUICK-DISCONNECT DEVICE TO BREAK LINE VOLTAGE (SUCH AS A CIRCUIT BREAKER AT THE ELECTRICAL SERVICE PANEL. THE QUICK-DISCONNECT DEVICE (OR CIRCUIT BREAKER) MUST TURN OFF THE LINE VOLTAGE AT THE FOLLOWING AMPERAGE.

100-127 VAC (+6%, -10%) SERVICE, DISCONNECT AT 20 AMPERES
200-240 VAC (±10%) SERVICE, DISCONNECT AT 10 AMPERES

THE MODULE BULK POWER SUPPLY AND PROCESSOR POWER SUPPLY WILL PROVIDE POWER CONDITIONING TO PREVENT THE TERMINAL FROM MALFUNCTIONING DUE TO SHORT-TERM AC POWER FLUCTUATIONS AS OUTLINED IN EN61000-4-11.

POWER USAGE

MACHINE STATUS	①	① WITH HEATER	②	② WITH HEATER
IDLE (NO TRANSACTION)	190 WATTS	690 WATTS	255 WATTS	755 WATTS
TRANSACTION (DISPENSE OR BULK NOTE) IN PROGRESS	285 WATTS	785 WATTS	375 WATTS	875 WATTS
RAPID PROCESSING TRANSACTION IN PROGRESS	550 WATTS	1,050 WATTS	640 WATTS	1,140 WATTS

CONFIGURATION

1. PROCESSOR, COLOR LCD CONSUMER DISPLAY, MOTORIZED CARD READER, JOURNAL PRINTER, 80mm THERMAL RECEIPT PRINTER, STANDARD DEPOSITORY AND 4 HIGH AFD.
2. PROCESSOR, SVD LCD CONSUMER DISPLAY, MOTORIZED CARD READER, JOURNAL PRINTER, 80mm THERMAL RECEIPT PRINTER, IDM, 4 HIGH AFD, SIGNAGE AND BULK NOTE ACCEPTOR.

RAPID PROCESSING - SYSTEMS CONFIGURED FOR SIMULTANEOUS IDM (INTELLIGENT DEPOSITORY MODULE) AND ENA (ENHANCED NOTE ACCEPTOR) OR IDM AND BNA (BULK NOTE ACCEPTOR) OPERATIONS.

THE POWER USE DEPENDS ON THE NUMBER AND TYPE OF DEVICES PRESENT IN THE ATM, AND THE TYPE OF TRANSACTION THE ATM IS PERFORMING.

HEAT OUTPUT CONFIGURATION

1. 2,677 BTU/HR DISPENSE WITH HEATER
   648 BTU/HR IDLE WITHOUT HEATER
   3,580 BTU/HR RAPID PROCESSING WITH HEATER
2. 2,984 BTU/HR BULK NOTE WITH HEATER
   870 BTU/HR IDLE WITHOUT HEATER
   3,890 BTU/HR RAPID PROCESSING WITH HEATER.

OPERATING ENVIRONMENT

SAFE LOCATION — 10° C TO 38° C (50° F TO 100° F)
RELATIVE HUMIDITY (NON-CONDENSING)
20 TO 80% AT 32° C (90° F),
20 TO 55% AT 38° C (100° F)

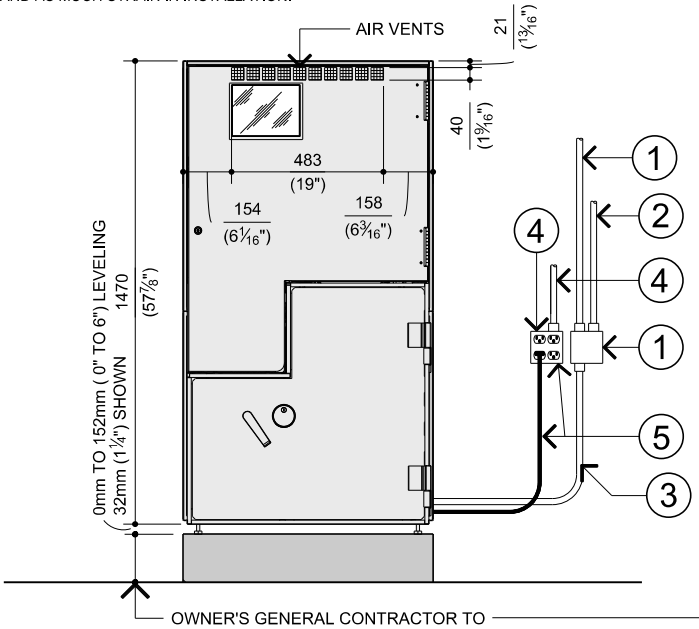
FASCIA LOCATION — -34° C TO 54° C (-30° F TO 130° F)
RELATIVE HUMIDITY 15 TO 100%

WEIGHT OF UNIT

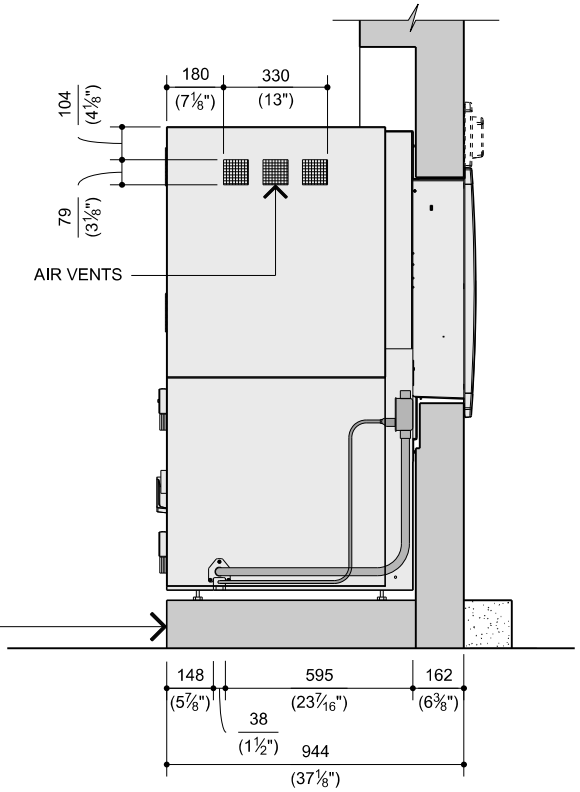
661kg (1,457 LBS.)

CAUTION LABEL

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
DIODE LASER
1 mW MAX OUTPUT at 635-670 nm
CLASS II LASER PRODUCT
Complies with 21 CFR 1040.10 and 1040.11
Certified in accordance with EN 60825-1



INTERIOR ELEVATION



VERTICAL SECTION

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE"

DIEBOLD®

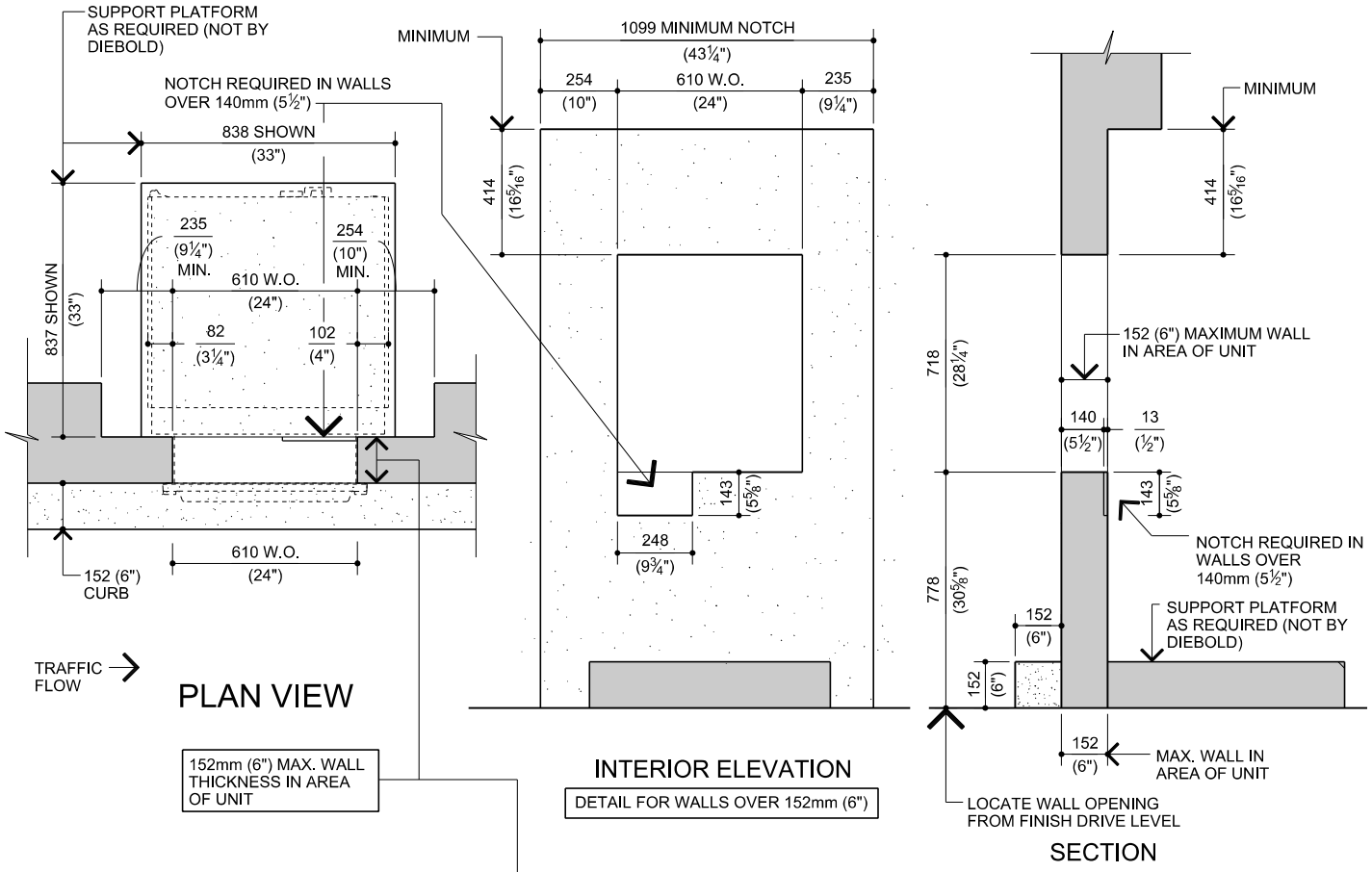
CALL 1-800-999-3600

OPTEVA® 740 ADVANCED FUNCTION DRIVE-UP ATM THROUGH THE WALL 4 HIGH WITH 13mm (½") CHEST

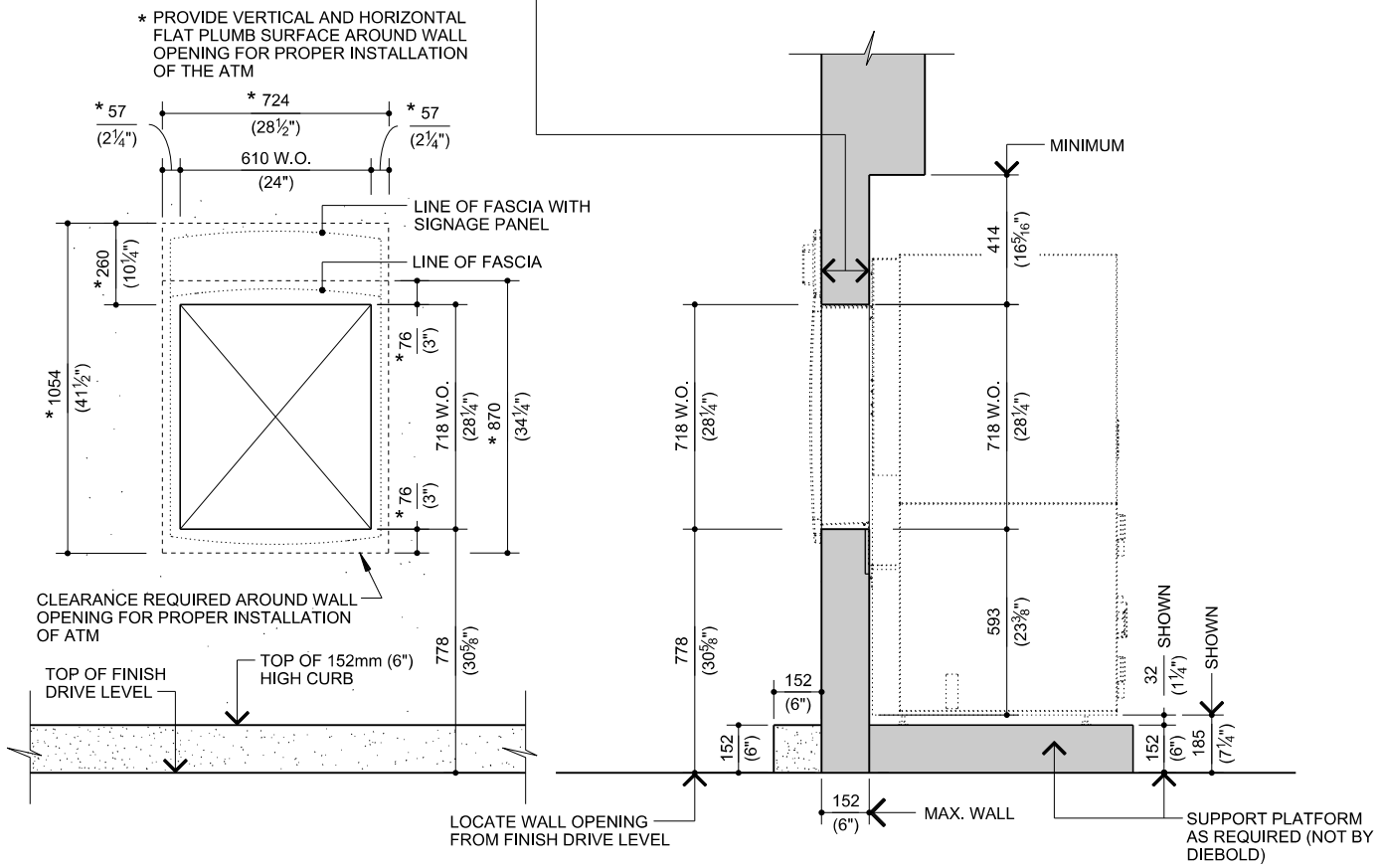
DIMENSIONS IN MILLIMETRES (DIMENSIONS IN INCHES)

THIRD ANGLE PROJECTION

WALL OPENING DETAIL



152mm (6") MAX. WALL THICKNESS IN AREA OF UNIT



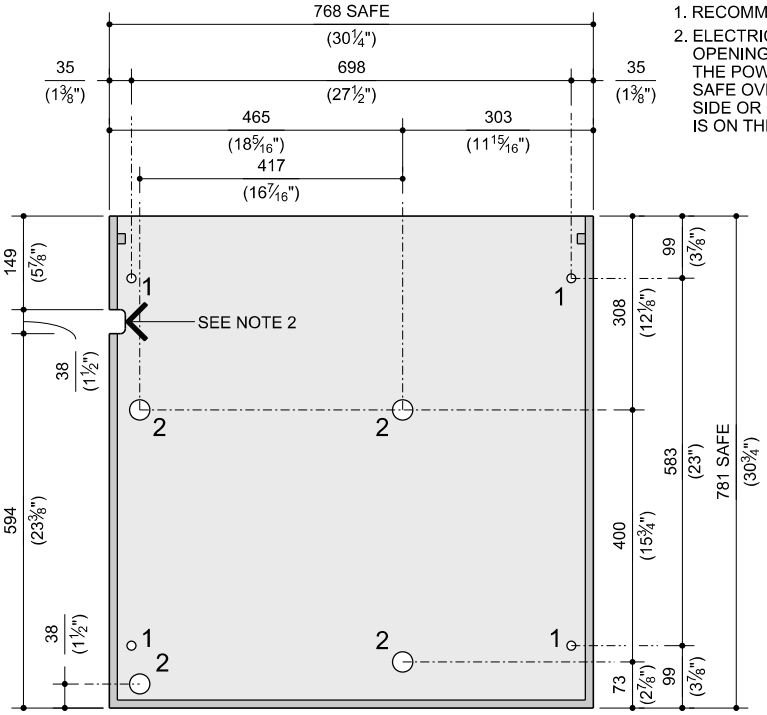
FILE NO. 177-472 REV. 7

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN INCHES)

THIRD ANGLE PROJECTION

NOTES:

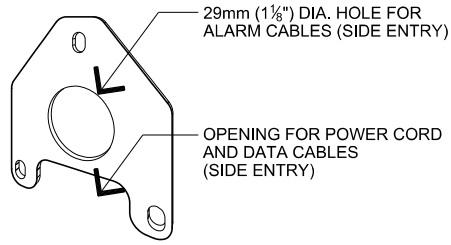
1. RECOMMENDED ANCHOR BOLT SIZE - M20 19mm (¾") (NOT SUPPLIED WITH ATM).
2. ELECTRICAL AND DATA CABLING ENTERS THE ATM THROUGH A CABLE ENTRY OPENING ON THE SIDE OF THE SAFE. CABLES ENTERING THE ATM PASS THROUGH THE POWER CABLE PLATE WHICH IS ATTACHED TO THE INSIDE WALL OF THE SAFE OVER THE CABLE ENTRY OPENING. CABLING CAN ENTER FROM THE SIDE OR OPTIONALLY FROM UNDER THE ATM. THE CABLE ENTRY OPENING IS ON THE RIGHT SIDE OF THE SAFE AS VIEWED FROM THE REAR OF THE ATM.



PLAN/SECTION-SAFE FLOOR

1 (4) 14mm (⁹⁄₁₆") DIA. LEVELING LEG HOLES

2 (4) 25.4mm (1") DIA. FLOOR MOUNTING HOLES



POWER CABLE PLATE

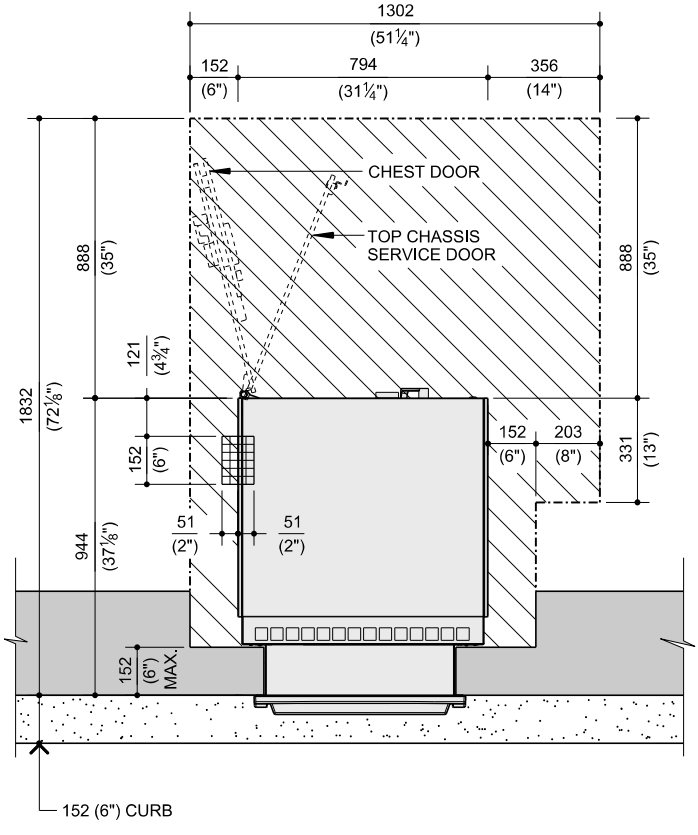
RECOMMENDED SERVICE AREA

MINIMUM SERVICE AREA

ALL ELECTRICAL AND DATA CABLES MUST ENTER UNIT IN THIS AREA

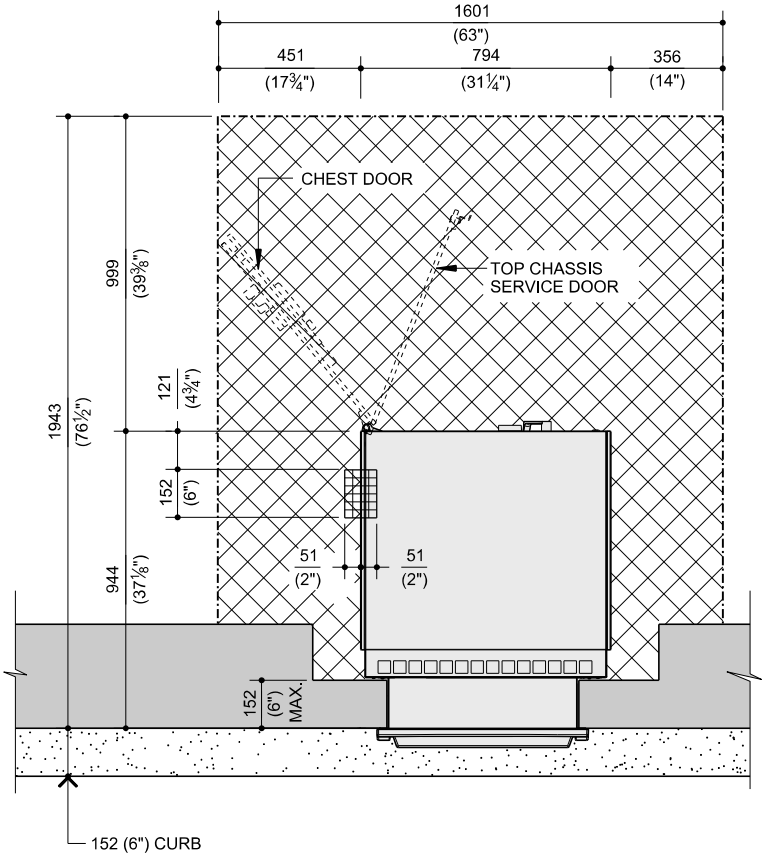
NOTE:

SHOWN IS THE MINIMUM/RECOMMENDED AREA REQUIRED FOR INSTALLATION AND SERVICE. DIMENSIONS SHOWN MAY BE INCREASED WHEREVER POSSIBLE TO IMPROVE INSTALLATION AND SERVICE ACCESS. USE OF ANY AREA LESS THAN THE RECOMMENDED AREA MAY RESULT IN AN INCREASE IN INSTALLATION AND SERVICE TIME. CONSULT WITH DIEBOLD INSTALLATION/SERVICE BRANCH FOR SPECIAL BUILDING CONDITIONS.



TRAFFIC FLOW →

PLAN VIEW
MINIMUM SERVICE AREA



TRAFFIC FLOW →

PLAN VIEW
RECOMMENDED SERVICE AREA

L4051854

DIEBOLD®

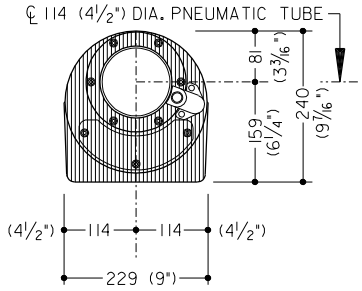
CALL 1-800-999-3600

VACUUM AIR TUBE 23
#134-93 OVERHEAD OPERATOR UNIT DETAILS
#134-94 OVERHEAD CUSTOMER UNIT DETAILS

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

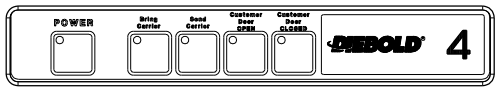
THIRD ANGLE PROJECTION

#134-93 OVERHEAD OPERATOR UNIT DETAILS



PLAN VIEW

OPERATOR CONTROL PANEL



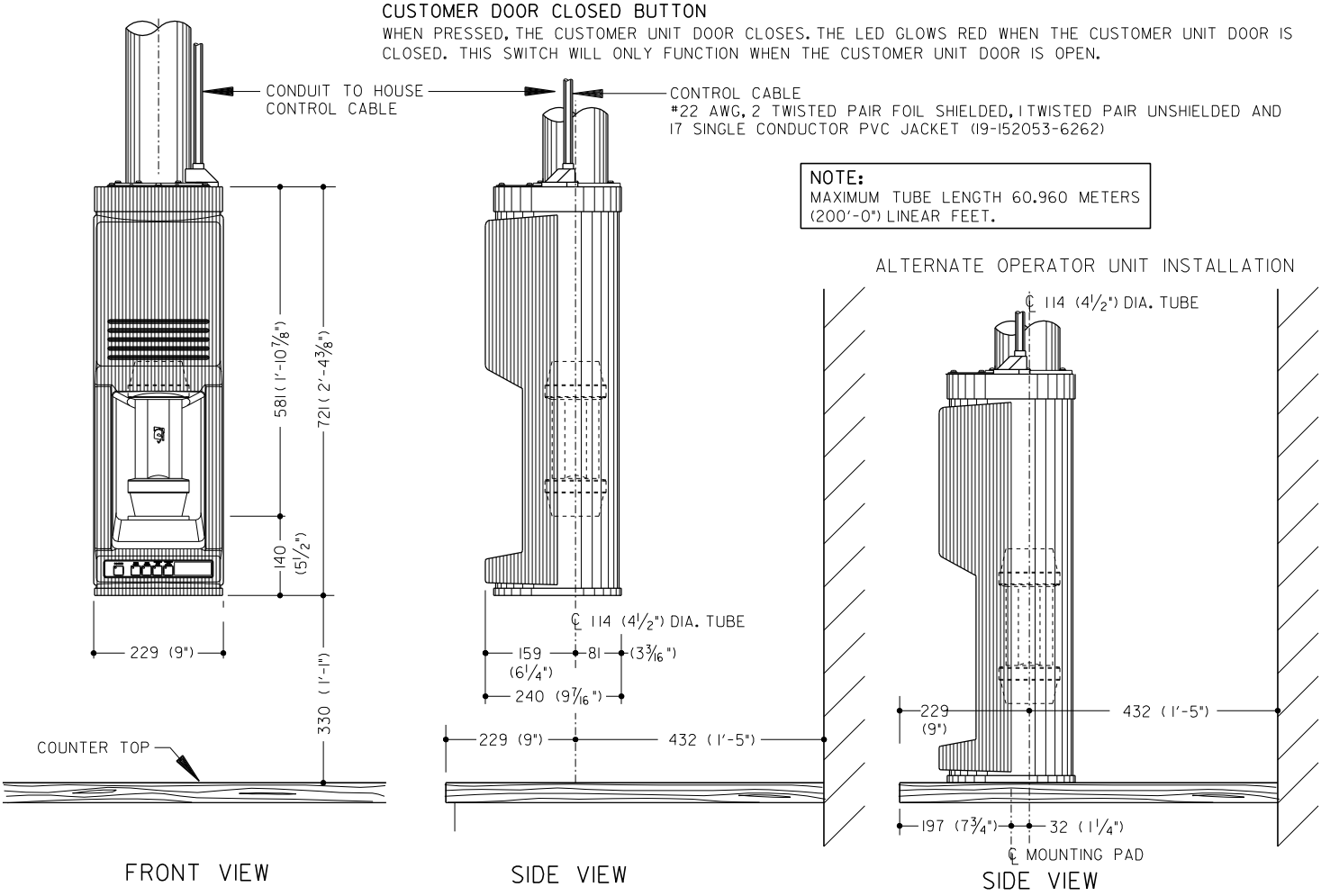
POWER BUTTON
WHEN THIS SWITCH IS ON, POWER IS APPLIED TO BOTH THE CUSTOMER AND OPERATOR UNITS, AND THE POWER INDICATOR GLOWS RED. WHEN THE SWITCH IS OFF, POWER IS APPLIED ONLY TO THE INTERNAL POWER SUPPLY AND THE SYSTEM WILL NOT OPERATE.

BRING CARRIER BUTTON
WHEN PRESSED, THE CARRIER IS BROUGHT TO THE OPERATOR UNIT FROM THE CUSTOMER UNIT, WHILE THE LED GLOWS GREEN. UPON ARRIVAL AT THE OPERATOR UNIT, THE OPERATOR UNIT DOOR OPENS AND THE LED TURNS OFF.

SEND CARRIER BUTTON
WHEN PRESSED, THE CARRIER IS SENT FROM THE OPERATOR UNIT TO THE CUSTOMER UNIT, WHILE THE LED GLOWS GREEN. UPON ARRIVAL AT THE CUSTOMER UNIT, THE CUSTOMER UNIT DOOR OPENS AND THE LED TURNS OFF.

CUSTOMER DOOR OPEN BUTTON
WHEN PRESSED, THE CUSTOMER UNIT DOOR OPENS. THE LED GLOWS GREEN WHEN THE CUSTOMER UNIT DOOR IS OPEN. THIS SWITCH WILL ONLY FUNCTION WHEN THE CARRIER IS IN THE CUSTOMER UNIT, AND THE CUSTOMER UNIT DOOR IS CLOSED.

CUSTOMER DOOR CLOSED BUTTON
WHEN PRESSED, THE CUSTOMER UNIT DOOR CLOSES. THE LED GLOWS RED WHEN THE CUSTOMER UNIT DOOR IS CLOSED. THIS SWITCH WILL ONLY FUNCTION WHEN THE CUSTOMER UNIT DOOR IS OPEN.



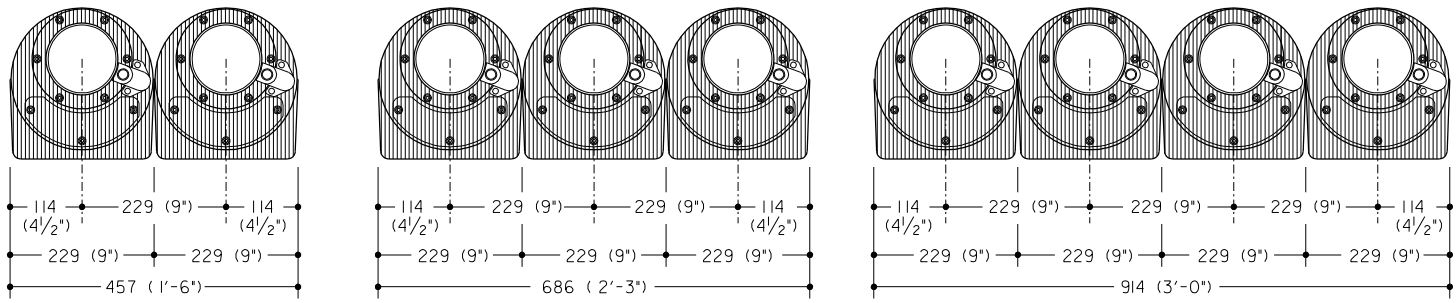
FRONT VIEW

SIDE VIEW

SIDE VIEW

NOTE:
MAXIMUM TUBE LENGTH 60.960 METERS (200'-0") LINEAR FEET.

MULTIPLE UNIT CONFIGURATION



PLAN VIEW (2) UNITS

PLAN VIEW (3) UNITS

PLAN VIEW (4) UNITS

ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE.

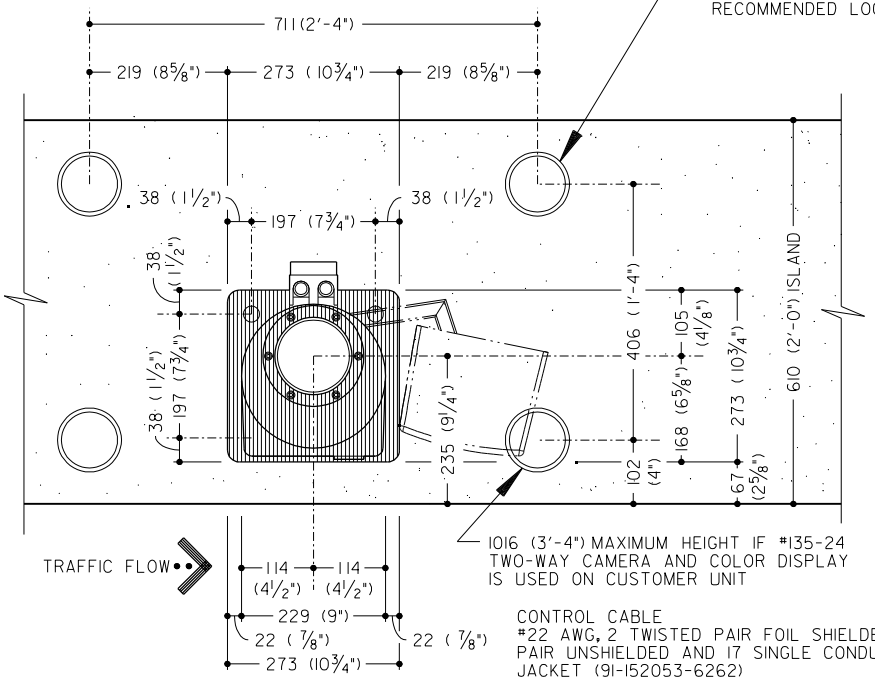
FILE NO. 178-1854 REV. 3

#134-94 OVERHEAD CUSTOMER UNIT DETAILS

NOTE:
MAXIMUM TUBE LENGTH 60.960 METERS (200'-0") LINEAR FEET.

DIMENSIONS IN MILLIMETRES (DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION



PLAN VIEW

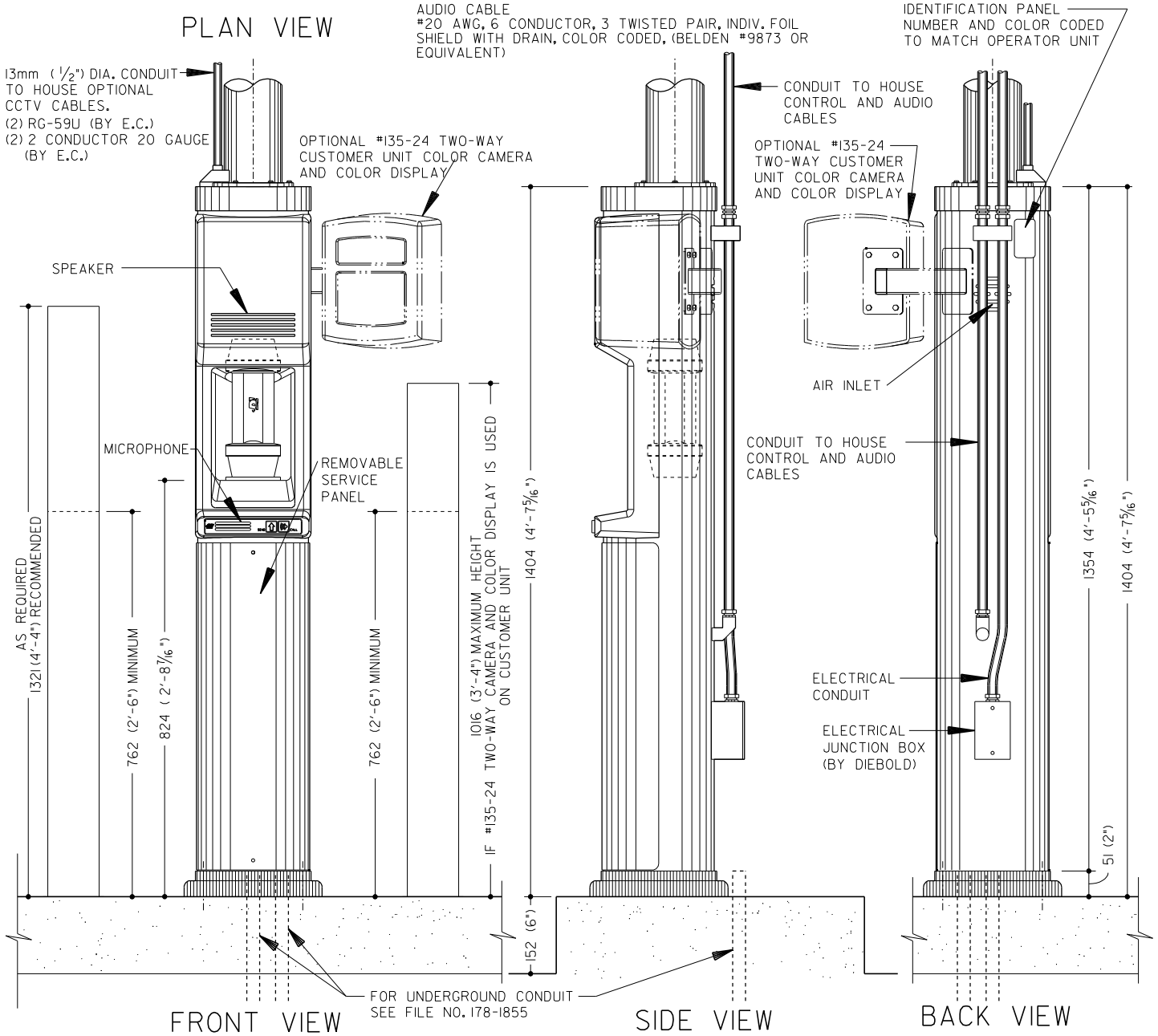
CUSTOMER CONTROL PANEL

AN ARRIVING CUSTOMER WILL USUALLY FIND THE CARRIER VISIBLE AND ACCESSIBLE. IF THE CARRIER IS AT THE OPERATOR STATION, THE OPERATOR MUST SEND THE CARRIER TO THE CUSTOMER UNIT. WHEN THE CARRIER ARRIVES AT THE CUSTOMER UNIT, THE CUSTOMER DOOR OPENS AUTOMATICALLY.

CALL BUTTON:
AFTER ARRIVING AT THE CUSTOMER UNIT, THE CUSTOMER MAY PRESS THE CALL BUTTON. THIS ACTIVATES AN AUDIO CHIME AT THE OPERATOR STATION TO ALERT THE OPERATOR THAT A CUSTOMER WISHES TO COMMUNICATE. CUSTOMER DOOR WILL OPEN, IF IT WAS CLOSED.

SEND BUTTON:
AFTER THE CUSTOMER PLACES THE TRANSACTION MATERIALS INTO THE CARRIER, THE CUSTOMER RETURNS THE CARRIER TO THE CUSTOMER UNIT AND PRESSES THE SEND BUTTON. THE CUSTOMER UNIT DOOR CLOSES, AND THE CARRIER IS SENT TO THE OPERATOR.

CONTROL CABLE
#22 AWG, 2 TWISTED PAIR FOIL SHIELDED, 1 TWISTED PAIR UNSHIELDED AND 17 SINGLE CONDUCTOR PVC JACKET (91-152053-6262)
AUDIO CABLE
#20 AWG, 6 CONDUCTOR, 3 TWISTED PAIR, INDIV. FOIL SHIELD WITH DRAIN, COLOR CODED, (BELDEN #9873 OR EQUIVALENT)



FRONT VIEW

SIDE VIEW

BACK VIEW

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE."

DIEBOLD®

VACUUM AIR TUBE 23
OVERHEAD TYPICAL VAT CONFIGURATION
OPERATOR STATION ARRANGEMENTS

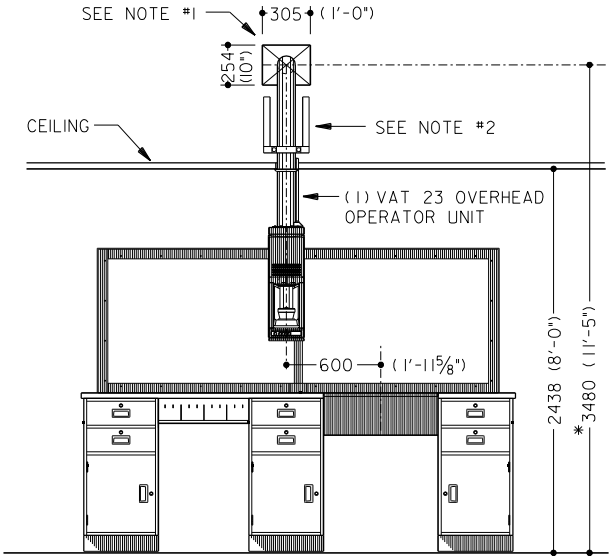
CALL 1-800-999-3600

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION

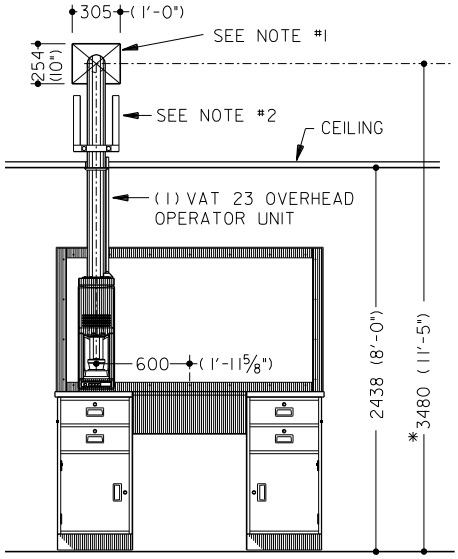
NOTES:

1. LOCATION AND SIZE OF WALL OPENING MAY VARY WITH TUBE RUN ANGLE BETWEEN OPERATOR AND CUSTOMER UNIT.
2. UNISTRUT SUPPORT BRACKET (BY DIEBOLD)
3. DIMENSION FOR LOCATING TRANSACTION DRAWER MAY VARY WITH UNDERCOUNTER EQUIPMENT ARRANGEMENT. TRANSACTION DRAWER AND UNDERCOUNTER EQUIPMENT SHOULD BE CENTERED ON WINDOW IF POSSIBLE.
4. ALL WORK AND MATERIALS SHALL CONFORM TO THE NATIONAL, ALL STATE, AND LOCAL ELECTRICAL CODES WHICH MAY BE APPLICABLE. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR ANY CHANGES NECESSARY TO COMPLY WITH THESE CODES.
5. ALL CONDUIT, POWER WIRES, JUNCTION BOXES, AND OVERLOAD PROTECTION DEVICES, ARE TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
6. SEE CUT SHEET FILE NUMBER 178-1953 FOR POWER CONSOLIDATION AND DISTRIBUTION GUIDELINES.

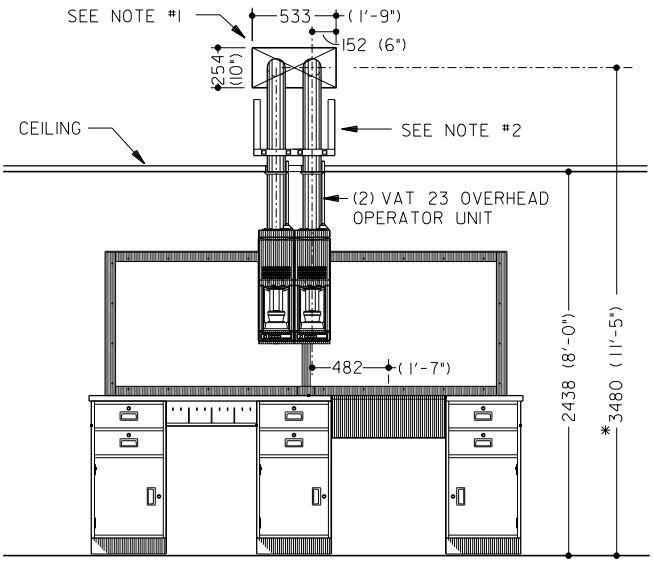


☐VAT CONFIGURATION 12C-8

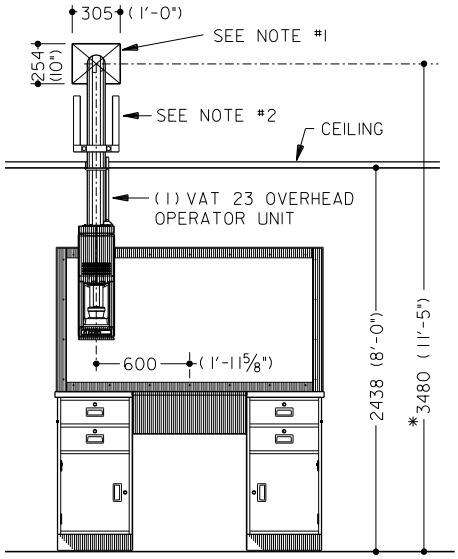
ALTERNATE OPERATOR UNIT INSTALLATION



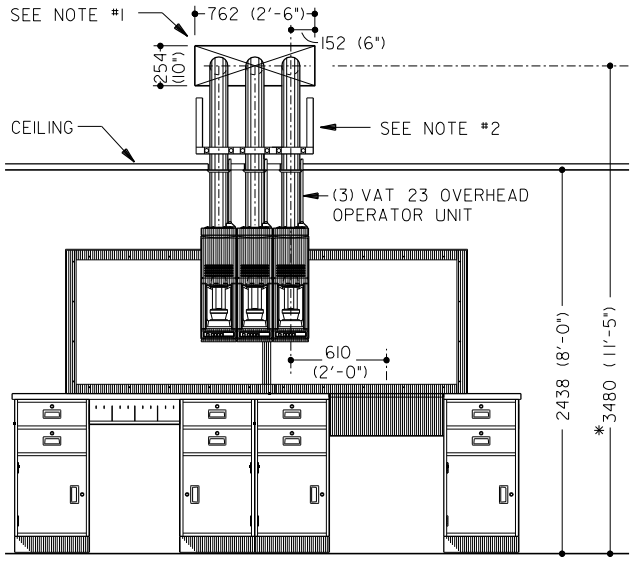
☐VAT CONFIGURATION 11C



☐VAT CONFIGURATION 22C-8



☐VAT CONFIGURATION 11C



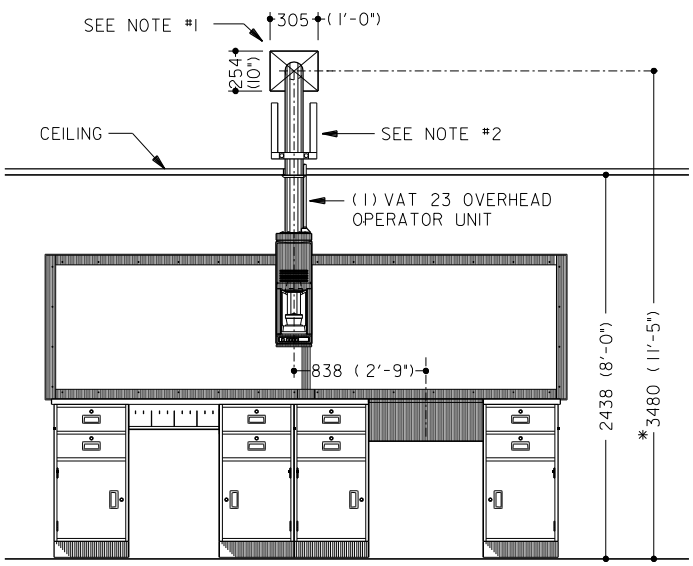
☐VAT CONFIGURATION 32C-8

ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE.

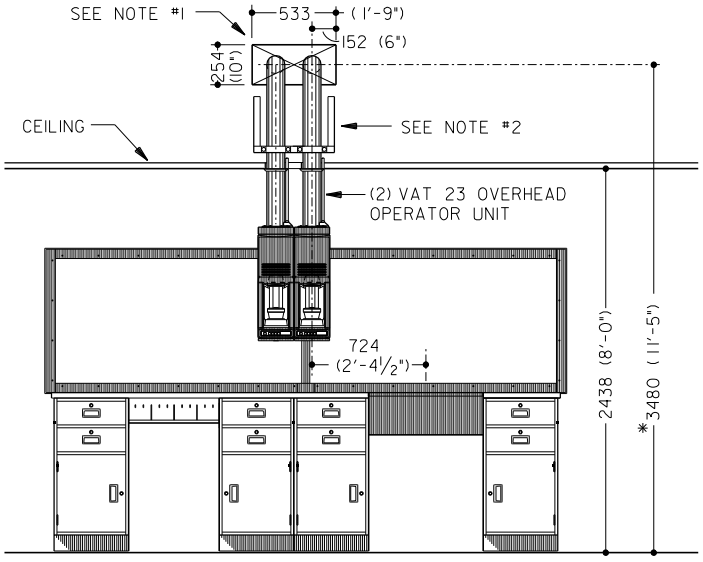
FILE NO. 178-1854 REV. 3

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

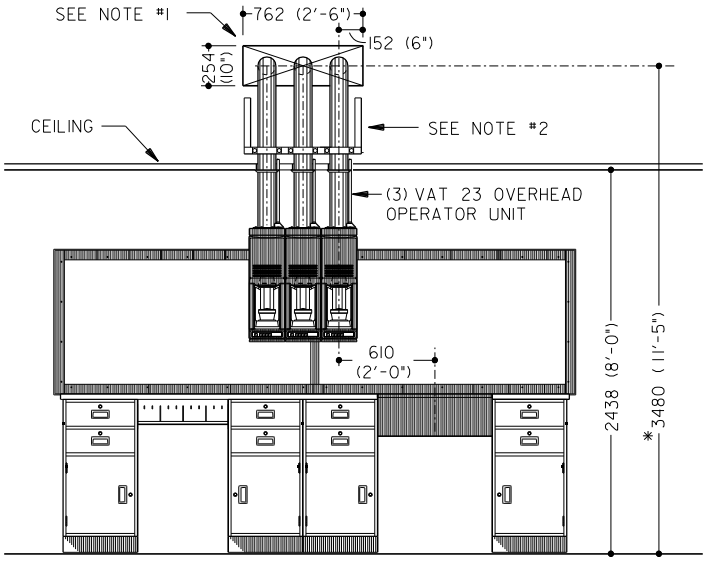
THIRD ANGLE PROJECTION



☐VAT CONFIGURATION 12C-10



☐VAT CONFIGURATION 22C-10



☐VAT CONFIGURATION 32C-10

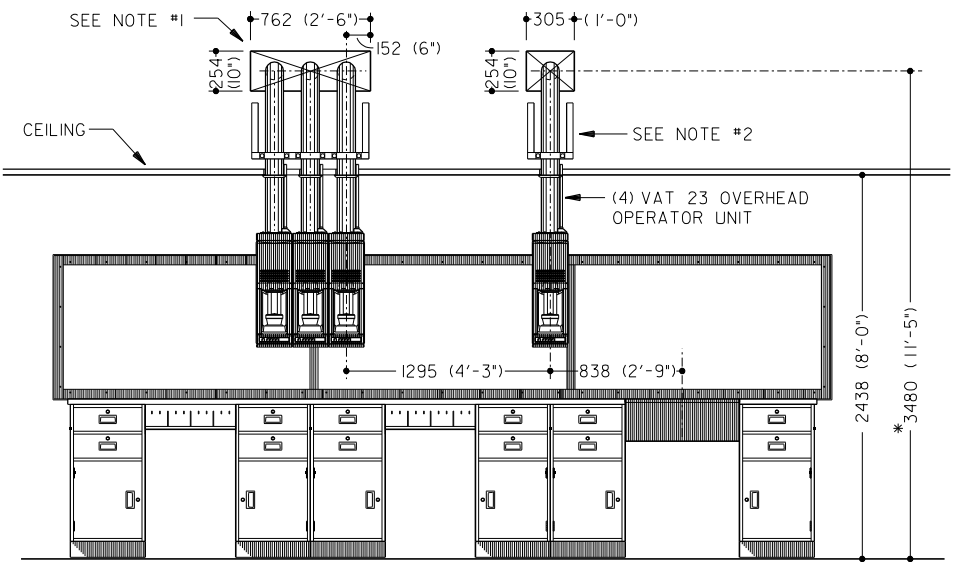
ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE.

FILE NO. 178-1854 REV. 3

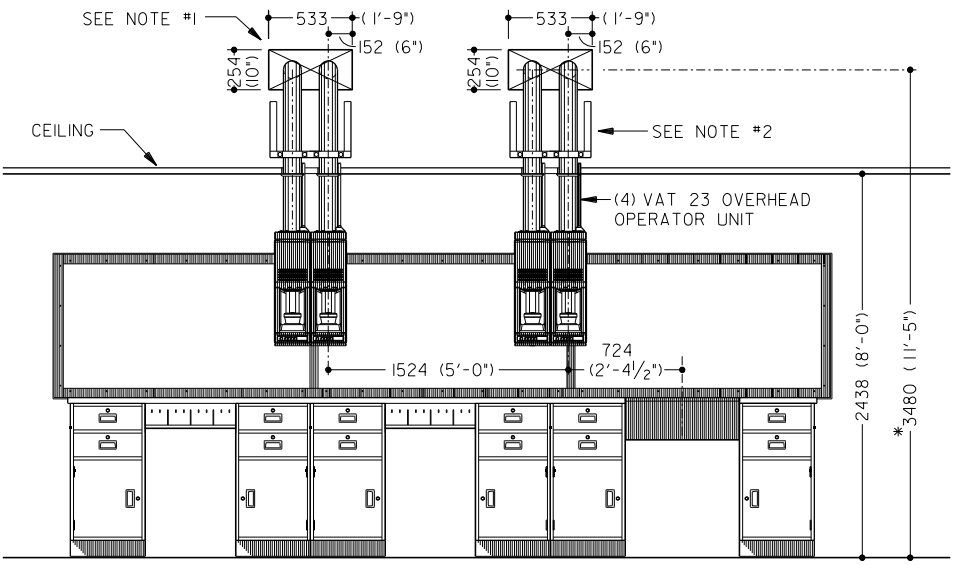
✳ ALL DIMENSIONS MARKED WITH AN ASTERISK MAY VARY WITH BUILDING/CANOPY CONSTRUCTION

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

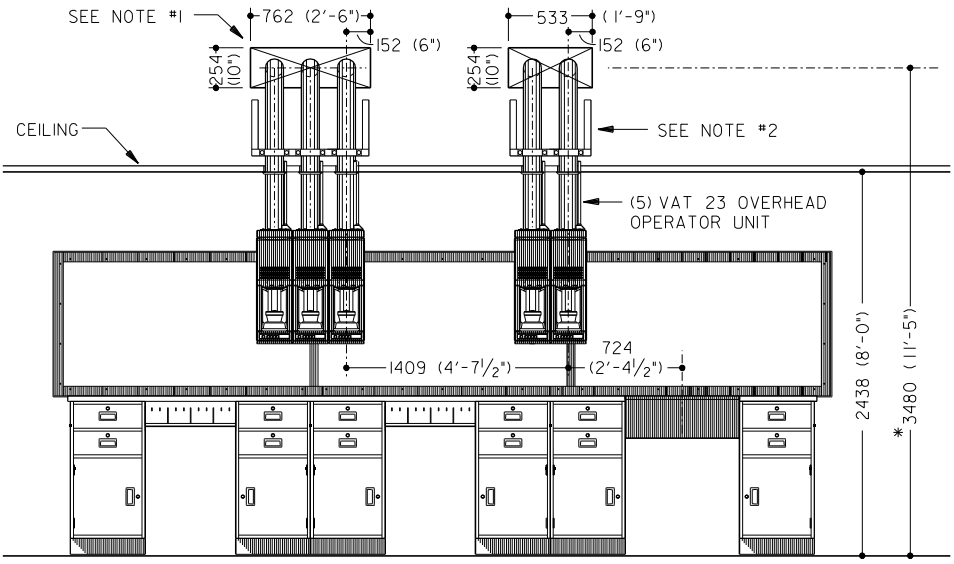
THIRD ANGLE PROJECTION



VAT CONFIGURATION 43C-1



VAT CONFIGURATION 43C-2



VAT CONFIGURATION 53C

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE."

FILE NO. 178-1854 REV. 3

L4051855

CALL 1-800-999-3600

VACUUM AIR TUBE 23
OVERHEAD OPERATOR/OVERHEAD CUSTOMER TYPICAL DRIVE-UP INSTALLATION, CONTROL/AUDIO CABLE, CONDUIT AND ELECTRICAL DETAILS

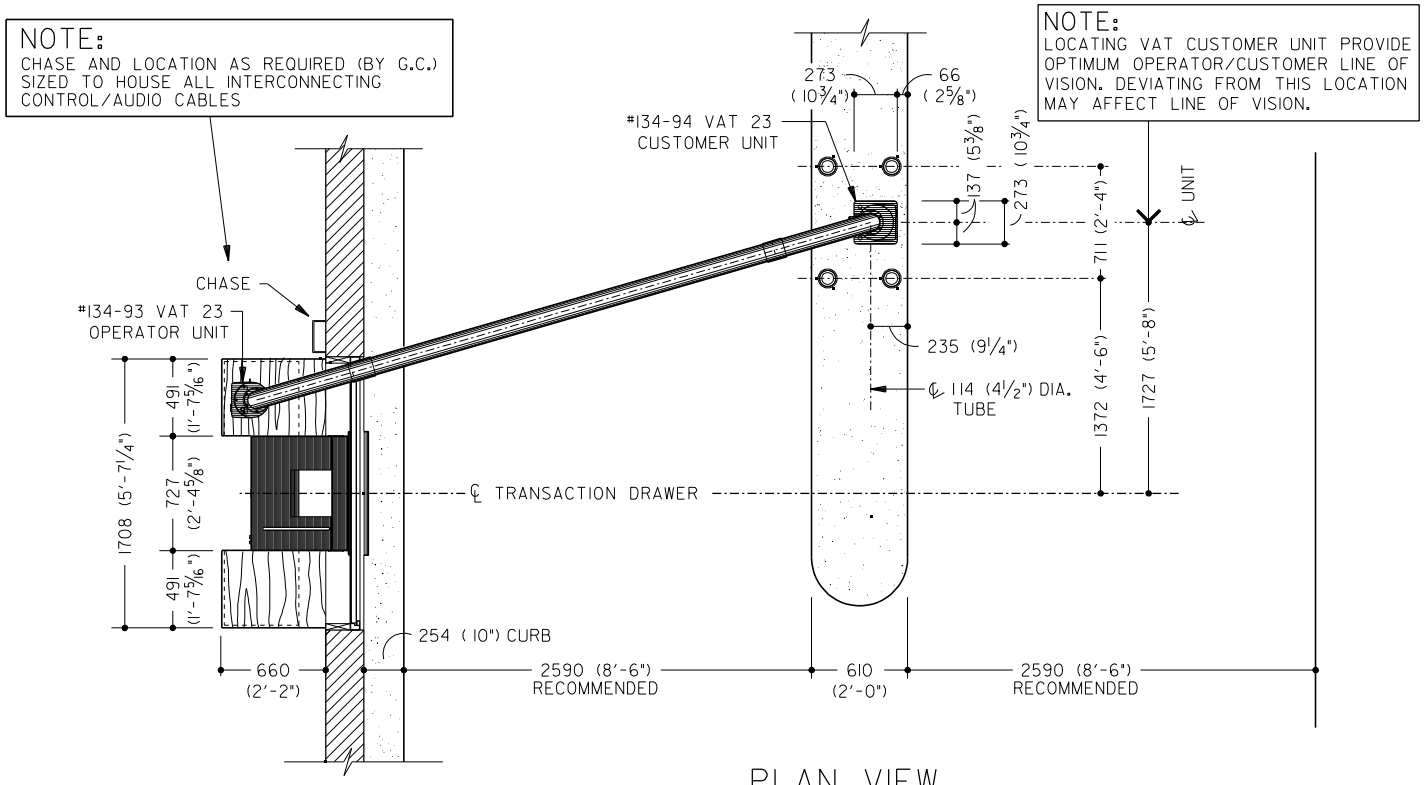
TUBING, CONTROL/AUDIO CABLES AND ELEC. CONDUIT ENCLOSED IN CANOPY

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION

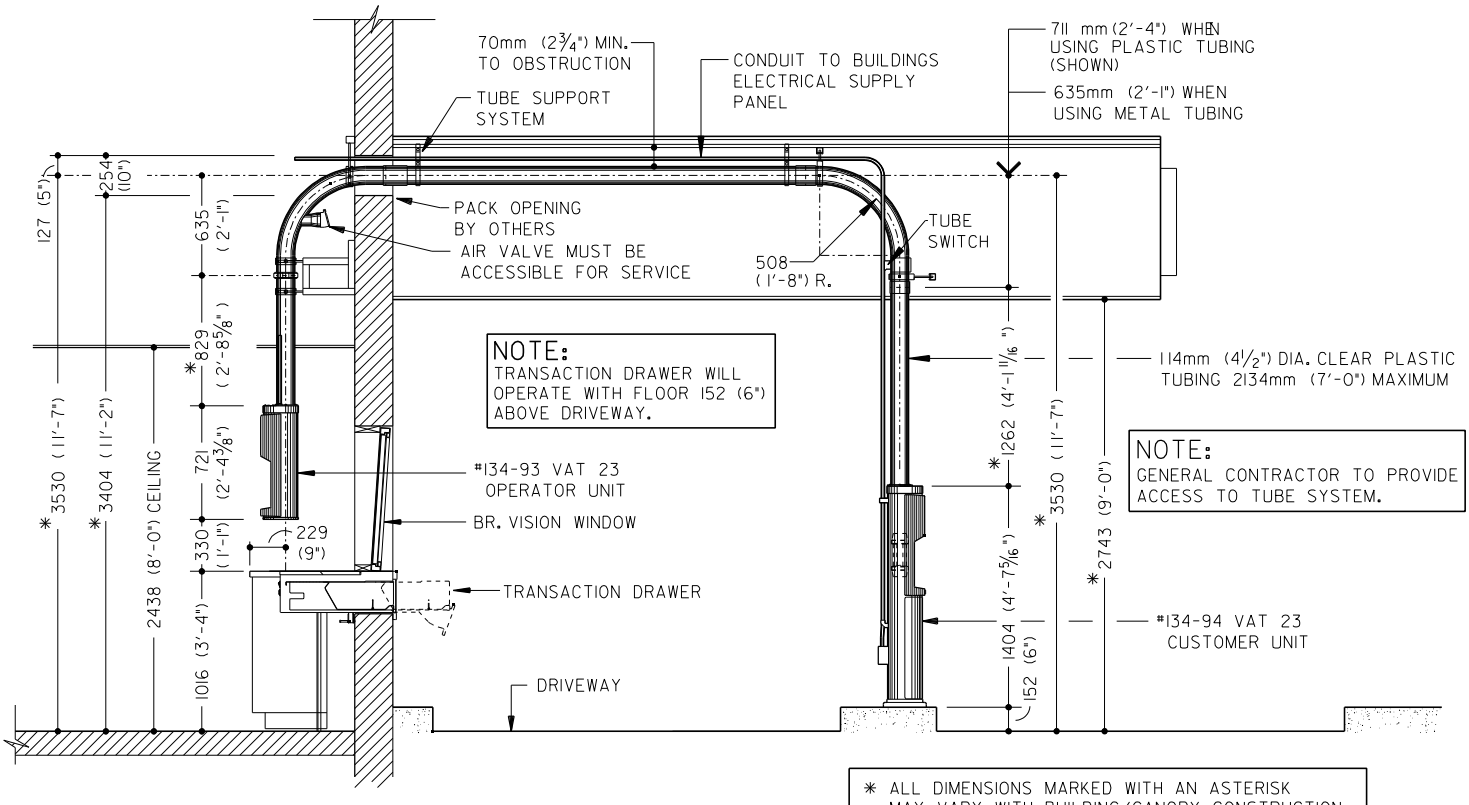
NOTE:
CHASE AND LOCATION AS REQUIRED (BY G.C.) SIZED TO HOUSE ALL INTERCONNECTING CONTROL/AUDIO CABLES

NOTE:
LOCATING VAT CUSTOMER UNIT PROVIDE OPTIMUM OPERATOR/CUSTOMER LINE OF VISION. DEVIATING FROM THIS LOCATION MAY AFFECT LINE OF VISION.



PLAN VIEW

NOTE:
MAXIMUM TUBE LENGTH 60.960 METERS (200'-0") LINEAR FEET.



SECTION/ELEVATION

* ALL DIMENSIONS MARKED WITH AN ASTERISK MAY VARY WITH BUILDING/CANOPY CONSTRUCTION

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE."

FILE NO. 178-1855 REV. 3

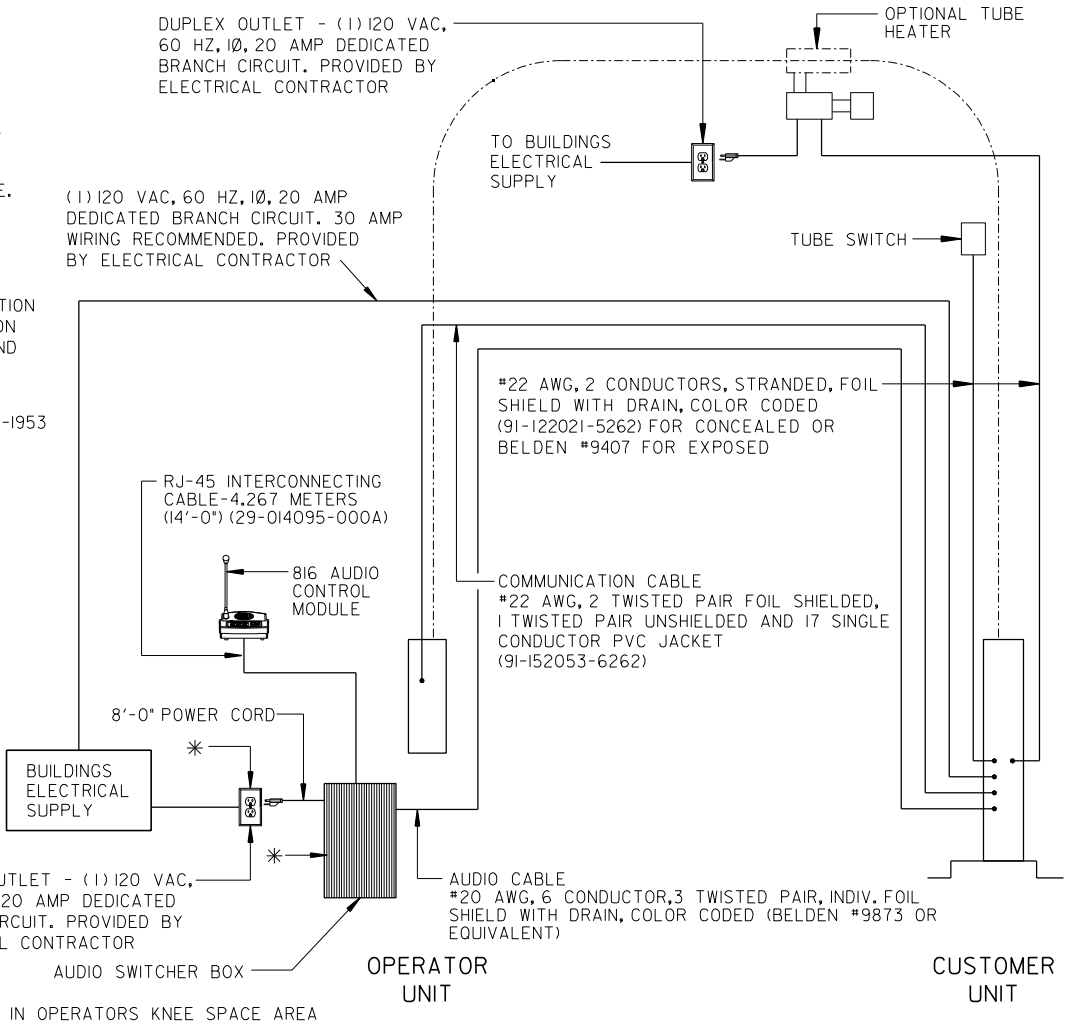
SCHEMATIC FOR CONTROL/AUDIO AND ELECTRICAL CABLES OVER TO OVER

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION

NOTES:

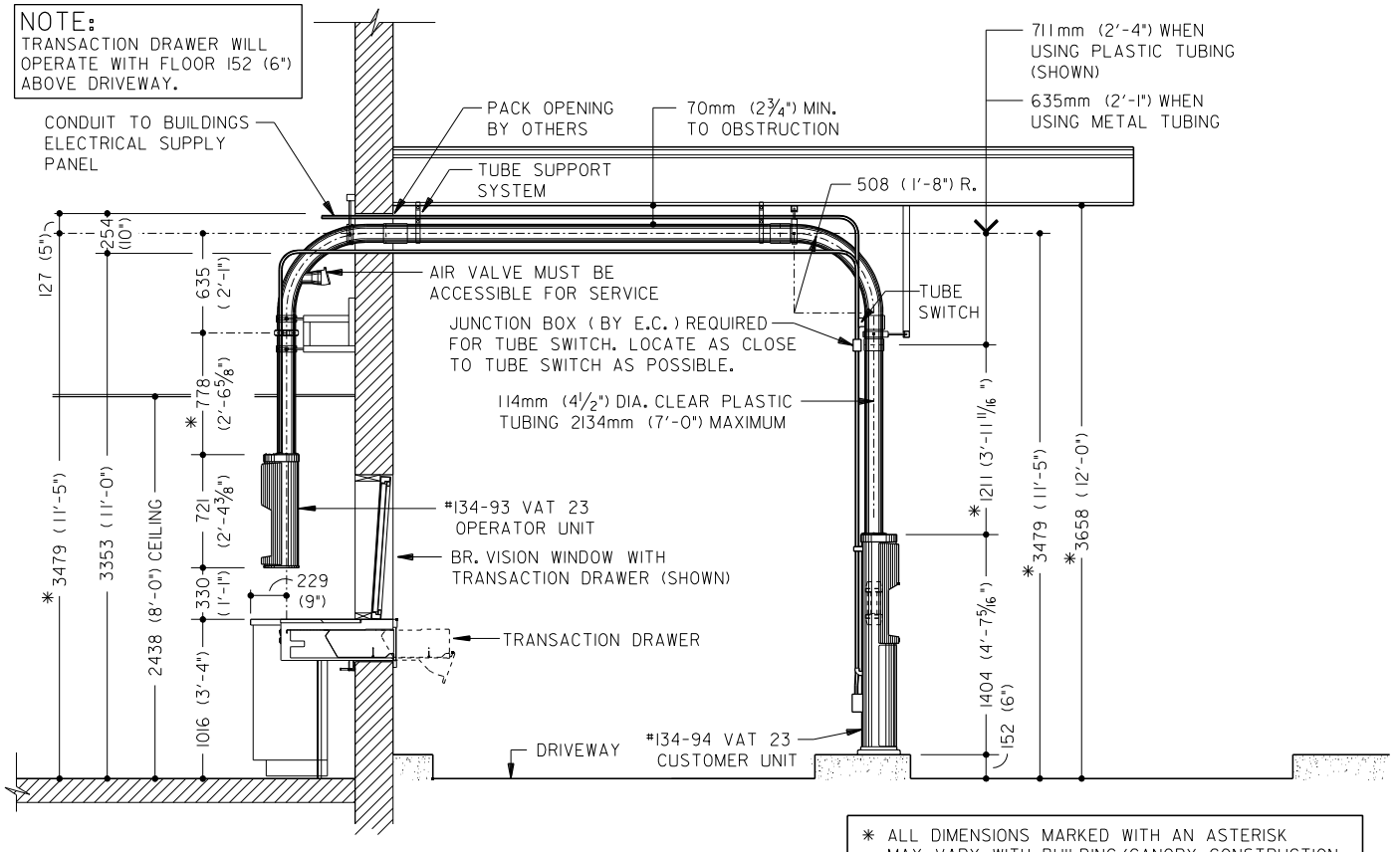
1. ALL WORK AND MATERIALS SHALL CONFORM TO THE NATIONAL, ALL STATE, AND LOCAL ELECTRICAL CODES WHICH MAY BE APPLICABLE. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR ANY CHANGES NECESSARY TO COMPLY WITH THESE CODES.
2. ALL CONDUIT, POWER WIRES, JUNCTION BOXES, AND OVERLOAD PROTECTION DEVICES, ARE TO BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
3. SEE CUT SHEET FILE NUMBER 178-1953 FOR POWER CONSOLIDATION AND DISTRIBUTION GUIDELINES.



TUBING, CONTROL/AUDIO CABLES AND ELEC. CONDUIT EXPOSED UNDER CANOPY

PAGE 2 OF 4

NOTE:
TRANSACTION DRAWER WILL OPERATE WITH FLOOR 152 (6") ABOVE DRIVEWAY.



SECTION/ELEVATION

✳ ALL DIMENSIONS MARKED WITH AN ASTERISK MAY VARY WITH BUILDING/CANOPY CONSTRUCTION

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE."

FILE NO. 178-1855 REV. 3

DIEBOLD®

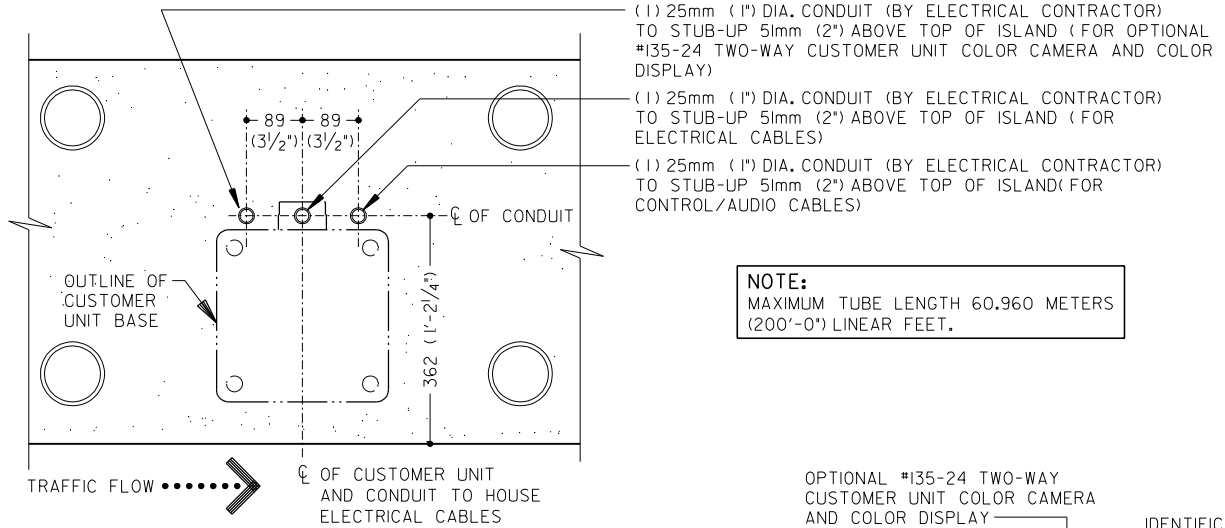
CALL 1-800-999-3600

VACUUM AIR TUBE 23 OVERHEAD CONTROL/AUDIO CABLE, CONDUIT & ELEC. DETAILS FOR UNDER TO UNDER PLACEMENT

#134-94 OVERHEAD CUSTOMER UNIT DETAILS

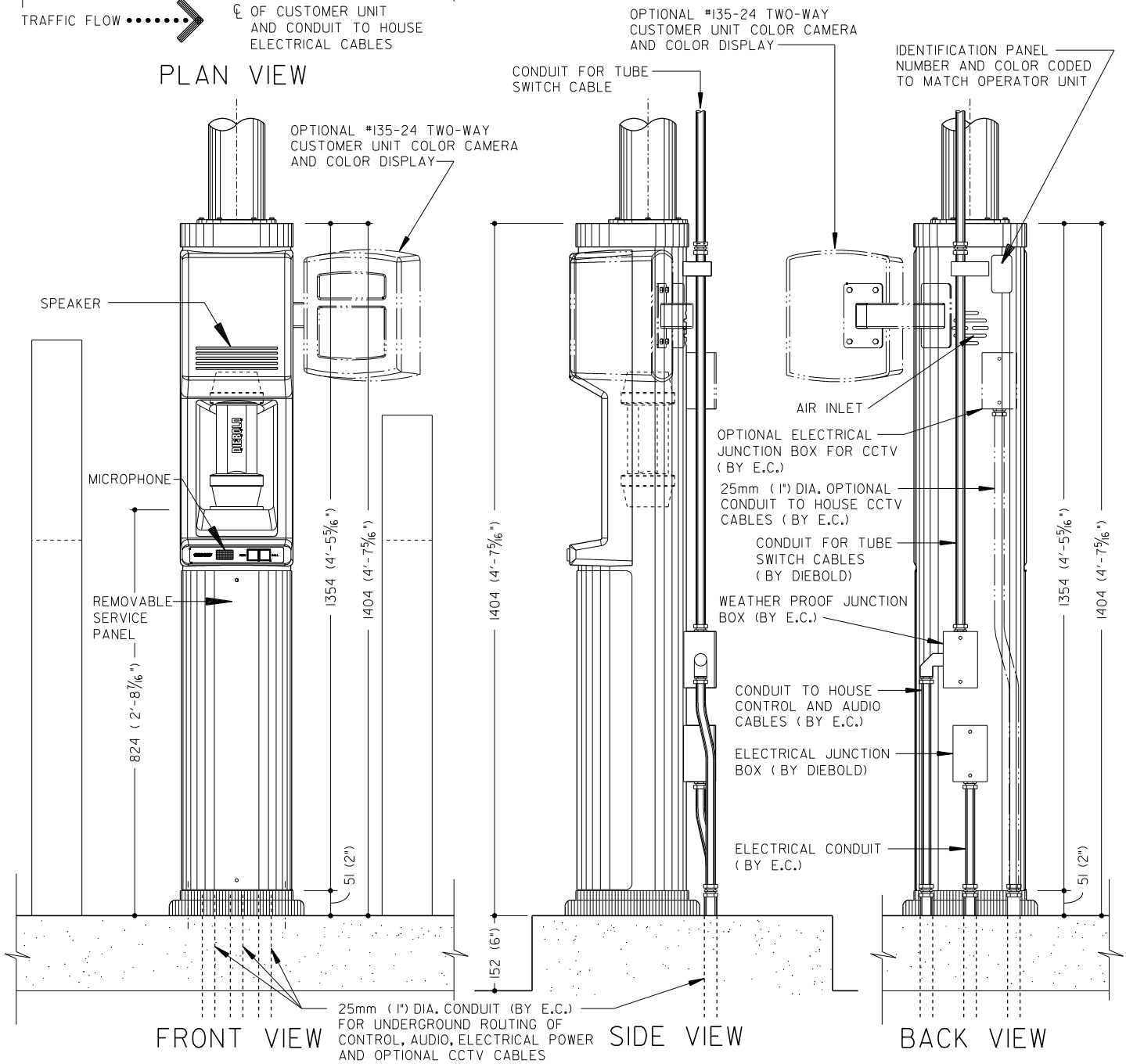
DIMENSIONS IN MILLIMETRES (DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION



NOTE:
MAXIMUM TUBE LENGTH 60.960 METERS (200'-0") LINEAR FEET.

PLAN VIEW



"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE."

FILE NO. 178-1855 REV. 3

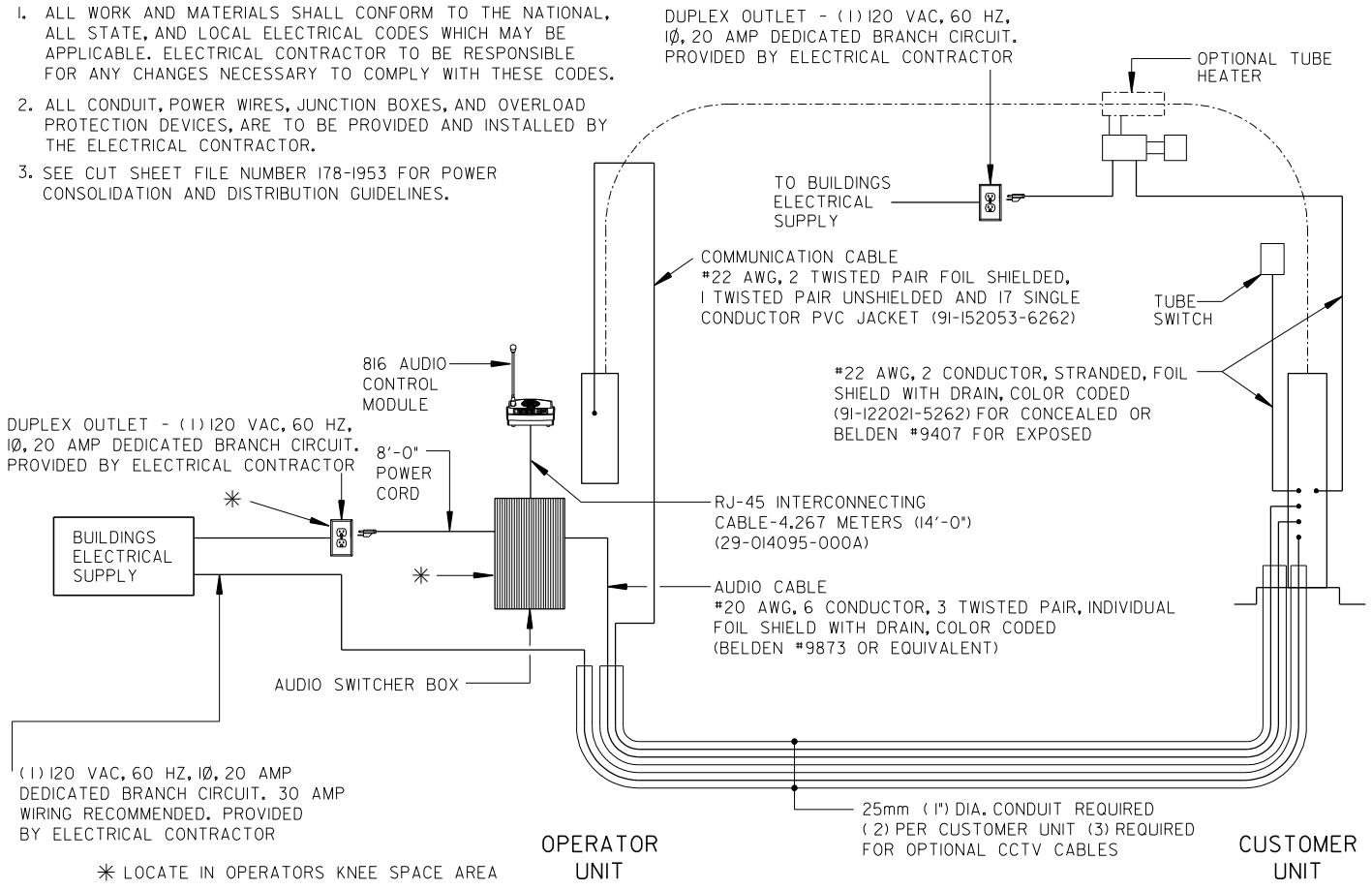
SCHEMATIC FOR CONTROL/AUDIO AND ELECTRICAL CABLES UNDER TO UNDER

NOTES:

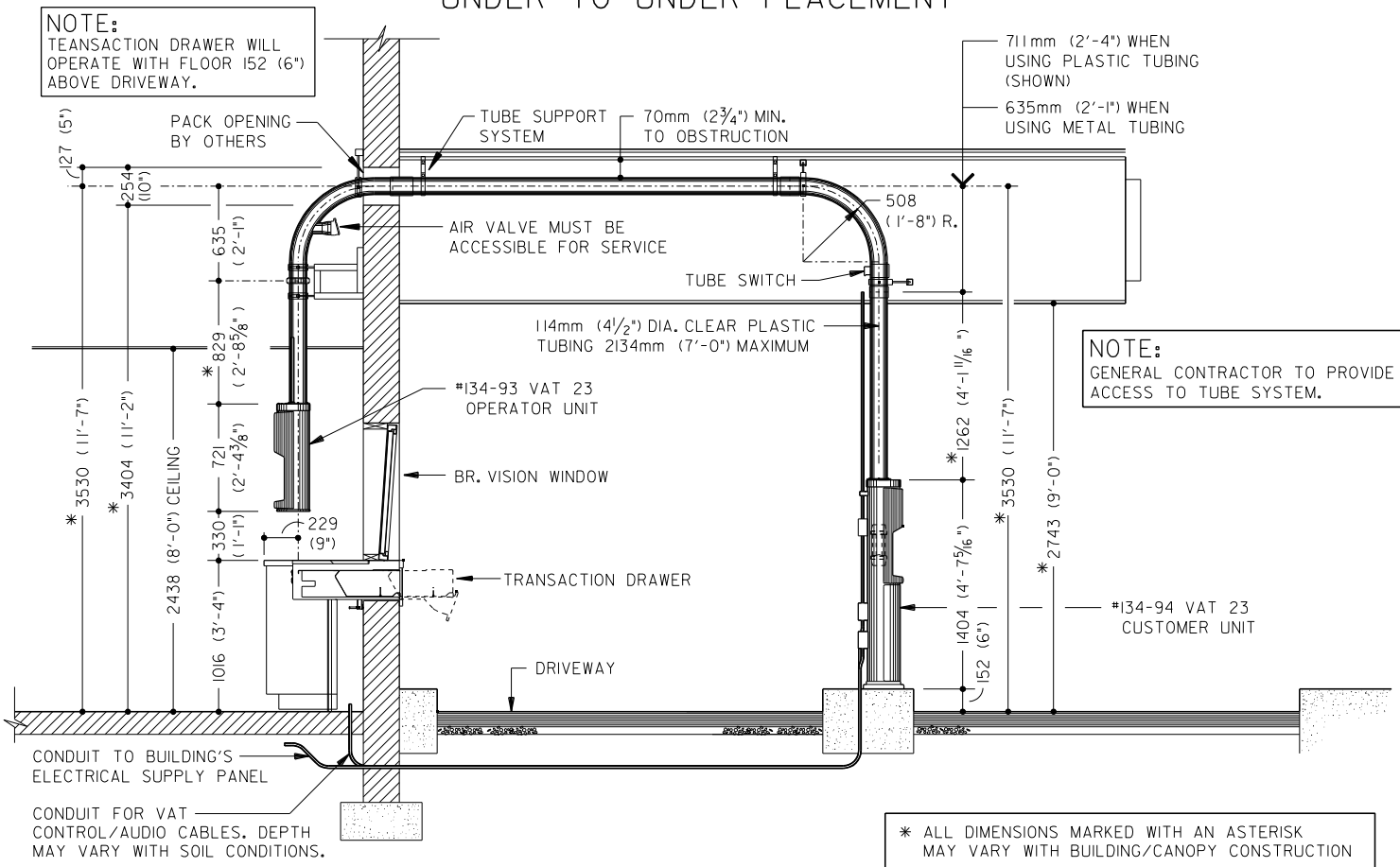
1. ALL WORK AND MATERIALS SHALL CONFORM TO THE NATIONAL, ALL STATE, AND LOCAL ELECTRICAL CODES WHICH MAY BE APPLICABLE. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR ANY CHANGES NECESSARY TO COMPLY WITH THESE CODES.
2. ALL CONDUIT, POWER WIRES, JUNCTION BOXES, AND OVERLOAD PROTECTION DEVICES, ARE TO BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
3. SEE CUT SHEET FILE NUMBER 178-1953 FOR POWER CONSOLIDATION AND DISTRIBUTION GUIDELINES.

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION



TUBING OVERHEAD, CONTROL/AUDIO AND ELECTRICAL CABLES UNDER TO UNDER PLACEMENT



SECTION/ELEVATION

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE."

FILE NO. 178-1855 REV. 3

L4051857

DIEBOLD®

CALL 1-800-999-3600

VAT 23 OVERHEAD CUSTOMER/OVERHEAD OPERATOR TUBE LAYOUTS

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION

VAT 23 STEEL TUBE LAYOUT

(A) STEEL TUBING 114 (4½") X 1676 (5'-6") PAINTED, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000A)

(B) 13 (½") CONDUIT 3048 (10'-0") PAINTED, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000A FOR SUSPENDED MOUNT ONLY) (21-019244-000B FOR COUNTERTOP MOUNT ONLY)

(C) ALL THREAD 1829 (6'-0"), UNISTRUT 3048 (10'-0"), SUPPORT ANGLE KIT AND ROW CLAMP KIT, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A). REQUIRED TO STABILIZE TUBING AT TELLER UNIT.

(D) CAST CLAMP, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

(E) AIR VALVE KIT, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000A FOR SUSPENDED MOUNT ONLY) (21-019244-000B FOR COUNTERTOP MOUNT ONLY)

(F) 90° AIR RADIUS STEEL, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

(G) ROW CLAMP KIT (5) CLAMPS, ALL THREAD 1829 (6'-0") AND UNISTRUT 3048 (10'-0"), INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A).

(H) STRAIGHT 3048 (10'-0") STEEL, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

(J) STEEL 90° ELBOW WITH SWITCH, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

(K) RUBBER SLEEVE WITH CLAMP, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

(L) RUBBER SLEEVE WITH CLAMP, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000B FOR COUNTERTOP MOUNT ONLY)

(M) 2134 (7'-0") BUTYRATE (CLEAR) STRAIGHT TUBE (28-000807-000C) 3048 (10'-0") BUTYRATE (CLEAR) AVAILABLE AS OPTION (28-000807-000B)

(N) 2134 (7'-0") BUTYRATE (CLEAR) STRAIGHT TUBE, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000B FOR COUNTERTOP MOUNT ONLY)

(P) 19 (¾") CONDUIT 3048 (10'-0") PAINTED, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

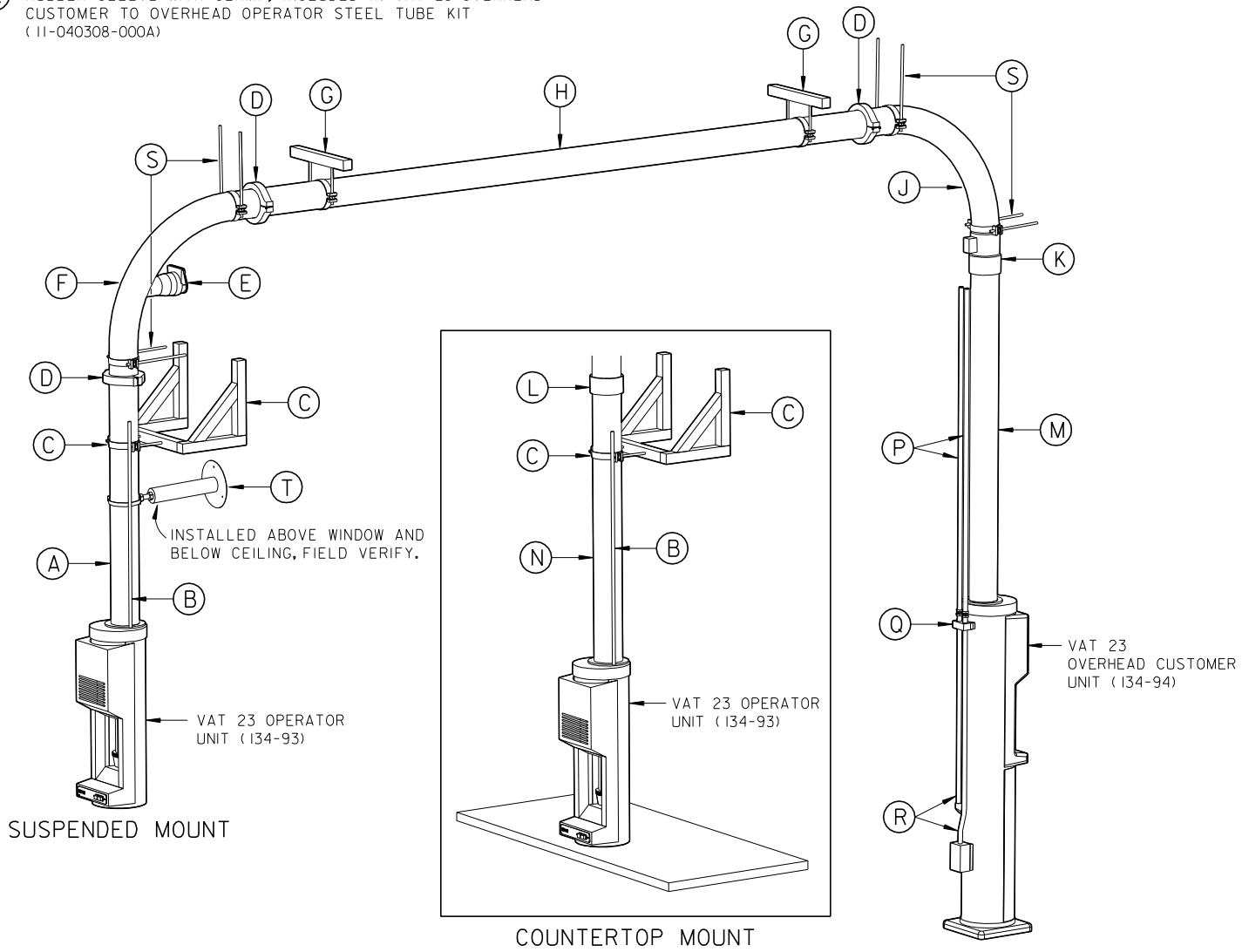
(Q) OFFSET AND CLAMP CONDUIT PAINTED, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

(R) 19 (¾") STRAIGHT AND OFFSET CONDUIT PAINTED, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR STEEL TUBE KIT (11-040308-000A)

(S) ROW CLAMP SUPPORT KIT (6) CLAMPS, (28-001056-000B) INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL KIT (21-019244-000A)

(T) OPTIONAL OPERATOR UNIT STABILIZER BAR (31-019757-000A) ONLY USED ON SINGLE LANE APPLICATION. (MUST BE ORDERED BY SALES REPRESENTATIVE)

NOTE:
SUPPORT CLAMPS REQUIRED ON BOTH SIDES OF COUPLING CONNECTIONS.



SUSPENDED MOUNT

COUNTERTOP MOUNT

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE."

FILE NO. 178-1857 REV. 1

VAT 23 PVC TUBE LAYOUT

(A) STEEL TUBING 114 (4½") X 1676 (5'-6") PAINTED, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000C)

(B) 13 (½") CONDUIT 3048 (10'-0") PAINTED, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000C FOR SUSPENDED MOUNT ONLY) (21-019244-000D FOR COUNTERTOP MOUNT ONLY)

(C) ALL THREAD 1829 (6'-0"), UNISTRUT 3048 (10'-0") AND SUPPORT ANGLE KIT, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A). ROW CLAMP KIT, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000C FOR SUSPENDED MOUNT ONLY) (21-019244-000D FOR COUNTERTOP MOUNT ONLY). REQUIRED TO STABILIZE TUBING AT OPERATOR UNIT.

(D) CAST CLAMP, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000C)

(E) AIR VALVE KIT, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000C FOR SUSPENDED MOUNT ONLY) (21-019244-000D FOR COUNTERTOP MOUNT ONLY)

(F) 90° AIR RADIUS STEEL, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(G) KIT, TUBE CLAMPS PVC TO STEEL, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000C FOR SUSPENDED MOUNT ONLY) (21-019244-000D FOR COUNTERTOP MOUNT ONLY)

(H) PVC COUPLING SLEEVE, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(J) SLIP JOINT KIT (INCLUDES 1-3" RUBBER SEAL 21-017544-000A), INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(K) PVC STRAIGHT 3048 (10'-0") WITH COUPLING AT ONE END, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

NOTE:
SUPPORT STRAPS AND/OR CLAMPS REQUIRED ON BOTH SIDES, AT COUPLING AND TRANSITION SLEEVE CONNECTIONS.

(L) SUPPORT STRAP KIT (CUT TO LENGTH), INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(N) PVC 90° ELBOW WITH SWITCH, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(P) CLAMP (CLICK), INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A). ALWAYS USED TO STABILIZE VERTICAL PVC TUBING

(Q) RUBBER SLEEVE WITH CLAMP, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(R) RUBBER SLEEVE WITH CLAMP, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000D FOR COUNTERTOP MOUNT ONLY)

(S) 2134 (7'-0") BUTYRATE (CLEAR) STRAIGHT TUBE (28-000807-000C)
3048 (10'-0") BUTYRATE (CLEAR) AVAILABLE AS OPTION (28-000807-000B)

(T) 2134 (7'-0") BUTYRATE (CLEAR) STRAIGHT TUBE, INCLUDED IN VAT 23 OVERHEAD OPERATOR TERMINAL TUBE KIT (21-019244-000D FOR COUNTERTOP MOUNT ONLY)

(U) 19 (¾") CONDUIT 3048 (10'-0") PAINTED, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

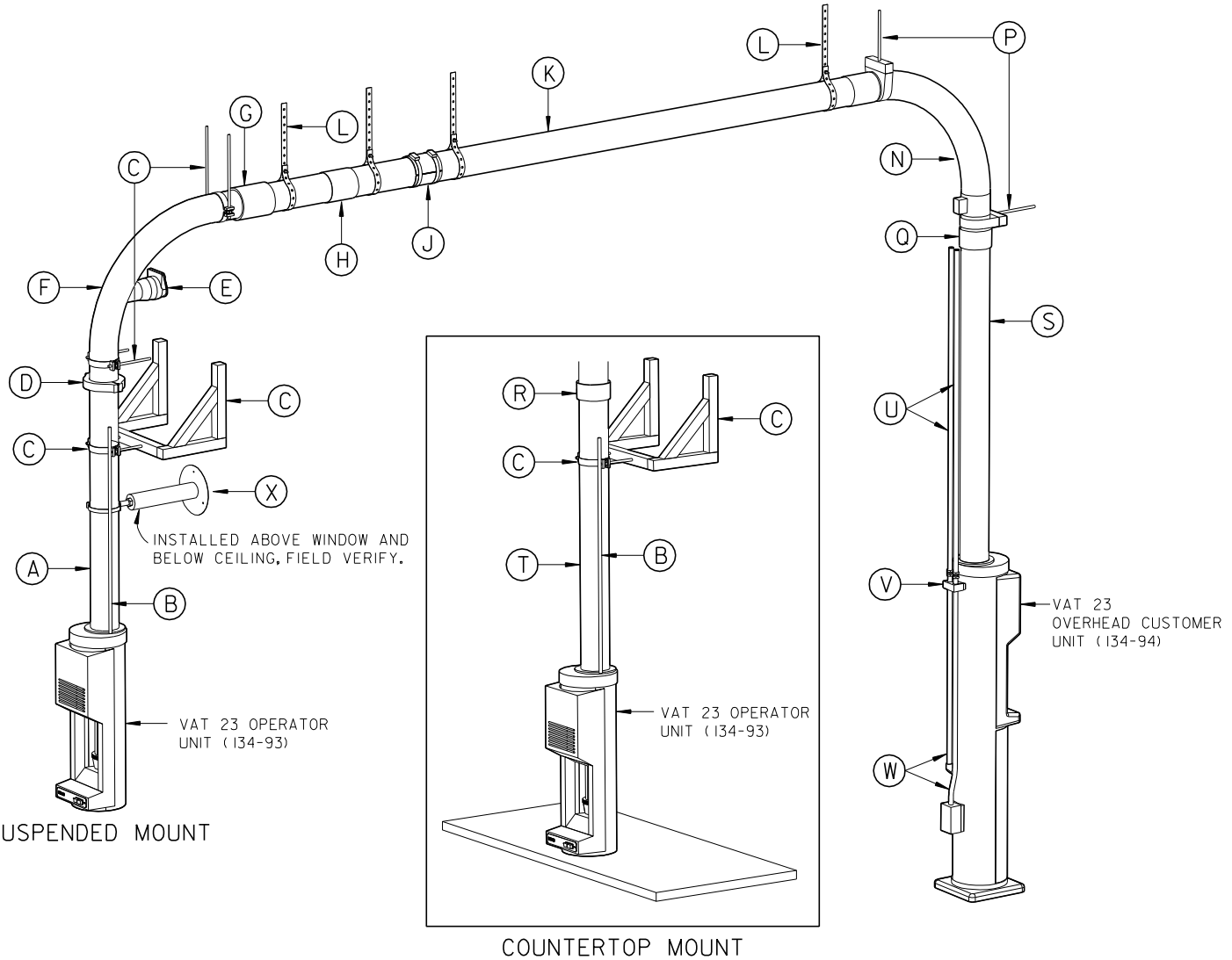
(V) OFFSET AND CLAMP CONDUIT PAINTED, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(W) 19 (¾") STRAIGHT AND OFFSET CONDUIT PAINTED, INCLUDED IN VAT 23 OVERHEAD CUSTOMER TO OVERHEAD OPERATOR PVC TUBE KIT (11-040309-000A)

(X) OPTIONAL OPERATOR UNIT STABILIZER BAR (31-019757-000A) ONLY USED ON SINGLE LANE APPLICATION. (MUST BE ORDERED BY SALES REPRESENTATIVE)

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION



SUSPENDED MOUNT

COUNTERTOP MOUNT

FILE NO. 178-1857 REV. I

DIEBOLD®

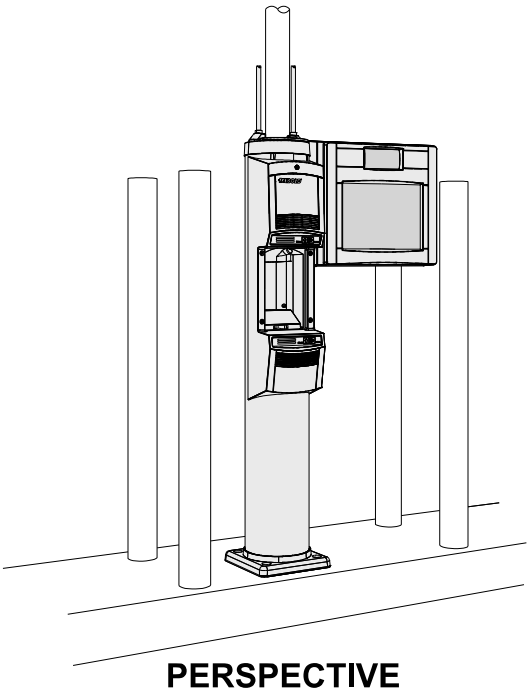
CALL 1-800-999-3600

TWO-WAY CCTV SYSTEM FOR VAT "GX" UNITS

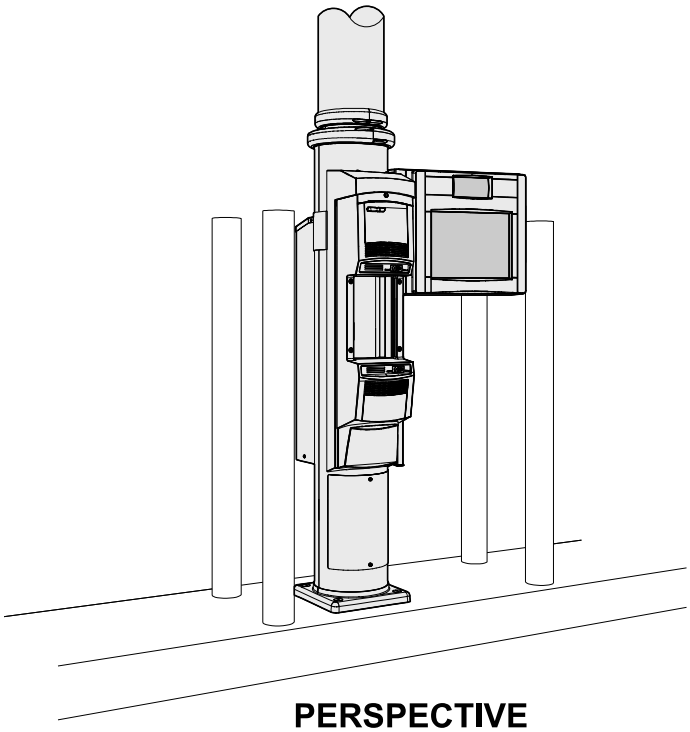
13724G TWO-WAY CUSTOMER UNIT COLOR CAMERA AND COLOR DISPLAY

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

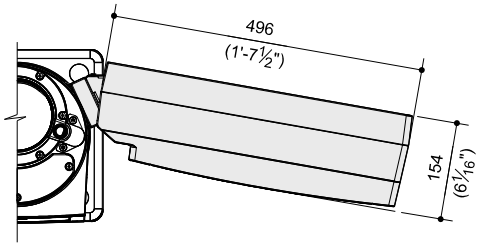
THIRD ANGLE PROJECTION



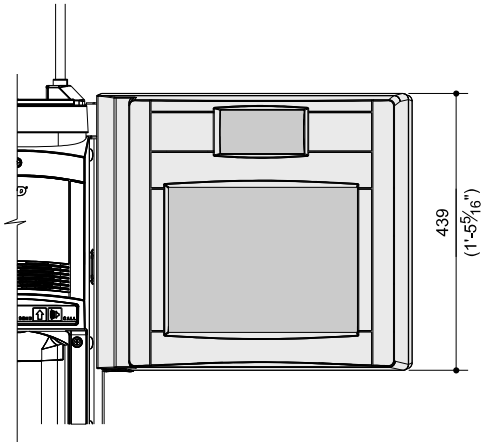
PERSPECTIVE
VAT 21GX SYSTEM



PERSPECTIVE
VAT 30GX SYSTEM
Easy-aire 10GX SYSTEM



PLAN VIEW



FRONT VIEW

SPECIFICATIONS

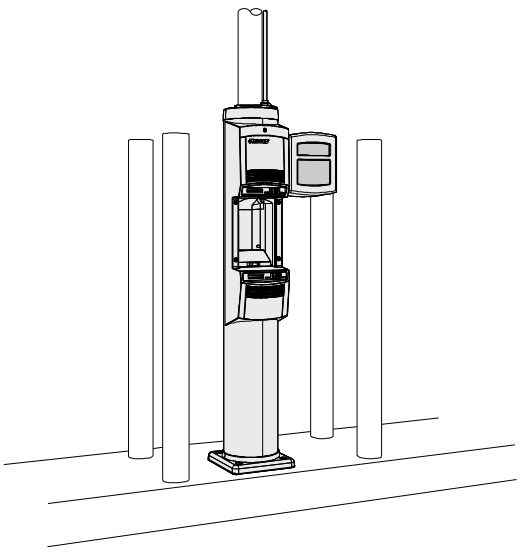
- 381mm (15") LCD (LIQUID CRYSTAL DISPLAY), 1024 X 768 RESOLUTION DISPLAY.
- INTEGRATED COLOR CAMERA.
- POWER
  - VOLTAGE - 24V
  - POWER - 50VA
- HIGH IMPACT POLYMER CONSTRUCTION WITH COLOR MOLDED IN HOUSING.
  - GRANITE GRAY FRONT
  - CHARCOAL GRAY BACK
- MOUNTING METHOD PER DIEBOLD VAT MODEL WITH HIGH TENSILE STRENGTH METAL, POWER COATED CHARCOAL GRAY.
- RoHS COMPLIANT SOLUTION.
- ENVIRONMENT CONTROL
  - INTEGRATED HEATER-AUTOMATIC
    - ENERGIZED ONLY WHEN AMBIENT TEMPERATURE IS LOW ENOUGH.
    - HEATER POWER IS LIMITED BASED ON AMBIENT TEMPERATURE (ONLY THE REQUIRED HEAT IS PRODUCED.
  - INTEGRATED FAN
    - ENERGIZED CONTINUOUSLY TO MAINTAIN UNIFORM ENVIRONMENT.
    - FAN POWER AT 50% POWER.
      - REDUCE ENERGY CONSUMPTION
      - REDUCE FAN NOISE
  - INSULATION
    - RETAIN HEAT GENERATED FROM LCD AND HEATER TO MAINTAIN ENVIRONMENT
    - REDUCES FAN NOISE
  - OPERATING TEMPERATURE
    -30ºF TO 130ºF (-34ºC TO 54ºC)
    HUMIDITY 15 TO 100% NON-CONDENSING.
- SECURITY
  - EQUIPPED WITH A TAMPER SWITCH FOR EASY INTEGRATION TO ALARM SYSTEM.
  - HEARTBEAT LED IS ALSO INTEGRATED BY THE CAMERA.

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE"

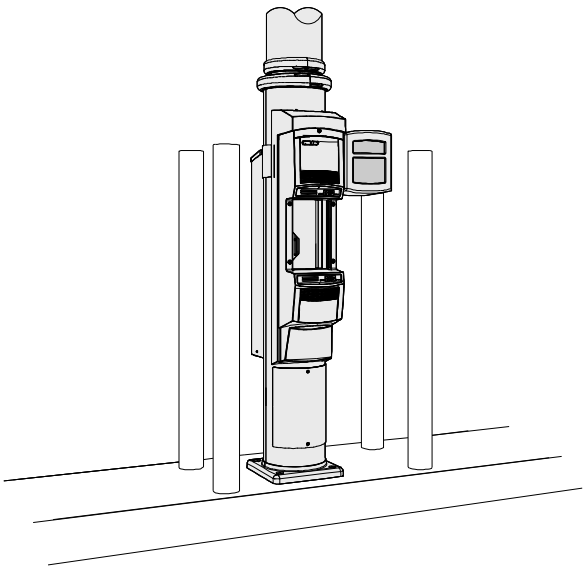
13524G TWO-WAY CUSTOMER UNIT COLOR CAMERA AND COLOR DISPLAY

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

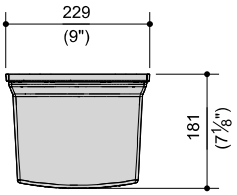
THIRD ANGLE PROJECTION



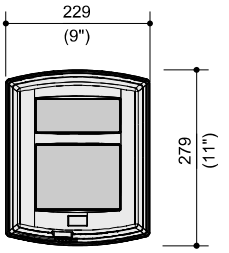
PERSPECTIVE
VAT 21GX SYSTEM



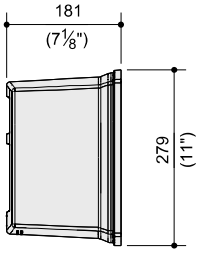
PERSPECTIVE
VAT 30GX SYSTEM
Easy-aire 10GX SYSTEM



PLAN VIEW



FRONT VIEW



SIDE VIEW

13524G TWO-WAY CCTV
CUSTOMER DISPLAY

SPECIFICATIONS

MONITOR
LCD 163mm (6⁷⁄₁₆") SUNLIGHT VIEWABLE, 12 VDC

INTEGRATED COLOR CAMERA.

POWER
120 VAC, 60HZ, 20AMP

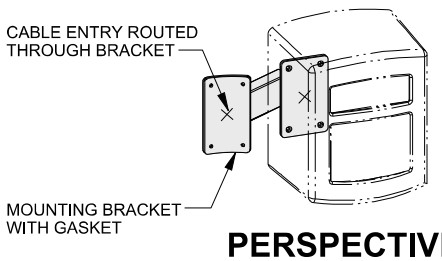
MATERIAL
CUSTOMER DISPLAY - MOLDED ROYALITE .25 GAUGE - PLATINUM COLOR
MOUNTING BRACKET - 11 GAUGE STAINLESS STEEL RECTANGULAR TUBING WITH 11 STAINLESS STEEL SHEET END PLATES.

CONTROLS
REMOTE MONITOR TURN-OFF SWITCH CAPABILITY FOR THE CUSTOMER UNIT IS PROVIDED . THIS IS A LOW VOLTAGE SIGNAL. ON/OFF SWITCH BY THE OWNERS E.C. FOR EACH VAT UNIT

CONDUIT
VIDEO AND LOW VOLTAGE CONTROL SIGNALS SHALL BE IN CONDUIT SEPARATE FROM POWER SOURCE CABLE

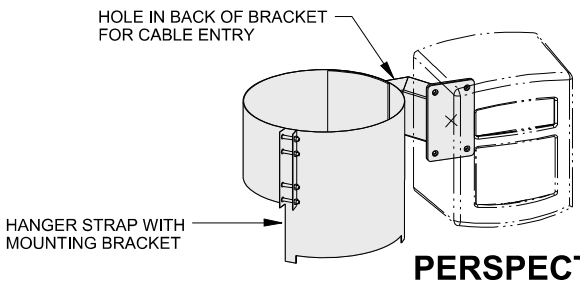
COAXIAL CABLE
MAXIMUM CABLE RUN IS 228600mm (750') WITH RG-59U. CUSTOMER UNIT TO SWITCHER.

HEATER / FAN
A THERMOSTATICALLY CONTROLLED HEATER AND FAN ASSEMBLY IS CONTAINED IN THE CUSTOMER UNIT FOR ENVIRONMENTAL PURPOSES.



PERSPECTIVE

13547G TWO-WAY CCTV
CUSTOMER DISPLAY
MOUNTING KIT FOR VAT21GX AND VAT 23



PERSPECTIVE

1354G TWO-WAY CCTV
CUSTOMER DISPLAY
MOUNTING KIT FOR VAT30GX AND Easy-aire 10

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE"

FILE NO. 178-2058 REV. 3

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION

Ⓐ 13724 or 13524 TWO-WAY CUSTOMER UNIT
COLOR CAMERA & COLOR DISPLAY

Ⓑ CCTV MATRIX SWITCHER (RECOMMENDED LOCATION IN OPERATORS KNEE SPACE AREA)

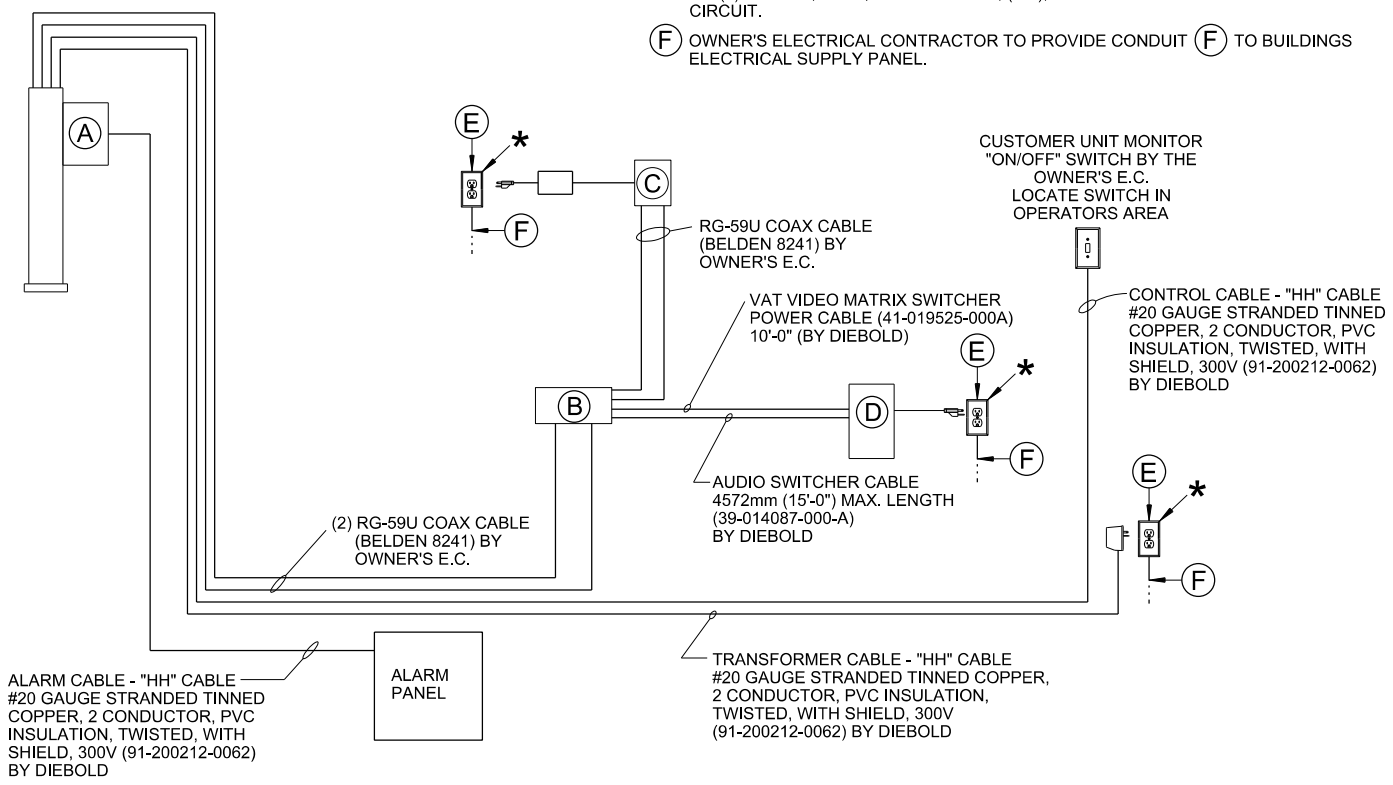
* LOCATE IN OPERATORS KNEE SPACE AREA.

Ⓒ 13523 VISION DIRECT OPERATOR VIDEO UNIT (SEE PAGE 5 OF 7)
or
COLOR MONITORS WITH CAMERAS (SEE PAGES 6 OF 7 & 7 OF 7)

Ⓓ AUDIO SWITCHER (RECOMMENDED LOCATION IN OPERATORS KNEE SPACE AREA)

Ⓔ OWNER'S ELECTRICAL CONTRACTOR TO PROVIDE (1) DUPLEX OUTLET AT EACH ON (1) 120 VAC, 60 Hz, SINGLE-PHASE, (3W), 20 AMP DEDICATED BRANCH CIRCUIT.

Ⓕ OWNER'S ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT Ⓕ TO BUILDINGS ELECTRICAL SUPPLY PANEL.



TYPICAL ELECTRICAL FOR VAT GX TWO-WAY CCTV SYSTEMS

MODEL NUMBER	PART NUMBER	DIMENSIONS A	B	C	WEIGHT KG (LBS.)	INPUTS	OUTPUT
00-013653-000A	41-017399-000A	415 (16 3/8")	142 (5 5/8")	23 (15/16")	1.58 (3 1/2")	4	4
00-013653-000B	41-017399-000B	415 (16 3/8")	142 (5 5/8")	23 (15/16")	1.58 (3 1/2")	4	8
00-013653-000C	41-017399-000C	523 (20 5/8")	173 (6 7/8")	23 (15/16")	1.58 (3 1/2")	8	16

SPECIFICATIONS

ELECTRICAL:
15 VDC, 20 W
(POWER SUPPLY UNIVERSAL INPUT)

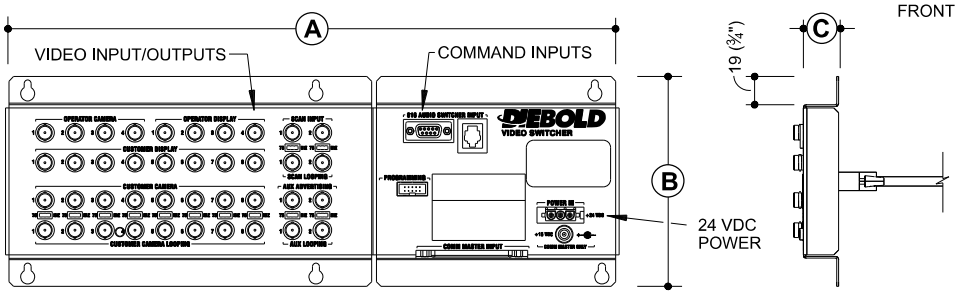
INPUT/OUTPUT IMPEDANCE:
75 ohm

VIDEO CONNECTOR:
BNC

CONSTRUCTION:
SHEET STEEL

COLOR:
BLACK

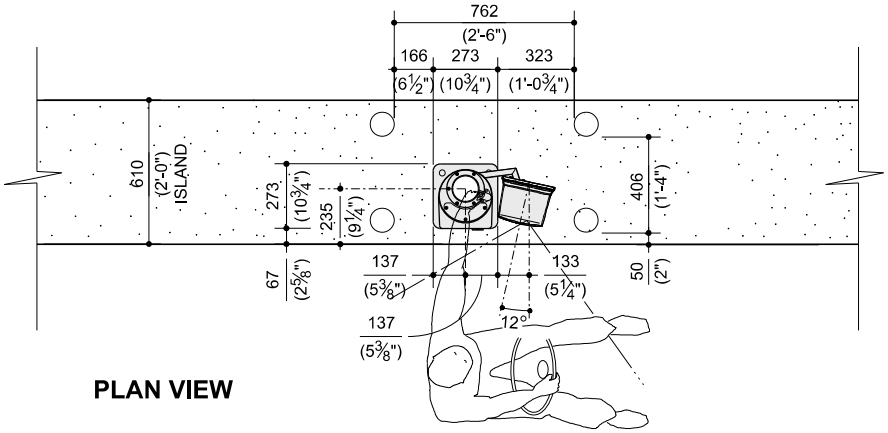
NOTE:
FRONT VIEW MAY CHANGE PER MODEL.



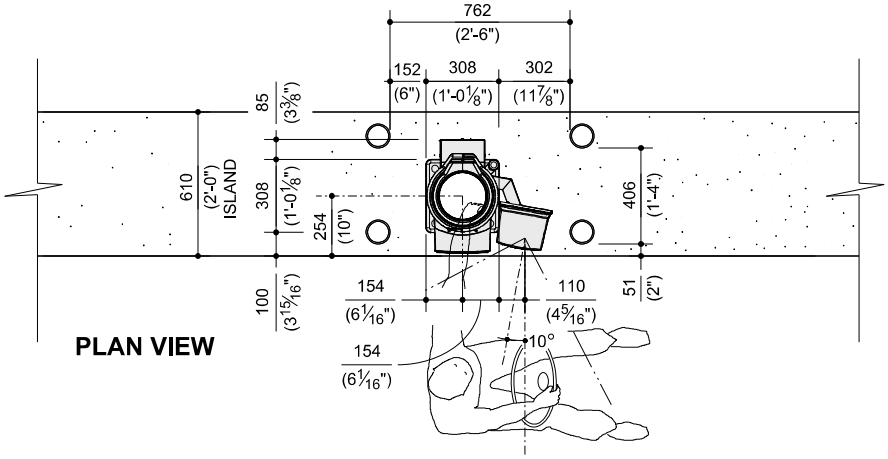
FRONT VIEW

SIDE VIEW

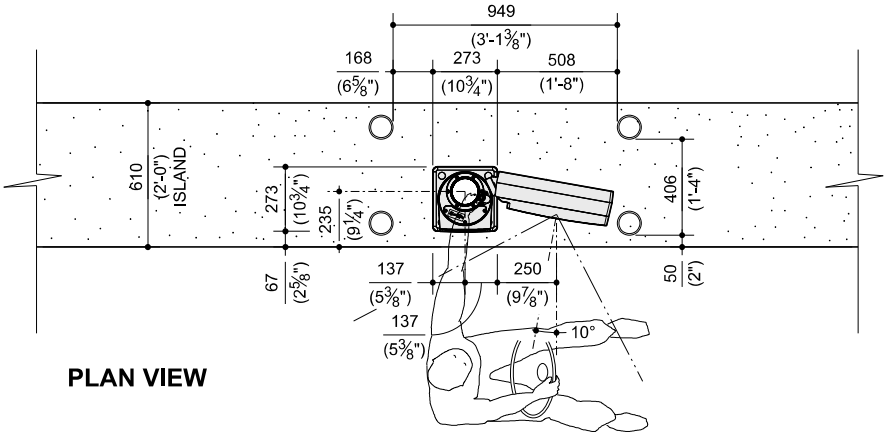
CCTV MATRIX SWITCHER



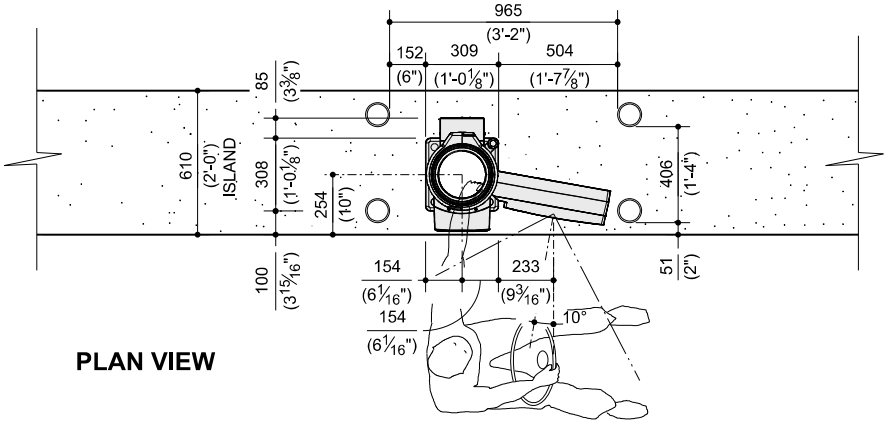
13486G VAT 21GX CUSTOMER UNIT WITH 13524G (6.4") TWO WAY CCTV



13590G VAT 30GX & 13587G Easy-aire 10GX CUSTOMER UNIT WITH 13524G 163mm (6.4") TWO WAY CCTV



13486G VAT 21GX CUSTOMER UNIT WITH #13724 TWO WAY CCTV

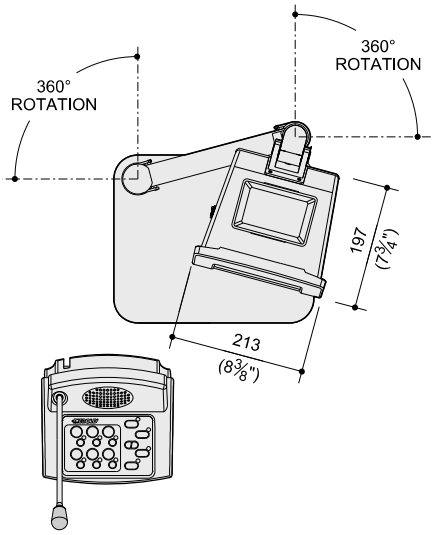


13590G VAT 30GX AND #13587G Easy-aire 10GX CUSTOMER UNIT WITH #13724 TWO WAY CCTV

13523 Vision Direct
OPERATOR VIDEO UNIT

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION



PLAN VIEW

SPECIFICATIONS

MONITOR

MATERIAL:
ROYALITE R59 ABS/PVC

COLOR:
CHARCOAL GRAY HOUSING

POWER SUPPLY:
12 VDC, 30 WATT, 2.5 AMP

VOLTAGE INPUT:
90 TO 264 VAC

PIVOTAL MOUNT ARM

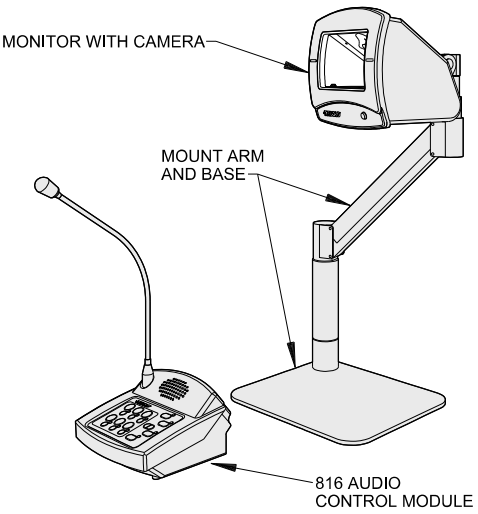
COLOR:
BLACK

LOAD ADJUSTMENT:
2.7 TO 5.4 KG (6 TO 12 LBS.)

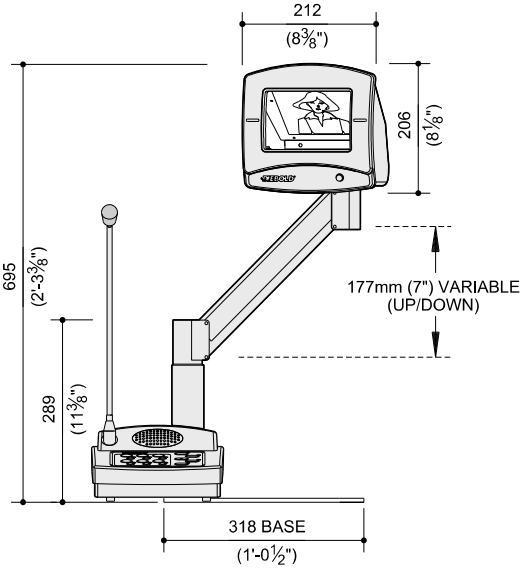
VERTICAL MOVEMENT:
7" UP AND 7" DOWN

ARM ROTATION:
360° AT THREE JOINTS

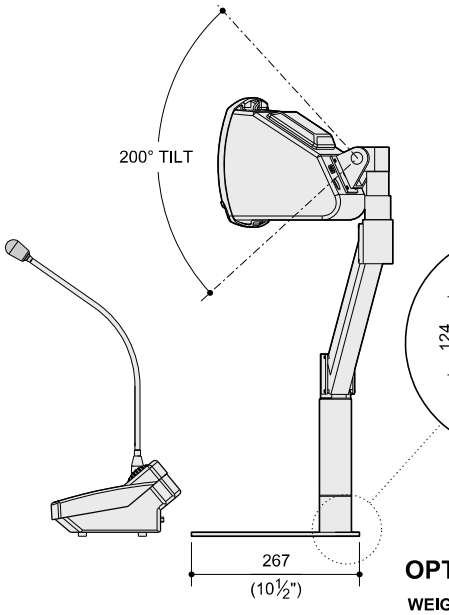
TILT MECHANISM:
OVER 200° TILT



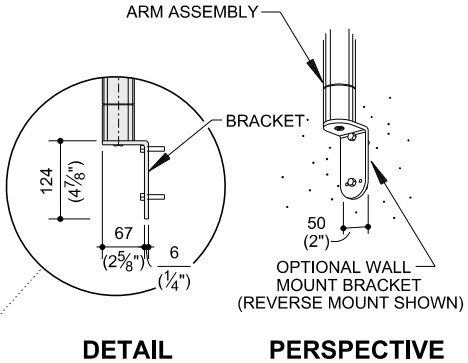
PERSPECTIVE



FRONT VIEW



SIDE VIEW

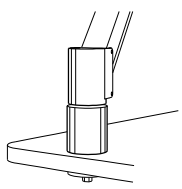


DETAIL **PERSPECTIVE**

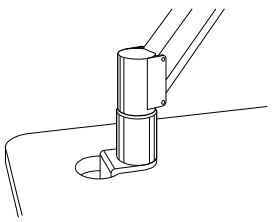
OPTIONAL WALL MOUNT BRACKET

WEIGHT:
6.8 KG.(15 LBS.)

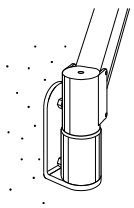
(WALL MOUNT BRACKET, ARM
AND TELLER DISPLAY HEAD.)



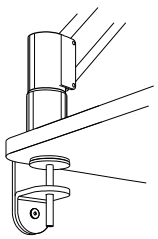
DESK MOUNT



HOLE CLAMP MOUNT



WALL MOUNT



CLAMP MOUNT

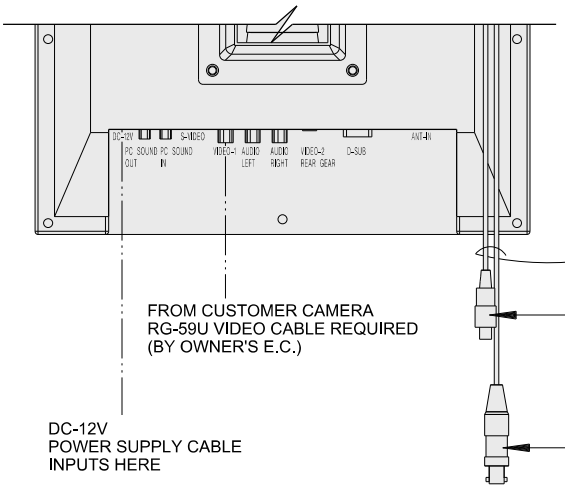
CCTV OPERATOR UNIT MOUNTING OPTIONS

PAGE 5 OF 7

"ALL DIMENSIONS AND DESIGN CRITERIA SUBJECT TO CHANGE WITHOUT NOTICE"

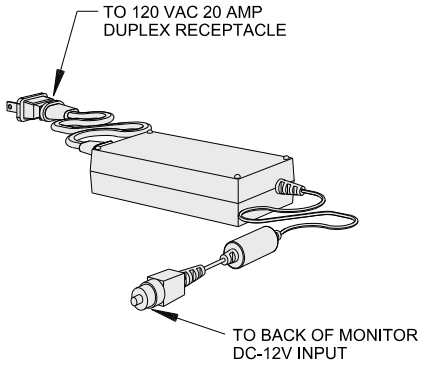
FILE NO. 178-2058 REV. 3

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)



BACK VIEW

10.4 INCH COLOR MONITOR INPUT DETAIL

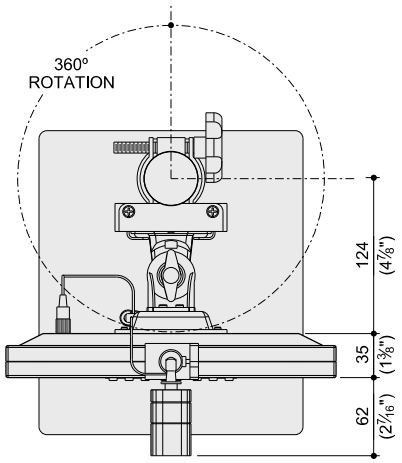


MONITOR

12 VOLT POWER SUPPLY

(31-022009)

THIRD ANGLE PROJECTION



PLAN VIEW

SPECIFICATIONS

MONITOR:

SCREEN:
10.4 INCH LCD COLOR

MATERIAL:
TEXTURED PLASTIC

COLOR:
BLACK

POWER:
AC/DC ADAPTER 12V, 3.0 AMP
(100-240V, 50/60Hz)

POWER CONSUMPTION:
30W

WEIGHT:
5.98 KG. (13.2 LBS.)

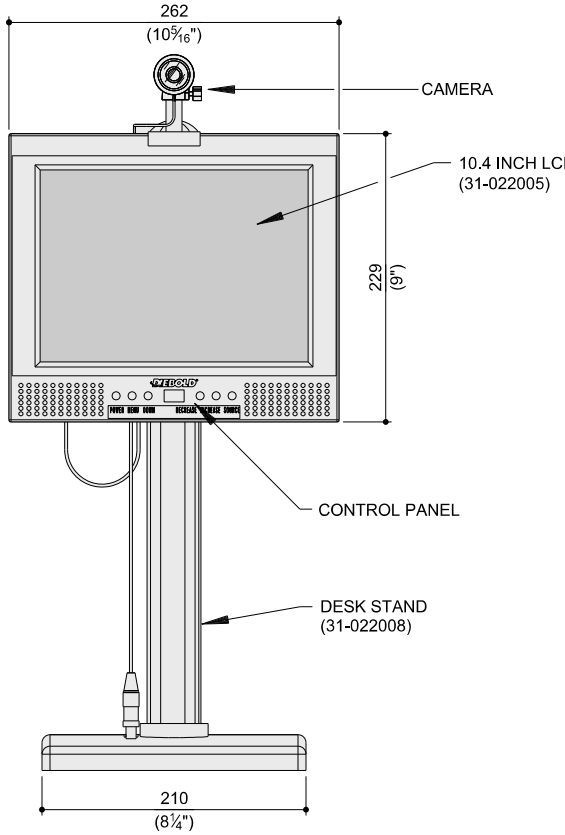
BASE:

MATERIAL:
ALUMINUM BASE WITH STEEL MOUNTING POLE

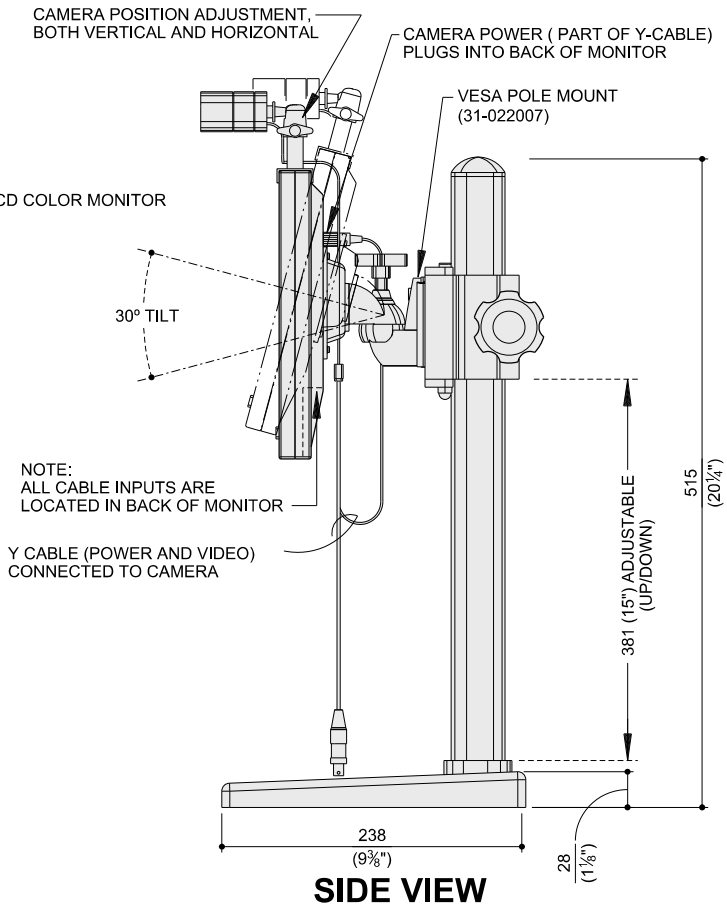
COLOR:
SATIN BLACK

CAMERA:

1/3 COLOR BULLET WITH 4.3mm LENS



FRONT VIEW

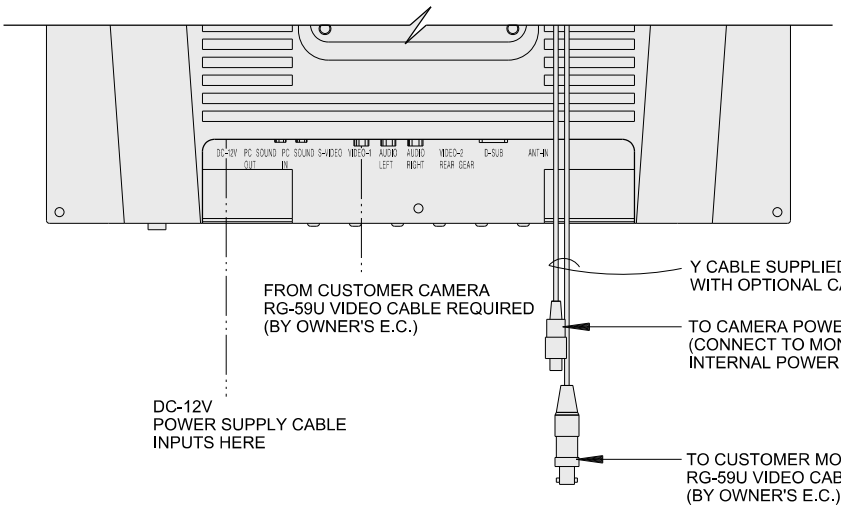


SIDE VIEW

10.4 INCH COLOR MONITOR WITH STAND & CAMERA (31-022003)

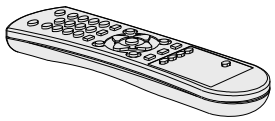
(USED WITH TWO-WAY CCTV)

FILE NO. 178-2058 REV. 3



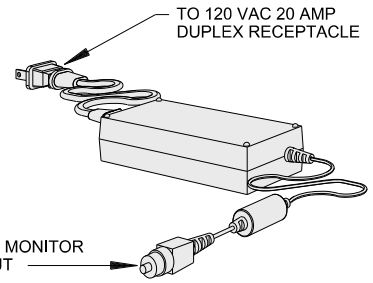
BACK VIEW

15 INCH COLOR MONITOR INPUT DETAIL



REMOTE CONTROLLER

TO 120 VAC 20 AMP
DUPLEX RECEPTACLE

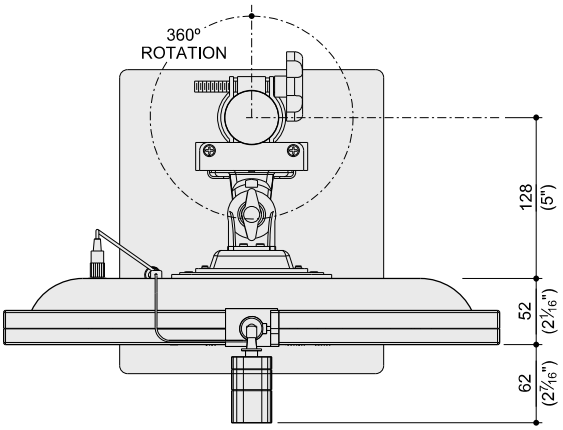


MONITOR

12 VOLT POWER SUPPLY
(31-022009)

DIMENSIONS IN MILLIMETRES
(DIMENSIONS IN FEET-INCHES)

THIRD ANGLE PROJECTION



PLAN VIEW

SPECIFICATIONS

MONITOR:

SCREEN:
15 INCH LCD COLOR

MATERIAL:
TEXTURED PLASTIC

COLOR:
BLACK

POWER:
AC/DC ADAPTER 12V, 3.0 AMP
(100-240V, 50/60Hz)

POWER CONSUMPTION:
35W

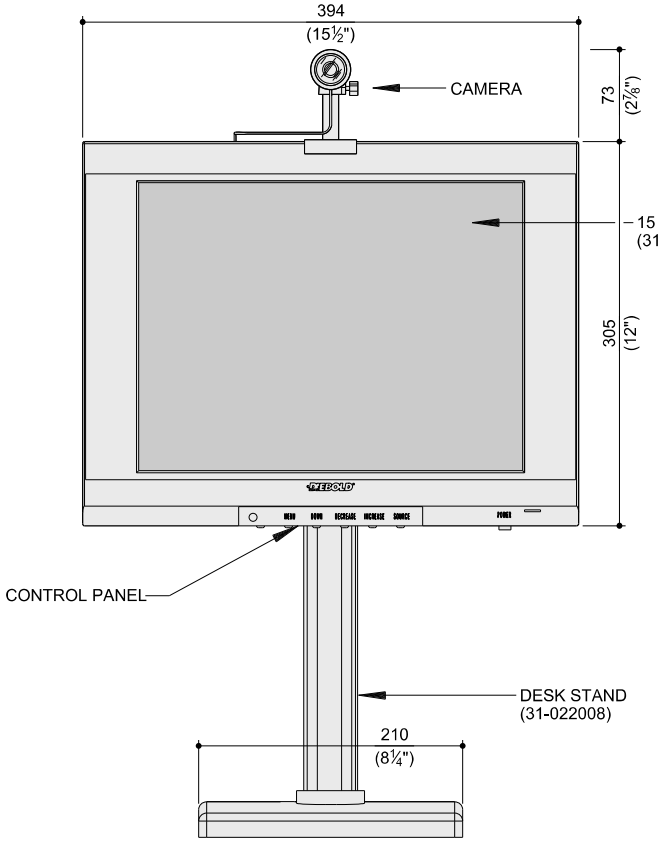
WEIGHT:
6.1 KG. (13.6 LBS.)

BASE:

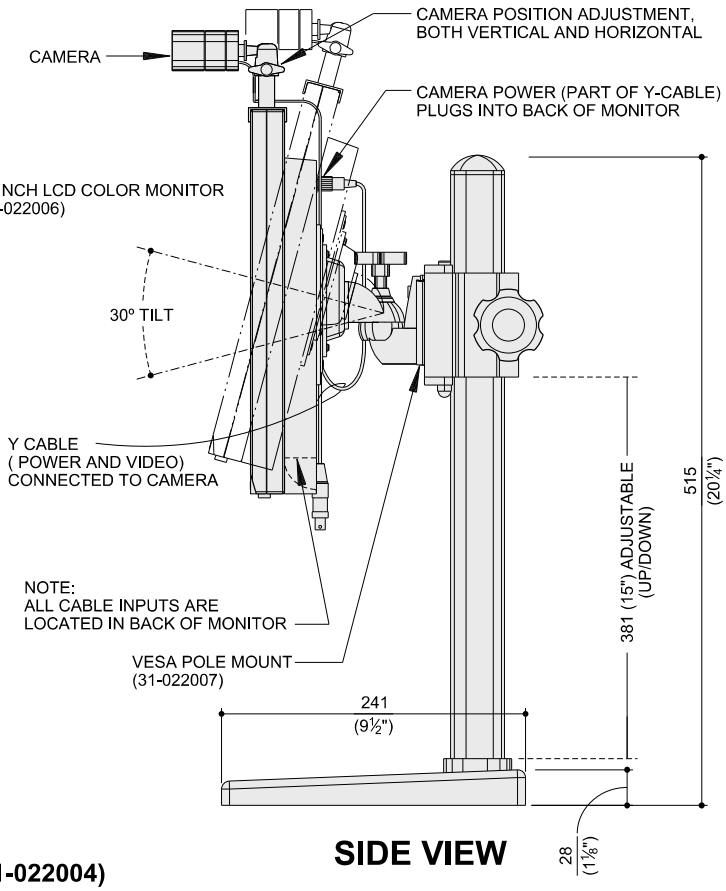
MATERIAL:
ALUMINUM BASE WITH STEEL MOUNTING POLE

COLOR:
SATIN BLACK

CAMERA:
1/3 COLOR BULLET WITH 4.3mm LENS



FRONT VIEW



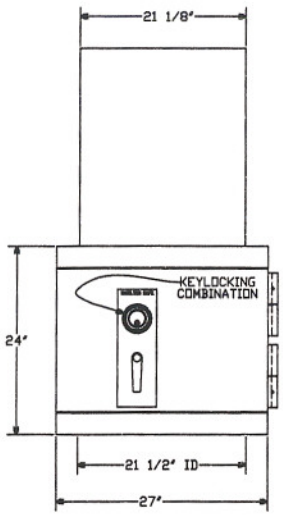
SIDE VIEW

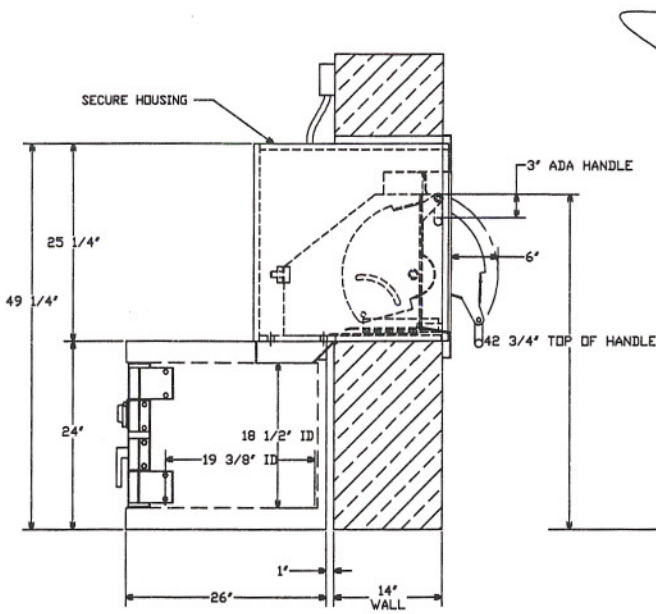
15 INCH COLOR MONITOR WITH STAND & CAMERA (31-022004)
(USED WITH TWO-WAY CCTV)

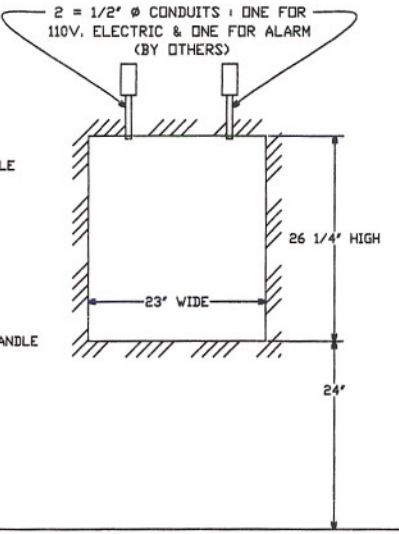
"ALL DIMENSIONS AND DESIGN CRITERIA
SUBJECT TO CHANGE WITHOUT NOTICE"

FILE NO. 178-2058 REV. 3

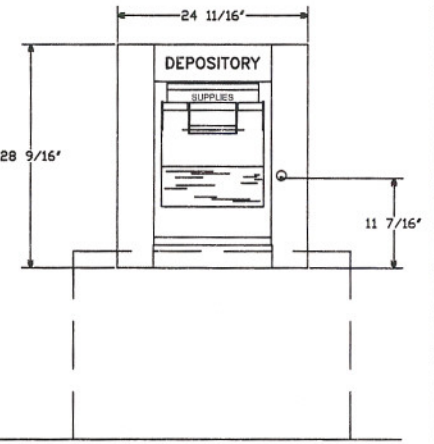
Rev - 1	2/4/05 CORRECTED NOTES...
Rev - 2	3/23/05 Corrected weight.





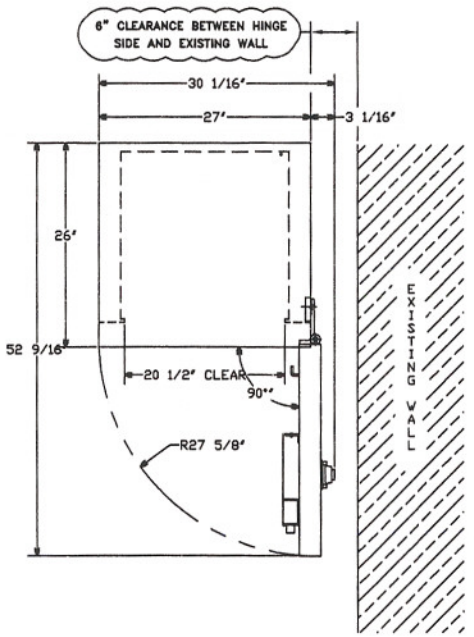


MASONRY DETAIL



EXTERIOR

INTERIOR



PLAN VIEW WITH DOOR OPEN AT 90°

RIGHT SIDE VIEW

COMPOSITE DEPOSITORY UNIT

DRAWING NUMBER: 95-961

DEPOSITORY HEAD:
1 = 80UC UL LISTED NIGHT DEPOSITORY HEAD
1 = SECURE HOUSING

COMPOSITE CHEST - 24"H x 27"W x 26"D;TL-15;
RIGHT SWING

ALARM:
1 = HEAT SENSOR AND DOOR CONTACT
1 = ALARM HOLE IN TOP HINGE SIDE

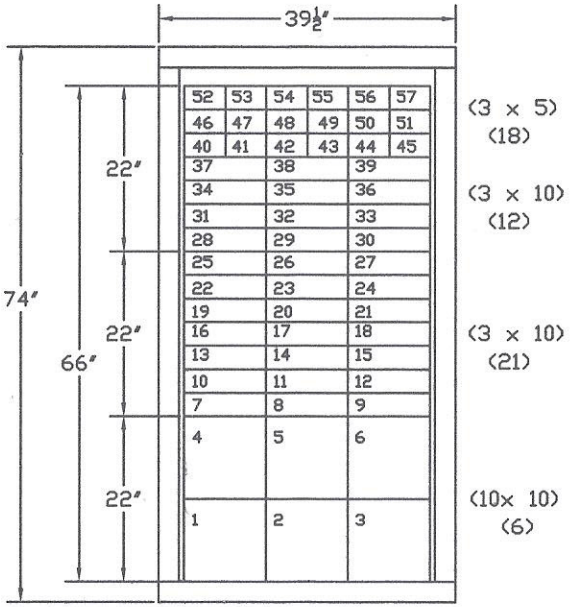
COLOR:
CHARCOAL GRAY

HAMILTON SAFE PRODUCTS CO., INC.

4770 Northwest Parkway
HILLIARD, OHIO 43026
(614) 268-5530
Toll Free Phone # 888-748-0987
Toll Free Fax # 866-428-9618

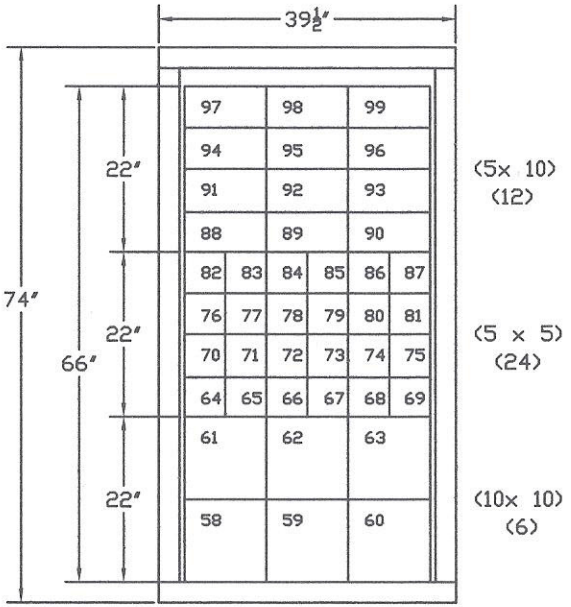
ESTIMATED WEIGHT = 1,745 lbs

HAMILTON SAFE	
80UC (DRIVE-UP) TL-15 COMPOSITE DEPOSITORY UNIT 24"H x 27"W x 26"D	
Drawing Number : 95-961	Date : 12-13-04



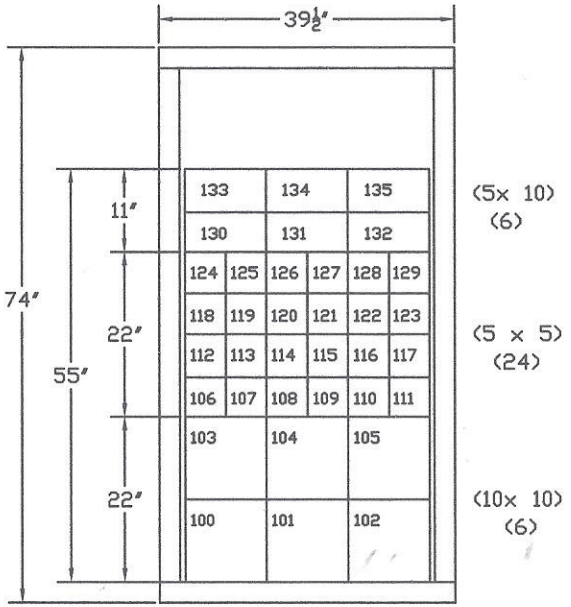
Safe 1

57



Safe 2

42



Safe 3

36

TOTAL SAFE DEPOSIT BOXES=135

Schedule of Rented Boxes

3 x 5 = 18
3 x 10 = 10
4 x 5 = 1 (Obsolete)
5 x 5 = 32
5 x 10 = 16
10 x 10 = 10
Total Boxes Rented=87

New Boxes

3 x 10 = 23
5 x 5 = 15
5 x 10 = 2
10 x 10 = 8

HAMILTON SAFE PRODUCTS COMPANY, INC. 4770 Northwest Parkway, Hilliard, Ohio 43026 (614) 850-5330 Fax (614) 850-4998		First Federal Lakewood 26624 Lorain Road North Olmsted, OH
Drawn By: Dale Peters	Date: 12-28-2010	Dwg. No. S/D Box Layout
Checked By:	Scale: NONE	
Approved By:	Job No.	
This drawing is the property of The Hamilton Safe Products Co. and is not to be reproduced nor used in any manner detrimental to our interest. All rights are reserved.		Sheet 1 of 1

COMPOSITE CHEST - 74"H x 39 ½"W x 32 1/4"D; TL-15
LEFT SWING

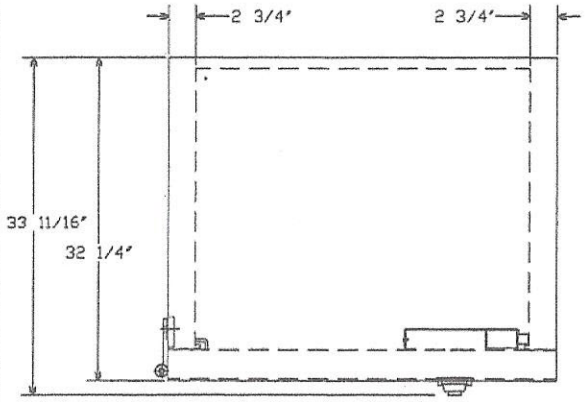
1-HOUR 350 DEGREE FIRE PROTECTION IN ACCORDANCE TO UL 72

TWO MOVEMENT TIMELOCK

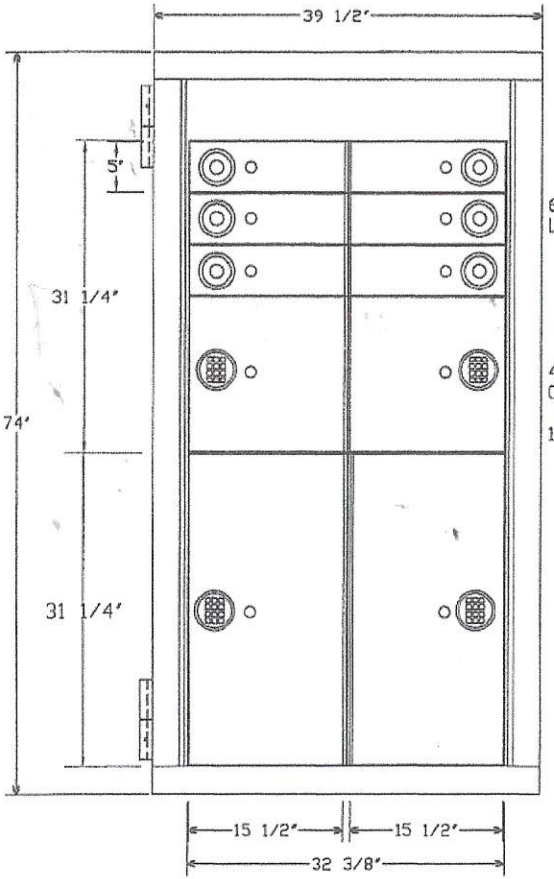
ALARM:
1 = HEAT SENSOR AND DOOR CONTACT
1 = SEISMIC DETECTOR
1 = ALARM HOLE

COLOR:
CHARCOAL GRAY

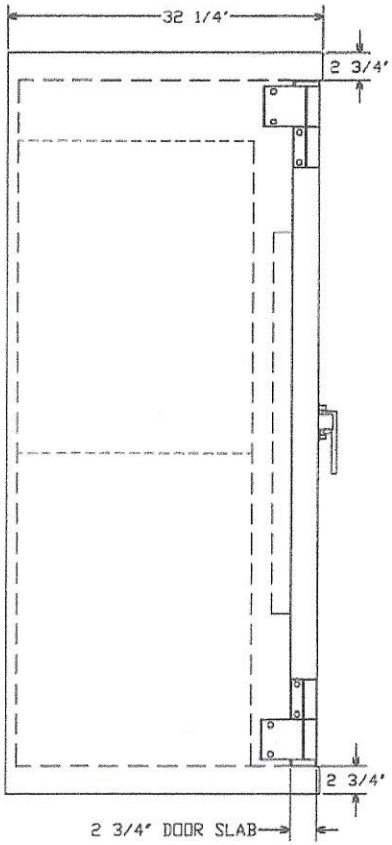
Rev - 1	
Rev - 2	



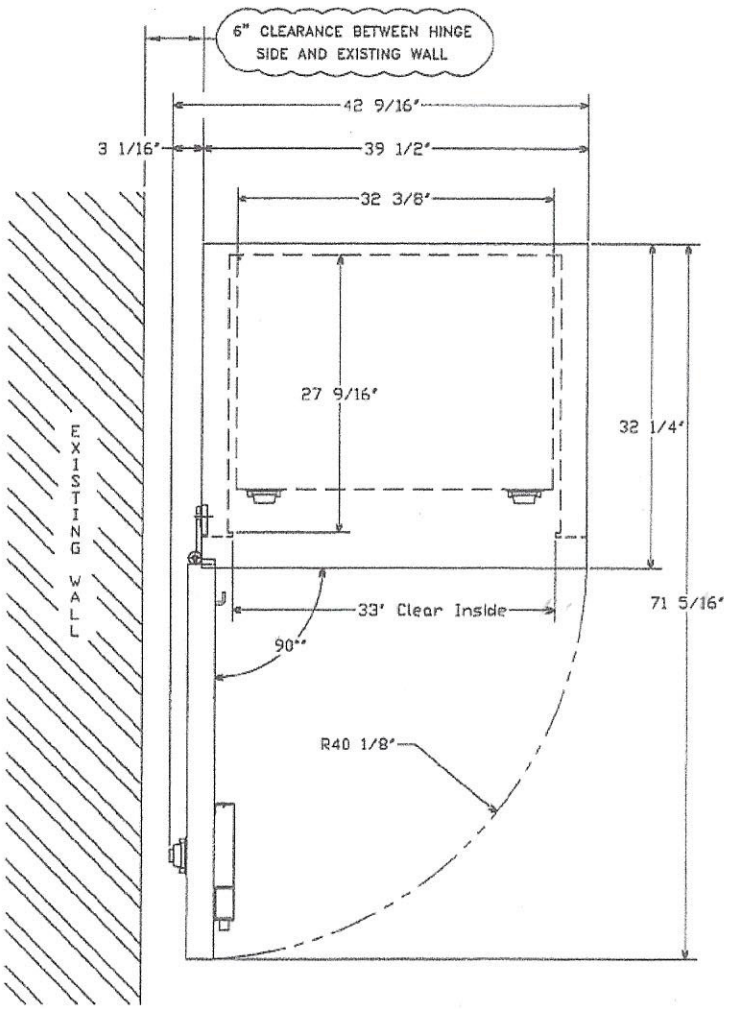
PLAN VIEW



FRONT ELEVATION
(DOOR REMOVED)



LEFT SIDE ELEVATION



PLAN VIEW WITH DOOR OPEN AT 90°

HAMILTON SAFE

HAMILTON SAFE PRODUCTS

Drawing Number : 175388 | Date : 1/18/10