



Gaithersburg
A CHARACTER COUNTS! CITY

City of Gaithersburg

31 South Summit Avenue
Gaithersburg, Maryland 20877

INVITATION FOR BID

No. 2015-004

Water Park Roof Replacement and Bathhouse Renovation Project

Solicitation Issued: October 22, 2014

Bid Submissions Due: November 18, 2014 Time: 11:00 AM

Submissions Received By: Sunil Prithviraj
Capital Projects Program Manager
Department of Public Works
800 Rabbitt Road
Gaithersburg, Maryland 20878

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SECTION 1: Definitions

“Bid Proposal” means the binding offer submitted to the City by a Bidder in response to this Solicitation, in pursuit of the Contract.

“Bid Proposal Price” means the total monetary offer of the Bid Proposal.

“Bidder” means any Person submitting a Bid in response to this Solicitation.

“City” means the City of Gaithersburg, Maryland, a municipal corporation of the State of Maryland.

“City Website” means <http://www.gaithersburgmd.gov/government/procurement/current-bids>.

“Closing Deadline” means the date and time in which all Bid Proposals shall be submitted to and received by the City.

“Contract” means the binding agreement awarded pursuant to this Solicitation, if any.

“Contractor” means the Bidder awarded the Contract.

“Lowest Responsive and Responsible Bidder” means the Responsible Bidder who submits a Responsive Bid Proposal and offers the most advantageous pricing or cost benefit.

“Person” means any individual, sole proprietorship, association, company, firm, partnership, limited partnership, joint venture, corporation, Limited Liability Company or other form of entity or association recognized at law.

“Price Analysis” means the examination of the Bid Proposal Price to ensure it is fair and reasonable.

“Responsible Bidder” means a Bidder who is fully: (i) capable to meet all of the requirements of this Solicitation and under the Contract, including financial and technical; and (ii) able to evidence the ability to provide the Services under the Contract.

“Responsive Bid Proposal” means a Bid Proposal that fully conforms in and to all material respects and requirements to and of this Solicitation, including all form and substance.

“Services” means the goods and/or work under this Solicitation.

“Solicitation” means this Invitation to Bid.

“Solicitation Documents” means this Solicitation and any and all documents issued and/or used by the City to solicit Bid Proposals, including but not limited to: addendums, amendments, forms and specifications.

~ END OF SECTION 1 ~

SECTION 2: Purpose and Notices to Bidders

2.1. PURPOSE

The City is seeking sealed Bid Proposals for the replacement of the roof and renovations to the bathhouse of the Water Park at Bohrer Park (hereinafter referred to as "Water Park") facility, which is located at 510 South Frederick Avenue, Gaithersburg, Maryland 20877 (hereinafter referred to as "Facility").

2.2. NOTICES TO BIDDERS

A. City's Liability

This is a Solicitation only, it is not a contract. The City shall assume no obligation to pay or reimburse any Person for any costs, fees, or expenses incurred in preparation of a response to this Solicitation, or for any meetings or travel costs related to such response.

The City reserves the right to reject any or all Bid Proposals in full or in part and/or to waive any technicalities or informalities as best may serve the interests of the City. The City is under no obligation to any Person under this Solicitation until a contract is executed for the Services described herein.

B. Authority to Distribute Solicitation Documents

The City is the sole entity with the authority to issue and distribute any and all Solicitation Documents to any interested Person. Any Person, who obtains Solicitation Documents from any source other than the City, may have incomplete Solicitation Documents.

The City assumes no responsibility for any error, omission and/or misinterpretation resulting from the reliance and/or use of Solicitation Documents not issued and distributed by the City. Any and all Solicitation Documents shall be posted on the City Website.

C. Acceptance

The submission of a Bid Proposal shall constitute acknowledgement and acceptance by the Bidder of the requirements and terms and conditions specified herein.

D. Restricted Discussions

Bidders are prohibited from discussing this Solicitation or any part thereof with any employee, agent, or representative of the City except as expressly authorized herein. The City may, in its sole discretion, reject the Bid Proposal submitted by a Bidder who is in violation of this provision.

E. State of Maryland Bid and Contract Requirements

I. Bidding Requirements

The Bidder must be qualified to bid in the State of Maryland in accordance with §16-202 and §16-203 of the State Finance and Procurement Article of the Annotated Code of Maryland.

II. Contract Requirements

To enter into a contract with the City, the Bidder must be in compliance with the State of Maryland Code of Regulations Title 21, State Procurement Regulations.

F. ADA Requirements

Individuals with a disability, who would like to receive the information in this Solicitation in another form, may contact the City's Procurement Manager at 301-258-6320.

~ END OF SECTION 2 ~

SECTION 3: Solicitation Information and Conditions

3.1. **SOLICITATION SCHEDULE**

The following is the tentative schedule of events for this Solicitation. The City reserves the right to modify this schedule at any time as best may serve the interests of the City; any and all modifications will be communicated by addendum or amendment as specified herein. All times are according to Eastern Standard Time (EST).

EVENT	DATE	TIME
A. Solicitation Issued:	October 22, 2014	N/A
B. Pre-Bid Meeting: ↳ Location Water Park 510 South Frederick Avenue Gaithersburg, Maryland 20877	October 31, 2014	At 11:00 am
C. Bidder Questions Due in Writing:	November 6, 2014	By 3:00 pm
D. City's Answers to Questions Issued:	November 12, 2014	N/A
E. Closing Deadline: ↳ Submitted To Sunil Prithviraj Capital Projects Program Manager Department of Public Works 800 Rabbitt Road Gaithersburg, Maryland 20878	November 18, 2014	By 11:00 am

3.2. **PRE-BID MEETING**

Attendance of the Pre-Bid Meeting for this Solicitation is not required; however, the City strongly encourages any and all Bidders to attend. The purpose of the Pre-Bid Meeting is to provide a method for all Bidders to become familiar with any and all conditions which may, in any manner, affect the Services to be provided under the Contract.

A claim by any Bidder of a lack of knowledge of any such conditions shall not be grounds for any additional allowances and/or for any protest by the Bidder. The submission of a Bid Proposal by any Bidder shall be taken as prima facie evidence that the Bidder has familiarized themselves with the nature and extent of the Services to be provided under the Contract.

3.3. **OPENING OF BID PROPOSALS**

Bid Proposals will be opened and publicly read on the date, and at the time and location, for the Closing Deadline specified in §3.1.E hereinabove.

3.4. **SOLICITATION QUESTIONS**

The failure by the Bidder to ask questions regarding this Solicitation shall constitute acknowledgement, understanding and acceptance by the Bidder of all the terms, conditions and requirements set forth in this Solicitation.

A. Submission of Questions

All questions regarding this Solicitation shall be submitted in writing to Sunil Prithviraj, Capital Projects Program Manager, by the date and time specified hereinabove. Questions shall be submitted by the following methods:

- ↳ By Email
sprithviraj@gaithersburgmd.gov
- ↳ By Mail
City of Gaithersburg
Department of Public Works
800 Rabbitt Road
Gaithersburg, Maryland 20878

B. Answers to Questions

The City's answers to Bidder questions will be posted by addendum on the City Website on the date specified in §3.1.D. hereinabove.

3.5. SOLICITATION TERMS AND CONDITIONS

The terms and conditions herein apply to this Solicitation and are not subject to change. These terms and conditions shall survive this Solicitation and shall be incorporated into the Contract.

A. Headings

Any and all of the headings with respect to any and all of the sections, subsections and/or paragraphs contained herein are for reference purposes only and shall not in any way affect the meaning or interpretation of any of the Solicitation Documents.

B. Acceptance and Rejection of Bid Proposals

The City reserves the right: (i) to accept or reject any or all Bid Proposals in whole or in part; (ii) to waive any technicalities or informalities in Bid Proposals; and (iii) to cancel or postpone this Solicitation at any time if determined to serve the best interests of the City. The City may reject the Bid Proposal of any Bidder in arrears or in default to the City on any contract, debt, or other obligation.

C. Accurate Information

The Bidder certifies that all information provided, or to be provided, to the City is true and correct and may be relied upon by the City in awarding the Contract. Any false or misleading information is cause for the City to reject the Bidder's Bid Proposal or to terminate the Contract if awarded to the Bidder. Such rejection or termination shall relieve the City of any direct or consequential damages or costs incurred by the Bidder.

D. Addendums and Amendments

- I. In the event any addendums and/or amendments are issued to this Solicitation, all the terms and conditions of this Solicitation shall govern and apply unless specifically stated and/or modified in such addendums and/or amendments. Verbal or written answers to questions not posted on the City Website relative to this Solicitation shall not be considered valid or enforceable.

- II. It is the responsibility of the Bidder to inquire about and obtain any and all addendums and/or amendments issued, all of which will be posted on the City Website.

E. Alternate Bid Proposals

The Bidder is expected to clearly respond to the requirements set forth in this Solicitation. Any and all alternate Bid Proposals for the Services shall be rejected as non-responsive and be removed from consideration.

F. Binding Bid Proposal

All Bid Proposals shall remain binding for one-hundred eighty (180) calendar days following the Closing Date of this Solicitation; Bid Proposals may not be withdrawn at any time within this period. In the event an award is not made during such period, all Bid Proposals shall be automatically extended for an additional one-hundred eighty (180) calendar days. Bid Proposals shall automatically be renewed until such time as either an award is made or proper notice is given to the City of the Bidder's intent to withdraw its Bid Proposal. Bid Proposals may only be withdrawn by submitting notice in writing at least fifteen (15) calendar days prior to the expiration of the then current one-hundred eighty (180) calendar days' period.

G. Confidentiality

- I. The City agrees, to the extent permitted by law and in accordance with the terms set forth in this Solicitation, to hold all confidential information and material belonging to the Bidder in strictest confidence. The Bidder shall specify in writing to the City the information or material which the Bidder deems to be a trade secret or other confidential information and/or material. Written notification shall also contain the reason such information and/or material is considered to be a trade secret and/or confidential.
- II. The Bidder agrees to hold all information and materials belonging to the City or its agents in strictest confidence and not to release, disclose or make use thereof other than for the performance of its obligations under the Contract.

H. Contract Award

- I. It is the intent of the City to award the Contract to one (1) Bidder; however, the City reserves the right to award the Contract to multiple Bidders in whole or in part. Award shall be to the Lowest Responsive and Responsible Bidder. If for any reason, through no fault of the City, the Contract is not executed within thirty (30) days' notice of tentative award by the City, the City may withdraw the tentative award and award to the next Lowest Responsive and Responsible Bidder, or solicit new Bid Proposals.
- II. In the event the City receives only one (1) Bid Proposal in response to this Solicitation, the City reserves the right, in its sole discretion, to proceed as

a negotiated procurement with the Bidder that submitted the Bid Proposal.

I. Solicitation Documents

- I. The Bidder is expected to carefully and thoroughly examine all of the Solicitation Documents for accuracy and completeness, and to become familiar with all of the Solicitation Documents. If doubt exists as to the meaning or intent in or of any of the Solicitation Documents, the Bidder shall make an inquiry as to such meaning or intent in accordance with the provisions for herein.
- II. The failure of the Bidder to examine and become familiar with any and all of the Solicitation Documents shall in no way relieve the Bidder of its obligations hereunder. The submission of a Bid Proposal shall be taken as prima facie evidence of compliance with this provision and that the Bidder fully understands the Services under this Solicitation and the Contract.

J. Errors in Bid Proposals

Obvious error(s) in calculations in any Bid Proposal may not be corrected without the prior consent of the City and in the City's sole discretion, and may be cause to reject the Bid Proposal.

K. Interest in More than One Bid and Collusion

- I. Multiple Bid Proposals submitted in response to this Solicitation by the Bidder under the same or different names shall be rejected and be removed from consideration. Reasonable grounds for believing that the Bidder has interest in more than one (1) Bid Proposal for this Solicitation, both as the Bidder and as a subcontractor for another Bidder, shall result in the rejection of all Bid Proposals in which the Bidder has interest.
- II. Any or all Bid Proposals may be rejected if reasonable cause exists for believing that collusion exists among Bidders. Bid Proposals rejected under any of these provisions shall disqualify the submitting Bidder from responding to a reissuance of this Solicitation.

L. Late Bid Proposals

It is the responsibility of the Bidder to ensure the delivery of its Bid Proposal to the designated location by the Closing Date specified in this Solicitation. The City shall assume no responsibility for delays or errors in the delivery of any Bid Proposal; postmarking by the Closing Date shall not substitute for actual receipt. Bid Proposals delivered late or to any location other than the designated location shall be rejected as non-responsive and removed from consideration.

M. Modifications to Bid Proposals

The Bidder may only modify its Bid Proposal in accordance with and subject to the following:

- I. The City shall consider the modified Bid Proposal as an entirely new Bid

Proposal which will replace the original Bid Proposal; the original Bid Proposal shall be deemed to be withdrawn and null and void.

- II. The modified Bid Proposal shall be subject to all the requirements and terms and conditions set forth herein.
- III. Notwithstanding the provisions with respect to the submission of a Bid Proposal herein, the modified Bid Proposal shall clearly be labeled "Modified Bid Proposal."

N. Optional Goods or Services

The City reserves the right to request and evaluate optional goods and/or services which may be in the best interests of the City, and may negotiate the price of such goods and/or services with the successful Bidder or with another Bidder, whichever is determined to be the most advantageous to the City. While pricing for optional goods and/or services may be requested in this Solicitation, the City is under no obligation to consider such optional goods and/or services when selecting the successful Bidder unless otherwise stated.

O. Solicitation Protest

Any protest of this Solicitation shall be in writing to the City Attorney. The provisions of COMAR Title 21.01.03.01A(7), State Procurement Regulations, do not apply to municipalities and are not applicable to this Solicitation. Protests of alleged improprieties in this Solicitation shall be filed before the Closing Deadline of this Solicitation. Any written protest shall include, at a minimum, the following:

- I. The name, address, telephone number, and if available, email address of the protestor;
- II. The Solicitation number;
- III. A detailed statement of the legal and factual grounds for the protest, including a description of resulting harm to the protestor; and
- IV. All copies of supporting exhibits, evidence and/or documents to substantiate the claim.

P. Use of Broker

The Bidder warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees, or bona fide established commercial or selling agencies maintained by the Bidder for the purpose of securing business. For violation of this provision, the City shall have the right to terminate or suspend the Contract without liability to the City, its officials, or employees or in its discretion to deduct from the Contract price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

~ END OF SECTION 3 ~

SECTION 4: Bid Proposal Submission Instructions

4.1 BID PROPOSAL SUBMISSION INSTRUCTIONS

- A. The Bidder shall submit its Bid Proposal as follows:
 - I. To the designated location and by the Closing Deadline specified in Section 3 of this Solicitation.
 - II. In a sealed package clearly labeled:
 - IFB No. 2015-004
 - Water Park Roof Replacement and Bathhouse Renovation Project
- B. The Bidder is strictly prohibited from submitting its Bid Proposal by facsimile or by e-mail. Any and all Bid Proposals submitted as such shall be rejected as non-responsive and be removed from consideration.
- C. The City shall assume no responsibility for delays or errors in the delivery of any Bid Proposal; postmarking by the Closing Date shall not substitute for actual receipt.
- D. Any and all Bid Proposals submitted not in compliance with any of the provisions herein shall be rejected as non-responsive and be removed from consideration.
- E. The submission of a partial Bid Proposal is strictly prohibited; any and all such Bid Proposals shall be considered incomplete and be subject to immediate exclusion from consideration.

4.2 BID PROPOSAL CONTENTS

The Bidder shall submit: two (2) complete original paper Bid Proposals, each of which shall bear original signatures; and one (1) identical electronic copy, on a Compact Disc (CD) or Flash Drive (FD), of one of the original paper Bid Proposals. All Bid Proposals shall contain the following:

- A. Statement of Qualifications

This section of the Bid Proposal shall include a statement of qualifications (“SOQ”) in their Bid Proposal, which shall include the information and be organized as follows:

 - I. This section of the SOQ relates to the Bidder’s business profile and shall include:
 - The legal name of the business and, if applicable under this Solicitation, the trade name of the business;
 - The type of business (i.e. corporation, limited liability corporation or company, partnership, etc.);
 - The state where this business is domiciled (formed);

- ➔ The location of the principle office and any and all branch office(s) for the business;
 - ➔ The nature of the business; and
 - ➔ The geographical area(s) the business services.
- II. This section of the SOQ shall describe the capabilities and qualifications of, and the resources available to, the Bidder to provide the Services.
- III. This section of the SOQ relates to the Bidder's training programs and rules and regulations, and shall:
 - ➔ Include and describe any and all of the Bidder's training programs, such as management, OSHA and technical training programs.
 - ➔ Include and describe any and all of the Bidder's quality control measures.
 - ➔ Describe and include as an attachment, any and all rules and regulations governing the business' employees during working hours.
- IV. This section of the SOQ relates to the financial wellness of the business and shall include, as an attachment, a letter of recommendation from a financial institution that describes attests to whether the Bidder is financially responsible to provide the Services.
- V. This section of the SOQ shall include description and references of three (3) similar types of projects in size and scope completed by the Bidder in last five (5) years.
- VI. This section of the SOQ shall include a separate SOQ for any and all subcontractors hired by the Bidder to provide any of the Services under this Solicitation.

B. Construction Plan

This section of the Bid Proposal shall include a project schedule and phase plan, payment milestones, schedule of values, and construction progress reporting methods.

C. Forms and Documents

This section of the Bid Proposal shall contain the following documents and forms, of which II through VII are attached hereto as Attachment A:

- I. Executed Bid Bond
- II. Addendum and Amendment Acknowledgement
- III. Affidavit of Qualification to Bid (Requires Notary)
- IV. Bid Proposal Price Sheet

- V. Bid Proposal Submission Certification (Requires Notary)
- VI. Conflict of Interest Certification (Requires Notary)
- VII. Litigation and Lien Information

~ END OF SECTION 4 ~

SECTION 5: Evaluation Process and Criteria

5.1. EVALUATION PROCESS

The City shall review and evaluate each Bid Proposal received and accepted by the City to determine the Lowest Responsive and Responsible Bidder. Following such review and evaluation, the City may investigate, as it deems necessary, the qualifications and/or abilities of the Bidder to perform the Services under the Contract.

Upon request by the City, the Bidder shall provide the City with any and all information and/or data requested in order to substantiate such qualifications and/or abilities. The submission of a Bid Proposal shall constitute acknowledgement and agreement by the Bidder to surrender any information and/or data requested by the City for such purposes. The City reserves the right in its sole discretion to reject the Bid Proposal if the Bidder fails to provide any and all requested information and/or data, or if the investigation and/or evidence submitted fails to substantiate the qualifications and/or abilities of the Bidder to perform under the Contract.

5.2. EVALUATION CRITERIA

Each Bid Proposal will be reviewed and evaluated on the following criteria:

A. Responsibility

To determine the responsibility of the Bidder, the City will review and evaluate the Bid Proposal to evidence the following criteria:

- I. The ability, capacity and skill of the Bidder to meet all of the requirements set forth in this Solicitation to perform the Services under the Contract, including financial and technical requirements;
- II. The Bidder is qualified to bid and eligible to enter into a contract in the State of Maryland;
- III. The character, integrity, reliability, reputation, judgment, experience and efficiency of the Bidder; and
- IV. The quality of performance by the Bidder under previous contracts for similar Services.

B. Responsiveness

To determine the responsiveness of the Bid Proposal, the City will review and evaluate the Bid Proposal in accordance with the following criteria:

- I. Compliance with and conformance to all of the instructions and requirements set forth in this Solicitation; and
- II. The Bid Proposal contains all the required forms and documents, which are completed in their entirety, and signed and notarized where applicable.

C. Bid Proposal Price

To determine the advantageousness of the Bid Proposal Price, the City will review the Bid Proposal Price and perform a Price Analysis.

~ END OF SECTION 5 ~

SECTION 6: Contract Award and Terms and Conditions

6.1. CONTRACT AWARD

A. Approving Authority

The approving authority for the Contract will be the Mayor and City Council of the City.

B. Award

The City shall award the Contract to the Lowest Responsive and Responsible Bidder.

6.2. CONTRACT TERMS AND CONDITIONS

A. Accounting System and Audit

The Contractor certifies its accounting system conforms to Generally Accepted Accounting Principles (GAAP) and is sufficient to comply with the Contractor's budgetary and financial obligations.

The Contractor agrees to maintain all necessary source documentation and enforce sufficient internal controls as dictated by Generally Accepted Accounting Principles (GAAP) to properly account for expenses incurred under the Contract. All accounting records and supportive documentation shall be maintained in such a manner that will provide for a separation between direct and indirect costs.

The City may examine and obtain copies of the Contractor's records to determine and verify compliance with the terms and conditions of the Contract. The Contractor shall grant the City access to these records at all reasonable times during the Contract term and for a period of five (5) years following payment of the Contractor's final invoice. The Contractor shall make such records available for examination and obtaining copies by any and all Federal, State or County authorities if the Contract is supported to any extent with Federal, State or County funds.

The Contractor shall include a similar provision in all subcontracts.

B. Assignment of the Contract

The City's rights under the Contract are personal to the Contractor. It is mutually understood and agreed that the Contractor shall not assign, convey, sublet, transfer or otherwise dispose of its Contract or its right, title or interest therein, or its power to execute the Contract, to any other Person without the express written consent of the City; however, in no case shall such consent relieve the Contractor from its obligations under the Contract, or change the terms and conditions of the Contract.

C. Changes in Services

The City, without invalidating the Contract, may order changes in the Services within the general scope of the Contract, consisting of additions, deletions, or other revisions, and the Contract sum and term shall be adjusted accordingly. Any cost or credit to the City from a change in Services shall be determined by mutual written agreement between the City and the Contractor. The Contractor shall perform all the Services that may be required to complete the Contract at the price agreed upon. Any alterations of variables to the terms of the Contract shall not be valid or binding.

upon the City unless made in writing and signed by the City and the Contractor.

D. Contract Disputes

All disputes arising under the Contract, except under the provisions for termination, which are not disposed of by agreement between the City and the Contractor, must be decided under procedures I through IV listed below. Pending final resolution of a dispute, the Contractor must proceed diligently with Contract performance. A claim must be in writing for a sum certain and any money requested must be fully supported by all cost and pricing information.

- I. All disputes, claims, questions of fact or interpretations of the documents of the Contract not disposed of by agreement or express provision of the Contract arising between the City and the Contractor after performance of the Contract has commenced but before final payment and termination of the Contract, are decided by the City Manager or designee ("City Manager").
- II. The City Manager must give the Contractor not less than three (3) working days to submit documentation and written reasons supporting the Contractor's position in the dispute. The City Manager may consider any other information or written submissions from City employees or agents and may conduct an informal, non-record hearing for receipt of testimony, evidence, and argument. The City Attorney may participate in the hearings to protect the City's interest.
- III. The City Manager must render a decision, in writing, stating reasons for such decision and provide copies to the Contractor and the City Attorney. If the decision is mailed to the Contractor, it must be mailed "certified" and dated the date of mailing; otherwise, it must be dated the date of delivery to the Contractor.
- IV. The City Manager's decision may be submitted to Binding Arbitration by either Party under the auspices of an arbitrator appointed by the American Arbitration Association.

E. Force Majeure

If the performance of the Contract is delayed at any time by any act or neglect of the City, or by a separate contractor employed by the City, or by any changes in the supplies, materials, equipment and Services, or by strikes, fires, unusual delay in transportation, unavoidable casualties or causes beyond the Contractor's control, or by delay authorized by the City, the City shall decide the extent of such delay or the justification of any other delay, and then extend the Completion Date for such reasonable time as the City may decide.

F. Dissemination of Data

The Contractor shall not release any information related to the Services under the Contract or publish any reports or documents related to the Services without the prior written approval of the City. The Contractor shall include a similar provision in all subcontracts.

G. Ethics Laws and Requirements

The Contractor shall comply with the financial disclosure and conflict of interest and lobbying provisions of the City's [ethics law](#).

H. Governing Law

The Contract shall be construed in accordance with the laws and regulations of the Federal Government, State of Maryland, and the City. The Contractor shall, without additional cost to the City, pay any necessary fees and/or charges, obtain any necessary licenses and/or permits, and comply with any and all applicable federal, state and local laws, codes and regulations. For purposes of litigation involving the Contract, exclusive venue and jurisdiction shall be in the Circuit Court of Maryland for Montgomery County, District Court of Maryland for Montgomery County or the United States District Court of Maryland.

I. Immigration Reform and Control Act

The Contractor shall warrant that it does not and shall not hire, recruit or refer for a fee, for employment under the Contract, an alien, knowing the alien is an unauthorized alien, and hire any individual without complying with the requirements of the Immigration Reform and Control Act of 1986 ("Act"), including but not limited to any verification and record keeping requirements. The Contractor shall further assure the City that, in accordance with the Act, it does not and will not discriminate against an individual with respect to hiring, or recruitment or referral for a fee, of the individual for employment or the discharging of the individual from employment because of such individual's national origin or in the case of a citizen or intending citizen, because of such individual's citizenship status.

J. Inconsistent Provisions

- I. Notwithstanding any provisions to the contrary in the terms and conditions of any contract supplied by the Contractor, the conditions of this Solicitation and the Contract supersede those terms and conditions in the event of inconsistency.
- II. In the event of inconsistency between any of the provisions of this Solicitation and any of the provisions of the Contract, the provisions of the Contract shall take precedence over and supersede those provisions of this Solicitation.

K. Indemnification

The Contractor shall indemnify and hold harmless the City, its officials, employees and agents from the following:

- I. Any and all direct or indirect damages, costs, claims, actions, suits, judgments or liens resulting from the negligent act or commission or omission of the Contractor, its employees, agents or subcontractors; and
- II. Any and all direct or indirect costs, claims, actions, suits, judgments or liens for damages resulting from the Contract arising from the negligence or omission of the Contractor, its employees, agents or subcontractors. The Contractor shall, upon completion of the Services, provide the City

with a Release of Liens from any subcontractor, supplier, material, or other supplier of goods and services to the project.

L. Independent Contractor Status/Personnel

- I. The Contractor shall perform the Contract as an independent contractor and shall not be considered an agent or employee of the City nor shall any of the employees or agents of the Contractor be considered subagents or employees of the City.
- II. The Contractor shall utilize personnel listed in their Bid Proposal. Substitution of key personnel shall only be permitted with the prior written permission of the City.

M. Insurance

- I. The Contractor shall at all times during the term of the Contract carry and maintain in full force and effect, at its expense, policies of insurance with minimum limits as follows:
 - (a) General comprehensive and commercial liability and property damage insurance in an amount no less than One Million Dollars (\$1,000,000); and
 - (b) Workers' compensation insurance for all non-City employees and workers in an amount not less than One Million Dollars (\$1,000,000).
- II. Within ten (10) calendar days following the receipt of a notice of intent to award issued by the City, the Contractor shall provide the City with a copy of a certificate of insurance evidencing the above policies and naming the City as additional insured with respect to the comprehensive commercial liability and property damage insurance policy only.

N. Non-Discrimination Requirements

- I. During the term of the Contract, the Contractor shall:
 - (a) Not discriminate against any employee or applicant for employment because of race, color, creed, religion, ancestry, sex, sexual orientation, national origin, affection preference, disability, age, marital status or status with regard to public assistance or as a disabled veteran or veteran of the Vietnam era.
 - (b) Take affirmative action to ensure that applicants and employees are treated without regard to their race, color, creed, religion, ancestry, sex, sexual orientation, national origin, affection preference, disability, age, marital status or status with regard to public assistance or as a disabled veteran or veteran of the Vietnam era. Such action shall include but not be limited to the

following: employment, upgrade, demotion or transfer; recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

- (c) In all solicitations for employees, state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, ancestry, sex, sexual orientation, national origin, affection preference, disability, age, marital status or status with regard to public assistance or as a disabled veteran or veteran of the Vietnam era. The Contractor agrees to use clauses similar to those above in all contracts and subcontracts. In the event the Contractor fails to comply with the nondiscrimination clauses of the Contract, or fails to include such provisions in all contracts and subcontracts, as hereinabove provided, the Contract may at the sole discretion of the City be declared void AB INITIO, canceled, terminated or suspended in whole or in part with waiver of any recourse by the Contractor against the City or its officials or employees, and the Contractor may be declared ineligible for further contracts with the City.

- II. Any employee, applicant for employment, or prospective employee with information concerning any breach of these requirements may communicate such information to City Manager who shall commence a prompt investigation of the alleged violation. Pursuant to such investigation, the Contractor shall permit access to their books, records and accounts. In the event the City Manager concludes, on the basis of such investigation, that the Contractor has failed to comply with these nondiscrimination clauses, the City Manager may invoke the remedies hereinabove set out.

O. Patents

Whenever any article, material, appliance, process composition, means or things called for by the specifications (“Materials”) under this Solicitation is covered by Letters of Patent, the Contractor must secure, before using or employing such Materials, the assent in writing of the owner or licensee of such Letters of Patent and file the same with the City.

The Contractor shall defend, at its own expense, and pay the cost and damages awarded in any action brought against the City based on an allegation that the Materials provided by the Contractor infringe on any patent, copyright, license or trade secret. In the event that an injunction shall be obtained against the City’s use of the Materials by reason of infringement of any patent, copyright, license or trade secret, the Contractor shall, at its own expense, procure for the City the right to continue using the Materials or replace or modify the same so that it becomes non-infringing.

P. Payment Terms, Taxes and Invoicing

The City shall only pay original proper invoices issued in accordance with the following:

I. Payment Terms

The City's standard terms of payment are net thirty (30) days; however, this does not preclude the Contractor from providing a prompt payment discount for the payment of invoices in less than thirty (30) days. Payments considered past-due may be subject to incurred interest not to exceed one percent (1%) per month.

II. Taxes

The City is exempt from sales and use taxes. The Contractor shall exclude such taxes from all forms of requests for payments issued to the City; the City shall not be liable for or pay or reimburse the Contractor for any such taxes.

III. Invoicing

Original invoices shall include at a minimum, the Contractor's name, address, telephone and fax numbers, and if applicable, email address and corresponding purchase order number. Invoices shall be submitted to:

City of Gaithersburg
Accounts Payable Division
31 South Summit Avenue
Gaithersburg, Maryland 20877

Q. Records

I. The Contractor shall retain any and all records and documents relating to the Services under the Contract for a minimum of five (5) years following payment of the Contractor's final proper undisputed invoice for the delivered Services.

II. The Contractor shall make available to the City, State of Maryland and any and all appropriate Federal agencies, all records and documents with respect to any and all matters under the Contract at any time during normal business hours, as often as the City deems necessary, to audit, examine, and make copies, excerpts and/or transcripts of any and all relevant data.

III. The Contractor shall include similar provisions in all subcontracts.

R. Termination

I. Termination for Cause

If through any cause, the Contractor fails to fulfill in a timely and proper manner its obligations under the Contract, or if the Contractor violates any of the provisions of the Contract, the City may upon written notice to the Contractor, terminate the right of the Contractor to proceed under the Contract or with such part or parts of the Contract to which there has been default, and may hold the Contractor liable for any damages caused the City by reason of such default and termination. In the event of such termination, any completed Services performed by the Contractor under

the Contract shall, at the option of the City, become its property and the Contractor shall be entitled to receive equitable compensation for any work completed to the satisfaction of the City. The Contractor, however, shall not thereby be relieved of liability to the City for damages sustained by the City by reason of any breach of the Contract by the Contractor, and the City may withhold any payments to the Contractor for the purpose of setoff until such time as the amount of damages due the City from the Contractor is determined. The Contractor shall not be responsible for damages under this article solely for reasons of delay if the delay is due to causes beyond its control and without its fault or negligence, but this shall not prevent the City from terminating the Contract for such delay.

II. Termination for Convenience

The City may, upon written notice and without cause, terminate the Contract in whole or in part at any time for its convenience. In such instance, payment shall be made to the Contractor for the reasonable costs of the work performed through the date of termination. Termination costs do not include lost profits, consequential damages, delay damages, unabsorbed or under-absorbed overhead of the Contractor or its subcontractors or suppliers. Failure of the Contractor to include a termination for convenience clause into its subcontracts and material purchase orders shall not result in any liability to the City for lost profits in conjunction with a termination for convenience.

The Contractor expressly waives any damages, delay damages, or indirect costs which may arise from the City's election to terminate the Contract in whole or in part for its convenience.

III. Termination for Non-Appropriation of Funds

The City shall not be obligated to the Contract for any future fiscal year until funds are appropriated for each such future fiscal year. In the event funding appropriation is not approved, the City may, upon written notice, terminate the Contract in whole or in part and without penalty or expense to the City. The effect of such action shall terminate the Contract on the last day of the fiscal year for which appropriations were made.

~ END OF SECTION 6 ~

SECTION 7: Bidder Qualifications and Project Conditions

7.1. BIDDER QUALIFICATIONS

Notwithstanding any of the qualifications specified in any other sections of this Solicitation, the Bidder shall meet the following minimum qualifications in order to be eligible to submit a Bid Proposal in response to this Solicitation:

- A. The Bidder must have a minimum of eight (8) years' experience providing services similar to those under this Solicitation.
- B. The Bidder must be able to fulfill its obligations under the terms and conditions of this Solicitation and the Contract.

7.2. PROJECT CONDITIONS

A. Notice to Proceed and Completion of Services

Within ten (10) calendar days following the effective date of the Contract, the City will issue the Contractor a written notice to proceed (anticipated date to issue notice to proceed is no later than January 1st, 2015), after which the Contractor shall complete the Services within one hundred twenty (120) calendar days thereafter (herein referred to as "Completion Date").

B. Liquidated Damages

Time is of the essence with respect to the Services under the Contract. In the event the Contractor fails to complete the Services by the Completion Date, for reasons which the Contractor is solely responsible, the Contractor will be required to pay to the City, as liquidated damages and not as a penalty, the sum of Five hundred Dollars and Zero Cents (\$500.00) per day for each working day beyond the Completion Date for which the Contractor fails to complete the Services.

C. Schedule of Services

The Services provided under the Contract shall be performed Monday through Friday between the hours of 6:00 a.m. and 8:00 p.m. EST, and on weekends and holidays between the hours of 8:00 a.m. and 6:00 p.m. EST. The Facility will be closed to the public until May 1st, 2015; the Contractor may set its own schedule provided the Services are completed by the Completion Date and do not conflict with City noise ordinances. The Contractor will be fully responsible for securing the Facility during construction period.

D. Supervision

The Bidder shall assign a full time supervisor who: shall have a minimum of five (5) years' experience in providing services similar to the Services hereunder; and shall be present at the Site at all times during construction.

E. Site Safety and Use of Premises

At all times while providing the Services under the Contract, the Contractor shall:

- I. At all times enforce suitable rules and provide any and all guards, signs, fences, dust barriers and/or protective devices required for the safe completion the Services.

- II. Confine operations at the site to the areas permitted under the Contract. Any and all Portions of the site, beyond the areas on which work is indicated, shall not to be disturbed.
- III. Conform to any and all site rules and regulations affecting the work while engaged in construction.
- IV. Keep planned egresses outside the construction zones clear and available to the public during normal Facility operation hours. Do not use these areas for parking or the storage of materials; parking areas and areas for the storage of materials shall be limited to those areas within the construction zone.
- V. Not unreasonably encumber the site with materials or equipment. Confine any and all storage of materials, and locations of storage sheds, to the areas within the construction zone. If any additional storage is necessary, obtain and pay for such storage off site.

F. Bonds

The Bidder shall furnish to the City a bid bond, a payment bond and a performance bond, all of which are herein referred to collectively as ("Bonds"), in accordance with and subject to the following:

- I. The Bidder shall submit with its Bid Proposal an executed bid bond in an amount equal to three percent (3%) of the Bidder's total Bid Proposal Price. A certified copy of the Power of Attorney of the attorney-in-fact executing the bid bond shall be attached and be certified by manual signature.
- II. The successful Bidder shall, within ten (10) business days following receipt of a notice of intent to award issued by the City, furnish to the City an executed payment bond in an amount equal to one hundred percent (100%) of the total Contract sum. A certified copy of the Power of Attorney of the attorney-in-fact executing the payment bond shall be attached, and shall be certified by manual signature and bear the same date at the performance bond.
- III. The successful Bidder shall, within ten (10) business days following receipt of a notice of intent to award issued by the City, furnish to the City an executed performance bond in an amount equal to one hundred percent (100%) of the total Contract sum. A certified copy of the Power of Attorney of the attorney-in-fact executing the performance bond shall be attached, and shall be certified by manual signature and bear the same date at the payment Bond.
- IV. The Bonds shall be executed in accordance with and subject to the following:
 - (a) The bonding entity shall be registered and in good standing in the State of Maryland in accordance with the State of Maryland

Code of Regulations Title 21, State Procurement Regulations. This provision shall apply to any and all co-sureties utilized by the bonding entity in execution of the Bonds.

- (b) The bonding entity shall maintain a rating of A-minus (A-) or better with A.M. Best. This provision shall apply to any and all co-sureties utilized by the bonding entity in execution of the Bonds.
- (c) The bonding entity shall consent to exclusive venue and jurisdiction in the Circuit Court for Montgomery County, Maryland. This provision shall apply to any and all co-sureties utilized by the bonding entity in execution of the Bonds.
- (d) The date of the Bonds shall not exceed the date of the Contract or subsequent thereto.
- (e) The Bonds shall contain provisions which are similar to the following:
 - (i) **GOVERNING LAW.** *This Bond shall be governed by, and construed in accordance with the laws of the State of Maryland without regard to its conflict of laws provisions.*
 - (ii) **NO THIRD PARTY BENEFICIARIES.** *The Surety provides this Bond for the sole and exclusive benefit of the City and, if applicable, any dual obligee designated by attached rider, together with their heirs, administrators, executors, successors and assigns. No other party, person or entity shall have any rights against this Surety.*
 - (iii) **VENUE.** *In the event any legal action shall be filed upon this Bond, venue shall lie exclusively in the Circuit Court for Montgomery County, Maryland.*
 - (iv) **WAIVER OF NOTICE.** *The Surety waives notice of any modifications to the Contract, including changes in the Contract Time, the Contract Sum, the amount of liquidated damages, or the Work and/or Services performed.*

G. Field Verification and Identification

The Contractor shall verify all field conditions and dimensions within five (5) days of mobilizing construction site activity. The Contractor shall report any discrepancies and/or conflicts to the City's Project Manager (hereinafter referred to as "Project Manager"). In the event that field conditions differ significantly from the Contract documents, a revision will be issued by the City with sketches and/or revised Contract documents.

H. Construction Coordination

The Contractor shall submit a Project Schedule to the Project Manager and get written approval, prior to starting the work. The Contractor shall prepare and submit a Daily Report to the Project Manager, which shall include the following:

- ↳ Name of project;
- ↳ Project number;
- ↳ Date of the report;
- ↳ Weather conditions;
- ↳ Manpower status on each type of work being performed, by building;
- ↳ Overtime worked and/or planned;
- ↳ Work progress;
- ↳ Any and all environmental problems and/or corrections; and
- ↳ Other information such as: special events or occurrences; accidents; recommendations; suggestions; visitors; major equipment or materials received; tests; inspections; equipment start-up and check-out; and occupancy.

In addition, the Contractor shall take any and all necessary action required to specifically alert the Project Manager to any and all items which could result a claim.

I. Permits and Inspection

The Contractor shall obtain any and all necessary permits, licenses, and/or inspections to properly execute the work under the Contract. The fee for any permits, which are both required and issued by the City, will be waived. The Contractor shall give all notices and comply with any and all laws, ordinances, rules, and/or lawful orders. If the Contractor observes that any portion of the Contract is at variance with any applicable law, statute, and/or building code, the Contractor shall promptly notify the City in writing and necessary changes will be accomplished by modification.

J. Warranties

The Contractor shall provide a written warranty for a minimum of one (1) year to cover any and all defects in materials and/or workmanship. Should the manufacturer's warranty for materials exceed one (1) year, the later warranty period shall apply. All warranties shall start from the date of project acceptance by the City.

K. Project Closeout

Upon written notification by the Contractor that the work is complete, the City will conduct a final inspection of all work. When the City determines that the work has been satisfactorily completed, and the Contract requirements are fully satisfied (including warranty documents, final inspections and maintenance manuals), the City will issue the Contractor a Project Acceptance Letter and process the final payment.

L. Shop and As-Built Drawings

The Contractor shall provide Shop Drawings as needed and As-Built Drawings shall be provided as part of the project closing documents.

M. Changer Order Overhead and Profit

- I. For any and all change orders in work under the Contract (“Change Order”), the percentages for overhead, profit, and commission shall be negotiable according to the nature, extent, and complexity of the work involved, but in no case shall such percentages exceed the following ceilings:

	Overhead	Profit	Commission
To the Contractor on work performed by its own forces.	10%	5%	-
To the Contractor on work performed by other than its own forces.	-	-	5%
To a subcontractor on work performed by its own forces.	10%	5%	-

- II. For work performed under a Change Order by its own forces:
- (a) The Contractor and its subcontractors shall be allowed the actual amount of materials and the total amount of labor for same.
 - (b) The overhead percentages shall be considered to include indirect costs including, but not limited to, field and office supervisors and assistants, incidental job burdens, small tools, and general overhead allocations, for same.
- III. Neither the Contractor nor its subcontractors shall be allowed overhead or commission on the overhead, profit, and/or commission received by any of its subcontractors.
- IV. Equitable adjustments for deleted work shall include credits, limited to the same percentages for overhead, profit, and commission in paragraph I hereinabove.
- V. For a Change Order that includes both an increase and decrease in the amount of the Contract, the percentages for overhead, profit, and commission shall only be allowed on the amount of the net change.
- VI. Neither the Contractor nor its subcontractors shall be allowed any percentages for overhead, profit, and/or commission on work under a Change Order which is necessary due to the negligence and/or poor workmanship of the Contractor and/or its subcontractors.

~ END OF SECTION 7 ~

SECTION 8: Project Information and Scope of Work

8.1. OVERVIEW

The Water Park Facility, constructed circa 1988 and operated by the City's Department of Parks, Recreation and Culture, is part of the Bohrer Park campus, which consists of: (i) administrative and bathhouse building; (ii) snack bar and canopy; (iii) locker kiosk; (iv) golf gateway and miniature golf; (v) outdoor swimming pools; (vi) pump room; (vii) children's play area; and (viii) maintenance shop.

8.2. PROJECT GOALS

The goal of the project is to:

- Replace roof and upgrade gutter system;
- Replace floor drains, apply epoxy floor finish and paint interior walls in bathhouse complex and breezeway;
- Replace exterior swing doors, over-head doors and install new overhead door;
- Replace/update snack bar exhaust system;
- Improve bathhouse lighting; and
- Install ADA signs on pool deck.

8.3. SCOPE OF WORK

The Services include reviewing all general conditions, construction documents and specifications for developing a comprehensive understanding of the work involved. Drawings and Specifications take precedent of the general scope description; the Bidder shall refer to plans and specifications for detailed work scope. The work under the general scope will include, but not be limited to, the following items:

A. Architectural

I. Replace Existing Roofing at Bathhouse and Admin Building

- (a) Replace existing roofing at (i) Admin and Bathhouse building; (ii) Snack bar and Canopy; (iii) Locker kiosk. The existing steep-slope roofing system at these buildings comprises of asphalt shingles over roofing felt. The existing substrate is ½" plywood structurally supported with wood trusses spaced at 2'-0" on center. The undamaged plywood sheathing will remain in place. New roofing will comprise of Architectural (Dimensional) shingles with minimum 30 years warranty. New snow-guards will be added to the steep-slop roofs. Add new ridge flashing at the canopies on both sides of breezeway. (Approximate steep roof area: 7800 SF)
- (b) Additionally, the Admin and Bathhouse mansard roof comprises of low-slope built-up roofing and asphalt rolled-up vertical weatherproofing. The low-slop roofing has granular ballast, which will be removed. The existing mansard roofing will remain in place. A new spray on insulation and waterproofing membrane will be adhered on the existing roofing as per specifications. (Approximate area of low-slope roof 2700 SF)

- (c) Galvanized corrugated metal sheets will be applied on existing weatherproofing on vertical surface. (Approximate area 1200 SF)
- (d) All flashing, underlayment and curbs for equipment will be replaced.
- (e) Currently there is no existing gutter on most of the steep-slope roof. A new gutter system, downspouts and splash blocks will be added under this task. (Approximate length 400 LF)
- (f) Modify existing downspouts at public entrance gable arc with conversion cast iron boot at two (2) locations.
- (g) Protect and safely store away existing roof exhaust fans during construction.

Detailed work scope is provided in plans and specifications, which are incorporated herein and attached hereto as "Exhibit A".

II. Replace Existing Skylights at Bathhouse

Replace five (5) ea. existing 4'-0' x 4'-0" skylights with new skylights with thermal barrier. Replace new curb flashing, edge counter flashing as specified in Exhibit A.

III. Replace Existing Exterior Doors And Rollup Shutters -Various Buildings

As specified in Exhibit A, replace existing exterior doors and hardware with new Hollow Metal (HM) doors at: (i) Administrative and Bathhouse building; (ii) Snack bar and Canopy; (iii) Locker kiosk. Additionally, replace existing steel rollup shutters at public entrance of breezeway, and install a new aluminum rollup shutter at pool entrance.

Administrative and Bathhouse Building	10 ea. Single leaf door-Prepare staff entrance door to receive access control. 1 Pair Double doors
Snack Bar	1 ea. Single leaf door. & Mesh curtain. 1 Pair Double doors & Sliding screen door.
Kiosk	1 ea. Single leaf door
Breezeway – Public entrance side	1 ea. New electrically operated steel rollup shutter 1 ea. New mechanically operated steel rollup shutter
Breezeway - pool side	1 ea. New mechanically operated rollup shutter.

IV. New Flooring at Bathhouse and Breezeway

The existing floor at Bathhouse and breezeway is concrete slab on grade. The shower areas have porcelain tile flooring. All existing tiles will be removed, and the surface will be prepared to receive new resinous epoxy flooring at the entire Bathhouse and breezeway spaces as specified in Exhibit A.

V. Painting at Bathhouse and Breezeway

Putty and paint underside of breezeway roof sheathing, purlin bracing supports, bulkheads and walls above rollup shutters on both ends. Paint trusses, and underside of roof sheathing of Bathhouse. Prepare and skim coat Bathhouse walls to receive uniform beige paint to match existing. Additionally prepare and paint existing soffit at the canopies on both sides of breezeway as specified in Exhibit A.

VI. Snack Bar Ceiling

Remove existing ceiling and grid in Snack bar. Install new cellular PVC ceiling and grid system per design as specified in Exhibit A.

VII. Pressure Cleaning and Caulking of Exterior Walls at Bathhouse and Administrative Building

Pressure clean exterior walls to remove stains from brick-face and mortar joints. Caulk the joint between terracotta and brick veneer at transition soldier course as per attached plans and specifications.

VIII. Exterior Q-control System

Remove all existing Stainless Steel bollards and return to the owner. Install new painted galvanized steel (Filled with concrete) bollards. Provide removable steel link chains. Re-patch broken concrete slab as specified in Exhibit A.

IX. Miscellaneous:

For the following work, a detailed work scope and specifications are specified in Exhibit A:

- (a) Install new exterior building signage.
- (b) Install ADA directional signage to ADA accessible route in pool area.
- (c) Install graphic and sign on the inside bulkhead wall of breezeway
- (d) Replace existing damaged concrete slabs in front of staff entrance door and snack bar entrance door
- (e) Install a mesh screen curtain for snack bar main entrance door.
- (f) Remove grassy isle next to the fence in between Skate Park and Water Park, re-grade and pour new concrete pad.

B. Mechanical

I. Increase Exhaust Capacity of Snack Bar Kitchen

As specified in Exhibit A, replace existing exhaust fan with increased capacity fan per design. Modify existing ductwork; add new exhaust grilles per design.

C. Electrical

- I. Replace existing canopy lights at Breezeway canopies with new vandal proof LED diffused fallout fixtures as specified in Exhibit A.
- II. Install new exterior vandal proof LED flood light at Maintenance Shed and improve visibility as specified in Exhibit A.

III. Install power to exhaust system work in snack bar as specified in Exhibit A.

D. Add Alternate Items

- I. Replace existing lights with new LED lights in Bathhouse. Replace outdated emergency wall packs with new. Replace existing EXIT signs with new. Replace existing fixture at ticket counter soffit as specified in Exhibit A.
- II. Install exterior grade sheathing at underside of 'A' frame trusses at Snack bar canopy to form a new soffit and prepare to receive paint. Replace existing lighting with LED lighting as specified in Exhibit A.
- III. Replace existing door frames to match new Hollow metal doors as specified in Exhibit A.

All construction shall be completed in accordance with and as specified in Exhibit A.

~ END OF SECTION 8 ~

SECTION 9: Attachments and Exhibits

9.1. ATTACHMENTS

The following documents and forms are attached hereto as Attachment A:

- ↳ Addendum and Amendment Acknowledgement
- ↳ Affidavit of Qualification to Bid (Requires Notary)
- ↳ Bid Proposal Price Sheet
- ↳ Bid Proposal Submission Certification (Requires Notary)
- ↳ Conflict of Interest Certification (Requires Notary)
- ↳ Litigation and Lien Information

9.2. EXHIBITS

The following documents are attached hereto as Exhibit A:

- ↳ Plans and Specifications

~ END OF SECTION 9 ~

INVITATION FOR BID

No. 2015-004

**Water Park Roof Replacement and
Bathhouse Renovation**

**ATTACHMENT A
DOCUMENTS AND FORMS**



City of Gaithersburg

Affidavit of Qualification to Bid

Solicitation No. _____

Please complete this form in its entirety and include it with your Bid Proposal. For the purpose of completing this form, "entity" means an individual, sole proprietor, partnership, corporation, limited liability corporation (LLC), company, or association.

*Does not apply to individuals or sole proprietors - indicate with "N/A"

I HEREBY AFFIRM THAT:

1. I am the _____ and the duly authorized representative of the entity _____ and that I possess the legal authority to make this affidavit on behalf of myself and the entity for which I am acting.

*2. The entity _____ is either a Maryland corporation or is a foreign corporation properly registered with the Maryland State Department of Assessments and Taxation, in compliance with the State of Maryland Code of Regulations, Title 21, State Procurement Regulations.

3. Except as described in Paragraph five (5) below, neither I nor the above entity, nor to the best of my knowledge, any of its officers, directors, or partners, or any of its employees directly involved in obtaining contracts with the State of Maryland or any municipality, county, bi-county, or multi-county agency, or subdivision of the State of Maryland have been convicted of, or have pleaded nolo contendere to a charge of, or have, during the course of an official investigation or other proceeding, admitted in writing or under oath, acts of omissions which constitute bribery, attempted bribery, or conspiracy to bribe, whether or not in furtherance of obtaining a contract with a public body, under the provisions Md. Code Ann., State Finance and Procurement Article, §16-202 (1995 Repl. Vol.) and Article 27 of the Annotated Code of Maryland or under the laws of any local, state or the federal government (conduct prior to July 2, 1977 is not required to be reported).

4. List any conviction, plea, or admission described in paragraph three (3) above, with the date, court, official, or administrative body; the individuals involved and their position with the entity; and the sentence or disposition, if any. Otherwise, state "none" as appropriate.

5. Neither I nor the above entity, nor to the best of my knowledge an officer, partner, controlling stockholder or principal of the Bidder, or any other person substantially involved in the Bidder's contracting activities has: (1) been convicted under the laws of the State of Maryland, another state or the United States of: (i) a criminal offense incident to obtaining, attempting to obtain, or performing a public or private contract, except as provided in Section 16-202 of the State Finance and Procurement Article of the Annotated Code of Maryland; or (ii) fraud, embezzlement, theft, forgery, falsification or destruction of records, or receiving stolen property; (2) been convicted of a criminal violation of an antitrust statute of the State of Maryland, another state or the United States; (3) been convicted of a violation of the Racketeer Influenced and Corrupt Organization Act, or the Mail Fraud Act, for acts in connection with the submission of bids for public or private contracts; (4) been convicted of a violation of Section 14-308 of the State Finance and Procurement Article of the Annotated Code of Maryland; (5) been convicted of a conspiracy to private contract; (4) been convicted of a violation of

Section 14-308 of the State Finance and Procurement Article of the Annotated Code of Maryland; (5) been convicted of a conspiracy to commit any act or omission that would constitute grounds for conviction under any of the laws or statutes described herein; (6) been found civilly liable under an antitrust statute of the State of Maryland, another state or the United States for acts or omissions in connection with the submission of bids for public or private contracts.

6. Bidder hereby declares that this Bid Proposal is made without any connection or collusion with any person, entity or corporation making a Bid Proposal for the same work; that pursuant to this affidavit; that the attached specifications and any drawings referred to herein have been carefully examined and are understood; that careful examination has been made as is necessary to become informed as to the character and extent of the work required; and, that if this Bid Proposal is accepted, this Bidder will contract to do, for the price stated in the Bid Proposal, all of the work described in the specifications, drawings and contract conditions.

7. I acknowledge that this affidavit is to be furnished to the City Manager or designee for the City of Gaithersburg, Maryland. I further acknowledge that, if the representations set forth in this affidavit are not true and correct, the City of Gaithersburg may terminate any contract awarded and take any other appropriate action.

I do solemnly declare and affirm under the penalties of perjury that the contents of this affidavit are true and correct.

Signature

Witness

Date

NOTARY ATTESTATION

State of: _____

County of: _____

I hereby certify that on this _____ day of _____, 20_____, before me the subscriber, a Notary Public in and for the State of _____ and County aforesaid, personally appeared _____, known to me to be the person whose name is subscribed to this instrument and acknowledged that same was executed for the purposes contained therein.

Witness my hand and Notarial seal: _____

My Commission expires: _____

Notary Public: _____
Printed Name



City of Gaithersburg

Bid Proposal Price Sheet

Solicitation No. 2015-004

The Bidder shall complete this form in its entirety and return it with its Bid Proposal. The Bidder is expected to review the Solicitation Document in its entirety and to understand project requirements and work scope prior to submitting a Bid Proposal.

Base Bid Proposal

CSI #	Division	Division Total Cost (\$)
00 00 00	Procurement and Contracting Requirements	\$
01 00 00	General Conditions	\$
02 00 00	Existing Conditions	\$
03 00 00	Concrete	\$
04 00 00	Masonry	\$
06 00 00	Wood, Plastics, and Composites	\$
07 00 00	Thermal and Moisture Protection	\$
08 00 00	Openings	\$
09 00 00	Finishes	\$
10 00 00	Specialties	\$
23 00 00	Heating , Ventilation and Air Conditioning	\$
26 00 00	Electrical	\$
27 00 00	Communication	\$
28 00 00	Electronic Safety and Security	\$
	Others (Specify)	
		\$
		\$
		\$
		\$
		\$
		\$
	Profit and Overhead	\$
TOTAL BASE BID COSTS		\$

Bid Add Alternates

Category	Cost (\$)
1. Replace existing lighting with new LED lights in bathhouse:	
a. Material:	\$
b. Installation/Labor Cost:	\$
2. Snack Bar Canopy new soffit and LED lighting:	
a. Material:	\$
b. Installation/Labor Cost:	\$
3. Replace existing door frames with new to match proposed new doors in base bid	
a. Material:	\$
b. Installation/Labor Cost:	\$
4. Profit and overhead:	
	\$
TOTAL ADD ALTERNATE BID COSTS:	\$

Total Bid (Sum of Base Bid & Bid Add Alternates)

Bid Items	Cost (\$)
1. Total Base Bid Costs:	\$
2. Total Add Alternate Bid Costs:	\$
TOTAL BID COST:	\$

Unit Prices

Item #	Description	UOM	Unit Prices
1	Gypsum board patch and paint	SQFT	\$
2	Gypsum board replacement, prepare and paint	SQFT	\$
3	CMU wall Painting (Epoxy paint)	SQFT	\$
4	Concrete	CY	\$
5	Master electrician	HR	\$
6	Electrician (Journeyman)	HR	\$

7	Electrician (Helper/Apprentice)	HR	\$
8	Project field supervisor	HR	\$
9	General laborer	HR	\$
10	Ceramic tile demolition	SQFT	\$
11	Apply resinous epoxy flooring Product specified in plans and specification herein attached as Exhibit B	SQFT	\$
12	Roof plywood sheathing (1/2" thick)	SQFT	\$
13	Metal flashing Product specified in plans and specification herein attached as Exhibit B	SQFT	\$
14	New shingles Product specified in plans and specification herein attached as Exhibit B	SQFT	\$
15	Concrete surface patch repair (1/2" thick)	SQFT	\$
16	Others (Specify)	SQFT	
	a.		\$
	b.		\$
	c.		\$
	d.		\$
	e.		\$
	f.		\$
	g.		\$
	h.		\$
	i.		\$
	j.		\$

By my signature I hereby testify that I am a duly authorized representative of the firm and that I have fully entered, examined and reviewed the items and totals represented on this Bid Proposal Price Sheet and they are accurate and complete.

Name of Bidder: _____

Signature: _____ Date: _____

Printed Name: _____ Title: _____



City of Gaithersburg

Bid Proposal Submission Certification

Solicitation No. _____

Please complete this form in its entirety and include it with your Bid Proposal. For the purpose of completing this form, "entity" means an individual, sole proprietor, partnership, corporation, limited liability corporation (LLC), company, or association.

Name of Entity: _____

Contact Person: _____

Street Address: _____

City, State & Zip Code: _____, _____ _____

Telephone Numbers: (P) _____ (F) _____

BID PROPOSAL SUBMISSION CERTIFICATION

The response to Solicitation No. _____ as submitted includes this Bid Proposal Submission Certification Form and the Affidavit of Qualification to Bid Form, Conflict of Interest Certification Form, and Litigation and Lien Information Form. I, the undersigned, hereby attest to the truth and completeness of the information and responses provided and certify that my entity has met the minimum selection criteria as outlined in the Solicitation document.

Signature

Witness

Date

NOTARY ATTESTATION

State of: _____

County of: _____

I hereby certify that on this _____ day of _____, 20_____, before me the subscriber, a Notary Public in and for the State of _____ and County aforesaid, personally appeared _____, known to me to be the person whose name is subscribed to this instrument and acknowledged that same was executed for the purposes contained therein.

Witness my hand and Notarial seal: _____

My Commission expires: _____

Notary Public: _____

Printed Name



City of Gaithersburg

Conflict of Interest Certification

Solicitation No. _____

Please complete this form in its entirety and include it with your Bid Proposal. For the purpose of completing this form, "entity" means an individual, sole proprietor, partnership, corporation, limited liability corporation (LLC), company, or association.

*Does not apply to individuals or sole proprietors - indicate with "N/A"

Name of Entity: _____

* Federal ID No: _____

Contact Person: _____

Street Address: _____

City, State & Zip Code: _____, _____ _____

Telephone Numbers: (P) _____ (F) _____

(P) _____ (C) _____

Email Address: _____

Email Address: _____

CONFLICT OF INTEREST CERTIFICATION

I HEREBY CERTIFY, on behalf of _____ that no
Name of Entity
employee, agent or elected official of the City of Gaithersburg, or member of a commission, board or corporation controlled or appointed by the Mayor and Council of the City of Gaithersburg has received or has been promised directly or indirectly, any financial benefit by way of fee, commission, finder's fee, or in any other manner, remuneration directly or indirectly related to this contract. Upon request by the City Manager or designee, or other authorized agent, as a prerequisite to payment pursuant to the terms of a contract awarded pursuant to this Bid Proposal submission, will furnish to the City, under oath, answers to any interrogatories and comply with any request to review documents related to a possible conflict of interest as herein embodied.

I HEREBY CERTIFY, on behalf of _____ that no
Name of Entity
employee or agent of _____ is a member, employee,
Name of Entity
or elected official of the City of Gaithersburg of any agency, commission, or board of the City of Gaithersburg or is the spouse or any other relative of any of the foregoing. If unable to so certify, the details of any such relationship with the City of Gaithersburg are as follows:

Conflict of Interest Certification

I do solemnly declare and affirm under the penalties of perjury that the contents of this affidavit are true and correct.

Signature

Witness

Date

NOTARY ATTESTATION

State of: _____

County of: _____

I hereby certify that on this _____ day of _____, 20_____, before me the subscriber, a Notary Public in and for the State of _____ and County aforesaid, personally appeared _____, known to me to be the person whose name is subscribed to this instrument and acknowledged that same was executed for the purposes contained therein.

Witness my hand and Notarial seal: _____

My Commission expires: _____

Notary Public: _____
Printed Name



City of Gaithersburg

Litigation and Lien Information

Solicitation No. _____

Please complete this form in its entirety and include it with your Bid Proposal. For the purpose of completing this form, "entity" means an individual, sole proprietor, partnership, corporation, limited liability corporation (LLC), company, or association.

Name of Entity: _____

Street Address: _____

City, State & Zip Code: _____, _____ _____

Telephone Numbers: (P) _____ (F) _____

LITIGATION INFORMATION

Is your entity currently involved in any litigation or had a litigation claim(s) within the previous twenty-four (24) month period?

Yes / No

If yes, please provide a detailed list including case number, jurisdiction, status and brief summary of such litigation.

<u>Case Number</u>	<u>Jurisdiction</u>	<u>Status</u>	<u>Summary</u>
_____	_____	_____	_____
_____	_____	_____	_____

LIENS

Does your entity have any outstanding mechanics liens?

Yes / No

If yes, please explain: _____

Does your entity have any outstanding tax liens?

Yes / No:

If yes, please explain: _____

Signature Title Date

Printed Name

INVITATION FOR BID

No. 2015-004

**Water Park Roof Replacement and
Bathhouse Renovation**

**EXHIBIT A
PLANS AND SPECIFICATIONS**

Plans

GAITHERSBURG WATER PARK PHASE III IMPROVEMNTS

512 S Frederick Ave Gaithersburg, MD 20877

CITY OF GAITHERSBURG, MARYLAND

Please note the following in reference with Exhibit A published with this Solicitation:

The following items are not furnished with Exhibit A documents. They are scheduled to be consolidated and Issued as an amendment to Exhibit A:

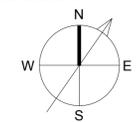
- Mechanical Design and Product Data for Concession Stand (Snack Bar) Exhaust Upgrades
- Recessed Lighting Fixture and Ceiling Fan Selection for Concession Stand Ceiling Upgrades
- Long Form Architectural Specifications (A Part of supplemental Project Binder)
- Basis of design product selections for Overhead Doors.
- Architectural SHEET A 401: ENLARGED ARCHITECTURAL PLAN – Q CONTROL
- Architectural SHEET A 402 : ENLARGED ARCHITECTURAL PLAN – BREEZEWAY
- Field documentation of existing door

SHEET INDEX

Sheet Number	Sheet Name
G100	COVER SHEET
G200	GENERAL NOTES, ABBREVIATIONS AND SYMBOLS
AD101	ARCHITECTURAL FLOOR PLAN - BATH HOUSE - DEMOLITION
AD102	ARCHITECTURAL ROOF PLAN - BATH HOUSE - DEMOLITION
A101	ARCHITECTURAL FLOOR PLAN - BATH HOUSE
A102	ARCHITECTURAL ROOF PLAN - BATH HOUSE
A103	ARCHITECTURAL PLANS - CONCESSION STAND & KIOSK
A201	ARCHITECTURAL ELEVATIONS
A202	ARCHITECTURAL ELEVATIONS
A401	ENLARGED ARCHITECTURAL PLAN - QUEUE CONTROL
A402	ENLARGED ARCHITECTURAL PLAN - BREEZEWAY
A403	ROOF DETAILS
A601	SCHEDULES
P001	PLUMBING GENERAL NOTES, ABBREVIATIONS, SYMBOLS & SPECIFICATIONS
P101	PLUMBING FLOOR PLAN - BATH HOUSE - NEW WORK
P201	ENLARGED PLUMBING FLOOR PLANS
P301	PLUMBING DETAILS AND SCHEDULE
E001	SYMBOLS AND ABBREVIATIONS
ED101	ELECTRICAL DEMOLITION PLAN
E101	ELECTRICAL NEW WORK PLAN
E501	ELECTRICAL RISER DIAGRAM
E601	ELECTRICAL SCHEDULES
E602	LIGHT FIXTURE SCHEDULE

SITE LOCATION

SCALE : NTS



GAITHERSBURG WATER PARK PHASE III

512 S Frederick Ave
Gaithersburg, MD 20877

NIKA ARCHITECTS + ENGINEERS

NIKA A+E
451 HUNGERFORD DRIVE (P)301.770.3520
4TH FLOOR (F)301.770.3521
ROCKVILLE, MD 20850 www.nika-ae.com

No.	Description	Date

Revisions
Drawing Title
COVER SHEET

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1

Drawn By RA
Checked By AV

Sheet Number
G100

ABBREVIATIONS:

A	ABV ABOVE	A/C AIR CONDITIONING	AC ASPHALT CONCRETE	ACOUST ACOUSTICAL	ADJ ADJUSTABLE/ADJACENT	AFF ABOVE FINISHED FLOOR	AHU AIR HANDLING UNIT	ALT ALTERNATE	ALUM ALUMINUM	ANC ANCHOR	ANOD ANODIZED	APPROX APPROXIMATE	ARCH ARCHITECTURAL	ASPH ASPHALT	ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS	ATTCH ATTACHMENT	AUTO AUTOMATIC	AUX AUXILIARY														
B	B BASE	BB BASE BID	BC BRICK COURSE	BD BOARD	BF BROOM FINISH	BL BUILDING LINE	BLDG BUILDING	BLKG BLOCKING	BLKHD BULKHEAD	BM BEAMBENCHMARK	BO BY OTHERS/BOTTOM OF	BOT BOTTOM	BP BEARING PLATE	BS BOTH SIDES	BSMT BASEMENT	BTWN BETWEEN	BUR BUILT-UP ROOF															
C	C CONDUIT	CAB CABINET	CAP CAPACITY	CAT CATALOG	CB CIRCUIT BREAKER/CATCH BASIN	CCTV CLOSED CIRCUIT TELEVISION	CEM CEMENT/CEMENTITIOUS	CF CUBIC FEET	CFCI CONTRACTOR-FURNISHED, CONTRACTOR-INSTALLED	CH CEILING HEIGHT	CI CAST IRON	CIR CIRCULAR	CIRC CIRCUMFERENCE	CJ CONTROL JOINT	CLKG CAULKING	CLG CEILING	CLR CLEAR	CM CENTIMETER	CMU CONCRETE MASONRY UNIT	CO CLEAN OUT/CASED OPENING	COL COLUMN	CONC CONCRETE	CONSTR CONSTRUCTION	CONT CONTINUOUS	CORR CORRIDOR	CP CHROME PLATED	CS COUNTERSINK	CSMT CASEMENT	CT CERAMIC TILE	CTR CENTER	CVG CLEAR WIRE GLASS	CY CUBIC YARDS
D	D DEPTH	dB DECIBELS	DBL DOUBLE	DEMO DEMOLISH/DEMOLITION	DET DETAIL	DF DRINKING FOUNTAIN	DG DAY GATE	DH DOUBLE HUNG	DIA DIAMETER	DIM DIMENSION	DISP DISPENSER	DL DEAD LOAD	DN DOWN	DP DAMPPROOFING	DR DOOR	DS DOWNSPOUT	DWG DRAWING	DWR DRAWER														
E	(E) EXISTING	E EAST	EA EACH	EF EACH FACE	EG FOR EXAMPLE	EGC EPOXY GLAZED COATING	EJ EXPANSION JOINT	ELEC ELECTRICAL	ELEV ELEVATOR/ELEVATION	ENCL ENCLASURE	ENTR ENTRANCE	EQ EQUAL	EQUIP EQUIPMENT	EIFS EXTERIOR INSULATION & FINISH SYSTEM	ESC ESCALATOR	EST ESTIMATED	EW EACH WAY	EXH EXHAUST	EXIST EXISTING	EXP EXPANSION/EXPANDED	EXT EXTERIOR											
F	F FLAME/FLUSH	FA FIRE ALARM	FBG FOIL-BACKED GYPSUM BOARD	FDN FOUNDATION	FE/BR FORCED-ENTRY/BALLISTIC-RESISTANT	FEW FIRE EXTINGUISHER WALL MOUNTED	FIG FIGURE	FIN FINISH	FIXT FIXTURE	FL FLASH FLOOR	FLEX FLEXIBLE	FLUOR FLUORESCENT	FM FACTORY MUTUAL RESEARCH CORP.	FO FACE OF	FRT FIRE RETARDANT TREATED	FT FOOT/FEET	FTG FOOTING	FURN FURNITURE/FURNISHED	FURR FURRING													

R

RA RETURN AIR	GA GAUGE	GAL GALVANIZED	GB GRAB BAR/GYPSUM BOARD	GC GENERAL CONTRACTOR	GFCI GOVERNMENT-FURNISHED, CONTRACTOR-INSTALLED	GFI GOVERNMENT-FURNISHED, CONTRACTOR-INSTALLED	GFE GOVERNMENT-FURNISHED EQUIPMENT	GFCI GOVERNMENT	GND GROUND	GR GRADING/GRADE	GWB GYPSUM WALLBOARD	GYP BD GYPSUM BOARD																									
RD RADIUS	REF REFLECTED CEILING PL	REB REBAR	REC RECEPTACLE	REF REFERENCE	REG REGISTERED	REIN REINFORCING/REINFORCI	REM REMOVE	REPL REPLACE	REQ REQUIRE	RESIL RESILIENT	RET RETURN AIR	REV REVISE/REVISIC	RF ROUGH FINISH	RGS RIGID GALVANIZED STEEL	RH RIGHT HAND	RM ROOM	ROU ROUGH OPENIN	RWL RAIN WATER LEADE	RWD REDWOOD																		
SA SOUTH	SAC SUPPLY AIR	SC SUSPENDED ACOUSTICAL CEIL	SC SOLID CORE	SCH SCHEDULE	SDG SIDING	SDT STATIC DISSIPATIVE TIL	SECT SECTION	SF SEAMLESS FLOORING	SG(##) DUCT SECURITY GRILL (TYPE	SH SHEATHING	SHTH SHEATHING	SIM SIMILAR	SJ STEEL JOIS	SM SURFACE MOUNTEE	SPC SPECIFICATIO	SQ SQUARE	SO SQUARE YARD	INFO INFORMATION	SS STAINLESS STEEL	STA STATION	STD STANDARD	STL STAINLESS STEEL	STL STEEL	SUSP SUSPENDED	SV SHEET VINYL	SW SWITCH	SYM SYMMETRICAL	SYS SYSTEM	SHT, SH SHEE	STOR STORAGE	STRUCT STRUCTURE						
T TREAD/THICK	TB TOWEL BAR	TC TOP OF CURB	TELE TELEPHONE/TELECI	TEMP TEMPORAR	TER TERRAZZO	TF TROWEL FINISH	T&G TONGUE & GROOVE	THK THICK/THICKNESE	THR THRESHOLD	THRU THROUGH	TO TOP OF	TOC TOP OF CONCRET	TOS TOP OF STEEL	TOW TOP OF WALL	TW TOP OF WALL	TYP TYPICAL	UC UNDERCUT	UL UNDERWRITER'S LABORATORIE	UNF UNFINISHED	UNO UNLESS NOTED OTHERWI	URM UNREINFORCED MASONR	V VENT/VOLT/VALVE	(V) VERIFY	VAV VARIABLE AIR VOLUM	VB VAPOR BARRIER	VCB VINYL COVE BASE	VCT VINYL COMPOSITION TIL	VD VOLUME DAMPER/VAULT DOC	VENTD VENTEC	VERT VERTICAL	VEST VESTIBULE	V-JOINT V-JOINT	VOL VOLUME	VT VINYL TILE	VWC VINYL WALL COVERING	WD WOOD	XFMR TRANSFORMER

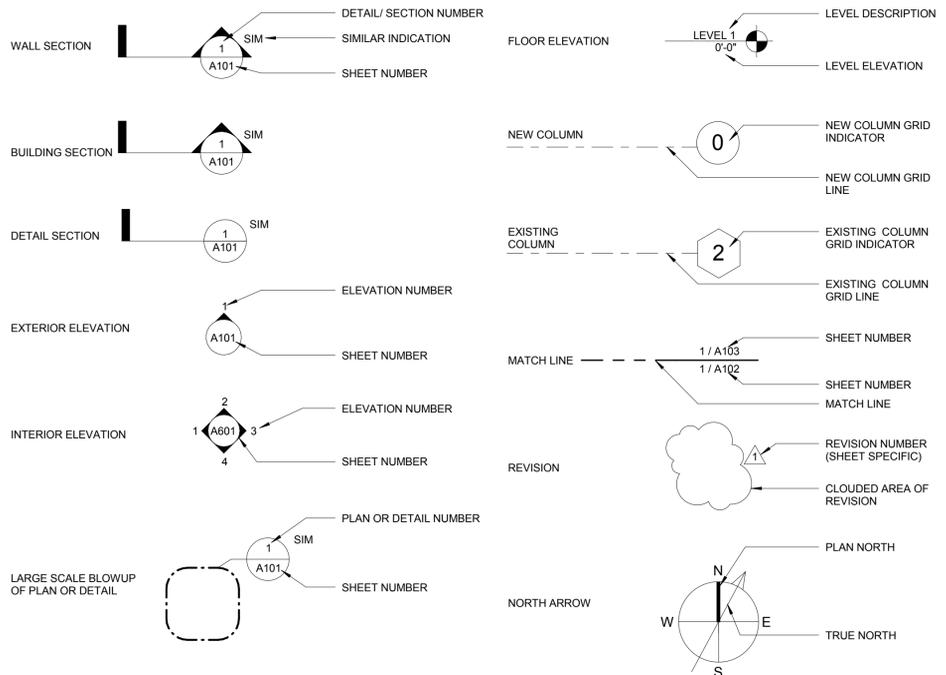
MATERIAL SYMBOLS

EARTH		FIBER BOARD OR RIGID INSULATION	
GRAVEL OR POROUS FILL		PLASTER, GYPSUM WALL BOARD, MORTAR OR PARTICLE BOARD	
CONCRETE MASONRY UNIT		FINISHED WOOD	
BRICK		ROUGH WOOD	
STONE		PLYWOOD	
CONCRETE		STEEL OR IRON	
FIBROUS INSULATION		ALUMINUM	

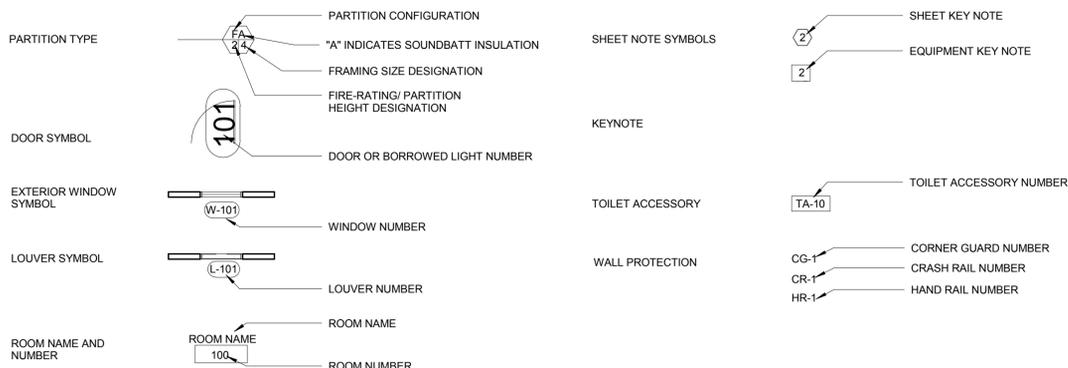
GENERAL NOTES:

- CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE GENERAL CONDITIONS FURNISHED BY PWD.
- CONTRACTOR SHALL AT ALL TIMES RETAIN AN APPROVED SET OF PERMIT DRAWINGS ON THE CONSTRUCTION PREMISE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING TRADE PERMITS FOR ELECTRICAL WORK AS REQUIRED.
- CONTRACTOR SHALL COMPLY WITH THE FACILITY'S RULES AND REGULATIONS FOR WORKING HOURS, DELIVERY AND HANDLING OF MATERIAL, AND CONSTRUCTION WASTE REMOVAL.
- DO NOT SHORE OR HANDLE ANY CONSTRUCTION MATERIAL IN THE PATH TO EGRESS UNDER ANY CIRCUMSTANCES.
- DURING CONSTRUCTION PORTIONS OF THE BUILDING OUTSIDE OF THE SCOPE OF WORK SHALL REMAIN OCCUPIED AND OPERATIONAL.
- EXTREME CARE SHALL BE EXERCISED IN CUTTING, DRILLING OR ANCHORING TO THE EXISTING STRUCTURE. IF ANY DETERIORATION OR DAMAGE TO THE EXISTING STRUCTURE OCCURS DURING CONSTRUCTION, IT SHALL BE IMMEDIATELY REPORTED TO PWD AND ARCHITECT-ENGINEER OF THE RECORD.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING ALL CONSTRUCTION INSPECTION WITH APPROPRIATE CODE OFFICER DURING CONSTRUCTION AS REQUIRED.
- CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY SHORING, SUPPORT AND PROTECTION OF EXISTING CONDITIONS TO REMAIN DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SAFE WORK ENVIRONMENT AND COMPLIANCE WITH OSHA SAFETY STANDARD DURING CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE WITH PWD FOR TEMPORARY SHUT DOWN OF ANY BUILDING SYSTEM DURING CONSTRUCTION.
- REMOVE ANY NAILS, SCREWS, SURFACE MOUNTED RACEWAY, HARDWARE, NON-FUNCTIONING ELECTRICAL DEVICES AND OTHER EXPOSED ITEMS ON EXISTING WALLS/PORIONS IN THE AREA OF NEW WORK.
- PATCH AND REPAIR RESULTING WALL/PARTITION DAMAGE AS REQUIRED PREPARING SURFACES TO RECEIVE NEW FINISHES AS SCHEDULED.
- CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISE CLEAN AND FREE OF ACCUMULATIONS OF WASTE MATERIAL AND RUBBISH CAUSED BY THE CONSTRUCTION.
- MANUFACTURER NAMES AND PRODUCT ARE INDICATING ON DRAWINGS TO INDICATE MINIMUM PERFORMANCE CRITERIA. EQUALS OR COMPARABLE MAY BE SUBMITTED FOR REVIEW DURING THE SUBMITTAL PROCESS.
- CONTRACTOR SHALL COORDINATE CONSTRUCTION PHASING WITH PWD PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.
- ALL DIMENSIONS FOR NEW WALLS ARE FROM FACE OF FINISHED PARTITIONS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS FOR NEW INTERIOR DOORS ARE TO THE CENTER OF DOORS, UNLESS OTHERWISE NOTED.

REFERENCE SYMBOLS



ARCHITECTURE / INTERIORS SYMBOLS



GAITHERSBURG WATER PARK PHASE III

512 S Frederick Ave
Gaithersburg, MD 20877

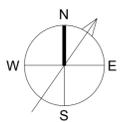
NIKA ARCHITECTS + ENGINEERS

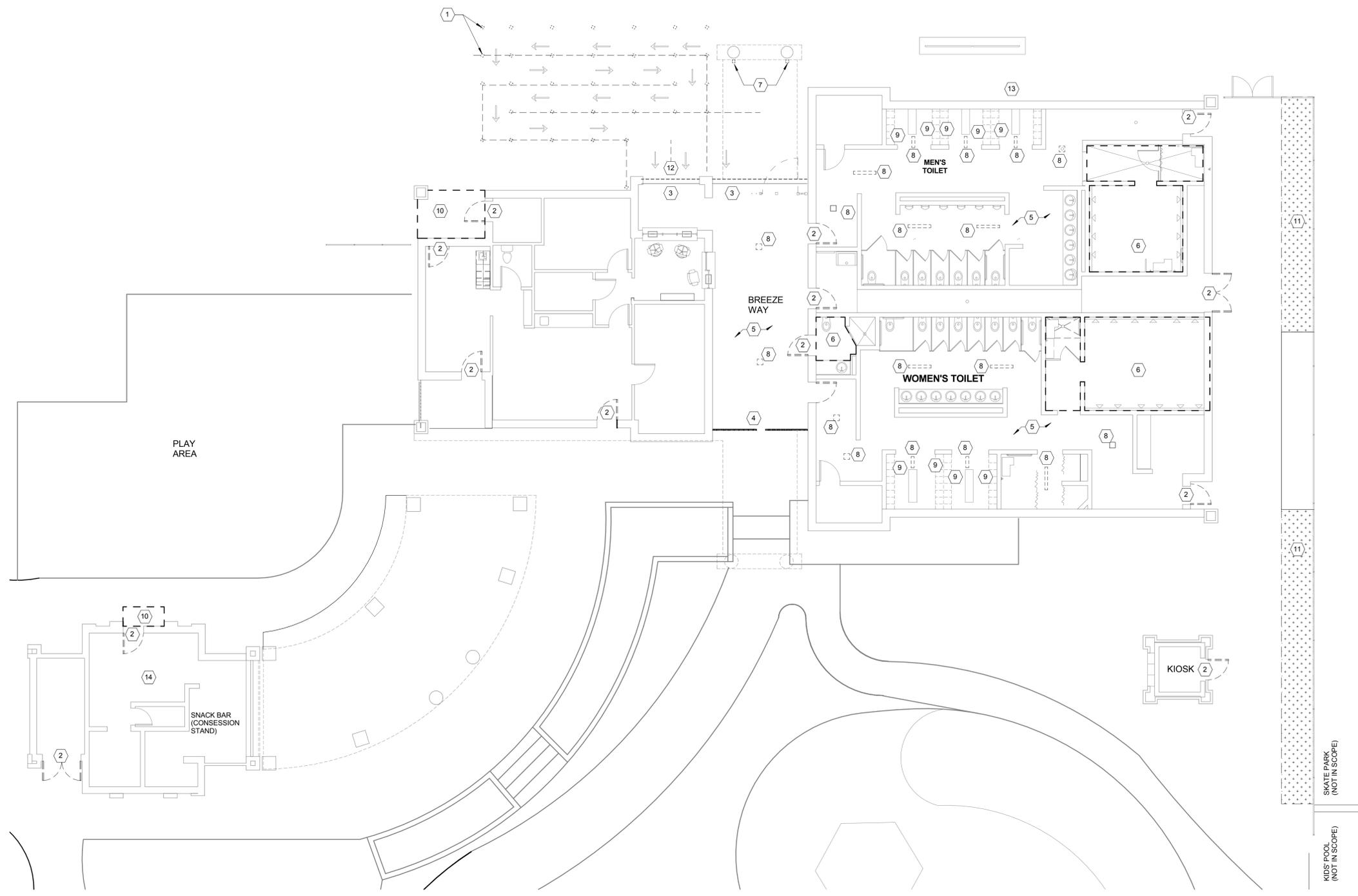
NIKA A+E
451 HUNGERFORD DRIVE (P)301.770.3520
4TH FLOOR (F)301.770.3521
ROCKVILLE, MD 20850 www.nika-ae.com

No.	Description	Date

GENERAL NOTES, ABBREVIATIONS AND SYMBOLS

Phase <input type="checkbox"/> CONCEPT <input type="checkbox"/> 30% <input type="checkbox"/> 60% <input type="checkbox"/> 90% <input checked="" type="checkbox"/> 100%	
A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1
Drawn By RA	
Checked By AV	
Sheet Number G200	





1 ARCHITECTURAL FLOOR PLAN - BATHHOUSE - DEMO
1/8" = 1'-0"

DEMOLITION NOTES

1. EXISTING EXTERIOR FIXED POLES TO BE REMOVED, AND RETURNED TO THE OWNER. DO NOT DISTURB REMOVABLE BOLLARDS IN BREEZEWAY.
2. REMOVE EXISTING EXTERIOR DOOR AND HARDWARE. PROTECT EXISTING FRAME AT ALL LOCATIONS.
3. REMOVE EXISTING ROLL-UP SHUTTER, GUIDE & MOTOR. MAINTAIN EXISTING STEEL TUBE COLUMNS. MAINTAIN POWER AND CONTROL CIRCUIT.
4. REMOVE EXISTING COLLAPSIBLE GATE.
5. PREPARE EXISTING FLOOR TO RECEIVE NEW FLOORING.
6. REMOVE EXISTING TILES AND BASE.
7. REMOVE EXISTING DOWNSPOUT AFTER FIRST BEND FROM GUTTER.
8. REMOVE EXISTING FLOOR DRAINS AT LOCATIONS INDICATED. SOW CUT AND REMOVE EXISTING SLAB AS REQUIRED TO RECEIVE NEW TRENCH DRAINS AND AREA DRAINS. COORDINATE WITH PLUMBING DRAWINGS.
9. REMOVE EXISTING LOCKERS, SUPPORT AND BLOCKING. SKIM COAT AND PREPARE WALLS TO RECEIVE NEW PAINT.
10. REMOVE EXISTING SLAB ON GRADE TO EXTENTS SHOWN. SOW CUT AT EXISTING JOINTS. PREPARE GROUND FOR NEW POUR.
11. REMOVE EXISTING VEGETATION PATCH AND PREPARE GROUND TO RECEIVE CONCRETE PAVEMENT.
12. REMOVE EXISTING "ENTRANCE" SIGNAGE ON EXTERIOR WALL ABOVE. DOCUMENT MOUNTING HEIGHT.
13. REMOVE EXISTING "WATER PARK" SIGNAGE ON EXTERIOR WALL ABOVE. DOCUMENT MOUNTING HEIGHT.
14. REMOVE EXISTING CEILING TILES, GRID SYSTEM, RECESSED LIGHT FIXTURES AND CEILING FANS IN CONCESSION STAND.



GAITHERSBURG WATER PARK PHASE III

512 S Frederick Ave
Gaithersburg, MD 20877

NIKA ARCHITECTS + ENGINEERS

NIKA A+E
451 HUNGERFORD DRIVE (P)301.770.3520
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ROCKVILLE, MD 20850 www.nika-ae.com

No.	Description	Date

Revisions

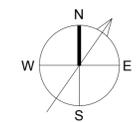
ARCHITECTURAL FLOOR PLAN - BATH HOUSE - DEMOLITION

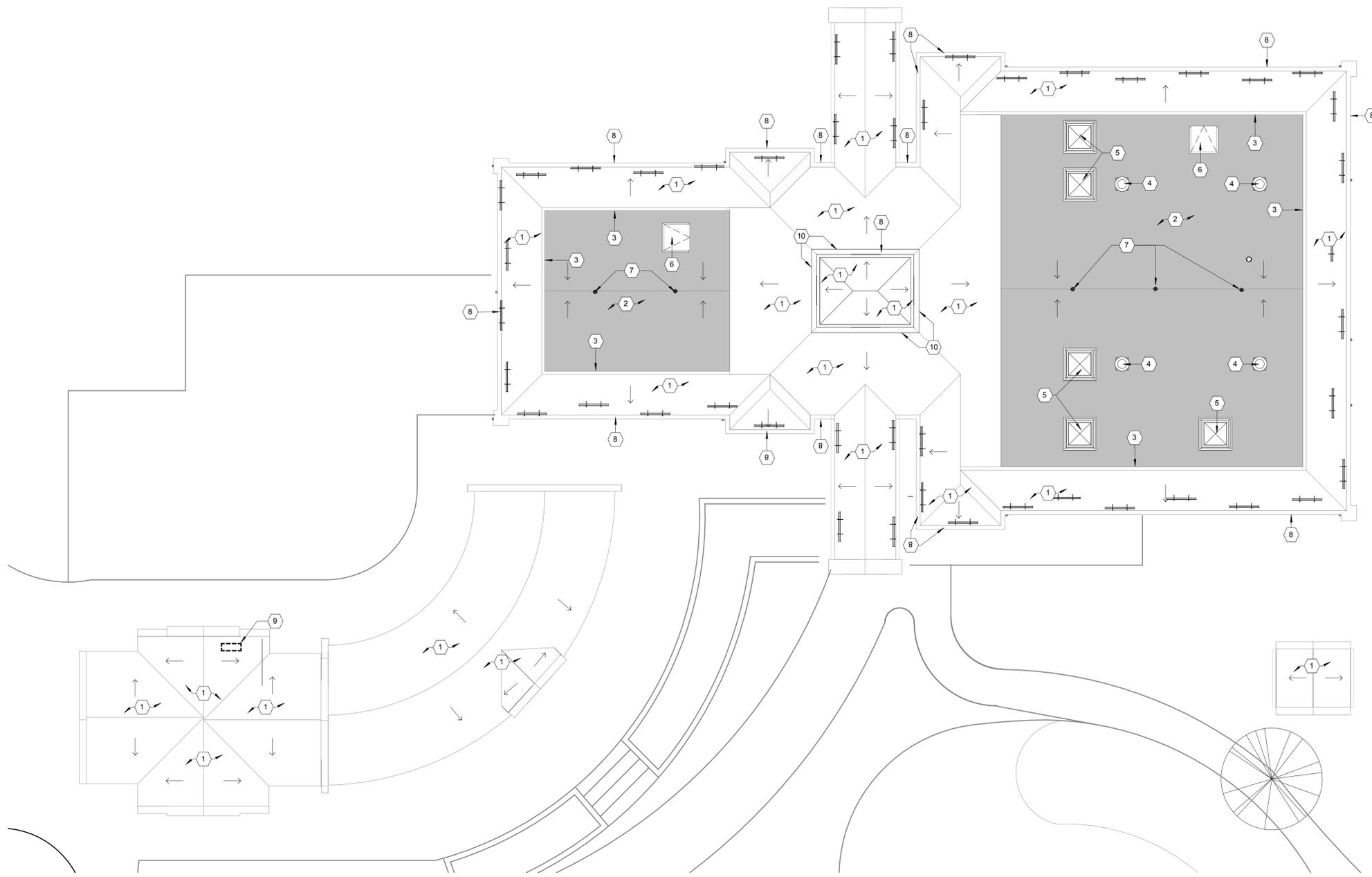
Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1

Drawn By RA
Checked By AV

Sheet Number
AD101





DEMOLITION NOTES

1. REMOVE ALL EXISTING SHINGLES, UNDERLAYMENT AND ASSOCIATED FLASHING. REMOVE NAILS AND ADHESIVE RESIDUE. EXPOSED PLY SHEATHING TO BE FIELD INSPECTED. CONTRACTOR SHALL IDENTIFY ANY AREAS WHERE WATER DAMAGE HAS OCCURRED, AND PROVIDE UNIT PRICE FOR REPAIR INCLUDING MATERIAL AND LABOR. CONTRACTOR SHALL ENSURE THAT EXPOSED PLYWOOD IS PROTECTED FROM ENVIRONMENT AND MOISTURE DURING CONSTRUCTION. PREPARE EXPOSED PLYWOOD TO RECEIVE NEW ROOFING.

2. REMOVE EXISTING BUILT-UP ROOFING DOWN TO PLYWOOD DECK. REMOVE ASSOCIATED FLASHING AND COUNTER FLASHING. PROTECT ROOF VENTS AND OVERFLOW SCUPPER INLETS. REMOVE NAILS AND ADHESIVE RESIDUE. EXPOSED PLY SHEATHING TO BE FIELD INSPECTED. CONTRACTOR SHALL IDENTIFY ANY AREAS WHERE WATER DAMAGE HAS OCCURRED, AND PROVIDE UNIT PRICE FOR REPAIR INCLUDING MATERIAL AND LABOR. CONTRACTOR SHALL ENSURE THAT EXPOSED PLYWOOD IS PROTECTED FROM ENVIRONMENT AND MOISTURE DURING CONSTRUCTION. PREPARE EXPOSED PLYWOOD TO RECEIVE NEW ROOFING.

3. EXISTING VERTICAL BITUMINOUS WEATHERPROOFING TO BE REMOVED. REMOVE ASSOCIATED FLASHING AND COUNTER FLASHING. REMOVE NAILS AND ADHESIVE RESIDUE. EXPOSED PLY SHEATHING TO BE FIELD INSPECTED. CONTRACTOR SHALL IDENTIFY ANY AREAS WHERE WATER DAMAGE HAS OCCURRED, AND PROVIDE UNIT PRICE FOR REPAIR INCLUDING MATERIAL AND LABOR. CONTRACTOR SHALL ENSURE THAT EXPOSED PLYWOOD IS PROTECTED FROM ENVIRONMENT AND MOISTURE DURING CONSTRUCTION. PREPARE EXPOSED PLYWOOD TO RECEIVE NEW ROOFING.

4. TEMPORARILY REMOVE OR PROTECT EXISTING ROOF TOP EXHAUST FAN ASSEMBLY. PREPARE CURB TO RECEIVE NEW ROOFING MEMBRANE AND NEW COUNTER FLASHING.

5. REMOVE EXISTING SKYLIGHT. PROTECT OPENING. PREPARE CURB TO RECEIVE NEW ROOFING MEMBRANE, NEW FACTORY ASSEMBLED SKYLIGHT AND COUNTER FLASHING. IF EXISTING CURB IS NOT SUITABLE FOR NEW SKYLIGHT THEN REMOVE IT AND INSTALL NEW CURB PER SKYLIGHT MANUFACTURER'S SPECIFICATION.

6. PROTECT EXISTING ROOF ACCESS HATCH. REMOVE COUNTER FLASHING. PREPARE CURB TO RECEIVE NEW ROOFING MEMBRANE.

7. REMOVE EXISTING ROOF DRAINS. TEMPORARILY CAP AND PROTECT DRAIN OPENING. PREPARE TO RECEIVE NEW ROOF DRAINS.

8. REMOVE METAL COPING AND DRIP EDGE AT EAVES WHERE CURRENTLY NO GUTTER EXISTS. INSPECT TREATED WOOD BLOCKING UNDERNEATH FOR ANY DECAY OR MOISTURE PRESENCE. PROVIDE UNIT PRICE FOR REPAIRS INCLUDING MATERIAL AND LABOR.

9. CUT AND REMOVE EXISTING ROOF SHEATHING BETWEEN TRUSSES FOR NEW EXHAUST. COORDINATE LOCATION AND SIZE OF ROOF OPENING WITH MECHANICAL DRAWINGS.

10. REMOVE EXISTING STUCCO ON ALL FOUR SIDES OF UPPER ROOF CAP. PREPARE EXPOSED SURFACES TO RECEIVE NEW EIFS SYSTEM.



GAITHERSBURG WATER PARK PHASE III

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No.	Description	Date

Revisions

Drawing Title
ARCHITECTURAL ROOF PLAN - BATH HOUSE - DEMOLITION

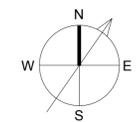
Phase
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AE Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1

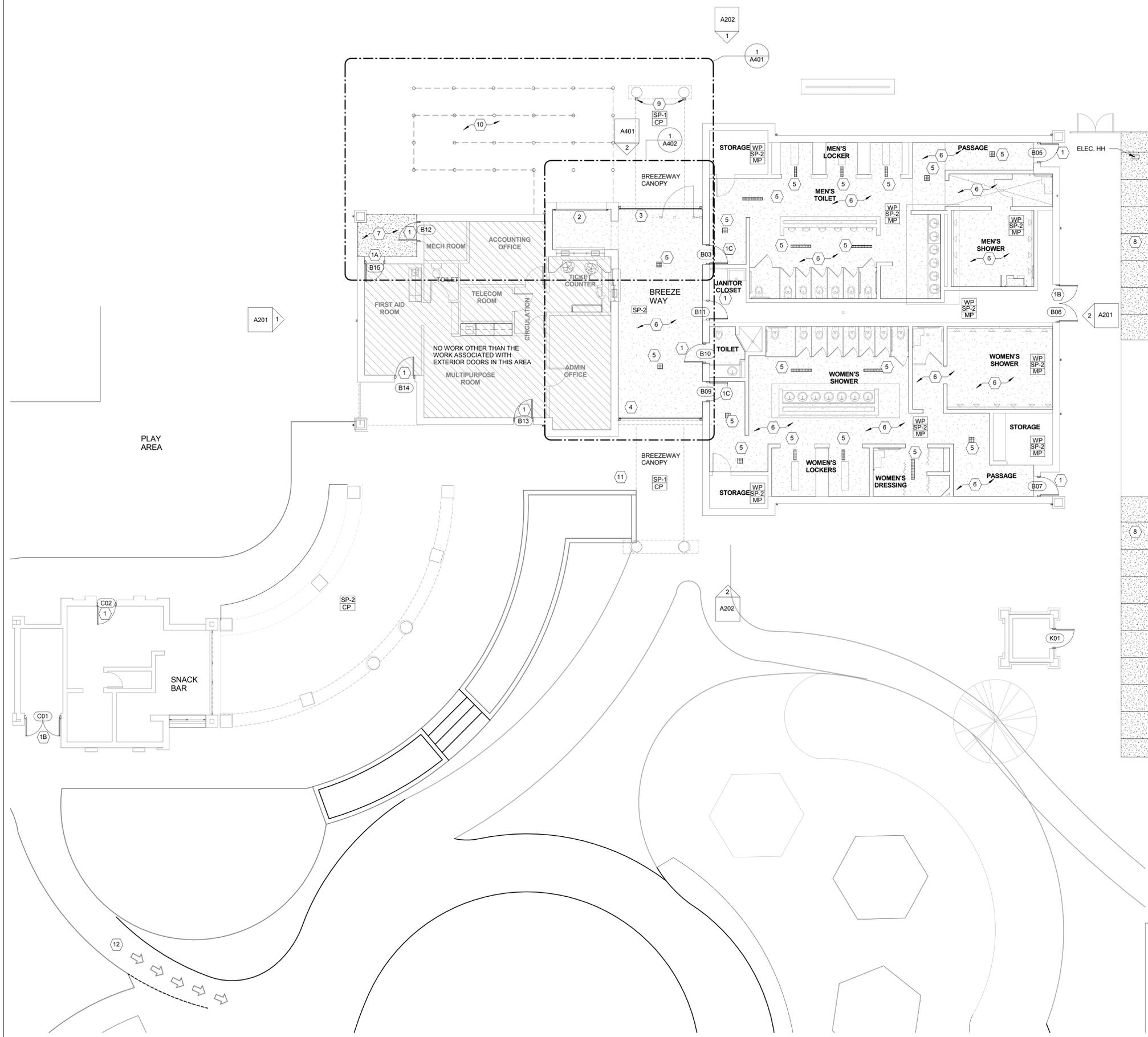
Drawn By RA

Checked By AV

Sheet Number
AD102



1 ARCHITECTURAL ROOF PLAN - BATH HOUSE - DEMO
1/8" = 1'-0"



NEW WORK NOTES

1. INSTALL NEW HM EXTERIOR DOOR IN EXISTING FRAME. CONTRACTOR TO FIELD MEASURE EACH EXISTING DOOR AND PROCURE NEW DOOR TO EXACT SAME LENGTH AS EXISTING. i.e. UNDERCUT AS EXISTING. EXISTING FRAMES ARE FOR 7'-2" DOOR. INSTALL NEW WEATHER STRIPPING AND THRESHOLD TO MATCH EXISTING. INSTALL NEW HARDWARE. CONTRACTOR TO FIELD VERIFY EACH EXISTING MORTISE LOCKSETS TO ENSURE THAT NEW LOCKSETS MATCH EXISTING FUNCTIONALITY. NEW LOCKSETS SHALL BE CORBIN RUSSWIN®. NEW KEY SYSTEM TO MATCH EXISTING FACILITY STANDARD Medeco® KeyMark® SFIC (Small Format Interchangeable Core) 6PIN CYLINDERS. COORDINATE KEYING WITH THE FACILITY MAINTENANCE. INSTALL CONSTRUCTION CORES DURING CONSTRUCTION. DOOR CLOSER - LCN 4040XP SERIES SURFACE MOUNTED HEAVY DUTY WITH HOLD OPEN ARM. INSTALL 12" SS KICK PLATE AT THE DOORS* WHERE EXISTING DOORS HAVE KICK PLATE.

1A. INSTALL NEW CORBIN RUSSWIN® LOCKSET TO MATCH EXISTING FUNCTIONALITY. ADDITIONALLY, NEW LOCKSET WILL HAVE ACCESS CONTROL ELECTRIC STRIKE PLATE COMPATIBLE WITH MAGNETIC SWIPE CARD READER TO BE SELECTED AND INSTALLED BY FACILITY I.T. DEPARTMENT. NEW Medeco® KeyMark® SFIC (Small Format Interchangeable Core) 6PIN CYLINDERS HARDWARE KEY TO OVERRIDE ELECTRONIC ACCESS CONTROL. PREPARE EXISTING CMU WALL WITH INTERIOR JUNCTION BOX TO ELECTRIC STRIKE PLATE. INSTALL CONDUIT RUN AND JUNCTION BOX TO EXTERIOR OF WALL TO RECEIVE ACCESS CARD READER. INSTALL CONDUIT RUN FROM INTERIOR JUNCTION BOX TO TOP OF THE DOOR. DOOR CLOSER - LCN 4040XPT SERIES TOP JAMB MOUNT (PULL SIDE) HEAVY DUTY WITH HOLD OPEN ARM.

1B. INSTALL PAIR DOORS WITH ASTRAGAL. DOOR TO HAVE TOP AND BOTTOM FLUSH BOLTS. INSTALL LCN NON-HANDED LONG HOLD-OPEN ARM WITH STOP/HOLD OPEN HANDLE.

1C. INSTALL NEW HM EXTERIOR DOOR IN EXISTING FRAME. CONTRACTOR TO FIELD MEASURE EACH EXISTING DOOR AND PROCURE NEW DOOR TO EXACT SAME LENGTH AS EXISTING. i.e. UNDERCUT AS EXISTING. EXISTING FRAMES ARE FOR 7'-2" DOOR. INSTALL NEW WEATHER STRIPPING AND THRESHOLD TO MATCH EXISTING. INSTALL THUMB TURN (INTERIOR) WITH KEY OVERRIDE (EXTERIOR). INSTALL SS PULL HANDLE ON INTERIOR SIDE. NEW KEY SYSTEM TO MATCH EXISTING FACILITY STANDARD Medeco® KeyMark® SFIC (Small Format Interchangeable Core) 6PIN CYLINDERS. DOOR CLOSER - LCN 4040XP SERIES SURFACE MOUNTED HEAVY DUTY WITH HOLD OPEN ARM. WITH THE FACILITY MAINTENANCE. INSTALL 12" SS KICK PLATE. INSTALL HOLD OPEN FLOOR BOLT.

2. INSTALL NEW MECHANICALLY (CHAIN) OPERATED STEEL ROLLUP DOOR WITH PADLOCKS IN BREEZEWAY. FIELD MEASURE EXISTING OPENING PRIOR TO ORDERING. ROLLUP DOOR ASSEMBLY TO BE FACTORY PAINTED. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

3. INSTALL NEW MOTORIZED STEEL ROLLUP DOOR WITH MECHANICAL (CHAIN) OVERRIDE. ROLLUP DOOR TO BE LOCKABLE FROM INSIDE BREEZEWAY WITH PADLOCK. FIELD MEASURE EXISTING OPENING PRIOR TO ORDERING. ROLLUP DOOR ASSEMBLY TO BE FACTORY PAINTED. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

4. INSTALL NEW MECHANICALLY (CHAIN) OPERATED ALUMINUM ROLLUP DOOR WITH PADLOCKS IN BREEZEWAY. FIELD MEASURE EXISTING OPENING PRIOR TO ORDERING. ROLLUP DOOR ASSEMBLY TO BE FACTORY PAINTED. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

5. INSTALL NEW FLOOR DRAINS AT THE LOCATIONS OF EXISTING DRAINS. COORDINATE WITH PLUMBING DRAWINGS FOR SIZE AND TYPE OF DRAINS. LINEAR (TRENCH) SHAPED DRAINS WILL BE INSTALLED TO ALIGN WITH SLOPE OF FLOOR.

6. INSTALL NEW OWNER-SELECTED "CRYL-A-FLEX" FLOORING SYSTEM ON EXISTING CONCRETE SLAB. GRANULAR TEXTURE WILL BE QUARTZ BLENDS. COLOR TO BE FINALIZED IN CONSULTATION WITH PROJECT MANAGER. PREPARE EXISTING SLAB PER MANUFACTURER'S SPECIFICATIONS TO RECEIVE NEW FLOORING. IF REQUIRED BY MANUFACTURER, EXPANSION JOINTS SHALL BE PROVIDED TO PREVENT CRACKING. INSTALL ADA COMPLIANT SMOOTH TRANSITION TO CONCRETE SLAB AT BOTH ENDS OF BREEZEWAY, AND OTHER LOCATIONS AS NECESSARY. INSTALL 4" INTERGRAL COVE BASE.

7. POUR NEW 7" THICK EXTERIOR PAVEMENT CONCRETE SLAB WITH 6"x6" W.W.F. OVER GRAVEL AND COMPACTED EARTH. TOP FINISH TO MATCH ADJACENT BROOM FINISH. SLOP AWAY FROM ENTRANCE DOOR.

8. POUR NEW 7" THICK EXTERIOR PAVEMENT CONCRETE SLAB WITH 6"x6" W.W.F. OVER GRAVEL AND COMPACTED EARTH. TOP FINISH TO MATCH ADJACENT BROOM FINISH. TOP OF NEW POUR TO FOLLOW THE GRADE OF ADJACENT BRICK-PAVERS. RELOCATE EXISTING ELECTRICAL HAND HOLE (HH) COVER TO TOP OF NEW POUR. CONCRETE STRENGTH TO BE 4000 PSI.

9. INSTALL NEW DOWNSPOUT SEGMENTS TO MATCH EXISTING WITH NEW BEND AT CROWN OF EXISTING CONCRETE COLUMN TO BRING NEW DOWNSPOUT CLOSER TO COLUMN. INSTALL NEW C.I. CONVERSION BOOT AT THE BOTTOM OF NEW DOWNSPOUT.

10. NEW PAINTED STEEL 42" BOLLARDS WITH CONCRETE FILL AND REMOVABLE STEEL CHAIN SYSTEM WITH VANDAL PROOF LOCKING. REFER TO ENLARGED PLAN.

11. INSTALL NEW PEDESTAL MOUNTED DIRECTIONAL SIGNAGE FOR ACCESSIBLE ROUTE TO POOL.

12. STRIPE AND PAINT EXISTING PAVEMENT WITH ROUTE POINTERS TOWARDS POOL AREA.



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GENERAL NOTES:

1. REFER TO SHEET A 601 FOR PAINT LEGEND.

No.	Description	Date

Revisions
Drawing Title
ARCHITECTURAL FLOOR PLAN - BATH HOUSE

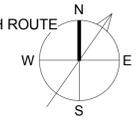
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AE Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model CADD Plot Scale 1:1

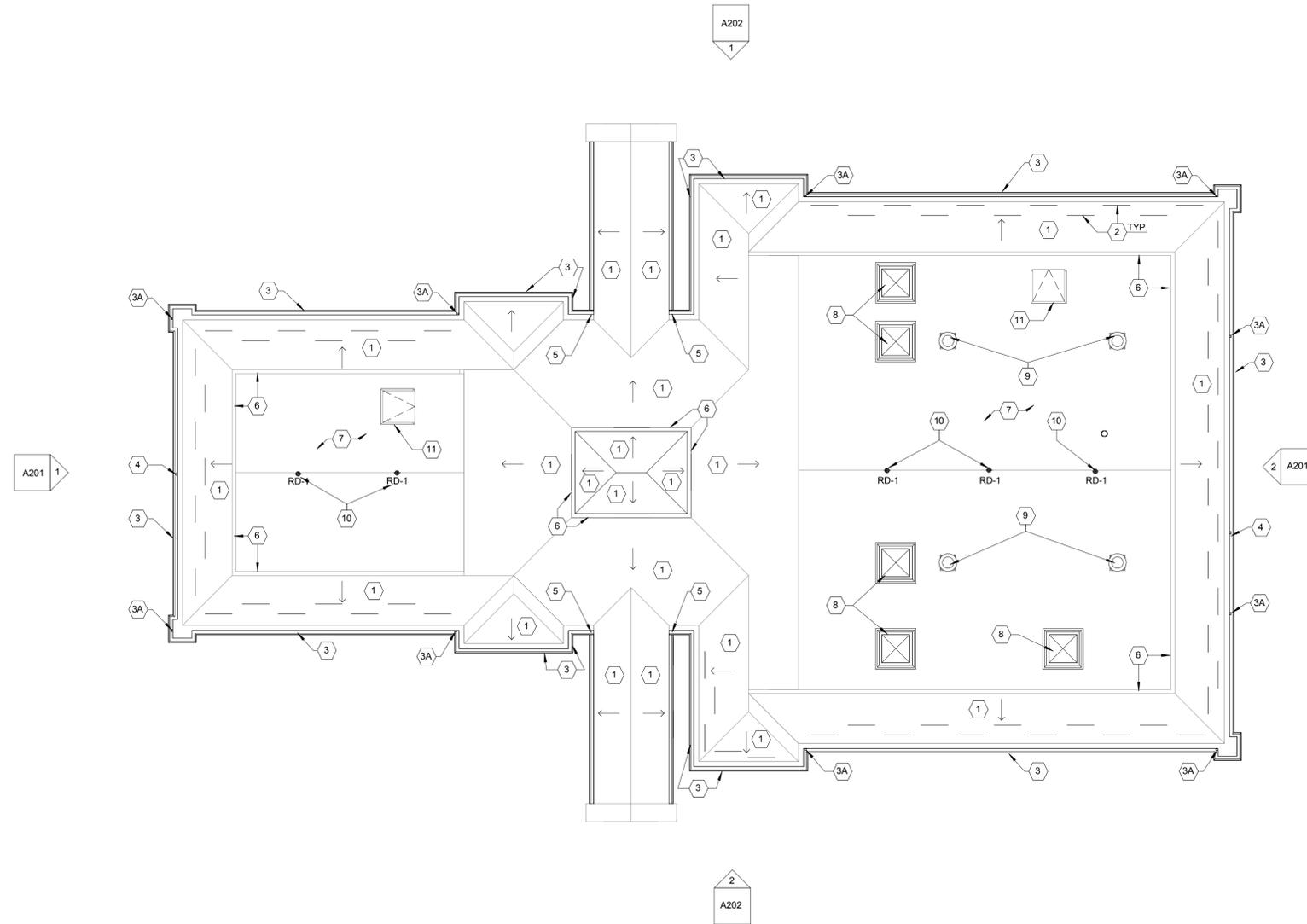
Drawn By RA
Checked By AV

Sheet Number
A101

1 ARCHITECTURAL FLOOR PLAN - BATH HOUSE - NEW WORK
1/8" = 1'-0"



SKATE PARK (NOT IN SCOPE)
KIDS POOL (NOT IN SCOPE)



1 ARCHITECTURAL ROOF PLAN - BATH HOUSE
1/8" = 1'-0"

NEW WORK NOTES

1. NEW ASPHALT SHINGLES ROOFING. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. INSTALL NEW PREFINISHED RIDGE, VALLEY AND STEP FLASHING. MINIMUM LAP LENGTH FOR FLASHING WILL BE 6".
2. INSTALL NEW PREFINISHED ALUMINUM SNOW-GUARDS STAGGERED IN TWO ROW. FINISH TO MATCH FLASHING.
3. INSTALL NEW PREFINISHED ALUMINUM GUTTER. COLOR TO MATCH EXISTING GUTTER AT BREEZEWAY CANOPIES.
 - a. INSTALL NEW DOWNSPOUT AND PRECAST SPLASH BLOCK.
4. LOCATE EXISTING ROOF OVERFLOW. INSTALL NEW PREFINISHED ALUMINUM COLLECTOR BOX AND DOWNSPOUT WITH SPLASH BLOCK. COLOR TO MATCH EXISTING GUTTER AT BREEZEWAY CANOPIES.
5. INSTALL SHORT DOWNSPOUT FROM NEW GUTTER TO EXISTING LOWER GUTTER AT BREEZEWAY CANOPY. COLOR TO MATCH EXISTING GUTTER AT BREEZEWAY CANOPIES.
6. INSTALL NEW PREFINISHED ALUMINUM COPING. COLOR TO MATCH EXISTING GUTTER AT BREEZEWAY CANOPIES.
7. NEW SINGLE PLY ROOFING. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. INSTALL NEW TREATED WOOD CANT AT CORNER WITH VERTICAL SURFACE. INSTALL NEW COUNTER-FLASHING.
8. NEW FACTORY ASSEMBLED PREFINISHED SKYLIGHT WITH THERMAL BARRIER. MOUNT OVER EXISTING ROOF CURB. INSTALL PER MANUFACTURER'S INSTRUCTIONS. INSTALL NEW MEMBRANE FLASHING AND METAL COUNTER FLASHING. ENTIRE INSTALLATION SHALL BE WATER AND MOISTURE PROOF.
9. INSTALL NEW FLASHING EXISTING CURB. REINSTALL EXISTING EXHAUST FAN ASSEMBLY OVER NEW COUNTER FLASHING PER FAN MANUFACTURER'S INSTRUCTIONS. CONSTRUCTOR SHALL ENSURE THE RECONNECTION OF ELECTRICAL COMPONENTS WITH EXISTING GROUNDING CIRCUIT.
10. INSTALL NEW ROOF DRAINS AT EXISTING LOCATIONS. REFER TO SHEET P301 FOR PLUMBING FIXTURE SCHEDULE.
11. INSTALL NEW CURB FLASHING AND COUNTER FLASHING AT EXISTING ROOF ACCESS HATCH.



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GENERAL NOTES

1. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SAFE WORKING ENVIRONMENT PER OSHA STANDARDS. ROOF INSTALLERS SHALL BE CERTIFIED AND EXPERIENCED. THE CREW MEMBERS AND SUPERVISORS SHALL WEAR ALL REQUIRED PERSONAL PROTECTION EQUIPMENT, SAFE SAFETY HARNESS, AND USE SECURED SHORING.
2. THE SUBSTRATE MUST BE SECURELY FASTENED TO STRUCTURE. IF IT IS FOUND UNSTABLE, IMMEDIATELY NOTIFY THE ARCHITECT AND THE OWNER.
3. THE SUBSTRATE MUST BE CLEAN, DRY, STRUCTURALLY SOUND, FREE OF LOOSE MATERIAL, VOIDS, PROJECTIONS, HOT SPOTS, RELEASE AGENTS, COATINGS, OR OTHER MATERIALS THAT MAY AFFECT ADHESION.
4. THERE SHALL BE NO PLANAR IRREGULARITIES GREATER THAN 6.4 MM (1/4 IN) WITHIN ANY 1.2 M (4 FT) RADIUS.
5. PRODUCTS AND INSTALLATION SHALL BE SUBJECTED TO A WRITTEN WARRANTY FROM THE CONTRACTOR FOR A PERIOD OF 20 YEARS MINIMUM, WITH PROVISION TO RENDER ALL SERVICES NECESSARY TO MITIGATE ANY AND ALL DAMAGE TO THE PROPERTY IF OCCURS DURING THE WARRANTED PERIOD DUE TO FAILURE OF ROOFING. AT NO COST TO THE GOVERNMENT (OWNER).

No.	Description	Date

Revisions

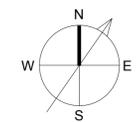
ARCHITECTURAL ROOF PLAN - BATH HOUSE

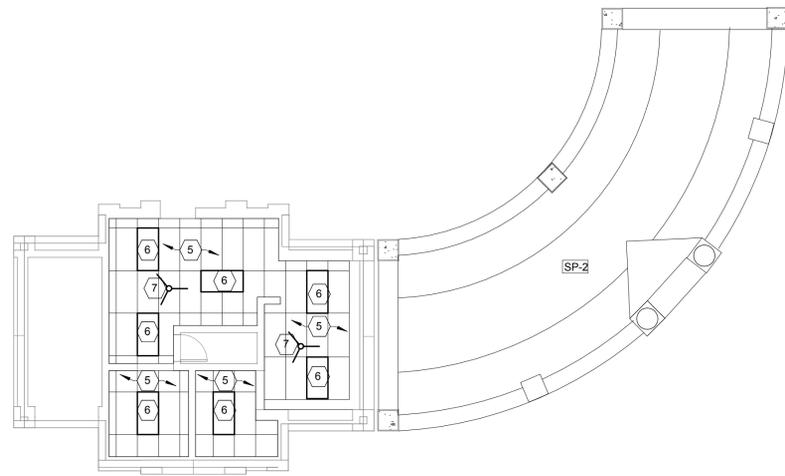
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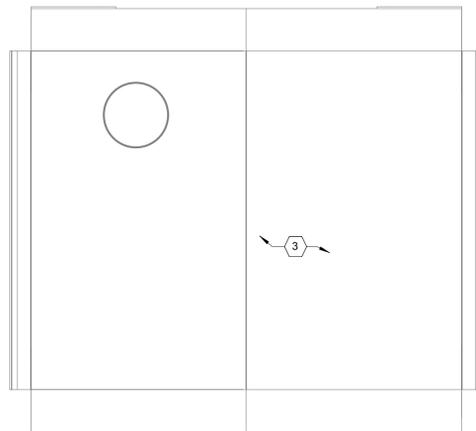
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Sheet Number
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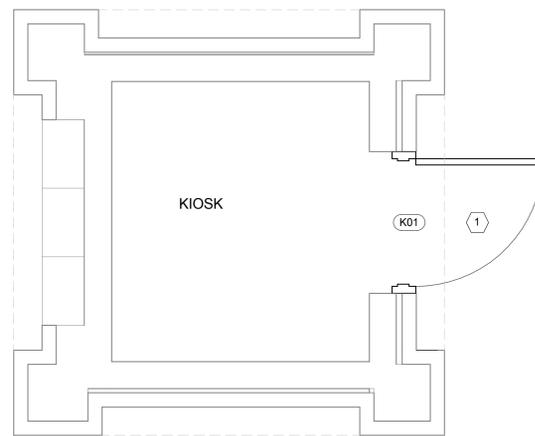




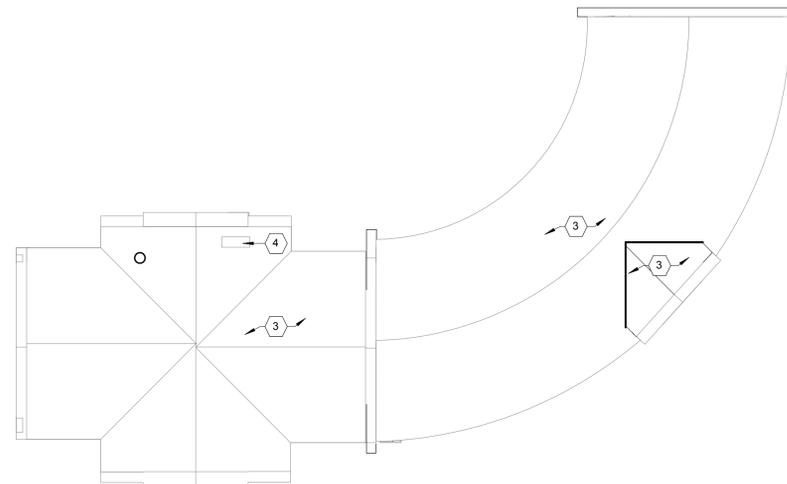
5 CONCESSION STAND CEILING AND SOFFIT PLAN
1/8" = 1'-0"



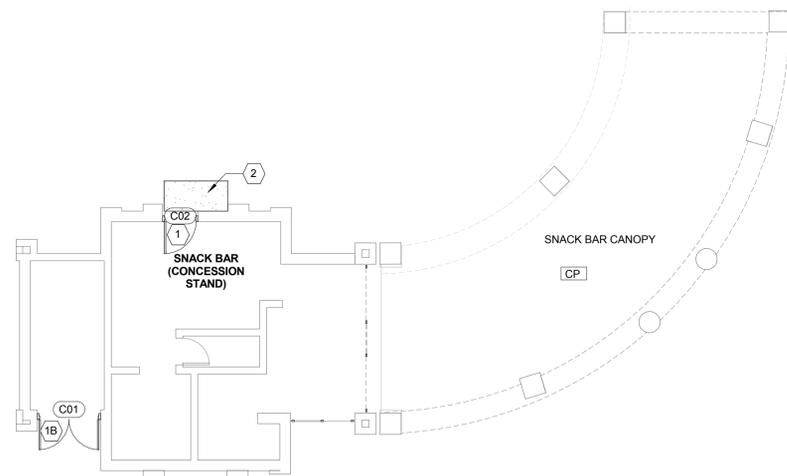
3 ARCHITECTURAL ROOF PLAN - KIOSK
1/2" = 1'-0"



2 ARCHITECTURAL FLOOR PLAN - KIOSK
1/2" = 1'-0"



4 ARCHITECTURAL ROOF PLAN - CONCESSION STAND
1/8" = 1'-0"



1 ARCHITECTURAL FLOOR PLAN - CONCESSION STAND
1/8" = 1'-0"

NEW WORK NOTES

1. INSTALL NEW HM EXTERIOR DOOR IN EXISTING FRAME. CONTRACTOR TO FIELD MEASURE EACH EXISTING DOOR AND PROCURE NEW DOOR TO EXACT SAME LENGTH AS EXISTING. i.e. UNDERCUT AS EXISTING. EXISTING FRAMES ARE FOR 7'-2" DOOR. INSTALL NEW WEATHER STRIPPING AND THRESHOLD TO MATCH EXISTING. INSTALL NEW HARDWARE. CONTRACTOR TO FIELD VERIFY EACH EXISTING MORTISE LOCKSETS TO ENSURE THAT NEW LOCKSETS MATCH EXISTING FUNCTIONALITY. NEW LOCKSETS SHALL BE CORBIN RUSSWIN®. NEW KEY SYSTEM TO MATCH EXISTING FACILITY STANDARD Medeco® KeyMark® SFIC (Small Format Interchangeable Core) 6PIN CYLINDERS. COORDINATE KEYING WITH THE FACILITY MAINTENANCE. INSTALL CONSTRUCTION CORES DURING CONSTRUCTION. DOOR CLOSER - LCN 4040XP SERIES SURFACE MOUNTED HEAVY DUTY WITH HOLD OPEN ARM. INSTALL 12" SS KICK PLATE AT THE DOORS* WHERE EXISTING DOORS HAVE KICK PLATE.

1B. INSTALL PAIR DOORS WITH ASTRAGAL. DOOR TO HAVE TOP AND BOTTOM FLUSH BOLTS. INSTALL LCN NON-HANDED LONG HOLD-OPEN ARM WITH STOP/HOLD OPEN HANDLE.

3. NEW ASPHALT SHINGLES ROOFING. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. INSTALL NEW PREFINISHED RIDGE, VALLEY AND STEP FLASHING. MINIMUM LAP LENGTH FOR FLASHING WILL BE 6".

4. NEW CURB SUPPORT, FLASHING AND COUNTER FLASHING FOR NEW ROOF TO EXHAUST VENT. REFER TO MECHANICAL DRAWINGS FOR COORDINATION.

5. NEW PVC LAY IN CELLULAR CEILING TILES AND SUSPENSION GRID SYSTEM.

6. NEW PROCESSED LIGHT FIXTURES. REFER TO ELECTRICAL FOR ADDITIONAL INFORMATION.

7. NEW CEILING FANS. REFER TO ELECTRICAL FOR ADDITIONAL INFORMATION.

8. INSTALL NEW EXTERIOR GRADE PLYWOOD SHEATHING ON UNDERSIDE OF EXISTING "A" FRAME TRUSSES AT THE SNACK BAR CANOPY TO FORM A SOFFIT. SHEATHING TO RUN IN HORIZONTAL BENDS OF NO GREATER THAN 2 FEET HEIGHT ON INCLINED AND CURVED TRUSS ARRAY TO FORM SMOOTH SOFFIT SURFACE. PUTTY AND PREPARE TO RECEIVE PAINT AFTER NAILING. COMPLETELY COVER CANOPY SOFFIT STARTING FROM TOP OF EXISTING EIFS BULKHEAD. PROVIDE BLOCKING FOR NEW ELECTRICAL FIXTURE MOUNTING. INSTALL 12"x12" ACCESS PANELS AT JUNCTION BOXES AS NECESSARY. INSTALL 6 EACH 12"x12" VENTILATING GRILLES IN SOFFIT FOR BREAKABILITY.



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GENERAL NOTES

- AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SAFE WORKING ENVIRONMENT PER OSHA STANDARDS. ROOF INSTALLERS SHALL BE CERTIFIED AND EXPERIENCED. THE CREW MEMBERS AND SUPERVISORS SHALL WEAR ALL REQUIRED PERSONAL PROTECTION EQUIPMENT, SAFE SAFETY HARNESS, AND USE SECURED SHORING.
- THE SUBSTRATE MUST BE SECURELY FASTENED TO STRUCTURE. IF IT IS FOUND UNSTABLE, IMMEDIATELY NOTIFY THE ARCHITECT AND THE OWNER.
- THE SUBSTRATE MUST BE CLEAN, DRY, STRUCTURALLY SOUND, FREE OF LOOSE MATERIAL, VOIDS, PROJECTIONS, HOT SPOTS, RELEASE AGENTS, COATINGS, OR OTHER MATERIALS THAT MAY AFFECT ADHESION.
- THERE SHALL BE NO PLANAR IRREGULARITIES GREATER THAN 6.4 MM (1/4 IN) WITHIN ANY 1.2 M (4 FT) RADIUS.
- PRODUCTS AND INSTALLATION SHALL BE SUBJECTED TO A WRITTEN WARRANTY FROM THE CONTRACTOR FOR A PERIOD OF 20 YEARS MINIMUM, WITH PROVISION TO RENDER ALL SERVICES NECESSARY TO MITIGATE ANY AND ALL DAMAGE TO THE PROPERTY IF OCCURS DURING THE WARRANTED PERIOD DUE TO FAILURE OF ROOFING. AT NO COST TO THE GOVERNMENT (OWNER).

No.	Description	Date

Revisions

Drawing Title

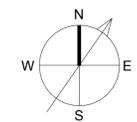
ARCHITECTURAL PLANS - CONCESSION STAND & KIOSK

Phase
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A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1

Drawn By RA
Checked By AV

Sheet Number
A103





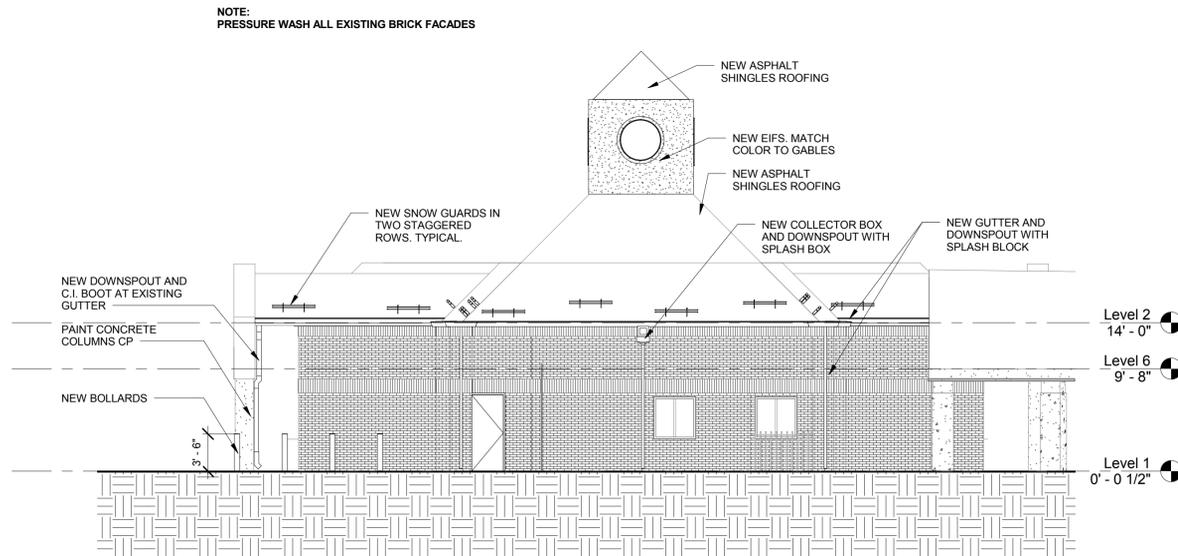
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PHASE III**

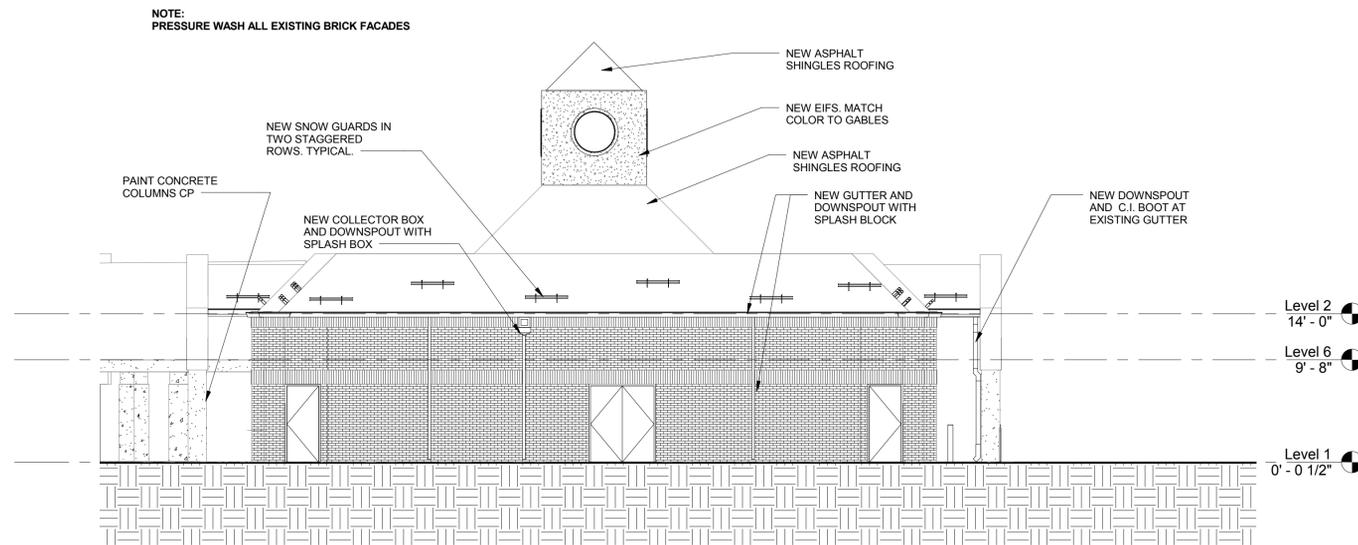
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① WEST ELEVATION
1/8" = 1'-0"



② EAST ELEVATION
1/8" = 1'-0"

No.	Description	Date

Revisions

Drawing Title

ARCHITECTURAL ELEVATIONS

Phase
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A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1

Drawn By: JE
 Checked By: AV

Sheet Number
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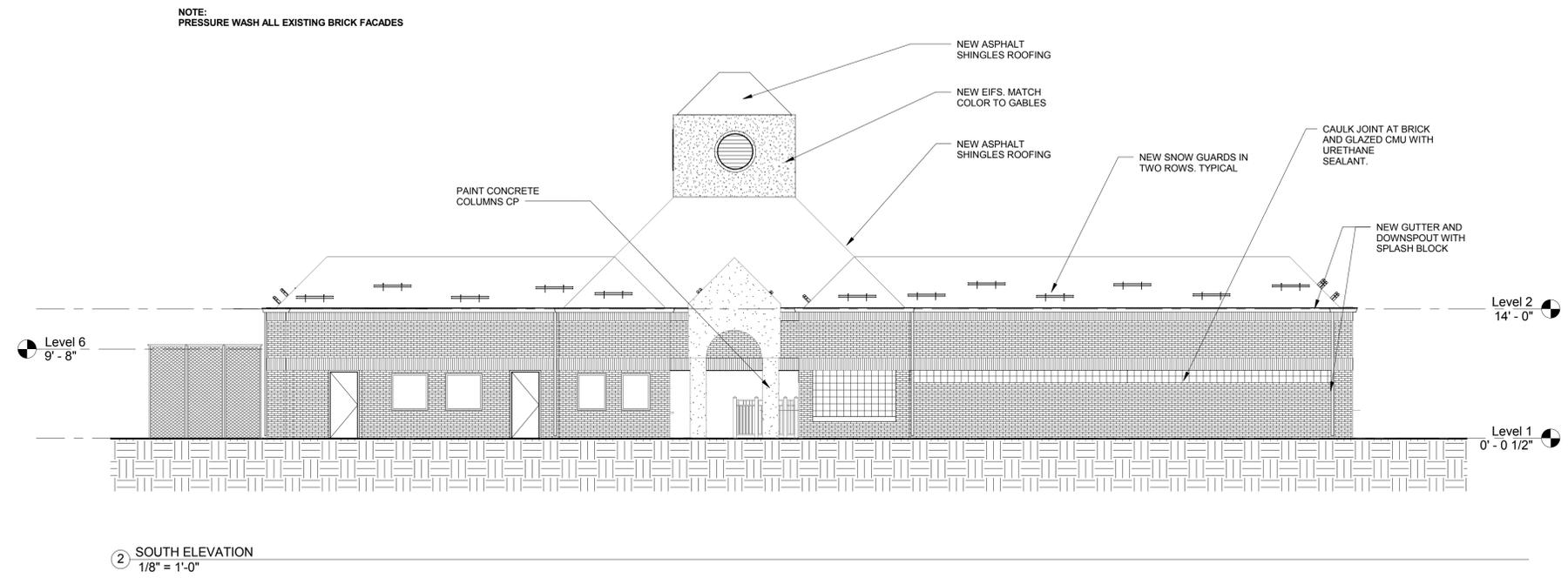
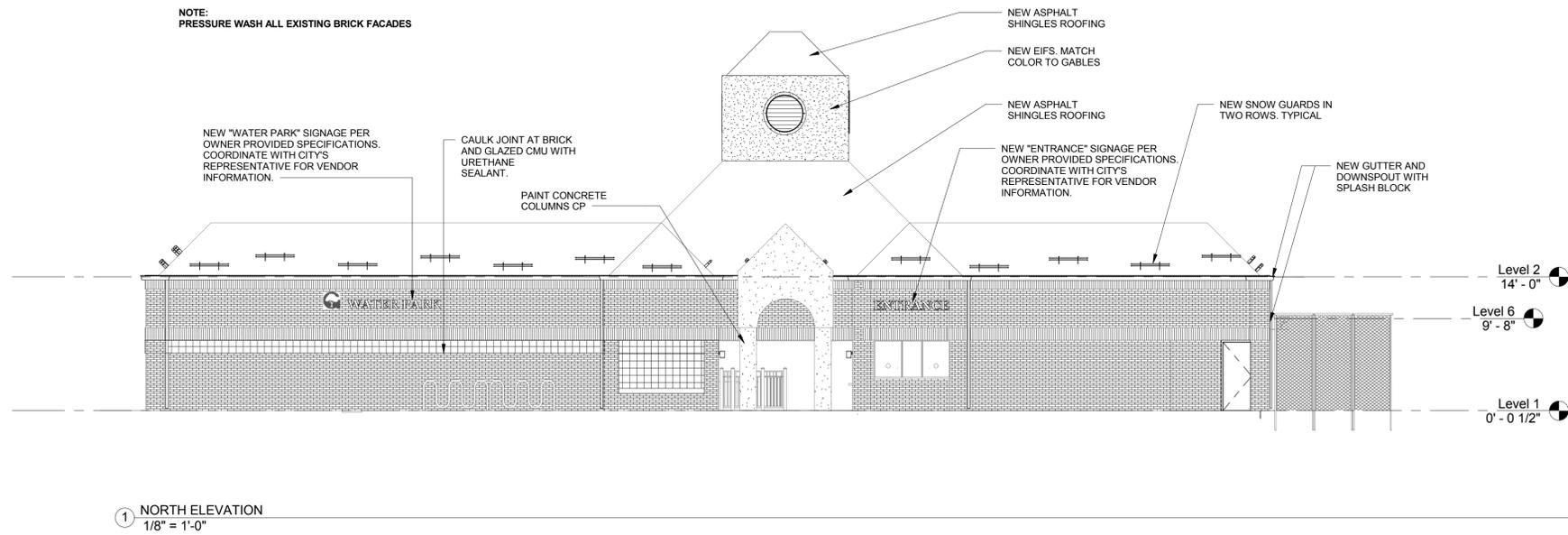
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No.	Description	Date

Revisions
Drawing Title
ARCHITECTURAL ELEVATIONS

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011		Drawing Scale: AS NOTED	
Date 10.20.2014	CADD Filename Revit Model	CADD Plot Scale 1:1	
Drawn By JE	Checked By AV	Sheet Number A202	



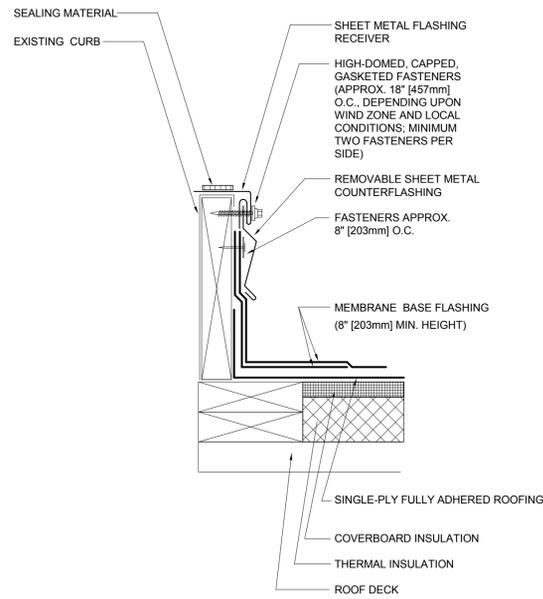
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**GAITHERSBURG
WATER PARK
PHASE III**

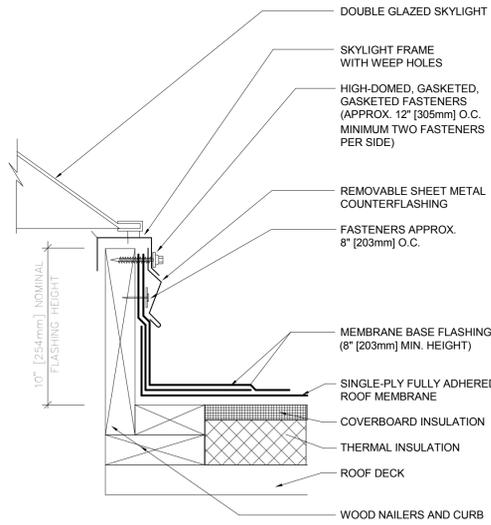
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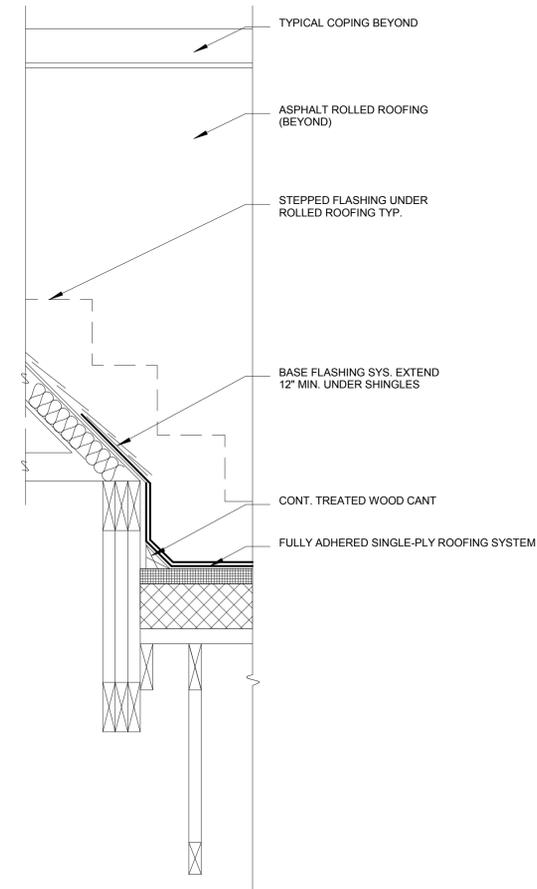
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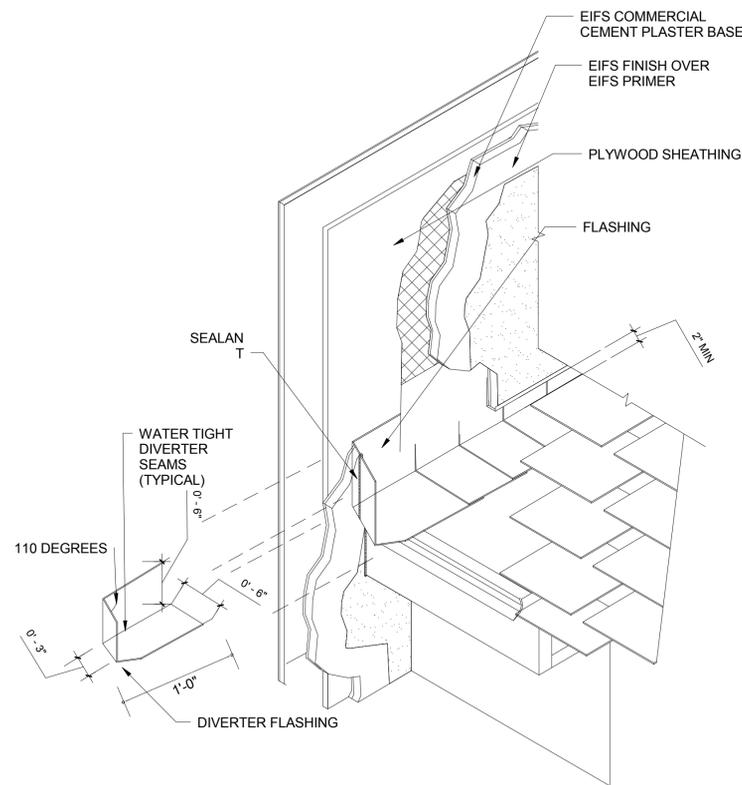
4 ROOF CURB DETAIL
1" = 1'-0"



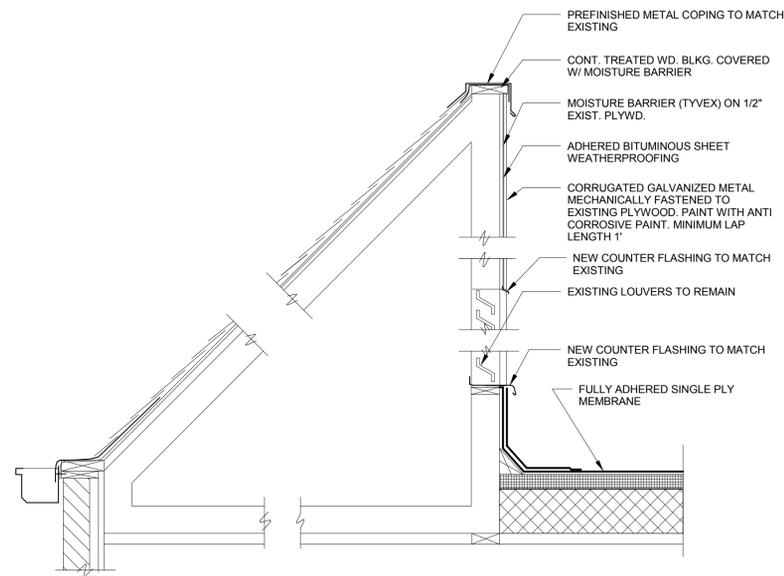
5 ROOF SKYLIGHT DETAIL
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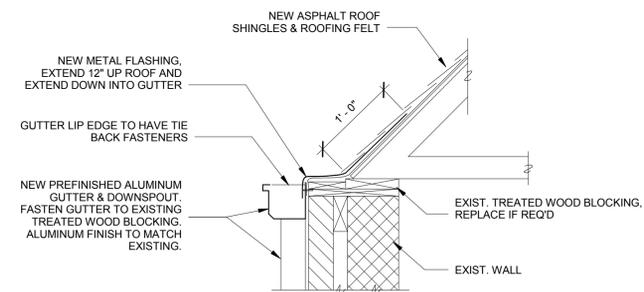
6 STEP FLASHING DETAIL
1" = 1'-0"



3 KICK OUT FLASHING
1" = 1'-0"



1 ROOF DETAIL - MANSARD ROOF
1" = 1'-0"



2 TYPICAL ROOF FLASHING AND GUTTER DETAIL
1" = 1'-0"

No.	Description	Date

Revisions

Drawing Title

ROOF DETAILS

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number: 12.0009-011 Drawing Scale: AS NOTED
CADD Filename: Revit Model CADD Plot Scale: 1:1

Date: 10.20.2014

Drawn By: Author

Checked By: Checker

Sheet Number

A403



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**GAITHERSBURG
WATER PARK
PHASE III**

512 S Frederick Ave
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Door Schedule										
DESIGNATION	Count	Manufacturer	Height	Width	Thickness	Finish	Fire Rating	Function	LOUVER	Comments
B03	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		10" SS KICK PLATE ON BOTH SIDES
B05	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior	INSTALL LOUVER	10" SS KICK PLATE ON BOTH SIDES
B06	1	MATCH EXISTING	7' - 2"	6' - 0"	0' - 1 3/4"	PAINTED	N/A	Interior		PAIR DOOR, 10" SS KICK PLATE ON BOTH SIDES
B07	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		10" SS KICK PLATE ON BOTH SIDES
B09	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		
B10	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior	INSTALL LOUVER	10" SS KICK PLATE ON BOTH SIDES
B11	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior	INSTALL LOUVER	10" SS KICK PLATE ON BOTH SIDES
B12	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		
B13	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		
B14	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		
B15	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		PREPARE EXISTING FRAME TO RECIEVE ACCESS CONTROL
C01	1	MATCH EXISTING	7' - 2"	5' - 8"	0' - 1 3/4"	PAINTED	N/A	Interior		PAIR DOOR, 10" SS KICK PLATE ON BOTH SIDES
C02	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior	INSTALL LOUVER	10" SS KICK PLATE ON BOTH SIDES
K01	1	MATCH EXISTING	7' - 2"	3' - 0"	0' - 1 3/4"	PAINTED	N/A	Exterior		

NOTES:

- ALL NEW DOORS TO BE EXTERIOR HOLLOW METAL.
- ALL HINGES WERE FIELD VERIFIED AS MANUFACTURED BY H.5055
- IN FIELD ALL FRAMES MEASURE 7'-2" CLEAR OPENING BUT DOORS MEASURE SLIGHTLY LESS AT EACH LOCATION BASED ON THRESHOLD CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASURING EACH DOOR PRIOR TO ORDERING. ADDITIONALLY, CONTRACTOR SHALL BE RESPONSIBLE TO TAKE INTO CONSIDERATION NEW FLOORING WHERE OCCURS IN DETERMINING ACCURATE DOOR LEAF SIZE FOR ORDERING.
- HARDWARE FUNCTIONALITY TO MATCH EXISTING AT EACH door LOCATION. NEW MORTISE LOCKSETS WILL BE CORBIN RUSSWIN COMPATIBLE WITH FACILITY STANDARD Medeco KeyMark SIX CYLINDER Small Format Interchangeable Core (SFIC).

PRICING:

- CONTRACTOR SHALL PRICE BASE BID WITH EXISTING FRAME TO REMAIN IN PLACE AND FIELD VERIFY TO CONFIRM PRIOR TO BIDDING IF IT IS POSSIBLE TO IDENTIFY MANUFACTURER AND ORDER NEW DOOR TO FIT INTO THE EXISTING FRAME WITHOUT STRUCTURAL DAMAGE. THIS IS PREFERRED OPTION.
- IF IT IS NOT POSSIBLE TO PURCHASE NEW DOOR LEAVES THAT CAN FIT INTO EXISTING FRAME, THEN THE CONTRACTOR SHALL PROVIDE A BID ALTERNATE PRICE FOR REMOVING EXISTING FRAMES AND INSTALL NEW FRAMES WITH NEW DOORS. CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING DAMAGE TO EXISTING BRICK AND CMU MASONRY.

PAINT LEGEND			
KEY	APPLICATION	DESCRIPTION	COLOR
WP	CMU WALL-BATHHOUSE INTERIOR	HIGH BUILD EPOXY BASED PAINT (EXTERIOR GRADE)	OFF-WHITE (MATCH)
CP	CONCRETE COLUMNS -CANOPIES	HIGH BUILD EPOXY BASED PAINT (EXTERIOR GRADE)	MATCH GABLE EIFS COLOR
SP-1	SOFFIT PAINT - BREEZEWAY CANOPIES (EXT.GYP.BOARD)	WATER BASED LATEX PAINT (EXTERIOR GRADE)	GRAY (MATCH)
SP-2	SOFFIT PAINT - BREEZEWAY, BATHHOUSE CEILING, TRUSSES & SNACK BAR CANOPY (WOOD & PLYWOOD)	WATER BASED LATEX PAINT (EXTERIOR GRADE)	OFF-WHITE (MATCH)
MP	MISCELLANEOUS METAL - BATHHOUSE CEILING	ALKYD BASED LATEX PAINT (EXTERIOR GRADE)	OFF-WHITE
LIP	EXTERIOR GALVANIZED BOLLARDS	LIGHT INDUSTRIAL PAINT	BLACK

NOTES:
 1. REFER TO PAINT SPECIFICATIONS
 2. ALL PAINT SYSTEMS TO BE COMPATIBLE WITH MATERIALS AND APPLICATIONS PER MPI STANDARDS
 3. FINAL COLOR SELECTIONS ARE SUBJECT TO OWNER APPROVAL

No.	Description	Date

Revisions

Drawing Title

SCHEDULES

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1

Drawn By Author
Checked By Checker
Sheet Number A601

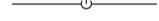
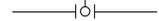
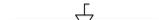
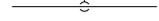
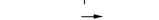
PIPING SYMBOLS

	NEW DOMESTIC COLD WATER (DCW)
	NEW DOMESTIC HOT WATER (DHW)
	NEW DOMESTIC HOT WATER RETURN (HWR)
	NEW SANITARY PIPE (SAN)
	NEW VENT PIPE (V)
	NEW NATURAL GAS PIPE
	PROPANE GAS PIPE
	FUEL OIL PIPE
	TRAP PRIMER PIPE
	NEW SHUT-OFF VALVE
	DEMOLITION PIPE
	EXISTING DOMESTIC COLD WATER (DCW)
	EXISTING DOMESTIC HOT WATER (DHW)
	EXISTING DOMESTIC HOT WATER RETURN (HWR)
	NEW SANITARY PIPE (SAN)
	NEW VENT PIPE (V)
	EXISTING SHUT-OFF VALVE

ABBREVIATIONS

AP	ACCESS PANEL
ABV	ABOVE
AFF	ABOVE FINISH FLOOR
BEL	BELOW
BFPR	BACKFLOW PREVENTER
BV	BALANCING VALVE
CLG	CEILING
CO	CLEANOUT
(E)	EXISTING
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
DHWT	DOMESTIC HOT WATER TANK
HB	HOSE BIBB
OHB	OPEN HUB DRAIN
SP	SOIL PIPE
SS	SOIL STACK
TP	TRAP PRIMER
V	VENT
VP	VENT PIPE
VS	VENT STACK
VTR	VENT THRU ROOF
NG	NATURAL GAS PIPE
LP	LIQUID PROPANE PIPE

GENERAL SYMBOLS

	CONNECT NEW TO EXISTING
	POINT OF DISCONNECT
	ELBOW DOWN
	ELBOW UP
	TOP CONNECTION, 45° OR 90°
	SHUT OFF VALVE
	GAS SHUT OFF VALVE
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	RISE OR DROP IN PIPE
	UNION
	CHECK VALVE
	BALANCING VALVE
	HOSE BIBB
	WALL HYDRANT
	BACKFLOW PREVENTER
	TRAP PRIMER
	SHOCK ARRESTOR

PLUMBING GENERAL NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE AND VERIFYING ALL EXISTING FIELD CONDITIONS PRIOR TO SUBMISSION OF HIS BID.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF ALL OTHER TRADES AND MAKING ANY NECESSARY MODIFICATIONS TO HIS WORK AT NO ADDITIONAL COST, INCLUDING ALL OFFSETS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATION OF ANY EXISTING MINOR INTERFERENCE'S, INCLUDING CONDUIT, HANGERS, ETC., AT NO ADDITIONAL COST.
- CONTRACTOR SHALL REMOVE EXISTING EQUIPMENT AND MATERIALS PERTAINING TO HIS CONTRACT AS SPECIFIED OR AS REQUIRED WHETHER SHOWN ON THE DRAWINGS OR NOT, TO PREPARE FOR THE NEW WORK.
- ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL CODES. THESE CODES SHALL BE FOLLOWED AS MINIMUM PROVIDING HIGHER GRADES OF MATERIAL AND WORKMANSHIP WHERE REQUIRED BY THESE DOCUMENTS. PROVIDE ALL TESTS REQUIRED BY LOCAL CODES.
- CITY OF GAITHERSBURG WILL REIMBURSE ALL PERMITTING FEES TO THE CONTRACTOR.
- SUBMIT ASSEMBLED PRINTED INSTRUCTIONS FOR THE OPERATION AND MAINTENANCE OF EACH ITEM INSTALLED ALONG WITH EQUIPMENT CUTS AND CONTROL WIRING DIAGRAMS.
- SUBMIT COORDINATED SHOP DRAWINGS FOR REVIEW. THE SHOP DRAWINGS SHALL INDICATE WORK OF OTHER TRADES AND MUST BE SUBMITTED PRIOR TO FABRICATION AND INSTALLATION.
- SUBMIT EQUIPMENT SPECIFICATIONS FOR REVIEW BEFORE PURCHASE.
- CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIAL FOR ONE YEAR AFTER COMPLETION AGAINST ALL DEFECTS OF MATERIAL, EQUIPMENT AND WORKMANSHIP.
- PROVIDE COMPETENT OPERATING TECHNICIAN TO INSTRUCT THE OWNER IN THE OPERATION AND MAINTENANCE OF THE INSTALLED EQUIPMENT.
- PROVIDE ACCESS PANELS FOR ALL VALVES OR ANY PIECE OF EQUIPMENT WHEN NECESSARY TO LOCATE ABOVE NON-ACCESSIBLE CEILINGS. SUBJECT TO THE APPROVAL OF THE ARCHITECT. NO EQUIPMENT SHALL BE LOCATED DIRECTLY ABOVE WALLS.
- PROVIDE ALL HOLES, SLEEVES AND CAULKING FOR INSTALLATION OF THIS WORK. CAULKING TO CONFORM TO FIRE RATING OF WALLS.
- PIPING SHALL BE ABOVE CEILING AND CLEAR ANY EXISTING PIPING, LIGHTING FIXTURES, DUCTS, ETC.
- RUN NEW WASTE PIPES AS CLOSE AS POSSIBLE TO UNDERSIDE OF FLOOR SLAB AND VENT PIPING AS CLOSE AS POSSIBLE TO SLAB ABOVE.
- CONTRACTOR SHALL SUBMIT SKETCH TO THE STRUCTURAL ENGINEER FOR APPROVAL, PRIOR TO MAKING REQUIRED BEAM PENETRATIONS.
- DISRUPTION OF ANY EXISTING SERVICE SHALL BE COORDINATED WITH THE OWNER AND SHALL BE PERFORMED AT A TIME AND MANNER SO AS TO CAUSE THE OWNER A MINIMUM OF INCONVENIENCE.
- FOR EXACT LOCATION OF PLUMBING FIXTURES, REFER TO ARCHITECTURAL PLANS AND ELEVATIONS.
- SIZES AND ROUTING OF EXISTING PIPING ARE BASED ON AS-BUILT DRAWINGS PROVIDED BY CITY OF GAITHERSBURG. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND SHALL REPORT CONSISTENCY TO AE PRIOR TO START OF WORK.
- CONTRACTOR SHALL LOCATE NEW SANITARY (2% SLOPE) AND VENT PIPING TO GREASE INTERCEPTOR TO ENSURE THAT THE INVERT OF EXISTING PIPING (THAT NEED TO BE CONNECTED) ARE MAINTAINED.

EXAMINATION OF EXISTING CONDITIONS:

- PRIOR TO BID VISIT AND CAREFULLY EXAMINE THOSE PORTIONS OF THE PRESENT BUILDING AFFECTED BY THIS WORK SO AS TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THE WORK BEFORE SUBMITTING PROPOSALS.
- SUBMISSION OF A PROPOSAL WILL BE CONSIDERED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE DIFFICULTIES ENCOUNTERED, WHICH COULD, HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION HAD BEEN MADE, WILL NOT BE RECOGNIZED.

CONNECTION TO EXISTING WORK:

- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES.
- SUBMIT TO THE OWNER FOR APPROVAL, DATE SCHEDULE OF NECESSARY TEMPORARY SHUT-DOWN OF EXISTING SERVICES. ALL SHUT-DOWNS SHALL BE MADE AT SUCH TIMES AS WILL NOT INTERFERE WITH REGULAR OPERATING OF EXISTING FACILITIES AND ONLY AFTER WRITTEN APPROVAL OF OWNER.
- TO INSURE CONTINUOUS OPERATION, MAKE NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK.
- CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED TO ORIGINAL CONDITION.

PLUMBING SPECIFICATIONS:

- PLUMBING MATERIALS AND ACCESSORIES:
 - SUSPENDED WASTE AND VENT PIPING, SHALL BE HUBLESS BLACK STEEL .
 - IN ALL CASES WHERE ANY PIPE CONNECTIONS ARE MADE TO PIPING OR ANY ITEMS OF EQUIPMENT MADE OF DISSIMILAR METAL, PROVIDE DIELECTRIC FITTINGS.
 - PLUMBING FIXTURES:
 - FURNISH AND INSTALL PLUMBING FIXTURES INDICATED. FIXTURES TO BE FIRST QUALITY, CONNECTED, CLEANED AND READY FOR USE. PIPING TO BE PROPERLY SECURED TO WALLS AND STUDS.
 - TD-1 & 2 : TRENCH DRAIN WITH SIDE OUTLET AND DRAIN WITH MECHANICAL INTERLOCKING JOINTS, STAINLESS STEEL COVER, VANDAL PROOF STAINLESS STEEL SCREW, AND NO HUB CONNECTION.
 - FD-1 : FLOOR DRAIN, SQUARE STRAINER WITH BACKFLOW VALVE AND SECURED HEEL-PROOF LIGHT DUTY GRATE, VANDAL PROOF SECURED TOP 10"x10" SQUARE, NO HUB CONNECTION.
- RD-1: ROOF DRAIN, ROUND CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP/GRAVEL GUARD AND LOW SILHOUETTE POLY DOME.



GAITHERSBURG WATER PARK PHASE III

512 S Frederick Ave
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No.	Description	Date

PLUMBING GENERAL NOTES, ABBREVIATIONS, SYMBOLS & SPECIFICATIONS

A/E Project Number 12.0009-011		Drawing Scale: AS NOTED	
Date 10.20.2014		CADD Filename Revit Model	
CADD Plot Scale 1:1		Drawn By RP	
Checked By AK		Sheet Number P001	



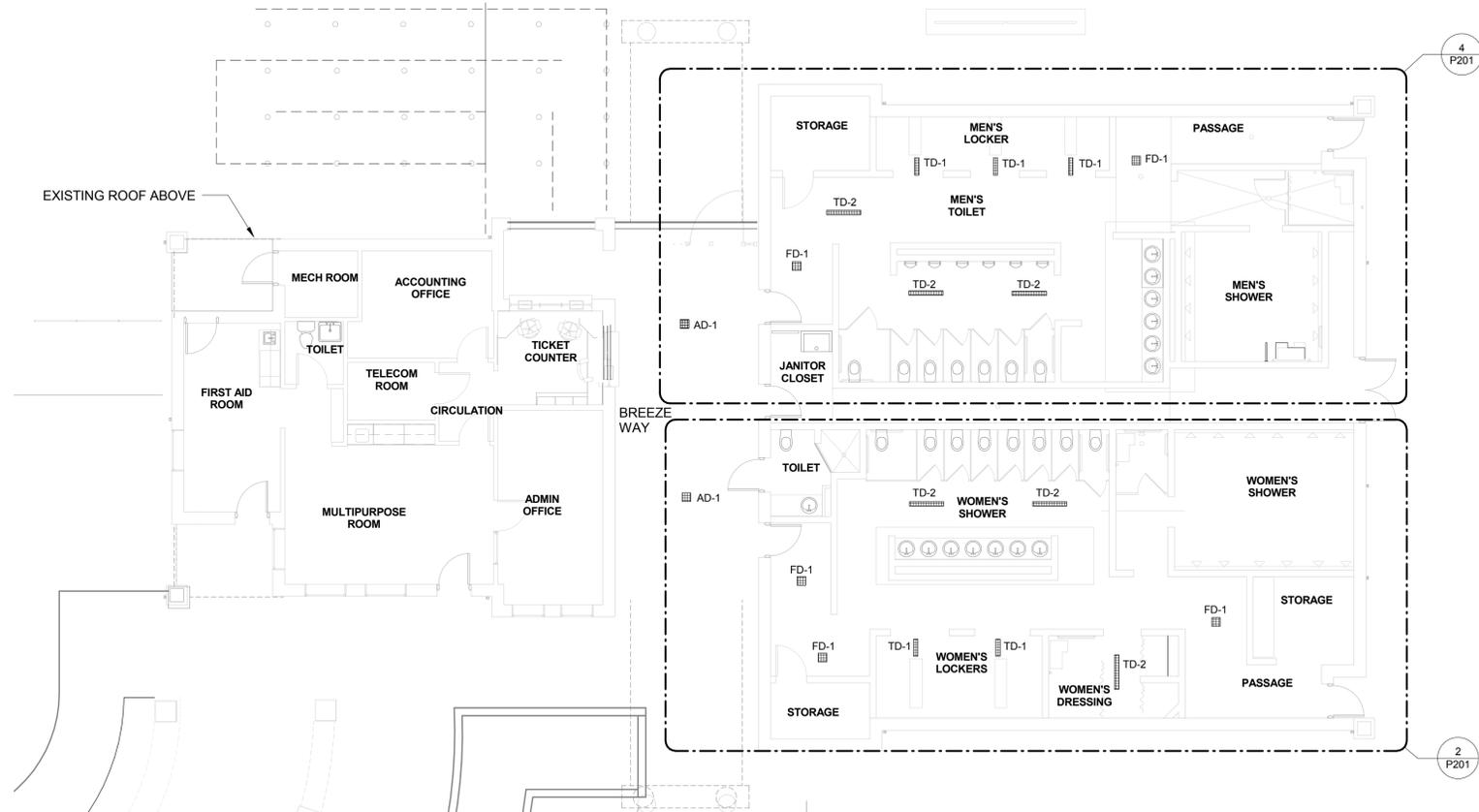
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GAITHERSBURG WATER PARK PHASE III

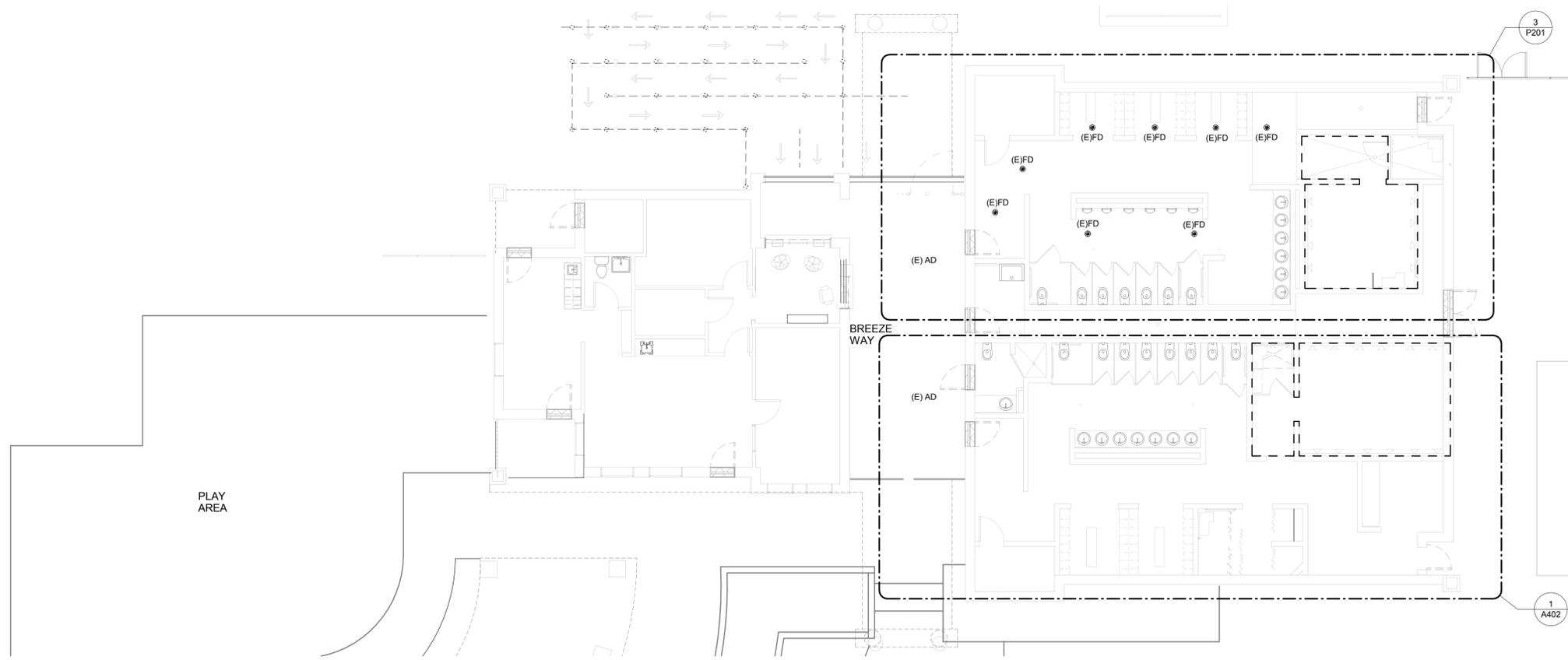
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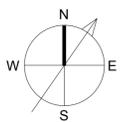
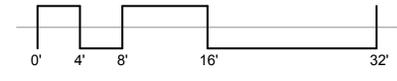
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1 PLUMBING FLOOR PLAN - BATH HOUSE - NEW WORK
P101 1/8" = 1'-0"



2 PLUMBING FLOOR PLAN - BATH HOUSE - DEMOLITION
P101 1/8" = 1'-0"



No.	Description	Date

Revisions

Drawing Title
**PLUMBING FLOOR PLAN -
BATH HOUSE - NEW WORK**

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model
	CADD Plot Scale 1:1

Drawn By **Author**
Checked By **Checker**

Sheet Number
P101



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- DEMOLITION NOTES:**
1. DISCONNECT AND REMOVE EXISTING FLOOR DRAIN AS INDICATED.
 2. RE-USE THE SAME DRAIN PIPE USED TO SERVE FLOOR DRAINS, TO CONNECT NEW TRENCH DRAIN.
 3. VERIFY IN FIELD THE LOCATION OF EXISTING MAIN SANITARY PIPE UNDER SLAB BEFORE CUTTING THE FLOOR AND INSTALLING THE NEW TRENCH DRAINS.

- GENERAL NOTES:**
1. INSTALL NEW TRENCH DRAIN TO BE SLOPED TOWARDS EXISTING PIPE.
 2. THE NEW TRENCH DRAIN WILL BE SLOPED TO MATCH WITH THE FLOOR'S SLOPE.
 3. REFER TO DETAILS # 5 & 6 FOR INSTALLATION ON THE NEW TRENCHES.
 4. IF EXISTING SANITARY PIPE GETS DAMAGED DURING CONSTRUCTION, CONTRACTOR SHALL PROVIDE NEW PIPE TO MACH EXISTING PIPE.
 5. REPLACE ALL EXISTING P-TRAPS IN LAVATORIES WITH A NEW ONE PROVIDED WITH CLEANOUT. REFER TO DETAIL # 4/P301
 6. REFER TO ARCH DWG FOR ROOF DRAIN LOCATION.

- DEMOLITION KEY NOTES:**
- 1 EXISTING FLOOR DRAIN TO BE REMOVED AS INDICATED.

- KEY NOTES:**
- 1 TRENCH DRAIN 20" LONG
 - 2 TRENCH DRAIN 40" LONG
 - 3 FLOOR DRAIN 10"x 10"
 - 4 AREA DRAIN-HEAVY DUTY
 - 5 REPLACE EXISTING P-TRAP WITH NEW. REFER TO DETAIL 4/P301

No.	Description	Date

Revisions

Drawing Title

ENLARGED PLUMBING FLOOR PLANS

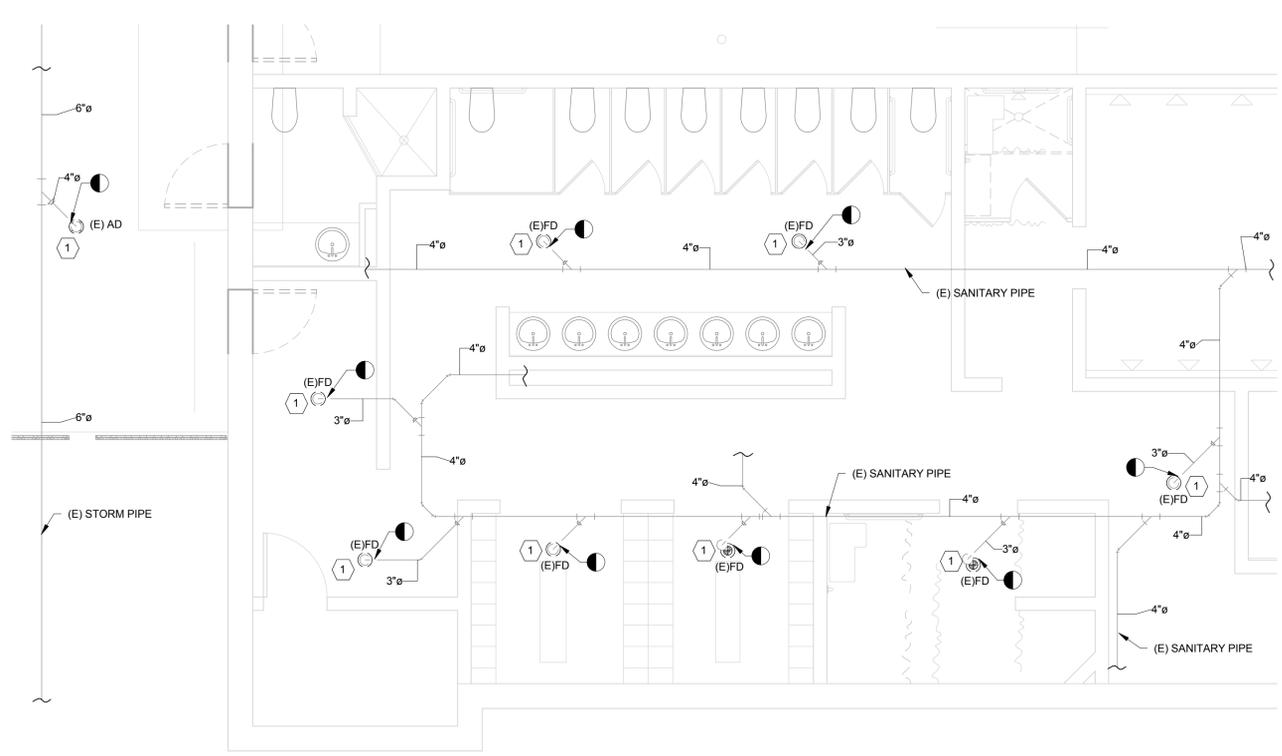
Phase
 CONCEPT 30% 60% 90% 100%

AE Project Number 12.0009-011	Drawing Scale: AS NOTED
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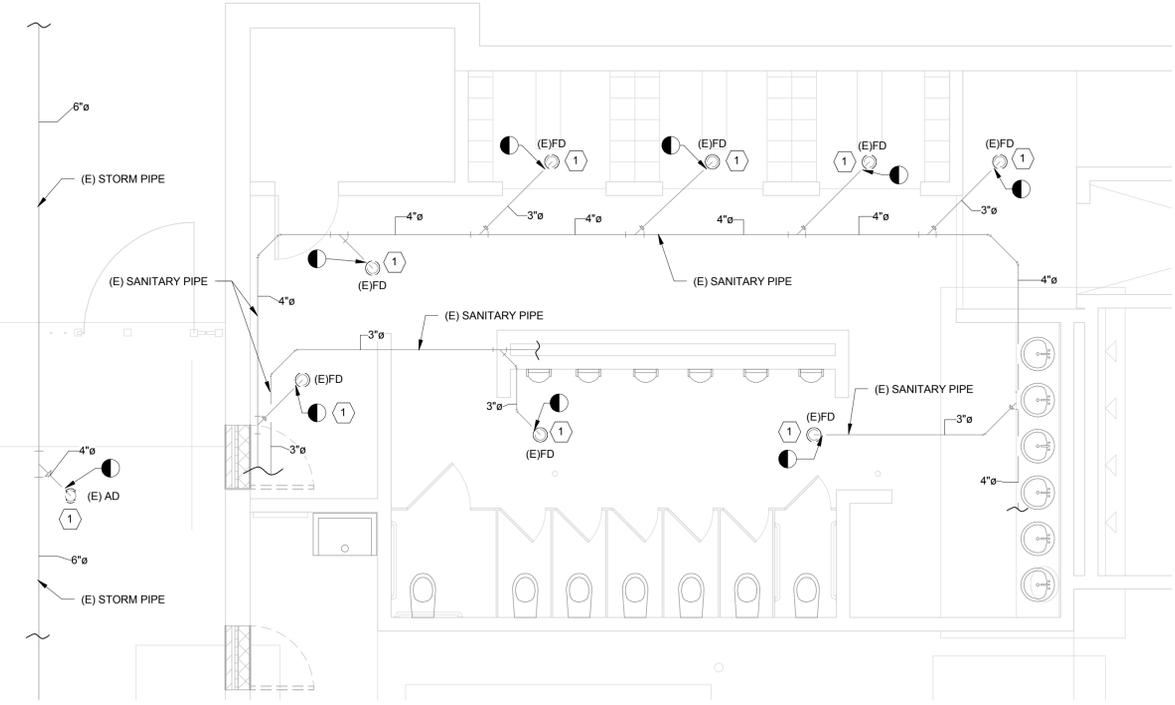
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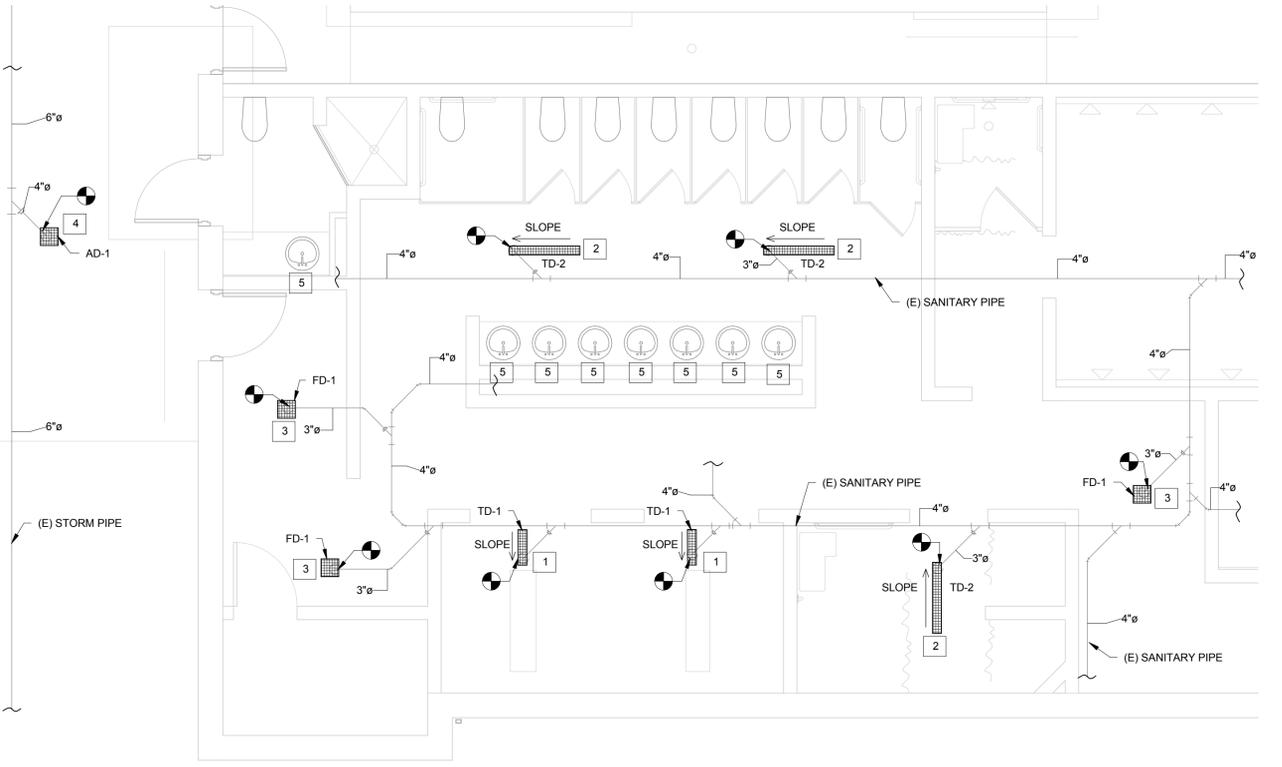
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P201



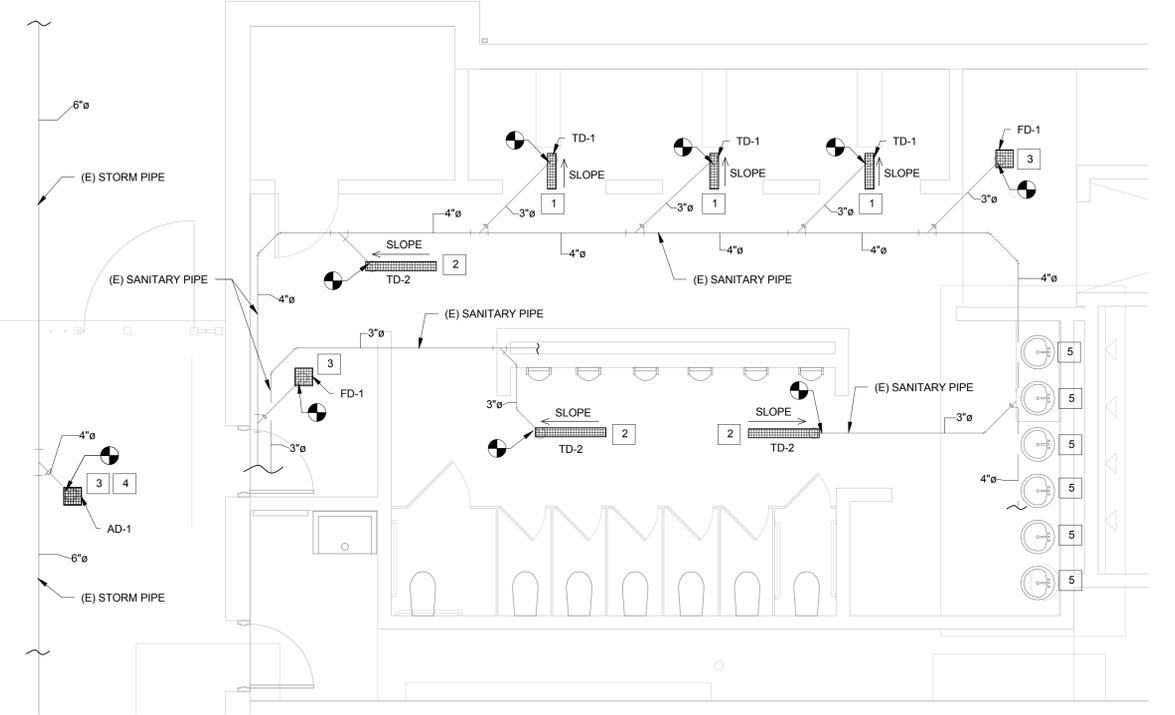
1 ENLARGED PLUMBING FLOOR PLAN - WOMENS LOCKER ROOM DEMOLITION
P201 1/4" = 1'-0"



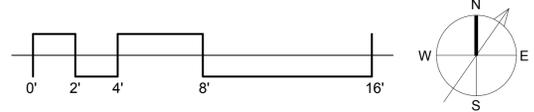
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P201 1/4" = 1'-0"

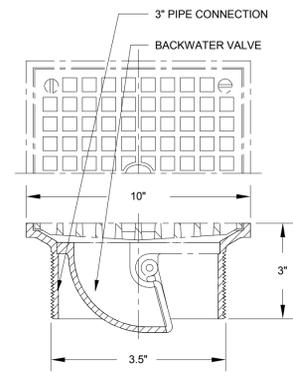


2 ENLARGED PLUMBING FLOOR PLAN - WOMENS LOCKER ROOM NEW WORK
P201 1/4" = 1'-0"

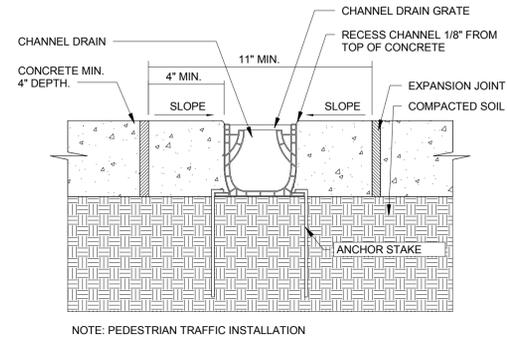


4 ENLARGED PLUMBING FLOOR PLAN - MENS LOCKER ROOM-NEW WORK
P201 1/4" = 1'-0"



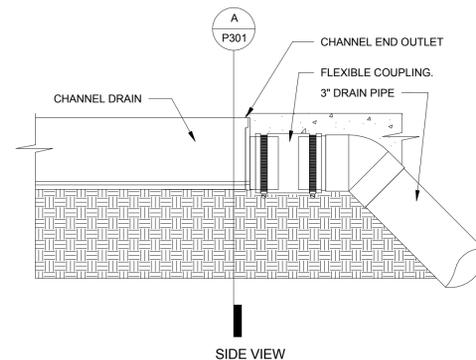
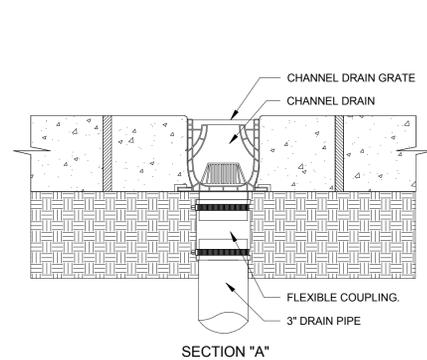


1 FLOOR DRAIN DETAIL
P301 NTS

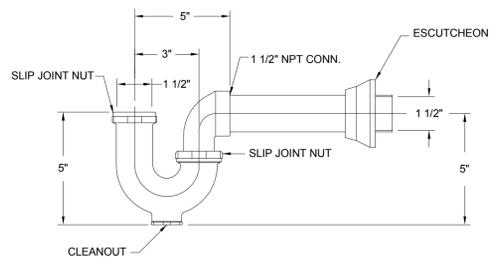


2 TRENCH DRAIN TYPICAL INSTALLATION DETAIL
P301 NTS

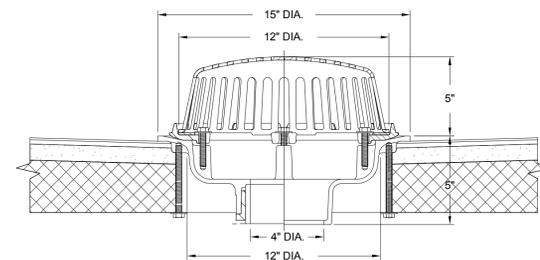
PLUMBING FIXTURE SCHEDULE				
MARK	FIXTURE	WASTE INCH	VENT INCH	COMMENTS
TD-1	TRENCH DRAIN (20" LONG)	(E)3	(E)	PRO SERIES CHANNEL DRAIN NDS MODEL OR EQUAL
TD-2	TRENCH DRAIN (40" LONG)	(E)3	(E)	PRO SERIES CHANNEL DRAIN NDS MODEL OR EQUAL
FD-1	FLOOR DRAIN (10"x10")	(E)3	(E)	ZURN MODEL Z400S-V SQUARE WITH BACKWATER VALVE OR EQUAL
AD-1	AREA DRAIN (16"x16")	(E)4	(E)	ZURN MODEL Z535 HEAVY-DUTY WITH SEDIMENT BUCKET OR EQUAL
PT-1	SINK P-TRAP	(E) 1 1/2	(E)	NIBCO MODEL 4884 PWC WITH CLEANOUT AND PLUG OR EQUAL
RD-1	ROOF DRAIN	(E) 4	-	ZURN DRAINAGE MODEL Z100 DURA COATED CAST IRON DRAIN OR EQUAL



3 TRENCH DRAIN TYPICAL PIPING DETAIL
P301 NTS



4 SINK P-TRAP (PT-1) W/CLEANOUT DETAIL
P301 NTS



NOTES:
 1. PROVIDE VERTICAL EXPANSION JOINT ON ROOF DRAIN OUTLET.
 2. REFER TO ARCHITECTURE DRAWINGS FOR EXACT CONSTRUCTION ROOF CONDITIONS AND REQUIREMENTS.
 3. REFER TO ARCHITECTURE DRAWINGS FOR LOCATION(S) OF THE ROOF DRAIN(S)

5 ROOF DRAIN DETAIL
P301 NTS

GAITHERSBURG WATER PARK PHASE III

512 S Frederick Ave
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No.	Description	Date

Revisions
 Drawing Title
PLUMBING DETAILS AND SCHEDULE

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number: 12.0009-011
 Drawing Scale: AS NOTED
 Date: 10.20.2014
 CADD Filename: Revit Model
 CADD Plot Scale: 1:1

Drawn By: Author
 Checked By: Checker
 Sheet Number: **P301**

ELECTRICAL NOTES

1. WORK SHOWN IS DIAGRAMMATIC AND IS FOR CIRCUIT ALLOCATION ONLY. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT. COORDINATE ALL DEVICE LOCATIONS WITH ACTUAL DOOR SWINGS, CABINETS, COUNTERS, ETC., AS INDICATED IN ARCHITECTURAL DRAWINGS.
2. REFER TO ALL CONTRACT DOCUMENTS FOR POSSIBLE INTERFERENCES, BEFORE BID IS MADE. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF HIS FAILURE TO HAVE MADE SUCH EXAMINATIONS OR OF ANY ERROR ON HIS PART.
3. SEPARATE NEUTRAL CONDUCTORS TO BE RUN WITH ALL BRANCH CIRCUITS.
4. ALL CIRCUITS TO BE RUN WITH GREEN GROUNDING CONDUCTOR SIZED PER NEC 250.122.
5. MOUNTING HEIGHTS OF ALL DEVICES ARE TO INSTALLATION SURFACE OF FIXTURE.
7. ALL NEW EMPTY CONDUITS SHALL BE FURNISHED WITH PULL-WIRE AND WILL BE STUBBED-UP A.F.F., OR ABOVE SUSPENDED CEILING AS THE CASE MAY BE, AND SHALL BE CAPPED AT BOTH ENDS.
8. NUMBER OF BENDS IN A CONDUIT SECTION RUN SHALL NOT EXCEED TWO 90-DEGREE BENDS, OR EQUIVALENT OF SWEEPS AND RADIUS BENDS.
9. ALL NEW LOW VOLTAGE COMMUNICATIONS WIRING SHALL BE ROUTED IN EMT CONDUITS, OR OTHER APPROVED CONDUITS, EXCEPT WHERE RUN IS CONCEALED IN ACCESSIBLE AREAS. ALL EXPOSED WIRING SHALL BE PLENUM RATED AND SUPPORTED AS REQUIRED BY CODE.
10. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ENFORCED EDITION OF THE NATIONAL ELECTRICAL CODE, N.F.P.A. 70, DHSR, NATIONAL ELECTRICAL SAFETY CODE, ANSI AND ALL LOCAL AND STATE CODES AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY THE BUILDING AND SAFETY CODES AND ORDINANCES, AND THE RULES AND REGULATIONS OF ANY LEGAL BODY HAVING JURISDICTION.
11. ALL ELECTRICAL ITEMS, MATERIALS, DEVICES, APPLIANCES SHALL BE U.L. LABELED AND LISTED BY A MARYLAND APPROVED AGENCY.

12. ALL NECESSARY ADDITIONS AND ALTERATIONS TO EXISTING WORK SHALL BE INCLUDED IN THE CONTRACT AS REQUIRED TO PROVIDE AND MAINTAIN A COMPLETE AND PROPER ELECTRICAL INSTALLATION. THIS WORK SHALL INCLUDE:
 - a. RELOCATION OF PULL BOXES, RACEWAYS, ETC., TO PERMIT THE INSTALLATION OF NEW EQUIPMENT;
 - b. DISCONNECTION/RECONNECTIONS/REMOVAL/REINSTALLATION OF ELECTRICAL SUPPLY, CONTROL, AND UTILIZATION EQUIPMENT REQUIRED FOR CONTINUED OPERATION, INCLUDING TEMPORARY WORK AS REQUIRED.
 - c. PROVISIONS FOR THE RELOCATION OF ALL PIPING, DUCTWORK, ETC., AS REQUIRED FOR ELECTRICAL WORK, WHERE NOT SHOWN OR SPECIFIED BY OTHERS. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE A/E TEAM PRIOR TO BID SO THAT THE APPROPRIATE TRADE MAY BE ASSIGNED TO BID; OTHERWISE, THE ELECTRICAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL SUCH RELOCATIONS.
 - d. EQUIPMENT TO BE TURNED OVER TO OWNER, SHALL BE TURNED OVER IN CLEAN AND WORKING CONDITION.
 - e. DISCONNECT ELECTRICAL SERVICES TO EQUIPMENT TO BE REMOVED. REMOVE ALL UNUSED CONDUIT AND CONDUCTORS BACK TO POINT OF SERVICE, OR NEXT ACTIVE DEVICE, UNLESS THEY ARE TO BE REUSED UNDER NEW CONSTRUCTION.
 - f. UNUSED CONDUITS CAN BE ABANDONED WHERE CONCEALED IN FLOORS OR WALLS, BUT MUST BE REMOVED FROM CEILING SPACES. EXPOSED AREAS AND ACCESSIBLE LOCATIONS.
 - g. WHERE WORK UNDER THIS CONTRACT REQUIRES EXTENSION, RELOCATION, RECONNECTIONS OR MODIFICATIONS TO EXISTING EQUIPMENT OR SYSTEMS, THE EXISTING EQUIPMENT OR SYSTEM SHALL BE RESTORED TO ITS ORIGINAL AND OPERATING CONDITION, EXTEND NEW HOMERUNS OR CIRCUIT EXTENSIONS, WHERE REQUIRED. DISCONNECT AND REMOVE ALL EQUIPMENT INDICATED TO BE DEMOLISHED, INCLUDING OUTLETS, DEVICES, RELAYS, AND CONDUCTORS.
13. RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

CONDUIT SIZE IN ACCORDANCE WITH NEC, BUT NOT LESS THAN 1/2 INCH UNLESS OTHERWISE NOTED. WHERE PERMITTED BY NEC, 1/2 INCH FLEXIBLE CONDUIT MAY BE USED FOR TAP CONNECTIONS TO RECESSED LIGHTING FIXTURES, MAXIMUM 6 FEET OF CONDUIT. APPROVED CONDUITS SHALL BE (1) ELECTRICAL METALLIC TUBING (EMT) FOR CONCEALED INDOORS APPLICATIONS, EXPOSED EMT CONDUITS MAY BE USED IN UTILITY SPACES SUCH AS ELECTRICAL AND MECHANICAL ROOMS. EMT CONDUITS SHALL CONFORM TO UL 797, ANSI C80.3. (2) FLEXIBLE METAL CONDUIT (FMC) FOR CONNECTING TO TAP CONNECTIONS TO RECESSED LIGHTING FIXTURES, EXCEPT USE LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC) IN DAMP OR WET LOCATIONS. (3) RIGID STEEL CONDUIT FOR DAMP OR WET LOCATIONS. RIGID STEEL CONDUIT SHALL CONFORM ANSI C80.1. BOXES AND ENCLOSURES SHALL BE EMA 250, TYPE 1, EXCEPT FOR DAMP OR WET LOCATIONS USE NEMA 250, TYPE 4, STAINLESS STEEL. FINISH FOR RACEWAY, ENCLOSURE, OR CABINET PROVIDE MANUFACTURER'S STANDARD PRIME-COAT FINISH READY FOR FIELD PAINTING.

14. INTERIOR LIGHTING

FURNISH LUMINAIRES OF TYPE, KIND, AND WITH NUMBER OF LAMPS AS INDICATED IN THE LUMINAIRES SCHEDULE. THEY SHALL BE FREE OF LIGHT LEAKS, WRAPS, DENTS, OR OTHER IRREGULARITIES. LENSES SHALL BE FREE OF CRACKS, CHIPS, OR DISCOLORATIONS. METAL SURFACES OF LIGHTING FIXTURES SHALL BE BONDERIZED, GALVANIZED, OR SHERADIZED AFTER FABRICATION AND TREATED TO PROVIDE RUST INHIBITING AND FINISH COAT ADHERENCE PROPERTIES. RECESSED FIXTURES SHALL COMPLY WITH NEMA LE 4 FOR CEILING COMPATIBILITY. SHEET METAL COMPONENTS SHALL BE STEEL. FORM AND SUPPORT TO PREVENT WARPING AND SAGGING. REFLECTING SURFACES SHALL HAVE MINIMUM REFLECTANCE AS FOLLOWS : WHITE SURFACES: 85 PERCENT, SPECULAR SURFACES 83 PERCENT, DIFFUSING SPECULAR SURFACES: 75 PERCENT, AND LAMINATED SILVER METALLIZED FILM: 90 PERCENT. ACRYLIC LIGHTING DIFFUSERS SHALL BE 100 PERCENT VIRGIN ACRYLIC PLASTIC. HIGH RESISTANCE TO YELLOWING AND OTHER CHANGES DUE TO AGING, EXPOSURE TO HEAT, AND UV RADIATION LENS THICKNESS SHALL BE AT LEAST 3.2mm UNLESS DIFFERENT THICKNESS IS SCHEDULED. UV STABILIZED. GLASS SHALL BE ANNEALED CRYSTAL GLASS, UNLESS OTHERWISE INDICATED. EXIT SIGNS AND EMERGENCY LIGHTING UNITS SHALL COMPLY WITH UL 924; FOR SIGN COLORS, VISIBILITY, LUMINANCE, AND LETTER SIZE CONFORM TO DRAWINGS. INTERNALLY LIGHTED SIGNS AND EMERGENCY LIGHTING UNITS SHALL BE SELF-POWERED (BATTERY TYPE) WITH INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER PACK FURNISHED WITH: 1) BATTERY: SEALED, MAINTENANCE-FREE, NICKEL-CADMIUM TYPE, 2) CHARGER: FULLY AUTOMATIC, SOLID-STATE TYPE WITH SEALED TRANSFER RELAY, 3) OPERATION: RELAY AUTOMATICALLY ENERGIZES LAMP FROM BATTERY WHEN CIRCUIT VOLTAGE DROPS TO 80 PERCENT OF NOMINAL VOLTAGE OR BELOW. WHEN NORMAL VOLTAGE IS RESTORED RELAY DISCONNECTS LAMPS FROM BATTERY, AND BATTERY IS AUTOMATICALLY RECHARGED AND FLOATED ON CHARGER, 4) TEST PUSH BUTTON: PUSH-TO-TEST TYPE, IN UNIT HOUSING, SIMULATES LOSS OF NORMAL POWER AND DEMONSTRATES UNIT OPERABILITY, 5) LED POWER INDICATOR LIGHT: INDICATES NORMAL POWER ON. NORMAL GLOW INDICATES TRICKLE CHARGE; BRIGHT GLOW INDICATES CHARGING AT END OF DISCHARGE CYCLE. ALL FIXTURE ACCESSORIES SHALL BE REVIEWED WITH CLIENT PRIOR TO ORDERING.
15. LOW VOLTAGE ELECTRICAL POWER CONDUCTORS

CONDUCTORS MATERIAL SHALL BE COPPER ONLY COMPLYING WITH NEMA WC 70; SOLID CONDUCTOR FOR 10AWG AND SMALLER, STRANDED FOR 8AWG AND LARGER. COPPER SHALL BE 98 PERCENT CONDUCTIVITY AND HARD DRAWN. BRANCH CIRCUITS CONCEALED IN CEILINGS, WALLS, AND PARTITIONS SHALL BE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY BRANCH CIRCUITS CONCEALED IN CONCRETE AND BELOW SLABS-ON-GRADE SHALL BE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY. EXPOSED BRANCH CIRCUITS, INCLUDING CRAWL SPACES SHALL BE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY. CONDUCTOR INSULATION TYPE THHN-THWN SHALL COMPLY NEMA WC 70. CONNECTORS AND SPLICES SHALL BE FACTORY-FABRICATED OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED.

ELECTRICAL DEVICES SYMBOLS

- J- JUNCTION BOX, WALL MOUNTED
- J JUNCTION BOX, CEILING MOUNTED
- M MOTOR
- MS MOTOR STARTER WITH DISCONNECT SWITCH

LIGHTING FIXTURE SYMBOLS

- 1'x4' LED FIXTURE
- 1'x8' LED FIXTURE
- CEILING OPEN OR LENSED LED DOWNLIGHT
- EXIT SIGNS, WITH LED HIGH-LIFE RATED LAMPS, SINGLE/DUAL FACE (ARROWS INDICATE EXIT DIRECTION) SELF-CONTAINED, 90MIN. RATED FOR EMERGENCY POWER SUPPLY, CONFIGURABLE MOUNTING SYSTEM.
- IDENTIFICATION USED IN DRAWINGS AND LIGHTING SCHEDULE. LETTER IS DESIGNATED TO IDENTIFY FIXTURE TYPE.

EQUIPMENT LEGEND

- SURFACE MOUNTED BRANCH PANELBOARD

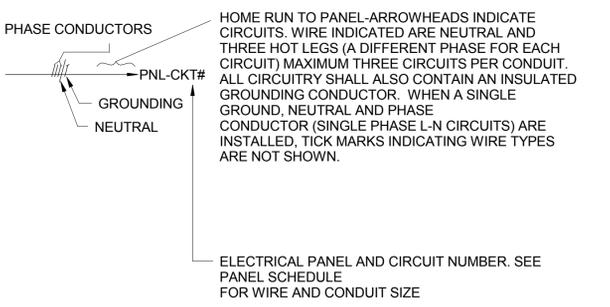
SWITCHES SUFFIXES

- SHOA = HANDS-OFF-AUTOMATIC PROGRAMMABLE CONTROLLER.

ABBREVIATIONS

A	AMPERES	HOA	HAND-OFF-AUTOMATIC
AFC	ABOVE FINISHED CEILING	HP	HORSEPOWER
AFF	ABOVE FINISHED FLOOR	HV	HIGH VOLTAGE
AFG	ABOVE FINISHED GRADE	INC	INCANDESCENT
AIC	AMPERES INTERRUPTING CAPACITY	JB	JUNCTION BOX
		KV	KILO-VOLTS
ATS	AUTOMATIC TRANSFER SWITCH	KVA	KILO-VOLTS-AMPERES
BFC	BELOW FINISHED CEILING	KVAR	KILO-VOLTS-AMPERES REACTIVE
BFG	BELOW FINISHED GRADE	KW	KILO-WATTS
C	CONDUIT	KWH	KILO-WATT-HOURS
CAB	CABINET	LAN	LOCAL AREA NETWORK
CCTV	CLOSED CIRCUIT TELEVISION	LTG	LIGHTING
CEP	CENTRAL ENERGY PLANT	m	METER
CKT	CIRCUIT	mm	MILLIMETER
CLG	CEILING	MAX	MAXIMUM
CT'S	CURRENT TRANSFORMERS	MCB	MAIN CIRCUIT BREAKER
CU	COPPER	MCC	MOTOR CONTROL CENTER
DWG	DRAWING(S)	MCP	MOTOR CIRCUIT PROTECTOR
EF	EXHAUST FAN	MFR	MANUFACTURER
EMT	ELECTRICAL METALLIC TUBING	MH	METAL HALIDE
EQUIP	EQUIPMENT	MIN	MINIMUM
ETR	EXISTING TO REMAIN	MISC	MISCELLANEOUS
EUH	ELECTRIC UNIT HEATER	MTR	MOTOR
EWC	ELECTRIC WATER COOLER	MTD	MOUNTED
EWH	ELECTRIC WATER HEATER	MTG	MOUNTING
EXH	EXHAUST	MTS	MANUAL TRANSFER SWITCH
EXIST	EXISTING	NC	NURSE CALL
FA	FIRE ALARM	NEC	NATIONAL ELECTRICAL CODE
FLA	FULL LOAD AMPERES	PNL	PANEL
FLUOR	FLUORESCENT	PRI	PRIORITY
GEN	ENGINE GENERATOR SET	PVC	POLYVINYL CHLORIDE
GF1	GROUND FAULT INTERRUPTER	REC	RECEPTACLE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	RGS	RIGID GALVANIZED STEEL
		TEL	TELEPHONE
GFGI	GOVERNMENT FURNISHED GOVERNMENT INSTALLED	TYP	TYPICAL
		UON	UNLESS OTHERWISE NOTED
GFS	GROUND FAULT SENSOR	V	VOLTS
GND	GROUND	VA	VOLT-AMPERES
HGT	HEIGHT	W	WATTS
HID	HIGH INTENSITY DISCHARGE	WP	WEATHER PROOF
HPS	HIGH PRESSURE SODIUM	XFMR	TRANSFORMER

HOMERUN SPECIFICATION



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Drawing Title

SYMBOLS AND ABBREVIATIONS

Phase

CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011	Drawing Scale: AS NOTED	
Date 10.20.2014	CADD Filename Revit Model	CADD Plot Scale 1:1
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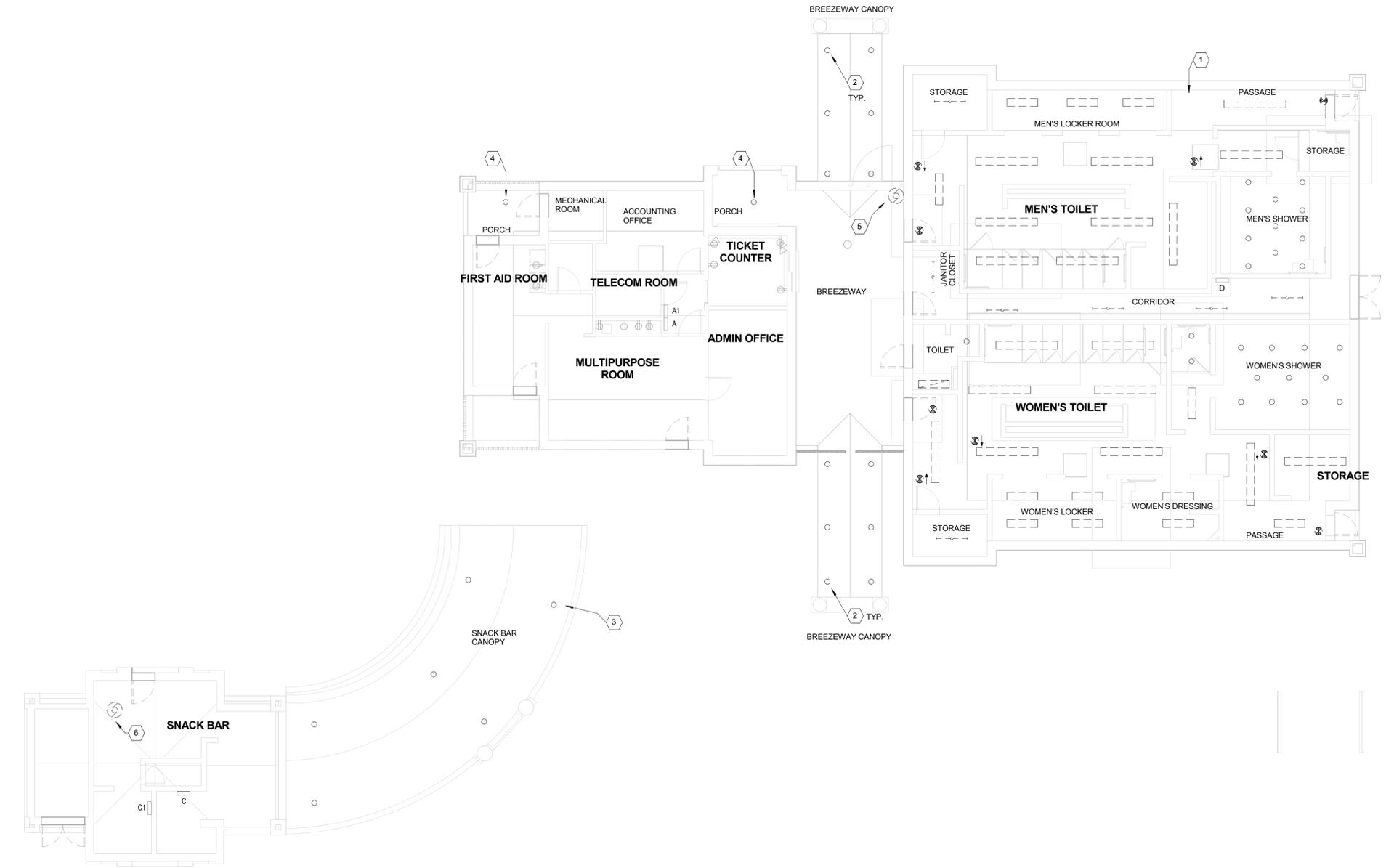
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GENERAL NOTES:

1. EXISTING WORK/EQUIPMENT SHOWN IN LIGHT AND SOLID. WORK TO BE DEMOLISHED IS SHOWN IN DARK AND DAHED. (DOWNLIGHT AND CAN FIXTURES ARE TOO SMALL TO SHOW DASHED, BUT ARE TO BE REMOVED.)

DEMOLITION KEY NOTES:

1. DISCONNECT AND REMOVE ALL LIGHTING FIXTURES IN BATHHOUSE AS INDICATED ON PLANS. RETAIN WIRING AND CONDUIT FOR REUSE. THIS WORK IS TO BE PRICED AS AN ADD ALTERNATE.
2. DISCONNECT AND REMOVE ALL CAN LIGHTING FIXTURES IN THE NORTH AND SOUTH BREEZEWAYS. RETAIN WIRING AND CONDUIT FOR REUSE.
3. DISCONNECT AND REMOVE ALL CAN LIGHTING FIXTURES IN THE CANOPY. RETAIN WIRING AND CONDUIT FOR REUSE.
4. DISCONNECT AND REMOVE SQUARE LIGHTING FIXTURES ON PORCH OUTSIDE OF TICKET COUNTER. RETAIN WIRING AND CONDUIT FOR REUSE.
5. MOTOR FOR OVERHEAD DOOR IS TO BE DEMOLISHED AND REPLACED WITH NEW MOTOR. REUSE EXISTING CIRCUIT.
6. EXHAUST FAN EF-6 IS TO BE DEMOLISHED AND REPLACED WITH A NEW EXHAUST FAN. REUSE EXISTING CIRCUIT.



① ELECTRICAL DEMOLITION
1/8" = 1'-0"

No.	Description	Date

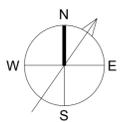
Revisions

Drawing Title
**ELECTRICAL DEMOLITION
PLAN**

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011		Drawing Scale: AS NOTED	
Date 10.20.2014	CADD Filename Revit Model	CADD Plot Scale 1:1	

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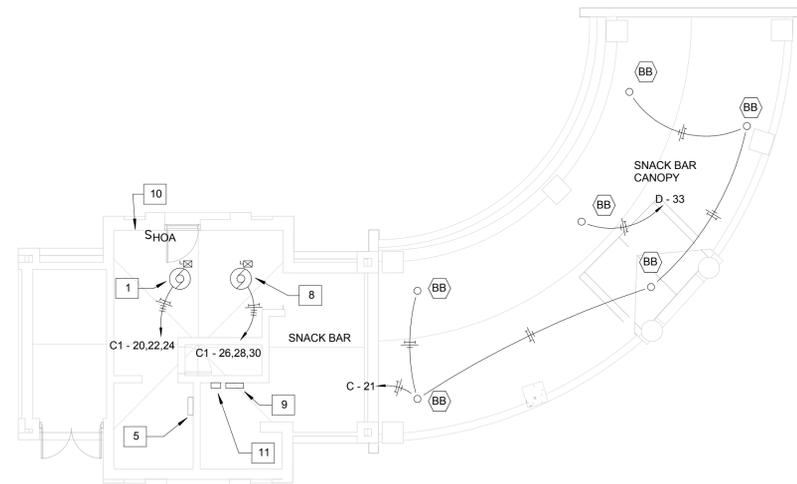
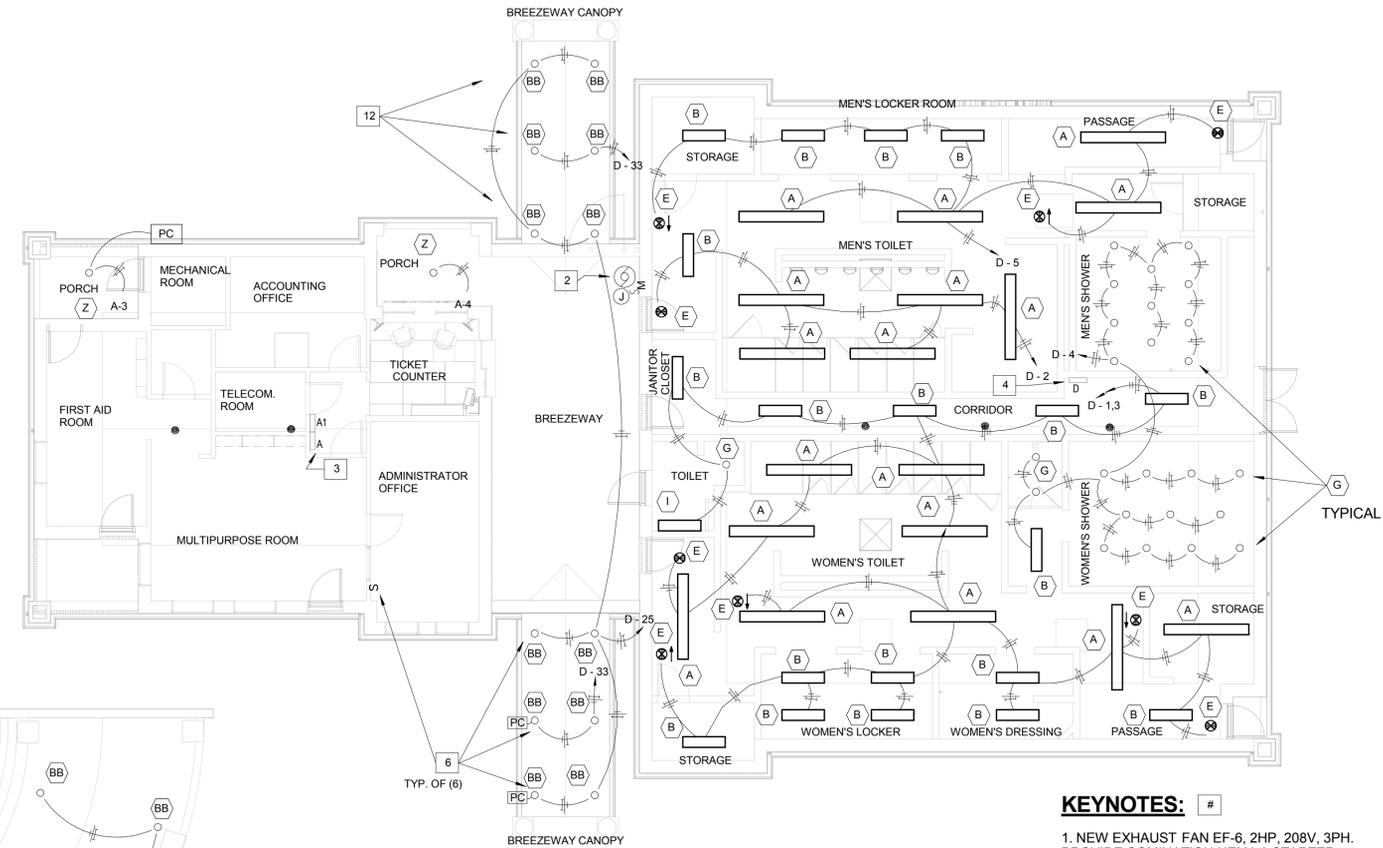
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GENERAL NOTES:

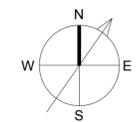
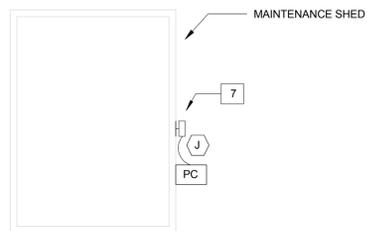
- EXISTING WORK/EQUIPMENT IS SHOWN IN LIGHT LINES AND NEW WORK/EQUIPMENT IS SHOWN IN DARK LINES U.O.N.
- MINIMUM SIZE DIAMETER EMT CONDUIT 1/2" WITH COMPRESSION TYPE FITTINGS.
- EXISTING WIRING AND CONDUIT TO BE REUSED SHALL BE INSPECTED FOR DAMAGES AND REPLACED AS REQUIRED.
- NEW LIGHT FIXTURES SHALL BE TIED TO EXISTING SWITCH BANK LOCATED IN THE TELECOM ROOM.
- MOUNT NEW FIXTURES ON A ONE TO ONE BASIS REPLACING EXISTING.
- ORIGINAL EMERGENCY LIGHTS SHALL BE REPLACED AND MATCHED WITH RECENTLY INSTALLED EMERGENCY LIGHTS.
- LIGHTING WITHIN THE BATHHOUSE AND CANOPY ATTACHED TO SNACK BAR STAND IS TO BE PRICED AS AN ADD ALTERNATE.

KEYNOTES:

- NEW EXHAUST FAN EF-6, 2HP, 208V, 3PH. PROVIDE COMINATION NEMA 0 STARTER WITH 3P-30A DISCONNECT. PROVIDE AVAILABLE 120V CIRCUIT TO COIL.
- NEW MOTOR FOR OVERHEAD DOOR, 3/4HP, 120V, 1PH. REUSE EXISTING 1P-20A DEDICATED CIRCUIT AND CONTROLS.
- LOCATION OF EXISTING PANEL A AND A1 FOR REFERENCE PURPOSES ONLY.
- LOCATION OF EXISTING PANEL D FOR REFERENCE PURPOSES ONLY.
- LOCATION OF EXISTING PANEL C1 FOR REFERENCE PURPOSES ONLY.
- THE 6 NEW CYLINDER FIXTURES SHALL BE CONTROLLED VIA PHOTOCELL. THE FOUR FIXTURES FED FROM CIRCUIT D-25 SHALL BE PROVIDED WITH MEANS FOR MANUAL OVERRIDE "ON" LOCATED IN THE ADMINISTRATOR OFFICE.
- NEW LED WALL PACK LOCATED AT THE MAINTENANCE SHED 8" ABOVE THE DOOR FROM BOTTOM OF FIXTURE. TIE #12 AWG CONDUCTOR TO NEAREST AVAILABLE CIRCUIT. FIXTURE SHALL BE CONTROLLED VIA PHOTOCELL. LOCATION OF SHED DOES NOT REFLECT ACTUAL SITE DIMENSIONS. SHOWN FOR REFERENCE PURPOSES ONLY.
- NEW EXHAUST FAN EF-6A, 3HP, 208V, 3PH. PROVIDE COMINATION NEMA 0 STARTER WITH 3P-30A DISCONNECT. PROVIDE AVAILABLE 120V CIRCUIT TO COIL.
- NEW 200A 120/208V, 3PH, 4W, 42 POSITION PANELBOARD C. RECONNECT NEW PANELBOARD TO EXISTING FEEDER AND BRANCH WIRING. PROVIDE FEED THROUGH LUGS FOR NEW FEEDER SERVING PANEL C1 FROM NEW 150A MCB. SEE RISER FOR DETAILS.
- NEW HANDS-OFF-AUTOMATIC PROGRAMMABLE CONTROLLER TO CONTROL EXHAUST FAN EF-6 AND EF-6A.
- NEW ENCLOSED CIRCUIT BREAKER FEEDING PANELBOARD C1. SEE RISER FOR DETAILS.
- THE 6 NEW CYLINDER FIXTURES ON THE PUBLIC SIDE OF THE BUILDING SHALL HAVE VANDAL RESISTANT ENCLOSURES.



1 ELECTRICAL NEW WORK PLAN
1/8" = 1'-0"



No.	Description	Date

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Drawing Title

ELECTRICAL NEW WORK PLAN

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number 12.0009-011	Drawing Scale: AS NOTED
Date 10.20.2014	CADD Filename Revit Model CADD Plot Scale 1:1

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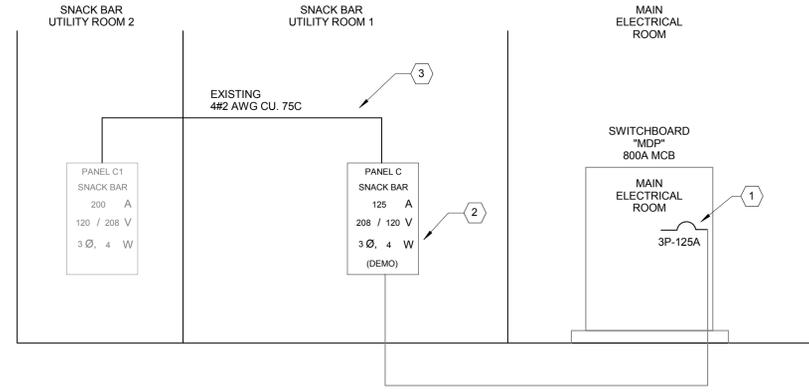
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DEMOLITION KEYNOTES: #

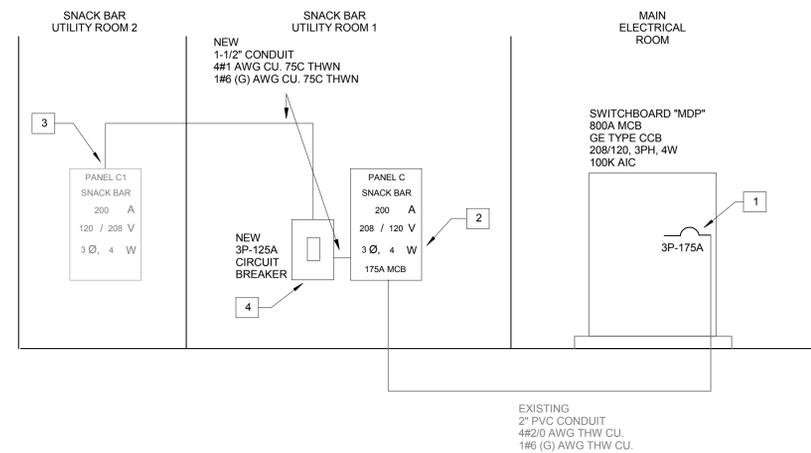
- EXISTING 3P-125A BREAKER IN THE MAIN DISTRIBUTION PANEL SERVING PANEL "C" IS TO BE REMOVED. RETAIN WIRING FOR REUSE.
- EXISTING 125A PANEL BOARD C IS TO BE REMOVED. RETAIN SERVICE AND BRANCH WIRING AND CONDUIT FOR REUSE.
- EXISTING FEEDERS SERVING PANEL C1 SHALL BE REMOVED.

NEW WORK KEYNOTES: #

- NEW 250AF, 175AT BREAKER. REUSE EXISTING WIRE. AIC RATING TO MATCH EXISTING.
- NEW 200A, 42 CCT. PANEL BOARD C. REUSE EXISTING DEDICATED 3Ø, 4W CIRCUIT. PROVIDE FEED THROUGH LUGS FOR PANELBOARD C1. AIC RATING TO MATCH EXISTING.
- NEW FEEDER CONDUCTORS SERVING EXISTING PANELBOARD C1.
- NEW 3P-125A ENCLOSED CIRCUIT BREAKER TO FEED EXISTING PANEL BOARD C1. AIC RATING TO MATCH PANEL C



1 ELECTRICAL RISER DIAGRAM - EXISTING
1" = 1'-0"



2 ELECTRICAL RISER DIAGRAM - NEW WORK
1" = 1'-0"

No.	Description	Date

Revisions

Drawing Title

ELECTRICAL RISER DIAGRAM

Phase
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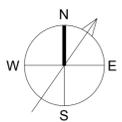
A/E Project Number: 12.0009-011 Drawing Scale: AS NOTED

Date: 10.20.2014 CADD Filename: Revit Model CADD Plot Scale: 1:1

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Sheet Number: **E501**





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BRANCH PANEL: D

Location: Corridor
Supply From: MDP-14 (3P-200A)
Mounting: Surface
Enclosure: Type 1

Volts: 208/120
Phases: 3
Wires: 4

A.I.C. Rating: N/A
Mains Type: MLO
Mains Rating: 225 A
MCB Rating:

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	
1	Lighting (Corridor and Women's Toilet)	20 A	1	680 VA	356 VA			1	20 A	Lighting (Men's Toilet)	2
3	Lighting (Women's Lockers)	20 A	1		716 VA	755 VA		1	20 A	Lighting (Men's and Women's Shower)	4
5	Lighting (Men's Toilet and Lockers)	20 A	1			478 VA	1500 VA	1	20 A	Hand Dryer	6
7	Hand Dryer	20 A	1	1500 VA	1500 VA			1	20 A	Hand Dryer	8
9	Hand Dryer	20 A	1		1500 VA	1500 VA		1	20 A	Hand Dryer	10
11	Hand Dryer	20 A	1			1500 VA	1500 VA	1	20 A	Hand Dryer	12
13	Hand Dryer	20 A	1	1500 VA	1500 VA			1	20 A	Hand Dryer	14
15	Hand Dryer	20 A	1		1500 VA	1500 VA		1	20 A	Hand Dryer	16
17	Hand Dryer	20 A	1			1500 VA	1500 VA	1	20 A	Hand Dryer	18
19	Hand Dryer	20 A	1	1500 VA	1500 VA			1	20 A	Hand Dryer	20
21	Electric Water Cooler	20 A	1		500 VA	1080 VA		1	20 A	Receptacle	22
23	Receptacle	20 A	1			1080 VA	500 VA	1	20 A	Exhaust Fan #2	24
25	Lighting (Breezeway)	20 A	1	232 VA	0 VA			1	0 A	Spare	26
27	Automatic Door Opener System	20 A	1		1000 VA	500 VA		1	20 A	Kiosk Lighting	28
29	Outdoor Receptacles	20 A	1			540 VA	540 VA	1	20 A	Outdoor Receptacles	30
31	Outdoor Receptacles	20 A	1	540 VA	540 VA			1	20 A	Outdoor Receptacles	32
33	Night Lighting (Outdoor)	20 A	1		145 VA	500 VA		1	20 A	Soap Dispenser Pump	34
35	Exhaust Fans	20 A	1			500 VA	500 VA	1	20 A	Gas Fired Water Heater	36
37	Spare	0 A	1	0 VA	0 VA			1	0 A	Spare	38
39	Spare	0 A	1		0 VA	0 VA		--	--	Space	40
41	Space	--	--			0 VA	0 VA	--	--	Space	42
Total Load:				11.3 kVA		11.2 kVA				11.6 kVA	
Total Amps:				95 A		93 A				97 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Lighting	3.4 kVA	125.00%	4.2 kVA	
				Total Conn. Load: 34.2 kVA
				Total Est. Demand: 24.2 kVA
				Total Conn. Current: 95 A
				Total Est. Demand Current: 67 A

Notes:

BRANCH PANEL: C

Location: CONCESSION
Supply From: SWITCHBOARD MDP
Mounting: Surface
Enclosure: Type 1

Volts: 208/120
Phases: 3
Wires: 4

A.I.C. Rating: EXISTING
Mains Type: FEED THRU LUGS
Mains Rating: 200 A
MCB Rating: 175A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	
1	CASH REGISTER	20 A	1	250 VA	1500 VA			1	20 A	HOT DOG WARMER	2
3	NACHO CHEESE DISPLAY	20 A	1		750 VA	1200 VA		1	20 A	POPCORN POPPER	4
5	ICE CREAM MACHINE	20 A	1			1000 VA	1500 VA	1	20 A	MICROWAVE	6
7	REFRIGERATOR	20 A	1	1200 VA	360 VA			1	20 A	RECEPTACLE	8
9	FREEZER	20 A	1		1200 VA	360 VA		1	20 A	CANOPY LIGHTS	10
11	JUICER/SODA DISPENSER	20 A	1			1500 VA	360 VA	1	20 A	PRETZEL DISPLAY	12
13	COFFEE MACHINE	20 A	1	1200 VA	360 VA			1	20 A	CANOPY RECEPTACLE	14
15	OUTSIDE RECEPTACLE	20 A	1		360 VA	360 VA		1	20 A	OUTSIDE RECEPTACLE	16
17	OUTSIDE RECEPTACLE	20 A	1			360 VA	360 VA	1	20 A	CLOCK RECEPTACLE	18
19	LIGHTING	20 A	1	360 VA	500 VA			1	20 A	EXHAUST FAN	20
21	RECEPTACLE BY HOT WATER HEATER	20 A	1		360 VA	120 VA		1	20 A	CEILING FANS	22
23	SPARE IN HOT WATER ROOM	20 A	1			360 VA	1500 VA	2	30 A	HOT WATER	24
25	CANOPY RECEPTACLE	20 A	1	360 VA	1500 VA			--	--	--	26
27	30 A. RECEPTACLE	20 A	1		2400 VA	1200 VA		2	30 A	ICE MACHINE	28
29	C1 (FEED THRU LUGS)	0 A	3			13933...	1200 VA	--	--	--	30
31	--	--	--	13933 VA				--	--	--	32
33	--	--	--		13933...			--	--	--	34
35	--	--	--					--	--	--	36
Total Load:				21.5 kVA		22.2 kVA				22.1 kVA	
Total Amps:				179 A		186 A				185 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Kitchen Equipment - Non-Dwelling Unit	14.9 kVA	65.00%	9.7 kVA	
				Total Conn. Load: 65.8 kVA
				Total Est. Demand: 60.8 kVA
				Total Conn. Current: 183 A
				Total Est. Demand Current: 169 A

Notes:

Branch Panel: C1

Location: CONCESSION
Supply From: PANEL C1
Mounting: Surface
Enclosure: Type 1

Volts: 208/120
Phases: 3
Wires: 4

A.I.C. Rating: EXISTING
Mains Type: MLO
Mains Rating: 200 A
MCB Rating:

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	
1	Space	--	--	0.0 kVA	0.0 kVA			--	--	Space	2
3	Space	--	--		0.0 kVA	0.0 kVA		--	--	Space	4
5	Space	--	--			0.0 kVA	0.0 kVA	--	--	Space	6
7	Space	--	--	0.0 kVA	0.0 kVA			--	--	Space	8
9	SUB PANEL	60 A	2	3.0 kVA	1.5 kVA			1	20 A	RECEPTACLE MICROWAVE	10
11	--	--	--			3.0 kVA	1.5 kVA	1	20 A	RECEPTACLE MICROWAVE	12
13	DEEP FRYER	70 A	3	6.0 kVA	0.4 kVA			1	20 A	RECEPTACLE STORAGE ROOM	14
15	--	--	--		6.0 kVA	0.4 kVA		1	20 A	RECEPTACLE STORAGE ROOM	16
17	--	--	--			6.0 kVA	0.4 kVA	1	20 A	RECEPTACLE	18
19	ICE CREAM MACHINE	30 A	2	0.8 kVA	0.9 kVA			3	20 A	EXHAUST FAN EF-6	20
21	--	--	--		0.8 kVA	0.9 kVA		--	--	--	22
23	ICE CREAM MACHINE	30 A	2			0.8 kVA	0.9 kVA	--	--	--	24
25	--	--	--		0.8 kVA	1.3 kVA		3	20 A	EXHAUST FAN EF-6A	26
27	DEEP FRYER	70 A	3		6.0 kVA	1.3 kVA		--	--	--	28
29	--	--	--			6.0 kVA	1.3 kVA	--	--	--	30
31	--	--	--	6.0 kVA	0.0 kVA			--	--	Space	32
33	Space	--	--		0.0 kVA	0.0 kVA		--	--	Space	34
35	Space	--	--			0.0 kVA	0.0 kVA	--	--	Space	36
37											38
39											40
41											42
Total Load:				16.0 kVA		19.8 kVA				19.8 kVA	
Total Amps:				134 A		170 A				170 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Kitchen Equipment - Non-Dwelling Unit	42.0 kVA	65.00%	27.3 kVA	
Motor	6.5 kVA	114.63%	7.5 kVA	
Power	6.0 kVA	100.00%	6.0 kVA	
Receptacle	1.1 kVA	100.00%	1.1 kVA	
				Total Conn. Load: 55.6 kVA
				Total Est. Demand: 41.8 kVA
				Total Conn.: 154 A
				Total Est. Demand: 116 A

Notes:

No.	Description	Date

Revisions

Drawing Title

ELECTRICAL SCHEDULES

Phase
 CONCEPT 30% 60% 90% 100%

A/E Project Number: 12.0009-011
Drawing Scale: AS NOTED

Date: 10.20.2014
CADD Filename: Revit Model
CADD Plot Scale: 1:1

Drawn By: AM
Checked By: FL

Sheet Number

E601



Gaithersburg
A CHARACTER COUNTS! CITY

**GAITHERSBURG
WATER PARK
PHASE III**

512 S Frederick Ave
Gaithersburg, MD 20877

NIKA ARCHITECTS
+ ENGINEERS

NIKA A+E
451 HUNGERFORD DRIVE (P)301.770.3520
4TH FLOOR (F)301.770.3521
ROCKVILLE, MD 20850 www.nika-ae.com

LUMINARIES SCHEDULE									
TYPE LETTER	FIXTURE TYPE	MOUNTING	MOUNTING HEIGHT (A.F.F.)	VOLTS	LAMP DATA			CATALOG NO.	NOTES
					NOMINAL WATTS	TYPE	MANUFACTURER		
A	FLUXSTREAM 8' LED LINEAR	CEILING MOUNTED	10'-0"	120	81	LED	PHILIPS LIGHTING OR APPROVED EQUAL	LF-8-10-41-40-U-LAG	
B	FLUXSTREAM 4' LED LINEAR	CEILING MOUNTED	10'-0"	120	40.5	LED	PHILIPS LIGHTING OR APPROVED EQUAL	LF-4-10-41-40-U-LAG	
E	EXIT SIGN	CEILING OR WALL MOUNTED	10'-0"	120	3.12	LED	PHILIPS LIGHTING OR APPROVED EQUAL	VERW	
G	COREPRO LED RETROFIT DOWNLIGHT	CEILING RECESSED	10'-0"	120	7.9	LED	PHILIPS LIGHTING OR APPROVED EQUAL	CP-4-30K-6-P4R	
I	FLUXSTREAM 4' LED LINEAR	WALL MOUNTED	10'-0"	120	40.5	LED	PHILIPS LIGHTING OR APPROVED EQUAL	2-AVE-G-3-54HO-PMW-120-EBD-GLR1	
J	DUSK TO DAWN LED LUMINARE	WALL MOUNTED	8" ABOVE DOOR FRAME	120	39	LED	PHILIPS LIGHTING OR APPROVED EQUAL	DTD-LED-1C-5K-120-GY3S-P	FINISH TO MATCH EXISTING
Z	G3 LED CANOPY	CEILING MOUNTED	7'-0"	120	55	LED	PHILIPS LIGHTING OR APPROVED EQUAL	G3-3-1-55LA-161A-NW-120-BRP-PCB	VANDAL RESISTANT FIXTURE
BB	CALCULITE 7" LED CYLINDER	CEILING MOUNTED	14'-0" (BREEZEWAY) 12'-0" (SNACK BAR)	120	69.2	LED	PHILIPS LIGHTING OR APPROVED EQUAL	C7L-50-C-W-40K-Z10V-M-CCD-U-VB	FIXTURE TO BE MOUNTED DIRECTLY TO OUTLET BOX TO PROVIDE ADDITIONAL RESISTANCE TO VANDALISM. MOUNTING KIT C7-CW-B.

No.	Description	Date

Revisions

Drawing Title

LIGHT FIXTURE SCHEDULE

Phase
 CONCEPT 30% 60% 90% 100%

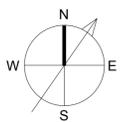
A/E Project Number: 12.0009-011 Drawing Scale: AS NOTED

Date: 10.20.2014 CADD Filename: Revit Model CADD Plot Scale: 1:1

Drawn By: AM

Checked By: FL

Sheet Number: **E602**

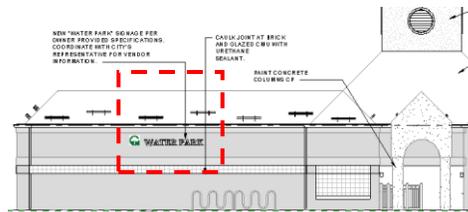


Specifications

City of Gaithersburg

Water Park Phase III Improvements

Specifications



NIKA ARCHITECTS
+ ENGINEERS

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075323 – EPDM ROOFING	TAB 2
081113 –HOLLOW METAL DOORS AND FRAMES	TAB 3
083323 – OVERHEAD COILING DOORS	TAB 4
086300 – METAL FRAMED SKYLIGHTS	TAB 5
099113 – EXTERIOR PAINTING	TAB 6

Product Data Sheets

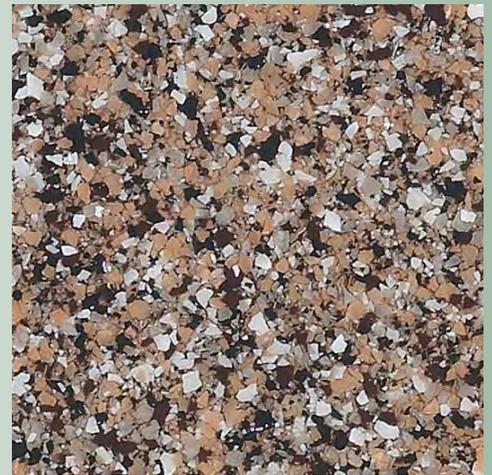
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FD-1	
RD-1	
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Sink P-Trap	

Tab 7 - Architectural Cut Sheets



CRYL-A-FLEX

MMA
FLOORING
SYSTEMS



DUR-A-FLEX
INNOVATION FROM THE FLOOR UP



From primer coat to topcoat, the Cryl-A-Flex family of Methyl Methacrylate (MMA) floor systems offer a complete solution for a wide range of applications. Our experience has led to the development of products that meet our customers' needs from heavy manufacturing to decorative, commercial environments. The ultrafast Cryl-A-Flex cure sets new standards for performance and operational flexibility with complete systems installed in as fast as one day.

With an antimicrobial additive or a chemical and thermal resistant topcoat, Cryl-A-Flex products meet your most demanding flooring requirements.

Offering excellent resistance to acids and alkali, Cryl-A-Flex systems are UV stable and cure to an attractive, low-glare satin finish.

PRINCIPLE CRYL-A-FLEX COMPONENTS INCLUDE:

Primer Coat

Cryl-A-Prime P-101 penetrating low viscosity primer

Matrix Coat

Cryl-A-Glaze G-201 medium viscosity binder

Aggregates

- multi-colored quartz aggregate is available in two grades: Q28 (fine) and Q11 (coarse)
- natural quartz aggregate
- SL filler blend
- decorative chip blends

Topcoats

Cryl-A-Top T-301/T-303 topcoats are available to handle various degrees of chemical and thermal shock resistance.

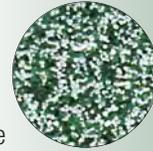


CA 01350
COMPLIANT

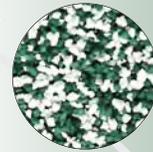


Cryl-A-Quartz

This premium decorative flooring solution uses the select graded, multi-color quartz aggregate that has established Dur-A-Flex® as a premier provider of pigmented quartz to the commercial, industrial and institutional flooring industries. Cryl-A-Quartz delivers a rich selection of colors and a choice of slip resistant or smooth textures. Available in two grades: Q28 (fine) and Q11 (coarse). For a self leveling overlay system specify Cryl-A-Quartz SL.



Q-28



Q-11

Cryl-A-Tex

This MMA polymer concrete matrix can be used for pothole and spall repair or used for sloping for drains and structural rehabilitation. It consists of a Cryl-A-Tex liquid and powder and cures to full strength in one hour.

Cryl-A-Stat ESD-401

This electrostatic dissipative floor sealer is used over standard MMA floor systems offering a quick, one-hour cure. Excellent UV resistance provides consistent color stability.

Mica-Flex M

A decorative floor system composed of 100% reactive, fast curing, high strength methyl methacrylate (MMA), natural mica flakes and MMA topcoats. Mica flakes are available in both micro and macro sizes.

Cryl-A-Chip

This decorative system consists of multi-colored chips broadcast into acrylic resin for a textured look. System components: Cryl-A-Prime, Cryl-A-Glaze, decorative chips and Cryl-A-Top topcoat. Chips are available in Macro and Micro sizes. For a self leveling overlay system specify Cryl-A-Chip SL.



MICRO



MACRO

Cryl-A-Shield

This clear, two-component, high build system for sealing concrete or quarry tile consists of a Cryl-A-Prime low viscosity primer coat, which penetrates and strengthens concrete paired with a Cryl-A-Top topcoat that is available with or without slip resistant textures.



STANDARD



COARSE

Cryl-A-Floor

This workhorse resurfacer combines pigmented MMA resin and natural quartz aggregate for applications 1/8" to 1/4" thick. Available in a variety of solid colors, Cryl-A-Floor can be further enhanced with an antimicrobial treatment, which actively attacks bacteria and fungi and prevents microorganisms from synthesizing chemicals, which could damage flooring. For a self leveling overlay system specify Cryl-A-Floor SL.



The samples shown are only close approximations and should not be used for specification purposes.
 Contact Dur-A-Flex to obtain actual samples for best color selection.

Standard Colors

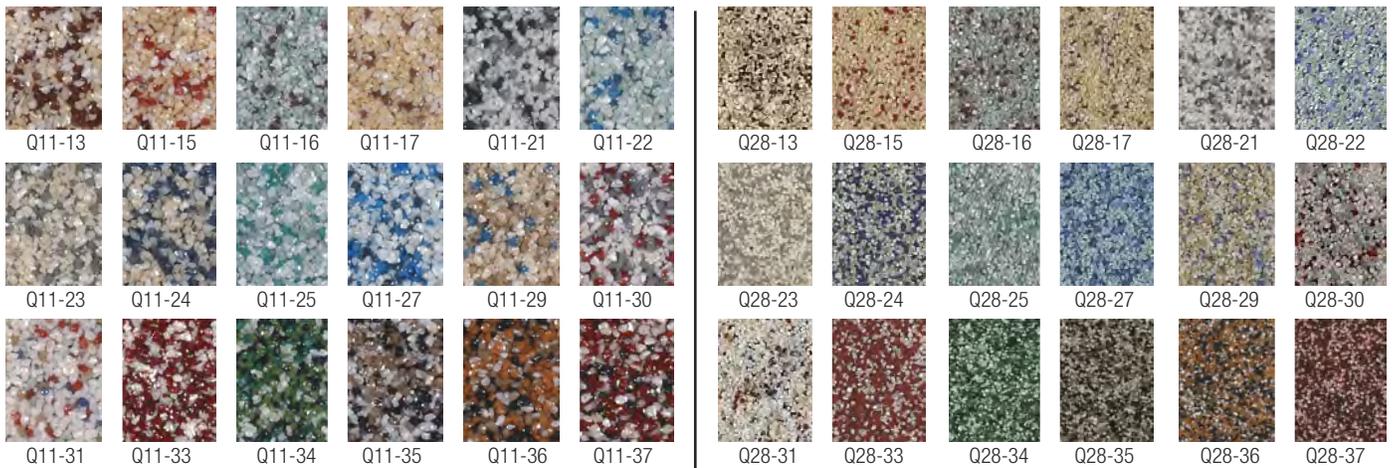


Mica-Flake

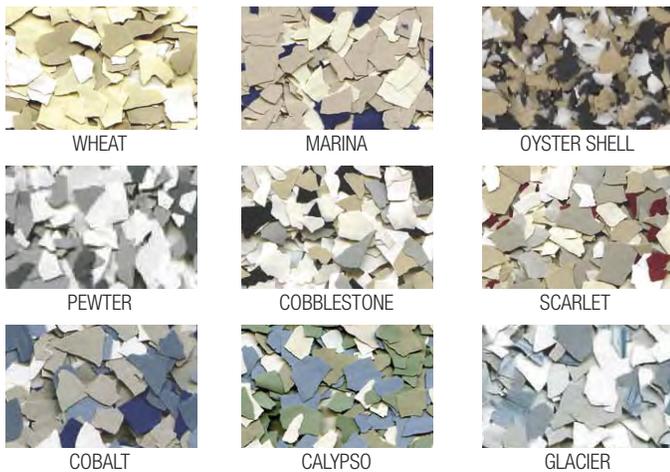


All mica samples shown contain metallic flakes. Available in macro and micro sizes.

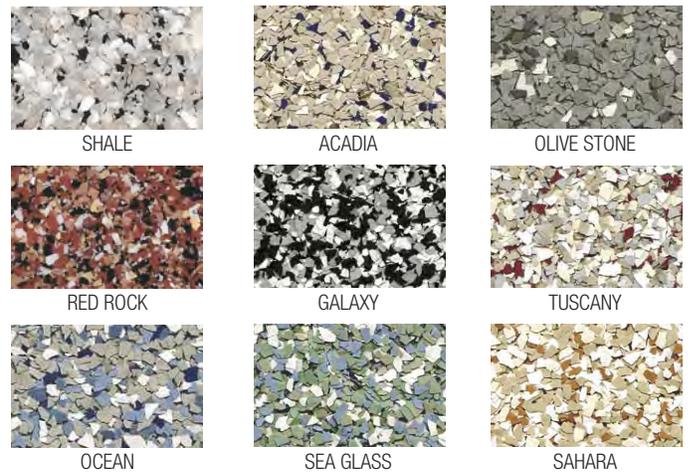
Quartz Blends



Macro Chip Blends



Micro Chip Blends



No one makes it easier to select, specify and install high performance flooring systems than Dur-A-Flex. Every step of the way, you'll experience superior customer service, professionalism and expertise as well as finely tuned processes—all the essentials which contribute to a solid business relationship.



Tab 8 – Lighting Cut Sheets

Revolutionize linear lighting with LED

FLUXSTREAM LED LINEAR



PHILIPS DAY-BRITE/CFI FLUXSTREAM LED LINEAR

The FluxStream LED linear is a new, high performing luminaire delivering smooth diffuse light ideal for light industrial, commercial and residential applications with the unparalleled energy efficiency of Philips LED lighting.

Project: _____
 Location: _____
 Catalog No: _____
 Fixture Type: _____
 Mfg: _____ Qty: _____
 Notes: _____

Ordering guide

example: LF8FR3940USZT

Series	Length	Lens	Lumens ¹	Color	Voltage	Driver	Options
<input type="checkbox"/> LF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LF FluxStream	4 4' length 8 8' length (nominal)	FR 100% Frost 10 10% Frost	31 3100 lumens ² 39 3900 lumens ² 41 4100 lumens ² (nominal)	40 4000K 35 3500K	U Universal 120/277V 3 347V	LAG LED driver DZT 0-10v dimming SZT Step dimming (100-40)	EM ⁴ Factory wired remote emergency pack. Nominal 1100 lm

- Lumen package per 4' nominal length
- Only available with (FR) 100% frost lens option.
- Only available with (10) 10% frost lens option.
- Emergency (EM) – factory wired surface mount housing assembly is remote mounted from the fixture. Standard flex length is 6'. Consult factory for optional lengths. Nominal 1100 lumen output.
- LF43940 FluxStream input power is 40W compared to a 2xF28T5 strip drawing 63W.

Accessories (order separately)

- LFCPL** – Continuous Row Joiner: Required for row mounting. Number of joiners required per row is equal to one less than the number of luminaires per row.
- FH360-120** – 120V motion sensor, field installed via 7/8" KO on end cap
- FH360-277** – 277V motion sensor, field installed via 7/8" KO on end cap
- FH360-347** – 347V motion sensor, field installed via 7/8" KO on end cap
- LF4WGW** – Wireguard, white
- LF4LNFR** – 100% frosted replacement lens
- LF4LN10** – 10% frosted replacement lens

General Notes:

Many luminaire components, such as reflectors, refractors, lenses, sockets, lampholders, and LEDs are made from various types of plastics which can be adversely affected by airborne contaminants. If sulfur based chemicals, petroleum based products, cleaning solutions, or other contaminants are expected in the intended area of use, consult factory for compatibility.

Mounting Accessories (order separately)

Stem and Canopy Sets: Suspend the luminaire 12", 18", 24", 36", or 48" from surface.

Two per luminaire recommended.

- SV5F12** – 12" **SV5F24** – 24" **SV5F48** – 48"
- SV5F18** – 18" **SV5F36** – 36"

Chain Hanging Kit: Includes two 24" heavy duty link chains with sturdy "V" hook for luminaire suspension.

- EE9HC** – Two 24" chains and "V" hooks

Aircraft Cable Kit:

Power feed cable/canopy kit (adjustable 6" to 60")

- SVCC60-UNV** – 120/277V **SVCC60-347** – 347V

Cable and canopy kit (adjustable 6" to 60")

- SVCC60**



PHILIPS
Day-Brite

PHILIPS
CFI

FLUXSTREAM LED LINEAR

Features

- Sleek and compact design ideal for installation in tight spaces.
- Rugged 100% frost acrylic lens shields LEDs from direct view.
- Capable of providing 3900 lm per 4' (nominal) length with 100% frost lens.
- High lumen package with 10% frost lens provides up to 4100 lm per 4' (nominal) length.
- Long life LEDs provide 100,000 hours (L70) LED lumen maintenance.
- Variety of mounting options for installation flexibility.
- Wall mountable – ADA compliant.
- Snap in LED pan and single grounding screw for easy installation.
- Row mountable with continuous row joiner.
- 3900 lm package version capable of providing similar light levels to a (2) 28W T5 strip while using 33% less energy⁵.

- Dimming options and motion detector accessories available.
- Ideal for installation in refrigerated areas (down to -20°C).
- Enclosed lens minimizes penetration of dust, insects and other debris into the lamp compartment.
- 8' tandem unit available.
- Fully enclosed wiring and LED diodes.
- 80+ CRI and excellent color consistency.
- Fluxstream luminaires are Designlights Consortium[®] qualified. Please see the DLC QPL list for exact catalog numbers (<http://www.designlights.org/QPL>).

Finish

Baked white acrylic matte high reflectance paint finish.

Shielding

Contoured frosted acrylic lens.

Electrical

LED boards and drivers are RoHS (Restriction of Hazardous Substances) compliant. 0-10V dimming and 100/40 step dimming options available. Total system life rated at 50,000 hours. Maximum ambient temperature of 25°C when surface mounted or 30°C when suspended. Suitable for cold locations - minimum ambient temperature of -20°C. Predicted L70 lifetime based on LED manufacturer's supplied LM-80 data and in-situ laboratory testing.

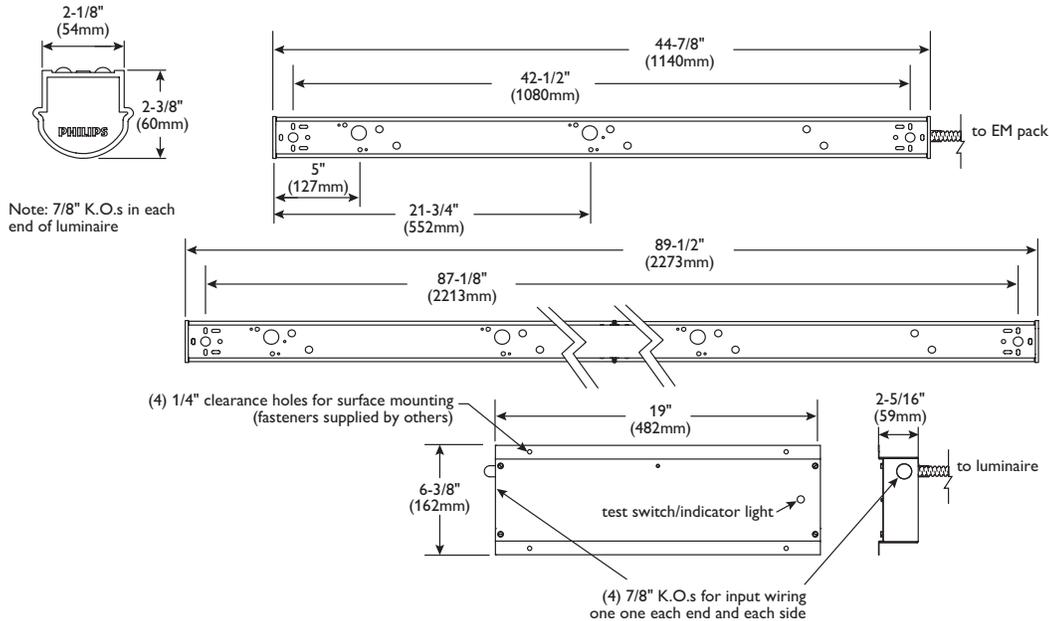
Materials

Heavy gauge cold rolled steel housing and LED pan. Polycarbonate injection molded end caps.

Labels

cETLus listed.
Suitable for damp locations.

Dimensions



FluxStream 4' with 10% frost lens, 40W LED, 4000K, 4100 lumens

Cat No: LF4104140ULAG

Report no ¹ :	C12188
Output lumens:	4134lms
CCT ² :	4000K
Input watts ³ :	40.5W
Efficiency:	102.0lm/w
CIE type:	Direct
Plane:	0° 90°
Spacing crit.:	1.3 1.2
Luminous length:	44.04 2.04

Candela distribution

Vertical Angle	Horizontal Angle			Zonal Lumens
	0°	45°	90°	
0	1265	1265	1265	
5	1255	1272	1236	122
15	1195	1222	1192	341
25	1077	1121	1110	511
35	912	982	990	605
45	716	816	842	615
55	512	632	676	548
65	324	454	507	432
75	170	303	359	301
85	52	188	242	185
90	6	145	196	
95	3	109	158	105
105	3	60	100	58
115	3	14	56	21
125	3	12	4	10
135	3	13	11	8
145	3	9	15	5
155	2	5	10	3
165	2	3	3	1
175	2	2	2	0
180	2	2	2	

Zonal summary (total efficiency)

Zone	Lumens	%Luminaire
0-30	1109	26.86
0-40	1818	44.03
0-60	3211	77.76
0-90	4063	98.40
40-90	2245	54.37
60-90	852	20.64
90-180	66	1.60
0-180	4129	100.00

Average Luminance (cd/m²)

Vertical Angle	Horizontal Angle		
	0°	45°	90°
45	23302	2453	23586
55	21354	23345	22746
65	17550	21514	20989
75	12144	1872	18502
85	6012	21234	21037

Coefficients of utilization

	80%			50%			30%			
	Ceiling	Wall	Floor	Ceiling	Wall	Floor	Ceiling	Wall	Floor	
RC	70	50	30	50	30	10	50	30	10	
RW	Zonal cavity method Effective floor reflectance = 20%									
Room Cavity Ratio	1	109	104	100	97	94	92	93	91	89
	2	100	92	86	86	82	77	83	79	75
	3	91	82	74	77	71	66	74	69	64
	4	84	73	65	69	62	57	67	61	56
	5	78	65	57	62	55	49	60	54	49
	6	72	59	50	56	48	43	54	47	42
	7	66	52	44	50	42	37	48	42	37
	8	61	48	39	45	38	33	44	37	33
	9	56	43	35	41	34	29	40	33	29
	10	52	39	31	38	31	26	37	30	25

FluxStream 4' with 100% frost lens, 40W LED, 4000K, 3900 lumens

Cat No: LF4FR3940ULAG

Report no ¹ :	C12167
Output lumens:	3874 lms
CCT ² :	4000K
Input watts ³ :	40.1W
Efficacy:	97 lm/w
CIE type:	Direct
Plane:	0° 90°
Spacing crit.:	1.2 1.3
Luminous length:	44.04 2.04

Candela distribution

Vertical Angle	Horizontal Angle			Zonal Lumens
	0°	45°	90°	
0	1265	1265	1265	
5	1255	1272	1236	122
15	1195	1222	1192	341
25	1077	1121	1110	511
35	912	982	990	605
45	716	816	842	615
55	512	632	676	548
65	324	454	507	432
75	170	303	359	301
85	52	188	242	185
90	6	145	196	
95	3	109	158	105
105	3	60	100	58
115	3	14	56	21
125	3	12	4	10
135	3	13	11	8
145	3	9	15	5
155	2	5	10	3
165	2	3	3	1
175	2	2	2	0
180	2	2	2	

Zonal summary (total efficiency)

Zone	Lumens	%Luminaire
0-30	974	25.16
0-40	1579	40.81
0-60	2742	70.86
0-90	3659	94.55
40-90	2080	53.74
60-90	917	23.69
90-180	211	5.45
0-180	3870	100.00

Coefficients of utilization

Ceiling	80%			50%			30%			
	70	50	30	50	30	10	50	30	10	
RC	Zonal cavity method									
RW	Effective floor reflectance = 20%									
Room Cavity Ratio	1	107	102	98	94	91	88	89	86	84
	2	97	89	82	82	77	73	78	74	70
	3	89	79	71	73	67	62	70	64	60
	4	82	70	61	65	58	53	62	56	51
	5	75	62	53	58	50	45	55	49	44
	6	69	56	47	52	45	39	50	43	38
	7	63	50	41	47	39	34	45	38	33
	8	59	45	36	42	35	30	41	34	29
	9	54	41	32	38	31	26	37	30	25
	10	50	37	29	35	28	23	33	27	22

Average Luminance (cd/m²)

Vertical Angle	Horizontal Angle		
	0°	45°	90°
45	17826	20399	21062
55	15710	19492	20844
65	13501	19007	21223
75	11548	20621	24541
85	10428	38152	49146

FluxStream 4' with 100% frost lens, 40W LED, 4000K, 3100 lumens

Cat No: LF4FR3140ULAG

Report no ¹ :	C12185
Output lumens:	3135 lms
CCT ² :	4000K
Input watts ³ :	31.0W
Efficacy:	101.0 lm/w
CIE type:	Direct
Plane:	0° 90°
Spacing crit.:	1.2 1.3
Luminous length:	44.04 2.04

Candela distribution

Vertical Angle	Horizontal Angle			Zonal Lumens
	0°	45°	90°	
0	1027	1027	1027	
5	1020	1033	1002	99
15	971	993	968	277
25	875	912	901	415
35	739	798	804	492
45	579	661	684	499
55	412	512	550	444
65	260	367	412	349
75	135	244	292	242
85	40	151	197	148
90	4	116	160	
95	1	87	129	84
105	1	48	83	47
115	1	10	45	16
125	1	9	3	7
135	1	10	10	6
145	1	7	13	4
155	1	4	8	2
165	1	2	3	1
175	2	2	1	0
180	1	1	1	

Zonal summary (total efficiency)

Zone	Lumens	%Luminaire
0-30	791	25.26
0-40	1283	40.96
0-60	2225	71.06
0-90	2964	94.65
40-90	1682	53.69
60-90	739	23.59
90-180	168	5.35
0-180	3132	100.00

Coefficients of utilization

Ceiling	80%			50%			30%			
	70	50	30	50	30	10	50	30	10	
RC	Zonal cavity method									
RW	Effective floor reflectance = 20%									
Room Cavity Ratio	1	107	102	98	94	91	88	89	86	84
	2	97	89	82	82	77	73	78	74	70
	3	89	79	71	73	67	62	70	64	60
	4	82	70	61	65	58	53	62	56	51
	5	75	62	53	58	50	45	55	49	44
	6	69	56	47	52	45	39	50	43	38
	7	63	50	41	47	39	34	45	38	33
	8	59	45	36	42	35	30	41	34	29
	9	54	41	32	38	31	26	37	30	25
	10	50	37	29	35	28	23	33	27	22

Average Luminance (cd/m²)

Vertical Angle	Horizontal Angle		
	0°	45°	90°
45	14426	16537	17114
55	12664	15782	16940
65	10836	15368	17249
75	9194	16591	19951
85	8003	30534	40026

1. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
2. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
3. Wattage controlled to within 5%.
4. Refer to www.designlights.org for complete DLC listings.



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www.philips.com/luminaires

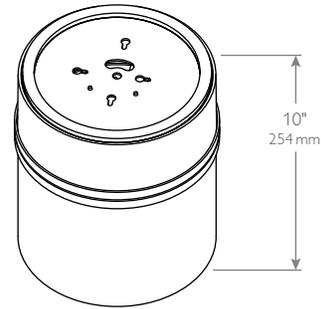
1140-S 06/14 page 3 of 3

Philips Lighting
North America Corporation
200 Franklin Square Drive
Somerset, NJ 08873
Tel. 855-486-2216

Imported by: Philips Lighting,
a division of Philips Electronics Ltd.
281 Hillmount Rd,
Markham, ON Canada L6C 2S3
Tel. 800-668-9008

Blend performance & comfort in a downlight.

C7L-C-VB CALCULITE WHITE LED 7" CYLINDER



Complete product

PHILIPS LIGHTOLIER, CALCULITE, PROFESSIONAL-GRADE DOWNLIGHTING, WHITE LED 7" CYLINDER, NARROW MEDIUM & WIDE 1500/2000/3500/6000LM, C7L-C-VB

Calculite LED 7" features an LED array of high brightness white light LEDs. The new LED boards in Calculite LED ensure a less than 2-step SDCM color variation between luminaires.

Project: _____
 Location: _____
 Catalog No: _____
 Fixture Type: _____
 Mfg: _____ Lamps: _____ Qty: _____
 Notes: _____

Fixture kit

example: C7L20CW35KMCCLUVB

Series	Lumens	Style	Finish	CCT	Dimming ¹	Beam	Reflector	Input voltage	Version
C7L		C							VB
C7L Calculite 7" LED round aperture	15 1500lm 20 2000lm 35 3500lm ²	C Cylinder	B Black W White A Alum.	27K 2700K 30K 3000K 35K 3500K 40K 4000K	0-10V dimming (standard)	M Medium, 55° 0.8 s.c. W Wide, 70° 1.1 s.c.	CL Clear CCL Comfort clear CCD Comfort clear diffuse	U Universal (120/277V) 1 120V ² 2 277V ²	VB Version B
	50 6000lm	C Cylinder	B Black W White A Alum.	27K 2700K 30K 3000K 35K 3500K 40K 4000K	Z10V 0-10V dimming LD Lutron driver	N Narrow, 20° 0.3 s.c. M Medium, 55° 0.8 s.c. W Wide, 70° 1.1 s.c.	CL Clear CCL Comfort clear CCD Comfort clear diffuse	U Universal (120/277V)	VB Version B

Mounting kit

example: C4CPAX5

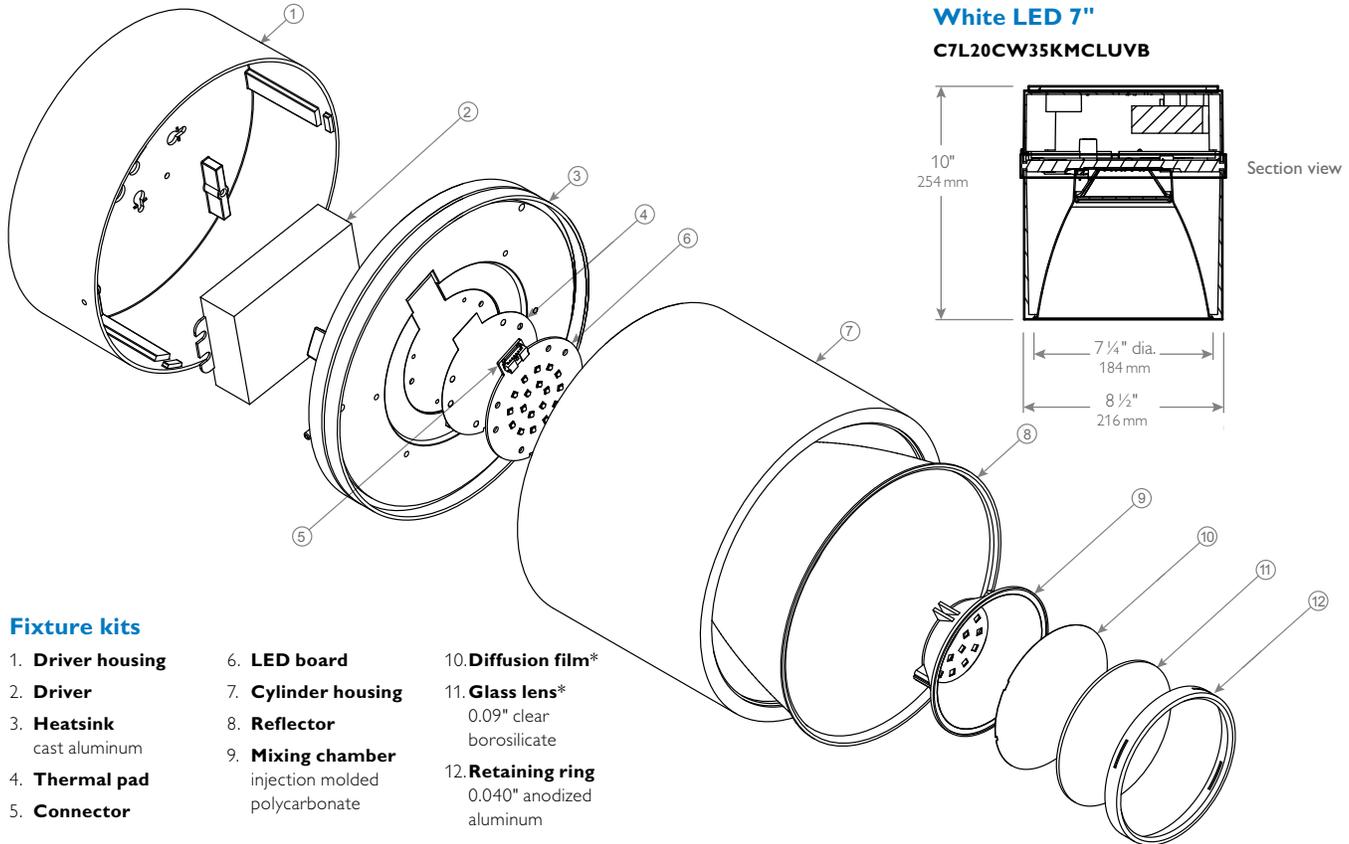
Series	Details	Finish	Dimming
C7 Mounting for Calculite 7" LED Cylinder	CW Wall mount	B Black W White A Alum.	–
C4 Mounting for Calculite 7" LED Cylinder	CP Stem mount		X5 For dimming applications
	CC Cable mount	X5 For dimming applications	
TM Mounting for Calculite 4" & 7" Cylinders to track	01 Track mount	–	–

1. Lutron dimming (**LD**) available for 6000 (**50**) lumen fixture kits only.
 2. 120V (**1**) and 277V (**2**) options are available for 3500 (**35**) lumen fixture kits only.



PHILIPS
LIGHTOLIER

C7L-C-VB CALCULITE WHITE LED 7" CYLINDER



Fixture kits

- | | | |
|-------------------------------------|--|---|
| 1. Driver housing | 6. LED board | 10. Diffusion film* |
| 2. Driver | 7. Cylinder housing | 11. Glass lens* |
| 3. Heatsink
cast aluminum | 8. Reflector | 0.09" clear borosilicate |
| 4. Thermal pad | 9. Mixing chamber
injection molded polycarbonate | 12. Retaining ring
0.040" anodized aluminum |
| 5. Connector | | |

*Cylinders with 6000lm configurations are assembled with the Diffusion film and Glass lens reversed.

Features

Input wattage: 31W (+/- 5%)

Cylinder housing: Suitable for mounting over 3" or 4" outlet box. Available in white, black, aluminum.

Mounting capabilities: Ceiling, wall or track.

Reflector cone: Aluminum. Provides 50° cutoff to source & source image. Self-flanged.

LED Board: Array of high brightness LED's.

Optical mixing chamber: Lightolier-specific mixing chamber redirects back-reflected light through aperture resulting in 20% increase in efficiency.

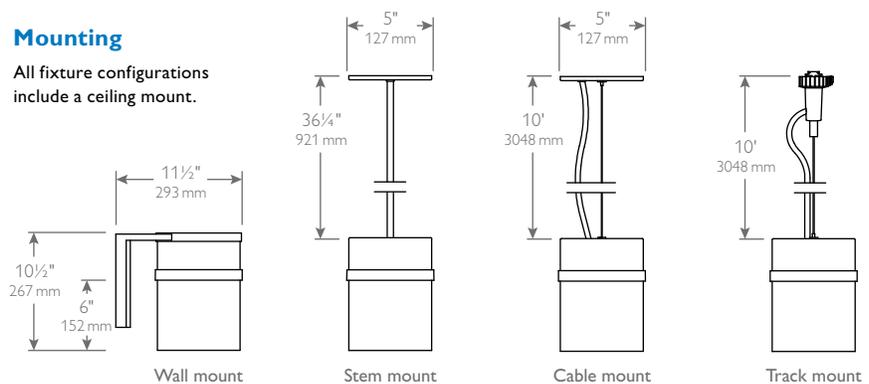
Thermal management: Heat sink and thermal design along with clean room assembly ensures specified performance. 35°C maximum ambient environment.

Rated life: 60,000 hours at 70% lumen maintenance (L70).

Photometric performance: Tested in accordance to IESNA LM-79-2008.

Mounting

All fixture configurations include a ceiling mount.



Dimming

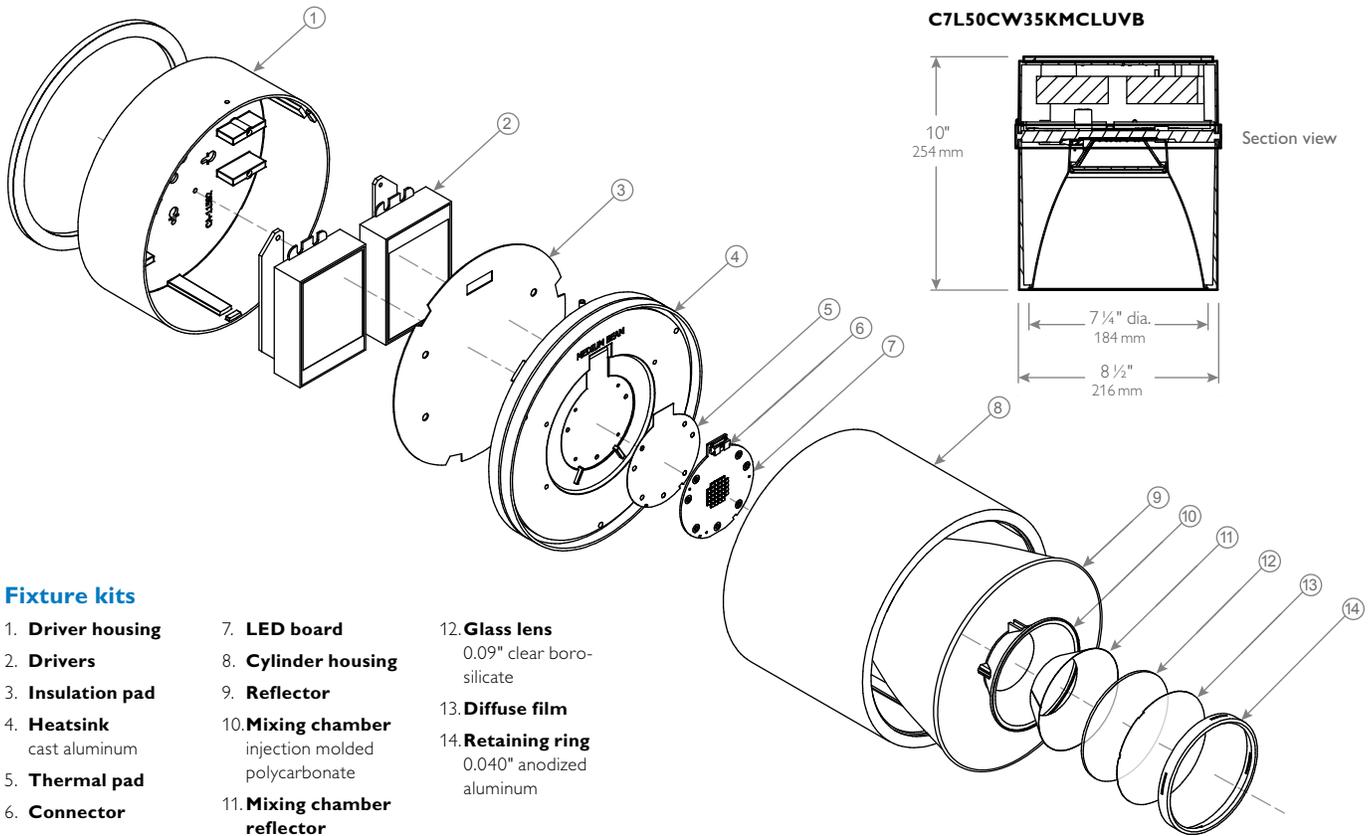
Compatible with 0-10V dimming. Lutron dimming is available for 6000lm fixture kits only.

Labels

cULus, I.B.E.W.
Suitable for wet locations (direct ceiling and wall mount only).
5 year warranty.

C7L-C-VB CALCULITE WHITE LED 7" CYLINDER

White LED 7" High Ceiling C7L50CW35KMCLUVB



Fixture kits

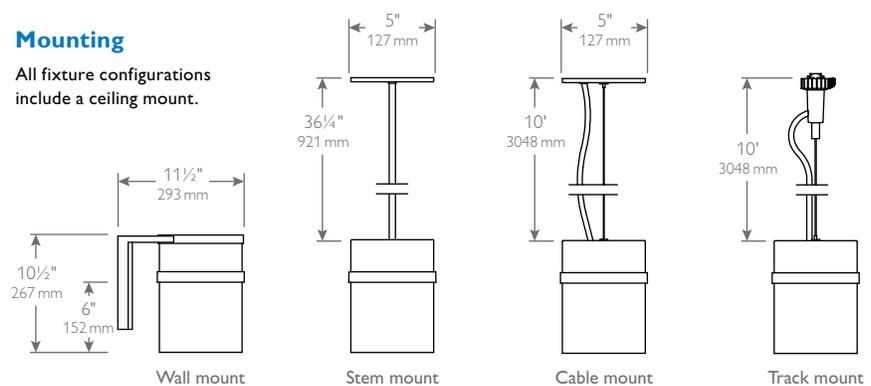
- | | | |
|-------------------------------------|---|---|
| 1. Driver housing | 7. LED board | 12. Glass lens
0.09" clear borosilicate |
| 2. Drivers | 8. Cylinder housing | 13. Diffuse film |
| 3. Insulation pad | 9. Reflector | 14. Retaining ring
0.040" anodized aluminum |
| 4. Heatsink
cast aluminum | 10. Mixing chamber
injection molded polycarbonate | |
| 5. Thermal pad | 11. Mixing chamber reflector | |
| 6. Connector | | |

Features

Input wattage: 69W (+/- 5%)
Cylinder housing: Suitable for mounting over 3" or 4" outlet box. Available in white, black, aluminum.
Mounting capabilities: Ceiling, wall or track.
Reflector cone: Aluminum. Provides 50° cutoff to source & source image. Self-flanged.
LED Board: Array of 32 high brightness LED's.
Optical mixing chamber: Lightolier-specific mixing chamber redirects back-reflected light through aperture resulting in 20% increase in efficiency.
Thermal management: Heat sink and thermal design along with clean room assembly ensures specified performance. 35°C maximum ambient environment.
Rated life: 60,000 hours at 70% lumen maintenance (L70).
Photometric performance: Tested in accordance to IESNA LM-79-2008.

Mounting

All fixture configurations include a ceiling mount.



Dimming

Compatible with 0-10V dimming.

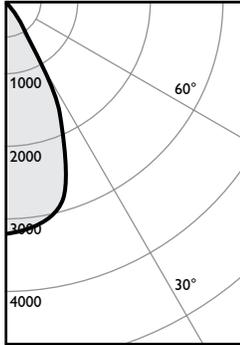
Labels

cULus, I.B.E.W.
 Suitable for wet locations
 (direct ceiling and wall mount only).
 5 year warranty.

C7L-C-VB CALCULITE WHITE LED 7" CYLINDER

31W LED, 3500K, 55° Medium 2000 lumen

Candela Curve



Fixture: C7L20CW35KMCLUVB

CCT¹: 3500K
Output lumens: 2246 lms
Input watts²: 30.7 W
Efficacy: 73.2 lm/w
CRI: 80 min
Spacing crit.: 0.8
Beam spread: 55°

Zonal summary

Zone	Lumens	%Luminaire
0-30	1913	85.2%
0-40	2204	98.1%
0-60	2245	100.0%
0-90	2246	100.0%

Angle Mean CP Lumens

Angle	Mean CP	Lumens
0	3191	
5	3152	304
10	3089	
15	2925	801
20	2465	
25	1850	808
30	942	
35	443	291
40	166	
45	32	38
50	4	
55	3	2
60	2	
65	1	1
70	1	
75	0	0
80	0	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	128	4.0'
6'	89	4.8'
7'	65	5.6'
8'	50	6.4'
9'	39	7.2'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	104.3	1.43
6'	68.5	0.94
7'	48.9	0.67
8'	40.8	0.56
9'	32.6	0.45

38'x38'x10' Room, Workplane 2 1/2' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL = 100%
CCL = 95%
CCD = 87%

CCT Adjust. factors

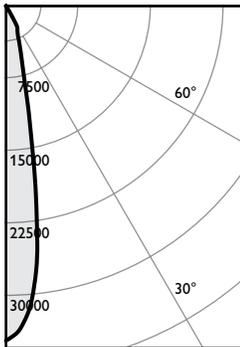
4000K = 103%
3500K = 100%
3000K = 97%
2700K = 87%

Coefficients of utilization

Ceiling	80%					70%					50%					30%					0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	50	10	0		
RCR	Zonal cavity method - Effective floor reflectance = 20%																				
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	100	100	100	100	100	100		
	1	114	112	109	107	109	106	105	102	102	99	95	97	93	89	89	89	89	89		
	2	109	105	101	98	103	97	100	95	97	93	89	89	89	89	89	89	89	89		
	3	104	99	94	91	97	90	95	88	92	87	84	84	84	84	84	84	84	84		
	4	100	93	88	84	92	84	90	83	88	82	80	80	80	80	80	80	80	80		
	5	95	88	83	79	87	78	85	78	84	77	75	75	75	75	75	75	75	75		
	6	91	83	78	74	83	74	81	73	80	73	71	71	71	71	71	71	71	71		
	7	87	79	74	70	78	70	77	69	76	69	67	67	67	67	67	67	67	67		
	8	84	75	70	66	75	66	73	66	73	65	64	64	64	64	64	64	64	64		
	9	80	71	66	63	71	62	70	62	69	62	61	61	61	61	61	61	61	61		
	10	77	68	63	59	68	59	67	59	66	59	58	58	58	58	58	58	58	58		

69W LED, 3500K, 20° Narrow 6000 lumen

Candela Curve



Fixture: C7L50CW35KNCLUVB

CCT¹: 3500K
Output lumens: 6174 lms
Input watts²: 69.4 W
Efficacy: 89.0 lm/w
CRI: 80 min
Spacing Crit.: 0.3
Beam Spread: 20°
Report no³: 327GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	5902	95.6%
0-40	6133	99.3%
0-60	6169	99.9%
0-90	6174	100.0%

Angle Mean CP Lumens

Angle	Mean CP	Lumens
0	34747	
5	30669	2475
10	16592	
15	6860	2151
20	4015	
25	2810	1276
30	1411	
35	146	231
40	100	
45	39	33
50	5	
55	2	3
60	3	
65	2	2
70	3	
75	1	2
80	0	
85	1	1
90	1	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	1390	1.5'
6'	965	1.8'
7'	709	2.1'
8'	543	2.4'
9'	429	2.7'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	294	3.08
6'	193	2.02
7'	138	1.44
8'	115	1.20
9'	92	0.96

38'x38'x10' Room, Workplane 2 1/2' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL = 100%
CCL = 95%
CCD = 87%
CCZ = 63%
WH = 87%

CCT Adjust. factors

4000K = 103%
3500K = 100%
3000K = 97%
2700K = 87%

Coefficients of utilization

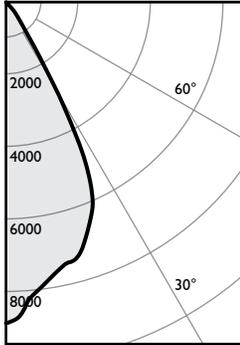
Ceiling	80%					70%					50%					30%					0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	50	10	0		
RCR	Zonal cavity method - Effective floor reflectance = 20%																				
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	100	100	100	100	100	100		
	1	115	113	111	109	111	108	107	104	103	101	97	94	94	94	94	94	94	94		
	2	111	108	105	102	106	101	103	99	100	97	94	94	94	94	94	94	94	94		
	3	108	103	100	97	102	96	100	95	97	93	91	91	91	91	91	91	91	91		
	4	105	99	95	92	98	92	96	91	94	90	88	88	88	88	88	88	88	88		
	5	102	96	92	89	95	88	93	88	92	87	85	85	85	85	85	85	85	85		
	6	99	93	88	85	92	85	91	85	89	84	83	83	83	83	83	83	83	83		
	7	96	90	86	83	89	82	88	82	87	82	80	80	80	80	80	80	80	80		
	8	93	87	83	80	86	80	86	80	85	79	78	78	78	78	78	78	78	78		
	9	91	84	80	78	84	78	83	77	83	77	76	76	76	76	76	76	76	76		
	10	89	82	78	76	82	76	81	75	81	75	74	74	74	74	74	74	74	74		

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Wattage controlled to within 5%.
3. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

C7L-C-VB CALCULITE WHITE LED 7" CYLINDER

69W LED, 3500K, 55° Medium 6000 lumen

Candela Curve



Fixture: C7L50CW35KMCLUVB

CCT ¹ :	3500K
Output lumens:	5963 lms
Input watts ² :	69.2 W
Efficacy:	86.2 lm/w
CRI:	80 min
Spacing Crit.:	0.8
Beam Spread:	55°
Report no ³ :	125GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	5171	86.7%
0-40	5833	97.8%
0-60	5954	99.8%
0-90	5963	100.0%

Angle	MeanCP	Lumens
0	8911	
5	8195	770
10	7673	
15	7395	2052
20	6676	
25	5541	2348
30	2654	
35	839	662
40	421	
45	80	113
50	13	
55	10	8
60	7	
65	7	5
70	4	
75	3	4
80	1	
85	0	1
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	356	4.0'
6'	248	4.8'
7'	182	5.6'
8'	139	6.4'
9'	110	7.2'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	276	3.07
6'	181	2.01
7'	129	1.44
8'	108	1.20
9'	86	0.96

38'x38'x10' Room, Workplane 2 1/2' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL = 100%
CCL = 95%
CCD = 87%
CCZ = 63%
WH = 87%

CCT Adjust. factors

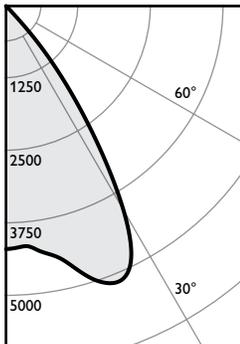
4000K = 103%
3500K = 100%
3000K = 97%
2700K = 87%

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	0		
Wall	Zonal cavity method - Effective floor reflectance = 20%																
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	100	100		
	1	114	111	109	107	109	105	105	102	102	99	95	95	95	95		
	2	109	105	101	98	103	97	100	95	97	93	89	89	89	89		
	3	104	98	94	90	97	90	95	88	92	87	84	84	84	84		
	4	100	93	88	84	92	84	90	83	88	82	79	79	79	79		
	5	95	88	83	79	87	78	85	78	84	77	75	75	75	75		
	6	91	83	78	74	82	74	81	73	80	73	71	71	71	71		
	7	87	79	73	70	78	69	77	69	76	69	67	67	67	67		
	8	83	75	69	66	74	66	73	65	72	65	64	64	64	64		
	9	80	71	66	62	71	62	70	62	69	62	60	60	60	60		
	10	77	68	63	59	67	59	67	59	66	59	57	57	57	57		

69W LED, 3500K, 70° Wide 6000 lumen

Candela Curve



Fixture: C7L50CW35KWCLUVB

CCT ¹ :	3500K
Output lumens:	5889 lms
Input watts ² :	69.2 W
Efficacy:	85.1 lm/w
CRI:	80 min
Spacing Crit.:	1.1
Beam Spread:	70°
Report no ³ :	328GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	4013	68.1%
0-40	5608	95.2%
0-60	5881	99.9%
0-90	5889	100.0%

Angle	MeanCP	Lumens
0	4197	
5	4120	404
10	4350	
15	4705	1348
20	5106	
25	5077	2261
30	4159	
35	2538	1595
40	1197	
45	150	265
50	11	
55	10	8
60	7	
65	4	5
70	3	
75	2	2
80	1	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	168	5.5'
6'	117	6.6'
7'	86	7.7'
8'	66	8.8'
9'	52	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	268	3.07
6'	176	2.01
7'	125	1.44
8'	105	1.20
9'	84	0.96

38'x38'x10' Room, Workplane 2 1/2' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL = 100%
CCL = 95%
CCD = 87%
CCZ = 63%
WH = 87%

CCT Adjust. factors

4000K = 103%
3500K = 100%
3000K = 97%
2700K = 87%

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	0		
Wall	Zonal cavity method - Effective floor reflectance = 20%																
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	100	100		
	1	113	111	108	106	108	104	104	101	101	98	93	93	93	93		
	2	108	103	99	95	101	94	98	92	95	90	86	86	86	86		
	3	102	95	90	86	94	86	91	84	89	83	80	80	80	80		
	4	97	89	83	79	88	78	85	77	83	76	74	74	74	74		
	5	91	83	77	72	82	72	80	71	78	71	69	69	69	69		
	6	86	77	71	67	76	66	75	66	74	66	64	64	64	64		
	7	82	72	66	62	72	61	70	61	69	61	59	59	59	59		
	8	78	68	61	57	67	57	66	57	65	57	55	55	55	55		
	9	74	63	57	53	63	53	62	53	61	53	51	51	51	51		
	10	70	60	54	50	59	50	58	49	58	49	48	48	48	48		

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Wattage controlled to within 5%.
3. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.



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C7L-C-VB 09/14 page 5 of 5

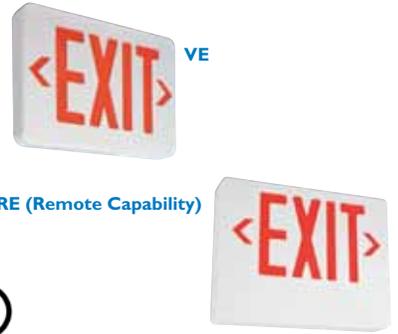
Philips Lighting
North America Corporation
200 Franklin Square Drive
Somerset, NJ 08873
Phone: 855-486-2216

Philips Lighting Company
281 Hillmount Road
Markham ON, Canada L6C 2S3
Phone: 800-668-9008

Commercial Exit Signs

VE Series

Value+ Economy Grade Thermoplastic



Specifier's Reference

Project
Type
Model No.
Comments

codes and standards

- UL listed to Standard 924
- NFPA 70 (National Electric Code)
- NFPA 101 (Life Safety Code)
- California Energy Commission
- UL listed for damp location

construction

- Black and white finishes are epoxy-based powder coat paint.
- Low profile, snap-together quick mount design.
- Flame rated, UV stable thermoplastic housing.

installation

- Universal wall/ceiling/end mounting.
- Canopy not required for flat wall mount. (electronics contained inside housing).
- Pop-out chevron directional indicators are easily removed when required.
- Exit sign mounts to a standard 4" square outlet box. (canopy provided)
- All exits signs are provided with an extra stencil face plate for double face sign applications.

electronics

- 120/277 VAC selectable input.
- VE Units: AC Only
Input Power: 0.026A (120VAC)
Input Power: 0.012A (277VAC)
- VE Units: Emergency
Input Power: 0.033A (120VAC)
Input Power: 0.017A (277VAC)
- VRE Units: Emergency
Input Power: 0.030A (120VAC)
Input Power: 0.014A (277VAC)
- Surge protection, low voltage disconnect, AC lockout installation, brown out protection, and constant current charger.

battery

- VE Exits contain 6V maintenance free nickel cadmium battery with a service life of 8 to 10 years and a operating temperature range of 20°F (-7°C) to 104°F (40°C).
- VRE exits contain a maintenance free sealed lead acid battery with a service life of 5 to 7 years and a operating temperature range of 65°F (19°C) to 85°F (30°C).
- Provides 90 minutes of emergency illumination.

lamps

- Bright red or green energy efficient LED lamps. Uniform 6" letter illumination (3/4" stroke).

remote capacity

- Optional remote capacity model includes 6V maintenance-free sealed lead acid batteries.
- Supplies 90 minutes of emergency power for exit sign plus an additional 22W of 6V-DC load.

warranty

- Three year warranty on unit.

Green Product Choice: VERWEM

Exit Signs Catalog Number	Letter Color	Housing Color	Operation	Optional Feature
VERW	Red	White	AC only	
VERB	Red	Black	AC only	
VEGW	Green	White	AC only	
VEGB	Green	Black	AC only	
VERWEM	Red	White	Emergency (nicad battery)	
VERWEMSD	Red	White	Emergency (nicad battery)	Self Diagnostic Circuitry
VERBEM	Red	Black	Emergency (nicad battery)	
VEGWEM	Green	White	Emergency (nicad battery)	
VEGWEMSD	Green	White	Emergency (nicad battery)	Self Diagnostic Circuitry
VEGBEM	Green	Black	Emergency (nicad battery)	

Green Product Choice: VRERWEM

Exit Signs With Remote Capability Catalog Number	Letter Color	Housing Color	Operation	Remote Capacity
VRERWEM	Red	White	Emergency	22 Watts (lead acid battery)
VREGWEM	Green	White	Emergency	22 Watts (lead acid battery)

Accessories

- **VEPMC** – Pendant mount canopy, white, for VE & VRE only (requires stem assembly).
- **PVS2** – Polycarbonate shield for VE only.
- **WG4** – Wire guard for VE & VRE only.

Note:

All exit signs are universal (single face with an extra stencil face plate)
Canopy provided on all exits.

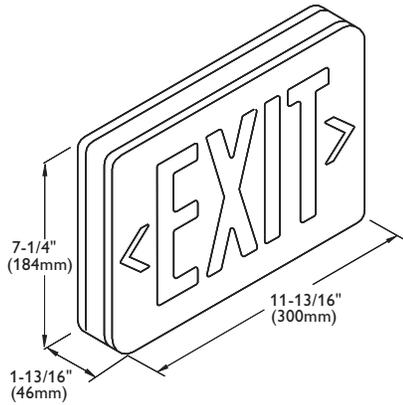
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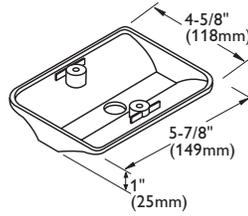
PHILIPS
CHLORIDE

dimensions

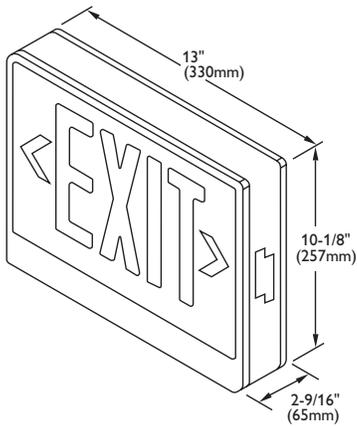
VE



Canopy



VRE



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CE-15050 03/13

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PHILIPS LIGHTOLIER

Downlighting

CorePro LED Retrofit Downlight

Attractive, affordable, and easy to use 4" downlight



Project: _____
 Location: _____
 Cat.No: _____
 Type: _____
 Lamps: _____ Qty: _____
 Notes: _____

Core value LED retrofit downlight for retrofit, new construction and remodel applications that installs in many existing residential and commercial applications.

Ordering guide

example: CP4927K5



E26

GU24

Series	Size	CRI	CCT	Lumens	
<input type="text" value="CP"/>	<input type="text" value="4"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
CP CorePro LED retrofit downlight	4 4-inch	9 90 min.	27K 2700K	5 480lm	Comes with GU24 connector only
		- 80 min.	30K 3000K	6 630lm	Comes with E26 adapter only

Features

- Reflector/Flange:** One piece self flange aluminum, .032" thick, (20ga.). Powder coated, non yellowing, white splay and flange.
- Lens:** PMMA 1.5mm thick. High transmittance lens allowing for smooth, diffused light pattern.
- Power supply:** Class 2 driver. Factory wired electronic LED driver (see Electrical section for specifications) Enclosed in a .032" thick (21 ga.) painted steel housing.
- LED board:** Utilizes Philips LEDs.
- Friction spring:** Stainless steel.
- Power connection:** E26 medium base whip connector (included) for retrofit.
- Frame in kit/housing:** Refer to appropriate frame in kit/housing specification sheets for complete information.
- Lifetime:** Expected lifetime 50,000 hours and backed by a 5-year warranty (see Philips.com/warranties for details).

Electrical

Electronic power supply: RoHS compliant* Class 2 power unit for use in a dry location. Unit tolerates sustained open circuit and short circuit output conditions without damage.

Dimming: All luminaires are intended for use with TRIAC type dimmers. Go to <http://www.lightolier.com/MKACatpdfs/LED-DIM.PDF> for the latest dimming switch capability information. 10%-100% dimming range.

Lumen Output	Input Voltage	Input Frequency	Max. Input Current	Max. Input Power	Max THD	Power Factor	Min. Temp. Operating
480lm	120V	50/60Hz	0.07A	8W	< 30%	> .9	-18° C
630lm	120V	50/60Hz	0.07A	8W	< 30%	> .9	-18° C

* Restrictions on Hazardous Substances (RoHS) is a European directive (2002/95/EC) designed to limit the content of 6 substances [lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)] in electrical and electronic products. For products used in North America compliance to RoHS is voluntary and self-certified.

Labels

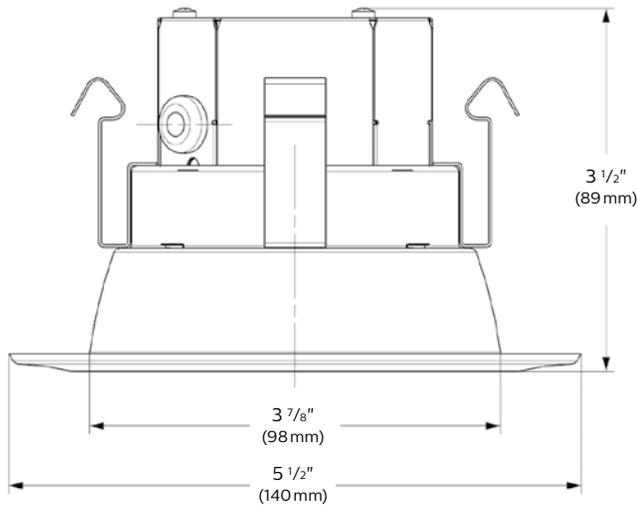
cULus listed for wet locations. Energy Star certified.



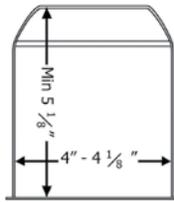
CP4 CorePro LED Retrofit Downlight

Attractive, affordable, and easy to use 4" retrofit downlight

E26 Dimensions



E26 Compatibility*



Manufacturer	Model
Philips Capri	P4, P4R, P4ASIC, R4, RR4, R4ASICG
Halo	H991CAT
Seagull	1179, 1105
All-Pro	E1400ATSB

* Any other luminaires meeting these dimensions as shown are also compatible.



P4ASIC: C Plus 4" IC New Construction Housing

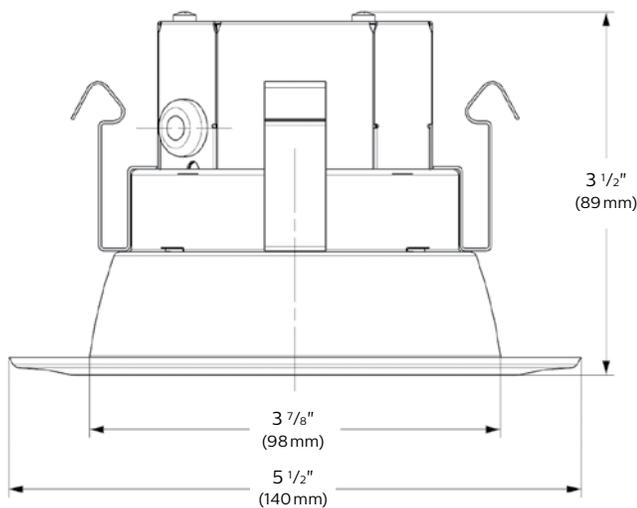


P4: C Plus 4" Non-IC New Construction Housing

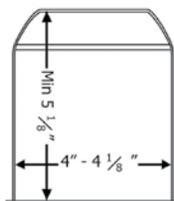


P4R: C Plus 4" Non-IC Remodeler Housing

GU24 Dimensions



GU24 Compatibility*



* Any other luminaires meeting these dimensions as shown are also compatible.



P4GU: C Plus 4" IC New Construction Housing



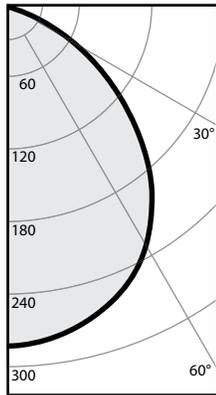
P4RGU: C Plus 4" Non-IC Remodeler Housing

CP4 CorePro LED Retrofit Downlight

Attractive, affordable, and easy to use 4" retrofit downlight

CP430K6 • 8 W LED, 3000 K, 80 CRI, 630 lm, E26 connector

Candela Curves



Angle	Mean CP	Lumens
0	282	
5	280	27
10	276	
15	269	76
20	259	
25	247	113
30	230	
35	209	119
40	184	
45	157	89
50	129	
55	101	48
60	74	
65	49	20
70	28	
75	18	5
80	12	
85	4	0
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	10	7'
6'	7	8'
7'	5	9'
8'	4	10'
9'	3	12'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	19	0.39
6'	12	0.25
7'	9	0.18
8'	7	0.15
9'	6	0.12

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%	
	70	50	30	10	50	10	50	10	50	10	0	
Wall	70	50	30	10	50	10	50	10	50	10	0	
RCR	Zonal cavity method - Effective floor reflectance = 20%											
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100
	1	110	106	103	99	104	98	100	95	96	92	87
	2	102	94	89	84	93	83	89	81	86	79	75
	3	94	84	77	71	83	71	80	69	77	68	65
	4	86	76	68	62	74	61	72	60	70	59	57
	5	80	68	60	54	67	54	65	53	63	52	50
	6	74	62	53	48	61	47	59	47	57	47	44
	7	69	56	48	42	56	42	54	42	53	42	40
	8	64	52	44	38	51	38	50	38	48	38	36
	9	60	48	40	35	47	34	46	34	45	34	32
	10	57	44	36	31	44	31	43	31	42	31	29

Zonal lumens & percentages

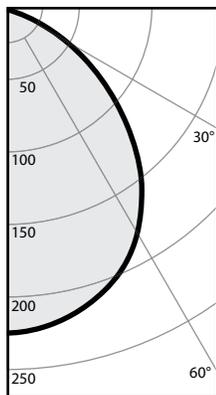
Zone	Lumens	%Luminaire
0-30	215	34.4%
0-40	344	55.0%
0-60	522	83.6%
0-90	625	100.0%

Report: LVE23219

Output lumens:	625 lms	Efficacy:	78.1lm/w
Input Watts ² :	7.9 W	CCT ³ :	3000K
Spacing Criterion:	1.2	CRI:	>80

CP4927K5 • 8 W LED, 2700 K, 90 CRI, 480 lm, GU26 connector

Candela Curves



Angle	Mean CP	Lumens
0	223	
5	222	21
10	218	
15	212	60
20	203	
25	193	89
30	179	
35	161	100
40	141	
45	119	92
50	97	
55	75	67
60	54	
65	35	36
70	20	
75	13	14
80	8	
85	2	3
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	9	6.0'
6'	6	7.2'
7'	5	8.4'
8'	3	9.6'
9'	3	10.8'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	20.2	0.35
6'	13.3	0.23
7'	9.5	0.17
8'	7.9	0.14
9'	6.3	0.11

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%	
	70	50	30	10	50	10	50	10	50	10	0	
Wall	70	50	30	10	50	10	50	10	50	10	0	
RCR	Zonal cavity method - Effective floor reflectance = 20%											
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100
	1	111	107	103	100	104	98	100	95	96	92	88
	2	102	95	89	84	93	83	90	81	86	79	76
	3	94	85	78	72	83	71	80	70	78	69	66
	4	87	76	68	62	75	62	72	61	70	60	57
	5	80	69	60	54	68	54	66	54	64	53	51
	6	75	62	54	48	61	48	60	48	58	47	45
	7	69	57	49	43	56	43	55	43	53	42	40
	8	65	52	44	39	51	39	50	38	49	38	36
	9	61	48	40	35	47	35	46	35	45	35	33
	10	57	44	37	32	44	32	43	32	42	32	30

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	169	35.2%
0-40	268	55.7%
0-60	429	89.1%
0-90	481	100.0%

Report: LVC2141031

Output lumens:	481 lms	Efficacy:	60.1lm/w
Input Watts ² :	7.9 W	CCT ³ :	2700K
Spacing Criterion:	1.2	CRI:	>90

1. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
2. Wattage: controlled to within 5%
3. Correlated Color Temperature: within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.

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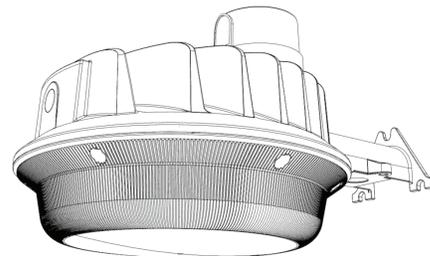


Philips Lighting, North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel. 855-486-2216

Imported by: Philips Lighting,
A division of Philips Electronics Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008

Versatile luminaire for easy retrofitting

DUSK TO DAWN LED LUMINAIRE GEN 2



PHILIPS STONCO DUSK TO DAWN LED LUMINAIRE GEN 2

The Philips Stonco Dusk to Dawn LED Luminaire Gen 2 offers an economical solution with enhanced generation chip on board LED performance for general purpose area and security lighting. The luminaire can be direct mounted to vertical surfaces or mounted onto 1 1/2" O.D. arms. Arm is also available as an accessory ordered separately. A 120V NEMA twist lock photo cell is included as standard. This versatile luminaire easily retrofits onto existing arms and offers one of the most affordable and efficient energy saving solutions available.

Project: _____
 Location: _____
 Catalog No: _____
 Fixture Type: _____
 Mfg: _____ Qty: _____
 Notes: _____

Ordering guide

example: DTDLED1C5K120GY3SP

Series	Lamp Source	Configuration	Color Temperature	Voltage	Finish	Features
<input type="text" value="DTD"/>	<input type="text" value="LED"/>	<input type="text" value="1C"/>	<input type="text" value="5K"/>	<input type="text" value="120"/>	<input type="text" value="GY3S"/>	<input type="text" value="P"/>
DTD Dusk to Dawn LED Luminaire Gen 2	LED	1C 1COB	5K 5100K	120 120V	GY3S Light Grey Smooth	P Photocell NEMA twist lock with receptacle

Accessories (order separately)

- **DTDARMGY3S** – Mounting arm with hardware

Specifications

Housing

One piece die cast aluminum housing with integral arm mounting hub that can be direct mounted with lag bolts or fit onto 1 1/2" O.D. mounting arm.

Electrical

Driver efficiency (>90% standard). 120-277V
 Open/short circuit protection. RoHS compliant. Surge protector standard, 10KA per ANSI/IEEE C62.41.2.

Input Volts

120V
 Note: Connect to 120V only with provided photocell

Input Watts

39W

Delivered Lumens

3,356 lms

Lumens Per Watt

86 LPW

LED

Chip on board LED, 5100K +/-250K. CRI of 75.

Optical Lens System

Refractive design featuring prisms to spread light in a symmetrical Type 5 distribution. Lens material is durable polycarbonate. Specular aluminum reflector provided to maximize efficiency.

BUG Rating

B2-U2-G1

Cutoff Classification

Cutoff Classified

Mounting

Standard luminaire mounts to vertical surface using 1/4" lag bolts or easily fits onto 1 1/2" O.D. round pipe/tube. Direct mount hardware provided as standard. Mounting arm with hardware available separately as an accessory.

Listings

cULus listed to the UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -30° to 40°C (-22° to 104°F). Dusk To Dawn LED luminaires are DesignLights Consortium® qualified.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidyl isocyanurate (TGIC) textured polyester powder coat finish. Standard finish color is smooth light gray (GY3S).

Warranty

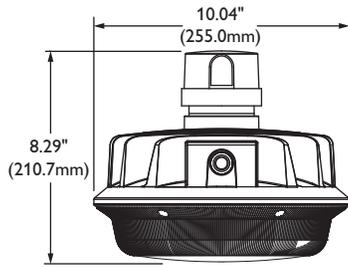
DTD LED luminaires feature a 5 year limited warranty.



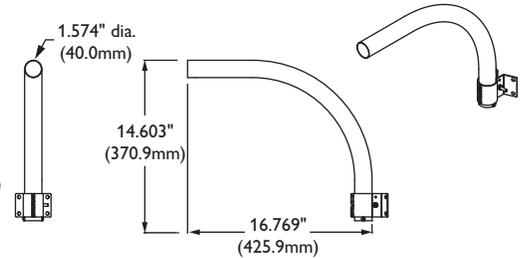
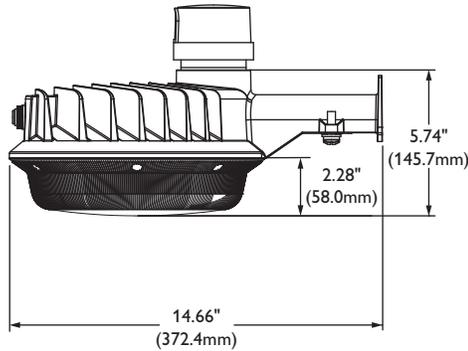
PHILIPS
Stonco

DUSK TO DAWN LED LUMINAIRE GEN 2

Dimensions



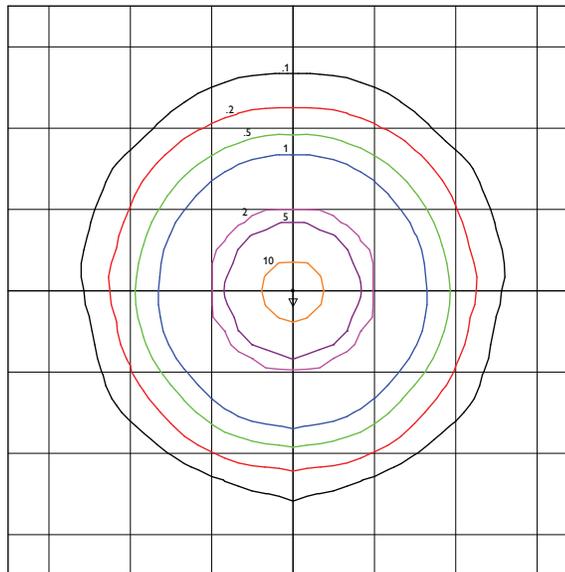
Approximate luminaire weight (less arm) – 4.6lbs (2.1kg)



DTDARMGY3S – Arm accessory (order separately)

Photometric Information

Horizontal Footcandles
Scale: 1 Inch = 10 Ft.
Light Loss Factor: 1.00
Luminaire Lumens: 3,356
Mounting Height: 10.00 Ft
Maximum Calculated Value: 13.37 Fc



Predicted Lumen Depreciation Data¹

Ambient Temp. °C	Driver mA	TM-21 Calculated L ₇₀ hrs ^{1,2}	Reported L ₇₀ Per TM-21 ^{2,3}	Lumen Maint. % @48,000 hrs
Up to 40°C	Up to 911 mA	> 182,000 hrs	> 48,000 hrs	84%

1. Calculated performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L₇₀ is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Reported per IESNA TM21-11. Published L₇₀ hours limited to 6 times actual LED test hours.



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DTD_LED_gen2 09/14 page 2 of 2

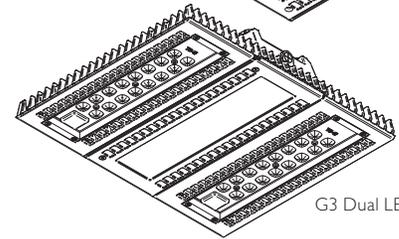
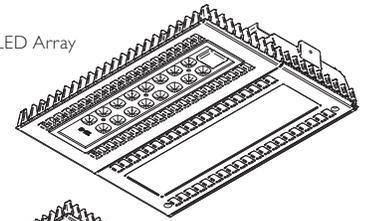
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 North America Corporation
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 Somerset, NJ 08873
 Phone: 855-486-2216

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 Phone: 800-668-9008

Maximized efficiency, modular design, ultimate savings.

G3 LED PARKING GARAGE & CANOPY

G3 Single LED Array



G3 Dual LED Array

PHILIPS GARDCO, LED PARKING GARAGE & UNDER CANOPY, G3

The Philips Gardco G3 parking garage luminaire combines excellent performance with value, providing one of the most energy efficient lighting solutions for the energy and budget conscious. A complete selection of optical systems are available, including a concentrated downlight for use at entrances or at higher mounting heights. G3 luminaires are available with dimming, as well as motion response technology to expand potential energy savings. The G3 is also available with the LimeLight Wireless Lighting Control System.



Project: _____
 Location: _____
 Catalog No: _____
 Fixture Type: _____
 Mfg: _____ Qty: _____
 Notes: _____

Ordering guide - Made to Order Luminaires

example: G3-5-1-38LA-1670-NW-UNIV-NP-QDM

Prefix		Distribution	LED Array & LED Wattage	LED Type	Voltage	Finish	Options
<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	NP	<input type="text"/>
G3	G3 LED Standard Unit	5 Type 5 Symmetrical	700 mA Driver 1-38LA-1670 1 LED Array, 38W	CW 5700°K 75 CRI	120	NP Natural Aluminum Paint (Standard)	F^{9,14} Fusing
G3-DIM	G3 with 0-10V Dimming	5DL Type 5 Diffuse Lens	2-73LA-3270 2 LED Arrays, 73W	NW 4000°K 75 CRI	208 240 277		PCB⁹ Photocontrol Button
G3-MR^{1,2}	G3 with Motion Response	3 Type 3 Asymmetrical	3-104LA-4870 3 LED Arrays, 104W	WW⁸ 3000°K 75 CRI	347 480	BRP* Bronze BLP* Black WP* White	QDM¹² Driver Quick Disconnect Module
G3-MRCP^{1,2}	G3 with Motion Response Factory Programming	1R Type 1R Rectangular	4-137LA-6470 4 LED Arrays, 137W		UNIV 120-277V		BX¹⁰ Bird Excluding Shroud
G3-DCC^{3,4}	G3 with Dual Circuit Control (700 mA only)	CD Concentrated Downlight	1050 mA Driver 1-55LA-161A 1 LED Array, 55W 2-106LA-321A 2 LED Arrays, 106W		HVU 347-480V	* these finishes available at an added cost	(field installed, 'PB-NP' pendant mount only.)
G3-RC^{4,5}	G3 with LimeLight wireless controls						BXS¹³ Bird Excluding Shroud (factory installed, for Standard Surface Mount Only)
G3-EM^{4,6,7}	G3 with Emergency Battery Pack						PB-NP¹⁰ Balanced J-box for Pendant Mount (natural paint)
G3-EMRC^{4,5,6,7}	G3 with LimeLight wireless controls and Emergency Battery Pack						

1. Only available in 120 or 277V.
2. See page 5 for more information on motion sensor provided.
3. Available with luminaires featuring dual LED arrays only.
4. Only available in 120 through 277V.
5. G3-RC luminaires must be configured and quoted by factory prior to ordering. G3-RC luminaires rated to 40°C.
6. Available with 38LA single LED array luminaire only.

7. G3-EM configuration not available for use in Canada.
8. Consult factory. Warm White may increase lead time.
9. 120 through 277V Only. Specify actual input voltage.
10. 'BX' bird excluding shroud is for 'PB-NP' pendant mount only. Field installed and requires 12" minimum pendant length. Pendant by others.
11. For use with 'MR' motion response when field programming is required. If desired, only one programmer is needed per job.

12. Not available with 350 or 530mA drive currents.
13. BXS Option not available with 104LA or 137LA.
14. Fusing not available with G3-DCC, G3-EM, or G3-EMRC.

Accessories (Order Separately)

FS1R-100¹¹ – MR hand held programmer (For use with 'MR' motion response when field programming is required). If desired, only one is needed per job.

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PHILIPS



G3 LED PARKING GARAGE & CANOPY

Ordering guide - Stocked Luminaires

Stock	Prefix	Distribution	LED Array & LED Wattage	LED Type	Voltage	Finish
STK					UNIV	NP

Constant Wattage, Full Light Output

STK-G3-5-1-55LA-161A-NW-UNIV-NP

STK-G3-5-1-55LA-161A-CW-UNIV-NP

STK-G3-5-2-73VAR-NW-UNIV-NP^{15,17}

STK-G3-5-2-73VAR-CW-UNIV-NP^{15,17}

Motion Response¹⁶

STK-G3-MR-5-1-55LA-161A-NW-120/277-NP¹⁶

STK-G3-MR-5-1-55LA-161A-CW-120/277-NP¹⁶

STK-G3-MR-5-2-73VAR-NW-120/277-NP^{15,16,17}

STK-G3-MR-5-2-73VAR-CW-120/277-NP^{15,16,17}

15. Variable driver ('73VAR') ships as 700 mA. Drive current can be changed to 350, 450, or 550 mA in the field.

16. Accepts 120V or 277V input only.

17. Variable Driver Wattage

The chart below lists the LED wattage with the different drive currents that are available.

Cat Logic	Drive Current (mA)	LED Wattage
73VAR	350	35W
73VAR	410	43W
73VAR	530	55W
73VAR	700	73W

LED Wattage and Lumen Values - Standard G3 Luminaires

Order Code (standard units)	Array Quantity	Total LEDs	LED Current (mA)	Average System Watts ¹⁸	LED Selection	Initial Lumens ¹⁹			
						3 Type 3 Asymmetrical	1R Rectangular	5 Type 5	CD Concentrated Downlight
1-38LA-1670	1	16	700	38	NW	3,392 (s)	3,308	3,267	3,274 (s)
2-73LA-3270	2	32	700	73	NW	6,605 (s)	6,278	6,341	6,377 (s)
2-73VAR	2	32	350	35	NW	3,501 (s)	3,327 (s)	3,361 (s)	3,380 (s)
2-73VAR	2	32	410	46	NW	4,029 (s)	3,830 (s)	3,868 (s)	3,890 (s)
2-73VAR	2	32	530	57	NW	5,218 (s)	4,960 (s)	5,009 (s)	5,038 (s)
2-73VAR	2	32	700	73	NW	6,605 (s)	6,278	6,341	6,377 (s)
3-104LA-4870	3	48	700	104	NW	9,818 (s)	9,500	9,322	9,479 (s)
4-137LA-6470	4	64	700	137	NW	13,120 (s)	12,676	12,476	12,667 (s)
1-55LA5-161A	1	16	1050	55	NW	4,641 (s)	4,443 (s)	4,423 (s)	4,481 (s)
2-106LA-321A	2	32	1050	106	NW	8,925	8,544	8,505	8,617

18. System input wattage may vary based on input voltage, by up to +/- 10% , and based on manufacturer forward voltage, by up to +/- 8%.

19. Lumen values based on photometric tests performed in compliance with IESNA LM-79.

(s). Data is scaled based on tests of similar, but not identical, luminaires.

LED Wattage and Lumen Values - G3 Luminaires with EM Emergency Battery Pack²⁰

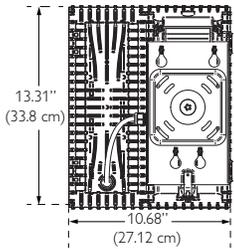
Order Code (EM Units)	Array Quantity	Total LEDs	LED Current (mA)	Average System Watts ¹⁷	LED Selection	Initial Lumens ¹⁹ - Emergency Mode			
						3 Type 3 Asymmetrical	1R Rectangular	5 Type 5	CD Concentrated Downlight
1-38LA-1670	1	16	700	18	NW	1,866 (s)	1,819 (s)	1,797 (s)	1,801 (s)

20. Emergency Battery pack configuration not available for use in Canada.

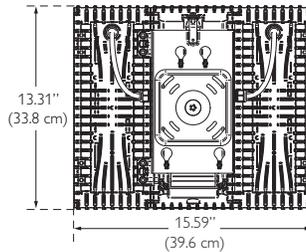
G3 LED PARKING GARAGE & CANOPY

Dimensions - G3 Standard Luminaires (EZ Hanger Plate Mount shown)

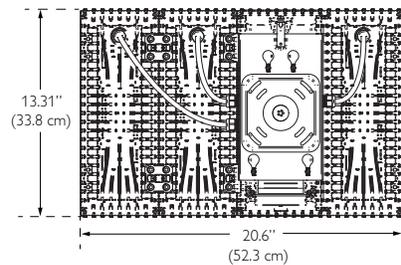
1 LED Array Top View



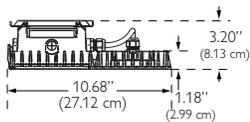
2 LED Array Top View



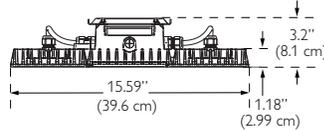
3 LED Array Top View



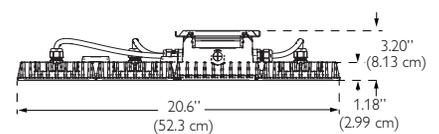
1 LED Array Side View



2 LED Array Side View



3 LED Array Side View

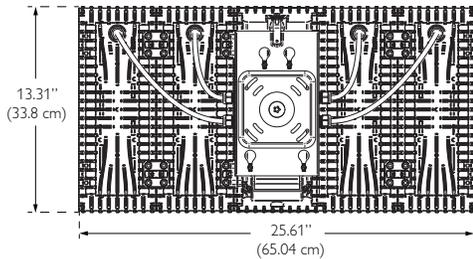


Approximate luminaire Weight:
9.75 Lbs (4.42 Kg)

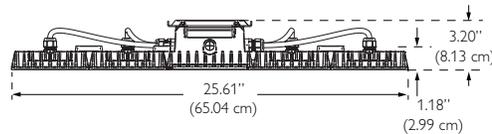
Approximate luminaire Weight:
12.5 Lbs (5.67 Kg)

Approximate luminaire Weight:
15.25 Lbs (6.9 Kg)

4 LED Array Top View



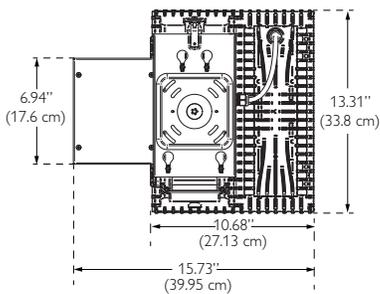
4 LED Array Side View



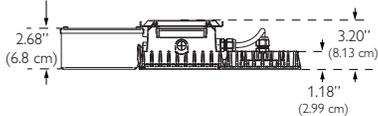
Approximate luminaire Weight:
18 Lbs (8.16 Kg)

Dimensions - G3-EM Emergency Battery Pack*

1 LED Array Top View



1 LED Array Side View

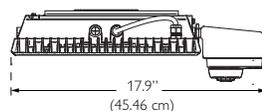


Approximate luminaire Weight:
18 Lbs (8.19 Kg)

*Emergency Battery pack configuration not available for use in Canada.

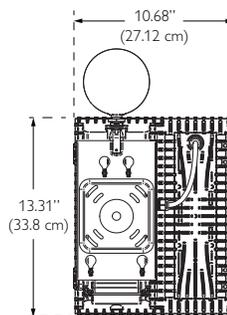
Dimensions - G3-RC LimeLight Wireless

1 & 2 LED Array Front View



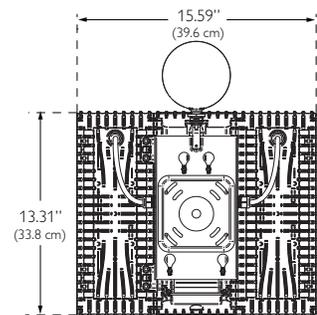
standard mounting mounts to standard
4" square or octagonal j-boxes

1 LED Array Top View



Approximate luminaire Weight:
11.25 Lbs (5.1 Kg)

2 LED Array Top View



Approximate luminaire Weight:
13.07 Lbs (5.92 Kg)

Specifications

General Description

The Philips Gardco G3 parking garage luminaire combines excellent performance with value, providing one of the most energy efficient lighting solutions for the energy and budget conscious. A complete selection of optical systems are available, including a concentrated downlight for use at entrances or at higher mounting heights. G3 luminaires are available with dimming, as well as motion response technology to expand potential energy savings. The G3 is also available with the LimeLight™ Wireless Lighting Control System.

Housing

Modular die-cast driver housing with one to four die-cast LED array heatsink assemblies.

IP Rating

IP66 rated driver housing with dedicated IP66 optical assemblies. Motion response luminaire are rated IP65.

Energy saving benefits

System efficacy up to 109 lms/W with significant energy savings over PSMH systems less controls. Optional MR motion response sensor provides added energy savings during unoccupied periods and works as a 'Smart Luminaire' requiring no added wiring or commissioning at install.

Electrical

Driver efficiency (>90% standard). 120-480V available (restrictions apply). Temp range: -40°C (-40°F) to 40°C (104°F). Open/short circuit protection. Optional 0-10V dimming to 10% power. RoHS compliant. Surge protector standard and is in accordance with IEEE / ANSI C62.41.2 guidelines, with a surge current rating of 10,000 amps. 2-73VAR-3270 features a variable driver that allows for drive current to be switched between 350 mA, 410 mA, 530 mA, or 700 mA. Variable driver ships as a 700 mA.

LED Board and Array

Luxeon R LED only: 94-120 lms/W, System only: 80-109 lms/W. Color temps: 3000K, 4000K, 5700K +/- 250K. Minimum CRI of 70. Aluminum metal clad board. RoHS compliant.

LED Performance:

PREDICTED LUMEN DEPRECIATION DATA ²¹				
Ambient Temperature °C	Driver mA	Calculated L ₇₀ Hours ^{21,22}	L ₇₀ Per TM-21 ^{22,23}	Lumen Maintenance % @ 60,000 hours
Up to 40 °C	Up to 1050 mA	> 350,000 Hours	> 54,000 Hours	97.1%

21. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.

22. L₇₀ is the predicted time when LED performance depreciates to 70% of initial lumen output.

23. Calculated per IESNA TM21-11. Published L₇₀ hours limited to 6 times actual LED test hours.

LED Thermal Management

The housing design provides thermal radiation fins in the upper housing to provide the excellent thermal management critical to long LED system life.

Optical Systems

Type 5 symmetrical, Type 3 asymmetrical, Type 1R rectangular and CD concentrated downlight. Type 1R is designed to meet IES minimums with one luminaire per parking bay compared to the typical two per bay. Diffuse lens is available with Type 5 to limit perceived luminaire brightness, resulting in reduced performance.

Mounting

A die formed 14 ga. galvanized steel plate is supplied for mounting to a recessed, surface, or rigid pendant hung 4" (10.16 cm) j-box (standard j-box and rigid pendant by others). An integral hanger tab on the plate supports the luminaire during wiring. All pendants, including rigid pendants and swivel pendants (utilized with the balanced j-box PB-NP option), are supplied by others.

Caution: Philips Gardco is not responsible for failure of mounting components supplied by others. Proper care should be exercised in mounting component selection to insure adequate luminaire support, given luminaire weight, vibration potential and thermal conditions present in the application. If luminaires are supported solely by screws into a composite j-box, additional support directly to structure is recommended. Failure to properly support the luminaire may cause damage or injury, for which Philips Gardco is not responsible.

G3-RC Luminaires

Luminaires are provided only as part of a complete parking garage control system. The system includes the luminaire with wireless remote control module and motion sensor, and all components and services that comprise the LimeLight™ Wireless Lighting Control System. The entire system must be configured and factory quoted by Philips Gardco prior to ordering. G3-RC luminaires rated to 40°C.

Motion Sensors

G3-MR, G3-MRCP luminaires may be specified for additional energy savings during unoccupied periods. See page 5 for detailed information.

G3-EM Luminaires

When power is lost, G3-EM luminaires provide emergency light output, for a minimum of 90 minutes. Luminaires include the Tenergy emergency battery pack, model 11867. A combined Indicator Light / Test Switch is provided as part of the door frame and lens on every G3-EM luminaire. G3-EM is suitable for use in ambient temperature conditions from 40°C (104°F) maximum to -10°C (14°F) minimum. G3-EM configuration is not available for use in Canada.

Listings

UL/cUL and ETL/cETL listed to the UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -40° to 40°C (-40° to 104°F). G3-EM is ETL listed to the UL 924 standard. The quality systems of this facility have been registered by UL to the ISO 9001 series standards. G3 luminaires with Type-3, 5, and 1R optics, equipped with Cool White and Neutral White LEDs only, are DesignLights Consortium® qualified.

Finish

Each luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidic isocyanurate (TGIC) textured polyester powdercoat finish. Standard finish of all diecast assemblies shall be Natural Aluminum paint.

Warranty

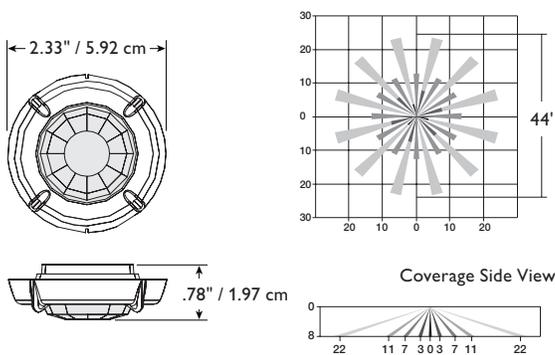
G3 Luminaires feature a 5 year limited warranty. LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED drivers are covered by a 5 year limited warranty. PIR sensors carry a 5 year limited warranty from the sensor manufacturer.

Motion Response Luminaires

Motion Sensors

G3-MR luminaires include a passive infrared (PIR) motion sensor (WattStopper® FSP-211 equipped with an FS-L2VW lens) capable of detecting motion within 22 feet of the sensor, 360° around the luminaire, when placed at an 8 foot mounting height. The PIR sensor is mounted as indicated in drawings on page 3. Available in 120V or 277V input only. Motion sensor off state power is 0.0 watts.

In Motion Response (MR) luminaires, when no motion is detected for 10 minutes, the Motion Response system reduces the wattage by 90%, to 10% of the normal constant wattage, reducing the light level accordingly. When motion is detected by the PIR, the luminaire returns to full wattage and full light output. Dimming on low is factory set to 90% with duration set at 10 minutes.

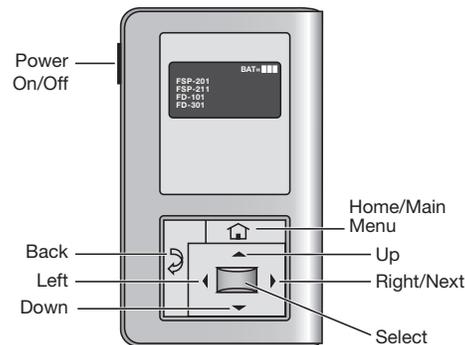


The FSIR-100 operates on three standard 1.5V AAA Alkaline batteries or three rechargeable AAA NiMH batteries. The battery status displays in the upper right corner of the display. Three bars next to BAT= indicates a full battery charge. A warning appears on the display when the battery level falls below a minimum acceptable level. To conserve battery power, the FSIR-100 automatically shuts off 10 minutes after the last key press.



You navigate from one field to another using (up) or (down) arrow keys. The active field is indicated by flashing (alternates between yellow text on black background and black text on yellow background.)

Once active, use the Select button to move to a menu or function within the active field. Value fields are used to adjust parameter settings. They are shown in "less-than/greater-than" symbols: <value>. Once active, change them using (left) and (right) arrow keys. In general the up key increments and the down key decrements a value. Selections wrap-around if you continue to press the key beyond maximum or minimum values. Moving away from the value field overwrites the original value. The Home button takes you to the main menu. The Back button can be thought of as an undo function. It takes you back one screen. Changes that were in process prior to pressing the key are lost.



More information on the FSIR-100 Remote Programming Tool is available at wattstopper.com.

FSIR-100 Wireless Remote Programming Tool

The FSIR-100 Remote Programming Tool accessory permits adjustment of sensor settings, including duration and dimming level on low, without the need to connect any wires to the luminaire.

The FSIR-100 Wireless IR Programming Tool is a handheld tool for setup and testing of WattStopper FSP-211. It provides wireless access to the FSP-211 sensors for setup and parameter changes.

The FSIR-100 display shows menus and prompts to lead you through each process. The navigation pad provides a familiar way to navigate through the customization fields.

Within a certain mounting height of the sensor, the FSIR-100 allows modification of the system without requiring ladders or tools simply with a touch of a few buttons.

The FSIR-100 IR transceiver allows bi-directional communication between the FSP-211 and the FSIR-100 programming tool. Simple menu screens let you see the current status of the system and make changes. It can change FSP-211 sensor parameters such as high/low mode, sensitivity, time delay, cut off and more. With the FSIR-100 you can also establish and store FSP-211 parameter profiles.



Tab 9 – Power Distribution Cut Sheets

Enclosed Circuit Breakers



Contents

<i>Description</i>	<i>Page</i>
Features, Benefits and Functions	V2-T1-105
Standards and Certifications	V2-T1-105
Cross-Reference	V2-T1-106
Product Selection	V2-T1-108
Accessories	V2-T1-110
Flex Center	V2-T1-112
Technical Data and Specifications	V2-T1-113
Dimensions	V2-T1-115

Product Description

- 15–1200A
- Enclosed device used to open and close a circuit

Application Description

NEMA 1 General Purpose

Surface or Flush Mounting 15–1200A, 600 Vac, 500 Vdc

NEMA 1 enclosed breakers are designed for indoor use in commercial buildings, apartment buildings and other areas where a general purpose enclosure is applicable. The breaker is front operable and is capable of being padlocked in the OFF position. Ratings through 1200A are listed with Underwriters Laboratories as suitable for service entrance application. Both surface and flush mounted enclosures are available.



NEMA 1 General Purpose

NEMA 3R Rainproof Surface Mounting

Interchangeable Hubs (through 400A) 15–1200A, 600 Vac, 500 Vdc

This general purpose outdoor service center employs a circuit breaker inside a weatherproof sheet steel enclosure to serve as a main disconnect and protective device for feeder circuits. The breaker is front operable and is capable of being padlocked in the OFF position. Ratings through 1200A are listed by Underwriters Laboratories as suitable for service entrance application.



NEMA 3R Rainproof Surface Mounting

NEMA 4/4X, 5 Water and Dustproof

Stainless Steel—Type 304 Surface Mounting 15–1200A, 600 Vac, 500 Vdc

This enclosure meets NEMA 4/4X and 5 requirements for water and dustproof applications and has no knockouts or other openings. It is particularly well suited for use in dairies, borax mines, breweries, paper mills and other process industries. The operating handle can be padlocked in the OFF position, and is interlocked to prevent the door from opening when the breaker is ON. Ratings through 1200A are Underwriters Laboratories listed as suitable for service entrance application.



NEMA 4/4X Water and Dustproof

Note

- ① SFDN enclosed breakers do not have a door interlock to prevent door from being opened when breaker is "ON."

NEMA 12 Dustproof Surface Mounting

No Knockouts or Other Openings 15–1200A, 600 Vac, 500 Vdc

The Type 12 enclosure is designed in line with specifications for special industry application where unusually severe conditions involving oil, coolant, dust and other foreign materials exist in the operating atmosphere. The handle padlocks in the OFF position and the cover is interlocked with the handle mechanism to prevent opening the cover with the circuit breaker in the ON position. Ratings through 1200A are UL listed as suitable for service entrance application. A NEMA 12 semi-dust-tight design that includes knockouts is available. These units are rated 15–400A, 600 Vac, 500 Vdc.



NEMA 12 Dustproof Surface Mounting

NEMA 7/9 Hazardous Location

Cast Aluminum, Explosion-proof Surface Mounting 15–1200A, 600 Vac, 250 Vdc

Hazardous location, Type 7: Class I, Groups B, C, D; Type 9: Class II, Groups E, F, G. This special service cast aluminum enclosure is supplied with a wide, machined flanged cover to prevent igniting outside atmospheres by arcing from inside the enclosure. Front operable, the handle padlocks in the OFF position. Enclosures rated 600A and above have lift-off hinges for ease of assembly.

Note: XFDN050B is not Group B compliant.



NEMA 7/9 Hazardous Location

Features, Benefits and Functions

- Side-opening door on NEMA 3R enclosures
- Padlockable in the OFF position
- Surface or flush mounted enclosures available through 400A on NEMA 1 enclosures
- Interlocked handle on NEMA 3R, 4/4X, 5 and 12 enclosures to prevent opening when the breaker is in the ON position
- Interchangeable hubs
- Numerous factory options

Standards and Certifications

- UL 489
- CSA 22.2
- NEMA 250

NEMA 1 General Purpose

- UL File No. E7819
- CSA File No. LR84319

NEMA 3R Rainproof Surface Mounting

- UL File No. E7819
- CSA File No. LR84319

NEMA 4/4X, 5 Water and Dustproof

- UL File No. E7819
- CSA File No. LR84319

NEMA 12 Dustproof Surface Mounting

- UL File No. E7819
- CSA File No. LR84319

NEMA 7/9 Hazardous Location

- UL File No. E84577
- CSA File No. LR42131-6



Cross-Reference

Enclosed Circuit Breaker Competitive Catalog Numbers

NEMA Rating	Catalog Number		Square D		Siemens		General Electric	
	Enclosure	Breaker	Enclosure	Breaker	Enclosure	Breaker	Enclosure	Breaker
1 surface	SGDN100	GHC3100	EHB125NS	EHB34100	—	—	—	—
1 flush	—	—	EHB125NF	EHB34100	—	—	—	—
3R	RGDN100	GHC3100	EHB125NRB	EHB34100	—	—	—	—
12	JGDN100	GHC3100	—	—	—	—	—	—
12K	DGDN100	GHC3100	—	—	—	—	—	—
4/4X	WGDN100	GHC3100	—	—	—	—	—	—
1 surface	SFDN100	EHD3100L	FA100S	FAL34100	E2N1S	ED43B100	TE100S	TED134100WL
1 flush	FFDN100	EHD3100L	FA100F	FAL34100	E2N1F	ED43B100	TE100F	TED134100WL
3R	RFDN100	EHD3100L	FA100RB	FAL34100	E2N3R	ED43B100	TE100R	TED134100WL
12/3R	—	—	FA100AWK	FAL34100	—	—	—	—
12	JFDN100	EHD3100L	—	—	E2N12	ED43B100	TE100J/SE100J	TED134100WL
12K	DFDN100	EHD3100L	FA100A	FAL34100	E2N12	ED43B100	TE100D/_____	TED134100WL
4/4X	WFDN100	EHD3100L	FA100DS	FAL34100	ED6SS4	ED43B100	TE100CS/SF100CS	TED134100WL
7/9	XFDN050	EHD3050L	FA060X	FAL34060	EA	ED43B100	—	—
9	—	—	FA060Y	FAL34060	—	—	—	—
7/9	XFDN225B ①	FD3225L	FA100X	FAL34100	EB	ED43B100	—	—
9	—	—	FA100Y	FAL34100	—	—	—	—
1 surface	SFDN225 ①	FDB3150L	—	—	E2N1S	ED43B125	TE150S	TED134150WL
1 flush	FFDN225 ①	FDB3150L	—	—	E2N1F	ED43B125	TE150F	TED134150WL
3R	RFDN225 ①	FDB3150L	—	—	E2N3R	ED43B125	TE150R	TED134150WL
12	JFDN225 ①	FDB3150L	—	—	E2N12	ED43B125	—	—
12K	DFDN225 ①	FDB3150L	—	—	E2N12	ED43B125	—	—
4/4X	WFDN225 ①	FDB3150L	—	—	ED6SS4	ED43B125	—	—
7/9	XFDN225B ①	FDB3150L	—	—	—	—	—	—
1 surface	SFDN225 ①	FD3225L	—	—	—	—	—	—
1 flush	FFDN225 ①	FD3225L	—	—	—	—	—	—
3R	RFDN225 ①	FD3225L	—	—	—	—	—	—
12	JFDN225 ①	FD3225L	—	—	—	—	—	—
12K	DFDN225 ①	FD3225L	—	—	—	—	—	—
4/4X	WFDN225 ①	FD3225L	—	—	—	—	—	—
7/9	XFDN225B ①	FD3225L	—	—	—	—	—	—
1 surface	SJDN250	JDB3250	KA225S	KAL36250	F6N1S	FXD63B250	TF225S	TFJ236225WL
1 flush	FJDN250	JDB3250	KA225F	KAL36250	F6N1F	FXD63B250	TF225F	TFJ236225WL
3R	RJDN250	JDB3250	KA225RB	KAL36250	F6N3R	FXD63B250	TF225R	TFJ236225WL
12/3R	—	JDB3250	KA225AWK	KAL36250	—	—	—	—
12	JJDN250	JDB3250	—	—	F6N12	FXD63B250	TF225J/SF250J	TFJ236225WL
12K	DJDN250	JDB3250	KA225A	KAL36250	F6N12	FXD63B250	_____/SF250D	TFJ236225WL
4/4X	WJDN250	JDB3250	KA225DS	KAL36250	FD6SS4	FXD63B250	TF225CS/SF250CS	TFJ236225WL
7/9	XJDN250B	—	KA225X	KAL36250	EC2	FXD63B250	—	—
9	—	—	KA225Y	KAL36250	—	—	—	—

Notes

① Maximum wire size 4/0.

② Maximum wire size 500 kcmil.

Enclosed Circuit Breaker Competitive Catalog Numbers, continued

NEMA Rating	Catalog Number		Square D		Siemens		General Electric	
	Eaton Enclosure	Breaker	Enclosure	Breaker	Enclosure	Breaker	Enclosure	Breaker
1 surface	SKDN400 ①	KDB3400	LA400S	LAL36400	J6N1	JXD63B400	TJ400S/SG400S	TJK436400WL
1 flush	FKDN400 ①	KDB3400	LA400F	LAL36400	—	—	TJ400F/SG400F	TJK436400WL
3R	RKDN400 ①	KDB3400	LA400R	LAL36400	J6N3R	JXD63B400	TJ400R/SG400R	TJK436400WL
12/3R	—	—	LA400AWK	LAL36400	—	—	—	—
12	JKDN400 ①	KDB3400	—	—	J6N12	JXD63B400	TJ400J/SG400J	TJK436400WL
12K	DKDN400 ①	KDB3400	—	—	J6N12	JXD63B400	_____/SG400D	TJK436400WL
4/4X	WKDN400 ①	KDB3400	LA400DS	LAL36400	—	—	TJ400CS/SG400CS	TJK436400WL
7/9	XKDN400B ②①	KDB3400	—	—	EE	JXD63B400	—	—
1 surface	SLDN600	LDB3600	MA1000S	MAL36600	LD6N1	LXD63B600	TJ600S/SG600S	TJK636600WL
1 flush	—	—	MA1000F	MAL36600	—	—	TJ600F/SG600F	TJK636600WL
3R	RLDN600	LDB3600	—	—	LD6N3R	LXD63B600	TJ600R/SG600R	TJK636600WL
12/3R	—	—	MA1000AWK	MAL36600	—	—	—	—
12	JLDN600	LDB3600	—	—	LD6N12	LXD63B600	TJ600J/SG600J	TJK636600WL
4/4X	WLDN600	LDB3600	MA1000DS	MAL36600	LD6SS4	LXD63B600	TJ600CS	TJK636600WL
7/9	XMCN800B	LDB3600	—	—	ED6	LXD63B600	—	—
1 surface	SNDN1200	MDL3800	MA1000S	MAL36800	LMD1	MXD63B800	TK4V1200S	TKMA836800WL
1 flush	—	—	MA1000F	MAL36800	—	—	TK4V1200F	TKMA836800WL
3R	RNDN1200	MDL3800	—	—	LMD3R	MXD63B800	TKV41200R	TKMA836800WL
12/3R	—	—	MA1000AWK	MAL36800	—	—	—	—
12	JNDN1200	MDL3800	—	—	LMD12	MXD63B800	TK4V1200J/SK1200	TKMA836800WL
4/4X	WNDN1200	MDL3800	MA1000DS	MAL36800	—	—	—	—
7/9	XMCN800B	MDL3800	—	—	—	—	—	—
1 surface	SNDN1200	ND312T33W	MA1000S	MAL361000	—	—	—	—
1 flush	—	—	MA1000F	MAL361000	—	—	—	—
3R	RNDN1200	ND312T33W	—	—	—	—	—	—
12/3R	—	—	MA1000AWK	MAL361000	—	—	—	—
12	JNDN1200	ND312T33W	—	—	—	—	—	—
4/4X	WNDN1200	ND312T33W	MA1000DS	MAL361000	—	—	—	—
1 surface	SNDN1200	ND312T33W	—	—	MND61	NXD63B120	TK4V1200S	TKMA31200WL
12	—	—	—	—	—	—	TK4V1200F	TKMA31200WL
3R	RNDN1200	ND312T33W	—	—	MND63	NXD63B120	TKV41200R	TKMA31200WL
1 surface	—	—	NA1200AWK	NAL361200	—	—	—	—
12	JNDN1200	ND312T33W	—	—	MND612	NXD63B120	TK4V1200J/SK1200	TKMA31200WL
4/4X	WNDN1200	ND312T33W	—	—	—	—	—	—
7/9	XNDN1200B ②	ND312T33W	—	—	—	—	—	—

Notes

① Maximum wire size 500 kcmil.

② Through-feed only.

Product Selection

1. Use the data on **Page V2-T1-119** to determine type of enclosure required.
2. Use the data on **Page V2-T1-113** and **V2-T1-114** to determine circuit breaker required.
3. **Pages V2-T1-115** through **V2-T1-121** include rough-in dimensional information.

Enclosure Only

Breaker Frame	Breaker Ampere Range	Enclosure NEMA Class	Catalog Number
Series C Breakers			
GHC, GD (two- and three-pole only) GHCGFEP (single-pole only)	15–100	1 surface	SGDN100 ^①
		3R	RGDN100
		12	JGDN100
		12K	DGDN100
		4/4X, 5 stainless steel	WGDN100
EHD, FD, FDB, HFD	15–100	1 surface	SFDN100
		1 flush	FFDN100
		3R	RFDN100
		12	JFDN100
		12K	DFDN100
4/4X, 5 stainless steel	WFDN100		
EHD, FD, FDB	15–50	7/9 cast aluminum	XFDN050B
HFD, FDC	60–225 ^②	7/9 cast aluminum	XFDN225B
FD, FDB, HFD, ED, EDH, EDC, FDC (15–225A)	125–225	1 surface	SFDN225
		1 flush	FFDN225
		3R	RFDN225
		12	JFDN225
		12K	DFDN225
4/4X, 5 stainless steel	WFDN225		
JD, JDB, HJD, JDC	125–250	1 surface	SJDN250
		1 flush	FJDN250
		3R	RJDN250
		12	JJDN250
		12K	DJDN250
4/4X, 5 stainless steel	WJDN250		
JD, JDB, HJD, JDC	125–250	7/9 cast aluminum	XJDN250B

Notes

- ^① Suitable for use with single-pole breaker. Base mounting plate kit. QCCBP required.
- ^② Maximum wire size: 4/0.
- ^③ Can be field converted to NEMA Type 3R.

Enclosure Only, continued

Breaker Frame	Breaker Ampere Range	Enclosure NEMA Class	Catalog Number
Series C Breakers, continued			
KD, KDB, HKD, KDC, DK	125–400	1 surface	SKDN400
		1 flush	FKDN400
		3R	RKDN400
		12	JKDN400
		12K	DKDN400
		4/4X, 5 stainless steel	WKDN400
KD, KDB, HKD, KDC, DK	125–400	7/9 cast aluminum	XKDN400B
LGE, LGS, LGH	250–600	1 surface	SLG630
		3R	RLG630
		12	JLG630 ^②
		4/4X, 5 stainless steel	WLG630
LD, LDB, HLD ^①	300–600	1 surface	SLDN600
		3R	RLDN600
		12	JLDN600
		4/4X, 5 stainless steel	WLDN600
		7/9 cast aluminum	XLDN600B
MDL, HMDL	400–800	7/9 cast aluminum	XMCN800B
MDL, HMDL, ND, HND ^①	400–1200	1 surface	SNDN1200
		3R	RNDN1200
		12	JNDN1200
		4/4X, 5 stainless steel	WNDN1200
ND, HND	—	7/9 cast aluminum	XNDN1200B
Earth Leakage Breakers			
ELFD, ELHFD and ELFDC (three-pole only)	15–100	1 surface	SFD100E
		1 flush	FFD100E
		3R	RFDN100E
		12	JFDN100E
		12K	DFDN100E
		4/4X	WFDN100E
LGE, LGS, LGH used with ELLBN	250–600	1 surface	SLG630E
		3R	RLG630
		12	JLG630 ^②
		4/4X, 5 stainless steel	WLG630

Notes

^① Short-circuit ratings are limited for high interrupting rated breakers. Refer to **Page V2-T1-113**.

^② Can be field converted to NEMA Type 3R.

1

Accessories

Nameplates Applied

Customer must provide nameplate legend at the time of order.

Key Interlock Systems

Interlocks are used to prevent an authorized operation. Before system construction can begin, the following information must be known:

1. User—name, address and telephone number.
2. Complete lock scheme required.

Neutral Assemblies Installed

Ampere ratings: 100, 250, 400, 600, 800 and 1200.

Separate Ground Lug Installed

Ampere ratings: 100, 250, 400, 600 and 1200.

Special Paint Finish

Contact the Safety Switch Flex Center (1-888-329-9272) or FlexSwitches@eaton.com.

Pilot Light On NEMA 1 Enclosure

Pilot light

Stainless Steel Flush Covers

Frames: P, J and K.

Electronic Trip Options

Frame Type	Number of Poles	Description
KD, HKD	3	RMS 310 LS
		RMS 310 LSI
		RMS 310 LSG ①
		RMS 310 LSIG ①
LD, HLD	3	RMS 310 LS
		RMS 310 LSI
		RMS 310 LSG ①
		RMS 310 LSIG ①
MDL, HMDL	3	RMS 310 LS
		RMS 310 LSI
		RMS 310 LSG ①
		RMS 310 LSIG ①
ND	3	RMS 310 LS
		RMS 310 LSI
		RMS 310 LSG ①
		RMS 310 LSIG ①
RD	3	RMS 310 LS
		RMS 310 LSI
		RMS 310 LSG
		RMS 310 LSIG
		RMS 510 LS ②
		RMS 610 LS ②
		RMS 810 LS ②
		RMS 910 LS ②

Assembled Enclosed Circuit Breakers

Accessories	Modifications	Breaker Frame	Description
Auxiliary switches (specify voltage and Hz)		G, F, J, K, L, M, N	1A, 1B
		G, F, J, K, L, M, N	2A, 2B
		K, L, M, N	3A, 3B
		R	1A, 1B
Shunt trips (specify voltage and Hz)		G, F, J, K, L, M, N, R	—
Alarm switches (specify voltage and Hz)		G, F, J, K, L, M, N	1 Make, 1 Break
		F, K, L, M, N	2 Make, 2 Break
Undervoltage release (specify voltage and Hz)		G, F, J, K, L, M, N, R	—

Notes

- ① Ground fault application not available with NEMA 7/9. Contact Eaton's Customer Support Center.
- ② Add to the appropriate RD RMS 310 adder.

Raintight Hubs

All rainproof enclosures 30–400A are shipped with plate over cutout. Hubs are not supplied with screws on 30–400A enclosures. Use screws from plate.

Raintight Hubs**Raintight Tubs**

Hubs	Hub Diameter		Catalog Number
	Inches	mm	
Small			
For use with RGDN and RFDN	0.75	19.1	DS075H1
	1.00	25.4	DS100H1
	1.25	31.8	DS125H1
	1.50	38.1	DS150H1
	2.00	50.8	DS200H1
Large			
For use with RJDN. RKDN has two cutouts	2.00	50.8	DS200H2
	2.50	63.5	DS250H2
	3.00	76.2	DS300H2
Required if using small DS hubs on RJDN and RKDN enclosures.			DS900AP

Breather and Drain, Hazardous Enclosures

A Universal Breather/Drain Fitting is installed in the top of an enclosure to provide ventilation to minimize condensation and in the bottom to allow drainage of accumulated condensation while maintaining explosion-proof integrity.

Type	Compliance		Conduit Opening	Catalog Number
	NEMA 7	NEMA 9		
BD	Class I, Groups C, D; Class I, Zone 1, Group IIB	Class II, Groups F, G	1/2	XPBD2
DBB	Class I, Groups B, C, D; Class I, Zone 1, Group IIB + Hydrogen	Class II, Groups E, F, G	1/2	XPDBB50

Neutral Kits, Insulated and Groundable

Maximum Enclosure Rating (A)	Main Lug Size Cu/Al	Catalog Number
100 SFDN100 RFDN100	(1) 14–1/0	DH100NK
100 (all others)	(1) 14–1/0	INK100
250	(1) 4–350 kcmil	INK250
400	(1) 4–600 kcmil or (2) 1/0–250 kcmil	INK400
600	(2) 250–500 kcmil	INK600
1200	(4) 3/0–750 kcmil	DS800NK

Modifications

Allowable accessory combinations can be reviewed in Eaton's Circuit Breaker Product Guide: PG.74.A.01.T.E. Verify final application with the Customer Support Center.

Special RD Modifications and Accessories

Description
1600A neutral assembly (aluminum)
2000A neutral assembly (aluminum)
2500A neutral assembly (aluminum)
1600A neutral assembly (copper)
2000A neutral assembly (copper)
2500A neutral assembly (copper)
Adjustable rating plug
Lockoff, padlockable
Key interlock
Phase failure protection (includes shunt trip)
Zero sequence gfp (including shunt trip and test panel)
NEMA 3R flat roof
Heater package (includes cpt, heater, thermostat and disconnect)
Special sized enclosures Standard is 90-inch H x 30-inch W x 30-inch D (2286 x 762 x 762 mm)
IQ metering
Non-standard terminations

Flex Center

Introduction

The Safety Switch Flex Center is a special facility at the site of our Cleveland, Tennessee, plant that is dedicated to providing customized enclosed circuit breakers that meet customers' challenging applications.

The Flex Center is a solutions center that provides real value:

- A dedicated and knowledgeable engineering/manufacturing/customer service team to meet your needs
- A production facility stocked with a full arsenal of equipment to get the job done
- The industry's shortest lead-time
- Easy ordering through our distributors
- Factory-installed modifications include (but are not limited to) the following:
 - Special size enclosure
 - Special nameplates
 - Stainless steel flush cover
 - Special paint
 - Lock-on provisions
 - Neutral assemblies—factory installed
 - Equipment ground lugs—factory installed
 - Cover control (pilot lights, pushbuttons, selector switches, etc.)
 - Factory-installed G-Frame breakers
- For application, availability or pricing questions, contact the Safety Switch Flex Center at **1-888-329-9272** or FlexSwitches@eaton.com

Satellite Plants

Atlanta

7000 Highlands Parkway SE #102
Smyrna, GA 30082
Fax (770) 433-1863
Phone (678) 309-4260

Baltimore

6671 Santa Barbara Court Suite A
Elk Ridge, MD 21075
Fax (410) 796-7755
Phone (410) 796-7777

Chicago

959 AEC Drive
Wood Dale, IL 60191
Fax (630) 860-3569
Phone (630) 860-3500

Cleveland

5565 Venture Drive Unit B
Parma, OH 44130
Fax (216) 433-0545
Phone (216) 433-0616

Dallas

631 Westport Pkwy Suite 100
Grapevine, TX 76051
Fax (817) 251-6249
Phone (817) 251-6797

Denver

14101 East 33rd Place Suite F
Aurora, CO 80011
Fax (303) 371-4175
Phone (303) 371-7844

Hartford

625 Day Hill Road
Windsor, CT 06095
Fax (860) 688-4982
Phone (860) 688-5330

Houston

10810 West Little York Suite 100
Houston, TX 77041
Fax (713) 688-3764
Phone (713) 688-8430

Los Angeles

5590 Jurupa Street
Ontario, CA 91761
Fax (909) 390-8884
Phone (909) 390-8853

New Jersey

96 Stemmers Lane
Westampton, NJ 08060
Fax (609) 835-4777
Phone (609) 835-4230

Orlando

3827 St. Valentine Way
Orlando, FL 32811
Fax (407) 841-9135
Phone (407) 843-3863

Phoenix

921 South Park Lane Suite 1
Tempe, AZ 85281-5119
Fax (480) 449-4223
Phone (480) 449-4222

Raleigh

2933 S. Miami Blvd. Suite 111
Durham, NC 27703
Fax (919) 572-9751
Phone (919) 544-7074

St. Louis

12947 Gravois Road
St. Louis, MO 63127
Fax (314) 842-2552
Phone (314) 842-7797

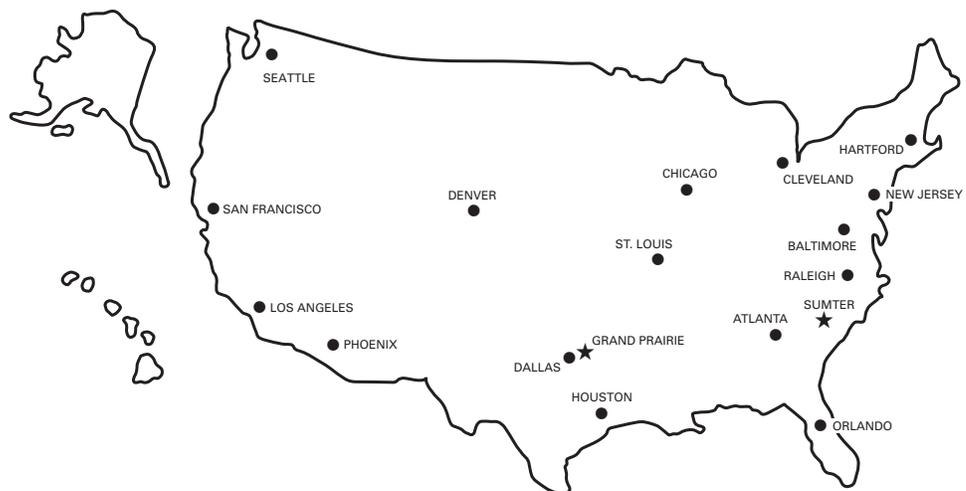
San Francisco

20923 Cabot Boulevard
Hayward, CA 94545
Fax (510) 784-8980
Phone (510) 784-8981

Seattle

18657 72nd Avenue S.
Kent, WA 98032
Fax (425) 251-0079
Phone (425) 251-9081

Satellite Service Locations



Technical Data and Specifications

Industrial Circuit Breaker Selection

Circuit Breaker Type	Continuous Ampere Rating at 40°C	Number of Poles	Vdc			Type of Trip ①	Federal Spec. W-C-375b	UL Listed Interrupting Rating rms Symmetrical Amperes						Vdc Ratings ②		
			Vac	Vdc	Vdc			Vac Ratings						125	250	125/250
								120	120/240	240	277	480	600			
G-Frame																
GHC	15–100	1	120	125	N.I.T.U.	12c, 13a	65,000	—	—	—	—	—	—	14,000	—	—
GHC	15–100	2, 3	240	125/250	N.I.T.U.	13b	—	—	65,000	—	—	—	—	—	—	14,000
GHC	15–100	1	277	125	N.I.T.U.	12c, 13a	—	—	—	14,000	—	—	—	14,000	—	—
GHC	15–100	2, 3	277/480	215/250	N.I.T.U.	13b	—	—	—	14,000	14,000	—	—	—	—	14,000
GD	15–100	3	480	250	N.I.T.U.	13b	—	—	65,000	—	22,000	—	—	—	10,000	—
F-Frame																
ED	100–225	2, 3	240	125	N.I.T.U.	12b	—	—	65,000	—	—	—	—	10,000	—	—
EDH	100–225	2, 3	240	125	N.I.T.U.	14b	—	—	100,000	—	—	—	—	10,000	—	—
EDC	100–225	2, 3	240	125	N.I.T.U.	1	—	—	200,000	—	—	—	—	10,000	—	—
EHD	15–100	1	277	125	N.I.T.U.	13a	—	—	—	14,000	—	—	—	10,000	—	—
EHD	15–100	2, 3	480	250	N.I.T.U.	13b	—	—	18,000	—	14,000	—	—	—	10,000	—
FDB	15–150	2, 3	600	250	N.I.T.U.	18a	—	—	18,000	—	14,000	14,000	—	—	10,000	—
FDB	15–150	4	600	250	N.I.T.U.	③	—	—	18,000	—	14,000	14,000	—	—	10,000	—
FD	15–225	1	277	125	N.I.T.U.	13a	—	—	—	25,000	—	—	—	10,000	—	—
FD	15–225	2, 3	600	250	N.I.T.U.	22a	—	—	65,000	—	25,000	18,000	—	—	10,000	—
FD	15–225	4	600	250	N.I.T.U.	③	—	—	65,000	—	25,000	18,000	—	—	10,000	—
HFD	15–225	1	277	125	N.I.T.U.	13a	—	—	—	65,000	—	—	—	10,000	—	—
HFD	15–225	2, 3	600	250	N.I.T.U.	22a	—	—	100,000	—	65,000	25,000	—	—	20,000	—
HFD	15–225	4	600	250	N.I.T.U.	③	—	—	100,000	—	65,000	25,000	—	—	20,000	—
FDC	15–225 ④	2, 3	600	250	N.I.T.U.	24a	—	—	200,000	—	100,000	35,000	—	—	20,000	—
FDC	15–225	4	600	250	N.I.T.U.	③	—	—	200,000	—	100,000	35,000	—	—	20,000	—
J-Frame																
JDB	70–250	2, 3	600	250	N.I.T.U.	22a	—	—	65,000	—	35,000	18,000	—	—	10,000	—
JD	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	65,000	—	35,000	18,000	—	—	10,000	—
HJD	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	100,000	—	65,000	25,000	—	—	22,000	—
JDC	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	200,000	—	100,000	35,000	—	—	22,000	—
K-Frame																
DK	250–400	2, 3	240	250	N.I.T.U.	14b	—	—	65,000	—	—	—	—	—	10,000	—
KDB	100–400	2, 3	600	250	N.I.T.U.	23a	—	—	65,000	—	35,000	25,000	—	—	10,000	—
KD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	65,000	—	35,000	25,000	—	—	10,000	—
HKD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	100,000	—	65,000	35,000	—	—	22,000	—
KDC	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	200,000	—	100,000	50,000	—	—	22,000	—
LG-Frame																
LGE	250–600	3, 4	600	250	I.T.U.	23a	—	—	65,000	—	35,000	18,000	—	—	22,000	—
LGS	250–600	3, 4	600	250	I.T.U.	23a	—	—	85,000	—	50,000	25,000	—	—	22,000	—
LGH	250–600	3, 4	600	250	I.T.U.	23a	—	—	100,000	—	65,000	35,000	—	—	42,000	—

Notes

- ① N.I.T.U. is non-interchangeable trip unit and I.T.U. is interchangeable trip unit.
 ② Two-pole circuit breaker, or two poles of three-pole circuit breaker at 250 Vdc.
 ③ Not defined in W-C-375b.
 ④ Not suitable for use with 100A enclosures.

Industrial Circuit Breaker Selection, continued

Circuit Breaker Type	Continuous Ampere Rating at 40°C	Number of Poles	Vac	Vdc	Type of Trip ^①	Federal Spec. W-C-375b	UL Listed Interrupting Rating rms Symmetrical Amperes						Vdc Ratings ^②		
							Vac Ratings						125	250	125/250
							120	120/240	240	277	480	600			
L-Frame															
LDB	300–600	2, 3	600	250	N.I.T.U.	23a	—	—	65,000	—	35,000	25,000	—	22,000	—
LD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	65,000	—	35,000	25,000	—	22,000	—
HLD ^③	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	100,000	—	65,000	35,000	—	25,000	—
M-Frame															
MDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	65,000	—	50,000	25,000	—	22,000	—
HMDL ^④	300–800	2, 3	600	250	I.T.U.	23a	—	—	100,000	—	65,000	35,000	—	25,000	—
N-Frame															
ND	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	65,000	—	50,000	25,000	—	—	—
HND ^④	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	100,000	—	65,000	35,000	—	—	—
R-Frame															
RD	800–2500	3, 4	600	—	N.I.T.U.	24a	—	—	125,000	—	65,000	35,000	—	—	—

Notes

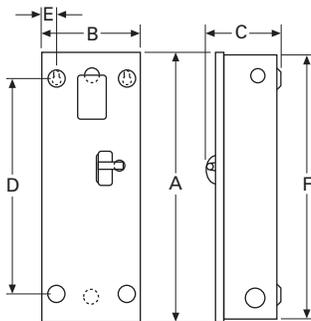
- ① N.I.T.U. is non-interchangeable trip unit and I.T.U. is interchangeable trip unit.
 ② Two-pole circuit breaker, or two poles of three-pole circuit breaker at 250 Vdc.
 ③ HLD: NEMA 1 enclosed: 240 Vac = 100 kA, 480 Vac = 65 kA, 600 Vac = 35 kA, 250 Vdc = 20 kA, 500 Vdc = 25 kA.
 NEMA 3R enclosed: 240 Vac = 65 kA, 480 Vac = 50 kA, 600 Vac = 25 kA, 250 Vdc = 20 kA, 500 Vdc = 25 kA.
 ④ HMDL and HND: NEMA 1 and 3R enclosed: 240 Vac = 100 kA, 480 Vac = 65 kA, 600 Vac = 35 kA, 250 Vdc = 30 kA, 500 Vdc = 30 kA.

Dimensions

Approximate Dimensions in Inches (mm)

NEMA 1, 12, 12K, 3R**Note:** Not to be used for construction purposes unless approved.**NEMA 1 Surface Mounted**

Frame	Maximum Amperes	A	B	C	D	E	F	Approximate Weight in Lbs (kg)
G	100	17.50 (444.5)	8.56 (217.4)	6.28 (159.5)	13.03 (331.0)	1.20 (30.5)	17.19 (436.6)	12 (5)
F ^①	100	19.13 (485.9)	9.13 (231.9) ^③	5.20 (132.1)	17.00 (431.8)	N/A ^④	18.81 (477.8)	13 (6)
Earth leakage	100	23.25 (590.6)	8.56 (217.4)	6.28 (159.5)	18.75 (476.3)	1.20 (30.5)	22.94 (582.7)	15 (7)
F ^②	225	23.25 (590.6)	8.56 (217.4)	6.28 (159.5)	18.75 (476.3)	1.20 (30.5)	22.94 (582.7)	15 (7)
J	250	34.70 (881.4)	10.92 (277.4)	7.20 (182.9)	30.00 (762.0)	1.88 (47.8)	34.39 (873.5)	31 (14)
K ^⑤	400	38.81 (985.8)	11.06 (280.9)	10.94 (277.9)	34.00 (863.6)	1.25 (31.8)	38.50 (977.9)	53 (24)
LG	600	51.06 (1296.9)	21.87 (555.5)	9.96 (253.0)	51.63 (1311.5)	1.94 (49.3)	50.13 (1273.3)	90 (41)
Earth leakage	600	51.06 (1296.9)	21.87 (555.5)	9.96 (253.0)	51.63 (1311.5)	1.94 (49.3)	50.13 (1273.3)	90 (41)
L	600	45.88 (1165.4)	14.31 (363.5)	12.38 (314.5)	46.56 (1182.6)	1.91 (48.5)	45.56 (1157.2)	81 (37)
M, N	1200	61.22 (1555.0)	21.44 (544.6)	15.41 (391.4)	61.84 (1570.7)	1.97 (50.0)	60.91 (1547.1)	178 (81)

NEMA 1 Surface Mounted**Notes**

- ① SFDN100 Series "B" released 9/15/01.
- ② Maximum wire size: 4/0.
- ③ Total width, including door clip is 9.95 inches (253 mm).
- ④ Single centered mounting hole provided.
- ⑤ Maximum wire size: 500 kcmil.

1.2

Switching Devices

Enclosed Circuit Breakers

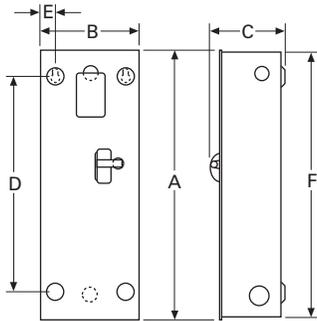
1

Approximate Dimensions in Inches (mm)

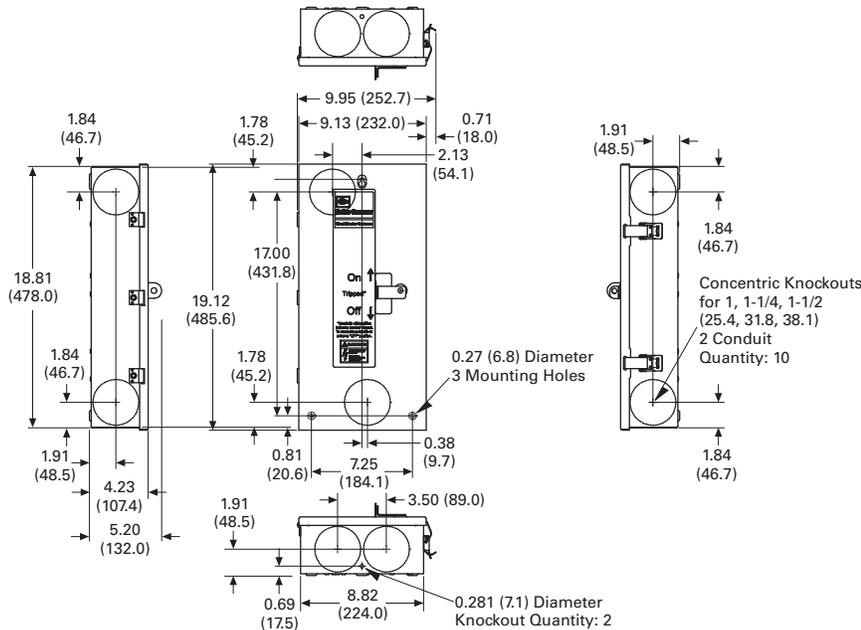
NEMA 1 Flush Mounted

Frame	Maximum Amperes	A	B	C	D	E	F	Approximate Weight in Lbs (kg)
F	100	18.81 (477.8)	9.72 (246.9)	6.28 (159.5)	13.03 (331.0)	1.86 (47.2)	18.50 (469.9)	12 (5)
Earth leakage	100	24.56 (623.8)	9.72 (246.9)	6.28 (159.5)	18.75 (476.3)	1.86 (47.2)	24.25 (616.0)	15 (7)
F ^①	225	24.56 (623.8)	9.72 (246.9)	6.28 (159.5)	18.75 (476.3)	1.86 (47.2)	24.25 (616.0)	15 (7)
J	250	36.02 (914.9)	12.23 (310.6)	7.20 (182.9)	30.00 (762.0)	1.88 (47.8)	35.70 (906.8)	32 (15)
K ^②	400	40.13 (1019.3)	12.38 (314.5)	10.94 (277.9)	34.00 (863.6)	2.94 (74.7)	39.81 (1011.2)	53 (24)

NEMA 1 Flush Mounted



NEMA 1 Surface Mounted SFDN100 Series "B"



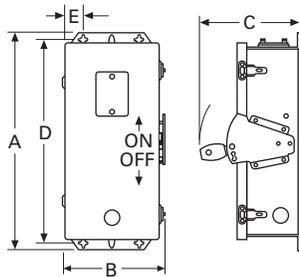
Notes

- ① Maximum wire size: 4/0.
- ② Maximum wire size: 500 kcmil.

Approximate Dimensions in Inches (mm)

NEMA 12, 12K Dustproof

Frame	Maximum Amperes	A	B	C	D	E	Approximate Weight in Lbs (kg)
G, F	100	19.91 (505.7)	9.16 (232.7)	9.31 (236.5)	18.53 (470.7)	1.70 (43.2)	16 (7)
Earth leakage	100	19.91 (505.7)	9.16 (232.7)	9.31 (236.5)	18.53 (470.7)	1.70 (43.2)	19 (9)
FBP, FCL	100	25.66 (651.8)	9.16 (232.7)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	19 (9)
F ^①	225	25.66 (651.8)	9.16 (232.7)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	19 (9)
J	250	37.53 (953.3)	11.88 (301.8)	10.22 (259.6)	35.77 (908.6)	1.94 (49.3)	37 (17)
K ^②	400	41.69 (1058.9)	12.31 (312.7)	14.06 (357.1)	39.94 (1014.5)	1.97 (50.0)	58 (26)
LG	600	53.37 (1355.6)	23.06 (585.7)	14.10 (358.1)	51.63 (1311.4)	1.94 (49.3)	94 (43)
Earth leakage	600	53.37 (1355.6)	23.06 (585.7)	14.10 (358.1)	51.63 (1311.4)	1.94 (49.3)	94 (43)
L	600	48.31 (1227.1)	15.56 (395.2)	15.50 (393.7)	46.56 (1182.6)	1.92 (48.8)	84 (38)
NBP	800	63.59 (1615.2)	22.63 (574.8)	17.63 (447.8)	—	—	110 (50)
M, N	1200	63.59 (1615.2)	22.63 (574.8)	17.63 (447.8)	61.84 (1570.7)	1.97 (50.0)	175 (80)
G, F	100	19.91 (505.7)	9.16 (232.7)	9.31 (236.5)	—	—	16 (7)
Earth leakage	100	19.91 (505.7)	9.16 (232.7)	9.31 (236.5)	—	—	19 (9)
FBP, FCL	100	25.66 (651.8)	9.16 (232.7)	9.31 (236.5)	—	—	19 (9)
F ^①	225	25.66 (651.8)	9.16 (232.7)	9.31 (236.5)	—	—	19 (9)
J	250	37.53 (953.3)	11.88 (301.8)	10.22 (259.6)	—	—	37 (17)
K ^②	400	41.69 (1058.9)	12.31 (312.7)	14.06 (357.1)	—	—	58 (26)

NEMA 12, 12K Dustproof**Notes**

- ① Maximum wire size: 4/0.
- ② Maximum wire size: 500 kcmil.

1.2

Switching Devices

Enclosed Circuit Breakers

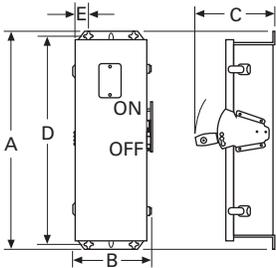
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Approximate Dimensions in Inches (mm)

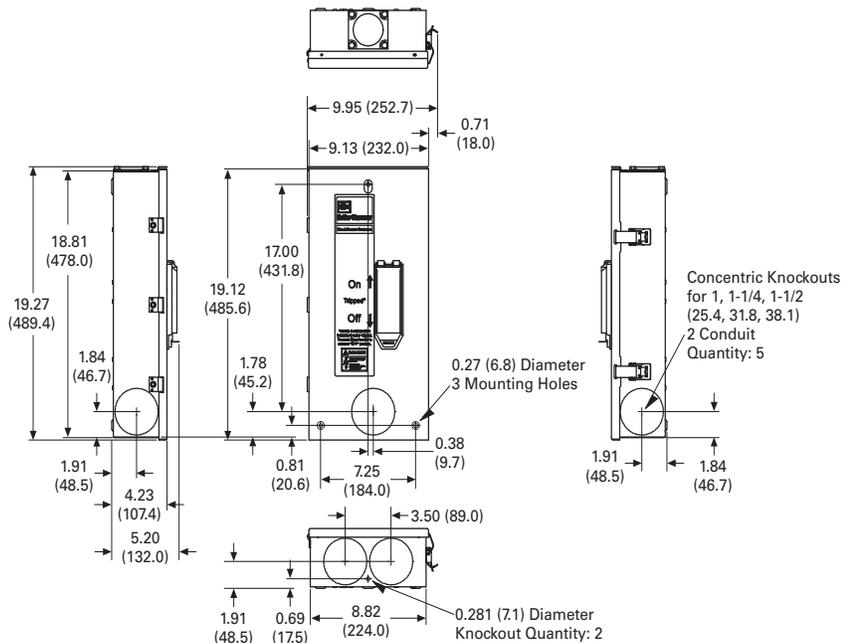
NEMA 3R Rainproof

Frame	Maximum Amperes	A	B	C	D	E	Approximate Weight in Lbs (kg)
G, F ^①	100	19.91 (505.7)	9.16 (232.7)	9.31 (236.5)	18.53 (470.7)	1.70 (43.2) ^②	16 (7)
Earth leakage	100	19.91 (505.7)	9.19 (232.7)	9.31 (236.5)	18.53 (470.7)	1.70 (43.2)	19 (9)
FBP, FCL	100	25.66 (651.8)	9.16 (232.7)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	19 (9)
F ^③	225	25.66 (651.8)	9.16 (232.7)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	19 (9)
J	250	37.50 (952.5)	11.88 (301.8)	10.22 (259.6)	35.77 (908.6)	1.94 (49.3)	37 (17)
K ^④	400	41.69 (1058.9)	12.31 (312.7)	14.06 (357.1)	39.94 (1014.5)	1.97 (50.0)	58 (26)
LG	600	53.37 (1355.6)	23.06 (585.7)	14.10 (358.1)	51.63 (1311.4)	1.94 (49.3)	94 (43)
Earth leakage	600	53.37 (1355.6)	23.06 (585.7)	14.10 (358.1)	51.63 (1311.4)	1.94 (49.3)	94 (43)
L	600	48.31 (1227.1)	15.56 (395.2)	15.50 (393.7)	46.56 (1182.6)	1.92 (48.8)	84 (38)
M, N	1200	63.59 (1615.2)	22.63 (574.8)	17.63 (447.8)	61.84 (1570.7)	1.97 (50.0)	175 (80)

NEMA 3R Rainproof^⑤



NEMA 3R Rainproof RFDN100 Series "B"



Notes

- ① RFDN100 Series "B" released 9/15/01.
- ② Single centered mounting hole provided on RFDN100, Series "B."
- ③ Maximum wire size: 4/0.
- ④ Maximum wire size: 500 kcmil.
- ⑤ All NEMA 3R except RFDN100.

Approximate Dimensions in Inches (mm)

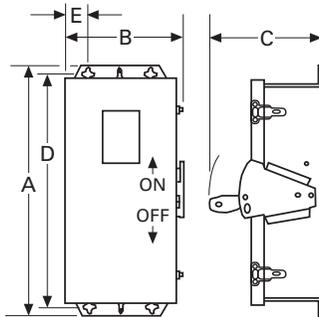
NEMA 4/4X, 5, 7/9

Note: Not to be used for construction purposes unless approved.

NEMA 4/4X, 5 Stainless Steel

Frame	Maximum Amperes	A	B	C	D	E	Approximate Weight in Lbs (kg)
G, F	100	19.91 (505.7)	8.84 (224.5)	9.31 (236.5)	18.53 (470.7)	1.70 (43.2)	16 (7)
Earth leakage	100	19.91 (505.7)	8.84 (224.5)	9.31 (236.5)	18.53 (470.7)	1.70 (43.2)	20 (9)
FBP, FCL	100	25.66 (651.8)	8.84 (224.5)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	20 (9)
F ①	225	25.66 (651.8)	8.84 (224.5)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	20 (9)
J	250	37.50 (952.5)	11.56 (293.6)	10.22 (259.6)	35.77 (908.6)	1.94 (49.3)	39 (18)
K ②	400	41.69 (1058.9)	11.75 (298.5)	14.06 (357.1)	39.94 (1014.5)	1.97 (50.0)	60 (27)
LG	600	53.38 (1355.9)	23.06 (585.7)	14.11 (358.4)	51.64 (1311.7)	1.94 (49.3)	96 (44)
Earth leakage	600	53.38 (1355.9)	23.06 (585.7)	14.11 (358.4)	51.64 (1311.7)	1.94 (49.3)	96 (44)
L	600	48.31 (1227.1)	14.91 (378.7)	15.50 (393.7)	46.56 (1182.6)	1.92 (48.8)	88 (40)
M, N	1200	63.59 (1615.2)	22.00 (558.8)	17.63 (447.8)	61.84 (1570.7)	1.97 (50.0)	185 (84)

NEMA 4/4X, 5 Stainless Steel



Notes

- ① Maximum wire size: 4/0.
- ② Maximum wire size: 500 kcmil.

1.2

Switching Devices

Enclosed Circuit Breakers

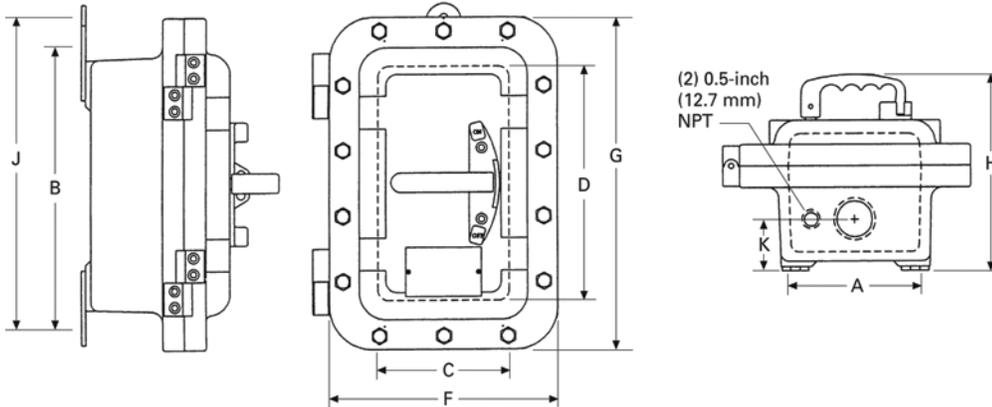
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Approximate Dimensions in Inches (mm)

NEMA 7/9 Cast Aluminum with Weather-Resistant Seals—15–250A

Breaker Frame	Breaker Size Amperes	Number of Outlets	Mounting ^①			Inside ^①			Outside ^①			K ^① Dim	Standard Conduit Size ^①	Approximate Weight in Lbs (kg)
			A	B	J	C	D	E	F	G	H			
F XFDN050B	15–50	4	5.50 (139.7)	13.13 (333.5)	14.13 (358.9)	6.13 (155.7)	10.75 (273.1)	5.25 (133.4)	10.63 (270.0)	15.25 (387.4)	8.88 (225.6)	2.00 (50.8)	1.50 (38.1)	38 (17)
F ^① XFDN100B	60–100	4	6.00 (152.4)	18.00 (457.2)	19.00 (482.6)	6.50 (165.1)	16.00 (406.4)	5.50 (139.7)	11.00 (279.4)	20.50 (520.7)	9.00 (228.6)	2.31 (58.7)	2.00 (50.8)	57 (26)
F ^① XFDN225B	125–225	4	10.25 (260.4)	22.63 (574.8)	—	11.38 (289.1)	20.00 (508.0)	6.38 (162.1)	16.38 (416.1)	25.13 (638.3)	9.63 (244.6)	3.50 (88.9)	2.50 (63.5)	104 (47)
J XJDN225B	70–225	4	8.50 (215.9)	27.13 (689.1)	—	11.25 (285.8)	29.88 (759.0)	7.38 (187.5)	16.00 (406.4)	29.50 (749.3)	12.31 (312.7)	4.00 (101.6)	3.00 (76.2)	145 (66)
J XJDN250B	250	4	9.50 (241.3)	27.25 (692.2)	—	11.25 (285.8)	29.88 (759.0)	8.06 (204.7)	16.38 (416.1)	35.00 (889.0)	12.38 (314.5)	4.19 (106.4)	4.00 (101.6)	170 (77)

NEMA 7/9 Cast Aluminum with Weather-Resistant Seals—Dual Three- and Four-Point Mounting Available as Standard on F-Frame 100A and Below



Note

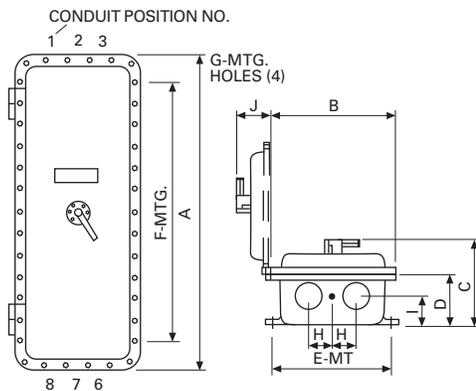
^① Maximum wire size: 4/0.

Approximate Dimensions in Inches (mm)

7/9 Cast Aluminum with Weather-Resistant Seals—400–1200A

Breaker Frame	Breaker Size Amperes	Overall Enclosure				Enclosure Mounting			Conduit		Hinged Cover	Standard Conduit		Weight Lbs (kg)
		A	B	C	D	E	F	G	H	I	J	Size	Location	
K ^① XKDN400B	400	35.00 (889.0)	16.38 (416.1)	12.63 (320.8)	7.13 (181.1)	9.50 (241.3)	27.25 (692.2)	.50 (12.7)	3.00 (76.2)	4.19 (106.4)	5.50 (139.7)	4.00 (101.6)	1, 3 and 6, 8	170 (77)
L XLDN600B	600	37.88 (962.2)	23.88 (606.6)	14.25 (362.0)	8.25 (209.6)	16.00 (406.4)	45.38 (1152.7)	.50 (12.7)	4.00 (101.6)	5.00 (127.0)	6.00 (152.4)	4.00 (101.6)	1, 3 and 6, 8	419 (190)
M XMCM800B	800	47.88 (1216.2)	13.63 (346.2)	12.81 (325.4)	6.81 (173.0)	16.13 (409.7)	40.75 (1035.1)	.50 (12.7)	4.00 (101.6)	4.00 (101.6)	6.00 (152.4)	4.00 (101.6)	1, 3 and 6, 8	228 (104)
N ^② XNDN1200B	1200	64.00 (1625.6)	26.00 (660.4)	21.38 (543.1)	14.38 (365.3)	27.56 (700.0)	38.63 (981.2)	.50 (12.7)	6.50 (165.1)	4.38 (111.3)	7.00 (177.8)	4.00 (101.6)	1, 3 and 6, 8	567 (257)

NEMA 7/9 Cast Aluminum with Weather-Resistant Seals



Conduit Openings

Refer to outline dimensions for size and location of standard conduit openings. In addition, 1/2-inch (12.7 mm) openings are drilled and tapped for breather and drain. Unless ordered with breather and drain, these openings are plugged. Refer to Eaton for price of breather and drain.

Notes

- ① Maximum wire size: 500 kcmil.
- ② Power cables must enter and leave from opposite ends (through-feed).

NQOD Circuit Breaker Panelboards

Catalog
2005

Class 1630



CONTENTS

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DIMENSIONS	13
REPLACEMENT PARTS	22



NQOD Circuit Breaker Panelboards

Application Data



225 A Main Lugs



225 A Main Circuit Breaker

APPLICATION DATA

Type

NQOD circuit breaker panelboards are for use on ac systems and are Underwriters Laboratories (UL) Listed under File E33139. NQOD circuit breaker panelboards accept QO® and QOB branch circuit breakers.

Standards

NQOD circuit breaker panelboards are designed, manufactured, and tested to comply with the following standards:

UL 67—Standard for Panelboards
UL 50—Enclosures for Electrical Equipment
CSA C22.2, No. 29-M1989—Panelboards and Enclosed Panelboards
CSA C22.2, No. 94-M91—Special Purpose Enclosures
NEMA PB 1—Panelboards
NFPA 70—National Electrical Code® (NEC®)
Federal Specification W-P-115C Type I Class 1—Circuit Breaker Panelboards

Ratings

Main Lugs 100–600 A Main Circuit Breaker 100–600 A

Branch Circuit Breakers (Plug-on or Bolt-on)

10 k AIR	22 k AIR	65 k AIR	10 k AIR (240 Vac)	42 k AIR
QO, QOB	QO-VH, QOB-VH	QH, QHB	QO-H, QOB-H	QOH
1-Pole 10–70 A	1-Pole 15–30 A	1-Pole 15–30 A	2-Pole 15–100 A	2-Pole 35–125 A
2-Pole 10–125 A	2-Pole 15–150 A	2-Pole 15–30 A		
3-Pole 10–100 A	3-Pole 15–150 A	3-Pole 15–30 A		

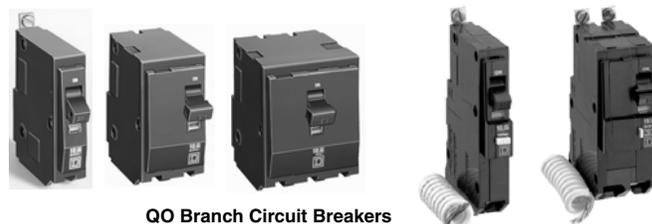
NOQD Panelboard 240 Vac Short-Circuit Current Ratings (SCCR)

SCCR	Fully Rated or Series Rated	Integral Mains (Main Circuit Breaker) Maximum Amperage	Remote Mains Maximum Amperage	Branch Circuit Breakers
10,000 A	Fully Rated	FAL (100 A), QOB (125 A), QBL (225 A)	FAL (100 A), QOB (125 A), QBL (225 A)	QO(B)
22,000 A	Fully Rated	QOB-VH (150 A)	ED (125 A), QO(B)-VH (150 A), QD (225 A)	QO(B)-VH
	Series Rated	QOB-VH (150 A)	QO(B)-VH (150 A)	QO(B)
25,000 A	Series Rated	HDL (150 A), QDL (225 A), JDL (250 A)	ED (125 A), HD (150 A), QD (225 A), JD (250 A)	QO(B)
42,000 A	Fully Rated	LAL (400 A)	LA (400 A), MA (600 A)	QHB
	Fully Rated	HGL (150 A), QGL (225 A), JGL (250 A), LHL (400 A)	EG (125 A), HG (150 A), QG (225 A), JG (250 A), LH (400 A), MH (600 A)	QHB
65,000 A	Series Rated	HGL (150 A), QGL (225 A), JGL (250 A), LCL (600 A)	EG (125 A), HG (150 A), QG (225 A), JG (250 A), LC (600 A), Class J/T6 fuses (400 A)	QO(B), QO(B)-VH
	Series Rated	QJL★ (225 A)	EJ (125 A), QJ★ (225 A)	QO(B)
200,000 A	Series Rated	FIL (100 A), KIL (250 A)	FI (100 A), KI (250 A), Class J/T6 fuses (200 A), Class T3 fuse (400 A)	QO(B)

★ QJL/QJ 100 kA rating is at 208Y/120 Vac for 3-phase applications and 240 Vac for one-phase applications.

Service

Voltage	System	System Diagram
120/240 Vac	1 ϕ 3W	
208Y/120 Vac	3 ϕ 4W	
240/120 Vac	3 ϕ 4W Delta	
240 Vac	3 ϕ 3W Delta	
240 Vac	3 ϕ 3W Grd. B ϕ Delta	



QO Branch Circuit Breakers



QOB Branch Circuit Breakers

NQOD Circuit Breaker Panelboards

Application Data

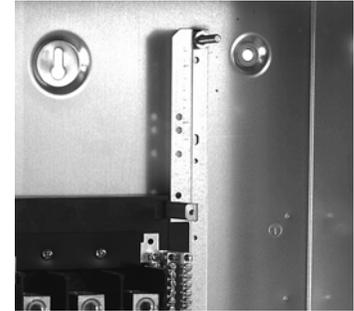
Indoor Enclosures (Types 1 and 2)

Boxes (NQB or MH):

- Galvanized steel with removable endwalls. One endwall is provided with knockouts and the other endwall is blank.
- Box sizes:
 - NQB: 14 in. (356 mm) wide x 5.75 in. (146 mm) deep, 225 A interior maximum.
 - MH: 20 in. (508 mm) wide x 5.75 in. (146 mm) deep, 600 A main lug interior max. or 400 A main circuit breaker max.
 - MH: 20 in. (508 mm) wide x 6.75 in. (171 mm) deep, 600 A main circuit breaker interior, factory-assembled only.
- Box and interior mounting instructions are found in the information manual shipped with the interior.
- Interiors mount directly to studs in the MH or NQB boxes. Interior mounting brackets are not required.
- Type 2 enclosure includes a driphood.
 - Surface-mounted trim only.



NQB Box



Interiors Mount Directly to Box Studs

Fronts:

- Finished with gray baked enamel electrodeposited over cleaned phosphatized steel (ANSI 49).
- Flush or surface mounted.
- Door has flush lock. Uses NSR-251 key.
- Directory card is located on the inside of the door.
- MONO-FLAT® fronts on 100–225 A interiors mount to the interior trim with trim screws. Both trim screws and door hinges are concealed. Fronts are not removable with the door closed and locked.
- Fronts for 400–600 A interiors are vented and mount to the enclosure with trim screws (Catalog No. LP9502). Door hinges are concealed.



MH Box



Flush Lock
(Catalog No. PK4FL)



Sliding Vault Lock
(Catalog No. PK5FL)



Concealed Hinge
Used on 100–600 A Fronts



Key NSR-251
(Catalog No. LP9618)



Front (Type 1 Enclosure)
for 400–600 A Interiors
with Trim Screws



MONO-FLAT Front
(Type 1 Enclosure)
for 100–250 A Interiors

NQOD Circuit Breaker Panelboards Application Data

Rainproof (Type 3R Enclosures) Dusttight (Type 5 and 12 Enclosures)

- Finished with gray-baked enamel electrodeposited over cleaned phosphatized galvanized steel (ANSI 49).
- Gasketed door has vault handle with lock (uses NSR-251 key).
- Two additional trunk latches.
- Directory card located on inside of door.
- No knockouts.
- Removable drain screw for Type 3R enclosure rating.
- Trim kit (ordered separately) is required for end and side gutters.
- Provisions for two ground bars.



Type 3R, 5, and 12 Enclosures



Vault Handle with Lock
(Catalog No. PK4NVL)

Stainless Steel (Type 4 and 4X Enclosures)

- Watertight and dusttight.
- Gasketed door with optional locking handle.
- Directory card holders on inside of door.

Enclosure Options

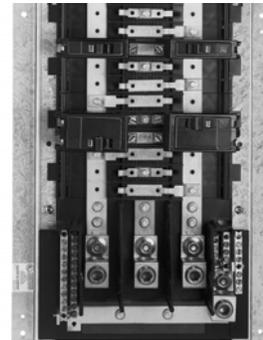
Types	Environment	Provides Protection Against
Type 1	Indoor	Contact with the enclosed equipment
Type 2	Indoor	Falling water and dust
Type 3R	Outdoor	Falling rain, sleet, undamaged by ice
Type 4X	Indoor/Outdoor	Resists corrosion, hose-directed water, dust
Type 5	Indoor	Settling dust, falling dirt, dripping liquids
Type 12	Indoor	Circulating dust, falling dirt, dripping liquids

Class CTL

UL Listed, Class CTL panelboard. Meets paragraph 408.15 of the NEC.

Phasing

Distributed phase bussing. Branch circuit breakers may be mounted in any position.



Distributed Phase Bussing

Corrosion-Resistant Fiberglass-Reinforced Polyester (Type 4X Enclosure)

- Watertight and dusttight.
- Gasketed door with optional locking handle.
- Directory card holders on inside of door.



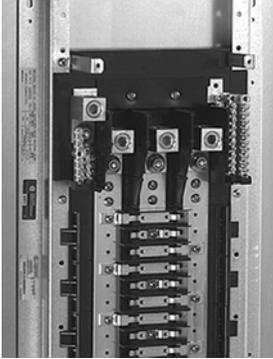
Type 4X Enclosure

NQOD Circuit Breaker Panelboards

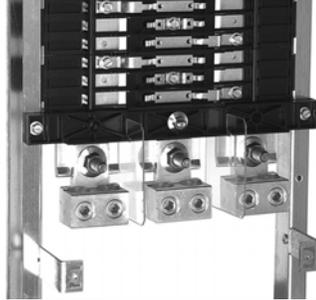
Application Data

Line Lugs

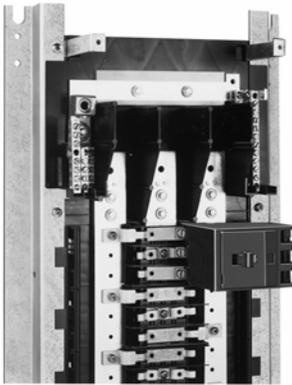
All lugs are suitable for 75 °C copper or aluminum wire.



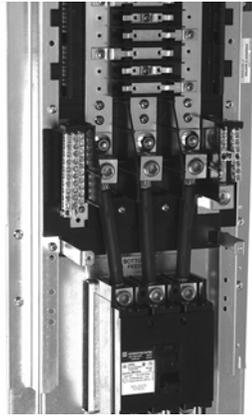
100–225 A Main Lugs



600 A Main Lugs



100 A QOB Main Circuit Breaker



225 A QBL Main Circuit Breaker



400 A LAL Main Circuit Breaker



Type VCEL VERSAtile™
Compression Equipment
Terminals

VERSA-CRIMP® Compression Lugs

- Compression lugs are available for 100–600 A main lug interiors and 100–400 A main circuit breaker interiors.
- Compression lugs are not available on QOB or QBL-type main circuit breakers.

Main Lugs Terminal Data

Standard Mechanical Lugs

Panelboard Type	Ampere Rating	Wire Range— Wire Bending Space per NEC Table 373-6	Lug Wire Range
NQOD	100	(1) #10-#1 Cu or (1) #6-#1 Al	(1) #10-2/0 Cu or (1) #6-2/0 Al
	225	(1) #6-300 kcmil Al/Cu	(1) #6-300 kcmil Al/Cu
	400	(2) 1/0-300 kcmil Al/Cu or (1) 1/0-750 kcmil Al/Cu	(2) 1/0-300 kcmil Al/Cu or (1) 1/0-750 kcmil Al/Cu
	600	(2) 1/0-500 kcmil Al/Cu or (4) 1/0-300 kcmil Al/Cu	(2) 1/0-750 kcmil Al/Cu or (4) 1/0-300 kcmil Al/Cu

VCEL Compression Lugs

Panelboard Type	Ampere Rating	Lugs per Phase	Catalog No.	Lug Wire Range
NQOD	100	1	VCEL021-14S1	#8-1/0 Al/Cu
	225	1	VCEL030-516H	#4-300 kcmil Al/Cu
	400–600	2 ▲	VCEL050-12H1	2/0-500 kcmil Al/Cu
			or 1	VCEL060-12H1
		or 1	VCEL075-12H1	500-750 kcmil Al or 500 kcmil Cu

▲ When two wires are terminated per phase, anti-turn kit NQOD6VC must be used.

Main Circuit Breaker Terminal Data

Standard Mechanical Lugs

Panelboard Type	Ampere Rating	Circuit Breaker Type	Wire Range— Wire Bending Space per NEC Table 373-6	Lug Wire Range
NQOD	100	QOB	(1) #4-#1 Al/Cu	(1) #4-2/0 Al/Cu
		FA, FH, FI ▲	(1) #14-#1 Al/Cu	(1) #14-1/0 Al/Cu
	150	HD, HG, HJ, HL	(1) #14-3/0 Al/Cu	(1) #14-3/0 Al/Cu
	225	QB, QD, QG, QJ	(1) #4-300 kcmil Al/Cu	(1) #4-300 kcmil Al/Cu
		KI	(1) #4-300 kcmil Al/Cu	(1) #6-350 kcmil Al/Cu
	250	JD, JG, JJ, JL	(1) #4-300 kcmil Al/Cu	(1) #3/0-350 kcmil Al/Cu
			(1) #4-300 kcmil Al/Cu	(1) #3/0-350 kcmil Al/Cu
	400	Q4, LA, LH	(1) #4-500 kcmil Al/Cu or (2) #1-250 kcmil Al/Cu	(1) #1-600 kcmil Al/Cu or (2) #1-250 kcmil Al/Cu

▲ Circuit breaker Types FA, FH, FI are factory assembled only.

VCEL Compression Lugs

Panelboard Type	Ampere Rating	Circuit Breaker Type	Lugs per Phase	Catalog No.	Lug Wire Range
NQOD	100	FA, FH, FC, FI	1	VC100FA	#8-1/0 Al/Cu
				YA060HD	#6-#2 Al/Cu
	150	HD, HG, HJ, HL	1	YA150HD	#1-4/0 Al/Cu
				YA150JD	#1-3/0 Al/Cu
	225	JD, JG, JJ, JL	1	YA250J35	#3/0-350 kcmil Al/Cu
				VC250KA3	#4-300 kcmil Al/Cu
		KA, KH, KC, KI	1	VC250KA35	250-350 kcmil Al/Cu
				VC400LA35	250-350 kcmil Al/Cu
	400	LA, LH, Q4	2	VC400LA3	#4-300 kcmil Al/Cu
				VC400LA5	2/0-500 kcmil Al/Cu
		LA, LH, Q4	1	VC400LA7	500-750 kcmil Al or 500 kcmil Cu

NQOD Circuit Breaker Panelboards

Application Data

Main Lugs Interiors

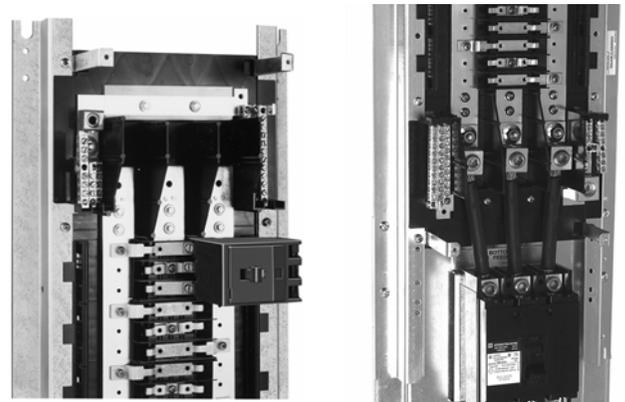
- Will accept plug-on or bolt-on branch circuit breakers.
- Suitable for use as service entrance (USA only); meets local electrical codes.
- Top or bottom feed.
- 65k AIR maximum branch circuit breakers (fully rated).
- 200k AIR maximum when supplied by remote I-LIMITER® circuit breaker (series rated).
- 100 A and 225 A are suitable for use as service entrance with back-fed QOB circuit breaker (USA only).
- Field-installable sub-feed lug kits for 100–225 A interiors.
- Factory installed main lugs on all interiors.
- 225–400 A main lug interiors are convertible to main circuit breaker by adding a main circuit breaker and adapter kit.
- Available with silver-plated copper or tin-plated aluminum bus (aluminum is standard). Tin-plated copper bus is available as an option. Branch connector fingers are all tin-plated copper; silver-plated branch connector fingers are optional.

Main Circuit Breaker Interiors

- Will accept plug-on or bolt-on branch circuit breakers.
- Suitable for use as service entrance; meets local electrical codes.
- Top or bottom feed.
- 65k AIR maximum branch circuit breakers (fully rated).
- 200k AIR maximum when supplied by I-LIMITER circuit breaker (series rated).
- Available with silver-plated copper or tin-plated aluminum bus (aluminum is standard). Tin-plated copper bus is available as an option. Branch connector fingers are all tin-plated copper; silver-plated branch connector fingers are optional.
- 100 A main circuit breaker interiors consist of factory installed back-fed QOB main circuit breaker.
- 225 A main circuit breaker interiors use:
 - Standard main lug interiors.
 - Main circuit breaker adaptor kit.
 - Appropriate QBL, QDL, QGL, QJL, JDL, JGL, JLL, or KIL circuit breaker.
 - 250 A main circuit breaker interiors are factory assembled only.

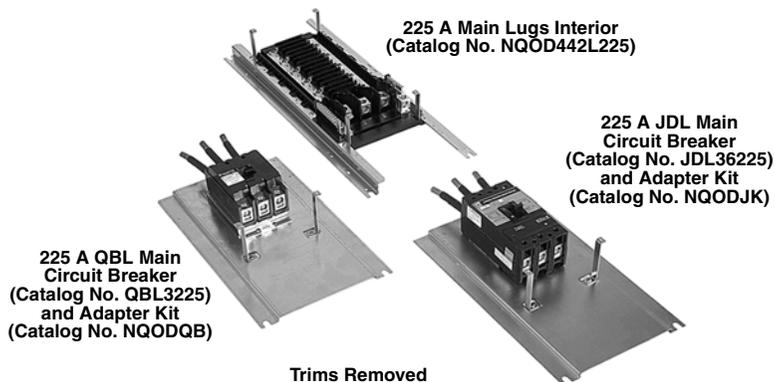


225 A Maximum Main Lugs



100 A QOB Main Circuit Breaker

225 A QBL Main Circuit Breaker



Trims Removed

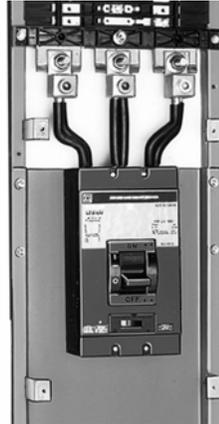
Trims Installed

NQOD Circuit Breaker Panelboards

Application Data

Main Circuit Breaker Interiors (continued)

- 400 A main circuit breaker interiors use:
 - Standard main lug interior.
 - Main circuit breaker adapter kit (Catalog No. NQOD4).
 - Appropriate LAL or LHL circuit breaker.

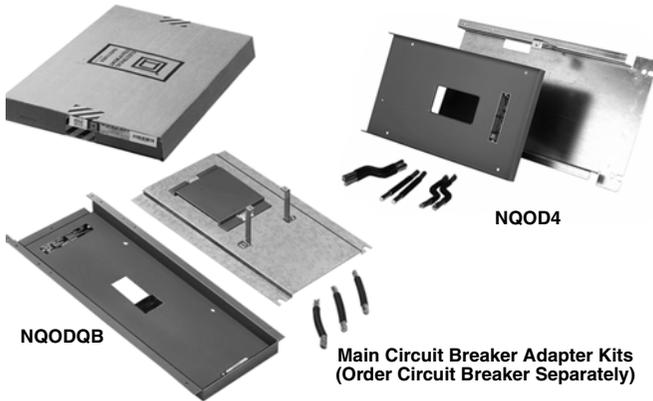


400 A Main Circuit Breaker Interior

Main Circuit Breaker Adapter Kits

Adapter Kit Catalog No.	Ampere Rating	Main Circuit Breaker
NQODQB	100–225 A	QBL, QDL, QGL, QJL
NQODJK	150–225 A	JDL, JGL, JLL, JLL, KIL
NQOD4	125–400 A	LAL, LHL

Note: Main circuit breakers are not included in the adapter kits. They should be ordered separately.



Main Circuit Breakers

- 100 A max. factory-installed QOB, FAL, FHL, or FIL
- 150 A max. factory-installed HDL, HGL, HJL, or HLL
- 225 A max. field-installable QBL, QDL, QGL, QJL, JDL, JGL, JLL, JLL, or KIL
- 250 A max. factory-installed JDL, JGL, JLL, JLL, or KIL
- 400 A max. field-installable LAL or LHL



Field-Installable Main Circuit Breakers

Branch Circuit Breaker Interrupting Capacity

Circuit Breaker Catalog Prefix	Max. Vac Rating	No. of Poles	Ampere Rating	UL Listed Interrupting Rating—RMS Symmetrical Amperes		
				Vac		
				120	120/240	240
QO, QOB	120/240	1	10-70	—	10k	—
	120/240	2	10-125	—	10k	—
	240	3	10-100	—	—	10k
QO-H, QOB-H	240	2	15–125	—	—	10k
QO-VH	120/240	1	15–30	—	22k	—
	120/240	2	15–125	—	22k	—
	240	3	15–100	—	—	22k
QOB-VH	120/240	1	15–30	—	22k	—
	120/240	2	15–150	—	22k	—
	240	3	15–150	—	—	22k
QOH-QOHB	120/240	2	35–125	—	42k	—
QH-QHB	120/240	1	15–30	—	65k	—
	120/240	2	15–30	—	65k	—
	240	3	15–30	—	—	65k

Branch Terminal Lug Data

Ampere Rating	Circuit Breaker Type	Wire Size	
		Aluminum	Copper
10–30	QO, QOB	(2) #12-#8	(2) #14-#8
35–50	QO, QOB	(1) #8-#4	(1) #8-#4
60–70	QO, QOB	(1) #6-#2	(2) #6-#2
80–125	QO, QOB	(1) #4-2/0	(1) #4-2/0
150	QOB-VH	(1) #4-300 kcmil	(1) #4-300 kcmil

Notes:

- Lugs suitable for 75 °C wire.
- Torque QOB connector mounting screws to 18–21 lb-in.
- Torque labels are included on the circuit breakers with load side lug torque requirements.

Additional Main Circuit Breaker Information

Ampere Rating	Circuit Breaker Type	Circuit Breaker Catalog Section Class
100	QOB	730
	FAL, FCL, FHL	650
	FIL	820
150	HDL, HGL, HJL, HLL	611
	QBL, QDL, QGL, QJL	734
225	JDL, JGL, JLL, JLL	611
	KIL	825
400	LAL, LHL	660

Additional Branch Circuit Breaker Information

Circuit Breaker Type	Circuit Breaker Catalog Class
QO, QOB	730
QO-GFI, QOB-GFI	910

Field-Installable Circuit Breaker Accessories

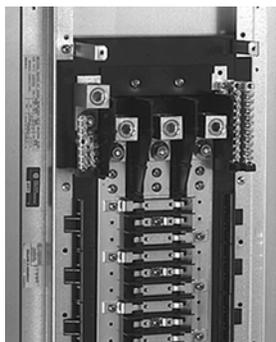
Field-installable shunt trip, alarm switch, and auxiliary contacts are available for LAL 400 A main circuit breaker interiors. Refer to the Square D Digest for additional information.

NQOD Circuit Breaker Panelboards

Application Data

Neutral Assembly

- All lugs suitable for copper or aluminum wire. 100–225 A interiors have split neutral located on same end as mains.
- 400–600 A interior have the neutral located on the end opposite mains.
- Bondable for use as service entrance (in Canada, available as factory-assembled only).
- Branch terminals suitable for #12-#4 aluminum and #14-#4 copper.
- Provisions for larger branch terminal lugs with use of auxiliary neutral lugs.
- Suitable lug provided on neutrals for termination of grounding conductor.
- All unused neutral terminals may be used to terminate equipment grounding conductors when panelboard is used as service entrance.
- 100% rated neutrals. One neutral termination provided per circuit in panelboard.
- 200% rated neutrals optional.



100–225 A



400 A

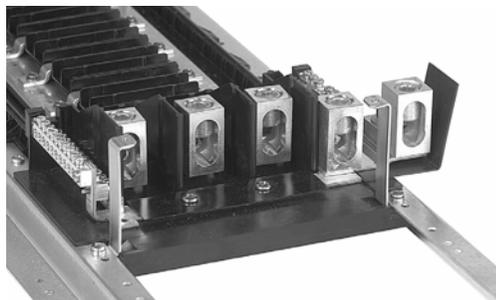
600 A

Typical Neutral Assemblies

200% Neutral Restrictions

225 A, 200% Neutral:

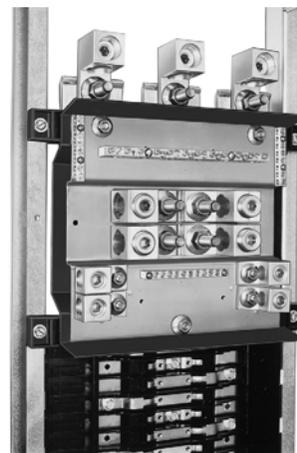
- 225 A main circuit breakers are available using J-frame only.
- Integral lighting contactors are not available.
- Crimp neutral line lugs are not available.
- Panelboards are only available factory assembled when equipped with sub-feed lugs, feed-thru lugs, or sub-feed circuit breakers and 200% neutrals.



225 A Interior with Sub-Feed Lugs

400 A, 200% Neutral:

- Type 3R, 5, and 12 enclosures require copper-bussed interiors.
- Sub-feed branch circuit breakers are available with main lug interiors in Type 1 enclosures only. Sub-feed branch circuit breakers are not available in Type 3R, 5, and 12 enclosures. Using a sub-feed branch circuit breaker restricts standard QO and QOB branches to a maximum of 125 A.
- Integral lighting contactors are not available.
- Crimp neutral line lugs are not available.
- Panelboards are only available factory assembled when equipped with sub-feed lugs, feed-thru lugs, or sub-feed circuit breakers and 200% neutrals.



400 A Interior with Feed-Thru Lugs

200% Rated Feed-Thru Neutral Lug Data

Ampere Rating	Lug Type (Quantity)	Lug Wire Range	Wire Range Wire Bending Space per NEC Table 373-6
225	Line Lug (2)	(2) #4-300 kcmil Al/Cu	(2) 300 kcmil Al/Cu
	Sub-Feed Circuit Breaker Lug	(1) #4-300 kcmil Al/Cu	300 kcmil Al/Cu
	Branch Lugs	(42) #14-#4 Al/Cu	#4 Al/Cu
400	Line Lug (4)	(1) 750 kcmil Al/Cu or (2) #6-300 kcmil Al/Cu	(2) 250 kcmil Al/Cu
	Sub-Feed Circuit Breaker Lug (4)	(1) #6-300 kcmil Al/Cu	350 kcmil Al/Cu
	Branch Lugs	(4) 2/0 Al/Cu	(4) 2/0 Al/Cu
		(22) #14-#4 Al/Cu	#2 Al/Cu
		(17) #14-#6 Al/Cu	#6 Al/Cu

Auxiliary Neutral Lugs

Lugs are UL Listed for copper or aluminum wire and are field-installable on neutral assembly.



#10-#4 AWG
(Catalog No. QO70AN)



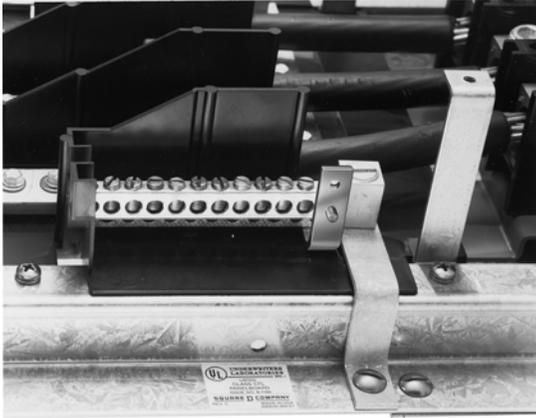
#1-4/0 AWG
(Catalog No. Q1150AN)

NQOD Circuit Breaker Panelboards

Application Data

Neutral Bonding Provisions

Bonding strap may be field-installed for UL service equipment requirements on 100–400 A interiors (in Canada, available as factory-assembled only).



100–225 A Neutral Bonding Provision



400 A Neutral Bonding Provision

Ground Bar Kits

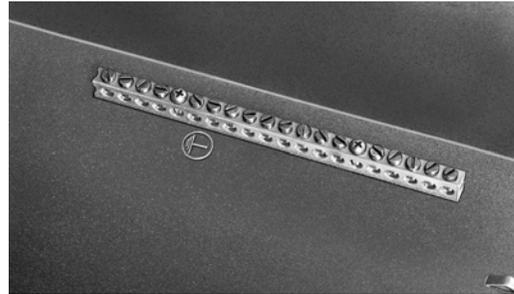
- Field-installable in all panelboards.
- Suitable for copper or aluminum wire.

Ground Bar Kit Catalog Numbers

No. of Circuits	Ampere Rating	Catalog No.
12	225	PK9GTA
20	225	PK12GTA
24	225	PK15GTA
30	225	PK18GTA
54	225	PK23GTA
54	600	PK27GTA



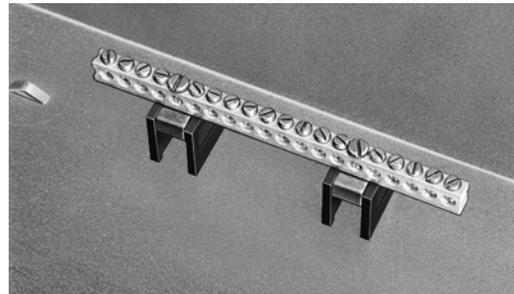
Equipment Ground Bar



Box with Equipment Ground Bar

Ground Bar Insulator Kit (Catalog No. PKGTAB)

- The insulator kit is for use with standard panelboard ground bar kits to isolate the ground bar from the panelboard.
- The insulator kit is field installable. Also may be used with equipment ground since panelboard enclosures have ground bar mounting provisions in all four corners.



Ground Bar with Insulator Kit

Ground Bar Kit Technical Information

All PK equipment grounding kits are supplied with mounting screws, necessary installation instructions, and an “Equipment Grounding Terminal” self-adhesive label.

Catalog Number	Total Qty	Terminals		Approximate Overall Length in (mm)	Distance Between Mounting Holes in (mm)
		Qty Each Size (see wire range below)			
		I	II		
PK9GTA	9	9	—	3.125 (79)	3.125 (79)
PK12GTA	12	12	—	4.5 (114)	3.125 (79)
PK15GTA	15	15	—	5.3125 (135)	3.125 (79)
PK15GTA-L	16	15	1	7.25 (184)	3.125 (79)
PK18GTA	18	18	—	6.375 (162)	3.125 (79)
PK18GTA-L	19	18	1	8.5 (216)	3.125 (79)
PK23GTA	23	23	—	7.875 (200)	3.125 (79)
PK23GTA-L	24	23	1	9.125 (232)	3.125 (79)
PK27GTA	27	27	—	9.125 (232)	3.125 (79)

Wire Range

Size	Cu	Al
I	(1) #14 to #4 or (2) #14 or #12	(1) #12 to #4 or (2) #12 or #10
II	(1) #1 to 4/0	(1) #1 to 4/0

UL Recognized Component Branch Sub-Feed Lug Kits, 240 Vac

2-Pole Sub-Feed Lugs

Rating Amperes	Spaces	Type of Connection	Catalog No.	Main Wire Size
125	2	Plug-On	QO2125SL	#4-2/0 Al or Cu
	2	Bolt-On	QOB2125SL	

3-Pole Sub-Feed Lugs

Rating Amperes	Spaces	Type of Connection	Catalog No.	Main Wire Size
125	3	Plug-On	QO3125SL	#4-2/0 Al or Cu
	3	Bolt-On	QOB3125SL	



Field-Installable Sub-Feed Main Lugs

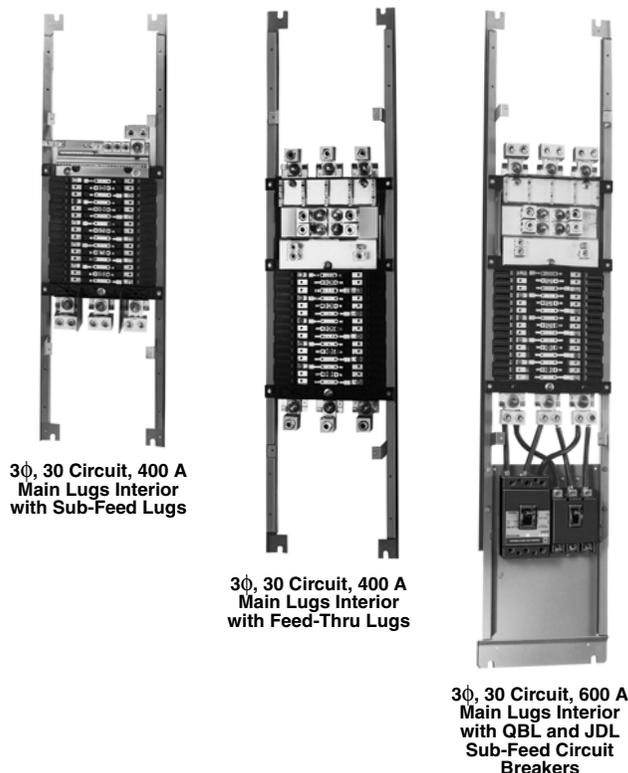
Field-installable sub-feed main lugs 100 A (NQOD100SFL) or 225 A (NQOD225SFL) are available for use on 1 ϕ or 3 ϕ main lug 100–225 A. Refer to the Digest for the correct box size.

Factory-Installed Options

- Sub-Feed Lugs (on the main) are available on 1 ϕ or 3 ϕ , 100–400 A main lug interiors only.
- Box size changes are as follows:
 - 100–225 A interiors with 30 circuits maximum—no change required.
 - 225 A interiors with 42 circuits: 38 in. (965 mm) high by 20 in. (508 mm) wide or 14 in. (356 mm) wide.
 - 225 A interiors with 54 circuits: 44 in. (1118 mm) high by 20 in. (508 mm) wide or 14 in. (356 mm) wide.
 - 225 A interiors with 72 circuits: 50 in. (1270 mm) high by 20 in. (508 mm) wide (Canada only).
 - 225 A interiors with 84 circuits: 53 in. (1346 mm) high by 20 in. (508 mm) wide (Canada only).
 - 400 A interiors: add 3 in. (76 mm) to standard box height.
- Feed-Thru Lugs are available on 1 ϕ or 3 ϕ 225–600 A main lug, or 225–600 A main circuit breaker interiors.
- Sub-Feed Circuit Breakers
 - Available on 1 ϕ or 3 ϕ main lugs 225–600 A, or main circuit breaker interiors 225–600 A.
 - One sub-feed circuit breaker for each 225 A panelboard.
 - Two sub-feed circuit breakers for each 400–600 A panelboard.
 - Sub-feed circuit breakers may be type HDL, HGL, HJL, HLL, QBL, QDL, QGL, QJL, JDL, JGL, JLL, OR JLL circuit breakers.

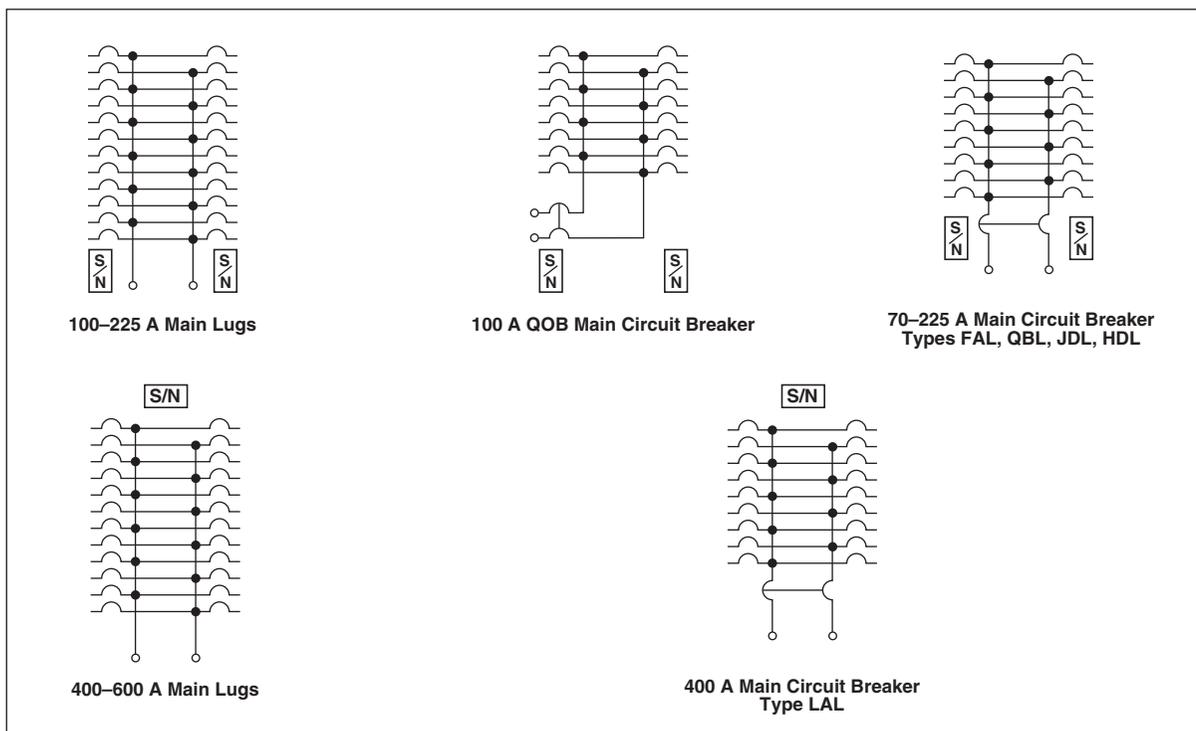
Other Accessories Available

- Split bus
- Lighting contactors
- Compression lugs
- Copper bus
- Phenolic nameplates

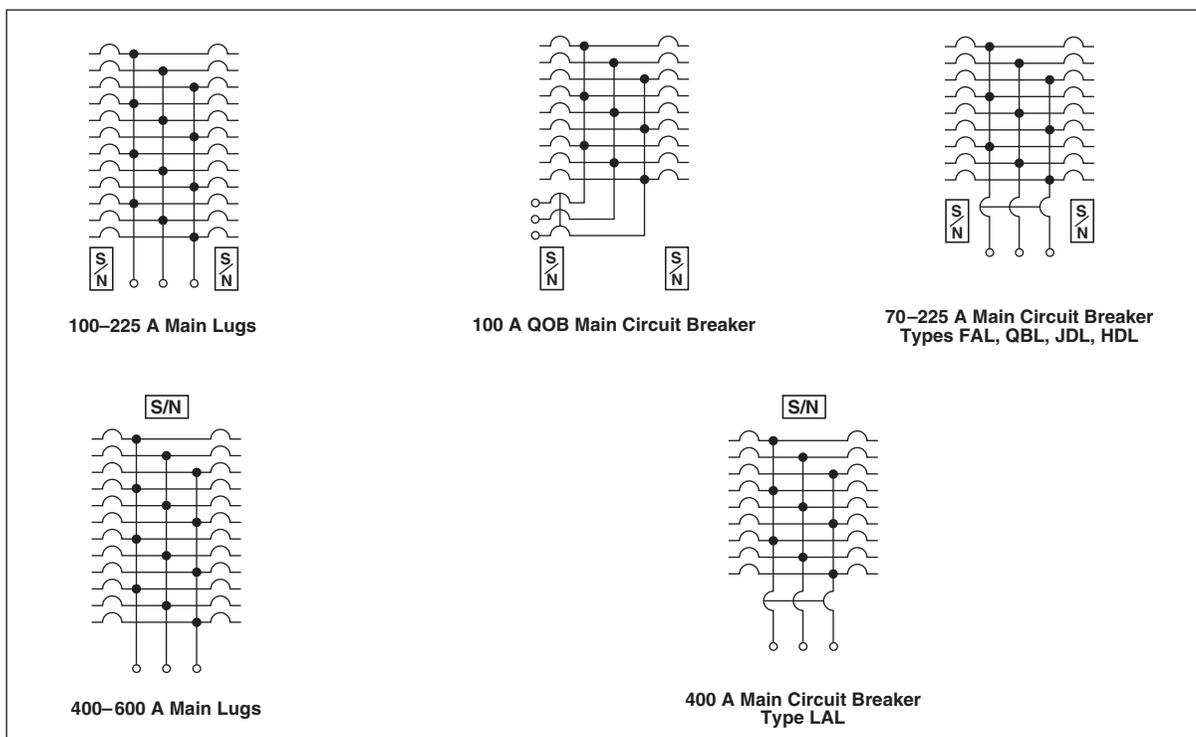


NQOD Circuit Breaker Panelboards

Typical Wiring Diagrams

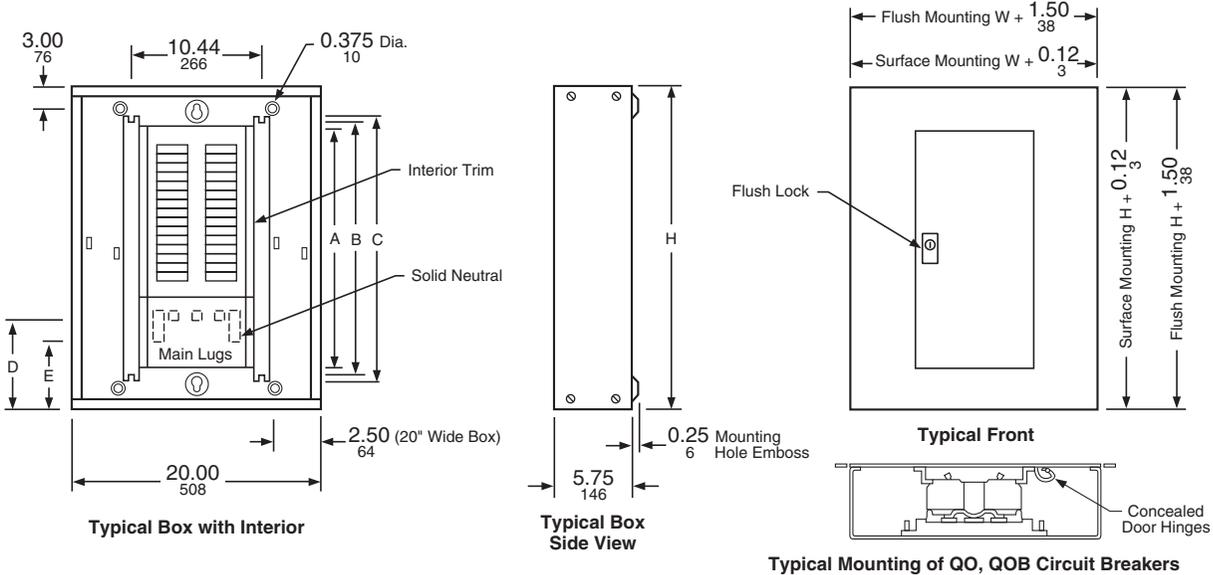


1-Phase, 3-Wire

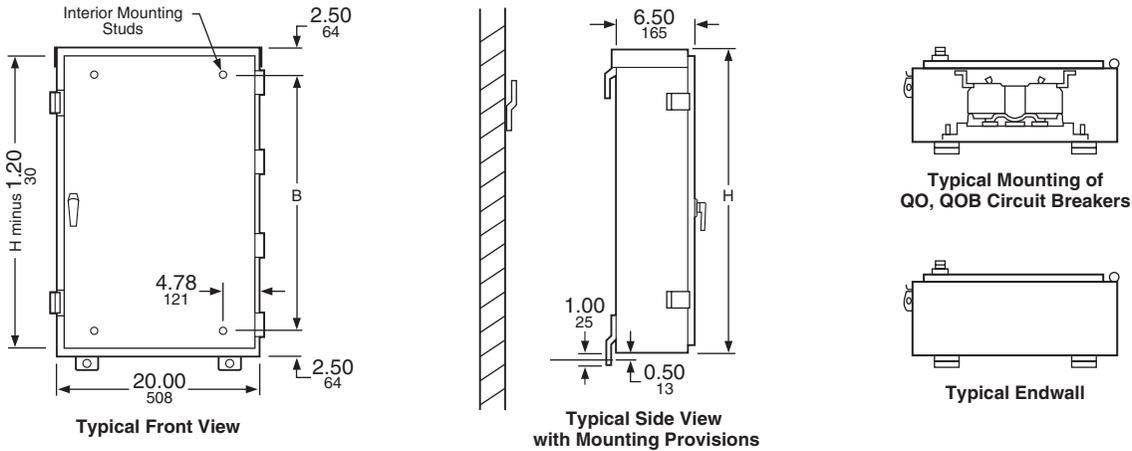


3-Phase, 4-Wire

NQOD Circuit Breaker Panelboards Dimensions



Indoor—Type 1 Enclosure
Outdoor—Type 3R Enclosure



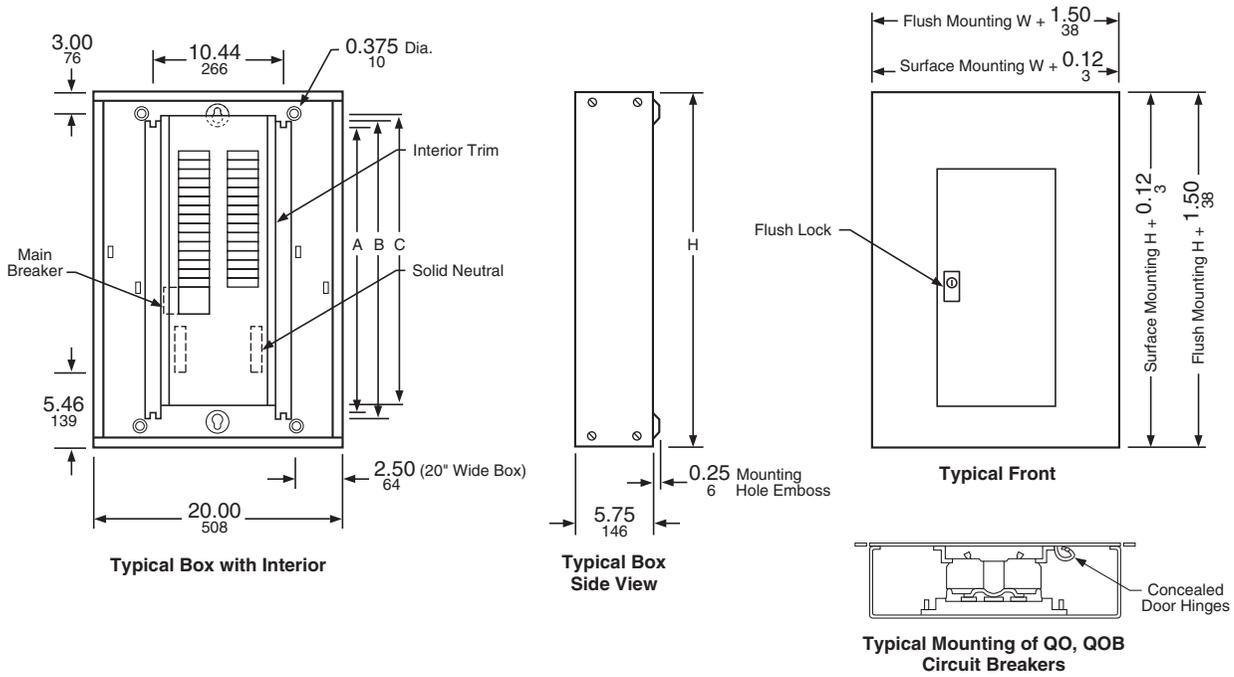
NOTE: Refer to page 21 for keyhole and endwall detail.

dimensions: INCHES
mm

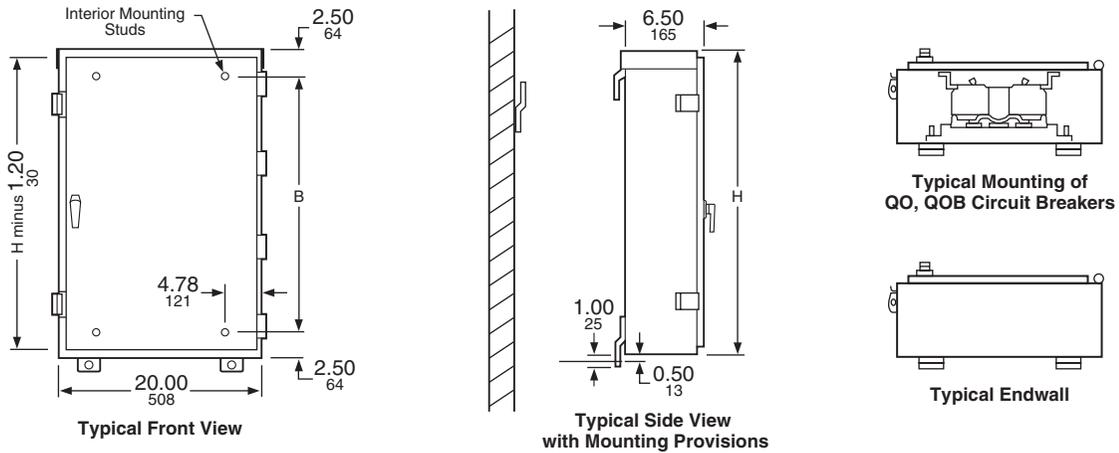
Maximum Main Lug Ampere Rating	Maximum Number of Circuits	H Box Height		A Length of Deadfront		B Stud Dimension		C Rail Length		D MLO Wire Bending		E S/N Wire Bending	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
100	12	20.00	508	14.90	378	15.00	381	15.88	403	6.89	175	5.46	139
	20 ▲	23.00	584	17.90	455	18.00	457	18.88	480	6.89	175	5.46	139
	24 ■	23.00	584	17.90	455	18.00	457	18.88	480	6.89	175	5.46	139
	30 ■	26.00	660	20.90	531	21.00	533	21.88	556	6.89	175	5.46	139
225	30	32.00	813	26.90	683	27.00	686	27.88	708	11.43	290	10.00	254
	42	35.00	889	29.90	759	30.00	762	30.88	784	8.43	214	7.00	178
	54	41.00	1041	35.90	912	36.00	914	36.88	937	8.43	214	7.00	178
	72 ★	47.00	1194	41.90	1064	42.00	1067	42.88	1089	8.43	214	7.00	178
	84 ★	50.00	1270	44.90	1140	45.00	1143	45.88	1165	8.43	214	7.00	178

▲ 1Ø3W only.
■ 3Ø4W only.
★ Canada only.

NQOD Circuit Breaker Panelboards Dimensions



Indoor—Type 1 Enclosure
Outdoor—Type 3R Enclosure



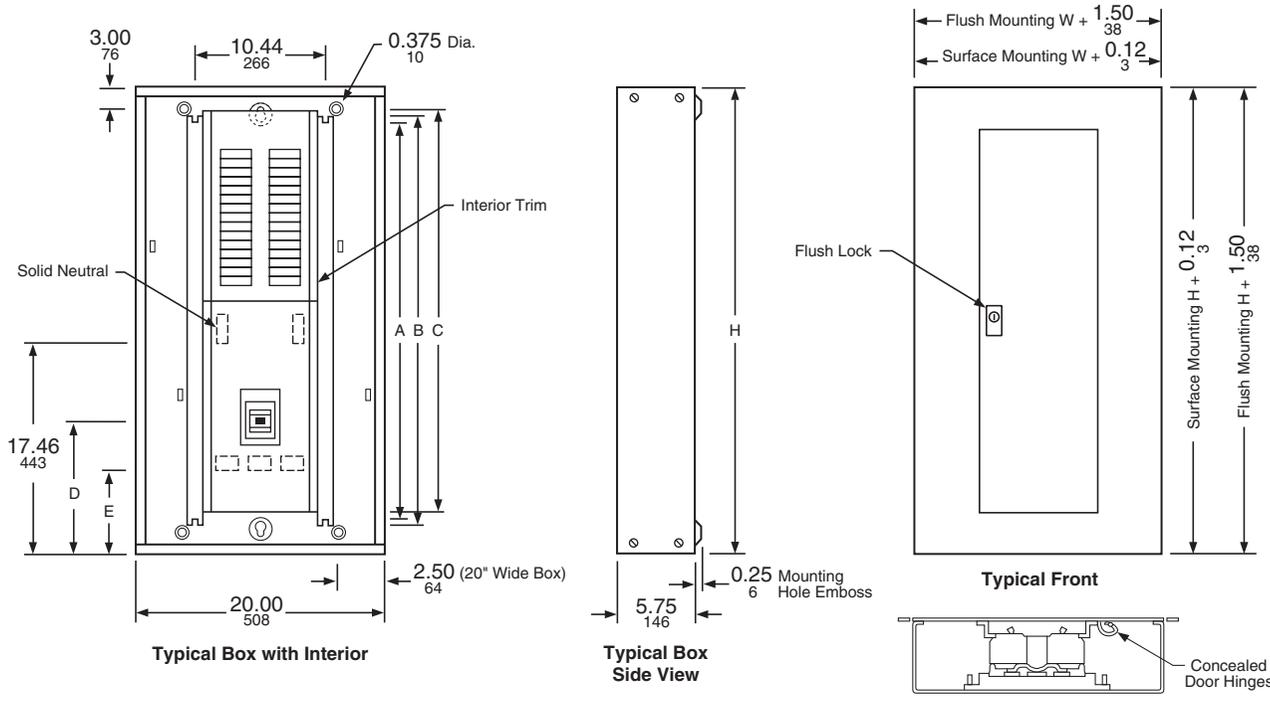
NOTE: Refer to page 21 for keyhole and endwall detail.

dimensions: INCHES
mm

Maximum Main Circuit Breaker Ampere Rating	Maximum Number of Circuits	H Box Height		A Stud Dimension		B Rail Length		C Length of Deadfront	
		IN	mm	IN	mm	IN	mm	IN	mm
100	12	23.00	584	18.00	457	18.88	480	17.90	455
	20 ▲	26.00	660	21.00	533	21.88	556	20.90	531
	24 ■	26.00	660	21.00	533	21.88	556	20.90	531
	30 ■	29.00	737	24.00	610	24.88	632	23.90	607

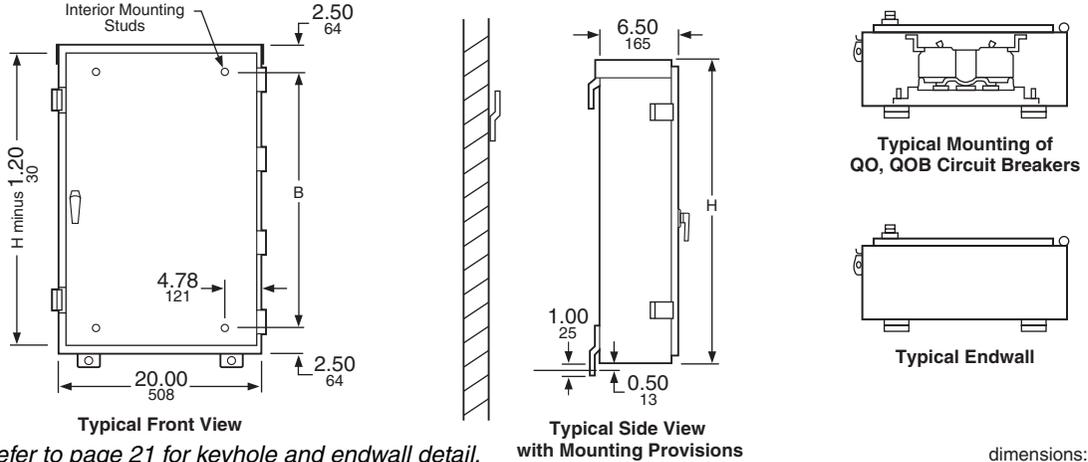
▲ 1Ø3W only.
 ■ 3Ø4W only.

NQOD Circuit Breaker Panelboards Dimensions



Indoor—Type 1 Enclosure
Outdoor—Type 3R Enclosure

Typical Mounting of QO, QOB Breakers



NOTE: Refer to page 21 for keyhole and endwall detail.

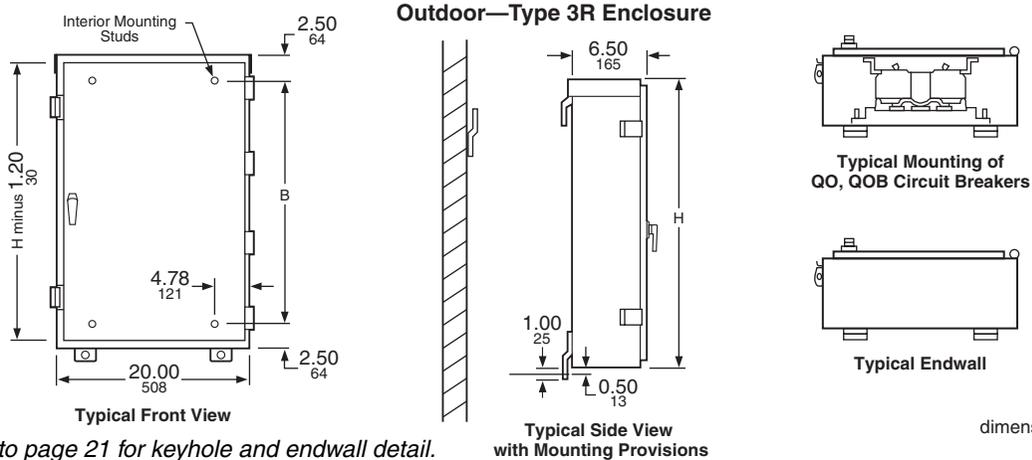
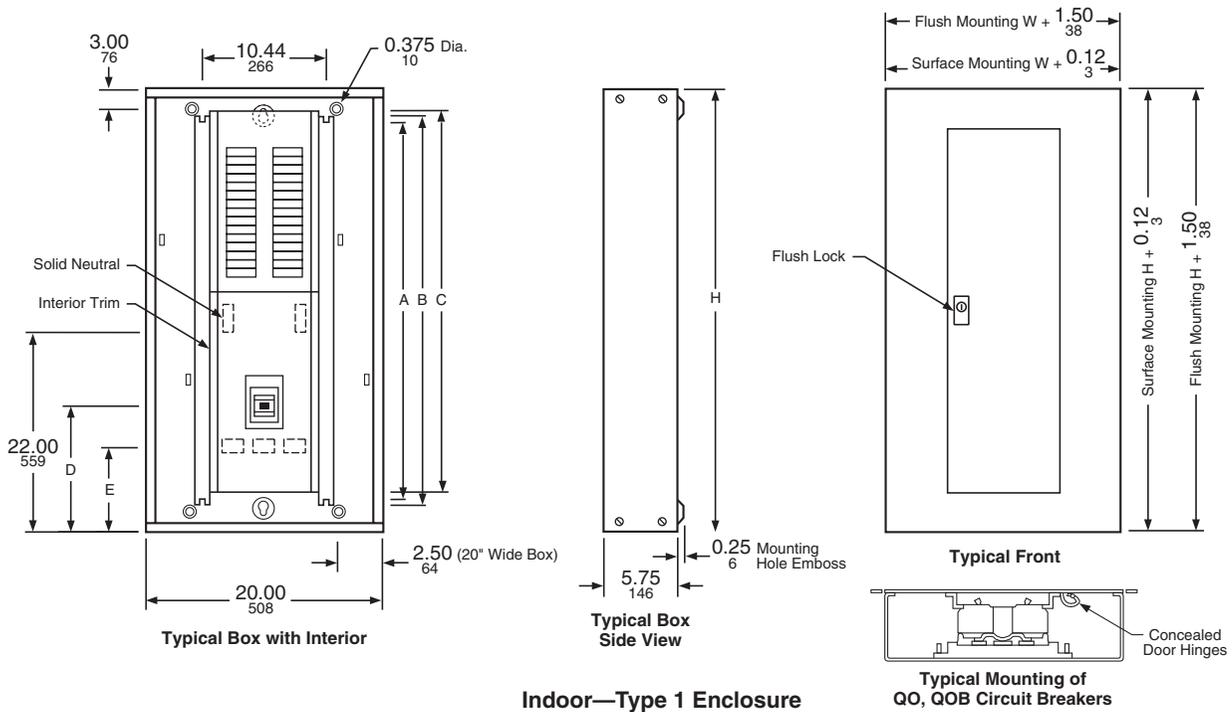
dimensions: INCHES
mm

Maximum Main Circuit Breaker Ampere Rating	Maximum Number of Circuits	H Box Height		A Stud Dimension		B Rail Length		C Length of Deadfront		D (from Center Line of CB)				E (from Line Lugs of CB)			
										Top Feed		Bottom Feed		Top Feed		Bottom Feed	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
100 FAL ★, FHL ★	12	32.00	813	27.00	686	27.88	708	26.90	683	11.82	300	10.06	256	8.08	205	8.08	205
	20 ▲	35.00	889	30.00	762	30.88	784	29.90	759								
	24 ■	35.00	889	30.00	762	30.88	784	29.90	759								
	30 ■	38.00	965	33.00	838	33.88	860	32.90	836								
100 FIL ★	12	32.00	813	27.00	680	27.88	708	26.90	683	10.08	256	10.08	256	7.08	180	7.08	180
	20 ▲	35.00	889	30.00	762	30.88	784	29.90	759								
	24 ■	35.00	889	30.00	762	30.88	784	29.90	759								
	30 ■	38.00	965	33.00	838	33.88	860	32.90	836								

▲ 1Φ3W only. ■ 3Φ4W only. ★ Factory assembled only.

NQOD Circuit Breaker Panelboards

Dimensions



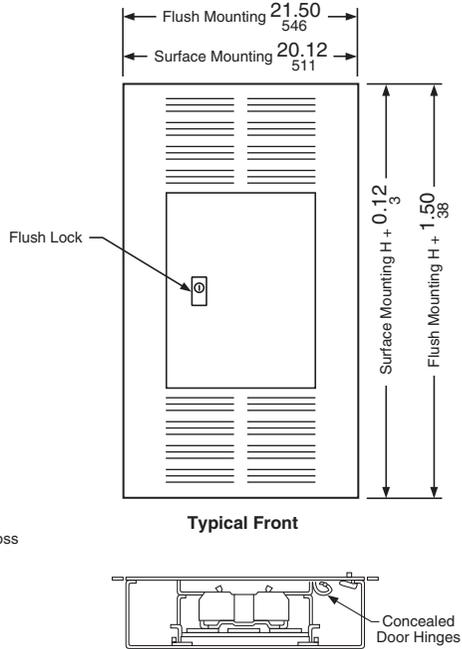
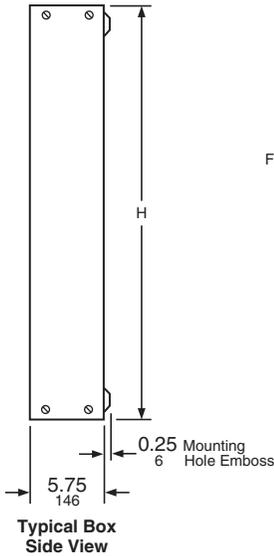
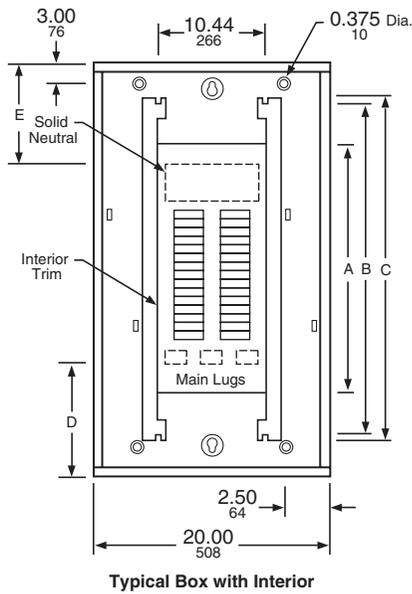
dimensions: INCHES
mm

NOTE: Refer to page 21 for keyhole and endwall detail.

Maximum Main Circuit Breaker Ampere Rating	Maximum Number of Circuits	H Box Height		A Stud Dimension		B Rail Length		C Length of Deadfront		D (from Center Line of CB)		E (from Line Lugs of CB)					
										Top Feed		Bottom Feed		Top Feed		Bottom Feed	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
150 ● HDL, HGL, HJL, HLL	30	44.00	1118	39.00	991	39.88	1013	39.90	1013	14.30	363	14.30	363	11.25	286	11.25	286
	42	50.00	1270	45.00	1143	45.88	1165	44.75	1137	14.30	363	14.30	363	11.25	286	11.25	286
	54	56.00	1422	51.00	1295	51.88	1318	50.75	1289	14.30	363	14.30	363	11.25	286	11.25	286
	72 ★	62.00	1575	57.00	1448	57.88	1470	56.75	1441	14.30	363	14.30	363	11.25	286	11.25	286
225 QBL, QDL, QGL, QJL	30	44.00	1118	39.00	991	39.88	1013	39.90	1013	16.99	432	15.48	393	13.66	347	12.79	325
	42	50.00	1270	45.00	1143	45.88	1165	44.75	1137								
	54	56.00	1422	51.00	1295	51.88	1318	50.75	1289								
	72 ★	62.00	1575	57.00	1448	57.88	1470	56.75	1441								
225/250 ▲ JDL, JGL, JLJ, JLL	30	44.00	1118	39.00	991	39.88	1013	39.90	1013	16.30	414	16.30	414	12.70	323	12.70	323
	42	50.00	1270	45.00	1143	45.88	1165	44.75	1137								
	54	56.00	1422	51.00	1295	51.88	1318	50.75	1289								
	72 ★	62.00	1575	57.00	1448	57.88	1470	56.75	1441								
	84 ★	65.00	1651	60.00	1524	60.88	1546	59.75	1518								

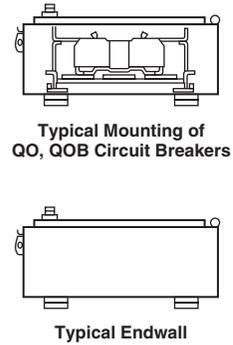
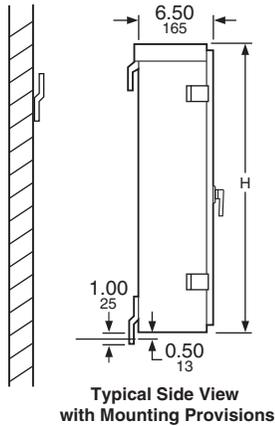
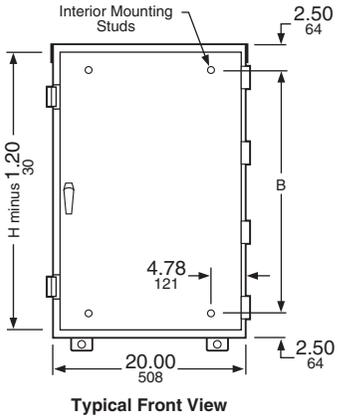
● 150 A available in a 225 A interior. ★ Canada only. ▲ 250 A available factory-assembled only.

NQOD Circuit Breaker Panelboards Dimensions



Indoor—Type 1 Enclosure

Outdoor—Type 3R Enclosure



NOTE: Refer to page 21 for keyhole and endwall detail.

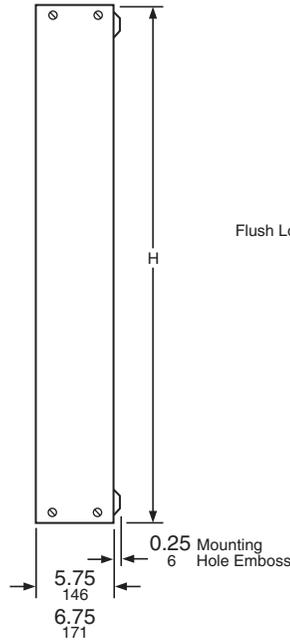
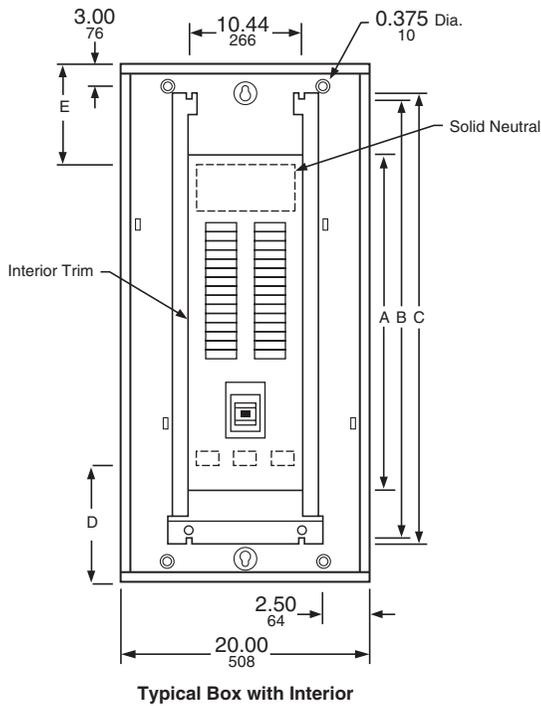
dimensions: INCHES
mm

Maximum Main Lug Ampere Rating	Maximum Number of Circuits	H Box Height		A Length of Deadfront		B Stud Dimension		C Rail Length		D MLO Wire Bending		E S/N Wire Bending	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
400	30	50.00	1270	30.75	781	45.00	1143	46.00	1163	15.14	385	14.03	356
	42	53.00	1346	34.50	875	48.00	1219	49.00	1245	14.39	366	13.28	337
	54	59.00	1499	39.75	1010	54.00	1372	55.00	1397	15.14	385	14.03	356
	72 ★	65.00	1651	42.75	1086	60.00	1524	61.00	1549	14.74	374	13.63	346
	84 ★	68.00	1727	47.50	1207	63.00	1600	64.00	1626	14.74	374	13.63	346
600	30	53.00	1346	33.75	857	48.00	1219	49.00	1245	16.43	417	15.32	389
	42	56.00	1422	37.50	953	51.00	1295	52.00	1321	15.63	398	14.57	370
	54	62.00	1575	42.75	1086	57.00	1448	58.00	1473	16.45	417	15.32	389
	72 ★	65.00	1651	42.75	1086	60.00	1524	61.00	1549	14.74	374	13.63	346
	84 ★	68.00	1727	47.50	1207	63.00	1600	64.00	1626	14.74	374	13.63	346

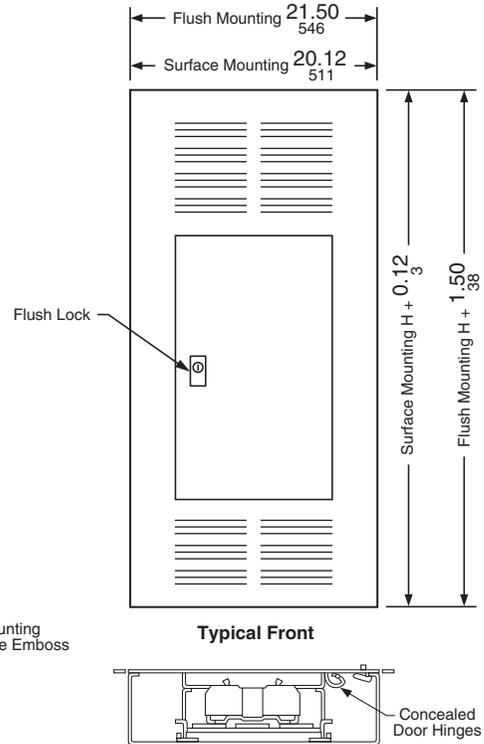
★ Canada only.

NQOD Circuit Breaker Panelboards

Dimensions

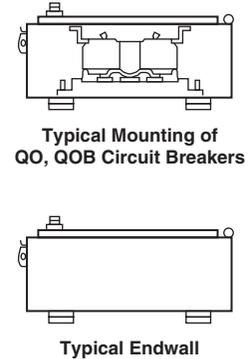
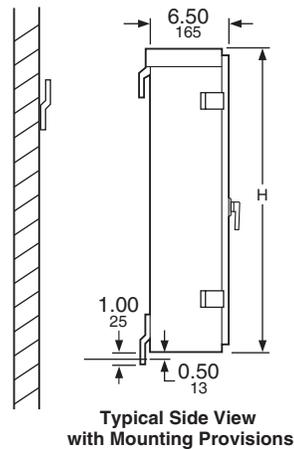
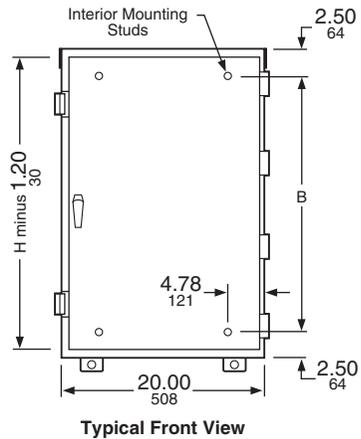


(When Provided with Sub-Feed Breakers)
 Typical Box Side View



Indoor—Type 1 Enclosure

Outdoor—Type 3R Enclosure



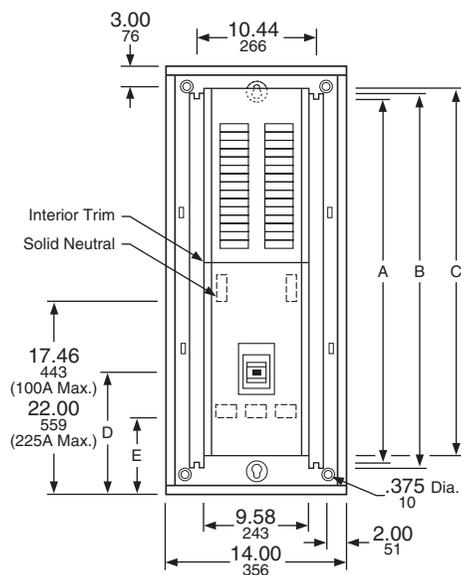
NOTE: Refer to page 21 for keyhole and endwall detail.

dimensions: INCHES
 mm

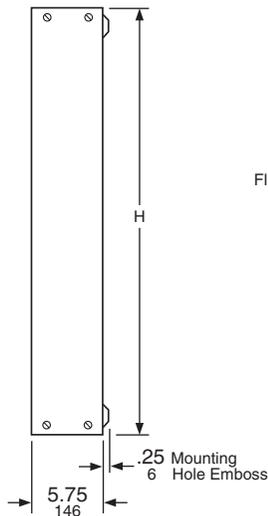
Maximum Main Circuit Breaker Ampere Rating	Maximum Number of Circuits	H Box Height		A Length of Deadfront		B Stud Dimension		C Rail Length		D MLO Wire Bending		E S/N Wire Bending	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
400	30	65.00	1651	42.67	1084	60.00	1524	61.00	1549	15.26	388	14.03	356
	42	68.00	1727	46.42	1179	63.00	1600	64.00	1626	14.51	369	13.28	337
	54	74.00	1880	51.67	1312	69.00	1753	70.00	1778	15.26	388	14.03	356
	72 ★	80.00	2032	51.67	1312	75.00	1905	76.00	1930	13.55	344	13.63	346

★ Canada only.

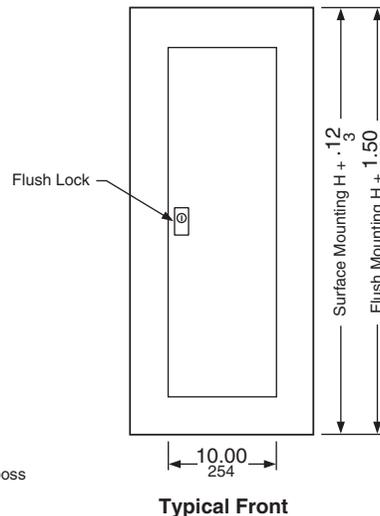
NQOD Circuit Breaker Panelboards Dimensions



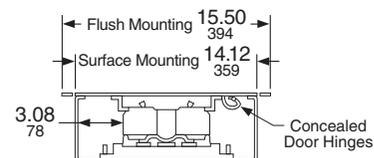
Typical Box with Interior



Typical Box Side View



Typical Front



Typical Mounting of QO or QOB Circuit Breakers

NOTE: Refer to page 21 for keyhole and endwall detail.

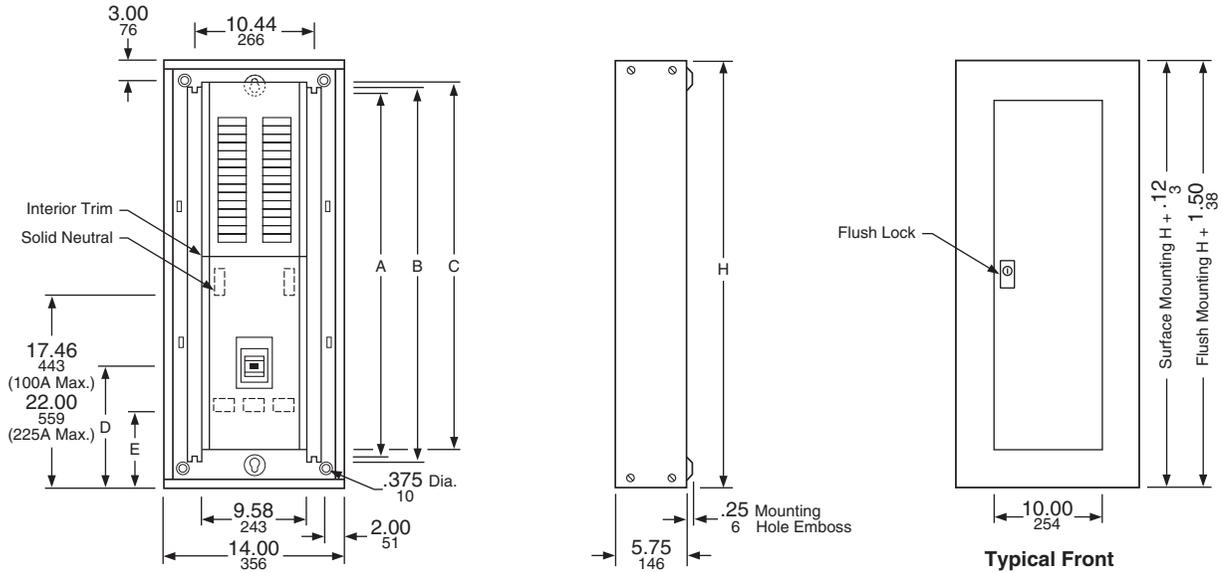
dimensions: INCHES
mm

Indoor—Type 1 Enclosure

Maximum Main Circuit Breaker Ampere Rating	Maximum Number of Circuits	H Box Height		A Length of Deadfront		B Stud Dimension		C Rail Length		D (from Center Line of CB)				E (from Line Lugs of CB)			
		IN	mm	IN	mm	IN	mm	IN	mm	Top Feed		Bottom Feed		Top Feed		Bottom Feed	
										IN	mm	IN	mm	IN	mm	IN	mm
100 FAL ★, FHL ★	12	32.00	813	27.00	686	27.88	708	26.90	683	11.82	300	10.06	256	8.08	205	8.08	205
	20 ▲	35.00	889	30.00	762	30.88	784	29.90	759								
	24 ■	35.00	889	30.00	762	30.88	784	29.90	759								
	30 ■	38.00	965	33.00	838	33.88	860	32.90	836								
100 FIL ★	12	32.00	813	27.00	686	27.88	708	26.90	683	10.08	256	10.08	256	7.08	180	7.08	180
	20 ▲	35.00	889	30.00	762	30.88	784	29.90	759								
	24 ■	35.00	889	30.00	762	30.88	784	29.90	759								
	30 ■	38.00	965	33.00	838	33.88	860	32.90	836								
150 HDL, HGL, HJL, HLL ★	30	44.00	1118	39.00	991	39.88	1013	39.90	1013	14.30	363	14.30	363	11.25	286	11.25	286
	42	50.00	1270	45.00	1143	45.88	1165	44.75	1137	14.30	363	14.30	363	11.25	286	11.25	286
	54	56.00	1422	51.00	1295	51.88	1318	50.75	1289	14.30	363	14.30	363	11.25	286	11.25	286
225 QBL, QDL, QGL, QJL	30	44.00	1118	39.00	991	39.88	1013	39.90	1013	16.99	432	15.48	393	13.66	347	12.79	325
	42	50.00	1270	45.00	1143	45.88	1165	44.75	1137								
	54	56.00	1422	51.00	1295	51.88	1318	50.75	1289								
225 JDL, JGL, JLJ, JLL	30	44.00	1118	39.00	991	39.88	1013	39.90	1013	16.30	414	16.30	414	12.70	323	12.70	323
	42	50.00	1270	45.00	1143	45.88	1165	44.75	1137								
	54	56.00	1422	51.00	1295	51.88	1318	50.75	1289								

▲ 1Φ3W only.
■ 3Φ4W only.
★ Factory-assembled only.

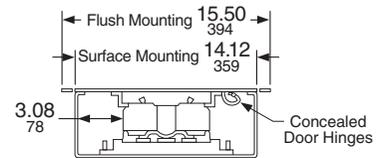
NQOD Circuit Breaker Panelboards Dimensions



Typical Box with Interior

Typical Box Side View

Typical Front



Typical Mounting of QO or QOB Circuit Breakers

NOTE: Refer to page 21 for keyhole and endwall detail.

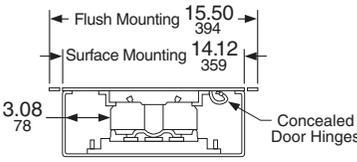
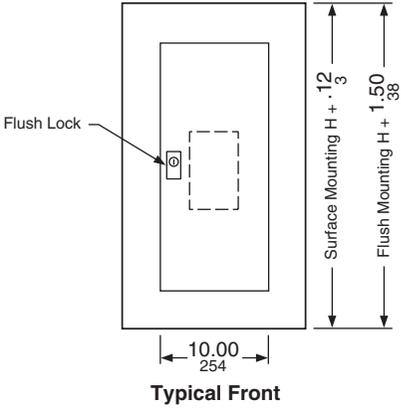
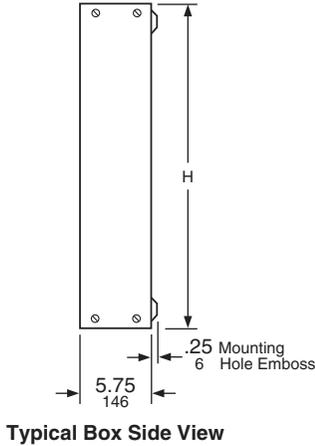
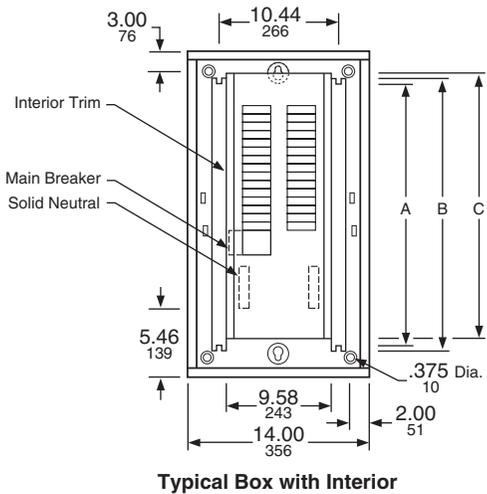
dimensions: INCHES
mm

Indoor—Type 1 Enclosure

Maximum Main Lug Ampere Rating	Maximum Number of Circuits	H Box Height		A Length of Deadfront		B Stud Dimension		C Rail Length		D MLO Wire Bending		E S/N Wire Bending	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
100	12	20.00	508	14.90	378	15.00	381	15.88	403	6.89	175	5.46	139
	20 ▲	23.00	584	17.90	455	18.00	457	18.88	480	6.89	175	5.46	139
	24 ■	23.00	584	17.90	455	18.00	457	18.88	480	6.89	175	5.46	139
	30 ■	26.00	660	20.90	531	21.00	533	21.88	556	6.89	175	5.46	139
225	30	32.00	813	26.90	683	27.00	686	27.88	708	11.43	290	10.00	254
	42	35.00	889	29.90	759	30.00	762	30.88	784	8.43	214	7.00	178
	54	41.00	1041	35.90	912	36.00	914	36.88	937	8.43	214	7.00	178

▲ 1Ø3W only.
■ 3Ø4W only.

NQOD Circuit Breaker Panelboards Dimensions



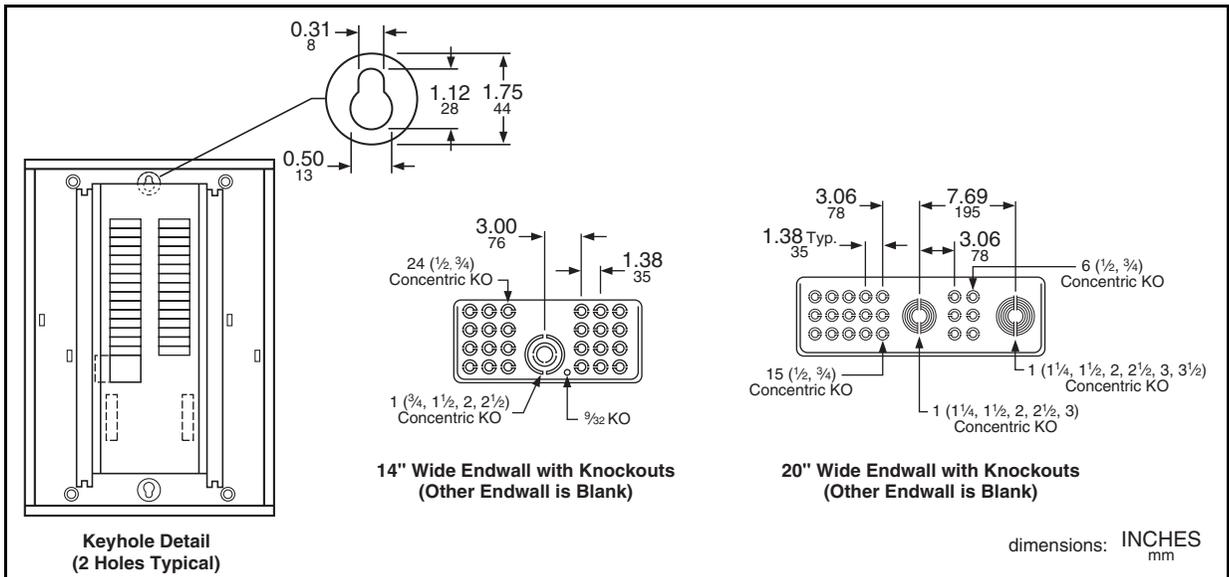
dimensions: INCHES
mm

NOTE: Refer to page 21 for keyhole and endwall detail.

Indoor—Type 1 Enclosure

Maximum Main Circuit Breaker Ampere Rating	Maximum Number of Circuits	H Box Height		A Length of Deadfront		B Stud Dimension		C Rail Length	
		IN	mm	IN	mm	IN	mm	IN	mm
100	12	23.00	584	18.00	457	18.88	480	17.90	455
	20 ▲	26.00	660	21.00	533	21.88	556	20.90	531
	24 ■	26.00	660	21.00	533	21.88	556	20.90	531
	30 ■	29.00	737	24.00	610	24.88	632	23.90	607

▲ 1φ3W only.
■ 3φ4W only.

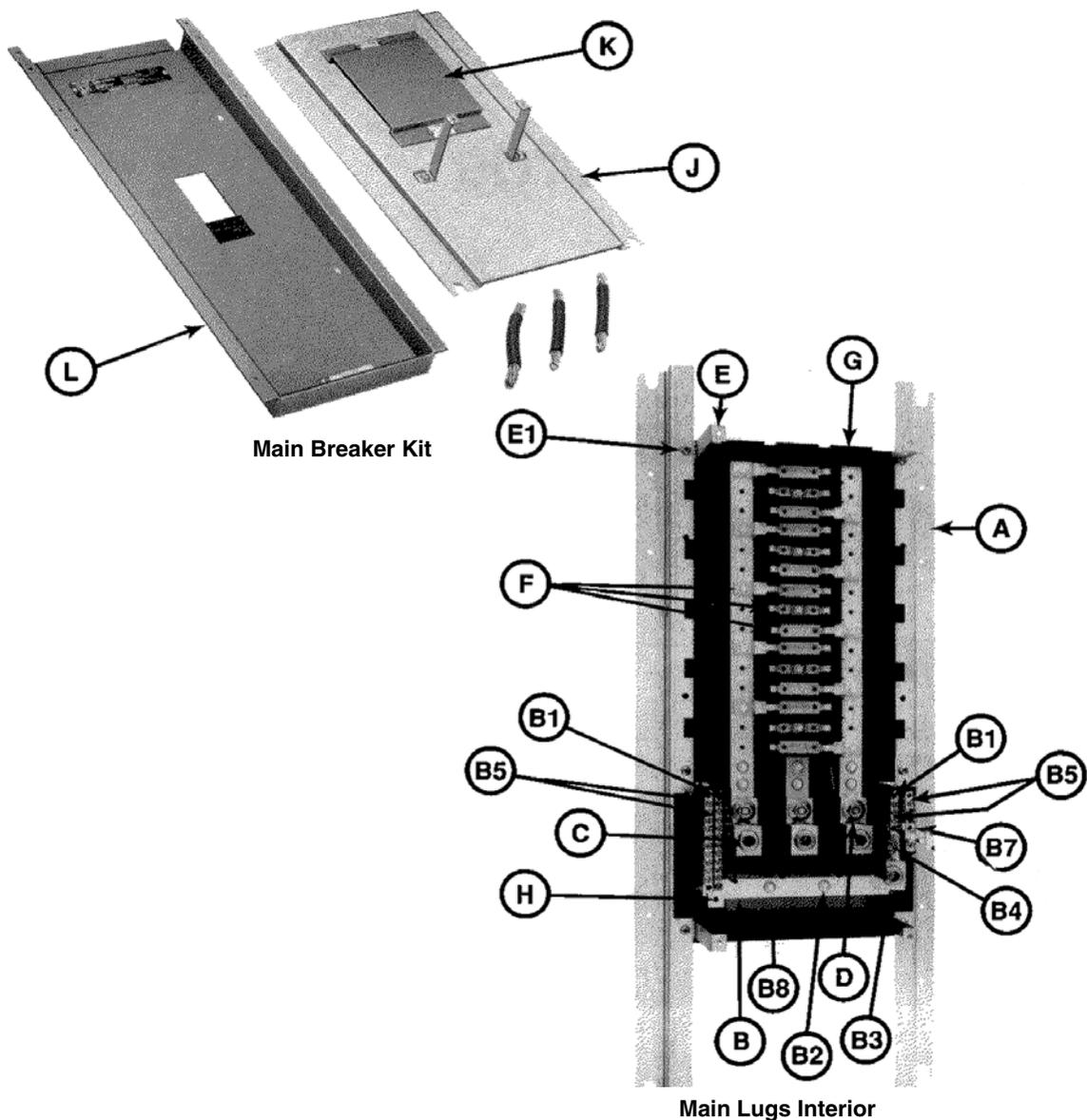


Keyhole and Endwall Detail

NQOD Circuit Breaker Panelboards Replacement Parts

REPLACEMENT PARTS

Main Lugs and Main Breaker—225 A Maximum



NQOD Circuit Breaker Panelboards Replacement Parts

Ordering Instructions: Specify quantity, part number, description of part; copy catalog number from panelboard nameplate. For example: (1)80110-201-50 Neutral Assembly for NQOD interior catalog number NQOD12L100CU.

Letter Code	Description	Part Number
A	Interior Catalog Number	See Table Below
①	Elevating Screws (10-32 x .875)	(4) 80114-005-01
B	Neutral Assembly:	See Table Below
B1	Screw for Mounting Neutral to Insulator (8-18 x 3/4)	(2) 21533-08240
B2	Screw for Mounting Neutral to Insulator (8-32 x .44)	(2) 80110-233-01
B3	Neutral Lug 100 A (#6-2/0 Al, 10-2/0 Cu) 225 A (#6-300 kcmil)	80110-194-01 40251-162-51
B4	Keps Nuts, Neutral Lug Mounting 100 A (5/16-18) 225 A (5/16-18)	23427-02200 23427-02200
B5	Neutral Bars 3 Circuit Al 6 Circuit Al 10 Circuit Al 13 Circuit Al	80120-805-62 80120-805-79 80120-805-80 80120-805-83
B7	Screw for Mounting Neutral Bar to Neutral (8-32 x 5/8)	21590-00001
B8	Neutral Insulator	80110-095-01

Letter Code	Description	Part Number
C	Main Lug/Wire Binding Screw: 100 A (6-2/0 Al, 10-2/0 Cu) 225 A (#6-300 kcmil)	40251-194-01 40251-162-51
D	Keps Nut, Main Lug Mounting: 100 A (5/16-18) 225 A (5/16-18)	23427-02200 23427-02200
①	Interior Trim Screw, Trim Jointing/Mounting (10-32 x 7/16)	See Table Below 80025-067-01
E	Trim Mounting Bracket Screw, Trim Bracket Mounting	(4) 80110-007-01 (2) 21962-10280
E-1		
F	Branch Connectors, 3-Pole	SKNQOD225
G	Endcap Insulator	80110-004-02
H	Neutral Bonding Strap Assembly	80116-121-50
①	Circuit Number Strips	See page 25
①	Trim Mounting Screws	40205-130-01

Interiors, Solid Neutrals, Interior Trims

Letter Code	Description	Part Number								
		1-12 Circuits	13-20 Circuits	21-24 Circuits	25-30 Circuits	31-42 Circuits	43-54 Circuits	55-72 Circuits ★	73-84 Circuits ★	
A	Interior Catalog Number									
	1Ø3W;	100 A	— NQOD12L100CU NQOD12M100CU	NQOD20L100/ NQOD20M100 NQOD20L100CU/ NQOD20M100CU	— — —	— — —	— — —	— — —	— — —	
	3Ø4W;	100 A	— NQOD412L100CU NQOD412M100CU	— — —	NQOD424L100 NQOD424M100 NQOD424L100CU NQOD424M100CU	NQOD430L100 NQOD430M100 NQOD430L100CU NQOD430M100CU	— — — —	— — — —	— — — —	
		225 A	— —	— —	— —	NQOD30L225 NQOD30L225CU	NQOD42L225 NQOD42L225CU	— NQOD54L225	NQOD72L225 NQOD72L225CU	NQOD84L225 NQOD84L225CU
B	Solid Neutral Assembly (S/N Lug Not Included)	100 A	80110-201-75	80110-201-75	80110-201-75	80110-201-75	—	—	—	—
		225 A	—	—	—	80110-201-75	80110-201-78	80110-201-78	80110-201-78 80116-169-50	80110-201-78 80116-169-50
①	Interior Deadfront Trim:									
	Main Breaker ②	100 A 1Ø	80110-059-01	80110-059-02	—	—	—	—	—	—
		100 A 3Ø	80110-059-05	—	80110-059-03	80110-059-04	—	—	—	—
	Main Lugs End	100 A	80110-042-01	80110-042-01	80110-042-01	80110-042-01	—	—	—	—
		225 A	—	—	—	80110-045-02	80110-045-01	80110-045-01	80110-045-01	80110-045-01
	Branch End	100 A	80110-041-01	80110-041-02	80110-041-03	80110-041-04	—	—	—	—
		225 A	—	—	—	80110-044-01	80110-044-02	80110-044-03	80110-044-04	80110-044-05

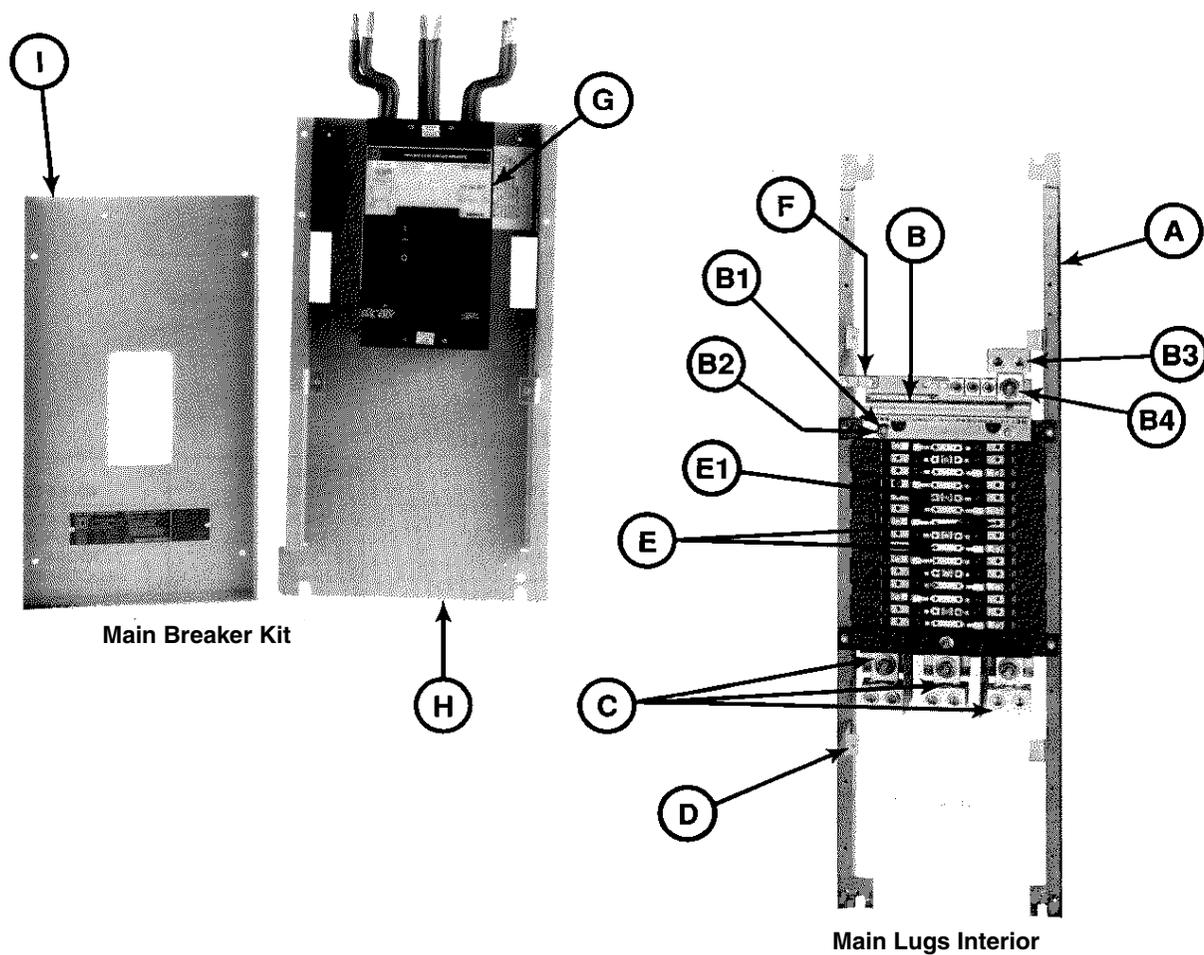
Main Breaker

Letter Code	Description	Part Number
	Main Breaker Kit	100 A Breaker ③ NQODQB NQODKA NQODJK
①	Main Breakers	Factory-Assembled, QOB Select Appropriate Main Breaker from Digest
J	Main Breaker Mounting Pan	80110-013-01 80110-013-01 80110-013-02
K	Main Breaker Subpan Assembly	80110-092-50 — 80016-275-01
L	Main Breaker Trim	80110-046-01 80110-091-50 80110-091-50
	Mounting Bracket, Trim	(2) 80110-007-02 (2) 80110-007-02 (2) 80110-007-02
	Mounting Screw, Trim	(2) 80025-067-01 (2) 80025-067-01 (2) 80025-067-01
	Replacement Hardware Kit (Bolts, Nuts, Washers)	80110-236-50 80110-235-50 —

- ① Not shown.
 - ② 100 A main breaker panels require only one trim. Main lug panels require two trims; mains end and branch end.
 - ③ 100 A main breaker is backfed.
 - ★ Canada only.
- Note: Number in parentheses, (e.g., (2)) indicates quantity required.

NQOD Circuit Breaker Panelboards Replacement Parts

Main Breaker—400 A Maximum; Main Lugs—600 A Maximum



NQOD Circuit Breaker Panelboards Replacement Parts

Ordering Instructions: Specify quantity, part number, description of part; copy catalog number from panelboard nameplate. For example: (1)80110-808-51 Neutral Assembly for NQOD interior catalog number NQOD30L400.

400 A and 600 A Maximum

Letter Code	Description	Part Number
A	Interior Catalog Number	See Table Below
①	Keps Nut (5/16-18), Interior Mounting	(4) 23220-00003
B	Neutral Assembly:	See Table Below
B1	Bolt, 5/16-18 x 2; Neutral Mounting	21401-22640
B2	Keps Nut, (5/16-18), Neutral Mounting	23427-02200
B3	S/N Lug Assembly	
	400 A (750 kcmil)	40251-136-50
	600 A (750 kcmil)	80116-122-50
B4	Keps Nut, S/N Lug Assembly (1/2-13)	23427-02800
C	Main Lug Assemblies	
	400 A (750 kcmil)	42051-136-50
	600 A (750 kcmil)	80116-122-50
①	Interior Trim, Branch End	See Table Below
	Main Lugs End	80110-630-01
	Screw, Trim Joint/Mounting	80025-067-01
D	Mounting Bracket, Interior Trim	80110-604-01
	Screw, Bracket Mounting (10-32 x 7/16)	80025-067-01
E	Branch Connector, AØ and CØ	80110-600-01
E1	Branch Connector, BØ	80110-601-01
	Screw, Branch Connector	80110-802-01
F	Neutral Bonding Strap Assembly	80110-605-01
①	Circuit Number Strips	See Miscellaneous Table Below

Main Lug Panelboards

Letter Code	Description	Part Number				
		1-30 Circuits	31-42 Circuits	43-54 Circuits	55-72 Circuits ★	73-84 Circuits ★
A	Interior Catalog Numbers					
	1Ø3W; 400 A	NQOD30L400	NQOD42L400	NQOD54L400	NQOD72L400	NQOD84L400
	400 A	NQOD30L400CU	NQOD42L400CU	NQOD54L400CU	NQOD72L400CU	NQOD84L400CU
	600 A	NQOD30L600	NQOD42L600	NQOD54L600	NQOD72L600	NQOD84L600
	3Ø4W; 400 A	NQOD430L400	NQOD442L400	NQOD454L400	NQOD472L400	NQOD484L400
	400 A	NQOD430L400CU	NQOD442L400CU	NQOD454L400CU	NQOD472L400CU	NQOD484L400CU
	600 A	NQOD430L600	NQOD442L600	NQOD454L600	NQOD472L600	NQOD484L600
B	Solid Neutral Assembly (Lugs Not Included)	80110-808-51	80110-808-50	80110-808-50	80110-411-50	80110-411-50
①	Interior Deadfront Trim					
	Branch End	400 A 80110-633-02	80110-634-02	80110-635-02	80116-128-01	80110-406-02
	Branch End	600 A 80110-646-02	80110-647-02	80110-648-02	80116-128-01	80110-406-02
	Main Lugs End	400/600 A 80110-630-01	80110-630-01	80110-630-01	80110-630-01	—

Main Breaker Kit

Letter Code	Description	Part Number
	Main Breaker Kit	NQOD
G	Main Breaker	Select Q4, LA, or LH Breaker from Digest
H	Main Breaker Mounting Pan	80110-632-01
I	Main Breaker Trim	80110-631-02
①	Replacement Hardware Kit	80110-863-50

Miscellaneous

Letter Code	Description	Part Number
①	Endwalls (Type MH):	
	Blank	80110-105-01
	With Knockouts	80110-104-01
①	Circuit Directory Cards (5-2/3 in. Wide)	80031-158-01
	Numbers (1-54)	80031-158-02
	Numbers (43-96)	
①	Plastic Stick-On Pouch (5-2/3 in. Wide)	80031-159-01
①	Circuit Number Description	
	1-96	80043-295-03

① Not shown.

★ Canada only.

Note: Number in parentheses, (e.g., (4)) indicates quantity required.

Schneider Electric USA

252 North Tippecanoe
Peru, IN 46970 USA
1-888-SquareD
(1-888-778-2733)
www.us.SquareD.com

Schneider Electric Canada

19 Waterman Avenue,
M4B 1 Y2
Toronto, Ontario
1-800-565-6699
www.schneider-electric.ca

1630CT9701R10/04 © 1998–2005 Schneider Electric All Rights Reserved
Replaces 16930CT9701R2/03 dated 02/2003

Tab 10 - Plumbing Cut Sheets



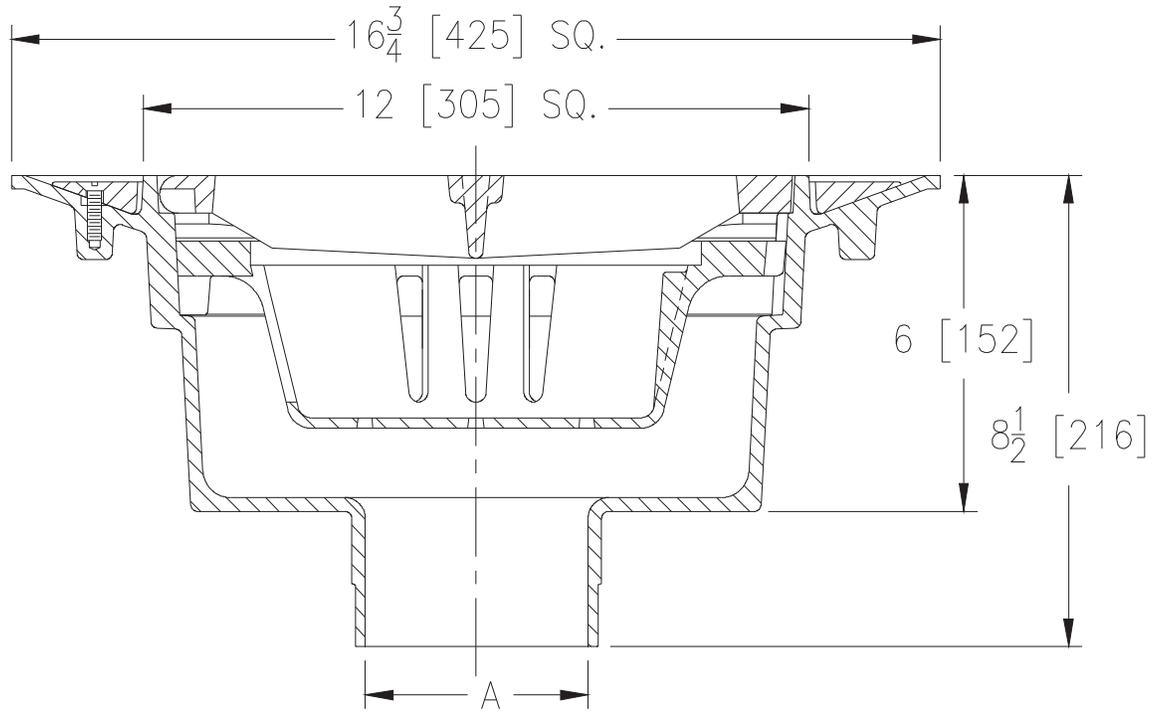
Z535

HEAVY-DUTY PARKING STRUCTURE DRAIN

SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



A Pipe Size In.	Approx. Wt. Lbs. [kg]	Grate Open Area Sq. In. [cm ²]
3-4-6-8 [76-102-152-203]	29 [13]	56 [361]

ENGINEERING SPECIFICATION: ZURN Z535

Square top heavy-duty drain, oven cured acid resistant epoxy coated aluminum body with bottom outlet, top membrane clamping collar, anti-ponding slots, sediment bucket and heavy-duty anti-tilt hinged slotted grate with stainless steel hinge pins.

OPTIONS (Check/specify appropriate options)

PIPE SIZE

3-4-6-8 [76-102-152-203]

(Specify size) **OUTLET**

____ NH No-Hub

PREFIXES

____ Z A.R.C. Aluminum Body and Top*

SUFFIXES

____ -CI Cast Iron Grate

____ -L Locking Device

*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED

REV. F	DATE: 7/24/09	C.N. NO. 110003
DWG. NO. 58940	PRODUCT NO. Z535	

ZURN INDUSTRIES, LLC ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514

Phone: 814455-0921 ♦ Fax: 814454-7929 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905405-8272 Fax: 905405-1292



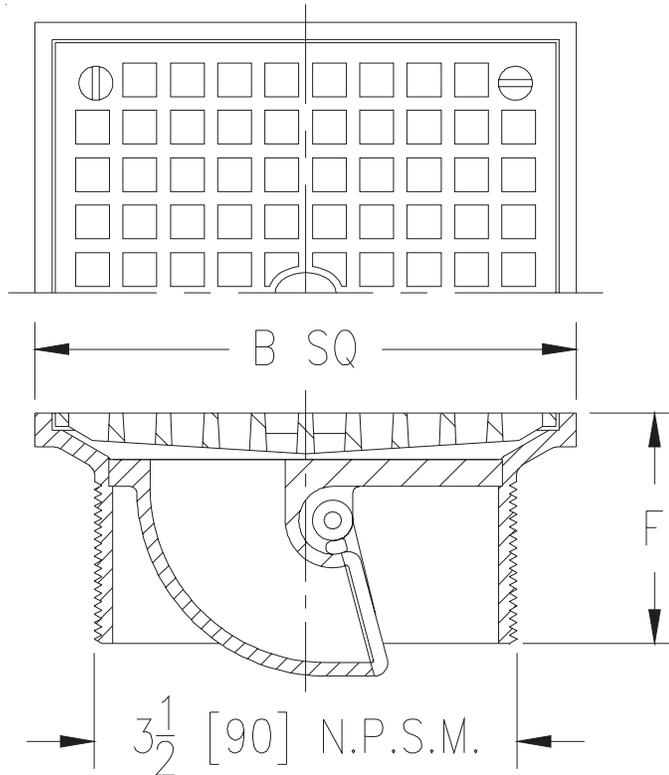
Z400S-V

"TYPE S" SQUARE STRAINER WITH BACKWATER VALVE

SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



Strainer Designation	Dimension in Inches		Approx. Wt. Lbs. [kg]	Open Area Sq. In. [cm ²]
	Size B	Height F		
-5S	5 X 5 [127 X 127]	2 [51]	3 [1]	9 [58]
-6S	6 X 6 [152 X 152]	2-1/4 [57]	4 [2]	13 [84]
-7S	7 X 7 [178 X 178]		5 [2]	21 [135]
-8S	8 X 8 [203 X 203]	3 [76]	6 [3]	28 [181]
9S	9 X 9 [229 X 229]		10 [5]	
-10S	10 X 10 [254 X 254]		12 [5]	

ENGINEERING SPECIFICATION: ZURN Z()400S-V "TYPE S" square adjustable strainer top with backwater valve and secured heel-proof light-duty grate. (Specify ZB or ZN finish)

OPTIONS (Check/specify appropriate options)

PREFIXES

- ___ ZB Polished Bronze Top
- ___ ZN Polished Nickel Bronze Top

SUFFIXES

- ___ -DP Decorative Polished Top
- ___ -HD Heavy Duty Slotted Grate (ZN 8 x 8 [203 x 203] Only with 4 [100] Shank)
- ___ -PD Prom-Deck Grate Decorative Slots (8 x 8 [203 x 203] Only)
- ___ -SG Solid Gasketed Cover
- ___ -VP Vandal-Proof Secured Top

REV. A	DATE: 07/20/11	C.N. NO. 121637
DWG. NO. 301657	PRODUCT NO. Z400S-V	

*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED



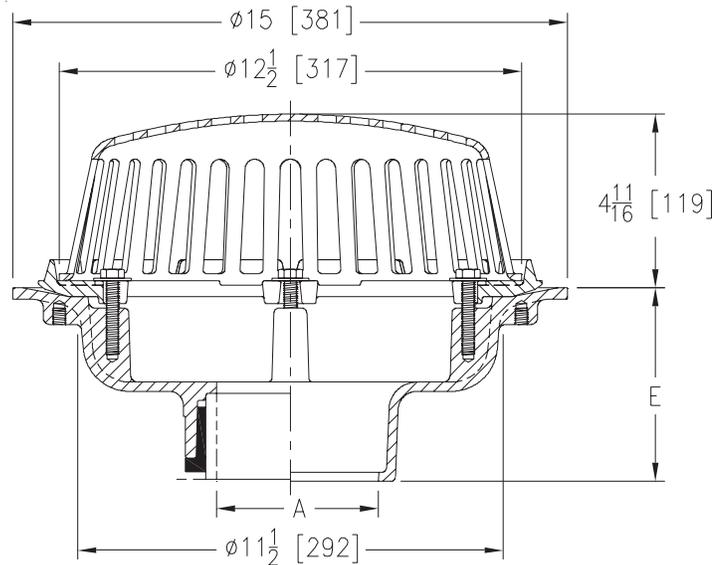
Z100

SPECIFICATION SHEET

15 [381] DIAMETER MAIN ROOF DRAIN LOW SILHOUETTE DOME

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



A Pipe Size In.	Approx. Wt. Lbs. [kg]	Dome Open Area Sq. In. [cm ²]
2,3,4 [51,76,102]	26 [12]	103 [665]
5,6 [127,152]	27 [12]	
8 [203]	28 [13]	

ENGINEERING SPECIFICATION: ZURN Z100

15 [381] Diameter roof drain. Dura-Coated cast iron body with combination membrane flashing clamp/gravel guard and low silhouette Poly-Dome.

OPTIONS (Check/specify appropriate options)

PIPE SIZE

- 2 thru 6,8 [51 thru 152,203]
- 2 thru 6,8 [51 thru 152,203]
- 2 thru 6,8 [51 thru 152,203]
- 2,3,4 [51,76,102]
- 6 [152]

(Specify size/type) OUTLET

- ___ IC Inside Caulk
- ___ IP Threaded
- ___ NH No-Hub
- ___ NL Neo-Loc
- ___ NL Neo-Loc

E BODY HT. DIM.

- 5 1/4 [133]
- 3 3/4 [95]
- 5 1/4 [133]
- 4 9/16 [116]
- 5 7/16 [112]

PREFIXES

- ___ Z D.C.C.I. Body with Poly-Dome*
- ___ ZA D.C.C.I. Body with Aluminum Dome
- ___ ZC D.C.C.I. Body with Cast Iron Dome
- ___ ZRB D.C.C.I. Body with Plain Bronze Dome

SUFFIXES

- | | |
|---|---|
| ___ -AC Angular Underdeck Clamp | ___ -R Roof Sump Receiver |
| ___ -AR Acid Resistant Epoxy Coated | ___ -SC Secondary Clamp Collar |
| ___ -AW 3/4 [19] to 4 [102] Adj. Water Level Regulator
(Specify Height) (ZC Only) | ___ -SS Stainless Steel Mesh Screen Over Dome |
| ___ -BS Bronze Mesh Screen Over Dome | ___ -ST Dome with Solid Top (ZA, ZC & ZRB Only) |
| ___ -C Underdeck Clamp | ___ -TC Neo-Loc Test Cap Gasket
(2 - 4 [51 - 102] NL Bottom Outlet Only) |
| ___ -DE Deck Extension | ___ -VP Vandal-Proof Secured Top |
| ___ -DP Top-Set® Deck Plate (Replaces both the -C and -R) | ___ -W2 2 [51] Internal Water Dam |
| ___ -DR Top-Set® Drain Riser | ___ -W3 3 [76] Internal Water Dam |
| ___ -DX Dex-o-tex Flange | ___ -W4 4 [102] Internal Water Dam |
| ___ -E Static Extension 1 [25] thru 4 [102] (Specify Ht.) | ___ -84 Stainless Steel Perforated Gravel Guard |
| ___ -EA Adjustable Extension Assembly
2 1/8 [54] thru 3 1/2 [89] | ___ -85 Stainless Steel Perforated Extension |
| ___ -EB Top-Set® Adjustable Extension Assembly | ___ -89 2 [51] High External Water Dam |
| ___ -FG Flush Grate (Replaces Dome Strainer) | ___ -90 90° Threaded Side Outlet Body
(2 thru 6 [51 or 152]) |
| ___ -G Galvanized Cast Iron | |
| ___ -GD Galvanized Cast Iron Dome (ZC Only) | |
| ___ -HD 6 3/4 [171] High Aluminum Dome Strainer
(148 Sq. In. [955 cm ²] Open Area) (ZA Only) | |

*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED

REV. M DATE: 2/28/08 C.N. NO. 98161

DWG. NO. 59285 PRODUCT NO. Z100

ZURN INDUSTRIES, LLC ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514

Phone: 814/455-0921 ♦ Fax: 814/454-7929 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

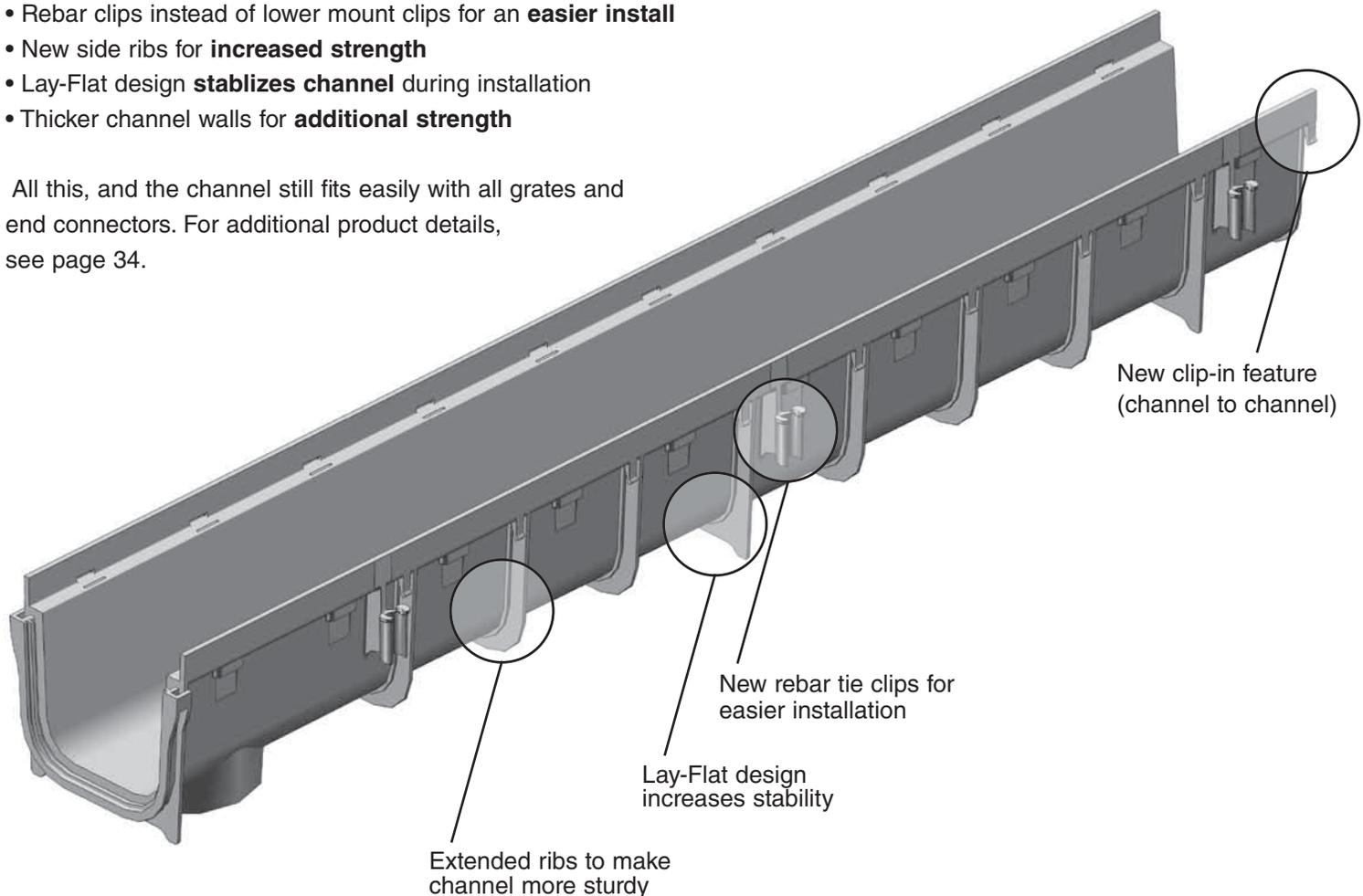
HAVE YOU SEEN THE NEW AND IMPROVED PRO SERIES CHANNEL DRAIN?

Never ones to rest on our laurels, at NDS we've taken our popular, easy-to-install Pro Series Channel Drain... and made it even better.

We originally designed the Pro Series System to be flexible, easy, and fast to install, with a patented modular design, the ability to insert outlets along any location in the channel run, and end cap and outlet fittings that slide easily into place. In 2011, we're keeping all those features – and adding the following new ones:

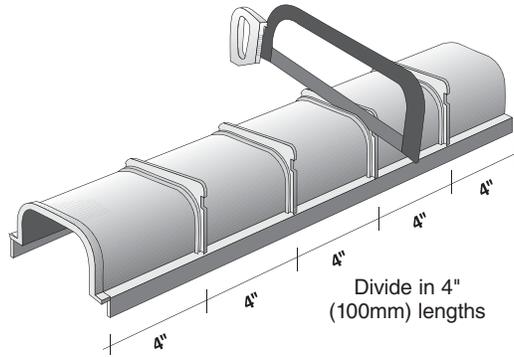
- Channel-to-channel clips for **reduced motion during installation**
- Rebar clips instead of lower mount clips for an **easier install**
- New side ribs for **increased strength**
- Lay-Flat design **stabilizes channel** during installation
- Thicker channel walls for **additional strength**

All this, and the channel still fits easily with all grates and end connectors. For additional product details, see page 34.



Details

- Create a channel as long as you need, or reduce to lengths as short as 4" for smaller, interlocking sections.
- End cap/knock-out end and outlet fitting simplifies assembly and installation.
- Flexible and easy: side and bottom outlets can be inserted at any location along the channel run.
- Available in four widths: 3", 5", 8" and 12"
- Available in two depths: deep for heavy flows, shallow for slabs or where little fall depth is available.
- Modular design comes in ½ meter (19 1/16") and 1 meter (39 3/8") pieces with interlocking end joints.
- Joints eliminate couplings and are specially designed to withstand concrete expansion and contraction.



Materials and Standards

- Polypropylene creates a structurally-compact, water tight channel.
- All parts contain UV inhibitors to prevent fading and cracking.

Load Recommendations

- Pedestrian Grates offer heel-proof pattern.
- Polyolefin Light Vehicular Grate for use in areas with passenger vehicles and light trucks with speeds less than 20 MPH.
- Load Star or Ductile Channel Grates for heavy-duty traffic.
- See individual products for details.

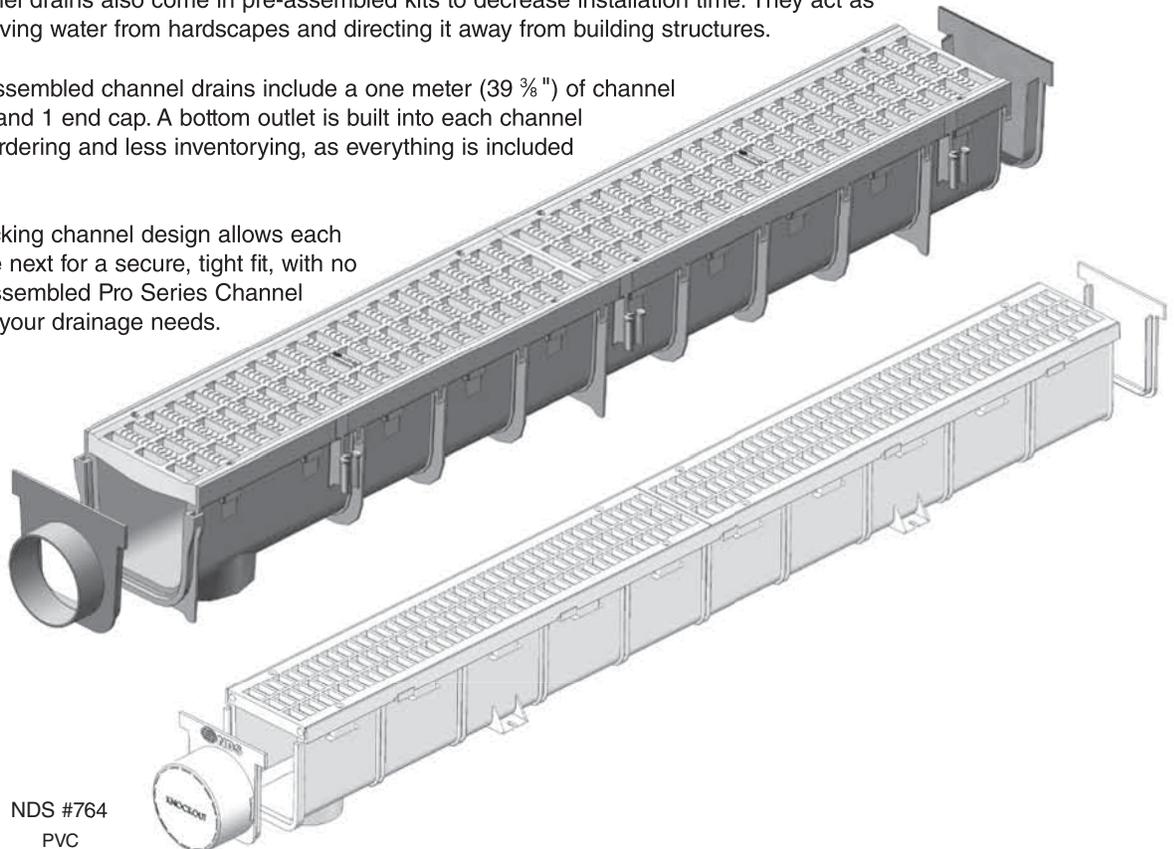
Pre-assembled Channel Drain Systems

Our Modular Pro Series channel drains also come in pre-assembled kits to decrease installation time. They act as perimeter drains, quickly removing water from hardscapes and directing it away from building structures.

The new 3" and 5" wide pre-assembled channel drains include a one meter (39 3/8") of channel drain and grate, 1 end outlet, and 1 end cap. A bottom outlet is built into each channel section. This allows for easy ordering and less inventorying, as everything is included under one part number.

Our unique Pro Series interlocking channel design allows each channel to securely lock to the next for a secure, tight fit, with no couplings required. The pre-assembled Pro Series Channel drains are a great solution for your drainage needs.

NDS #864
Polypropylene



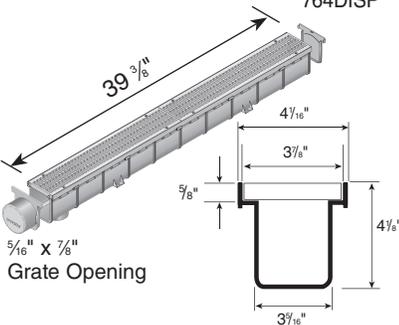
NDS #764
PVC

Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

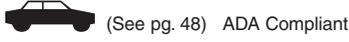
MODULAR CHANNEL DRAINS

3" PRO SERIES CHANNEL™ DRAINS

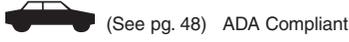
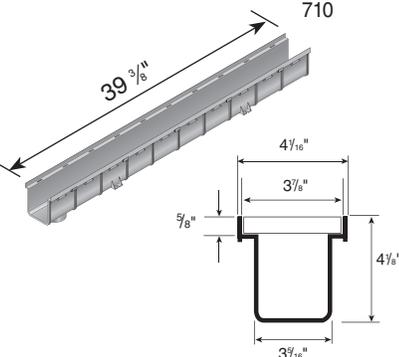
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
764	3" x 1 Meter Light Traffic Channel Grate & Channel Drain Kit	Light Gray	10	3.75	25IN	NDS #764, 3" wide high impact PVC light traffic channel grate and high impact PVC Channel Drain with mechanical interlocking joints and UV inhibitors. Open surface area 20.44 square inches per foot. 26.77 GPM per foot.
764DISP	3" Pro Series Channel Display (16 Kits)		1	120.00	25IN	



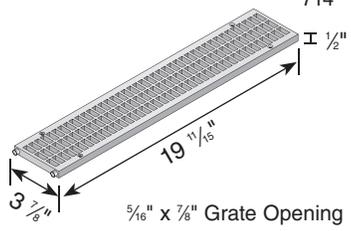
Includes 1 end outlet (#713) and 1 end cap (#712)
Bottom outlet fits 3" S&D fittings.
Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.



Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
710	3" x 1 Meter Channel Drain*	Light Gray	12	2.50	25IN	NDS #710, 3" wide high impact PVC Channel Drain with mechanical interlocking joints. Bottom outlet fits 3" S&D fittings. Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.



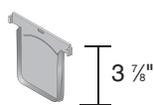
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
714	3" x 20" Light Traffic Channel Grate*	Light Gray	24	1.00	25IN	NDS #714, 3" wide high impact PVC light traffic channel grate. Open surface area 20.44 square inches per foot. 26.77 GPM per foot. Requires 4 #229 screws



Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
713	3" End Cap/End Outlet	Light Gray	12	0.25	25IN	NDS #713, 3" high impact PVC End Cap/End Outlet. Fits 3" fittings



Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
712	3" End Cap	Light Gray	20	0.10	25IN	NDS #712, 3" high impact PVC End Cap.



Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
229	Stainless Steel Screws FH H8x1"	Steel	48	0.06	25PF	

*Produced under license of First Plast S.R.L.- Italy

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
864	5" x 1 Meter Light Traffic Grate & Channel Drain Kit	Light Gray	9	7.11	25IN	NDS #864, 5" Wide Structural Foam Polyolefin light traffic channel grate and deep profile Polypropylene channel drain with mechanical interlocking joint and UV inhibitors. Open surface area 25.12 square inches per foot. 32.91 GPM per foot.
864DISP	Includes 1 end outlet & 1 end cap 5" Pro Series Channel Display (9 Kits)		1	140.0	25IN	

39 3/8"

5 1/2"

5 1/4"

3/4"

4 1/2"

4 7/8"

3/8" x 1 1/4" Grate Opening

Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.

Bottom outlet fits 3" and 4" S&D fittings

 (See pg. 48)

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
826	5" x 20" Pedestrian Traffic Channel Grate	Light Gray	10	1.00	25IN	NDS #826, 5" Wide UV protected Structural Foam Polyolefin pedestrian traffic channel grate. Open surface area 7.93 square inches per foot. 10.39 GPM per foot.

19 1/8"

5 3/16"

1/4"

1/4" Grate Opening

Requires #829 screws.

 (See pg. 48) ADA Compliant/Heel-proof

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
814	5" x 20" Light Traffic Channel Grate	Light Gray	10	1.20	25IN	NDS #814, #815, #816, #817, #818, #819, 5" Wide Structural Foam Polyolefin light traffic channel grate with UV inhibitors. Open surface area 25.12 square inches per foot. 32.91 GPM per foot.
815	5" x 20" Light Traffic Channel Grate	Green	10	1.20	25IN	
816	5" x 20" Light Traffic Channel Grate	Black	10	1.2	25IN	
817	5" x 20" Light Traffic Channel Grate	Sand	10	1.20	25IN	
818	5" x 20" Light Traffic Channel Grate	Brick Red	10	1.20	25IN	
819	5" x 20" Light Traffic Channel Grate	White	10	1.20	25IN	

19 5/8"

5 1/4"

3/8"

3/8" x 1 1/4" Grate Opening

Requires #829 screws.

 (See pg. 48) ADA Compliant

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
828	5" x 20" Load Star Heavy Traffic Channel Grate	Gray	10	2.0	25IN	NDS #828, 5" Wide UV protected high impact glass reinforced nylon heavy traffic channel grate. Open surface area 15.54 square inches per foot. 20.36 GPM per foot.

19 5/8"

5 3/16"

3/4"

3/8" x 1 1/4" Grate Opening

Requires 4 Screws per Grate
Requires #829 screws.

 (See pg. 48)

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
823	5" x 20" Ductile Channel Grate	Black	1	10.00	25IN	NDS #823, 5" Wide Heavy Duty Ductile Heavy Traffic Channel Grate. Open surface area 25.03 square inches per foot. 32.79 GPM per foot.

19 1/8"

5 1/4"

3/4"

9/16" x 3 3/16" Grate Opening

(See pg. 48) ADA Compliant

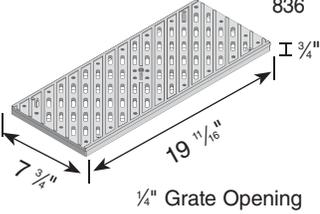
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
829	Stainless Steel Screws, FH #6 x 1 1/4"	Steel	40	.15	25PF	

*Produced under license of First Plast S.R.L.- Italy

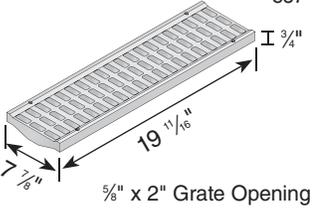
	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	820	5" x 20" Shallow Profile Channel Drain*	Light Gray	10	1.35	25IN	NDS #820, 5" Wide Shallow Profile UV protected high impact PVC Channel Drain with Mechanical Interlocking Joint. Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.
	821	5" Shallow Profile End Cap/ 1-1/2" SCH 40 SPT Knock Out End Outlet*	Light Gray	10	0.15	25IN	NDS #821, 5" Wide Shallow Profile high impact PVC End Cap/End Outlet.
	822	5" Shallow Profile 3" S&D SPT Bottom Outlet/ 1-1/2" SCH 40 SPT Side Outlet	Light Gray	10	0.60	25IN	NDS #822, 5" Wide Shallow Profile high impact PVC Bottom/Side Outlet.
	800	5" x 1 Meter Deep Profile Channel Drain	Light Gray	10	4.00	25IN	Integrated Knock out bottom outlet fits 3" and 4" S&D Fittings. Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.
	811	5" Deep Profile 3" S&D Pipe Hub & 4" S&D Fitting SPT End Outlet	Light Gray	10	0.40	25IN	NDS #811, 5" Wide Deep Profile high impact PVC End Outlet.
	813	5" Deep Profile End Cap/3" S&D Hub & 4" S&D SPT Knock Out End Outlet	Light Gray	10	0.40	25IN	NDS #813, 5" Wide Deep Profile high impact PVC End Cap/End Outlet.
	812	5" Deep Profile End Cap	Light Gray	10	0.20	25IN	NDS #812, 5" Wide Deep Profile high impact PVC End Cap.
	861	5" Deep Profile Grate & Channel Drain 90 Degree Elbow	Light Gray	1	3.44	25IN	
	862	5" Deep Profile Grate & Channel Drain 45 Degree Elbow	Light Gray	1	3.44	25IN	

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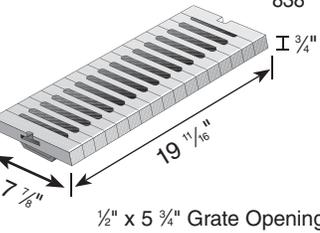
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
836	8" x 20" Pedestrian Traffic Channel Gate Requires #829 screws. 4 screws per grate.  (See pg. 48) ADA Compliant/Heel-proof	Light Gray	1	1.55	25IN	NDS #836, 8" Wide UV protected Structural Foam Polyolefin pedestrian traffic channel grate. Open surface area 11.70 square inches per foot. 15.33 GPM per foot.



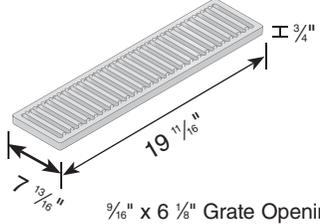
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
837	8" x 20" Light Traffic Channel Gate Requires #829 screws. 4 screws per grate.  (See pg. 48)	Light Gray	1	3.00	25IN	NDS #837, 8" Wide UV protected Structural Foam Polyolefin light traffic channel grate. Open surface area 26.94 square inches per foot. 35.29 GPM per foot.



Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
838	8" x 20" Load Star Heavy Traffic Channel Gate* Requires #829 screws. 4 screws per grate.  (See pg. 48) ADA Compliant	Light Gray	1	4.00	25IN	NDS #838, 8" Wide UV protected high impact glass reinforced nylon heavy traffic channel grate. Open surface area 30.85 square inches per foot. 40.41 GPM per foot.



Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
888	8"x20" Ductile Channel Gate #829 screws may be used. 4 screws per grate.  (See pg. 48)	Black	1	14.00	25IN	NDS #888, 8" Wide Heavy Duty Ductile Heavy Traffic Channel Grate. Open surface area 41.25 square inches per foot. 54.04 GPM per foot.



Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

MODULAR CHANNEL DRAINS

8" PRO SERIES CHANNEL™ DRAINS

*Produced under license of First Plast S.R.L.- Italy

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
830	8" x 20" Shallow Profile Channel Drain*	Light Gray	1	2.00	25IN	NDS #830, 8" Wide Shallow Profile high impact PVC channel drain with mechanical interlocking joints and UV inhibitors.

Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
831	8" Shallow Profile End Cap/ 3" S&D SPT Knock Out End Outlet*	Light Gray	1	0.40	25IN	NDS #831, 8" Wide Shallow Profile high impact PVC End Cap/End Outlet.

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
832	8" Shallow Profile 3" S&D SPT Side Outlet*	Light Gray	1	1.00	25IN	NDS #832, 8" Wide Shallow Profile high impact PVC Bottom/Side Outlet. Bottom outlet fits 4" S&D pipe, 3" S&D fittings

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
833	8" x 20" Deep Profile Channel Drain	Light Gray	1	3.00	25IN	NDS #833, 8" Wide Deep Profile high impact PVC channel drain with mechanical interlocking joints and UV inhibitors.

Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
834	8" Deep Profile End Cap/ 3"&4" S&D SPT Knock Out End Outlet	Light Gray	10	1.20	25IN	NDS #834, 8" Wide Deep Profile high impact PVC End Cap/End Outlet.

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	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	847	12" x 20" Light Traffic Channel Grate*	Gray	1	4.64	25IN	NDS #847, 12" Wide UV protected high impact PVC light traffic channel grate. Open surface area 48.77 square inch/foot. 63.89 GPM per foot.

	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	845	12"x20" Cast Iron Heavy Traffic Channel Grate	Black	1	31.92	25IN	NDS #845, 12" wide cast iron heavy traffic channel grate. Open surface area 38.58 square inches per foot. 50.54 GPM per foot.

	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	849	Grate Security Clip*	Gray	10	0.40	25IN	For use with 845 and 847 grates and 840 or 843 channels only (2 per grate). Mounts inside Channel Drain and secures grate. Screw and nut included.

	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	840	12" x 20" Shallow Profile Channel Drain	Light Gray	1	4.00	25IN	NDS #840, 12" Wide Shallow profile UV protected high impact PVC channel drain with mechanical Interlocking Joints. Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.

	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	841	12" Shallow Profile End Cap/ 3" & 4" S&D SPT Knock Out End Outlet	Light Gray	1	1.00	25IN	NDS #841, 12" Wide Shallow Profile high impact PVC End Cap/3" & 4" Corrugated S&D Pipe.

	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	843	12" x 20" Deep Profile Channel Drain*	Light Gray	1	6.00	25IN	NDS #843, 12" Wide Deep Profile UV protected high impact PVC channel drain with mechanical interlocking joints. Grate should be recessed 1/8" below finish grade in non traffic applications. Grate should be recessed 1/4" in traffic applications.

	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
	844	12" Deep Profile End Cap/ 3" & 4" S&D SPT Knock Out End Outlet*	Light Gray	1	1.60	25IN	NDS #844, 12" Wide Deep Profile high impact PVC End Cap/3" & 4" Corrugated S&D Pipe.

Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

To place an order, visit: ndspro.net, fax: 1-800-726-1998 or call 1-800-726-1994.



P-Trap Hub x Hub x Cleanout with Plug - PVC DWV 4884



The NIBCO® PVC DWV P-Trap with cleanout and plug is used in residential and commercial drain, waste and vent systems.

The PVC DWV P-Trap features a hub x hub x cleanout with plug connection to provide a means for clearing potential clogs. The p-trap provides a water seal so that wastewater will automatically be trapped in the arc of the configuration, thereby preventing unwanted gases from entering the household environment. Please refer to NIBCO technical data sheets and catalogs for engineering and installation information. Polyvinyl chloride (PVC) is the most frequently specified of all thermoplastic materials because of its light weight, durability, and cost-effectiveness. PVC DWV is easy to install and is joined by solvent cementing or threading. PVC fittings exhibit high corrosion and chemical resistance and will not rust, scale, pit or corrode. NIBCO® plastic fittings are backed by a 5-year limited warranty. Because of its longstanding reputation for innovation and precision in design and manufacturing, NIBCO is the preferred brand in the industry. <<< less

Resources

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- ⌘ Maximum service temperature 140°F
- ⌘ Do not test or use with compressed air or other gases
- ⌘ ASTM D2665 and D3311
- ⌘ NSF/ANSI Standard 14
- ⌘ UL Listed 94V-0
- ⌘ NSF U.P. Certified
- ⌘ Size range 1½" and 2"

SKU

Size	Description	UPC	NIBCO #
1 1/2	4884 1 1/2 HXHCOW/PLUG P TRAP W/CO PVC	039923225702	K560300
2	4884 2 HXHCOW/PLUG P TRAP W/CO PVC	039923225726	K560350