

Burlington Development Review Board

149 Church Street, City Hall
Burlington, VT 05401

www.burlingtonvt.gov/pz/DRB

Telephone: (802) 865-7188

Fax (802) 865-7195

Austin Hart
Brad Rabinowitz
Israel Smith
AJ LaRosa
Geoff Hand
Alexandra Zipparo
Wayne Senville
Jim Drummond, (Alternate)
Robert Purvee, (Alternate)



BURLINGTON DEVELOPMENT REVIEW BOARD Tuesday June 20, 2017, 5:00 PM PUBLIC HEARING NOTICE

The Burlington Development Review Board will hold a meeting on
Tuesday June 20, 2017 at 5:00pm in Contois Auditorium, City Hall.

- 1. 17-1097CA/MA; 79 Industrial Parkway (ELM, Ward 5S) Zoo Holdings, LLC**
Construct two building additions, 14,200 sf of building footprint, paving of an existing parking lot, construction of a new parking lot, access drive, and stormwater system, and associated site grading. (Project Manager: Mary O'Neil)
- 2. 17-1085CA; 85-87 Pearl Street (D, Ward 3C) 77-87 Pearl Street LLC**
Change of use of existing building from diner to dog training facility. (Project Manager: Ryan Morrison)
- 3. 17-1103AP; 383 College Street (RH, Ward 8E) Astra Burlington LLC**
Appeal of a zoning violation #334211 for conversion of a multi-use 5 office and 12 residential unit structure to a 14 residential unit building with commercial use, exterior signs and site plan alterations. (Project Manager: Jeanne Francis)
- 4. 17-1117CA/CU; 426 South Winooski Avenue (R1, Ward 6) Scott Mapes**
Demolish existing detached garage and replace with new detached garage with accessory dwelling unit. (Project Manager: Scott Gustin)
- 5. 17-1191CA/HO; 55-57 Howard Street (RL, 5S) Patrick J. McHenry**
Home occupation for medical office/acupuncture office. Exterior construction; new doors, new window trim, expand porch, new lights. (Project Manager: Ryan Morrison)

Plans may be viewed in the Planning and Zoning Office, (City Hall, 149 Church Street, Burlington), between the hours of 8:00 a.m. and 4:30 p.m.

Participation in the DRB proceeding is a prerequisite to the right to take any subsequent appeal. Please note that ANYTHING submitted to the Planning and Zoning office is considered public and cannot be kept confidential.

This may not be the final order in which items will be heard. Please view final Agenda, at www.burlingtonvt.gov/pz/drbb/agendas or the office notice board, one week before the hearing for the order in which items will be heard.

The programs and services of the City of Burlington are accessible to people with disabilities. Individuals who require special arrangements to participate are encouraged to contact the Department of Planning & Zoning at least 72 hours in advance so that proper accommodations can be arranged. For information call 865-7188 (TTY users: 865-7142).

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BURLINGTON DEVELOPMENT REVIEW BOARD Tuesday, June 20, 2017, 5:00 PM Contois Auditorium, City Hall, 149 Church St, Burlington, VT AGENDA

I. Agenda II. Communications III. Minutes IV. Consent

- 1. 17-1085CA; 85-87 Pearl Street (D, Ward 3C) 77-87 Pearl Street LLC**
Change of use of existing building from diner to dog training facility.
(Project Manager: Ryan Morrison)
- 2. 17-1117CA/CU; 426 South Winooski Avenue (R1, Ward 6) Scott Mapes**
Demolish existing detached garage and replace with new detached garage with accessory dwelling unit. (Project Manager: Scott Gustin)
- 3. 17-1191CA/HO; 55-57 Howard Street (RL, 5S) Patrick J. McHenry**
Home occupation for medical office/acupuncture office. Exterior construction; new doors, new window trim, expand porch, new lights. (Project Manager: Ryan Morrison)
- 4. 17-0914CA; 212 Elmwood Avenue (RM, Ward 2C) Champlain Housing Trust / Green Mountain Habitat for Humanity**
Demolish existing single-family residence and replace with a new single-family residence. Request to change Condition #5:
Construction hours shall be limited to Monday – Friday from 7:00 AM – 5:00 PM. Saturday construction may be allowed upon request to the Development Review Board. No work on Sunday.
To allow Saturday construction hours. (Project Manager Ryan Morrison.)

V. Public Hearing

- 1. 17-1097CA/MA; 79 Industrial Parkway (ELM, Ward 5S) Zoo Holdings, LLC**
Construct two building additions, 14,200 sf of building footprint, paving of an existing parking lot, construction of fire access road; and add removal of 2 storage trailers.
(Project Manager: Mary O'Neil)
- 2. 17-1103AP; 383 College Street (RH, Ward 8E) Astra Burlington LLC**
Appeal of a zoning violation #334211 for conversion of a multi-use 5 office and 12 residential unit structure to a 14 residential unit building with commercial use, exterior signs and site plan alterations.
(Project Manager: Jeanne Francis)

VI. Other Business VII. Adjournment

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Department of Planning and Zoning

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<http://www.burlingtonvt.gov/PZ/>
Telephone: (802) 865-7188
(802) 865-7195 (FAX)

David E. White, AICP, Director
Meagan Tuttle, AICP, Comprehensive Planner
Jay Appleton, Senior GIS/IT Programmer/Analyst
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, CFM, Associate Planner
Layne Darfler, Planning Technician
Anita Wade, Zoning Clerk



MEMORANDUM

To: Development Review Board
From: Ryan Morrison, Associate Planner
Date: June 20, 2017
RE: ZP17-1191HO; 55-57 Howard Street

Note: These are staff comments only. Decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.

File: ZP17-1191HO

Location: 55-57 Howard Street

Zone: RL **Ward:** 5S

Parking District: Neighborhood

Date application accepted: May 24, 2017

Applicant/ Owner: Montana Burns, Atlas Acupuncture / PJ McHenry

Request: Establish a medical office (acupuncture) as a home occupation. Some interior remodeling is also proposed.

Background:

- **Non-Applicability of Zoning Permit 12-0299NA;** Repair slate roof. Approved September 7, 2011.

Overview: The existing structure, built circa 1885, is currently used as a duplex. The applicant seeks a Home Occupation approval for an acupuncture practice. She proposes to reside at the property, and be the sole practitioner.

Recommendation: Consent approval, as per, and subject to, the following findings and conditions:

I. Findings

Article 3: Applications, Permits, and Project Reviews

Section 3.5.6 Review Criteria

(a) Conditional Use Review Standards

Approval shall be granted only if the DRB, after public notice and public hearing, determines that the proposed conditional use and associated development shall not result in an undue adverse effect on each of the following general standards:

1. *Existing or planned public utilities, facilities, or services are capable of supporting the proposed use in addition to the existing uses in the area.*

The utilization of existing rooms within a dwelling unit for the purposes of an acupuncture practice will have no impact on existing or planned public utilities, facilities or services in the city. **Affirmative finding.**

2. *The character of the area affected as defined by the purpose or purposes of the zoning district(s) within which the project is located, and specifically stated policies and standards of the municipal development Plan;*

The proposed home occupation is accessory to a residential use within a residential zoning district. The proposed building modifications and the limited use of a portion of the residential unit for the home occupation are anticipated to have no impact on the character of the area. From the Municipal Development Plan:

- *Promote and support locally owned and controlled small businesses including home occupations appropriate to the character of the neighborhood.* [MDP, Economic Development Plan, P. VI-2.] **Affirmative finding.**

3. *The proposed use will not have nuisance impacts from noise, odor, dust, heat, and vibrations greater than typically generated by other permitted uses in the same zoning district;*

There will be no perceptible noise, odor, dust, heat or vibrations associated with the proposed home occupation. **Affirmative finding.**

4. *The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street designations and capacity; level of service and other performance measures; access to arterial roadways; connectivity; transit availability; parking and access; impacts on pedestrian, bicycle and transit circulation, safety for all modes; and adequate transportation demand management strategies;*

The location is within a residential zoning district, connected within an established network of streets, sidewalks and bicycle paths of the city, and along a public transit route. No adverse impacts, unreasonable demand of services or dearth of transportation modes are identified. **Affirmative finding.**

5. *The utilization of renewable energy resources;*

The proposal will not prohibit the use of alternative or renewable energy resources. **Affirmative finding.**

and

6. *Any standards or factors set forth in existing City bylaws and city and state ordinances.* None identified. It is the applicant's obligation to secure any additional permits (from state or federal offices) as required. **Affirmative finding as conditioned.**

(c) Conditions of Approval

In addition to imposing conditions of approval necessary to satisfy the General Standards specified in (a) or (b) above, the DRB may also impose additional conditions of approval relative to any of the following:

1. *Mitigation measures, including but not limited to screening, landscaping, where necessary to reduce noise and glare and to maintain the property in a character in keeping with the surrounding area;*

No requirements for screening are identified. **Affirmative finding.**

2. *Time limits for construction.*
No construction is proposed. Not applicable.
 3. *Hours of operation and/or construction to reduce the impact on surrounding properties.*
The applicant states that typical practice hours are from 9:00 AM – 5:00 PM on Wednesday and Friday; from 11:00 AM to 7 PM on Tuesday and Thursday; and from 3:00 PM to 7:00 PM on Monday. The business is closed on Saturday and Sunday. The business operates strictly by appointments only. There are no open hours to the general public. For a small residential home occupation, the hours do not suggest unreasonable traffic, parking congestion, or neighborhood nuisance. **Affirmative finding.**
 4. *That any future enlargement or alteration of the use return for review to the DRB to permit the specifying of new conditions,*
Any request for enlargement or alteration of the Home Occupation will be reviewed under the standards in effect at the time of application. **Affirmative finding.**
- And*
5. *Such additional reasonable performance standards, conditions and safeguards as it may deem necessary to implement the purposes of this chapter and the zoning regulations.*
None are identified; however, the DRB may add conditions at their discretion.

Article 5: Citywide General Regulations

Section 5.4.6 Home Occupations

Pursuant to the requirements of 24 VSA 4412(4), it is the intent of these regulations to provide for the use of a minor portion of a dwelling unit for a home occupation and to ensure compatibility with other permitted uses and with the residential character of the neighborhood. Such a home occupation must clearly be secondary or incidental to the principal residential use, and so located and conducted that the average neighbor, under normal circumstances, would not otherwise be aware of its existence.

(b) Conditional Use Review:

All home occupations not otherwise eligible for administrative approval above shall require review and approval by the DRB pursuant to the requirements of Art. 3, Part 5. In addition to the conditional use criteria, the following criteria must be met for any home occupation:

1. *A home occupation shall be conducted solely by resident occupants plus no more than one additional full-time equivalent employee in RL districts, and no more than two (2) full-time equivalent employees in other districts. The home occupation shall be conducted entirely within an existing dwelling unit and/or one enclosed accessory structure;*

Application materials define the occupant as the single employee. The proposed home occupation will be staffed by the applicant alone. **Affirmative finding as conditioned.**

2. *No more than thirty-five per cent (35%) of the floor area of said residence, including accessory structures, up to a maximum of seven hundred fifty (750) square feet, whichever is less, shall be used for such purpose;*

The Assessor's property listing has a total area for the first floor at 1,336 sf. 35% of the first floor totals 467.6 sf. The applicant proposes two treatment rooms (existing bedrooms) totalling 280 sf, or 21%. The living room couch will be utilized as a waiting area for patients. **Affirmative finding.**

3. *No home occupation shall require alterations, construction or equipment that would change the fire rating of the structure or the fire district in which the structure is located;*

The property owner proposes minor interior renovations, none of which will change the structure's fire rating. **Affirmative finding.**

4. *There shall be no outside storage of any kind related to the home occupation;*

None proposed. **Affirmative finding.**

5. *There shall be no exterior evidence of the conduct of a home occupation except for:*

- A. *Occasional garage/lawn/yard type sales (up to twice a year not to exceed two (2) days each);*

Not proposed. **Affirmative finding.**

and

- B. *One non-illuminated attached parallel sign that shall not exceed two (2) square feet. No other signs shall be permitted.*

No exterior signage is proposed. **Affirmative finding.**

6. *No home occupation may increase vehicular traffic flow or parking by more than one additional vehicle at a time for customers or deliveries. All parking shall be located off-street and shall maintain the required front yard setback;*

Scheduling is on an appointment basis. The applicant notes that there may, at times, be up to 2 clients in the business at one time when the schedule is fully booked. This subsection prohibits more than 1 customer vehicle at a time at a home occupation, and as such, the proposed business will be limited to this restriction. The property has utilized a driveway long enough to park four vehicles, albeit in one stacked row. The driveway represents a pre-existing non-conformity due to the fact that stacked parking of more than 2 vehicles is not allowable without a parking attendant. As such, the City would only recognize 2 conforming parking spaces in the driveway. However, for home occupations, this situation is unique. The applicant has stated that she will act as a parking attendant while the home occupation is in operation. Outside of business hours, there will be no need for the extra parking space, and thus no need for a parking attendant. See Article 8 below. **Affirmative finding.**

7. *No home occupation shall create sounds, noise, dust, vibration, smell, smoke, heat, humidity, glare, radiation, electrical interference, fire hazard or any other hazard, nuisance or unsightliness which is discernible from any adjacent dwelling unit;*

No defined nuisances are anticipated from the proposed home occupation. **Affirmative finding.**

8. *The home occupation shall be clearly incidental and secondary to the use of the dwelling for residential purposes and shall not change the character thereof or adversely affect the uses permitted in the residential district of which it is a part.*

The home occupation should present no exterior evidence of its presence and is not anticipated to change the character of the dwelling unit or the residential district within which it is located. **Affirmative finding.**

9. *Delivery of products and materials related to the home occupation by vehicles other than automobiles shall occur no more than once per day;*

No deliveries are proposed. **Affirmative finding.**

10. *With the exception of one delivery per day, as specified in subparagraph (9), no more than one (1) commercial vehicle shall be allowed on the premises at any one time;*

No commercial vehicles are associated with the proposed home occupation. **Affirmative finding.**

and

11. *There shall be no sale of goods except for goods fabricated on the premises as part of an approved home occupation.*

There is no sale of goods proposed with the home occupation. **Affirmative finding.**

(c) Exclusions:

Home occupations shall not include commercial stables or kennels, veterinary clinics, or similar establishments.

The home occupation does not involve commercial stables, kennels, veterinary clinics or similar. **Affirmative finding.**

(d) Revocation:

Approval of a home occupation may be revoked by the DRB in accordance with the following provisions:

1. *Noncompliance.* *Upon receipt of notification or evidence of noncompliance with conditions of approval or evidence of error or misrepresentation, the DRB may schedule a public hearing to consider the revocation or modification of approval for a home occupation;*
2. *Notice.* *The administrative officer shall duly warn such public hearing and give notice to the applicant, abutters, and other interested parties;*
3. *Public Hearing.* *The DRB shall hold a public hearing to hear cause as to why the approval of the home occupation should not be revoked. The DRB shall render its decision in accordance with the conditional use time limitations set forth in Article 3, Part 5; and*

4. *Errors.* *The burden of providing complete and accurate information shall be the sole responsibility of the applicant. Any error or misrepresentation may result in voiding or modification of the approval for a home occupation.*

The standards of revocation of a home occupation are provided to the applicant for informational purposes. Noncompliance with the conditions of the approval or errors in information may result in revocation of the home occupation approval. **Affirmative finding as conditioned.**

Article 8: Parking

Table 8.1.8-1 Minimum Off Street Parking Requirements

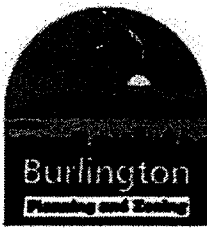
The property currently has an 11' x 84' 4 ½" driveway that serves the duplex. Parking spaces require a minimum depth of 20 ft. While 4 parking spaces may physically fit, limitations on stacked parking per Sec. 8.1.14, *Stacked and Tandem Parking Restrictions*, preclude recognition of more than 2 stacked spaces in this case (only valet parking arrangements may exceed the 2 stacked spaces). As a result, the City only recognizes the property as having 2 conforming parking spaces.

With regard to the home occupation, there needs to be a 3rd parking space for customers during business hours. A precedent was set previously allowing stacked parking of up to 3 vehicles for a home occupation use based on the fact that the extra parking space was only needed during business hours, and the proprietor could act as a parking attendant. The same situation applies here, as the applicant has stated that she will act as a parking attendant for the property when the business is in operation. And naturally, the need for the extra space, as well as the need for a parking attendant, goes away after business hours. **Affirmative finding.**

II. Conditions of Approval:

1. Any expansion of the home occupation or alteration or construction to conduct the home occupation shall require the applicant to return to the DRB for review under the standards in effect at that time.
2. The home occupation shall be conducted solely by resident occupants. The proposal does not include additional, non-resident employees.
3. There shall be no outside storage of any kind related to the home occupation.
4. No exterior signage is included with this approval.
5. One off-street parking space shall be provided for clients. There shall be no overlap in patient scheduling so as to require more than one parking space at a time.
6. Delivery of products and materials related to the home occupation by vehicles other than automobiles shall occur no more than once per day.
7. Hours of the home occupation operation are as follows:
 - Wednesday & Friday – 9:00 am to 5:00 pm
 - Tuesday & Thursday – 11:00 am to 7:00 pm
 - Monday – 3:00 pm to 7:00 pm

8. The applicant shall secure any associated trades permits required for the interior work.
9. The Applicant/Property Owner is responsible for obtaining all necessary Zoning Permits and Building Permits through the Department of Public Works as well as other permit(s) as may be required, and shall meet all energy efficiency codes as required.
10. Any noncompliance with the conditions of this approval or errors in information shall be the burden of the applicant and may be subject to revocation per Section 5.4.6 (d), above.
11. Standard Permit Conditions 1-15.



Department of Planning and Zoning

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MAY 24 2017

DEPARTMENT OF
PLANNING & ZONING

Zoning Permit Application

Use this form for ALL zoning permit applications. See the relevant checklist for specific requirements.

PROJECT LOCATION ADDRESS: 55 Howard Street, Burlington, Vermont 05401

PROPERTY

OWNER*: PJ McHenry

*If condominium unit, written approval from the Association is also required

POSTAL ADDRESS: 57 Howard Street

CITY, ST, ZIP: Burlington, VT 05401

DAY PHONE: 802-578-3560

EMAIL: pj@artsriot.com

SIGNATURE:

I am the owner. In addition, I duly authorize the applicant (if noted) to act on my behalf for all matters pertaining to this zoning permit application.

APPLICANT: Montana Burns / Atlas Acupuncture

POSTAL ADDRESS: 127 Bank Street

CITY, ST, ZIP: Burlington, VT 05401

DAY PHONE: 208-720-8386

EMAIL: montanaburns@gmail.com

SIGNATURE:

Description of Proposed Project: Change use to home occupation of medical office for acupuncture. Fit up property to meet requirements for home occupation: new ceilings, walls, floors.

~~EXTENSIVE CONSTRUCTION:~~
~~new doors, new window trim, exposed porch, new lights~~
~~Construction of new two story porch.~~
~~See attached construction plans~~

Existing Use of Property: ☐ Single Family ☒ Multi Family: # 2 Units ☐ Other:

Proposed Use of Property: ☐ Single Family ☒ Multi Family: # 2 Units ☒ Other: home occupation

• Does your project involve new construction, addition, alteration, renovation, or repair to a structure that is heated or cooled? Yes ☒ No ☐

(If yes, the Vermont Residential Building Energy Standards (VRBES) apply. Visit the P&Z Office, Public Service Board or PSB website for details)

• Will 400 sq ft or more of land be disturbed, exposed and/or developed? Yes ☐ No ☒

(If yes, you will need to submit the 'Erosion Prevention and Sediment Control Plan' questionnaire, with a site plan)

• For Single Family & Duplex, will total impervious area be 2500 sq ft or more? Yes ☐ No ☒

(If yes, you will need to submit the 'Stormwater Management Plan' questionnaire, with a site plan)

• Are you proposing any work within, below, or above the public right of way? Yes ☐ No ☒

(If yes, you will need to receive prior approval from the Department of Public Works)

• Are you proposing any onsite food or beverage production/manufacturing? Yes ☐ No ☒

(If yes, you will need to consult with Water Resources Division at the Department of Public Works: 863-4501)

Estimated Construction Cost (value)*: \$ 30,000

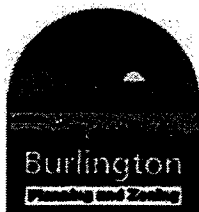
(*Estimated cost a typical contractor would charge for all materials and labor, regardless of who physically completes the work)

Within 30 days of submission, the permit application will be reviewed for completeness, and, if complete, will be processed administratively or referred to a board for review. All permit approvals or denials are subject to an appeal period (15 days for administrative permit; 30 days for board permit). A building (and/or electrical, mechanical, plumbing, curb cut) permit will also be required. Contact the Department of Public Works at 802-863-9094 to inquire. Please ask for assistance if you have any questions about filling out this form. Call the Planning and Zoning at 802-865-7188, or visit the office in the lower level of City Hall, 149 Church Street.

Office Use Only: Zone: RL Eligible for Design Review? ☒ Age of House: 1885 Lot Size: 4410

Type: SN AW FC BA COA 1 COA 2 ☒ COA 3 CU MA VR HO SF DT MP

Check No: 521 Amount Paid: \$ 170 Zoning Permit #: 17-1191CA



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DEPARTMENT OF
PLANNING & ZONING

Home Occupation Application Questionnaire

Use this checklist for all applications for a home occupation - See Sec. 5.4.6 of the Zoning Ordinance. This questionnaire is provided to summarize details and is required to accompany a zoning permit application form and required fee (for either administrative approval or conditional use review).

Please note:

1. The specific requirements for home occupations can be found in Section 5.4.6 of the Comprehensive Development Ordinance which is available in its entirety on our website at www.ci.burlington.vt.us/planning
2. A 'Business Personal Property Registration Form' may be required to be submitted to the Assessors Office. This form is available at www.ci.burlington.vt.us/assessor/businesses

Name of Business Proposed: Atlas Acupuncture, LLC

Type of Business Proposed: Medical Office; Acupuncture

Provide a detailed description of the proposed Home Occupation such as: activities involved; materials and equipment used; quantities of materials and equipment stored on-site; methods of operation; hours of operation. This may be done on a separate piece of paper and attached.

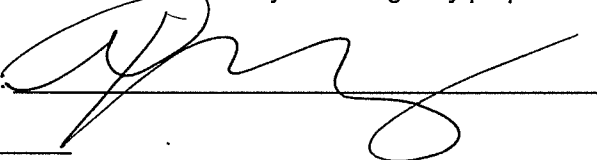
Please respond to the following:

1. How many persons will be involved or employed in the conduct of the proposed Home Occupation:
Residents of premises: one (1) Others zero (0) Total Number one (1)
2. What type of product will be produced, serviced, or repaired in the conduct of your Home Occupation? (For example: repair of clocks or watches, making jewelry, etc.). Explain:
Acupuncture services and treatments provided to patients.
3. Describe any alterations to the home or premises that might be required to facilitate your Home Occupation:
New ceilings, floors and wall materials will need to be made to raise aesthetic of home in order to facilitate the home occupation.
4. Describe what rooms will be used in the conduct of the Home Occupation and how these rooms will be used (For example: garage will be used to store supplies; or den will contain desk and file cabinets, etc.). Indicate the gross floor area(s) that will be used in the conduct of the Home Occupation. Indicate the total gross floor areas of your house and include any accessory structure(s) to be used for the Home Occupation, (Ex. Garage)
Two bedrooms will be used as treatment rooms. The supplies associated with the treatments will be stored in the bedroom closets. The living room couch will be used as a seating area for the patients while they wait for their treatment.
5. Describe the mechanical and/or electrical equipment that will be necessary to conduct your business activity:
One (1) heat lamp, operating off a normal 120v household circuit will be used to provide additional warmth to the patients in treatment.
6. Describe how, where and in what amounts the material, supplies and/or equipment related to your Home Occupation will be displayed or stored:
Supplies will be stored in the closets of the treatment rooms. Small signs will be on display in waiting area during hours of operation.

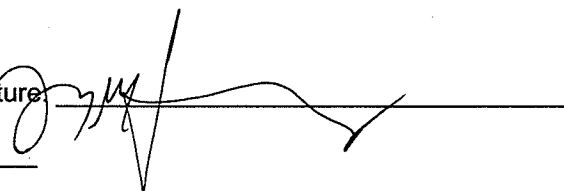
PLEASE TURN OVER

7. Will people come to your home to obtain any product or utilize any service connected with the proposed Home Occupation activity? Yes x No
If yes, please explain in detail:
Patients will come to the home to obtain acupuncture services.
8. Are any signs necessary or proposed relative to the Home Occupation?
Yes No x
If yes, you are required to file for a Sign Permit. An application form can be obtained at the Planning and Zoning Department or on our website.
9. If trucks or other equipment will be used in your Home Occupation, where will they be parked or stored?
No trucks or equipment are required for home occupation.
10. Will the Home Occupation involve the use of commercial vehicles for delivery of materials to or from the premises? Yes No x
If yes, please explain:
No deliveries or commercial vehicles are required for home occupation.
11. How many parking spaces will be provided for the home occupation? Two parking spaces. Located in driveway.
Where will they be located? Indicate parking spaces on a site plan of this property as part of your application submission.
12. Is your proposed Home Occupation in conformance with the conditions, covenants and restrictions pertaining to your property? Yes x No
We suggest checking your deed for conditions, covenants and restrictions.

I have read and understand 'Sec 5.4.6 Home Occupations' under the City of Burlington Comprehensive Development Ordinance and believe that to the best of my knowledge my proposed Home Occupation would not violate any portion of said Ordinance:

Applicant's Signature: 

Date: 5/7/2017

Property Owner's Signature: 

Date: 5/7/17

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MAY 24 2017

DEPARTMENT OF
PLANNING & ZONING

RECEIVED
MAY 26 2017

DEPARTMENT OF
PLANNING & ZONING

Parking Management Plan

On Behalf of Atlas Acupuncture

Submitted by: PJ McHenry
MPM Ventures
57 Howard Street
Burlington, VT 05401

Performed by PJ McHenry
pj@artsriot.com
(c) 802-578-3560

Atlas Acupuncture, LLC
Parking Management Plan
May 26, 2017

Summary:

This plan has been drafted by PJ McHenry, owner of 55-57 Howard Street, Burlington, VT. The owner of this property proposes to the City of Burlington and the Design Review Board that the following parking plan effectively accounts for the needs of the property. Additionally, as laid out in this plan, a parking waiver is being requested to accommodate for a home occupation.

Supporting Evidence:

Background:

It must be made aware that the proposed tenant for home occupation at this property currently operates at 127 Bank Street. Due to impending large-scale mall development directly across the street the accessibility and noise requirements for Atlas Acupuncture will be impacted to a point that is forcing relocation. After 7 months of searching for viable office space that meet the high aesthetic standards of the business the proposed tenant has been forced to look beyond the storefronts downtown. A desire to live in the same community the business serves has left little option but to investigate creative solutions. Upon review of the City of Burlington Zoning Ordinance it appears the usage and operation of the acupuncture clinic meets the home occupation qualifications.

Employees:

Atlas Acupuncture has 1 employee. This employee shall live at 55 Howard Street and hopes to work, as a home occupation, out of the same space. The proposed home business is a medical office offering acupuncture services.

- Owner/Operator, Montana Burns

Daily Operation:

Typical operation of the acupuncture clinic is from 9am - 5pm on Wednesday and Friday. From 11am to 7pm on Tuesday and Thursday. And from 3pm to 7pm on Monday. These hours are the preferred hours to keep at the new location. The business is closed Saturday and Sunday.

The business is not open to the general public and the hours listed above reflect normal windows of appointment times. The business operates appointment only. There are no open hours to the general public.

Clients:

A majority of the current clients live and work in downtown Burlington and walk to their acupuncture appointment. By relocating the anticipation is that more clients will have to find other means of transportation. Clients are currently booked on the 1/2 hour for 1 hour

appointments. So if and when the schedule is fully booked there is a maximum of 2 clients in the business at one time. This scheduling practice has been enacted in order to meet ideal efficiencies for the business. Please note there are often times of days if not full days where the schedule is not fully booked and there are not 2 clients at the same time.

Public Transport:

The nearest public transport pick-up and drop-offs are as follows:

CCTA Pine Street Route 5 Stop #8 is 100 feet from 55-57 Howard Street. The frequency of this route is every 30 minutes from 6:30am to 6:30pm Monday-Friday.

Current Use:

This property falls into Residential Zoning and is within the Neighborhood Parking District accordingly to the Table 8.1.8-1 in the City of Burlington zoning ordinance. For a Duplex in this zone there are 2 parking spaces required.

The property is a owner occupied duplex with upstairs and downstairs units. There are currently 4 cars owned by tenants of the property and they all have off street parking. The nature of this parking is stacked and requires cars to frequently be moved by tenants in order to accommodate the daily comings and goings of tenants.

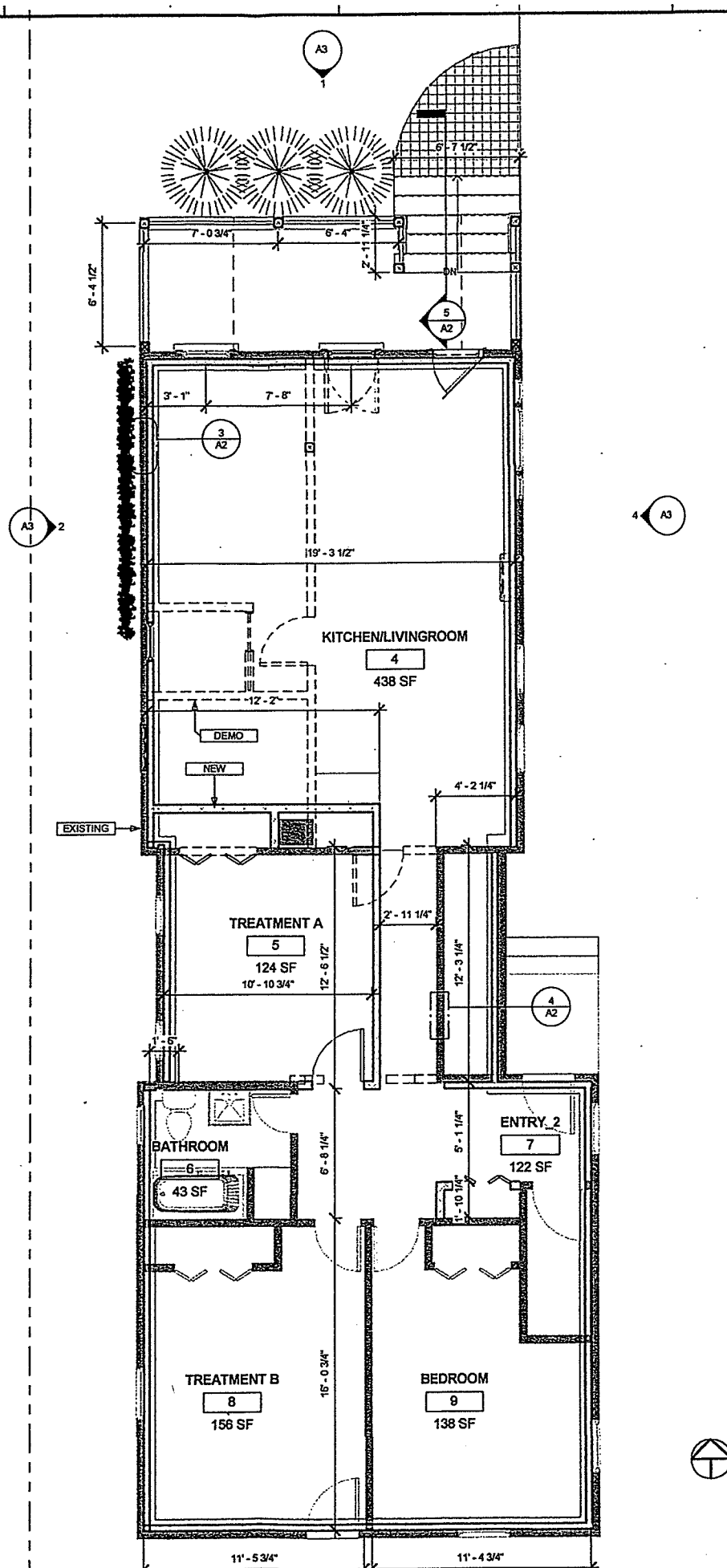
Proposed Use:

The property is looking to accommodate a new tenant downstairs to operate a home business. Medical Office - Acupuncture Clinic. The parking situation onsite shall remain the same with 4 off street parking spaces that are all stacked.

According to the zoning ordinance the home business' use of medical office would require 3 parking spaces in the Neighborhood District. Along with the 2 spaces required for the duplex this would make the new proposed use require 5 total parking spaces for the property. With only 4 spaces available a parking waiver is hoped to be granted.

Parking Attendant:

To accommodate clients the new proposed use asks to consider the employee of the business - who would remain onsite the entire time the business is in operation - as a viable parking attendant to move a vehicle to accommodate the stacked parking situation.



① FIRST FLOOR NEW+DEMO
1/4" = 1'-0"



EXISTING:	
HOUSE (24'x60')	1300 S
FRONT PORCH (7'x12')	84
DRIVE (11'x84')	913 S
FRONT WALKWAY (5'x12')	60
SIDE WALKWAY (4'x 50')	200 S
HARDSCAPE (ASPHALT)	245
SHED FOUNDATION (9'x10')	90
<u>BACK STOOP (7'x4'6)</u>	<u>34 S</u>
TOTAL:	2,926

EXISTING COVERAGE (2,926/4400) X 100 =67%

PROPOSED:	
HOUSE (24'X60')	1300
FRONT PORCH (7'X20')	140
WALKWAY+STAIR	36
DRIVE (11'X84')	913
SIDE WALKWAY (4'X 50')	200
HARDSCAPE (ASPHALT)	100
SHED FOUNDATION (9'X10')	9
<u>BACK STOOP (7'X4'6)</u>	<u>34</u>
TOTAL:	2,858

PROPOSED COVERAGE (2,858/4400 X 100)=65%

Existing
parking
Structure

Department of Planning and Zoning

149 Church Street

Burlington, VT 05401

<http://www.burlingtonvt.gov/PZ/>

Telephone: (802) 865-7188

(802) 865-7195 (FAX)

*David E. White, AICP, Director
Meagan Tuttle, AICP, Comprehensive Planner
Jay Appleton, Senior GIS/IT Programmer/Analyst
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, CFM, Associate Planner
Layne Darfler, Planning Technician
Anita Wade, Zoning Clerk*



MEMORANDUM

To: Development Review Board
From: Mary O'Neil, AICP, Principal Planner
Date: June 20, 2017
RE: 79 Industrial Avenue ZP17-1097CA/MA

Note: These are staff comments only. Decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.

File: ZP17-1097CA/MA

Location: 79 Industrial Parkway (Rhino Foods)

Zone: E-LM **Ward:** 5S

Date application accepted: May 9, 2017

Conservation Board Review: June 5, 2017

Technical Review: June 8, 2017

Staff Site Visit: June 8, 2017

Applicant/ Owner: Rhino Foods Inc. / Zoo Holdings LLC

Request: Two building additions approximately 14,200 sf footprint; paving existing parking lot, construction of new parking lot, construct fire access drive, stormwater system; remove 2 storage boxes, site grading.



Background:

- Zoning Permit 16-1434CA; Exterior lighting package. July 2016.
- Zoning Permit 16-1433CA; three new pole lights in front of building. July 2016.
- Zoning Permit 16-1126CA; place office trailer onsite for approximately one year. May 2016.
- Zoning Permit 16-1000CA; remove one existing light, replace with motion sensitive light, add two new lights. April 2016.

The programs and services of the City of Burlington are accessible to people with disabilities. For accessibility information call 865-7188 (for TTY users 865-7142).

- Zoning Permit 16-0613CA; 5-year tree maintenance plan. January 2016.
- Zoning Permit 16-0673FC; installation of approximately 80 feet of vinyl fencing. December 2015.
- Zoning Permit 16-0400CA; install temporary loading dock and door. September 2015.
- Zoning Permit 15-0842CA; construct new addition for trash and recycling enclosure. Amendment of zoning permit 15-0252CA. March 2015.
- Zoning Permit 15-0252CA; construction new addition for trash and recycling enclosure. September 2014.
- Zoning Permit 15-0411SN; install lettering on existing freestanding concrete sign platform for “Rhino Foods” and “79”. September 2014.
- Zoning Permit 14-0354SN; replace existing sign with new metal, non illuminated sign for Rhino Foods. September 2013.
- Zoning Permit 09-087CA; two temporary trailers/containers for storage. August 2008.
- Zoning Permit 09-088CA; erect a 7 x 10 shed. August 2008.
- Zoning Permit 07-293CA; add 8 x 20 outdoor storage shed on existing gravel surface. No increase in lot coverage. October 2006.
- Zoning Permit 07-025CA; temporary trailer/shipping container 8’ x 40’ to be kept on an existing concrete pad to provide additional storage space. No change in lot coverage. To be removed by July 1, 2007. July, 2006.
- Zoning Permit 06-759CA; extension of permit 06-210CA for temporary field office. Field office to be removed six months from end of appeal period for this permit (December 1, 2006.) May, 2006.
- Zoning Permit 06-446CA; install an air cooled chiller inside existing fenced equipment area on south side of building. January 2006.
- Zoning Permit 06-210CA; temporary 36’ x 10’ field office for additional meeting space. Shall be removed within eight months from end of appeal period. September 2005.
- Zoning Permit 04-576; fence around chiller and HVAC and noise barrier on south side. Apply for additional parking on existing gravel. Storing shed on south side and rocks on south side as parking barrier. June 2004.
- Zoning Permit 04-145, boundary line adjustment to increase 70 Industrial Parkway by 1.41 acres to become 5.01 acres and reduce 159 Industrial Parkway by 1.41 acres to become 11.0 acres. September 2003.
- Zoning Permit 02-584; installation of 8’ chain link fence around existing chiller and HVAC on south side of building and installation of a 16’ x 30’ concrete slab on north side of building for compost bin. June 2002.
- Zoning Permit 01-535; installation of HVAC unit on south side of building. June 2001.
- Zoning Permit 01-261; increase parking lot for 22 spaces, install 500-gallon fuel tank, demolish shed, enclosed roof vent with 7’ high 8’ x 8’ fence. November 2000.
- Zoning Permit 00-090 / COA 000-005; installation of five trailers (3 dry storage and 2 refrigeration) as storage units for the existing frozen food manufacturer. August 1999.
- Zoning Permit 99-591; replace one horizontal tank with two vertical nitrogen tanks 36’ high on the north side of the existing Rhino Foods manufacturing plant. June 1999.
- Zoning Permit 97-249 / COA 092-086B; revised site and landscaping plan for the existing manufacturing facility. Proposal represents as-built conditions for COA 92-086. January 1997.
- Zoning Permit 97-227 / COA 092-086A; renewal of COA 92-086, dated 4/23/1992, to utilize the originally approved maximum of 4300 sf. within the existing manufacturing space for associated office space. November 1996.

- Zoning Permit 92-313 / COA 092-086; fenestration and façade renovations to existing industrial complex. Relocated front entryway, with installation of horizontal above ground 48' long tank on side of building. April 1992.
- Zoning Permit 79-210A / COA 79-27; construction of 18,000 sf pre-engineered frame addition (metal clad) at rear of existing building. To be accomplished in 2 phases. Phase I refers to excavation and foundation; Phase II refers to frame addition. May 1979.

Overview: 79 Industrial Avenue is an existing food manufacturing facility within the Enterprise – Light Manufacturing zoning district. The proposal is for an expansion in both facility and parking. The project is Major Impact (under revised MA standards) because the development footprint (total area of impervious coverage, buildings and parking) exceeds 20,000 sf.

Recommendation: Major Impact and Certificate of Appropriateness **Approval**, per the following findings and Conditions:

I. Findings

Article 3: Applications, Permits, and Project Reviews

Part 3: Impacts Fees

Section 3.3.2 Applicability

*Any new development or additions to existing buildings which result in new dwelling units **or in new nonresidential buildings square footage are subject to impact fees** as is any change of use which results in an added impact according to Section 3.3.4.*

Based on submitted information for the addition of 2 building additions with a square foot calculation of 14,200 s.f., the following is an estimate of Impact Fees:

SF of Project	14,200	
	<u>Industrial</u>	
Department	Rate	Fee
Traffic	0.255	3,621.00
Fire	0.190	2,698.00
Police	0.341	4,842.20
Parks	0.411	5,836.20
Library	0.000	0.00
Schools	0.000	0.00
Total	1.197	\$ 16,997.40

Section 3.3.8 Time and Place of Payment

Impact fees must be paid to the city's chief administrative officer/city treasurer according to the following schedule:

*(b)Existing buildings: Impact fees must be paid at least seven (7) days prior to occupancy of a new building or any portion thereof. **Affirmative finding as conditioned.***

Part 5: Conditional use and Major Impact Review

Sec. 3.5.2 Applicability

(a) Conditional Use Review:

Conditional Use Review shall be required for the approval of all development subject to the following provisions of this ordinance:

- 1. any use identified under Article 4 and Appendix A – Use Table as a “Conditional Use” or “CU;”*
- 2. any Special Use specifically identified as being subject to conditional use review under Article 5, Part 3;*

Unless explicitly exempted, all Major Impact projects are subject to Conditional Use review.

(b) Major Impact Review:

Major Impact Review shall be required for the approval of all development involving any one or more of the following:

	Zoning Districts				
	Downtown Mixed Use	Neighborhood Mixed Use, Institutional, Enterprise,	Residential-Medium Density, Residential – High Density	Residential-Low Density	RCO-A, RCO-C, RCO-RG, UR
Dwelling Units	Creation of fifty (50) or more dwelling units	Creation of twenty-five (25) or more dwelling units (not applicable here)	Creation of ten (10) or more dwelling units	Creation of five (5) or more dwelling units	NA
Land Subdivision	NA	Not applicable here	Creation of ten (10) or more lots;	Creation of five (5) or more lots	NA

Non-residential or Mixed Use Development	A development footprint ¹ of fifty thousand (50,000) s.f. or more, or the creation of one hundred thousand (100,000) s.f. or more of gross floor area.	A development footprint¹ of twenty thousand (20,000) s.f. or more, or the creation of forty thousand (40,000) s.f. or more of gross floor area.	A development footprint ¹ of eight thousand (8,000) s.f. or more, or the creation of fifteen thousand (15,000) s.f. or more of gross floor area.	A development footprint ¹ of five thousand (5,000) s.f. or more, or the creation of ten thousand (10,000) s.f. or more of gross floor area.	Creation of five thousand (5,000) s.f. or more of gross floor area ²
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¹ Development Footprint: total area of impervious coverage – **buildings and parking.**

² Farm structures are exempt per 10 VSA 6001.

The total area of the new addition *and* parking lot exceed the 20,000 sf threshold of impervious coverage. See Standards of Review, below.

Sec. 3.5.6 Review Criteria

The application and supporting documentation submitted for proposed development involving Conditional Use and/or Major Impact Review, including the plans contained therein, shall indicate how the proposed use and associated development will comply with the review criteria specified below:

(a) Conditional Use Review Standards:

Approval shall be granted only if the DRB, after public notice and public hearing, determines that the proposed conditional use and associated development shall not result in an undue adverse effect on each of the following general standards:

- Existing or planned public utilities, facilities or services are capable of supporting the proposed use in addition to the existing uses in the area;*

The development is proposed within a zoning district specifically identified for manufacturing uses; the existing food processing facility is surrounded by similar manufacturing and industrial facilities (Edlund, Burton Snowboards, CCTA and Barrett Trucking.) The supporting narrative defines no conflict with existing or planned public utilities, facilities or services. **Affirmative finding.**

- The character of the area affected as defined by the purpose or purposes of the zoning district(s) within which the project is located, and specifically stated policies and standards of the municipal development plan;*

The **Light Manufacturing** (E-LM) district is the primary commercial/industrial center of Burlington, and is intended primarily to accommodate enterprises engaged in the manufacturing, processing, distribution, creating, repairing, renovating, painting, cleaning, or assembling of goods, merchandise, or equipment without potential conflicts from interspersed residential uses. From the Municipal Development Plan:

- *Protect core industrial areas by limited residential development and other uses that threaten to erode the continued viability of industry and manufacturing.* [MDP, Land Use Plan, P. I-31.
 - *Undertake an analysis to better understand the physical capacity of specific parts of the city to accommodate additional development.* [MDP, Land Use Plan, Page I-30.]
 - *Promote and strengthen a mixed economy, and work actively to retain existing businesses and jobs.* [MDP, Economic Development Plan, Page VI-2.]
 - *Support sustainable development activities in target areas of the city including the Enterprise Community....*[MDP, Economic Development Plan, page VI-2.
- Affirmative finding.**

3. *The proposed use will not have nuisance impacts from noise, odor, dust, heat, and vibrations greater than typically generated by other permitted uses in the same zoning district;*

The applicant has defined two instances of noise issuance; filling of liquid nitrogen tanks (2x day; tanks are existing), and the boiler (required for sanitizing the process equipment.) The plan includes landscaping and fencing to buffer audible impacts. See Plan L-1. The applicant will relocate HVAC equipment to the rooftop where it will be surrounded on all sides by screening.

The current and anticipated character of this facility is consistent with the type and scale of enterprise activities within the immediate E –LM area.

Affirmative finding.

4. *The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street designations and capacity; level of service and other performance measures; access to arterial roadways; connectivity; transit availability; parking and access; impacts on pedestrian, bicycle and transit circulation; safety for all modes; and adequate transportation demand management strategies;*

The proposed building additions are on an existing manufacturing facility within the Enterprise-Light Manufacturing zoning district. Existing roadways/arterials will not change. There will be no increase in the number of employees at the facility, so no transportation impacts or increased levels of service are anticipated. **Affirmative finding.**

and,

5. *The utilization of renewable energy resources;*

No part of the application precludes the utilization of wind, water, solar, geothermal or other forms of renewable energy resources. The importance of maintained building temperature makes it undesirable for the applicant to consider the inclusion of solar

infrastructure at this facility. Given the particular character of product(s) produced here, the underlying reasoning is understandable. **Affirmative finding.**

and,

6. *Any standards or factors set forth in existing City bylaws and city and state ordinances;*

It is the applicant's responsibility to secure any required additional state or city permits. Technical Review identified the need for a State Stormwater Permit.

Section 2.7.8, Withhold Permit, will apply to this property. See conditions.

Affirmative finding as conditioned.

(b) Major Impact Review Standards:

Before a major impact development may receive approval, the DRB must be satisfied, based on documentation provided by appropriate city agencies, experts, interested parties and/or the applicant that the proposed development shall:

1. *Not result in undue water, air or noise pollution;*

The development will not result in undue water, air or noise pollution. Mechanical equipment will be relocated to the roof, where it will have full height fencing on all sides for visual and audible screening.

Reference is made to the narrative for a description of wastewater distribution. Flows will not increase. Stormwater runoff will be addressed in compliance with State of Vermont Watershed Management Division regulations. The EPSC and Stormwater Plans must be compliant with Burlington's Chapter 26 regulations, and receive written approval from the City Stormwater Engineering program.

The applicants note that two separate activities emit noise: Filling the liquid nitrogen tanks (tanks are existing; filled up to 2x day) and the boiler (required to heat the water used for equipment sanitation process.) After meeting with neighborhood groups, the landscaping plan has been revised to include landscaping of increasing height to be planted in concert with fencing along the western property line to further buffer noise. Landscaping will be extended further north along that boundary as well. See sheet L1 for landscaping detail. This plan has been reviewed by the City arborist as well.

Affirmative finding as conditioned.

2. *Have sufficient water available for its needs;*

The current State of Vermont Wastewater System and Potable Water Supply permit defines allocation for 140 employees and process water. The actual and proposed employee count is 125. The project does not propose to increase the water demand for production. See narrative for description of process equipment set-up. Most of the water is used for sanitation of process equipment.

Affirmative finding.

3. *Not unreasonably burden the city's present or future water supply or distribution system;*

The project does not propose to increase water demands for the manufacturing function. **Affirmative finding.**

4. *Not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;*

The plan includes erosion prevention and sediment controls during construction phase of the development. These plans have been reviewed and approved the Stormwater Management program [Final approval received via email June 6, 2017.] The narrative defines long term (post development) ground cover including vegetation, compacted gravel, asphalt, concrete and stone fill; all consistent with erosion prevention. **Affirmative finding as conditioned.**

5. *Not cause unreasonable congestion or unsafe conditions on highways, streets, waterways, railways, bikeways, pedestrian pathways or other means of transportation, existing or proposed;*

The development does not propose any increase in the number of employees on site. No change is anticipated to transportation and/or circulation patterns of the existing manufacturing facility. **Affirmative finding.**

6. *Not cause an unreasonable burden on the city's ability to provide educational services;*

The structural expansion of the manufacturing facility will have no impact on educational services. As noted, there will be no increase in the number of employees with this plan. **Affirmative finding.**

7. *Not place an unreasonable burden on the city's ability to provide municipal services;*

The plant will continue to use existing connections to municipal water and sewer systems, with no crease of flows for the site. Pursuant to Act 250 review, the applicant has made a request to City administrative officers from differing departments requesting review for any foreseeable impacts. Impact fees will be assessed for the new area; those fees will offset any new impacts. **Affirmative finding as conditioned.**

8. *Not have an undue adverse effect on rare, irreplaceable or significant natural areas, historic or archaeological sites, nor on the scenic or natural beauty of the area or any part of the city;*

The project area has no known or identified historic or archaeological sites. There exists a Class III wetland (related to a roadside ditch along Industrial Parkway) that is not designated under Burlington's Natural Resource Protection District Map 4.5.4-1. It has been determined that the wetland does not provide any function or value that is significant enough to merit protection under the Vermont Wetland Rules. Any disturbance to the area will be minimal and properly permitted with the Army Corps of Engineers.

Neighbors expressed concerns about wildlife habitat, tree cutting, and stormwater. The Conservation Board made the following recommendations:

- New plantings, including additional evergreens such as arborvitae, should be added along the northern property boundary in a staggered configuration.

- To the northwest of that line, the area should be left unmanaged to allow understory growth providing for wildlife habitat in that corridor.
- If the fence is to be extended, it should be staggered as well. The fence should be installed in such a way as to avoid additional tree clearing. Tree clearing should be limited to the triangular spot shown on the site plan.

Affirmative finding as conditioned.

9. *Not have an undue adverse effect on the city's present or future growth patterns nor on the city's fiscal ability to accommodate such growth, nor on the city's investment in public services and facilities;*

The project is proposed within the Enterprise-Light Manufacturing zoning district where such activities are a permitted use. There will be no additional demand on existing street and municipal utility service. The payment of Impact Fees will address anticipated impacts of the industrial growth to appropriate departments. Additionally, the expanded manufacturing facility will add to the City's tax base. **Affirmative finding as conditioned.**

10. *Be in substantial conformance with the city's municipal development plan and all incorporated plans;*

See Section 3.5.6 (a) above for conformance with the Municipal Development Plan. The applicant narrative defines further conformance with Chittenden County ECOS (Regional) Plan. **Affirmative finding.**

11. *Not have an undue adverse impact on the present or projected housing needs of the city in terms of amount, type, affordability and location;*

There will be no increase in the employee count with this project. As a result, there are no anticipated demands on housing needs or impact on affordability and location of housing.

Affirmative finding.

and/or

12. *Not have an undue adverse impact on the present or projected park and recreation needs of the city.*

The project area is not adjacent to or impacting any city park. There will be no increase in employees as a result of the development. The payment of Impact Fees to the Parks, Recreation and Waterfront Department will address any potential ancillary impacts.

Affirmative finding as conditioned.

(C) Conditions of Approval:

In addition to imposing conditions of approval necessary to satisfy the General Standards specified in (a) or (b) above, the DRB may also impose additional conditions of approval relative to any of the following:

1. *Mitigation measures, including but not limited to screening, landscaping, where necessary to reduce noise and glare and to maintain the property in a character in keeping with the surrounding area.*

The applicant has identified areas of increased screening, landscaping and fencing (rooftop, and west elevation) to address periodic noise discharge. As an industrial area, a level of activity consistent with manufacturing and processing is anticipated. **Affirmative finding.**

2. *Time limits for construction.*

The zoning permit will limit the project to be completed within 2 years. **Affirmative finding as conditioned.**

3. *Hours of operation and/or construction to reduce the impacts on surrounding properties.*

Construction activities shall be limited to 7:00 am to 6:00 pm, Monday through Saturday. There shall be no construction on Sundays. No change to the current hours of operation are intended or implied. **Affirmative finding as conditioned.**

4. *That any future enlargement or alteration of the use return for review to the DRB to permit the specifying of new conditions;*

Any application for enlargement or expansion shall be viewed under the regulations in effect at the time of submittal. **Affirmative finding.**

and,

5. *Such additional reasonable performance standards, conditions and safeguards, as it may deem necessary to implement the purposes of this chapter and the zoning regulations.*

This remains at the discretion of the Board.

Article 4: Zoning Maps and Districts

Sec. 4.4.3 Enterprise Districts

(a)Purpose:

The 2 Enterprise districts as illustrated in Map 4.4.3-1 are described as follows:

*The **Light Manufacturing (E-LM)** district is the primary commercial/industrial center of Burlington, and is intended primarily to accommodate enterprises engaged in the manufacturing, processing, distribution, creating, repairing, renovating, painting, cleaning, or assembling of goods, merchandise, or equipment without potential conflicts from interspersed residential uses. Other accessory commercial uses are allowed to support a wide range of services and employment opportunities. This district is intended to ensure that sufficient land area is appropriately designated within the city to provide an adequate and diversified economic base that will facilitate high-density job creation and retention. This district is primarily intended to provide for industrial uses suitable for location in areas of proximity to residential development. Development is intended to respect interspersed historic industrial buildings, and reflect the industrial aesthetic of the district's past. Parking is intended to be hidden within, behind, or to the side of structures.*

Rhino Foods is an existing food processing facility; the use and proposed expansion is consistent with the intent of the E-LM zoning district. **Affirmative finding.**

Table 4.4.3 -1 Dimensional Standards and Density

Districts	Max. Intensity (floor area ratio ¹)	Max. Lot Coverage ¹	Minimum Building Setbacks ¹ (feet)			Max. Height ¹ (feet)
			Front	Side	Rear ³	
Light Manufacturing	2.0 FAR	80%	5 min	0 ²	10% ²	45'
Proposed 79 Industrial Pkwy	.21 FAR	52%	>120'	>20'	> 110' (10% of lot depth = 50.6')	26'

1 – Floor area ratio is further described in Art 5. Measurement of and exceptions to coverage, setback, and height standards are found in Art 5. Actual maximum build out potential may be reduced by site plan and architectural design considerations of Art 6.

2 – Structures shall be setback a minimum of 25-feet along any zoning district boundary line that abuts a residential zoning district. Lots of record existing as of September 9, 2015 that are split by enterprise and residential zones are exempt from this district boundary setback.

3 – Percentage of the lot depth.

Affirmative finding.

(c) Permitted and Conditional Uses:

The principal land uses that may be permitted, or conditionally permitted pursuant to the requirements of Article 3, within the Enterprise districts shall be as defined in Appendix A – Use Table.

Manufacturing is a permitted use in the E-LM zoning district per Appendix A. **Affirmative finding.**

(d) District Specific Regulations:

1. Convenience Stores. Not applicable.

Article 5: General Citywide Regulations

Section 5.2.1 Existing Small Lots

Not applicable.

Section 5.2.2 Required Frontage or Access

Development is proposed on a parcel with existing access and frontage on Industrial Parkway. **Affirmative finding.**

Section 5.2.3 Lot Coverage Requirements

See Table 4.4.3-1, above.

Section 5.2.4 Buildable Area Calculation

The parcel is not within RCO, WRM, RM, WRL or RL zoning districts. Not applicable.

Section 5.2.5 Setbacks.

See Table 4.4.3-1, above.

Section 5.2.6 Building Height Limits

See Table 4.4.3-1, above.

Section 5.2.7 Density and Intensive of Development Calculations

See Table 4.4.3-1, above.

Part 3: Non-conformities

Not applicable.

Part 4: Special Use Regulations

Section 5.4.8 Historic Buildings and Sites

Not applicable

Section 5.4.9 Brownfield Remediation

Not applicable.

Part 5: Performance Standards

Section 5.5.1 Nuisance Regulations

Construction activities will be limited Monday-Saturday 7:00 am – 6:00 pm, with no construction on Sundays. Appropriate measures will be defined by the plan for construction site debris and dust management.

Noise from two sources (Nitrogen tank filling, boiler) are limited in frequency and window of occurrence. Additionally, enhanced landscaping, screening, and fencing will be utilized to buffer noise impacts to abutting property. See submission narrative for definition and plans.

Affirmative finding as conditioned.

Section 5.5.2 Lighting

Twelve new LED cutoff lighting fixtures will be installed on the building exterior and within the new parking lot area. Fixtures will be photo cell; those intended for security purposes will be on motion sensor.

Light levels immediately below pole lighting exceed the 4 fc maximum defined by 5.5.2 (f) 1. Additionally, there are occasional areas where walkway lighting exceeds the 2 footcandle maximum defined by Section 5.5.2 (f) 2. Minor adjustments in fixtures or installation heights should address these minor errant measurements. **Affirmative finding as conditioned.**

Section 5.5.3 Stormwater and Erosion Control

Written approval of the EPSC and Stormwater Plan by the Stormwater Engineering team shall be a requirement prior to release of the zoning permit. Confirmation of that approval was received June 6, 2017. **Affirmative finding as conditioned.**

Section 5.5.4 Tree Removal

To accommodate the stormwater treatment channel, grading, the access drive and the westerly addition, trees will be removed in an area of approximately 7,300 sf. The landscaping plan identifies relocation of twelve 12' tall American Arborvitae trees and eight 4' tall American

Arborvitae trees. Thirty (30) new trees and 18 new shrubs will be planted across the site (likely more, with revised landscaping plans); many of which are intended along the westerly side of the building. A planting bed with perennials will be installed adjacent to the patio. See Landscaping Plan and narrative for definition of species. At Technical Review, project applicants informed that the landscaping plan was being revised to extend the fence/landscaping buffer to the north after meeting with neighbors; those plans would be forwarded. **Affirmative finding as conditioned.**

Article 6: Development Review Standards

Part 1: Land Division Design Standards

Not applicable.

Part 2: Site Plan Design Standards

Section 6.2.2 Review Standards

(a) Protection of Important Natural Features

Construction of the fire access road and the westerly building addition will prompt the removal/relocation of an area of trees. See Section 5.5.4, above. New trees will be installed to provide a buffer between the project area and abutting neighbors to the west. The drainage area next to Industrial Parkway has been identified as a Class III wetland; however, the the State of Vermont has determined that the wetlands do not provide function or value significant enough to warrant protection. **Affirmative finding.**

(b) Topographical Alterations

Some grading will be required as part of the development. A retaining wall (not to exceed 3' in height) is included at the loading dock. See Plan C1.04 for specific details. Approval of the Stormwater plan (to assure flow path) is a prior-to-release condition. **Affirmative finding as conditioned.**

(c) Protection of Important Public Views

There are no protected or important views from this parcel. Not applicable.

(d) Protection of Important Cultural Resources

There are no identified architectural or archaeological resources at the site. Not applicable.

(e) Supporting the Use of Renewable Energy Resources

The regulated temperature of this food processing facility precludes inclusion of solar heating. The amenity space for employees has southerly exposure with large expanses of glazing to capture passive solar/light benefits. **Affirmative finding.**

(f) Brownfield Sites

None identified. Not applicable.

(g) Provide for Nature's Events

Existing drainage patterns are not significantly modified. An enhanced stormwater management system is proposed in compliance with State requirements. **Affirmative finding as conditioned.**

(h) Building Location and Orientation

Structural additions are proposed to an existing manufacturing facility. The additions are consistent with the orientation of the existing building. The enhanced entry will face the street, and include an entrance patio, pergola and garden area. **Affirmative finding.**

(i) Vehicular Access

Access will be maintained via the existing entrance off Industrial Parkway. To facilitate free circulation of delivery vehicles, the curb cut is proposed to be revised to be 34' wide with 25' radius flares. Any changes to the curb cut will require approval (and potentially a curb cut permit) from the Department of Public Works. No work shall be executed within the public right-of-way without prior approval of DPW. **Affirmative finding as conditioned.**

(j) Pedestrian Access

There are no public sidewalks along Industrial Parkway. Internal sidewalks to facilitate safe pedestrian transit between the parking lot and building will be reconstructed. **Affirmative finding.**

(k) Accessibility for the Handicapped

ADA compliance is under the jurisdiction of the building inspector. Five h/c parking spaces are illustrated on plan C1.02. **Affirmative finding.**

(l) Parking and Circulation

There are 58 parking spaces illustrated on the "existing conditions" site plan. The proposal includes paving the existing gravel parking lot, and adding a new lot for a total of 86 parking spaces. See Article 8 for parking requirements, below.

The project includes the addition of an 18' wide fire access lane around all sides of the building. **Affirmative finding.**

(m) Landscaping and Fences

See Tree Removal in Section 5.5.4, above, and reference to landscaping plan and plant schedule on plan L1. A wooden enclosure is proposed around the trash compactors. Eight-foot-tall cedar wood board and batten fencing sections will be staggered among the proposed plantings along the westerly property to screen the building and parking from abutting properties. The applicants submitted that the landscaping plan will be enhanced in response to neighbor's comments; that revised plan is forthcoming. **Affirmative finding as conditioned.**

(n) Public Plazas and Open Space

There are no public plazas or required open space as part of this application. The development includes new amenity space for employees for their comfort and enjoyment. **Affirmative finding.**

(o) Outdoor Lighting

See Section 5.5.2, above.

(p) Integrate Infrastructure into the design:

Trash compacters will have a gated fence surround. The mailbox will be relocated to an adjacent area as part of this proposal. Substantial landscaping and the addition of fences will screen and buffer impacts to abutting properties. A bike rack will be added to the northerly entrance. Mechanical equipment will be relocated to the roof of the building and screened with an enclosure. **Affirmative finding.**

Part 3: Architectural Design Standards

Section 6.3.2 Review Standards

(a) Relate development to its environment

1. Massing, Height and Scale

Density Study, Plan 02, illustrates the similarity between this building, with proposed additions and other buildings in the area. **Affirmative finding.**

2. Roofs and rooflines

The proposed rooflines are consistent with the existing building and those of neighboring buildings. **Affirmative finding.**

3. Building Openings

Building openings are appropriate to the intended function and overall design of the building. The new glassed entrance portico will both identify the principle formal entry, but provide a striking complement to the streetfront of the building. **Affirmative finding.**

(b) Protection of Important Architectural Resources

Not applicable.

(c) Protection of Important Public Views

Not applicable.

(d) Provide an active and inviting street edge

The proposed building additions are both consistent with the existing building design and complementary in appearance. The new formal entrance will provide a warm and bright welcome. New landscaping and an improved parking area will satisfy the needs of employees and visitors alike. **Affirmative finding.**

(e) Quality of Materials;

Specific definition for wall sections are provided in Plan 06a. Exterior walls will be pre-finished insulated metal wall panels, aluminum storefront windows, spandrel glass, pvc roofing membrane and insulated sectional steel doors (at delivery bays.) All are appropriate for the intended installation. **Affirmative finding.**

(f) Reduce energy utilization;

All development is required to meet the Guidelines for Energy Efficient Construction pursuant to the requirements of Article VI. Energy Conservation, Section 8 of the City of Burlington Code of Ordinances. **Affirmative finding as conditioned.**

(g) Make Advertising features complementary to the site;

Any new or revised signage will require a separate sign permit. **Affirmative finding as conditioned.**

(h) Integrate infrastructure into the building design;

See Section 6.2.2. (p), above.

- (i) *Make spaces secure and safe.*

Development shall adhere to all applicable building and life safety code as defined by the building inspector and fire marshal. Motion sensor activated security lighting has been included within the lighting plan. The addition of a fire access lane will accommodate any emergency vehicles. Details about water access and suppression systems were discussed at Technical Review. **Affirmative finding as conditioned.**

Article 7: Signs

Any new or replacement signage will require separate permitting. **Affirmative finding as conditioned.**

Article 8: Parking

In the Shared Use Parking District, Manufacturing requires 1 parking space per 1,000 s.f. of gross floor area. The addition of 14,200 s.f. will require 14 new parking spaces. (14,200 / 1,000.) Existing conditions provide 58 parking spaces; proposed parking count is 86 parking spaces for an increase of 28 parking spaces; exceeding the requirement. **Affirmative finding.**

II. Conditions of Approval

1. Based on submitted new square footage of new nonresidential space, the following Impact fees shall be paid at least seven days prior to occupancy of a new building or any portion thereof. (If area differs, the applicant shall provide corrected area to staff for recalculation and allocation by department):

SF of Project	14,200	
	<u>Industrial</u>	
Department	Rate	Fee
Traffic	0.255	3,621.00
Fire	0.190	2,698.00
Police	0.341	4,842.20
Parks	0.411	5,836.20
Library	0.000	0.00
Schools	0.000	0.00
Total	1.197	\$ 16,997.40

2. **Section 2.7.8, Withhold Permit** requires that any open violations on this property be remedied, and any zoning permits issued since July 13, 1989 be closed out **prior to issuance of a Certificate of Occupancy** for this project. See attached property permit history for further information.
3. Light fixtures shall be adjusted to meet the requirements of Section 5.5.2; particularly maximum footcandle measurements within the parking lot area

shall not exceed 4 fc; those on walkways 2 fc. A revised photometric shall be supplied **prior to release of the zoning permit** to confirm these revisions.

4. Written approval of the EPSC and Stormwater Plan by the Stormwater Engineering team shall be a requirement **prior to release of the zoning permit**. [Final approval received 6.6, 2017.]
5. Unless specifically altered by the DRB, construction activities shall be limited to 7:00 am to 6:00 pm, Monday through Saturday. There shall be no construction on Sundays.
6. Any new or replacement signage will require separate permitting.
7. Any changes to the curb cut will require approval (and potentially a curb cut permit) from the Department of Public Works. No work shall be executed within the public right-of-way without prior approval of DPW.
8. All development is required to meet the Guidelines for Energy Efficient Construction pursuant to the requirements of Article VI. Energy Conservation, Section 8 of the City of Burlington Code of Ordinances.
9. Per the Conservation Board's recommendations:
 1. New plantings, including additional evergreens such as arborvitae, should be added along the northern property boundary in a staggered configuration.
 2. To the northwest of that line, the area should be left unmanaged to allow understory growth providing for wildlife habitat in that corridor.
 3. If the fence is to be extended, it should be staggered as well. The fence should be installed in such a way as to avoid additional tree clearing. Tree clearing should be limited to the triangular spot shown on the site plan.

These recommendations shall be incorporated into a revised landscaping plan, to be submitted to staff for review and approval **prior to release of the zoning permit**.

10. Standard Permit Conditions 1-15.

NOTE: These are staff comments only. The Development Review Board, who may approve, table, modify, or deny projects, makes decisions.



May 9, 2017

Scott Gustin
City of Burlington Planning and Zoning
149 Church Street
Burlington, VT 05401

Subject: **14,200 sf Building Expansion: 79 Industrial Parkway, Burlington,
Request for local Review**

Dear Scott:

Please find enclosed a Zoning Permit Application for the above captioned project. The project involves the construction of two building additions totaling approximately 14,200 sf of building footprint with site improvements including paving of an existing car parking lot, construction of a new parking lot, fire access drive, and stormwater system, as well as associated site grading. The project parcel is recorded in the City of Burlington records as lot 060-1-062-000. This property's deed is recorded in book 933, page 5 in the city land records. The existing building use is food processing; there is no change in use proposed. There are no sales of goods at this facility. The City of Burlington has designated the parcel as being part of the Enterprise Light Manufacturing zoning district and in the Design Review overlay district.

Due to the estimated construction cost of the project, this project requires a COA Level II review. Additionally, this project involves a development footprint greater than twenty thousand sf and therefore is considered a Major Impact project which requires review under the Major Impact Review.

As part of the Major Impact Review, the project was presented at the February 16, 2017 neighborhood planning assembly meeting for Ward 5. The neighborhood affidavit, meeting sign-in, relevant meeting minutes, and notification to abutting property owners are included with this permit application.

Citywide General Regulations:

1. Uses and Structures:

The existing and proposed use of the project parcel is food processing which is a permitted use in the Enterprise- Light Manufacturing zoning district. There is only one principal structure on this lot and it is that structure on which two additions are proposed to be constructed. There is one accessory structure, a shed approximately 50 sf, located on the lot that is proposed to be relocated.

2. Dimensional Requirements:

- a. There are no proposed changes to property lines, lot size, or lot frontage. The existing parcel is in conformance with the district dimensional standards. Below is a table of allowed and proposed conditions:

Surveying
Permitting
Site Design
Subdivisions
Timber Design
Expert Testimony
Site Development
Act 250 Permitting
Forensic Engineering
Environmental Permitting
Transportation Engineering
Structural Inspection Services
Commercial Building Design
Construction Oversight
Building Assessment
Pedestrian Bridges
Stream Alterations
Sewer Design
Water Supply
Storm Water
Hydrology
Grading

317 River Street
P.O. Box 1576
Montpelier, VT
05601-1576
phone: 802.223.4727
fax: 802.223.4740
www.dirtsteel.com

	Allowed	Proposed
Lot Coverage	80%	52%
Front Setback	5 feet	Over 120 feet
Side Setback	0 feet	Over 20 feet
Rear Setback	10% of lot depth = 50.6'	Over 110 feet
Max Height	45 feet	26 feet
Floor Area Ratio	2.0	0.21

- b. The existing structure and proposed additions have multiple roof heights and styles. The tallest building roof is less than 28' in height. On average the heights measured from ground surface to either the mid-rise in peak of the roof or to the top of the flat roof are between 16' and 23' tall. The proposed building additions heights vary. The southern building addition, which holds the office and amenity space, has a height of approximately 23'. The western building addition, which will be food processing related space, is approximately 26' in height. Elevations of the ground surface around the building are generally within 1' of finished floor resulting in a height, as defined by the City of Burlington Comprehensive Development Ordinance, ranging from 23' to 26'. There will be two loading dock areas where the ground surface will be four feet below the finished floor elevation.

- c. Lot Coverage is broken out in the following table:

Cover Type	Existing	Proposed
Buildings (sf)	29,910	44,100
Walkway and Equipment Pads (sf)	4,860	4,600
Gravel and Pavement (sf)	48,496	63,900
Total Lot Coverage (sf)	83,895	112,700
Lot Size (sf)	218,236	218,236
Lot Coverage (%)	38.4	51.6

3. Non-Conformities: Not applicable; the project does not have any nonconforming components.

Special Use Regulations:

Not applicable; the project does not have any special uses.

Major Impact Review Standards:

1. Not result in undue water, air, or noise pollution;

The project will not result in undue water, air, or noise pollution. The project will address stormwater runoff in compliance with the State of Vermont Watershed Management Division regulations. The proposed wastewater will continue to be discharged to the City of Burlington's municipal sewer system and will not increase flows. The wastewater is a combination of domestic wastewater and process wastewater. The process wastewater exits the building to the north and flows through a grease trap. Due to internal proposed plumbing, the proposed configuration splits the process wastewater to both the existing grease trap to the north and to a new grease trap proposed to be located to the south of the warehouse addition.

The proposed project will relocate existing mechanical equipment from the southern side of the building to the roof. The mechanical equipment located on the roof will have full height fencing on all sides so as to not be seen from the street as required in the local regulations. During the first pre-application neighborhood public meeting, there were questions asked regarding the noise levels of the current facility operation and the changes due to the proposed project. Particularly, a high pitched noise is created during filling of the liquid nitrogen tanks. This happens up to twice a day when the

facility is operating and deliveries are scheduled to occur between 8 AM and 8 PM. Another noise concern is the boiler, which is noted to be loud. It was discussed that the boiler is required to heat the water used as part of the sanitation process. Low height landscaping and fencing is proposed along the western property line to help buffer noise from the facility. See sheet L1 for landscaping information.

The City of Burlington does not quantify a sound level threshold that projects must remain under. The Vermont Natural Resources Board does review aesthetics impact of noise and uses a general threshold of 70 dBA (Lmax) at the property line and 55 dBA (Lmax) at surrounding residences and outside areas of frequent human use. A few sound level measurements have been taken at the current facility to get a better idea of the current noise levels. At the edge of the woods along the western property setback line, the readings were generally 50-55 dBA. When the dish room fan was running the range increased to 55- 60 dBA. When the boiler was also running, the noise level rose to 60-65 dBA. Sound levels along the sides of the building were between 45-55 dBA. Along the front of the building where road noise is present the levels were closer to 50-55 dBA.

2. Have sufficient water available for its needs;

The project does not propose to increase the water demands for this building and the City of Burlington has confirmed the current allocation for 140 employees and process water per the existing State of Vermont Wastewater System and Potable Water Supply Permit. The existing permit has been included as an attachment. The proposed employee count for the building is 125. The majority of this facility's water usage is for the sanitation of process equipment. Currently, the building does not allow for all process equipment to remain set up. After one set of equipment is used, it is cleaned and stored. Then when set back up for use, it must be sanitized. The sanitation water usage will be reduced as the proposed expansion will allow for equipment to remain in place even when not in use and will eliminate the need for double cleaning of equipment.

3. Not unreasonably burden the city's present or future water supply or distribution system;

The project does not propose to increase the water demands for this building.

4. Not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;

The project proposes to implement erosion prevention and sediment controls during the construction phase of the project. These include the use of a stabilized construction entrance, silt fencing down gradient of disturbed surfaces, stone checkdams, and erosion control matting. Additionally, the number of days disturbed surfaces may remain unstabilized will be restricted to seven. Final surface covers will include established vegetation, compacted gravel, asphalt, concrete, or stone fill, which are resistant to erosion.

5. Not cause unreasonable congestion or unsafe conditions on highways, streets, waterways, railways, bikeways, pedestrian pathways or other means of transportation, existing or proposed;

There are no railways, waterways, bikeways, pedestrian pathways adjacent to the project parcel. This project does not propose to increase the number of employees or create a significant increase to the expected truck traffic and therefore will not cause unreasonable congestion on Industrial Parkway.

6. Not cause an unreasonable burden on the city's ability to provide educational services;

The proposed project will not increase the number of employees and therefore there will be no additional school aged children or burden to the city's educational services.

7. Not place an unreasonable burden on the city's ability to provide municipal services;

The proposed project will continue to utilize the existing connections to the municipal water and sewer systems and is not proposing to increase the flows for the site. A request for review of this project has been sent to Mayor Weinberger with regard to impacts on municipal services for the Act 250 permitting process. Other request letters were written directly to the fire marshal, police chief, parks and recreation, and the department of public works. Copies of the letters are attached.

8. Not have an undue adverse effect on rare, irreplaceable or significant natural areas, historic or archaeological sites, nor on the scenic or natural beauty of the area or any part of the city;

This site is an existing food processing facility and is located in an industrial area. This project parcel does not contain any known historic or archaeological sites. A letter has been written to the State of Vermont Historic Preservation requesting confirmation that the site does not contain items of significance. The project parcel does contain Class III wetlands that are non-jurisdictional for the State of Vermont. The wetlands have been delineated and will require a Category 1 notification under the Vermont General Permit through the Army Corps of Engineers. The permit application is required to be sent a minimum of two weeks prior to the start of construction, after a contractor has been selected. The wetlands are not designated on the City of Burlington's Natural Resource Protection District Map 4.5.4-1.

9. Not have an undue adverse effect on the city's present or future growth patterns nor on the city's fiscal ability to accommodate such growth, nor on the city's investment in public services and facilities;

The project is located in an industrial area and will expand the existing food processing facility which is a permitted use in the Enterprise Light Manufacturing zoning district for the City of Burlington. The project will utilize the city's existing street and municipal utility services but will not create an undue burden on those current services. Additionally, the development will add to the tax base.

10. Be in substantial conformance with the city's municipal development plan and all incorporated plans;

Municipal Plan:

- a. Land Use: This project directly conforms to the land use policies by protecting natural areas and increasing the density of development in the Enterprise District.
- b. Natural Environment: This project directly conforms to the Natural Environment policies by protecting natural resources from degradation.
- c. Built Environment: This project directly conforms to the Built Environment policies by not reducing scenic views, historic buildings, or pedestrian experiences.
- d. Historic Preservation: This project will have no impacts under this portion of the plan.
- e. Transportation: This project will have no impacts under this portion of the plan.
- f. Economic Development: This project directly conforms to the Economic Development Plan by creating further development within the Enterprise district.
- g. Community Facilities and Services: This project will have no impacts under this portion of the plan.
- h. Energy: This project will have no impacts under this portion of the plan.
- i. Housing: This project will have no impacts under this portion of the plan.
- j. Education: This project will have no impacts under this portion of the plan.

Regional plan:

The Chittenden County ECOS Plan indicates "Enterprise Planning Areas are areas where local zoning authorizes a future concentration of employment uses that attract workers from the County and multi-county region. Development in these Planning Areas should have adequate wastewater capacity and access to transit or be near these services. Typically, this area encompasses major employers or a cluster of single employers and has current or planned transit service." The project improves the ability of the company to meet their clients' demands, increases economic stability of the facility, and improves employee climate. It also promotes public transport by offering incentives. The project is an industrial use which supports the surrounding community as outlined in the plan. The area is served by municipal water and sewer.

There are four broad goals described in the Plan; Natural Systems; Social Community; Economic Infrastructure; and Built Environment. The project is infill of the current development on-site and minimizes disturbance to natural areas. The project increases the economic prosperity of the company which will directly or indirectly increase the prosperity of the area. These both are in line with the goals of the plan.

11. Not have an undue adverse impact on the present or projected housing needs of the city in terms of amount, type, affordability and location:

The project is not a residential project nor is additional housing needed as a result of this project. There are no new employees proposed for this project.

12. Not have an undue adverse impact on the present or projected park and recreation needs of the city.

This project is not located adjacent to an existing or currently proposed city park. There will be no increase in employees due to the proposed project.

13. Days and hours of operation:

This facility operates 24 hours per day, 6 days per week.

14. Employees:

There are currently 125 employees and there are no new employees proposed.

15. Traffic Generation is displayed in the following table. The trip traffic was determined using the Institutes of Traffic Engineers Trip Generation Report 7th Edition, Category 140 for Manufacturing, using the proposed 125 employees as the basis for calculating the trips. The expected truck traffic is 14 deliveries or shipments per day, across two eight hour shifts, generally between 8AM and 8PM.

	Number of Trips
Weekday Trips	465
Weekday AM Peak Trips	66
Weekday PM Peak Trips	71

A conservative approach has been taken by using the full employee count as the basis of determination even though the employee count is split across 24 hours. Since there is no increase in employees proposed, there will not be additional traffic impacts from the project.

District Specific Regulations:

Wetland Conservation Zone

Under the City of Burlington, VT Comprehensive Development Ordinance, the Natural Resource Protection Overlay District consists of areas delineated on Map 4.5.4-1. This map does not indicate the presence of any natural resources within the project parcel. An existing wetland within the project area was delineated in on July 7, 2016 by Dori Barton of Arrowwood Environmental, LLC, and was found to be directly related to the roadside ditch along Industrial Parkway. The disturbance to the wetland is limited in area and will be properly permitted with the Army Corps of Engineers. The State of Vermont has provided written documentation indicating that the wetland is designated Class III. This documentation is attached to this application. It was determined that the wetland does not provide function or value that is significant enough to merit protection under the Vermont Wetland Rules at this time.

Performance Standards:

1. Nuisance Regulations:

During construction, if excessively loud equipment is required, the work will be restricted from occurring on Sunday or between the hours of 5:30 pm and 7:00 am except in emergency situations. During construction of this project, appropriate measures will be used to control dust and dirt. After construction, the site surfaces will be vegetated, gravel, or paved and there will not be activities which will cause offensive dust and dirt. There will be no noxious gases or vibrations created by this project. There will be no fire, explosion, or safety hazards created by this project. There will be no burying or seepage into the ground of material which endangers any person or cause injury to property, plants or animals due to this project. Current operations at the facility do include two items that generate significant noise levels. The first is the filling of the liquid nitrogen tanks, which creates a high pitched noise. The owner has modified the delivery hours to be between 8 AM and 8 PM to reduce disturbance to abutting properties. The other significant noise is the boiler which heats the water that is used in the sanitation process. Current noise level measurements are discussed above in the Major Impact Review Standards section.

2. Outdoor Lighting:

Twelve (12) new LED cutoff style lighting fixtures are being added to supplement the existing fixtures on the exterior of the new building and parking lot construction areas. All fixtures are dark

sky friendly approved fixtures as manufactured by RAB Lighting. Control of fixtures will be by photo cell and motion sensor for security fixtures.

Locations and types are indicated on the attached drawings and fixture cuts. To summarize, there will be:

- a) 5 new building lights, mounted on new additions, 3 at 21.1 watt/ea on south wall, and 2 at 14.8 watt/ea on east and west walls, all mounted at 15' AFG
- b) 4 new pole mounted lights, 78.6 watt/ea, 2 at south parking and 2 at east parking, all mounted 16' AFG (including light base)
- c) 1 new pole light at the new west side employee entrance, 71.9 watt/ea. mounted 16' AFG
- d) 2 new bollard style lights, 22.1 watts/ea. Located at the west office main entry, both mounted at 3.5' AFG. Total new fixtures wattage equals 523.4 watts.

The average illuminance in the new lighting area is 0.36 foot-candle. See photometric plan, rendering, and calculation summary included in this application.

3. Stormwater and Erosion Control:

The project will be required to obtain an Individual Stormwater Permit through the State of Vermont Watershed Management Division. The lot generally drains from southwest to northeast toward the roadside ditch along Industrial Parkway. The stormwater system was designed to treat the runoff from the new impervious areas on the project site. Stormwater runoff from portions of rooftops, drives, and parking flow via overland to a grass treatment channel. Portions of rooftops and pavement are conveyed via closed drainage piping. Both are routed to a wet pond with pre-treatment forebay. The wet pond has a controlled outlet structure and stabilized outfall to the roadside ditch along Industrial Parkway. The ditch is part of the Burlington stormwater system that drains to Lake Champlain. The following table shows the peak stormwater discharges from the lot in the current condition and the proposed conditions.

Storm	Current Conditions		Proposed Conditions	
	Discharge (cfs)	Volume (ac-ft)	Discharge (cfs)	Volume (ac-ft)
1-yr	7.09	1.12	4.89	1.26
10-yr	15.30	2.28	10.88	2.46

Stormwater models required as part of the state permitting process have been included as an enclosure with this application.

This project is designed to be in conformance with the Vermont State Construction General Permit 3-9020 and is considered a low-risk project.

- a. Erosion control measures to be employed during construction include silt fence placed down gradient of all disturbed areas, erosion control matting placed on all slopes greater than 10% (1V:10H) and in all areas of concentrated runoff, check dams in swales to promote the settling of sediment and infiltration, and a stabilized construction entrance to prevent the tracking of sediment onto Industrial Parkway.
- b. Permanent erosion control measures will include stabilized surfaces (e.g. established vegetated areas, pavement, and gravel surfaces).

4. Tree Removal:

This project will require the removal of trees in an area of approximately 7,300 sf. The removal of these trees are required to construct the western building addition, an access drive around the building, a treatment channel for stormwater runoff, and grading to match existing elevations. The existing birch tree and white pine located off the southeastern building corner will need to be removed to accommodate the new building addition and stormwater pond, respectively. A planting bed is proposed for the area in front of the building adjacent to the patio. The planting area is expected to have spring bulbs, hydrangeas, hosta, clethra, and other low maintenance perennials.

Twelve 12' tall American Arborvitae trees and eight 4' tall American Arborvitae trees will be relocated as part of this project. There are 30 new trees and 18 new shrubs proposed to be planted. Nine of the new shrubs will be planted between the entrance drive and the stormwater pond and one will be in front of the new building addition. The remaining shrubs and trees (including the relocated trees) will be planted along the limits of disturbance along the western side of the building. The new trees are proposed to be a mix of ash, honey locust, oak, and fir trees. See the attached landscaping plan for a planting schedule.

Development Review Standards:

1. Land Division Design Standards: Not applicable; this project does not proposed to divide land.
2. Site Plan Design Standards:
 - a. Natural features: There will be some trees removed to accommodate the proposed project. Most of the trees to be cut are part of a bulb out off of the main strip of trees that run along the property line. New trees will be planted to reestablish a visual screen between the abutting residential development and the building expansion. The current trees are mature with little to no low branches. The new plantings will help fill in the screening at areas closer to the ground where the mature trees no longer provide dense screening.

There is a Class III Wetland located on the project parcel that will be disturbed as part of this project. According to the State of Vermont, the wetlands do not provide function or value significant enough to warrant protection under the Vermont rules.

The project includes a new stormwater system to treat stormwater runoff and prevent sedimentation downstream.

- b. Topographical alterations: The site grading required for this project will includes slopes of 3H:1V or flatter. The overall stormwater flow path of the site will not be altered as part of this project. All disturbed surfaces will be monitored for erosion until stabilization is achieved. The finished surface covers in the areas disturbed by this project include asphalt, concrete, compacted gravel, stone, and established vegetation. The only new retaining wall located on the site will be at the loading dock and will not exceed three feet in height.
- c. Public Views: Not applicable; there are no public scenic views that will be minimized by this project.
- d. Cultural Resources: This project proposes to create building additions within the limits of previous project disturbance. There are no noted archeological sites on the project parcel.
- e. Renewable Energy Resources: The majority of the facility needs to have a regulated temperature and therefore does not utilize solar heating. The new amenity space for employees will be on the south eastern side of the existing building. Much of the façade will be glass which will utilize the natural sunlight for both lighting and heat. The neighboring building's sun exposure is not reduced due to the existing building or the proposed expansion.
- f. Brownfield Sites: Not applicable; this project does not involve an area known or suspected to be a brownfield.
- g. Nature's events: The existing drainage patterns are not significantly modified due to this project. Stormwater runoff will be properly treated and detained to ensure compliance with the State of Vermont applicable requirements.
- h. Building Location and Orientation: The proposed additions will contain building lines parallel and perpendicular to the existing building and closely parallel and perpendicular to Industrial Parkway. The main entrance will face the street and will be accented by a new pergola, patio, and planting area.
- i. Vehicular Access: The existing curb cut along Industrial Parkway will continue to provide access to the site. The existing curb cut will be reshaped to be 34' wide with 25' radius flares adjoining Industrial Parkway. This will improve access to the site for delivery vehicles. No additional curb

- cut locations are proposed as part of this project. The site has been designed to allow for full maneuvering and circulation of traffic on-site.
- j. **Pedestrian Access:** There are no public sidewalks along Industrial Parkway adjacent to the project parcel. The existing concrete sidewalk internal to the site will be reconstructed and will allow pedestrians to collect and be directed to the entrance of the building. A new concrete sidewalk will be constructed along a portion of the southern parking lot and will allow for pedestrians to collect and travel to the main entrance. The existing gravel car parking lot will be paved with bituminous concrete as part of this project. The bituminous concrete will be striped to indicate parking spaces and applicable aisles.
 - k. **Accessibility for the Handicapped:** Five accessible parking spaces, including one van space, are being created with aisles, paint striping, and signage conforming to ADA standards as part of this project. The accessible spaces are located at the main entrance of the building and will have a sidewalk flush with the parking area to enable ease of access to the building. Bollards will be used as a barrier for the spaces that do not have curbing between the parking and sidewalk surface.
 - l. **Parking and Circulation:** The project is located in the shared use parking district and its use is food processing. The building has 33,000 sf dedicated to process operations and 12,900 sf dedicated to office space. Based on Article 8: Parking of the Burlington Comprehensive Zoning Ordinance the maximum allowable number of parking spaces is based on 125% of the minimum number of spaces in the Neighborhood parking district. The minimum spaces in the neighborhood district 1.3 spaces/ 1000 gfa for food processing and 2 spaces/1000 gfa for office space. This allows a maximum of 86 parking spaces. In total, the project proposes 86 parking spaces, including four standard accessible spaces and one van accessible space. There are three shifts at the facility. The arrival and departures during the shifts do vary by employee and their respective role at the facility and there will be some overlap between shifts. The parking shown is anticipated to accommodate proposed work force.

An 18' wide access drive is proposed and will provide access to all four sides of the building. The edges of the parking area are defined by grass depressions and existing and proposed trees. Curbing is not proposed on the exterior of the parking lots to allow for non-concentrated flow of stormwater runoff into the treatment channel.

The site has been designed to allow for on-site turning movements for delivery vehicles. The existing loading space is parallel to Industrial Parkway and there is a fence screening it from the road. The new loading dock is perpendicular to Industrial Parkway to provide for better internal process circulation as well as external truck circulation.

The project is not required to provide long and short term bicycle facilities due to the proposed expansion size. Three new galvanized inverted "u" bicycle racks are proposed to be mounted to a new concrete pad located along the sidewalk on the northern end of the parking lot. Showers and locker rooms have been provided within the building.

- m. **Landscaping and Fences:** The landscaping plan has taken into consideration the hazards of salt, vehicles, snow removal, and climate factors. Tree cutting is required to accommodate the proposed addition and access drive. Landscaping will be used to screen the building addition from the residential neighbors to the west. Additionally, 8' tall cedar wood board and batten fencing sections that are 24' long will be staggered amongst the proposed plantings along the western property setback line. These fencing sections are being placed to help screen the building and parking from abutting land owners in areas where the tree cutting will occur. A planting bed is proposed adjacent to the parking area and patio in front of the building. In addition, bushes are proposed to be planted between the driveway entrance and the stormwater pond. Shade trees are proposed to be added along the edge of the parking areas. The existing garden fence is proposed

to be relocated to the southwest. An 8' tall cedar wood board and batten fencing and doors are proposed around the two trash compactors on the southern corner of the building.

- n. Public Plazas and Open Space: The project is industrial in nature and does not propose any public plazas or open public spaces.
- o. Outdoor Lighting:
Twelve (12) new LED cutoff style lighting fixtures are being added to supplement the existing fixtures on the exterior of the new building and parking lot construction areas. All fixtures are dark sky friendly approved fixtures as manufactured by RAB Lighting. Control of fixtures will be by photo cell and motion sensor for security fixtures.

Locations and types are indicated on the attached drawings and fixture cuts. To summarize, there will be:

- a) 5 new building lights, mounted on new additions, 3 at 21.1 watt/ea on south wall, and 2 at 14.8 watt/ea on east and west walls, all mounted at 15' AFG
- b) 4 new pole mounted lights, 78.6 watt/ea, 2 at south parking and 2 at east parking, all mounted 16' AFG (including light base)
- c) 1 new pole light at the new west side employee entrance, 71.9 watt/ea. mounted 16' AFG
2 new bollard style lights, 22.1 watts/ea. Located at the west office main entry, both mounted at 3.5' AFG.

Total new fixtures wattage equals 523.4 watts. The average illuminance for the proposed lighting is 0.36 foot-candles.

- p. Integrate infrastructure into the design: The project makes use of existing water and wastewater services, existing roadside drainage ditch, and existing access to Industrial Parkway. Industrial Parkway does not have municipal infrastructure such as sidewalks or bike paths. The project site will incorporate a bike rack to promote employee bicycle usage. The project proposes to relocate mechanical equipment from the ground surface along the southern side of the building to the rooftop. New mechanical equipment units will also be roof mounted.

3. Architectural Design Standards

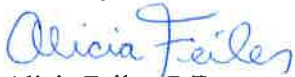
- a. Relate development to its environment: The proposed expansion of the existing building will be consistent with the existing building and the industrial park where it is located. A plan sheet "Density Study" shows the proposed appearance of the building as it compares to several of the neighboring buildings. The massing, height, scale, rooflines, and building materials are similar to those of other buildings along the street.
- b. Protection of Architectural resources: This project is not located in a historic area. The area is industrial in nature and will match architectural features of the area.
- c. Protection of public views: There are no public scenic views that will be minimized by this project. Screening will be provided to separate the neighboring residential developments from the building.
- d. Provide an active and inviting street edge: The current street side of the building, while clean and fitting for the area, will be enhanced with the proposed additions. From the street, the building additions will provide greater dimension as the southeast addition will project out from the existing building face and will extend above the existing roofline at the front of the building. The largely glass façade will contrast the existing garage doors and insulated metal panel wall materials to be a focal point. Though there will be trash compactors along the building addition facing the street, those will be screened with 8' tall cedar wood board and batten fencing and doors. Additionally, the surface has a high point between the road and the trash compactors that helps to screen the compactors and minimize their presence.
- e. Quality of materials: See attached material cut sheets and wall sections.
- f. Reduce energy utilization: The majority of the facility needs to have a regulated temperature and therefore does not utilize solar heating. The new amenity space for employees will be on the south eastern side of the existing building. Much of the façade will be glass which will utilize the natural sunlight for both lighting and heat. The neighboring building's sun exposure is not

reduced due to the existing building or the proposed expansion. The project will not interfere with the sustainable use of renewable energy resources by diminishing the future availability of such resources or eliminating nearby property owners' access to such resource.

- g. Make advertising features complementary to the site: Advertising space will be kept minimal. The existing sign along the driveway contains only "79" and "Rhino Foods". The sign is a dark metal with white lettering. The existing logo that is on the front of the building will be relocated to be above the front entrance and is proposed to remain the same size and colors.
- h. Integrate infrastructure into the design: The project makes use of existing water and wastewater services, existing roadside drainage ditch, and existing access to Industrial Parkway. Industrial Parkway does not have municipal infrastructure such as sidewalks or bike paths. The project site will incorporate a bike rack to promote employee bicycle usage. The project proposes to relocate mechanical equipment from the ground surface along the southern side of the building to the rooftop. New mechanical equipment units will also be roof mounted.
- i. Make spaces secure and safe: The proposed pavement will have paint markings which will help people follow the order in the parking lot and minimize erratic parking patterns. Outdoor lighting will help illuminate the parking area and other areas on site to help visibility during non-daylight hours. The building will have an access drive to provide access to the rear and side of the building should access be needed by emergency vehicles. The parking and loading areas will provide access to the other sides of the building.

Please contact me if you should have any questions regarding the project or this permit application.

Sincerely,



Alicia Feiler, P.E.

Enclosures

Zoning permit application and Fee check
Site/Area Photographs
Existing Water Supply and Wastewater Disposal Permit
Correspondence with State of Vermont Wetlands
DPW Erosion Prevention and Sediment Control Plan Questionnaire and Stormwater Management Plan
Pre-Screening
Erosion Prevention and Sediment Control Plan narrative
Operational Stormwater Treatment and Maintenance Plan narrative
Inspection checklists
Stormwater Modeling
Pre-Application Neighborhood Public meeting affidavit and other documentation
Copies of request for input letters
Reduced Size Site Plan Set
Reduced Size Architectural Elevations, floor plan, equipment, wall sections
Reduced Size Color Rendered Perspective Drawing
Reduced Size Lighting plans
Lighting Cut Sheets
Assorted Cut Sheets
Full Size Plans



Figure 1: Front of Rhino Foods



Figure 2: Field and Side of Building Where Expansion is Proposed



Figure 3: South East Corner Where Expansion is Proposed



Figure 4: Field Lot to the South of Rhino Foods

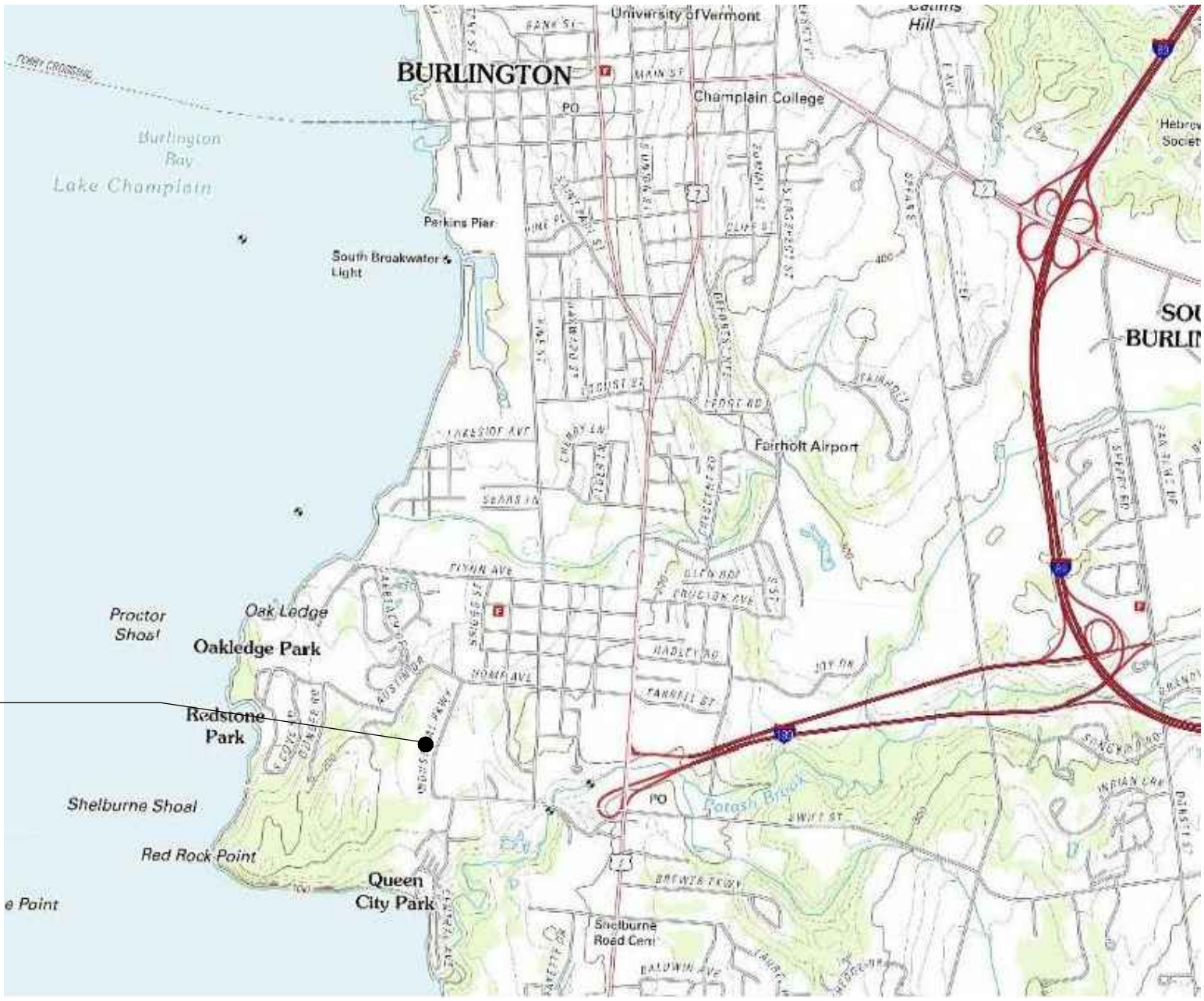
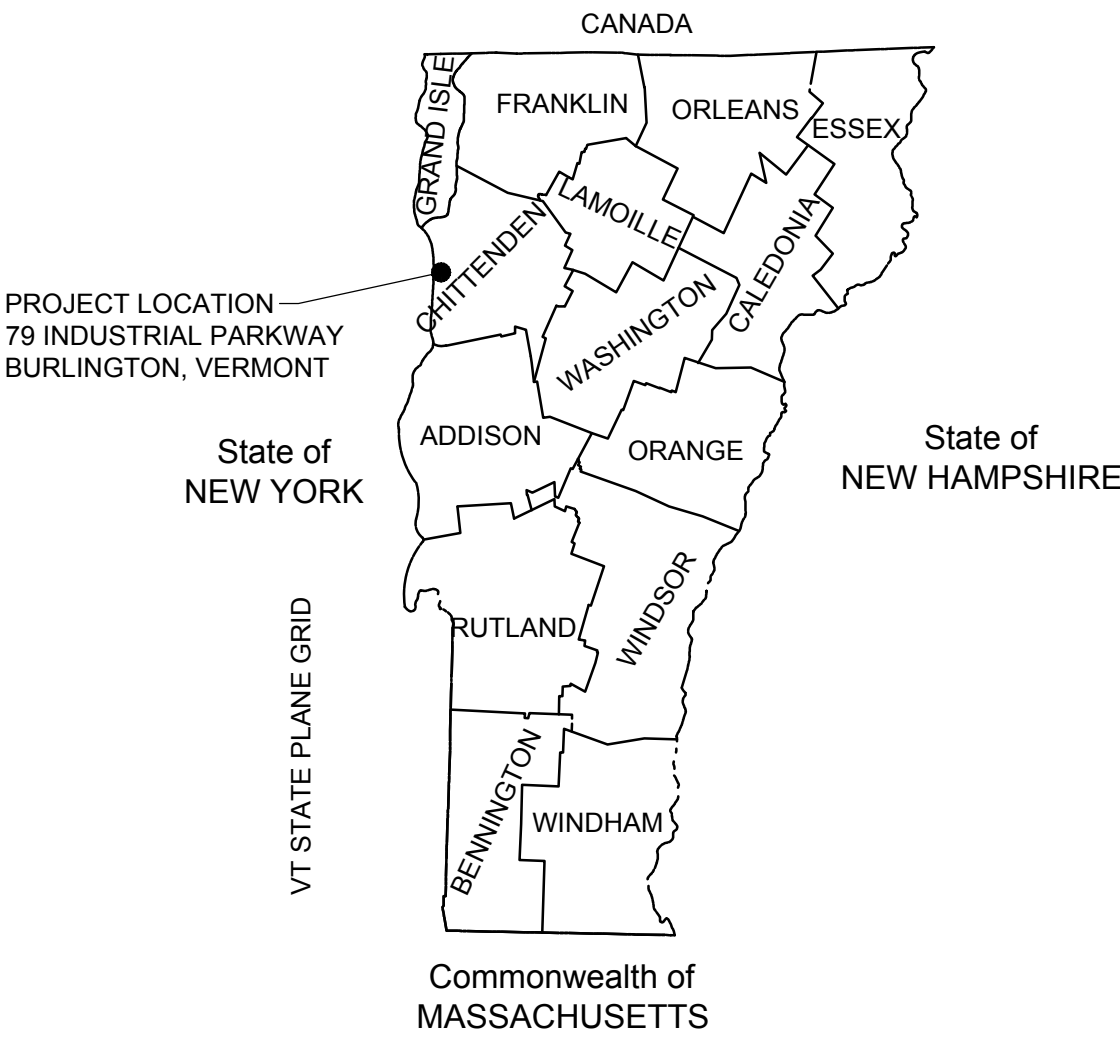
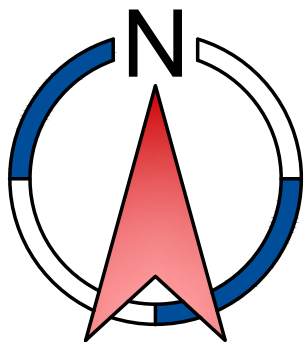


Figure 5: Burton Snowboards Across the Street from Rhino Foods



Figure 6: CCTA North of Rhino Foods

RHINO FOODS EXPANSION



PROJECT LOCATION
79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT

LOT INFORMATION
LOT SIZE: 5.01± ACRES
ZONING DISTRICT: ENTERPRISE (LIGHT MANUFACTURING)
PERCENT OF LOT DEVELOPED: 52%

EXISTING USE AND PARKING REQUIREMENTS

USE	GROSS AREA	P STD	MIN. PARKING	# EMP.	TOTAL PARKING SHOWN
FOOD PROCESSING	24,050 SF	1/1,000 GFA	24 SPACES	125	58 SPACES
OFFICE	7,650 SF	2/1,000 GFA	15 SPACES		

PROPOSED USE AND PARKING REQUIREMENTS

USE	GROSS AREA	P STD	MIN. PARKING	# EMP.	TOTAL PARKING SHOWN
FOOD PROCESSING	33,000 SF	1/1,000 GFA	33 SPACES	125	86 SPACES
OFFICE	12,900 SF	2/1,000 GFA	26 SPACES		

TOTAL PARKING REQUIRED: 59 SPACES
MAXIMUM ALLOWED PARKING: 86 SPACES

OWNER:

ZOO HOLDINGS, LLC
79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT 05401

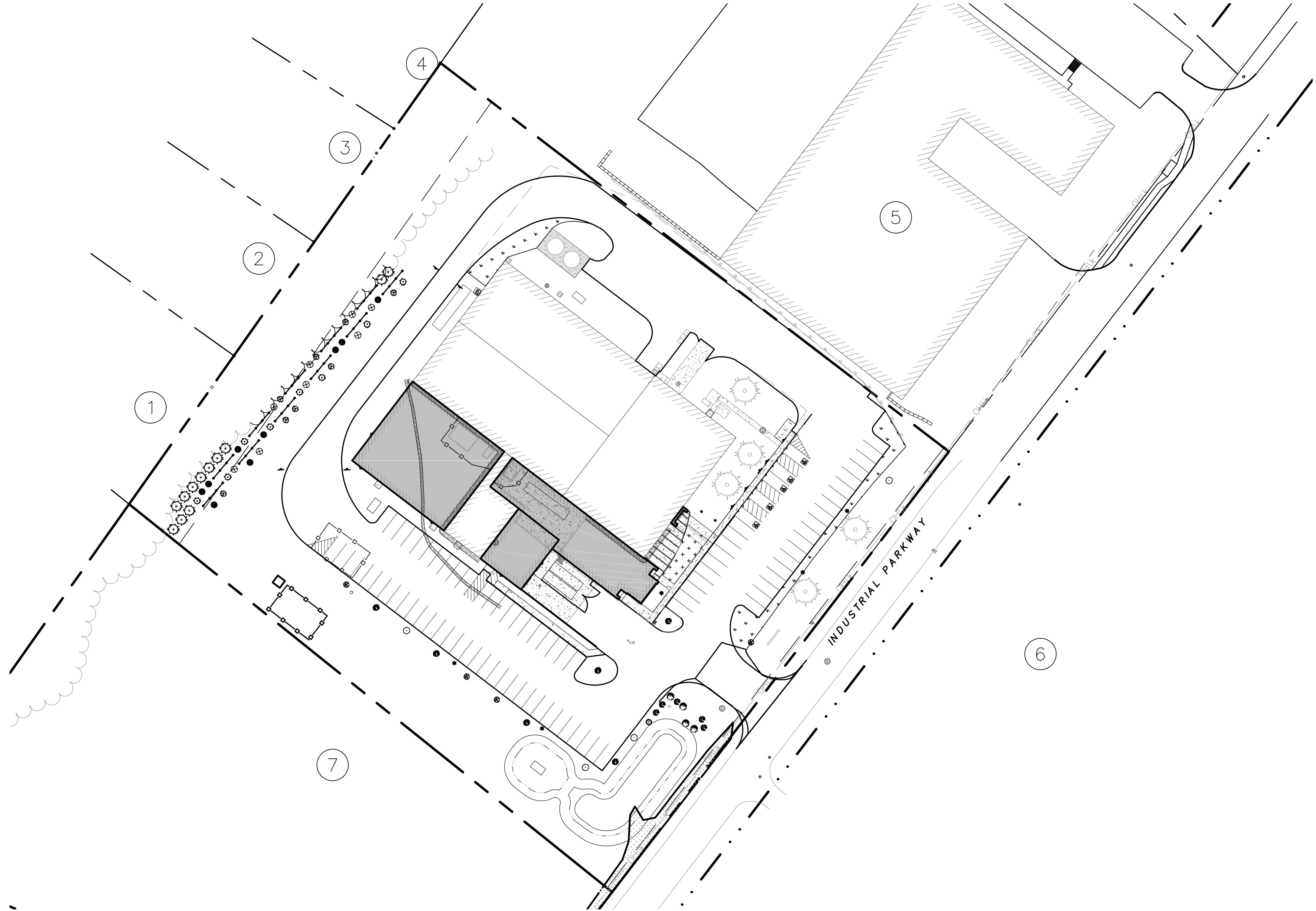
APPLICANT:

RHINO FOODS, INC.
79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT 05401

ABUTTERS LIST

01. REDROCKS
02. ELISA C. NELSON & PAUL R SMITH
03. CHARLES J. GOODNIGHT
04. MARK P. BONFIGLI & MARISA E. MORA
05. CHITTENDEN COUNTY TRANSPORTATION AUTHORITY
06. BURTON CORPORATION
07. BLUE SKY ASSOCIATES

Civil & Structural Engineers
DeWolfe
ENGINEERING ASSOCIATES
PROFESSIONAL CORPORATION
1,802-223-4727 F. 802-223-4740 www.dewolfe.com
317 River St., P.O. Box 1576, Montpelier, VT 05601-1576



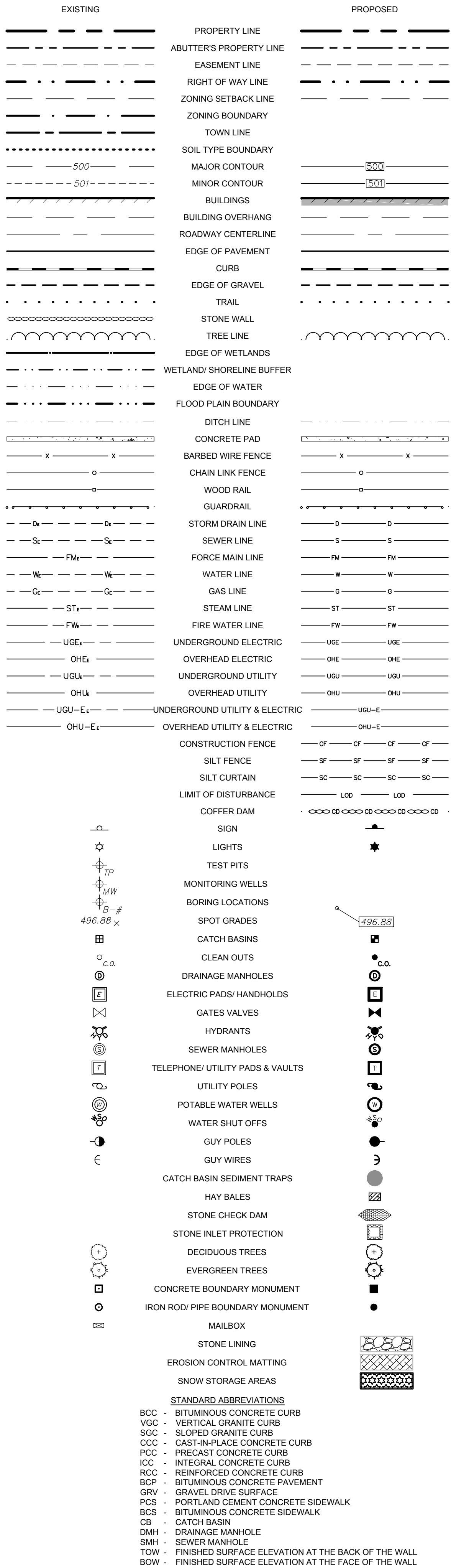
PROJECT DESCRIPTION:

THE PROJECT SITE IS A 5.01 ACRE DEVELOPED PARCEL. THE PROJECT INVOLVES THE CONSTRUCTION OF TWO NEW BUILDING ADDITIONS TOTALING APPROXIMATELY 14,200 SF. ADDITIONAL WORK WILL INCLUDE PAVING OF THE EXISTING PARKING LOT, CONSTRUCTION OF A NEW PARKING LOTS, ACCESS DRIVE, AND STORMWATER MANAGEMENT SYSTEM, AS WELL AS ASSOCIATED SITE GRADING. THE PROPOSED PROJECT WILL CONTINUE TO UTILIZE THE EXISTING CURB CUT ON INDUSTRIAL PARKWAY.

SHEET INDEX				
Sheet	Number	Title	Date Issued	Latest Revision
1	C0.01	COVER SHEET	3 MAY 2017	-
2	C0.02	GENERAL NOTES AND LEGEND	3 MAY 2017	-
3	C1.01	EXISTING CONDITIONS	3 MAY 2017	-
4	C1.02	SITE PLAN	3 MAY 2017	-
5	C1.03	UTILITY PLAN	3 MAY 2017	-
6	C1.04	GRADING PLAN	3 MAY 2017	-
7	C1.05	EROSION CONTROL PLAN	3 MAY 2017	-
8	C2.01	STORMWATER SYSTEM PLAN	3 MAY 2017	-
9	C5.01	CONSTRUCTION DETAILS	3 MAY 2017	-
10	C5.02	CONSTRUCTION DETAILS	3 MAY 2017	-
11	C5.03	CONSTRUCTION DETAILS	3 MAY 2017	-
12	L1	LANDSCAPING PLAN	3 MAY 2017	-

no.	date	submission	no.	date	revision	project number:	date:
1	9 MAY 2017	CITY OF BURLINGTON	1			16107	3 MAY 2017
2			2			C0.01	
3			3				
4			4				
5			5				
6			6			SHEET 1 OF 12	

LEGEND



PROJECT NOTES

1 GENERAL

- 1.1 ALL WORK SHALL BE PERFORMED IN A FIRST CLASS MANNER, AND IN ACCORDANCE WITH STATE CODE (IBC 2015 WITH LATEST SUPPLEMENTS), AND LOCAL CODES AND ORDINANCES.
- 1.2 ALL EXISTING UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. THE CONTRACTOR SHALL CONTACT DIG-SAFE (1-888-DIG-SAFE) AT LEAST 48 HOURS AND LESS THAN 30 DAYS PRIOR TO STARTING CONSTRUCTION AND SHALL VERIFY ALL UTILITY LOCATIONS IN THE FIELD.
- 1.3 THE LIMITS OF SITE WATER AND SEWER WORK SHALL TERMINATE 2'-0" INSIDE THE BUILDING. THE SITE CONTRACTOR SHALL PROVIDE PIPING. GENERAL CONTRACTOR SHALL PROVIDE SLEEVES AS NECESSARY.
- 1.4 GAS AND ELECTRIC LINES SHALL BE EXCAVATED AND BACKFILLED BY THE SITE CONTRACTOR. PIPING SHALL BE PROVIDED AND INSTALLED BY THE APPROPRIATE SUBCONTRACTOR.
- 1.5 USE THESE CIVIL DRAWINGS IN CONJUNCTION WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, LANDSCAPING & MECHANICAL DRAWINGS. SHOULD A CONFLICT DEVELOP, NOTIFY THE ENGINEER BEFORE PROCEEDING.
- 1.6 ALL DIMENSIONS AND ELEVATIONS SHOWN MUST BE VERIFIED BY THE CONTRACTOR DURING CONSTRUCTION BY THE AID OF DRAWINGS, FIELD CHECKS, AND SUBCONTRACTORS SHOP DRAWINGS.
- 1.7 CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES, AND UTILITY LINES FROM ALL DAMAGE.
- 1.8 CONTRACTOR IS RESPONSIBLE FOR ADEQUATE BRACING OF WALLS AND/OR SHORING OF EXCAVATIONS DURING CONSTRUCTION.
- 1.9 THE CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS AND SUBMITTALS BEFORE SUBMISSION TO THE ENGINEER, THUS, PROVIDING ANY INFORMATION REQUIRED OF THE FABRICATOR SUCH AS FIELD DIMENSIONS, ELEVATIONS, ETC. OTHERWISE THE SHOP DRAWINGS OR SUBMITTALS WILL BE REJECTED UNTIL SUCH INFORMATION IS FURNISHED BY THE CONTRACTOR.
- 1.10 BACKFILL INSIDE OF FOUNDATION WALLS, UNDER CONCRETE SURFACES, AND UNDER PAVED SURFACES WITH IMPORTED BANK RUN GRAVEL, OR SELECT ON-SITE MATERIAL THAT WILL MEET STRUCTURAL BACKFILL SIEVE ANALYSIS AND COMPACTION CRITERIA, AS DETERMINED BY THE TESTING LABORATORY, IN 8" LIFTS TO 95% OF THE MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, ASTM D1557.

2 CONCRETE:

- 2.1 ALL CONCRETE AND REINFORCING WORK SHALL BE IN STRICT ACCORDANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-11)". EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED CONCRETE WITH A MINIMUM OF 6% ± 1.5% REINFORCED EXTERIOR SLAB CONCRETE SHALL HAVE A CORROSION INHIBITIVE ADMIXTURE. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. SUBMIT CONCRETE MIX DESIGN FOLLOWING PROCEDURES OUTLINED IN THE FLOW CHART IN CHAPTER 5 OF ACI 318 FOR REVIEW OF ENGINEER. CONTRACTOR SHALL TAKE 4 TEST CYLINDERS OF CONCRETE FOR EACH 50 CUBIC YARDS OF CONCRETE OR FOR EACH DAYS POUR IF LESS THAN 50 C.Y. TESTING WILL BE AT OWNER'S EXPENSE.
- 2.2 MAXIMUM W/C RATIO FOR 4000 PSI CONCRETE: 0.44
- 2.3 CONCRETE SHALL BE PROTECTED FROM FREEZING. CONTRACTOR SHALL FOLLOW THE "RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING (ACI 306, LATEST EDITION).
- 2.4 ALL CONCRETE SHALL BE PLACED IN THE DRY. PUMP WATER FROM EXCAVATIONS AS NECESSARY.
- 2.5 CONCRETE SHALL BE SO PROPORTIONED SO AS TO HAVE A MAXIMUM SLUMP OF 4".
- 2.6 THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE SETTING SCREEDS AND FORMS. FROE RELEASE OIL SHALL BE AN APPROVED NON-TOXIC LIQUID.
- 2.7 SLABS SHALL BE WET CURED USING BURLAP COVER TO KEEP ENTIRE SURFACE CONTINUOUSLY MOIST FOR A MINIMUM OF SEVEN DAYS.
- 2.8 DURING PLACEMENT OF CONCRETE, USE TREMIE OR OTHER MEANS TO LIMIT FREE-FALL OF CONCRETE TO 5 FEET.
- 2.9 CONCRETE SHALL BE CONSOLIDATED BY VIBRATION, SPADING, OR RODDING SO THE CONCRETE IS THOROUGHLY WORKED AROUND THE REINFORCEMENT, EMBEDDED ITEMS, AND INTO CORNERS OF FORMS, ELIMINATING ALL AIR OR STONE POCKETS WHICH MAY CAUSE HONEYCOMBING. (CARE SHALL BE TAKEN NOT TO OVER VIBRATE AND CAUSE SEGREGATION).
- 3. REINFORCING STEEL:**
- 3.1 REINFORCING STEEL SHALL BE NEW BILLET STEEL, ASTM A615, Fy=60 KSI.
- 3.2 THE MINIMUM CLEAR DISTANCE FROM REINF. STEEL TO ADJACENT SURFACE SHALL BE: 3" FROM BOTTOM OF SLAB ON GRADE AND 2" FROM EDGES OF SLAB ON GRADE.
- 3.3 PROVIDE LAP SPICES OF ALL SLAB REINFORCEMENT AS FOLLOWS: #5 BAR - 2'-4" MINIMUM, #7 BAR - 3'-3" MINIMUM. AT CHANGES IN DIRECTION OF SLAB, PROVIDE CORNER BARS WITH LEGS EQUAL TO BAR LAP SPICE LENGTH (MINIMUM).
- 3.4 REINFORCEMENT SHALL BE SECURELY TIED IN ITS PROPER PLACE BEFORE AND DURING CONCRETE PLACEMENT. OPERATIONS USING APPROVED TIES, CHAIRS, AND SPACERS AS REQUIRED. NO BARS SHALL BE CUT OR OMITTED IN THE FIELD WITHOUT THE APPROVAL OF THE ENGINEER. USE PLASTIC TYPED ACCESSORIES IN CONCRETE EXPOSED TO WEATHER, WATER, OR VIEW.

- 4.1 PRECAST CONCRETE SHALL BE THE PRODUCT OF A MANUFACTURER WHO HAS DEMONSTRATED THE ABILITY TO PRODUCE PRECAST PRODUCTS AND HAS BEEN IN BUSINESS FOR AT LEAST THE LAST THREE YEARS. THE MANUFACTURING PROCESS AND METHODS SHALL CONFORM TO THE LATEST STANDARDS OF THE PRECAST/STRESS CONCRETE INSTITUTE. THE DESIGN OF THE PRECAST MEMBERS SHALL BE BY A REGISTERED ENGINEER. EXPERIENCED IN THE DESIGN OF PRECAST, PRESTRESSED CONCRETE DESIGN. PRECAST CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS OR HIGHER STRENGTH AS DEEMED NECESSARY BY DESIGN. ALL STEEL CONNECTION MATERIAL SHALL BE HOT-DIPPED GALVANIZED.
- 4.1.1 THE SUPERIMPOSED DESIGN LOADS ON ALL BURIED STRUCTURES SHALL MEET OR EXCEED ASHTO HS-20-44 LOADING UNLESS OTHERWISE NOTED.
- 5 MATERIAL SPECIFICATIONS:
- 5.1 MATERIALS NOT SPECIFIED HEREIN SHALL MEET OR EXCEED VERMONT AGENCY OF TRANSPORTATION (VAOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- 5.2 GENERAL FILL SHALL BE A COMPACTABLE SAND OR GRAVEL REASONABLY FREE FROM LOAM, SILT, CLAY AND ORGANIC MATERIALS AND SHALL HAVE 0-20 PERCENT PASSING THE NO. 100 SIEVE AND 40-100 PERCENT PASSING THE NO. 4 SIEVE.
- 5.3 BANK RUN GRAVEL SHALL BE FREE FROM LOAM, SILT, CLAY AND ORGANIC MATERIALS AND SHALL HAVE 100 PERCENT PASSING A 3/4 INCH SIEVE, 20-75 PERCENT PASSING A NO. 4 SIEVE, 0-12 PERCENT PASSING A NO. 100 SIEVE AND 0-6 PERCENT PASSING A NO. 200 SIEVE.
- 5.4 CRUSHED BANK RUN GRAVEL SHALL BE FREE FROM LOAM, SILT, CLAY AND ORGANIC MATERIALS AND SHALL HAVE 100 PERCENT PASSING A 2 INCH SIEVE, 90-100 PERCENT PASSING A 1 INCH SIEVE 30-60 PERCENT PASSING A NO. 4 SIEVE, 0-12 PERCENT PASSING A NO. 100 SIEVE AND 0-6 PERCENT PASSING A NO. 200 SIEVE.

6 PROJECT PERMITS

- 6.1 LOCAL APPROVALS
- 6.2 VERMONT NATURAL RESOURCES BOARD:
ACT 250 LAND USE PERMIT
- 6.3 VERMONT STORMWATER MANAGEMENT DIVISION
OPERATIONAL STORMWATER PERMIT
CONSTRUCTION EROSION CONTROL PERMIT 3-9020
- 6.4 MULTI-SECTOR GENERAL PERMIT- NO EXPOSURE CERTIFICATION
VERMONT DRINKING WATER AND GROUNDWATER PROTECTION DIVISION
WASTEWATER SYSTEM AND POTABLE WATER SUPPLY PERMIT
- 6.5 ARMY CORPS OF ENGINEERS
WETLANDS CERTIFICATION

EROSION CONTROL DURING CONSTRUCTION

1. BEFORE ANY CLEARING, GRUBBING, OR DEMOLITION OF THE SITE IS INITIATED, AND DURING ALL EARTHWORK PHASES, EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED AT THE INLET OF ANY STORAGE POND, SWALES, AND DITCHES RECEIVING WATER FROM THE PROJECT. SEE TYPICAL DETAILS AND PLANS FOR TYPES AND LOCATIONS.
2. SILT FENCE SHALL BE PLACED DOWN GRADIENT OF ALL DISTURBED AREAS. IF THE DISTURBED AREA IS 100' OR LESS FROM THE WATERS OF THE STATE THE SILT FENCE SHALL BE WIRE MESH REINFORCED.
3. ALL STOCKPILED SOIL SHALL BE ENCLOSED WITH SILT FENCE, UNLESS AN EXISTING BARRIER WILL ENTRAP ALL EROSION FROM SUCH A STOCKPILE OR THE STOCKPILE IS COMPLETELY COVERED WITH VEGETATION THAT ALREADY PREVENTS EROSION.
4. NO MORE THAN 500 FEET OF TRENCH SHALL BE OPEN AT ONE TIME AND EXCAVATED MATERIAL TO BE USED FOR BACKFILL SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH. ALL OTHER EXCAVATED MATERIAL SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED LOCATION.
5. BEFORE AND AFTER EVERY STORM ALL STRUCTURAL EROSION CONTROL MEASURES SHALL BE INSPECTED FOR FAILURES OR CLOGGING, AND ANY FAILURE OR CLOGGING SHALL BE RECTIFIED. DURING THE WINTER OR CONSTRUCTION SEASON SPECIAL ATTENTION SHALL BE PAID TO THE CHANGES IN WEATHER THAT COULD CAUSE SIGNIFICANT SNOW MELT AND RUNOFF.

EROSION CONTROL DURING CONSTRUCTION (CONT.)

3. STONE CHECK DAMS SHALL BE PLACED IN NEWLY CONSTRUCTED SWALES, DITCHES, OR OTHER WATERWAYS DURING THE CONSTRUCTION PERIOD. STONE INLET PROTECTION OR SEDIMENT CATCH BASIN INSERTS SHALL BE PLACED IN ALL NEW AND EXISTING CATCH BASIN WHICH RECEIVED RUNOFF FROM DISTURBED AREAS. THE PLACING OF THESE TRAPS AND DAMS SHALL BE AS SHOWN ON THE PLANS. MAINTENANCE SHALL BE AS IN THE ABOVE.
7. EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM NUMBER REQUIRED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO USE ADDITIONAL BARRIERS AS FIELD CONDITIONS DICTATE AND TO INSURE THAT ANY EROSION CAUSED BY THIS PROJECT DOES NOT REACH THE STATE'S WATERWAYS OR LEAVE THE SITE.
8. NEW SWALES AND DITCHES (AND ANY OTHER AREA SUBJECT TO CONCENTRATED STORM RUNOFF) SHALL BE FERTILIZED AND SEEDDED WITH THE WET AREA SEED MIXTURE AS IN #10 TO AT LEAST TWO (2) FEET ABOVE THE CHANNEL BOTTOM AND SHALL HAVE MULCH APPLIED AT THE RATE OF 2 TONS PER ACRE.
9. IN ALL NEW SWALES AND DITCHES, AND WHERE SLOPE GRADE EXCEEDS 25 PERCENT (1 ON 4 SLOPE), JUTE MATTING SECURELY ATTACHED TO THE GROUND SHALL BE PLACED OVER MULCH AND MAINTAINED UNTIL A PERMANENT GRASS COVER IS ESTABLISHED.
10. ALL DISTURBED TERRAIN AT FINAL GRADE SHALL BE SEEDDED AND MULCHED WITHIN 48 HOURS OF COMPLETION AND BY SEPTEMBER 15TH AT THE LATEST. BEFORE APPLYING FINAL SEEDING FOUR (4) INCH AVERAGE DEPTH OF TOPSOIL SHALL BE PLACED IN ALL DISTURBED AREAS TO BE SEEDDED. FERTILIZER SHALL BE APPLIED TO THE TOPSOIL TO THE TOTAL NUTRIENT RATE OF 500 LBS/ACRE. SEED MIXTURES SHALL BE ONE AS SPECIFIED ON THE LANDSCAPING PLAN. IF NO SEED MIXTURE IS SPECIFIED IT SHALL BE ONE OF THE FOLLOWING, AS APPROPRIATE.

URBAN AREAS CONSERVATION MIX			WET AREA SEED MIX			GRAVEL SITES CONSERVATION MIX		
NAME	LBS/ACRE	% WT.	NAME	%	MIX	NAME	LBS/ACRE	% WT.
CREEPING RED FESCUE	34.0	42.5	VIRGINIA WILD RYE			SWITCH GRASS	4.0	32.0
PERENNIAL RYE GRASS	8.0	10.0	GRASS		20	BIG BLUESTEM	4.0	32.0
KENTUCKY BLUE GRASS	34.0	42.5	FOX SEDGE		10	LITTLE BLUESTEM	2.0	16.0
ANNUAL RYEGRASS	4.0	5.0	AMERICAN MANNAGRASS		20	SAND LOVEGRASS	2.0	16.0
	80.0	5.0	GIANT BUR-REED		10	BLACKEYED SUSAN	1.0	8.0
			COMMON THREE-SQUARE		20		13.0	100.0
			SOFT-STEM BULRUSH		10			
			CANADA RUSH		10			
					100			
RURAL AREAS CONSERVATION MIX			RETENTION BASIN MIX			UPLAND NATIVE MIX FOR DRY SITES		
NAME	LBS/ACRE	% WT.	NAME	LBS/ACRE	% WT.	NAME	LBS/ACRE	% WT.
CREEPING RED FESCUE	22.5	37.5	RED TOP		5.0	JAPANESE MILLET OR BARLEY	10.0	40.0
TALL FESCUE	22.5	37.5				BIG BLUESTEM	6.5	26.0
RED TOP	3.0	5.0	CREEPING BENTGRASS	5.0	20.0	LITTLE BLUESTEM	3.5	14.0
BIRDSFOOT TREFOIL	9.0	15.0	RIVERBANK WILD RYE	5.0	20.0	INDIANGRASS	3.5	14.0
ANNUAL RYEGRASS	3.0	5.0	FOWL BLUEGRASS	5.0	20.0	SWITCHGRASS	1.5	6.0
	60.0	100%	ALKALIGRASS	5.0	20.0		25.0	100%
				25.0	100%			
LOW GROWIFINE FESCUE MIX								
NAME	LBS/ACRE	% WT.						
CREEPING RED FESCUE	-	38						
SPARTAN HARD FESCUE	-	29						
AZAY SHEEP'S FESCUE	-	15						
ANNUAL RYEGRASS	-	15						
INERTS	-	3						
	-	100%						

1. ALL NEWLY SEEDED AREAS SHALL BE MULCHED AT A RATE OF TWO (2) TONS PER ACRE OF HAY OR STRAW DURING WINTER CONSTRUCTION MULCH SHALL BE APPLIED AT A RATE OF 4 TONS PER ACRE. JUTE OR OTHER EQUAL NETTING SHALL BE USED WHERE WIND OR WATER MAY ERODE NEWLY-PLACED SEED OR MULCH OR WHERE THERE IS A RISK OF WIND OR WATER EROSION. MULCH SHALL BE STAKED TO THE GROUND FOR COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. ALL AREAS THAT REACH FINISHED GRADE DURING THE WINTER CONSTRUCTION SEASON SHALL BE MULCHED AT A RATE OF 4 TONS/ACRE AND TACKED DOWN TO PREVENT WINDTHROW WITHIN 24 HOURS OF REACHING FINAL GRADE. THESE AREAS SHALL BE SEEDED AS SPECIFIED IN NOTE 9 IN THE SPRING AS SOON AS WEATHER ALLOWS.
3. HAY MULCH SHALL BE TACKED DOWN TO PREVENT WINDTHROW. JUTE MATTING OR EQUIVALENT SHALL BE USED WHERE INDICATED ON PLANS. IN ALL OTHER AREAS MULCH SHALL BE TRACKED WITH A BULLDOZER, THE CLEATS OF THE BULLDOZER SHALL BE PARALLEL TO THE CONTOURS, DURING THE WINTER CONSTRUCTION SEASON NETTING OR JUTE MATTING SHALL BE USED TO TACK DOWN ALL MULCH.
4. ALL DISTURBED AREAS NOT AT FINAL GRADE THAT WILL NOT BE DISTURBED AGAIN FOR A PERIOD OF GREATER THAN THIRTY (30) DAYS, SHALL BE SEEDED WITH A TEMPORARY, RAPID-GROWING COVER CROP, SUCH AS RYE, GRASS AND MILLET, AND SHALL BE MULCHED. NETTING SHALL ALSO BE APPLIED, AS SPECIFIED IN ITEM 13, TO STABILIZE THE MULCH AND SEED.
5. ALL DISTURBED AREAS MUST HAVE TEMPORARY OR FINAL STABILIZATION WITHIN 7 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME, ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY: i.) STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA IN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS; ii.) STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E. NO OUTLET) WITH A DEPTH OF 2-FEET OR GREATER (E.G. FOUNDATION EXCAVATION, UTILITY TRENCHES).
6. DURING WINTER CONSTRUCTION ALL DISTURBED AREAS MUST HAVE TEMPORARY OR FINAL STABILIZATION AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY: i.) STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA IN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS; ii.) STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E. NO OUTLET) WITH A DEPTH OF 2-FOOT OR GREATER (E.G. FOUNDATION EXCAVATION, UTILITY TRENCHES).
7. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF PERMANENT STABILIZATION OF THE SITE.
8. EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER ANY RAIN EVENT WHICH PRODUCES RUNOFF BY THE ON-SITE COORDINATOR, WHO WILL BE RESPONSIBLE FOR RECTIFYING ANY PROBLEMS FOUND. ALL EROSION CONTROL MEASURES MUST BE KEPT ON-SITE AS RECORDS OF THE CONDITION OF THE EROSION CONTROL MEASURES. TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED WITH 30 DAYS OF PERMANENT SITE STABILIZATION.
9. NO MORE THAN 2 ACRES SHALL BE DISTURBED (WITHOUT TEMPORARY OR FINAL STABILIZATION) AT ANY ONE TIME.
10. SEEDING MUST BE COMPLETED BY SEPTEMBER 15.
11. CONTRACTOR SHALL APPLY DUST CONTROL MEASURES AS NECESSARY OR AS DIRECTED BY THE ENGINEER TO PREVENT THE AIR MOVEMENT OF DUST. ACCEPTABLE METHODS OF DUST CONTROL ARE VEGETATIVE COVER, MULCHING, SPRINKLING OF WATER, OR THE USE OF CALCIUM CHLORIDE.
12. ALL SIDEWALKS AND ROADWAYS SHALL BE INSPECTED AT THE OF EACH DAY FOR SEDIMENT DEPOSIT, ANY SEDIMENT SHALL BE SWEEP AWAY AS TO PREVENT SOILS FROM DEPOSITING IN ANY WATER BODIES OR CITY CONVEYANCE INFRASTRUCTURE.
13. AT THE COMPLETION OF THE PROJECT, ALL STORMWATER DRAINAGE FACILITIES INCLUDING DITCHES, GRASSED SWALES, CATCH BASINS, SUMPS, CULVERTS, STORM DRAINS, STORM MANHOLES, OUTLET STRUCTURES, STORM FILTERS, SHALL BE CLEANED AND FREE OF SILT, SEDIMENT OR DEBRIS WHICH WILL IMPAIR THE PROPER OPERATION OF THE FACILITIES.

LANDSCAPING NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS.
2. LANDSCAPING CONTRACTOR SHALL RECEIVE SITE GRADE TO ± 0.10 FOOT.
3. ALL TREES OF THE SAME SPECIES AND SIZE SHALL HAVE MATCHING HEIGHT AND FORM UNLESS OTHERWISE NOTED ON THE PLANS.
4. ALL PLANT MATERIALS AND FINAL LOCATION OF ALL PLANT MATERIALS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
5. IF CONFLICTS ARISE BETWEEN SIZE OF AREAS AND PLANS, CONTRACTOR SHALL CONTACT OWNER'S REPRESENTATIVE FOR IMMEDIATE RESOLUTION. FAILURE TO MAKE SUCH CONFLICTS KNOWN TO THE OWNER'S REPRESENTATIVE WILL RESULT IN CONTRACTOR'S LIABILITY TO RELOCATE THE MATERIALS.
6. CONTRACTOR SHALL FURNISH PLANT MATERIALS FREE OF PESTS OR PLANT DISEASES. PRE-SELECTED OR "TAGGED" MATERIAL MUST BE INSPECTED BY THE CONTRACTOR AND CERTIFIED AS PEST AND DISEASE FREE. IT IS THE CONTRACTOR'S OBLIGATION TO WARRANTY ALL PLANT MATERIALS.
7. ALL GROUND COVERS SHALL BE TRIANGULARLY SPACED UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY EXISTING MATERIALS DAMAGED DURING PLANTING OPERATIONS.
9. ALL LANDSCAPE AREAS SHALL BE COVERED WITH 2-INCHES OF ORGANIC BARK MULCH UNLESS OTHERWISE NOTED.
10. AREAS SHOWN AS GROUND COVER AT THE BASE OF TREE AND SHRUB MATERIALS MUST CONFORM TO THE FOLLOWING CRITERIA. THERE SHALL BE NO GROUND COVER PLANT MATERIAL AT THE BASE OF THE TREE OR SHRUB AS FOLLOWS: A) 4-FOOT RADIUS AROUND EVERGREEN TREES; B) 3-FOOT RADIUS AROUND DECIDUOUS TREES; AND C) 2-FOOT RADIUS AROUND LARGE SHRUBS.
11. FINAL PLACEMENT OF ALL PLANT MATERIALS SHALL BE SUBJECT TO APPROVAL OF OWNER'S REPRESENTATIVE PRIOR TO FINAL PLACEMENT AND BACKFILL. CONTRACTOR SHALL SUBMIT THE OWNER'S REPRESENTATIVE 24-HOURS PRIOR TO PLACEMENT FOR APPROVAL.
12. ALL DISTURBED AREAS, UNLESS OTHERWISE NOTED, TO BE LOAM, SEEDED, AND MULCHED.

CLEANING AND DISINFECTION OF WATER DISTRIBUTION PIPING

1. PURGE THE WATER DISTRIBUTION PIPING SYSTEMS AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED PRIOR TO USE.
2. USE PURGING AND DISINFECTING PROCEDURE PRESCRIBED BY AUTHORITY HAVING JURISDICTION OR, IF METHOD IS NOT PRESCRIBED BY THAT AUTHORITY, USE PROCEDURE DESCRIBED IN AWWA C651 AS DESCRIBED BELOW:
 - 2.1. DISINFECTION OF WATER LINES PER AWWA C651 IS TO BE BY THE CONTINUOUS FEED METHOD OR THE SLUG METHOD. THE TABLET METHOD DESCRIBED IN AWWA C651 NOT ACCEPTABLE AND IS HEREBY STRICTLY PROHIBITED.
 - 2.2. COMPLY WITH NFPA 24 FOR FLUSHING OF PIPING. FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT POINTS OF OUTLET.
 - 2.3. FILL SYSTEM OR PART OF SYSTEM WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF CHLORINE. ISOLATE (VALVE OFF) SYSTEM OR PART THEREOF AND ALLOW TO STAND FOR 24 HOURS.
 - 2.4. DRAIN SYSTEM OR PART OF SYSTEM OF PREVIOUS SOLUTION AND REFILL WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 200 PARTS PER MILLION OF CHLORINE. ISOLATE AND ALLOW TO STAND FOR 3 HOURS.
 - 2.5. FOLLOWING ALLOWED STANDING TIME, FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL CHLORINE DOES NOT REMAIN IN WATER COMING FROM SYSTEM.
 - 2.6. A MINIMUM OF TWO WATER SAMPLES MUST BE COLLECTED A MINIMUM OF 24 HOURS APART FOR BACTERIOLOGICAL TESTING. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITY HAVING JURISDICTION. REPEAT PROCEDURE IF BIOLOGICAL EXAMINATION MADE BY AUTHORITY SHOWS EVIDENCE OF CONTAMINATION.
 - 2.7. PREPARE REPORTS FOR PURGING AND DISINFECTING ACTIVITIES. CONTRACTOR SHALL SEND ENGINEER TEST RESULTS.
3. DECHLORINATION
 - 3.1. DO NOT KEEP HEAVILY CHLORINATED WATER IN CONTACT WITH PIPE FOR MORE THAN 48 HOURS AFTER THE APPLICABLE RETENTION PERIOD. IN ORDER TO PREVENT DAMAGE TO THE PIPE LINING OR CORROSION DAMAGE TO THE PIPE ITSELF, FLUSH THE HEAVILY CHLORINATED WATER FROM THE MAIN FITTINGS, VALVES AND BRANCHES UNTIL CHLORINE MEASUREMENTS SHOW THAT THE CONCENTRATION IN THE WATER LEAVING THE MAIN IS NO HIGHER THAN THAT GENERALLY PREVAILING IN THE DISTRIBUTION SYSTEM OR IS ACCEPTABLE FOR DOMESTIC USE. TAKE ALL STEPS NECESSARY TO DECHLORINATE WATER PER PARAGRAPHS 3.2 AND 3.3 BELOW.
 - 3.2. NEUTRALIZE THE CHLORINE RESIDUAL OF THE WATER BEING DISPOSED OF BY TREATING WITH ONE OF THE CHEMICALS LISTED IN TABLE 4 BELOW. SELECT AN ALTERNATIVE DISPOSAL SITE IF A SANITARY SEWER SYSTEM IS UNAVAILABLE FOR DISPOSAL OF THE CHLORINATED WATER.

POUNDS OF CHEMICAL REQUIRED TO NEUTRALIZE VARIOUS RESIDUAL CHLORINE CONCENTRATIONS IN 100,000 GALLONS OF WATER

RESIDUAL CHLORINE CONCENTRATION (MG/L)	SULFUR DIOXIDE (LBS)	SODIUM BISULFATE (LBS)	SODIUM SULFITE (LBS)	SODIUM THIOSULFATE (LBS)	ASCORBIC ACID (LBS)
1	0.8	1.2	1.4	1.2	2.1
2	1.7	2.5	2.9	2.4	4.2
10	8.3	12.5	14.6	12.0	20.9
50	41.7	62.6	73.0	60.0	104.0

- 3.4. TEST FOR CHLORINE RESIDUAL THROUGHOUT THE DISPOSAL PROCESS TO BE SURE THAT THE CHLORINE IS NEUTRALIZED.
- 3.5. SUBMIT A PLAN OF DISPOSAL OF FLUSHED WATER TO ENGINEER FOR APPROVAL.
- 3.6. DISCHARGE OF CHLORINATED WATER INTO WATERS OF THE STATE IS STRICTLY PROHIBITED.

LEAKAGE TESTING OF WATER DISTRIBUTION PIPING

1. USE LEAKAGE/ PRESSURE TESTING PROCEDURE PRESCRIBED IN NFPA 24.
2. CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS PRIOR TO TESTING. ENGINEER MUST BE PRESENT AT TEST FOR ACCEPTANCE.
3. AFTER TESTING AND PRIOR TO ACCEPTANCE THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH AS-BUILT DRAWINGS.
 - A. AFTER PIPE HAS BEEN LAID, ALL NEWLY LAID PIPE OR ANY VALVED SECTION THEREOF SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE OF AT LEAST 200 PSI OR 50 PSI IN EXCESS OF THE SYSTEM WORKING PRESSURE, WHICH EVER IS GREATER, AND SHALL MAINTAIN THAT PRESSURE FOR NOT LESS THAN 2 HOURS.
 - B. BEFORE APPLYING THE SPECIFIED TEST PRESSURE, ALL AIR SHALL BE REMOVED FROM THE TEST SECTION.
 - D. TESTING ALLOWANCE SHALL BE DEFINED AS THE QUANTITY OF MAKEUP WATER THAT MUST BE SUPPLIED INTO THE NEWLY LAID PIPE OR ANY VALVED SECTION THEREOF TO MAINTAIN PRESSURE WITHIN 5 PSI OF THE SPECIFIED TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR HAS BEEN EXPELLED.
 - E. NO PIPE INSTALLATION SHALL BE ACCEPTED IF THE AMOUNT OF MAKEUP WATER IS GREATER THAN THAT ALLOWED BE NFPA 24.
 - F. PREPARE REPORTS FOR PRESSURE TESTING RESULTS.

LEAKAGE TESTING OF SEWER PIPING AND MANHOLES

1. USE LEAKAGE TESTING PROCEDURE PRESCRIBED BY AUTHORITY HAVING JURISDICTION OR, IF METHOD IS NOT PRESCRIBED BY THAT AUTHORITY, USE PROCEDURE DESCRIBED IN VERMONT ENVIRONMENTAL PROTECTION RULES, CHAPTER 1, WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES, EFFECTIVE SEPTEMBER 29, 2007. APPENDIX 1-A, DESIGN GUIDELINES, SECTION 1-A-03.
2. CONTRACTOR SHALL NOTIFY ENGINEER AND MUNICIPALITY 48 HOURS PRIOR TO TESTING. ENGINEER MUST BE PRESENT AT TEST FOR ACCEPTANCE.
3. AFTER TESTING AND PRIOR TO ACCEPTANCE THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH AS-BUILT DRAWINGS.

MANHOLE TESTING

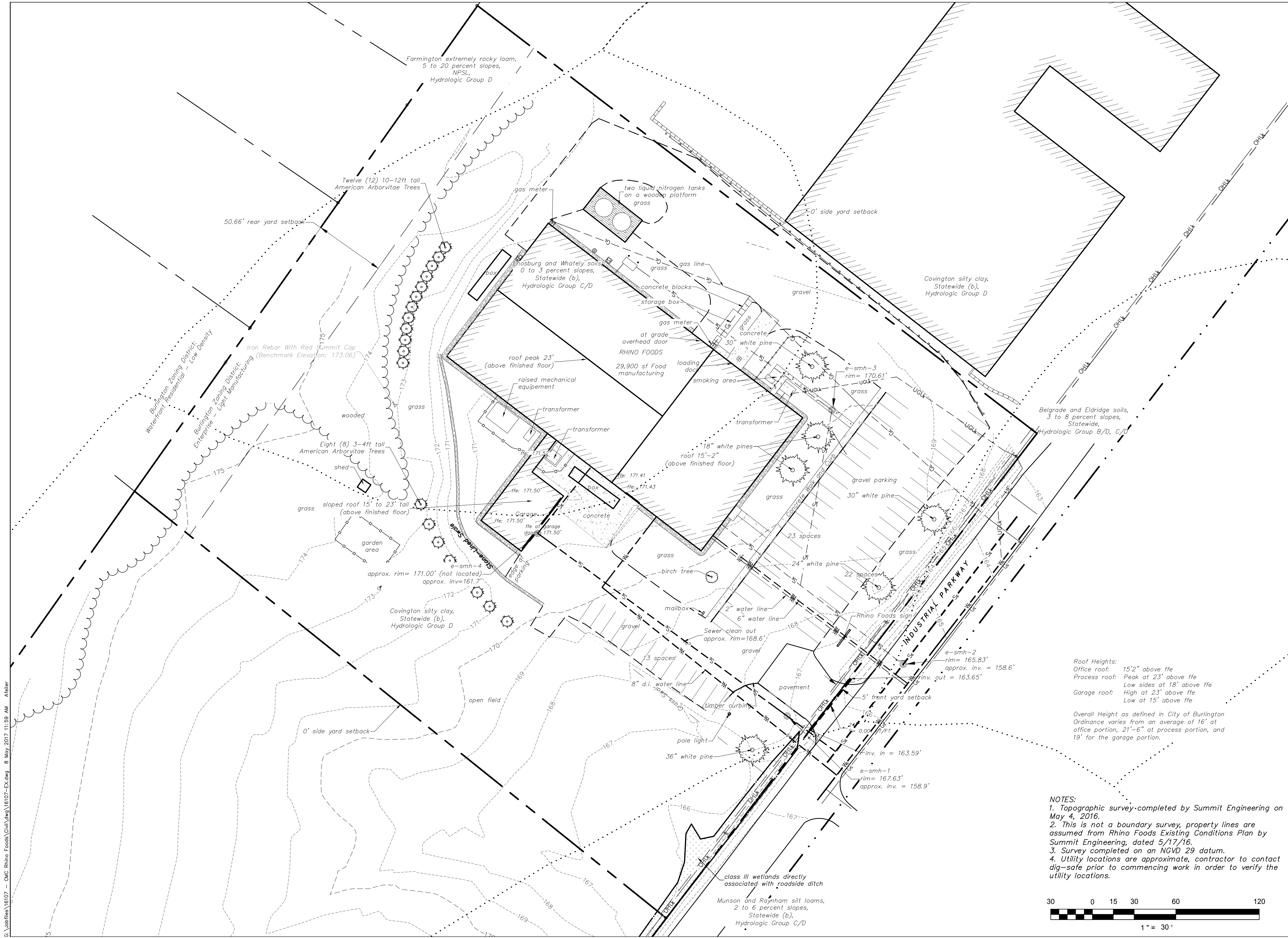
- A. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE. LEAKAGE TESTING OF GRAVITY SEWERS UTILIZING THE VACUUM OR HYDROSTATIC TESTING PROCEDURE WHICH TAKE INTO ACCOUNT THE LEAKAGE FROM ONE MANHOLE TO ANOTHER IN THE TEST SECTION. OTHER MANHOLES SHALL BE TESTED IN ACCORDANCE WITH THIS PROCEDURE.
- B. FOR THE VACUUM TEST, ALL INFLOW AND OUTFLOW PIPES SHALL BE PLUGGED AND THE MANHOLE SHALL NOT BE BACKFILLED PRIOR TO TESTING. MANHOLES THAT HAVE BEEN BACKFILLED SHALL BE EXCAVATED TO EXPOSE THE ENTIRE EXTERIOR OR THE MANHOLE SHALL BE HYDROSTATICALLY TESTED. A INFLATABLE RUBBER RING SHALL BE FITTED TO THE TOP OF THE MANHOLE AND INFLATED WITH AIR TO A PRESSURE OF TWO INCHES OF MERCURY. AFTER THE MANHOLE IS INFLATED, THE MANHOLE TO BE TESTED SHALL BE FULLED WITH WATER EQUAL TO 10 INCHES OF MERCURY. ONCE COMPLETE THE TEST WILL BEGIN AND THE PRESSURE MUST NOT DROP BELOW NINE INCHES OF MERCURY DURING THE 2 MINUTE TEST TIME.
- C. FOR THE HYDROSTATIC TEST, ALL INFLOW AND OUTFLOW PIPES SHALL BE PLUGGED AND THE MANHOLE FILLED WITH WATER TO THE TOP OF THE CONE SECTION. A STABILIZATION PERIOD OF ONE HOUR SHALL BE REQUIRED BEFORE ALL MEASUREMENTS ARE MADE. IF THERE IS ANY LOSS OF WATER FROM THE MANHOLE TO THE TOP OF THE CONE, IF NECESSARY, AND THE TEST TIME OF AT LEAST SIX HOURS BEGIN. AT THE END OF THE TEST PERIOD, THE MANHOLE SHALL BE REFILLED TO THE TOP OF THE CONE, MEASURING THE VOLUME OF WATER USED. THE LOSS OF WATER SHALL BE DIVIDED BY THE AREA OF THE MANHOLE GALLON PER VERTICAL FOOT FOR A 24 HOUR PERIOD AND THERE SHALL BE NO VISIBLE INFILTRATION.

PIPING TESTING

- A. ALL NEWLY LAID SANITARY SEWERS SHALL BE TESTED FOR LEAKAGE. EITHER THE WATER METHOD OR THE AIR METHOD AS SPECIFIED IN THE VERMONT ENVIRONMENTAL PROTECTION RULES IS ACCEPTABLE AT THE OPTION OF THE CONTRACTOR.
- THE MAXIMUM LEAKAGE SHALL BE 200 GALLONS PER INCH OF PIPE DIAMETER PER MILE OF PIPE PER DAY FOR 24 HOURS. THE WATER TEST SHALL BE CONDUCTED UNDER 2 FEET OF HEAD ABOVE THE HIGHEST POINT TESTED OR ABOVE THE HIGHEST KNOWN WATER TABLE, WHICHEVER IS HIGHER.
- C. AIR TESTING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM STANDARD C828-80. THE MINIMUM ALLOWED TIME FOR A PRESSURE DROP FROM 3.5 PSI TO 2.5 PSI SHALL BE 12 MINUTES PER 100 FEET OF 12 INCH MINIMUM DIAMETER. FOR OTHER PIPE SIZES, SEE VERMONT ENVIRONMENTAL PROTECTION RULES, APPENDIX 1, TABLE 1A-3 FOR OTHER PIPE SIZES.

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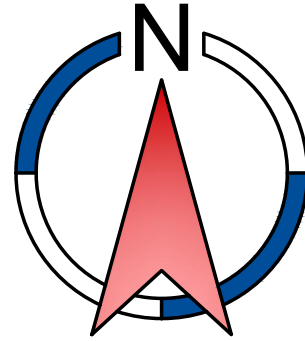
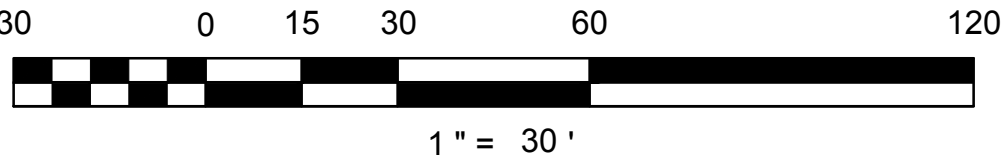
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Roof Heights:
Office roof: 15'2" above ffe
Process roof: Peak at 23' above ffe
Low sides at 18' above ffe
Garage roof: High at 23' above ffe
Low at 15' above ffe

Overall Height as defined in City of Burlington Ordinance varies from an average of 16' at office portion, 21'-6" at process portion, and 19' for the garage portion.

NOTES:
1. Topographic survey completed by Summit Engineering on May 4, 2016.
2. This is not a boundary survey, property lines are assumed from Rhino Foods Existing Conditions Plan by Summit Engineering, dated 5/17/16.
3. Survey completed on an NGVD 29 datum.
4. Utility locations are approximate, contractor to contact dig-safe prior to commencing work in order to verify the utility locations.



Civil & Structural Engineers
DeWolfe
ENGINEERING ASSOCIATES
PROFESSIONAL CORPORATION
1, 802-223-4727 1, 802-223-4740 www.dsteel.com
317 River St., P.O. Box 1576, Montpelier, VT 05601-1576

no.	date	revision
1		

project name:
**RHINO FOODS
BUILDING ADDITION**

project location:
**79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT**

client:
CMC DESIGN-BUILD, INC.

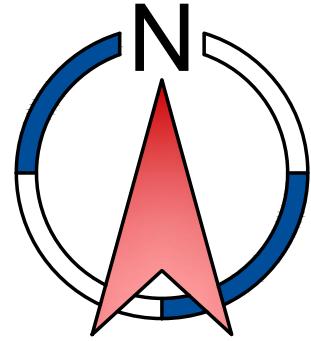
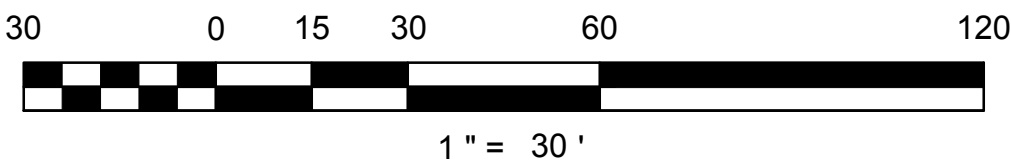
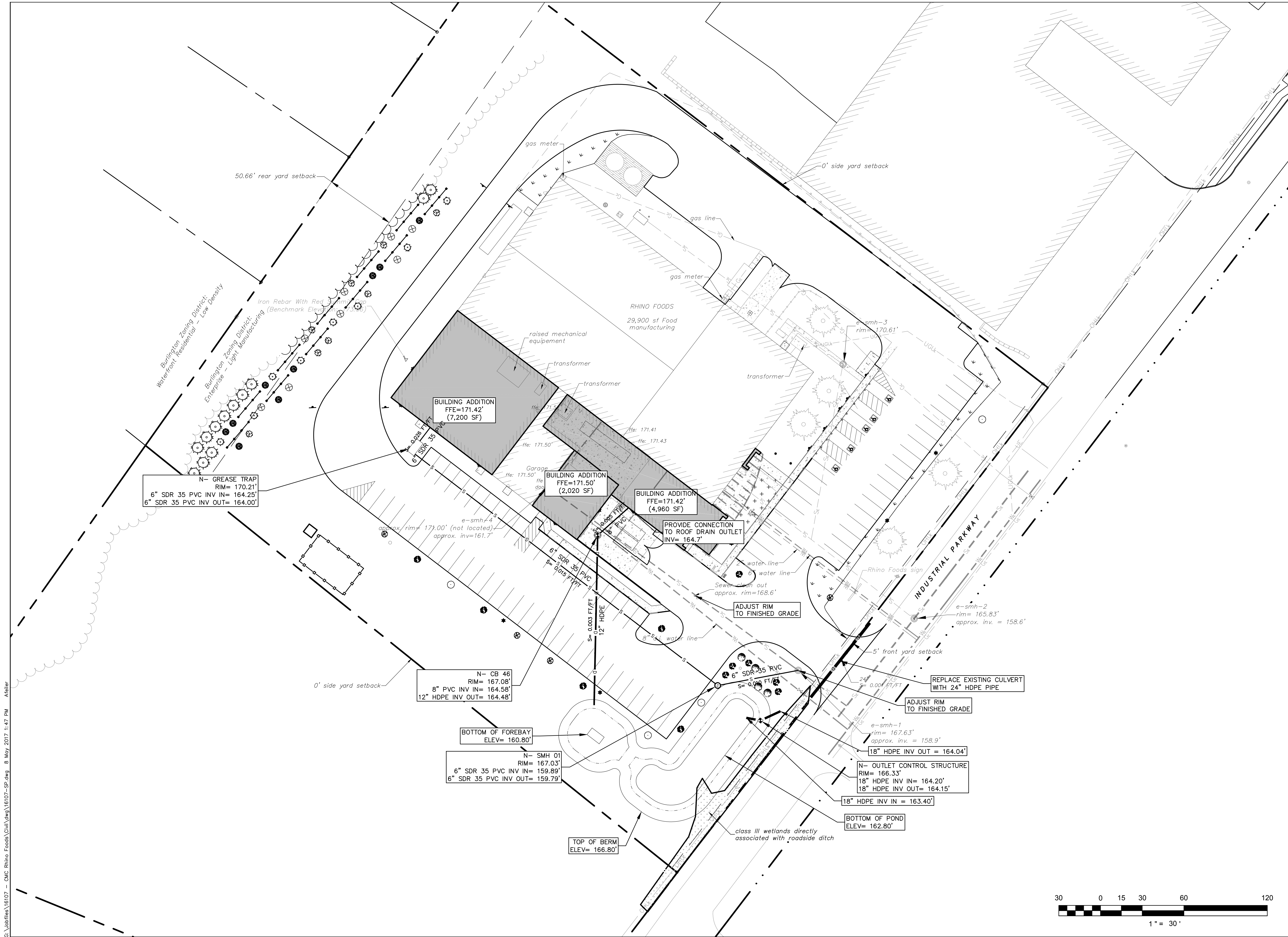
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released for:	PERMITTING
sheet description:	

**EXISTING
CONDITIONS PLAN**

C1.01

SHEET 3 OF 12

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Civil & Structural Engineers
DeWolfe
ENGINEERING ASSOCIATES
PROFESSIONAL CORPORATION
1.802.223.4727 1.802.223.4740 www.dsteel.com
317 River St., P.O. Box 1576, Montpelier, VT 05601-1576

no.	date	revision
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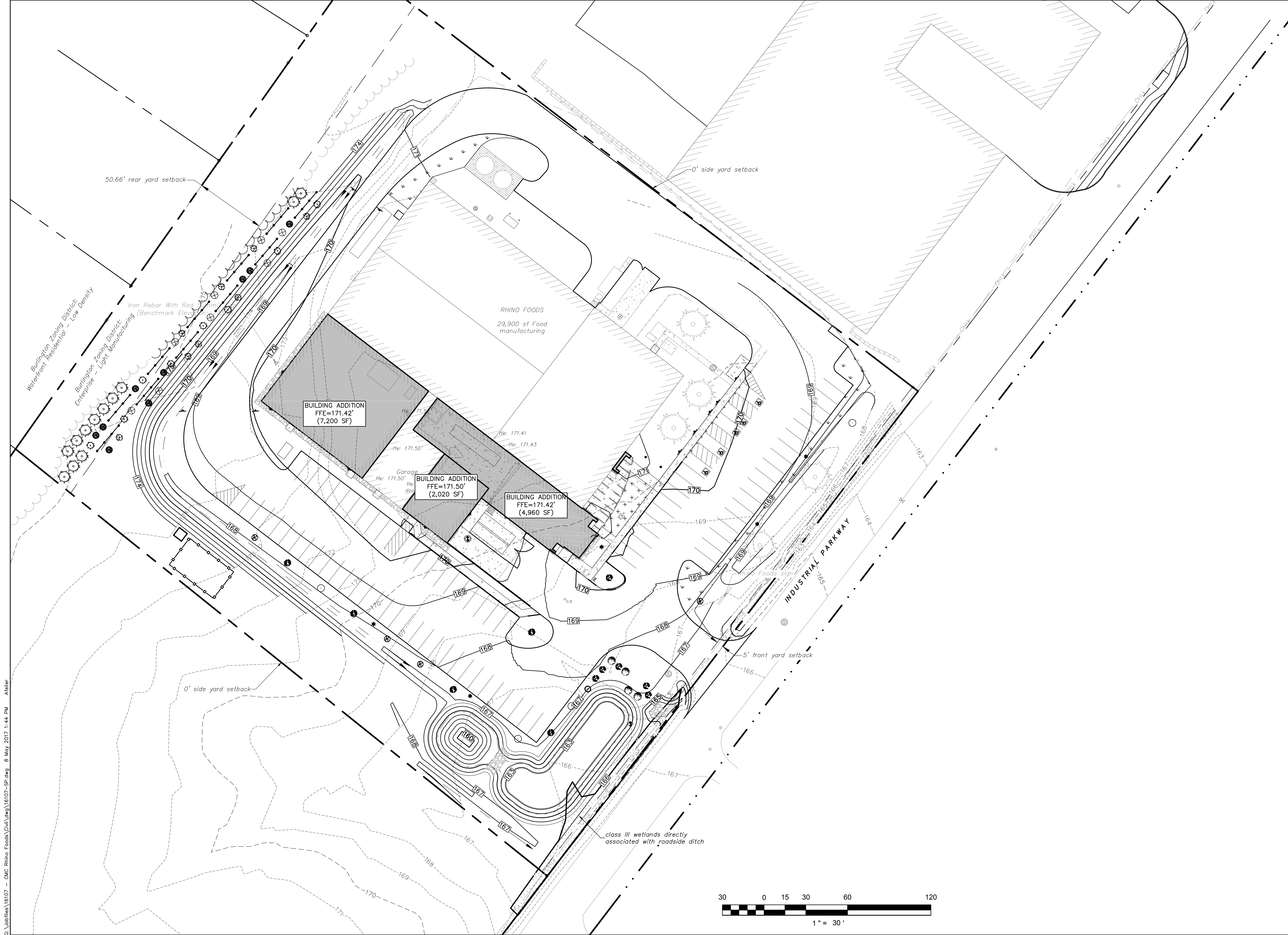
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BUILDING ADDITION**
project location: **79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT**
client: CMC DESIGN-BUILD, INC.

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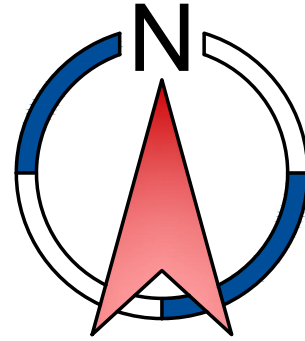
UTILITY
PLAN

C1.03

SHEET 5 OF 12



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DeWolfe
ENGINEERING ASSOCIATES
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1.802.223.4727 1.802.223.4740 www.dewolfe.com
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no.	date	revision
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1		
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project name:
**RHINO FOODS
BUILDING ADDITION**

project location:
**79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT**

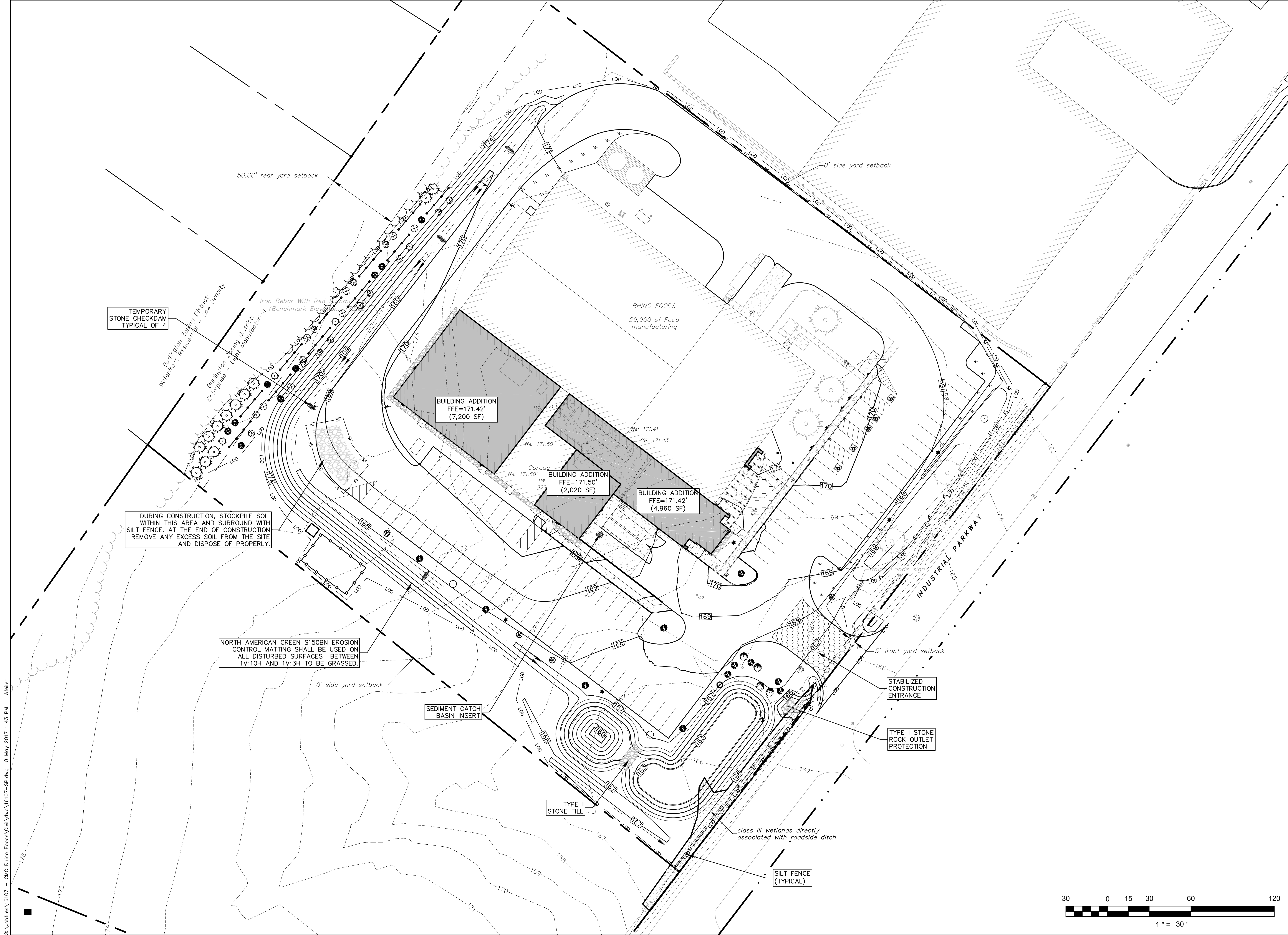
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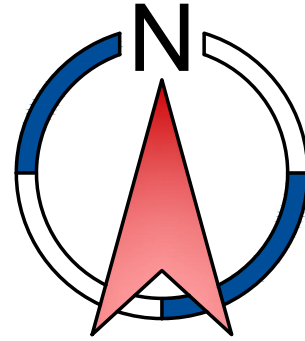
GRADING
PLAN

C1.04

SHEET 6 OF 12



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DeWolfe
ENGINEERING ASSOCIATES
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1.802.223.4727 1.802.223.4740 www.dewolfe.com
317 River St., P.O. Box 1576, Montpelier, VT 05601-1576

no.	date	revision
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project name:
**RHINO FOODS
BUILDING ADDITION**

project location:
**79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT**

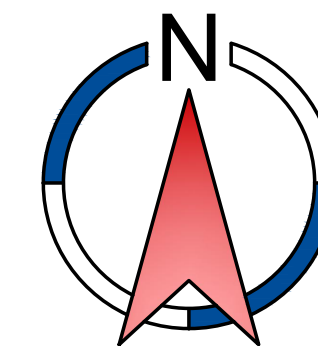
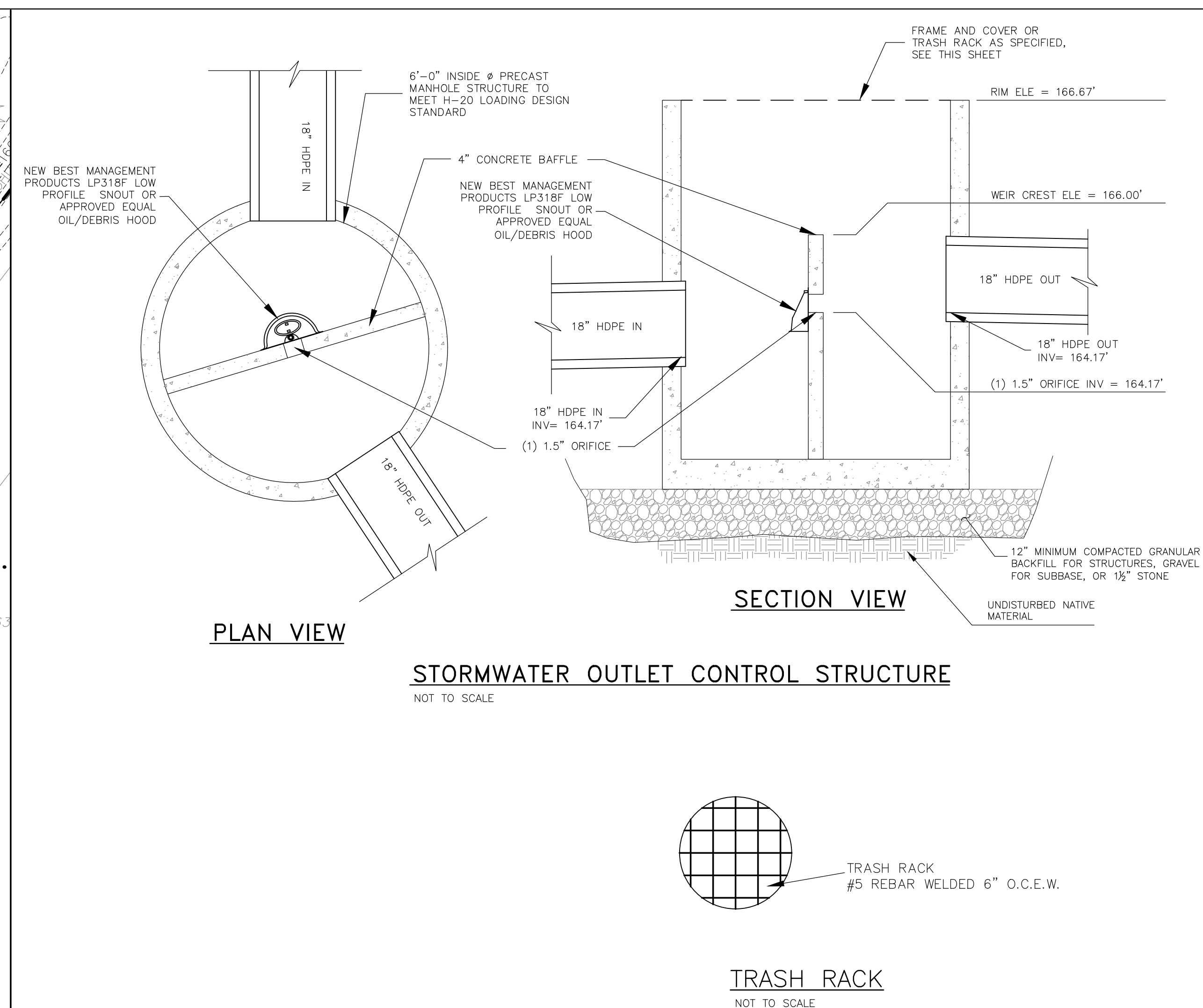
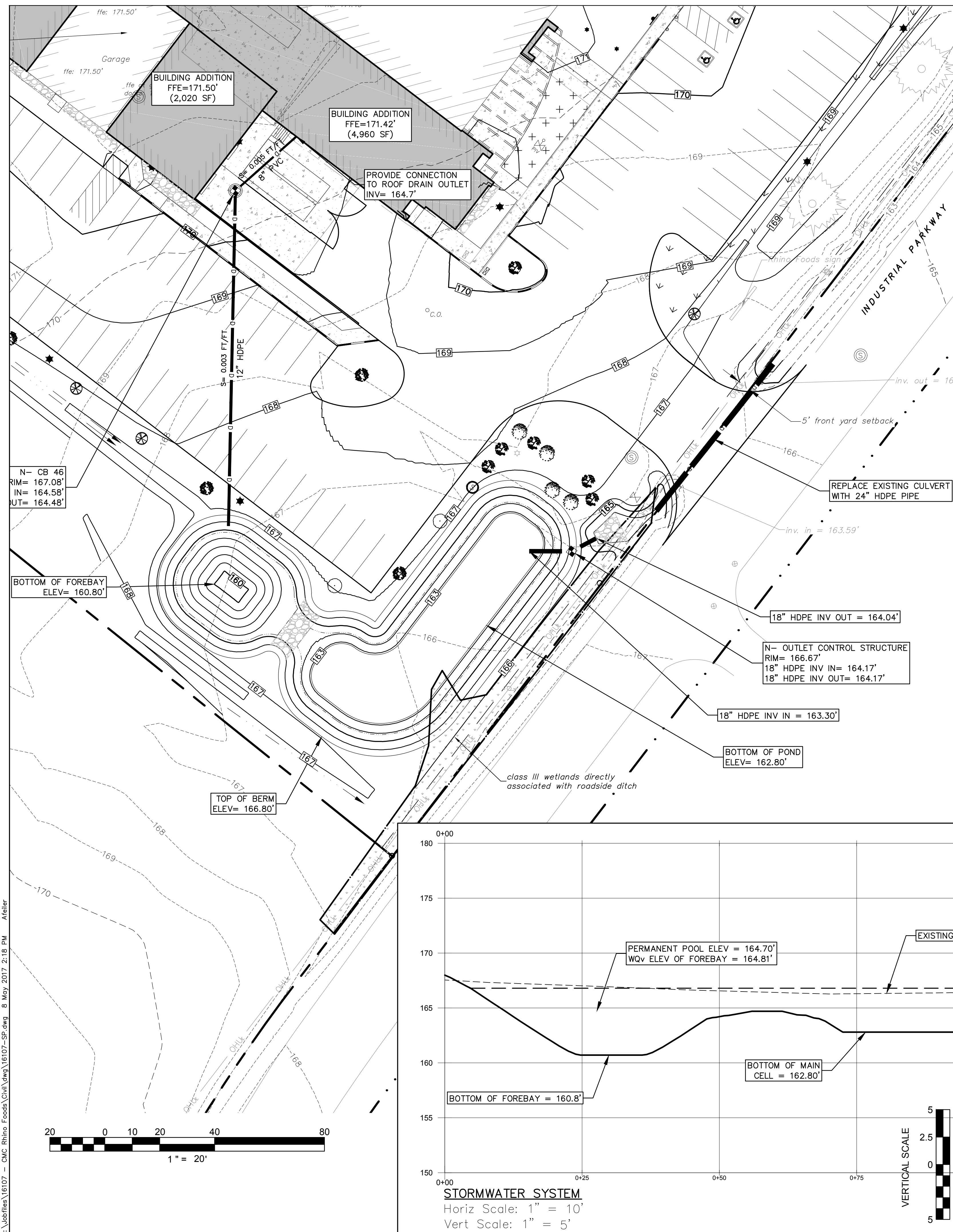
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CMC DESIGN-BUILD, INC.

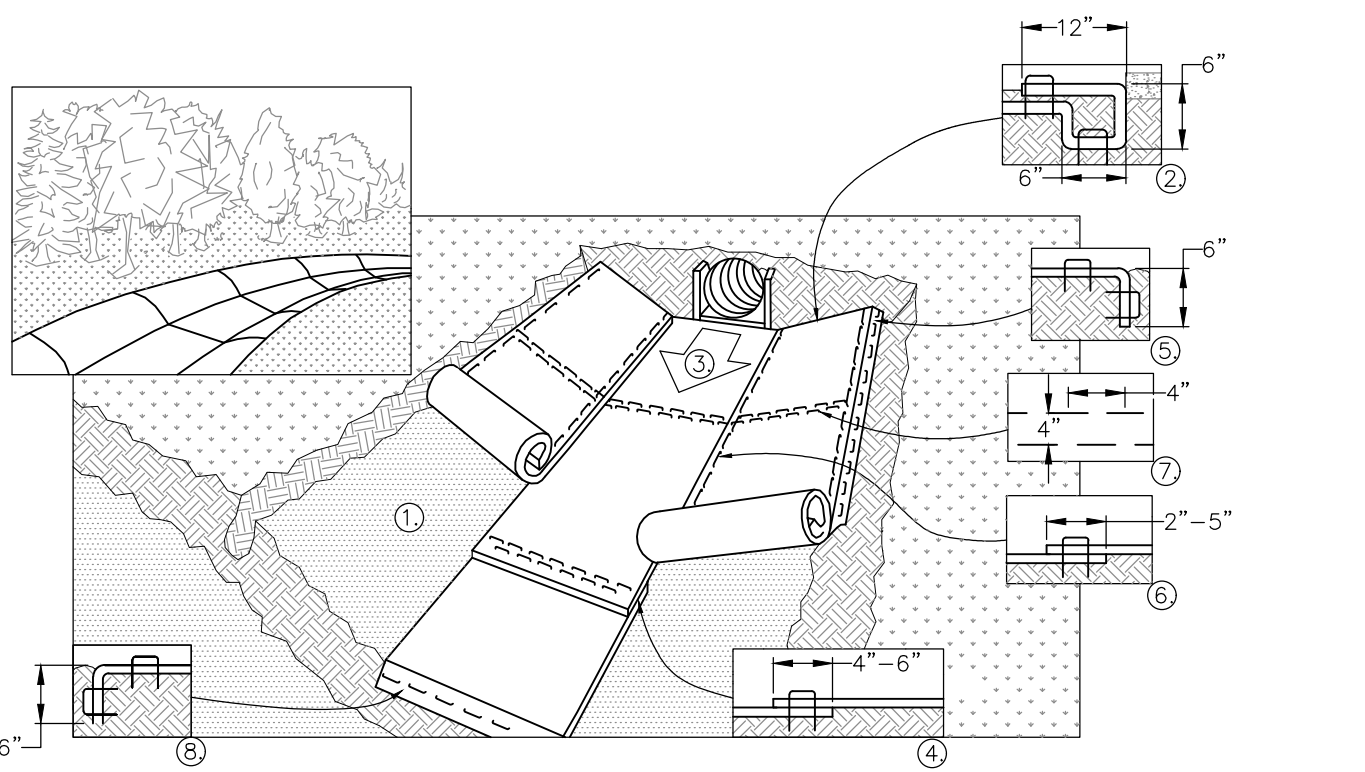
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**EROSION
CONTROL PLAN**

C1.05

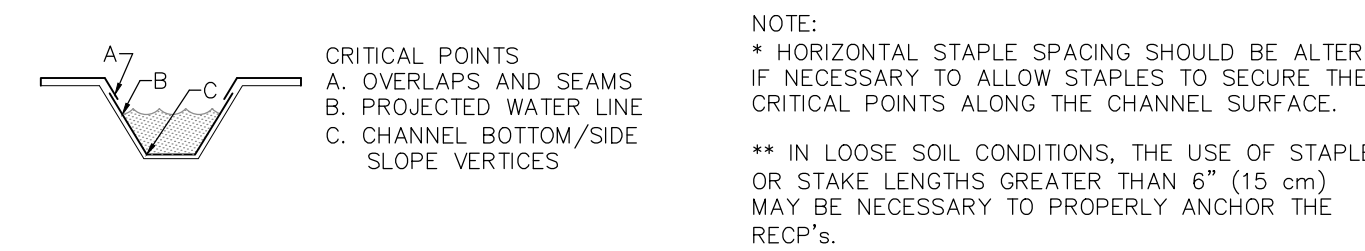
SHEET 7 OF 12





1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" - 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO COVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



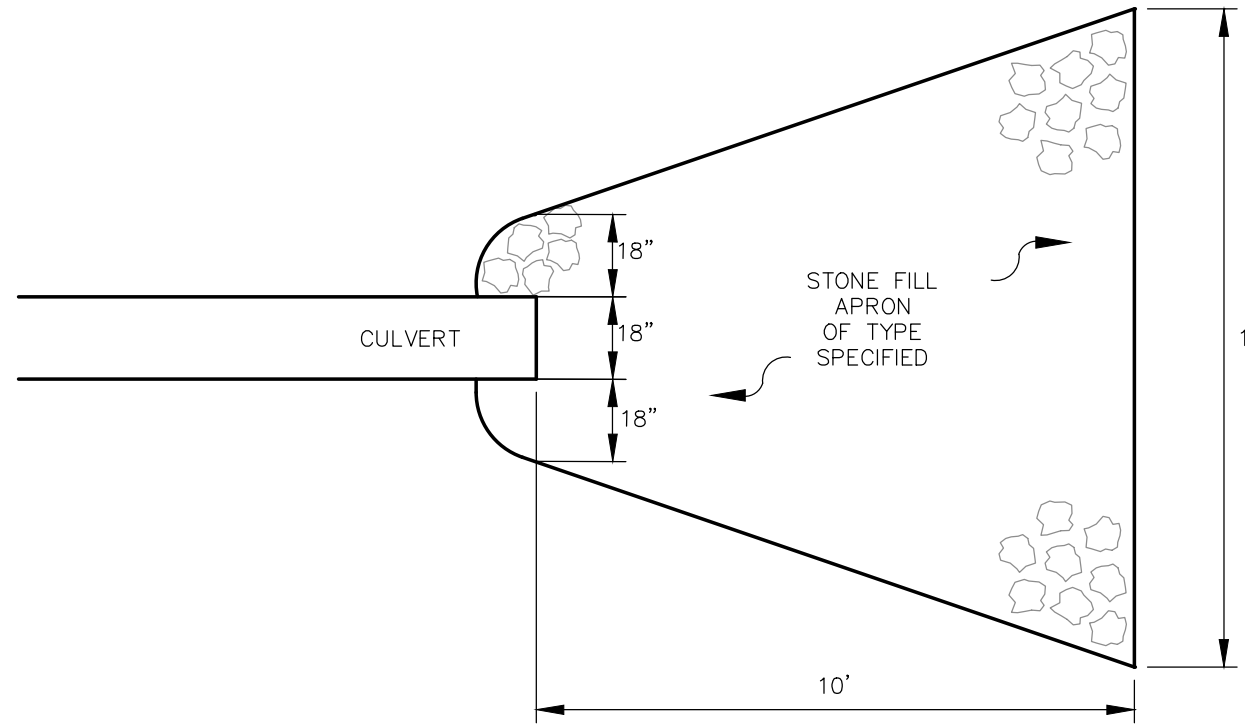
CHANNEL INSTALLATION

ROLLED EROSION CONTROL MATTING

NOT TO SCALE

- NOTES:
1. TOP OF STONE LAYER SHALL MATCH GRADE.
 2. APRON TO BE CONSTRUCTED LEVEL.
 3. THICKNESS OF STONE BLANKET SHALL AS INDICATED BELOW

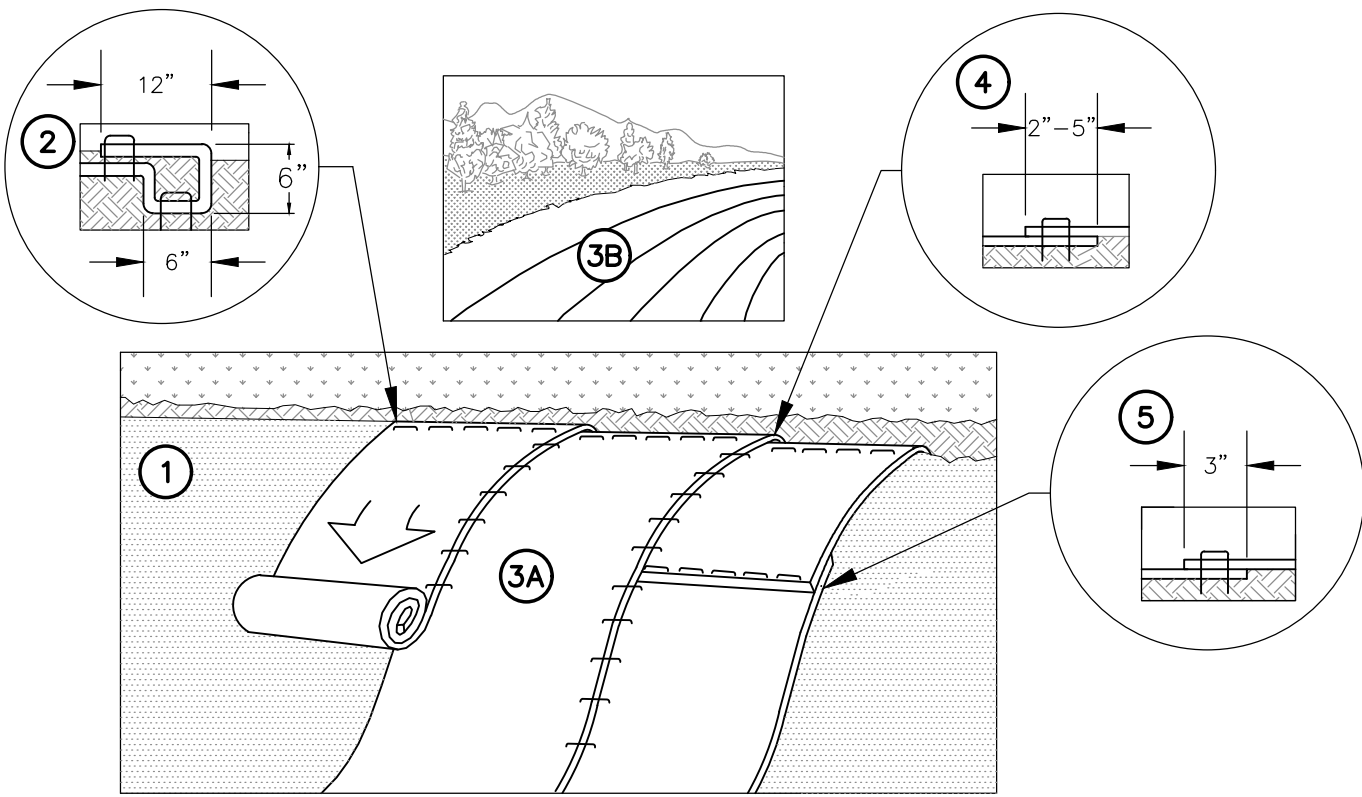
TYPE	THICKNESS (IN)
1	18"



NOTE: TOP OF STONE LAYER SHALL MATCH GRADE.

ROCK OUTLET PROTECTION

NOT TO SCALE



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" TO 5" OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP's WIDTH. NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

SLOPE INSTALLATION

ROLLED EROSION CONTROL MATTING

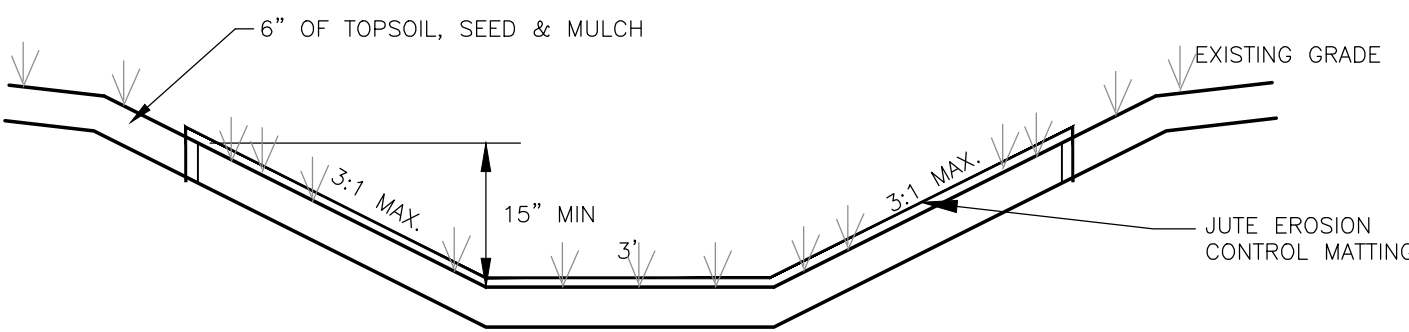
NOT TO SCALE

- INSTALLATION NOTES:
1. DRIVE POSTS A MINIMUM OF 16" INTO THE GROUND.
 2. EMBED GEOTEXTILE PLACED IN A 8"x8" TRENCH.
 3. POST SPACING SHALL BE AS FOLLOWS:
 - 3.1. FOR WIRE MESH BACKED FENCE, SPACING SHALL NOT EXCEED 10'-0"
 - 3.2. WITHOUT WIRE MESH AND FABRIC ELONGATION IS GREATER THAN OR EQUAL TO 50%, POST SPACING SHALL NOT EXCEED 4'-0"
 - 3.3. WITHOUT WIRE MESH AND FABRIC ELONGATION IS LESS THAN 50%, STAKE SPACING SHALL NOT EXCEED 6'-0"
 4. MAINTAIN A 10'-0" BORDER BETWEEN THE SILT FENCE AND CONSTRUCTION ACTIVITY.
 5. INSTALL SILT FENCE PARALLEL TO CONTOUR LINES, I.E. THE GROUND ELEVATION AT THE BASE OF THE FENCE SHALL BE LAT CONSTANT ELEVATION OR LEVEL.
 6. USE A CONTINUOUS SHEET OF GEOTEXTILE TO PREVENT FAILURE AT JOINTS.
 7. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES.
 8. GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH WIRE TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
 9. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED TOGETHER.
 10. PREFABRICATED UNITS SHALL BE GEOTAB, ENVIROFENCE, OR APPROVED EQUIVALENT.

- MAINTENANCE NOTE:
1. CHECK AFTER EVERY RAINFALL EVENT AND WEEKLY.
 2. REMOVE SEDIMENT WHEN IT REACHES 1/3 OF FENCE HEIGHT.
 3. PATCH TORN FENCES, OR REPLACE THE ENTIRE FENCE SECTION WHEN TEARS OCCUR.
 4. IF WATER IS BREAKING THOUGH SILT FENCE THEN IT MUST BE REINFORCED W/STONE.

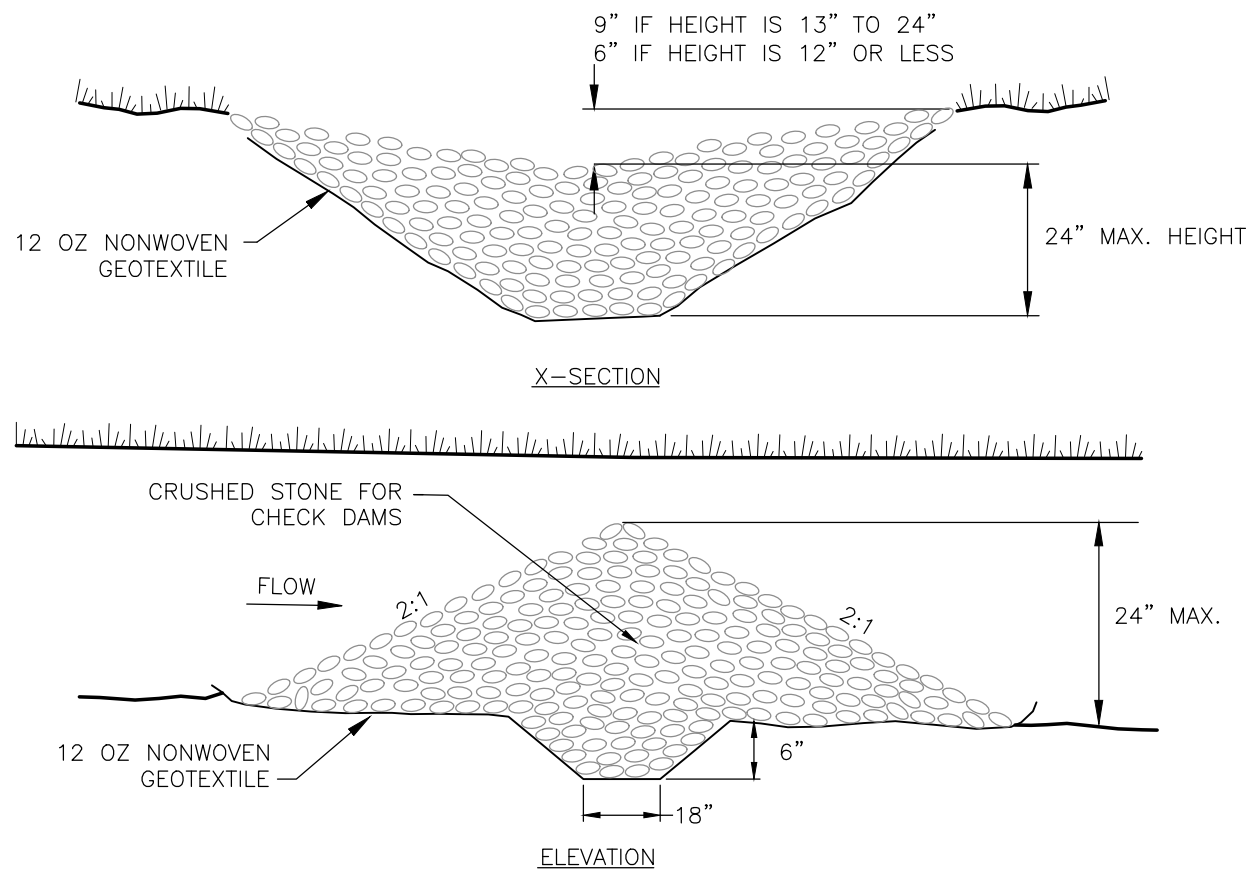
SILT FENCE

NOT TO SCALE



TYPICAL GRASS LINED TREATMENT/CONVEYANCE CHANNEL

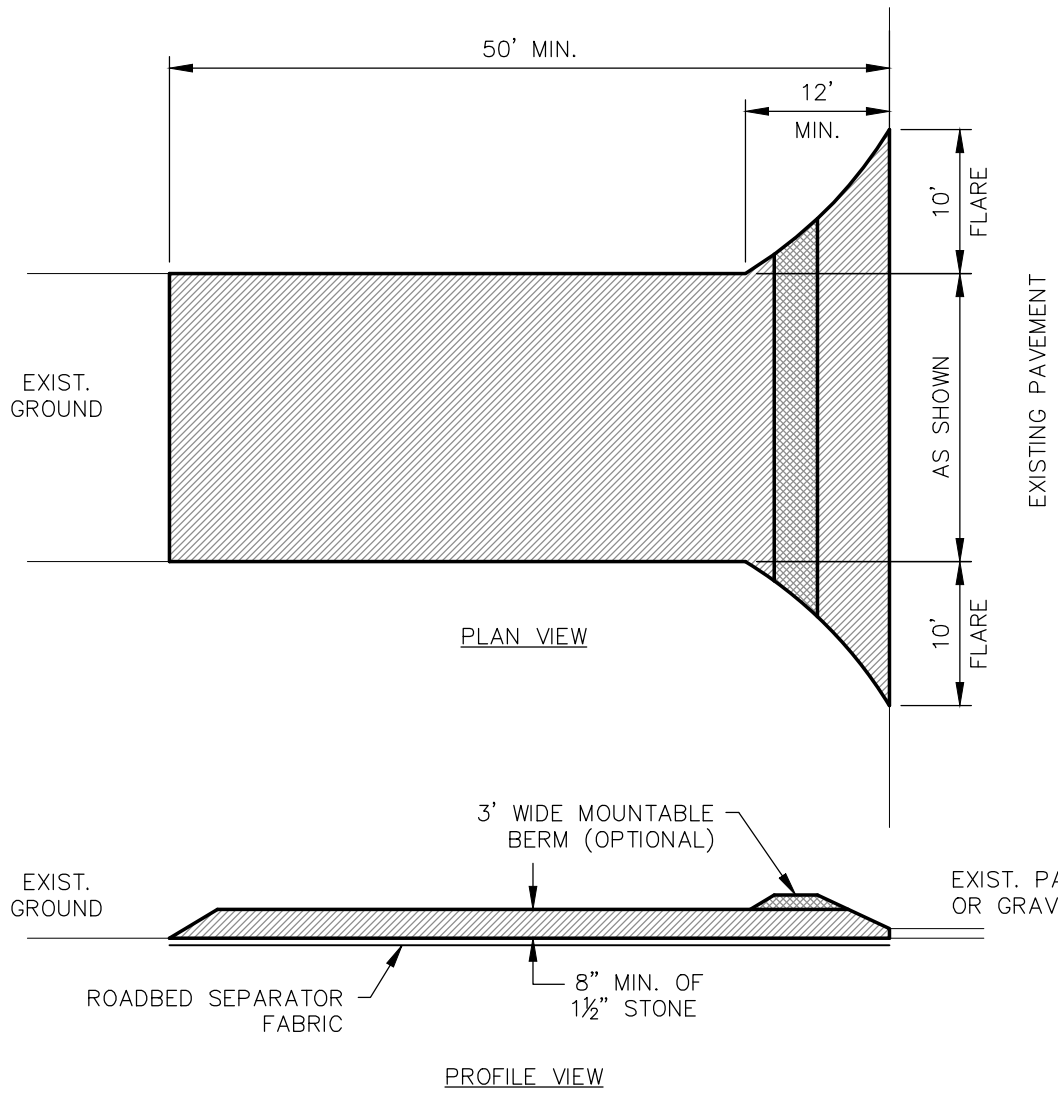
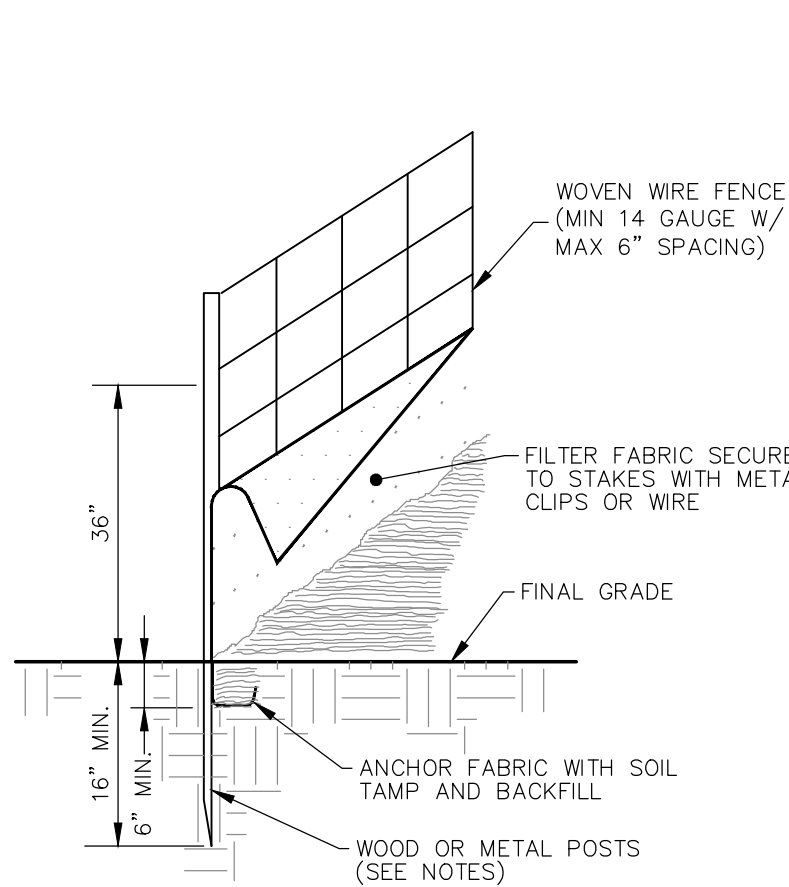
NOT TO SCALE



- NOTES
1. STONE CHECK DAMS WILL BE PLACED AS SHOWN ON THE PLANS.
 2. EXTEND STONE A MAXIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
 3. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR TURF REINFORCEMENT MATTING AS APPROPRIATE.
 4. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE BY DISPLACED STONE.

STONE CHECK DAM

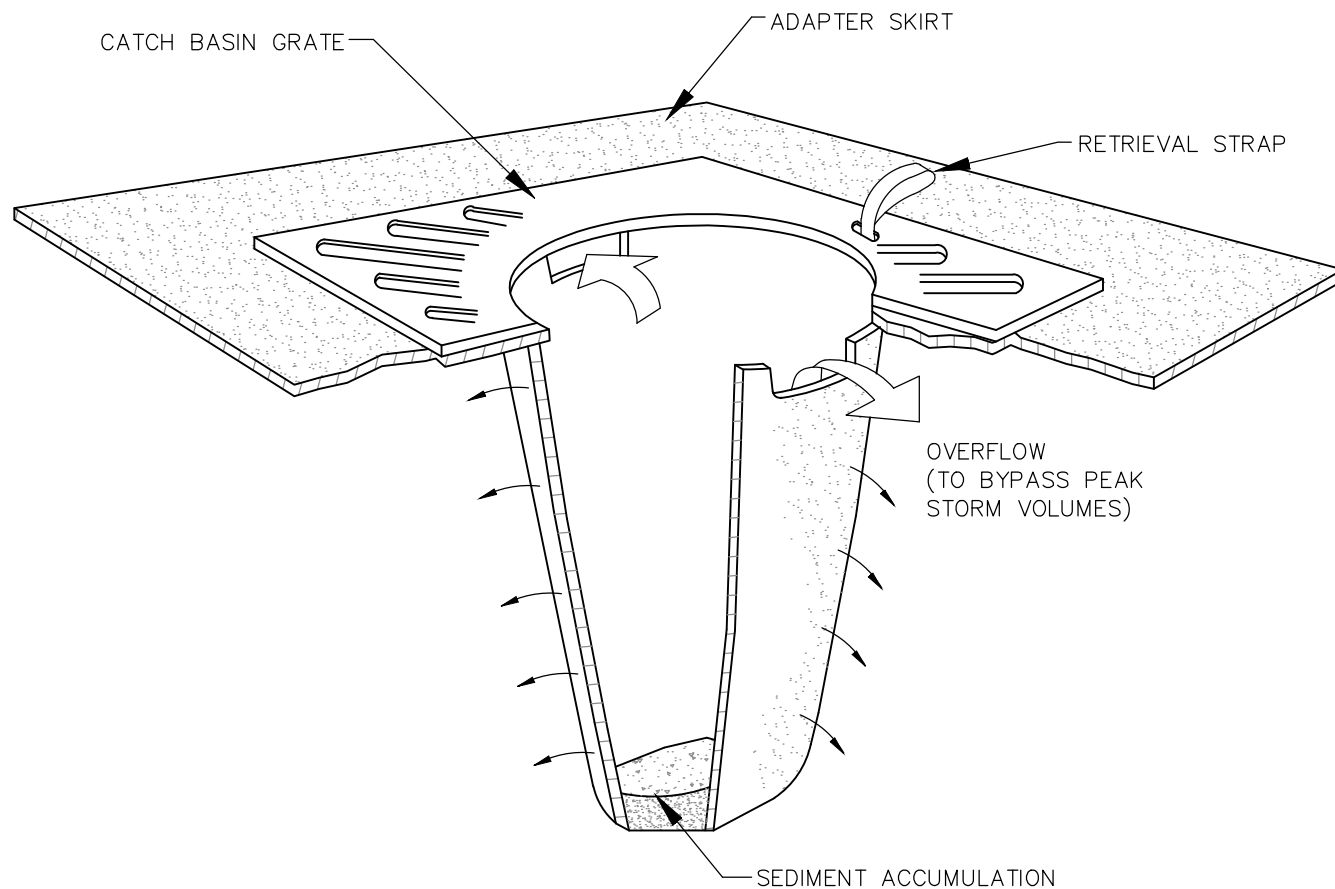
NOT TO SCALE



- NOTES:
1. THE PURPOSE IS TO REMOVE MUD FROM TIRES OF CONSTRUCTION VEHICLES.
 2. WHEN STONE BECOMES CLOGGED AND INEFFECTIVE, TOPDRESS WITH 3" OF NEW STONE OR REPLACE ENTIRE PAD.
 3. IF TIRE WASHING IS REQUIRED, WASH WATER SHALL DRAIN INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
 4. STONE SIZE- USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
 5. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
 6. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY USING CLOSED-BROOM EQUIPMENT.
 7. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



- NOTES
1. ACCEPTABLE PRODUCTS INCLUDE "SILTSACK" AND "STREAM GUARD" MANUFACTURED BY GEO-SYNTHETICS INC. OR PARKER SYSTEMS, INC., RESPECTIVELY.
 2. INSERT TO BE EMPTIED WHEN IT IS 1/2 FULL OF SEDIMENT.
 3. INSPECT INSERT AFTER ANY RAINFALL EVENT AND REPAIR AND MAINTAIN AS REQUIRED.

SEDIMENT CATCH BASIN INSERT

NOT TO SCALE

Civil & Structural Engineers
DeWolfe
ENGINEERING ASSOCIATES
PROFESSIONAL CORPORATION
1.802.223.4727 1.802.223.4740 www.dristeel.com
917 River St., P.O. Box 1576, Montpelier, VT 05601-1576

no. date revision



project name:
**RHINO FOODS
BUILDING ADDITION**

project location:
**79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT**

client:
CMC DESIGN-BUILD, INC.

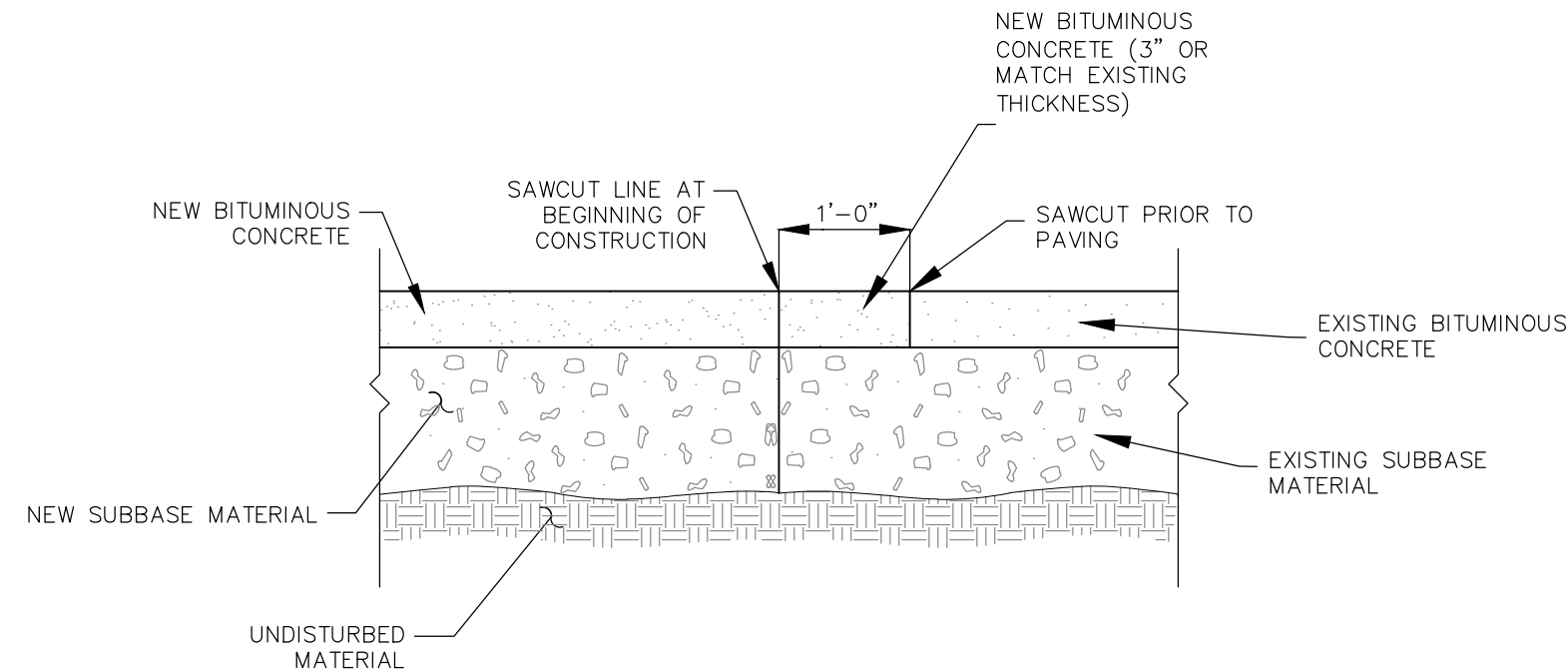
project number: 16107
drawn by: AAF
checked by: JJS
scale: AS SHOWN
date: 3 MAY 2017
released for: PERMITTING
sheet description:

CONSTRUCTION DETAILS

C5.01

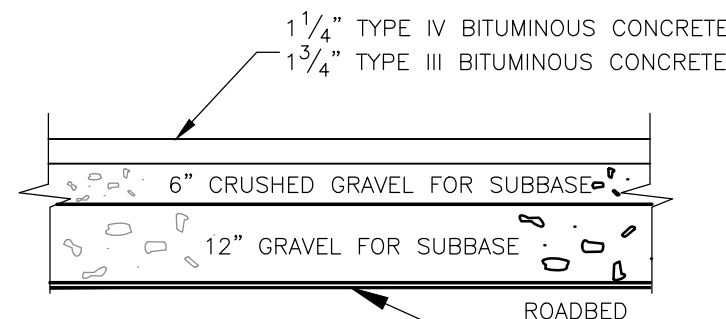
SHEET 9 OF 12

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PAVEMENT JOINT DETAIL

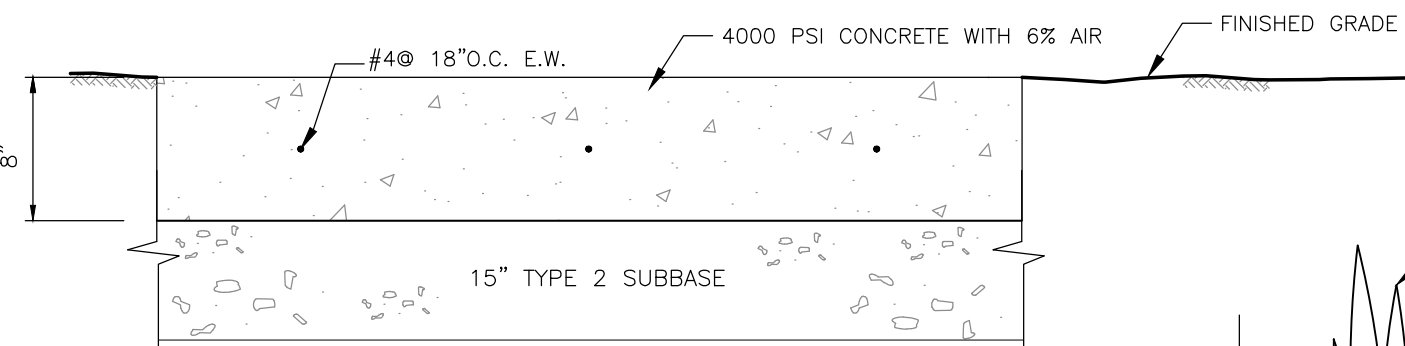
NOT TO SCALE



NOTE:
1. FINE DENSE GRADED CRUSHED STONE MAY BE SUBSTITUTED.

TYPICAL PAVED PARKING LOT SECTION

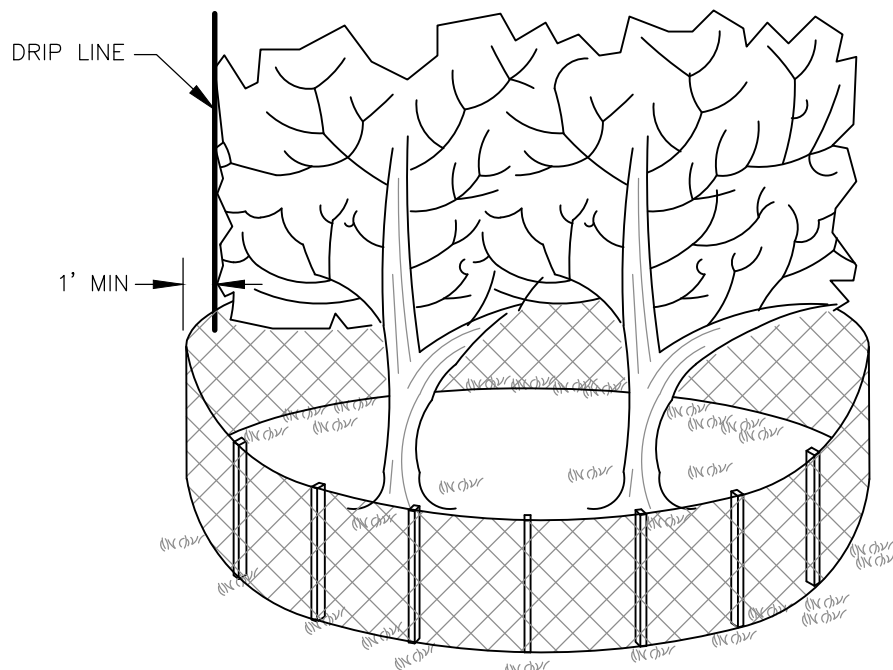
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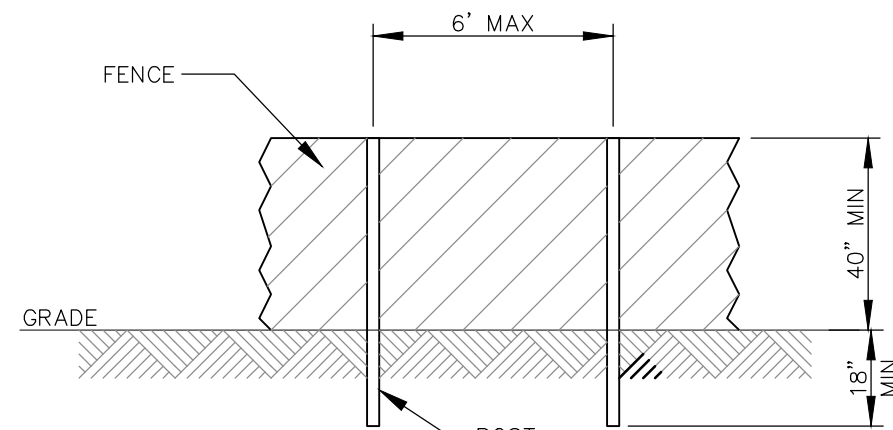
NOTE:
1. SAWCUT JOINTS AT 12.5' O.C. 2" DEEP

LOADING PAD AND DOLLY STRIP

NOT TO SCALE



SIDE VIEW

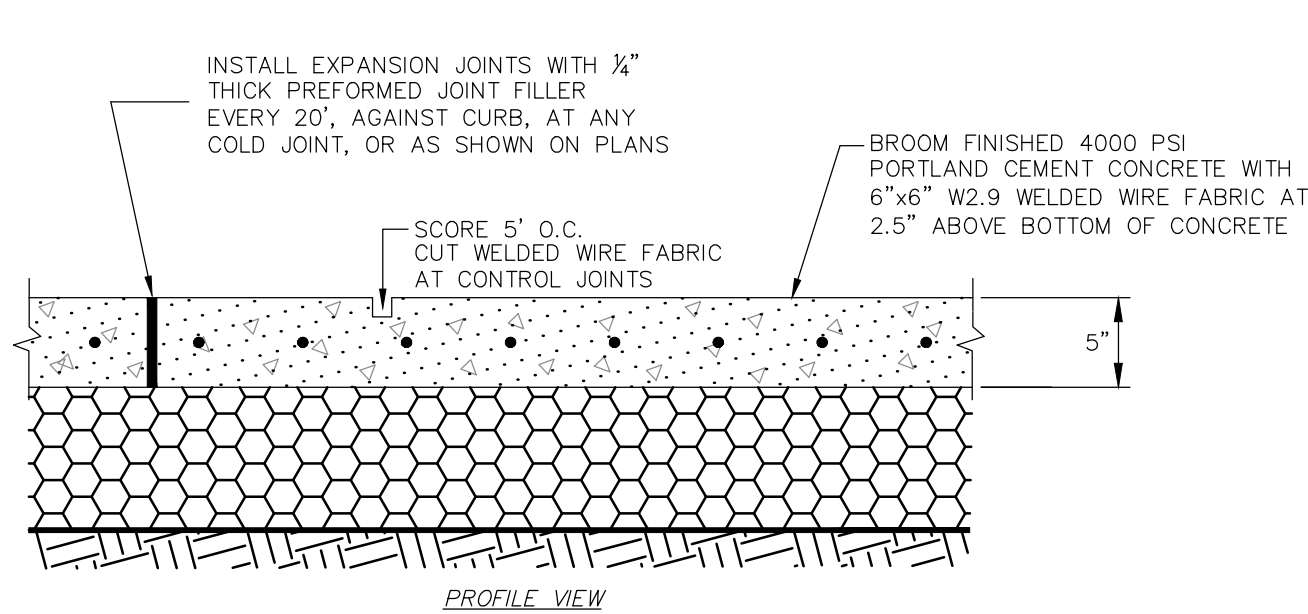


POST AND FENCE DETAIL

TREE PROTECTION DETAIL

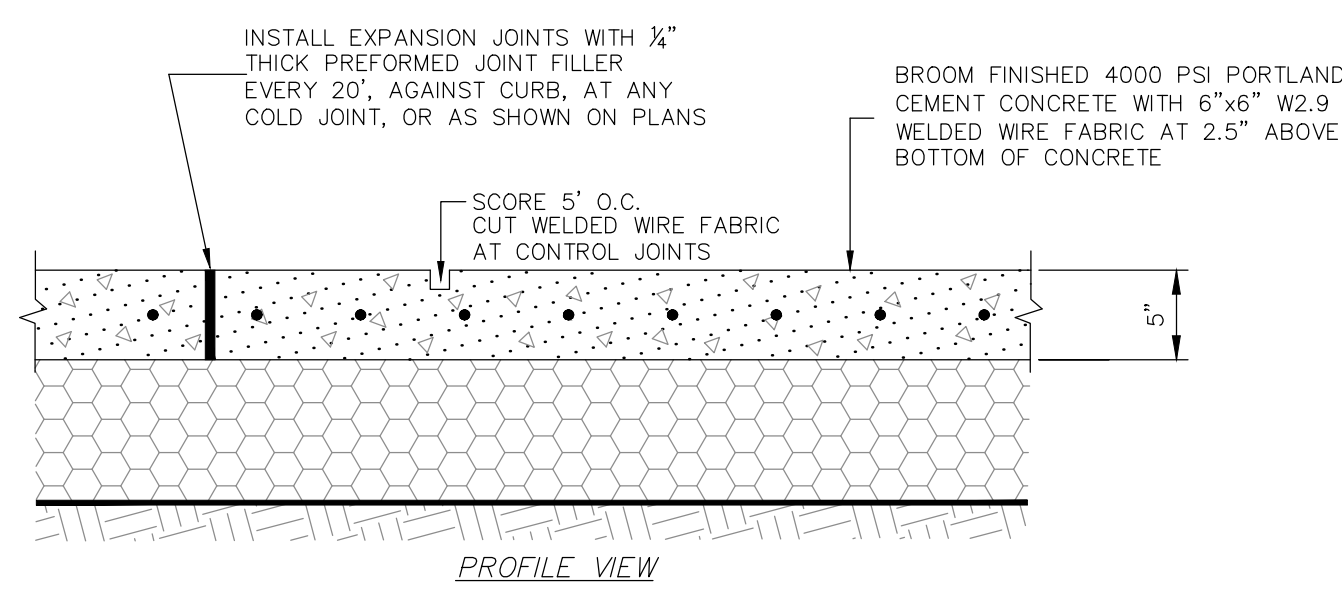
NOT TO SCALE

- NOTES:
1. INSTALL FENCE PRIOR TO EARTHWORK ACTIVITIES. NO MATERIAL SHALL BE STORED INSIDE OF TREE PROTECTION FENCE.
 2. THE FENCE SHALL BE LOCATED A MINIMUM OF 1 FOOT OUTSIDE THE DRIP LINE OF THE TREE TO BE SAVED AND IN NO CASE CLOSER THAN 5 FEET TO THE TRUNK OF ANY TREE.
 3. FENCE POSTS SHALL BE EITHER STANDARD STEEL POSTS OR WOOD POSTS WITH A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQ. IN.
 4. THE FENCE MAY BE EITHER 40" HIGH SNOW FENCE, 40" PLASTIC WEB FENCING OR ANY OTHER MATERIAL AS APPROVED BY THE ENGINEER/INSPECTOR.



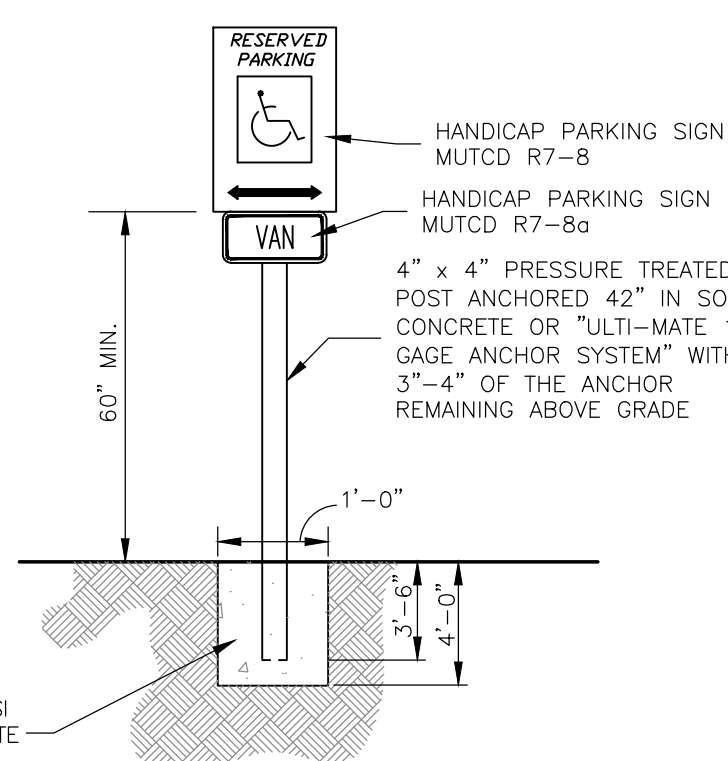
CONCRETE SIDEWALK

NOT TO SCALE



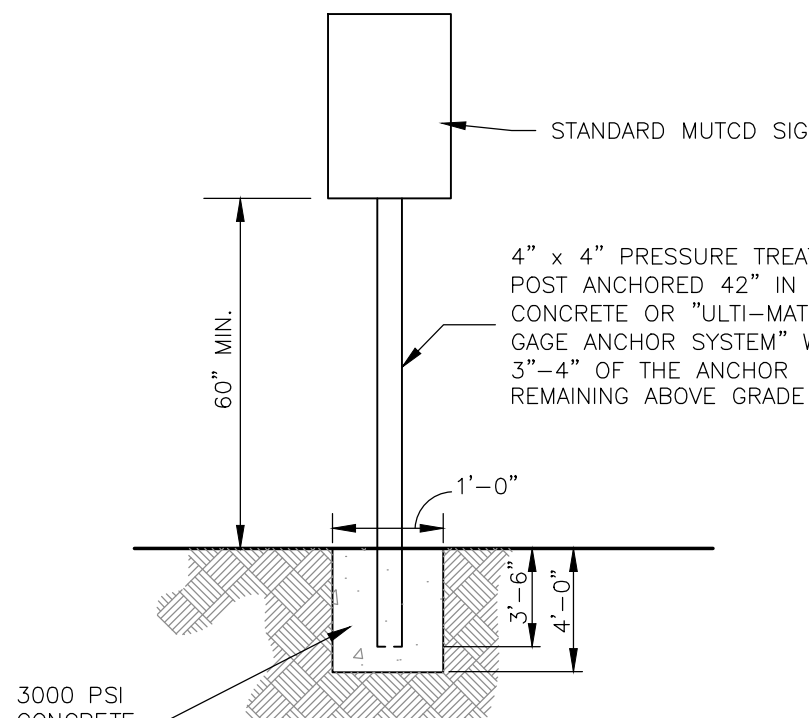
CONCRETE CURB & CONCRETE SIDEWALK

NOT TO SCALE



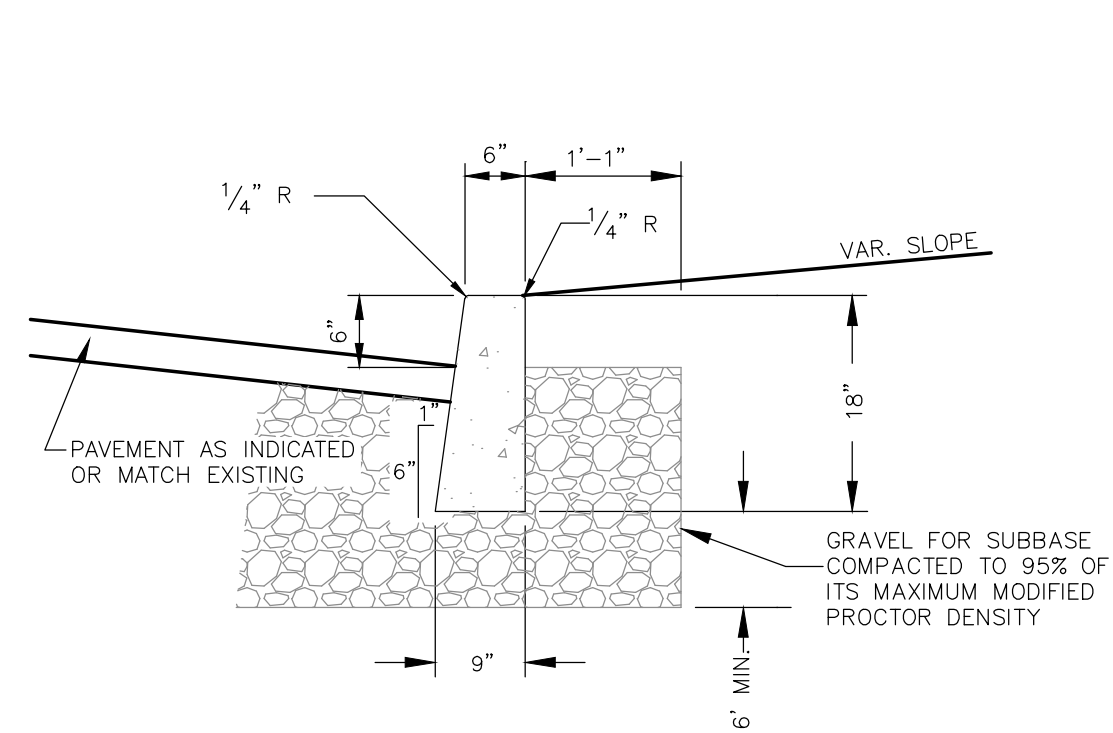
UNIVERSAL ACCESS PARKING SIGN

NOT TO SCALE



TYPICAL SIGN INSTALLATION

NOT TO SCALE

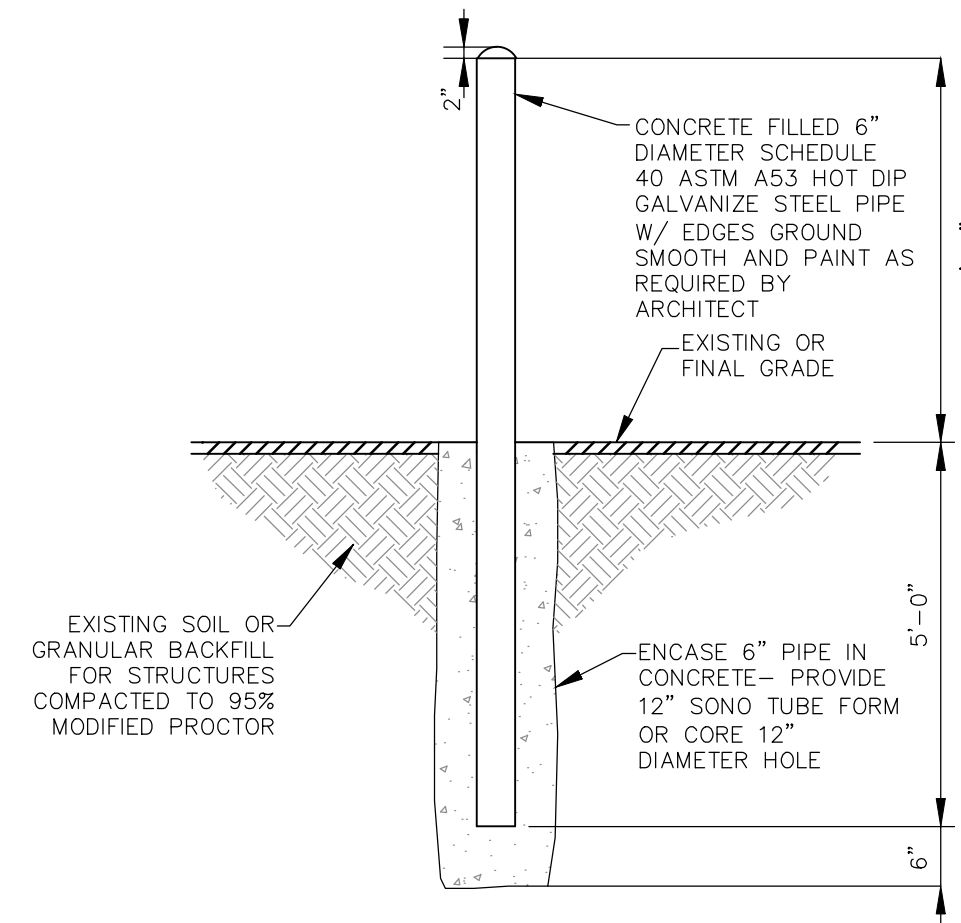


NOTES:

1. WHEN CONCRETE CURB IS CONSTRUCTED ADJACENT TO CONCRETE SIDEWALK, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDEWALK AND CURB.
2. REVEAL NOT TO EXCEED 4" WHERE DESIGN SPEED IS > 40 MPH OR WHERE CURB IS INSTALLED ADJACENT TO GUARDRAIL.
3. SEE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION DETAILS ON EXPANSION, CONSTRUCTION JOINTS, AND LENGTHS OF SECTIONS.

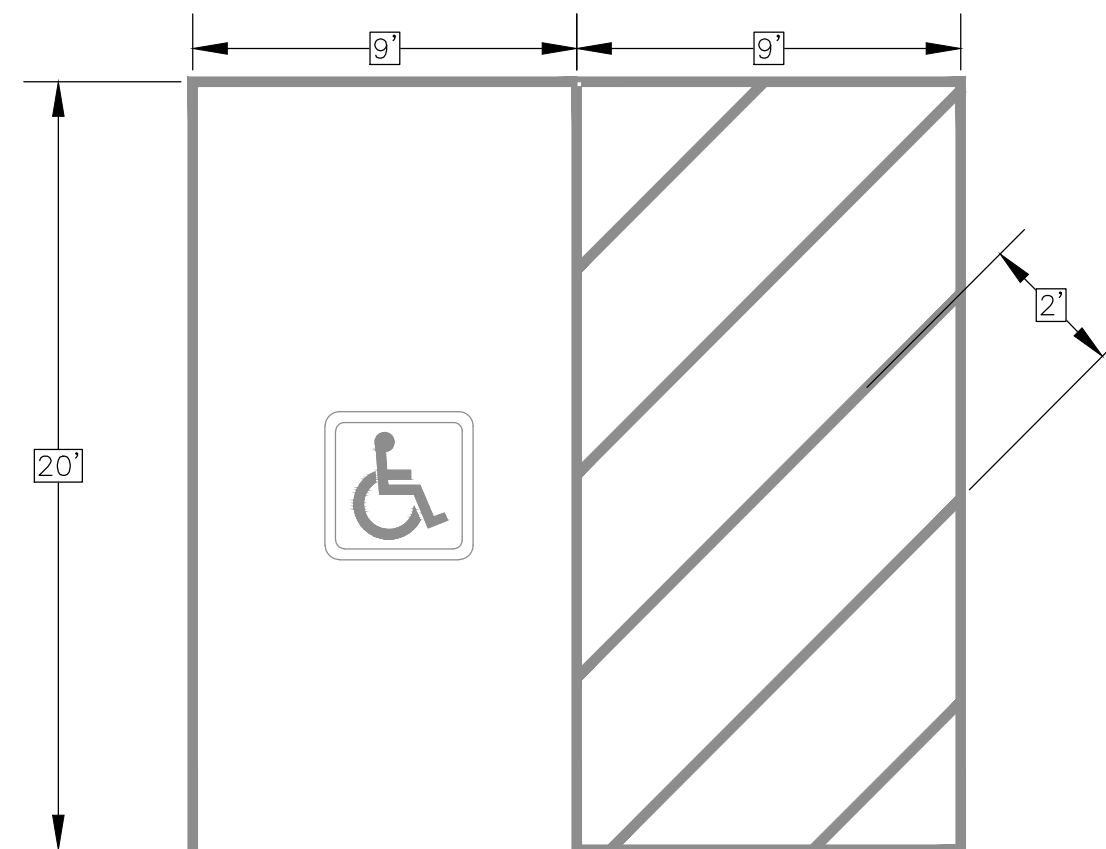
CAST IN PLACE CONCRETE CURB VAOT TYPE B

NOT TO SCALE



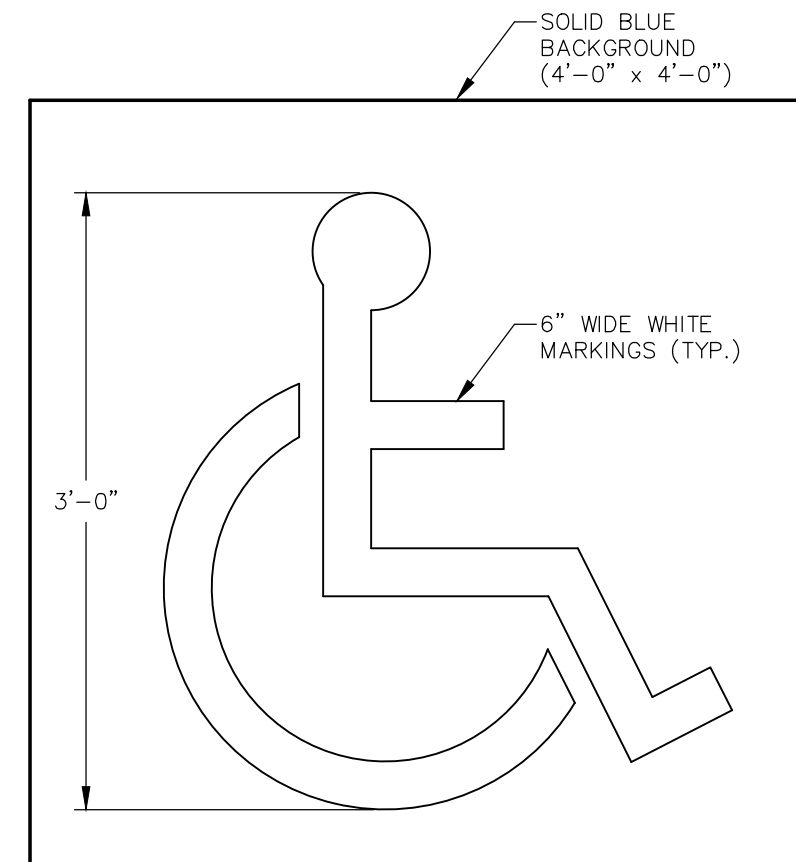
TYPICAL BOLLARD DETAIL

NOT TO SCALE



PAVEMENT MARKINGS FOR ADA COMPLIANT PARKING AREAS

NOT TO SCALE

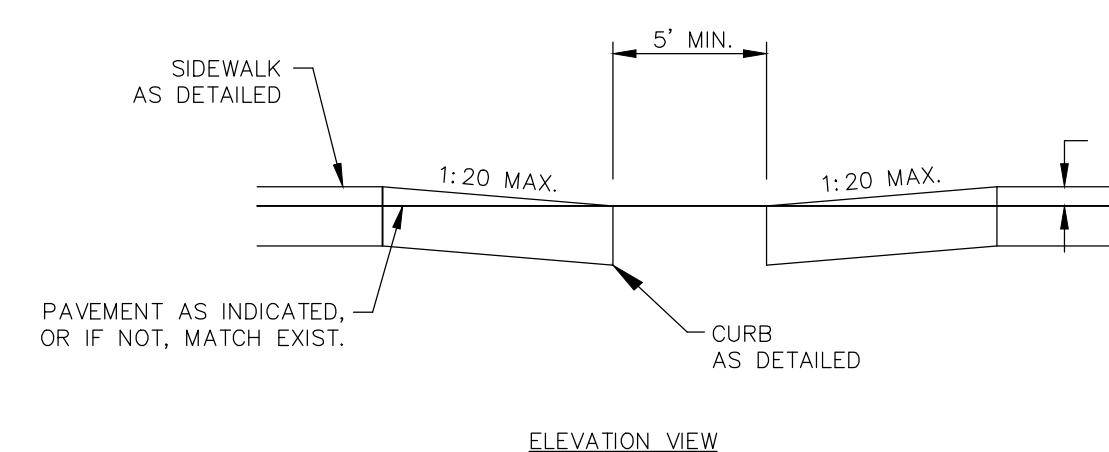


NOTE:

SYMBOL TO CONFORM WITH FIGURE 3B.22 OF THE MUTCD (DEC. 2009), EXCEPT AS OTHERWISE INDICATED. ALSO, REFER TO THE PAVEMENT MARKING NOTES ON THE SITE LAYOUT PLAN(S).

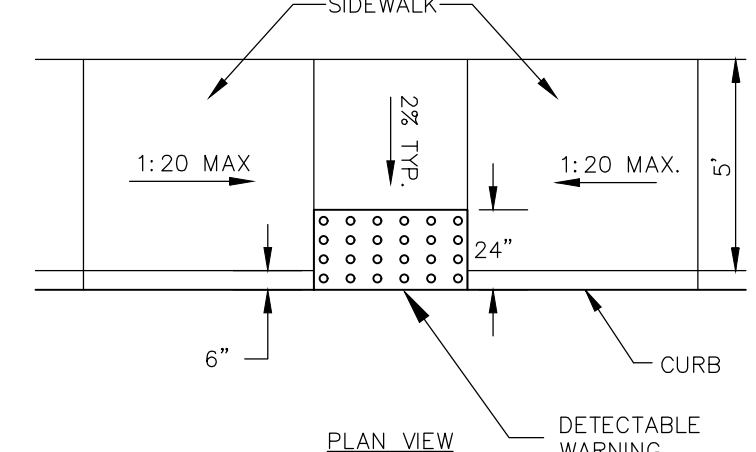
HANDICAP SYMBOL PAVEMENT MARKING

NOT TO SCALE



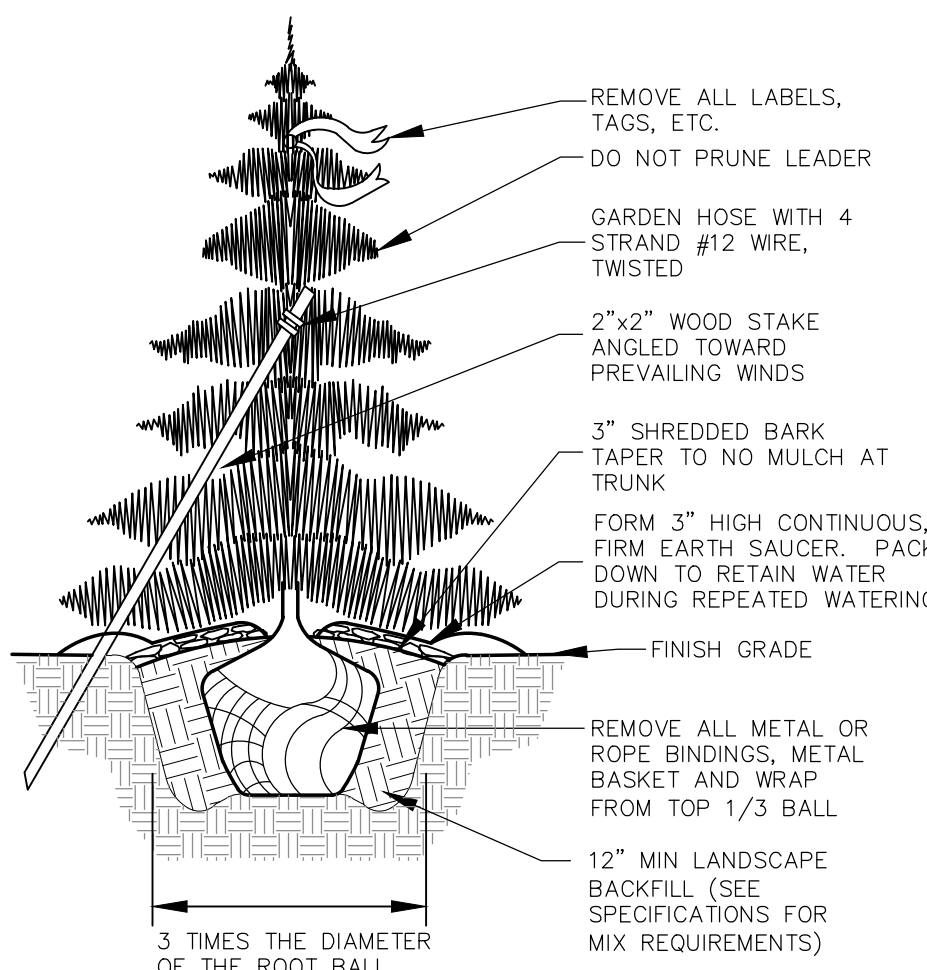
WHEELCHAIR ACCESS RAMP

NOT TO SCALE



RODENT STRIP

NOT TO SCALE

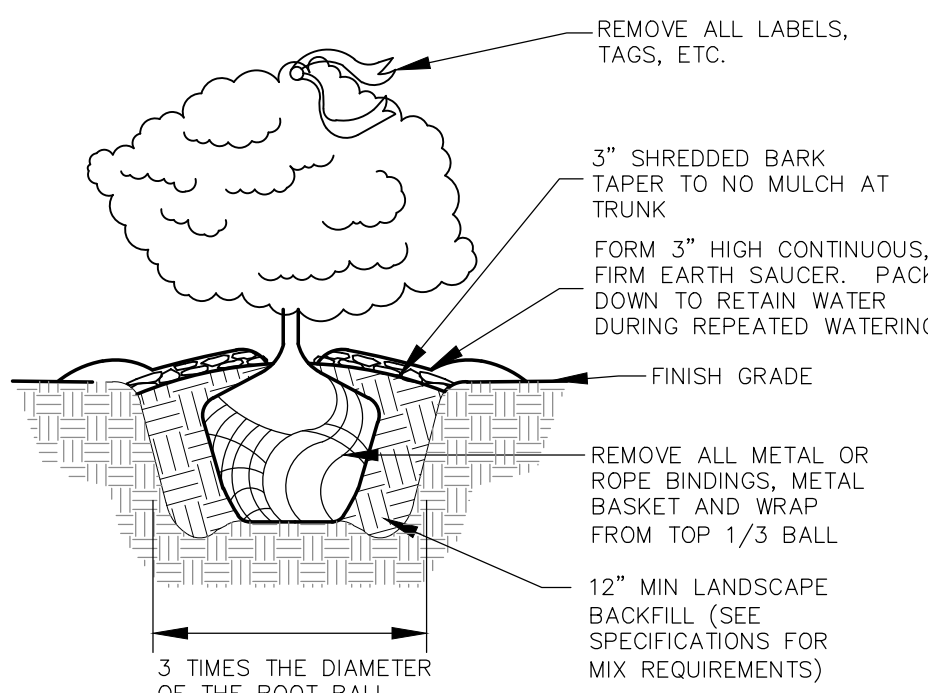


NOTES:

1. REMOVE ALL STAKING ONE YEAR AFTER PLANTING
2. WATER THOROUGHLY AT TIME OF PLANTING (SEE SPECIFICATIONS FOR WATERING SCHEDULE DURING ONE YEAR WARRANTY ESTABLISHMENT PERIOD)

EVERGREEN TREE PLANTING

NOT TO SCALE

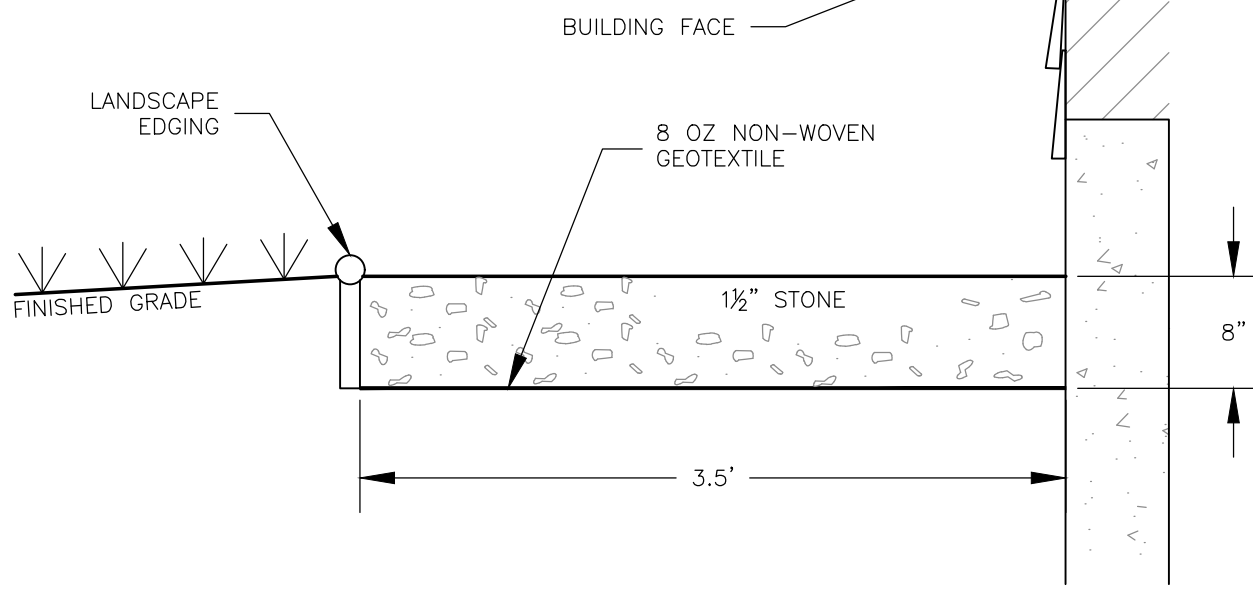


NOTES:

1. PLACE SHRUB IN THE HOLE AT THE LEVEL IT WAS GROWN IN AT THE NURSERY, OR SLIGHTLY HIGHER. AVOID PLANTING TOO DEEP. TOP OF ROOT BALL SHOULD BE AT FINISHED GRADE.
2. WATER THOROUGHLY AT TIME OF PLANTING (SEE SPECIFICATIONS FOR WATERING SCHEDULE DURING ONE YEAR WARRANTY ESTABLISHMENT PERIOD)

TYPICAL SHRUB PLANTING

NOT TO SCALE



Civil & Structural Engineers
DeWolfe
ENGINEERING ASSOCIATES
PROFESSIONAL CORPORATION
1.802.223.4727 1.802.223.4740 www.drtsteel.com
917 River St., P.O. Box 1576, Montpelier, VT 05601-1576

no. date revision

1

project name:
**RHINO FOODS
BUILDING ADDITION**

project location:
**79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT**

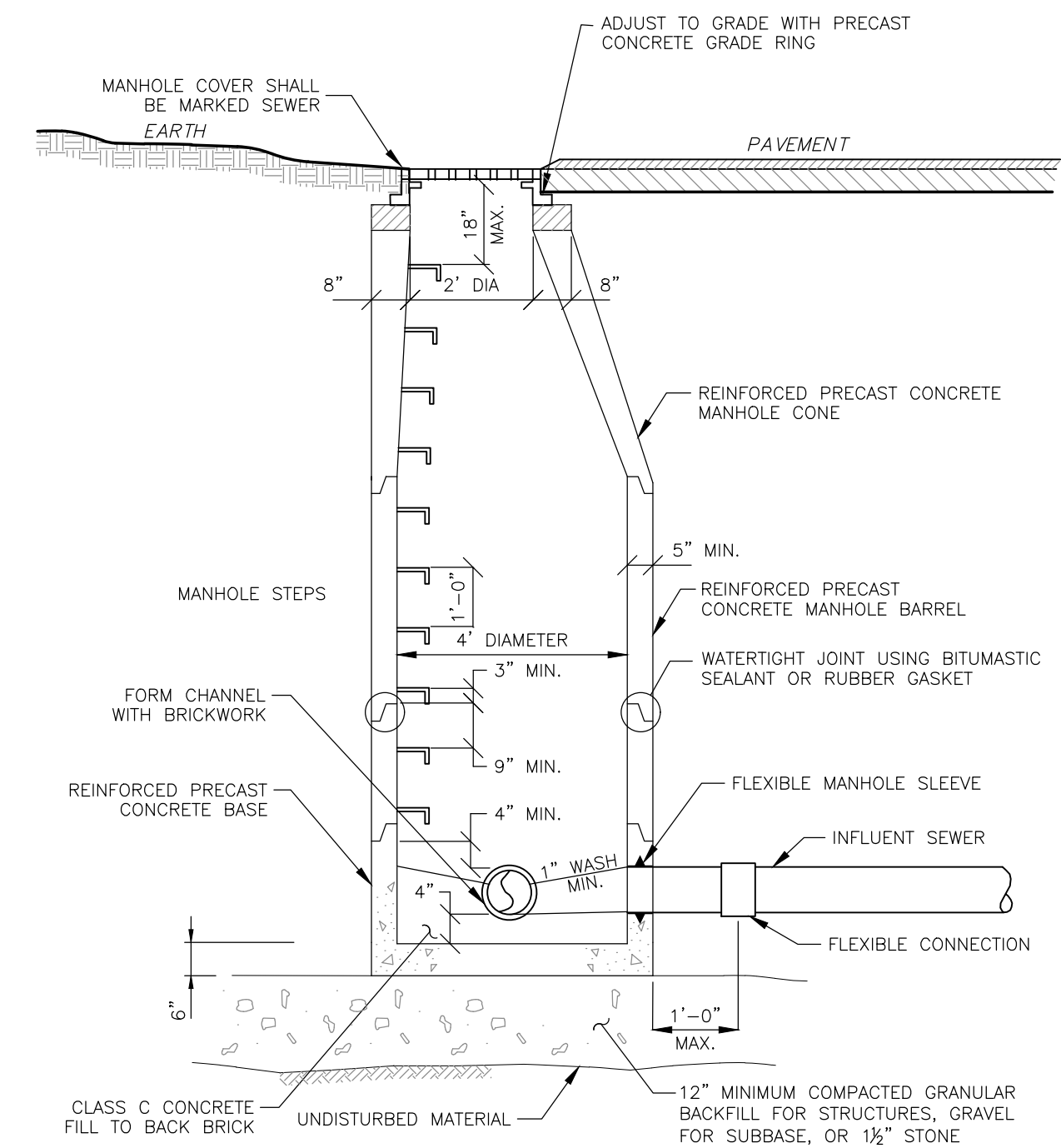
client:
CMC DESIGN-BUILD, INC.

project number: 16107
drawn by: AAF
checked by: JJS
scale: AS SHOWN
date: 3 MAY 2017
released for: PERMITTING

CONSTRUCTION DETAILS

C5.02

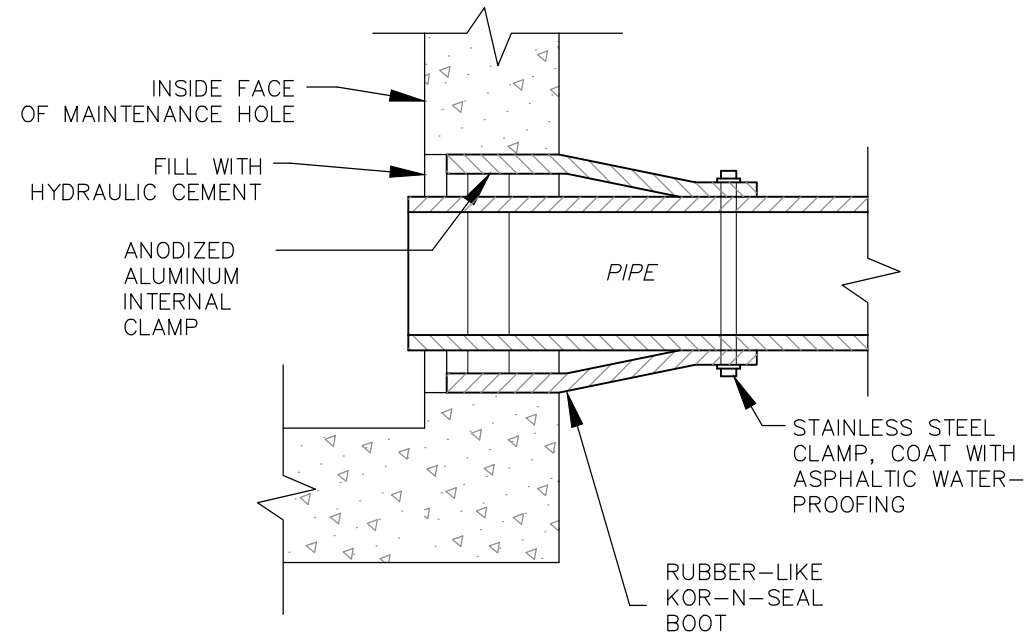
SHEET 10 OF 12



- NOTES:
1. WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A FLAT REINFORCED CONCRETE COVER WITH AN ECCENTRIC OPENING AND CAPABLE OF H-20 WHEEL LOADS MAY BE USED.
 2. ALL MANHOLES SHALL BE DESIGNED FOR H-20 WHEEL LOADS.

SEWER MANHOLE DETAIL

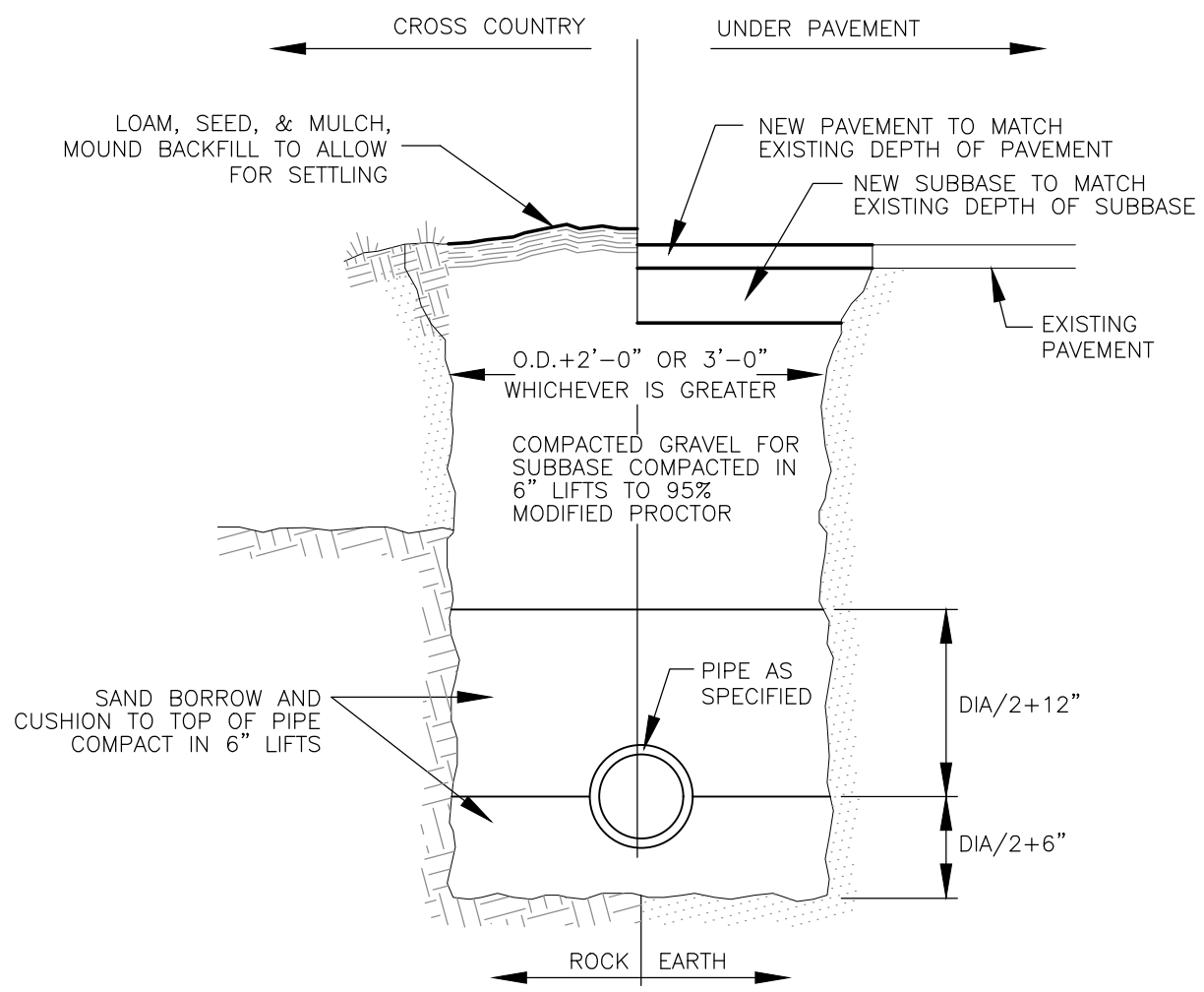
NOT TO SCALE



KOR-N-SEAL FLEXIBLE MAINTENANCE HOLE SEAL

(FOR EXISTING AND NEW MAINTENANCE HOLES)

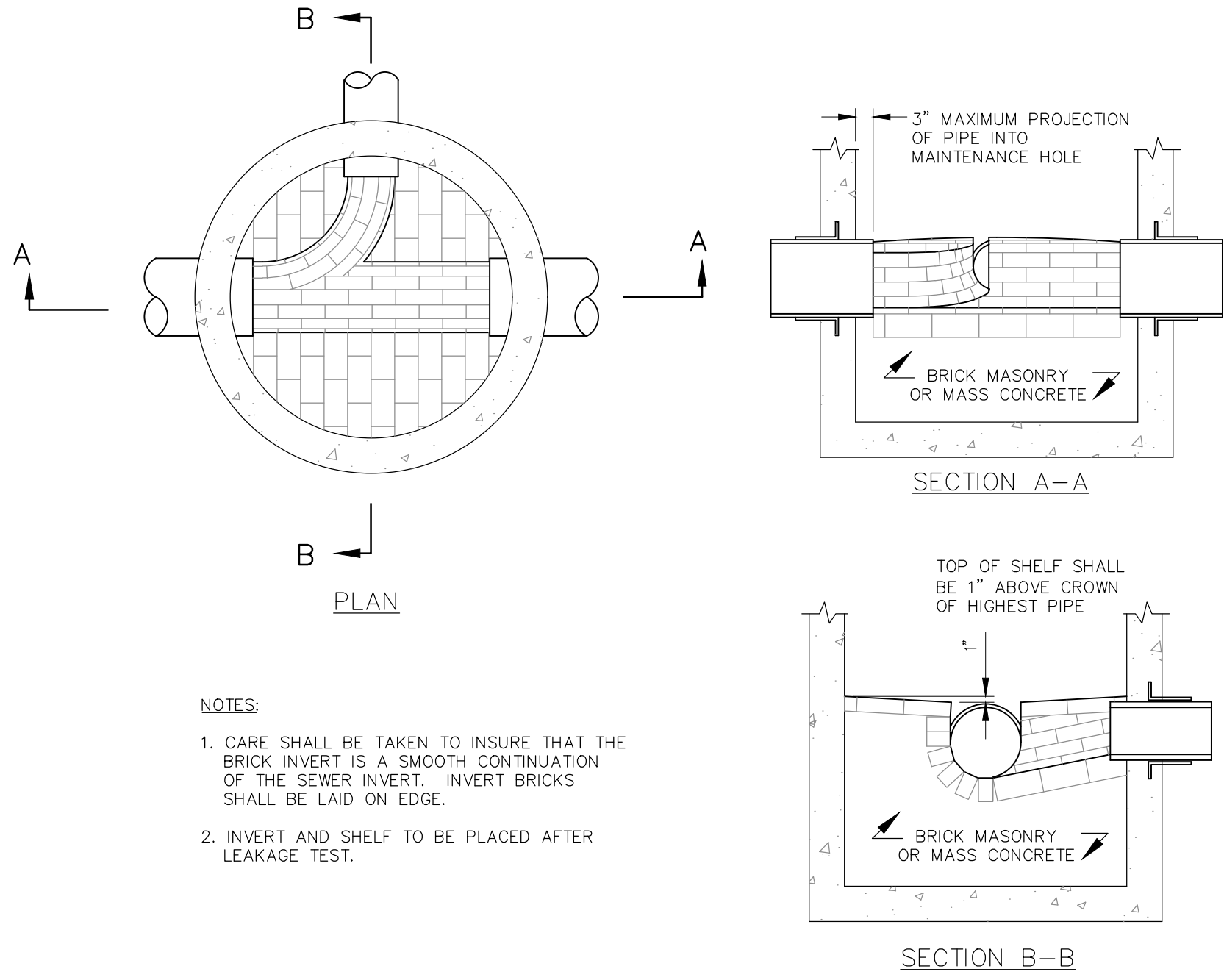
NOT TO SCALE



- NOTE:
1. BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF THE CONTRACTOR.

TYPICAL TRENCH LIMITS AND BEDDING DETAIL

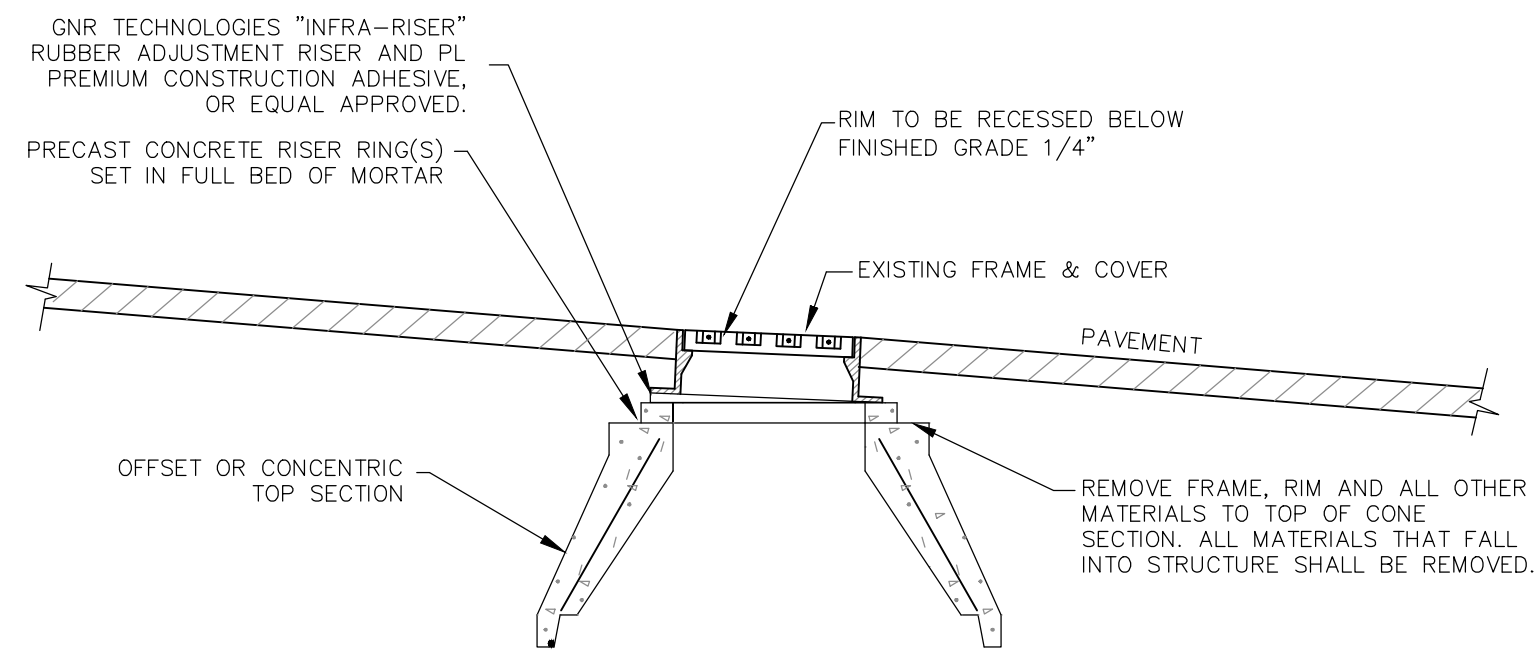
NOT TO SCALE



- NOTES:
1. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
 2. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.

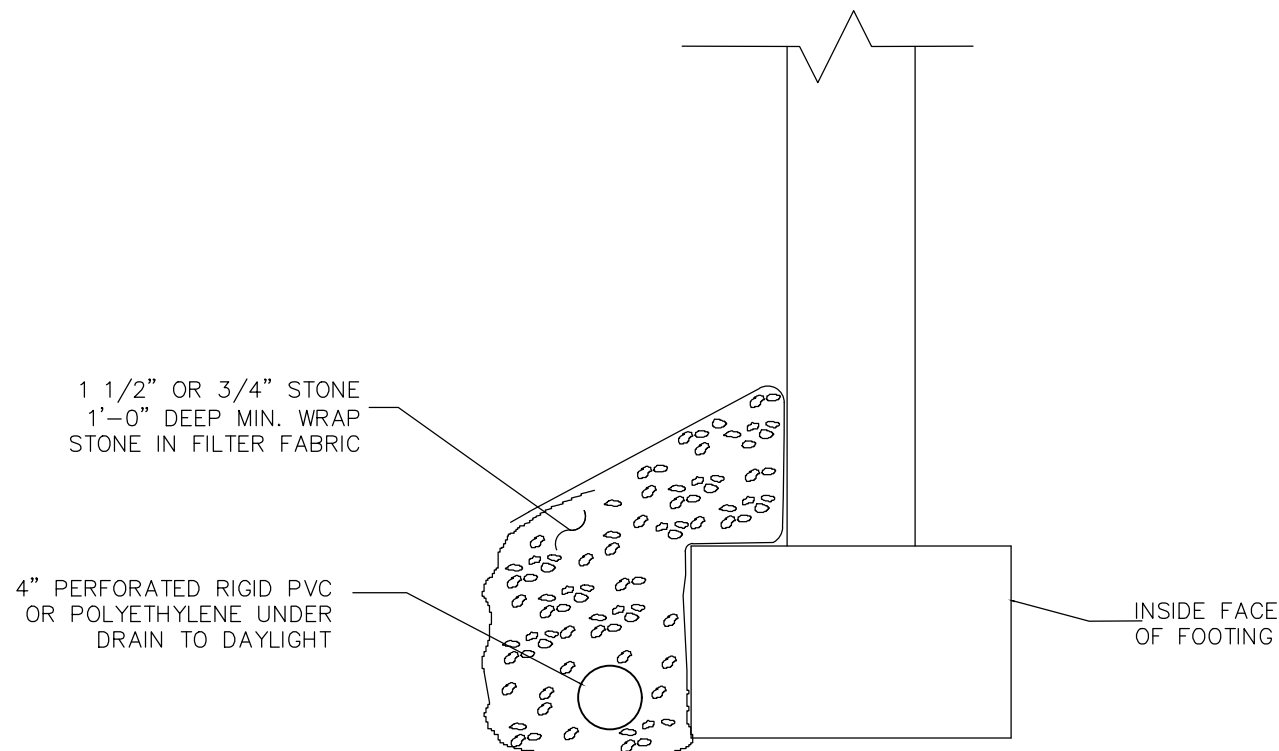
TYPICAL SEWER MANHOLE INVERT

NOT TO SCALE



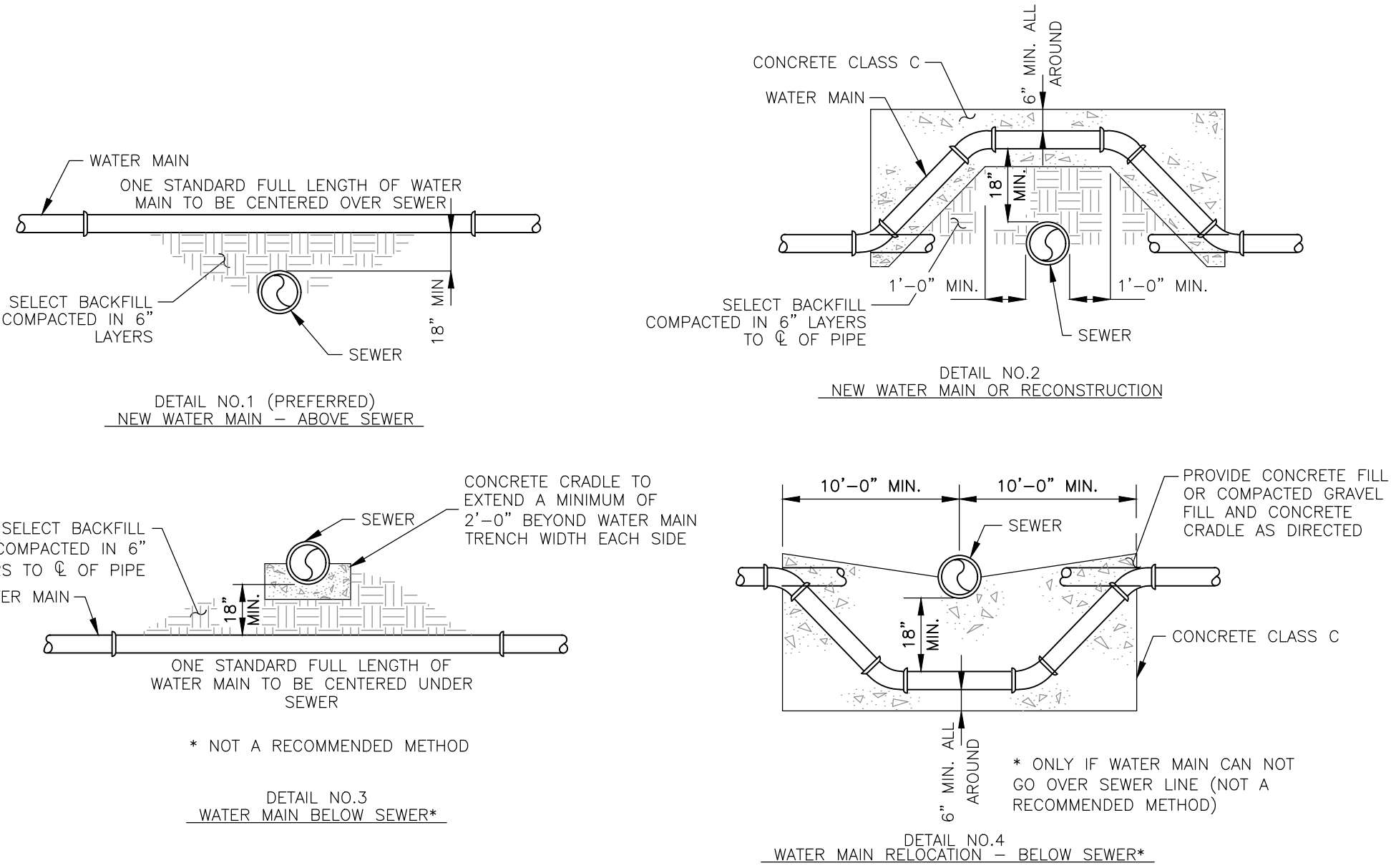
EXISTING FRAME & COVER ADJUSTMENT DETAIL

NOT TO SCALE



FOOTING DRAIN DETAIL

NOT TO SCALE



- NOTES:
1. DETAILS NO.1 & NO.2 ALLOWABLE WATER PIPE DEFLECTIONS MAY BE USED TO ACCOMPLISH THE RELOCATIONS IN LIEU OF ELBOWS AND FITTINGS.
 2. DETAILS NO.2, NO.3, & NO.4 THE SEWER PIPE SHALL BE CONSTRUCTED OR RECONSTRUCTED TO MEET WATER MAIN STANDARDS, OF DUCTILE IRON PIPE WITH PUSH ON OR MECHANICAL JOINTS A MINIMUM OF 20 FEET EITHER SIDE OF THE WATER LINE. THE ENTIRE SECTION CONSTRUCTED TO MEET WATERLINE STANDARDS MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS.
 3. DETAILS NO.3 & NO.4 UNDER NO CIRCUMSTANCES SHALL THE SEWER BE LESS THAN 18" ABOVE THE WATER MAIN. THE FIRST SEWER PIPE JOINTS ON EACH SIDE OF THE WATER MAIN MUST BE CONCRETE ENCASED.
 4. ALL DETAILS WATER MAIN TO BE RECONSTRUCTED SHALL BE PUSH ON OR MECHANICAL JOINT CAST IRON OR DUCTILE IRON PIPE FOR A DISTANCE OF 10 FEET EACH SIDE OF THE CENTERLINE OF THE SEWER.

WATER/SEWER CROSSING DETAILS

NOT TO SCALE

Civil & Structural Engineers
DeWolfe
ENGINEERING ASSOCIATES
PROFESSIONAL CORPORATION
1.802.223.4727 1.802.223.4740 www.drtsteel.com
317 River St., P.O. Box 1576, Montpelier, VT 05601-1576

no. date revision

1

project name: **RHINO FOODS BUILDING ADDITION**
project location: **79 INDUSTRIAL PARKWAY BURLINGTON, VERMONT**
client: **CMC DESIGN-BUILD, INC.**

project number: 16107
drawn by: AAF
checked by: JJS
scale: AS SHOWN
date: 3 MAY 2017
released for: PERMITTING
sheet description:

CONSTRUCTION DETAILS

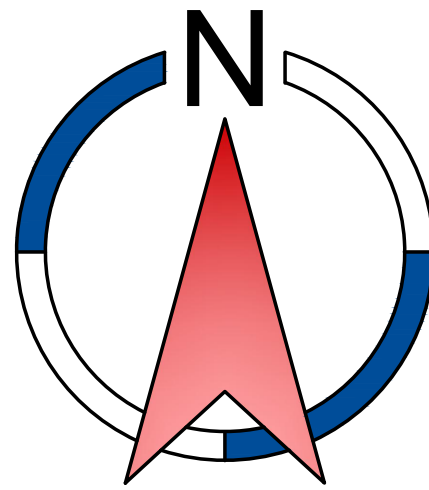
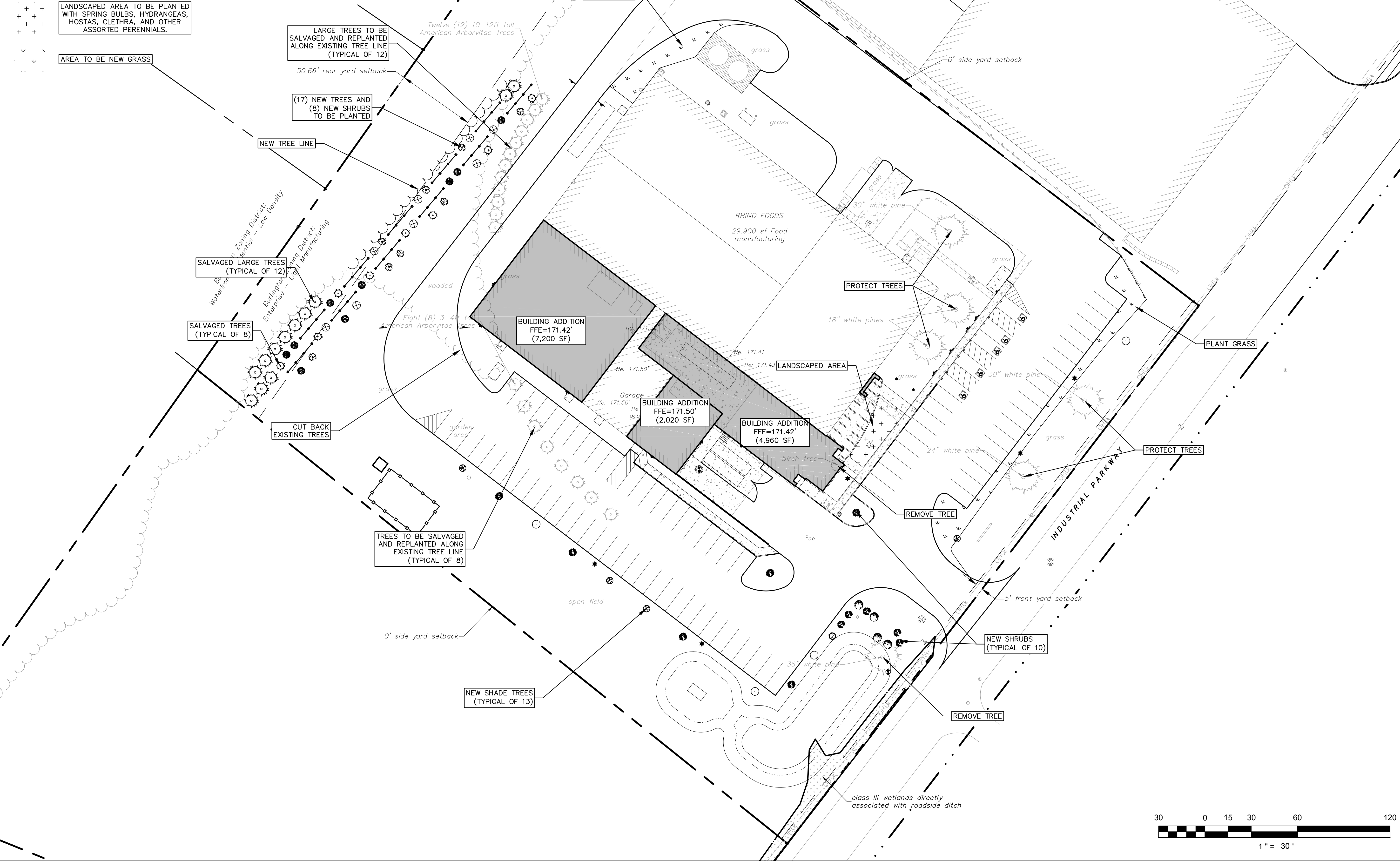
C5.03

SHEET 11 OF 12

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PLANT SCHEDULE

SYM	NO.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS
TREES					
QURU	8	Quercus rubra	NORTHERN RED OAK	4-5' HT.	5 GALLON
ABBA	9	Abies balsamea	BALSAM FIR	2.5-3" CAL.	B+B
QUBI	4	Quercus bicolor	SWAMP WHITE OAK	2.5-3" CAL.	B+B
GLTR	5	Gleditsia triacanthos var. inermis	SHADEMASTER HONEY LOCUST	2.5-3" CAL.	B+B
FRPE	4	Fraxinus pennsylvanica	PATMORE GREEN ASH	2.5-3" CAL.	B+B
SHRUBS					
SYVU	6	Syringa vulgaris	COMMON LILAC	4-5' HT.	5 GALLON
AMLA	4	Amelanchier laevis	SMOOTH SERVICEBERRY	4-5' HT.	B+B
RHCAE	8	Rhododendron maximum	ROSEBAY RHODODENDRON	3-4' HT.	5 GALLON



Civil & Structural Engineers
DeWolfe
ENGINEERING ASSOCIATES
PROFESSIONAL CORPORATION
1.802.223.4727 1.802.223.4740 www.dewolfe.com
317 River St., P.O. Box 1576, Montpelier, VT 05601-1576

no. date revision

1

project name:
**RHINO FOODS
BUILDING ADDITION**

project location:
**79 INDUSTRIAL PARKWAY
BURLINGTON, VERMONT**

client:
CMC DESIGN-BUILD, INC.

project number: 16107
drawn by: AAF
checked by: JJS
scale: 1"=30'
date: 3 MAY 2017
released for: PERMITTING

sheet description:
**LANDSCAPING
PLAN**

L1

SHEET 12 OF 12

Architectural drawing of the South Elevation of the building. The drawing shows a long, low structure with a flat roof on the left and a gabled roof on the right. The left section is orange, and the right section is green. The drawing includes dimensions and labels for the roof and floor levels.

Labels and dimensions:

- TOP OF WALL REF. EL. 10'-11 1/2"
- TOP OF HIGH ROOF REF. EL. 10'-5 1/4"
- TOP OF LOW ROOF REF. EL. 10'-3"
- FIRST FLOOR FFE REF. EL. 100'-0"
- FIRST FLOOR FFE REF. EL. 100'-0"

SOUTH ELEVATION
SCALE: 3/32"=1'-0"

Roof			
	Required	Provided	Remarks
	R35 ci	R36 ci	Insulation entirely above the deck
Walls Above Grade			
	Required	Provided	
type 1	R-19.5 ci	R30.86 ci @ 75 deg F	4" MettSpan Vertical insulated metal panel (Metal Building)
type 2	R-19.5 ci	R32.57 ci @ 75 deg F	4" MettSpan Horizontal insulated metal panel (Metal Building)
Walls Below Grade			
	Required	Provided	
	R-10 ci	R-10 ci	2" Owens Corning Fomular 150
Slab on Grade Floors			
	R-10 for 48" below	R-10 for 54" below	
Opaque Doors			
	Required	Provided	
	Swinging		
Type 1	U-0.77 / 1.29	U-0.81	Aluminum and Glass Door
Type 2	U-0.37 / R-2.7	U-0.11 / R-9.6	Jamouf Fiberglass Door
Type 3	U-0.37 / R-2.7	U-0.90 / R-11.01	Steel Access Door
Sectional OHD			
	Required	Provided	
	R-10	R-17.5	Wayne Dalton Thermospan 200-20
Fenstration			
	U-Factor		
	Required	Provided	
	>.35	U-0.24	1" insulated glazing w/Argon gas in thermally broken alum frames
	nr	U-0.44	1/4" Glazing (Aluminum entry door)
	SHGC		
	Required	Provided	
S,E,W	0.4	0.18	SunGuard Grey-Clear
N	0.53	0.18	

[illegible]

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MARK A. CARNICELLI, ARCHITECT

Burlington, Vermont 05401

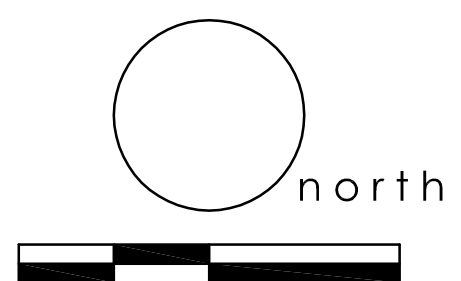


Two Batterymarch Park
One Pine Hill Drive, Ste. 400
Quincy, MA 02169
t 617.328.7899
f 617.328.1779

www.cmcdesign-build.com

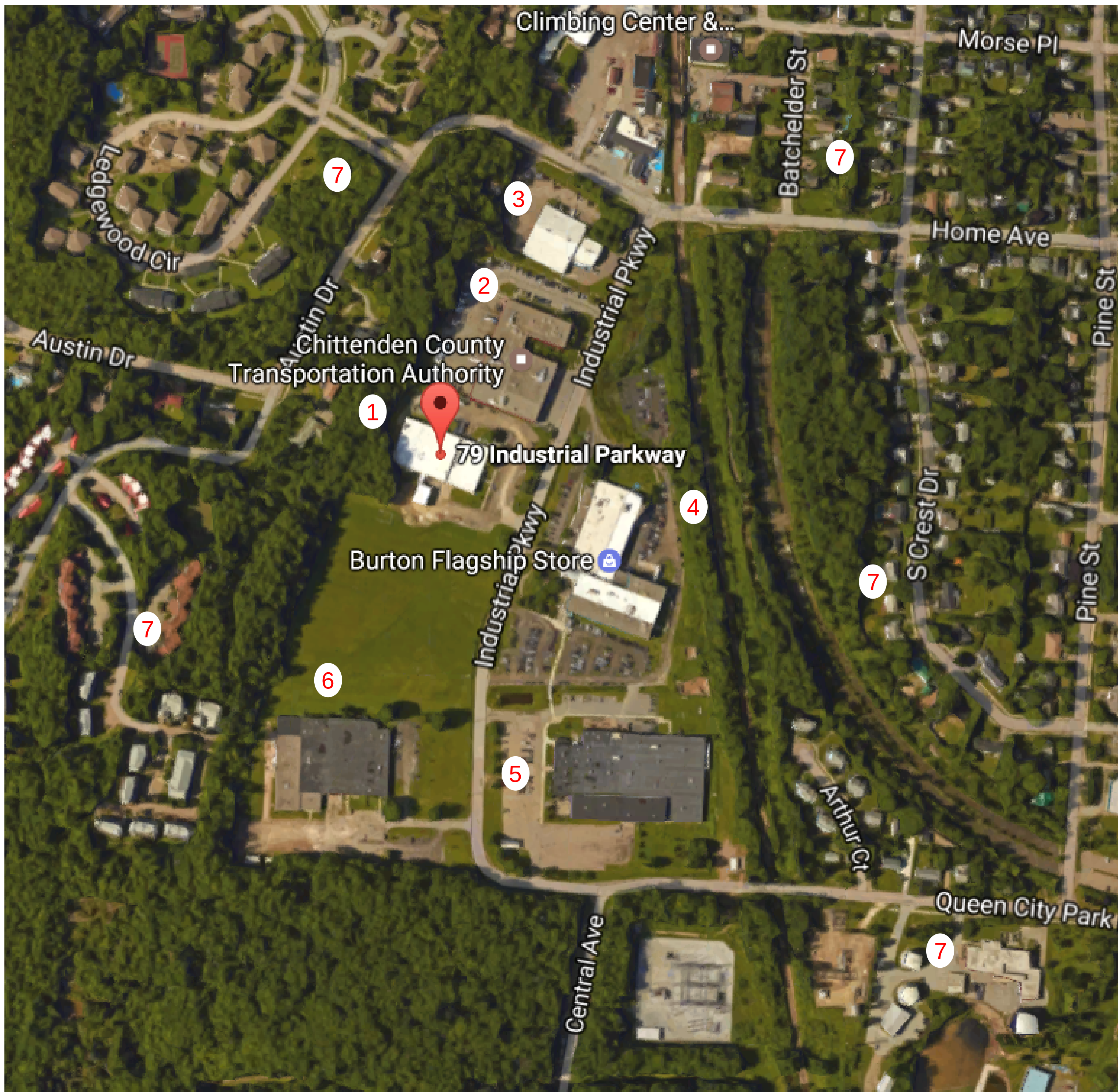
ACT 250

ENERGY CODE



SCALE:	
DATE:	28 APRIL 2017
DRAWN BY:	

01
20522



- 1. RHINO FOODS - INDUSTRIAL
- 2. CHETTENDON COUNTY TRANSPORTATION AUTHORITY - ADMINISTRATIVE
- 3. BARRET TRUCKING - MECHANICAL
- 4. BURTON STORE - RETAIL
- 5. BURTON FACTORY - INDUSTRIAL
- 6. EDLUND COMPANY - INDUSTRIAL
- 7. HOUSING - RESIDENTIAL

1



2



3



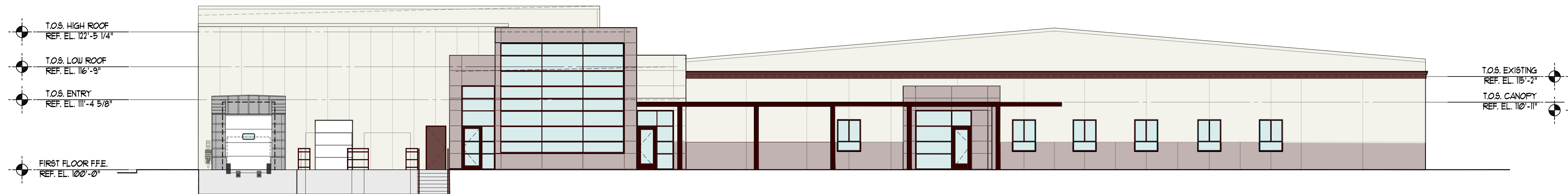
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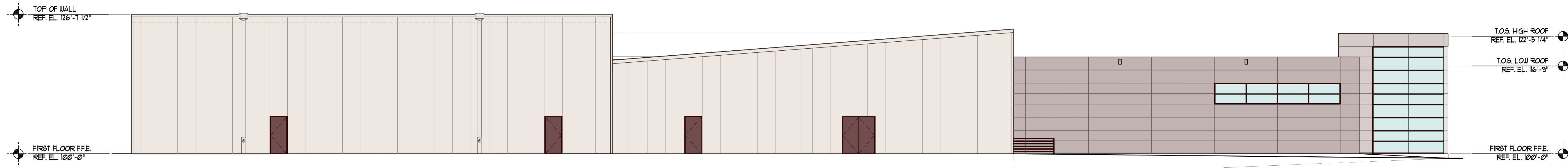
5



6



EAST ELEVATION
SCALE: 3/32\"/>



SOUTH ELEVATION
SCALE: 3/32\"/>

Rev.	Date	Revision Description

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MARK A. CARNICELLI ARCHITECT

Rhino Foods
Proposed Food Processing Facility Expansion
79 Industrial Parkway
Burlington, Vermont 05401

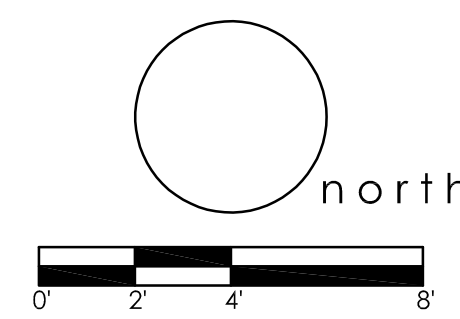


Two Batterymarch Park
One Pine Hill Drive, Ste. 400
Quincy, MA 02169
1-617-328-7899
1-617-328-1779

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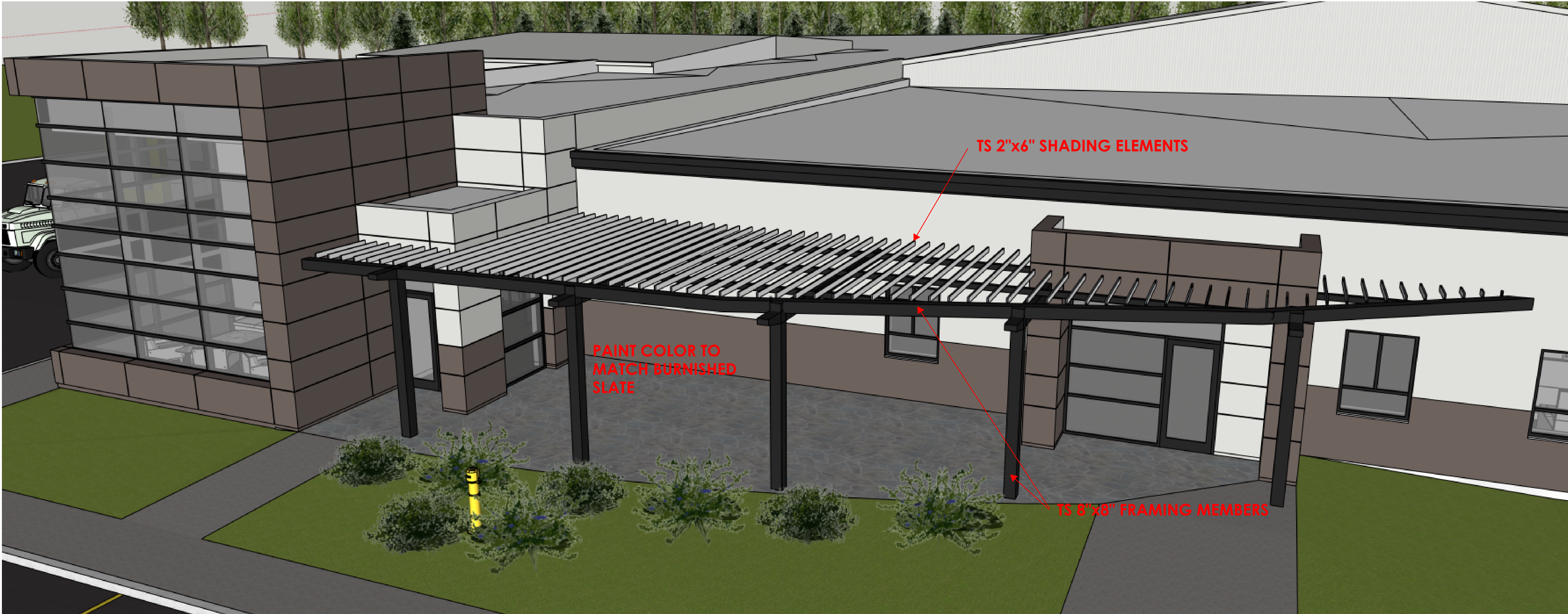
ACT 250

DENSITY STUDY



SCALE:
DATE: 28 APRIL 2017
DRAWN BY:

02
20522



ENTRY PERGOLA FROM ABOVE



ENTRY PERGOLA FROM BELOW

Rev.	Date	Revision Description

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MARK A. CARNICELLI, ARCHITECT

Rhino Foods
Proposed Food Processing Facility Expansion

79 Industrial Parkway
Burlington, Vermont 05401

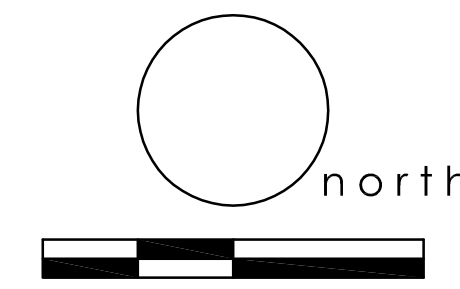


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Quincy, MA 02169
1.617.328.7899
1.617.328.1779

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ACT 250

PERGOLA
IMAGERY



SCALE:
DATE: 28 APRIL 2017
DRAWN BY:

03a
20522

MARK A. CARNICELLI, ARCHITECT

Burlington, Vermont 05401



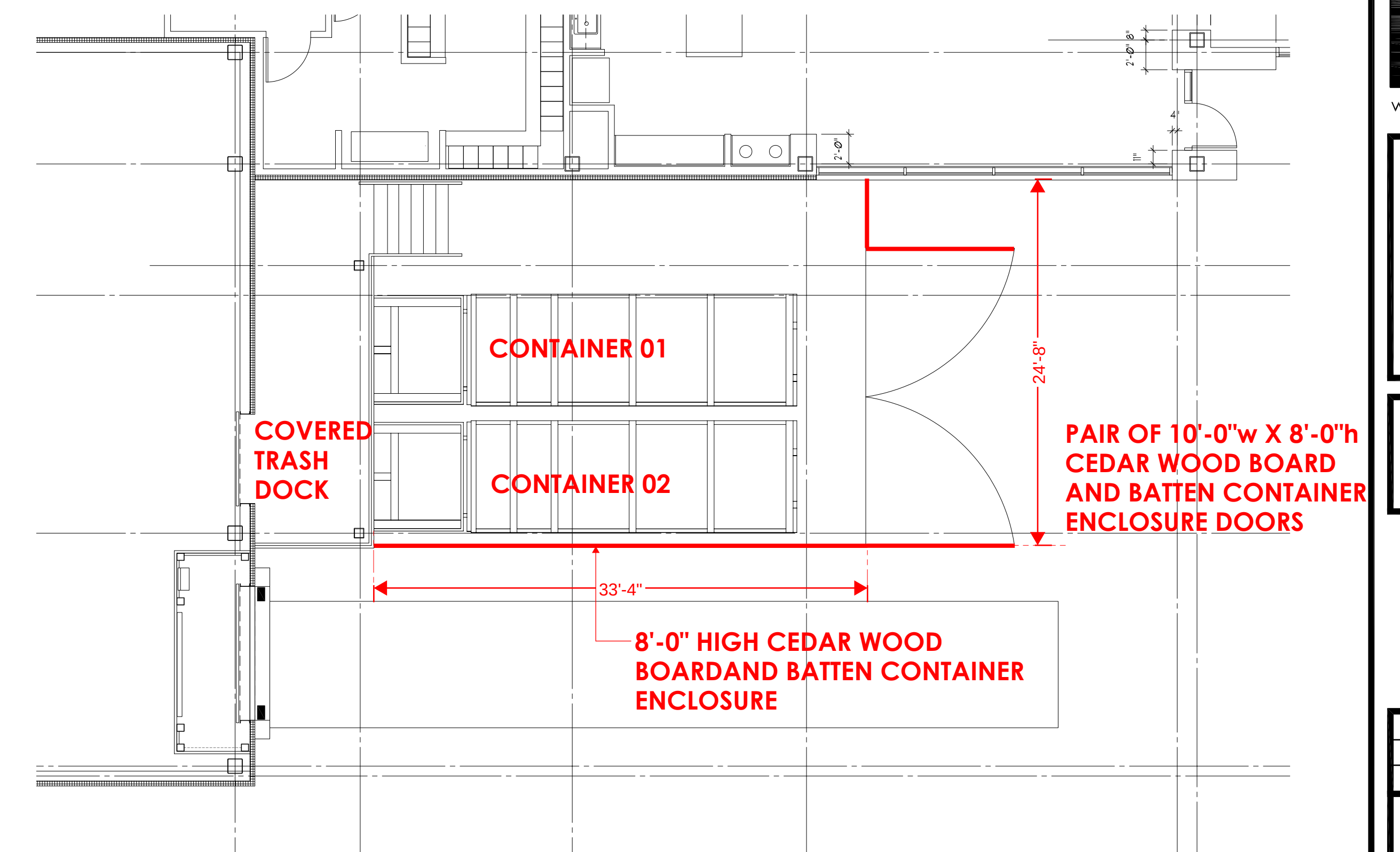
ACT 250

north

0 100 200 300 400 500 600 700 800 900 1000

03b

20522



MARK A. CARNICELLI ARCHITECT

Burlington, Vermont 05401



ACT 250



04

20522



MARK A. CARNICELLI, ARCHITECT

Burlington, Vermont 05401



ACT 250



A north arrow pointing upwards, labeled "north". Below it is a scale bar with alternating black and white segments, representing a distance of 100 meters.

05

PROGRESS PRINT

Mechanically, all HVAC equipment will exceed EER and IEER minimum ratings as described by CBES Stretch Guidelines. The Office Area will be served by not less than three independent systems to provide occupant use zoning and local task-based time-of-day occupancy schedules. All units will provide two stages of natural gas heating and not less than two stages of mechanical cooling. Dual enthalpy economizer controls will be employed. Further, office HVAC equipment will be additionally controlled by CO₂ sensors to override minimum outdoor air values, providing Demand Control Ventilation strategy. The Locker Rooms, Group Toilet/Shower Facilities and Gowning Areas will be ventilated via a Heat Recovery Ventilator that will be controlled through the HVAC unit serving that zone. Water closets and urinals will be equipped with infrared sensor-operated flush-valves, water closets will use two-stage flush volumes.

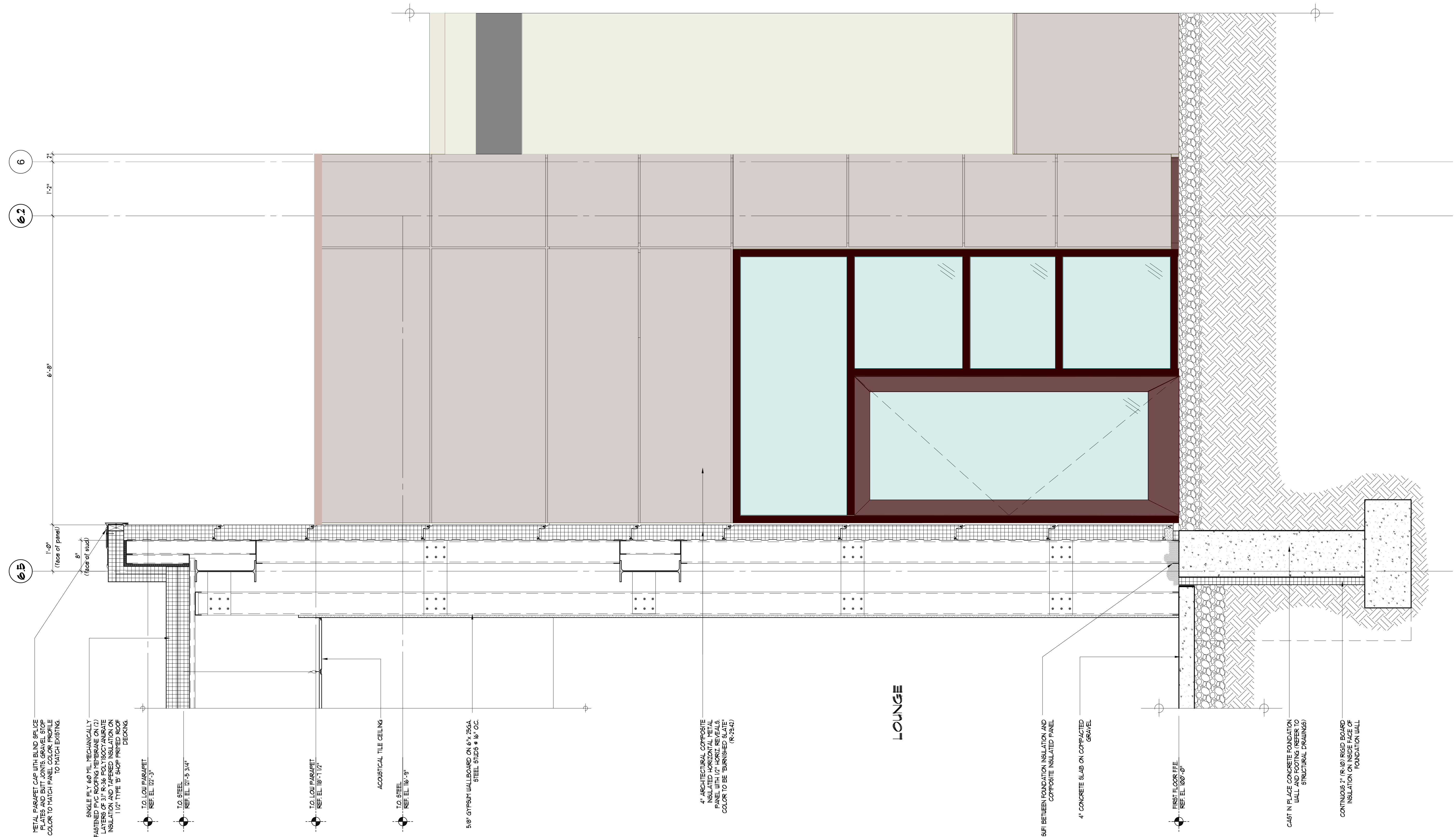
MARK A. CARNICELLI ARCHITECT

**79 Industrial Parkway
Burlington, Vermont 05401**

**ACT 250**

06a

20522



MARK A. CARNICELLI ARCHITECT

**79 Industrial Parkway
Burlington, Vermont 05401**



ACT 250

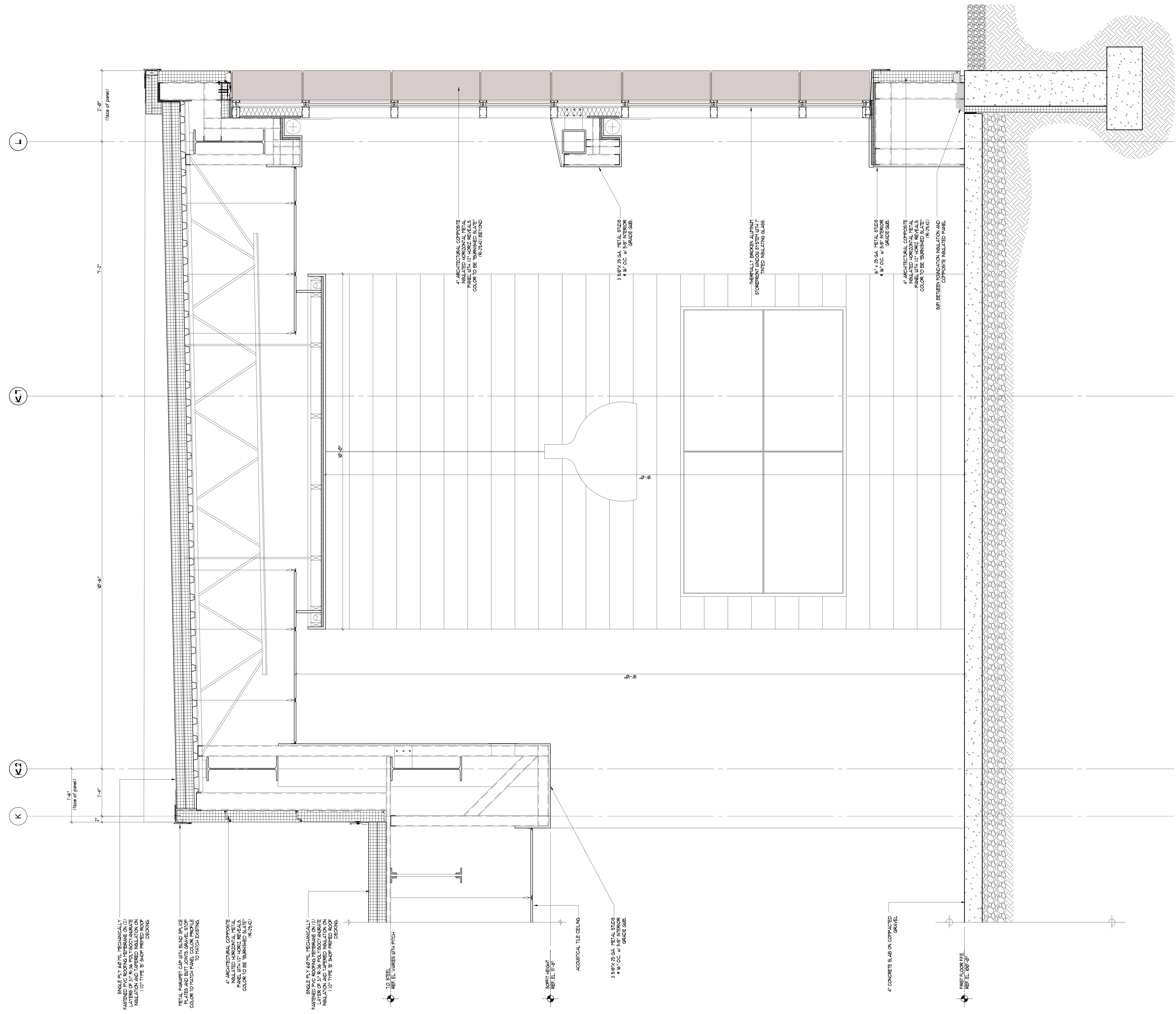
WALL SECTIONS



DRAWN BY:

060

00500



MARK A. CARNICELLI ARCHITECT

**79 Industrial Parkway
Burlington, Vermont 05401**



ACT 250

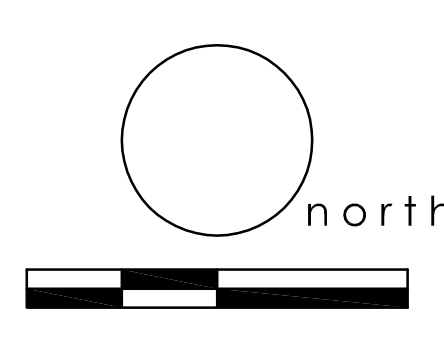
06c



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Rhino Foods
Proposed Food Processing Facility Expansion

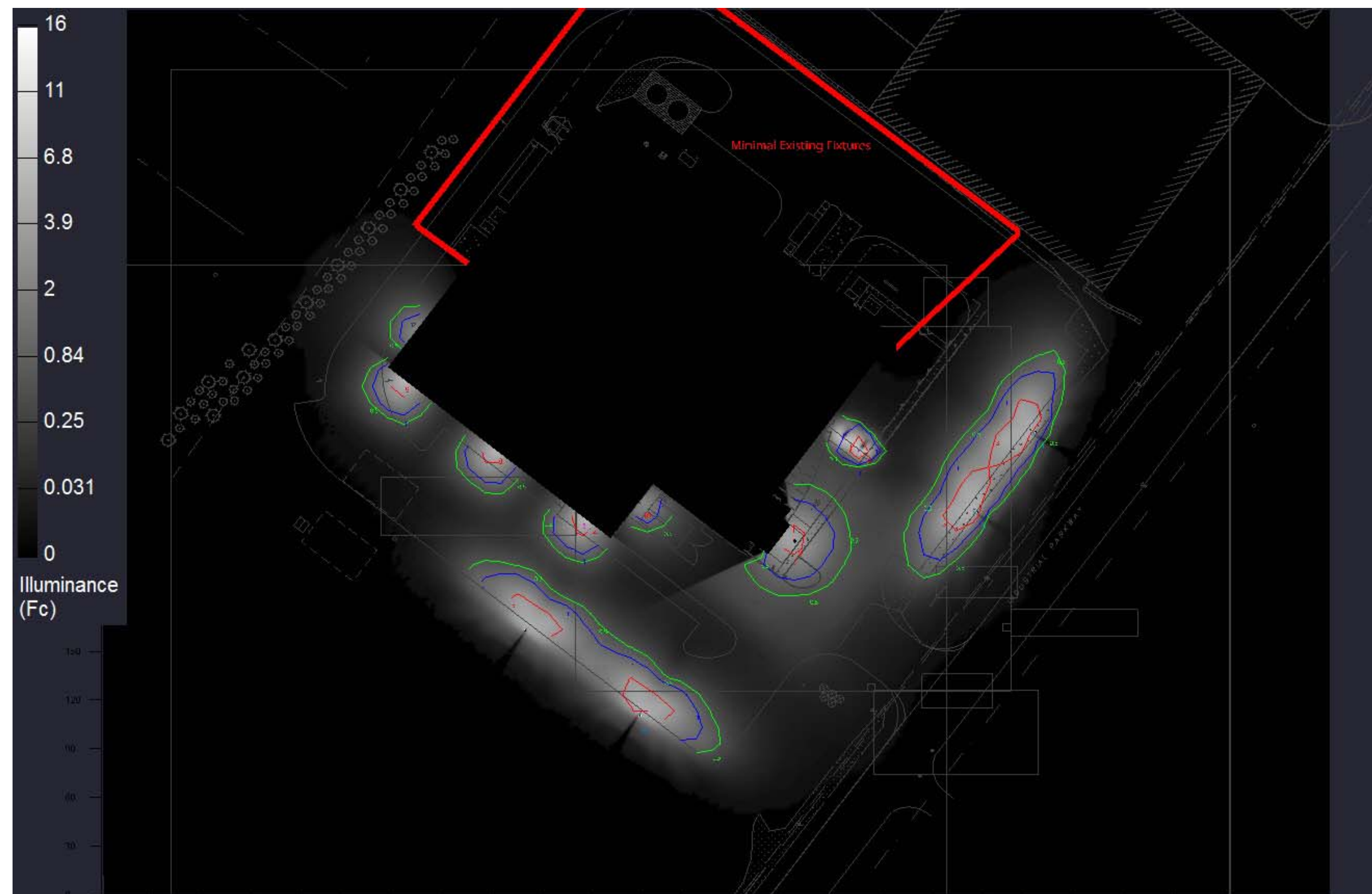
79 Industrial Parkway
Burlington, Vermont 05401



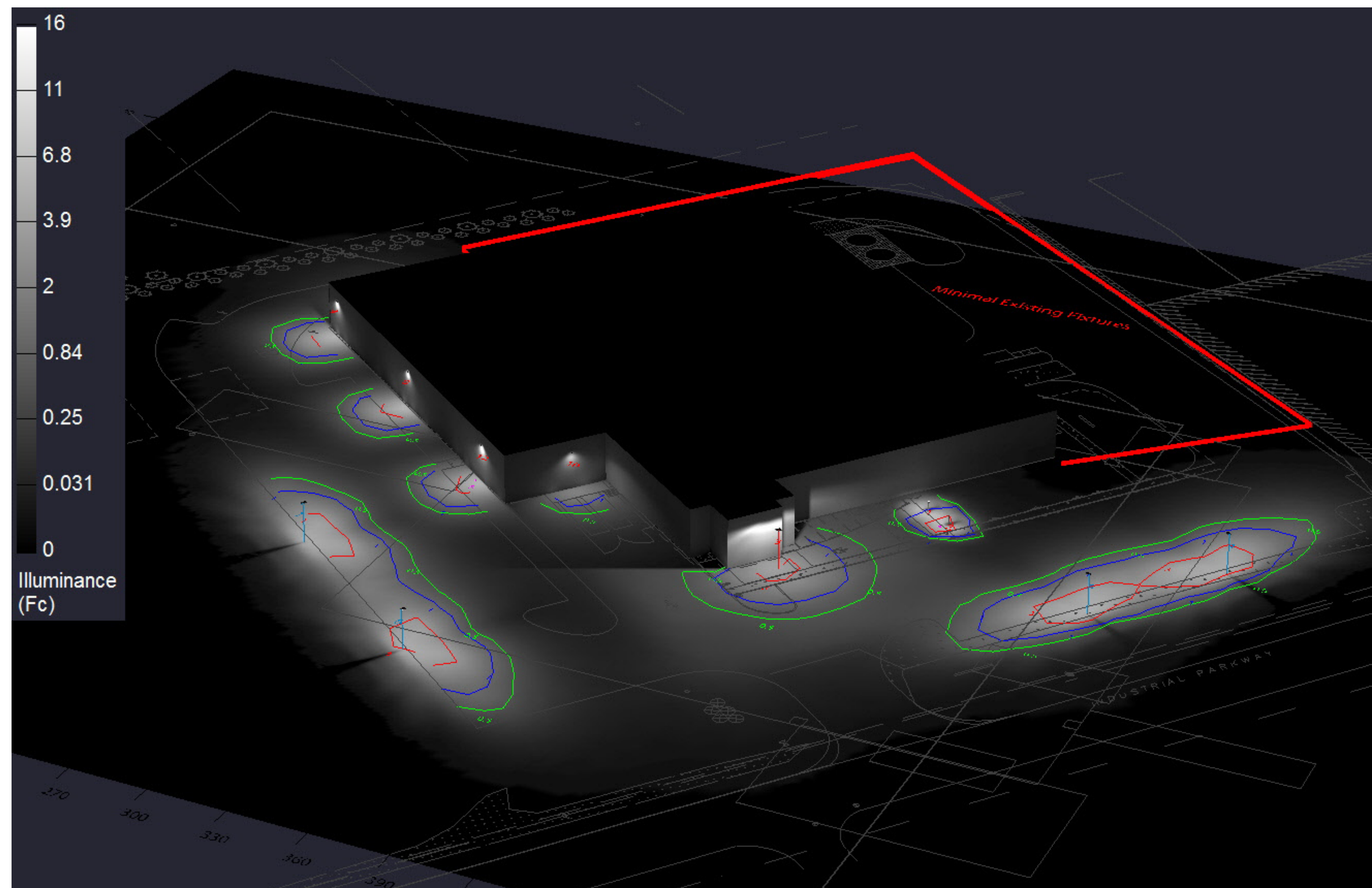
11/11/2019



Scale: 1 inch= 30 Ft.



Plan View



Isometric View

RAB®
LIGHTING
170 Ludlow Avenue, Northvale, NJ 07647
888 722-1000 • RABWEB.COM

Prepared For:
Holbrook Associated
P.O. Box 401
Rockland, MA 02370

Job Name:
Rhino Foods Parking Lot
Burlington, VT
Lighting Layout
Version F

Scale: as noted

Date:4/28/2017

CASE # 00091324

Filename: Rhino Foo
Drawn By: S Elliott

Filename: Z:\Job Files\Holbrook Associated\Green Mountain Electric\Colchester 110256\Rhino Foods - Parking Lot\Working Files\AG\Rhino Foods Parking Lot Lighting Layout 00091324F.AGI

The Lighting Analysis, e2Layout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by RAB Lighting Inc. ("RAB") represents an anticipated prediction of lighting system performance based upon design parameters and information supplied by others. These design parameters and information provided by others have not been field verified by RAB and therefore actual measured results may vary from the actual field conditions. RAB recommends that design parameters and other information be field verified to reduce variation.

RAB neither warrants, either implied or stated with regard to actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design. RAB neither warrants, either implied or stated, nor makes any representation or warranty, either implied or stated, that the Lighting Design is complete or that any applicable regulatory code requirements with the exception of those specifically stated on drawings created and submitted by RAB. The Lighting Design is issued, in whole or in part, as advisory documents for informational purposes and is not intended for construction nor as being part of a project's construction documents package.

Calculation Summary											
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Description	PtSpclr	PtSpcTb	Meter Type
CalcPts Ground	Illuminance	Fc	0.36	5.2	0.0	N.A.	N.A.	Readings Taken at 0'-0"AFG	10	10	Horizontal

Luminaire Schedule													
Symbol	Qty	Tag	Label	Arrangement	Lum. Lumens	Arr. Lum. Lumens	LLF	Description	Lum. Watts	Arr. Watts	Total Watts	Filename	
	4	C	ALED2T78N	SINGLE	6301	6301	1.000	Area Light LED 78w	78.6	78.6	314.4	ALED2T78N - Neutral - ITL79598.I	
	2	F	BLEDR18N	SINGLE	922	922	1.000	Bollard	22.1	22.1	44.2	BLEDR18N - Neutral - ITL78061.IE	
	1	G	ALED5S78N D10	SINGLE	8183	8183	1.000	Pole Mount (Type 5)	71.9	71.9	71.9	ALED5S78N D10 - Neutral - RAB014	
	3	H	SLIM18N	SINGLE	2565	2565	1.000	Wall Mount	21.1	21.1	63.3	SLIM18N - Neutral - RAB02336MOD4	
	2	I	WPLED13N + STL360	SINGLE	1063	1063	1.000	Wall Mount	14.8	14.8	29.6	WPLED13N - Neutral - ITL82639.IE	

Expanded Luminaire Location Summary						
LumNo	Tag	X	Y	MTG HT	Orient	Tilt
1	F	457.804	283.459	3.5	234.826	0
2	F	468.673	276.427	3.5	232.703	0
3	G	425.924	219.064	16	320.712	0
4	C	571.316	284.96	16	152.173	0
5	C	536.278	236.482	16	148.498	0
6	C	332.377	113.409	16	56.417	0
7	C	262.984	165.099	16	54.01	0
8	H	244.32	274.959	15	232.691	0
9	H	188.03	318.101	15	232.388	0
10	I	331.96	241.96	15	321.994	0
11	I	196.318	344.993	15	140.622	0
12	H	298.855	232.707	15	232.691	0
Total Quantity: 12						

NOTES:

* The light loss factor (LLF) is a product of many variables, only lamp lumen depreciation (LLD) has been applied to the calculated results unless otherwise noted. The LLD is the result (quotient) of mean lumens / initial lumens per lamp manufacturers' specifications.

* Illumination values shown (in footcandles) are the predicted results for planes of calculation either horizontal, vertical or inclined as designated in the calculation summary. Meter orientation is normal to the plane of calculation.

* The calculated results of this lighting simulation represent an anticipated prediction of system performance. Actual measured results may vary from the anticipated performance and are subject to means and methods which are beyond the control of RAB Lighting Inc.

* Mounting height determination is job site specific, our lighting simulations assume a mounting height (insertion point of the luminaire symbol) to be taken at the top of the symbol for ceiling mounted luminaires and at the bottom of the symbol for all other luminaire mounting configurations.

* RAB Lighting Inc. luminaire and product designs are protected under U.S. and International intellectual property laws. Patents issued or pending apply.

The Lighting Analysis, Layout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by RAB Lighting Inc. ("RAB") represents an anticipated prediction of system performance based upon design parameters and information supplied by others. These design parameters and information have not been field verified by RAB and therefore actual measured results may vary from the actual field conditions. RAB does not warrant, either implied or stated, that the Lighting Design will meet the needs of the project. RAB neither warrants, either implied or stated, that the Lighting Design complies with applicable regulatory code requirements with the exception of those specifically stated on drawings created and provided by RAB. The Lighting Design is provided for informational purposes only and is not intended for construction nor as being part of a project's construction documentation package.

Scale: as noted	CASE # 00091324	
	Date: 4/28/2017	Filename: Rhino Foods Parking Lot Lighting Layout 00091324.F
Job Name: Rhino Foods Parking Lot Burlington, VT Lighting Layout Version F		Drawn By: S Elliott
Prepared For: Hobbrook Associated P.O. Box 401 Rockland, MA 02370		Filename: Z:\Job Files\Hobbrook Associated\Green Mountain Electric\Cochester 110256\Rhino Foods - Parking Lot\Working Files\AGI\Rhino Foods Parking Lot Lighting Layout 00091324.F.AGI



Specification grade area lights available with IES Type II distribution. For use in parking lots, roadways, pathways and general area lighting. Patent pending thermal management system. 5 Year Warranty.

Color: Bronze

Weight: 31.0 lbs

Project:
Rhino Foods Parking

Type:
C

Prepared By:
S Elliott

Date:
4/28/17

Driver Info

Type: Constant Current
120V: 0.66A
208V: 0.41A
240V: 0.35A
277V: 0.30A
Input Watts: 77W
Efficiency: N/A

LED Info

Watts: 78W
Color Temp: 4000K
Color Accuracy: 72 CRI
L70 Lifespan: 100000
Lumens: 9,220
Efficacy: 120 LPW

Technical Specifications

Listings

UL Listing:

Suitable for wet locations as a downlight.

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities.

DLC Product Code: P0000179R

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

Optical

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

BUG Rating:

B1 U0 G2

Replacement:

Replaces 250W Metal Halide.

Construction

IES Classification:

The Type II distribution is ideal for wide walkways, on ramps and entrance roadways, bike paths and other long and narrow lighting applications. This type is meant for lighting larger areas and usually is located near the roadside. This type of lighting is commonly found on smaller side streets or jogging paths.

Effective Projected Area:

EPA = 0.75

Ambient Temperature:

Suitable for use in 104° F (40° C) ambient temperatures.

Cold Weather Starting:

Minimum starting temperature is -40° F (-40° C)

Thermal Management:

Superior heat sinking with external Air-Flow fins.

Housing:

Die cast aluminum housing, lens frame and mounting arm.

IP Rating:

Ingress Protection rating of IP66 for dust and water

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High temperature silicone gaskets.

Finish:

Formulated for high-durability and long lasting color.

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

LED Characteristics

LEDs:

Six (6) multi-chip, 13W, high-output, long-life LEDs.

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2015.

Electrical

Driver:

Constant Current, Class 2, 2000mA, 100-277V, 50-60Hz, 1.1A, Power Factor 99%

THD:

4.6% at 120V, 12.9% at 277V

Surge Protection:

4kV

Technical Specifications (continued)

Electrical

Surge Protector:

ALED78 is available with a 6kV surge protector (SP6). SP6 available .

Other

California Title 24:

See ALED2T78/D10, ALED2T78/BL, ALED2T78/PCS, ALED2T78/PCS2, or ALED2T78/PCT for a 2013 California Title 24 compliant product. Any additional component requirements will be listed in the Title 24 section under technical specifications on the product page.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

Patents:

The ALED design is protected by patents in the U.S. Pat. 668,370, Canada Pat. 144956, China ZL201230100154.X, and Mexico Pat. 38423. Pending patents in Taiwan.

Country of Origin:

Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

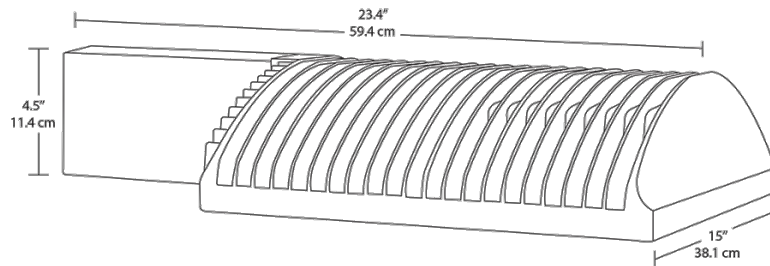
Recovery Act (ARRA) Compliant:

This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

GSA Schedule:

Suitable in accordance with FAR Subpart 25.4.

Dimensions

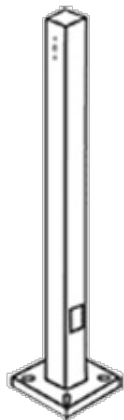


Features

- 66% energy cost savings vs. HID
- 100,000-hour LED lifespan
- Type II distribution
- 5-year warranty

Ordering Matrix

Family	Distribution	Watts	Mount	Color Temp	Finish	Voltage	Photocell	Dimming	Bi-Level
ALED									
	2T = Type II	360 =	Blank =	Blank = 5000K	Blank =	Blank = 120-277V	Blank = No Photocell	Blank = No	Blank = No Bi-
	3T = Type III	360W	Arm	(Cool)	Bronze	/480 = 480V (Only 360W &	/PC = 120V Button	Dimming	Level
	4T = Type IV	260 =	SF =	Y = 3000K	W = White	260W)	/PC2 = 277V Button	/D10 = Dimmable	/BL = Bi-Level
		260W	Slipfitter	(Warm)	RG = Gray		/PCS = 120V Swivel		
		150 =		N = 4000K			/PCS2 = 277V Swivel		
		150W		(Neutral)			/PCT = 120-277V		
		125 =					Twistlock		
		125W					/PCS4 = 480V Swivel		
		105 =					/PCT4 = 480V		
		105W					Twistlock		
		78 = 78W							



Square steel poles drilled for 2 Area Lights at 180°. Designed for ground mounting. Poles are stocked nationwide for quick shipment. Protective packaging ensures poles arrive at the job site good as new.

Color: Bronze

Weight: 106.0 lbs

Project:
Rhino Foods Parking

Type:
Pole

Prepared By:
S Elliott

Date:
4/28/17

Lamp Info

Type: N/A
Watts: 0W
Shape/Size: N/A
Base: N/A
ANSI: N/A
Hours: N/A
Lamp Lumens: N/A
Efficacy: N/A

Ballast Info

Type: N/A
120V: N/A
208V: N/A
240V: N/A
277V: N/A
Input Watts: 0W

Technical Specifications

Listings

CSA Listed:

Suitable for wet locations.

Construction

Shaft:

46,000 p.s.i. minimum yield.

Hand Holes:

Reinforced with grounding lug and removable cover.

Base Plates:

Slotted base plates 36,000 p.s.i.

Shipping Protection:

All poles are shipped in individual corrugated cartons to prevent finish damage.

Color:

Bronze powder coating.

Height:

15 FT.

Weight:

106 lbs.

Gauge:

11

Wall Thickness:

1/8".

Shaft Size:

4".

Hand Hole Dimensions:

3" x 5".

Bolt Circle:

8 1/2".

Base Dimension:

8".

Anchor Bolt:

Galvanized anchor bolts and galvanized hardware and anchor bolt template. All bolts have a 3" hook.

Anchor Bolt Templates:

WARNING Template must be printed on 11" x 17" sheet for actual size. CHECK SCALE BEFORE USING. Templates shipped with anchor bolts and available .

Pre-Shipped Anchor Bolts:

Bolts can be pre-shipped upon request for additional freight charge.

MaxEPA's/Max Weights:

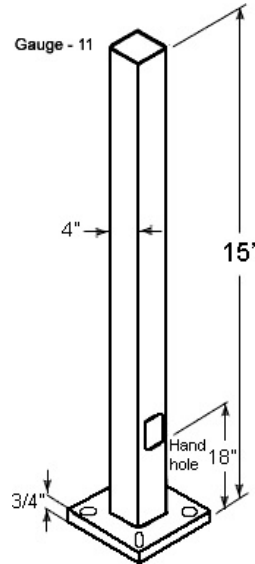
70MPH 14.0 ft_/400 lb
80MPH 10.2 ft_/295 lb
90MPH 7.6 ft_/220 lb
100MPH 5.6 ft_/165 lb
110MPH 4.2 ft_/125 lb
120MPH 3.0 ft_/95 lb
130MPH 2.1 ft_/70 lb
140MPH 1.4 ft_/50 lb
150MPH 0.8 ft_/35 lb.

Other

Terms of Sale:

Pole Terms of Sale is available .

Dimensions



Features

- Designed for ground mounting
- Heavy duty TGIC polyester coating
- Reinforced hand holes with grounding lug and removable cover for easy wiring access
- Anchor Bolt Kit includes pole cap and base cover (sold separately)
- Custom manufactured for each application



LED bollard with architectural quality and strength at an affordable price point. Cylindrical post with round head. Available in 12, 18 and 24 Watt versions that provide 90, 180, 270 and 360 degree lighting patterns.

Color: Bronze

Weight: 18.6 lbs

Project:
Rhino Foods Parking

Type:
F

Prepared By:
S Elliott

Date:
4/28/17

Driver Info

Type: Constant Current
120V: 0.24A
208V: 0.18A
240V: 0.15A
277V: 0.12A
Input Watts: 22W
Efficiency: 81%

LED Info

Watts: 18W
Color Temp: 4000K
Color Accuracy: 87 CRI
L70 Lifespan: 100000
Lumens: 922
Efficacy: 42 LPW

Technical Specifications

Listings

UL Listing:

Suitable for wet locations.

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED fixtures have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

LED Characteristics

LEDs:

6W multi-chip, long-life LEDs

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2015

Electrical

Driver:

Constant Current, Class 2, 100-277V, 50/60 Hz, 6kV Surge Protection, 700mA, 100-277VAC 0.04 A.

THD:

16.6% at 120V

Construction

Ambient Temperature:

Suitable for use in 104° F (40° C) ambient temperatures.

Cold Weather Starting:

Minimum starting temperature is -40° F (-40° C)

Thermal Management:

Cast aluminum Thermal Management system for optimal heat sinking. The BLEDR is designed for cool operation, maximum efficiency and long life by minimizing LED junction temperature.

Housing:

Die-cast aluminum with extruded aluminum bollard shaft

Lens:

Clear, vandal-resistant polycarbonate

Mounting:

Four (4) anchor bolts provided for concrete pad mounting. Internal base support has leveling screws.

Reflector:

Specular polycarbonate

Gaskets:

High-temperature silicone gaskets seal out moisture gaskets seal out moisture

Gaskets:

High-temperature silicone gaskets seal out moisture

Anchor Bolt:

Anchor Bolt Dimension is available .

Finish:

Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contain no VOC or toxic heavy metals.

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

Other

California Title 24:

BLEDR18 complies with 2013 California Title 24 building and electrical codes as a commercial outdoor non-pole-mounted fixture < 30 Watts when used with a photosensor control. Select catalog number PCS900(120V) or PCS900/277 to order a photosensor.

Patents:

The design of BLEDR is protected by patents pending in US, Canada, China, Taiwan and Mexico.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

Country of Origin:

Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Technical Specifications (continued)

Other

Recovery Act (ARRA) Compliant:

This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

GSA Schedule:

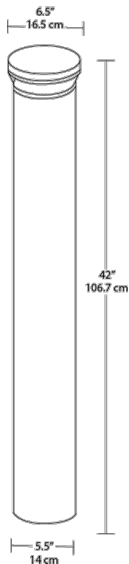
Suitable in accordance with FAR Subpart 25.4.

Optical

BUG Rating:

B1 U1 G1

Dimensions



Features

- Patent-pending base mount design for super sturdy installation
- Durable construction and vandal-resistant polycarbonate lens
- 3 configurations to provide 360°, 270°, 180° or 90° lighting pattern
- Precision-engineered optics deliver maximum downward lighting w/o glare
- Four leveling screws provided for easy installation
- 100,000-hour LED lifespan

Ordering Matrix

Family	Shape	Watts	Color Temp	Finish	Type
BLED					
	R = Round	12 = 12W 18 = 18W 24 = 24W	Blank = 5000K (Cool) Y = 3000K (Warm) N = 4000K (Neutral)	Blank = Bronze W = White	Blank = 90° (12W), 270° (18W) , 360° (24W) lighting patterns 180 = 180° lighting pattern (12W)



High output LED pole top area light with IES type V square distribution. Wide and uniform 360 degree pattern ideal for large outdoor areas such as parking lots, corporate parks, and retail settings.

Color: Bronze

Weight: 35.5 lbs

Project:
Rhino Foods Parking

Type:
G

Prepared By:
S Elliott

Date:
4/28/17

Driver Info

Type: Constant Current
120V: 0.60A
208V: 0.372A
240V: 0.322A
277V: 0.276A
Input Watts: 71W
Efficiency: N/A

LED Info

Watts: 78W
Color Temp: 4000K
Color Accuracy: 73 CRI
L70 Lifespan: 100000
Lumens: 8,183
Efficacy: 114 LPW

Technical Specifications

Listings

UL Listing:

Suitable for wet locations.

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities.

DLC Product Code: P9KFA9GA

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80, and have received the Department of Energy "Lighting Facts" label.

LED Characteristics

LEDs:

Long-life, high-efficiency surface mounting LEDs

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

Color Consistency:

7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warranted to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2015.

Electrical

Driver:

Constant Current, Class 2 with 4kV surge protection, 120-277VAC, 50/60 Hz, 120V: 0.60A, 208V: 0.372A, 240V: 0.322A, 277V: 0.276A

THD:

7.8% at 120V, 14.5% at 277V

Power Factor:

99.5% at 120V, 92.4% at 277V

ALED5S78 with Dimmable Drive:

Driver includes dimming control for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims as low as 10%.

Optical

BUG Rating:

B3 U1 G2

Optics:

Square, Type V distribution

Construction

Cold Weather Starting:

Minimum starting temperature is -40° F (-40° C)

Maximum Ambient Temperature:

Suitable for use in 104° F (40°C) ambient temperatures

Thermal Management:

Superior thermal management with external air-flow fins

For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Effective Projected Area:

EPA = 0.7

Housing:

Precision die-cast aluminum

Lens:

Clear polycarbonate

Reflector:

Vacuum-metalized polycarbonate

Gaskets:

High-temperature silicone

Mounting:

Tenon for 2 3/8" or 3" OD post or pole-top adaptor

Finish:

Formulated for high-durability and long lasting color.

Technical Specifications (continued)

Construction

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

Other

Patents:

The designs of the ALED5S are protected by patents pending in US, Canada, China, Taiwan and Mexico.

Country of Origin:

Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Recovery Act (ARRA) Compliant:

This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

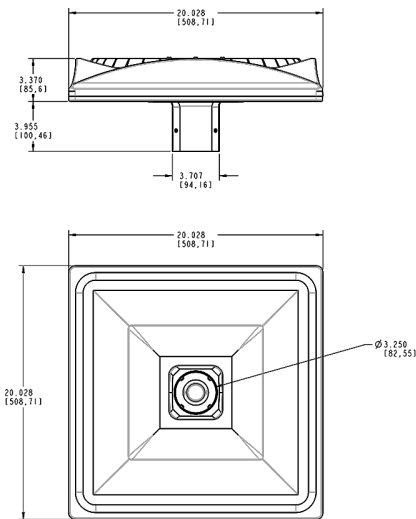
GSA Schedule:

Suitable in accordance with FAR Subpart 25.4.

Replacement:

Replaces 150 Watt Pulse MH / 250 Watt Probe Metal Halide.

Dimensions



Features

Precision optics deliver uniform, optimal light distribution

Perfect for parking lots and pathways

100,000-Hour LED lifespan

Ordering Matrix

Family	Distribution	Shape	Watts	Color Temp	Finish	Voltage	Dimming	Bi-Level	Photocell	Pin	Sensor
ALED	5	S	78	N			/D10				
	5 = Type V	S = Square	78 = 78W 150 = 150W	Blank = 5000K (Cool) N = 4000K (Neutral) Y = 3000K (Warm)	Blank = Bronze W = White	Blank = 120-277V /480 = 480V	Blank = No Dimming /D10 = Dimmable	Blank = No Bi-Level /BL = Bi-Level	Blank = No Photocell /PCT = 120-277V Twistlock Photocell	Blank = No Pin /5PR = 5 Pin Receptacle /7PR = 7 Pin Receptacle	Blank = No Sensor /WS2 = Multi-Level Motion Sensor



12, 18 and 26 Watt SLIM wallpacks are ultra efficient and deliver impressive light distribution with a compact low-profile design that's super easy to install as a downlight or uplight.

Color: Bronze

Weight: 4.5 lbs

Project:
Rhino Foods Parking

Type:
H

Prepared By:
S Elliott

Date:
4/28/17

Driver Info

Type: Constant Current
 120V: 0.18A
 208V: 0.11A
 240V: 0.09A
 277V: 0.08A
 Input Watts: 21W
 Efficiency: 85%

LED Info

Watts: 18W
 Color Temp: 4000K
 Color Accuracy: 70 CRI
 L70 Lifespan: 100000
 Lumens: 2,565
 Efficacy: 122 LPW

Technical Specifications

Listings

UL Listing:

Suitable for wet locations. Suitable for mounting within 1.2m (4ft) of the ground.

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities.

DLC Product Code: P0000171P

ADA Compliant:

SLIM™ is ADA Compliant.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80, and have received the Department of Energy "Lighting Facts" label.

Construction

IP Rating:

Ingress Protection rating of IP66 for dust and water

Cold Weather Starting:

Minimum starting temperature is -40° F (-40° C)

Maximum Ambient Temperature:

Suitable for use in 104° F (40°C) ambient temperatures

Thermal Management:

Superior heat sinking with internal Air-Flow fins.

Housing:

Precision die-cast aluminum housing.

Mounting:

Heavy-duty mounting bracket with hinged housing for easy installation.

Recommended Mounting Height:

Up to 14 ft.

Lens:

Tempered glass lens.

Reflector:

Specular thermoplastic.

Gaskets:

High-temperature silicone

Finish:

Formulated for high-durability and long lasting color.

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

LED Characteristics

LED:

Multi-chip, long-life LED.

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines for the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2015.

Electrical

Driver:

Constant Current, Class 2, 100-277V, 50/60 Hz., 4KV surge protection, 500mA, 100-240VAC 0.3-0.15 Amps, 277VAC 0.15 Amps, Power Factor 99%.

Other

California Title 24:

SLIM18 complies with 2013 California Title 24 building and electrical codes as a residential outdoor fixture. See SLIM18/PC for a model that complies as a commercial outdoor non-pole-mounted fixture__≤__30 Watts.

Patents:

The design of the SLIM™ is protected by patents in U.S. Pat D681,864, and pending patents in Canada, China, Taiwan and Mexico.

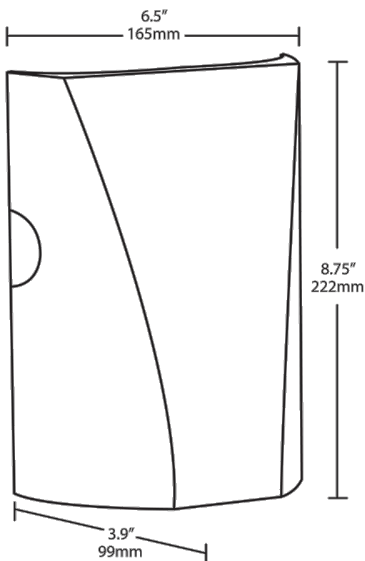
HID Replacement Range:

Replaces 100W Metal Halide.

Technical Specifications (continued)

Optical	BUG Rating:
BUG Rating:	B1 U0 G0
B1 U0 G0	

Dimensions



Features

- Full cutoff, fully shielded LED wallpack
- Can be used as a downlight or uplight
- Contractor friendly features for easy installation
- 100,000-hour LED Life
- 5-Year Warranty

Ordering Matrix

Family	Watts	Color Temp	Finish	Photocell	Dimming
SLIM	26 = 26W 18 = 18W 12 = 12W	Blank = 5000K (Cool) Y = 3000K (Warm) N = 4000K (Neutral)	Blank = Bronze W = White	Blank = No Photocell /PC = 120V Button /PC2 = 277V Button /PCT = 120-277V Twistlock	Blank = No Dimming /D10 = Dimmable



LED 10W & 13 Wallpacks. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

Weight: 3.3 lbs

Project:
Rhino Foods Parking

Type:
I

Prepared By:
S Elliott

Date:
4/28/17

Driver Info

Type:	Constant Current
120V:	0.13A
208V:	0.08A
240V:	0.07A
277V:	0.06A
Input Watts:	15W
Efficiency:	87%

LED Info

Watts:	13W
Color Temp:	4000K
Color Accuracy:	86 CRI
L70 Lifespan:	100000
Lumens:	673
Efficacy:	45 LPW

Technical Specifications

Listings

UL Listing:

Suitable for Wet Locations as a Downlight. Suitable for Damp Locations as an Uplight. Wall Mount only. Suitable for Mounting within 4ft. of ground.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Optical

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

Fixture Efficacy:

44.6 Lumens per Watt

Lumen Maintenance:

The LED will deliver 70% of its initial lumens at 100,000 hours of operation.

BUG Rating:

B1 U0 G0

BUG Rating:

B1 U0 G0

Construction

Cold Weather Starting:

Minimum starting temperature is -40° F (-40° C)

Maximum Ambient Temperature:

Suitable for use in 55°C (131°F) ambient temperatures.

Finish:

Formulated for high-durability and long lasting color.

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Gaskets:

High Temperature Silicone.

Electrical

Driver:

Multi-chip 13W high output long life LED Driver Constant Current, Class 2 100V - 277V, 50/60 Hz.

Surge Protection:

4kV

LED Characteristics

Color Temperature (Nominal CCT):

4000K

Color Accuracy:

86 CRI

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2015.

Other

Patents:

The design of the LPACK is protected by U.S. Pat. D604,004 and patents pending in Canada, China and Taiwan.

California Title 24:

See WPLED13/PC for a 2013 California Title 24 compliant model.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

Country of Origin:

Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Technical Specifications (continued)

Other

Recovery Act (ARRA) Compliant:

This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

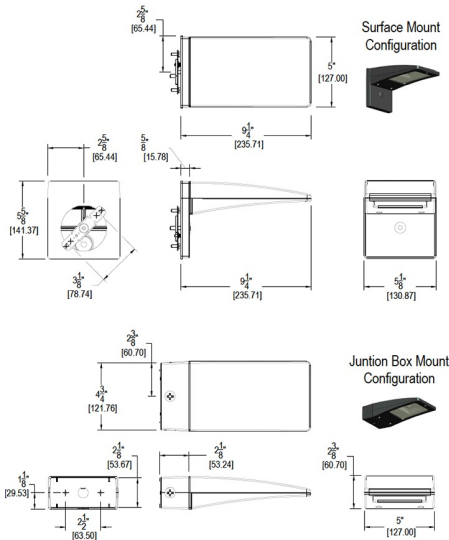
GSA Schedule:

Suitable in accordance with FAR Subpart 25.4.

Equivalency:

Equivalent to 100W Metal Halide.

Dimensions



Features

- High performance LED light engine
- Maintains 70% of initial lumens at 100,000 hours
- Weatherproof high temperature silicone gaskets
- Superior heat sinking with die cast aluminum housing and external fins
- 5-year warranty

Ordering Matrix

Family	Watts	Color Temp	Sensor	Surface Plate	Surface Place	Finish	Photocell
WPLED	10 = 10W 13 = 13W	Blank = 5000K (Cool) Y = 3000K (Warm) N = 4000K (Neutral)	Blank = No Sensor MS = Mini Sensor	Blank = No Surface Plate	S = Surface Plate	Blank = Bronze W = White	Blank = No Photocell /PC = 120V Button /PCS = 120V Swivel /PC2 = 277V Button



Super Stealth Sensor with Total 360 + 180 "Can't Miss" Coverage, Surge Protection, Scanning LEDs, Evening Timer and Color Matched Lens, universal CU4 cover plate included.

Color: Bronze

Weight: 1.5 lbs

Project:
Rhino Foods Parking

Type:
Sensor

Prepared By:
S Elliott

Date:
4/28/17

Technical Specifications

Listings

UL Listing:

Suitable for wet locations.

Electrical

Voltage:

120 volts AC 60 Hz.

Power Consumption:

1W

Surge Protection:

Withstands up to 6000 volts.

Wall Switch Manual Override:

Two flip logic prevents activation by momentary power outages. Override resets to auto at dawn. No extra wiring needed.

RF Immunity:

Circuits fully shielded for maximum radio frequency immunity.

Switching Capacity:

8 amps, 1000 watts incandescent @ 120 volts.

Sensor Characteristics

Time Adjustment:

5 seconds to 12 minutes.

Wide Sensitivity Control:

Adjustable from 100% to 30%.

Evening Timer:

Keeps lights on for 1-8 hours after dusk. Then sensor is motion activated until dawn.

Set it and forget it:

STL360's full coverage pattern reduces need for aiming and adjustment.

Advanced Detection Logic:

Minimizes false triggers.

Photoelectric Control:

Deactivates lights during daylight. Fully adjustable for 24 hour operation or custom applications.

Detection:

Senses 180° and 360° down for Total Detection.

LED Characteristics

Scanning LEDs:

3 LEDs continually scan back-and-forth.

Color Matched Lens:

Dark lens with bronze units, white lens with white units.

Construction

Temperature Compensation:

Sensitivity adjusted automatically for consistent detection in hot and cold ambient temperatures.

Mounting:

CU4 plate allows the sensor to be mounted under a soffit.

Lens Masks:

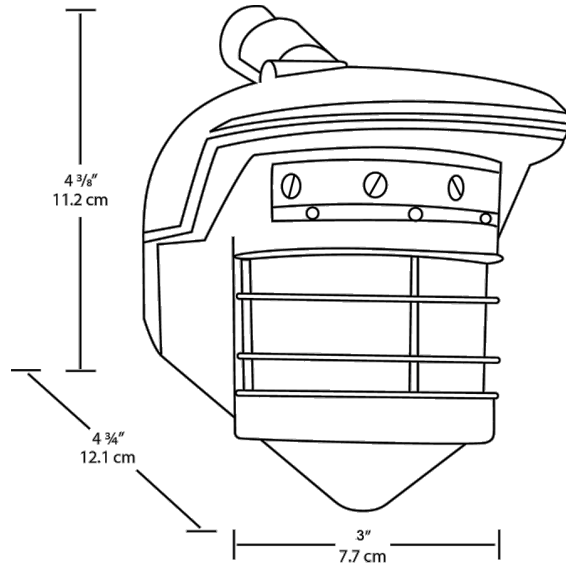
Customized press apply lens mask included to reduce coverage easily.

Other

Warranty:

10 year sensor warranty.

Dimensions



Features

- Senses 180° out + 360° down for total detection
- Radio frequency immunity
- 6000 volt surge protection
- Quick test time
- Color matched vandal resistant
- 1000 Watt switching capacity
- Pre-wired and pre-assembled on CU4 universal EZ plate
- Protected manual override with auto reset
- Can be wired in parallel

DESIGN FEATURES - ALL UNITS

Tubular Heat Exchanger Power Vented Unit Heaters, 30-125MBH

For residential, commercial or industrial applications that require a low profile unit, Modine offers the Hot Dawg®. Capable of being installed just one inch below the ceiling, the superior quality of the Hot Dawg makes it a preferred choice for a variety of applications, including garages and workshops.

Figure 2.1 - Hot Dawg Propeller Unit Heater

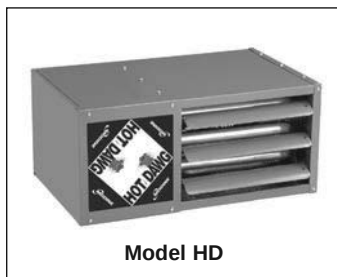


Figure 2.2 - Hot Dawg Blower Unit Heater



Power Vented Unit Heater, 150-400MBH

For commercial or industrial applications that require higher input ratings, the PDP/BDP is available in ratings that range from 150,000 to 400,000 Btu/Hr in either natural or propane gas.

Figure 2.3 - Propeller Unit Heater

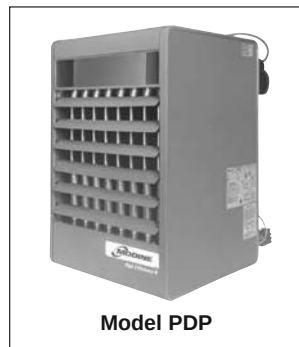


Figure 2.4 - Blower Unit Heater

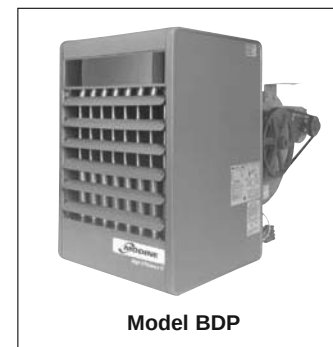


Table 3.1 - Standard Features and Factory Options ①

	Feature	Model			
		HD	HDB	PDP	BDP
Cabinet and Air Mover	Aluminized steel cabinet (gauge indicated)	22 ga.	22 ga.	20 ga.	20 ga.
	Low profile casing design	•	•		
	Baked-on polyester powder paint for durability and corrosion resistance	•	•	•	•
	Adjustable air-deflector blades	•	•	•	•
	Fans engineered for quiet operation	•	•	•	•
	Totally enclosed fan/blower motors (model sizes 100 and above)	•		•	•
	Fingerproof fan guard (optional on PDP units)	•	•	•	
	Two L-shaped mounting brackets (optional on sizes 100/125)	•	•		
	Adjustable mounting brackets for level hanging			•	•
	Hinged tool-less bottom pan entry			•	•
	Multi-tap 3-speed motors, certified to 0.8" W.C. external static pressure		•		
	Adjustable motor sheaves, certified to 0.5" W.C. external static pressure				•
Heat Exchanger and Burner	80% thermally efficient	•	•	•	•
	Aluminized steel heat exchanger (409 stainless steel optional)	•	•	•	•
	Tubular heat exchanger	•	•		
	In-shot burner on each heat exchanger tube for reliable performance, ease of serviceability and low sound level on flame ignition/extinction	•	•		
	Aluminized steel burner (409 stainless steel optional)			•	•
Controls	CSA certification for commercial and industrial use in the US and Canada	•	•	•	•
	CSA certification for residential use in the US and Canada	•	•		
	Factory-installed power exhauster	•	•	•	•
	Controls for natural gas (propane optional)	•	•	•	•
	Single stage gas controls (two stage optional)	•	•	•	•
	High limit safety control	•	•	•	•
	Differential pressure switch for proof of venting	•	•	•	•
	Flame roll-out safety switch	•	•		
	Direct spark ignition with continuous retry control system	•	•		
	Intermittent pilot ignition with continuous retry control system			•	•
	Control terminal board and low voltage terminal connections	•	•	•	•
	Gas control step down transformer with 24V gas controls	•	•	•	•
	Fan delay timer	•	•	•	•

① See page 13 for Field Installed Accessories



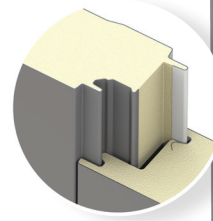
CF ARCHITECTURAL

INSULATED METAL WALL PANEL

The Metl-Span CF Architectural insulated metal panel is ideal for high-profile architectural applications with its flat, monolithic look. The panels are designed to be installed vertically or horizontally with concealed clips and fasteners in the side joint. Architectural wall panels provide a beautiful, flush appearance, allowing architects flexibility with design.

Note: Not intended for exterior walls on cold storage buildings.

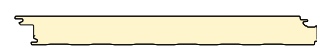
LOCK & GROOVE SYSTEM



PANEL



PANEL PROFILE



PRODUCT SPECIFICATIONS

WIDTH • 24", 30", 36"

THICKNESS • 2", 2½", 3", 4"

LENGTH • 8'-0" to 32'-0"

EXTERIOR FACE • Stucco-embossed, G-90 galvanized and/or AZ-50 aluminum-zinc coated steel in 22 Ga. Optional smooth unembossed finish.

INTERIOR FACE • Light Mesa profile, stucco-embossed, G-90 galvanized, and/or AZ-50 aluminum-zinc coated steel in 26, 24 and 22 Ga.

JOINT • Offset double tongue-and-groove with extended metal shelf for positive face fastening

REVEAL • Up to 1" reveal options in ¼" increments or up to 3" reveal options in ½" increments

U-FACTORS AND R-VALUES*

U-FACTOR (BTU/h-ft²·°F)

PANEL WIDTH: 36"

	75°
2"	0.0669
2½"	0.0500
3"	0.0400
4"	0.0307

R-VALUE (h-ft²·°F/BTU)

PANEL WIDTH: 36"

	75°
2"	14.95
2½"	20.00
3"	25.00
4"	32.57

*Based on ASTM C518, ASTM C1363 and thermal modeling, 75° F core mean temp.

DESIGN FEATURES & BENEFITS

- Available in custom widths
- Available with preformed corners
- Flat, flush appearance for vertical or horizontal installation
- Utilizes concealed clips and eliminates thermal short circuits
- Easy and fast installation, with reduced construction labor costs
- Interior and exterior applications
- Can be used in conjunction with other Metl-Span joint profiles

Metl-Span: Performance Redefined
1720 Lakepointe Drive, Suite 101, Lewisville, Texas 75057 (p) 877.585.9969 (f) 972.420.9382 metlspan.com

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PART# CFADS0616

TESTING: CF ARCHITECTURAL INSULATED METAL WALL PANEL

TEST/APPROVAL	TEST METHOD	TEST TITLE	RESULTS
Fire US	ASTM E84	Surface Burning Characteristics of Building Materials	Flame spread <25, smoke developed <450
	ASTM E119	Fire Tests of Building Construction Materials	One hour non-load bearing rating with two layers of Type X Gypsum Vertical or horizontal installation
	FM 4880	Class 1 Fire Rating of Insulated Wall, Ceiling and Roof Panels	Product approved Exterior wall requires FM 4881 approval
	NFPA 259	Test Method for Potential Heat of Building Materials	Potential heat of foam plastic insulation contained in the assembly tested in accordance with NFPA 285
	NFPA 285	Evaluation of Fire Propagation Characteristics of Exterior Non-Load Bearing Wall Assemblies	Panel assembly met the requirements of the standard
	NFPA 286	Fire Tests for Evaluating Contribution of Wall and Ceiling Finish to Roof Fire Growth	Test specimen met the criteria of the IBC Section 803.1.2.1
Fire Canada	CAN/ULC S101	Fire Endurance Tests of Building Construction and Materials	One hour non-load bearing fire rating with two layers of Type X Gypsum
	CAN/ULC S101	Fire Endurance Tests of Building Construction and Materials	Meets 15 minute stay-in-place requirements
	CAN/ULC S102	Surface Burning Characteristics of Building Materials and Assemblies	Meets the National Building Code of Canada requirements
	CAN/ULC S134	Fire Test of Exterior Wall Assemblies	Complies with the fire-spread and heat-flux limitations required by the National Building Code of Canada
	CAN/ULC S138	Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration	Met the criteria of the standard
Structural	ASTM E72	Strength Tests of Panels for Building Construction	See Load Chart
	ASTM E1592	Structural Performance of Metal Roof and Siding Systems by Uniform Static Air Pressure Differences	See Load Chart
	FM 4881	Class 1 Exterior Wall Structural Performance	See FM Wall Load Chart
Thermal Performance	ASTM C518	Steady-State Thermal Transmission Properties by Means of the Heat-Flow Meter Apparatus	K-Factor of 0.126 BTU.in/hr.ft ² .°F at 40° F mean core K-Factor of 0.14 BTU.in/hr.ft ² .°F at 75° F mean core
	ASTM C1363	Thermal Performance of Building Materials and Envelope Assemblies	See Thermal Performance Guide
Air Infiltration	ASTM E283	Rate of Air Leakage Through Curtain Walls Under Specified Pressure Differences	<0.01 cfm/ft ² at 20 psf Vertical or horizontal installation
Water Infiltration	ASTM E331	Water Penetration of Exterior Walls by Uniform Static Air Pressure Differences	No uncontrolled leakage when tested to a static pressure of 20 psf Vertical or horizontal installation
Special Approval	Miami-Dade NOA	Product Approval for City of Miami and Dade County	Product has City of Miami and Dade County Notice of Acceptance Vertical installation only
	State of Florida	Product Approval for the State of Florida	Product has State of Florida approval

Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. In a continuing effort to refine and improve products, Metl-Span reserves the right to discontinue products at any time or change specifications and/or designs without incurring obligation. To ensure you have the latest information available, please inquire or visit our website at metlspan.com.



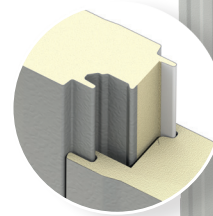
CF MESA

INSULATED METAL WALL PANEL

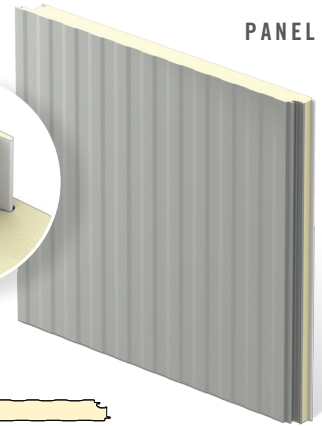


The Metl-Span CF Mesa insulated metal panel is well suited for exterior and interior walls and ceiling applications. The lightly corrugated profile on both faces creates symmetry on the outside of the building and room to room within. The minor rib provides a flattened appearance. Mesa panels are ideal for cold storage, commercial, institutional and industrial applications.

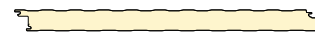
LOCK & GROOVE SYSTEM



PANEL



PANEL PROFILE



PRODUCT SPECIFICATIONS

WIDTH • 30", 36", 42"

THICKNESS • 2", 2½", 3", 4", 5", 6"

LENGTH • 8'-0" to 53'-0"

EXTERIOR FACE • Stucco-embossed, G-90 galvanized and/or AZ-50 aluminum-zinc coated steel in 26, 24 and 22 Ga.

INTERIOR FACE • Stucco-embossed, G-90 galvanized and/or AZ-50 aluminum-zinc coated steel in 26, 24 and 22 Ga.

JOINT • Offset double tongue-and-groove with extended metal shelf for positive face fastening

U-FACTORS AND R-VALUES*

U-FACTOR (BTU/h-ft²·°F)

PANEL WIDTH: 42"

	75°
2"	0.0706
2½"	0.0516
3"	0.0424
4"	0.0324
5"	0.0264
6"	0.0224

PANEL WIDTH: 42"

	40°
2"	0.0669
2½"	0.0491
3"	0.0401
4"	0.0305
5"	0.0248
6"	0.0210

R-VALUE (h-ft²·°F/BTU)

PANEL WIDTH: 42"

	75°
2"	14.16
2½"	19.38
3"	23.58
4"	30.86
5"	37.88
6"	44.64

PANEL WIDTH: 42"

	40°
2"	14.95
2½"	20.37
3"	24.94
4"	32.79
5"	40.32
6"	47.62

*Based on ASTM C518, ASTM C1363 and thermal modeling, 75° F and 40° F core mean temp.

DESIGN FEATURES & BENEFITS

- Consistent high quality with foamed-in-place panel manufacturing
- Easily washable
- Utilizes concealed clips and eliminates thermal short circuits
- Easy and fast installation, with reduced construction labor costs
- Interior and exterior applications

Metl-Span: Performance Redefined
1720 Lakepointe Drive, Suite 101, Lewisville, Texas 75057 (p) 877.585.9969 (f) 972.420.9382 metlspan.com

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PART# CFMDS0616

TESTING: CF MESA INSULATED METAL WALL PANEL

TEST/APPROVAL	TEST METHOD	TEST TITLE	RESULTS
Fire US	ASTM E84	Surface Burning Characteristics of Building Materials	Flame spread <25, smoke developed <450
	ASTM E119	Fire Tests of Building Construction Materials	One hour non-load bearing rating with two layers of Type X Gypsum Vertical or horizontal installation
	FM 4880	Class 1 Fire Rating of Insulated Wall, Ceiling and Roof Panels	Product approved Exterior wall requires FM 4881 approval
	NFPA 259	Test Method for Potential Heat of Building Materials	Potential heat of foam plastic insulation contained in the assembly tested in accordance with NFPA 285
	NFPA 285	Evaluation of Fire Propagation Characteristics of Exterior Non-Load Bearing Wall Assemblies	Panel assembly met the requirements of the standard
	NFPA 286	Fire Tests for Evaluating Contribution of Wall and Ceiling Finish to Roof Fire Growth	Test specimen met the criteria of the IBC Section 803.1.2.1
Fire Canada	CAN/ULC S101	Fire Endurance Tests of Building Construction and Materials	One hour non-load bearing fire rating with two layers of Type X Gypsum
	CAN/ULC S101	Fire Endurance Tests of Building Construction and Materials	Meets 15 minute stay-in-place requirements
	CAN/ULC S102	Surface Burning Characteristics of Building Materials and Assemblies	Meets the National Building Code of Canada requirements
	CAN/ULC S134	Fire Test of Exterior Wall Assemblies	Complies with the fire-spread and heat-flux limitations required by the National Building Code of Canada
	CAN/ULC S138	Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration	Met the criteria of the standard
Structural	ASTM E72	Strength Tests of Panels for Building Construction	See Load Chart
	ASTM E1592	Structural Performance of Metal Roof and Siding Systems by Uniform Static Air Pressure Differences	See Load Chart
	FM 4881	Class 1 Exterior Wall Structural Performance	See FM Wall Load Chart
Thermal Performance	ASTM C518	Steady-State Thermal Transmission Properties by Means of the Heat-Flow Meter Apparatus	K-Factor of 0.126 BTU.in/hr.ft ² .°F at 40° F mean core K-Factor of 0.14 BTU.in/hr.ft ² .°F at 75° F mean core
	ASTM C1363	Thermal Performance of Building Materials and Envelope Assemblies	See Thermal Performance Guide
Air Infiltration	ASTM E283	Rate of Air Leakage Through Curtain Walls Under Specified Pressure Differences	<0.01 cfm/ft ² at 20 psf Vertical or horizontal installation
Water Infiltration	ASTM E331	Water Penetration of Exterior Walls by Uniform Static Air Pressure Differences	No uncontrolled leakage when tested to a static pressure of 20 psf Vertical or horizontal installation
Special Approval	Miami-Dade NOA	Product Approval for City of Miami and Dade County	Product has City of Miami and Dade County Notice of Acceptance
	State of Florida	Product Approval for the State of Florida	Product has State of Florida approval

Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. In a continuing effort to refine and improve products, Metl-Span reserves the right to discontinue products at any time or change specifications and/or designs without incurring obligation. To ensure you have the latest information available, please inquire or visit our website at metlspan.com.

Features

- 1600 Wall System™1 is an outside glazed captured curtain wall
- 1600 Wall System™1 has a 2-1/2" (63.5) sight line
- Standard 6" (152.4) or 7-1/2" (190.5) depth systems
- Standard infill options 1/4" (6.4) and 1" (25.4), other infills available
- Thermally Broken by means of a continuous 1/4" (6.4) low conductance spacer
- Concealed fastener joinery creates smooth, monolithic appearance
- Open-back horizontals and perimeters are available for cost savings
- Shear block fabrication method
- Corners and splayed mullions available
- Offers integrated entrance framing systems
- Silicone compatible glazing materials for long-lasting seals
- 1600 Wall System™1 has been small and large missile impact and cycle tested
- Two color option
- Permanodic™ anodized finishes in seven choices
- Painted finishes in standard and custom choices

Optional Features

- Steel reinforcing available
- Rain screen and backpans
- Optional deep profile and bull nose covers available
- Deep and heavy-weight mullions available
- Fiberglass pressure plates available
- Veneer system available
- Integrates with standard Kawneer windows and GLASSvent™ windows for curtain wall
- Integrates with Versoleil™ Sunshade Outrigger System and Horizontal or Vertical Single Blade System
- Integrates with 1600 PowerShade™
- Profit\$Maker™ Plus die sets available
- Hurricane impact resistant framing options: 7-1/16" (179.4), 7-13/16" (198.4), 10-1/16" (255.6) & 10-13/16" (274.6)

Product Applications

- Ideal for low to mid-rise applications where high performance is desired
- It also is the right choice for high span applications

For specific product applications,
Consult your Kawneer representative.

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Architects - Most extrusion and window types illustrated in this catalog are standard products for Kawneer. These concepts have been expanded and modified to afford you design freedom. Some miscellaneous details are non-standard and are intended to demonstrate how the system can be modified to expand design flexibility. Please contact your Kawneer representative for further assistance.

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LAWS AND BUILDING AND SAFETY CODES GOVERNING THE DESIGN AND USE OF GLAZED ENTRANCE, WINDOW, AND CURTAIN WALL PRODUCTS VARY WIDELY. KAWNEER DOES NOT CONTROL THE SELECTION OF PRODUCT CONFIGURATIONS, OPERATING HARDWARE, OR GLAZING MATERIALS, AND ASSUMES NO RESPONSIBILITY THEREFOR.

Metric (SI) conversion figures are included throughout these details for reference. Numbers in parentheses () are millimeters unless otherwise noted.

The following metric (SI) units are found in these details:

m – meter
 cm – centimeter
 mm – millimeter
 s – second
 Pa – pascal
 MPa – megapascal

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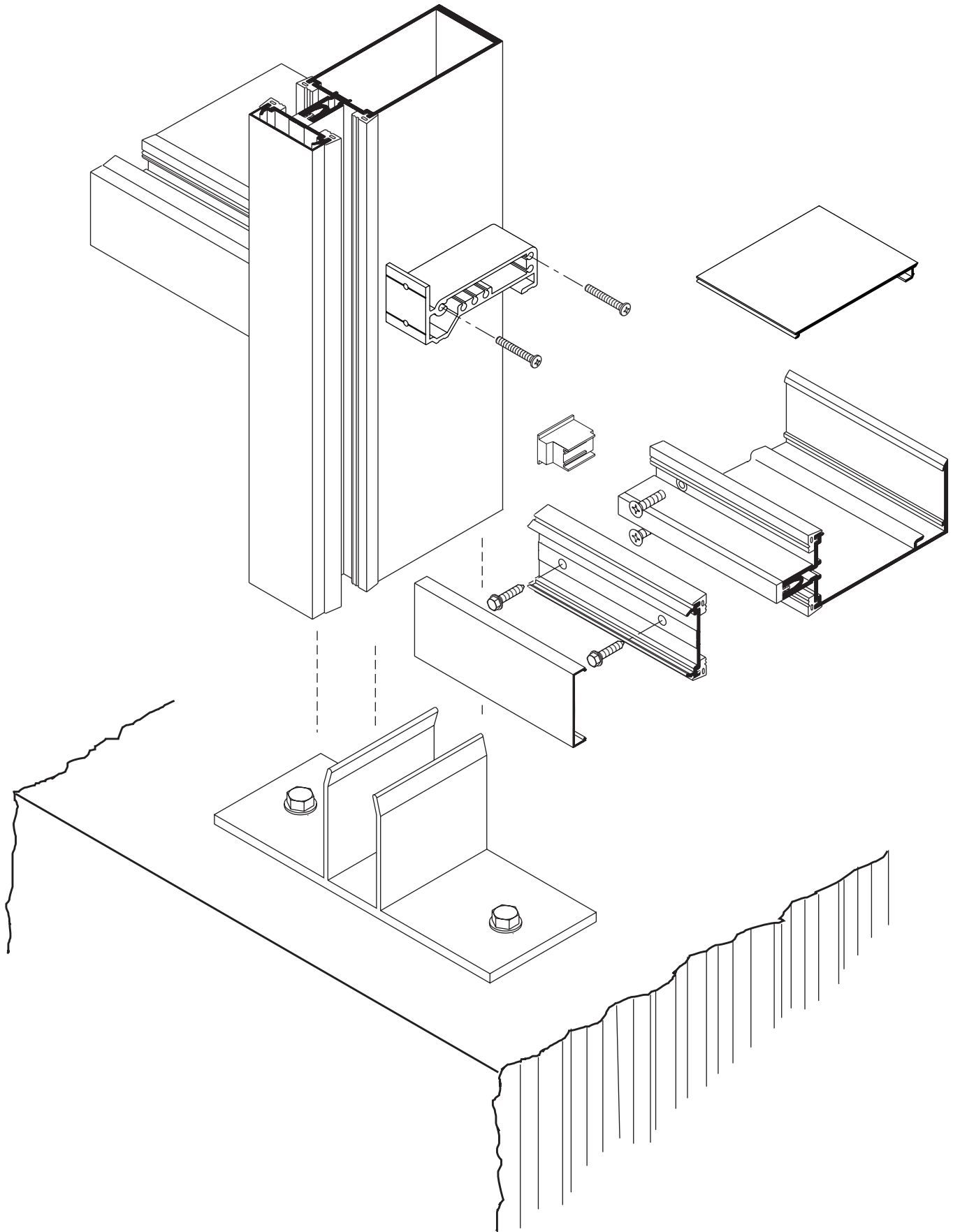
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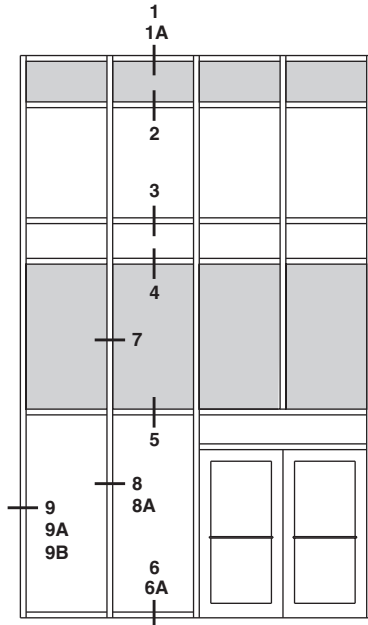


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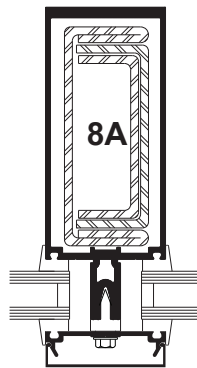
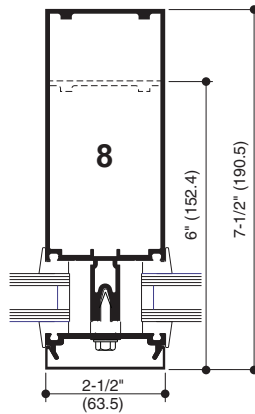
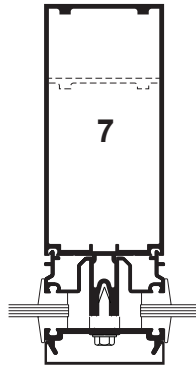
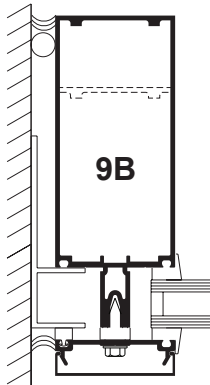
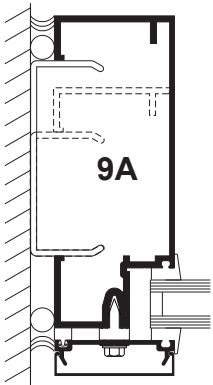
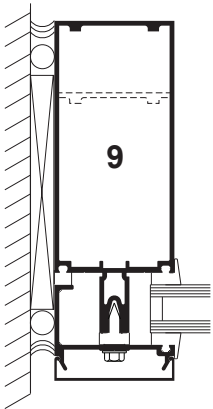
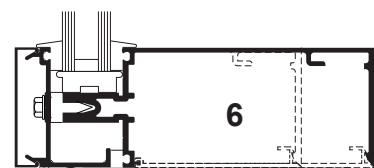
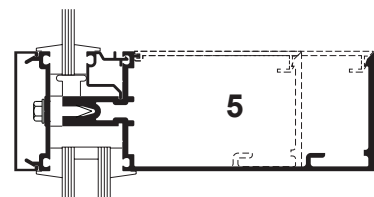
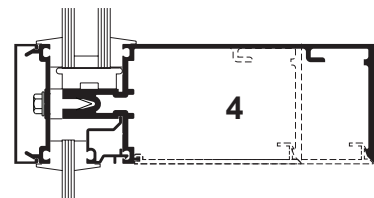
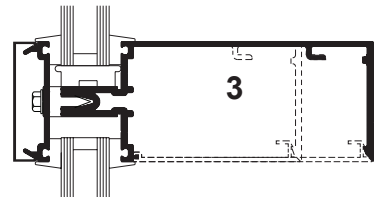
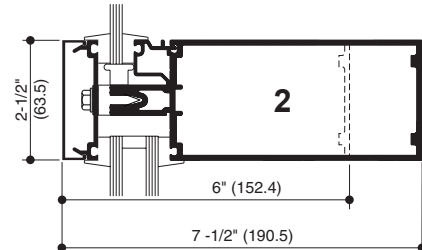
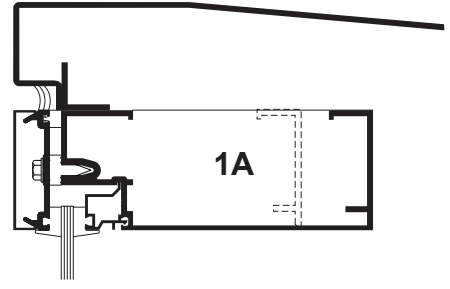
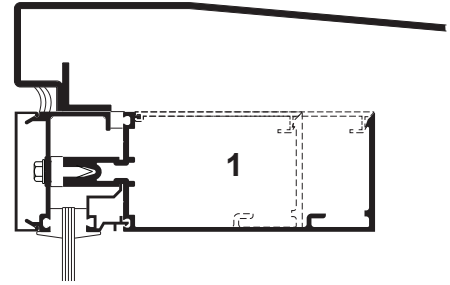
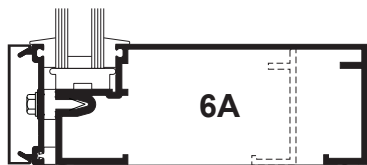
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SCALE 3" = 1'-0"



ELEVATION IS NUMBER KEYED TO DETAILS

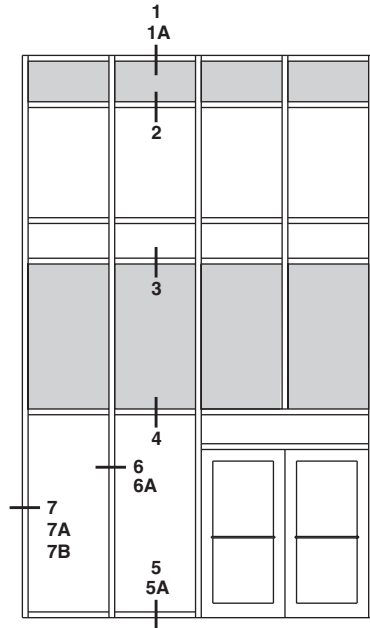
OPTIONAL STEEL
REINFORCING
AS REQUIRED

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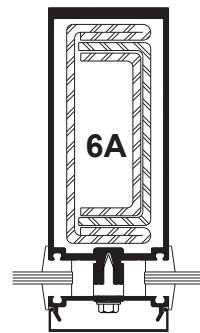
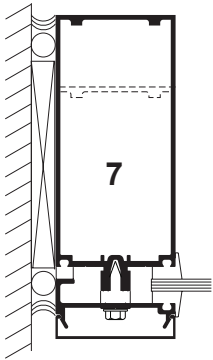
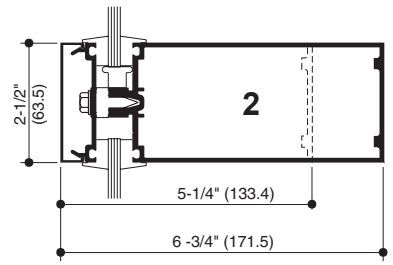
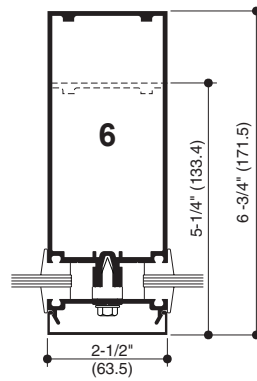
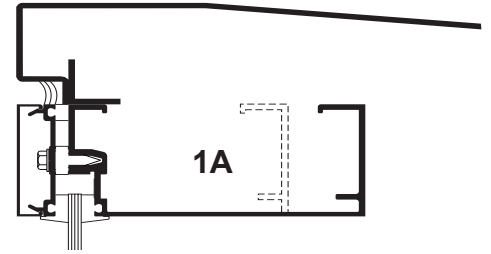
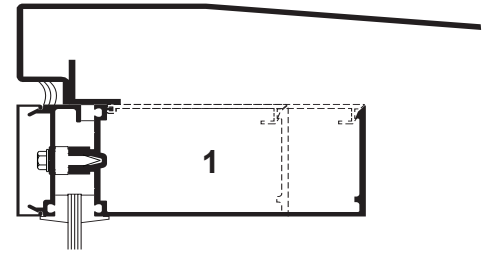
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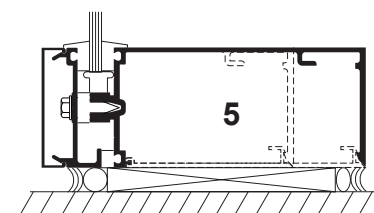
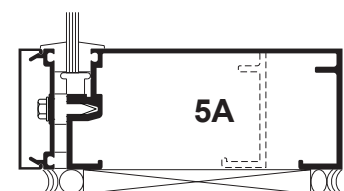
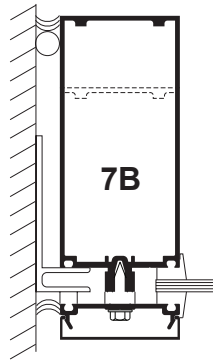
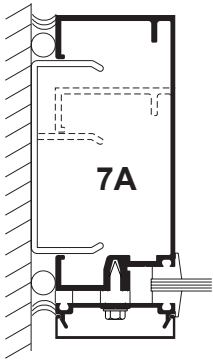
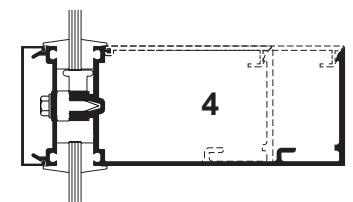
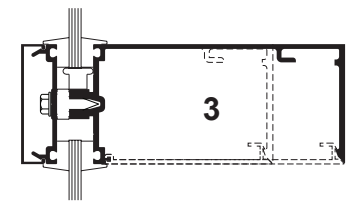
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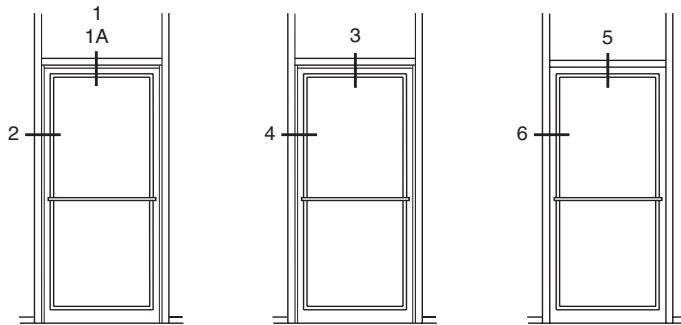
OPTIONAL STEEL
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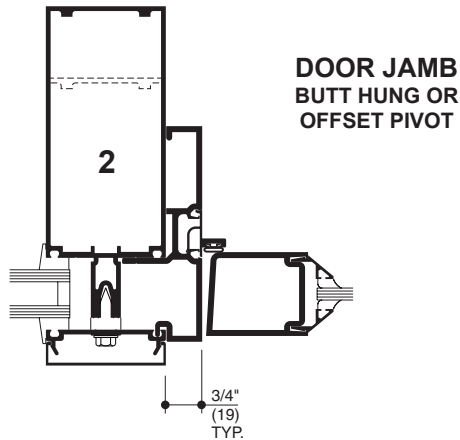


B/H OR O/P

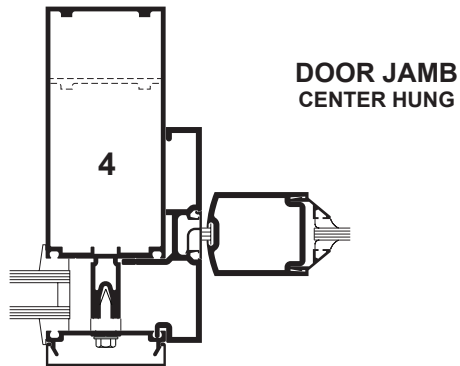
C/H

B/H OR O/P

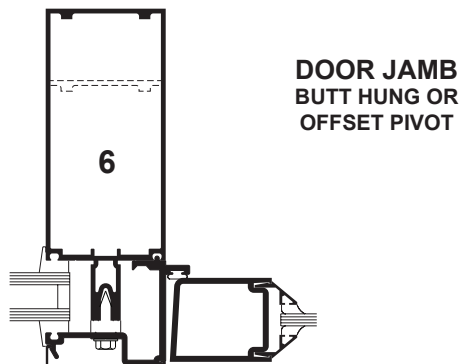
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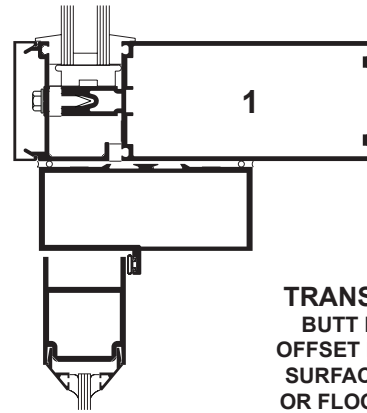
DOOR JAMB
BUTT HUNG OR
OFFSET PIVOT



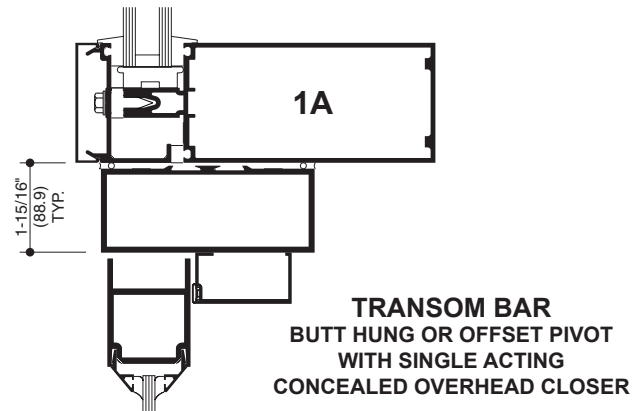
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CENTER HUNG



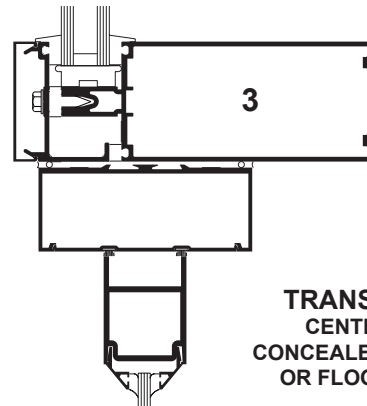
DOOR JAMB
BUTT HUNG OR
OFFSET PIVOT



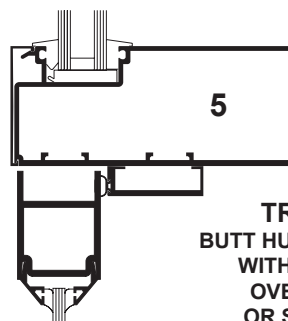
TRANSOM BAR
BUTT HUNG OR
OFFSET PIVOT WITH
SURFACE CLOSER
OR FLOOR CLOSER



TRANSOM BAR
BUTT HUNG OR OFFSET PIVOT
WITH SINGLE ACTING
CONCEALED OVERHEAD CLOSER



TRANSOM BAR
CENTER HUNG
CONCEALED OVERHEAD
OR FLOOR CLOSER



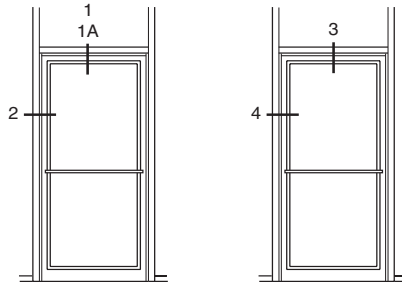
TRANSOM BAR
BUTT HUNG OR OFFSET PIVOT
WITH LCN CONCEALED
OVER HEAD CLOSER
OR SURFACE CLOSER

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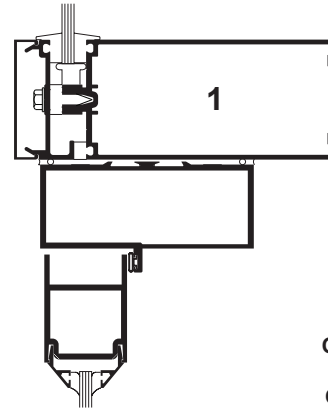
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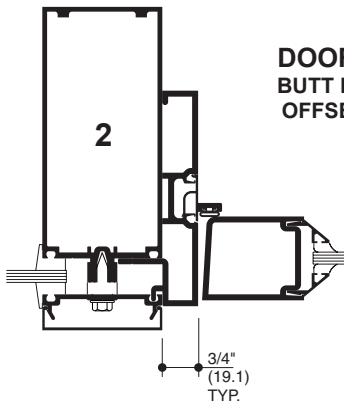
B/H OR O/P

C/H

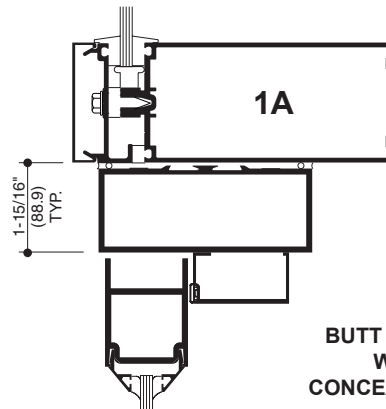
ELEVATION IS NUMBER KEYED TO DETAILS



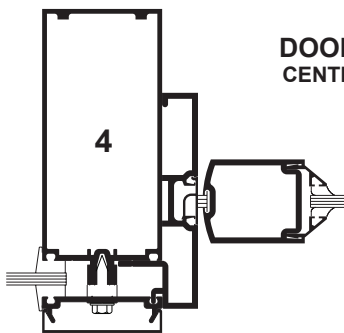
TRANSOM BAR
 BUTT HUNG OR
 OFFSET PIVOT WITH
 SURFACE CLOSER
 OR FLOOR CLOSER



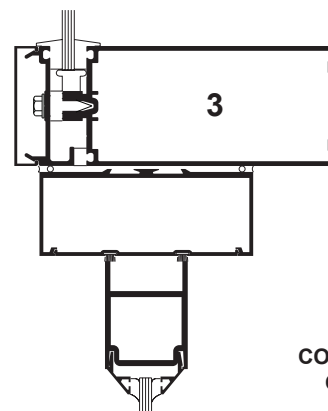
DOOR JAMB
 BUTT HUNG OR
 OFFSET PIVOT



TRANSOM BAR
 BUTT HUNG OR OFFSET PIVOT
 WITH SINGLE ACTING
 CONCEALED OVERHEAD CLOSER



DOOR JAMB
 CENTER HUNG



TRANSOM BAR
 CENTER HUNG
 CONCEALED OVERHEAD
 OR FLOOR CLOSER

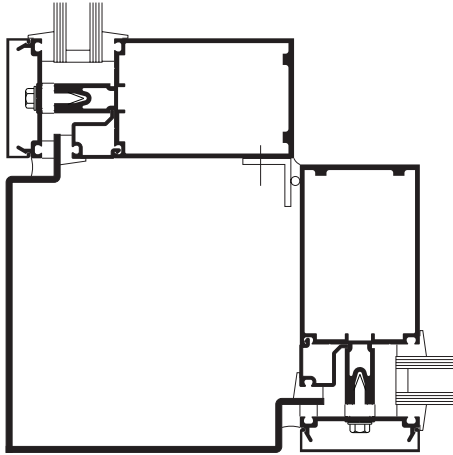
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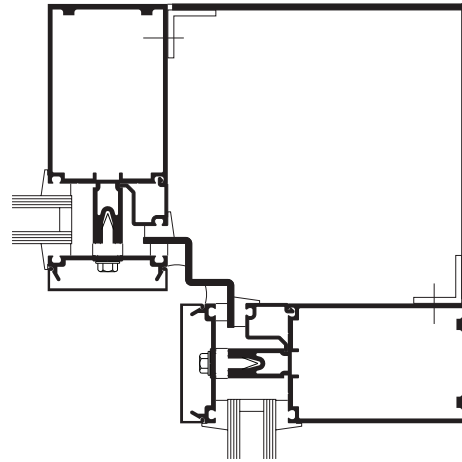
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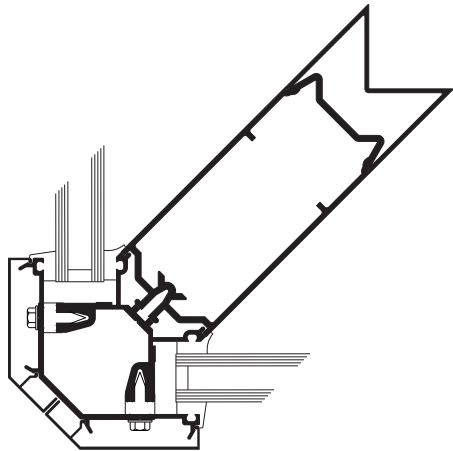
NOTE: 1" SYSTEM SHOWN, 1/4" SYSTEM SIMILAR.



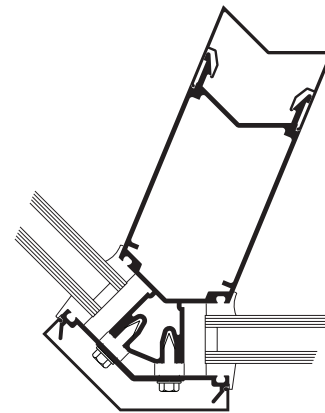
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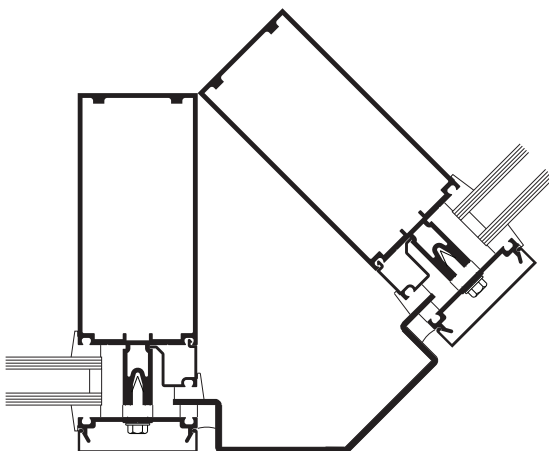
90° INSIDE CORNER



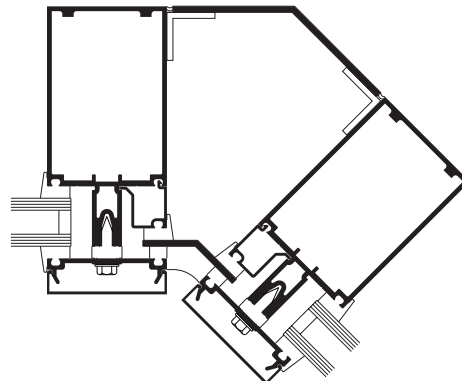
90° OUTSIDE CORNER



135° OUTSIDE CORNER



135° OUTSIDE CORNER



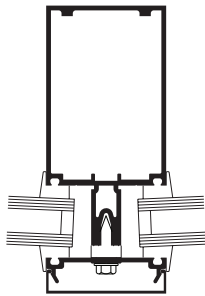
135° INSIDE CORNER

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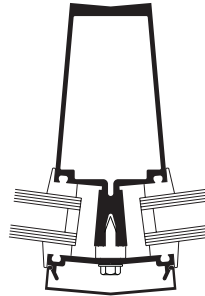
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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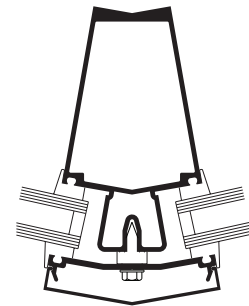
SCALE 3" = 1'-0"



0° TO 5°

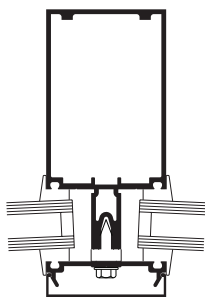


5° TO 15°

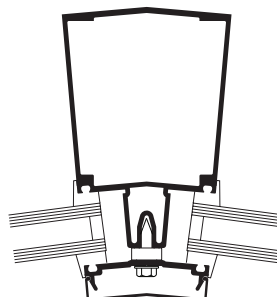


15° TO 25°

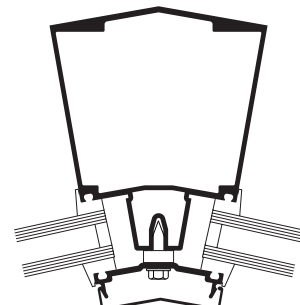
OUTSIDE SPAYED MULLIONS



0° TO 5°



5° TO 15°

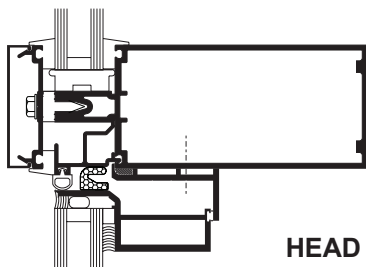
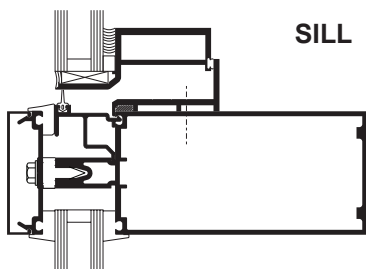
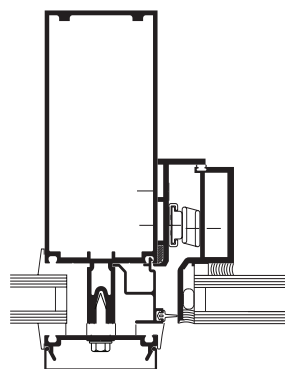
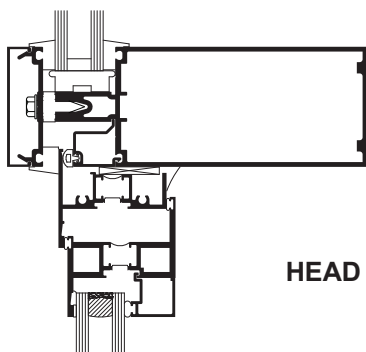
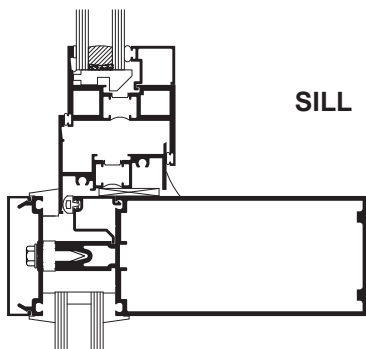


15° TO 25°

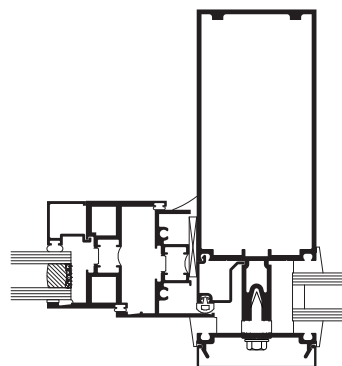
INSIDE SPAYED MULLIONS

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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SCALE 3" = 1'-0"**HEAD****SILL****GLASSvent™ WINDOWS
FOR CURTAIN WALL****JAMB****HEAD****SILL****8225TL THERMAL WINDOWS**

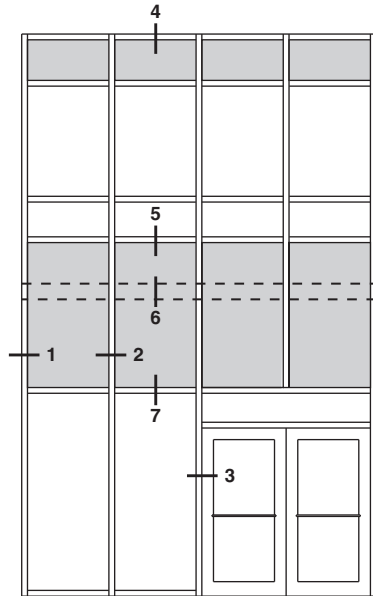
NOTE: Other vent types can be accommodated. Contact your Kawneer representative for other options.

**JAMB**

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

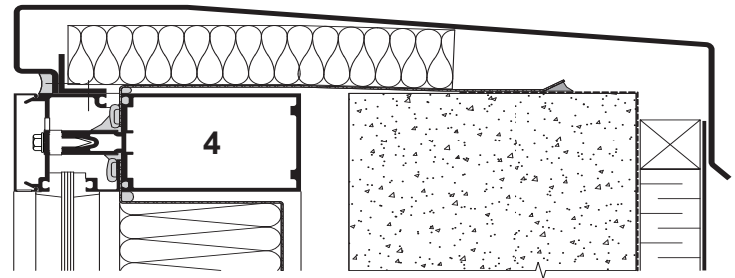
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SCALE 3" = 1'-0"

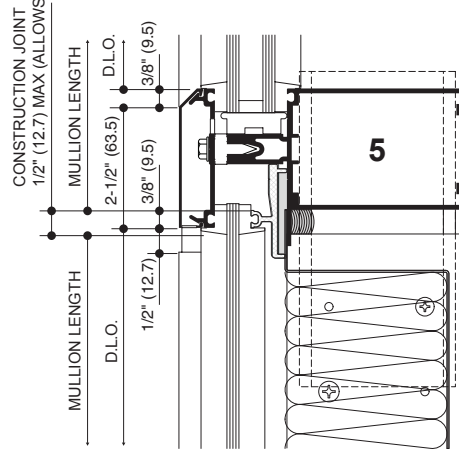


ELEVATION IS NUMBER KEYED TO DETAILS

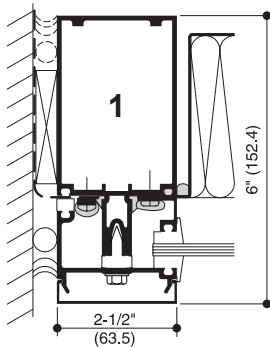
NOTE: 6" SYSTEM SHOWN, 7-1/2" SYSTEM SIMILAR



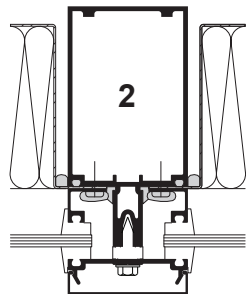
HEAD TRANSOM AT PARAPET FLASHING



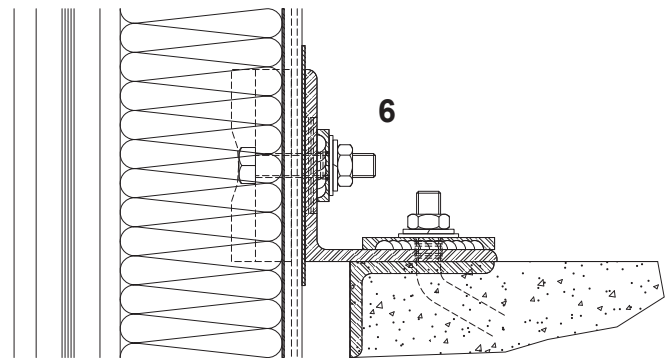
EXPANSION JOINT

JAMB MULLION
AT SPANDREL

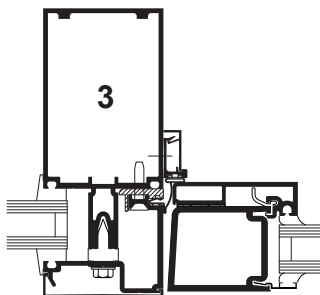
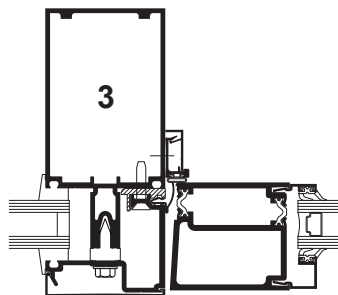
(With vapor barrier tie-in)



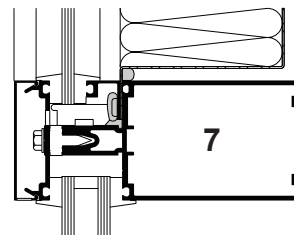
MULLION AT SPANDREL



TYPICAL DEADLOAD ANCHOR

THERMALLY BROKEN
DOOR ADAPTOR
FOR INSULCLAD DOORS

AA™ 250 THERMAL DOOR



TRANSOM - SPANDREL OVER VISION

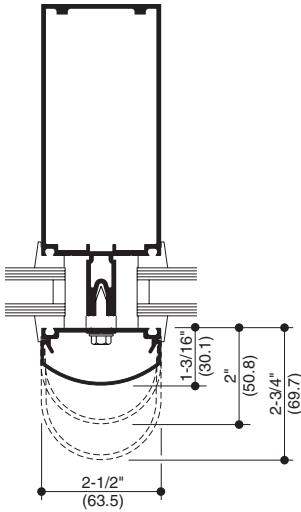
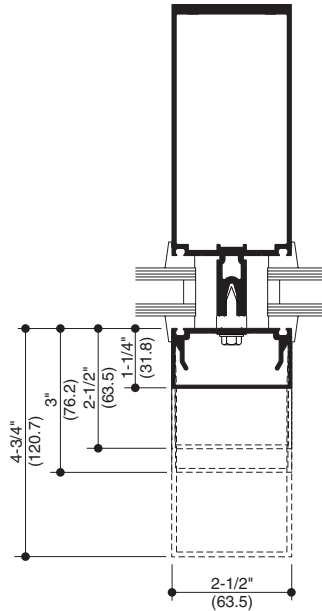
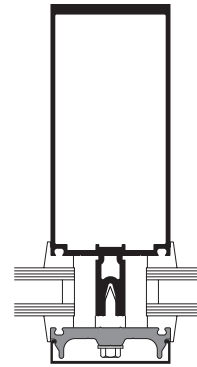
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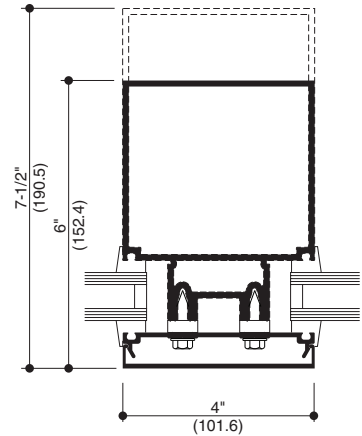
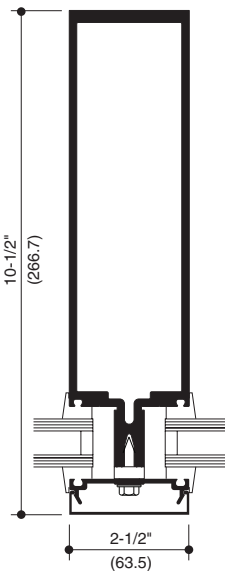
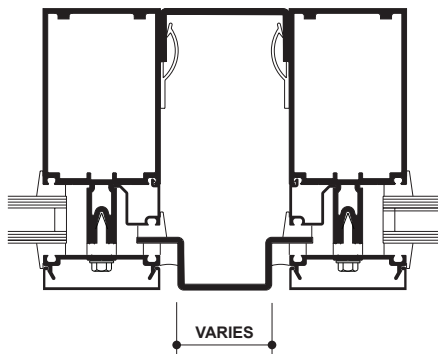
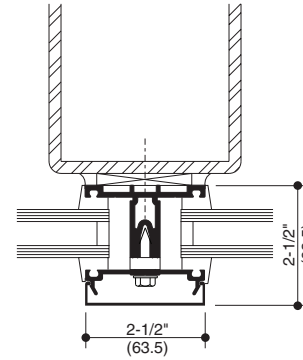
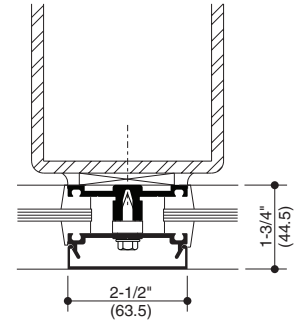
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SCALE 3" = 1'-0"

Architects – Most extrusion and window types illustrated in this catalog are standard products for Kawneer. These concepts have been expanded and modified to afford you design freedom. Some miscellaneous details are non-standard and are intended to demonstrate how the system can be modified to expand design flexibility. Please contact your Kawneer representative for further assistance.

**OPTIONAL COVERS****OPTIONAL COVERS**

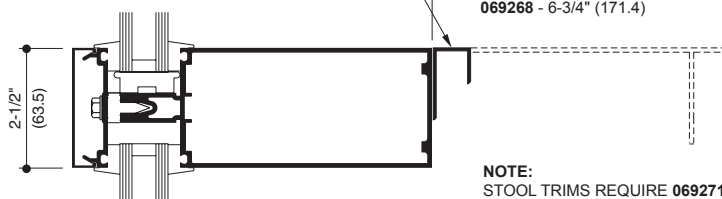
**CAPTURED
MULLION (1")
OPTIONAL
FIBERGLASS
PRESSURE PLATE**

**4" SIGHT LINE****DEEP MULLION****DOUBLE MULLION****VENEER SYSTEM**

**069263
GYPSUM BOARD TRIM**

STOOL TRIM OPTIONS:

069264 - 2-3/4" (69.9)
069265 - 4-1/2" (114.3)
069266 - 5" (127.0)
069267 - 6-1/8" (155.6)
069268 - 6-3/4" (171.4)



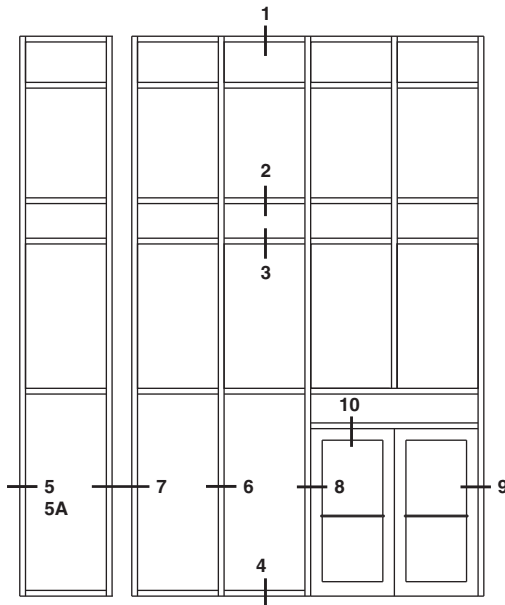
NOTE:
STOOL TRIMS REQUIRE **069271** TRIM CLIP PACKAGE

INTERIOR STOOL TRIM

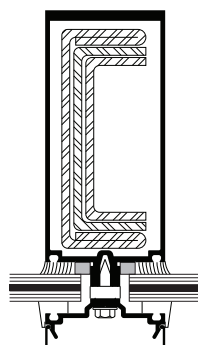
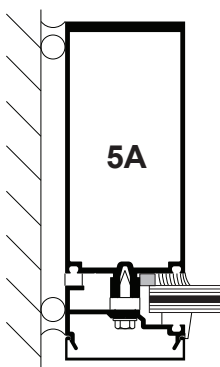
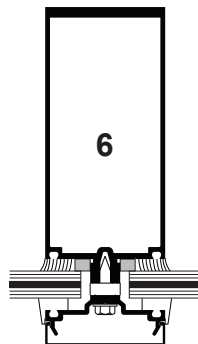
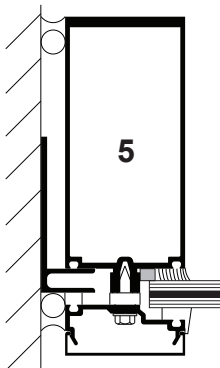
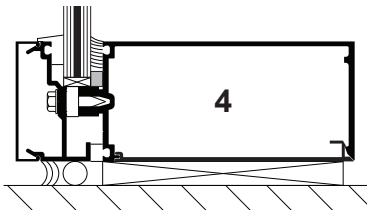
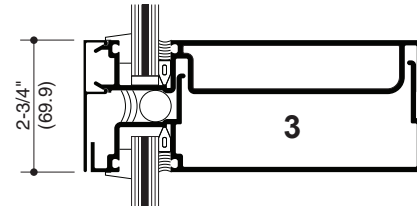
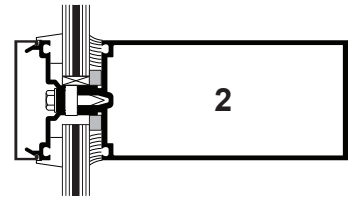
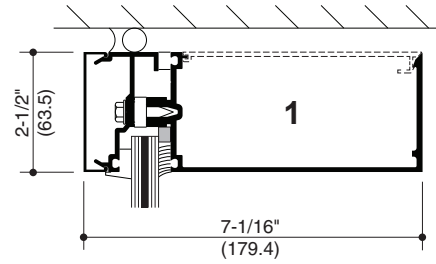
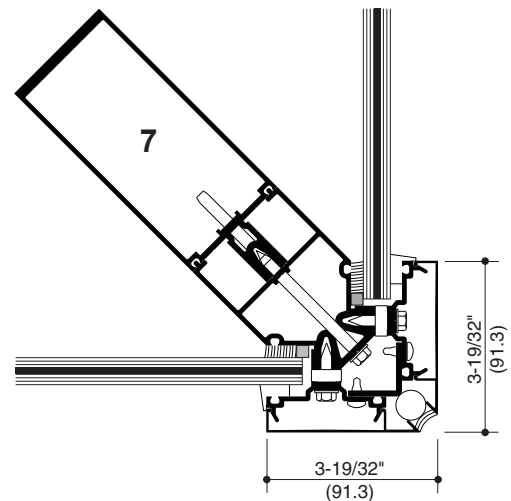
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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SCALE 3" = 1'-0"**NOTE:** DETAILS SHOWN WITH 9/16" INFILL AND ARE GLAZED FOR FOR LARGE MISSILE IMPACT (LMI).
SEE NEXT PAGE FOR OTHER GLAZING OPTIONS.

ELEVATION IS NUMBER KEYED TO DETAILS

OPTIONAL STEEL
REINFORCING
AS REQUIRED

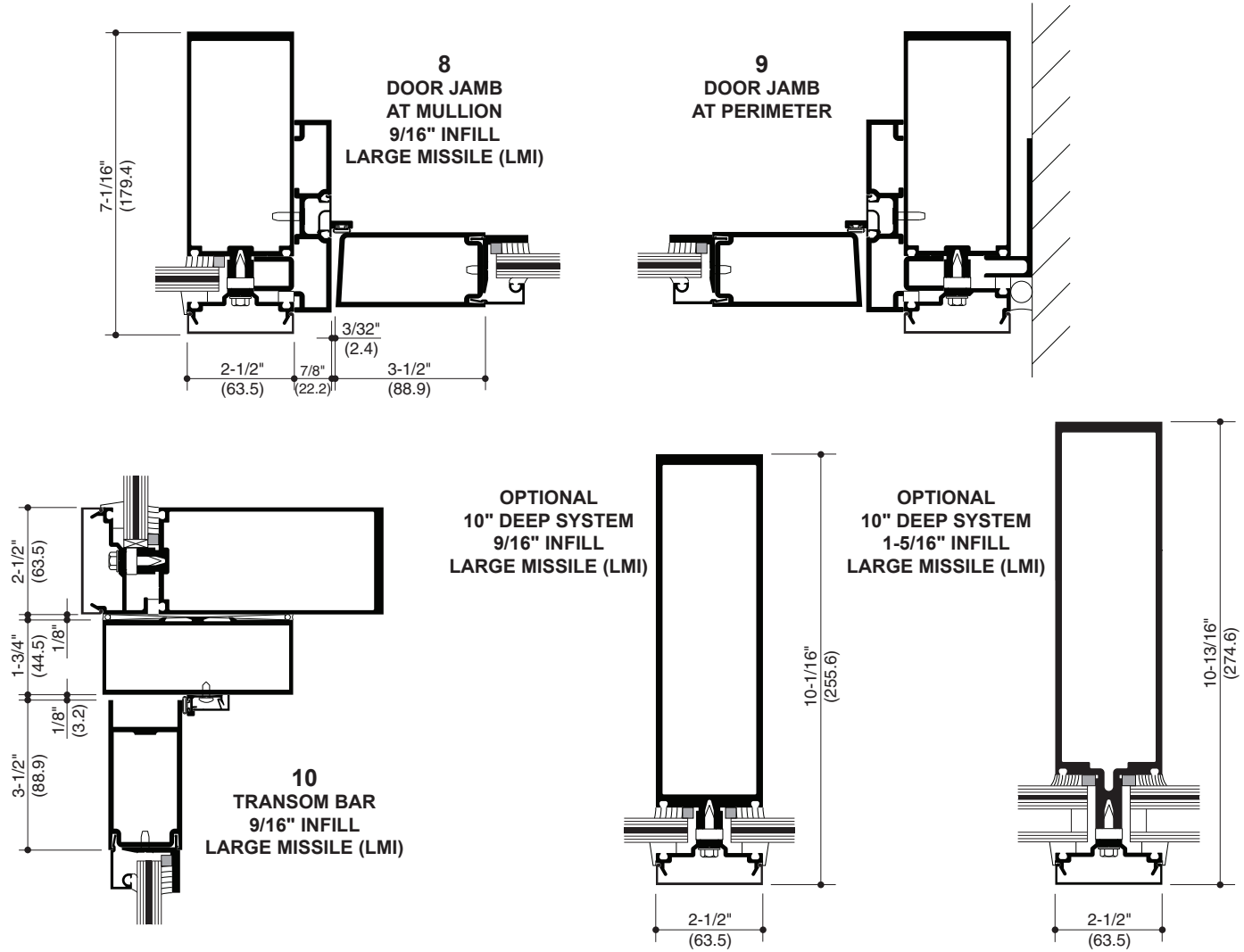
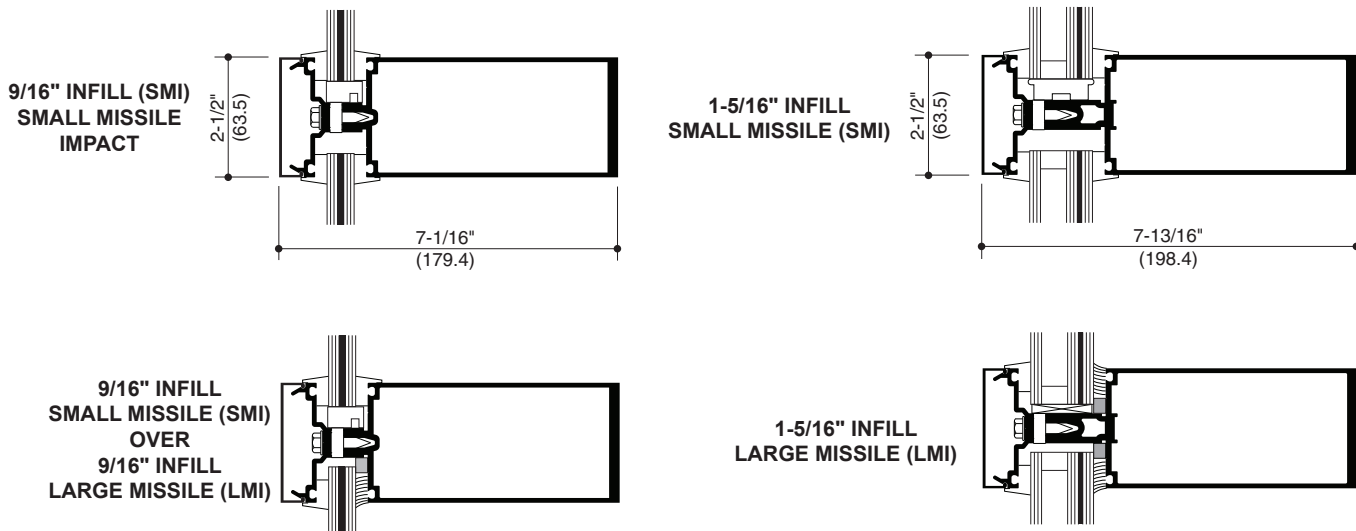
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SCALE 3" = 1'-0"

NOTE: 350 IR DOORS ARE USED WITH IMPACT FRAMING.
DOORS ARE GLAZED WITH 9/16" INFILL.

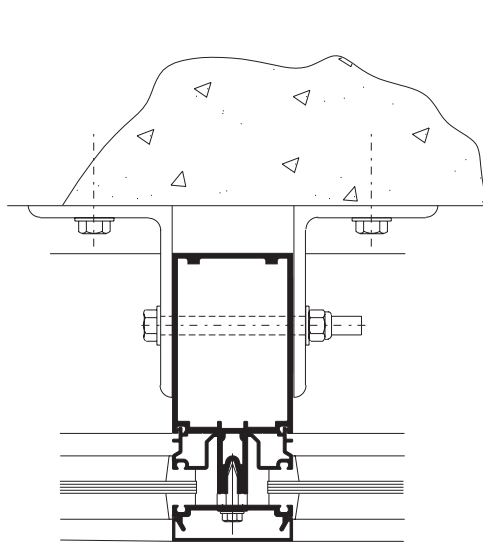
**GLAZING OPTIONS**

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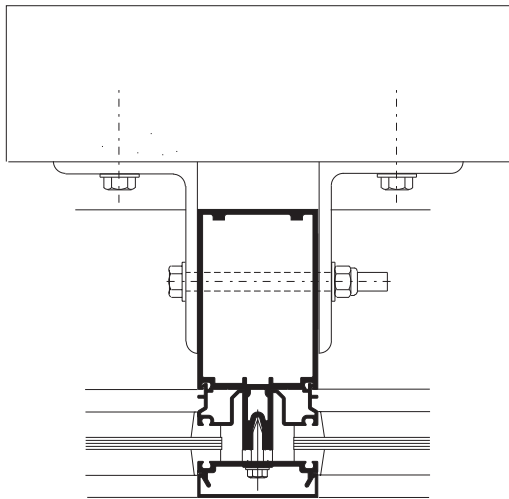
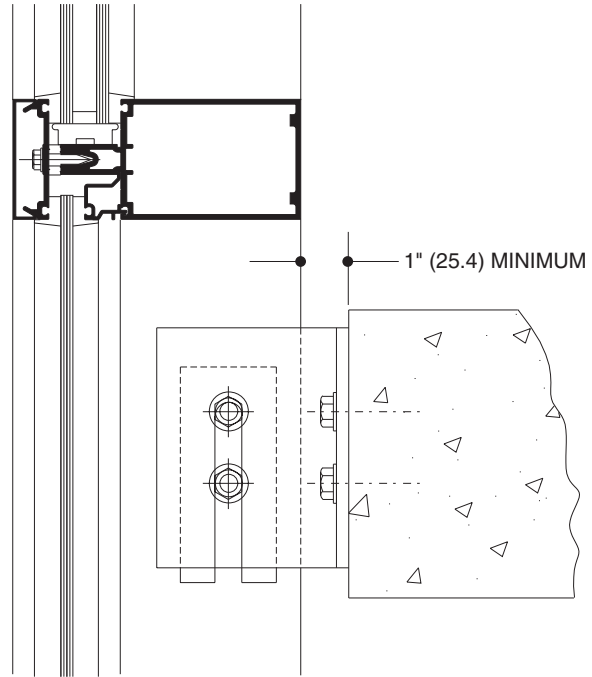
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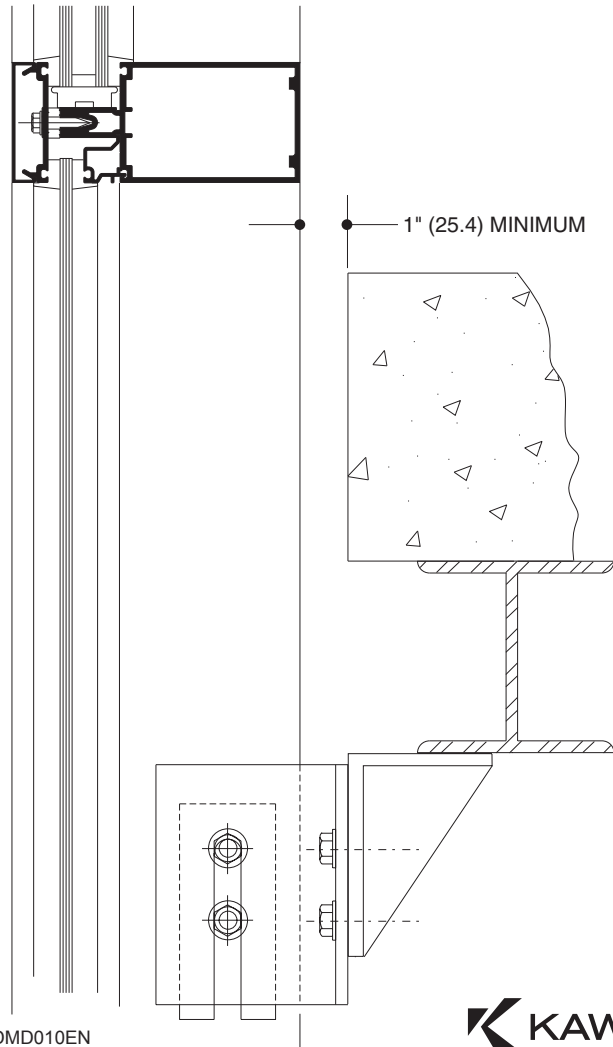
Actual project conditions will determine specific anchor design. Details on this page are for reference only.



ANCHORING TO FLOOR SLAB

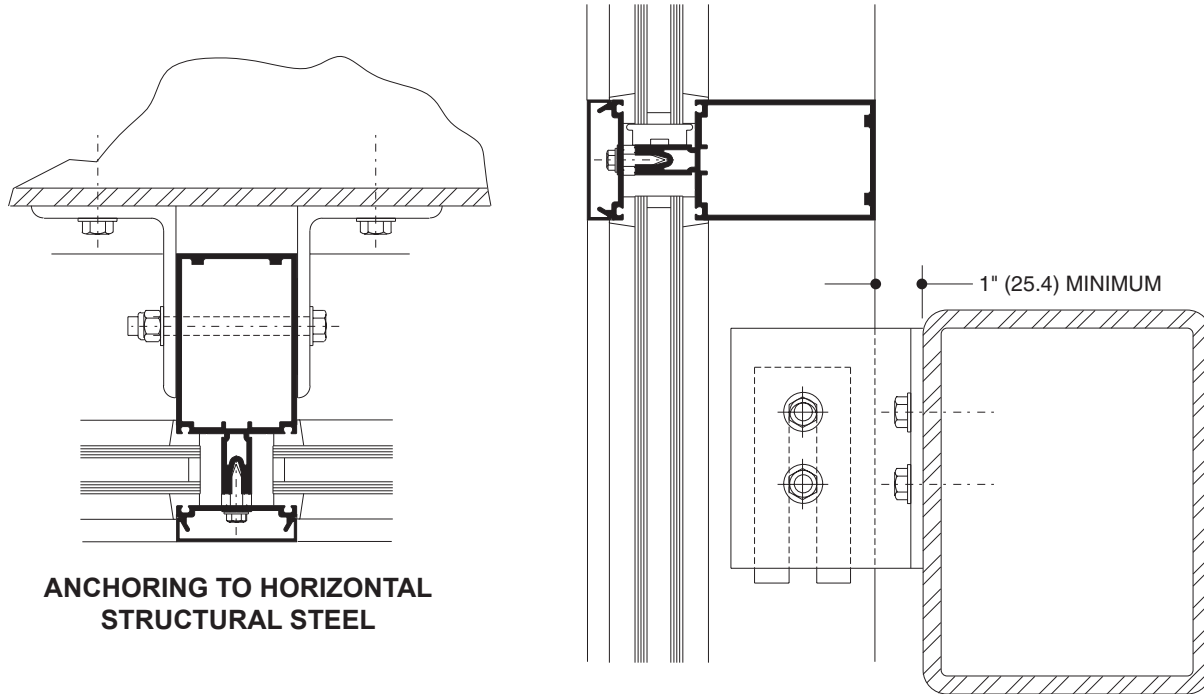


ANCHORING TO SUPPORT STEEL

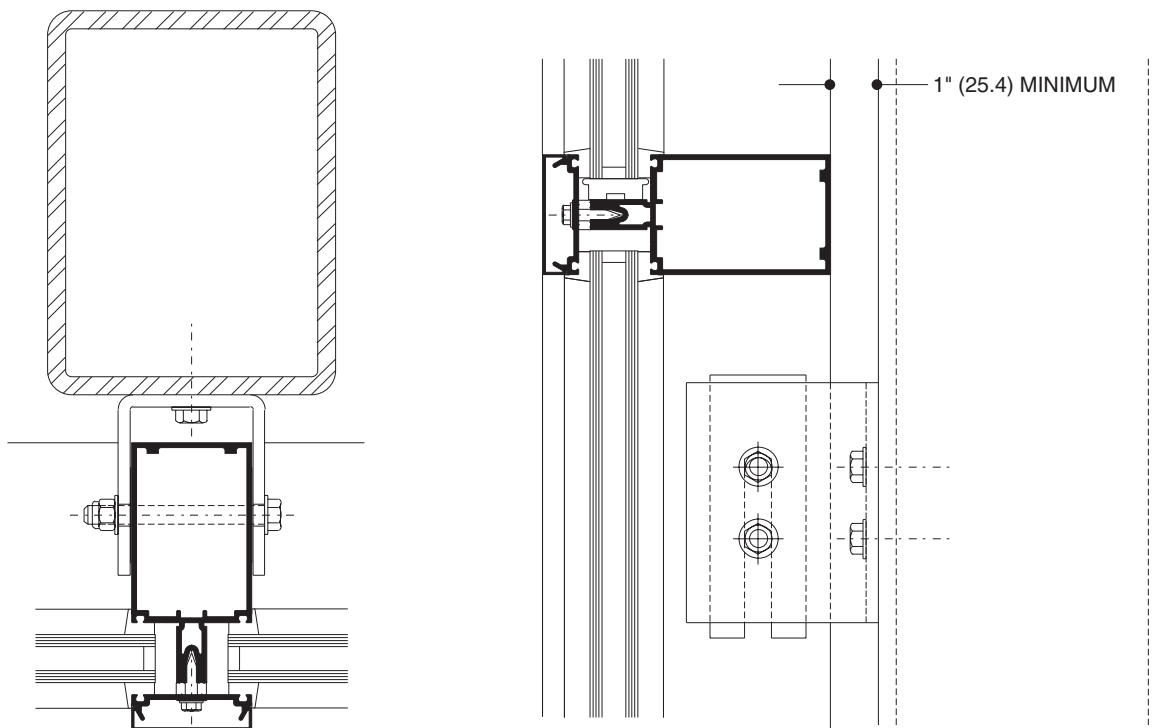


ADMD010EN

Actual project conditions will determine specific anchor design. Details on this page are for reference only.



**ANCHORING TO HORIZONTAL
STRUCTURAL STEEL**



**ANCHORING TO VERTICAL
STRUCTURAL STEEL**

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WIND LOAD CHARTS

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L/175 up to 13'-6" and L/240 +1/4" above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 psi (104MPa), STEEL 30,000 psi (207MPa). Charted curves, in all cases are for the limiting value. Wind load charts contained herein are based upon nominal wind load utilized in allowable stress design. A conversion from Load Resistance Factor Design (LRFD) is provided. To convert ultimate wind loads to nominal loads, multiply ultimate wind loads by a factor of 0.6 per ASCE/SEI 7. A 4/3 increase in allowable stress has not been used to develop these curves. For special situations not covered by these curves, contact your Kawneer representative for additional information.

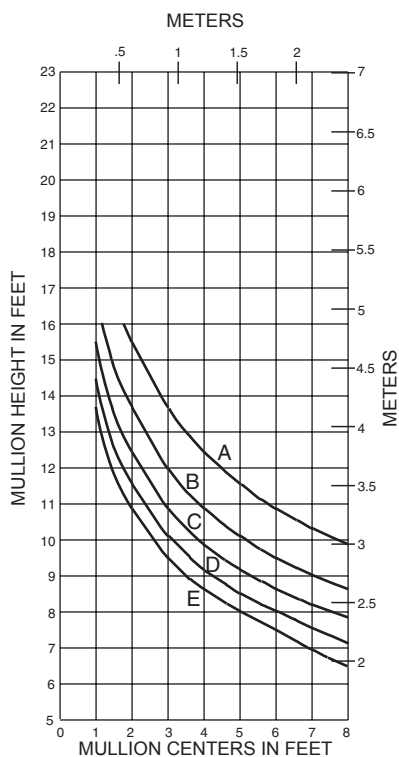
DEADLOAD CHARTS

Horizontal or deadload limitations are based upon 1/8" (3.2), maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass or 1/4" (6.4) thick glass supported on two setting blocks placed at the loading points shown.

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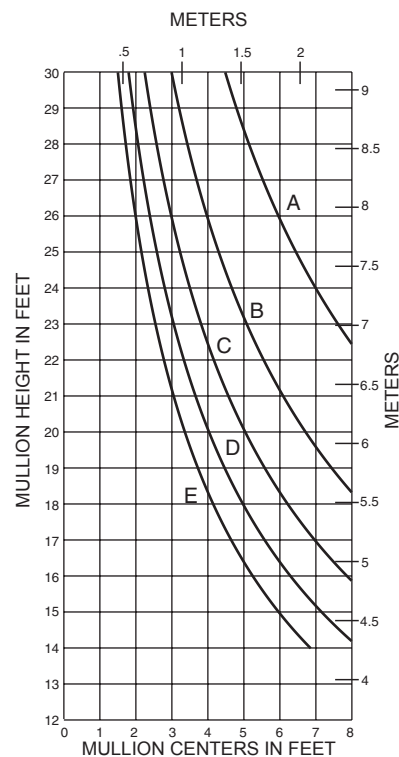
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SINGLE SPAN

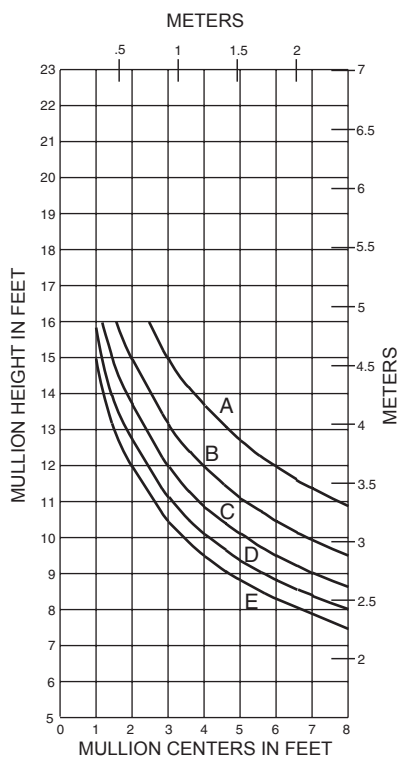


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

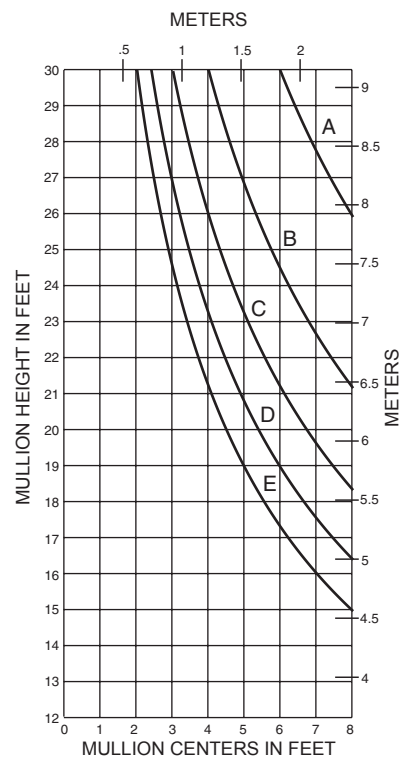
TWIN SPAN



SINGLE SPAN



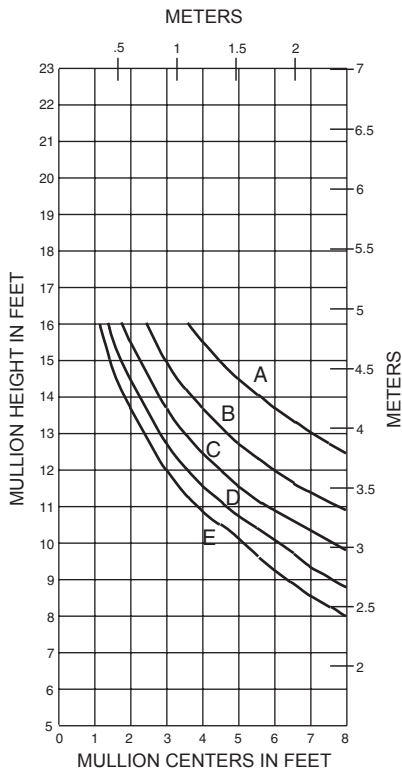
TWIN SPAN



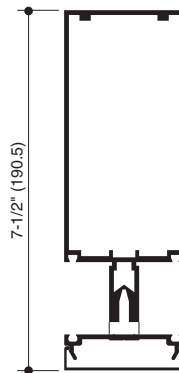
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SINGLE SPAN



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

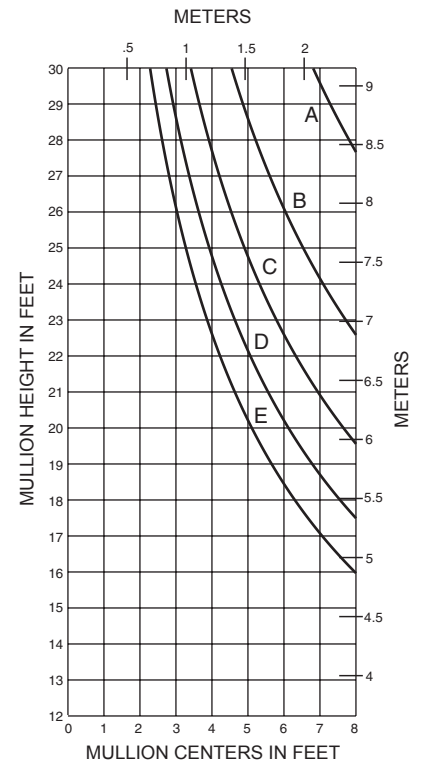


$$I = 10.135(421.85 \times 10^4)$$

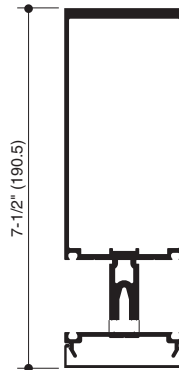
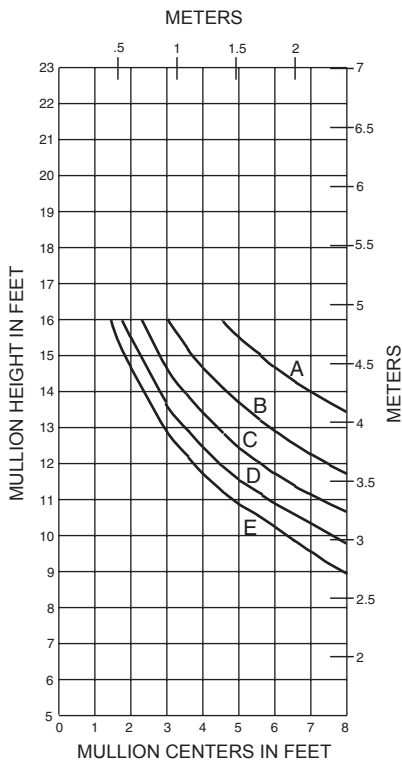
$$S = 3.027(49.60 \times 10^3)$$



TWIN SPAN



SINGLE SPAN

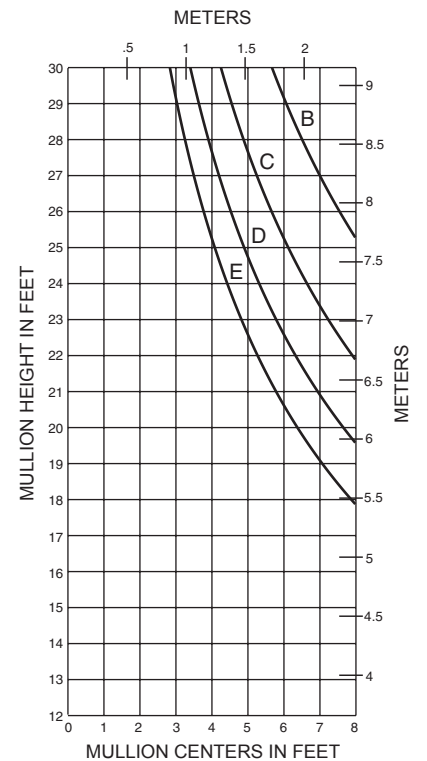


$$I = 12.736(530.11 \times 10^4)$$

$$S = 3.791(62.12 \times 10^3)$$



TWIN SPAN



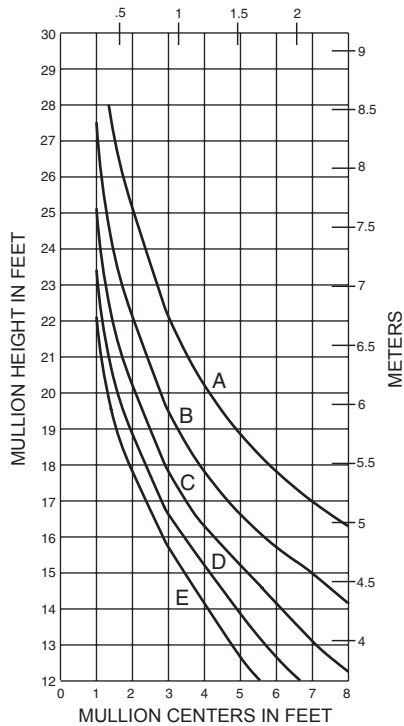
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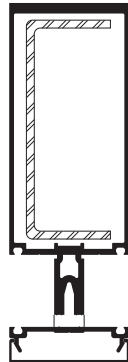
SINGLE SPAN

162004 W/162300

METERS

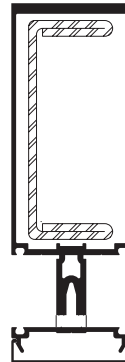


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)



162004 W/162300

la = 12.736(530.11 x 10⁴)
 Sa = 3.791(62.12 x 10³)
 Is = 3.805(158.37 x 10⁴)
 Ss = 1.669(27.35 x 10³)



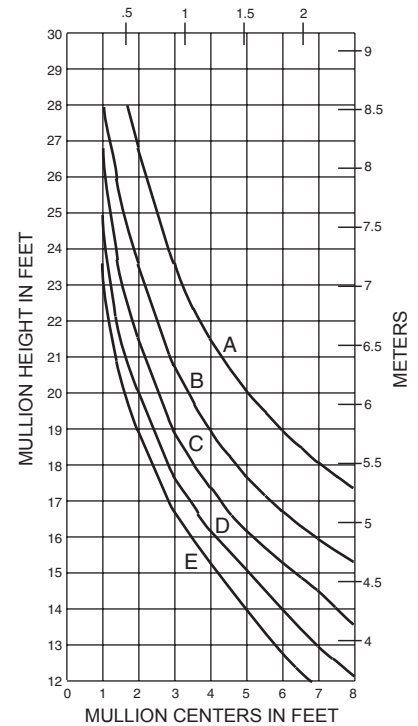
162004 W/162301

la = 12.736(530.11 x 10⁴)
 Sa = 3.791(62.12 x 10³)
 Is = 5.684(236.59 x 10⁴)
 Ss = 2.493(40.85 x 10³)

SINGLE SPAN

162004 W/162301

METERS

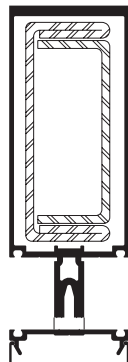
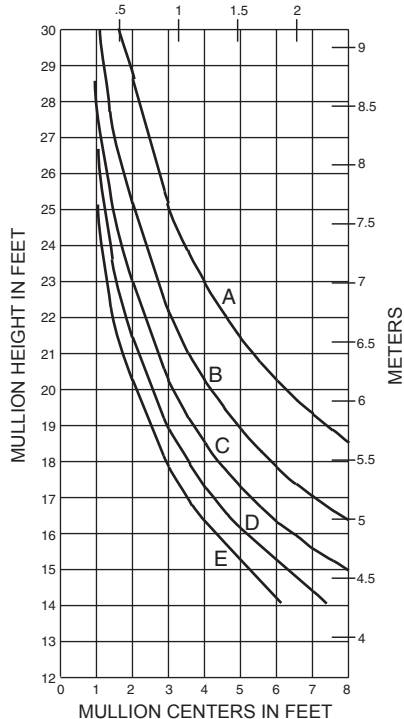


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SINGLE SPAN

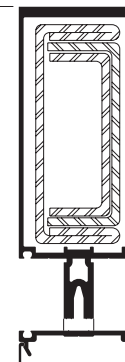
162004 W/162301/302

METERS



162004 W/162301/302

la = 12.736(530.11 x 10⁴)
 Sa = 3.791(62.12 x 10³)
 Is = 7.893(328.53 x 10⁴)
 Ss = 3.462(56.73 x 10³)



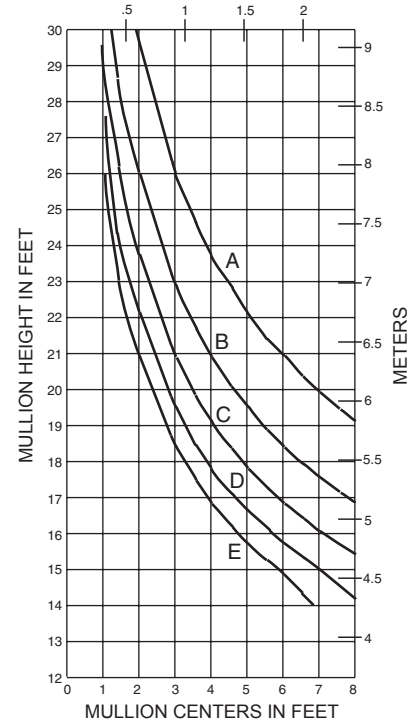
162004 W/162301/302/303

la = 12.736(530.11 x 10⁴)
 Sa = 3.791(62.12 x 10³)
 Is = 9.347(389.05 x 10⁴)
 Ss = 4.100(67.19 x 10³)

SINGLE SPAN

162004 W/162301/302/303

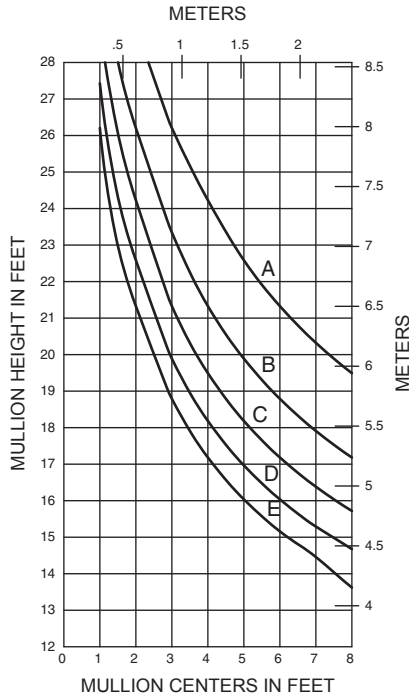
METERS



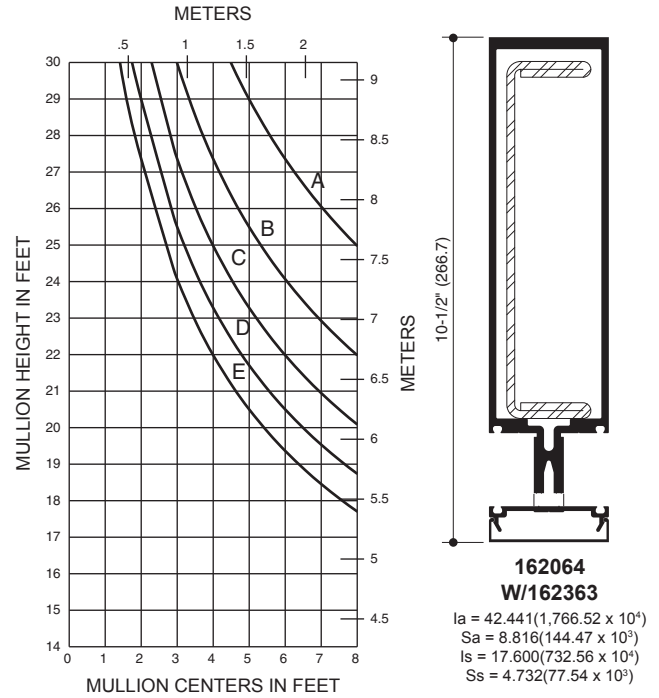
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SINGLE SPAN

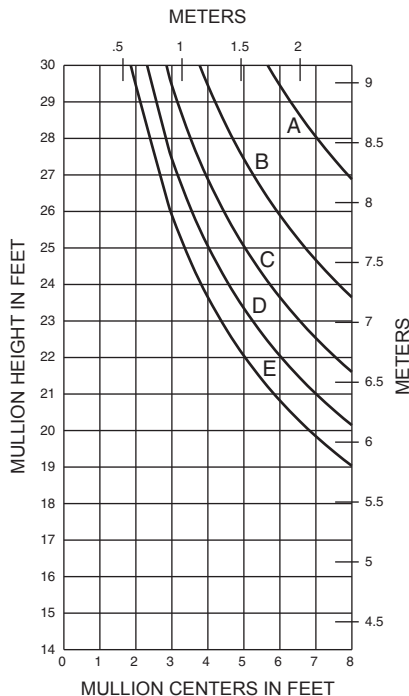


SINGLE SPAN

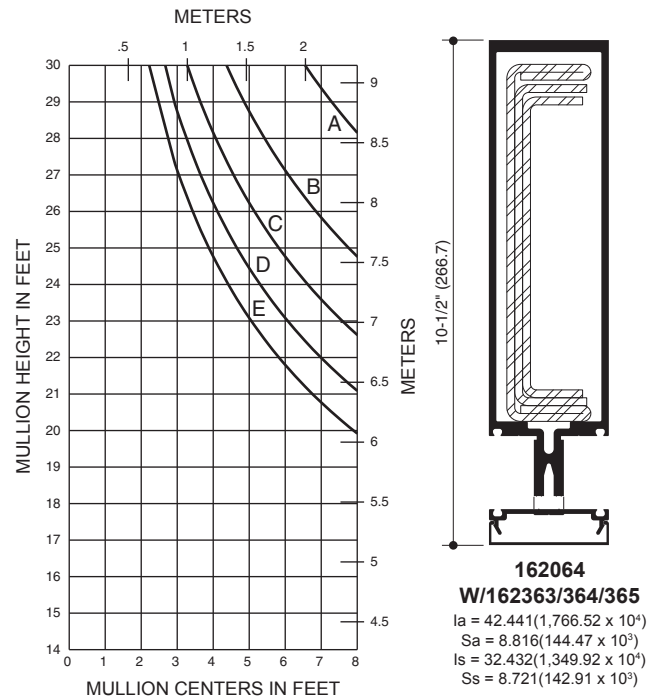


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

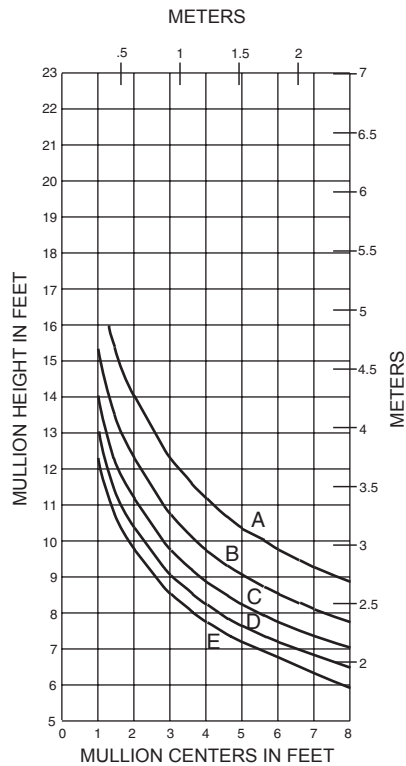
SINGLE SPAN



SINGLE SPAN

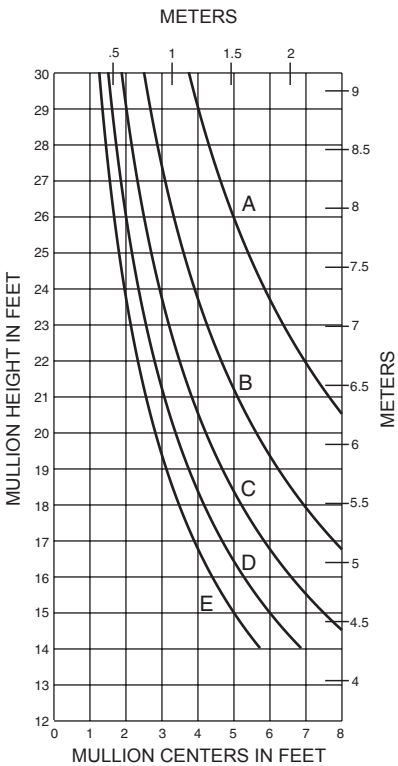


SINGLE SPAN



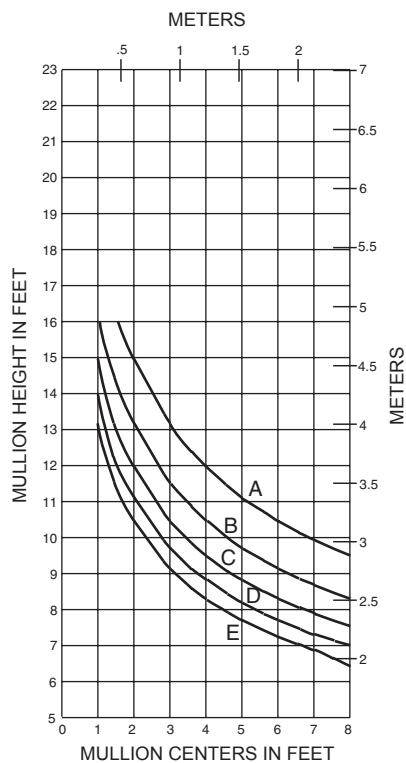
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

TWIN SPAN



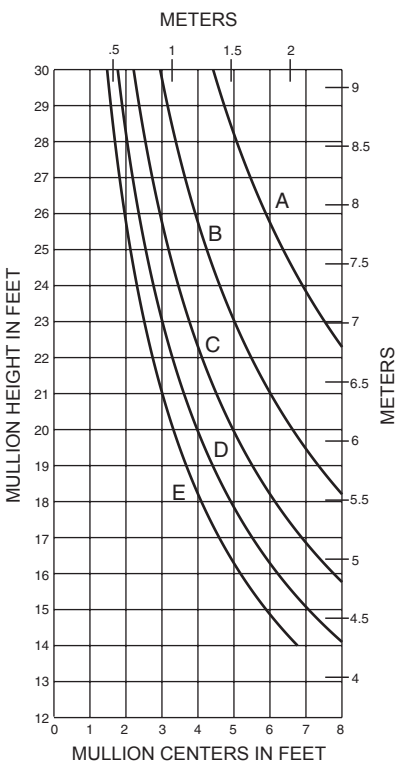
162013
I = 3.662(152.42 x 10⁴)
S = 1.662(27.24 x 10³)

SINGLE SPAN



162014
I = 4.5071(87.60 x 10⁴)
S = 1.968(32.25 x 10³)

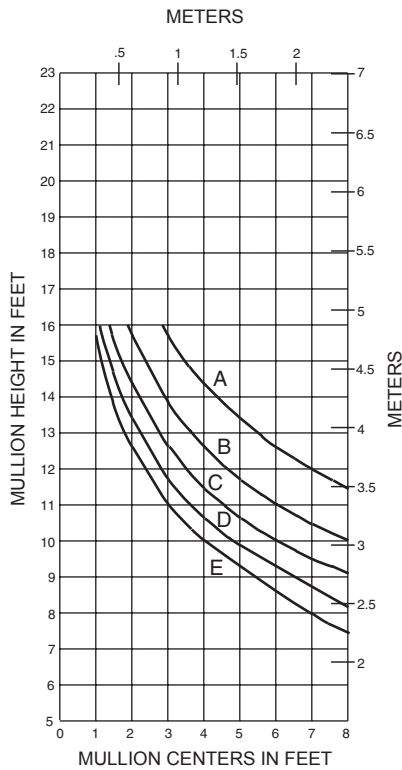
TWIN SPAN



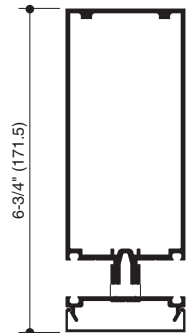
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SINGLE SPAN



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

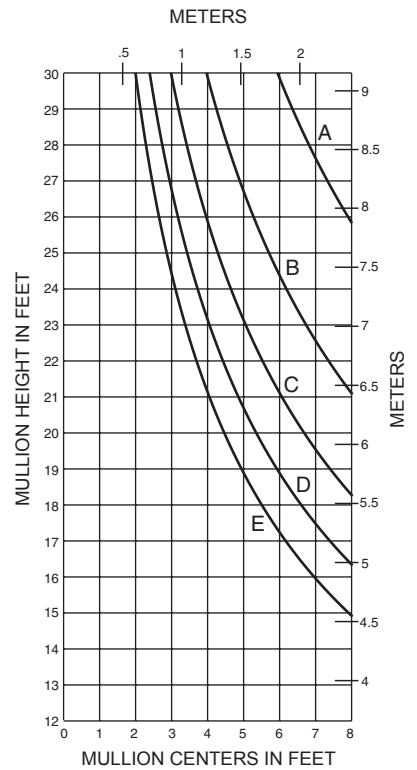


162015

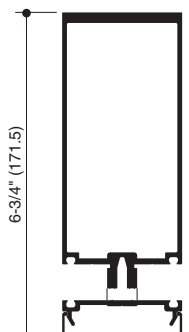
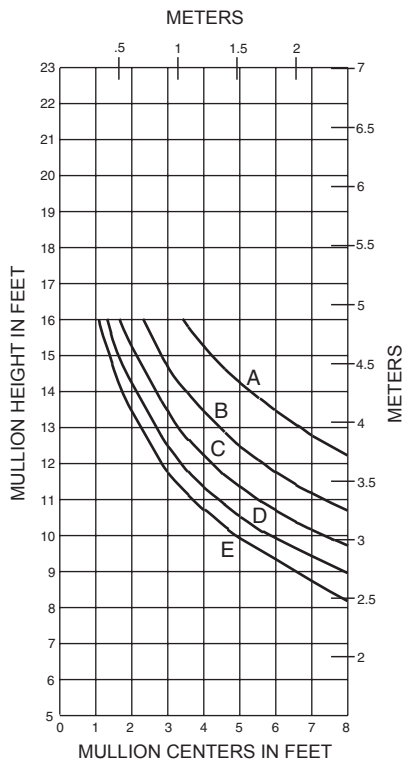
$I = 7.915 (329.45 \times 10^4)$
 $S = 2.635 (43.18 \times 10^3)$



TWIN SPAN



SINGLE SPAN

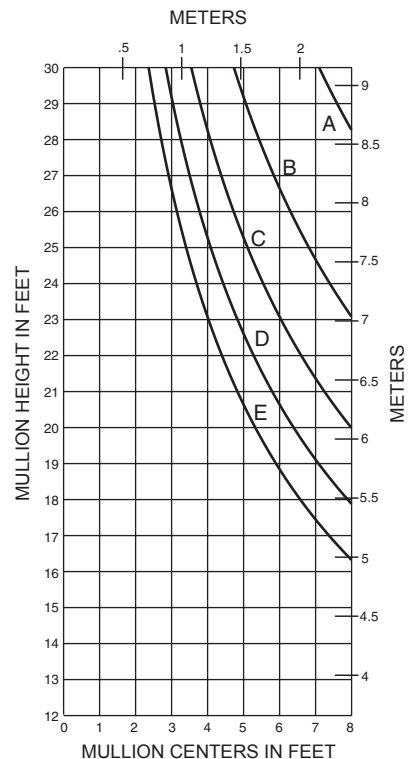


162016

$I = 9.594 (399.33 \times 10^4)$
 $S = 3.163 (51.83 \times 10^3)$



TWIN SPAN



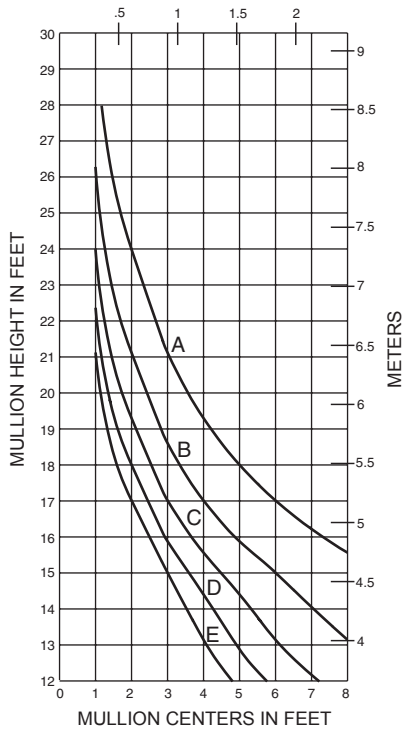
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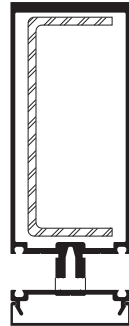
SINGLE SPAN

162016 W/162300

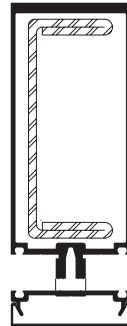
METERS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

162016
W/162300

la = 9.594(399.33 x 10⁴)
 Sa = 3.163(51.83 x 10³)
 Is = 3.805(158.37 x 10⁴)
 Ss = 1.669(27.35 x 10³)

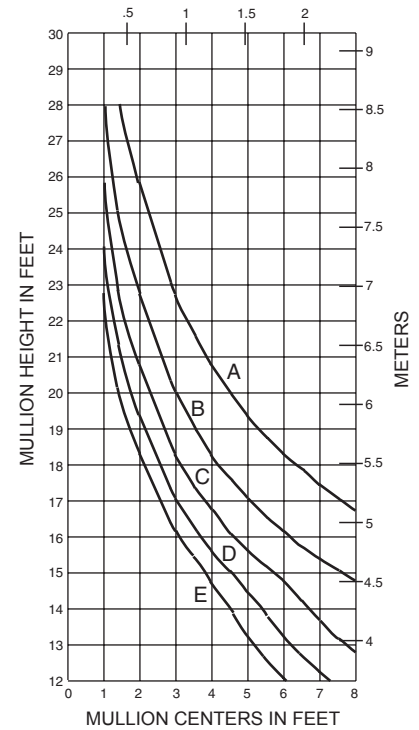
162016
W/162301

la = 9.594(399.33 x 10⁴)
 Sa = 3.163(51.83 x 10³)
 Is = 5.684(236.59 x 10⁴)
 Ss = 2.493(40.85 x 10³)

SINGLE SPAN

162016 W/162301

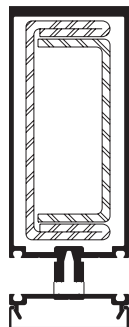
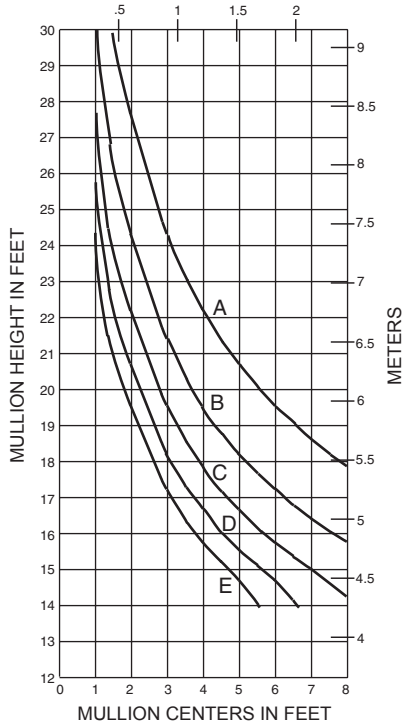
METERS



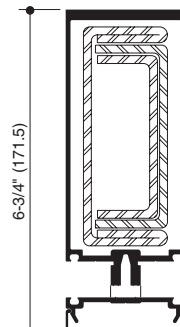
SINGLE SPAN

162016 W/162301/302

METERS

162016
W/162301/302

la = 9.594(399.33 x 10⁴)
 Sa = 3.163(51.83 x 10³)
 Is = 7.893(328.53 x 10⁴)
 Ss = 3.462(56.73 x 10³)

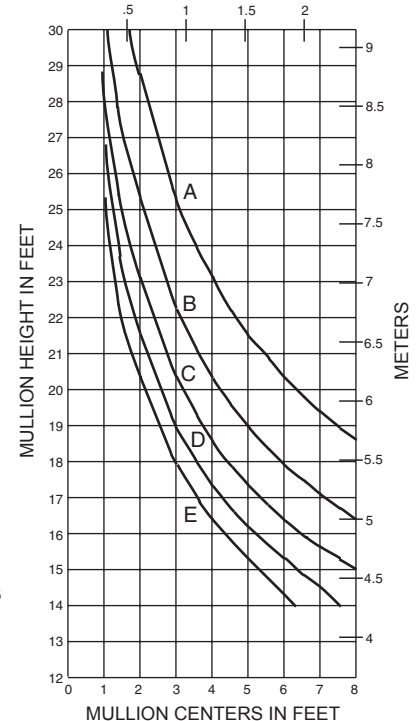
162016
W/162301/302/303

la = 9.594(399.33 x 10⁴)
 Sa = 3.163(51.83 x 10³)
 Is = 9.347(389.05 x 10⁴)
 Ss = 4.100(67.19 x 10³)

SINGLE SPAN

162016 W/162301/302/303

METERS



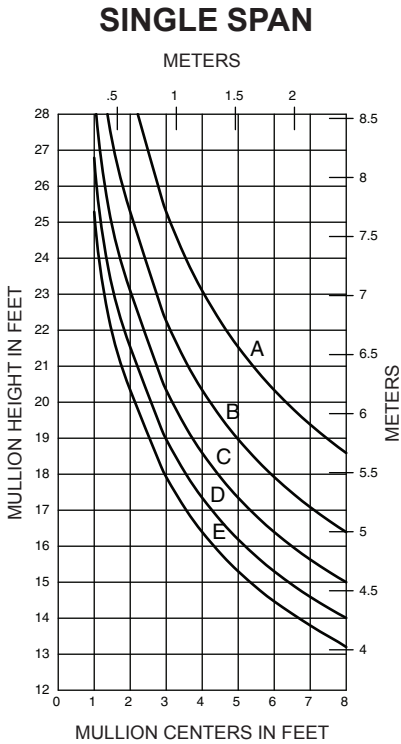
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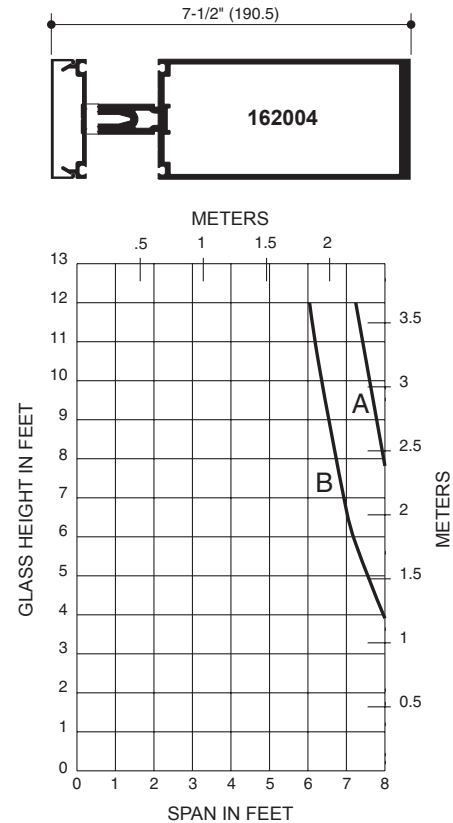
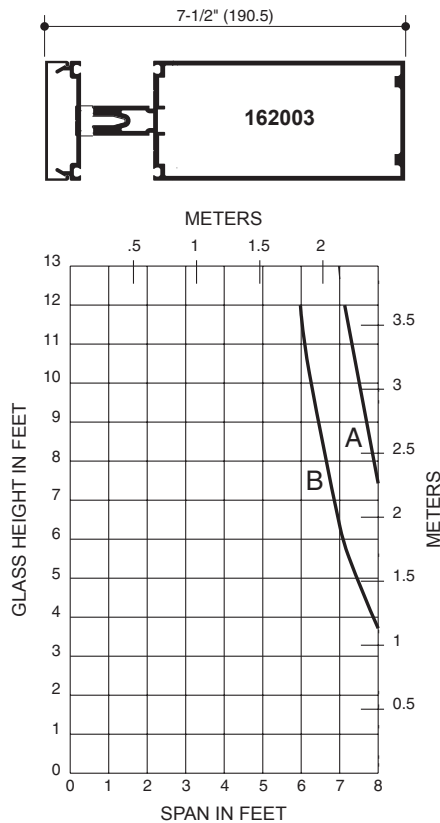
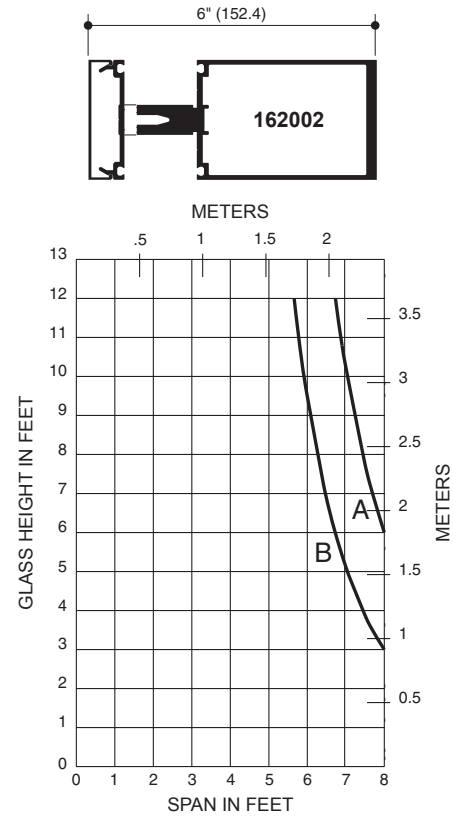
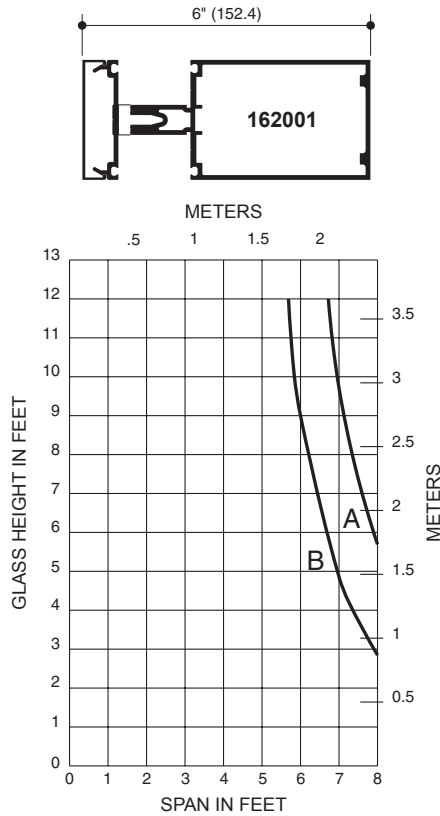


162213

I = 36.451(1517.20 x 10⁴)
S = 8.279(135.67 x 10³)

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

A - 1/4" GLASS (1/4 POINT LOADING)
B - 1" GLASS (1/4 POINT LOADING)

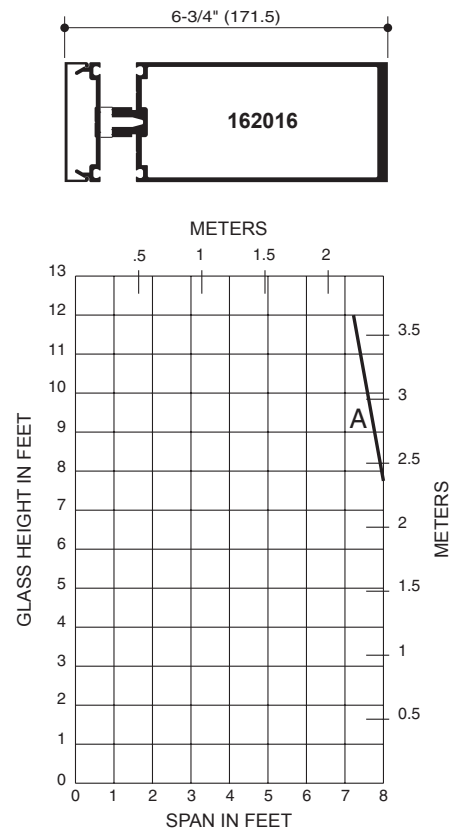
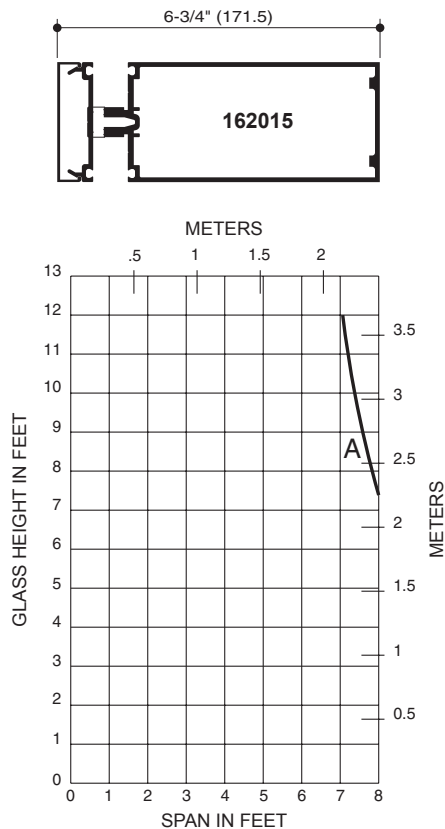
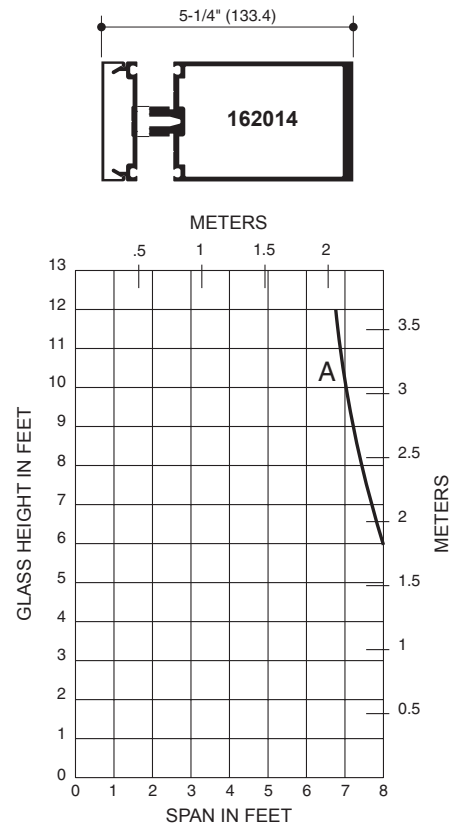
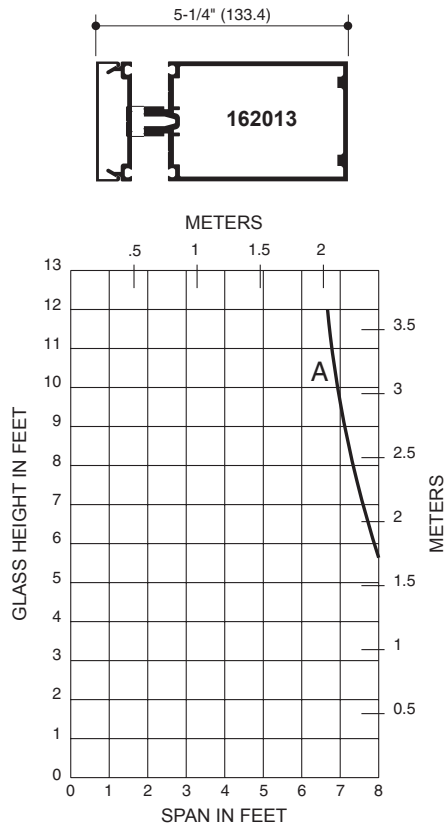


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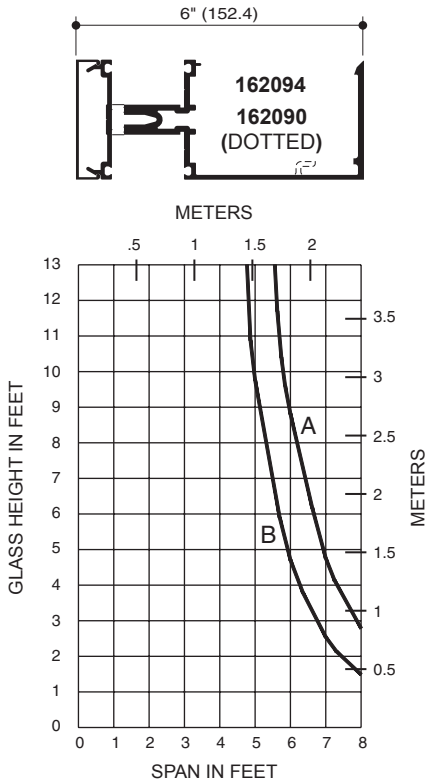
A - 1/4" GLASS (1/4 POINT LOADING)



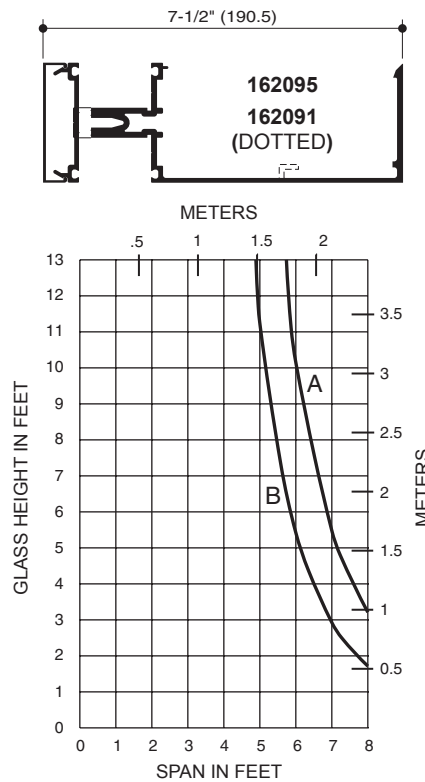
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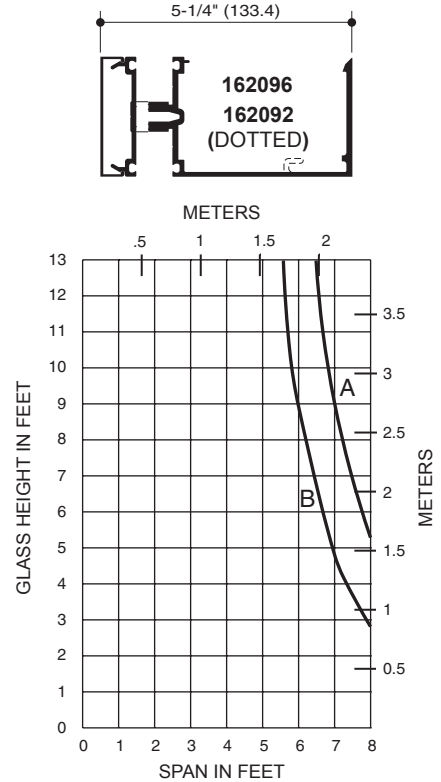
A - 1" GLASS (1/8 POINT LOADING)
B - 1" GLASS (1/4 POINT LOADING)



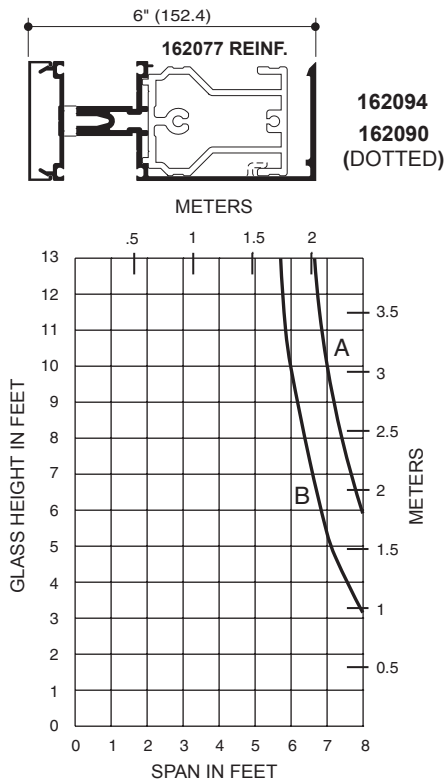
A - 1" GLASS (1/8 POINT LOADING)
B - 1" GLASS (1/4 POINT LOADING)



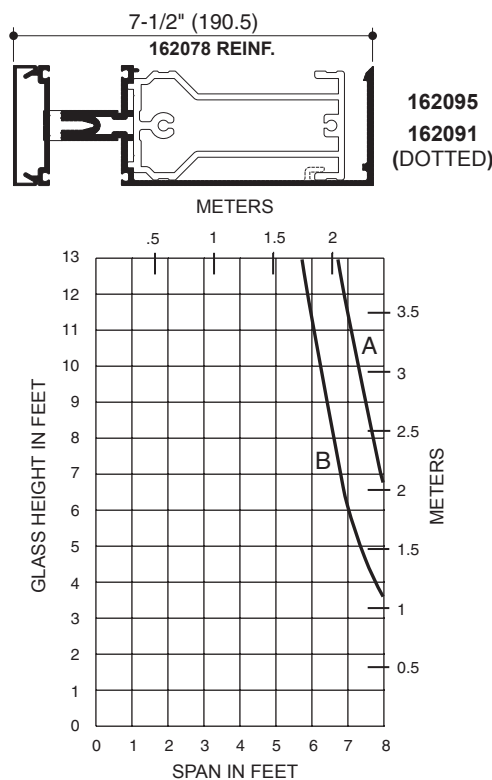
A - 1/4" GLASS (1/8 POINT LOADING)
B - 1/4" GLASS (1/4 POINT LOADING)



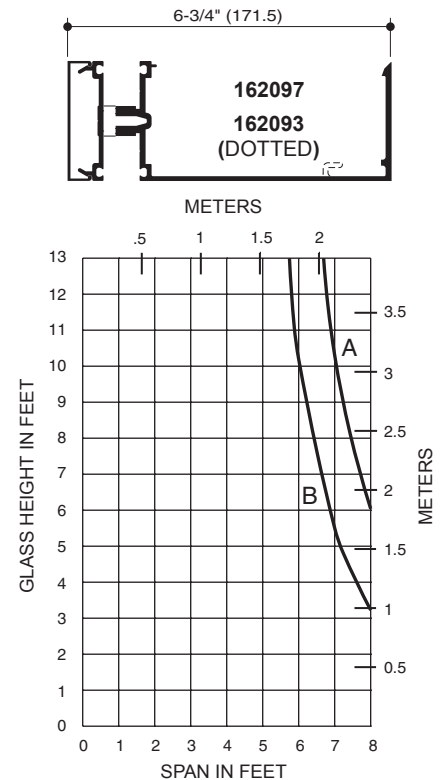
A - 1" GLASS (1/8 POINT LOADING)
B - 1" GLASS (1/4 POINT LOADING)



A - 1" GLASS (1/8 POINT LOADING)
B - 1" GLASS (1/4 POINT LOADING)



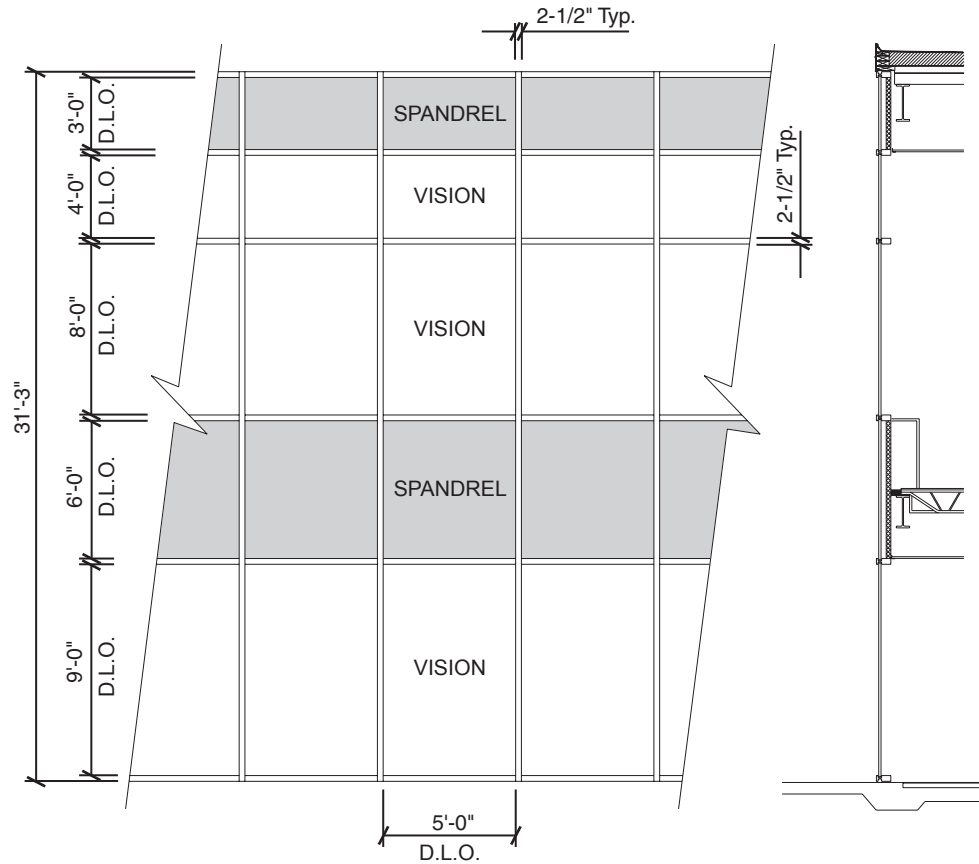
A - 1/4" GLASS (1/8 POINT LOADING)
B - 1/4" GLASS (1/4 POINT LOADING)



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Generic Project Specific U-factor Example Calculation
(Percent of Glass will vary on specific products depending on sitelines)
(Based on single bay of Curtain Wall/Window Wall)



Vision Area

Example Glass U-factor = 0.48 Btu/(ft² · h · °F)

Vision Area = 5(9 + 8 + 4) = 105.0 ft²

Total Area (Vision) = 5' 2-1/2" (9' 3-3/4" + 8' 2-1/2" + 4' 2-1/2") = 113.2 ft²

Percentage of Vision Glass = (Vision Area ÷ Total Area)100
 = (105.0 ÷ 113.2)100 = 93%

Spandrel Area

Example Spandrel R-value = 15 (ft² · h · °F)/Btu

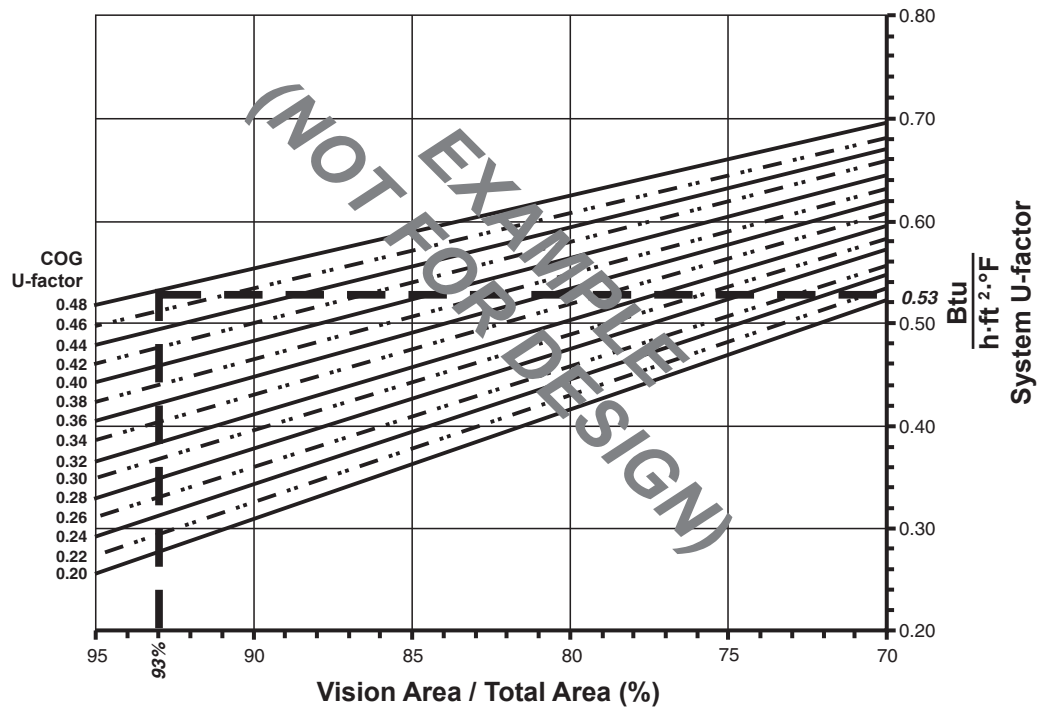
Spandrel Area = 5(6 + 3) = 45.0 ft²

Total Area (Spandrel) = 5' 2-1/2" (6' 2-1/2" + 3' 3-3/4") = 49.6 ft²

Percent of Spandrel = (Spandrel Area ÷ Total Area)100
 = (45.0 ÷ 49.6)100 = 91%

Vision Area Chart

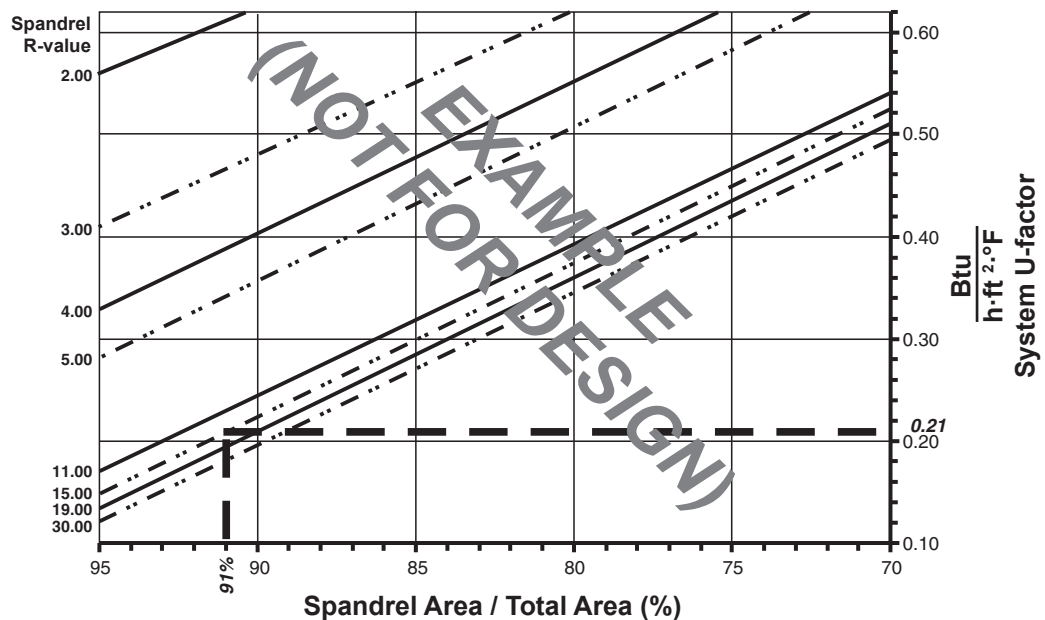
System U-factor vs Percent of Vision Area



Based on a single curtain wall bay of 93% vision glass and center of glass U-factor of 0.48, System U-factor is equal to 0.53 Btu/(h·ft²·°F)

Spandrel Area Chart

System U-factor vs Percent of Spandrel Area



Based on a single curtain wall bay of 91% spandrel and center of spandrel R-value of 15, system U-factor is equal to 0.21 Btu/(h·ft²·°F)

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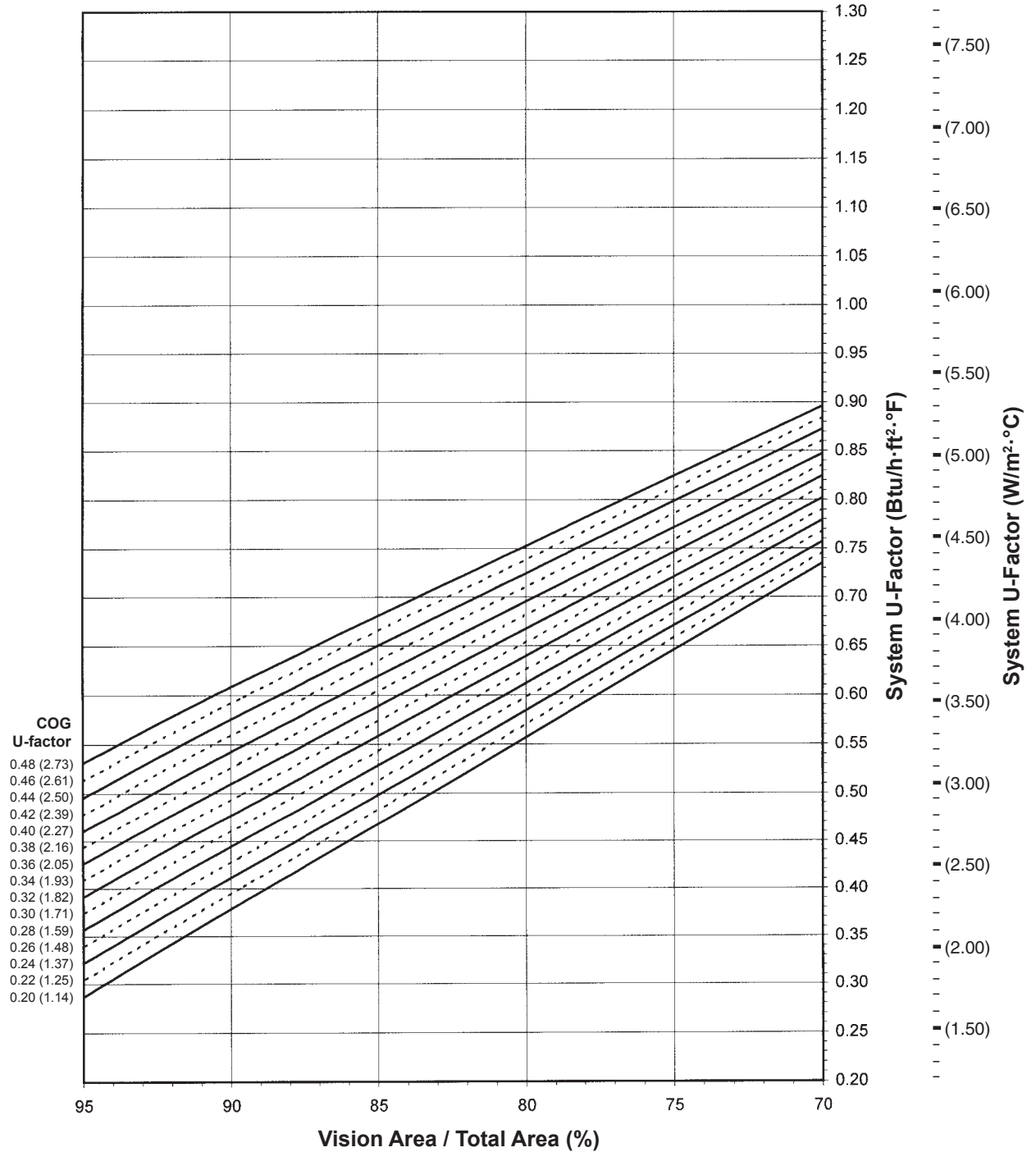
Note:

Values in parentheses are metric.

COG=Center of Glass.

Charts are generated per AAMA 507.

System U-Factor for Vision Glass



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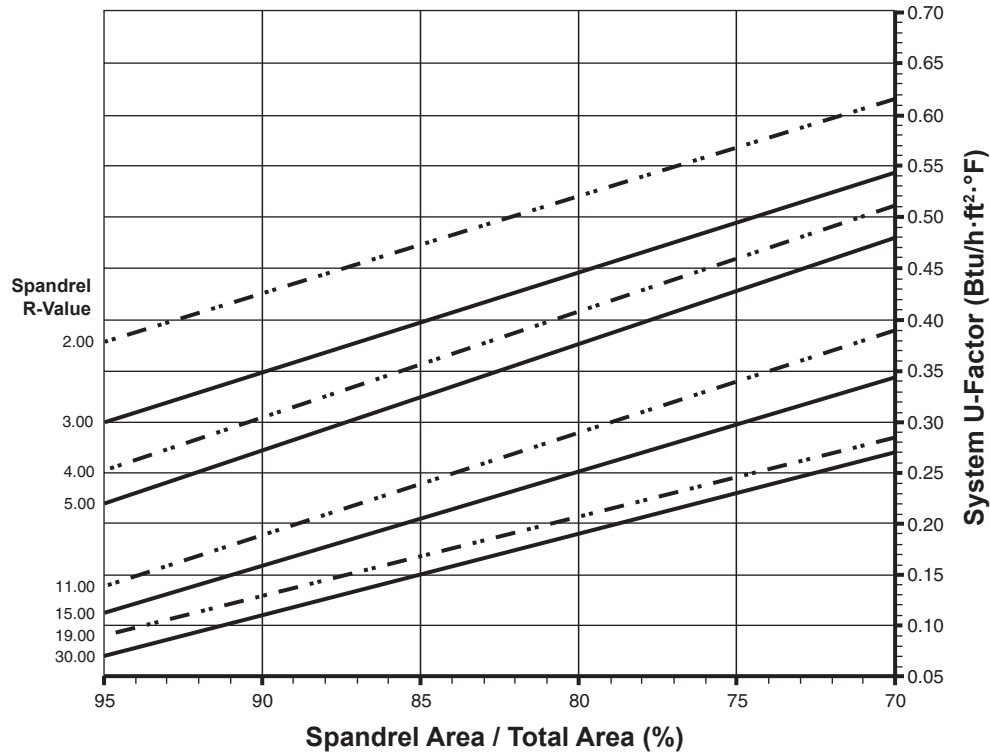
Note:

Values in parentheses are metric.

COG=Center of Glass.

Charts are generated per AAMA 507.

System U-Factors for Spandrel Glass

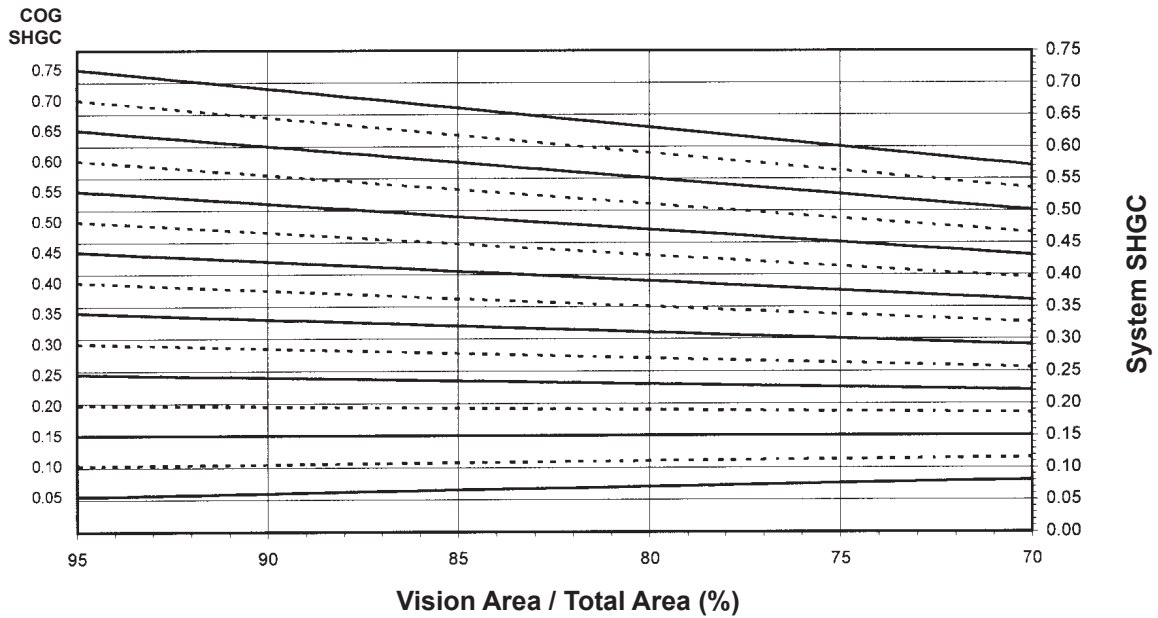


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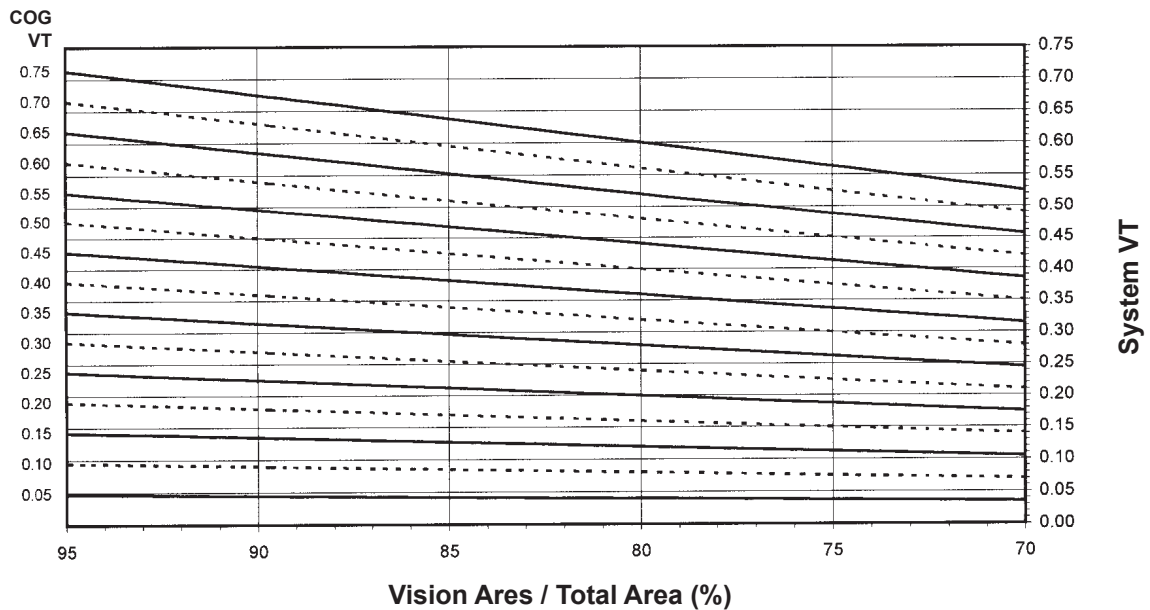
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System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.61
0.46	0.60
0.44	0.58
0.42	0.56
0.40	0.55
0.38	0.53
0.36	0.51
0.34	0.50
0.32	0.48
0.30	0.47
0.28	0.45
0.26	0.43
0.24	0.42
0.22	0.40
0.20	0.38

**1" GLAZING WITH
ALUMINUM PRESSURE PLATE**

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.69
0.70	0.64
0.65	0.60
0.60	0.55
0.55	0.51
0.50	0.46
0.45	0.42
0.40	0.37
0.35	0.33
0.30	0.28
0.25	0.24
0.20	0.20
0.15	0.15
0.10	0.11
0.05	0.06

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.67
0.70	0.63
0.65	0.58
0.60	0.54
0.55	0.49
0.50	0.45
0.45	0.40
0.40	0.36
0.35	0.31
0.30	0.27
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

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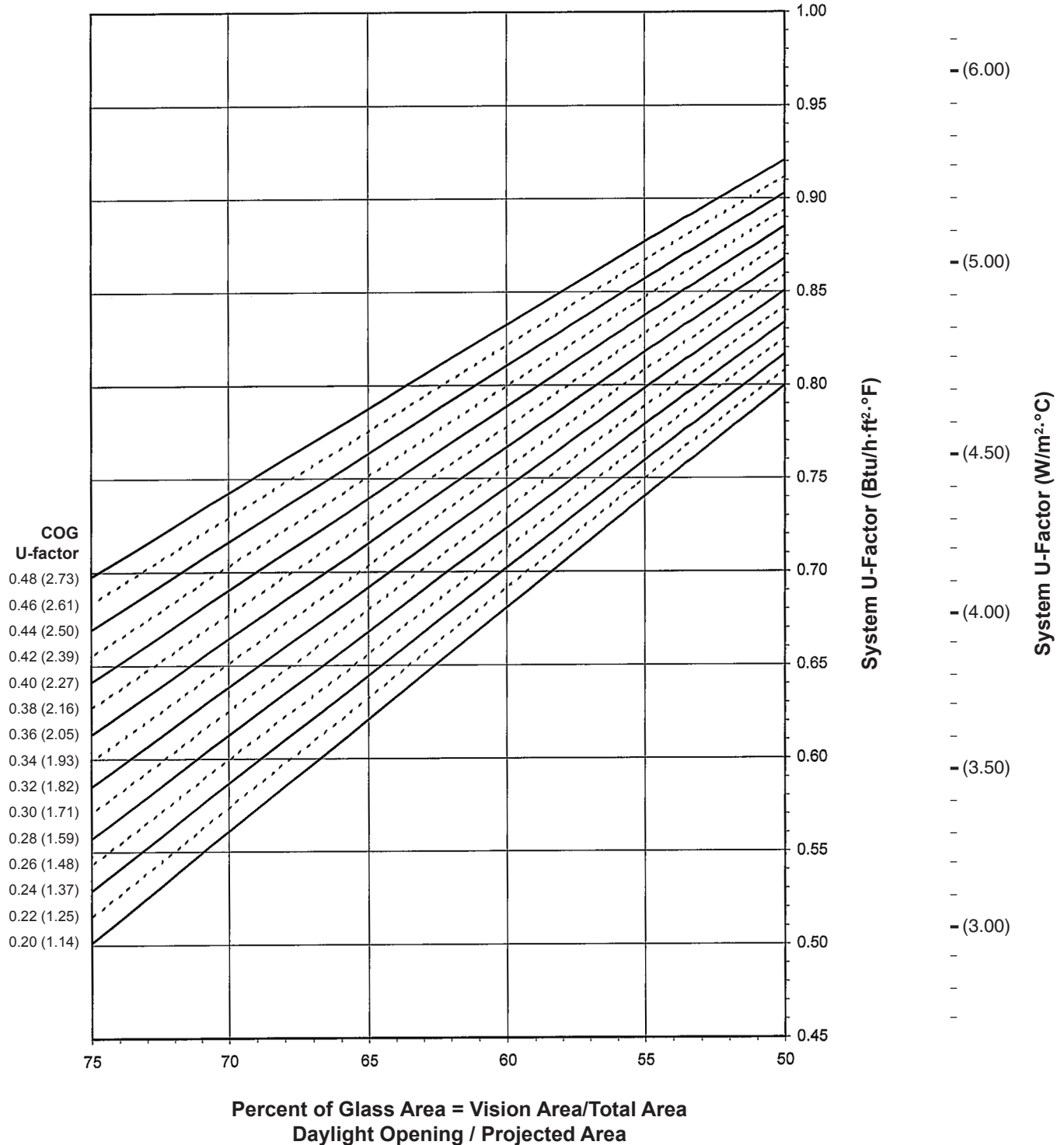
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1600 System™¹ with GLASSvent™ - Projecting (Awning - Single)**Note:**

Values in parentheses are metric.

COG = Center of Glass.

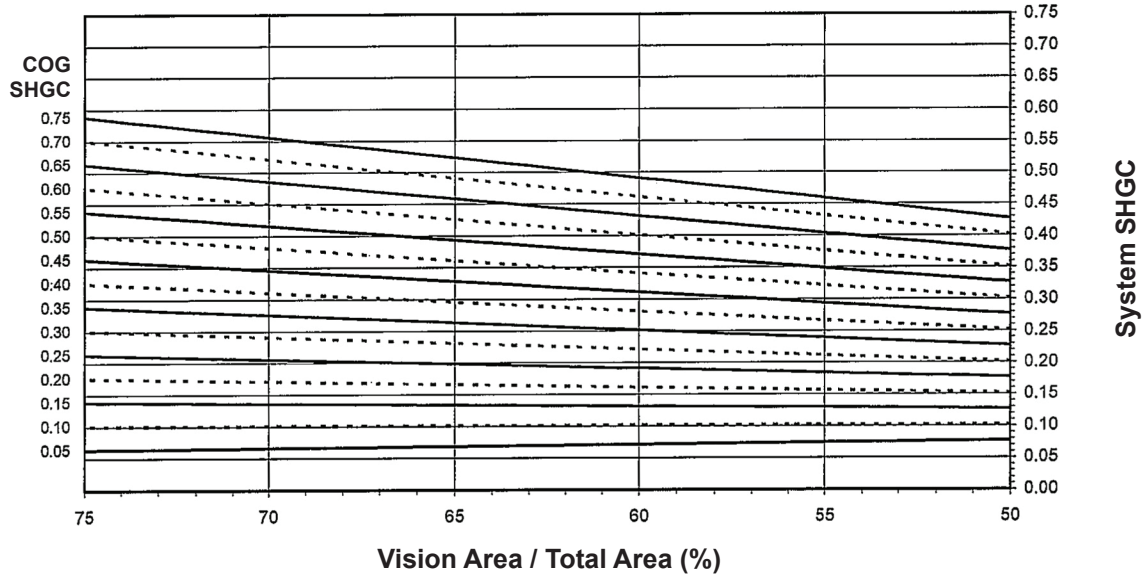
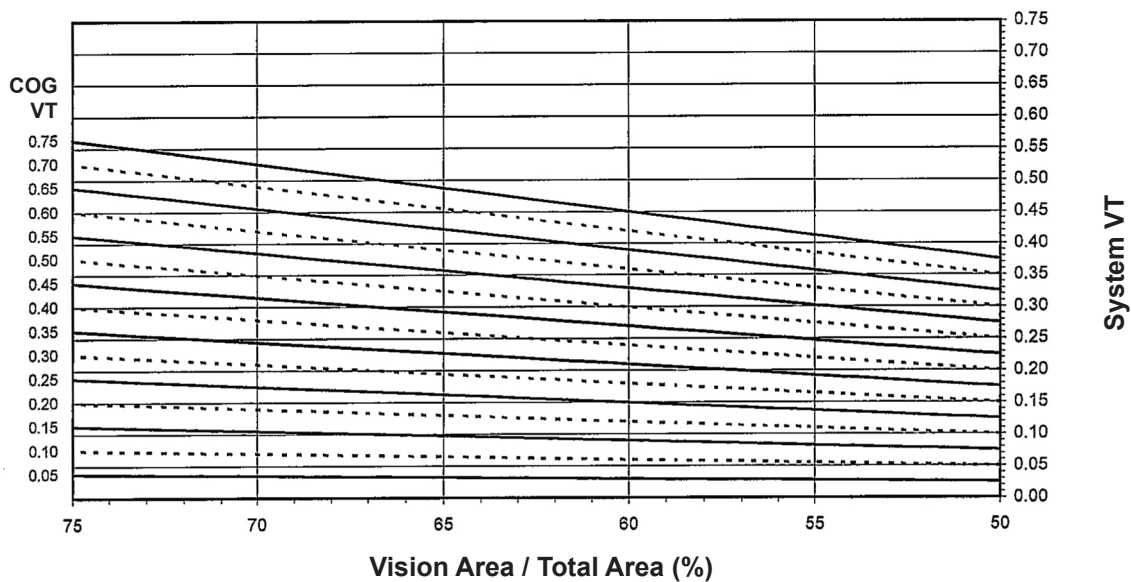
Charts are generated per AMMA 507

System U-Factor for Vision Glass**Notes for System U-factor, SHGC and VT charts:**

For glass values that are not listed, linear interpolation is permitted.

Glass properties are based on center of glass values and are obtained from your glass supplier.

1600 System™1 with GLASSvent™ - Projecting (Awning - Single)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision AreaSystem Visible Transmittance (VT) vs Percent of Vision Area

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.87
0.46	0.86
0.44	0.85
0.42	0.84
0.40	0.83
0.38	0.82
0.36	0.81
0.34	0.80
0.32	0.79
0.30	0.78
0.28	0.77
0.26	0.76
0.24	0.76
0.22	0.75
0.20	0.74

**1" GLAZING WITH
ALUMINUM PRESSURE PLATE****1600 System™1 with GLASSvent™ -
Projecting (Awning - Single)**

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/16" by 23-5/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.46
0.70	0.43
0.65	0.41
0.60	0.38
0.55	0.35
0.50	0.32
0.45	0.30
0.40	0.27
0.35	0.24
0.30	0.21
0.25	0.18
0.20	0.16
0.15	0.13
0.10	0.10
0.05	0.07

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.42
0.70	0.39
0.65	0.36
0.60	0.33
0.55	0.30
0.50	0.28
0.45	0.25
0.40	0.22
0.35	0.19
0.30	0.17
0.25	0.14
0.20	0.11
0.15	0.08
0.10	0.06
0.05	0.03

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

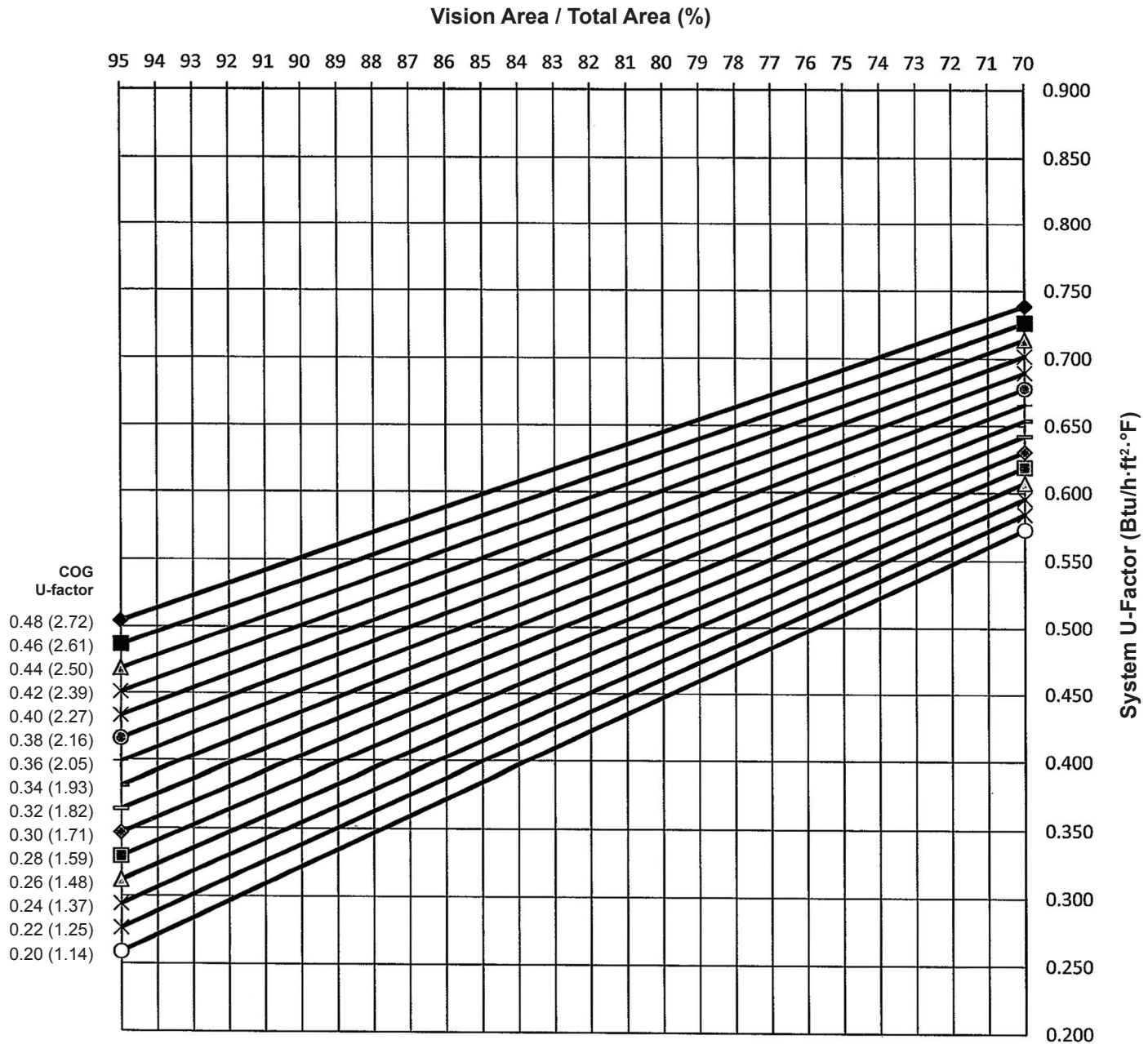
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Note:
Values in parentheses are metric.
COG=Center of Glass.
Charts are generated per AAMA 507.

1" GLAZING WITH FIBERGLASS PRESSURE PLATE

System U-Factor for Vision Glass



Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

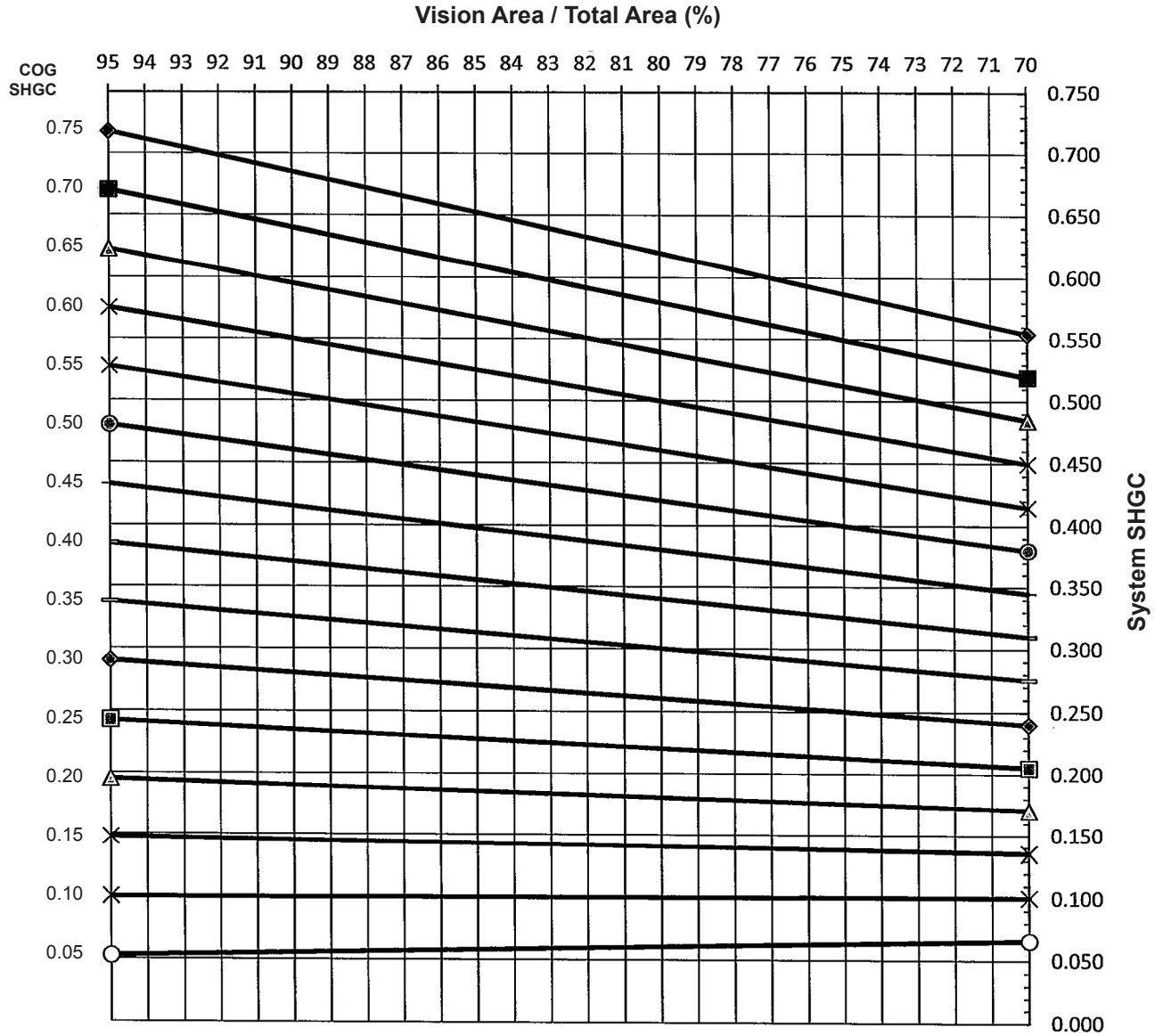
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1" GLAZING WITH FIBERGLASS PRESSURE PLATE

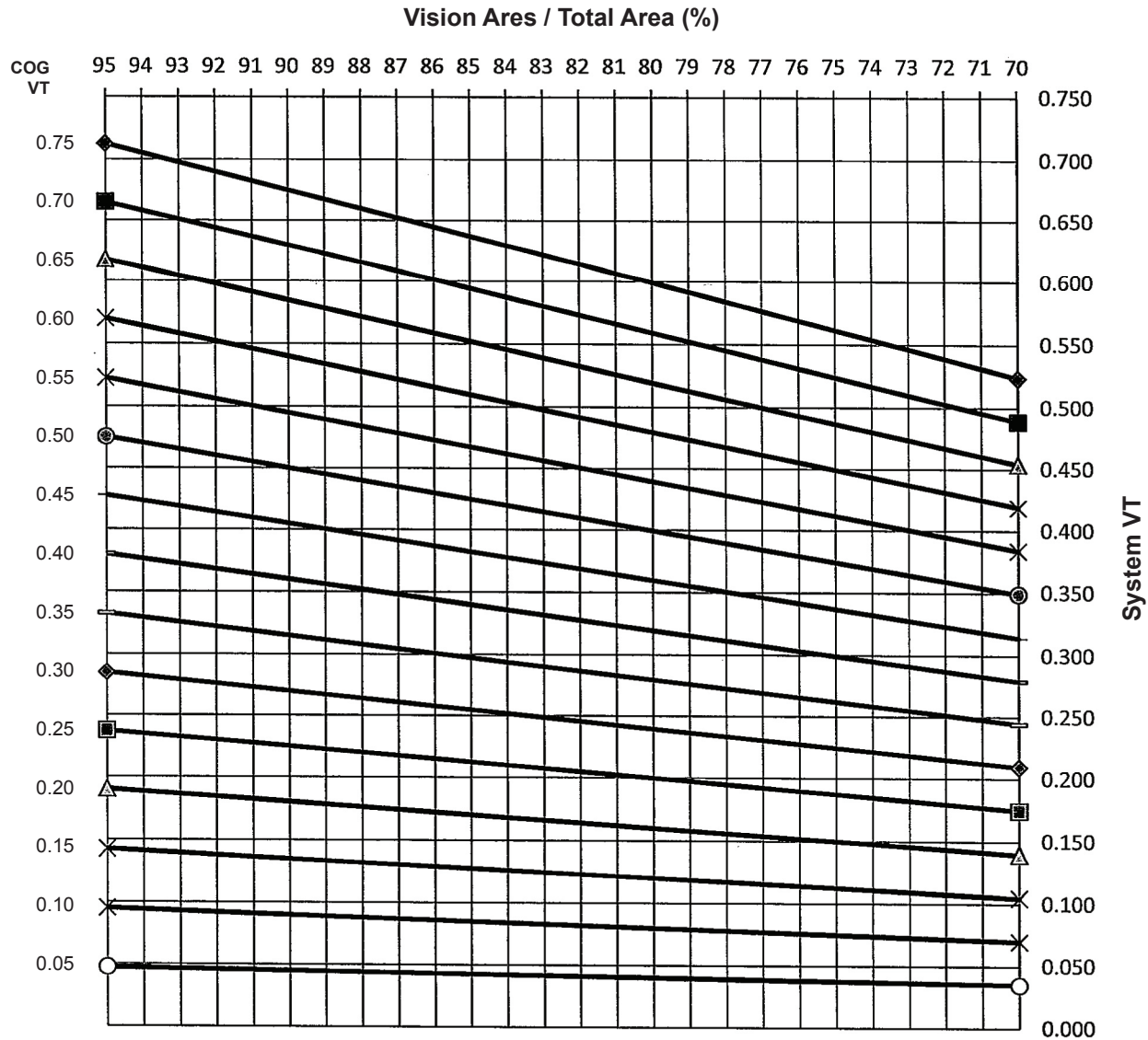
System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



Charts are generated per AAMA 507.

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1" GLAZING WITH FIBERGLASS PRESSURE PLATE**System Visible Transmittance (VT) vs Percent of Vision Area**

Charts are generated per AAMA 507.

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.56
0.46	0.54
0.44	0.52
0.42	0.51
0.40	0.49
0.38	0.48
0.36	0.46
0.34	0.44
0.32	0.43
0.30	0.41
0.28	0.39
0.26	0.38
0.24	0.36
0.22	0.34
0.20	0.33

**1" GLAZING WITH
FIBERGLASS PRESSURE PLATE**

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.68
0.70	0.64
0.65	0.59
0.60	0.55
0.55	0.50
0.50	0.46
0.45	0.41
0.40	0.37
0.35	0.32
0.30	0.28
0.25	0.23
0.20	0.19
0.15	0.15
0.10	0.10
0.05	0.06

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.67
0.70	0.63
0.65	0.58
0.60	0.54
0.55	0.49
0.50	0.45
0.45	0.40
0.40	0.36
0.35	0.31
0.30	0.27
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

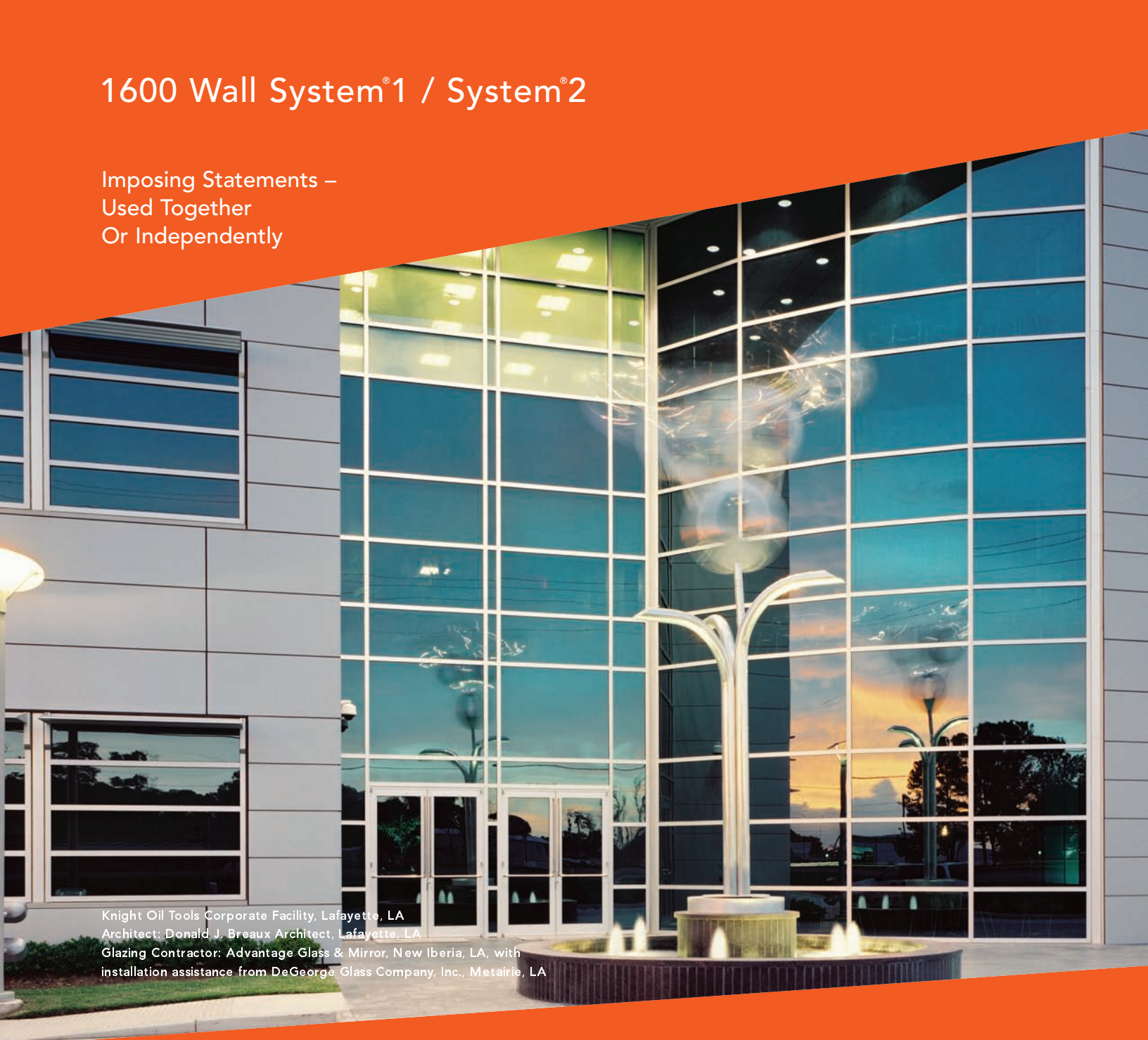
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1600 Wall System®1 / System®2

Imposing Statements –
Used Together
Or Independently



Knight Oil Tools Corporate Facility, Lafayette, LA
Architect: Donald J. Breaux Architect, Lafayette, LA
Glazing Contractor: Advantage Glass & Mirror, New Iberia, LA, with
installation assistance from DeGeorge Glass Company, Inc., Metairie, LA

Building on the proven success of Kawneer's 1600 Wall System® which set the standards for curtain wall engineering, 1600 Wall System®1 and 1600 Wall System®2 provide reliability with versatile features. Both are stick-fabricated, pressure glazed curtain walls for low-to-mid-rise applications and are designed to be used independently or as an integrated system to provide visual impact for almost any type of building.

- 1600 Wall System®1 is an outside glazed, captured curtain wall
- 1600 Wall System®2 is a Structural Silicone Glazed (SSG) curtain wall

Aesthetics

Even the smallest details of 1600 System®1/1600 Wall System®2 reflect the aesthetics and reliability that derive from Kawneer's precise engineering and experience. The joinery for both systems is accomplished with concealed fasteners to create unbroken lines and a monolithic appearance. When using optional, open back horizontal mullions, the fillers snap at the edge, producing an uninterrupted sight line.

Performance

Key aspects of 1600 System®1 and 1600 Wall System®2 are enhanced for higher performance. Pressure equalization has been designed into the system and all components are silicone compatible to provide superior longevity. For installations where severe weather conditions are prevalent, 1600 Wall System®1 has been large missile hurricane impact and cycle tested. Proven through years of high performance, both systems are tested according to industry standards:

Air Performance	ASTM E-283
Static Water Penetration	ASTM E-331
Dynamic Water Penetration	AAMA 501.1
Structural Performance	ASTM E-330
"U" Value, CRF	AAMA 1503.1
Sound Transmission Rating	ASTM E 90-90
Seismic Performance	AAMA 501.4

For the Finishing Touch

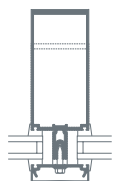
Permadonic Anodized finishes are available in Class I and Class II in seven different colors.

Painted Finishes, including fluoropolymer that meet or exceed AAMA 2605, are offered in many standard choices and an unlimited number of specially-designed colors.

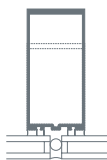
Solvent-free powder coatings add the "green" element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.



Hunter Henry Center at Mississippi State University,
Mississippi State, MS
Architect: Foil Wyatt Architects & Planners, P.A., Jackson, MS
Glazing Contractor: American Glass Company, Inc., Columbus, MS



1600 Wall System®1



1600 Wall System®2

1600 Wall System®1/1600 Wall System®2:

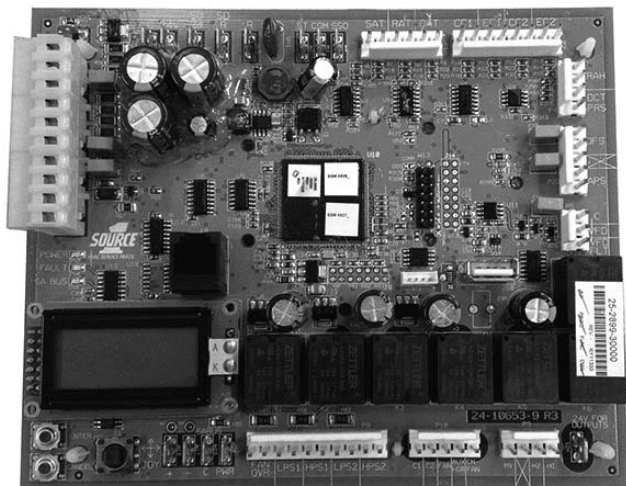
- for reliability
- for performance
- for versatility
- for a smooth, monolithic appearance
- for uninterrupted sight lines

Kawneer Company, Inc.
Technology Park / Atlanta
555 Guthridge Court
Norcross, GA 30092

kawneer.com
770 . 449 . 5555

 **KAWNEER**
AN ALCOA COMPANY





- **Units will come with the new state of the art Smart Equipment™ control system.** The new unit control incorporates the best of the already proven unitary controls and creates a more robust, intelligent control. The goal of this control is to utilize cutting edge technology making the equipment easier to install, operate, and service. All units are Factory commissioned, configured, and run tested.
- **Versatile** - The Smart Equipment™ control can be configured to use with a standard thermostat (easy to connect screw terminals), A zone sensor, or can be setup to communicate with multiple BAS communication protocols to integrate with building automation systems.
- **Reduce field installed complexity** - Each unit will come equipped with factory installed supply air, return air, and outdoor air temperature sensors providing key temperature readings thus reduce field installed complexity.
- **On-board USB Port** - The new control comes with a long list of features including data logging, current and previous system faults and software update capabilities using the on board USB port and common flash drive. Energy use monitoring capabilities allow custom tailoring to allow a system to work more efficiently at all times and occupancy levels. Self test and start-up reports also available from the board VIA the USB port.
- **Embedded LCD Display** - The board has a easy to read, built-in LCD display and easy to use navigation joystick and buttons allowing the user to quickly navigate the menus displaying unit status, options, current function, supply, return and outdoor temperatures, fault codes and other information.
- **Safety Monitoring** - The control monitors the outdoor, supply, and return air temperatures and the high and low pressure switch status on the independent refrigerant circuits. On units with heating the gas valve and high temperature limit switches are monitored on gas and electric heating units. The control also monitors the voltage supplied to the unit and will protect the unit if low

voltage due to a brown out, or other electrical issue occurs.

- **Low Ambient** - An integrated low-ambient control allows units to operate in the cooling mode down to 0°F outdoor ambient without additional components or intervention. Optionally, the control board can be programmed to lockout the compressors when the outdoor air temperature is low or when free cooling is available.
- **Anti-Short Cycle Protection** - To aid compressor life, an anti-short cycle delay is incorporated into the standard control. Compressor reliability is further ensured by programmable minimum run times. For testing, the anti-short cycle delay can be temporarily overridden with the push of a button.
- **Fan Delays** - Fan on and fan off delays are fully programmable. Furthermore, the heating and cooling fan delay times are independent of one another. All units are programmed with default values based upon their configuration of cooling and/or heating capacity.
- **Nuisance Trip Protection and Three Strikes** - To prevent nuisance calls, the control board uses a three times, you're out philosophy. The high, low-pressure switch, anti-freeze protection, low voltage or heating high limit must trip three times within two hours before the unit control board will lock out the associated compressor. An alarm message will be displayed on the LCD screen.
- **Lead-Lag** - An integrated Lead-Lag option allows equal run time hours on all compressors, thereby extending the life of all compressors. This option is selectable on the unit control board.
- **Low Limit Control (LLC)** - To prevent the supply air from dropping below a specified set point, when there is a demand for cooling during cold outside conditions. (Programmable Set point)
- **Reliable** - From the beginning - All units undergo computer automated testing before they leave the factory. Units are tested for refrigerant charge and pressure, unit amperage, and 100% functionality. For the long term - All units are painted with a long lasting, powder paint that stands up over the life of the unit. The paint used has been proven by a 1000 hour salt spray test.
- **Full Perimeter Base Rails** - The permanently attached base rails provide a solid foundation for the entire unit and protect the unit during shipment. The rails offer rigging holes so that an overhead crane can be used to place the units on a roof.
- **Easy Installation** - Gas and electric utility knockouts are supplied in the unit underside as well as the side of the unit. Utility connections can be made quickly and with a minimum amount of field labor. All units are shipped with 2" throw-away filters installed.
- **Wide Range of Indoor Airflows** - All supply air blowers are equipped with a belt drive that can be adjusted to meet the exact requirements of the job. A high static drive option is available for applications with a higher CFM and/or static pressure requirement.
- **Warranty** - All models include a 1-year limited warranty on the complete unit. Compressors and electric heater

elements each carry a 5-year warranty. Aluminized steel (10 yr.) and stainless steel tubular heat exchangers carry a 15- year warranty.

Factory Installed Options

YORK® offers several equipment options factory installed, for the Predator® line.

- **Optional Factory Installed Economizers** - Predator units offer a variety of optional factory installed economizers with low leak dampers. The outdoor air dry bulb sensor enables economizer operation if the outdoor air temperature is less than the set point of the economizer logic module. See economizer options section to determine the correct economizer for your application.
- **Down flow / End Return Economizers (with barometric relief and fresh air hood)** - All units offer a variety of optional factory installed down flow economizers that are shipped, installed and wired with low leak dampers designed to meet ASHRAE 90.1-2010, AMCA 511 Class 1A damper, and the International Energy Conservation Code (IECC) certification requirements by achieving leakage rates of 3 cfm/sq. ft. at 1" of static pressure. Each economizer goes through a rigorous 60,000 cycle test. Dry bulb, single enthalpy, and dual enthalpy (with field installed kit) can be selected. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the outdoor air dry bulb temperature or the outdoor air enthalpy input. The optional (field installed) single or dual enthalpy kits provide additional inputs to monitor outdoor air/ or return air humidity and temperature for true enthalpy control. The installer needs only to assemble the outdoor air hood, attach the enthalpy control the hood and mount the hood to the unit (Hood and control are provided).
- **Power Exhaust** - This factory option allows down flow or horizontal end return economizer operation. **The power exhaust must be removed from the unit and mounted in the horizontal end return duct work when applying the product in the horizontal, end return configuration.**
- **Motorized Outdoor Air Damper** - The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The outdoor air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry.
- **Alternate Indoor Blower Motor** - For applications with high static restrictions, units are offered with optional indoor motors that provide higher static output and/or higher airflow, depending upon the installer's needs.
- **Variable Air Volume (VAV; 6.5 through 12.5 ton, only)** - A factory-installed variable frequency drive (VFD), mounted in the Blower Access compartment, is used to control the speed of the indoor blower motor in order to maintain a constant static pressure in the supply duct. A duct pressure transducer is provided with the unit. The drive comes completely wired and pre-programmed from the factory.
- An optional, factory-installed manual bypass switch available with factory-installed VFD can be found in the Blower Motor Access compartment. The switch can be used to either route power to the VFD for modulating control of the blower motor, to bypass the drive and operate the motor at full speed, or to power the drive (and not the motor) for diagnostic purposes.
- VAV is not available with the factory-installed 3rd. party BAS controllers. VAV is only factory installed with the Smart Equipment™ Controller.
- A 'VFD-ready' option provides the provisions for a customer-installed drive. The unit comes with a mounting bracket installed in the Blower Access compartment which may accommodate other vendor's drives depending on their size. In order to utilize the unit's mounting bracket, the maximum recommended drive dimensions are limited to approximately 9" H x 5" W x 7.5" D.
- If the drive will not fit in the allotted space, then it will have to be mounted elsewhere; either within the building on a perpendicular wall which is not subjected to excessive temperature, vibration, humidity, dust, corrosive gas, explosive gas, etc., or within an appropriate enclosure rated for outside installation to safeguard against moisture, dust and excessive heat. A terminal block located in the control box is provided for field connection of the VFD controls.
- **IntelliSpeed™ Supply Fan Control Option (ASHRAE 90.1 compliant, section 6.4.3.10)** - Units configured with the IntelliSpeed™ Supply Fan Option will contain a VFD for multi-speed supply fan operation. This option allows the supply fan RPM to vary based on the number of compressors or heating stages energized. The economizer's minimum position will also be configurable to vary based on the supply fan VFD frequency output.
- **Aluminized Steel Gas Heat Exchanger** - For applications in non-corrosive environments.
- **Stainless Steel Gas Heat Exchanger** - For applications in corrosive environments, this option provides a full stainless steel heat exchanger assembly.
- **Low NOx Option** - For units with gas furnaces in locations where codes require that the Oxides of Nitrogen emissions from the furnace be below 40 Nano grams per joule.
- **Stainless Steel Drain Pan** - An optional rust-proof stainless steel drain pan is available to provide years of trouble-free operation in corrosive environments.
- **Electric Heaters** - The electric heaters range from 3kW to 54kW and are available in all the voltage options of the base units. All heaters are intended for single point power supply.
- **Disconnect Switch** - For gas heat units and cooling units with electric heat, a HACR breaker sized to the unit is provided. For cooling only units, a switch sized to the largest electric heat available for the particular unit is provided. Factory installed option only.
- **Convenience Outlet - (Non-Powered/Powered)** - This option locates a 120V single-phase GFCI outlet with cover,

Features

- 190 narrow stile has 2-1/8" (54) vertical stile, 2-1/4" (57.2) top and 3-7/8" (98.4) bottom rail
- 350 medium stile has 3-1/2" (88.9) vertical stile, 3-1/2" (88.9) top and 6-1/2" (165.1) bottom rail
- 500 wide stile has 5" (127) vertical stile, 5" (127) top and 6-1/2" (165.1) bottom rail
- Door is 1-3/4" (44.5) deep
- Dual moment welded corner construction
- Single or double acting
- Infills range from 1/4" (6.4) to 1" (25.4)
- Offset pivots, butt hinges, continuous geared hinge or center pivots
- MS locks or panic hardware
- Surface mounted or concealed closers
- Architects Classic push/pulls
- Adjustable astragal utilizing pile weathering with polymeric fin at meeting stiles
- Polymeric bulb weatherstripping in door frames
- Permanodic™ anodized finishes in seven choices
- Painted finishes in standard and custom choices

Optional Features

- Paneline™ exit device or Paneline™ EL exit device
- Wide variety of bottom rail and cross rail

Product Applications

- 190 narrow stile - engineered for moderate traffic in applications such as offices and stores
- 350 medium stile - provides extra strength for schools, institutions and other high traffic applications
- 500 wide stile - creates a monumental visual statement for banks, libraries or buildings that experience heavy traffic conditions

For specific product applications,
Consult your Kawneer representative.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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LAWS AND BUILDING AND SAFETY CODES GOVERNING THE DESIGN AND USE OF GLAZED ENTRANCE, WINDOW, AND CURTAIN WALL PRODUCTS VARY WIDELY. KAWNEER DOES NOT CONTROL THE SELECTION OF PRODUCT CONFIGURATIONS, OPERATING HARDWARE, OR GLAZING MATERIALS, AND ASSUMES NO RESPONSIBILITY THEREFOR.

Metric (SI) conversion figures are included throughout these details for reference. Numbers in parentheses () are millimeters unless otherwise noted.

The following metric (SI) units are found in these details:

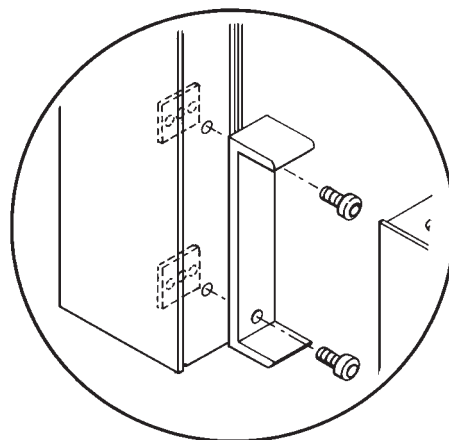
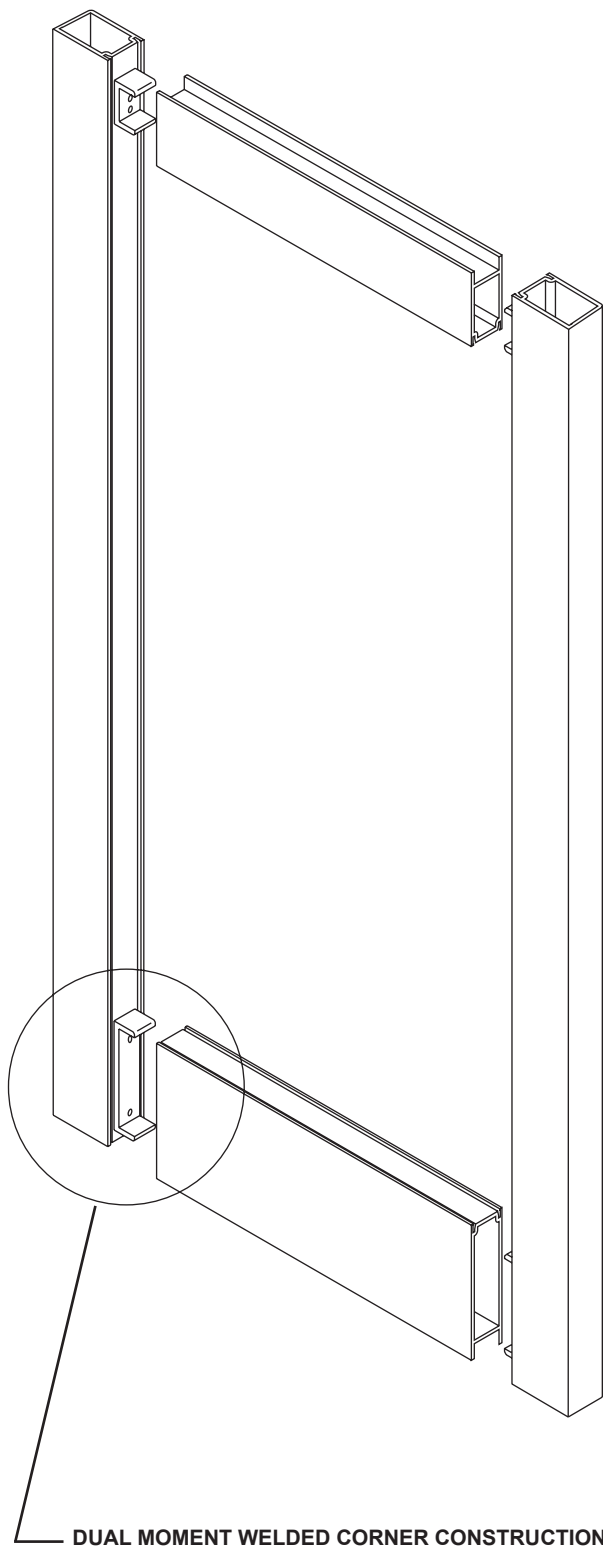
m – meter
 cm – centimeter
 mm – millimeter
 s – second
 Pa – pascal
 MPa – megapascal

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

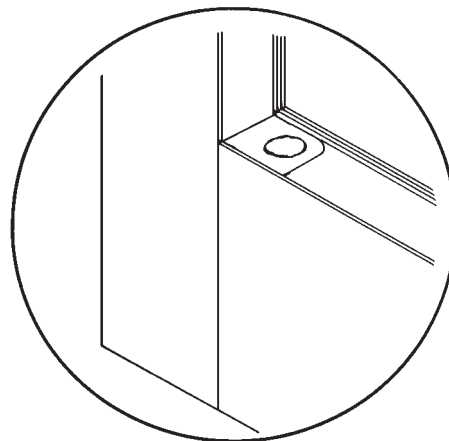
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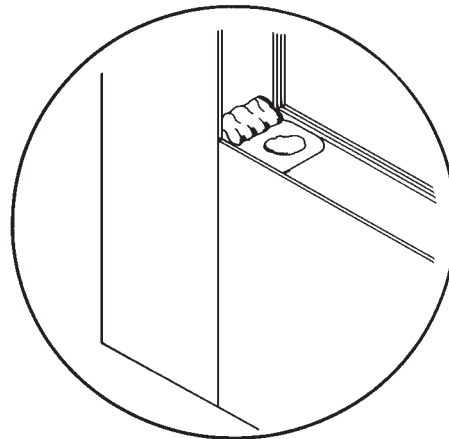
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#1 MECHANICAL FASTENING is accomplished by attaching a 5/16" (7.9) thick extruded aluminum channel clip to the vertical stile with 1/4"-20 heat strengthened bolts and 3/16" thick steel nut plates for a high strength welding base for attachment horizontal member.



#2 SIGMA* DEEP PENETRATION PLUG WELDS are made top and bottom after the horizontal is properly positioned over the channel clip to help provide the strongest door corner joint currently available.

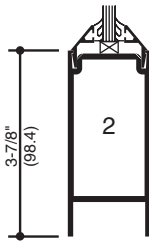
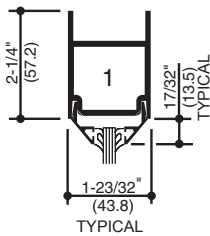
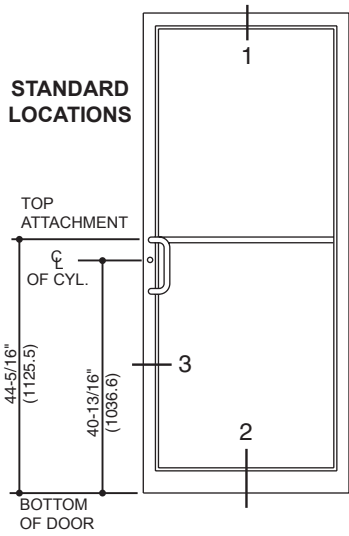


#3 SIGMA* FILLET WELDS along both top and bottom webs of the rail extrusion complete the welded corner construction.

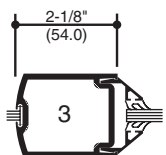
* An arc welding process known as Shielded Inert Gas Metal Arc (SIGMA) or also known as Metal Inert Gas (MIG).

SCALE 3" = 1' 0"

190 NARROW STILE

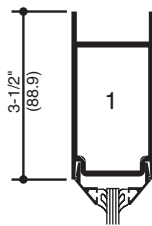
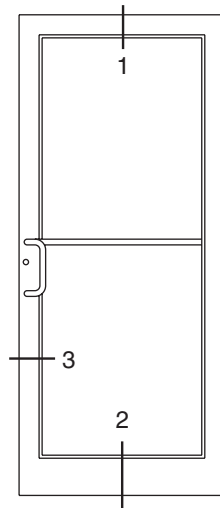


SINGLE ACTING

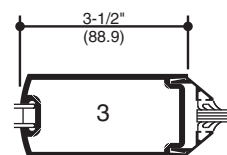


DOUBLE ACTING

350 MEDIUM STILE

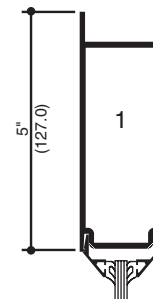
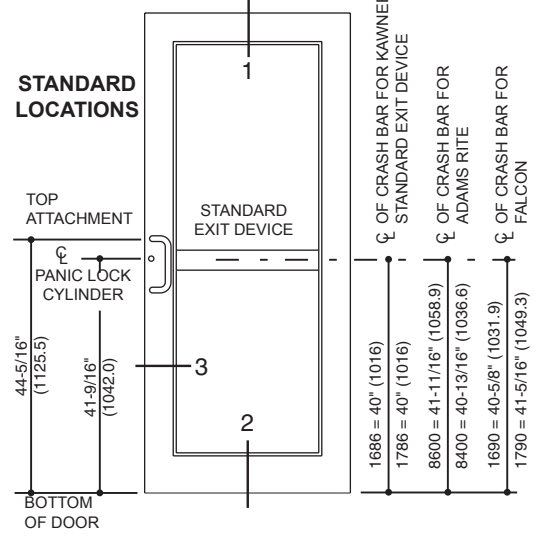


SINGLE ACTING

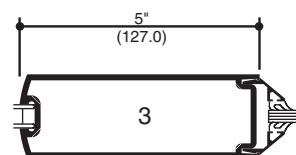


DOUBLE ACTING

500 WIDE STILE



SINGLE ACTING



DOUBLE ACTING

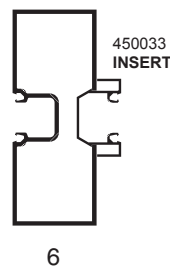
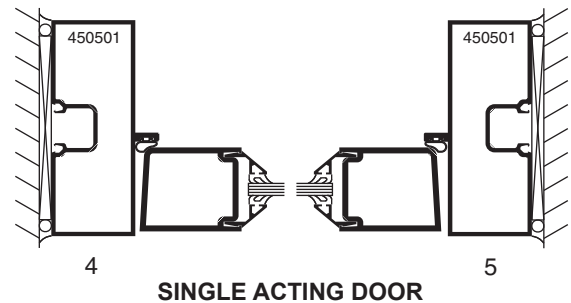
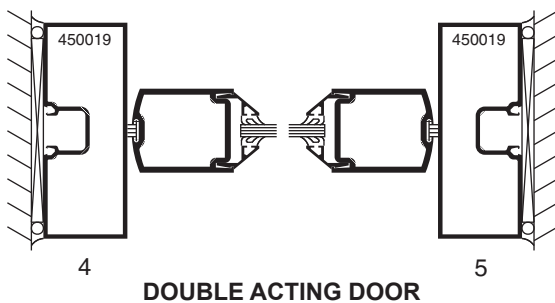
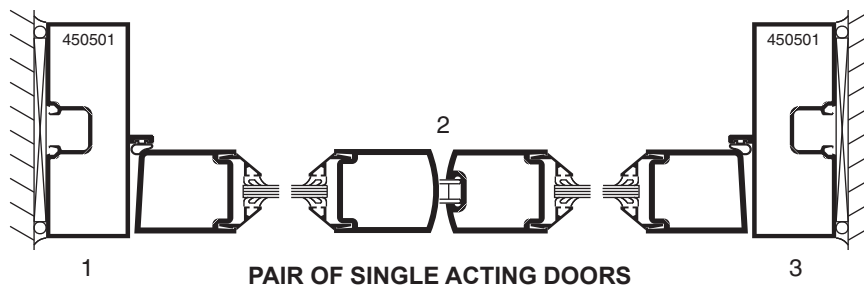
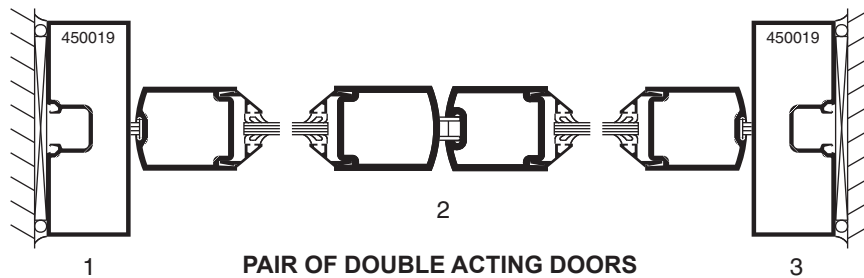
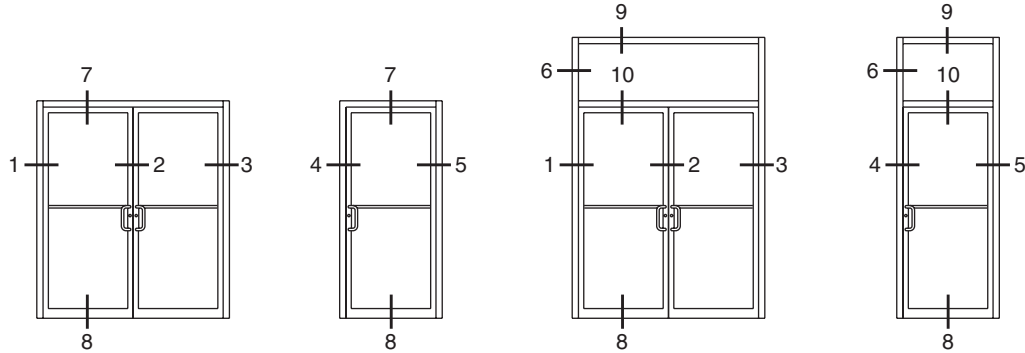
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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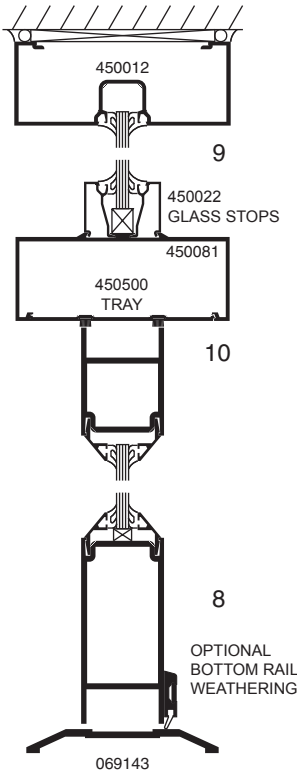
SCALE 3" = 1' 0"**NOTE:**

1. SERIES 190 NARROW STILE DOORS ARE DETAILED, MEDIUM STILE 350 DOORS AND WIDE STILE 500 DOORS ALSO MAY BE USED.
2. TRIFAB™ VG 450 CENTER, 1-3/4" X 4-1/2" (44.5 X 114.3) FRAMING IS DETAILED WITH THE DOORS FOR REFERENCE. OTHER KAWNEER FRAMING SERIES OR CURTAIN WALL SYSTEMS MAY BE USED. REFER TO THE CATALOG INDEX FOR THE APPROPRIATE DETAIL SECTION.

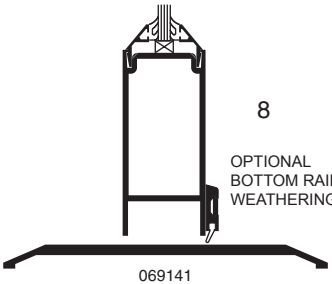


SCALE 3" = 1' 0"

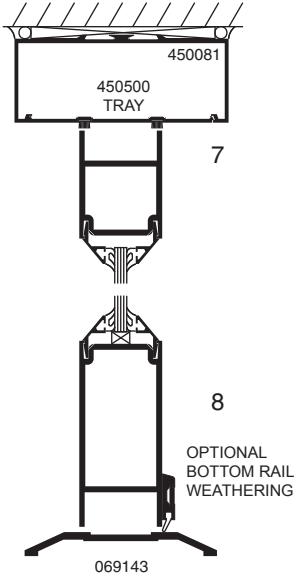
DOUBLE ACTING DOORS



OVERHEAD CLOSER

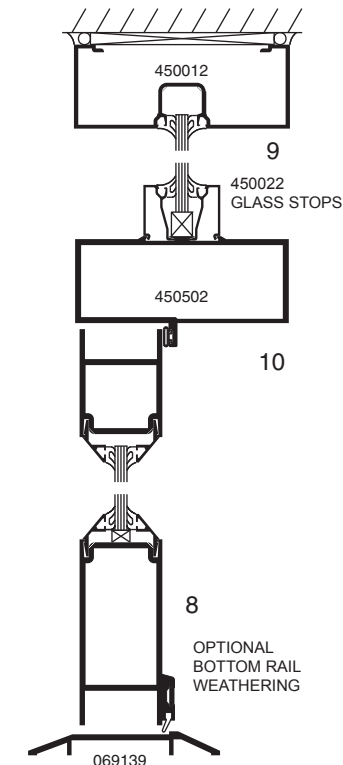


FLOOR CLOSER

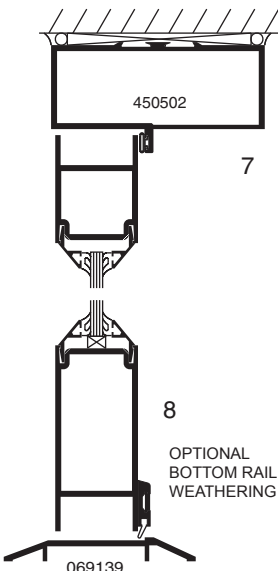


OVERHEAD CLOSER

SINGLE ACTING DOORS

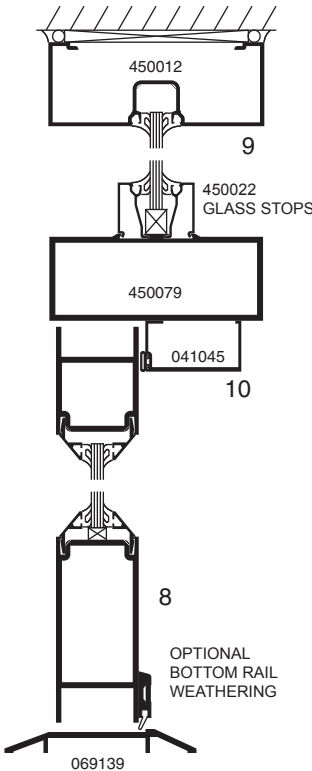


OVERHEAD CLOSER

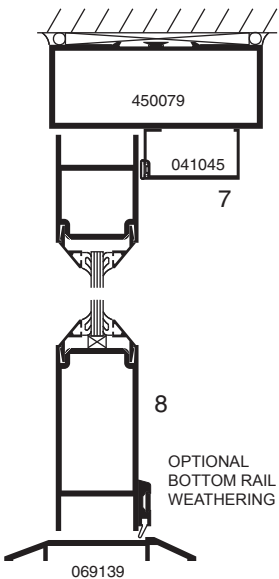


OVERHEAD CLOSER

COC WITH SINGLE ACTING OFFSET ARM



OVERHEAD CLOSER



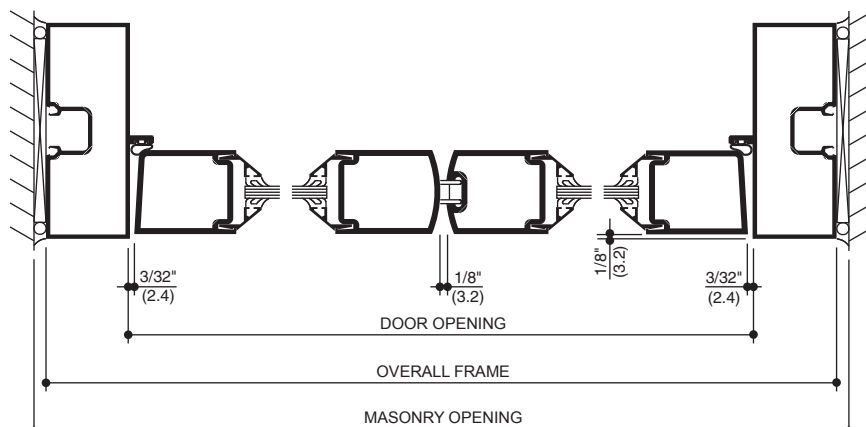
OVERHEAD CLOSER

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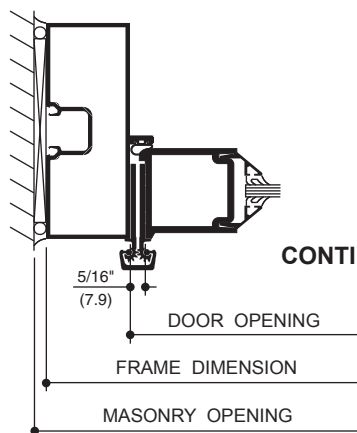
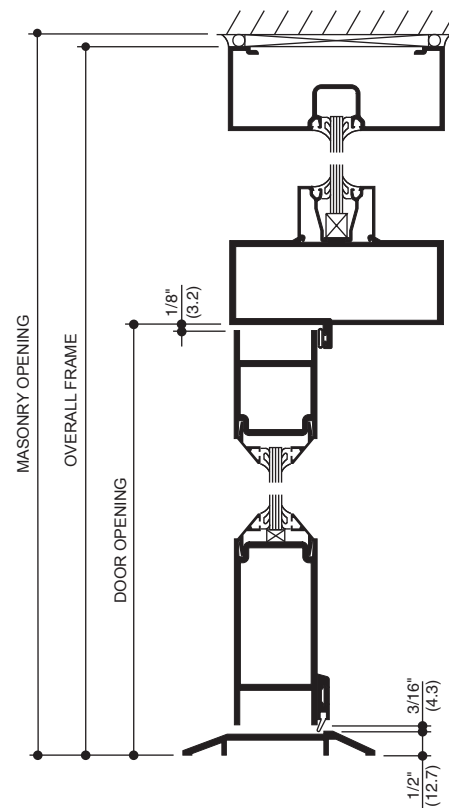
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SCALE 3" = 1' 0"

DIMENSIONS ARE NOMINAL



SINGLE ACTING DOORS

CONTINUOUS HINGE
JAMB**STANDARD SIZES** (TRIFAB™ 400 & TRIFAB™ VG 450 CENTER FRAMES)**WITHOUT TRANSOM****Door Opening Dimension**

3' 0" x 7' 0" (914 x 2,134)

3' 6" x 7' 0" (1,067 x 2,134)

6' 0" x 7' 0" (1,829 x 2,134)

Overall Frame Dimension

3' 3-1/2" x 7' 1-3/4" (1,003 x 2,178)

3' 9-1/2" x 7' 1-3/4" (1,156 x 2,178)

6' 3-1/2" x 7' 1-3/4" (1,918 x 2,178)

Masonry Opening Dimension

3' 4" x 7' 2" (1,016 x 2,185)

3' 10" x 7' 2" (1,168 x 2,185)

6' 4" x 7' 2" (1,930 x 2,185)

WITH TRANSOM**Door Opening Dimension**

Unchanged from above.

Overall Frame Dimension

Add 3' 1-3/4" (959) to above heights.

Masonry Opening Dimension

Add 3' 1-3/4" (959) to above heights.

STANDARD SIZES (TRIFAB™ VG 451 CENTER FRAMES)**WITHOUT TRANSOM****Door Opening Dimension**

3' 0" x 7' 0" (914 x 2,134)

3' 6" x 7' 0" (1,067 x 2,134)

6' 0" x 7' 0" (1,829 x 2,134)

Overall Frame Dimension

3' 4" x 7' 2" (1,016 x 2,185)

3' 10" x 7' 2" (1,168 x 2,185)

6' 4" x 7' 2" (1,930 x 2,185)

Masonry Opening Dimension

3' 4-1/2" x 7' 2-1/4" (1,029 x 2,191)

3' 10-1/2" x 7' 2-1/4" (1,181 x 2,191)

6' 4-1/2" x 7' 2-1/4" (1,943 x 2,191)

WITH TRANSOM**Door Opening Dimension**

Unchanged from above.

Overall Frame Dimension

Add 3' 1-1/2" (953) to above heights.

Masonry Opening Dimension

Add 3' 1-1/2" (953) to above heights.

	STANDARD	OPTIONAL
Doors	Narrow stile 190 doors prepared for attachment hardware.	Medium stile 350 or wide stile 500.
Door Sizes Std.	Standard sizes shown on page 9.	Any size up to 4'-0" x 8'-0" (1219 x 2438).
Glass Stops	Beveled glass stops for 1/4" (6.4) or 3/16" (4.0) infill.	Square glass stops for 3/16" (4.0) or 1/4" (6.4) infill. Also 1" (25.4) stops.
Door Frames	Trifab™ 400 - 1-3/4" x 4" (44.5 x 101.6) for single glazing. Trifab™ VG 450 Center - 1-3/4" x 4-1/2" (44.5 x 114.3) for single glazing or Trifab™ VG 451 Center - 2" x 4-1/2" (50.8 x 114.3) for double glazing.	Any Kawneer framing system suitable for door frames may be selected, but manufactured per order.
Push-Pulls	Single Acting: Architects Classic Hardware "CO-9" Pull and "CP-II" Push Bar. Architects Classic Hardware "CO-9" Pull and "CP" Push Bar. Double Acting: Architects Classic Hardware "CP" Push Bars.	Single Acting: Architects Classic Hardware "CO-12" and "CP-II" push bar. Architects Classic Hardware "CO-12" and "CP" push bar. Architects Classic Hardware "CO-9"/"CO-9" Pulls. Architects Classic Hardware "CO-12"/"CO-12" Pulls. Double Acting: Architects Classic Hardware "CO-9"/"CO-9" Pulls. Architects Classic Hardware "CO-12"/"CO-12" Pulls.
Door Closers	Single Acting: Norton 1601 adjustable or 1601 BF adjustable surface closer with back-check and with or without adjustable hold-open. Standard concealed overhead closer with single acting offset arm. Double Acting: Standard concealed overhead closer with 90 degree or 105 degree hold-open or without hold open. For heavy traffic & high wind applications, a supplemental door stop is recommended.	Single Acting: LCN 4040 surface closer with or without adjustable hold-open. LCN 2010, 2030 or 5010 concealed overhead closers with or without hold-open. LCN 1260 adjustable surface closer. Norton 8100 surface closer with a 50% spring power adjustment (for opening forces of less than 8 pounds). Closer is available with standard back-checks and with or without the hold-open feature. International single acting concealed overhead closer. Falcon SC 60 Surface closer. Double Acting: International overhead concealed closer.
Hinging	Single Acting: Kawneer top and bottom offset pivots (or) Kawneer top and bottom 4 1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with non-removable pin (NRP) (or) Kawneer continuous gear hinge. Double Acting: Kawneer bottom center pivots for use with concealed overhead closer.	Double Acting: Kawneer top center (walking beam) pivot for use with floor closers.
Intermediate Pivots/Butts	Single Acting: Kawneer intermediate offset pivot (or) Kawneer 4-1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with non-removable pin (NRP).	Single Acting: Rixson M-19 or IVES #7215-INT intermediate offset pivot.
Power Transfers	Single Acting: Kawneer EL intermediate offset pivot (or) Kawneer EL 4 1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with wire transfer (or) EPT (Electric Power Transfer).	
Power Supply	SP-1000X Power Supply: For use with Paneline™ EL exit devices.	PS1, PS5-4, and PS5-6 Power Supplies: For use with Kawneer 1686 EL and 1786 EL exit devices only.
Locks - Active Leaf	Adams-Rite MS 1850A deadlock with two 1-5/32" (29.4) diameter 5 pin cylinders.	Adams-Rite #4510 latch lock. Adams-Rite #1850A-500 short throw deadlock. Adams-Rite #1850A-505 hookbolt lock. Adams-Rite #4015 two-point Lock. Adams-Rite #4085 three-point Lock. Adams-Rite #4089 exit indicator. Kawneer cylinder guard. Kawneer thumbturn (in lieu of cylinder).

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STANDARD		OPTIONAL
Locks - Inactive Leaf	One pair of Kawneer flush bolts in the inactive leaf of a pair of doors.	Controller™ is a 3-point locking system consisting of a two point locking device in the inactive leaf in lieu of flush bolts, working in conjunction with the MS 1850A deadlock in the active leaf. This combination provides for greater security than possible with flush bolts and complies with the life safety considerations of building codes which prohibit the use of flush bolts.
Thresholds	A 1/2" x 4" (12.7 x 101.6) aluminum mill finish threshold.	A 1/2" x 6-3/4" (12.7 x 171.5) aluminum mill finish threshold.
Weathering	Single Acting: Weathering system in the door and frame consisting of a dense, bulb polymeric material, which remains resilient and retains its weathering ability under temperature extremes. (The system is complete with an optional EPDM blade gasket sweep strip applied to the bottom door rail with concealed fasteners). Double Acting: Pile cloth weathering in the door and frame.	Bottom Door Sweep
Exit Device	Kawneer 1686 Concealed Rod Exit Device with or without a mortised type cylinder. Kawneer 1786 Rim Exit Device is a rim type exit device with or without a rim type cylinder. Pairs of doors require a Kawneer RM-86 removable mullion. Paneline™ exit device is a concealed rod exit device applicable to single or pairs of doors. It features an activating panel contained within the door cross rail. Exit Device Pulls: Architects Classic style "CO-9" Pull with Kawneer 1686 and 1786 exit devices. Architects Classic style "CPN" Pull for Paneline™ and Paneline™ EL exit devices.	Kawneer 1686 EL Concealed Rod Exit Device electric modification is available. Kawneer 1786 EL Rim Exit Device electric modification is available. Kawneer 1686 CD Concealed Rod Exit Device available with cylinder dogging. Kawneer 1786 CD Rim Exit Device available with cylinder dogging. Kawneer 1686 Lever Handle is available for the Kawneer 1686 concealed rod exit device. Kawneer 1786 Lever Handle is available for the Kawneer 1786 rim type exit device. Falcon 1690 Concealed Rod Exit Device with or without a mortised type cylinder. Falcon 1790 Rim Exit Device is a rim type exit device with or without a rim type cylinder. Falcon EL 1690 electric modification is also available. Falcon EL 1790 electric modification is also available. Paneline™ EL electric modification is also available. Falcon 1990 is a concealed rod exit device with or without a rim type cylinder. Falcon 2090 is a rim type exit device with or without a rim type cylinder. Pairs of doors require a removable aluminum mullion. RM-70 with the Falcon 2090 exit device. Optional Exit Device Pulls: Architects Classic style "CO-12" Pull with Kawneer 1686 and 1786 exit devices.

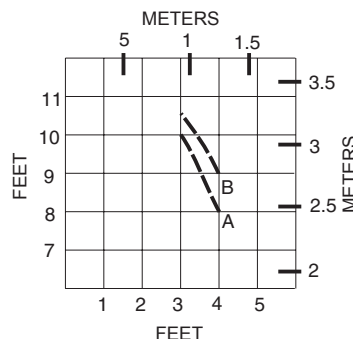
APPLICATION CRITERIA

As indicated on Page 9, the standard sizes of swing doors are 3'-0" x 7'-0" (914.4 x 2,133.6) or 3'-6" x 7'-0" (1,067 x 2,134) for single doors and 6'-0" x 7'-0" (1,828.8 x 2,133.6) for pairs of doors. When these sizes are exceeded the following criteria should be administered.

1. Larger doors should not be subject to heavy traffic or strong prevailing wind conditions.
2. Larger doors should use a door closer with a good back check action.
3. When a door exceeds 9'-0" (2,743.2) in height, a cross rail or push bar is recommended to reinforce the vertical stiles.
4. When an offset hung door exceeds 7'-6" (2,286.0) in height, an intermediate butt or offset pivot should be used.
5. Tall doors should be prevented from racking by proper utilization of hardware, including door closers, door holders and door stops.

NOTE:

SOME OF THESE CRITERIA ARE OF A SUBJECTIVE NATURE, CONTACT YOUR FACTORY REPRESENTATIVE FOR APPLICATION ASSISTANCE.



A = NARROW STILE 190

B = MEDIUM STILE 350
OR
WIDE STILE 500

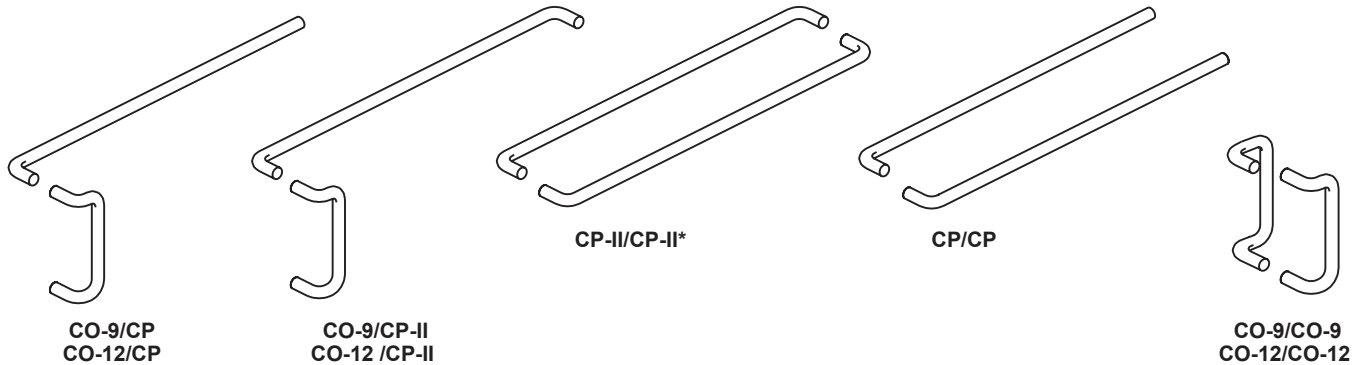
MAXIMUM DOOR HEIGHT
FOR PANELINE™ EL = 8'-0"

MAXIMUM SIZE DOOR LEAFS
GLAZED WITH 1/4" (6.4) GLASS

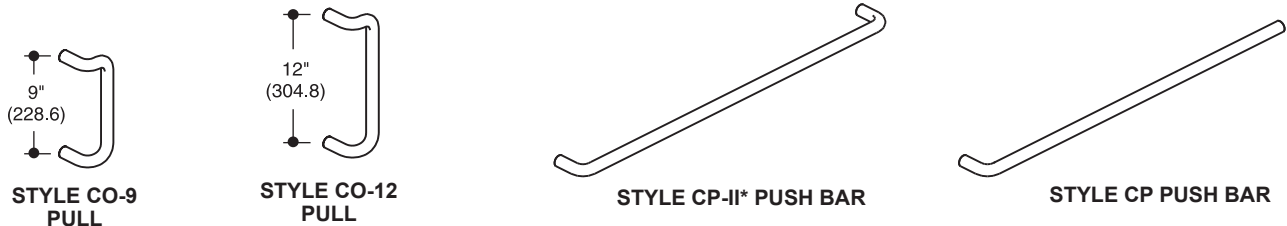
REFER TO **HARDWARE SECTION** FOR COMPLETE HARDWARE INFORMATION.

ARCHITECTS CLASSIC (PUSH PULL SETS)

SINGLE ACTING DOORS USE A PULL HANDLE AND PUSH BAR AS STANDARD
DOUBLE ACTING DOORS USE CP PUSH BARS BACK TO BACK AS STANDARD.



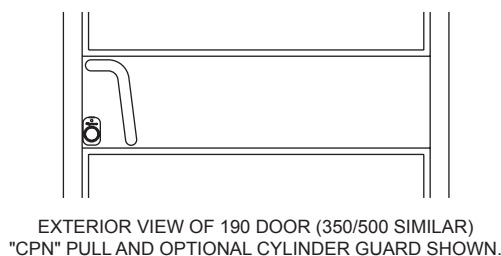
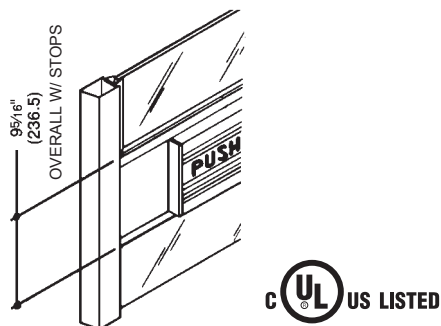
ARCHITECTS CLASSIC (COMPONENTS)



* CP-II PUSH BAR IS NOT TO BE USED FOR BACK TO BACK MOUNTING ON D/A DOORS.

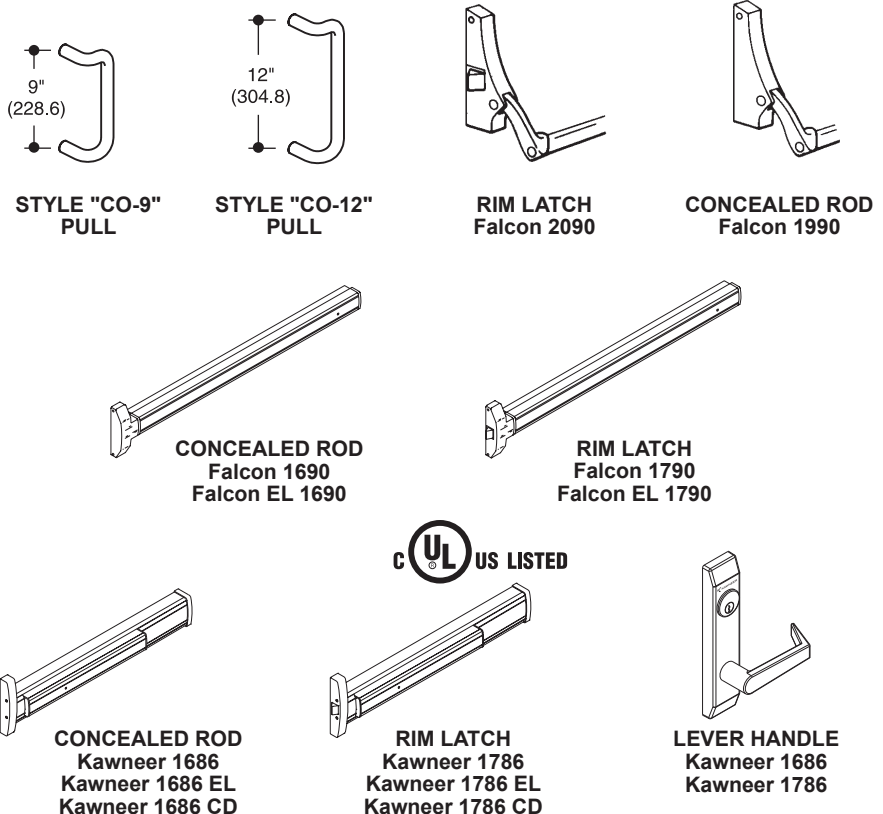
EXIT DEVICES

KAWNEER PANELINE™ / PANELINE™ EL



SEE PAGE 13 AND 14 FOR COMPLETE
PANELINE™ INFORMATION

EXIT DEVICES AND PULLS





The Paneline™ concealed rod exit device for 190, 350 and 500 doors will accommodate variations in stile width and door width as shown in the following illustrations. Sidelites adjacent to Paneline™ equipped doors not requiring exit devices may be fitted with fixed panels as detailed below to match the general appearance of the Paneline™ cross rail.

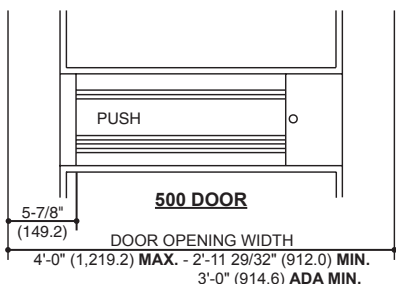
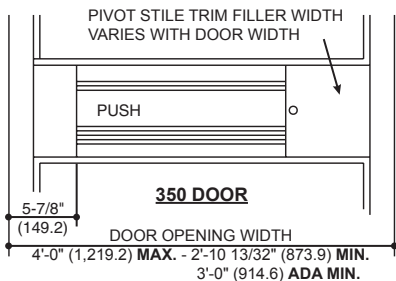
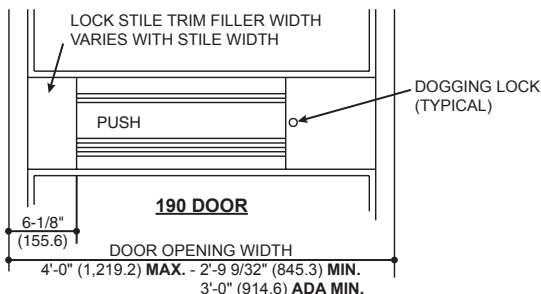
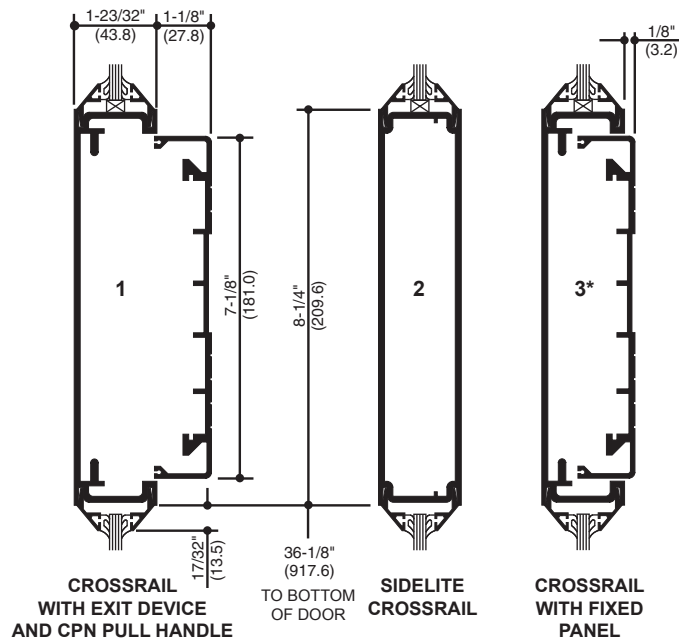
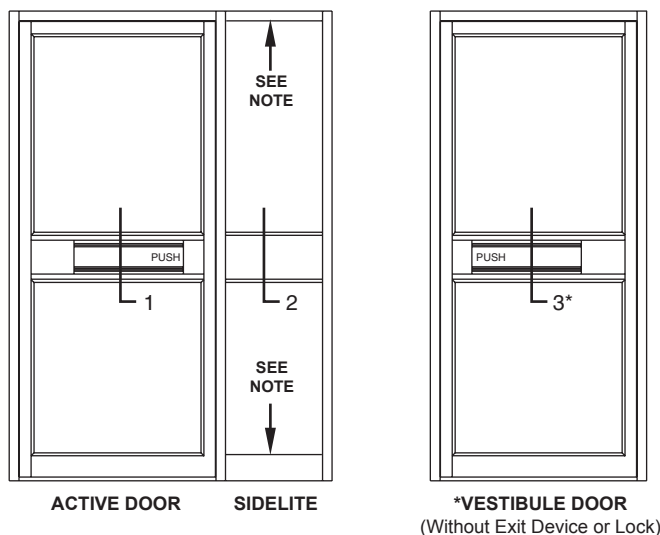
The Optional Paneline™ EL device is designed for electrified access control and is compatible with most key pad and card reader systems.

See **Hardware Section** for complete description of Paneline™ hardware, including finish of units.

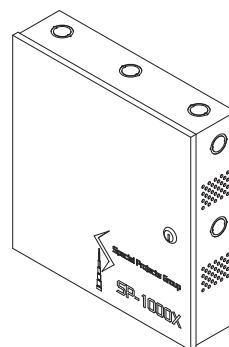
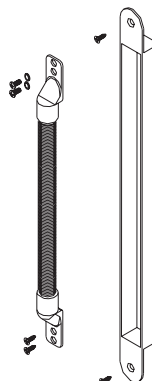
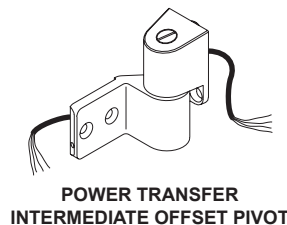
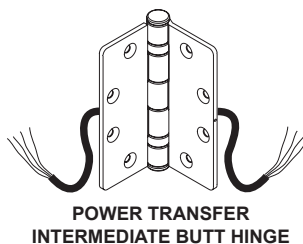
**Paneline™ uses mortise cylinder in lieu of the normal rim-type.
Dummy Paneline™ units are not for use with any type of lock.**

INTERIOR ELEVATIONS

NOTE: Sidelites must be stop glazed above and below rail.



PANELINE™ EL COMPONENTS



ELECTRIC POWER TRANSFER (EPT)

SP-1000X POWER SUPPLY

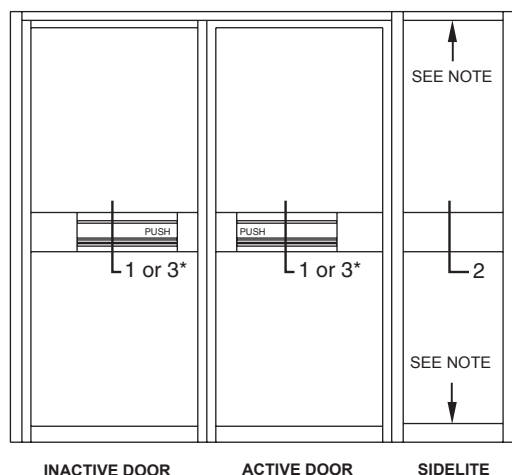
Sidelites adjacent to Paneline™ equipped doors not requiring exit devices may be fitted with fixed panels as detailed below to match the general appearance of the Paneline™ cross rail.

See **Hardware Section** for complete description of Paneline™ hardware, including finish of units.

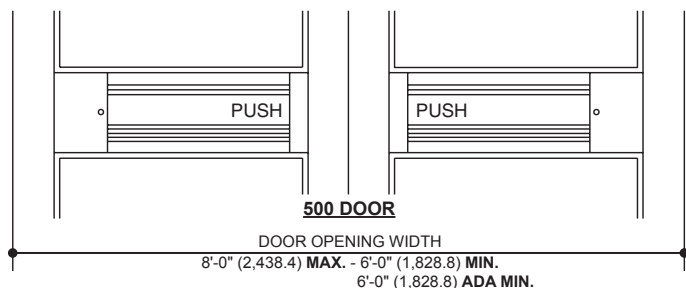
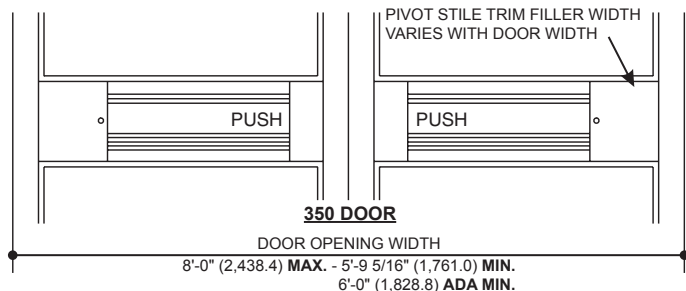
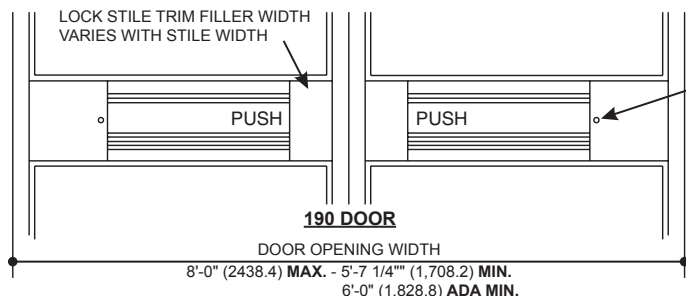
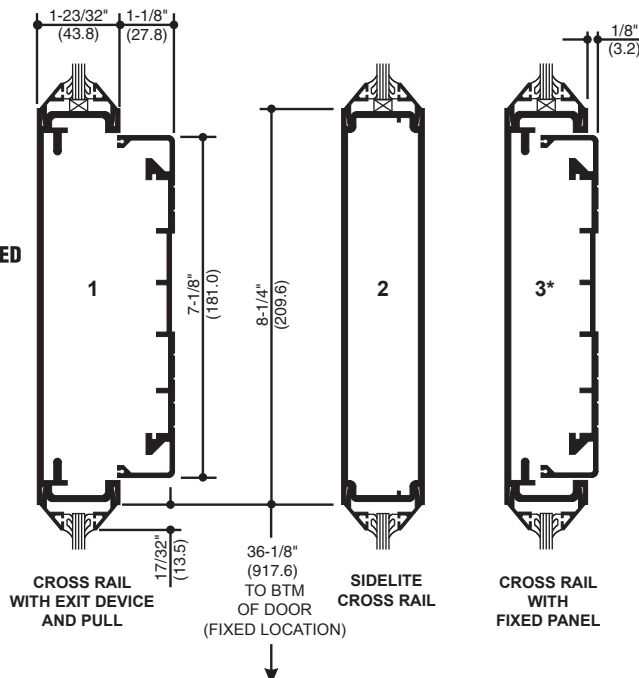
Paneline™ uses mortise cylinder in lieu of the normal rim-type.
Dummy Paneline™ units should not use any type of lock.

INTERIOR ELEVATION

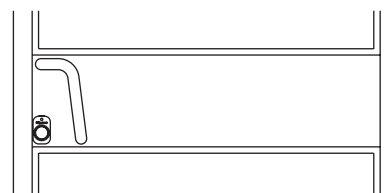
NOTE: Sidelites must be stop glazed above and below rail.



*** ALTERNATE CROSSRAIL FOR VESTIBULE DOORS
(Without Exit Device or Lock)**



**STYLE "CPN" PULL ON
EXTERIOR OF DOOR**



**EXTERIOR VIEW OF 190 DOOR (350-500 SIMILAR)
WITH "CPN" PULL AND STANDARD CYLINDER GUARD
SHOWN**

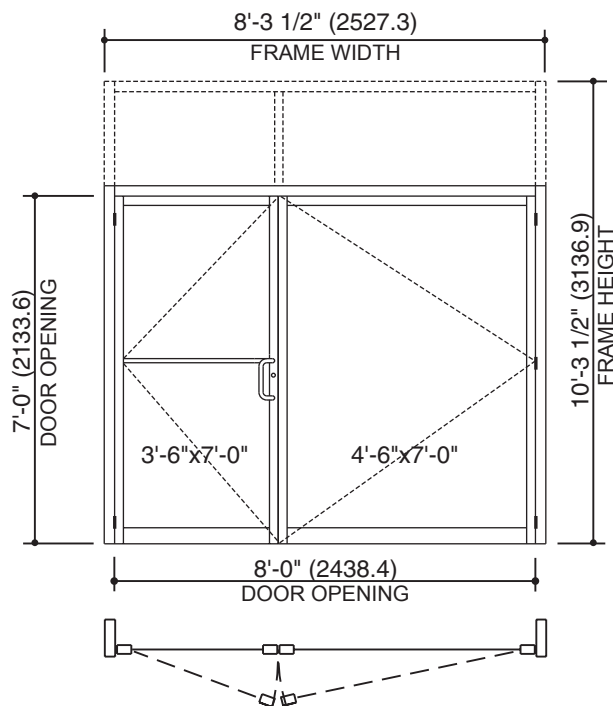
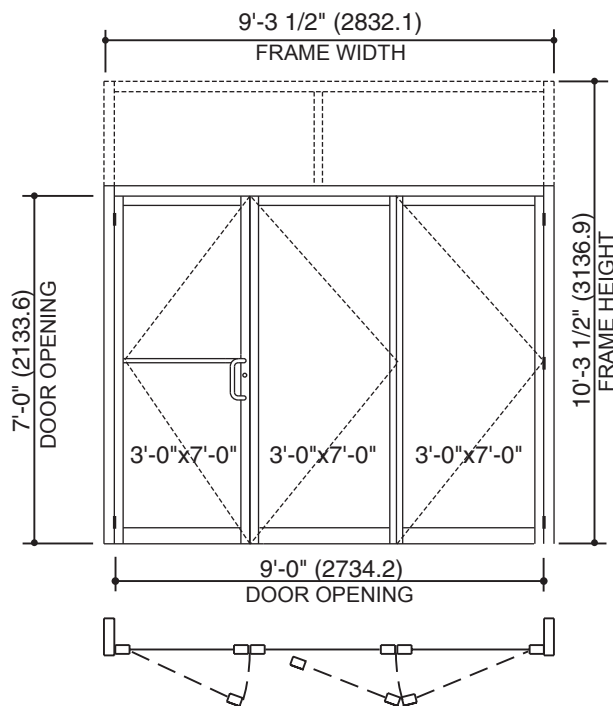
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SCALE 3" = 1'-0"

NOTE: 1/4" GLAZING INFILL ONLY

SWING TYPE**BIFOLD TYPE****MAXIMUM ALLOWABLE SIZES**

- DOOR OPENING WIDTH TO 9'-0" (2,743.2)
- DOOR OPENING HEIGHT TO 8'-0" (2,438.4)
- OVERALL FRAME HEIGHT TO 8'-1 3/4" (2,482.9) W/O TRANSOM
- OVERALL FRAME HEIGHT TO 12'-0" (3,657.6) WITH TRANSOM

AUTO SHOWROOM PACKAGE

DOORS 190 NARROW STILE, 350 MEDIUM STILE AND 500 WIDE STILE DOORS.

FRAME TRIFAB™ VG 450 CENTER.

CLOSER NORTON 1601 ADJUSTABLE OR 1601 BF ADJUSTABLE SURFACE CLOSER (ACTIVE LEAF ONLY).

BUTT HINGES ONE PAIR 4-1/2" x 4" (114.3 x 101.6) BALL BEARING BUTTS ON ACTIVE LEAF, ONE AND ONE HALF PAIR ON INACTIVE LEAVES AT HINGE JAMB. CONTINUOUS HINGE ON INACTIVE LEAVES.

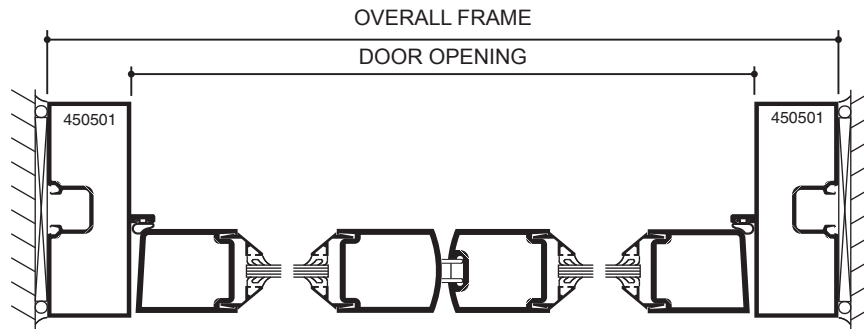
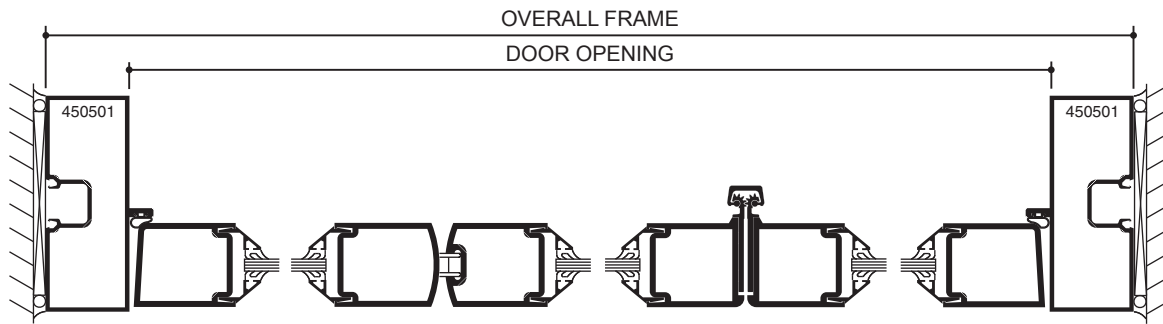
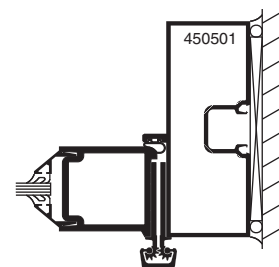
LOCKS ADAMS-RITE MS1850A WITH (2) CYLINDERS ON ACTIVE LEAF.

FLUSHBOLTS ONE PAIR EDGE MOUNTED FOR INACTIVE LEAVES (FACE MOUNTED ON #2 INACTIVE LEAF OF BIFOLD TYPE).

THRESHOLD 1/2" x 4" (12.7 x 101.6) ALUMINUM.

RISER BLOCK EXTRUDED ALUMINUM BLOCK APPLIED TO BOTTOM RAIL OF EACH INACTIVE LEAF.

OPTIONAL CASTER IN LIEU OF RISER BLOCK, FACE APPLIED CASTER TO LEADING STILE OF INACTIVE LEAF.

SCALE 3" = 1' 0"**SWING TYPE****BIFOLD TYPE****OPTIONAL
CONTINUOUS HINGE
JAMB**

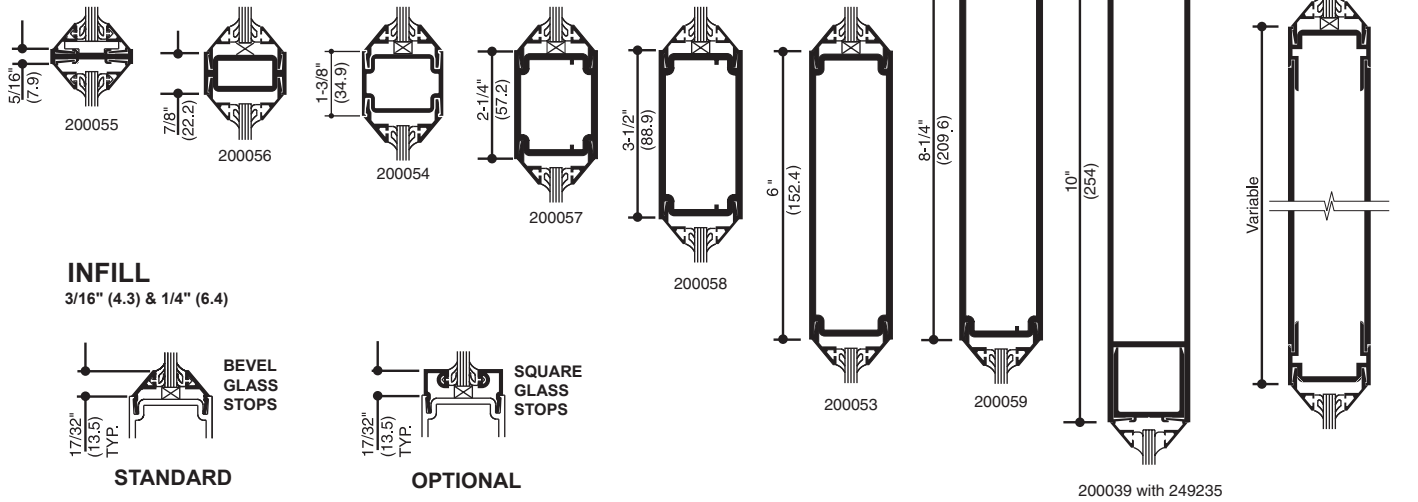
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SCALE 3" = 1' 0"

HORIZONTAL / VERTICAL CROSS RAILS



INFILL OPTIONS

5/16" (7.9) & 3/8" (9.5)

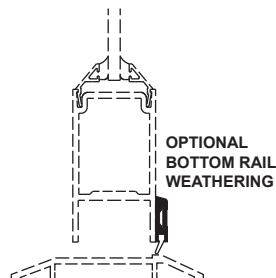
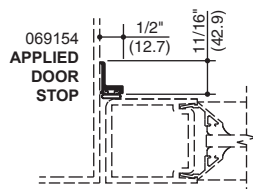
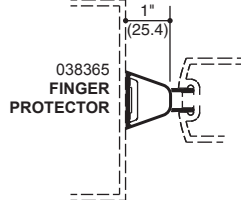
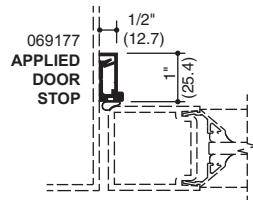
7/16" (11.1) & 1/2" (12.7)

9/16" (14.3) & 5/8" (15.9)

11/16" (17.5) & 3/4" (19.0)

15/16" (23.8) & 1" (25.4)

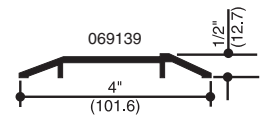
ACCESSORY ITEMS



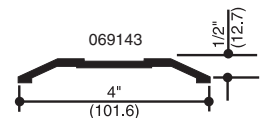
THRESHOLDS

APPLICATION

FOR SINGLE ACTING DOOR



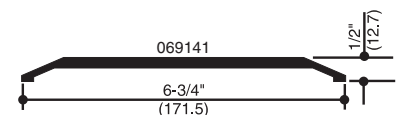
FOR CENTER HUNG CONCEALED CLOSER



APPLIED STOP FOR SINGLE ACTING DOOR

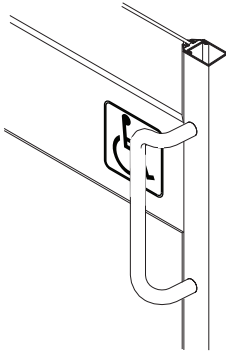
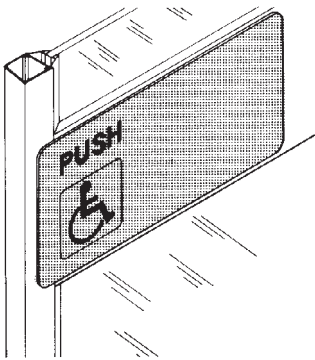


FOR CENTER HUNG FLOOR CLOSERS



*SOME BUILDING CODES LIMIT THRESHOLD HEIGHT TO 1/2" (12.7) MAX.

PUSH-PULLS
STYLE

		
Description	Architects Classic CO-12 Pull	BF3 Push Shield with symbol
Application	Door with or without exit device	Door cross rail (omit w/exit device)
Length/Size	12" OC Pull attachment	15-7/8" x 7-7/8" (403.2 x 200.0) 1/8" (3.2) Thick
Height Location	44-5/16" from Top Mounting Hole to Btm. of Door	
Total Projection	3-1/4" (82.6)	1/8" (3.2)
Material / Finish	See Hardware Section	Black Plastic Pebble Finish

Note: The symbol of access is an adhesive backed decal applied to the surface of the optional cross rail. Letters and symbols on plastic push shield are engraved and filled with white epoxy enamel.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

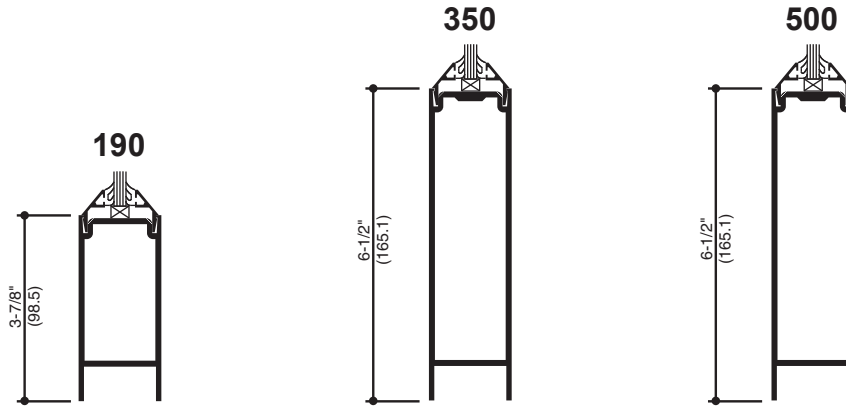
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SCALE 3" = 1' 0"**STANDARD BOTTOM RAILS**

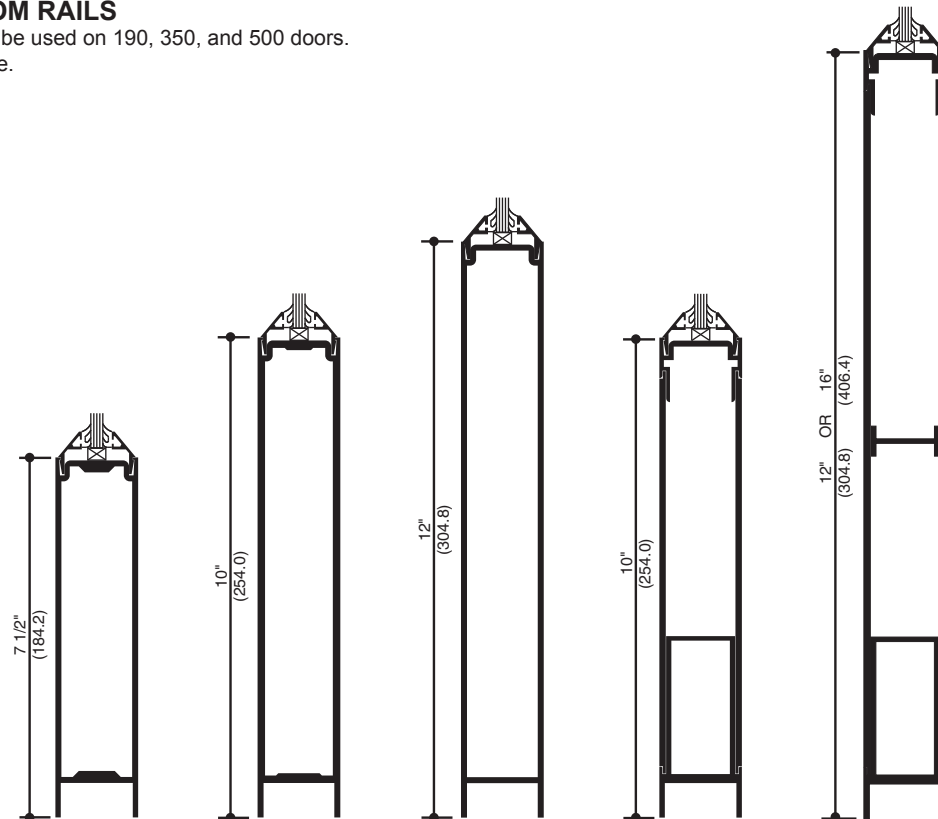
Rail heights shown may be used on 190, 350, and 500 doors.

NOTE:

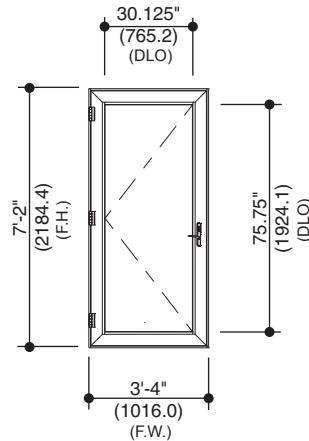
See Page 17 for available
Horizontal Intermediate Members.

**OPTIONAL BOTTOM RAILS**

Rail heights shown may be used on 190, 350, and 500 doors.
Custom heights available.



Generic Project Specific U-factor Example Calculation
(Percent of Glass will vary on specific products depending on sitelines)



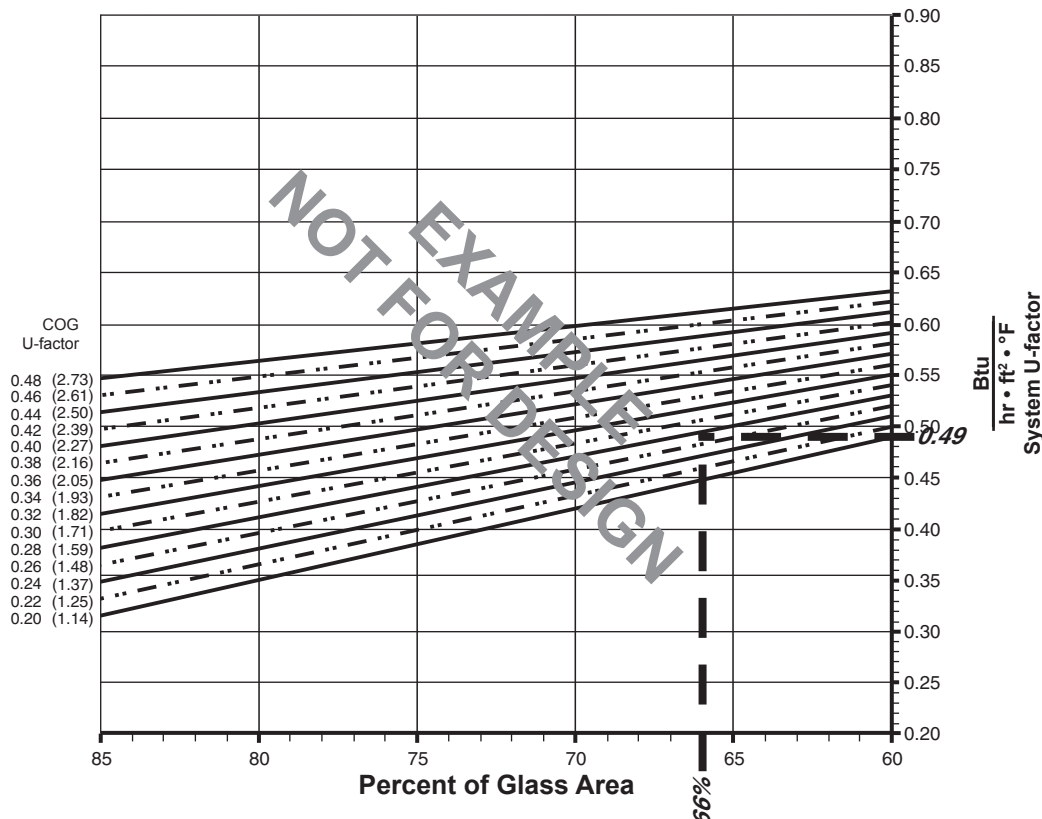
Example Glass U-Factor = 0.28 Btu/hr • ft² • °F

Total Daylight Opening = 30.125" x 75.75" = 15.85 ft²

Total Projected Area = 3'-4" x 7'-2" = 23.9 ft²

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)100
 = (15.85 ÷ 23.9)100 = 66%

System U-factor vs Percent of Glass Area

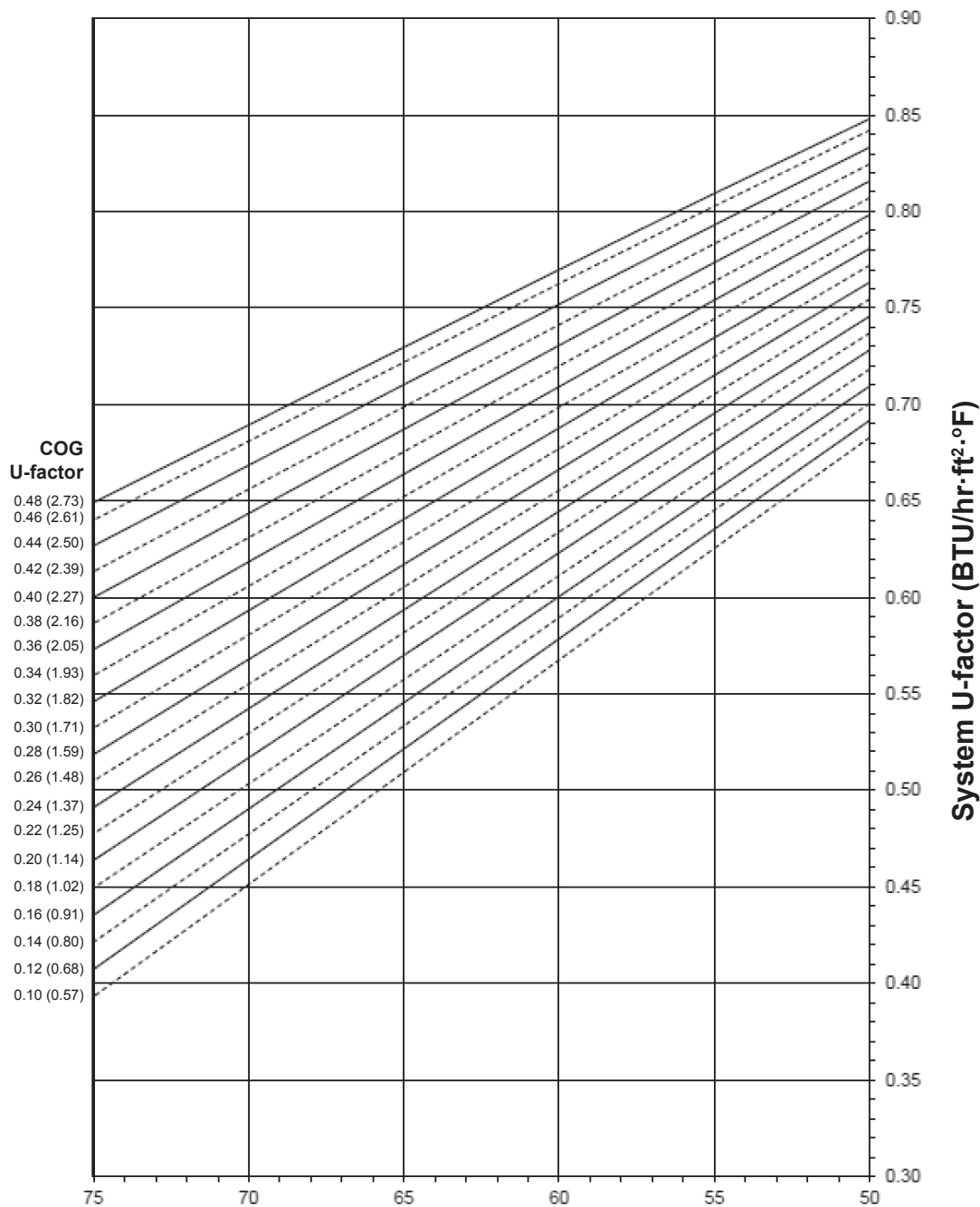


Based on 66% glass and center of glass (COG) U-factor of 0.28
 System U-factor is equal to 0.49 Btu/hr • ft² • °F

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190 (SINGLE DOOR)

System U-factor vs Percent of Glass Area

**Percent of Glass = Vision Area/Total Area
(Total Daylight Opening / Projected Area)**

Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

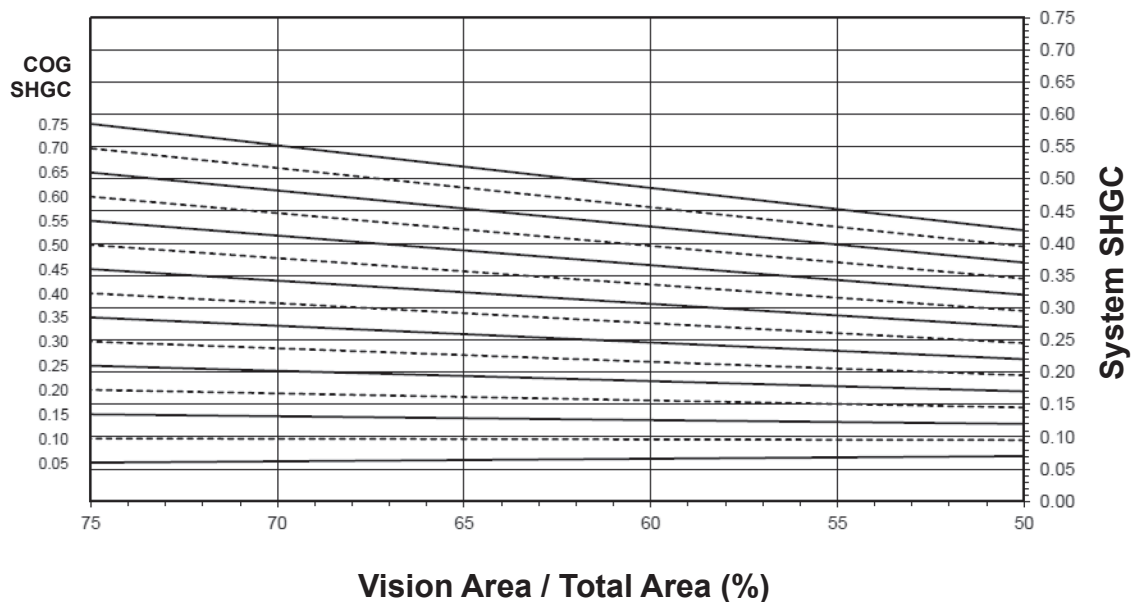
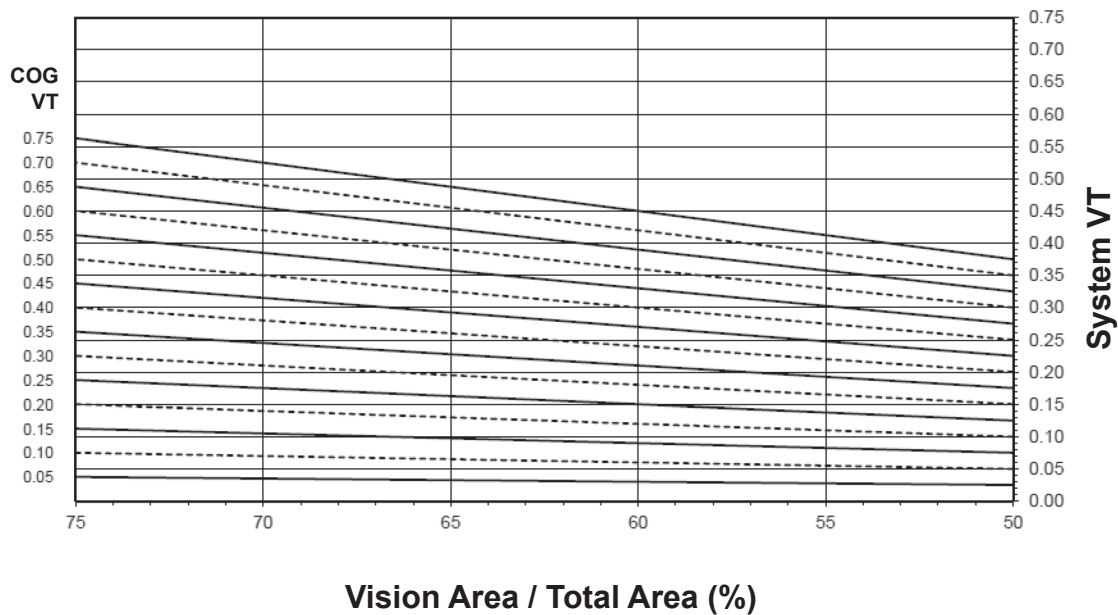
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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190 (SINGLE DOOR)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area**System Visible Transmittance (VT) vs Percent of Vision Area**

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

190 (SINGLE DOOR)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.78
0.46	0.77
0.44	0.76
0.42	0.75
0.40	0.74
0.38	0.73
0.36	0.72
0.34	0.71
0.32	0.70
0.30	0.69
0.28	0.68
0.26	0.67
0.24	0.66
0.22	0.65
0.20	0.65
0.18	0.63
0.16	0.61
0.14	0.60
0.12	0.59
0.10	0.58

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

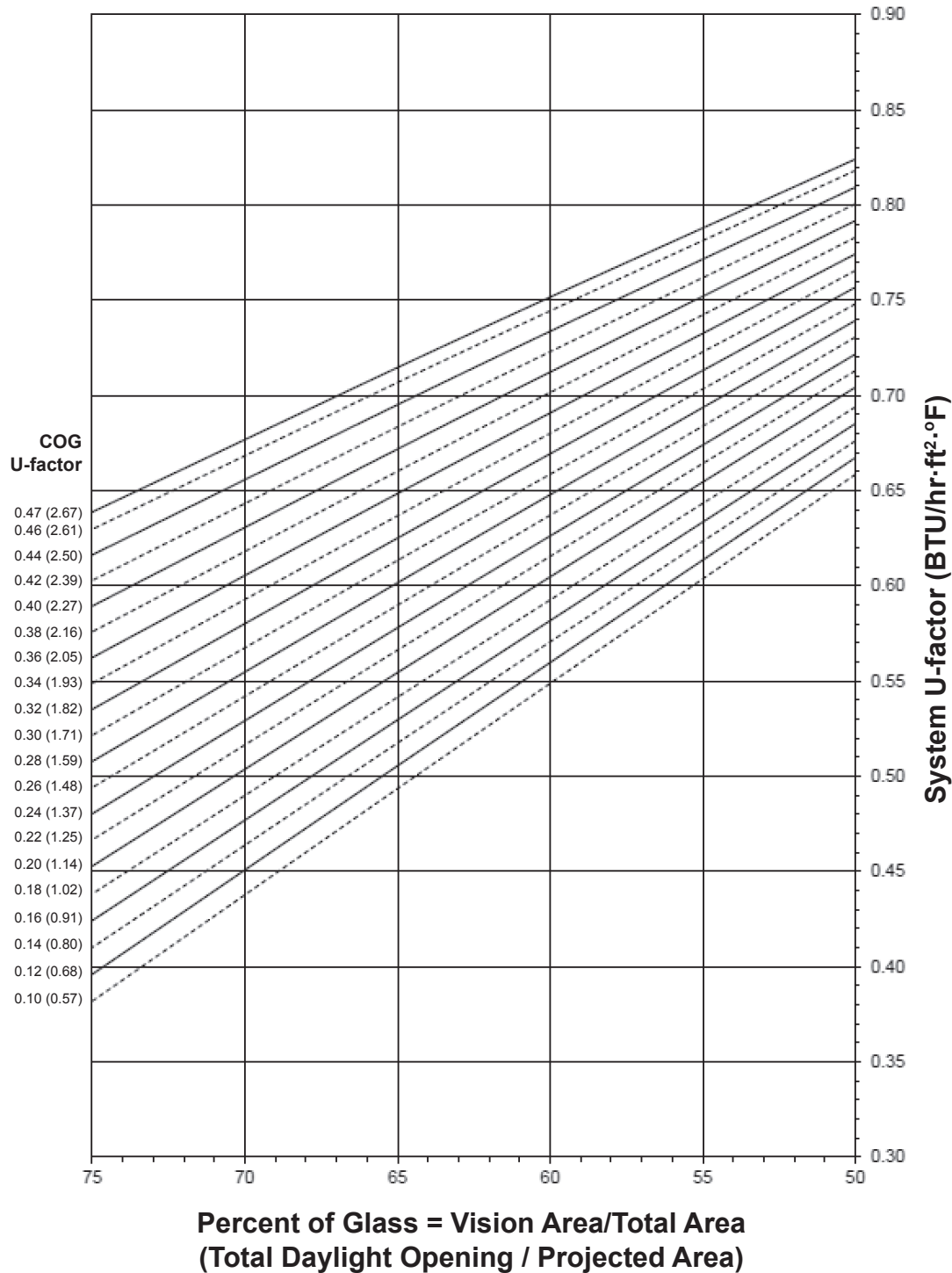
SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.48
0.70	0.45
0.65	0.42
0.60	0.39
0.55	0.36
0.50	0.33
0.45	0.30
0.40	0.27
0.35	0.24
0.30	0.21
0.25	0.18
0.20	0.15
0.15	0.13
0.10	0.10
0.05	0.07

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.44
0.70	0.41
0.65	0.38
0.60	0.35
0.55	0.32
0.50	0.29
0.45	0.26
0.40	0.23
0.35	0.21
0.30	0.18
0.25	0.15
0.20	0.12
0.15	0.09
0.10	0.06
0.05	0.03

190 (PAIR OF DOORS)

System U-factor vs Percent of Glass Area**Notes for System U-Factor, SHGC and VT charts:**

For glass values that are not listed, linear interpolation is permitted.

Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

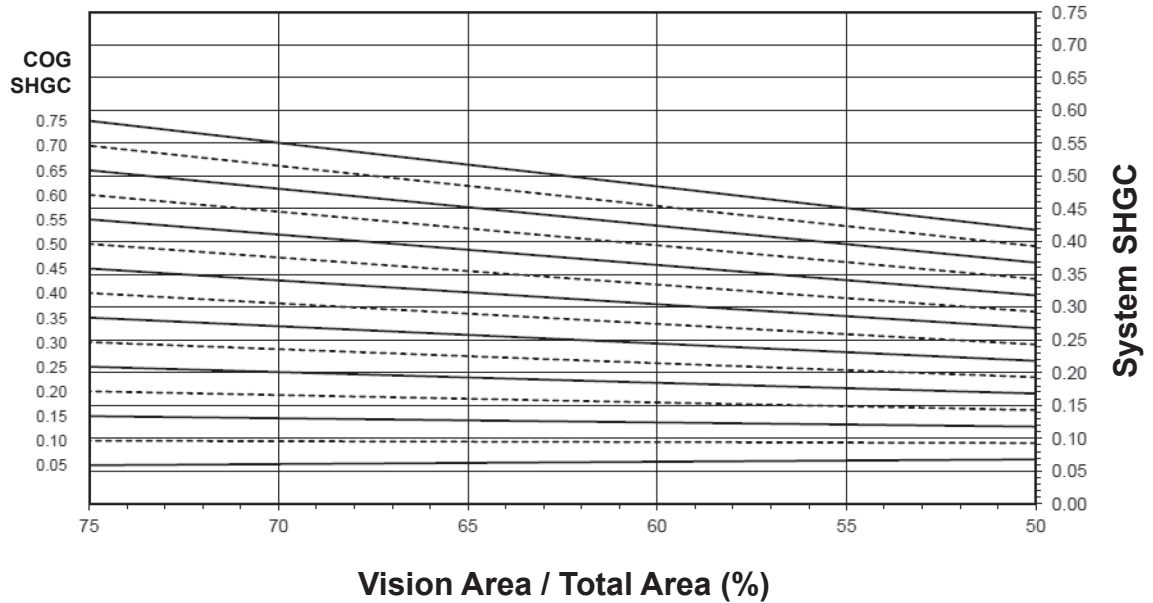
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

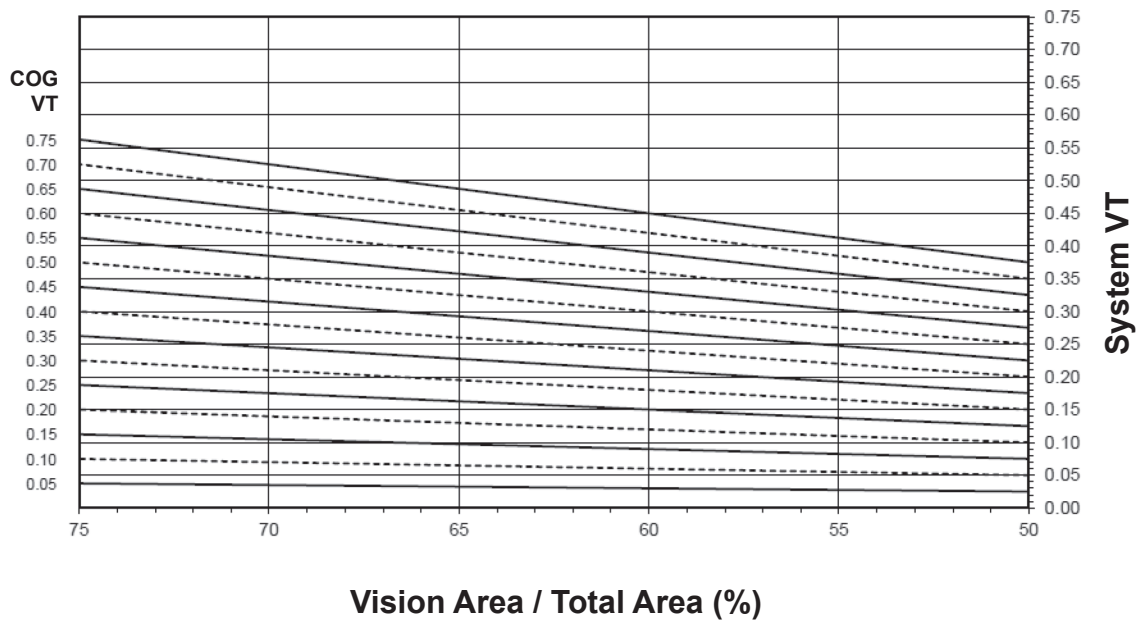
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190 (PAIR OF DOORS)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.47	0.73
0.46	0.72
0.44	0.71
0.42	0.70
0.40	0.69
0.38	0.68
0.36	0.67
0.34	0.66
0.32	0.64
0.30	0.63
0.28	0.62
0.26	0.61
0.24	0.60
0.22	0.59
0.20	0.58
0.18	0.56
0.16	0.55
0.14	0.54
0.12	0.53
0.10	0.52

190 (PAIR OF DOORS)

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.50
0.70	0.47
0.65	0.44
0.60	0.41
0.55	0.38
0.50	0.35
0.45	0.31
0.40	0.28
0.35	0.25
0.30	0.22
0.25	0.19
0.20	0.16
0.15	0.13
0.10	0.09
0.05	0.06

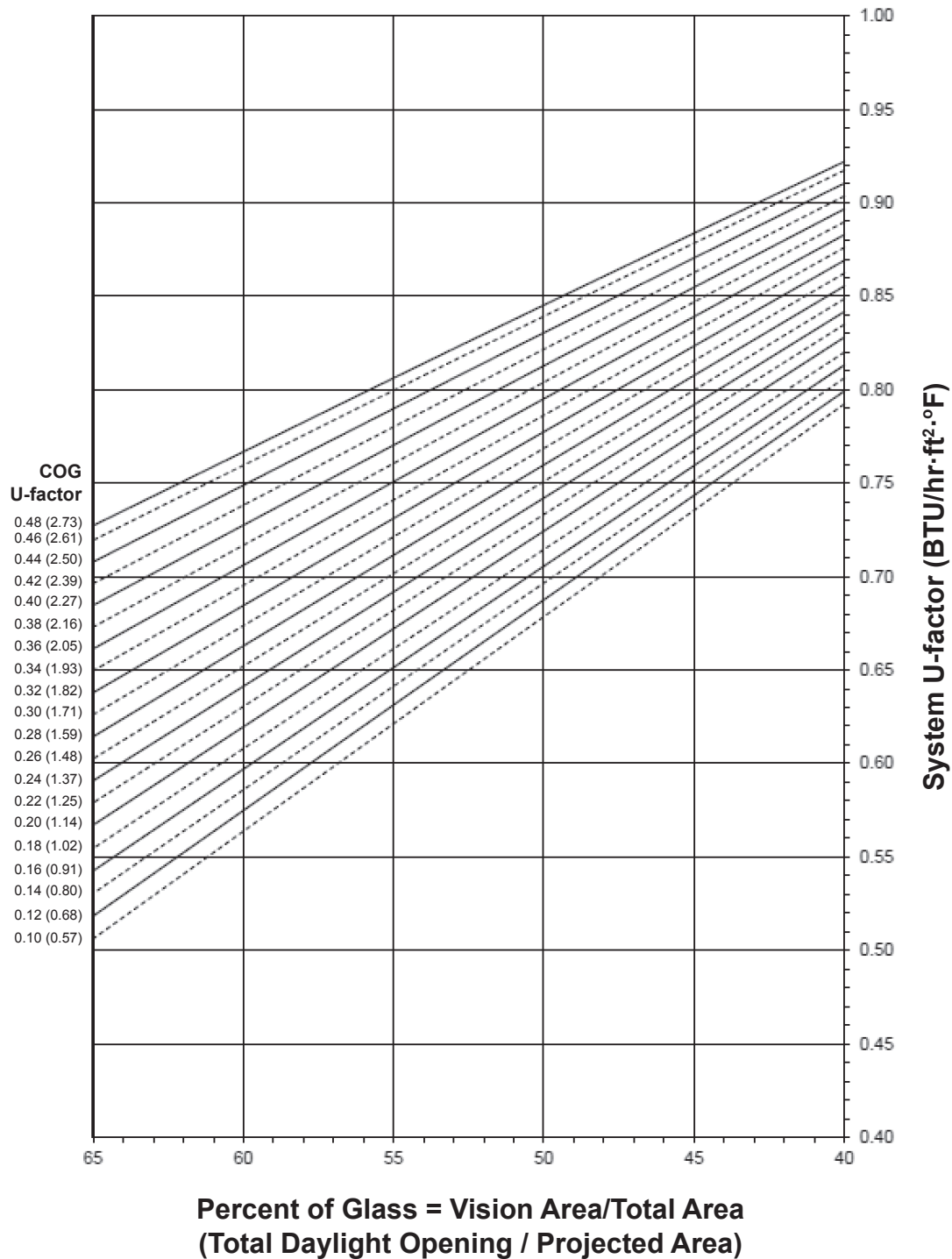
Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.47
0.70	0.44
0.65	0.41
0.60	0.38
0.55	0.35
0.50	0.31
0.45	0.28
0.40	0.25
0.35	0.22
0.30	0.19
0.25	0.16
0.20	0.13
0.15	0.09
0.10	0.06
0.05	0.03

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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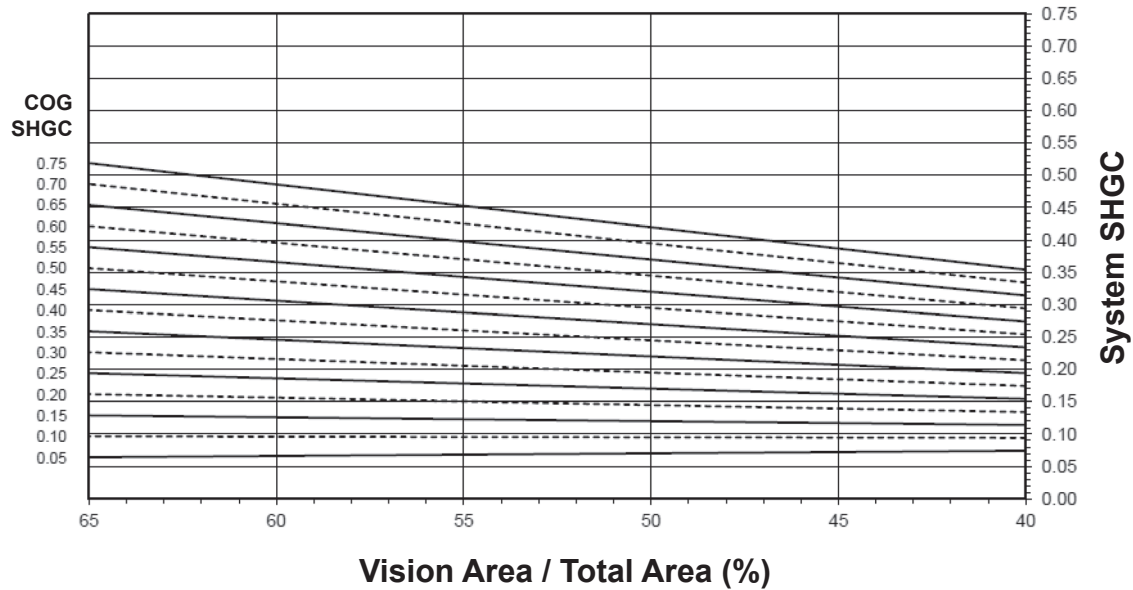
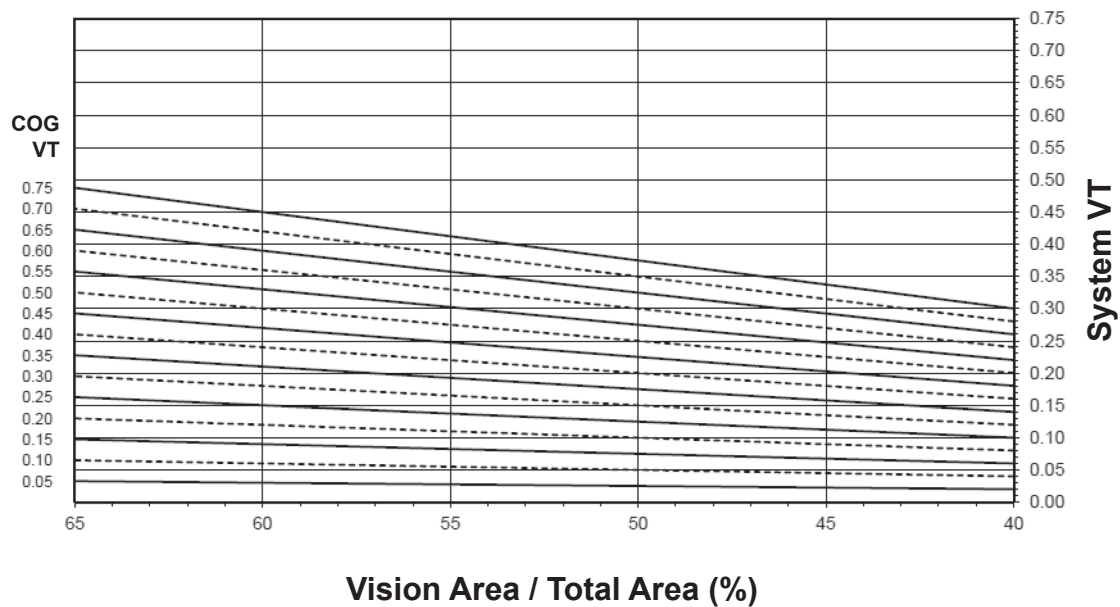
350 (SINGLE DOOR)

System U-factor vs Percent of Glass Area**Notes for System U-Factor, SHGC and VT charts:**

For glass values that are not listed, linear interpolation is permitted.

Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

350 (SINGLE DOOR)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area**System Visible Transmittance (VT) vs Percent of Vision Area**

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

350 (SINGLE DOOR)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.83
0.46	0.82
0.44	0.81
0.42	0.81
0.40	0.80
0.38	0.79
0.36	0.78
0.34	0.77
0.32	0.76
0.30	0.75
0.28	0.74
0.26	0.73
0.24	0.72
0.22	0.71
0.20	0.70
0.18	0.69
0.16	0.68
0.14	0.68
0.12	0.67
0.10	0.66

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

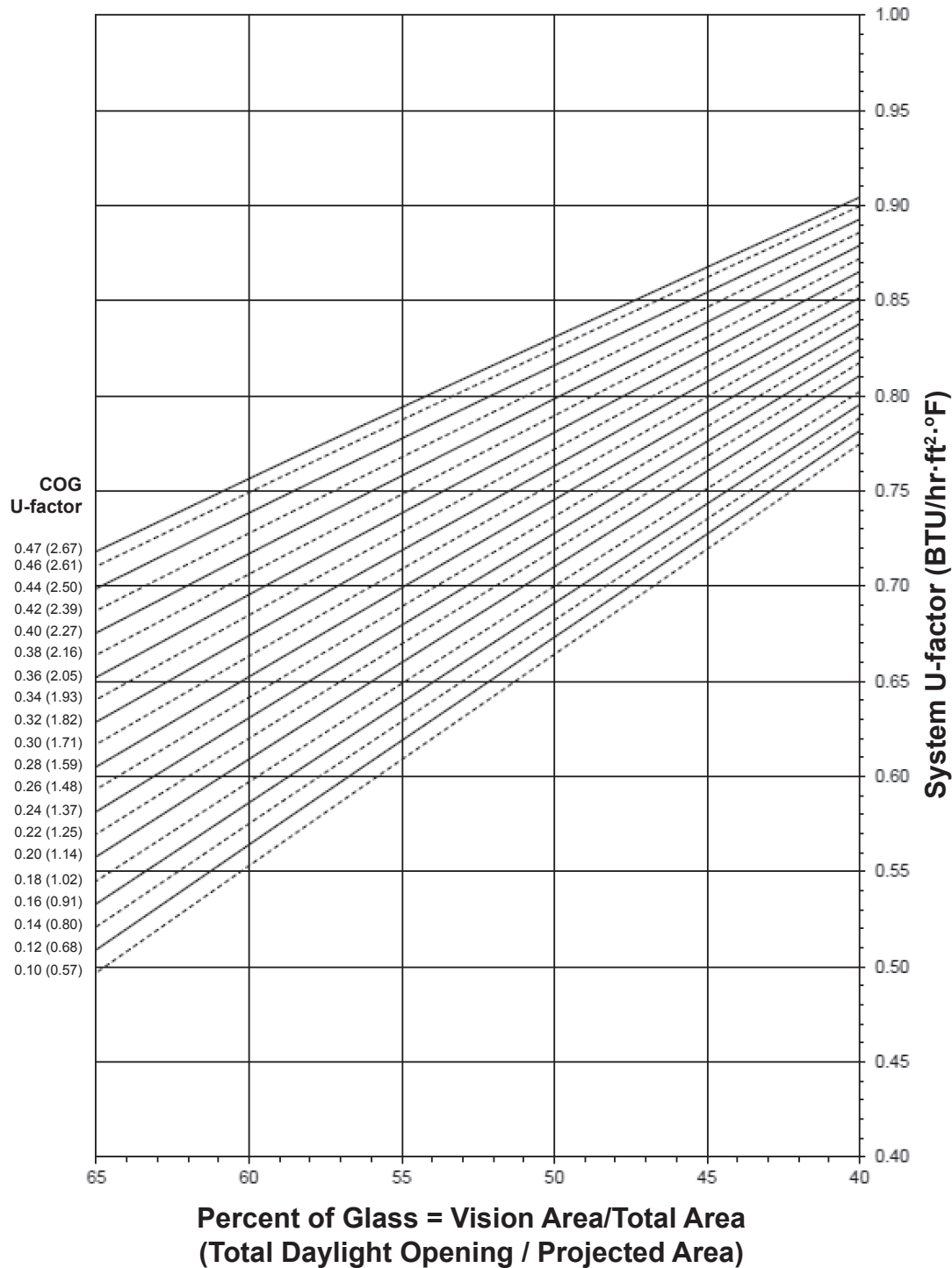
SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.43
0.70	0.41
0.65	0.38
0.60	0.36
0.55	0.33
0.50	0.30
0.45	0.28
0.40	0.25
0.35	0.23
0.30	0.20
0.25	0.17
0.20	0.15
0.15	0.12
0.10	0.10
0.05	0.07

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.39
0.70	0.36
0.65	0.34
0.60	0.31
0.55	0.29
0.50	0.26
0.45	0.23
0.40	0.21
0.35	0.18
0.30	0.16
0.25	0.13
0.20	0.10
0.15	0.08
0.10	0.05
0.05	0.03

350 (PAIR OF DOORS)

System U-factor vs Percent of Glass Area**Notes for System U-Factor, SHGC and VT charts:**

For glass values that are not listed, linear interpolation is permitted.

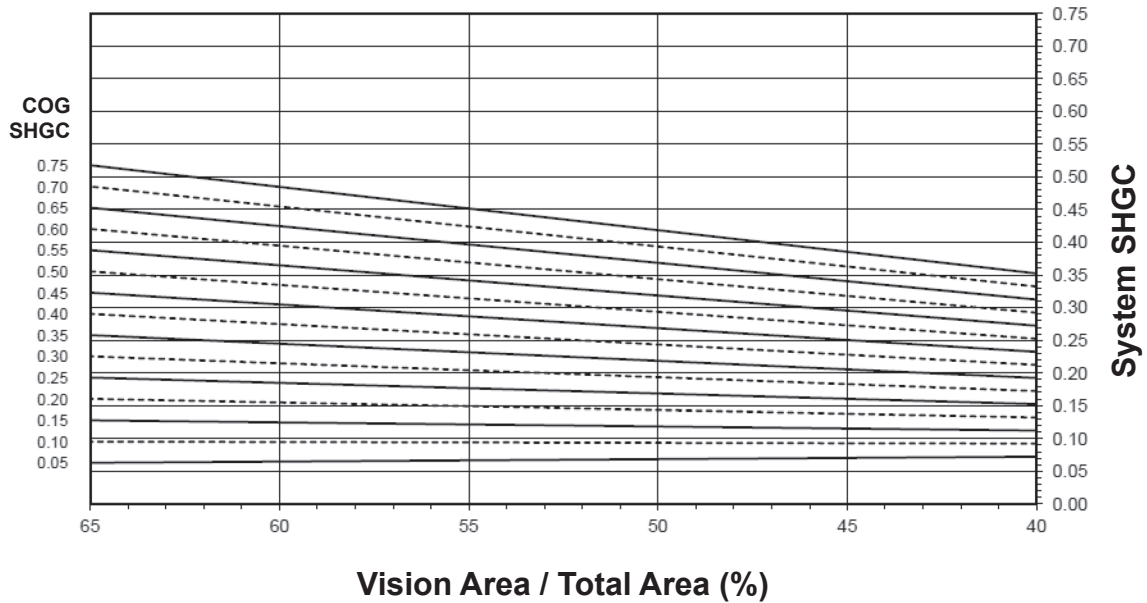
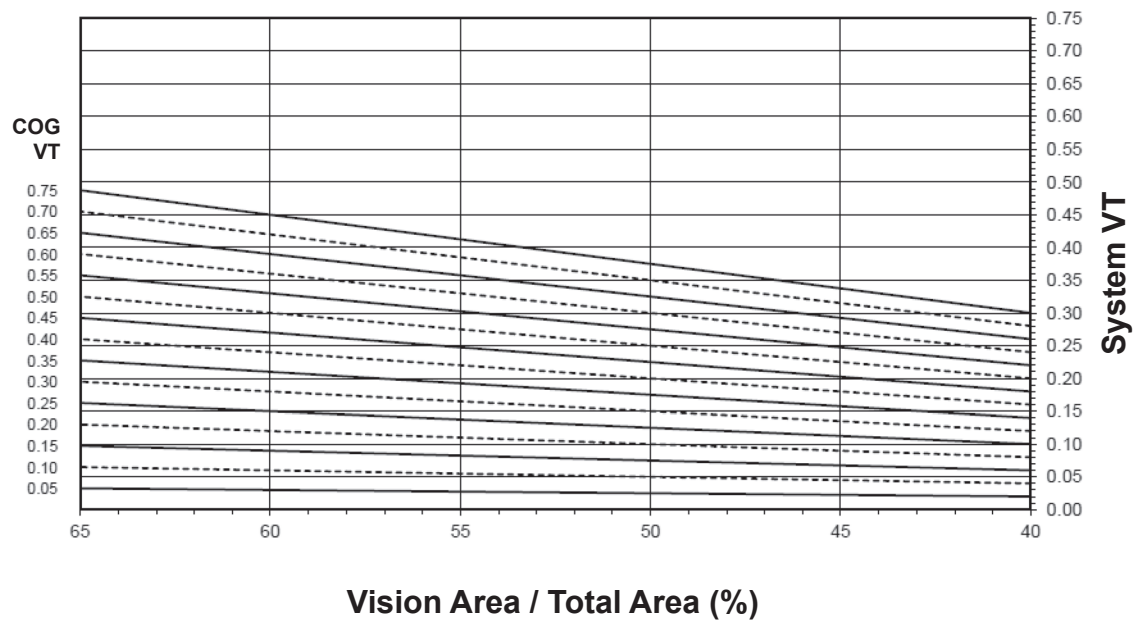
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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350 (PAIR OF DOORS)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area**System Visible Transmittance (VT) vs Percent of Vision Area**

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.47	0.79
0.46	0.78
0.44	0.77
0.42	0.76
0.40	0.75
0.38	0.74
0.36	0.73
0.34	0.72
0.32	0.71
0.30	0.70
0.28	0.69
0.26	0.68
0.24	0.67
0.22	0.66
0.20	0.65
0.18	0.64
0.16	0.63
0.14	0.62
0.12	0.61
0.10	0.60

350 (PAIR OF DOORS)

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.46
0.70	0.43
0.65	0.40
0.60	0.37
0.55	0.35
0.50	0.32
0.45	0.29
0.40	0.26
0.35	0.23
0.30	0.21
0.25	0.18
0.20	0.15
0.15	0.12
0.10	0.09
0.05	0.07

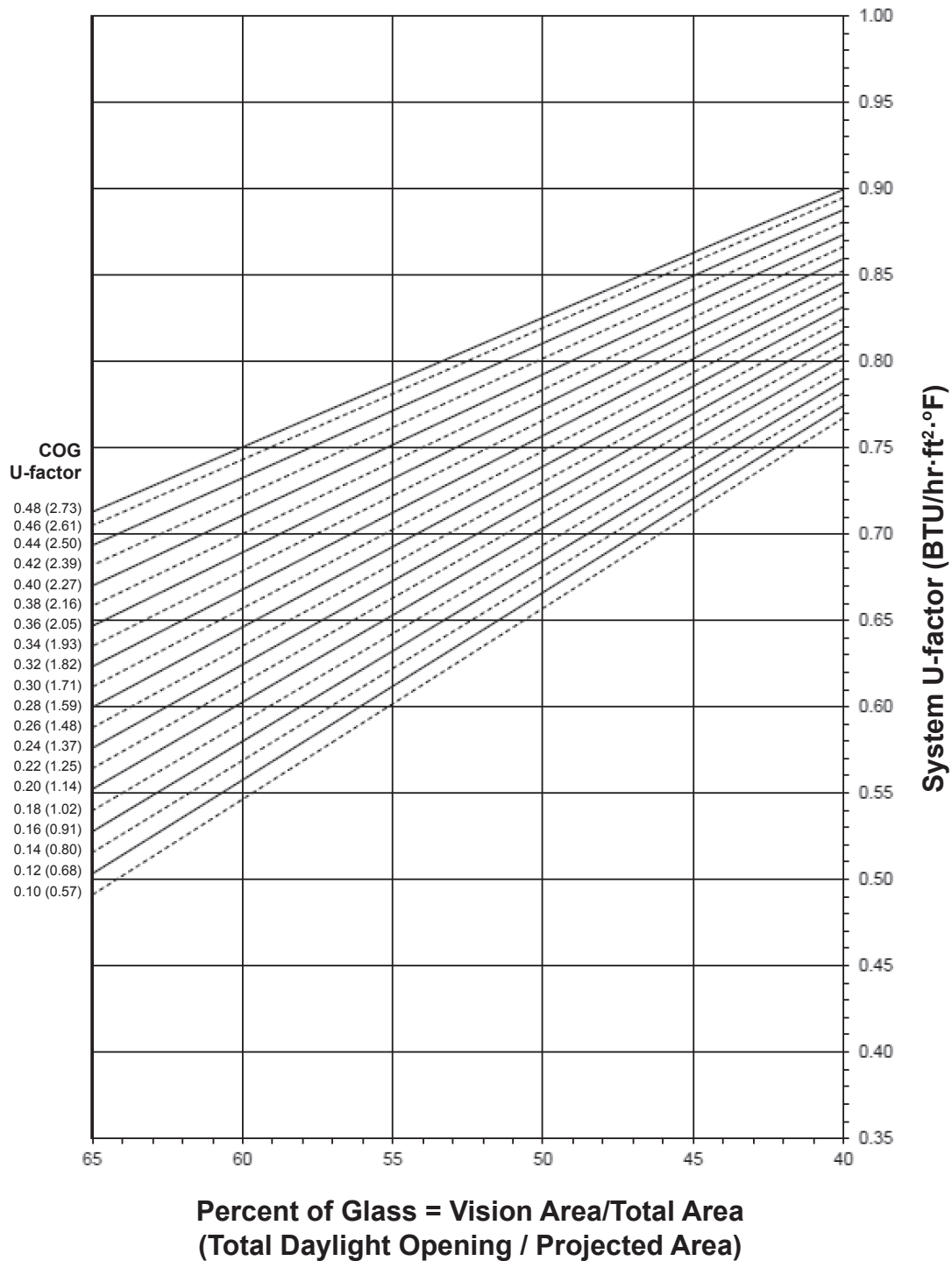
Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.42
0.70	0.39
0.65	0.36
0.60	0.34
0.55	0.31
0.50	0.28
0.45	0.25
0.40	0.22
0.35	0.20
0.30	0.17
0.25	0.14
0.20	0.11
0.15	0.08
0.10	0.06
0.05	0.03

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500 (SINGLE DOOR)

System U-factor vs Percent of Glass Area**Notes for System U-Factor, SHGC and VT charts:**

For glass values that are not listed, linear interpolation is permitted.

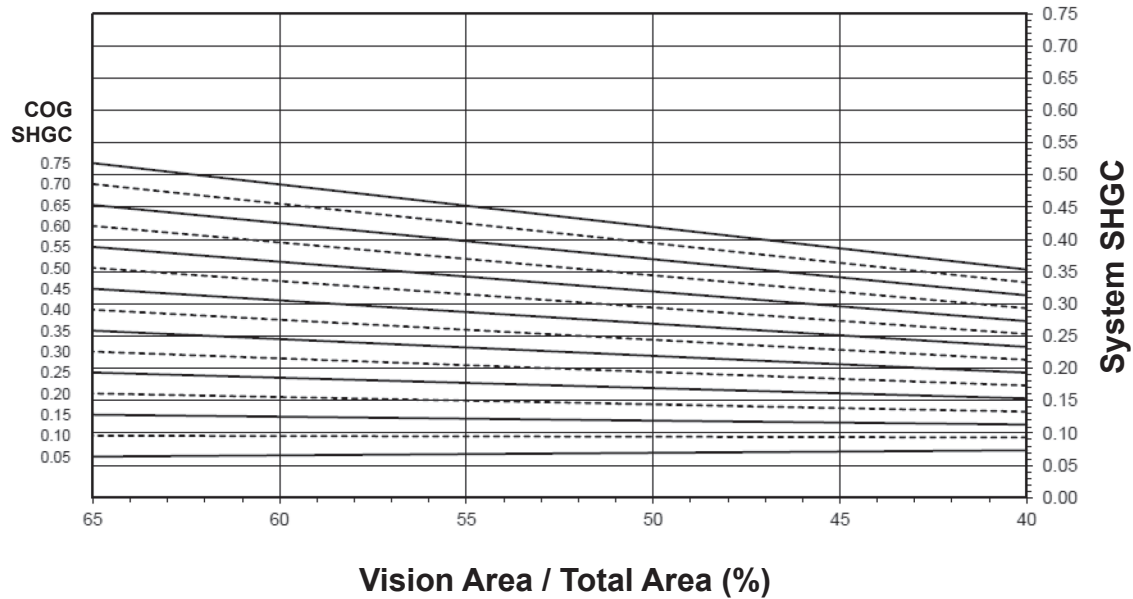
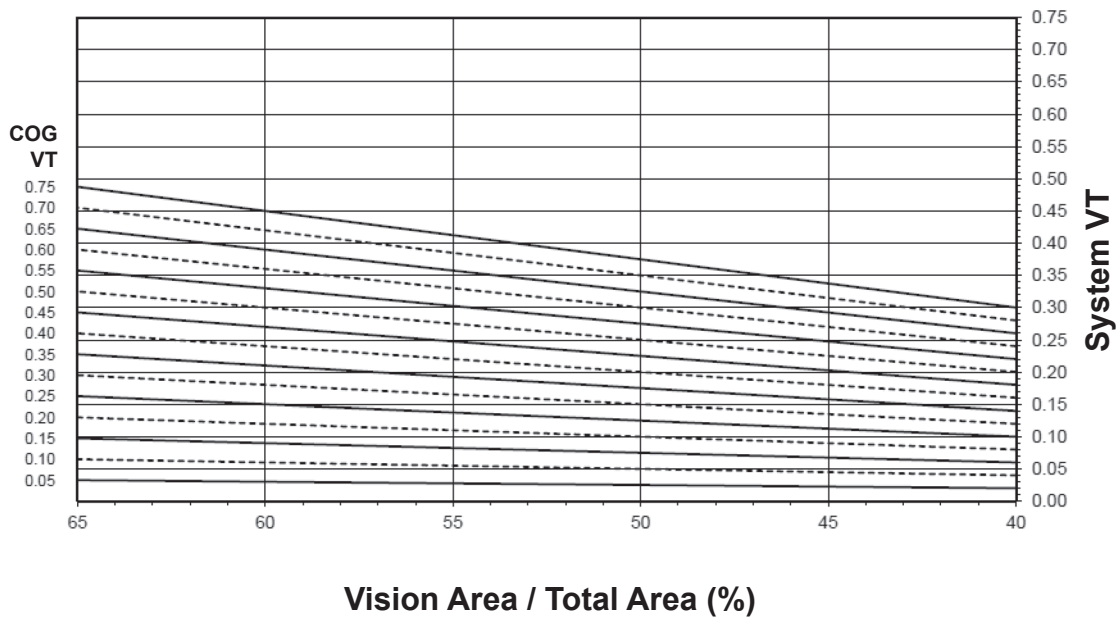
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500 (SINGLE DOOR)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area**System Visible Transmittance (VT) vs Percent of Vision Area**

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

500 (SINGLE DOOR)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.87
0.46	0.86
0.44	0.85
0.42	0.84
0.40	0.84
0.38	0.83
0.36	0.82
0.34	0.81
0.32	0.81
0.30	0.80
0.28	0.79
0.26	0.78
0.24	0.77
0.22	0.77
0.20	0.76
0.18	0.75
0.16	0.74
0.14	0.73
0.12	0.73
0.10	0.72

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.38
0.70	0.36
0.65	0.34
0.60	0.32
0.55	0.29
0.50	0.27
0.45	0.25
0.40	0.23
0.35	0.21
0.30	0.18
0.25	0.16
0.20	0.14
0.15	0.12
0.10	0.09
0.05	0.07

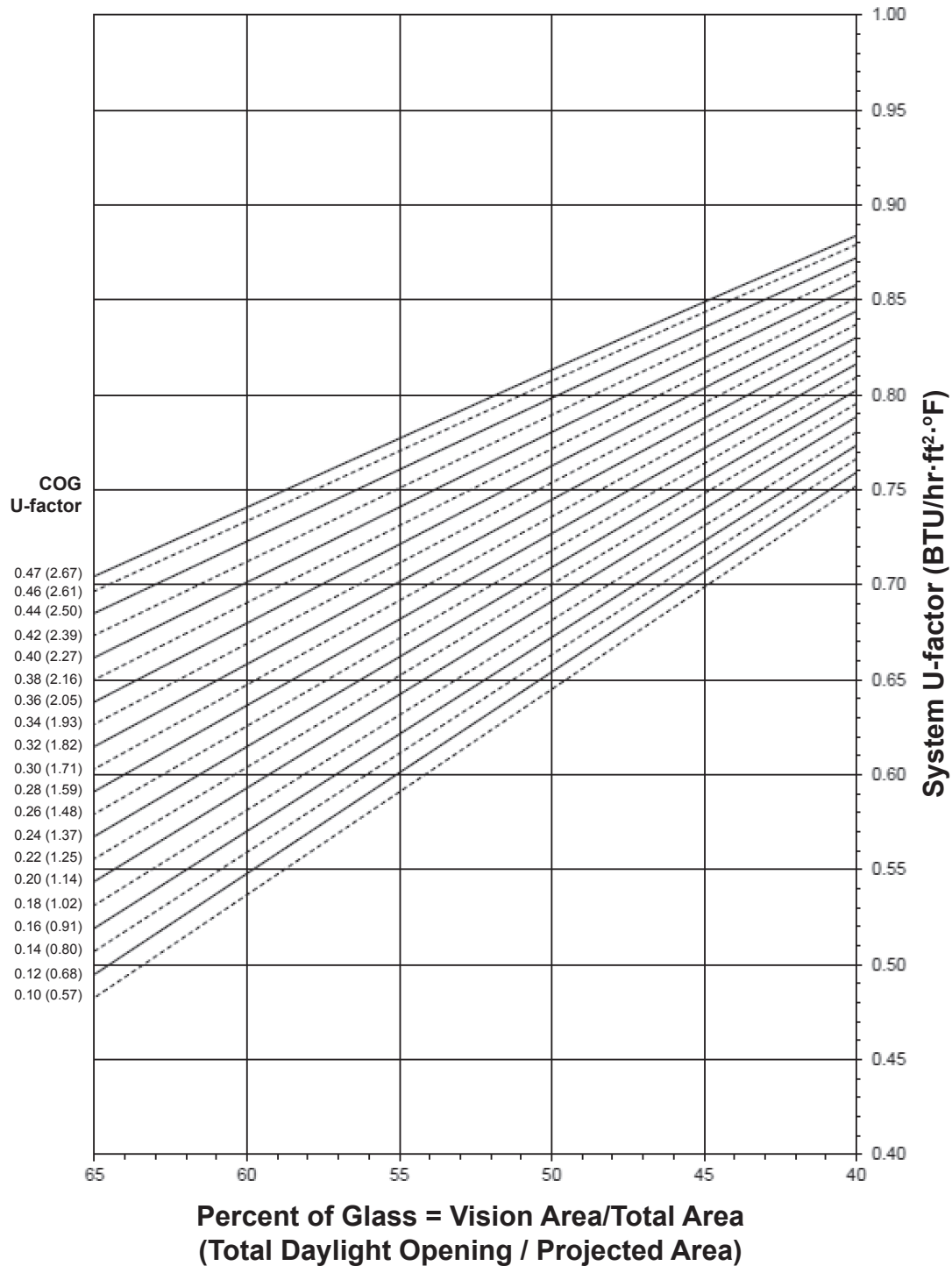
Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.33
0.70	0.31
0.65	0.29
0.60	0.27
0.55	0.25
0.50	0.22
0.45	0.20
0.40	0.18
0.35	0.16
0.30	0.13
0.25	0.11
0.20	0.09
0.15	0.07
0.10	0.04
0.05	0.02

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

500 (PAIR OF DOORS)

System U-factor vs Percent of Glass Area**Notes for System U-Factor, SHGC and VT charts:**

For glass values that are not listed, linear interpolation is permitted.

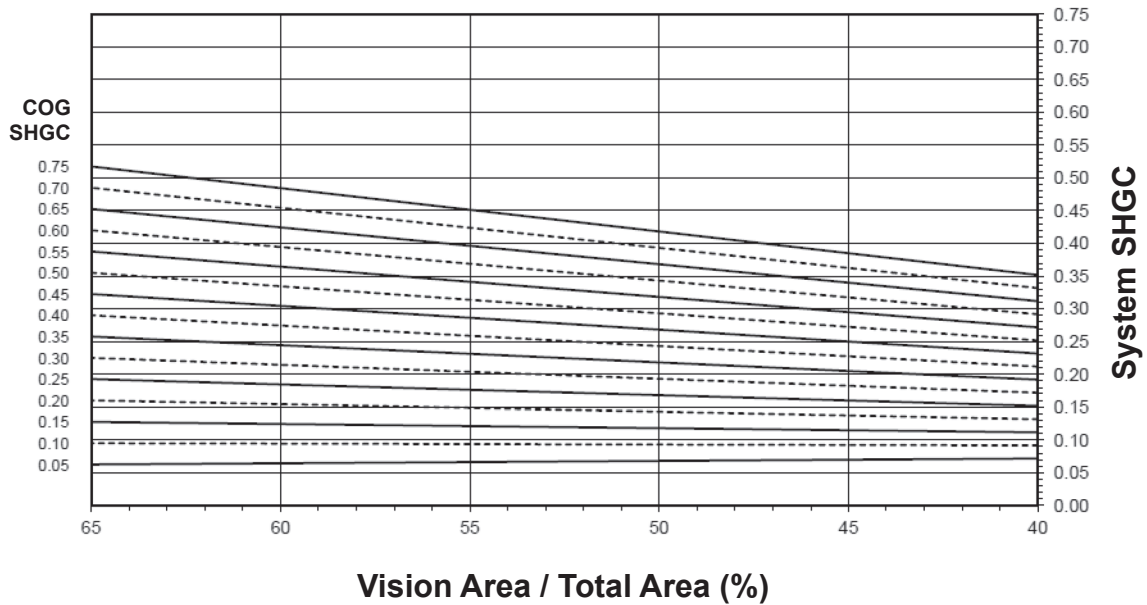
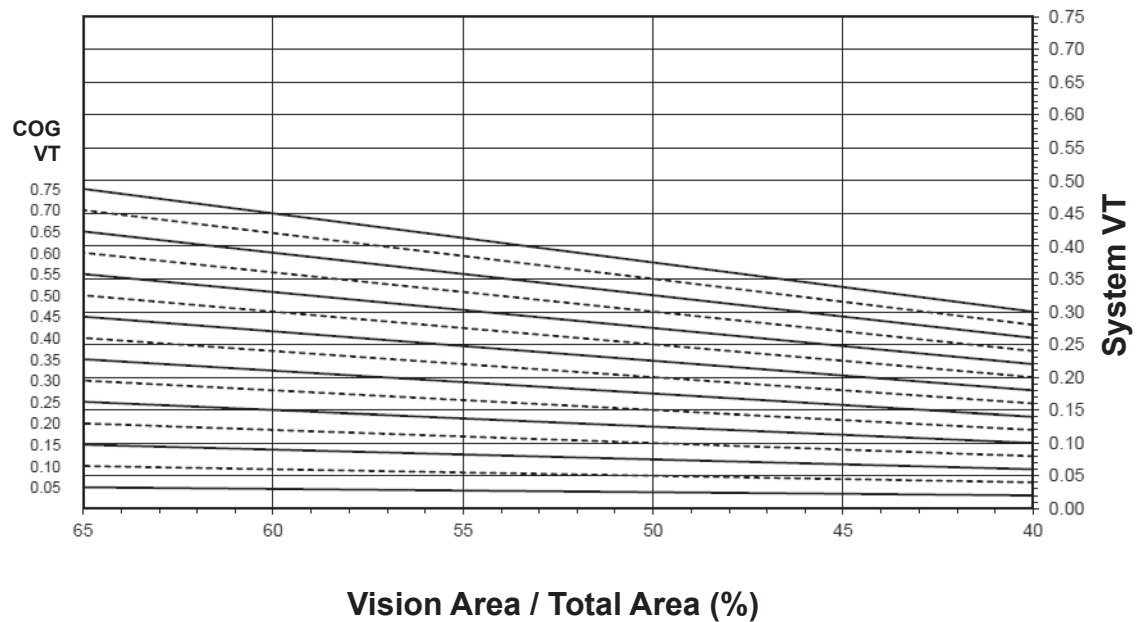
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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500 (PAIR OF DOORS)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area**System Visible Transmittance (VT) vs Percent of Vision Area**

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.47	0.82
0.46	0.82
0.44	0.81
0.42	0.80
0.40	0.79
0.38	0.78
0.36	0.77
0.34	0.77
0.32	0.76
0.30	0.75
0.28	0.74
0.26	0.73
0.24	0.72
0.22	0.71
0.20	0.70
0.18	0.70
0.16	0.69
0.14	0.68
0.12	0.67
0.10	0.66

500 (PAIR OF DOORS)

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.41
0.70	0.38
0.65	0.36
0.60	0.34
0.55	0.31
0.50	0.29
0.45	0.26
0.40	0.24
0.35	0.21
0.30	0.19
0.25	0.17
0.20	0.14
0.15	0.12
0.10	0.09
0.05	0.07

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.36
0.70	0.34
0.65	0.32
0.60	0.29
0.55	0.27
0.50	0.24
0.45	0.22
0.40	0.19
0.35	0.17
0.30	0.15
0.25	0.12
0.20	0.10
0.15	0.07
0.10	0.05
0.05	0.02

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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190, 350 and 500 Standard Entrances

Single Source
Packages
Generate Versatile
First Impressions

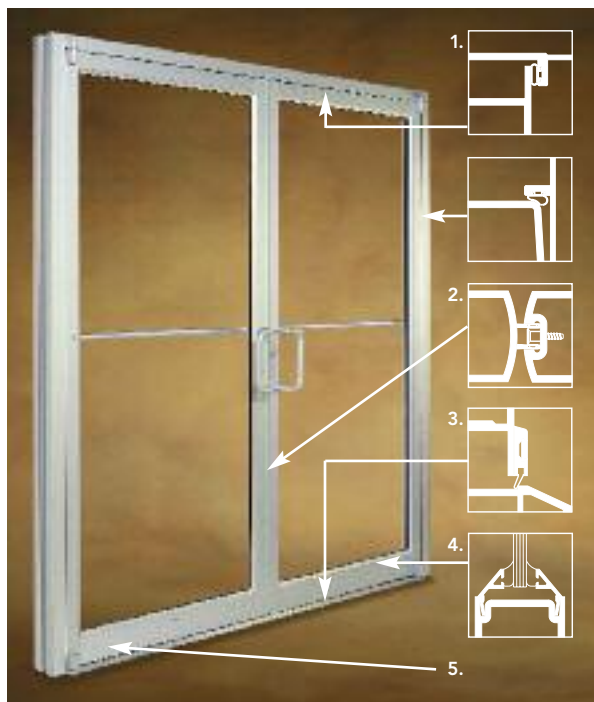


Garland Special Events Center, Garland, TX
Architect: HKS, Inc., Dallas, TX
Glazing Contractor: B & B Glass, Inc., Dallas, TX

Tough yet attractive, the clean lines of Kawneer's Standard Entrances are designed as a single-source package of door, door frame and hardware that is easily adaptable to custom requirements. Designed to complement new or remodel construction, modern or traditional architecture, they are engineered, constructed and tested to make good first impressions while withstanding the rigors of constant use by occupants and visitors.

Performance

To resist both lever arm and torsion forces that constantly act on any door, all three entrances feature welded corner construction with Sigma deep penetration and fillet welds plus mechanical fastenings at each corner – a total of 16 welds per door. Each door corner comes with a Limited Lifetime Warranty, good for the life of the door under normal use operation. It is transferable from building owner to owner and is in addition to the standard two-year warranty covering material and workmanship of each Kawneer Door.



1. Thermoplastic elastomer weatherstrip in blade-stop of frame jambs, header or transom bar.

2. Integral polymeric fin is attached to adjustable astragal creating an air barrier between pairs of doors.

3. Optional surface-applied bottom weatherstrip with flexible blade gasket. Extruded raised lip on threshold to provide a continuous contact surface for bottom weatherstrip.

4. Standard 1/4" beveled glass stops sheet water and dirt off without leaving residue.

5. Available in all finishes offered by Kawneer.

The 190 Narrow Stile Entrance

- Is engineered for moderate traffic in applications such as stores, offices and apartment buildings
- Vertical stile measures 2-1/8"; top rail 2-1/4" and bottom rail 3-7/8"
- Results in a slim look that meets virtually all construction requirements

The 350 Medium Stile Entrance

- Provides extra strength for applications such as schools, institutions and other high traffic applications
- Vertical stiles and top rails measure 3-1/2"
- Bottom rail measures 6-1/2" for extra durability

The 500 Wide Stile Entrance

- Creates a monumental visual statement for applications such as banks, libraries and public buildings
- Vertical stiles and top rail are 5"; bottom rail measures 6-1/2"
- Results in superior strength for buildings experiencing heavy traffic conditions

Economy

Kawneer's Sealair® bulb neoprene weatherstripping forms a positive seal around the door frame and provides a substantial reduction in air infiltration, resulting in improved comfort and economies in heating and cooling costs. The system is wear and temperature-resistant and replaces conventional weathering. Bottom weatherstrip at the interior contains a flexible blade gasket to meet and contact the threshold, enhancing the air and water infiltration performance characteristics.

For the Finishing Touch

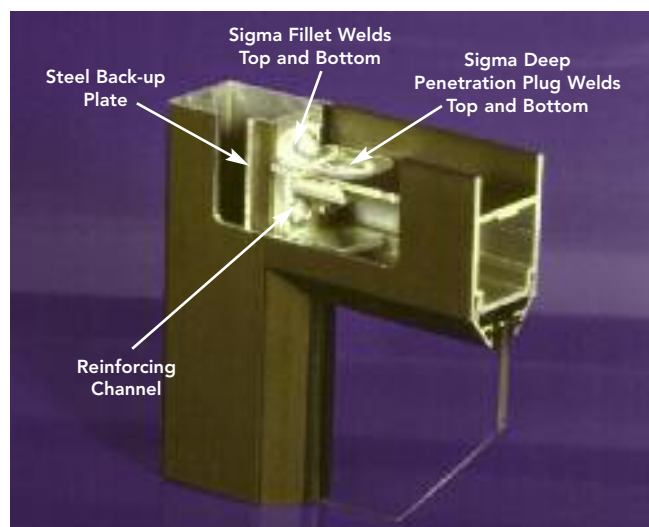
Permanodic® Anodized finishes are available in Class I and Class II in seven different colors.

Painted Finishes, including fluoropolymer that meet or exceed AAMA 2605, are offered in many standard choices and an unlimited number of specially-designed colors.

Solvent-free powder coatings add the "green" element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.

General

- Heights vary to 10'; widths range from approximately 3' to 4'
- Door frame face widths range to a maximum of 4", while depths range to 6"
- Door operation is single or double-acting with maximum security locks or Touch Bar Panics standard
- Architect's Classic one inch round, bent bar push/pull hardware is available in various finishes and sizes
- Infills range from under 1/4" to more than 1"



Kawneer Company, Inc.
Technology Park / Atlanta
555 Guthridge Court
Norcross, GA 30092

kawneer.com
770 . 449 . 5555

KAWNEER
AN ALCOA COMPANY





FIRESTONE BUILDING PRODUCTS

2014 LTTR VALUES

Long-Term Thermal Resistance - Polyiso Board Stock Insulation

SIZE	R-VALUE	PSI
0.5	2.9	96
1.0	5.7	48
1.1	6.3	42
1.2	6.8	40
1.3	7.4	36
1.4	8.0	34
1.5	8.6	32
1.6	9.1	30
1.7	9.7	28
1.8	10.3	26
1.9	10.8	25
2.0	11.4	24
2.1	12.0	22
2.2	12.6	21
2.3	13.2	20
2.4	13.8	20
2.5	14.4	19
2.6	15.0	18
2.7	15.6	17
2.8	16.2	17
2.9	16.8	16
3.0	17.4	16
3.1	18.0	15
3.2	18.6	15
3.3	19.2	14
3.4	19.9	14
3.5	20.5	13
3.6	21.1	13
3.7	21.7	12
3.8	22.3	12
3.9	23.0	12
4.0	23.6	12

BASED ON ASTM C1289-13e1	
R-Value	Thickness
20.0	2 layers 1.8" (R-20.6)
25.0	2 layers 2.2" (R-25.2)
30.0	2 layers 2.6" (R-30.0)
35.0	2 layers 3.1" (R-36.0)
40.0	2 layers 3.5" (R-41.0)

For more information, contact your local Sales Rep or visit
FIRESTONEBPCO.COM.

250 WEST 96TH ST., INDIANAPOLIS, IN 46260
CORPORATE OFFICE: (800) 428-4442 • (317) 575-7000

Firestone
BUILDING PRODUCTS
NOBODY COVERS YOU BETTER.™

ELFOAM[®] P200

POLYISOCYANURATE FOAM

April 2012

Product Description

ELFOAM P200 is a 2.0 lb/ft³ (32 kg/m³), rigid, unfaced, closed cell polyisocyanurate foam supplied as blocks, sheets, shapes and custom parts for a variety of insulation, core material and carving applications. Polyisocyanurate foam (polyiso) is similar to polyurethane foam but offers greater dimensional stability over a wider service temperature range.

ELFOAM P200 is manufactured in bunstock form 26" (66cm) thick with a 48" (122cm) width in 72", 96", 108", 120", and 144" (183cm, 244cm, 274cm, 305cm, and 396cm) lengths. Cut sheets are offered in thicknesses from 1/8" to 12" (.32cm to 30cm) in 1/32" (.08cm) increments. Custom sizes and fabricated parts up to 26" (66cm) thick and 192" (488cm) in length are available for customers wanting to eliminate in-house cutting, handling, and scrap disposal. Contact the Indianapolis Sales Office for additional information.

Design Considerations

ELFOAM P200 is designed for use in environments where temperatures range from -297°F to +300°F (-183°C to +149°C). However, in non-laminated applications where P200 is exposed to temperatures exceeding 140°F (60°C) and/or relative humidity in excess of 70%, allowances for foam expansion may need to be incorporated into the engineering design. Regardless of operating conditions, a qualified design engineer should review all foam applications.

ELFOAM, like all cellular plastics, will degrade upon prolonged exposure to sunlight. Cover foam material in order to block ultraviolet radiation and prevent degradation. Other coverings to protect exposed foam surfaces from the elements and to meet applicable fire regulations may also be required.

Applications*

- Refrigerated food service equipment
- Laminated wall and roof panels
- Commercial and industrial doors
- FRP panels, tanks and shelters
- Truck/Trailer bodies, shipping containers and railcars
- Pipe, tank and vessel insulation
- Plugs, patterns and carved products

Environmental Data

ELFOAM P200 is specifically formulated to provide excellent physical properties without the use of chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC) blowing agents. In compliance with the Montreal Protocol and the Clean Air Act, ELFOAM P200 is manufactured with hydrocarbon blowing agents which have no ozone depletion and no global warming potential.

Safety

All persons who work with ELFOAM products should follow proper handling procedures. The ELFOAM Material Safety Data Sheet (MSDS) contains information on the proper handling, storage and use of this material. A copy of this MSDS may be downloaded at elliottfoam.com or obtained by calling the Indianapolis Sales Office.

Availability

All ELFOAM product support, samples, pricing and orders are coordinated by the Indianapolis Sales Office. Please call (800) 545-1213 for details. Additional ELFOAM product data sheets may also be downloaded at elliottfoam.com.

* Application testing is often required to determine suitability of the foam for a specific application. The potential user should perform pertinent testing to determine the suitability of the product for the intended application. Final determination of fitness of the product for any particular use is the responsibility of the buyer.

NOTE: Elliott Company of Indianapolis Inc. (Elliott) believes the information and recommendations herein to be accurate and reliable as of date of publication. However, since any assistance furnished by Elliott with reference to the proper use and disposal of its products is provided without charge and since use conditions are not within its control, Elliott assumes no obligation or liability for such assistance. No warranty, expressed or implied, regarding accuracy or correctness is given and Elliott expressly disclaims any implied warranties including the implied warranties of merchantability or fitness for a particular use. Since use conditions and government regulations may vary from one location to another and may change with time, it is the buyer's responsibility to determine whether Elliott products are appropriate for buyer's use, and to assure the buyer's workplace and disposal procedures are in compliance with law, regulations, ordinances, and other government enactments applicable in the jurisdiction having authority over the buyer's operations.



Family Owned since 1957

OF INDIANAPOLIS INC.

Manufacturer/Fabricator of ELFOAM Polyiso & Polyurethane Products

Product Description

ELFOAM P200 is a rigid, unfaced, closed cell polyisocyanurate (*polyiso*) foam material. This CFC and HCFC free product provides outstanding physical properties at service temperature environments from -297°F to +300°F (-183°C to 149°C). ELFOAM P200 is supplied in standard and custom blocks, sheets and fabricated shapes.

Physical Properties (1)(2)(3)	ASTM Method	Typical Values (4)	
		English	Metric
Density	D1622	2.0 lb/ft ³	32 kg/m ³
k-factor(5)	C518		
Initial at 75°F (24°C)		0.165 BTU•in/hr•ft ² •°F	.024 W/m•°C
Aged 10 days at 158°F (70°C)		0.185 BTU•in/hr•ft ² •°F	.027 W/m•°C
R-value/inch	C518		
Initial at 75°F (24°C)		6.0 Hr•ft ² •°F/BTU	1.06 m ² •°C/W
Aged 10 days at 158°F (70°C)		5.4 Hr•ft ² •°F/BTU	0.96 m ² •°C/W
Compressive Strength	D1621		
Parallel		27 lb/in ²	186 kPa
Perpendicular, min		18 lb/in ²	124 kPa
Compressive Modulus	D1621		
Parallel		700 lb/in ²	4,823 kPa
Perpendicular, min		334 lb/in ²	2,301 kPa
Shear Strength	C273		
Parallel		22 lb/in ²	151 kPa
Perpendicular, min		16 lb/in ²	110 kPa
Shear Modulus	C273		
Parallel		220 lb/in ²	1,516 kPa
Perpendicular, min		177 lb/in ²	1,219 kPa
Tensile Strength	D1623		
Parallel		41 lb/in ²	283 kPa
Perpendicular, min		26 lb/in ²	179 kPa
Tensile Modulus	D1623		
Parallel		1,225 lb/in ²	8,440 kPa
Perpendicular, min		463 lb/in ²	3,190 kPa
Closed Cell Content(6)	D2856		92%
Water Absorption (by volume)	C272		1.27%
Water Vapor Transmission	E96	4.0 perms/in	7.0 ng/Pa•S•m
Dimensional Stability (volume change)	D2126		
158°F (70°C) + 97% R.H./7 days			+3.0%
212°F (100°C) + Ambient R.H./7 days			+1.0%
-40°F (-40°C) + Ambient R.H./7 days			-0.5%
Surface Burning Characteristics(7)	E84		
Flame Spread up to 6" (15.23 cm) .			<25
Smoke Developed up to 6" (15.23 cm)			<185

(1) Data shown are average values obtained from representative production samples, unless otherwise indicated.

(2) The suitability of this product for any particular application is the responsibility of the user. The potential user is responsible for performing any pertinent test required to determine the product's suitability for the intended application.

(3) All properties measured at 74°F (23°C) unless otherwise indicated.

(4) To be used only as a guide for engineering.

(5) k-factors will vary with age and use conditions.

(6) Freeze-thaw cycling in wet environments may cause destruction of unprotected foam's closed cell structure, resulting in the deterioration of physical properties.

(7) Numerical "Flame Spread" and "Smoke Developed" ratings are not intended to reflect hazards presented by this or any other material under actual fire conditions. This material is combustible and will burn when exposed to large fire sources.

NOTE: The information presented herein is offered in good faith as accurate, but without warranty, expressed or implied, regarding accuracy or correctness. Conditions of use and suitability of the product for particular uses are beyond the control of Elliott Company of Indianapolis Inc., therefore all risks of the use of this product are assumed by the user.

FOR MORE INFORMATION OR PRODUCT SAMPLES CALL

1-800-545-1213

OR VISIT

elliottfoam.com



Family Owned since 1957

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9200 Zionsville Road Indianapolis, Indiana 46268
Phone: (317) 291-1213 • Fax: (317) 291-1219

Mark Carnicelli

From: Mike Ferrell <mferrell@JamisonDoor.com>
Sent: Thursday, April 27, 2017 3:56 PM
To: Mark Carnicelli
Cc: Sabrina Sileo
Subject: R Value
Attachments: FOAM-P200.pdf

Mr. Carnicelli,
Good afternoon.

Please note that the Jamison/Jamotuf Fiberglass 1-3/4" door has a calculated R-value of 9.6.

The foam core per the attached cutsheet details R6 per inch of thickness with 1.5" inches being utilized in the Jamotuf yielding R9.

The additional .6 R is gained from the .125" Thick fiberglass face sheets each contributing .3.

If you need actual test data, I am confident we can present that as well, please advise.

Thank you,
Mike Ferrell



PO Box 70 Hagerstown, MD 21741-0070

Direct Ph. 240-313-7946 Cell 501-339-5936

www.jamisondoor.com



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JAMOTUF®

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*A division of Jamison
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- ➔ Low maintenance
- ➔ Corrosion resistance
- ➔ Lifetime corrosion warranty

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Overview

With decades of experience creating and perfecting fiberglass doors, Jamison has introduced Jamotuf, specializing in 1-3/4" thick fiberglass doors with fiberglass frame options.

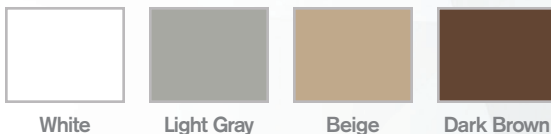
Jamotuf Features

- ➔ Smooth gloss gelcoat results in an exceptionally clean, non-porous, and non-absorptive door surface.
- ➔ Monolithic molded construction for a true seamless impermeable outer shell.
- ➔ Molecular crosslinking of all six sides of the door ensures integrity of the seamless design.
- ➔ Outer shell is press-molded to composite core materials for a variety of applications and designs.
- ➔ A wide range of hardware preps or factory installed Grade 1 hardware accessories.

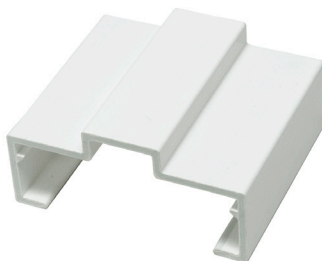
Markets Served

- ➔ Food Processing
- ➔ Water & Wastewater Treatment
- ➔ Clean Room
- ➔ Pharmaceuticals
- ➔ Mining – Salt / Minerals Laboratories
- ➔ Aquatic Facilities
- ➔ Schools
- ➔ Coastal Applications
- ➔ Vivariums
- ➔ Hospitals Military / Govt. Installations
- ➔ Sound Walls
- ➔ Equipment Shelters
- ➔ Zoos
- ➔ Veterinary Medicine
- ➔ Kennels
- ➔ Chemical Plant
- ➔ Paper Mills
- ➔ Restaurants
- ➔ Parks & Recreation Facilities
- ➔ Power Plants

Standard Colors Available



Color representations are subject to electronic copy, sheen and lot to lot variations. Actual product may vary.



Double Rabbet



Single Rabbet



Adjustable

**CORES**

Modular (2 section) patented aluminum heat recovery cores arranged for efficient counter-flow ventilation.

MOTORS

Two PSC, 3 speed single shafted, 120 VAC, 4.5 Amps each (9 total on high speed). HP-1/4, 1450 RPM. MCA: 11.3 MOP: 15 Watts - total on high speed - 1032.

FILTERS

Washable air filters in exhaust and supply air streams.

BLOWERS

Slide easily in / out of unit. Centrifugal type rated at 700 CFM (329 L/s) free air delivery. Each air stream has one single shafted motor driving a centrifugal blower.

CONNECTION DUCT SIZES - Four - 14" x 8" (356 mm x 200 mm).

MOUNTING

Unit to be set on support brackets hung by threaded rod type apparatus (brackets and rods not provided).

CASE

Unit has front and back access doors and electrical panel can be switched to either side giving the installer flexibility in duct direction. 20 gauge prepainted galvanized steel (G60) for superior corrosion resistance. Insulated with foil faced insulation where required to prevent exterior condensation.

Drain connections are two - 1/2" (12 mm) O.D.

ELECTRONICS

Integrated microprocessor circuit board. Built-in interlock contacts.

DEFROST CONTROLS

MODEL 700FD - Interrupts supply air while exhaust air defrosts core.

MODEL 700DD - Supply bypass routes indoor air to defrost core.

WEIGHT 260 LBS (118 KG) **SHIPPING WEIGHT** 310 LBS. (141 KG)

CONTROL OPTIONS**99-BC02 Lifebreath Ventilation Control**

- 2 speed fan setting (Low/High)
- Humidity control through adjustable Dehumidistat
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

99-500 3 Speed Control

- 3 Speed Fan setting (Low/Medium/High)
- 4 wire connection; 20 gauge wire (minimum)

99-DH01 Lifebreath Dehumidistat

- Humidity control through adjustable Dehumidistat
- 3 wire connection; 20 gauge wire (minimum)

DIMENSIONS inches (mm)**NOTE:**

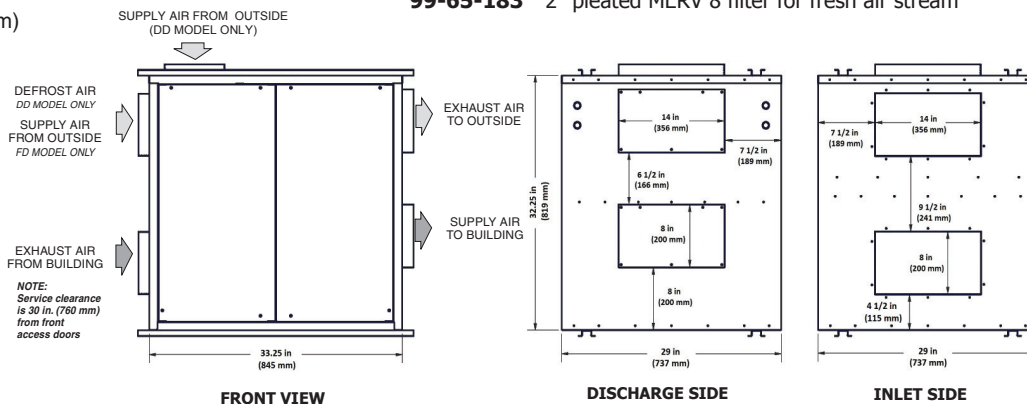
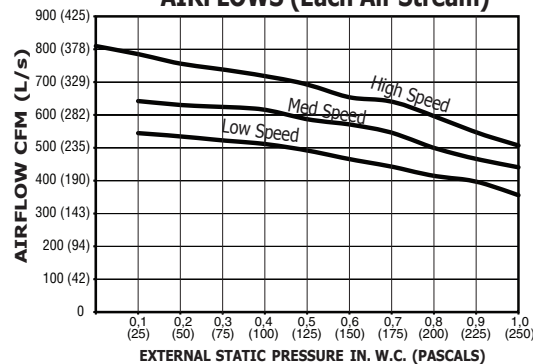
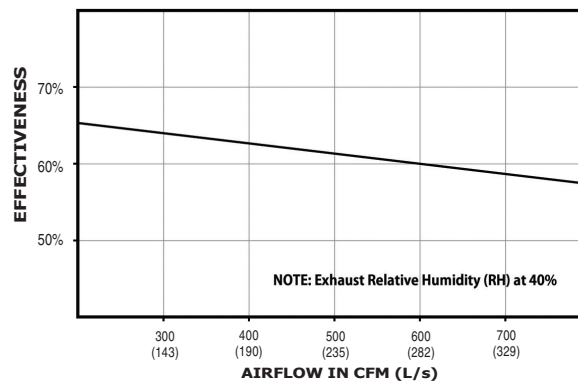
The 700FD/DD model may easily be reversed in the field. Refer to page 25 for installation instructions.

All units conform to CSA and UL standards

NOTE: All specifications are subject to change without notice.

WARRANTY

Units carry a 15 year warranty on the HRV core and a 2 year replacement parts warranty.

**PERFORMANCE****AIRFLOWS (Each Air Stream)****TEMPERATURE EFFECTIVENESS**

AHRI 1060 Certified
 Core: Contains two 68-222

TIMER OPTIONS**99-DET01 Lifebreath 20/40/60 Minute Timer**

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- 3 wire connection; 20 gauge wire (minimum)

99-DET02 Lifebreath WIRELESS 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- Wirelessly connects to main control for ease of installation
- 40' approximate range

99-RX02 Lifebreath WIRELESS Repeater

- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

FILTER OPTIONS

99-65-183 2" pleated MERV 8 filter for fresh air stream

Date: _____

Tag: _____ Qty: _____

Project: _____

Engineer: _____

Contractor: _____

Supplier: _____

Quote#: _____

Submitted by: _____



FOAMULAR® I50

Extruded Polystyrene (XPS) Rigid Foam Insulation

Product Data Sheet



Energy-Saving¹, Moisture Resistant XPS Insulation

ASTM C578 Type X, 15 psi minimum

Description

Owens Corning™ FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation is a closed cell, moisture-resistant rigid foam board well suited to meet the need for a wide variety of building applications.² FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation is great for many residential and commercial construction applications such as wall furring, perimeter/foundation, cavity wall, pre-cast concrete, crawl spaces, sheathing and other applications.² FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation is classified as a Type X product when tested in accordance with ASTM C578 and provides a long-term thermal performance of R-5 per inch.

Like all FOAMULAR® XPS products, FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation is made with Owens Corning's patented

Hydrovac® process technology under strict quality control measures, which makes it highly resistant to moisture and permits the product to retain its high R-value year after year even after prolonged exposure to moisture, and freeze/thaw cycling.

Key Features

- Excellent long-term stable insulating performance at R-5³ per inch
- Exceptional moisture resistance, long-term durability
- Limited lifetime warranty⁴—maintains 90% of R-value and covers all ASTM C578 properties
- The only XPS foam to have achieved GREENGUARD Gold Certification
- The only XPS foam with certified recycled content—certified by SCS Global Services to contain a minimum 20% recycled content
- Will not corrode, rot or support mold growth
- Zero ozone depletion potential with 70% less global warming potential than our previous formula
- Reusable
- Lightweight, durable rigid foam panels are easy to handle and install
- Easy to saw, cut or score
- Versatile applications: sheathing,

foundation walls, masonry cavity walls²

- Not for use in roofing. For roofing applications, use FOAMULAR® THERMAPINK® Extruded Polystyrene (XPS) Rigid Foam Insulation

Product Type

- Minimum compressive strength of 15 psi
- Wide selection of sizes and thicknesses
- Available in square, tongue and groove or scored square edge
- Compliant with building codes and standards

Product Applications

High-performance FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation:

- Retards the transmission of water vapor and moisture in masonry walls
- Provides continuous insulation over steel stud framing, in insulated concrete sandwich panel walls, or in masonry unit cavity walls, or when used with non-penetrating, surface mounted furring systems over masonry or concrete walls
- Insulates and retains its properties in below grade perimeter and foundation applications, to complement the insulating sheathing envelope around the building framing
- FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation is great for below grade applications. Extruded Polystyrene (XPS) is resistant to degradation from the

¹ Savings vary. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

² Not for use in roofing. For roofing applications, use FOAMULAR® THERMAPINK® Extruded Polystyrene (XPS) Rigid Foam Insulation.

³ R means the resistance to heat flow; the higher the R-value, the greater the insulating power.

⁴ See actual warranty for complete details, limitations and requirements



FOAMULAR® I50

Extruded Polystyrene (XPS) Rigid Foam Insulation

Product Data Sheet

components of common soils and will retain its insulating performance characteristics even after prolonged exposure to moisture.

- Provides a weather resistant barrier (when joints are sealed) to enhance the building resistance to air and moisture penetration.

Technical Information

This product is combustible. A protective barrier or thermal barrier is required as specified in the appropriate building code. For additional information, consult MSDS or contact Owens Corning World Headquarters at 1-800-GET-PINK®.

All construction should be evaluated for the necessity to provide vapor retarders. See current ASHRAE Handbook of Fundamentals.

FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation is a non-structural material and must be installed on framing which is independently braced and structurally adequate to meet required construction and service loading conditions.

FOAMULAR® XPS Insulation can be exposed to the exterior during normal construction cycles. During that time some fading of color may begin due to UV exposure, and, if exposed for extended periods of time, some degradation or “dusting” of the polystyrene surface may begin. It is best if the product is covered within 60 days to minimize degradation. Once covered, the deterioration stops, and damage is limited to the thin top surface

Typical Physical Properties¹

FOAMULAR® I50 Extruded Polystyrene (XPS) Rigid Foam Insulation

Property	Test Method ²	Value
Thermal Resistance³, R-Value (180 day) minimum, hr•ft ² •°F/Btu (RSI, °C•m ² /W) @ 75°F (24°C) mean temperature		
	ASTM C518	
1" Thickness		5.0 (0.88)
1½" Thickness		7.5 (1.32)
2" Thickness		10 (1.76)
2½" Thickness		12.5 (2.20)
3" Thickness		15 (2.64)
@ 40°F (4.4°C) mean temperature		
1" Thickness		5.4 (0.95)
1½" Thickness		8.1 (1.43)
2" Thickness		10.8 (1.90)
2½" Thickness		13.5 (2.38)
3" Thickness		16.2 (2.85)
Long Term Thermal Resistance, LTTR-Value³, minimum hr•ft ² •°F/Btu (RSI, °C•m ² /W) @ 75°F (24°C) mean temperature		
	CAN/ULC S770-03	
1" Thickness		5.0 (0.88)
1½" Thickness		7.8 (1.37)
2" Thickness		10.6 (1.87)
2½" Thickness		13.4 (2.36)
3" Thickness		16.2 (2.85)
Compressive Strength⁴, minimum psi (kPa)	ASTM D1621	15 (103)
Flexural Strength⁵, minimum psi (kPa)	ASTM C203	60 (414)
Water Absorption⁶, maximum % by volume	ASTM C272	0.10
Water Vapor Permeance⁷, maximum perm (ng/Pa•s•m²)	ASTM E96	1.5 (86)
Dimensional Stability, maximum % linear change	ASTM D2126	2.0
Flame Spread^{8,9}	ASTM E84	5
Smoke Developed^{8,9,10}	ASTM E84	45-175
Oxygen Index⁸, minimum % by volume	ASTM D2863	24
Service Temperature, maximum °F (°C)	—	165 (74)
Linear Coefficient of Thermal Expansion, in/in/°F (m/m/°C)	ASTM E228	3.5 × 10 ⁻⁵ (6.3 × 10 ⁻⁵)

1. Properties shown are representative values for 1" thick material, unless otherwise specified.

2. Modified as required to meet ASTM C578

3. R means the resistance to heat flow; the higher the value, the greater the insulation power. This insulation must be installed properly to get the marked R-value. Follow the manufacturer's instructions carefully. If a manufacturer's fact sheet is not provided with the material shipment, request this and review it carefully. R-values vary depending on many factors including the mean temperature at which the test is conducted, and the age of the sample at the time of testing. Because rigid foam plastic insulation products are not all aged in accordance with the same standards, it is useful to publish comparison R-value data. The R-value for FOAMULAR® XPS Insulation is provided from testing at two mean temperatures, 40°F and 75°F, and from two aging (conditioning) techniques, 180 day real-time aged (as mandated by ASTM C578) and a method of accelerated aging sometimes called "Long Term Thermal Resistance" (LTTR) per CAN/ULC S770-03. The R-value at 180 day real-time age and 75°F mean temperature is commonly used to compare products and is the value printed on the product.

4. Values at yield or 10% deflection, whichever occurs first.

5. Value at yield or 5%, whichever occurs first.

6. Data ranges from 0.00 to value shown due to the level of precision of the test method.

7. Water vapor permeance decreases as thickness increases.

8. These laboratory tests are not intended to describe the hazards presented by this material under actual fire conditions.

9. Data from Underwriters Laboratories Inc.® classified. See Classification Certificate U-197.

10. ASTM E84 is thickness-dependent, therefore a range of values is given.

layers of cells. Cells below are generally unharmed and still useful insulation.

FOAMULAR® I50 Extruded Polystyrene XPS Rigid Foam Insulation has a maximum service temperature of 165°F. Taking simple precautions during

construction can minimize the potential for heat related damage. Install only as much FOAMULAR® XPS Insulation as can be covered in the same day. For horizontal applications, always turn the print side down so the black print does not show to the sun which may at times



FOAMULAR® 150

Extruded Polystyrene (XPS) Rigid Foam Insulation

Product Data Sheet

Product and Packaging Data

FOAMULAR® 150 Extruded Polystyrene (XPS) Rigid Foam Insulation

Material		Packaging						
Extruded polystyrene closed cell foam, ASTM C578 Type X, 15 psi minimum		Shipped in poly-wrapped units with individually wrapped or banded bundles.						
Thickness (in)	Product Dimensions Thickness (in) x Width (in) x Length (in)	Pallet (Unit) Dimensions (typical) Width (ft) x Length (ft) x Height (ft)	Square feet per Pallet	Board feet per Pallet	Bundles per Pallet	Pieces per Bundle	Pieces per Pallet	Edges
1	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192	Square Edge, Scored Square Edge, Tongue & Groove
	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192	
	1 x 48 x 96	4 x 8 x 8	3,072	3,072	8	12	96	
	1 x 48 x 96 (Half unit)	4 x 8 x 4	1,536	1,536	4	12	48	
	1 x 48 x 108	4 x 9 x 8	3,456	3,456	8	12	96	
1½	1.5 x 24 x 96	4 x 8 x 8	2,048	3,072	8	16	128	
	1.5 x 48 x 96	4 x 8 x 8	2,048	3,072	8	8	64	
2	2 x 24 x 96	4 x 8 x 8	1,536	3,072	8	12	96	
	2 x 48 x 96	4 x 8 x 8	1,536	3,072	8	6	48	
2½	2.5 x 48 x 96	4 x 8 x 8	1,152	2,830	4	9	36	
3	3 x 24 x 96	4 x 8 x 8	1,024	3,072	8	8	64	
	3 x 48 x 96	4 x 8 x 8	1,024	3,072	8	4	32	

1. Available lengths and edge configurations vary by thickness. See www.foamular.com for current offerings. Other sizes may be available upon request. Consult your local Owens Corning representative for availability.

act as a solar collector, raising the temperature of the foam under the print to an unacceptable level. Provide a final finish covering or temporary white opaque covering to avoid possible damage when dark (non-white) surfaces are used over FOAMULAR® XPS Insulation. Do not cover FOAMULAR® XPS Insulation either stored (factory wrapped or unwrapped), or partially installed, with dark colored (non-white), or clear (non-opaque) coverings and leave it exposed to the sun. Examples of such coverings include but are not limited to filter fabrics, membranes, temporary tarps, clear polyethylene, etc. If improperly covered, and exposed to the right combination of sun, time and temperature, FOAMULAR® XPS Insulation deformation damage may occur rapidly. See Owens Corning publication number 10015704, "Heat Build Up Due

to Solar Exposure" for more information.

Standards, Codes Compliance

- Meets ASTM C578 Type X
- UL Classified. A copy of UL Classification Certificate U-197 is available at www.owenscorning.com
- See UL ER8811-01 at UL.com
- ASTM E119 Fire Resistance Rated Wall Assemblies. See www.owenscorning.com for details.
- Meets California Quality Standards; HUD UM #71A
- Compliance verification by RADCO (AA-650)



Certifications and Sustainable Features of FOAMULAR® XPS Insulation

- FOAMULAR® XPS Insulation is reusable
- FOAMULAR® XPS Insulation is made with a zero ozone depletion formula
- Certified by SCS Global Services to contain a minimum of 20% recycled content
- Certified to meet indoor air quality standards under the stringent GREENGUARD Certification Program, and GREENGUARD Gold Certification Program
- Qualified as an ENERGY STAR® product, under the U.S. Environmental Protection Agency and the U.S. Department of Energy



FOAMULAR® I50

Extruded Polystyrene (XPS) Rigid Foam Insulation

Product Data Sheet

- Approved under the Home Innovation Research Labs NGBS Green Certification Program
- Utilizing FOAMULAR® XPS Insulation can help builders achieve green building certifications including the Environmental Protection Agency's ENERGY STAR®, the National Association of Home Builders' National Green Building certification, and the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) certification

Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation and composite solutions, delivering a broad range of high-quality products and services. Owens Corning is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. More information can be found at <http://sustainability.owenscorning.com>.

Warranty

FOAMULAR® XPS Insulation limited lifetime warranty maintains 90% of its R-value for the lifetime of the building and covers all ASTM C578 properties. See actual warranty for complete details, limitations and requirements at www.owenscorning.com.

All products described here may not be available in all geographic markets. Consult your local sales office representative for more information.

For more information on the Owens Corning family of building products, contact your Owens Corning dealer, call 1-800-GET-PINK®, or access www.owenscorning.com.

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GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit ul.com/gg.

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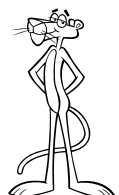
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OWENS CORNING FOAM INSULATION, LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO 43659
1-800-GET-PINK®
www.owenscorning.com

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economizer to a single enthalpy and/or dual enthalpy economizer.

- **Barometric Relief Damper** - Zero to 100% capacity barometric relief dampers for use with horizontal flow, or field installed economizers.
- **Power Exhaust** - This accessory installs in the unit with a down flow or horizontal end return economizer. Power exhaust plugs into the connector in the unit bulkhead. **User must purchase the 1EH0408 barometric relief and hood kit when applying the product in a horizontal flow application. The power exhaust must be mounted in the horizontal end return ductwork.**
- **Manual Outdoor Air Damper** - Like the motorized outdoor air damper, each manual outdoor air damper includes a slide-in damper assembly with an outdoor air hood and filters. Customers have a choice of dampers with ranges of 0% to 100% or 0% to 35% outdoor air entry.
- **Motorized Outdoor Air Damper** - The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The outdoor air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry. Factory installed option or field installed accessory.
- **Smoke Detectors** - The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment.
- **CO₂ Sensor** - Senses CO₂ levels and automatically overrides the economizer when levels rise above the preset limits.
- **Dirty Filter Switch** - This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters.
- **Coil Guard** - Field installed decorative wire coil guard.
- **Hail Guard** - This kit includes a sloped hood which installs over the outside condenser coil and prevents damage to the coil fins from hail strikes. Field installed accessory only.
- **Flue Exhaust Extension Kit** - In locations with wind or weather conditions which may interfere with proper exhausting of furnace combustion products, this kit can be installed to prevent the flue exhaust from entering nearby fresh air intakes.
- **Gas Heat High Altitude Kit** - This kit converts a gas heat unit to operate at high altitudes, 2,000 to 6,000 feet. Conversion kits are available for natural gas and propane.
- **Low NOx Kit** - For units with gas furnaces in locations where codes require that the Oxides of Nitrogen emissions from the furnace be below 40 Nano grams per joule.
- **Gas Heat Propane Conversion Kit** - This kit converts a gas-fired heater from natural gas to propane. It contains the main burner orifices and gas valve replacement springs.
- **Gas Piping Kit** - Contains pipe nipples, fittings and gas cock required for gas supply connection with external shut off.
- **Electric Heaters** - The electric heaters range from 3kW to 54kW and are available in all the voltage options of the base units. The 54kW/208-240 volt, field-installed heater kit is not available with VAV units due to a lack of space to accommodate the heater's fuse block accessory. All heaters are dual staged. Cooling units include an adapter panel for easy installation of the electric heaters. Necessary hardware and connectors are included with the heaters. All heaters are intended for single point power supply.
- **Metal Frame Filter Kit** - Metal frame with polyester filter medium.
- **Permanent Filters** - Permanent filters are available.
- **Roof Curbs** - The roof curbs have insulated decks and are shipped disassembled. The roof curbs are available in 8" and 14" heights. For applications with security concerns, burglar bars are available for the duct openings of the roof curbs.
- **Roof Curb Transition** - Single Piece Adapter (10" High) - Roof curbs for transitioning from Sunline™ units to Predator® units. Fits 7.5 to 12.5 Sunline™ roof curbs only.
- **Burglar Bars** - Mount in the supply and return openings to prevent entry into the duct work.
- **Thermostat** - The units are designed to operate with 24-volt electronic and electro-mechanical thermostats. All 6.5 thru 12.5 ton ZH,ZJ units and all 3 thru 12.5 ton ZR units (with or without an economizer) operate with two-stage heat/two-stage cool or two-stage cooling only thermostats, depending upon unit configuration.



TECHNICAL GUIDE

R-410A

ZH/ZJ/ZR SERIES

3 - 12.5 TON

60 Hertz



ZH/ZJ/ZR 3 THROUGH 10 TON



ZH/ZJ/ZR 12.5 TON



Description

ASHRAE 90.1 COMPLIANT

YORK® Predator® units are convertible single packages with a common footprint cabinet and common roof curb for all 3 through 12.5 ton models. All 6.5 through 12.5 ton units have two compressors with independent refrigeration circuits to provide 2 stages of cooling. The units were designed for light commercial applications and can be easily installed on a roof curb, slab, or frame.

All Predator® units are self-contained and assembled on rigid full perimeter base rails allowing for 3-way forklift access and overhead rigging. Every unit is completely charged, wired, piped, and tested at the factory to provide a quick and easy field installation.

Predator® units in all tonnage sizes are convertible between side airflow and down airflow, with corresponding economizer if economizer option is desired.

Predator® units are available in the following configurations: cooling only, cooling with electric heat, cooling with gas heat, reheat only, reheat with electric heat and reheat with gas heat. Electric heaters are available as factory-installed options or field-installed accessories.

All units provide constant supply air volume. A variable air volume (VAV) option, which features a variable frequency drive (VFD), is available on 6.5 through 12.5 ton ZH/ZJ models only.

Tested in accordance with:



ZJ078-150 Physical Data

Component	Models									
	ZJ078		ZJ090		ZJ102		ZJ120		ZJ150	
Nominal Tonnage	6.5		7.5		8.5		10		12.5	
AHRI COOLING PERFORMANCE										
Gross Capacity @ AHRI A point (Btu)	80000		93000		106000		124000		154000	
AHRI net capacity (Btu)	77000		90000		102000		120000		150000	
EER	12.2 ¹ /11.8 ²		12.2 ¹ /12.0 ²		12.2 ¹ /12.0 ²		12.0		12.1 ¹ /11.6 ²	
IEER with Constant Volume	14.0		13.2 ¹ /13.0 ²		13.0		12.9 ¹ /12.8 ²		13.7 ¹ /13.5 ²	
IEER with Intellispeed	14.8 ¹ /14.6 ²		14.8 ¹ /14.6 ²		14.0 ¹ /13.8 ²		14.8 ¹ /14.6 ²		15.2 ¹ /15.0 ²	
IEER with VAV	14.0		13.2 ¹ /13.0 ²		13.0		12.9 ¹ /12.8 ²		13.7 ¹ /13.5 ²	
IPLV	14.9		14.18		13.6		13.4		14.1	
CFM	2600		2400		2800		3400		3500	
System power (KW)	6.40		7.38		8.30		9.80		12.50	
Refrigerant type	R-410A		R-410A		R-410A		R-410A		R-410A	
Refrigerant charge (lb-oz)										
System 1	5-10		7-12		8-8		7-14		10-8	
System 2	5-12		7-10		8-12		7-14		9-12	
AHRI HEATING PERFORMANCE										
Heating model	N12	N18	N12	N18	N12	N18	N18	N24	N18	N24
Heat input (K Btu)	120	180	120	180	120	180	180	240	180	240
Heat output (K Btu)	96	144	96	144	96	144	144	192	144	192
AFUE %	-	-	-	-	-	-	-	-	-	-
Steady state efficiency (%)	80	80	80	80	80	80	80	80	80	80
No. burners	4	6	4	6	4	6	6	8	6	8
No. stages	2 ³	2 ³	2 ³	2 ³	2 ³	2 ³	2 ³	2 ³	2 ³	2 ³
Temperature Rise Range (°F)	20-50	35-65	15-45	30-60	10-40	25-55	20-50	35-65	10-40	25-55
Gas Limit Setting (°F)	165	165	165	165	215	195	195	160	195	160
Gas piping connection (in.)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
DIMENSIONS (inches)										
Length	89		89		89		89		119-1/2	
Width	59		59		59		59		59	
Height	50-3/4		50-3/4		50-3/4		50-3/4		50-3/4	
OPERATING WT. (lbs.)	1030		1050		1060		1070		1280	
COMPRESSORS										
Type	Recip		Recip		Recip		Scroll		Scroll	
Quantity	2		2		2		2		2	
Unit Capacity Steps (%)	50 / 100		50 / 100		50 / 100		50 / 100		50 / 100	
CONDENSER COIL DATA										
Face area (Sq. Ft.)	29.0		23.8		29.0		29.0		47.5	
Rows	1		1		1		1		1	
Fins per inch	23		23		23		23		23	
Tube diameter (in./MM)	.71/18		1/25		1/25		1/25		.71/18	
Circuitry Type	2-pass Microchannel		2-pass Microchannel		2-pass Microchannel		2-pass Microchannel		2-pass Microchannel	
EVAPORATOR COIL DATA										
Face area (Sq. Ft.)	13.2		13.2		13.2		13.2		13.2	
Rows	3		4		4		4		4	
Fins per inch	15		15		15		15		15	
Tube diameter	0.375		0.375		0.375		0.375		0.375	
Circuitry Type	Intertwined		Intertwined		Intertwined		Intertwined		Intertwined	
Refrigerant control	TXV		TXV		TXV		TXV		TXV	



TECHNICAL GUIDE

R-410A ZJ/ZR/ZF SERIES 15 - 25 TON 60 Hertz

Description

YORK® ZJ Series Sunline Magnum™ /ZR Series MagnaDRY™/ZF Series Sunline™ units are convertible single package high efficiency rooftops. All models have independent refrigeration circuits for efficient part load operation.

Although the units are primarily designed for curb mounting on a roof, they can also be mounted at ground level or set on steel beams above a finished roof.

All ZJ/ZR/ZF units are self-contained and assembled on rigid full perimeter base rails allowing for overhead rigging. Every unit is completely charged, wired, piped, and tested at the factory to provide a quick and easy field installation.

All models (including those with an economizer) are convertible between bottom and horizontal duct connections.

ZJ/ZR/ZF units are available in the following configurations: cooling only, cooling with electric heat, and cooling with gas heat. Electric heaters are available as field-installed accessory only.



Tested in accordance with:



ZJ/ZR Shown

Physical Data

ZJ180-300 Physical Data

Component	Models							
	ZJ180		ZJ210		ZJ240		ZJ300	
Nominal Tonnage	15		17.5		20		25	
AHRI COOLING PERFORMANCE								
Gross Capacity @ AHRI A point (K Btu)	181.4		208		255		290	
AHRI net capacity (K Btu)	172		202		242		280	
EER	12.2		12.1		11.0		10.6	
SEER	-		-		-		-	
IEER with Constant Volume	13.4		13.0		12.0		11.0	
IEER with Intellispeed	14.2 ¹ /14.0 ²		14.2 ¹ /14.0 ²		12.7 ¹ /12.5 ²		12.2 ¹ /12.0 ²	
IEER with VAV	13.4		13.0		12.0		11.0	
CFM	4500		5800		7000		7000	
System power (KW)	14.10		16.70		21.82		26.67	
Refrigerant type	R-410a		R-410a		R-410a		R-410a	
Refrigerant charge (lb-oz)								
System 1	12-0		14-0		12-0		12-4	
System 2	11-12		12-8		13-0		12-8	
System 3	12-4		12-8		12-0		12-8	
System 4	13-8		12-8		12-0		12-8	
AHRI HEATING PERFORMANCE								
Heating model	N30	N40	N30	N40	N30	N40	N30	N40
Heat input (K Btu)	300	400	300	400	300	400	300	400
Heat output (K Btu)	240	320	240	320	240	320	240	320
AFUE %	-	-	-	-	-	-	-	-
Steady state efficiency (%)	80	80	80	80	80	80	80	80
No. burners	6	8	6	8	6	8	6	8
No. stages	2	2	2	2	2	2	2	2
Temperature Rise Range (°F)	20-50	30-60	20-50	30-60	20-50	30-60	20-50	30-60
Gas Limit Setting (°F)	195	195	195	195	195	195	195	195
Gas piping connection (in.)	1	1	1	1	1	1	1	1
DIMENSIONS (inches)								
Length	180-19/32							
Width	92							
Height	52-5/8							
OPERATING WT. (lbs.)	2609		2665		2697		2783	
COMPRESSORS								
Type	Scroll		Scroll		Scroll		Scroll	
Quantity	4		4		4		4	
Unit Capacity Steps (%)	25 / 50 / 75 / 100		25 / 50 / 75 / 100		25 / 50 / 75 / 100		25 / 50 / 75 / 100	
CONDENSER COIL DATA								
Face area (Sq. Ft.)	63.8		63.8		63.8		63.8	
Rows	2		2		2		2	
Fins per inch	20		20		20		20	
Tube diameter (in.)	3/8		3/8		3/8		3/8	
Circuitry Type	Split-face		Split-face		Split-face		Split-face	
EVAPORATOR COIL DATA								
Face area (Sq. Ft.)	25		25		25		25	
Rows	4		4		4		4	
Fins per inch	13.5		13.5		13.5		13.5	
Tube diameter	3/8		3/8		3/8		3/8	
Circuitry Type	Split-face		Split-face		Split-face		Split-face	
Refrigerant control	TXV		TXV		TXV		TXV	



THERMOSPAN[®]

200-20

INSULATED SECTIONAL STEEL DOORS



WAYNE DALTON COMMERCIAL DOORS

Insulated flush doors provide excellent value

Thermospan[®] 200-20 offers premium thermal efficiency combined with a heavy-duty 20-gauge flush exterior surface. Featuring continuous foamed-in-place insulation and a non-conductive thermal break between the inner and outer skins, the Thermospan[®] 200-20 provides a U-value of .057 and an R-value of 17.50, making it the ideal door for energy-conscious architects, engineers, contractors, and building owners.

The Thermospan[®] Series doors are the only doors in the industry with patented, roll-formed integral struts on each section, making them the most rigid doors available.

- PREMIUM THERMAL QUALITIES
(R-VALUE = 17.50, U-VALUE = 0.057)
- STANDARD SIZES UP TO
24' 2" WIDE AND 16' 1" HIGH
- INDUSTRIAL/COMMERCIAL DURABILITY
- SMOOTH, FLUSH EXTERIOR FINISH
- INTEGRAL STEEL STRUTS
FOR SUPERIOR STRENGTH
- 25K CYCLE SPRINGS STANDARD



SECTIONAL DOOR SYSTEMS

Standard Features Overview

THERMAL EFFICIENCY

R-value*	17.50 (3.09 K m ² /W)
U-value	0.057 (.324 W/K m ²)
Thermal Break	Thermoplastic adhesive with rubber seal
Air Filtration	.07 cfm/ft ²

CONSTRUCTION

Section Thickness	2" (51 mm)
Integral Struts	Two 1-3/4" struts per section for strength and rigidity
Max Width	24'2" (4902 mm)
Max Height	16'1" (7366 mm)
Exterior Steel	20-gauge
Interior per section	Roll formed with two 1-3/4" integral struts sealed with polypropylene rib caps
Standard Springs	10,000 cycles
Interior Color	White
Exterior Color	White

Codes and ASTM Standard Class

STC (ASTM E 413)	Class 22
OITC (ASTM E 1332)	Class 19
ASTM E 84	Class A
UBC 17-5	Meets
ASTM D 1929	Flash ignition = 734° F, Self ignition = 950° F

WARRANTY	Ten (10) years against cracking, splitting, rust deterioration and delamination. One (1) year against defects in material and workmanship
-----------------	--

Options

- Pass door
- Vision lites
- Aluminum full-view sections
- Chain hoist operation
- Motor operation
- Sensing edges
- TruChoice™ Color System
- Photo eyes
- High cycle spring (25k, 50k, 100k)
- 3" Track option
- Solid shafts
- Perimeter weatherseal
- Special track designs
- Mullions

The Thermospan® 200-20 excels in energy efficiency and durability.

With a U-value of .057 and a R-value* of 17.5, this door outperforms most conventional insulated steel doors, which typically have U-values between .33 and .51.

Materials and Construction

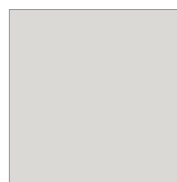
The Thermospan® 200-20 has a patented manufacturing process with a polyurethane core that is continuously foamed-in-place between the outer and inner skins.

The outer skin of the hot-dipped galvanized, structural quality steel is factory-finished with baked-on corrosion-resistant primer and a white polyester finished coat. The inner skin is also hot-dipped galvanized steel, factory-finished with the same corrosion-resistant primer and polyester finish coat.

An innovative thermal break keeps the interior skin at room temperature, preventing condensation and frost and helping to resist corrosion.

Reinforcement plates are located at all hardware attachment locations. Commercial-grade hot-dipped galvanized hardware also contributes to the this door's long service life.

Color Options



White Smooth
Flush Finish



Thermospan® 200-20 is available with the TruChoice™ Color System, Wayne Dalton's custom painting process that offers more than 6,000 colors. See dealer for details.

*Wayne Dalton uses a calculated door section R-value for our insulated doors.

THERMOSPAN® 200-20



Lite Options



Vision lites



Full-view lites

Joint seal
prevents air infiltration and saves energy.

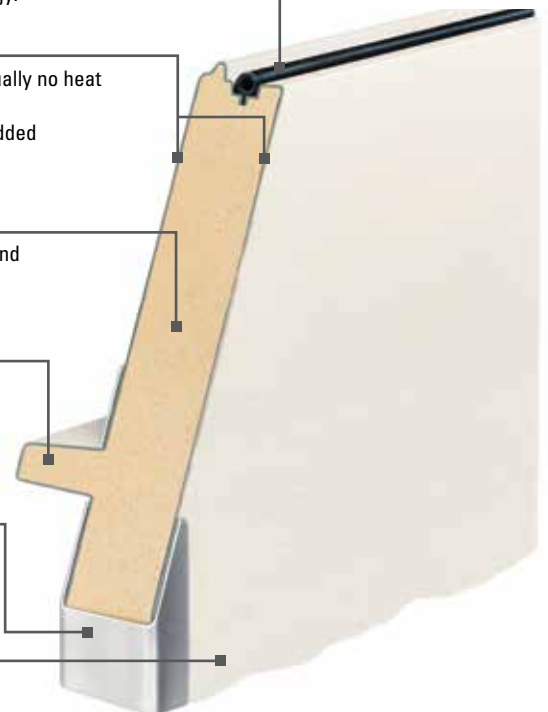
Thermal break
separates inner and outer skins so virtually no heat or cold is conducted through section.
Pre-painted inner and outer skins for added corrosion resistance.

Solid polyurethane core
provides maximum thermal efficiency and adds to quiet operation and strength.

Integral struts
Two 1-3/4" roll-formed struts per section increases rigidity and strength.

Two-inch nominal thickness.

Heavy-duty 20-gauge smooth, flush exterior skin gives the Thermospan 200-20 excellent strength qualities, ideal for large openings.



General Operating Clearances

Type	Headroom		Sideroom		Depth into Room	Center Line of Springs		
	2" Track	3" Track	2" Track	3" Track	2" and 3" Track	2" Track	3" Track	
Standard Lift Manual 12" R	13"-17"	NA	4.5"	5.5"	Opening Height +18"	Opening Height +12"	N/A	
Standard Lift Manual 15" R	15"-20"	16"-21"				Opening Height +13"	Opening Height +14"	
Standard Lift Motor Oper. 12" R	15"-20"	NA			Opening Height +66"	Opening Height +12"	N/A	
Standard Lift Motor Oper. 15" R	15"-20"	18"-24"				Opening Height +13"	Opening Height +14"	
High Lift Manual	High Lift +12"		24" One Side		Opening Height -Lift +30"	Opening Height +Lift +6.5"	Opening Height +Lift +7.5"	
High Lift Motor Oper.								
Vertical Lift Manual	Door Height +20"		4.5"	5.5"	18"	Double Door Height +13"		
Vertical Lift Motor Oper.			24" One Side					
Low Headroom Manual	6"-15"	6"-15"	6"	9"	Opening Height +20" to-26"	N/A		
Low Headroom Motor Oper.	9"-17"	9"-17"			Opening Height +66"			

NOTES:

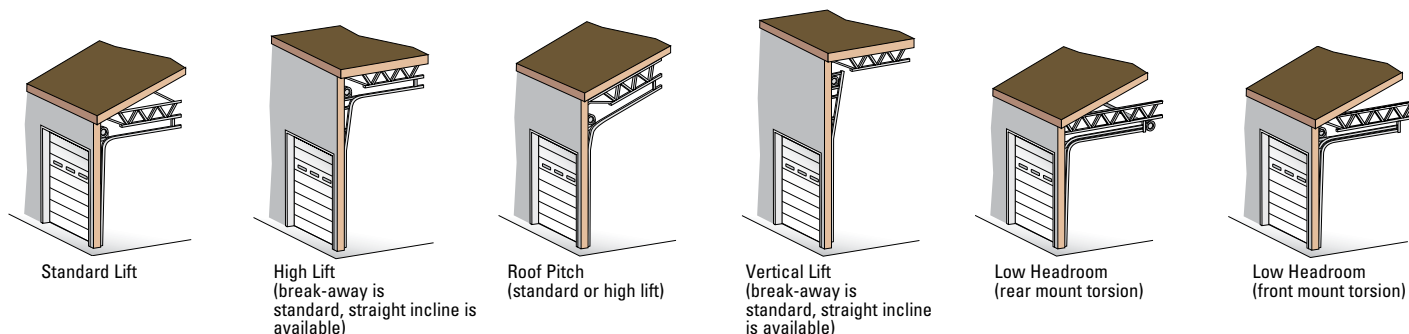
1. For low headroom, springs must be rear mount to achieve minimum headroom listed. Front mount torsion headroom depends on drum size, and varies over the range listed. See approval drawings.
2. Side-room of 8" required, one side, for doors with chain hoist.
3. Headroom depends on drum size, and varies over the range listed. See approval drawings.

Panel/Section Selection Guide

Door Section and Lite Selection			Door Height and Section Selection	
Door Width	Number of Panels	Maximum Number of Lites	Door Height	Number of Sections
Up to 9'2"	2	2	Up to 8'1"	4
9'3" to 12'2"	3	3	8'2" thru 10'1"	5
12'3" to 16'2"	4	4	10'2" thru 12'1"	6
16'3" to 19'2"	5	6	12'2" thru 14'1"	7
19'3" to 24'2"	6	7	14'2" thru 16'1"	8
24'3" and Up	Call Factory		16'2" and Up	Call Factory

For assistance from the factory, please call 800-827-3667

Track Selection Guide



FOR TECHNICAL INFORMATION, VISIT WWW.WAYNE-DALTON.COM/COMMERCIAL

Architect Resource Center

www.wayne-dalton.com/commercial

Go to www.wayne-dalton.com/commercial and click on the Architect Resource Center. Here you will quickly find all of the specifications, drawings and documents you need to complete your project.



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 **Ceco Door**

ASSA ABLOY

Architectural Guide

Doors & Frames

ASSA ABLOY, the global leader in door opening solutions

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Ceco Door is the world's leading manufacturer of steel doors and frames for commercial, industrial, and institutional construction.

Ceco Doors' Mission:

"To be the leading producer and marketer of commercial door products for building construction worldwide, sustaining a competitive advantage through service, product and process superiority, a total quality commitment, and a strong customer focus."

Our mission statement reflects our long-term commitment to the construction industry's Owners, Developers, Architects, Contractors, and our Distributor partners.

Ceco's annual capital investment commitment means products that are manufactured utilizing modern computerized processing and manufacturing technology and advanced digital equipment.

Our coast to coast network of strategically located Service Centers is designed to bring steel doors and frames closer to the market. These modern, fully equipped facilities, connected electronically via our wide area computer network (WAN), offer the largest and most responsive delivery system in the industry. All facilities are licensed by Underwriters Laboratories (UL) and Warnock Hersey (WH) for the conversion and labeling of fire doors, frames and windows.

Marketing Philosophy: Ceco Door markets its products to the construction industry exclusively through qualified, reputable, blueprint distribution. More than 500 authorized distributors in 15 countries worldwide, equipped with local inventories and conversion facilities, are capable of furnishing complete bid packages including commercial and architectural grade wood doors, and commercial grade architectural hardware. This marketing strength provides you with unequalled service and delivery coordination.



ASSA ABLOY, the global leader
in door opening solutions

Eco-Friendly

Recycled Steel Doors and Frames

Even Old Cars Get a New Lease on Life!



Ceco Opens the Door to a Cleaner Environment

Ceco steel doors and frames are made from recycled steel, much of which comes from old cars. We give scrap metal new life as high quality doors and frames. In fact, we can produce 20 doors with the steel scrapped from one car!

Not only does recycling steel clean up the environment, it helps keep our natural resources from being quickly depleted.

Examples of the Ceco commitment to sustainable building construction and improving energy efficiency include:

Total Recycled Content

- Steel doors and frames: up to 63.5%
- Packaging material: 100%

Note: See details on next page for applicable LEED credits

Energy Efficiency

- In one year, Ceco recycled steel usage conserves 226 billion BTUs and the energy to power 7,500 homes
- Ceco thermal break frames incorporate insulating material for maximum heat retention in cold conditions



ASSA ABLOY, the global leader
in door opening solutions



Ceco uses environmentally-sound practices in the manufacturing and shipping of our hollow metal doors and frames. Let us help as you strive to design "Green" buildings that are safe, secure and aesthetically-pleasing.

Learn more at www.cecodoor.com.

Eco-Friendly

Recycled Steel Doors and Frames

U.S. Green Building Council (USGBC) LEED Rating Statement

"The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED

promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and

indoor environmental quality." Based on review of current LEED rating systems for applicability to architectural hollow metal doors and frames, Ceco Door states the following.

Applicable LEED Programs and Credits

Materials and Resources: Recycled Content

Program	Checklist	Credit	Requirement
LEED-NC LEED-CS LEED-S LEED-CI	Materials and Resources	Recycled Content MR 4.1	Use materials with recycled content such that the sum of the post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% of the total values of the material in the project
LEED-NC LEED-CS LEED-S LEED-CI	Materials and Resources	Recycled Content MR 4.2	Use materials with recycled content such that the sum of the post-consumer recycled content plus one-half of the pre-consumer content constitutes an additional 10% beyond MR Credit 4.1 (total of 20% based on cost) of the total values of the material in the project

Ceco Door Cold Rolled Product	Post-consumer Recycled Content *	Pre-consumer Recycled Content *	Total LEED Recycled Content Percentage
Frames	59	9	63.5
Medallion, Armorshield, Fuego, ThruLite, RestrictDor Doors	59	9	63.5
Regent/Omega, Legion/UltraDor, Imperial/Versadoor Doors	57.2	8.7	61.5

Ceco Door Galvannealed Product	Post-consumer Recycled Content *	Pre-consumer Recycled Content *	Total LEED Recycled Content Percentage
Frames	23.6	6.6	26.9
Medallion, Armorshield, Fuego, ThruLite, RestrictDor Doors	23.6	6.6	26.9
Regent/Omega, Legion/UltraDor, Imperial/Versadoor Doors	22.9	6.4	26.1

*Recycled content defined in accordance with industry standards

Post-consumer material is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose.

Post-industrial (pre-consumer) recycled content refers to scraps that are left over during industrial or manufacturing processes, which are subsequently recycled and reused.

Materials and Resources: Regional Materials

Program	Checklist	Credit	Requirement
LEED-CI	Materials and Resources	Regional Materials MR 5.1	Use a minimum of 20% of the combined value of construction and Division 12 (Furniture) materials and products that are manufactured* regionally within a radius of 500 miles. <i>*Manufactured refers to the final assembly of components</i>

All Ceco Door products are manufactured in Milan, TN with the exception of the following:

Ceco Door Product - Medallion, ThruLite, Armorshield, Fuego, RestrictDor Doors
Doors Manufacturing/Final Assembly Location – Mexico

Indoor Environmental Quality: Low Emitting Materials

Ceco Door Products	Volatile Organic Compounds
All	No measurable latent VOC emissions exist in product at the time of installation.



ASSA ABLOY, the global leader in door opening solutions

Product Selection Guide

CHOOSING THE CORRECT DOOR

Door selection is based on FREQUENCY OF USE and IMPACT PROBABILITY. High traffic areas and openings subject to abuse require doors of heavy-duty construction. Openings in the category of MODERATE to LOW frequency and impact do not generally require heavy-duty doors.

FREQUENCY OF USE is classified as HIGH, MODERATE or LOW depending on the location in the building and the number of times per day the door will be used. Most building entrances are HIGH frequency openings, as are toilet rooms in schools and office buildings. MODERATE frequency doors are those

found in apartment entrance units and school classrooms. Doors that normally remain in the open or closed position are considered LOW frequency. On a normal project, the majority of doors are of MODERATE to LOW frequency use, and doors designed for these applications should be used. Using doors of heavy-duty construction in all openings results in unnecessary cost; however, selecting doors based primarily on their low initial cost may result in abnormal maintenance and replacements.

IMPACT PROBABILITY is also classified as HIGH, MODERATE or LOW. Doors

subject to high impact are usually the same doors that receive high frequency use. However, some doors, such as rear delivery entrances and service doors, may be subject to HIGH impact even though they are of MODERATE to LOW frequency. MODERATE impact openings are found in nursing homes, hospital patient rooms or school classrooms. LOW impact doors are those in closets, private offices, hotel communicating doors and other such openings.

DOOR LEVEL refers to ANSI/SDI A250.8 recommendation criteria.

MODEL	TYPE	GAUGE	DEC	MM
LEVEL 1 - LIGHT COMMERCIAL				
1	Flush	20	0.032	0.8
2	Seamless	20	0.032	0.8
LEVEL 2 - HEAVY-DUTY COMMERCIAL				
1	Flush	18	0.042	1.0
2	Seamless	18	0.042	1.0
LEVEL 3 - EXTRA HEAVY-DUTY COMMERCIAL				
1	Flush	16	0.053	1.3
2	Seamless	16	0.053	1.3
3	Stile & Rail	16	0.053	1.3
LEVEL 4 - MAXIMUM DUTY COMMERCIAL				
1	Flush	14	0.067	1.7
2	Seamless	14	0.067	1.7
2	Seamless	12	0.093	2.3
COMMERCIAL SECURITY PRODUCTS				
2	Seamless	14	0.067	1.7
2	Seamless	12	0.093	2.3

Product Selection Guide

BUILDING TYPE AND OPENING LOCATION	FREQUENCY OF USE	IMPACT PROBABILITY	DOOR LEVEL				DOOR THICKNESS	SPECIAL CONDITIONS
OFFICES - PROFESSIONAL BUILDINGS			1	2	3	4		
Entrance	High	High			■	■	1-3/4"	Two-way vision
Individual Office	Low	Low	■				1-3/4"	Privacy & acoustics
Toilet Rooms	High	High		■			1-3/4"	
Stairwells	Moderate	Moderate		■	■		1-3/4"	Two-way vision & fire label
Equipment Rooms	Moderate	Moderate		■	■	■	1-3/4"	
Boiler Room	Moderate	Moderate		■	■	■	1-3/4"	Fire label
Storm Shelters	Low	Low			■	■	1-3/4"	Impact threat (Tornados)
SCHOOLS - UNIVERSITIES - LIBRARIES								
Entrance and Exits	High	High			■	■	1-3/4"	Two-way vision
Classrooms	Moderate	Moderate		■			1-3/4"	Two-way vision & acoustics
Toilet Rooms	High	High		■	■	■	1-3/4"	
Gymnasiums	Moderate	High		■	■	■	1-3/4"	Impact & two-way vision
Cafeteria	Moderate	Moderate to High		■	■	■	1-3/4"	Two-way vision
Stairwells	High	High		■	■	■	1-3/4"	Two-way vision & fire label
Storm Shelters	Low	High			■	■	1-3/4"	Impact threat (Tornados)
Safe Rooms	Low	High				■	1-3/4" / 2"	Aggression
HOSPITALS - NURSING HOMES - CONVALESCENT HOMES								
Entrance	High	High			■	■	1-3/4"	Two-way vision
Patient Rooms	Moderate	Moderate		■			1-3/4"	Privacy & acoustics
Stairwells	Moderate	Moderate		■	■		1-3/4"	Two-way vision & fire label
Operating Rooms	High	High		■	■		1-3/4"	Sanitation
Examination Rooms	High	High			■	■	1-3/4"	Sanitation
Recreation Rooms	Moderate	Moderate		■			1-3/4"	Acoustics
Kitchen	Moderate	Moderate		■	■	■	1-3/4"	Two-way vision
Cafeteria	High	High			■	■	1-3/4"	Two-way vision
Storm Shelters	Low	Low			■	■	1-3/4"	Impact threat (Tornados)
APARTMENTS - DORMITORIES - CONDOMINIUMS								
Building Entrance	High	High			■	■	1-3/4"	Two-way vision
Room Entrance	Moderate	Moderate	■	■			1-3/4"	Privacy & acoustics
Bedrooms	Low	Low	■				1-3/4"	
Bathrooms	Low	Low	■				1-3/4"	
Closets	Low	Low	■				1-3/4"	
Stairwells	Moderate	High		■			1-3/4"	Two way vision & fire label
Storm Shelters	Low	High			■	■	1-3/4"	Impact threat (Tornados)
HOTELS - MOTELS - TOURIST CABINS								
Building Entrance	High	Moderate	■	■			1-3/4"	Two-way vision
Room Entrance	Moderate	Moderate	■				1-3/4"	Privacy, acoustics, insulation
Bathrooms	Low	Low	■				1-3/4"	
Closets	Low	Moderate	■				1-3/4"	
Stairwells	Moderate	High		■			1-3/4"	Two-way vision & fire label
Storage & Utility	Moderate	High		■	■		1-3/4"	
Offices	Low	Low	■				1-3/4"	Privacy
COMMUNITY SHELTERS - TORNADO SHELTERS								
Entrance & Exits	High	High			■	■	1-3/4"	Impact threat (Tornados)
Toilet Rooms	High	High		■	■	■	1-3/4"	
Storage & Utility	Moderate	High		■	■		1-3/4"	

Imperial™/Versadoor™

Polyurethane Core

Features

- 1-3/4" (44.4 mm) insulated full flush design - rated for light to maximum-duty use
- Foamed-in-place polyurethane core provides total surface support, impact resistance and exceptional thermal resistance
- Mechanically interlocked, hemmed vertical edge seams for added strength and rigidity
- Inverted end channels welded to both face sheets
- 7 gauge (4.2 mm) steel hinge reinforcement
- Electrostatically applied prime base coat

Available Options

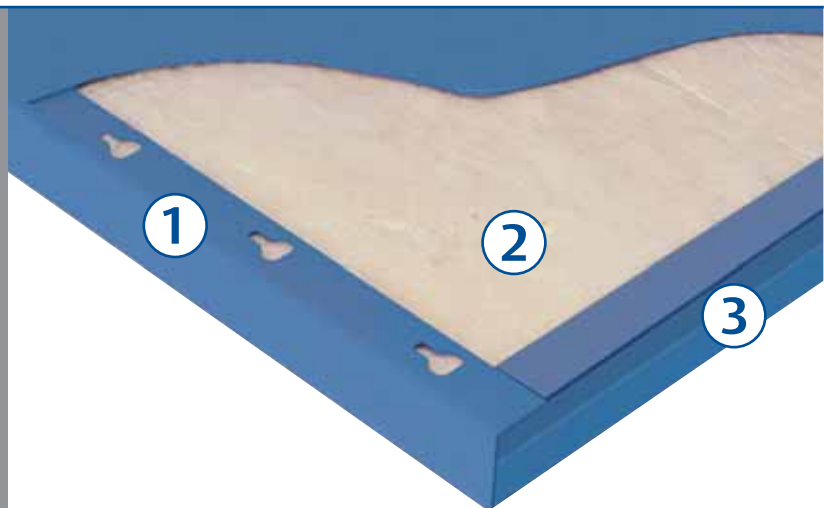
- 14 gauge (1.7mm) closer reinforcement
- Seamless design by application of epoxy filler or continuous welding
- Galvannealed, galvanized, or textured pattern steel
- Steel end channel filler cap
- Applied steel glass kits
- Embossed 6 panel, 8 panel, crossbuck and 2 panel designs
- Factory installed, insulated glazing
- Colorstyle factory finish (see page 46)
- Electrolynx® pre-wired quick connect cable (see page 36)

Imperial™

- Handed as specified
- Lock edge beveled 1/8" in 2" (1:16)
- For any standard commercial template hardware

VersaDoor™

- Non-handed
- Square lock edge
- For any standard commercial template hardware



1. Mechanically interlocked, hemmed vertical edge seam for strength and rigidity.
2. Foamed in-place polyurethane core provides total surface support, impact resistance and exceptional thermal resistance.
3. Inverted end channels welded to both face sheets for added strength.

DOOR LEVEL AVAILABILITY				
MODEL	TYPE	GAUGE	DEC	MM
LEVEL 1 LIGHT COMMERCIAL				
1	Flush	20	0.032	0.8
2	Seamless	20	0.032	0.8
LEVEL 2 HEAVY-DUTY COMMERCIAL				
1	Flush	18	0.042	1.0
2	Seamless	18	0.042	1.0
LEVEL 3 EXTRA HEAVY-DUTY COMMERCIAL				
1	Flush	16	0.053	1.3
2	Seamless	16	0.053	1.3
LEVEL 3 EXTRA HEAVY-DUTY COMMERCIAL				
2	Seamless	14	0.067	1.7

Performance

- Core Material: Foamed-in-Place Polyurethane
- R Factor 11.01 (ASTM C518)
- Sound Transmission: STC 26 (18 gauge operable)
- Designs Available: see page 51 for designs



Physical Endurance (Cycle Testing)

20 gauge	Level C	250,000 cycles
18 gauge	Level B	1,000,000 cycles
16 gauge	Level A	1,000,000 cycles
14 gauge	Level A	1,000,000 cycles

Fire Label (Rating): see page 43 for additional information on fire doors

Note: Imperial and Versadoor are labeled in compliance with UL10C, Positive Pressure Fire Tests of Door Assemblies

T	20 minute
C	3/4 hour
O	1 hour
B	1-1/2 hour
A	3 hour

Maximum Size

Single	40 x 90 (1219mm x 2743mm)
Pair	80 x 90 (2438mm x 2743mm)



**GUARDIAN®
SUNGUARD®**

Advanced Architectural Glass

BUILD WITH LIGHT®

SUNGUARD® Advanced Architectural Glass

BUILDING WITH LIGHT. That's what SunGuard Advanced Architectural Glass from Guardian is all about. Our comprehensive range of coatings, colors and design solutions allows architects to explore fully the aesthetic and functional possibilities of light — both interior and exterior — while meeting complex energy and performance requirements. Drawing on the cumulative expertise of glassmakers and production teams throughout the world, Guardian continually applies science and cutting-edge technology to the development of new SunGuard products that expand the limits of performance. This level of commitment extends locally to independent Guardian Select® Fabricators, who are trained and certified by Guardian to provide high-quality coated glass products. In these pages you will see the many ways Guardian helps architects build some of the world's most innovative buildings. *With light.*



70 CREMANZIE
HULL, QC, CANADA
ARCHITECT: Marcel Landry
GLAZIER: Vitreie Vertech
FABRICATOR: Industries Cover

TO REQUEST SAMPLES
visit SunGuardGlass.com or call 1-866-GuardSG
(482-7374)

SUNGUARD

SuperNeutral[®] Series

NATURAL LIGHT, NEUTRAL COLOR AND SOLAR PERFORMANCE

SNX 62/27 & SNX 51/23 utilize advanced triple-silver technology to offer very low solar heat gain coefficients on clear glass - 0.27 and 0.23 respectively, with exceptional light-to-solar-gain ratios of 2.30 and 2.18. SNX 62/27 reflects neutral color, SNX 51/23 is light blue – both provide superior solar control and excellent energy performance.

SUPERNEUTRAL 68 transmits the most light and has the most neutral appearance of any SunGuard product. It can also be laminated to deliver sound attenuation, security, safety and hurricane protection.

SUPERNEUTRAL 54 combines a neutral appearance with exceptional solar-energy control to strike the perfect balance between natural daylight, glare control and energy savings. This product exceeds most energy code requirements with a SHGC of 0.28 in a standard 1" insulating glass unit.

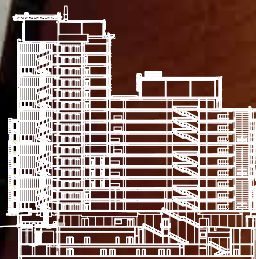
SNR 43 has a light silver-blue appearance, a super-low SHGC of 0.23 on clear float glass and a 1.88 light-to-solar gain (LSG) ratio. Slightly reflective, SNR 43 is a great choice for all types of commercial projects and provides an excellent vision to spandrel match.

SUPERNEUTRAL ON SPECIALTY GLASS, TINTS AND THE #3 SURFACE

For a stunning, ultra-clear appearance combined with superior energy efficiency, all SuperNeutral products are available with Guardian's UltraClear[™] float glass. UltraClear's virtual absence of color is perfect for applications where neutral color and increased clarity are desired.

SuperNeutral products are also available on Guardian's Green, TwilightGreen[®], CrystalBlue[™], CrystalGray[®] and gray tinted float glass. Combined with SuperNeutral coatings, Guardian tints offer lower reflectance, reduced glare and improved solar control.

All SunGuard SuperNeutral coatings are designed to be used on the #2 surface of an insulating glass unit. In addition, SN 68 and SNX 62/27 can also be used on the #3 surface in conjunction with a tinted or coated outboard lite.



**CONCORDIA UNIVERSITY
MONTREAL, QC, CANADA**

ARCHITECT: KPMB Architects

GLAZIER: Oldcastle BuildingEnvelope

FABRICATOR: Trulite Glass & Aluminum Solutions

TO REQUEST SAMPLES

visit SunGuardGlass.com or call 1-866-GuardSG
(482-7374)

SUNGUARD

High Performance Series

HIGH PERFORMANCE LOW-E COATED GLASS

SunGuard High Performance Series glass delivers medium to high visible light transmission and moderate reflectivity along with maximum energy savings that meet or exceed energy code requirements. There are seven low-emissivity coatings to choose from, available on various clear and tinted substrates. Guardian also offers SunGuard IS 20, an interior surface coating to lower the U-value.

NEUTRAL 78/65 NEUTRAL 50 AG 50 AG 43
NEUTRAL 61 NEUTRAL 40 SUNGUARD IS 20

All SunGuard High Performance coatings are designed to be used on the #2 surface of an insulating glass unit, except Neutral 78/65, which can be used on the #2 or #3 surface and IS 20, which is intended for interior surface (typically #4 surface) applications.



**OFFICE PARK
VIENNA, AUSTRIA**
ARCHITECT: Holzbauer and Partners
GLAZIER: Petschenig Glastec
FABRICATOR: Steindl Glas

TO REQUEST SAMPLES
visit SunGuardGlass.com or call 1-866-GuardSG
(482-7374)

SUNGUARD

Solar Control

SOLAR CONTROL REFLECTIVE COATED GLASS

SunGuard Silver 20 is a high-performance, solar-reflective coated glass product that specializes in blocking heat and delivering energy efficiency that meets or exceeds energy code requirements.

SILVER 20

Available on clear and green-tinted glass offering silver and silver-green aesthetic options. For shorter lead times and faster delivery, Silver 20 can be fabricated near the job site.

TIME WARNER CENTER
NEW YORK, NY, USA
ARCHITECT: Skidmore, Owings & Merrill LLP
GLAZIER: Glassalum
FABRICATOR: Guardian, JE Berkowitz

TO REQUEST SAMPLES
visit SunGuardGlass.com or call 1-866-GuardSG
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SUNGUARD

Spandrel HT

Guardian can help architects and designers achieve a desired spandrel appearance for SunGuard coatings—providing a close match to vision glass or a complementary color—by using **SUNGUARD SPANDREL HT** back painted glass. Spandrel HT is a lead-free, proprietary coating system that provides a smooth, uniform appearance after heat-treatment and has the characteristics of a ceramic frit, permanently fusing to the glass surface. To harmonize or contrast with the vision glass area and provide long lasting beauty to your architectural projects, SunGuard Spandrel HT is available in three commonly specified colors: White, Black, and Warm Gray.

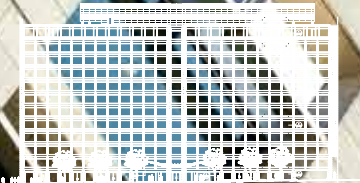
We recommend that full-size mock-ups be prepared and approved to confirm the most desirable spandrel option for your specific project.

SUNGUARD

Laminated Glass

SAFETY, SECURITY, SOUND AND SOLAR CONTROL

Many SunGuard products can be laminated to meet a wide variety of project requirements, including sound attenuation, safety, security, and hurricane protection. Contact Guardian for help with your project.



**1700 K STREET
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ARCHITECT: Pei Cobb Freed & Partners
GLAZIER: Oldcastle BuildingEnvelope
FABRICATOR: TruLite Glass & Aluminum Solutions

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Fabricators & Glaziers



Guardian Select® Fabricators SunGuard Advanced Architectural Glass products are produced at multiple U.S. locations and are distributed through a network of independent Guardian Select Fabricators (shown above). These fabricators have completed a rigorous certification process administered by Guardian. Select Fabricators offer comprehensive glass fabrication for commercial projects and typically are able to cut, heat-treat, insulate, laminate, silkscreen and produce spandrel glass. In addition, some Select Fabricators can bend SunGuard coated glass for more complex designs. Select Fabricators provide glass samples for mock-ups and typically offer fast-track delivery.

Glazier Connection™ Members Guardian's Glazier Connection quickly puts you in touch with glazing contractors that are experienced in installing Guardian high performance coated glass for commercial applications, including all types of facades: curtainwalls, windowwalls, punched openings and commercial windows, spandrel glass, storefronts, and much more. Guardian Glazier Connection members work seamlessly with our Guardian Select Fabricator network of glass fabrication companies to provide you with quick turnaround and expertise, so your project can be completed on time.

To locate a Guardian Select Fabricator or Glazier Connection member near your project site, visit www.SunGuardGlass.com.

GUARDIAN GLASS INNOVATION AND TECHNICAL SUPPORT

USGBC LEED Certification Using SunGuard SuperNeutral, SunGuard High Performance and SunGuard Solar Series glass products can be an important part of obtaining LEED certification in five credit categories: Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation and Design Process, and Regional Priority. For a copy of our LEED Brochure, call 1-866-GuardSG (482-7374) or visit www.SunGuardGlass.com.

Web Resources at www.SunGuardGlass.com Guardian provides several easy-to-use online tools and resources to help architects specify SunGuard products on our web site at www.SunGuardGlass.com, including: Glass Analytics, a comprehensive suite of tools comprised of a Performance Calculator, BIM Generator, Building Energy Calculator and Glass Visualizer that offers architects and other project specifiers comprehensive tools to evaluate commercial glazing options and their impact on energy use and design; a smartphone app that allows interaction with hundreds of projects worldwide; a searchable commercial building project database; a SunGuard performance comparison tool; a Guardian Select Fabricator locator and a Glazier Connection member locator.

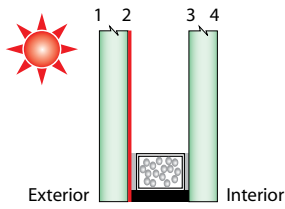
3-Part Specifications Guardian's SunGuard specifications in standard CSI 3-part format are available from your Guardian Architectural Design Manager (ADM) and at www.SunGuardGlass.com. ARCOM, the exclusive publisher of AIA (the American Institute of Architects) MASTERSPEC®, has authorized Guardian to offer a licensed version of PRODUCT MASTERSPEC on the SunGuard Web site and, for AIA members, on the AIA web site. In addition, you can find SunGuard specifications online at BSD SpecLink and ARCAT.

AIA/CES Presentations Guardian Glass participates in the American Institute of Architects Continuing Education System (AIA/CES) by providing seminar presentations, some of which qualify for Health, Safety and Welfare credits. Whether you are interested in basic commercial glass knowledge, glass from an energy conservation perspective or current applications for laminated glass, we can provide you with helpful information regarding design using glass. Call 1-866-GuardSG (482-7374) or your local SunGuard Architectural Design Manager to arrange a time and place for a seminar presentation. In addition, a number of these presentations can be accessed on the McGraw-Hill Construction Continuing Education Center online.

Technical Support Hotline: 1-866-GuardSG (482-7374)

Technical support is always available from your Architectural Design Manager (ADM) and/or Regional Technical Advisor (RTA). For technical or product information, please call our Technical Support Hotline to find the techcal specialist in your area. Some areas where we can help are:

- solar, thermal or acoustical performance of coated glass
- computer-based wind load and thermal stress analysis program
- product availability and specification information
- architectural glass sample boxes and 12" x 12" samples

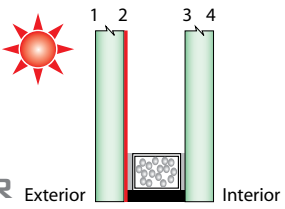


PERFORMANCE DATA – SUPERNEUTRAL

Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value		Relative Heat Gain	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Winter Nighttime				
									Air	Argon			
SunGuard SuperNeutral			Coating #2 Surface							6 mm/12.7 mm a.s./6 mm			
SNX 62/27	UltraClear - UltraClear	Ultra Clear	64	8	24	11	13	51	0.29	0.24	65	0.27	2.40
	Clear - Clear	Clear	62	6	23	11	12	39	0.29	0.24	65	0.27	2.31
	Green - Clear	Green	52	3	18	9	12	10	0.29	0.24	59	0.24	2.13
	TwilightGreen - Clear	Dark Green	46	2	16	8	11	8	0.29	0.24	54	0.22	2.08
	CrystalGray - Clear	Light Gray	44	3	16	8	11	19	0.29	0.24	54	0.22	1.98
	Gray - Clear	Gray	31	3	12	6	11	19	0.29	0.24	45	0.18	1.71
	CrystalBlue - Clear	Blue	40	4	15	7	11	25	0.29	0.24	51	0.21	1.91
SNX 51/23	UltraClear - UltraClear	Light Blue	53	14	20	14	14	46	0.29	0.24	57	0.23	2.28
	Clear - Clear	Light Blue	51	11	19	14	14	36	0.29	0.24	57	0.23	2.19
	Green - Clear	Blue-Green	43	5	15	11	13	10	0.29	0.24	52	0.22	1.99
	TwilightGreen - Clear	Dark Green	38	3	13	10	13	8	0.29	0.24	49	0.20	1.93
	CrystalGray - Clear	Light Gray	36	6	14	9	13	18	0.29	0.24	48	0.20	1.85
	Gray - Clear	Gray	26	5	10	7	13	17	0.29	0.24	41	0.16	1.57
	CrystalBlue - Clear	Blue	33	7	13	9	13	23	0.29	0.24	46	0.19	1.78
SN 68	UltraClear - UltraClear	Ultra Clear	71	40	37	11	13	43	0.29	0.25	94	0.39	1.80
	Clear - Clear	Clear	68	30	33	11	12	33	0.29	0.25	90	0.38	1.80
	Green - Clear	Green	57	13	23	9	12	9	0.29	0.25	72	0.30	1.92
	TwilightGreen - Clear	Dark Green	51	9	20	8	11	7	0.29	0.25	64	0.27	1.93
	CrystalGray - Clear	Light Gray	48	17	23	8	11	16	0.29	0.25	71	0.30	1.64
	Gray - Clear	Gray	34	13	18	6	11	16	0.29	0.25	61	0.25	1.37
	CrystalBlue - Clear	Blue	44	19	23	7	11	21	0.29	0.25	70	0.29	1.51
SN 54	UltraClear - UltraClear	Ultra Clear	56	22	26	13	19	44	0.29	0.24	69	0.29	1.96
	Clear - Clear	Clear	54	16	24	13	18	35	0.29	0.24	68	0.28	1.92
	Green - Clear	Green	45	7	17	11	18	10	0.29	0.24	58	0.24	1.89
	TwilightGreen - Clear	Dark Green	41	4	15	10	18	8	0.29	0.24	53	0.22	1.86
	CrystalGray - Clear	Light Gray	38	9	17	9	18	17	0.29	0.24	56	0.23	1.67
	Gray - Clear	Gray	27	7	13	7	17	16	0.29	0.24	48	0.19	1.40
	CrystalBlue - Clear	Blue	35	10	16	8	17	22	0.29	0.24	54	0.22	1.57
SNR 43	UltraClear - UltraClear	Light Silver	45	24	21	28	14	54	0.29	0.24	56	0.23	1.96
	Clear - Clear	Light Silver	43	17	19	28	14	43	0.29	0.24	56	0.23	1.89
	Green - Clear	Green	36	8	14	21	14	14	0.29	0.24	50	0.20	1.78
	TwilightGreen - Clear	Dark Green	32	5	12	18	14	11	0.29	0.24	46	0.19	1.73
	CrystalGray - Clear	Silver Gray	31	9	13	16	14	21	0.29	0.24	47	0.19	1.59
	Gray - Clear	Silver Gray	22	8	10	10	13	19	0.29	0.24	41	0.17	1.31
	CrystalBlue - Clear	Silver Blue	28	11	13	14	13	26	0.29	0.24	46	0.19	1.50

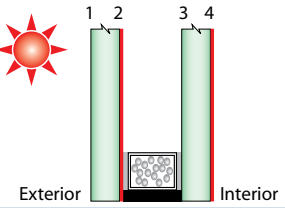
NOTES RELATED TO ALL SUNGUARD PERFORMANCE TABLES:

- The performance values shown are nominal and subject to variations due to manufacturing tolerances.
- All coatings are on the #2 surface unless noted otherwise.
- Guardian performance data are calculated for center-of-glass only (no spacer or framing) in accordance with the LBNL Window 7 program.
- Relative Heat Gain, Shading Coefficient, Solar Heat Gain Coefficient and/or LSG may change slightly when using argon gas fill.
- Glass may require heat strengthening or tempering to resist potential thermal stresses. SNR 43 must be heat-treated.
- A slight shift in visible light reflectance or transmission may be noticed after heat-treatment.
- Guardian recommends edge deletion for all commercial low-E coatings.
- Guardian reserves the right to change product performance characteristics without notice or obligation.



PERFORMANCE DATA – HIGH PERFORMANCE & SOLAR

Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Air	Argon			
SunGuard High Performance			Coating #2 Surface - except where noted (#3)									6 mm/12.7 mm a.s./6 mm	
Neutral 78/65 (#3)	UltraClear - UltraClear	Ultra Clear	81	54	66	13	13	23	0.31	0.27	171	0.72	1.12
	Clear - Clear	Clear	78	39	55	13	13	19	0.31	0.27	156	0.66	1.18
Neutral 78/65	UltraClear - UltraClear	Ultra Clear	81	54	66	13	13	22	0.31	0.27	160	0.68	1.19
	Clear - Clear	Clear	78	39	55	13	13	18	0.31	0.27	147	0.62	1.26
Neutral 61	Clear - Clear	Neutral Pewter	60	31	37	21	14	29	0.30	0.26	101	0.42	1.42
	Green - Clear	Green	50	13	23	16	13	11	0.30	0.26	72	0.30	1.69
Neutral 50	Clear - Clear	Neutral Blue	50	31	32	16	11	20	0.33	0.29	95	0.39	1.27
	Green - Clear	Green	42	13	20	13	10	9	0.33	0.29	68	0.28	1.50
Neutral 40	Clear - Clear	Neutral Gray	40	27	25	21	12	23	0.33	0.29	78	0.32	1.25
	Green - Clear	Green	34	11	16	16	12	10	0.33	0.29	59	0.24	1.40
AG 50	UltraClear - UltraClear	Light Silver	52	43	33	28	19	41	0.30	0.25	86	0.36	1.45
	Clear - Clear	Light Silver	50	30	29	27	19	34	0.30	0.25	82	0.34	1.48
	Green - Clear	Green	42	12	18	21	18	13	0.30	0.25	61	0.25	1.66
	CrystalGray - Clear	Silver Gray	35	16	20	16	18	18	0.30	0.25	64	0.26	1.34
	Gray - Clear	Silver Gray	25	12	16	10	18	16	0.30	0.25	57	0.23	1.08
	CrystalBlue - Clear	Silver Blue	32	17	20	14	18	21	0.30	0.25	65	0.27	1.20
AG 43	UltraClear - UltraClear	Light Silver	45	38	30	30	15	40	0.30	0.26	80	0.33	1.34
	Clear - Clear	Light Silver	43	26	26	30	15	33	0.30	0.26	76	0.31	1.37
	Green - Clear	Green	36	11	16	22	15	13	0.30	0.26	57	0.23	1.55
	CrystalGray - Clear	Silver Gray	30	14	18	17	14	18	0.30	0.26	60	0.25	1.23
	Gray - Clear	Silver Gray	21	11	15	11	14	15	0.30	0.26	54	0.22	0.98
	CrystalBlue - Clear	Silver Blue	28	15	18	15	14	20	0.30	0.26	61	0.25	1.10
SunGuard Solar													
Silver 20	Clear - Clear	Silver	18	16	14	30	30	26	0.37	0.33	56	0.22	0.81
	Green - Clear	Silver Green	15	7	8	23	30	12	0.37	0.33	46	0.18	0.83
Other Guardian Low-E Products													
Neutral 70	Clear - Clear	Clear	73	45	49	12	12	17	0.32	0.28	132	0.55	1.31
Neutral 70 (#3)	Clear - Clear	Clear	73	45	49	12	12	20	0.32	0.28	152	0.64	1.14



PERFORMANCE DATA WITH SUNGUARD IS 20

Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Air	Argon			
SunGuard SuperNeutral + IS 20			Coating #2 & IS 20 #4 Surface							6 mm/12.7 mm a.s./6 mm			
SNX 62/27 + IS 20	UltraClear - UltraClear	Ultra Clear	62	8	24	12	13	51	0.23	0.20	62	0.26	2.41
	Clear - Clear	Clear	60	6	22	12	13	40	0.23	0.20	62	0.26	2.33
SNX 51/23 + IS 20	UltraClear - UltraClear	Light Blue	51	13	20	14	14	46	0.23	0.20	54	0.22	2.31
	Clear - Clear	Light Blue	50	10	18	14	14	36	0.23	0.20	54	0.22	2.23
SN 68 + IS 20	UltraClear - UltraClear	Ultra Clear	69	37	36	12	13	43	0.24	0.20	91	0.38	1.80
	Clear - Clear	Clear	66	29	32	12	13	33	0.24	0.20	87	0.36	1.82
SN 54 + IS 20	UltraClear - UltraClear	Ultra Clear	54	20	25	14	19	44	0.24	0.20	67	0.28	1.97
	Clear - Clear	Clear	52	15	23	14	19	35	0.24	0.20	65	0.27	1.94
SNR 43 + IS 20	UltraClear - UltraClear	Light Silver	43	22	20	29	15	54	0.23	0.20	54	0.22	1.97
	Clear - Clear	Light Silver	42	17	18	28	15	43	0.23	0.20	53	0.22	1.92

NOTES SPECIFIC TO THE SUNGUARD SUPERNEUTRAL w/IS 20 TABLE ABOVE:

- SunGuard IS 20 is on the #4 surface.
- SunGuard IS 20 is also available with SunGuard High Performance and Solar products.

SUNGUARD®

Advanced Architectural Glass

www.SunGuardGlass.com

TO REQUEST SAMPLES

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See what's possible™

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Please file in 088100 Glass.

HEARST CORPORATION
NEW YORK, NY, USA

ARCHITECT: Foster & Partners

GLAZIER: Permasteelisa

FABRICATOR: Zadra

GLASS: Guardian SunGuard
SuperNeutral Series

Specification Submittal Data / Panasonic Ventilation Fan

Description

Ventilating fan shall be Low Noise ceiling mount type rated for continuous operation. Fan shall be ENERGY STAR rated and certified by the Home Ventilating Institute (HVI). Evaluated by the Underwriters Laboratories and conform to both UL and cUL standards.

Motor/Blower:

- Four-pole totally enclosed condenser motor rated for continuous use.
- Power Rating shall be 120 volts and 60 Hz.
- Fan shall be UL and cUL listed for tub/shower enclosure when used with a GFCI branch circuit wiring.
- Motor equipped with thermal-cutoff fuse.
- Removable with permanently lubricated plug-in motor.

Housing:

- Rust proof paint, galvanized steel body.
- Detachable dual 4" or 6" diameter duct adaptor.
- Built in backdraft damper.
- Expandable extension bracket up to 24".
- Double hanger bar system allowing for ideal positioning.

Grille:

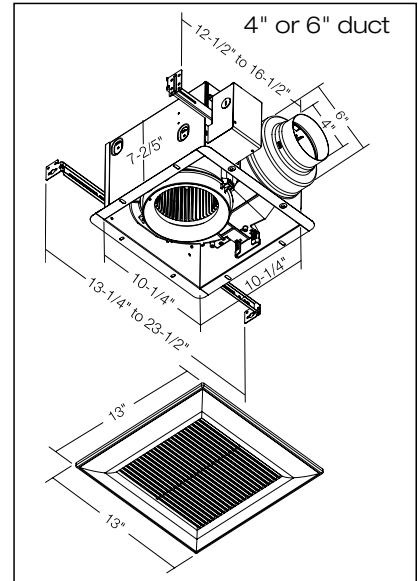
- Attractive design using PP material.
- Attaches directly to housing with torsion springs.

Warranty:

- ALL Parts: For period of 3 years from the date of the original purchase.

Architectural Specifications:

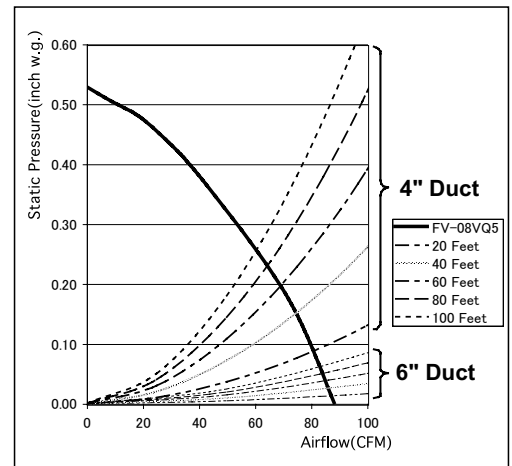
Ventilating fan shall be of the ceiling mount, ENERGY STAR rated type, with no less than 80 CFM and no more than less than <0.3 sone as certified by the Home Ventilating Institute (HVI) at 0.1 static pressure in inches water gauge (w.g.) with no less than 62 CFM and no more than 0.4 sone as certified by HVI at 0.25 w.g. Power Consumption shall be no greater than 14.7 watts at 0.1 w.g. and 14.5 watts at 0.25 w.g. ENERGY STAR rated with efficiency of no less than 5.8 CFM/watt at 0.1 w.g. and 4.5 CFM/watt at 0.25 w.g. The motor shall be totally enclosed, four pole condenser type engineered to operate continuously. Power rating shall be 120v/60Hz. Included is a detachable dual 4" or 6" diameter duct adaptor. Duct diameter shall be no less than 4". Fan shall be UL and cUL listed for tub/shower enclosure when used with GFCI branch circuit wiring. Fan shall be ASHRAE 62.2, LEED, ENERGY STAR IAP, EarthCraft, California Title-24, and WA Ventilation Code compliant.



FV-08VQ5

Specifications: WhisperCeiling FV-08VQ5		4" or 6" Duct (Standard)	
Ventilation Fan Characteristics (HVI tested data for 0.1" S.P.)	Static Pressure in inches w.g.	0.1	0.25
	Air Volume (CFM)	80	62
	Noise (sones)	<0.3	0.4
	Power Consumption (watts)	14.7	14.5
	Energy Efficiency (CFM/Watt)	5.8	4.5
	Speed (RPM)	829	1089
	Current (amps)	0.12	0.12
	Power Rating (V/Hz)	120/60	
	ENERGY STAR rated	YES	

As of date 4/11



For complete Installation Instructions visit www.panasonic.com/building

Model	Quantity	Comments	Project:
			Location:
			Architect:
			Engineer:
			Contractor:
			Submitted by:
			Date:

Panasonic Home and Environment Company
Division of Panasonic Corporation of North America
One Panasonic Way
Secaucus, NJ 07094

www.panasonic.com/building



Panasonic ideas for life

Department of Planning and Zoning

149 Church Street
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

David White, AICP, Director
Meagan Tuttle, AICP, Comprehensive Planner
Jay Appleton, GIS Manager
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, CFM, Associate Planner
Anita Wade, Zoning Clerk
vacant, Department Secretary



TO: Development Review Board
FROM: Scott Gustin *[Signature]*
DATE: June 20, 2017
RE: 17-1117CA/CU; 426 South Winooski Avenue

The applicant has requested deferral to the July 5, 2017 DRB meeting for review of the proposed garage with accessory apartment.

Scott Gustin

From: Scott Michael Mapes <smmapes@aol.com>
Sent: Tuesday, June 13, 2017 1:48 PM
To: Scott Gustin
Subject: Re: DRB 5 July

Yes please move to July 5th thanks!

> On Jun 13, 2017, at 1:37 PM, Scott Gustin <SGustin@burlingtonvt.gov> wrote:

>

> Sure. July 5 is fine. Let me know ASAP.

>

> Scott Gustin, AICP, CFM

> Principal Planner & Asst. Administrative Officer Dept. of Planning &

> Zoning

> 149 Church Street

> Burlington, VT 05401

> (802) 865-7189

>

>

> -----Original Message-----

> From: Scott Michael Mapes [mailto:smmapes@aol.com]

> Sent: Tuesday, June 13, 2017 10:11 AM

> To: Scott Gustin <SGustin@burlingtonvt.gov>

> Subject: DRB 5 July

>

> Scott

> What is the possibility of moving my project from June 20th to July 5th? I'm dealing w a conflict. Would moving it July 5th be available? Thanks.

> SMM

> Please note that this communication and any response to it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.

Department of Planning and Zoning

149 Church Street

Burlington, VT 05401

<http://www.burlingtonvt.gov/PZ/>

Telephone: (802) 865-7188

(802) 865-7195 (FAX)

*David E. White, AICP, Director
Meagan Tuttle, AICP, Comprehensive Planner
Jay Appleton, Senior GIS/IT Programmer/Analyst
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, CFM, Associate Planner
Layne Darfler, Planning Technician
Anita Wade, Zoning Clerk*



MEMORANDUM

To: Development Review Board

From: Ryan Morrison, CFM, Associate Planner

Date: June 20, 2017

RE: ZP17-1085CA/CU 77-87 Pearl Street

Note: These are staff comments only. Decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.

File: ZP17-1085CA/CU

Location: 77-87 Pearl Street

Zone: D **Ward:** 3C

Date application accepted: May 5, 2017

Applicant/ Owner: Megan O'Hara / 77-87 Pearl Street LLC

Request: Change of use from a diner to a dog training facility.

Applicable Regulations:

Article 2 (Administrative Mechanisms), Article 3 (Applications, Permits, & Project Reviews), Article 4 (Maps & Districts), Article 5 (Citywide General Regulations), Article 8 (Parking)

Background:

- **Zoning Permit 01-228;** refurbish existing corner grocery store with a deli component exterior façade. Proposal includes uncovering currently blocked windows and paneling to restore original design and openings. No change in use or massing. Proposal does not include signs or installation of any exterior light fixtures. Approved November 6, 2000.
- **Zoning Permit 01-294;** two non-illuminated parallel signs of painted/enamelled metal. One on Pearl Street frontage and one on Pine Street, 2' x 20' and 6' x 2', respectively. Includes gooseneck down lighting fixtures with incandescent bulbs. Approved January 10, 2001.
- **Zoning Permit 09-541CA;** remove existing mixed asphalt and slate roof shingles and replace with asphalt shingles on house at 6 Pine St. Carriage barn is not included within this permit approval. Approved February 6, 2009.
- **Zoning Permit 09-955CA;** Remove 2 roof additions; strip and re-sheath existing rooftop structure and enclose stairway with cementitious clapboard; install rubber roofing system to flat roofs, asphalt shingle roof on penthouse. Remove and reconstruct existing decorative cornice to match existing. Build 10' x 10' and 10' x 15' roof decks with railing. Approved June 29, 2009.
- **Non-Applicability of Zoning Permit 12-0880NA;** painting of temporary art mural on west side of building. Approved March 29, 2012.

- **Non-Applicability of Zoning Permit 15-0792NA**; replace and repair damaged trim and window sills/openings on first floor exterior store fronts, in-kind. Approved February 12, 2015.
- **Non-Applicability of Zoning Permit 15-0949NA**; repair and replace fascia on east and south sides of building. Approved April 6, 2015.
- **Zoning Permit 17-1014CA**; Install transom window in original location. Approved May 11, 2017.
- **Zoning Permit 17-1118CA**; change of use from deli/take out restaurant (former Radio Deli) to restaurant with seating. Approved May 18, 2017.

Overview: The applicant proposes to change the use of what used to be the Pearl Street Diner into a dog training facility. The structure is one of four at 77-87 Pearl Street. The three other structures include the historic Cosgriff's Market building, which currently contains Leonardo's Pizza, a dumpling restaurant and five apartments in the upper floors, a historic brick house fronting Pine Street used as a duplex, and a storage barn.

With the exception of a future sign, the project will only see internal renovations to accommodate the new use. An 'Animal Boarding/Kennel/Shelter' is a conditional use in the Downtown zoning district.

Recommendation: **Consent approval** as per, and subject to, the following findings and conditions.

I. Findings

Article 2: Administrative Mechanisms

Part 7: Enforcement

Sec. 2.7.8, Withhold Permit

A small number of zoning permits have been approved for the subject property. All but one have final certificates of occupancy. Per this section, prior to issuance of a final certificate of occupancy for this project, any zoning permit not yet closed out with a final certificate of occupancy must be addressed. **Affirmative finding as conditioned.**

Article 3: Applications, Permits and Project Reviews

Part 5: Conditional Use Review

Sec. 3.5.6, Review Criteria

(a) Conditional Use Review Standards

Approval shall be granted only if the DRB, after public notice and public hearing, determines that the proposed conditional use and associated development shall not result in an undue adverse effect on each of the following general standards:

1. *Existing or planned public utilities, facilities, or services are capable of supporting the proposed use in addition to the existing uses in the area.*
The proposed change of use is expected to have less of an impact on existing or planned public utilities, facilities or services than the previous diner use. A state wastewater

permit for the change of use may be required, and if so, it will be the applicant's responsibility to obtain. **Affirmative finding as conditioned.**

2. *The character of the area affected as defined by the purpose or purposes of the zoning district(s) within which the project is located, and specifically stated policies and standards of the municipal development Plan;*

The Downtown zoning district is described as the primary urban center of Burlington. A multitude of mixed uses exist within this district. The proposed use will not have a negative effect on the character of the area.

From the Municipal Development Plan:

- *Target new and higher density development into the Downtown, Downtown Waterfront, Enterprise District, Institutional Core Campuses, and the Neighborhood Activity Centers.* (MDP, Land Use Plan, Page I-2)
- *Retain its moderate scale and urban form in its most densely developed areas, while creating opportunities for increased densities.* (MDP, Built Environment, Page III-1)
- *Promote and support locally owned and controlled small businesses...* (MDP, Economic Development Plan, Page VI-2.) **Affirmative finding.**

3. *The proposed use will not have nuisance impacts from noise, odor, dust, heat, and vibrations greater than typically generated by other permitted uses in the same zoning district;*

The proposed dog training facility will be within an existing, fully enclosed building. There will be no outdoor activities associated with the use.

Affirmative finding.

4. *The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street designations and capacity; level of service and other performance measures; access to arterial roadways; connectivity; transit availability; parking and access; impacts on pedestrian, bicycle and transit circulation, safety for all modes; and adequate transportation demand management strategies;*

The applicant anticipates that while classes are in session (evenings and possibly weekends), around 50% of the customers will walk to the facility and 50% will drive. The maximum number of students per class will be 5-6 dogs, which could result in 5-6 cars needing to park at the busiest times, however there is the likelihood that some of those students will walk to the facility. For private clients during the day, there may be 1-2 cars needing to park. In comparison with the previous diner use, this would result in little, if any, additional demand on utilities, facilities and services. **Affirmative finding.**

5. *The utilization of renewable energy resources;*

No part of the application prohibits the use of wind, water, solar, geothermal, or other renewable energy resource. **Affirmative finding.**

and

6. *Any standards or factors set forth in existing City bylaws and city and state ordinances.* None identified. It is the applicant's obligation to secure any additional permits (from state or federal offices) as required. **Affirmative finding as conditioned.**

(c) Conditions of Approval

In addition to imposing conditions of approval necessary to satisfy the General Standards specified in (a) or (b) above, the DRB may also impose additional conditions of approval relative to any of the following:

1. *Mitigation measures, including but not limited to screening, landscaping, where necessary to reduce noise and glare and to maintain the property in a character in keeping with the surrounding area;*
All operations of the facility will occur indoors. No further mitigation measures are identified. **Affirmative finding.**
2. *Time limits for construction.*
No construction timeline or phasing are included in the project plans. The standard 2-year timeframe for zoning permits will apply. **Affirmative finding.**
3. *Hours of operation and/or construction to reduce the impact on surrounding properties.*
The applicant proposes to have private rentals of the training center and associated retail sales to be open to the public daily from 11:00 am to 9:00 pm. All training services and private behavioral consultations will take place on weekdays within that time-frame.

The heaviest use of the facility (maximum of 12 dogs total if 2 classes are running simultaneously) will be for group obedience classes, which will run on weekday evenings between 5:00 pm and 9:00 pm. The only outdoor construction anticipated is the installation of a future sign, which should have little to no impact on surrounding properties. **Affirmative finding.**
4. *That any future enlargement or alteration of the use return for review to the DRB to permit the specifying of new conditions.*
Any alteration to the use will be reviewed under the regulations in effect at the time of application. **Affirmative finding as conditioned.**

and

5. *Such additional reasonable performance standards, conditions and safeguards as it may deem necessary to implement the purposes of this chapter and the zoning regulations.*
None identified. It is the applicant's obligation to secure any additional permits (from state or federal offices) as required. **Affirmative finding as conditioned.**

Article 4: Zoning Maps and Districts

Section 4.4.1 Downtown Mixed Use Districts

(a) Purpose

The Downtown Mixed Use districts are intended to provide for a diverse and vibrant mixture of commercial and residential development within Burlington's most highly

developed and dynamic urban core. A broad range of uses that support a balance between residential and non-residential uses are encouraged reflecting Burlington's role as a regional urban center for commerce, culture, and government. Residential uses are encouraged on upper floors, but are intended to be secondary to non-residential uses and shall not be allowed to define or dominate the overall development objectives and standards for the district. Residential development must be cognizant of nearby non-residential uses in their design and construction, so as to minimize disturbance to residents from non-residential uses. Active uses are to be provided at street-level in order to create an active and interesting streetscape for pedestrians and enhance the vitality of the downtown area.

Development is intended to be intense with high lot coverage and large tall buildings placed close together. Development should complement the historic development pattern, and sensitive transitions should be provided where there is great difference in scale between the old and new. Development should be pedestrian-oriented with buildings oriented to the sidewalk with a strong emphasis on creating a safe and inviting streetscape. Buildings shall be designed with a high level of architectural detailing to help maintain a sense of scale so that they provide visual interest and create enjoyable, human-scale spaces. Parking is intended to be hidden within, behind, or underneath structures, and parked vehicles should not be visible from the street.

The **Downtown (D) district** is the primary urban center of Burlington;

While 'dog training' is not a specific use listed in the CDO, the most closely related use, 'Animal Boarding/Kennel/Shelter', is listed as a conditional use within the Downtown Zoning District. Unlike an animal boarding/kennel/shelter, dogs coming to the proposed facility will not stay onsite beyond hours of operation. The conditional use allowance is predicated on a fully enclosed facility. **Affirmative finding as conditioned.**

(b) Dimensional Standards and Density

No changes to the building or property are proposed. **Not applicable.**

(c) Permitted and Conditional Uses:

The principal land uses that may be permitted, or conditionally permitted pursuant to the requirements of Article 3, within the Downtown Mixed Use districts shall be as defined in Appendix A – Use Table.

See Section 4.4.1 (A) above. **Affirmative finding.**

(d) District Specific Regulations

(1) Use Restrictions

Not applicable.

(2) Public Trust Restrictions

Not applicable

(3) Facades and Setbacks on Side and Rear Property Lines

Not applicable.

(4) *Building Height Setbacks*

Not applicable.

(5) *Lake Champlain Waterfront Setback*

Not applicable.

(6) *Residential District Setback*

Not applicable.

(7) *Development Bonuses/Additional Allowances*

Not applicable.

Article 5: Citywide General Standards

Part 1: Uses and Structures

Section 5.1.1 Uses

(a) Conditional Uses

The most similar use to a dog training facility, an *Animal Boarding/Kennel/Shelter*, is a Conditional Use in the Downtown Zoning District. See Section 3.5.6 above.

Part 5: Performance Standards

Section 5.5.2 Outdoor Lighting

There are no proposed changes to existing exterior lighting. Three ‘goose-neck’ light fixtures exist on the western half of the front building façade, used to illuminate previous signage. The applicant will likely utilize these fixtures to illuminate a future sign. A separate sign permit will be required for new signage, and if the lighting will change, the applicant can address that through the sign permit process. **Affirmative finding as conditioned.**

Article 8: Parking

Sec. 8.1.6 Existing Structures: Exemption in Downtown District

Any nonresidential use within a structure lawfully in existence prior to January 1, 2007 in any Downtown Parking District shall be exempt from the requirements of this Article when applying for a change to any other nonresidential use.

Various nonresidential uses occupied the subject building – well before January 1, 2007. The proposed change of use to a dog training facility within the existing building is exempt from the minimum parking requirements of Article 8. **Affirmative finding**

II. Conditions of Approval

1. **Prior to release of the zoning permit**, the applicant shall receive written verification of adequate wastewater capacity from the Department of Public Works.

2. **Prior to issuance of a final certificate of occupancy**, all outstanding zoning permits for the subject property shall be closed out.
3. All activities associated with the facility shall occur within the fully enclosed building. This prohibits dogs eliminating outdoors.
4. Any signage will require a separate sign permit.
5. Any future enlargement or alteration of the use shall return for review to the DRB to permit the specifying new conditions.
6. It is the applicant's responsibility to comply with all applicable building, life safety, and ADA requirements.
7. The applicant shall be responsible for obtaining a state wastewater permit, if required.
8. The applicant shall secure any associated trades permits for the interior work.
9. The applicant/property owner is responsible for obtaining all necessary Zoning Permits and Building Permits through the Department of Public Works as well as other permit(s) as may be required, and shall meet all energy efficiency codes of the city and state as required.
10. Standard Permit Conditions 1-15.



Department of Planning and Zoning

149 Church Street, City Hall
Burlington, VT 05401-8415
Phone: (802) 865-7188
Fax: (802) 865-7195

www.burlingtonvt.gov/pz

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DEPARTMENT OF
PLANNING & ZONING

Zoning Permit Application

Use this form for ALL zoning permit applications. See the relevant checklist for specific requirements.

PROJECT LOCATION ADDRESS: 85-87 Pearl Street 77-87 Pearl

PROPERTY

OWNER*: Hinsdale Properties

*If condominium unit, written approval from the Association is also required

POSTAL ADDRESS: 294 N. Windoski

CITY, ST, ZIP: Burlington, VT 05401

DAY PHONE: (802) 862-1184

EMAIL: hinsdaleproperties@gmail.com

SIGNATURE: Shene C Hinsdale

I am the owner. In addition, I duly authorize the applicant (if noted) to act on my behalf for all matters pertaining to this zoning permit application.

APPLICANT: Megan O'Hara

POSTAL ADDRESS: 75 Spruce St.

CITY, ST, ZIP: Burlington, VT 05401

DAY PHONE: (508) 274-0245

EMAIL: megan@fetchthetheleash.com

SIGNATURE: Megan O'Hara

Description of Proposed Project: Change of use of existing building from a diner to a dog training facility.

Existing Use of Property: ☐ Single Family ☐ Multi Family: # Units ☒ Other: Commercial

Proposed Use of Property: ☐ Single Family ☐ Multi Family: # Units ☒ Other: Commercial

• Does your project involve new construction, addition, alteration, renovation, or repair to a structure that is heated or cooled? Yes ☒ No ☐

(If yes, the Vermont Residential Building Energy Standards (VRBES) apply. Visit the P&Z Office, Public Service Board or PSB website for details.)

• Will 400 sq ft or more of land be disturbed, exposed and/or developed? Yes ☐ No ☐

(If yes, you will need to submit the 'Erosion Prevention and Sediment Control Plan' questionnaire, with a site plan)

• For Single Family & Duplex, will total impervious area be 2500 sq ft or more? Yes ☐ No ☐

(If yes, you will need to submit the 'Stormwater Management Plan' questionnaire, with a site plan)

• Are you proposing any work within, below, or above the public right of way? Yes ☐ No ☐

(If yes, you will need to receive prior approval from the Department of Public Works)

• Are you proposing any onsite food or beverage production/manufacturing? Yes ☐ No ☐

(If yes, you will need to consult with Water Resources Division at the Department of Public Works: 863-4501)

Estimated Construction Cost (value)*: \$15,000

(*Estimated cost a typical contractor would charge for all materials and labor, regardless of who physically completes the work)

Within 30 days of submission, the permit application will be reviewed for completeness, and, if complete, will be processed administratively or referred to a board for review. All permit approvals or denials are subject to an appeal period (15 days for administrative permit; 30 days for board permit). A building (and/or electrical, mechanical, plumbing, curb cut) permit will also be required. Contact the Department of Public Works at 802-863-9094 to inquire. Please ask for assistance if you have any questions about filling out this form. Call the Planning and Zoning at 802-865-7188, or visit the office in the lower level of City Hall, 149 Church Street.

Office Use Only: Zone: D Eligible for Design Review? Y Age of House 1899 Lot Size 1014

Type: SN ☐ AW ☐ FC ☐ BA ☐ COA 1 ☒ COA 2 ☐ COA 3 ☐ CU ☒ MA ☐ VR ☐ HO ☐ SP ☐ DT ☐ MP ☐

Check No. 1283 Amount Paid 230.00 Zoning Permit # 17-1085CA

Fetch the Leash!, LLC

BUSINESS PLAN
04/17/2017

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DEPARTMENT OF
PLANNING & ZONING

Megan A. O'Hara, CTC
75 Spruce Street
Burlington, Vermont, 05401
(508) 274-0245
megan@fetchtheleash.biz
www.fetchtheleash.biz



EXECUTIVE SUMMARY

Summary Statement

Dogs & owners who live, work, or play in downtown Burlington need specific skills to successfully navigate all of the great things our city has to offer - polite leash manners, a good recall, and the ability to gracefully handle people, noises, bustle, and other dogs in close proximity.

Fetch the Leash! is opening a brand new training facility right downtown at 85-87 Pearl Street so that our clients can walk to class, take a lunchtime lesson during the week, or swing by the farmer's market on their way home. Small class sizes with a certified trainer ensure dogs and their people will learn all the skills they need to stroll down Church Street with confidence. I believe a dog training facility downtown will not only be a valuable resource for our city's dogs, but will also provide a much-needed local hub for the urban dog-owning community.

Company History

Megan has owned and operated Fetch the Leash! since 2009. What began as a humble dog walking business has evolved into a full-time dog training career. I currently offer private in-home obedience training and behavior consultations, as well as offering group classes through other local training schools.

I am passionate about arming dog owners with scientifically-accurate training and behavior information, and teaching in a fun and humane way for both dogs and their people. Operating my own facility will allow me to offer a full range of classes to my clients, as well as provide a much-needed service to downtown Burlington residents, who currently must drive 15-30 minutes away for rewards-based dog training classes.

Mission Statement

Building lasting one-on-one relationships with my clients has always been, and will continue to be, at the core of my business's mission. I aim to be a trusted resource for local dog owners for the life of their dog by providing personal attention to every client.

Megan A O'Hara, Business Owner & Head Trainer

Megan's professional career with dogs began in 2006, working at the Animal Rescue League of Boston as an animal care and adoption counselor. In 2009 she relocated to Burlington, VT and started Fetch the Leash! as a dog walking company. In 2015 she graduated with honors from the Academy for Dog trainers and has been providing training expertise to private clients and teaching group obedience classes since then. She has been successfully managing all aspects of Fetch the Leash! since inception.

Megan O'Hara will continue in her role as business owner and head trainer. She will run the group classes and behavior consultations, as well as manage client registrations/inquiries, retail sales, and building upkeep. As the business grows she anticipates hiring a maximum of 1-2 employees or independent contractors to assist with class teaching, building upkeep, office tasks, and retail sales.

Products and Services

Fetch the Leash! will provide the following services:

- Group obedience classes
- Private behavior consultations (in our facility or at clients' homes)
- Drop off day-training services
- Hourly training space rentals for practice/exercise/playgroups
- Limited retail sales will supplement and support our training services

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Hours of Operation

Private rental of the training center and the retail sales area will be open to the public from approximately 11am to 9pm daily. All training services and private behavioral consultations will take place on weekdays within that time-frame.

The heaviest use of the facility (maximum of 12 dogs total if 2 classes are running simultaneously) will be for our group obedience classes, which will run on weekday evenings between 5pm and 9pm.

Location & Market

Fetch the Leash! will be located at 85-87 Pearl Street, Burlington, Vermont. 85-87 Pearl Street combines a great downtown location with a large, open floor space for training. Large street-facing windows provide great visibility for marketing our training business to pedestrians and for retail display. The training floor can easily be divided into two classrooms with the addition of movable partitions so that multiple classes or playgroups could run simultaneously. The location has a large green space on one side and is a stand-alone building, so dog noise to neighbors should be minimal.

The business model of Fetch the Leash! will primarily be business to consumer (b2c). Our clients are local. They are our neighbors, friends, and family - not a number or a dollar sign. They walk to work. They care about the environment. They care about our community. Their dogs are family. We run into them at City Market, or cross paths walking our dogs on the bikepath. We develop lasting relationships with each and every dog and human who comes through our door, and are there to support them for the life of their dog.

Marketing and Sales

Fetch the Leash! will market its products and services through the following methods and sales channels:

- Social media (Facebook, Instagram, Twitter)
- Email marketing
- Direct marketing via our storefront

Fetch the Leash! has generated a strong word of mouth referral network in the Burlington area over the years. We will continue to rely on that network as well as reach out to current and former clients to let them know about our new facility and services. A well-crafted, easy to navigate website, as well as active social media pages help new customers get to know us.

Financial Requirements & Financial Forecast

The company needs to raise \$15,000.00 USD in initial funding. Personal savings and private financing from friends and family will cover start-up costs related to opening the training facility: electrical and plumbing repairs and modifications, installing 1" rubber flooring on training floor, modular classroom partitions, indoor fencing to separate spaces, outdoor sign purchase and installation, purchase of initial retail stock, as well as launch marketing and website upgrade costs.

Fetch the Leash! expects to generate \$100,000.00 in sales revenue by the end of first year of operations. The company expects to turn a profit within the first six months of operation.

Description of On-Premise Services to be Offered

Positive-reinforcement group obedience classes for all ages, breeds, and abilities. Our classes are intentionally kept very small (maximum of 6 dogs per class) so each dog and owner team gets lots of personalized attention from the instructor each week.

Private consultations offer more personalized training. We work one-on-one with clients at our facility on a range of behavioral issues from basic manners and puppy training to working with fearful dogs.

Day-training in our facility, where clients drop off their dog for a portion of the day and we do the training for them. Having a professional trainer do the 'heavy lifting' means faster results and less work for the client. Maximum of 1-2 day training client dogs in the facility at any time.

Hourly private rental of our training facility when classes are not in session. Perfect for training practice sessions, inclement weather exercise, or organizing private playgroups with a maximum of 4 dogs at a time.

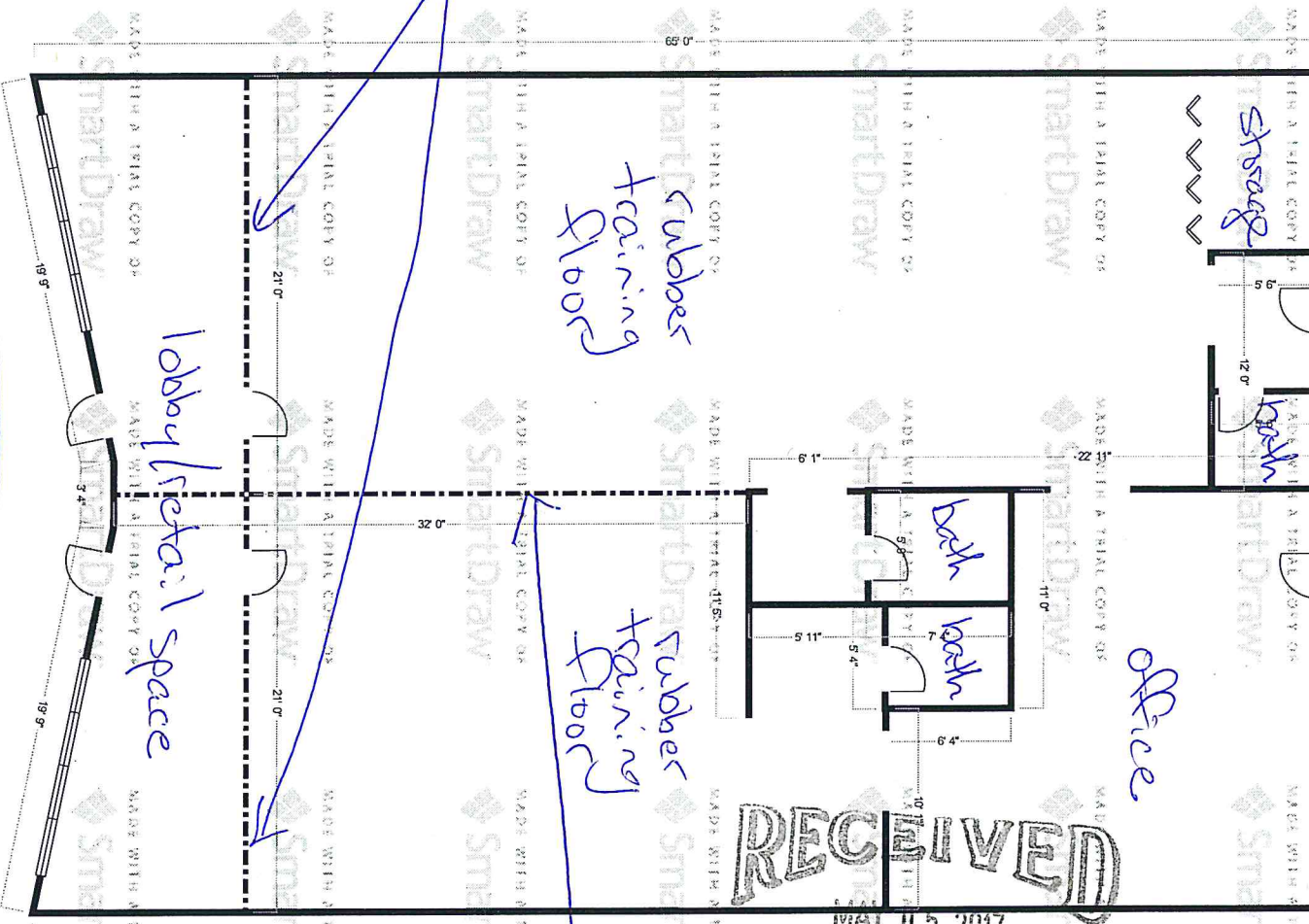
Curated selection of retail products for sale. All the items we recommend during our classes and private lessons will be available for purchase - no-pull harnesses and head halters, our favorite brands of high-value training rewards, food puzzles, Kongs, bully sticks, etc.

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4' white vinyl
fencing with gates
to separate lobby area
retail space from
training floor

Pearl Street



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modular walls to
replace existing
non-structural
solid wall

all solid-line walls
are pre-existing +
will remain a new
facility

Thu, Apr 27, 2017 at 4:26 PM

dale Properties <hinsdaleproperties@gmail.com>
Megan O'Hara <megan@fetcthelease.biz>

Megan,

ing Pearl Street Diner's tenancy, they used 3 parking spaces for the owner and employees. This arrangement can
tinue for your lease on the space, as it has worked quite well for many years.

're welcome to give the city this email with the attached diagram, showing where 3 cars can park.

st,
cob Hinsdale



ted text hidden]

3 designated
parking spaces
behind building
as per landlord

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MAY 05 2017

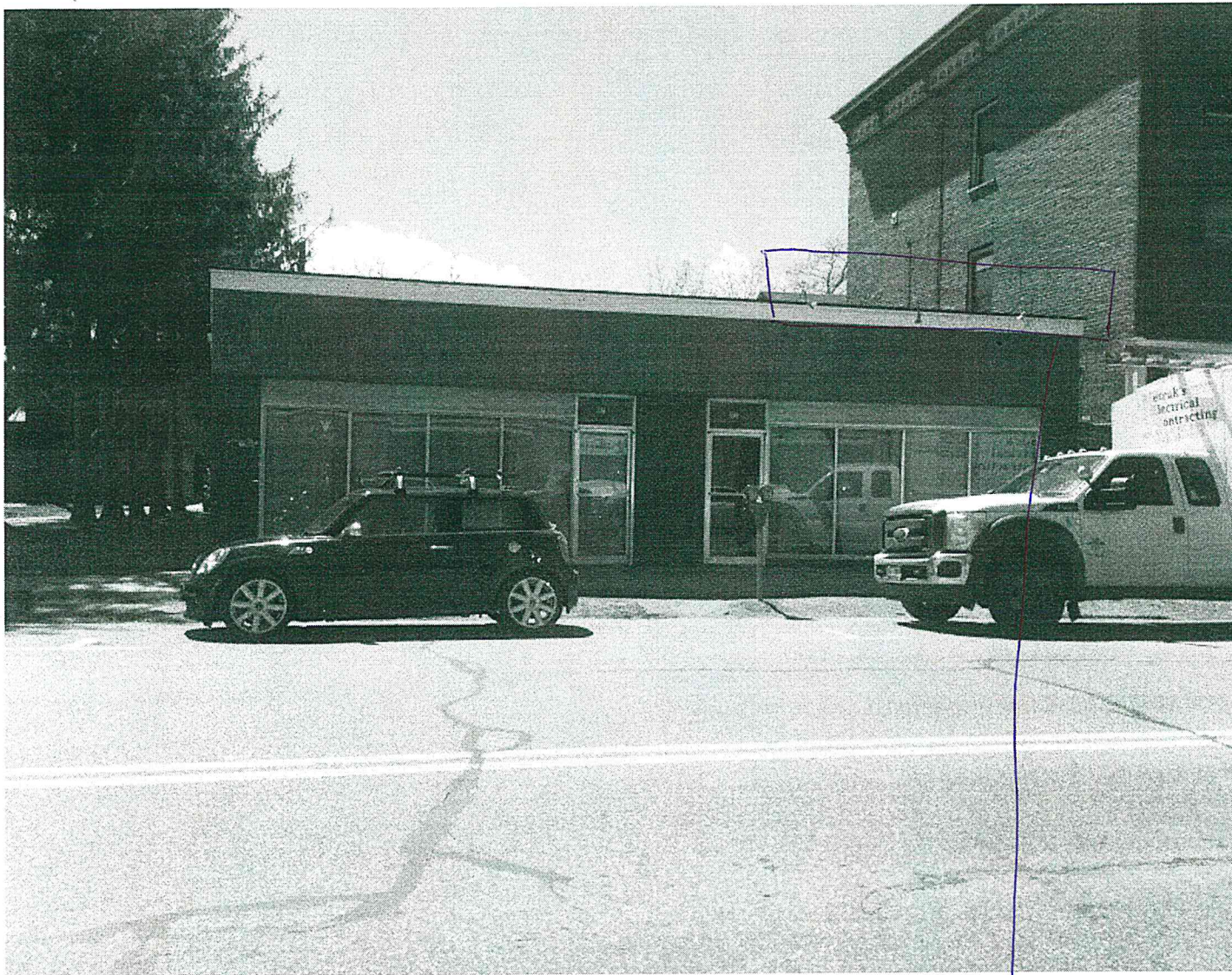
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One parking
space diagonally
next to barn

2 garden
spaces between
85-87 Post + barn



07/10/2009 16:35



Current building front
to remain as-is
with addition of
new paint along upper
portion + new business sign
(design TBD)

Current existing
electrical for
sign lighting

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FITCH SLASH
DOE, BEHAVIOR & TRAINING

87

85

CITRUS
ELECTRICAL
CONTRACTING

**CODE ENFORCEMENT OFFICE**

645A Pine St, PO Box 1
Burlington, VT 05402-0001

VOICE (802) 863-0450

FAX: (802) 652-4111

MEMORANDUM

TO: Development Review Board

Cc: Scott Gustin
Kimberlee Sturtevant
William Ward

DATE: June 15, 2017

FROM: Jeanne Francis, Assistant Zoning Administrative Officer/Code
Compliance and Enforcement

RE: Appeal of ZV # 334211 Slated for June 20, 2017 Public Hearing

Appellants, through their attorneys, have requested a postponement of the Public Hearing, for case noted above, until July 5, 2017; the City has no objection to the postponement until that date. However, the City is prepared to present their case to the Board and would object to any postponement request after that date.

Call me at 864-8518 or email me at jfrancis@burlingtonvt.gov should you have questions.

Scott Gustin

From: Marc E Wiener <marc@mewlawoffices.com>
Sent: Thursday, June 15, 2017 11:07 AM
To: Scott Gustin
Cc: 'Drew Chace'
Subject: 383 College Street

Hi Scott: As I indicated on the phone, I am requesting a postponement of the DRB hearing regarding 383 College Street due to my client's having had surgery yesterday. I understand the next available hearing date will be 7/5/17. Will you please confirm the postponement?

Marc E. Wiener, Esq.
Marc E. Wiener Law Offices, PLLC
110 Main Street
Burlington, VT 05401
Phone (802) 863-1836
Fax (802) 863-1948
marc@mewlawoffices.com

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Burlington Development Review Board

149 Church Street, City Hall
Burlington, VT 05401
<http://www.ci.burlington.vt.us/planning/>
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

David E. White, AICP, Director
Meagan Tuttle, Comprehensive Planner
Jay Appleton, Senior GIS/IT Programmer/Analyst
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, CFM, Associate Planner
Layne Darfler, Planning Technician
Anita Wade, Zoning Clerk



MEMORANDUM

TO: Development Review Board

FROM: Ryan Morrison, Associate Planner

DATE: June 20, 2017

RE: ZP 17-0914CA; 212 Elmwood Ave - Demolish existing 3 bedroom single family residence and replace with a new 3 bedroom single family residence.

Zoning Permit 17-0914CA, to demolish an existing single family residence and replace with a new single family residence was approved by the Development Review Board on May 17, 2017. The applicant is requesting DRB permission to be able to work on Saturdays.

Condition #5 of the permit states "Construction hours shall be limited to Monday – Friday from 7:00 AM – 5:00 PM. Saturday construction may be allowed upon request to the Development Review Board. No work on Sunday."

In the attached email, dated June 5, 2017, the applicant states that many of the volunteers are not able to volunteer during the week, so they volunteer on Saturdays. The applicant proposes construction hours of 7:30 am to 4:00 pm.

The DRB has the authority to approve Saturday construction hours as per Condition #5 of the zoning permit.

Ryan Morrison

From: David Mullin <dmullin@vermonthabitat.org>
Sent: Monday, June 05, 2017 4:16 PM
To: Ryan Morrison
Subject: 212 Elmwood Ave Saturday work request

Good afternoon Ryan,

Per your suggestion I am emailing you with this request. Regarding the Habitat for Humanity project where we are building a new home in place of the one that was there.

1. Can we build on Saturdays? Habitat for Humanity uses many volunteers to help build and many of them are only able to volunteer on Saturdays. The construction hours on Saturday would be from 7:30 am until 4:00 pm.

Thank you
David

David Mullin
Green Mountain Habitat for Humanity
Executive Director
www.vermonthabitat.org
802-872-8726



Burlington Development Review Board

149 Church Street, City Hall

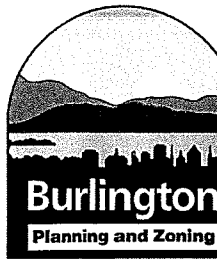
Burlington, VT 05401

www.burlingtonvt.gov/PZ/DRB

Phone: (802) 865-7188

Fax: (802) 865-7195

Austin Hart, Chair
Brad Rabinowitz
Israel Smith
A.J. LaRosa
Alexandra Zipparo
Geoff Hand
Wayne Senville
Jim Drummond (Alt)



BURLINGTON DEVELOPMENT REVIEW BOARD Tuesday June 20, 2017 NOTICE OF CONSTRUCTION HOURS ON SATURDAYS

The Burlington Development Review Board will consider allowing Saturday construction hours for the project that recently received approval to demolish and rebuild a single family residence at **212 Elmwood Avenue**. The discussion will take place under the "Other Business" agenda item at the regularly scheduled DRB meeting to be held on **June 20, 2017 at 5:00 p.m. in Contois Auditorium, City Hall**.

In addition to the approved Monday – Friday 7:00 am to 5:00 pm construction hours, the developer is requesting Saturday construction hours of 7:30 am to 4:00 pm. The developer states that many of the volunteers are not able to volunteer during the week, so they volunteer on Saturdays.

The DRB will act on the request at the June 20, 2017 DRB meeting.

Plans may be viewed in the Planning and Zoning Office, (City Hall, 149 Church Street, Burlington), between the hours of 8:00 a.m. and 4:30 p.m.

Participation in the DRB proceeding is a prerequisite to the right to take any subsequent appeal. Please note that ANYTHING submitted to the Planning and Zoning office is considered public and cannot be kept confidential.

This may not be the final order in which items will be heard. Please view final Agenda, at www.burlingtonvt.gov/pz/drb/agendas or the office notice board, one week before the hearing for the order in which items will be heard.

Mary O'Neil

From: Elisa Nelson <nelsmith@burlingtontelecom.net>
Sent: Sunday, June 18, 2017 10:20 PM
To: Mary O'Neil
Cc: Charles James Goodnight; Hans Manske; markbonfigli@gmail.com
Subject: 79 Industrial Parkway
Attachments: Act 250 letter (final).docx

Hello Mary,

I wanted to make Planning and Zoning aware of a letter several neighbors sent to the Act 250 Board regarding the Act 250 Minor Application for 79 Industrial Parkway. I have attached a copy for your records.

For the record, while Rhino Foods has identified two major sources of noise that regularly disturb the neighbors, nitrogen tank filling and boiler exhaust, there are several additional sources of noise which run throughout the day and night and the cumulative effect is a nuisance to say the least, and may be damaging to the health of neighbors through loss and interruptions of sleep. In addition the noise levels are such that we are unable to enjoy the use of our backyards and we must keep our bedroom windows closed even on hot summer nights.

Since 2001 Rhino Foods has maintained a written agreement with the neighbors to restrict the hours that nitrogen is delivered to their facility. The agreement limits deliveries to between the hours of 7am to 8pm (M-F), and 10am – 6pm (weekends). In addition we suggested a sign be placed on the nitrogen tanks listing the limited delivery hours so that truck drivers would always be aware of the limitation. Additionally Rhino agreed to notify neighbors in advance if deliveries were required outside the limited hours. Although this agreement has been mostly adhered to, there have been instances where deliveries happened outside agreed upon hours and without advance notice. For instance, on June 15th, 2017 at about 11:15pm the neighborhood was awoken by the sounds of the Rhino nitrogen tank being filled.

We believe that especially during nitrogen deliveries, and at other times, Rhino exceeds the Natural Resources decay limits and would ask for proper sound readings to assure that regulations are being met. We also request and Rhino has agreed to add screening around the boiler, HVAC, and nitrogen stacks etc. that is properly sound engineered to reduce the noise to reasonable and within legal limits.

Elisa Nelson
155 Austin Dr.
Burlington, VT 05401

Natural Resources Board
111 West St
Essex Junction, VT 05452
RE: Minor Application #4C0325-4

June 12, 2017

Dear Mr. Peter Keibel, District #4 Coordinator

Background

The signatories of this letter are the abutters of 79 Industrial Parkway, Burlington, VT 05401 aka Zoo Holdings (Rhino Foods). Letters of standing for each household are attached as addendum to this document. Most of us have been neighbors of Rhino Foods for well over 18 years.

Decades ago Burlington zoning ordinances created a difficult situation whereby an industrial zone was placed directly adjacent to a waterfront residential zone with no defined buffer area+. The inherent conflicts of this zoning remain today with neighbors and businesses walking a tightrope between business and operations and the peace, health and safety of residents living in their own homes. We have a long history starting in 1998 of trying hard to work together, as neighbors, for the good of the households and the good of a neighboring business. When Rhino Foods ran only one or two work shifts there were fewer issues. Once the third shift started there were more and more conflicts. Many noise conflicts calls were placed with the local police department, under the City of Burlington's Noise Ordinance (see attached copy), mostly related to the filling of liquid nitrogen tanks. Additionally there has been a noise problem with a powerful boiler whose exhaust from the roof near the rear of the building is an intermittent roar. Trucks idle roughly all night, despite a City anti-idling ordinance (see attached). These concerns lead to a 2001 agreement with Rhino to limit filling of their nitrogen tanks to between the hours of 7am – 8pm (M-F) and 10 am – 6 pm (weekends), unless an emergency situation required a tank fill. Rhino agreed to notify neighbors in advance if this situation was to occur. For the most part this agreement has been adhered to.

As Rhino has grown additional equipment has been installed, mostly ventilation and air conditioning equipment, outdoors on the southwest corner of the building. Each piece of equipment adds to the sound profile, incrementally. Taken individually no one piece of machinery may be loud but not rise to the point of offensive, but taken cumulatively the multiple combined machinery and truck engines do rise to the point of offense and include health issues with loss of sleep on a nightly basis. Saturday morning to 9pm Sunday is our only respite from constant loud noise. During previous Development Review Board hearings and other City sanctioned meetings, abutters and other neighbors have expressed serious concern regarding the noise emitted from Rhino Foods. In 2002(?) a hearing about new machinery brought attention to the need for noise and visual screening of roof penetrations. A simple, mostly visual, blockage fence was erected on the roof around the boiler's stack. Rhino also agreed to research a backup hot water system. If successful, there would be no boiler noise 11pm to 7AM. Evidently this research was unsuccessful as boiler noise continues day and night as noted in the current application. No correspondence regarding this has been received by homeowners.

Though Rhino has said they want to work with us for decades, their efforts have largely been limited. The small efforts they have done (other than limiting hours for LN2 deliveries), have been, by their own

admission, to go to Lowes and get some cheap fencing to place around the boiler exhaust. At this point even that is gone due to lack of maintenance. In addition, despite having discussed the issue in two public presentations about this latest addition months apart, they still have not put any real effort into this issue other than to move the ventilation equipment from the previously planned back of the building to the roof, and that may well have been done due to make space for the new road behind the building. As of the neighbor meeting May 30th, they showed no plans for noise or visual mitigation and had to call the construction manager (architect sitting there) to get any info. The manager said it was nothing more than a cheap visual block, and as of yet, despite the promise of more formal description the next day, nothing has been sent. When asked twice what would happen with the LN2 delivery schedule if production continued to rise, necessitating closer delivery spacing, no answer was forthcoming. Their goal is expressly to continue growing.

Rhino Foods has apparently conducted sound level investigations on their property. To our knowledge no sound level readings have been taken "at the residences". Readings at the lot line (points unknown) are as high as 65dba. Sound levels during a nitrogen delivery are not reported. Final proposed regulations relating to wind turbines will limit noise to 42db at residences (39 db at night), for comparison. A 3 db increase in readings represents a doubling in sound power levels. 65 db is more than 200 times the 42 db limit about to be put in place for wind turbines. While we believe 42 db is too restrictive, 200 times louder crosses the line into offensive. In addition, noise readings were likely measured at the lot line near ground level possibly blocked from the exhaust source by the edge of the roof (at least partially). Nearby houses are elevated with line of site closer to the roof (exhaust) level and not blocked by the roof. If noise levels were to be measured at residences, they need to be measured in winter when leaves off the trees, and outside the windows of each house. Eight foot fences and young trees are nice for blocking view of lower wall but useless for blocking the view of Rhino's building much less blocking any noise going from a roof 25 feet above ground to residence windows elevated above ground level. We need to have noise stopped at its source - on the roof.

In 2015 Rhino sought permission to remove trees to answer safety and sanitary concerns around food production and animal access from trees to the building. ____ sq. ft. of trees were removed between the properties which resulted in the loss of screening for noise and sight lines. The trees removed contained most of the branching below 35ft and thus removed most of the foliage between the properties. In response to neighbor complaints that the tree cutting had more of a visual and noise impact than expected, Rhino planted 12 – 12ft arborvitae as a visual buffer which was more than their permit required.

As Rhino Foods seeks an expansion of their building, additional tree cutting, and a new driveway that will exist between Rhino and the abutting neighbors, there are serious concerns regarding the additional noise, hours of operation, and visual screening. Multiple machinery units that were ground based on the south side of the building are being moved to the rooftop. There is concern about additional noise travelling with ease to neighbors, especially those to the north who were effectively blocked by the building when the equipment was on the ground.

Agreement

The below signed parties have agreed to the following actions by Rhino Foods to address the unacceptable and offensive noise from their plant activities.

We are asking that the Act 250 Board include these provisions in the Act 250 Permit so that we have official sanction. If this is not possible, or if this process is not agreed to, we respectfully request a hearing to bring forward evidence of offensive noise and detrimental health effects.

On May 30, 2017, in a meeting with R Paul Smith, Elisa Nelson, and Charles Goodnight, Rhino Foods agreed to the following:

- a. Limiting use of back road to LN2 truck deliveries, with previously agreed to delivery hours
- b. Trees – more evergreen variety (size was not discussed) where is a caliper measurement taken vs dbh?
- c. HVAC units and boiler vent on the roof must have sound barriers to reduce noise
- d. Extend the fence section and trees further north on the property line to protect the Goodnight and Bonfigli/Mora properties.

Sincerely,

R. Paul Smith and Elisa C. Nelson, 155 Austin Dr., Burlington, VT 05401

Charles J. Goodnight, 145 Austin Dr., Burlington, VT 05401

Michael Williams, 91 Austin Dr., Burlington, VT 05401

Hans Manske, 121 Austin Dr., Burlington, VT 05401

Mark Bonfigli and Marisa Mora, Windmill Bay Rd, Shelburne VT owners of 121 Austin Dr., Burlington VT, 05401

Attach:

- o letters about standing
- o Documentation of tree removal impact (photos)
- o Noise ordinance
- o Idling ordinance
- o Wind turbine ordinance (decibel limits)

Burlington Development Review Board

149 Church Street, City Hall
Burlington, VT 05401

www.burlingtonvt.gov/pz/DRB

Telephone: (802) 865-7188

Fax (802) 865-7195

Austin Hart

Brad Rabinowitz

Israel Smith

AJ LaRosa

Geoff Hand

Alexandra Zipparo

Wayne Senville

Jim Drummond, (Alternate)

Robert Purvee, (Alternate)



BURLINGTON DEVELOPMENT REVIEW BOARD Tuesday, June 20, 2017, 5:00 PM Contois Auditorium, City Hall, 149 Church St, Burlington, VT Minutes

Board Members Present: A. Hart, B. Rabinowitz, I. Smith, G. Hand, A. Zipparo, , R.Purvee (alt)

Members Absent: A.LaRosa , J. Drummond (alt)

Staff Present: M.O'Neil, R. Morrison, L. Darfler

I. Agenda

A. Hart: The following projects have submitted requests for deferral;

Agenda item #2 **17-1117CA/CU; 426 South Winooski Avenue (R1, Ward 6) Scott Mapes**

Demolish existing detached garage and replace with new detached garage with accessory dwelling unit. (Project Manager: Scott Gustin)

Agenda item, under public hearing, #2 **17-1103AP; 383 College Street (RH, Ward 8E) Astra Burlington LLC**

Appeal of a zoning violation #334211 for conversion of a multi-use 5 office and 12 residential unit structure to a 14 residential unit building with commercial use, exterior signs and site plan alterations. (Project Manager: Jeanne Francis)

Both projects will be differed until the July 5th, 2017 DRB Meeting.

II. Communications

1. Memo from Elisa Nelson regarding 79 Industrial Parkway

A.Hart: Board accepts communications submitted in the supplemental packet.

III. Minutes

A. Hart: June 6th, 2017 meeting minutes. Asks the board to submit any comments or changes to the next deliberative meeting

IV. Consent

1. **17-1085CA; 85-87 Pearl Street (D, Ward 3C) 77-87 Pearl Street LLC**

Change of use of existing building from diner to dog training facility.

(Project Manager: Ryan Morrison)

A.Hart: Asks applicant if they have reviewed staff comments or if they have any questions

A.Hart: Asks if any board members have objections to the project being on consent

None

A.Hart- Asks if any members of public are in attendance that wish to comment on the project.

Yes

A.Hart: opens the project to public hearing

A.Hart- business plan with specifics regarding events and hours with maximum number of dogs and people was included in application, this information seemed important. Asked the applicant if the board were to include those stipulations and hours in the conditions would that

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be of any problem.

M.O'Hara: indicated it would not be of concern or hindrance.

J. Bastille: Commenting in favor of the project, noted that due to the structure of the building that noise concern would be no issue. Business would be a good fit because of how insulated the business is and has informally spoken with neighboring residents who have indicated this business would be of no concern. More dog training in the City is a good thing.

A.Hart: There will be commercial on first floor and residential on top floors

M. O'Hara confirms

A.Hart: The DRB will deliberate on this project immediately following the public hearing, time permitted.

2. 17-1117CA/CU; 426 South Winooski Avenue (R1, Ward 6) Scott Mapes

Demolish existing detached garage and replace with new detached garage with accessory dwelling unit. (Project Manager: Scott Gustin)

A.Hart: No application present, project has been requested for deferral to July 5th meeting.

No objections from the board

Motion by B.Rabinowitz to differ project to July 5th meeting

A.Ziparo seconds the motion

Board Vote: 5-0-0

3. 17-1191CA/HO; 55-57 Howard Street (RL, 5S) Patrick J. McHenry

Home occupation for medical office/acupuncture office. Exterior construction; new doors, new window trim, expand porch, new lights. (Project Manager: Ryan Morrison)

A.Hart: Asks applicant if they have reviewed staff comments or if they have any questions

R.Morrison: Application has changed administratively from CA to HO proposal

A.Hart: Treating as public hearing rather than consent

P.McHenry: Property owner; has had extensive conversation with the tenant hoping to have an acupuncture office. Stated that there is an overwhelming amount of clients in the area. Indicated that many clients have followed this practice up to its current location on Main St and would expect them to follow to its new location on Howard Street.

A.Hart: Concern is parking; Parking requirements in the Home Occupation ordinance. The building is currently a duplex, if the Board approves will the building remain a duplex?

P.McHenry confirms; Home Occupations to be downstairs unit with tenant living there as well and second floor is residential.

A.Hart: There are four parking spaces on the site currently, the proposal is to figure out parking and provide parking space for the Home Occupation, and the proposed is to have the applicant serve as the parking lot attendant. Concern over the configuration of the parking, if there is more than one car parked there than someone can't get out.

P.McHenry: Acupuncture treatments appointments run 60 minutes long with 5-10 minutes before and after as prep work and turndown so there wouldn't be more than one person coming to the business at a time.

A.Hart: Would the first floor tenant have the keys to the cars belonging to the upstairs tenants?

P.McHenry: Stated he is the upstairs tenant and does not plan to own a car any time soon.

A.Hart: It may be in the future that an upstairs tenant with 1-2 cars moves in, how would that tenant have parking?

P.McHenry: If a new tenant moved in they would have written contract in the lease stating that keys to their vehicles be accessible to the first floor unit

B.Rabinowitz: is the downstairs unit accessed from the front door only and no side door?

P.McHenry: No there is a front, side and rear entrance to first floor, there is a separate entrance on the side to upstairs unit.

B.Rabinowitz: Plans do not show the upstairs entrance

P.McHenry: The plans show the first floor, where the Home Occupation is, but will submit second floor plans if requested.

B.Rabinowitz: Which door do the clients enter from?

P.McHenry: Front door

B.Rabinowitz: Could they use the side door?

P.McHenry: In theory yes

G. Hand: Asked R. Morrison about stacked parking spaces

A.Hart: To R. Morrison-In recommendations regarding the parking it was stated that the City would only recognize two conforming parking spaces in driveway, however for the Home Occupation the situation is unique. Is this a unique situation in which theoretically 5 units would be required; how do we get from 5 required to 4 theoretically possible?

R.Morrison: If you have a valet to tend to all 4 spaces then it would be alright under current code you can't go over 2 stacked spaces. Potentially you could go over 2 spaces with full time parking attendant; the acupuncturist would act as valet and at least maintain the 2 required parking spaces.

P.McHenry: the operation that will exist will never have more than 2 patients, typically there will only be one at the location at a time.

A.Hart: that is a requirement that there only be 1 patient at a time.

B.Rabinowitz: There are two treatment rooms shown which implies 2 patients would be present at one time.

P.McHenry: There is room turnovers that has to be done which includes cleaning.

A.Hart: Asks if the acupuncturist is here and if they could answer some questions.

M.Burns: Acupuncturist occupying unit; each appointment ends 5-10 minutes early to check person out, move cars, and turnover the room.

G.Hand: Would there ever be a situation where there would be more than one patient at a time.

M.Burns: Only if someone arrived early

A.Magyar: neighboring reside; has no concern with the parking issue, there was no problem with the parking when it was 4 tenant resident based.

A.Hart: Closed the public hearing

4. 17-0914CA; 212 Elmwood Avenue (RM, Ward 2C) Champlain Housing Trust / Green Mountain Habitat for Humanity

Demolish existing single-family residence and replace with a new single-family residence. Request to change Condition #5:

Construction hours shall be limited to Monday – Friday from 7:00 AM – 5:00 PM. Saturday construction may be allowed upon request to the Development Review Board. No work on Sunday.

To allow Saturday construction hours. (Project Manager Ryan Morrison.)

G.Hand Recused himself

A.Hart- Acknowledged G.Hand's recusal.

A.Hart: any public comment or concerns, does the applicant have any questions upon reviewing staff findings or recommendations?

None

A.Hart: Any board objections

None

A.Hart: Is there any limit to what kind of construction is happening on Saturday?

D.Mullins: Not quite, but anticipating that 90% or more the Saturday work is individuals coming to help hammer or build as opposed to excavators and heavy equipment. Any need for heavy equipment should be done by end of the week. It is very rare that they have paid contractors on Saturdays.

A.Zipparo: Motion to grant Saturday construction and adopt staff recommendations and findings

Motion seconded by B.Rabinowitz

Board Vote: 4-0-0

V. Public Hearing

1. 17-1097CA/MA; 79 Industrial Parkway (ELM, Ward 5S) Zoo Holdings, LLC

Construct two building additions, 14,200 sf of building footprint, paving of an existing parking lot, construction of fire access road; and add removal of 2 storage trailers.

(Project Manager: Mary O'Neil)

A.Zipparo: Recusal from project

A.Hart: Acknowledges recusal. Asks applicant if they have reviewed staff comments or if they have any questions

B.Linghurst: Provided an overview of addition to existing buildings, the site will be accessed from existing curb cut; parking area is existing and will be re-paved as part of the project. Addition to parking as well as new fire access on north side of property.

B.Linghurst: Plan shown is revised, it is referenced by staff comments but not in the packets before the board

B.Linghurst: Addressing concerns brought up by neighbors; landscaping has been extended to north, the western landscaping is to replace low growth from existing tree line from a previous removal. Followed recommended landscaping to work well with wildlife corridor, tree line will be maintained.

G.Hand: How much of tree clearing had previously occurred?

B.Linghurst: specifies unsure

A.Hart: Noise and impact seems to be an issues, what is the distance between the back of the addition, the fence and the property line?

M.O'Neil: Tree maintenance plan application in 2016 provided revised landscaping plan

B.Linghurst: South end of west addition 60 feet from corner and 60 feet from property line

B.Rabinowitz: Nitrogen tanks is source of screening concern, what is generating the noise?

T. Castle: Sources of noise are liquid nitrogen delivery trucks backing up at limited hours and using pumps. Looking at sound noise study for better location for HVAC units on south side and appropriate sound mitigation.

B.Rabinowitz: Does the venting go straight up or directly through the wall?

B.Linghurst: Up; HVAC concerns were discussed between neighbors due to the Act 250 permit, particularly around the noise impact of the facility.

B.Rabinowitz: if the nitrogen tank screening is part of what you are trying to add it seems the screening stops before the need.

T.Castle: there is no screening there now, all being shown is proposed. The sound engineer started today, it is a 7 day test which was agreed to in the Act 250. Hired noise engineer to determine location of HVAC units.

A.Hart: Adding 28 parking spaces but no new employees, what is the need for the additional parking?

T.Castle: This project does not add any new employees, the applicants are craving nicer parking facility than what currently exist. Overlapping work shifts create hardship for employees trying to find available parking spaces. In general we see this as trying to work with the neighbors; trying to be a good neighbor, we have agreed to everything the neighbors have asked for understanding we are an industrial buildings in close proximity to residential neighbors. Primary reason for renovations is food safety; they make cookie dough the goes into ice cream. The additions will include a nice breakroom for employees. The company is spending \$5.5 Million to stay in Burlington.

B.Linghurst: To address staff comments on lighting levels; currently having electrical and lighting designer work on that and can resubmit if needed, but appears they can just swap out fixtures.

E.Nelson: Submitted a letter from neighbors to Act 250 Board regarding requests and agreement with Rhino. Stated that there is some history in the letter that the Board needs to be aware of; she has lived in her current home for 25 years has had issues with the addition of the 3rd shift and noise issues; stated home windows have to be shut and blocked all year long. Stated that it would be interesting to have a sound study done at certain times as the business is probably in excess of required limit. Placing industrial zoning next to waterfront industrial was poor planning long ago. How can we work through it so Rhino can thrive and also the neighborhood can thrive? There was once a 100 foot buffer but has since been reduced to 50 foot of trees last February. Concerned that noise sources will continue well over an 8 foot fence. HVAC noises are already on the roof. The 8 foot fence will help but only minimally. Requested for a sound engineer to give an appropriate and effective noise mitigation. Previous permit that requested screening was more visually helpful than sound buffering, has not remained due to maintenance. Requesting that a sign be put up on nitrogen station to tell truck drivers of delivery hour limits so they are aware, if after hours they need to talk to site management.

P.Smith: Wanted to reiterate that Rhino has worked with the neighbors for 20 years haven't felt pressured or turned away. Concerned with Rhino's ability to follow through with promises or plans. Concerned sound laws are not well written at all nor enforced well. Concerned with impact long term, stated there are reflective issues regarding current and proposed location of HVAC unit. Would like to see HVAC plan finalized and see report from sound engineer. Would like same requested filed with Act 250 reflected in Boards conditions of approval.

B.Rabinowitz: Are the neighbors concerned with Act 250 looking to get something in terms of

E.Nelson: no but it would be nice to get the reports

F.Cioffi: Speaking in favor of applicant; Rhino is a phenomenal company, there are about 1,000 jobs in industrial park, has lead in employing members of the refugee resettlement program providing opportunities for new Americans to be introduced to our culture. The City of Burlington does well from property taxes. The zoning of the area was intentional to create 7 industrial parks to attract manufacturing. Manufacturing is changing with new technology and it is important to regional economy. The applicants have proposed several accommodations specifically to work with the neighboring residents.

C.Goodnight: They have proposed to do things which are great, but the noise is an issue. Willing to tolerate it as now, but does not want the noise to increase. All of the neighbors are in agreement.

A.Hart: Asks the applicant to come back to the stand to answer questions and address the opposing concerns.

T.Castle: the liquid nitrogen filling is a big issue and outside of 1 recent incident, there has rarely been a late delivery. The drivers are deterred to deliver at night and they are aware of the time limits. Signs are a great idea but are not always noticed; reassures the Board that drivers and dispatchers are aware of the time limits.

B.Linghurst: Regarding the Act 250 letter submitted to the DRB by residents, it is slightly different than that which was submitted to the Act 250 Board. Copies were passed out to Board

T.Castle: Applicants have obliged the four requested submitted by residents to the Act 250 Board. The four requests include limiting the use of back road to liquid nitrogen truck deliveries; to engage a sound engineer to provide a plan that recommends the location and specifications of sound barriers that will best minimize the noise of the new units and the existing boiler vent; install effective noise reduction equipment and landscaping.

T.Castle: Barriers that were recommended would not be higher than 8 foot.

A. Hart: Does the applicant want the Board to make its decision based off the current information or wait until a report from the sound engineer is provided, in which case we will leave the meeting open?

T.Castle: The sooner we can have a decision the better, this addition won't add any new noise but rather could lessen the current noise.

B.Linghurst: In the Act 250 report there was an agreement to put in the sound engineers recommendation, if the Board could put in the same conditions that is in the Act 250 context. Stated the language in the Act 250 report was much more specific than the letter from the neighboring residents.

A.Hart: Closed the public meeting.

A.Hart Deliberation for 79 Industrial and 55-57 Howard will be Tuesday June 27th at 5pm in Planning and Zoning.

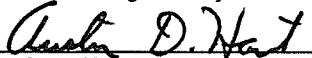
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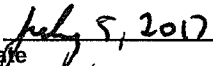
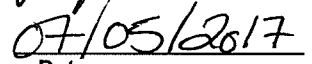
VI. Other Business

VII. Adjournment

The meeting was adjourned at 6:31 pm , Deliberative meeting followed immediately


Austin D. Hart Chairperson of Development Review Board


L. Darner, Planning Technician


Date

Date

not be the final order in which items will be heard. Please view final Agenda, at www.burlingtonvt.gov/pz/drb/agendas or the office notice board, one week before the hearing for the order in which items will be heard.