



# PROPERTY CONDITION ASSESSMENT REPORT

*The best property inspection experience available.*

PREPARED BY:

John Mika



FOR THE PROPERTY AT:

X  
x, MN

PREPARED FOR:

X X

INSPECTION DATE:

Wednesday, March 18, 2015



Minnesota Inspections, LLC.  
7620 Pioneer Creek Rd  
Independence, MN 55359

612-328-1522

[www.mninspections.com](http://www.mninspections.com)  
[john@mninspections.com](mailto:john@mninspections.com)





March 26, 2015

Dear x x,

RE: Report No. 1345, v.2

x

x, MN

Thank you for choosing us to perform your inspection. The inspection itself and the attached report comply with the requirements of the Standards of Practice of our national Association. This document defines the scope of a inspection.

Clients sometimes assume that a inspection will include many things that are beyond the scope. We encourage you to read the Standards of Practice so that you clearly understand what things are included in the inspection and report.

The report has been prepared for the exclusive use of our client. No use by third parties is intended. We will not be responsible to any parties for the contents of the report, other than the party named herein .

The report is effectively a snapshot of the structure, recording the conditions on a given date and time. Inspectors cannot predict future behavior, and as such, we cannot be responsible for things that occur after the inspection. If conditions change, we are available to revisit the property and update our report.

The report itself is copyrighted, and may not be used in whole or in part without our express written permission.

Again, thank you for choosing us to perform your inspection.

Sincerely,

John Mika  
on behalf of  
Minnesota Inspections, LLC.

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# SUMMARY

x, x, MN March 18, 2015

Report No. 1345, v.2

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SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## INTRODUCTION

This report is an unbiased opinion of the conditions found at the property and is intended to help the client make informed decisions regarding the purchase and repair of the property.

## PRIORITY ITEMS

Items that require immediate action affect life safety, the immediate condition of the structure or are items whose operation was not confirmed during the inspection. The buyer may want to request that these items are addressed by the seller prior to closing.

## OUR PHILOSOPHY

Our inspection philosophy separates components that are functional from those that are not. Where components are found to be functional, no recommendations will be offered. Where defects are noted, we will recommend improvements with a time frame. In some cases, components may be functional but clearly near the end of their life cycle. Those circumstances are included in the report as well.

[Priority Maintenance Items](#)

## Electrical

### General

- Illuminated exit sign is inoperable or has defective lamps

**Location:** 2554

**Task:** Repair

**Time:** Immediate

### GENERAL \ Service

**Condition:** • Conduit is poorly supported with several broken supports observed.

**Location:** Roof

**Task:** Repair

**Time:** Less than 1 year

**Condition:** • Request service records for switchgear maintenance. If documentation is not available, we recommend servicing the switchgear.

**Location:** Electrical Room

**Task:** Further evaluation

### DISTRIBUTION EQUIPMENT \ Main distribution conditions

**Condition:** • Storage within one meter of equipment

**Location:** Electrical Room

**Task:** Improve

**Time:** Immediate

### BRANCH CIRCUIT \ Branch wiring conditions

**Condition:** • Rusting conduit

**Location:** Roof

**Task:** Monitor - Replace

# SUMMARY

x, x, MN March 18, 2015

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SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

**Time:** When Necessary

## **BRANCH CIRCUIT \ Fixture cover plates**

**Condition:** • Missing on switches, outlets and junction boxes

**Location:** 2554

**Task:** Repair

**Time:** Immediate

## **BRANCH CIRCUIT \ Outlet conditions**

**Condition:** • Roof top GFCI at the parapet were inoperable.

**Location:** Roof

**Task:** Repair

**Time:** Less than 1 year

## **BRANCH CIRCUIT \ Light conditions**

**Condition:** • Inoperative

Missing Lamps.

**Location:** Rear

**Task:** Repair

**Time:** Less than 1 year

**Condition:** • Inoperative

A small number of lamps or ballasts were inoperable.

**Location:** Various

**Task:** Repair

**Time:** Discretionary

## Heating

### **General**

• The three units with illegible data plates appear to be at or near the end of their expected useful life.

**Task:** Service annually

• The tenant in suite 2544 had a fan mounted in the ceiling and indicated the ceiling space was warm. This condition should be evaluated by an HVAC contractor to determine if any problems with the duct work exist.

**Location:** 2544

**Task:** Further evaluation

### **GENERAL \ Overall condition**

**Condition:** • The overall condition of the heating system is considered to be serviceable.

### **GENERAL \ Level of Maintenance**

**Condition:** • Some deferred maintenance was noted.

### **ELECTRIC HEATERS \ Condition**

**Condition:** • Fan inoperable.

# SUMMARY

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SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

**Location:** 2552

**Task:** Repair

**Time:** Less than 1 year

## Air Conditioning

### General

- Recommend installing hail guards to condenser coils to protect fins from damage.

Recommend installing hail guards to protect coils.

**Task:** Provide

**Time:** Discretionary

### GENERAL \ Overall condition

**Condition:** • Damaged and vandalized coils observed on five units. Comb fins or replace coils.

**Task:** Repair

**Time:** Less than 1 year

### GENERAL \ Level of Maintenance

**Condition:** • Some deferred maintenance was noted.

## Ventilation

### GENERAL \ Overall condition

**Condition:** • The overall condition of the ventilation system is considered to be serviceable.

### ROOF-MOUNT EXHAUST FAN CABINETS \ Operating status and condition

**Condition:** • Not observed in operation

Several units were not observed in operation. Ventilation plans were not available at the time of the inspection. Controls were not located.

**Task:** Further evaluation

## Plumbing

### General

- Rust and evidence of past leak at service/sprinkler pipe.

**Task:** Monitor

### GENERAL \ Overall condition

**Condition:** • The overall condition of the plumbing system is considered to be serviceable.

### FIXTURES \ General

**Condition:** • No major deficiencies noted

**Condition:** • Older, but in serviceable condition

# SUMMARY

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## Roofing

### General

- Antennae or dish mount resting directly on roof without pad or slip sheet.

**Task:** Repair

**Time:** Less than 1 year

### EPDM / TPO \ Overall condition

**Condition:** • Serviceable

### EPDM / TPO \ Maintenance level

**Condition:** • Somewhat deferred

### EPDM / TPO \ Deficiencies

**Condition:** • Open seams at lap joints

**Location:** RTU 11 & RTU 12

**Task:** Repair

**Time:** Less than 1 year

### METAL \ Overall condition

**Condition:** • Serviceable

### TYPICAL ROOF DEFECTS \ Flashings

**Condition:** • Minor rust observed.

**Location:** Various

**Task:** Monitor

### CHIMNEYS \ Metal

**Condition:** • Missing rain cap(s)

**Task:** Provide

**Time:** Immediate

## Interior Components

### GENERAL \ Overall condition

**Condition:** • The overall condition of the interior components system is considered to be satisfactory.

### GENERAL \ Level of Maintenance

**Condition:** • Some deferred maintenance was noted.

### INTERIOR SURFACES - CEILINGS \ General

**Condition:** • Water stain

Minor water stains were observed on the suspended ceiling tiles at various locations. The stains were minor in scope and may be the result of condensation on wet sprinkler pipes or minor roof or plumbing leaks. No active leaks were observed.

**Location:** 2574, 2554, 2550, 2548

**Task:** Monitor

# SUMMARY

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SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## INTERIOR SURFACES - FLOORS \ General

**Condition:** • Typical wear

**Task:** Monitor

**Condition:** • Cracked tiles

**Location:** 2548

**Task:** Repair

**Time:** Discretionary

## WATER DAMAGE \ Above grade

**Condition:** • A water stain was noted. Refer to the relevant sections of the report for discussions of the related systems. Likely from past plumbing leak.

**Location:** Sprinkler Room & 2550

**Task:** Repair

**Time:** Less than 1 year

## Structure

### GENERAL \ Overall condition

**Condition:** • The overall condition of the structural system is considered to be satisfactory.

### GENERAL \ Level of Maintenance

**Condition:** • Some deferred maintenance was noted.

### BEAMS AND COLUMNS \ Columns

**Condition:** • Minor spalling or surface deterioration to exterior concrete columns.

**Location:** Front

**Task:** Monitor

## Exterior Components

### General

• The dumpster enclosure structure is in poor condition and in need major repairs.

**Location:** Rear

**Task:** Repair

**Time:** Less than 1 year

• One bollard at the gas meters is not filled with concrete and does not provide adequate protection for the meters.

**Location:** 2548

**Task:** Repair

**Time:** Less than 1 year

• Recommend installing bollards at the electrical transformers.

**Task:** Provide

**Time:** Less than 1 year

# SUMMARY

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[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

- Areas of damaged or missing turf observed.

**Location:** Various

**Task:** Repair

**Time:** Discretionary

## GENERAL \ Overall condition

**Condition:** • The overall condition of the exterior system is considered to be serviceable.

## GENERAL \ Level of Maintenance

**Condition:** • Some deferred maintenance was noted.

## WALLS \ Masonry

**Condition:** • Spalled

Likely resulting from the application of ice melt products.

**Location:** Southwest

**Task:** Repair

**Time:** Less than 1 year

**Condition:** • Deteriorated caulking wall expansion joints

Sealants installed at expansion and control joints should typically be replaced every ten to twelve years. Prolonged exposure to sunlight and moisture can cause the sealants to shrink and crack, decreasing the protective properties of the sealants. Currently the sealants are in fair condition.

**Location:** Throughout

**Task:** Repair or replace

**Time:** Less than 1 year

## DOORS \ Main entrance doors

**Condition:** • The door closer is not functioning properly and creates a potential for injury. Adjust or repair the door closer.

**Location:** 2550

**Task:** Repair

**Time:** Immediate

## DOORS \ Personnel doors

**Condition:** • Corroded

Typical minor to moderate corrosion was observed at rear personnel doors and frames. Recommend cleaning and painting affected surfaces as part of regular maintenance. Some of the frames were beginning to rust through. The worst damage was observed at 2554,2550,2548 and the electrical room.

**Location:** Various

**Task:** Repair or replace

**Time:** Less than 1 year

## SITE WORK \ Sidewalks and Walkways

**Condition:** • Caulk various gaps at the building

**Location:** Various

**Task:** Repair

**Time:** Regular maintenance



# SUMMARY

x, x, MN March 18, 2015

Report No. 1345, v.2

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SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## **SITE WORK \ Asphalt pavement**

**Condition:** • Typical damage to curbs from snow removal activities.

**Task:** Repair

**Time:** Discretionary

**Condition:** • Poor overall condition

Several large cracks a surface are defects present. The parking surface will require major repair or replacement.

**Location:** Throughout

**Task:** Repair

**Time:** Less than 1 year

## **SITE WORK \ Signs and accessories**

**Condition:** • Corroded lighting

Base coverers require replacement and poles are in need of paint.

**Location:** Front

**Task:** Repair

**Time:** Less than 1 year

This concludes the Summary section.

The remainder of the report describes each of the structures systems and also details any recommendations we have for improvements. Limitations that restricted our inspection are included as well.

The suggested time frames for completing recommendations are based on the limited information available during a property inspection. These may have to be adjusted based on the findings of specialists.

[Repairs and Improvements - Approximate Costs](#)

SUMMARY	<b>INTERIOR</b>	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Description

**General:** • The interior walls, ceiling and flooring vary based on tenant needs. Typical finishes in the tenant spaces consist of the following:

The interior walls and ceilings in the office areas are typically suspended ceiling tiles with painted wallboard/drywall walls. Floors are covered with a combination of resilient tile, ceramic floor tile, and commercial grade carpet. The storage areas typically consist of exposed steel framing and bare concrete floors. Each suite was provided with adequate restroom facilities.

The interior finishes are in good condition overall. Interior refurbishment is the responsibility of the tenant.

# SUMMARY B

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## Description

### **General:** • 1.1 General Description:

Minnesota Inspections LLC was commissioned by xxxx to conduct a Property Condition Assessment (PCA) on the property referred to as xxxxx Plaza. The Subject Property consists of a 3.90 acre site and 34,850 square foot commercial building. The building, which was constructed in 1987 is of concrete masonry unit (CMU) and steel frame construction with exterior finishes consisting of brick and metal cladding details. The roof covering is exclusively a fully adhered EPDM synthetic rubber roof membrane. The Subject Property is also improved with asphalt driveways and parking areas, cast in place concrete sidewalks, and landscaped areas bordered by concrete curbing. On-site parking is available for 172 vehicles in open asphalt paved lots.

### **General:** • 1.2 Purpose:

The purpose of the Property Condition Report is to assess the general condition of the buildings, site, and other improvements at the referenced location. The Report will identify those areas that will require remedial repair work within the scope of the assessment.

### **General:** • 1.3 Scope:

The PCA carried out by Minnesota Inspections on the Site is based on the ASTM Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process (E 2018-08) and consisted of the following: Interviews Document review Walk-through Site Visit Preparation of Opinions of Probable Costs to Remedy Physical Deficiencies; and, Preparation of Property Condition Assessment Report. This Report is based on a site visit, in which Minnesota Inspections LLC performed a visual, non-intrusive and non-destructive evaluation of various external and internal building components. These systems included the roof, foundations, structural frame, building envelope, HVAC, electrical, and plumbing. The inspection also includes ancillary items such as; site drainage, pavement, sidewalks and landscaping. The Property Condition Report is not a building code, safety, regulatory or environmental compliance inspection. Minnesota Inspections observed the interior spaces to determine its general character and condition. During the site visit we interviewed the available site personnel and/or property managers to add or confirm information. We reviewed available drawings or site documentation to confirm the general character of the construction. Photographs were taken to provide a record of general conditions of the facility, as well as the specific deficiencies observed. If any additional information is encountered concerning the facility, it should be forwarded to Minnesota Inspections for possible re-evaluation of the assumptions, conclusions and recommendations presented herein. The recommendations and opinions of cost provided herein are for observed deficiencies based on the understanding that the facility will continue operating in its present occupancy classification. This Report is based on the evaluators judgment of the physical condition of the components, their ages and their expected useful life (EUL). It is understood that the conclusions presented are based upon the evaluators professional judgment. The actual performance of individual components may vary from a reasonably expected standard and will be affected by circumstances that occur after the date of the evaluation. The Report does not identify minor, inexpensive repairs or maintenance items which are clearly part of the property owners current operating budget so long as these items appear to be taken care of on a regular basis. The report does address infrequently occurring big ticket maintenance items, such as exterior painting, deferred maintenance and repairs and replacements that normally involve significant expense or outside contracting. Only the items specifically addressed in this report were examined. No comment is offered fire regulation, building code and building bylaw compliance, or environmental concerns.

# SUMMARY B

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## General: • 1.4 Reliance:

This report has been prepared for the sole benefit of the client identified on the cover page of the report for the purpose of assessing the condition of the property. The report may not be relied upon by any other person or entity without the express written consent of Minnesota Inspections LLC. We have performed our services and prepared the Report in accordance with applicable, generally accepted engineering, environmental or appraisal consulting practices. We make no other warranties, either expressed or implied, as to the character and nature of such services and product.

## General: • 1.5 Terms:

The following defined terms are used to describe the condition of components and systems reviewed:

SATISFACTORY - Performing its intended function; no major defects noted. Good to Very good condition

SERVICEABLE - Performing its intended function and generally in good condition, but has visible defects or is aging. Items may require minor to moderate repairs.

FAIR - Performing its intended function. Has visible defects or is aging and may require moderate to major repairs in the short term. Item or equipment may be near its expected useful life but still functioning as intended.

POOR - Not properly performing its intended function, at or near the expected useful life. Component requires major repair or replacement.

## General: • 1.6 Out Of Scope Items:

Refer to the appendix "Out Of Scope Items" for a list of items not included in the scope of an ASTM E2018-08 Property Condition Assessment.

## General: • 1.7 Deviations from the Guide:

This property condition assessment was generally carried out as per ASTM E 2018-01. No additional consultants were used in the assessment and preparation of the PCA. The following items were not included:

Senior review from a licensed architect or professional engineer

Fire and life safety systems were not evaluated

A Building Code and Fire Code violation inquiry

Opinions of probable costs

**Name of client:** • Tom Kite

**Client relationship to this property:** • Prospective purchaser

**Name of consultant:** • John Mika

**Purpose of the report:** • Property Condition Assessment

**Date of site visit:** • March 18th 2015

**General property description:** • Commercial

**Approximate size of building:** • 34,850 square feet

# SUMMARY B

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SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

**Approximate age of building:** • 28 years old

**Number of stories:** • 1

**Below grade area:** • Slab on grade

**Approximate date of construction:** • 1987

**Attendees:** • Buyer's representative

**Document review:** • Warranties were reviewed. • Equipment lists were reviewed.

**Overall condition:** • The building is in satisfactory overall condition. Minor repairs to the building are required. The site is in fair condition overall with major repair or replacement of the parking surface required.

**Overall condition:** • No major defects were observed in most systems.

**Overall level of maintenance:** • Some deferred maintenance was noted.

**This report meets ASTM Standard E2018-08, with these exceptions:** • ADA compliance items were not evaluated

**This report meets ASTM Standard E2018-08, with these exceptions:** • Opinions of probable cost are not included. • A Building Code and Fire Code violation inquiry was not undertaken. • Fire and life safety systems were not reviewed.

**For the purpose of this report the front of the building faces:** • North • East

**Occupancy:** • The building was occupied at the time of the inspection.

**Weather:** • Overcast

**Approximate temperature:** • 50°

## Limitations

**General:** • Building plans were not available for review.

SUMMARY	INTERIOR	SUMMARY B	<b>ELECTRICAL</b>	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Description

**Electrical service to the building:** • Underground

**Main electrical service transformer:**

- Pad-mounted transformer

x2

**Main building transformer size:** • Not determined

**Main building transformer ownership:** • Not determined

**Electrical service size:** • 1500-amps

**Electrical service size:** • 120/208-volt, three phase

**Service distribution and metering:** • Sub-services are individually metered

**Distribution panels:** • Circuit breakers

**Predominant wire types:** • Copper

**Lighting fixture types:** • Flourescent

**Standby generator:** • None

**Grounding - electrical system:** • at the domestic water service entrance • to the steel building frame

**Electrical supplier:** • Not determined

## Limitations

**General:** • Fire protection and alarm equipment is not assessed by the building inspector.

**General:** • Panel covers were not opened by the inspector

**General:** • Concealed wiring.

**Grounding:** • The quality of ground was not determined.

## Recommendations

**General**

1. • Illuminated exit sign is inoperable or has defective lamps

**Location:** 2554

**Task:** Repair

**Time:** Immediate

**GENERAL \ Service**

2. **Condition:** • Conduit is poorly supported with several broken supports observed.

**Location:** Roof

**Task:** Repair

**Time:** Less than 1 year

SUMMARY	INTERIOR	SUMMARY B	<b>ELECTRICAL</b>	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



1.

2.

**3. Condition:** • Request service records for switchgear maintenance. If documentation is not available, we recommend servicing the switchgear.

**Location:** Electrical Room

**Task:** Further evaluation

**GENERAL \ Overall condition**

**4. Condition:** • Satisfactory

**DISTRIBUTION EQUIPMENT \ Main distribution conditions**

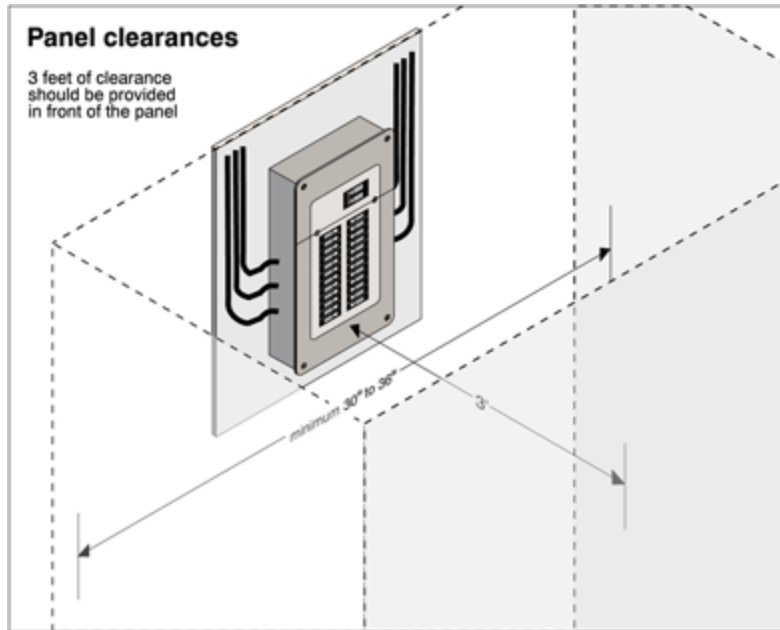
**5. Condition:** • Storage within one meter of equipment

**Location:** Electrical Room

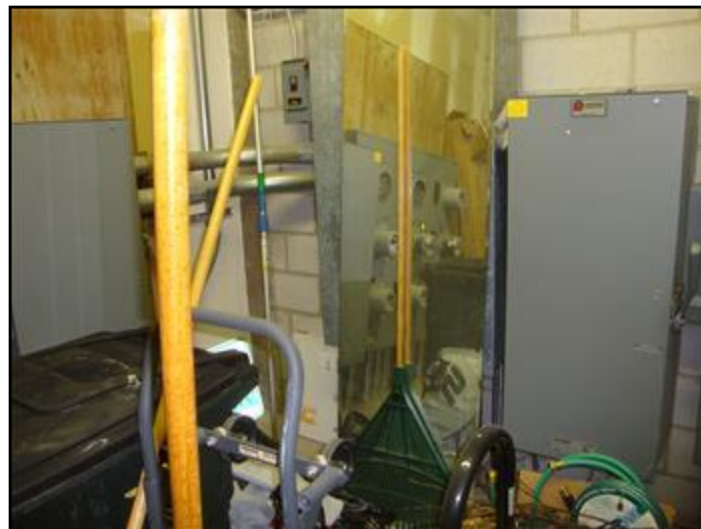
**Task:** Improve

**Time:** Immediate

SUMMARY	INTERIOR	SUMMARY B	<b>ELECTRICAL</b>	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



[Click on image to enlarge.](#)



3. Storage within one meter of equipment

## **BRANCH CIRCUIT \ Branch wiring conditions**

**6. Condition:** • Rusting conduit

**Location:** Roof

**Task:** Monitor - Replace

**Time:** When Necessary



SUMMARY	INTERIOR	SUMMARY B	<b>ELECTRICAL</b>	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



4.

5.

### BRANCH CIRCUIT \ Fixture cover plates

7. Condition: • Missing on switches, outlets and junction boxes

Location: 2554

Task: Repair

Time: Immediate



6. Missing on switches, outlets and junction...

7. Missing on switches, outlets and junction...

### BRANCH CIRCUIT \ Outlet conditions

8. Condition: • Roof top GFCI at the parapet were inoperable.

Location: Roof

Task: Repair

Time: Less than 1 year

SUMMARY	INTERIOR	SUMMARY B	<b>ELECTRICAL</b>	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



8.

**BRANCH CIRCUIT \ Light conditions**

**9. Condition:** • Inoperative

Missing Lamps.

**Location:** Rear

**Task:** Repair

**Time:** Less than 1 year



9. Inoperative

**10. Condition:** • Inoperative

A small number of lamps or ballasts were inoperable.

**Location:** Various

**Task:** Repair

# ELECTRICAL

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Report No. 1345, v.2

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SUMMARY	INTERIOR	SUMMARY B	<b>ELECTRICAL</b>	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

**Time:** Discretionary

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Description

**General:** • Adequate heat was reported and observed in all units.

**Rooftop Units - general:**

• Gas-fired heating (& electric cooling)  
Refer to appendix " Roof Top Unit Index".

**Rooftop Units - economizer:**

• The rooftop unit is equipped with an economizer unit. This unit mixes fresh air from the exterior into the return airflow allowing for low-cost cooling on cold days. For example, when the outdoor air is not too warm or humid, an economizer can allow greater amounts of fresh air into the building to provide cooling as required. This is a desirable feature. Refer also to the Ventilation section.

Five units equipped with economizers.

• The rooftop units are also equipped with a relief air vents. These vents prevent over pressurization of the building interior when the rooftop unit is operating in economizer mode.

**Typical Rooftop Unit life expectancy:** • 20 years

**Forced air heat distribution:** • Overhead supply air registers

**Forced air return network:** • Air return plenum - space above the ceiling

**Supplemental electric heaters / heating elements:** • Electrical/Sprinkler Room

**Supplemental electric heaters / heating elements:** • Entrance foyer

**Electric - baseboard:**

• Operated by controls directly on the units  
2554

**Number of gas meters:** • 16

**Maintenance contract:** • Not Determined

## Limitations

**General:** • The inspector was unable to confirm the operational status of each unit while on the roof unit however units appeared to respond to thermostats and adequate heat was reported and observed in all units.

**General:** • Carbon monoxide testing and technical analysis of the equipment is beyond the scope of the inspection.

**General:** • Individual variable air volume (VAV) terminal boxes are not assessed.

**General:** • Indoor air quality is not assessed by the building inspector.

**Dataplates:**

• Illegible - heating capacity and age could not be determined  
Older units

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Recommendations

### General

11. • The three units with illegible data plates appear to be at or near the end of their expected useful life.

**Task:** Service annually

12. • The tenant in suite 2544 had a fan mounted in the ceiling and indicated the ceiling space was warm. This condition should be evaluated by an HVAC contractor to determine if any problems with the duct work exist.

**Location:** 2544

**Task:** Further evaluation



10.

### GENERAL \ Overall condition

13. **Condition:** • The overall condition of the heating system is considered to be serviceable.

### GENERAL \ Level of Maintenance

14. **Condition:** • Some deferred maintenance was noted.

### ELECTRIC HEATERS \ Condition

15. **Condition:** • Fan inoperable.

**Location:** 2552

**Task:** Repair

**Time:** Less than 1 year

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Description

### Central Cooling:

- Rooftop unit (Combined heating and cooling) - Refer to Heating section  
Refer to appendix " Roof Top Unit Index".

**Typical rooftop unit life expectancy:** • 20 years, as noted in the Heating section

**Refrigerant noted in air-conditioning system(s):** • R-22 • R-410A

## Limitations

**General:** • Individual variable air volume (VAV) terminal boxes are not assessed.

**General:** • Indoor air quality is not assessed by the building inspector.

### Operating status:

- Severe damage to compressors can result from operating air-conditioning equipment when outside temperature is below 15°C (60°F)

Air conditioning was not tested due to low temperatures.

## Recommendations

### General

- 16.** • Recommend installing hail guards to condenser coils to protect fins from damage.  
Recommend installing hail guards to protect coils.

**Task:** Provide

**Time:** Discretionary

### GENERAL \ Overall condition

- 17. Condition:** • Damaged and vandalized coils observed on five units. Comb fins or replace coils.

**Task:** Repair

**Time:** Less than 1 year



11.



12.

# AIR CONDITIONING

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



13.



14.

## GENERAL \ Level of Maintenance

18. Condition: • Some deferred maintenance was noted.

# VENTILATION

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## Description

**Roof-mount exhaust fans - areas serviced:** • Kitchen(s) • Not determined

**Roof-mounted exhaust fans - approximate age:** • Not determined. Data plates were illegible or serial number information was not available.

**Typical roof-mounted exhaust fan life expectancy:** • 20 to 25 years

**Individual exhaust fans - areas serviced:** • Bathroom(s)

**Fresh air make-up duct/Economizer at rooftop unit(s):** • Building

**Fresh air make-up units:** • Kitchen(s)

**Fresh air make-up air units - approximate age:**

• Less than 10 years old

New unit

• Between 16 and 20 years old

Old unit

**Typical fresh air make-up unit life expectancy:** • 20 years

## Limitations

**Process related equipment:**

• Process related equipment is beyond the scope of our assessment and is not closely examined  
Make up air units were reported to be tenant owned equipment.

**Make-up air unit:** • The age and size of the unit could not be determined

## Recommendations

**GENERAL \ Overall condition**

**19. Condition:** • The overall condition of the ventilation system is considered to be serviceable.

**ROOF-MOUNT EXHAUST FAN CABINETS \ Operating status and condition**

**20. Condition:** • Not observed in operation

Several units were not observed in operation. Ventilation plans were not available at the time of the inspection. Controls were not located.

**Task:** Further evaluation



SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	<b>PLUMBING</b>	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Description

**General:** • The fire protection systems consisted of a wet pipe sprinkler system with wet type risers connected to a Siamese fire department hose connection located on the exterior wall of the sprinkler room(s). The system is equipped with a back flow prevention device. The fire hydrants were located surrounding the perimeter of the building. The inspection tags displayed were current and dated 3-13-2015.

**Domestic water supply - size and pipe material:** • 1 1/2-inch diameter • Copper

**Domestic water supply - shutoff:** • In sprinkler room

**Water meters:** • Two

**Backflow prevention device at the main water supply:** • None

**Supply plumbing pipe material examined:** • Copper

**Drain, waste and vent piping material examined:** • PVC plastic • Cast iron

**Washroom locations:** • Men's and women's in offices

**Domestic water heaters:** • Gas-fired • Electric

**Typical domestic water heater/boiler life expectancy:** • 15 years

**Domestic water supplier:** • City

## Limitations

**General:** • Poor access limited assessment of ceiling mounted electric water heaters.

**General:** • Concealed plumbing is not assessed by the building inspector.

**General:** • Fire sprinkler system is not assessed by the building inspector.

**General:** • Irrigation system is not assessed by the building inspector.

**General:** • Water treatment and process related equipment is not assessed by the inspector.

**Appropriate vent piping for waste plumbing:** • Could not be verified

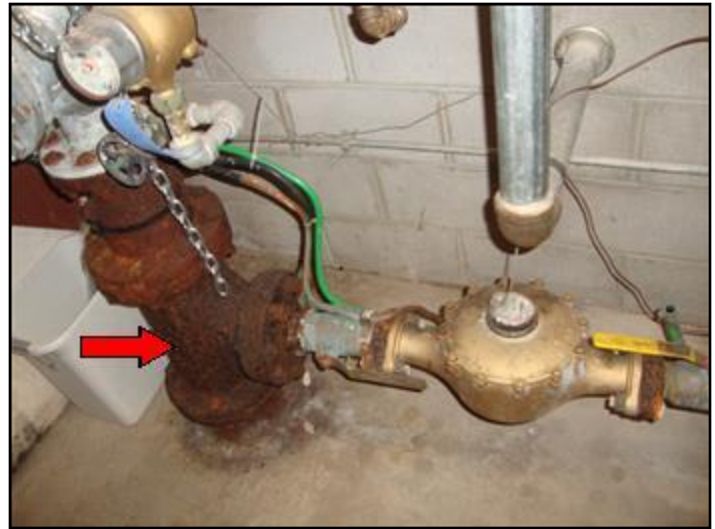
## Recommendations

### General

21. • Rust and evidence of past leak at service/sprinkler pipe.

**Task:** Monitor

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



15.

16.

**GENERAL \ Overall condition**

22. **Condition:** • The overall condition of the plumbing system is considered to be serviceable.

**FIXTURES \ General**

23. **Condition:** • No major deficiencies noted

24. **Condition:** • Older, but in serviceable condition

# ROOFING

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## Description

### EPDM (fully adhered):

- Building
- Ballasted fully adhered roof.

**EPDM approximate age:** • Four years old.

**Typical EPDM roof life expectancy:** • 20 to 25 years - fully adhered/mechanically fastened

**Metal (Folded seams):** • Dormer(s) • Canopy

### Roof warranty or bond:

- Yes
- Attached to appendix.

**Chimneys - metal:** • Three

## Recommendations

### General

**25.** • Antennae or dish mount resting directly on roof without pad or slip sheet.

**Task:** Repair

**Time:** Less than 1 year



17.

### EPDM / TPO \ Overall condition

**26. Condition:** • Serviceable

### EPDM / TPO \ Maintenance level

**27. Condition:** • Somewhat deferred

### EPDM / TPO \ Deficiencies

**28. Condition:** • Open seams at lap joints

# ROOFING

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	<b>ROOFING</b>	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

**Location:** RTU 11 & RTU 12

**Task:** Repair

**Time:** Less than 1 year



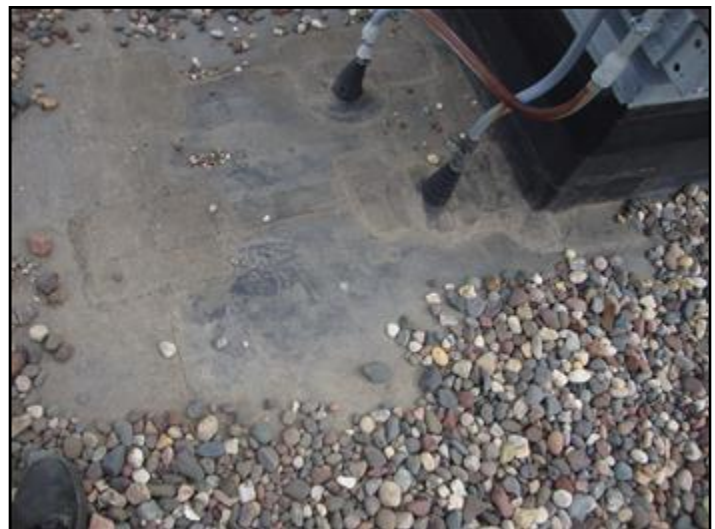
18. Open seams at lap joints



19. Open seams at lap joints



20. Open seams at lap joints



21. Open seams at lap joints

**METAL \ Overall condition**

29. **Condition:** • Serviceable

**TYPICAL ROOF DEFECTS \ Flashings**

30. **Condition:** • Minor rust observed.

**Location:** Various

**Task:** Monitor

# ROOFING

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



22.



23.

## CHIMNEYS \ Metal

31. **Condition:** • Missing rain cap(s)

**Task:** Provide

**Time:** Immediate



24. *Missing rain cap(s)*

# INTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## Description

**General:** • Fire extinguisher inspection tags were current

**Finished area floor coverings:** • Carpet • Resilient tile • Ceramic tile

**Wall finishes:** • Drywall

**Ceiling finishes:** • Suspended tile

## Limitations

**General:** • ADA compliance items were not evaluated.

**General:** • Cosmetic defects are beyond the scope of the inspection.

**General:** • Restaurant, manufacturing, industrial and process related equipment is beyond the scope of the inspection.

**General:** • Storage, equipment and furnishings limited the evaluation.

## Recommendations

### GENERAL \ Overall condition

**32. Condition:** • The overall condition of the interior components system is considered to be satisfactory.

### GENERAL \ Level of Maintenance

**33. Condition:** • Some deferred maintenance was noted.

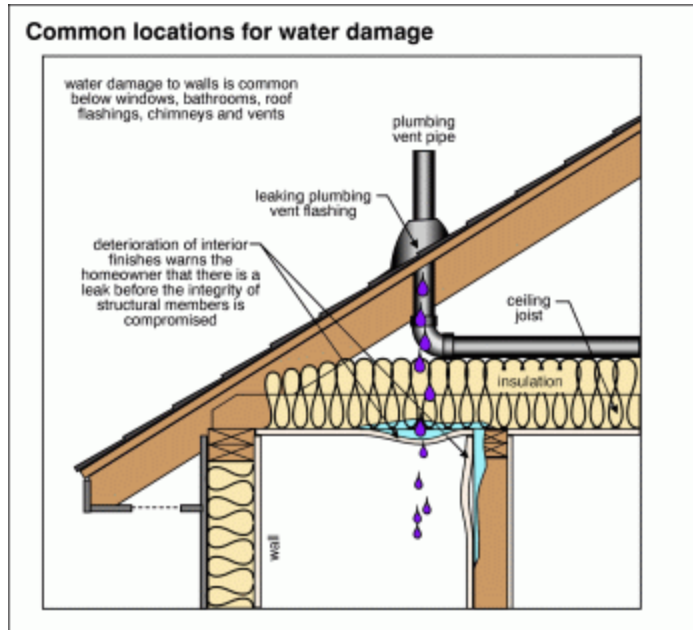
### INTERIOR SURFACES - CEILINGS \ General

**34. Condition:** • Water stain

Minor water stains were observed on the suspended ceiling tiles at various locations. The stains were minor in scope and may be the result of condensation on wet sprinkler pipes or minor roof or plumbing leaks. No active leaks were observed.

**Location:** 2574, 2554, 2550, 2548

**Task:** Monitor



[Click on image to enlarge.](#)



25. Water stain



26. Water stain

# INTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

- SUMMARY
- INTERIOR
- SUMMARY B
- ELECTRICAL
- HEATING
- AIR CONDITI
- VENTILATION
- PLUMBING
- ROOFING
- INTERIOR
- INSULATION
- STRUCTURE
- EXTERIOR
- APPENDIX



27. Water stain



28. Water stain



29. Water stain



30. Water stain

## INTERIOR SURFACES - FLOORS \ General

35. Condition: • Typical wear

Task: Monitor

36. Condition: • Cracked tiles

Location: 2548

Task: Repair

Time: Discretionary



# INTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



31. Cracked tiles

## WATER DAMAGE \ Above grade

**37. Condition:** • A water stain was noted. Refer to the relevant sections of the report for discussions of the related systems.

Likely from past plumbing leak.

**Location:** Sprinkler Room & 2550

**Task:** Repair

**Time:** Less than 1 year



32. A water stain was noted. Refer to the...



33. A water stain was noted. Refer to the...

# INTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



34. A water stain was noted. Refer to the...



35. A water stain was noted. Refer to the...

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
<b>INSULATION</b>	STRUCTURE	EXTERIOR	APPENDIX						

## Description

**General:** • It should be understood that a review of the thermal characteristics of the building envelope is beyond the scope of our assessment. Only general information is provided here

**Perspective:** • It should be understood that increasing insulation levels in a building is an improvement rather than a repair. Energy usage is, however, an ongoing consideration.

## Limitations

**General:** • Building plans were not provided.

**General:** • Since access could not be gained, no comment can be offered on the insulation here

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Description

- Configuration:** • Slab-on-grade
- Foundation wall material:** • Concrete-block
- Exterior walls:** • Concrete-block • Concrete-block with brick-veneer
- Floors:** • Reinforced concrete slabs
- Roof:** • Supported by concrete columns
- Roof:** • Steel deck • Supported by open web steel joists • Supported by exterior walls • Supported by steel beams and columns

## Limitations

- General:** • Building plans were not available for review. • Storage, equipment and furnishings limited the evaluation.
- General:** • Interior and exterior finishes restricted the evaluation of the structure • The examination of the structural components was visual only; a design review was not undertaken

## Recommendations

### GENERAL \ Overall condition

**38. Condition:** • The overall condition of the structural system is considered to be satisfactory.

### GENERAL \ Level of Maintenance

**39. Condition:** • Some deferred maintenance was noted.

### BEAMS AND COLUMNS \ Columns

**40. Condition:** • Minor spalling or surface deterioration to exterior concrete columns.

**Location:** Front

**Task:** Monitor



36.

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

## Description

**General:** • Topography

The subject property site grade is generally flat.

**General:** • Storm Water Drainage:

Storm-water drainage from the buildings roofs drain to exterior down spouts that discharge to grade.

Storm-water surface drainage on the Property is accomplished via sheet flow throughout the site in various directions away from the subject building to on-site storm water catch basins.

**General:** • Ingress and Egress:

Vehicular access to the Property is provided from an asphalt-paved ingress - egress at the following location(s):

There is one right in/right out access point from Highway 10 and a full access points off of Silver View Drive and Mounds View Drive.

**General:** • Landscaping

Landscaped areas are provided in beds along the front of the building and perimeters of the Property and consist of turf areas, trees, and shrubs with mulch on an automatic sprinkler irrigation system.

**General:** • Additional Site Considerations:

Surface Water Bodies: There are no natural surface water bodies on the subject property.

Flood Plain Designation: Not Assessed

Seismic Zone: The Subject Property is located in Zone 0, which is an area of very low probability of damaging ground motion.

**General:** • Site Lighting Description:

Property pole-top lighting and building-mounted floodlights illuminate the driveways, parking lots and the perimeter of the property. Photocells and timers control exterior lighting.

**General:** • Elevation Photos:

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX



37.



38.



39.



40.

**Exterior walls:** • Metal siding

**Exterior walls:** • Concrete block • Brick veneer

**Main entrance doors:** • Aluminum-framed • Double-glazed

**Personnel doors:** • Steel-framed • Steel

**Overhead doors:**

• Steel sectional

2544

**Building windows:** • Aluminum-framed • Double-glazed

**Pavement:** • Paving, Curbing and Parking:

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

Paving on the Property consists of asphalt-paved parking areas and driveways. The asphalt paved parking areas appear to be original to the development. The Property provides asphalt-paved parking for 172 vehicles. Curbing consists of raised concrete curbs throughout the property. No parking garages were observed on-site.

**Sidewalks and walkways:** • Poured-concrete

**Signs:** • Lighted sign boxes on front façade • Pole-mounted marquee sign at front of property

## Limitations

**General:** • Devices on timers or photocells are not tested.

**Storage:** • Storage, equipment and furnishings limited the evaluation.

**Signs:**

• Since the sign is owned and maintained by an outside party and is not considered part of the building, it was not included as part of this assessment

Tenant signs.

## Recommendations

### General

41. • The dumpster enclosure structure is in poor condition and in need major repairs.

**Location:** Rear

**Task:** Repair

**Time:** Less than 1 year



41.



42.

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



43.

44.

42. • One bollard at the gas meters is not filled with concrete and does not provide adequate protection for the meters.

**Location:** 2548

**Task:** Repair

**Time:** Less than 1 year



45.

46.

43. • Recommend installing bollards at the electrical transformers.

**Task:** Provide

**Time:** Less than 1 year

44. • Areas of damaged or missing turf observed.

**Location:** Various

**Task:** Repair

**Time:** Discretionary



# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



47.

## GENERAL \ Overall condition

45. **Condition:** • The overall condition of the exterior system is considered to be serviceable.

## GENERAL \ Level of Maintenance

46. **Condition:** • Some deferred maintenance was noted.

## WALLS \ Masonry

47. **Condition:** • Spalled

Likely resulting from the application of ice melt products.

**Location:** Southwest

**Task:** Repair

**Time:** Less than 1 year



48. *Spalled*

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## 48. Condition: • Deteriorated caulking wall expansion joints

Sealants installed at expansion and control joints should typically be replaced every ten to twelve years. Prolonged exposure to sunlight and moisture can cause the sealants to shrink and crack, decreasing the protective properties of the sealants. Currently the sealants are in fair condition.

**Location:** Throughout

**Task:** Repair or replace

**Time:** Less than 1 year



49. Deteriorated caulking wall expansion joints

## DOORS \ Main entrance doors

49. Condition: • The door closer is not functioning properly and creates a potential for injury. Adjust or repair the door closer.

**Location:** 2550

**Task:** Repair

**Time:** Immediate

## DOORS \ Personnel doors

50. Condition: • Corroded

Typical minor to moderate corrosion was observed at rear personnel doors and frames. Recommend cleaning and painting affected surfaces as part of regular maintenance. Some of the frames were beginning to rust through. The worst damage was observed at 2554,2550,2548 and the electrical room.

**Location:** Various

**Task:** Repair or replace

**Time:** Less than 1 year

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

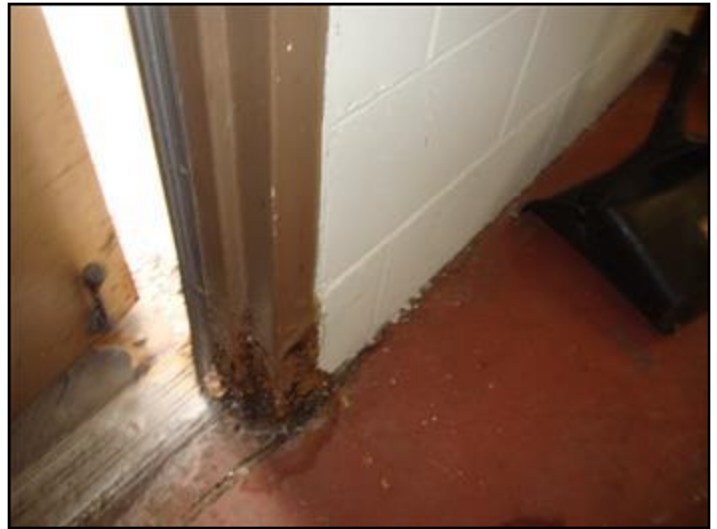
Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



50. Corroded



51. Corroded



52. Corroded



53. Corroded

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX



54. Corroded

## SITE WORK \ Sidewalks and Walkways

**51. Condition:** • Caulk various gaps at the building

**Location:** Various

**Task:** Repair

**Time:** Regular maintenance



55.

## SITE WORK \ Asphalt pavement

**52. Condition:** • Typical damage to curbs from snow removal activities.

**Task:** Repair

**Time:** Discretionary

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



56.

57.

**53. Condition:** • Poor overall condition

Several large cracks a surface are defects present. The parking surface will require major repair or replacement.

**Location:** Throughout

**Task:** Repair

**Time:** Less than 1 year



58. *Poor overall condition*

59. *Poor overall condition*

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						



60. Poor overall condition



61. Poor overall condition



62. Poor overall condition



63. Poor overall condition

## **SITE WORK \ Signs and accessories**

**54. Condition:** • Corroded lighting  
Base coverers require replacement and poles are in need of paint.

**Location:** Front

**Task:** Repair

**Time:** Less than 1 year

# EXTERIOR COMPONENTS

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX



**64.** *Corroded lighting*

**END OF REPORT**

## Out-Of-Scope Items

- Identifying capital improvements, enhancements, or upgrades to building components, systems, or finishes. The consultant must be aware of the distinction between repair and replacement activities that maintain the property in its intended design condition, versus actions that improve or reposition the property.
- Removing, relocating, or repositioning of materials, ceiling, wall, or equipment panels, furniture, storage containers, personal effects, debris material or finishes; conducting exploratory probing or testing; dismantling or operating of equipment or appliances; or disturbing personal items or property, that obstructs access or visibility.
- Preparing engineering calculations (civil, structural, mechanical, electrical, etc.) to determine any system's, component's, or equipment's adequacy or compliance with any specific or commonly accepted design requirements or building codes, or preparing designs or specifications to remedy any physical deficiency.
- Taking measurements or quantities to establish or confirm any information or representations provided by the owner or user, such as size and dimensions of the subject property or subject building; any legal encumbrances, such as easements; dwelling unit count and mix; building property line setbacks or elevations; number and size of parking spaces; etc.
- Reporting on the presence or absence of pests such as wood damaging organisms, rodents, or insects unless evidence of such presence is readily apparent and material during the course of the field observer's walk-through survey or such information is provided to the consultant by the owner, user, property manager, etc. The consultant is not required to provide a suggested remedy for treatment or remediation, determine the extent of infestation, nor provide opinions of probable costs for treatment or remediation of any deterioration that may have resulted.
- Reporting on the condition of subterranean conditions, such as soil types and conditions, underground utilities, separate sewage disposal systems, wells; systems that are either considered process-related or peculiar to a specific tenancy or use; or items or systems that are not permanently installed.
- Entering or accessing any area of the premises deemed to potentially pose a threat of dangerous or adverse conditions with respect to the field observer's health or safety, or to perform any procedure, that may damage or impair the physical integrity of the property, any system, or component.
- Providing an opinion on the condition of any system or component, that is shutdown. However, the consultant is to provide an opinion of its physical condition to the extent reasonably possible considering its age, obvious condition, manufacturer, etc.
- Evaluating acoustical or insulating characteristics of systems or components.
- Providing an opinion on matters regarding security of the subject property and protection of its occupants or users from unauthorized access.
- Operating or witnessing the operation of lighting, lawn irrigation, or other systems typically controlled by time clocks or that are normally operated by the building's operation staff or service companies.
- Providing an environmental assessment or opinion on the presence of any environmental issues such as potable water quality, asbestos, hazardous wastes, toxic materials, the location or presence of designated wetlands, mold, fungus, IAQ, etc.
- *Warranty, Guarantee, and Code Compliance Exclusions*—By conducting a PCA and preparing a PCR, the consultant merely is providing an opinion and does not warrant or guarantee the present or future condition of the subject property, nor may the PCA be construed as either a warranty or guarantee of any of the following:
  - Any system's or component's physical condition or use, nor is a PCA to be construed as substituting for any system's or equipment's warranty transfer inspection;
  - Compliance with any federal, state, or local statute, ordinance, rule or regulation including, but not limited to, fire and building codes, life safety codes, environmental regulations, health codes, zoning ordinances, compliance with trade/design standards, or standards developed by the insurance industry. However, should there be any conspicuous material present violations



# APPENDIX

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

observed or reported based upon actual knowledge of the field observer or the PCR reviewer, they should be identified in the PCR;

- Compliance of any material, equipment, or system with any certification or actuation rate program, vendor's or manufacturer's warranty provisions, or provisions established by any standards that are related to insurance industry acceptance/approval, such as FM, State Board of Fire Underwriters, etc.
- *Further Inquiry*—There may be physical condition issues or certain physical improvements at the subject property that the parties may wish to assess in connection with a commercial real estate transaction that are outside the scope of this guide.
- *Out of Scope Considerations*—Whether or not a user elects to inquire into non-scope considerations in connection with this guide is a decision to be made by the user. No assessment of such non-scope considerations is required for a PCA to be conducted in compliance with this guide.
- *Other Standards*—There may be standards or protocols for the discovery or assessment of physical deficiencies associated with non-scope considerations developed by government entities, professional organizations, or private entities, or a combination thereof.

# APPENDIX

x, x, MN March 18, 2015

Report No. 1345, v.2

[www.mninspections.com](http://www.mninspections.com)

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

Roof Top Unit Index - 2450 North Highway 10						
Comment	Make	Model	Serial #	Cool Size	Input HT Btu	AGE
	Carrier	48TCEA05A2A5	1013C77569	5 TON	115,000	2
ECONOMIZER	Carrier	48TCEA12A2A5	0913G40326	10 TON	224,000	2
ECONOMIZER	Carrier	48TFE008-A-511	3207G50597	7 TON	180,000	8
	Carrier	48TFE004-A-511	3507G30226	3 TON	74,000	8
	Carrier	48TFE004-A-511	3507G40238	3 TON	74,000	8
	Carrier	48TCEA05A2A5	2713E68051	4 TON	115,000	2
	Carrier	48TCEA05A2A5	2713C68047	4 TON	115,000	2
	Carrier	48HJE005---551	3208G10106	4 TON	115,000	7
COIL DAMAGE	RTU-12?	NOT LEGIBLE	NOT LEGIBLE	?	?	28?
	Carrier	48HJE005---551	3208G10106	4 TON	115,000	7
COIL DAMAGE	Bryant	581BPV048115	0409G20215	4 TON	115,000	6
COIL DAMAGE	Carrier	48TCEA05A2A5	2713C68055	4 TON	115,000	2
	Bryant	580FPV060011	3206G30362	5 TON	115,000	9
COIL DAMAGE	RTU-4?	NOT LEGIBLE	NOT LEGIBLE	?	?	28?
ECONOMIZER	Carrier	48TJE004--5116A	1900G24483	3 TON	74,000	15
	Carrier	48HJE006---541	3208G10106	5 TON	115,000	7
ECONOMIZER	Carrier	48TME012---511	2009G50379	10 TON	224,000	6
COIL DAMAGE	Trane	NOT LEGIBLE	NOT LEGIBLE	?	?	OLDER

## MAINTENANCE RECOMMENDATIONS

This Appendix provides maintenance recommendations related to items mentioned in our report. These recommendations are intended to be general and should not be construed as all-inclusive. Maintenance should be undertaken by qualified personnel only.

### ELECTRICAL

1. The area in front of electrical panels and disconnects should always be accessible (i.e., no storage or debris).
2. Each circuit should be labeled to identify the area or appliance it controls.
3. Circuit breakers should be manually tripped and reset semi-annually.
4. Dirt deposits on transformers and relays should be cleaned monthly to minimize operating temperature and maintain optimum efficiency.
5. Hardware on all electrical equipment should be checked for looseness semi-annually. Cable connections, fuse clips and circuit breakers are common areas where loose connections can be found.
6. Electrical switches, etc., should not be lubricated unless specified by the manufacturer. The type and grade of lubricant specified should be strictly adhered to. Oil and grease should be kept away from electrical insulation as it may attack this material.
7. Extension cords should not be used as permanent wiring.
8. Electrical modifications should be performed by qualified personnel only.
9. Test buttons on ground fault circuit interrupters should be operated monthly.
10. The main ground fault interrupter should be tested annually.
11. The switchgear internal connections should be checked and retightened annually.

### HEATING

1. The heating systems should be serviced annually by a qualified technician.
2. The fans and motors should be lubricated as directed by a serviceperson or the manufacturer.
3. The filters should be inspected monthly and cleaned or replaced as necessary during heating system operation.
4. Electric baseboard heaters should be tested periodically and replaced as necessary. Heating fins should be vacuumed annually.
5. Electric baseboard heaters should be tested periodically and replaced as necessary. Heating fins should be vacuumed annually. Internal wire connectors should be checked for tightness annually. Special service connectors should be used.

## AIR-CONDITIONING

1. The air-conditioning system should be inspected and recharged as necessary by a serviceperson, before annual start-up.
2. The fans and motors should be lubricated as directed by a qualified serviceperson or the manufacturer.
3. The outdoor unit should be level. If the supports settle or heave, adjustment should be made by a service person.
4. Debris and vegetation should be kept away from the outdoor (condensing unit) components.
5. An annual oil and refrigerant analysis would be desirable so that operating condition trends can be monitored. Annual oil replacement is advisable.
6. The condenser and evaporator tubes should be mechanically examined every 3 to 5 years.

## VENTILATION

1. Exhaust fans should be inspected semiannually.
2. The motors should be cleaned annually, and lubricated as recommended by the manufacturer.

## PLUMBING

1. The main shutoff valve for the plumbing system (located in the northwest ) should be operated semiannually to ensure that it can be closed in an emergency.
2. Every fall, the inside control valves for outdoor faucets should be closed. The outside pipes should be drained and the exterior faucets left open.
3. The domestic water heater and associated equipment should be serviced annually by a qualified technician.
4. The plumbing fixtures should be inspected monthly for leakage and repairs made promptly.

## ROOFING

1. The roof should be inspected semiannually. Particular attention should be paid to the flashings, edges and intersections.
2. The roof should be periodically examined for gravel scouring and improved as necessary.
3. The roof drains should be periodically inspected to ensure that they are free of debris.

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

4. Metal chimneys and vents should be examined annually for corrosion, leaning and loose or missing rain caps.

**INTERIOR COMPONENTS**

1. Windows should be inspected at least annually for damage resulting from leakage and condensation.
2. Wall and ceiling surfaces should be periodically examined for evidence of roof or plumbing leakage.

**EXTERIOR COMPONENTS**

1. Exterior masonry should be inspected annually for deteriorated or missing mortar.
2. The caulking and weather stripping should be inspected every fall.
3. The asphalt paving and sidewalks should be visually examined annually for cracks or depressions. Repairs should be made promptly.

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

## GLOSSARY

**ABS** — A type of black plastic pipe commonly used for waste water lines.

**Aggregate** — Crushed rock or stone.

**Air chamber** — A vertical, air filled pipe that prevents water hammer by absorbing pressure when water is shut off at a faucet or valve.

**Air-conditioner condenser** — The outside fan unit of the air conditioning system. The condenser discharges heat to the building exterior.

**Alligatoring** — Coarse checking pattern on the surface of a material. Typically caused by ageing, exposure to sun and/or loss of volatiles.

**Ampacity** — Refers to the how much current a wire can safely carry. For example, a 12-gauge electrical copper wire can safely carry up to 20 amps.

**Asphalt** — A bituminous material employed in roofing and road paving materials because of its waterproofing ability.

**Backfill** — The replacement of excavated earth into a trench or pit.

**Backflow** — A reverse flow of water or other liquids into the water supply pipes, caused by negative pressure in the pipes

**Ballast** — A transformer that steps up the voltage in a florescent lamp.

**Balusters** — Vertical members in a railing used between a top rail and bottom rail or the stair treads. Sometimes referred to as pickets or spindles.

**Base sheet** — Bottom layer of built-up roofing.

**Batt** — A section of fiberglass or rock-wool insulation.

**Bay window** — Any window space projecting outward from the walls of a building, either square or polygonal in plan.

**Beam** — A structural member transversely supporting a load. A structural member carrying building loads (weight) from one support to another. Sometimes called a girder.

**Bearing wall** — A wall that supports any vertical load in addition to its own weight.

**Bird's-mouth cut** — A cutout in a rafter where it crosses the top plate of the wall providing a bearing surface for nailing. Also called a heel cut.

**Bitumen** — Term commonly applied to various mixtures of naturally occurring solid or liquid hydrocarbons, excluding coal. These substances are described as bituminous. Asphalt is a bitumen. *See Asphalt.*

**Blocking** — Small wood pieces to brace framing members or to provide a nailing base for gypsum board or paneling.

**Board and batten** — A method of siding in which the joints between vertically placed boards or plywood are covered by narrow strips of wood.

**Bottom chord** — The lower or bottom horizontal member of a truss.

**Brick tie** — Metal strips or wires that are inserted into the mortar joints of the brick veneer. Ties hold the veneer wall to the backer wall behind it.

**Brick veneer** — A vertical facing of brick used to clad a building. Brick veneer is not a load-bearing component.

**Building paper** — A general term for papers, felts and similar sheet materials used in buildings without reference to their properties or uses. Generally comes in long rolls.

**Built-up roof** — A roofing composed of three to five layers of asphalt felt laminated with coal tar, pitch or asphalt. The top is finished with crushed slag or gravel. Generally used on flat or low-pitched roofs.

**Butt joint** — The junction where the ends of building materials meet. To place materials end-to-end or end-to-edge without overlapping.

**Cant strip** — A triangular shaped piece of lumber used at the junction of a flat deck and a wall to prevent cracking of the roofing which is applied over it.

**Cantilever** — Any part of a structure that projects beyond its main support and is balanced on it.

**Cap flashing** — The flashing covering over a horizontal surface to prevent water from migrating behind the base flashing.

**Cap sheet** — The top layer in modified bitumen roofing.

**Casement window** — A window with hinges on one of the vertical sides and swings open like a door.

**Ceiling joist** — One of a series of parallel framing members used to support ceiling loads and supported in turn by larger beams, girders or bearing walls. Can also be roof joists.

**Cement** — The grey powder that is the "glue" in concrete. Portland cement. Also, any adhesive.

**Certificate of Occupancy** — Certificate is issued by the local municipality and is required before anyone can occupy and live within the building. It is issued only after the local municipality has made all inspections and all monies and fees have been paid.

**CFM (cubic feet per minute)** — A rating that expresses the amount of air a blower or fan can move. The volume of air (measured in cubic feet) that can pass through an opening in one minute.

**Chase** — A framed enclosed space around a flue pipe or a channel in a wall, or through a ceiling for something to lie in or pass through.

**Checking** — Cracks that appear with age in many large timber members. The cracks run parallel to the grain of the wood. At first superficial, but in time may penetrate entirely through the member and compromise its integrity.

**Cleanout** — An opening providing access to a drain line. Closed with a threaded plug.

**Closed-cut valley** — A method of valley treatment in which shingles

from one side of the valley extend across the valley, while shingles from the other side are trimmed 2 inches from the valley centerline. The valley flashing is not exposed.

**Collar tie** — Nominal one- or two-inch-thick members connecting opposite roof rafters. They serve to stiffen the roof structure.

**Column** — A vertical structural compression member that supports loads acting in the direction of its longitudinal axis.

**Combustion air and ventilation air** — The ductwork installed to bring fresh, outside air to the furnace or boiler room. Normally two separate supplies of air are brought in: one high for ventilation and one low for combustion.

**Compressor** — A mechanical device that pressurizes a gas in order to turn it into a liquid, thereby allowing heat to be removed or added. A compressor is the main component of conventional heat pumps and air conditioners. In an air conditioning system, the compressor normally sits outside and has a large fan (to remove heat).

**Concrete board or cement board** — A panel made out of concrete and fiberglass, usually used as a tile backing material.

**Condensate drain line** — The pipe that runs from the air conditioning cooling coil to the exterior or internal building drain, to drain away condensation.

**Condensation** — The change of water from vapor to liquid when warm, moisture-laden air comes in contact with a cold surface.

**Condensing unit** — The outdoor component of a cooling system. It includes a compressor and condensing coil designed to give off heat.

**Conduit, electrical** — A pipe, usually metal, in which wire is installed. The pipe serves to protect the wire.

**Control joint** — Tooled, straight grooves made on concrete floors or structures to "control" where the concrete should crack (as a result of shrinkage).

**Cooling load** — The amount of cooling required to keep a building at a specified temperature during the summer, usually 25° C, based on a design outside temperature.

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

**Corbel**— To build out one or more courses of brick or stone from the face of a wall. This may be decorative, or serve to support a structural component.

**Counterflashing** — A metal flashing usually used to cover another flashing and prevent moisture entry.

**Course** — A row of shingles or roll roofing running the length of the roof. Parallel layers of building materials such as bricks, or siding laid up horizontally.

**CPVC** — See PVC.

**Crawlspace** — A shallow space below a building, normally enclosed by the foundation walls.

**Cricket** — A saddle-shaped, peaked construction connecting a sloping roof plane with a wall or chimney. Designed to encourage water drainage away from the chimney or wall joint.

**Culvert** — Round, corrugated drain pipe (normally 15 or 18 inches in diameter) installed beneath a driveway and parallel to and near the street.

**Cupping** — A type of warping that causes boards or shingles to curl up at their edges. Typically caused by uneven drying or loss of volatiles.

**Curb** — The short elevation of a supporting element above the deck of a roof. Normally a box (on the roof) on which a skylight or piece of mechanical equipment is attached.

**Curtain wall** — An exterior building wall that is supported entirely by the building structure, rather than being self-supporting or load bearing.

**Damper** — A metal “door” placed within the ductwork, typically. Used to control flow of air, etc., in the ductwork.

**Damp-proofing** — The black, tar-like material applied to the exterior of a foundation wall. Used to minimize moisture penetration into the wall.

**Deck** — The surface, installed over the supporting framing members, to which the roofing is applied.

**Dedicated circuit** — An electrical circuit that serves only one appliance or a series of electric heaters or smoke detectors.

**Dew point** — Temperature at which a vapor begins to deposit as a liquid. Applies especially to water in the atmosphere.

**Disconnect** — A large electrical ON-OFF switch.

**Diverter valve** — A device that changes the direction of water flow from one faucet to another.

**Dormer** — A box-like projection from the sloping plane of a roof that frames a window.

**Double-hung window** — A window with two vertically sliding sashes, both of which can move up and down.

**Downspout** — A pipe for draining water from roof gutters. Also called a leader.

**Drain tile** — A perforated, corrugated plastic pipe laid at the bottom of the foundation wall and used to drain excess water away from the foundation. It prevents ground water from seeping through the foundation wall. Sometimes called perimeter drain.

**Drip**—A groove in the underside of a sill or drip cap to cause water to drop off on the outer edge instead of drawing back and running down the face of the building.

**Ducts** — Usually round or rectangular metal pipes installed for distributing warm or cold air from the heating and air-conditioning equipment.

**Eaves protection** — Additional layer of roofing material applied at the eaves to help prevent damage from water backup (typically caused by ice damming).

**EIFS**—Exterior Insulation Finish System. An exterior cladding system that employs a relatively thin acrylic stucco coating over insulation panels. (Pronounced “ee-fus”)

**Elbow** — A plumbing or electrical fitting that lets you change directions in runs of pipe or conduit.

**Evaporator coil** — The part of a cooling system that absorbs heat from air passing through it. The evaporator coil is found within the ductwork.

**Expansion joint** — A joint that allows for building material expansion and contraction caused by temperature changes.

**Exposed aggregate finish** — A method of finishing concrete which

washes the cement/sand mixture off the top layer of the aggregate — usually gravel. Often used with precast concrete exterior wall finishes.

**Exposure** — The portion of the roofing or wall cladding material exposed to the weather after installation.

**Fascia** — a vertical member attached to the ends of the roof structure and often the backing of the gutter.

**Felt** — Fibrous material saturated with asphalt and used as an underlayment or part of a built-up roofing system.

**Finger joint** — A manufacturing process of interlocking two shorter pieces of wood end to end to create a longer piece of dimensional lumber or molding. Often used in jambs and casings and are normally painted (instead of stained).

**Fire stop** — A solid, tight closure of a concealed space, placed to prevent the spread of fire and smoke through such a space. Includes stuffing wire and pipe holes in the fire separations.

**Flashing** — (1) Sheet metal or flexible membrane pieces fitted to the joint of any roof intersection, penetration or projection (chimneys, copings, dormers, valleys, vent pipes, etc.) to prevent water leakage. (2) The building component used to connect portions of a roof, deck, or siding material to another surface such as a chimney, wall, or vent pipe. Often made out of various metals, rubber or tar and is mostly intended to prevent water entry.

**Flatwork** — Common word for concrete floors, driveways, patios and sidewalks.

**Flue** — The space or passage in a chimney through which smoke, gas, or fumes ascend.

**Fluorescent lighting** — A fluorescent lamp is a gas-filled glass tube with a phosphor coating on the inside. Gas inside the tube is ionized by electricity which causes the phosphor coating to glow. Normally with two pins that extend from each end.

**Footing** — A widened, below-ground base of a foundation wall or a poured concrete, below-ground, base used to support foundations or piers.

**Forced air heating** — a common form of heating with natural gas, propane, oil or electricity as a fuel. Air is heated through a heat exchanger and distributed through a set of metal ducts.

**Form** — Temporary structure erected to contain concrete during placing and initial hardening.

**Foundation** — The supporting portion of a structure below the first floor construction, or below grade, including the footings.

**Framing** — The structural wood, steel or concrete elements of the building.

**Framing, balloon** — A system of framing a building in which all vertical structural elements of the bearing walls consist of single pieces extending from the top of the foundation sill plate to the roof plate and to which all floor joists are fastened.

**Frost line** — The depth of frost penetration in soil and/or the depth at which the earth will freeze and swell. This depth varies in different parts of the country.

**Furring** — Strips of wood or metal applied to a wall or other surface to even it and normally to serve as a fastening base for finish material.

**Gable** — A sidewall, typically triangular, that is formed by two sloping roof planes.

**Gable roof** — A type of roof with sloping planes of the same pitch on each side of the ridge. Has a gable at each end.

**Gasket** — A device used to seal joints against leaks.

**GFI or GFCI or Ground Fault Current Interrupter** — A electrical device used to prevent injury in locations where one might be in contact with a grounded surface and an electrical appliance. Most GFIs are located in a receptacle or circuit breaker and can be identified by the presence of a “test” and a “reset” button.

SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

**Glued laminated beam (glulam)** — A structural beam composed of wood laminations. The laminations are pressure-bonded with adhesives.

**Granules** — Crushed rock coated with ceramic material, applied to the exposed surface of asphalt roofing products to add color and reduce ultraviolet degradation. Copper compounds added to these help make them algae resistant.

**Groundwater** — Water from a subsurface water source.

**Grout** — Mortar made of such consistency (by adding water) that it will flow into the joints and cavities of the masonry work and fill them solid.

**Gusset** — A flat metal, wood, plywood or similar type member used to provide a connection at the intersection of wood members. Most commonly used at joints of wood trusses. They are fastened by nails, screws, bolts, or adhesives.

**Gutter** — The trough that channels water from the eaves to the downspouts.

**H-beam** — A steel beam with a cross section resembling the letter H.

**H-clip** — Small metal clips formed like an H that fits at the joints of two plywood (or wafer board) sheets to stiffen the joint. Normally used on the roof sheathing.

**Header** — A beam placed perpendicular to joists and to which joists are attached in framing for around an opening.

**Hearth** — The fireproof area directly in front of a fireplace. The inner or outer floor of a fireplace, usually made of brick, tile, or stone.

**Heat pump** — A device that uses compression and decompression of gas to heat and/or cool a building.

**Heating load** — The amount of heating required to keep a building at a specified temperature during the winter, based on an outside design temperature.

**Hip** — The external angle formed by the meeting of two sloping sides of a roof.

**Honeycombs** — The appearance concrete makes when aggregate in the concrete is visible and where there are void areas in the concrete.

**Hose bib** — An exterior water faucet.

**Hot wire** — The wire that carries electrical energy to a receptacle or other device in contrast to a neutral, which carries electricity away again. Normally the black wire.

**HVAC** — An abbreviation for Heat, Ventilation, and Air Conditioning.

**I-beam** — A steel beam with a cross section resembling the letter I.

**Ice damming** — The buildup of ice and water at the eaves of a sloped roof. Melting snow on the roof refreezes at the roof overhang, causing the damming. Buildings with inadequate attic insulation or ventilation or with large roof projections beyond the exterior walls are more prone to ice damming.

**Irrigation** — Lawn sprinkler system.

**Jack post** — A type of structural support made of metal, which can be raised or lowered through a series of pins and a screw to meet the height required. Typically used as a replacement for an old supporting member in a building.

**Joist** — One of a series of parallel beams, usually two inches in thickness, used to support floor and ceiling loads, and supported in turn by larger beams, girders, or bearing walls.

**Joist hanger** — A metal U-shaped item used to support the end of a floor joist and attached with hardened nails to another bearing joist or beam.

**Knob-and-tube wiring** — A common form of electrical wiring used before the Second World War. When in good condition it may still be functional for low amperage use such as smaller light fixtures.

**Lath** — A building material of narrow wood, metal, gypsum, or insulating board that is fastened to the frame of a building to act as a base for plaster, shingles, or tiles.

**Lattice** — An open framework of crisscrossed wood or metal strips that form regular, patterned spaces.

**Leader** — See *Downspout*.

**Ledger** — The wood or metal members attached to a beam, studding, or wall used to support joist or rafter ends.

**Lintel** — A horizontal structural member that supports the load over an opening such as a door or window.

**Load-bearing wall** — A wall supporting its own weight and some other structural elements of the building such as the roof and floor structures.

**Louvre** — A vented opening into a room that has a series of horizontal slats and arranged to permit ventilation but to exclude rain, snow, light, insects, or other living creatures.

**Mansard roof** — A roof with two sloping planes of different pitch on each of its four sides. The lower plane is steeper than the upper, and may be almost vertical.

**Masonry** — Stone, brick, concrete, hollow-tile, concrete block, or other similar building units or materials. Normally bonded together with mortar to form a wall.

**Modified bitumen roof** — A roof covering that is typically composed of a factory-fabricated composite sheet consisting of a copolymer modified bitumen, often reinforced with polyester and/or fiberglass, and installed in one or more plies. The membrane is commonly surfaced with field-applied coatings, factory-applied granules or metal foil. The roofing system may incorporate rigid insulation.

**Mortise** — A slot cut into a board, plank, or timber, usually edgewise, to receive the tenon (or tongue) of another board, plank, or timber to form a joint.

**Mullion** — A vertical divider in the frame between windows, doors, or other openings.

**Neutral wire** — Usually color-coded white, this wire carries electricity from a load back to the service panel.

**Newel post** — The large starting post to which the end of a stair guard railing or balustrade is fastened.

**Nosing** — The projecting edge of a molding or drip or the front edge of a stair tread.

**On center** — The measurement of spacing for studs, rafters, and joists in a building from the center of one member to the center of the next.

**Open valley** — Method of valley construction in which shingles on both sides of the valley are trimmed along a chalk line snapped on each side of the valley. Shingles do not extend across the valley. Valley flashing is exposed.

**Open web steel joist** — One of a series of parallel beams, used to support floor and roof loads, and supported in turn by larger beams, girders or bearing walls. Consists of horizontal top and bottom chords, with diagonal and/or vertical web members connecting the chords together.

**Oriented Strand Board or OSB** — A manufactured 4-foot-by-8-foot wood panel made out of one- to two-inch wood chips and glue. Often used as a substitute for plywood.

**P-trap** — Curved, U-section of drain pipe that holds a water seal to prevent sewer gasses from entering a building through a fixtures' drain pipe.

**Parapet** — The portion of an exterior wall that extends above the edge of a roof.

**Parging** — A thin layer of cement placed over masonry units.

**Partition** — A wall that subdivides spaces within any story of a building or room.

**Paver** — Materials (commonly masonry) laid down to make a firm, even surface on the exterior.

**Performance bond** — An amount of money (usually 10 percent of the total price of a job) that a contractor must put on deposit with a governmental agency as an insurance policy that guarantees the contractors' proper and timely completion of a project or job.



SUMMARY	INTERIOR	SUMMARY B	ELECTRICAL	HEATING	AIR CONDITI	VENTILATION	PLUMBING	ROOFING	INTERIOR
INSULATION	STRUCTURE	EXTERIOR	APPENDIX						

**Perimeter drain** — Typically 4-inch perforated plastic pipe around the perimeter (either inside or outside) of a foundation wall (before backfill) that collects and diverts ground water away from the foundation.

**Pilot light** — A small, continuous flame (in a boiler, or furnace) that ignites gas or oil burners when needed.

**Pitch** — (1) The degree of roof incline expressed as the ratio of the rise, in feet, to the span, in feet. (2) A thick, oily substance commonly obtained from tar, used to seal out water at joints and seams. Pitch is produced from distilling coal tar, wood tar, or petroleum.

**Pitch pocket** — A container, usually formed of sheet metal, around supporting connections with roof-mounted equipment. Filling the container with pitch, or better yet, plastic roof cement, helps seal out water even when vibration is present. A pitch pocket is *not* the preferred method of flashing a roof penetration.

**Plan view** — Drawing of a structure with the view from overhead, looking down.

**Plate** — Normally a horizontal member within a framed structure, such as: (1) sill plate — a horizontal member anchored to a concrete or masonry wall; (2) Sole plate — bottom horizontal member of a frame wall; or (3) top plate — top horizontal member of a frame wall supporting ceiling joists, rafters, or other members.

**Plenum** — The main supply air or return air duct leading from a heating or cooling unit.

**Plumbing stack** — A plumbing vent pipe that penetrates the roof.

**Ply** — A term to denote the number of layers of roofing felt, veneer in plywood, or layers in built-up materials, in any finished piece of such material.

**Point load** — A point where a bearing/structural weight is concentrated and transferred to another structural member or component.

**Portland cement** — Cement made by heating clay and crushed limestone into a brick and then grinding to a pulverized powder state.

**Post** — a vertical framing member usually designed to carry a beam.

**Post-and-beam** — A basic building method that uses just a few hefty posts and beams to support an entire structure. Contrasts with stud framing.

**Power vent** — A vent that includes a fan to speed up air flow.

**Pressure relief valve** — A safety device mounted on a water heater or boiler. The relief valve is designed to release any high pressure in the vessel and thus prevent tank explosions.

**Pressure-treated wood** — Lumber that has been saturated with a preservative to resist rot.

**PVC or CPVC** — (Polyvinyl chloride) A type of white or light gray plastic pipe sometimes used for water supply lines and waste pipe.

**Quarry tile** — A man-made or machine-made clay tile used to finish a floor or wall. Generally 6 inches by 6 inches by 1/4-inch thick.

**R value** — A measure of insulation's resistance to heat flow. The higher the R value the more effective the insulation.

**Rafter** — (1) The framing member that directly supports the roof sheathing. A rafter usually follows the angle of the roof, and may be apart of a roof truss. (2) The supporting framing member immediately beneath the deck, sloping from the ridge to the wall plate.

**Rafter, hip** — A rafter that forms the intersection of an external roof angle.

**Rafter, valley** — A rafter that forms the intersection of an internal roof angle.

**Rake edge** — The overhang of an inclined roof plane beyond the vertical wall below it.

**Rebar** — Reinforcing bar. Ribbed steel bars installed in concrete structures designed to strengthen concrete. Comes in various thicknesses and strength grades. May be epoxy coated to enhance rust resistance.

**Refrigerant** — A substance that remains a gas at low temperatures and pressure and can be used to transfer heat. Freon is an example.

**Register** — A grille placed over a supply air or return air duct.

**Reglaze** — To replace a broken window.

**Reinforcing** — Steel rods or metal fabric placed in concrete slabs, beams, or columns to increase their strength.

**Relief valve** — A device designed to open if it detects excess temperature or pressure. Commonly found on water heating or steam producing systems.

**Resilient flooring** — A durable floor cover that has the ability to resume its original shape.

**Retaining wall** — A structure that holds back a slope or elevation of land and prevents erosion.

**Ridge** — The horizontal line at the junction of the top edges of two sloping roof surfaces.

**Riser** — A vertical member between two stair treads.

**Roll roofing** — Asphalt roofing products manufactured in roll form.

**Romex** — A name brand of nonmetallic sheathed electrical cable that is used for indoor wiring.

**Roof deck** — The surface, installed over the supporting framing members, to which the roofing is applied.

**Roof sheathing** — The wood panels or sheet material fastened to the roof rafters or trusses on which the shingle or other roof covering is laid.

**Roof valley** — The "V" created where two sloping roofs meet.

**Roofing membrane** — The layer or layers of waterproofing products that cover the roof deck.

**Run, stair** — The horizontal distance of a stair tread from the nosing to the riser.

**Saddle** — Two sloping surfaces meeting in a horizontal ridge, used between the back side of a chimney, or other vertical surface, and a sloping roof. Used to divert water around the chimney or vertical surface.

**Sanitary sewer** — A sewer system designed for the collection of waste water from the bathroom, kitchen and laundry drains, and is usually not designed to handle storm water.

**Sash** — The frame that holds the glass in a window, often the movable part of the window.

**Saturated felt** — A felt that is impregnated with tar or asphalt.

**Scratch coat** — The first coat of plaster, which is scratched to form a bond for a second coat.

**Scupper** — (1) An opening for drainage in a wall, curb or parapet. (2) The drain above a downspout or in a flat roof, usually connected to the downspout.

**Sealer** — A finishing material, either clear or pigmented, that is usually applied directly over raw wood or concrete for the purpose of sealing the wood or concrete surface.

**Seasoning** — Drying and removing moisture from green wood in order to improve its usability.

**Service equipment** — Main control gear at the electrical service entrance, such as circuit breakers, switches, and fuses.

**Service lateral** — Underground power supply line.

**Shake** — A wood roofing material, normally cedar or redwood. Produced by splitting a block of the wood along the grain line.

Modern shakes are sometimes machine sawn on one side.

**Sheathing** — (1) Sheets or panels used as roof deck material. (2) Panels that lie between the studs and the siding of a structure.

**Short circuit** — A situation that occurs when hot and neutral wires come in contact with each other. Fuses and circuit breakers protect against fire that could result from a short.

**Sill** — (1) The two-by-four or two-by-six wood plate framing member that lays flat against and bolted to the foundation wall (with anchor bolts) and upon which the floor joists are installed. (2) forming the lower side of an opening, as a door sill or window sill.

**Skylight** — A more or less horizontal window located on the roof of a building.

SUMMARY

INTERIOR

SUMMARY B

ELECTRICAL

HEATING

AIR CONDITI

VENTILATION

PLUMBING

ROOFING

INTERIOR

INSULATION

STRUCTURE

EXTERIOR

APPENDIX

**Slab-on-grade** — A type of foundation with a concrete floor which is placed directly on the soil. In warm climates, the edge of the slab is usually thicker and acts as the footing for the walls. In cold climates, the slab is independent of the perimeter foundation walls.

**Sleeper** — Usually, a wood member that serves to support equipment.

**Soffit** — (1) The finished underside of the eaves. (2) A small ceilinglike space, often out of doors, such as the underside of a roof overhang.

**Solid waste pump** — A pump used to 'lift' waste water to a gravity sanitary sewer line. Usually used in basements and other locations which are situated below the level of the city sewer.

**Spalling** — The cracking and breaking away of the surface of a material.

**Span** — The clear distance that a framing member carries a load without support (between structural supports).

**Splash block** — A pad placed under the lower end of a downspout to divert the water from the downspout away from the building. Usually made out of concrete or fiberglass.

**Stair stringer** — Supporting member for stair treads. Can be a notched plank or a steel member.

**Starter strip** — Asphalt roofing applied at the eaves that provides protection by filling in the spaces under the cutouts and joints of the first course of shingles.

**Step flashing** — Flashing application method used where a vertical surface meets a sloping roof plane.

**Storey** — That part of a building between any floor or between the floor and roof.

**Storm collar** — A metal flashing used to seal around a penetration in a roof.

**Storm sewer** — A sewer system designed to collect storm water, separate from the waste water system.

**Storm window** — An extra window usually placed outside of an existing one, as additional protection against cold weather, or damage.

**Stucco** — An outside plaster finish made with Portland cement as its base.

**Stud** — One of a series of slender wood or metal vertical structural members placed as supporting elements in walls and partitions.

**Stud framing** — A building method that distributes structural loads to each of a series of relatively lightweight studs. Contrasts with post and-beam.

**Sump** — Pit or large plastic bucket/barrel inside a basement, designed to collect ground water (storm water) from a perimeter drain system.

**Sump pump** — A submersible pump in a sump pit that pumps any excess ground water to the storm sewer.

**Suspended ceiling** — A ceiling system supported by hanging it from the overhead structural framing.

**Tempered** — Strengthened. Tempered glass will not shatter nor create shards, but will "pelletize" like an automobile window. Required in tub and shower enclosures, for example.

**Termites** — Insects that superficially resemble ants in size, general appearance, and habit of living in colonies; hence, they are frequently called "white ants." Subterranean termites establish themselves in buildings not by being carried in with lumber, but by entering from ground nests after the building has been constructed. If unmolested, they eat out the woodwork, leaving a shell of sound wood to conceal their activities, and damage may proceed so far as to cause collapse of parts of a structure before discovery.

**Terra cotta** — A ceramic material molded into masonry units.

**Threshold** — The bottom metal, concrete, or wood plate of an exterior door frame. They may be adjustable to keep a tight fit with the door slab.

**Toenailing** — To drive a nail in at a slant. Method used to secure floor joists to the plate. Not acceptable for securing joists flush to a header or beam.

**Tongue-and-groove** — A joint made by a tongue (a rib on one edge of a board) that fits into a corresponding groove in the edge of another board to make a tight flush joint. Typically, the subfloor plywood is tongue-and-groove.

**Top chord** — The upper or top member of a truss.

**Trap** — A plumbing fitting that holds water to prevent air, gas, and vermin from entering into a building.

**Tread** — The walking surface board in a stairway on which the foot is placed.

**Treated lumber** — A wood product which has been impregnated with chemicals to reduce damage from wood rot or insects. Often used for the portions of a structure which is likely to be in ongoing contact with soil and water. Wood may also be treated with a fire retardant.

**Truss** — An engineered and manufactured roof support member with "zig-zag" framing members. Does the same job as a rafter but is designed to have a longer span than a rafter.

**Tube-and-knob wiring** — See knob-and-tube wiring.

**UFFI** — Urea Formaldehyde Foam Insulation, a foam insulation blown into existing walls. (Pronounced "you-fee")

**Ultraviolet degradation** — A reduction in certain performance limits caused by exposure to ultraviolet light.

**Underlayment** — (1) A one-quarter-inch material placed over the subfloor plywood sheathing and under finish coverings, such as vinyl flooring, to provide a smooth, even surface. (2) A secondary roofing layer that is waterproof or water-resistant, installed on the roof deck and beneath shingles or other roof-finishing layer.

**UV rays** — Ultraviolet rays from the sun.

**Valley** — The inward angle formed by two intersecting, sloping roof planes. Since it naturally becomes a water channel, additional attention to waterproofing it is desirable.

**Vapour barrier** — A building product installed on exterior walls and ceilings under the drywall and on the warm side of the insulation. It is used to retard the movement of water vapour into walls and prevent condensation within them. Normally, polyethylene plastic sheeting is used.

**Vent** — A pipe or duct allowing the flow of air and gases to the outside. In a plumbing system, the vent is necessary to allow sewer gases to escape to the exterior.

**Vermiculite** — A mineral closely related to mica, with the faculty of expanding on heating to form lightweight material with insulation quality. Used as bulk insulation and also as aggregate in insulating and acoustical plaster and in insulating concrete floors.

**Water closet** — A toilet.

**Weather stripping** — Narrow sections of thin metal or other material installed to prevent the infiltration of air and moisture around windows and doors.

**Weep holes** — Small holes in exterior wall cladding systems that allow moisture to escape and air pressure equalization in the cavity space drained by the weep hole.

**Wythe** — (rhymes with "tithe" or "scythe") A vertical layer of masonry that is one masonry unit thick.

**Zone** — The section of a building that is served by one heating or cooling loop because it has noticeably distinct heating or cooling needs. Also, the section of property that will be watered from a lawn sprinkler system.

**Zone valve** — A device, usually placed near the heater or cooler, which controls the flow of water or steam to parts of the building; it is controlled by a zone thermostat.