CPMA - ACGP
CANADIAN PEST MANAGEMENT ASSOCIATION
ASSOCIATION CANADIENNE DE LA GESTION PARASITAIRE

Estimating Square Footage Treated by Pest Management Professionals for REV2011-05

Graphic representation and Square Footage Measurements for

Typical interior and exterior applications to multi-family units and individual homes

Using Pyrethrin and Pyrethroid treatments for
Bed bugs, Cockroaches, Fleas, Ants

Canadian Pest Management Association

Treatment of Bed Bugs

Graphic representation and square footage measurements for

typical interior and exterior applications to multi-family units and individual homes

using Pyrethrin and Pyrethroid based products

Canadian Pest Management Association

Commonly Used Liquid Pyrethroids
- Tempo (25673)
- Demand (27428)
- Dragnet (24175)

Commonly Used Aerosol Pyrethroids
- Bedlam (30075)
- Insect Stop (30781)
- Prescription Treatment Brand 221L (28485)

Commonly Used Dust Pyrethroids
-

Commonly Used Liquid Pyrethrins
-

Commonly Used Aerosol Pyrethrins
- Pro Aerosol (16282)
- Konk 407 (24875)

Commonly Used Dust Pyrethrins
- Drione (15255)

Non-Chemical Approaches
- Steam and Heat Treatment
- Vacuuming
- Cryonite
- Mattress / Box Spring Encasements
- Diatomaceous Earth (various suppliers)

An infestation of bed bugs may be the most complicated pest companies treat on a regular basis.
- Bed bug treatments are based on the findings during the inspection phase.
- Bed bugs are notoriously elusive.
- Bed bugs have the potential to spread to neighboring rooms within a home.

As a result, there is a wide range of product usage. In the following maps, we have done our best to show two different scenarios to give an idea about the variability in bed bug treatments.

One case shows an early stage infestation with a more IPM focused treatment that a majority of the pest management industry is moving toward. The second, is a more serious infestation. The map, in this case, shows how the infestation might be treated if only pyrethroids and pyrethrins are relied upon for control.

It should be noted, potential pesticide exposure is always minimized during any treatment. (don't understand it) Most companies do not treat "soft surfaces (i.e. sofa, mattress, etc.)" with pesticides; they opt for non-chemical approaches for these items (steam, heat treatment, Cryonite freezing, vacuuming, encasements, etc.). Some companies may elect to treat the of the box spring and the underside of sofas.

Any "hard surfaces (i.e. headboards, dressers, etc.)" are treated on the undersides, backs, and potentially the sides if they are against a wall. This mitigates potential contact with pesticides by a homeowner.

INDOOR TREATMENT MULTI-RESIDENCE UNIT – BED BUGS – Early infestation

TOTAL USED:

Pyrethroid liquid:	92 **ft²**
Pyrethroid aerosol:	21 **ft²**
Pyrethrins liquid:	0 **ft²**
Pyrethrins aerosol:	0 **ft²**
Pyrethrins dust :	2 **ft²**

BEDROOM 1 + CLOSET

Linear Feet Treated (Area) = 1ft²

Perimeter = 570" x ¼" = 142.5"² (1ft²)

Area Treated (Furniture) = 45 ft²

Headboard = 30'²

Bed Frame = 15'²

Total Area Treated (Bdrm 1)=46 ft²

Total Area Treated = 11ft²

Mattress Seams = 5.5'²

Box Spring Seams = 5.5'²

Area Treated (Outlets) = 0.5ft²

Electrical Outlets (3) = 40"²

BEDROOM 2

Total Area Treated = 46 ft²

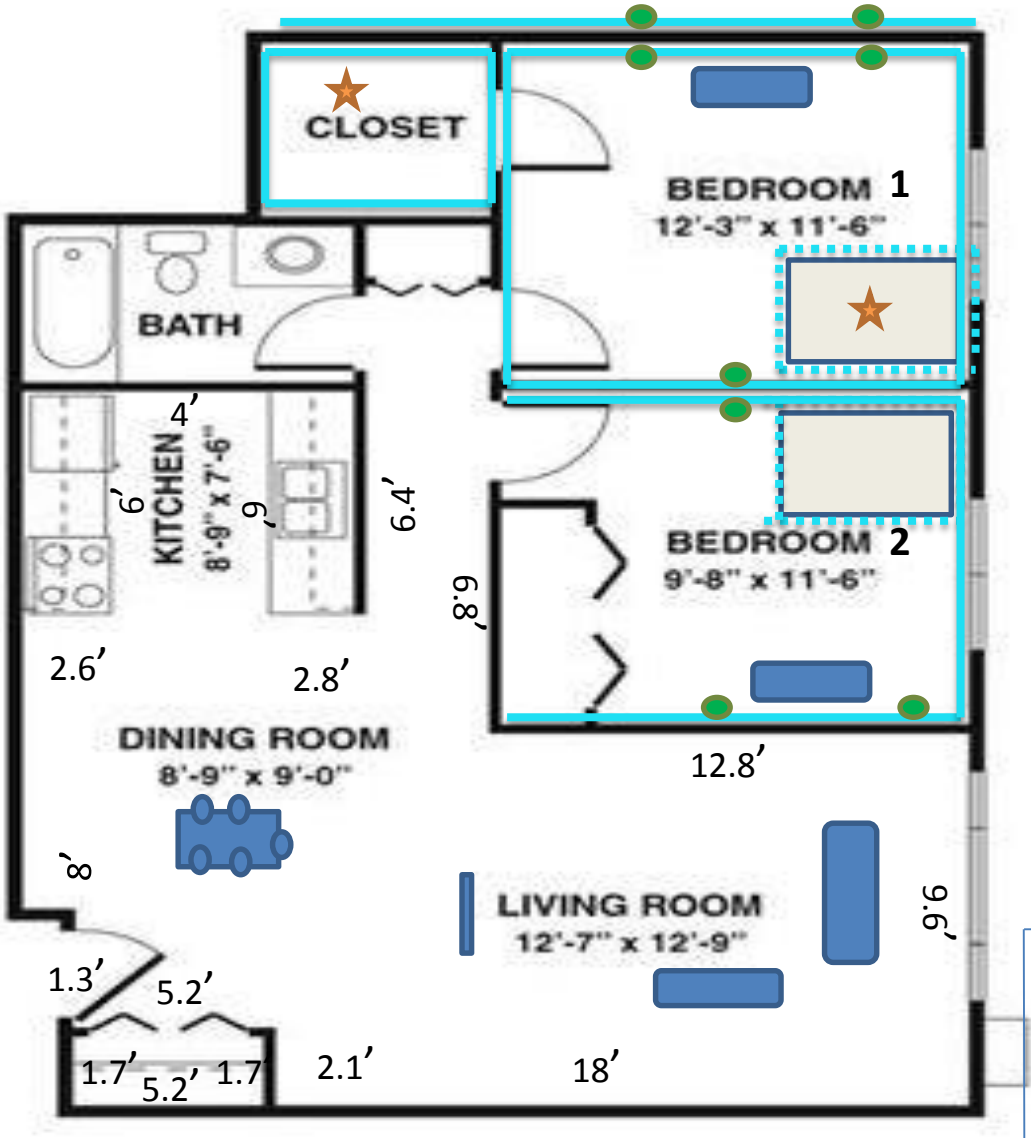
Total Area Treated = 11ft²

Area Treated (Outlets)= 0.5ft²

ADJOINING WALLS (Neighboring Units)

Total Area Treated = 1ft²

Area Treated (Outlets)= 1ft²



Typically bed bugs infest one bedroom and perhaps a living room area.
We have assumed that the PCO would treat all bedrooms as a precaution.

Legend

- Pyrethroid Liquid
- Pyrethroid Aerosol
- Pyrethrin Liquid
- Pyrethrin Aerosol
- Pyrethrin Dust
- Bed Bugs

INDOOR TREATMENT MULTI-RESIDENCE UNIT – BED BUGS – Severe, ongoing Infestation

TOTAL USED:

Pyrethroid liquid:	176 sqft
Pyrethroid aerosol:	42 sqft
Pyrethrins liquid:	0 sqft
Pyrethrins aerosol:	0 sqft
Pyrethrins dust :	3 sqft

BEDROOM 1 + CLOSET

Linear Feet Treated (Area)= 1ft²

Perimeter = 570" x ¼" = 142.5"² (1ft²)

Area Treated (Furniture) = 70 ft²

Dresser = 20'²

Night Stand = 5'²

Headboard = 30'²

Bed Frame = 15'²

Total Area Treated (Bdrm 1) = 71ft²

Total Area Treated = 11ft²

Mattress Seams = 5.5'²

Box Spring Seams = 5.5'²

Area Treated (Outlets)= 0.5ft²

Electrical Outlets (3) = 40"²

BEDROOM 2

Total Area Treated = 71ft²

Total Area Treated = 11ft²

Area Treated (Outlets)= 0.5ft²

LIVING ROOM + HALL

Total Area Treated = 33ft²

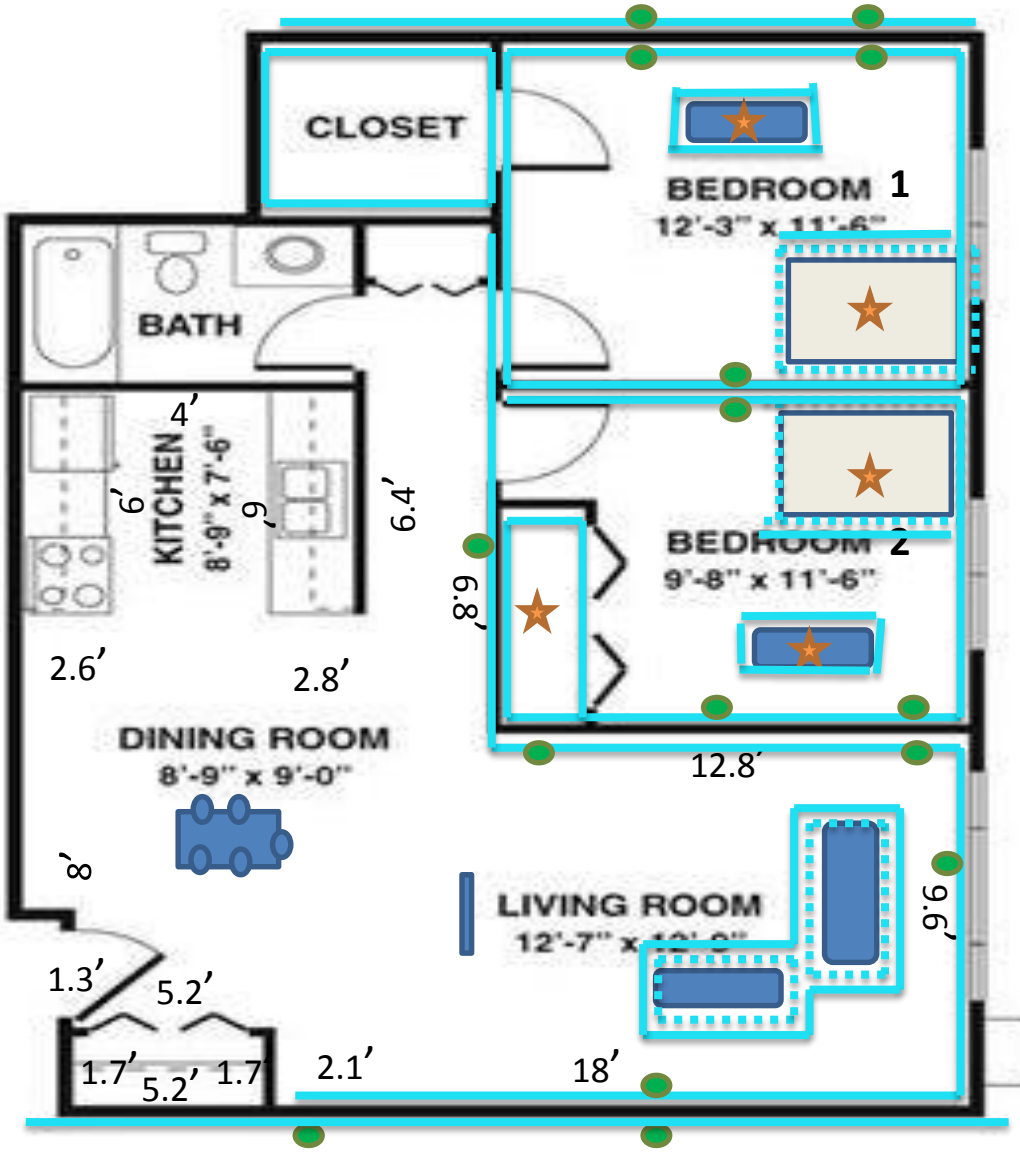
Total Area Treated = 20ft²

Area Treated (Outlets)= 1ft²

ADJOING WALLS (Neighboring Units)

Total Area Treated = 1ft²

Area Treated (Outlets)= 1ft²



Typically bed bugs infest one bedroom and perhaps a living room area.
We have assumed that the PCO would treat all bedrooms as a precaution.

Legend

- Pyrethroid Liquid
- Pyrethroid Aerosol
- Pyrethrin Liquid
- Pyrethrin Aerosol
- Pyrethrin Dust
- Bed Bugs

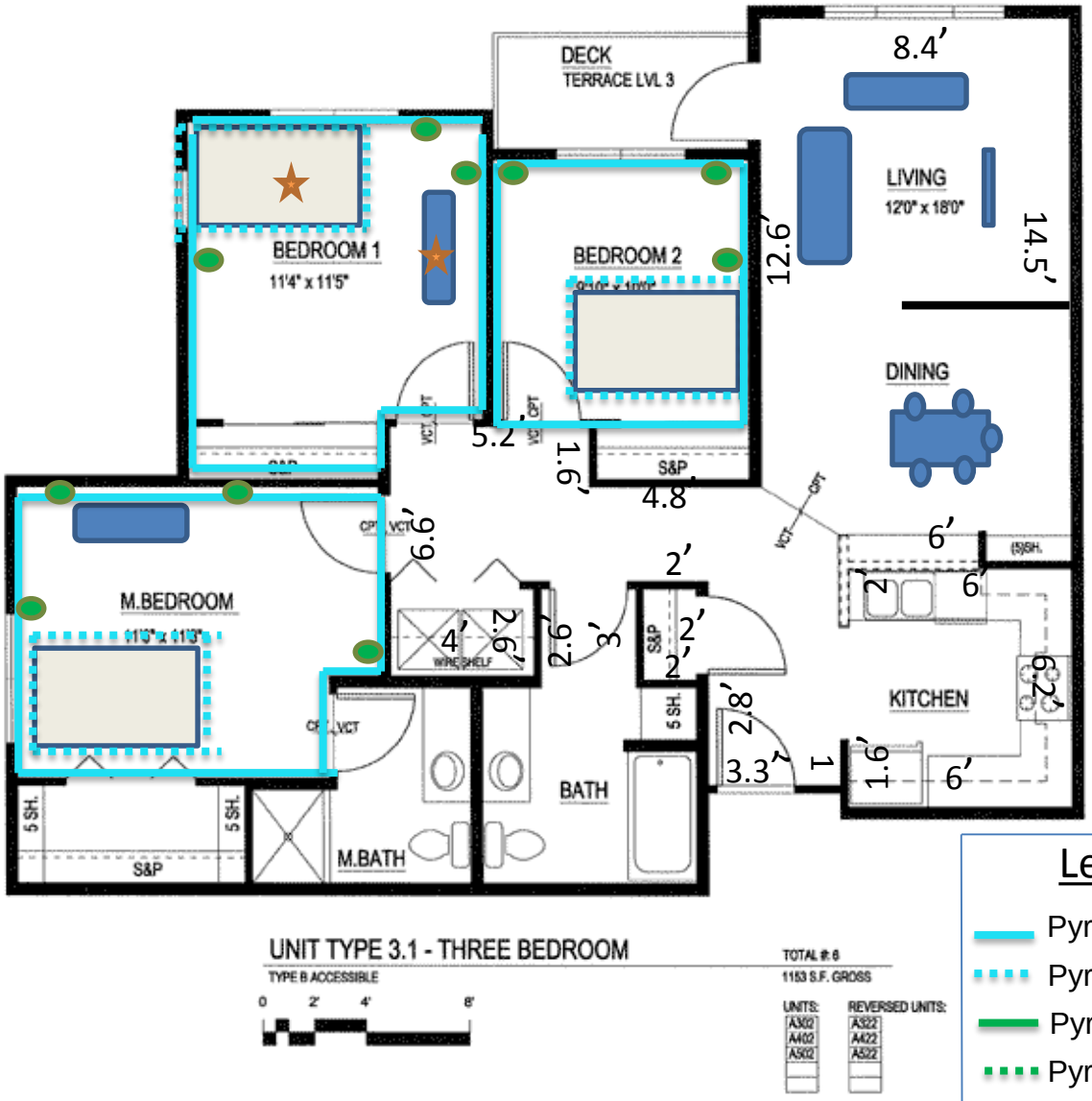
INDOOR TREATMENT SINGLE DETACHED HOME – BED BUGS – Early Infestation

TOTAL USED:
Pyrethroid liquid: 138 **ft²**
Pyrethroid aerosol: 33 **ft²**
Pyrethrins liquid: 0 **ft²**
Pyrethrins aerosol: 0 **ft²**
Pyrethrins dust : 2.0 **ft²**

MASTER BEDROOM
Total Area Treated = 46ft²
Total Area Treated = 11ft²
Area Treated (Outlets)= 1ft²

BEDROOM 1
Total Area Treated = 46ft²
Total Area Treated = 11 ft²
Area Treated (Outlets)= 0.5ft²

BEDROOM 2
Total Area Treated = 46 ft²
Total Area Treated = 11ft²
Area Treated (Outlets)= 0.5ft²



Typically bed bugs infest one bedroom and perhaps a living room area.
We have assumed that the PCO would treat all bedrooms as a precaution.

Legend

- Pyrethroid Liquid
- Pyrethroid Aerosol
- Pyrethrin Liquid
- Pyrethrin Aerosol
- Pyrethrin Dust
- Bed Bugs

INDOOR TREATMENT SINGLE DETACHED HOME – BED BUGS – Severe, Ongoing Infestation

TOTAL USED:

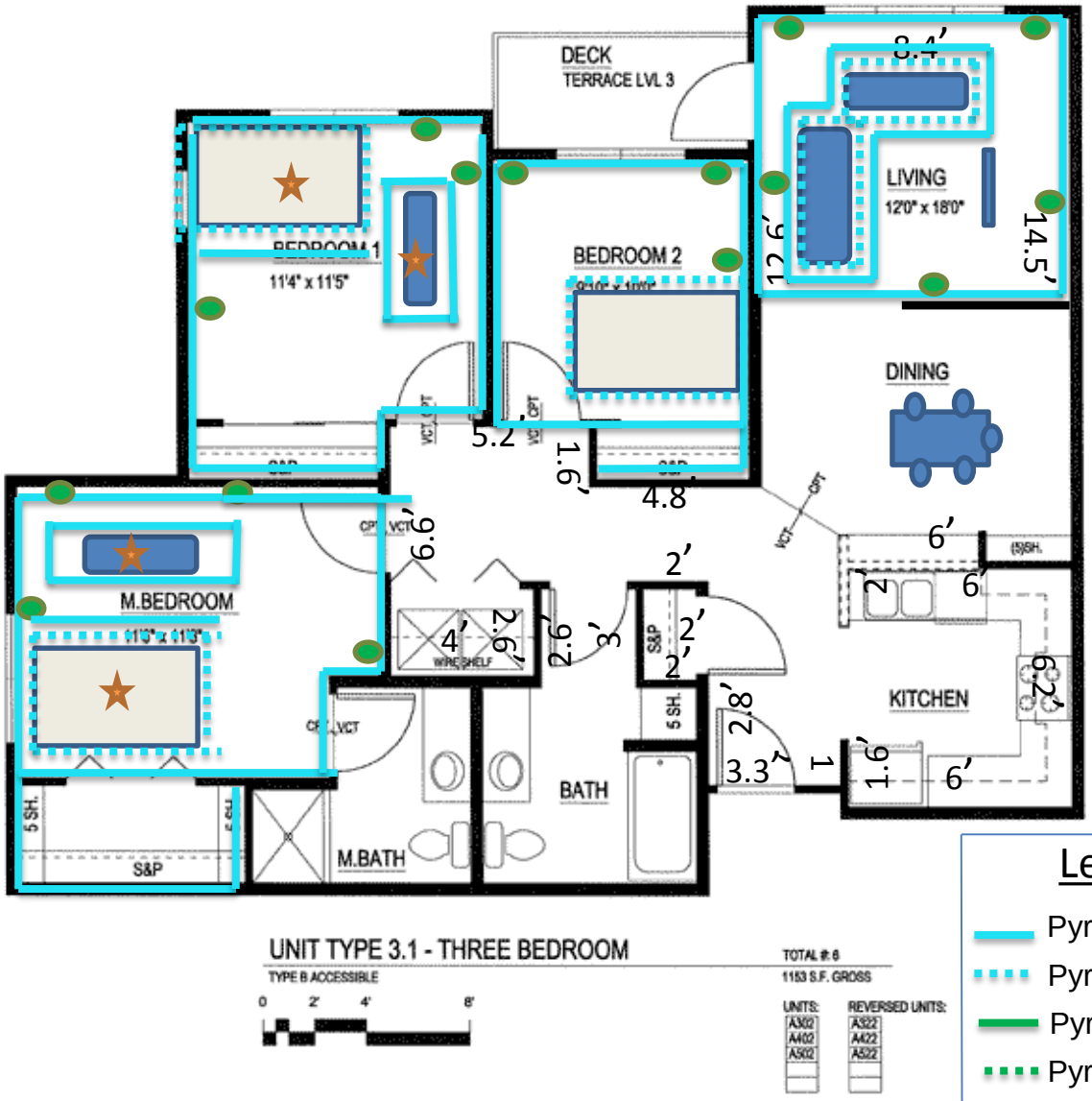
Pyrethroid liquid:	246 **ft²**
Pyrethroid aerosol:	64 **ft²**
Pyrethrins liquid:	0 **ft²**
Pyrethrins aerosol:	0 **ft²**
Pyrethrins dust :	3.5 **ft²**

MASTER BEDROOM
Total Area Treated = 71ft²
Total Area Treated = 11ft²
Area Treated (Outlets)= 1ft²

BEDROOM 1
Total Area Treated = 71ft²
Total Area Treated = 11 ft²
Area Treated (Outlets)= 0.5ft²

BEDROOM 2
Total Area Treated = 71ft²
Total Area Treated = 11ft²
Area Treated (Outlets)= 0.5ft²

LIVING ROOM
Total Area Treated = 33ft²
Total Area Treated = 20ft²
Area Treated (Outlets)= 1ft²



Typically bed bugs infest one bedroom and perhaps a living room area.
We have assumed that the PCO would treat all bedrooms as a precaution.

Treatment of Cockroaches

Graphic representation and Square Footage Measurements for

Typical interior and exterior applications to multi-family units and individual homes

Using Pyrethrin and Pyrethroid treatments

Canadian Pest Management Association

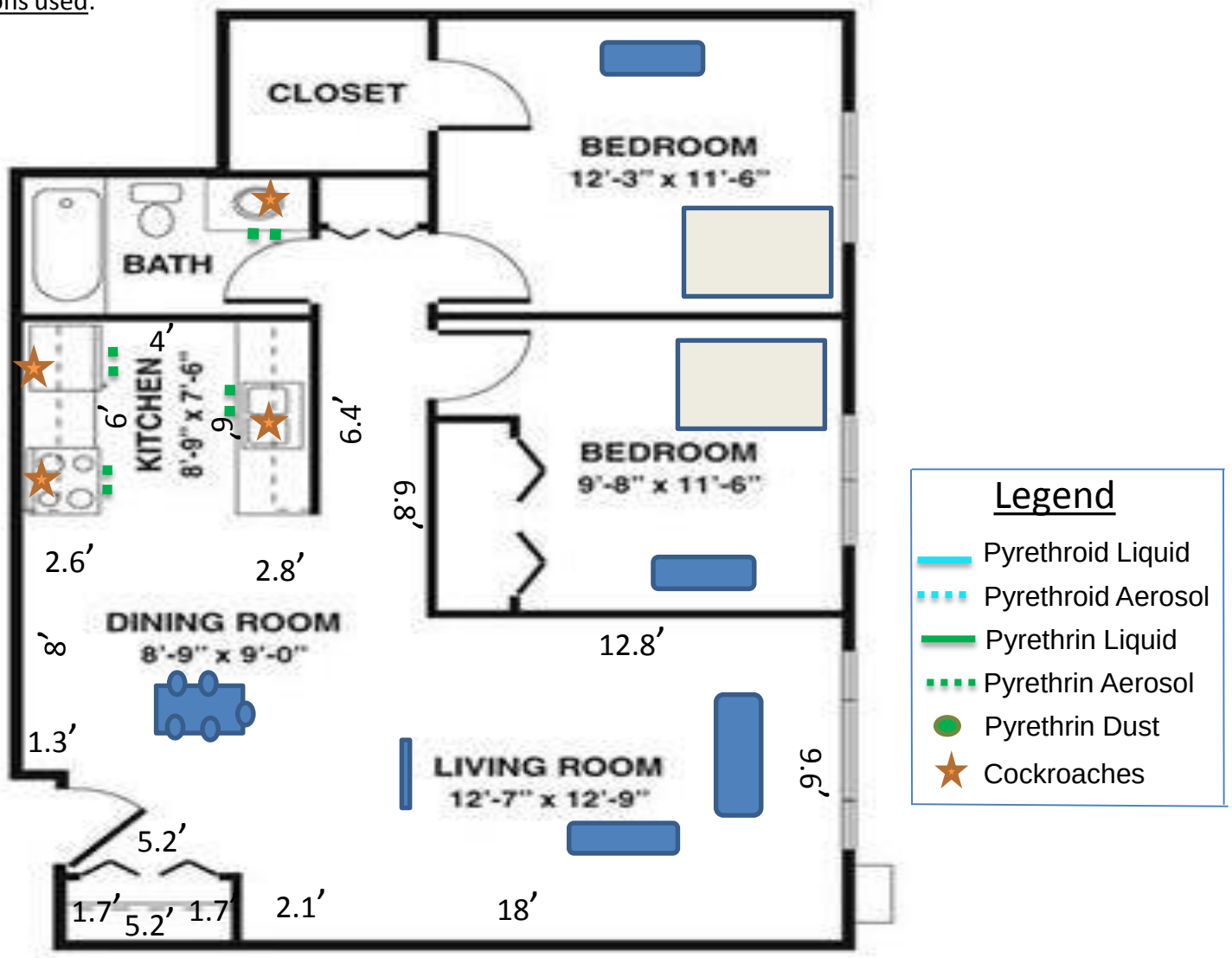
INDOOR TREATMENT MULTI-RESIDENCE UNIT

Treatment of Cockroaches

Other non-Pyrethrin formulations used:
Boric acid, cockroach gel baits

Non-chemical controls:
sanitation, vacuum, etc.

Pyrethrins aerosol:
Treatment =
0.08 sq. ft. in kitchen
+ 0.02 sq ft in bathroom
= 0.1 sq ft in total
(Pyrethrins aerosol used to aid in flushing and vacuuming)



OUTDOOR TREATMENT MULTI-FAMILY RESIDENTIAL UNIT

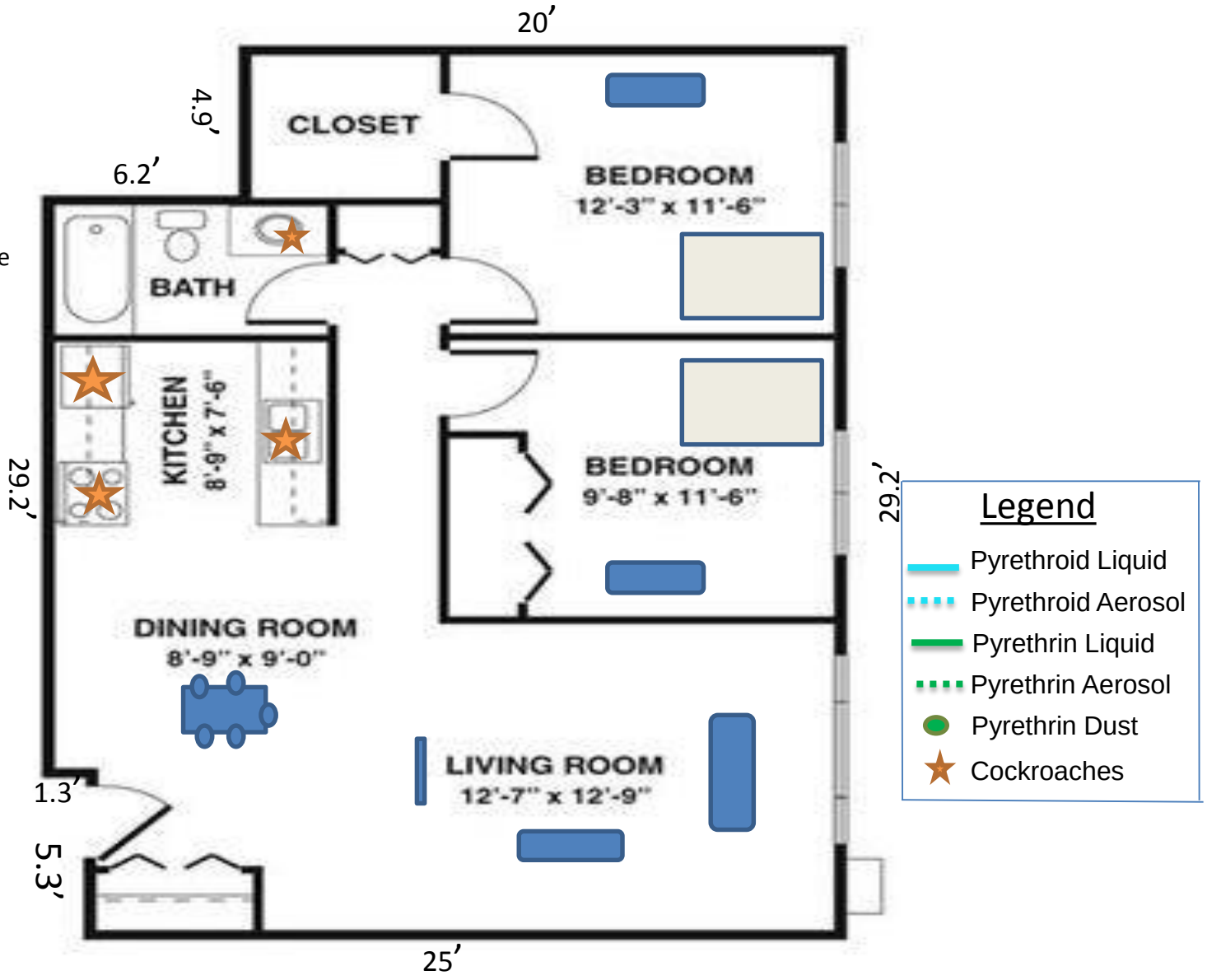
Treatment of Cockroaches

NO OUTDOOR TREATMENT needed. Roaches are not outdoors.

Other non-Pyrethrin formulations used: none

Non-chemical controls: none needed

Pyrethroid liquid:	0 sq. ft.
Pyrethroid aerosol:	0 sq. ft.
Pyrethrins liquid:	0 sq. ft.
Pyrethrins aerosol:	0 sq. ft.
Pyrethrins dust :	0 sq. ft.



INDOOR TREATMENT SINGLE DETACHED HOME

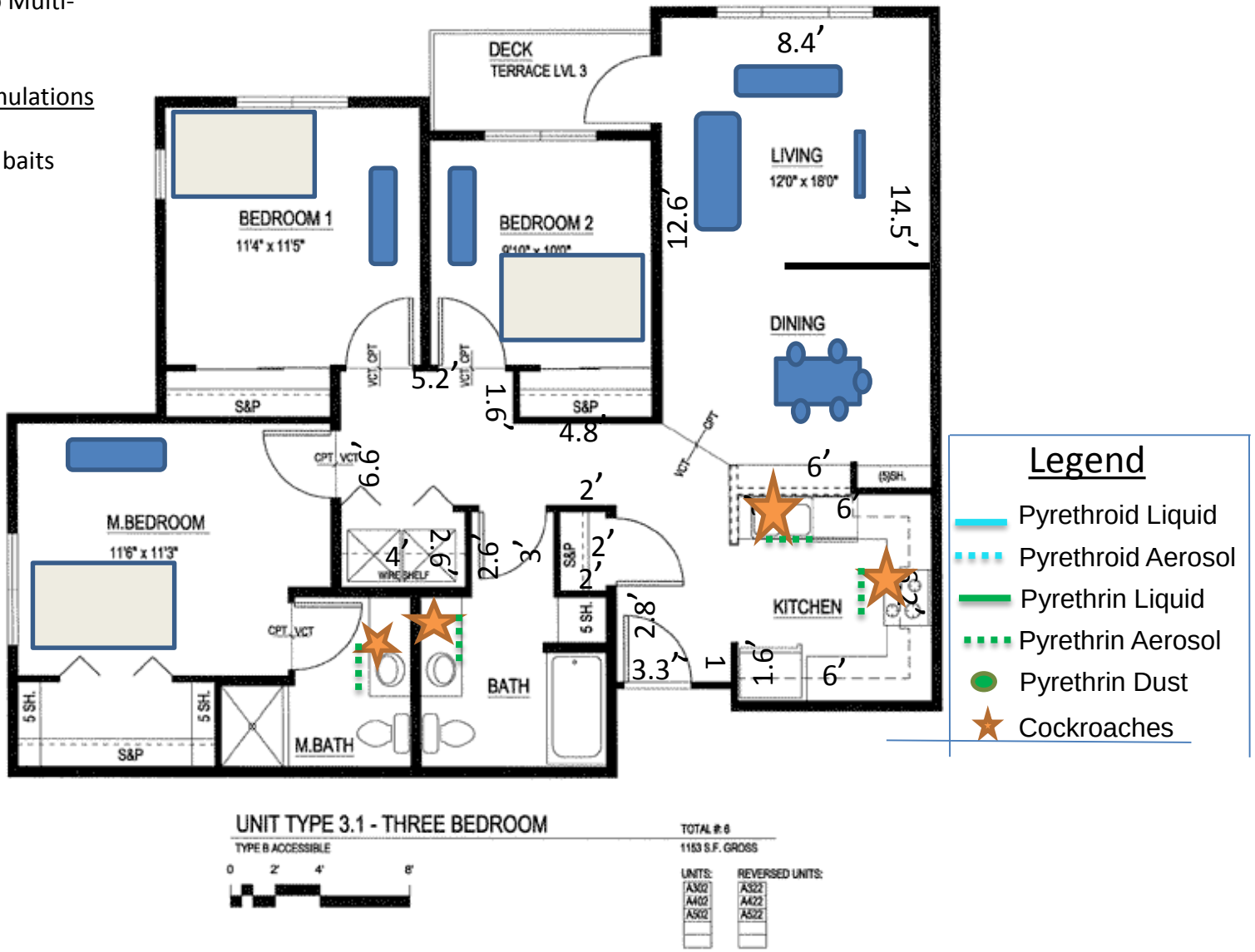
Treatment of Cockroaches

Treatment very similar to Multi-residential unit.

Other non-Pyrethrin formulations used:
Boric acid, cockroach gel baits

Non-chemical controls:
sanitation, vacuum, etc.

Pyrethrins aerosol:
Treatment =
0.08 sq. ft. in kitchen
+ 0.04 sq. ft. in bathroom
= **0.12 sq. ft. in total**
(Pyrethrins aerosol used to aid in flushing and vacuuming)



UNIT TYPE 3.1 - THREE BEDROOM
TYPE B ACCESSIBLE
TOTAL #: 6
1153 S.F. GROSS
UNITS: A302 A402 A502
REVERSED UNITS: A322 A422 A522

OUTDOOR TREATMENT SINGLE DETACHED HOME

Treatment of Cockroaches

NO OUTDOOR TREATMENT needed. Roaches are not outdoors.

Other non-Pyrethrin formulations used:
none

Non-chemical controls:
none needed

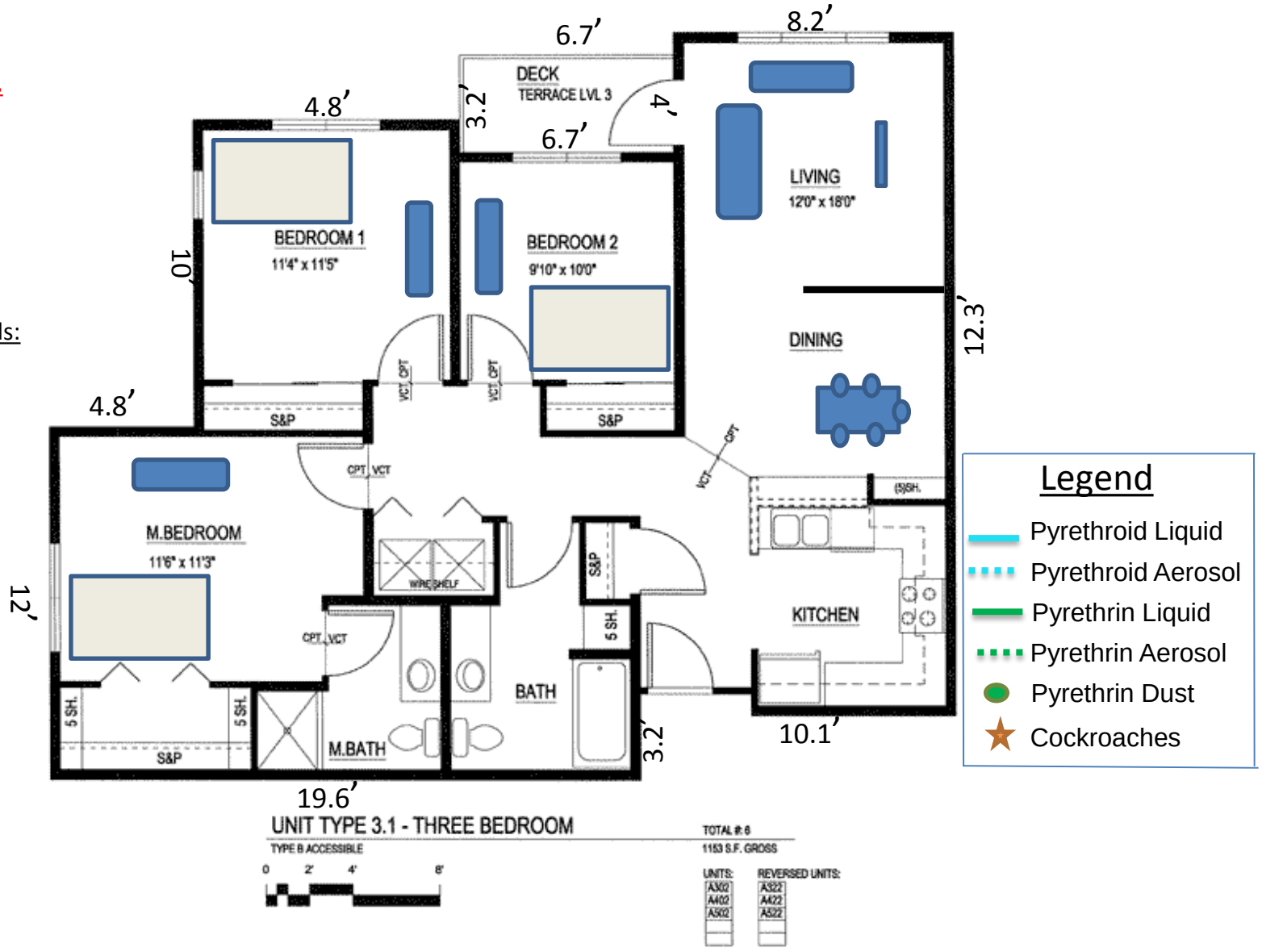
Pyrethroid liquid:
0 sq. ft.

Pyrethroid aerosol:
0 sq. ft.

Pyrethrins liquid:
0 sq. ft.

Pyrethrins aerosol:
0 sq. ft.

Pyrethrins dust :
0 sq. ft.



Treatment of Fleas

Graphic representation and Square Footage Measurements for

typical interior and exterior applications to multi-family units and individual homes

using Pyrethrin and Pyrethroid treatments

Canadian Pest Management Association

Average Size Multi-Family Unit (1200 sqft)

Pyrethroid Liquid Application (Prelude PCP# 26509 - 0.5% Permethrin concentration):

- Surface treatment performed on carpeted floors of 2 Bedrooms (1 @ 141 sqft and 1 @ 111 sqft) and Living Room (160 sqft)

Master bedroom is 12.25 x 11.5 ft:

Would require 8.17 passes (12.25' x 12" / 18") to treat surface travelling 93.9 linear feet (8.17 x 11.5') so:

- (93.9 ft /125 ft) x 417 ml = **313 ml** to treat master bedroom

2nd Bedroom is 9.67 x 11.5 ft:

Would require 6.45 passes to treat surface travelling 74 linear feet (6.45 x 11.5') so:

- (74 ft /125 ft) x 417 ml = **247 ml** to treat 2nd Bedroom

Living Room is 12.58 x 12.75 ft:

Would require 8.39 passes to treat surface travelling 107 linear feet (68.39 x 12.75) so:

- (107 ft /125 ft) x 417 ml = **357 ml** to treat the living room

Total Pyrethroid Liquid Application = 313 + 247 + 357 = **917 ml**

Average Size Multi-Family Unit (1200 sqft)

Pyrethrin Aerosol Application (Konk 407 PCP# 24875 – 1% Pyrethrins concentration):

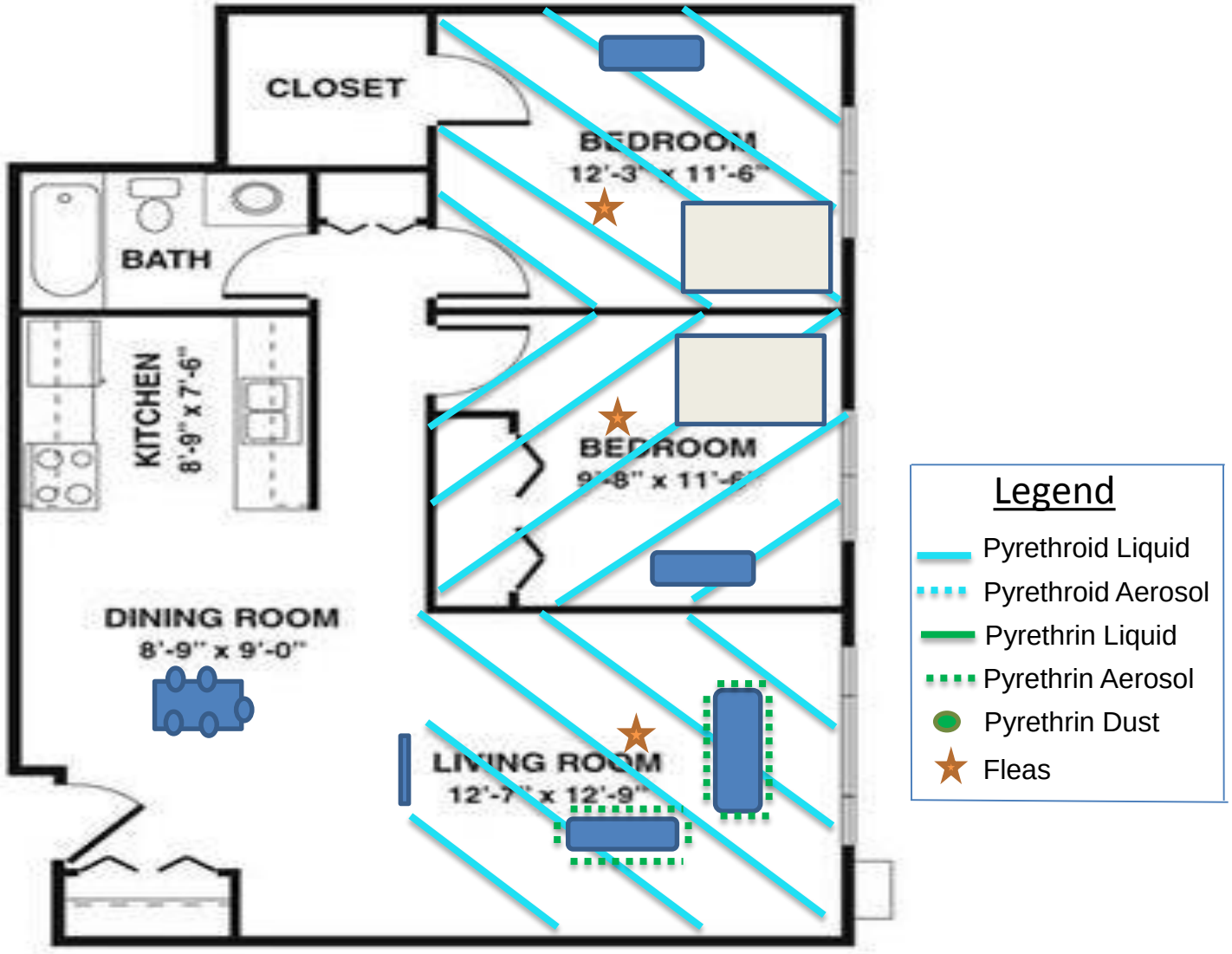
Crack and crevice treatment of 1 fabric couch and 1 fabric chair in the living room:

- Total Surface Area treated with Aerosol = 322”/12” = 26.8 linear feet / 12” = 2.24 sqft

Total Surface Area treated with Pyrethrin Aerosol = **2.24 sqft**

Total Pyrethrin Aerosol Application = **7 – 10 grams**

INDOOR TREATMENT MULTI-FAMILY RESIDENTIAL UNIT - FLEAS



Average Size House (1700 sqft)

Pyrethroid Liquid Application (Prelude PCP# 26509 - 0.5% Permethrin concentration):

- Surface treatment performed on carpeted floors of 2 Bedrooms (129 sqft and 98 sqft) and combined Living / Dining Room (216 sqft). Crack and crevice treatment to 1 Bedroom (129 sqft) with hardwood floors.

Master bedroom is 11.5 x 11.25 ft:

Would require 7.67 passes (11.5' x 12" / 18") to treat surface travelling 86 linear feet (7.67 x 11.25') so:

- (86 ft /125 ft) x 417 ml = **287 ml** to treat Master bedroom

Bedroom 2 is 9.83 x 10 ft:

Would require 6.55 passes to treat surface travelling 65.5 linear feet (8 x 10') so:

- (65.5 ft /125 ft) x 417 ml = **219 ml** to Bedroom 2

Living / Dining Room is 12 x 18 ft:

Would require 8 passes to treat surface travelling 144 linear feet (8 x 18) so:

- (144 ft /125 ft) x 417 ml = **480 ml** to treat the living / dining room

Pyrethroid Liquid Application for hardwood Bedroom 1 (11.33 x 11.42 ft) would be:

- Baseboard pin stream treatment for 45.5 linear feet so: 45.5' / 125' x 263 ml = **96 ml**

Total Surface Area treated with Pyrethroid Liquid = 129 + 129 + 98 + 216 = **572 sqft**

Total Pyrethroid Liquid Application = 287 + 96 + 219 + 480 = **1082 ml**

Average Size House (1700 sqft)

Pyrethrin Aerosol Application (Konk 407 PCP# 24875 – 1% Pyrethrins concentration):

Crack and crevice treatment of 1 fabric couch and 1 fabric chair in the living room: Total Surface Area treated with Aerosol = 322”/12” = 26.8 linear feet / 12” = 2.24 sqft

Total Surface Area treated with Pyrethrin Aerosol = **2.24 sqft**

Total Pyrethrin Aerosol Application = **7 – 10 grams**

OUTDOOR:

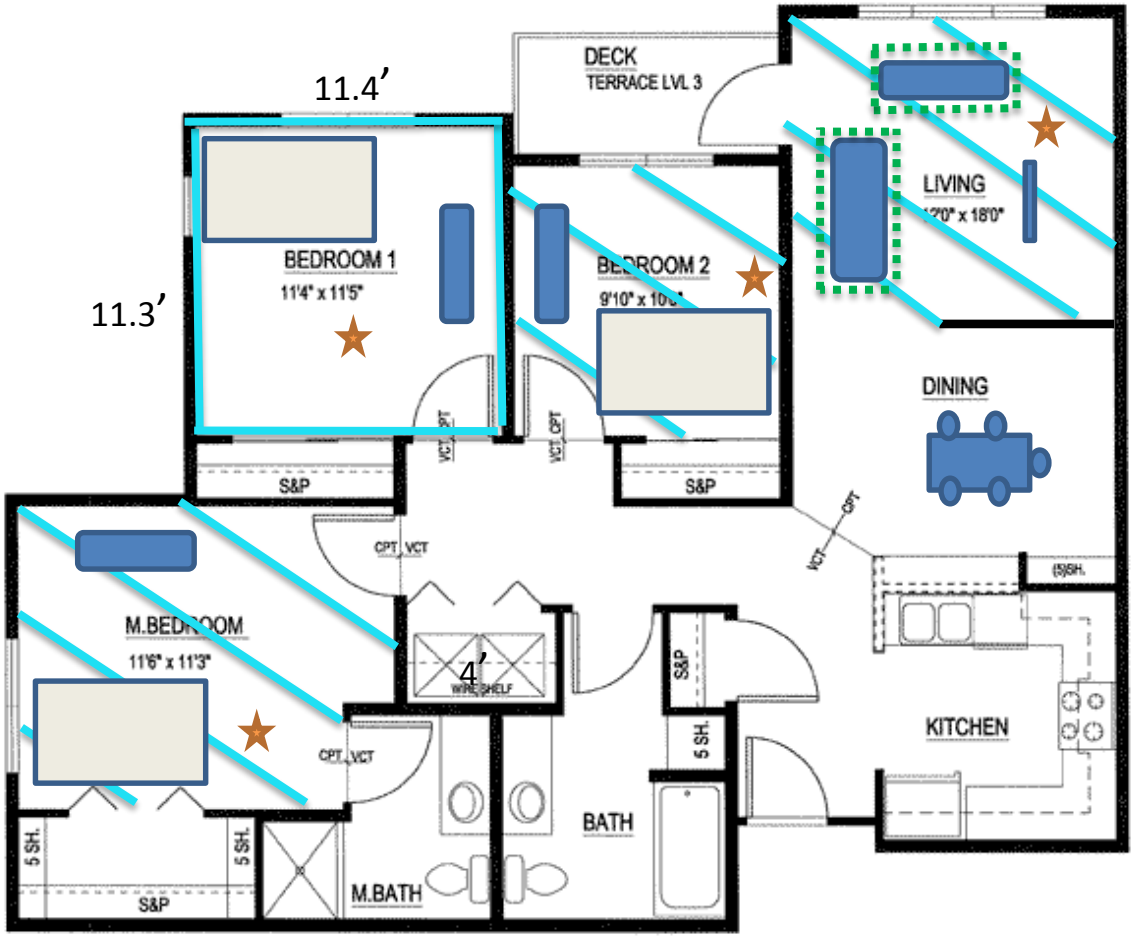
In general treatments are not performed outdoors in a residential setting for fleas. Potentially if a dog has a regular outdoor resting area than that location could be treated with a Pyrethroid application. Outdoor treatments are more common around outdoor run areas of dog kennels.

PHYSICAL CONTROL AND OTHER METHODS:

Laundering of pet beds and blankets in pet sleeping areas including a dryer cycle.

Pets are treated by a veterinarian with flea shampoos and often placed on flea medication at the time of pest management service.

INDOOR TREATMENT SINGLE DETACHED HOME – FLEAS



Treatment of Ants

Graphic representation and Square Footage Measurements for

Typical interior and exterior applications to multi-family units and individual homes

Using Pyrethrin and Pyrethroid treatments

Canadian Pest Management Association

Treatment for a Multi-Family Residential Unit and Single Detached Home

Before applying a Pyrethroid / Pyrethrin product: a gel bait, boric acid base or a granular bait would normally be used.

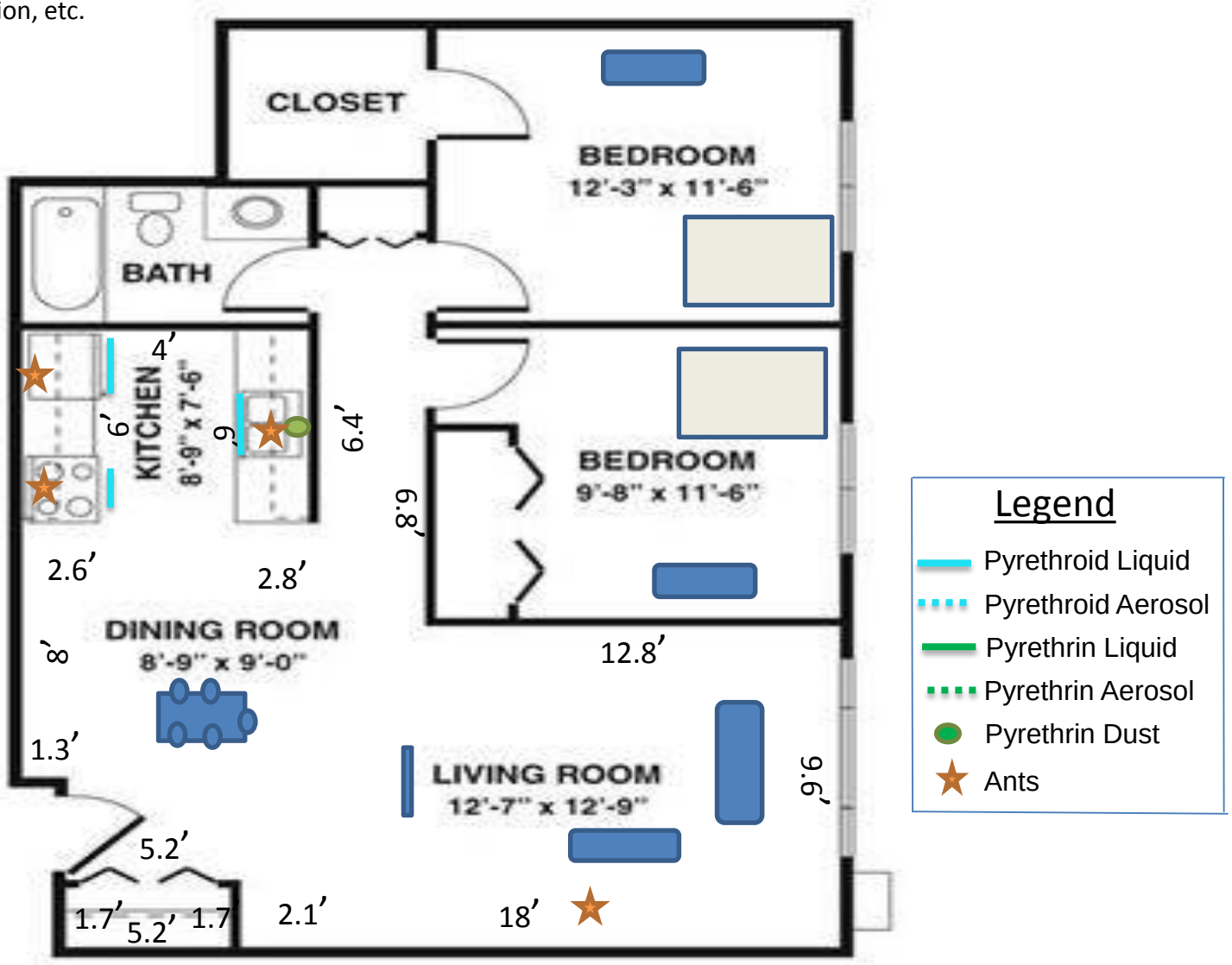
These non-Pyrethroid/Pyrethrin products would be applied to the wall void or in cracks and crevices.

Sometimes good sanitation in certain areas is all that is needed to control ants (i.e., clean up of spilled pop, juice, food crumbs, etc.).

INDOOR TREATMENT: MULTI-FAMILY RESIDENTIAL UNIT

Treatment of Ants
Other non-Pyrethrin formulations used: Boric acid, ant gel baits
Non-chemical controls: sanitation, etc.

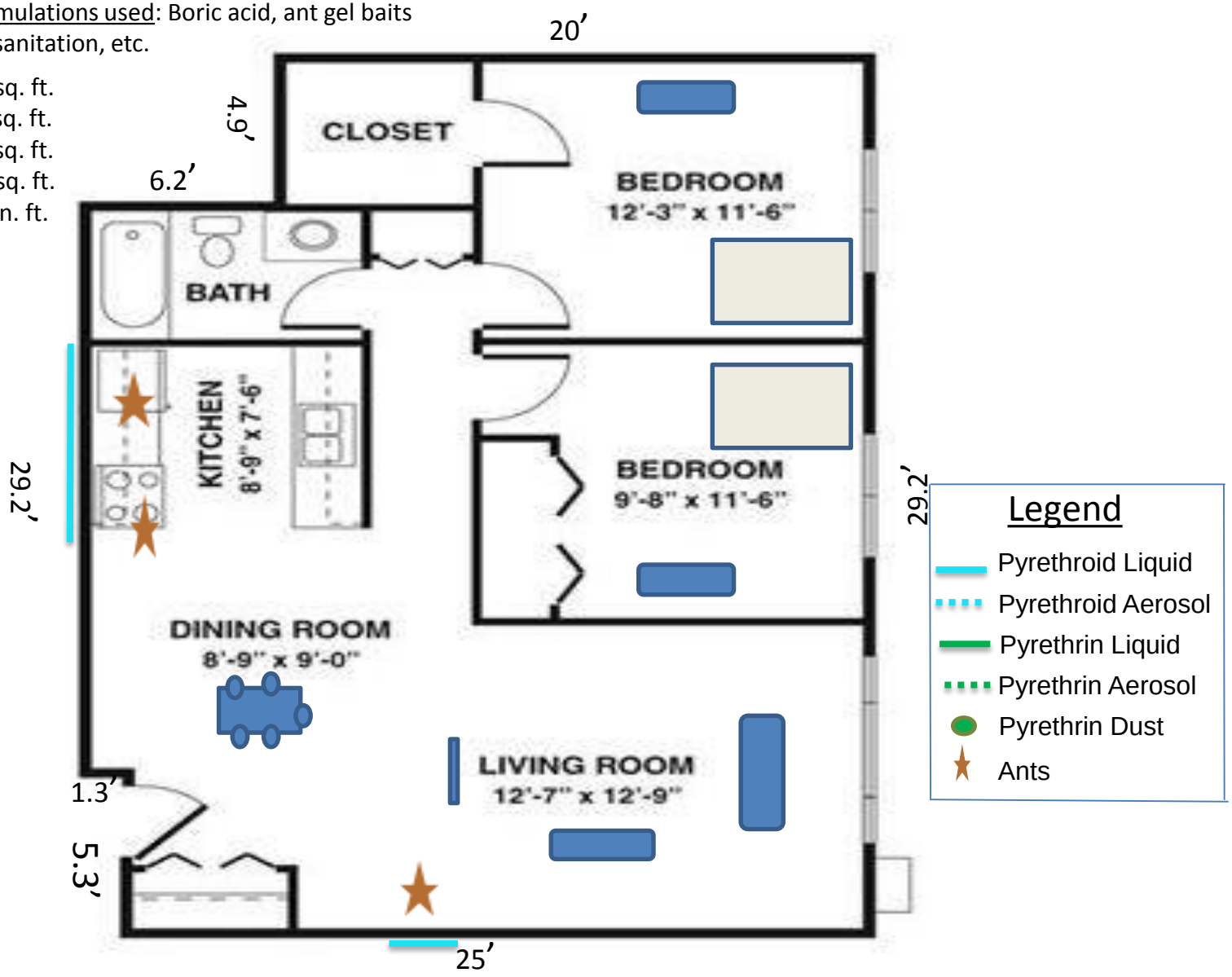
Pyrethroid liquid: 2-4 sq. ft.
Pyrethroid aerosol: 0 sq. ft.
Pyrethrins liquid: 0 sq. ft.
Pyrethrins aerosol: 0 sq. ft.
Pyrethrins dust : 1 ln. ft.



OUTDOOR TREATMENT MULTI-FAMILY RESIDENTIAL UNIT

Treatment of Ants
Other non-Pyrethrin formulations used: Boric acid, ant gel baits
Non-chemical controls: sanitation, etc.

Pyrethroid liquid:	2-4 sq. ft.
Pyrethroid aerosol:	0 sq. ft.
Pyrethrins liquid:	0 sq. ft.
Pyrethrins aerosol:	0 sq. ft.
Pyrethrins dust :	0 ln. ft.



Outdoor treatment for Multi-Family Residential Units

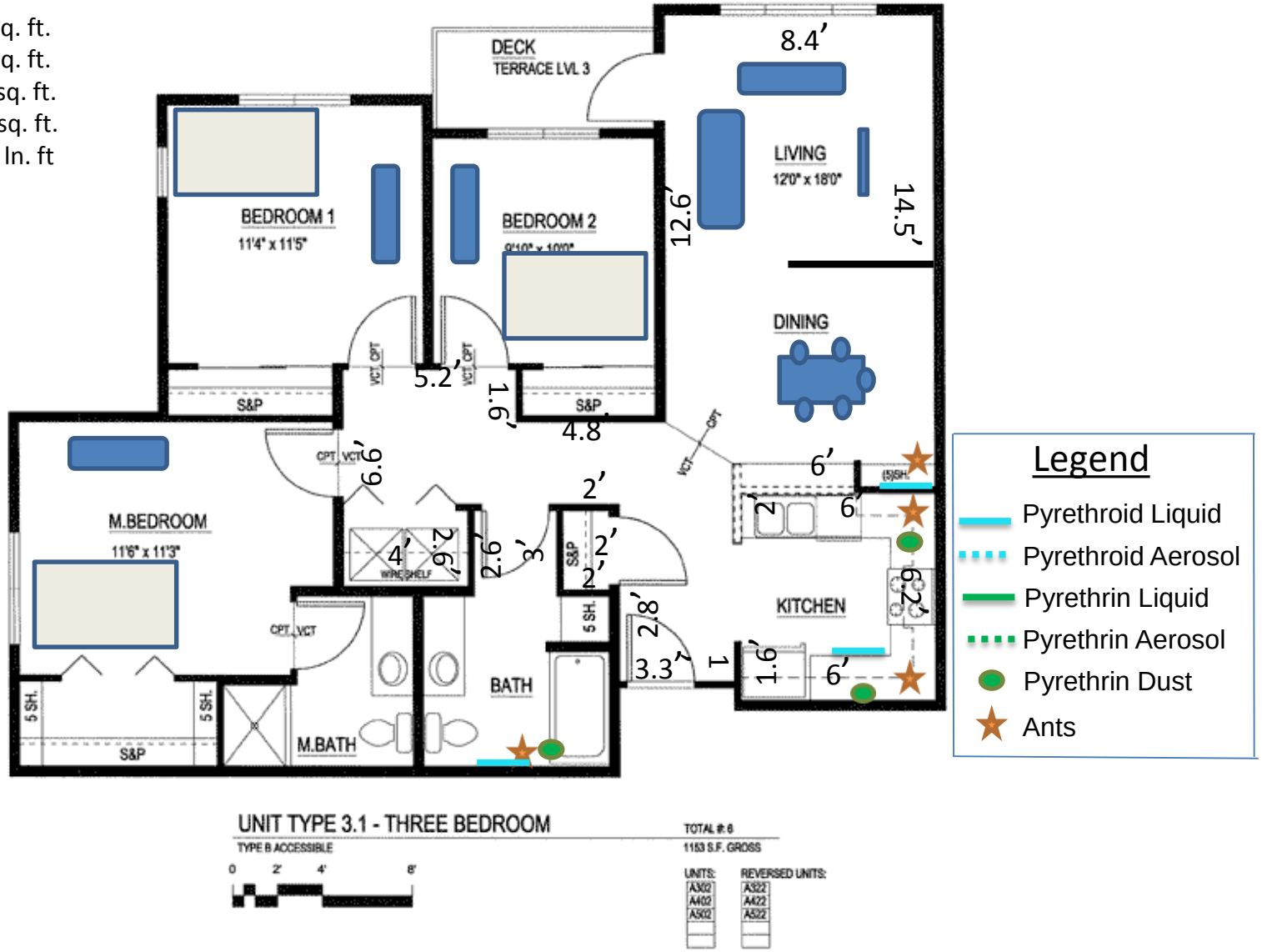
If this unit is at ground level in a multi-residence unit only the outside perimeter of the units would be treated.

If the unit is on a higher level no outside treatment is required.

INDOOR TREATMENT SINGLE DETACHED HOME

Treatment of Ants
Other non-Pyrethrin formulations used: Boric acid, ant gel baits
Non-chemical controls: sanitation, etc.

Pyrethroid liquid: 2-4 sq. ft.
Pyrethroid aerosol: 0.5 sq. ft.
Pyrethrins liquid: 0 sq. ft.
Pyrethrins aerosol: 0 sq. ft.
Pyrethrins dust : 1-3 ln. ft

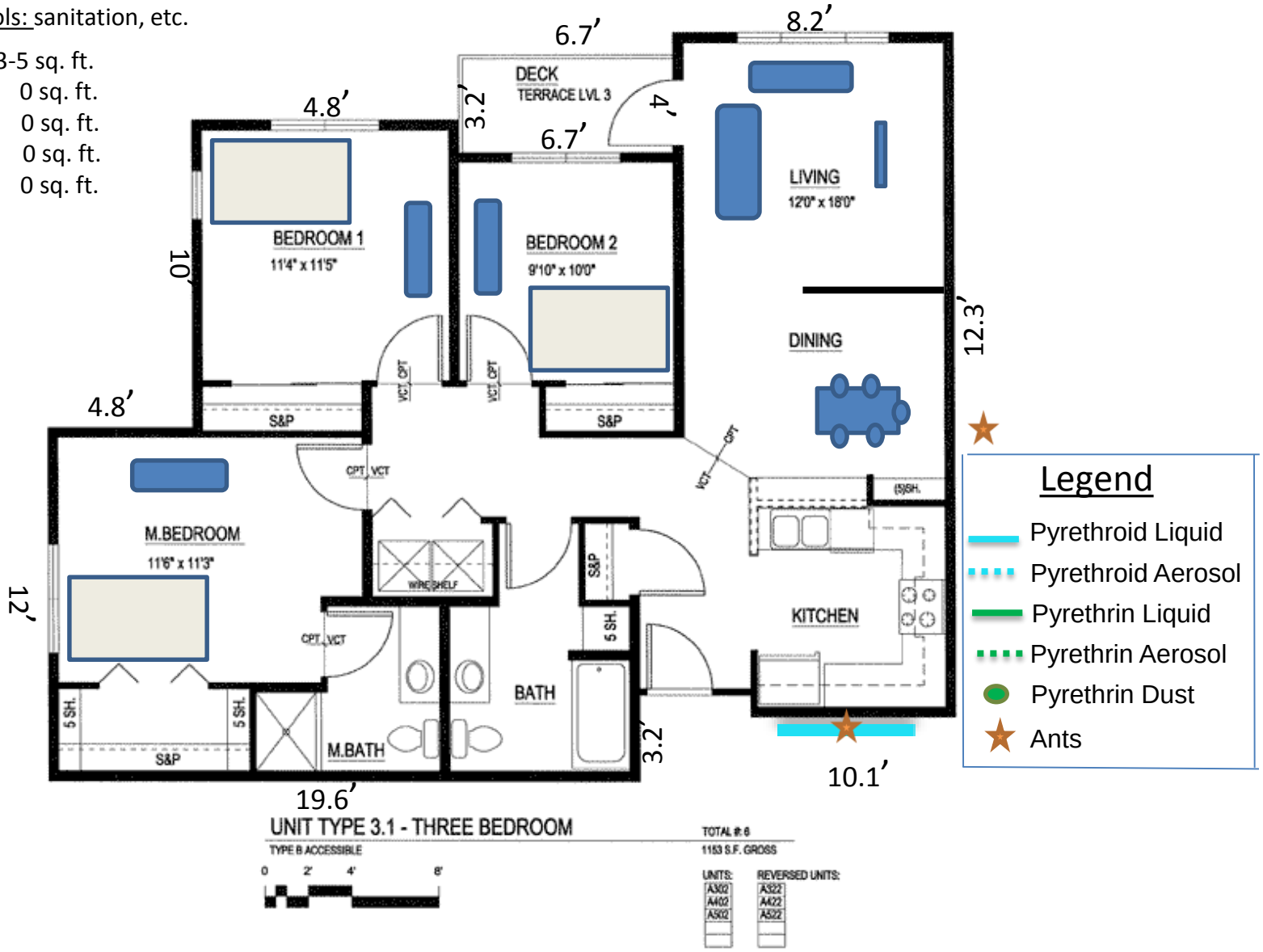


UNIT TYPE 3.1 - THREE BEDROOM
TYPE B ACCESSIBLE
TOTAL #: 6
1153 S.F. GROSS
UNITS: A302 A402 A502
REVERSED UNITS: A322 A422 A522

OUTDOOR TREATMENT SINGLE DETACHED HOME

Treatment of Ants
Other non-Pyrethrin formulations used:
Non-chemical controls: sanitation, etc.

Pyrethroid liquid: 3-5 sq. ft.
Pyrethroid aerosol: 0 sq. ft.
Pyrethrins liquid: 0 sq. ft.
Pyrethrins aerosol: 0 sq. ft.
Pyrethrins dust : 0 sq. ft.



Ant treatment indoor, Multi-Family Residential and Single Detached home

In extreme case where the clients are doing renovations and come across an ant nest a suggestion is to vacuum the ants nest , remove the damaged wood, and put bait or gel in the wall void before closing up the wall.

Other Data Collected

- Number of years applying pesticides: 5.5 years*
- Number of Residences Treated per day per PCO: ≅ 2 residences
- Number of day/year spent applying pyrethroids: ≅ 63 days/year
- Total hours mixing/loading/applying per day: 35-55 min.
- Number of Residences Treated per day per termite technician: 0.1 – 0.2 homes/day
- Total hours mixing/loading/applying termiticides per termite technician per day: .04 - .05 hours/day
- Number of days per year spent applying termiticides: less than 35 days/year (and less than half of each day is spent doing termite work)
- RTU equipment (in grams/day from March to October)
  - Pyrethroid aerosol: 0.32 g/day
  - Pyrethroid Foam: 1.25 g/day
  - Pyrethrin Aerosol: 1.33 g/day

* Years based on time at a single company as there is no way to track technicians from one company to another