



DETROIT ROOFING INSPECTION SERVICE

P.O. Box 99700, Troy, MI 48099

Jeff Ford

RRO ~ Consultant

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August 2, 2017

Candace Nicholas
Premier Condo Management
1460 Walton Blvd. suite 201
Rochester Hills, MI 48307

Re: Roof Survey
Project # 10539S-17
Location: The Fairways – 17 Buildings and Club House
1085 Fairways Dr.
Troy, MI 48085

Dear Ms. Nicholas:

In response to your request, we have completed an evaluation of the roofing systems at the above referenced site. Our inspection involved a thorough visual inspection of the roofing and flashing systems and involved no physical testing.

The following report is a summary of our findings, including photographs of deficient areas, a roof plan and recommendations regarding repair/replacement.

The buildings at this location are normal masonry and wood type structures with a plywood roof deck. Over the various roof areas there are normal penetrations through the roof for plumbing ventilators, chimneys, heat stacks, exhaust vents and skylights.

At the present time, waterproofing consists of an asphalt based, self sealing, three tab shingle. All of the buildings have a single layer of shingles in place; however, two layers of starter shingles was noted along the eave edge of various buildings.

In general, the buildings have gable and shed type roofs ranging from 3/12, 5/12 or 8/12 roof slope. This means for every 12" of horizontal run the roof rises 3", 5", or 8". Over the property there are multiple styles of buildings and roofs; however, most are similar in construction. All styles have elevation changes which require a variety of flashing details to tie the sloped roof areas into the vertical walls and adjoining roof slopes.

In areas that were checked, ice and water shield along with felt underlayment was installed and adequate. Typical installation of ice and water shield by building code is 24" inside the warm wall intersection. This means if you have a 1' overhang or soffit, then approximately 3' of ice and water shield is needed along the eave edge.

In areas which are more susceptible, such as slope transitions or bottle necks, we would typically recommend additional protection due to the increased snow accumulations. In these locations a minimum of six feet or possibly full coverage over the decking may be adequate to provide additional protection.

Shingles were found to be secured in place with roofing nails installed by pneumatic air guns. Inspection of the fastening pattern revealed that on average 3-4 fasteners were installed per shingle and that the shingles were aligned on a five-inch exposure. In general, proper fastening requires 4 fasteners per full shingles consisting of one fastener installed 1" in from each butt edge the remaining fasteners are spaced evenly between the two butt edge fasteners. All fasteners are to be installed 5 5/8" up from the bottom edge of the shingle and should be positioned parallel to the shingle. This allows the fasteners to secure the top edge of the underlying shingle providing increased protection against wind up lift.

We did note, over several buildings fasteners were missing or installed too high or out of position on the single. Primarily this was highly noted on building address 1102-1108, 1110-1116, 1118-1128, 1165-1177, 5880-5886, 5904-5914 and 5932-5942. Ultimately, this can allow shingles to shift or slide out of position. Shingles are currently sliding or out of position over various slopes on addresses 1105-1117, 1110-1116, 1129-1141, 1165-1177 and 5932-5942.

Over various roof areas, partially torn or damaged shingles were noted. This was not a common finding and likely caused from foot traffic damage during installation or maintenance on the roof or building's exterior. Missing shingles were noted along the eave edge of 5960-5970 exposing the underlayment and drip edge.

"Fastener pops" which consists of fasteners which have backed out or were not properly seated during installation was noted over few locations. Though this was not a common finding, and appears to be caused under driven or improperly seated fasteners, the fastener heads have worn through the surface of the above lying shingle and are exposed.

Over the roof areas, there are vertical transitions which are terminated with counter flashings and step flashings up and under the horizontal lapped vinyl siding. Overall the vinyl siding is found in fair to good condition; however, in multiple locations, the bottom "J Channel" is found to be loose or missing. J Channel consists of a trim piece located just above the finished roof surface to secure the bottom edge of the vertical wall siding. As a result of the loose or missing channel, the siding is loose, shifted out of position or even missing causing the flashing or wall to be exposed.

Due to the multiple roof lines and elevations, these vertical walls can typically be covered with snow drifts during the winter months and driving rains during the warmer months. The drifting snow or driving rains can allow moisture leaks into the building appearing as a roof leak where siding is compromised. We recommend that siding contractor address all siding issues to prevent moisture entry into the roof system.

Light to moderate mineral surface loose was noted over all buildings. This is typical with normal aging along with foot traffic damage during installation and maintenance of the roof. As a result, the asphalt mat begins to be exposed. In various locations the fiberglass reinforcement has been exposed, though this was not a common finding and

likely a result when the shingles were separated during installation. Overall the mineral surface loss is consistent with aging and slightly elevated in higher traffic areas such as valleys and areas leading to adjoining or nearby roof slopes.

We noted that ventilation over the buildings was completed with perforated soffit panels for intake and a combination of exhaust vents up along the ridge. We found continuous ridge vents were in place over most of the buildings. In addition, gable end vents were in place as well as can/louver vents.

It is not recommended that two forms of exhaust vents be used in combination with one another. The result is that the stronger vent will draw from the weaker vent and not from the soffit vents. This can allow for moisture to be pulled in during rains and snow to enter the attic in the winter. More importantly, it does not allow for proper air flow from the eave to the ridge for attic ventilation. This will not allow the attics to equalize temperatures between the interior and exterior resulting in accelerated deterioration due to heat and possibly ice dams in the winter.

Continuous perforated soffit panels are in place along the gutter edge. The soffit or eave vents appear to be in good condition and are considered good source of intake for roof venting.

Continuous ridge venting is in place over the buildings providing main exhaust venting. These vents are a low profile design with ridge cap shingles installed over the surface of the vent. Along various elevation changes and shed type roof areas, metal louver vents have been installed. In various locations they are crushed due to foot traffic or the weight of snow and ice. Overall ridge venting begins approx. 1-2' in from each end and extends the entire length of the roof ridge to provide exhaust venting.

When roof replacement is completed, it will be necessary to select one form of ridge vent. Continuous ridge vents are acceptable and ideal, as they vent each truss cavity. In areas of firewalls or short sections of ridge, louver vents can be substituted for ridge vents. However, they should not be used on the same roof area for the reasons mentioned above. During roof replacement, gable end vents should also be blocked from the interior where ridge vents will be installed. As the attics were not entered at this time, we cannot confirm that the building framing is properly cut out and removed or obstructed with building material such as insulation. We would recommend when the roofs are replaced, an inspection of the ventilation be inspected from the interior of the attics allowing adjustments to be specified and corrected at that time of replacement.

Elimination of accumulated moisture over the roof areas is accomplished with a series of gutters and downspouts located over the various roof areas. We noted that these gutters and downspouts appear to be original and overall, they were in fair to good condition. The gutters consist of a 5" K style" and are attached to the fascia board with farrels and gutter spikes.

Downspouts are in place along various exterior walls primarily along outside corners of the buildings. Each downspout is constructed with pre-fabricated sheet metal, 2"x3" in size with a series of elbows to eliminate accumulated moisture from the roof. Each downspout discharges into underground drain tubes or extensions out and away from the building foundation. Downspouts from the upper roofs areas drain into lower gutters in several locations. As a result, this can cause the lower gutters to overflow during

heavy rains and could back up and under the roof or down the face of the masonry or vinyl walls. These downspouts likely were designed to discharge into the lower gutters to avoid the installation of an additional downspout at these locations.

Overall the gutters were clear of debris and appeared to be positively sloped towards the downspout location. However, during our inspection of addresses 5960-5970 the center garage gutter was holding water. Heavy amount of debris was found gathered within the top elbows of the downspout and will require clearing.

All of the buildings have chimneys located along either the eave edge, along the vertical wall transitions or within the field of the roof. Each chimney has a saddle or cricket installed along the high side. These saddles and crickets help direct water away from the roof and wall transition. While the saddles and flashings are in good condition, multiple sections of loose or missing siding was noted in addition to missing or loose J Channel at the chimney locations.

Overall, step flashings are installed between shingle courses over areas checked. However, it is noted that step flashings are missing along various roof slopes or installed higher than the recommended location. In addition, step flashing have been under formed causing shingles to be slightly raised. While this was not common over all building, this can allow moisture to enter into the roof system. While counter flashings are in place along the top shingle course and vertical wall transition, it appears that the flashing was re-used from the original roof system. Multiple exposed flashing fasteners were noted on building 1105-1117.

Along the eave and rake edges, drip edge has been installed prior to shingle installation. Installation of drip edge helps to direct moisture into the gutter keeping it from weeping behind the gutters and down along the fascia. While the drip edge cannot always extend into the gutter, due to the drop necessary in the gutter for drainage, it is possible to install sheet metal extensions. We recommend that these sheet metal extensions be installed to extend up behind the drip edge and down into the gutter to cover the exposed fascia due to the slope in the gutter.

Plumbing stack flashings and heat stack flashings are in place and overall are in good condition. Shingles are installed over the top half of each flashings allowing moisture to shed properly. However, over building 5904-5914, the PVC plumbing stack has been cut or is not supported within the building's interior. As a result the top edge of the stack is flush with the neoprene flashing and will hold water. We would recommend a plumbing contractor address this location. The flashing should be re-evaluated once the plumbing contractor has completed repairs.

Overall the buildings' roofs are estimated at 12-15 years old and are in fair condition. These roofs are lying well over the roof deck and sealed well in most areas. However, we note that missing fasteners or improper fastener placement leaves the shingles susceptible to wind up lift or shifting. In addition, poorly installed or missing flashings can lead to moisture entering the roof system. With the items noted, we feel the service life of the roof systems may not reach it's full expectancy before failure occurs. Repairs to correct problem areas would be extensive and costly. In addition, removing and replacing step flashings and shingles can cause additional damage to surrounding shingles. Therefore, most of the repairs would not be cost effective and would not significantly increase the service life of the roofs.

Minor repairs, such as replacing damaged shingle tabs and securing visually noticeable shifting/sliding shingles is recommended now and as they occur over the remaining service life. While these repairs will not be salvageable when the roofs are replaced, they are relatively inexpensive and can reduce the possibility of leaks associated with these deficiencies. In addition, completing repairs to loose or missing siding should be addressed now to prevent moisture intrusion.

Therefore, until the roofs are scheduled for replacement, general maintenance and minor repairs should be completed. In general, we feel that the following items should be addressed over all buildings:

1. Secure or replace sliding/shifting or missing shingles
2. Remove/replace damaged shingles along vertical walls which are exposing flashings.
3. Address all loose and missing siding.
4. Apply sealant over all exposed flashing fasteners or nail pops.

We estimate that these minor repairs will require an expenditure of approximately \$500 – 1,500 per building. This estimate does not include any siding or plumbing repairs.

Overall, we feel that these roofs are maintainable; however, replacement is in the near future. Roof replacement can be completed in multiple phases over a property of this size. With that being said, it is likely that you may begin the replacement process before some of the roofs are needed. However, by the time you reach the end of the project, the last roofs will be past their useful service life.

The following is a list of the buildings, their estimated service life remaining and the approximate costs for replacement, based on current industry pricing.

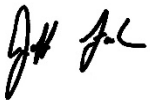
<u>ADDRESS</u>	<u>SERVICE LIFE REMAINING</u>	<u>ESTIMATED REPLACEMENT COST</u>
1085	6-7 YEARS	\$6,000-7,000
1091-1103	4-5 YEARS	\$32,000-37,500
1102-1108	1-2 YEARS	\$24,000-28,000
1105-1117	3-4 YEARS	\$32,000-37,500
1110-1116	1-2 YEARS	\$25,500-30,000
1118-1128	4-5 YEARS	\$32,000-37,500
1129-1141	3-4 YEARS	\$32,000-37,500
1130-1140	3-4 YEARS	\$32,000-37,500
1142-1152	3-4 YEARS	\$32,000-37,500
1154-1164	4-5 YEARS	\$32,000-37,500

<u>ADDRESS</u>	<u>SERVICE LIFE REMAINING</u>	<u>ESTIMATED REPLACEMENT COST</u>
1165-1177	1-2 YEARS	\$32,000-37,500
1166-1176	2-3 YEARS	\$32,000-37,500
5880-5886	3-4 YEARS	\$24,000-28,000
5904-5914	4-5 YEARS	\$29,000-35,000
5909-5919	3-4 YEARS	\$29,000-35,000
5932-5942	2-3 YEARS	\$29,000-35,000
5937-5947	5-6 YEARS	\$29,000-35,000
5960-5970	5-6 YEARS	\$32,000-37,500

The above costs are based on current industry pricing and do not include work which may be required to siding or for deteriorated decking. The service life remaining is based on our visual inspection and assumes that repairs and regular maintenance will be completed until replacement is completed. Any severe storms or extreme weather could reduce these estimates for remaining service life. If leak history is known on these buildings that information should also be considered.

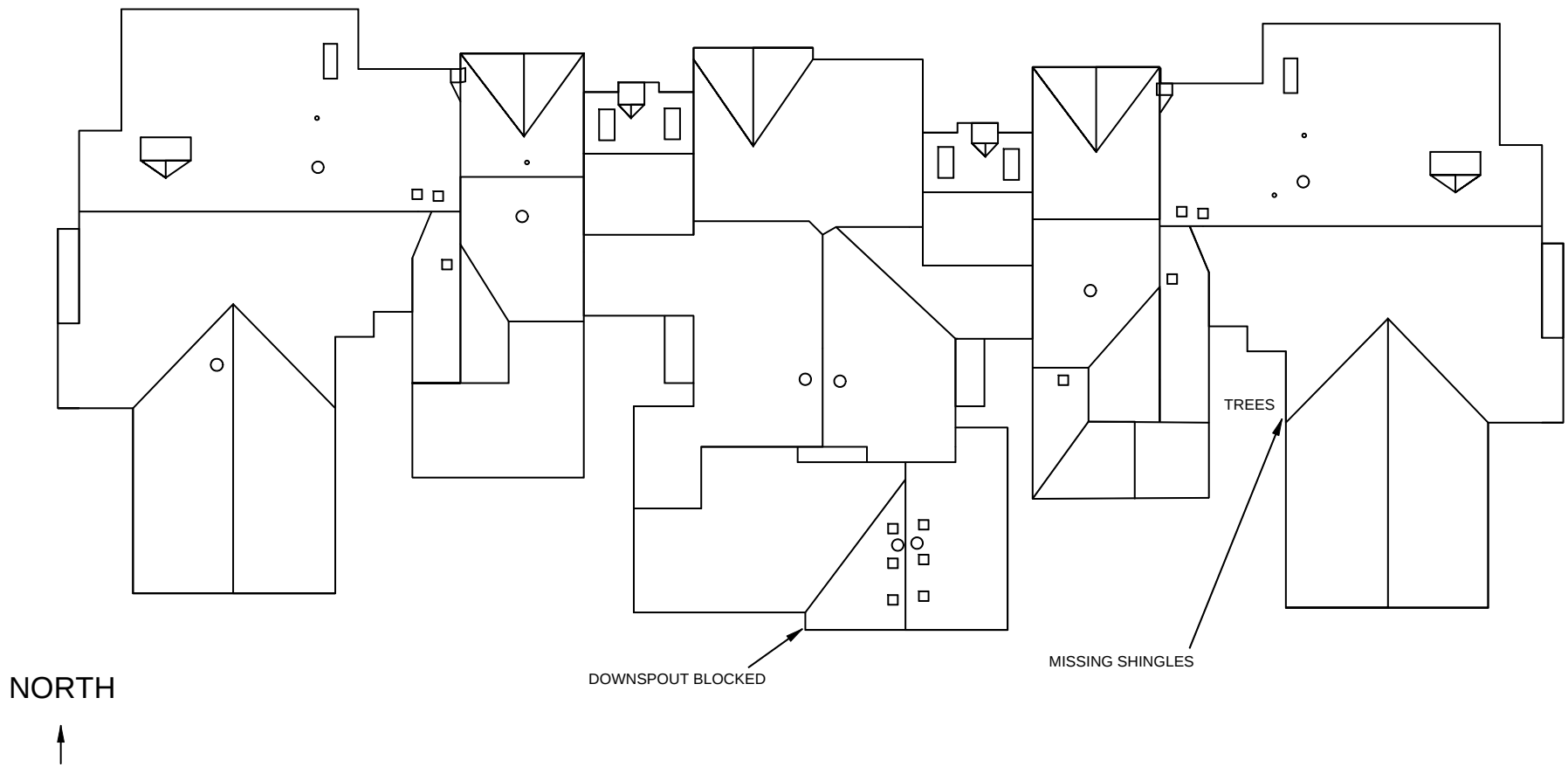
If you have any questions regarding this report, feel free to contact us.

Sincerely,

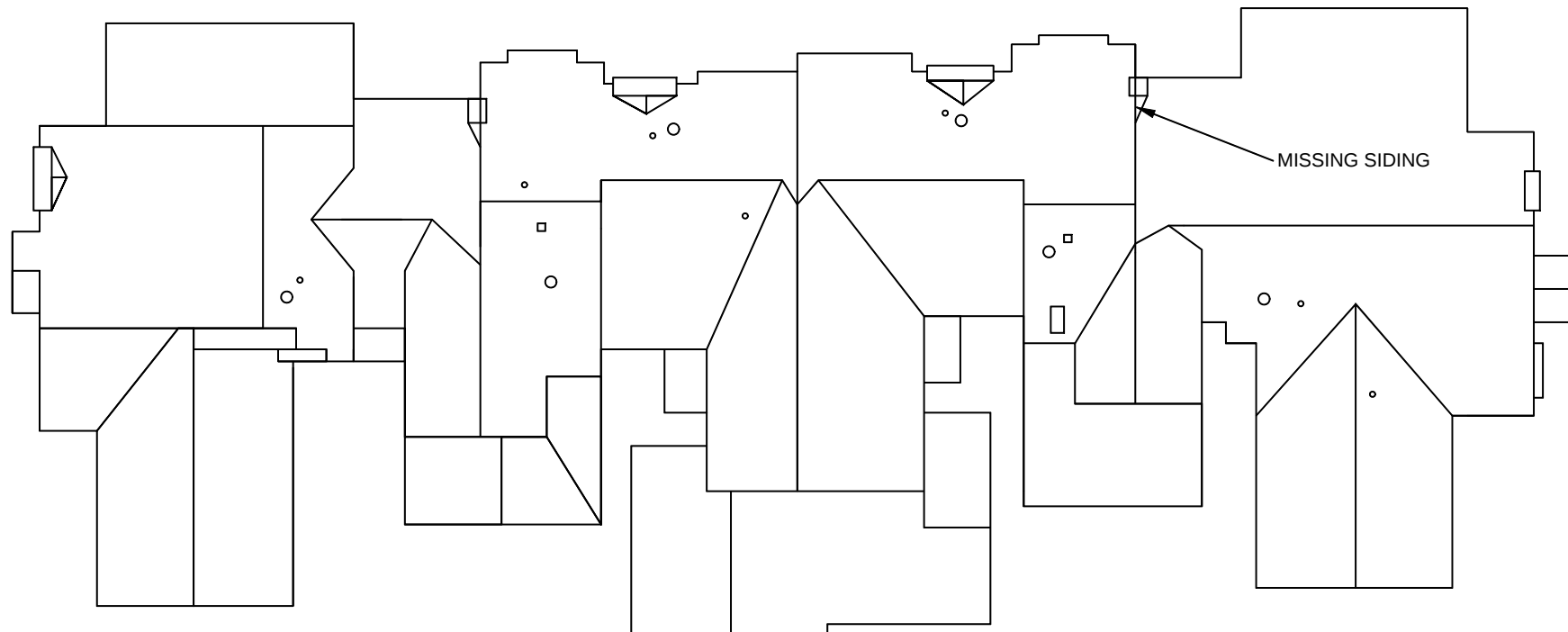


Jeff Ford, RRO
Consultant
Detroit Roofing Inspection Service

NO "J CHANNEL" INSTALLED ON ANY VERTICAL WALL



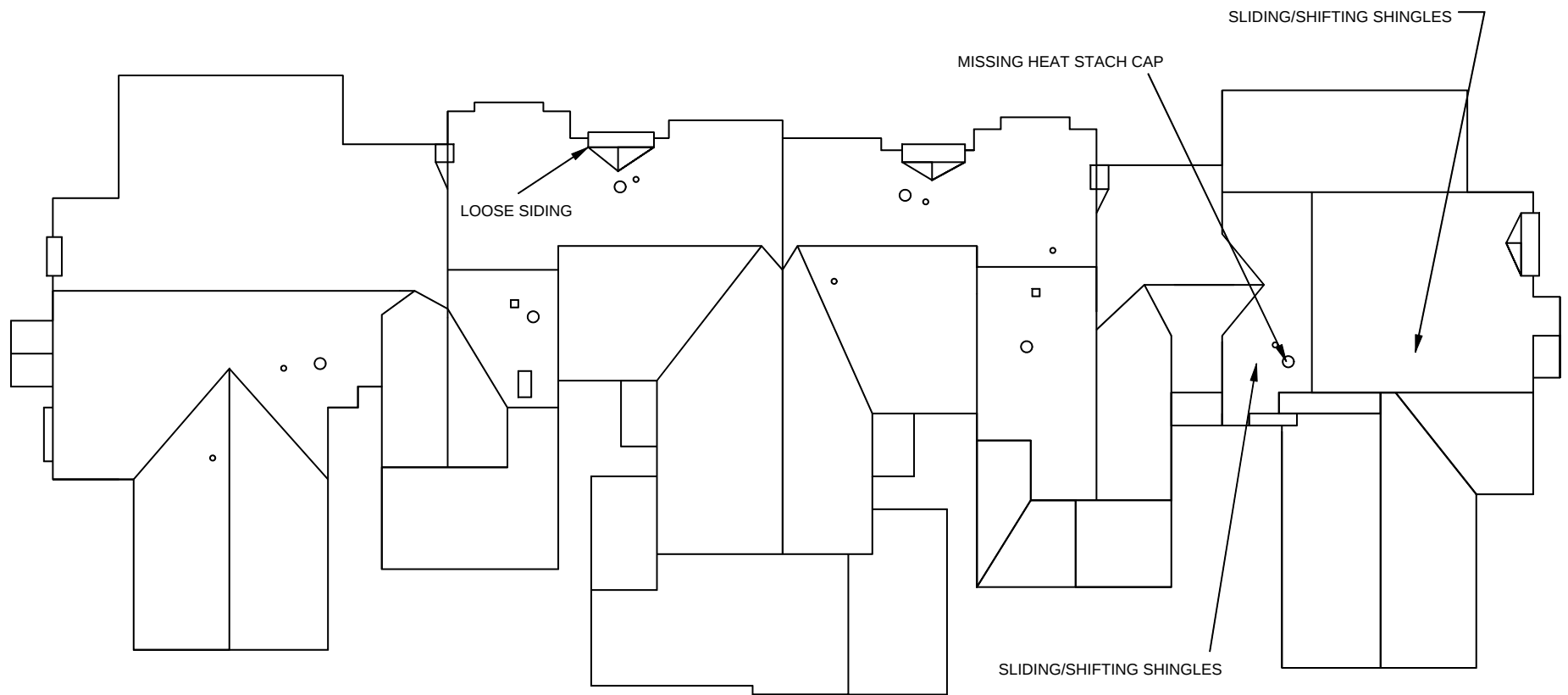
SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 5960- 5970 CREEKSIDE DR., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-4-2017	



NORTH

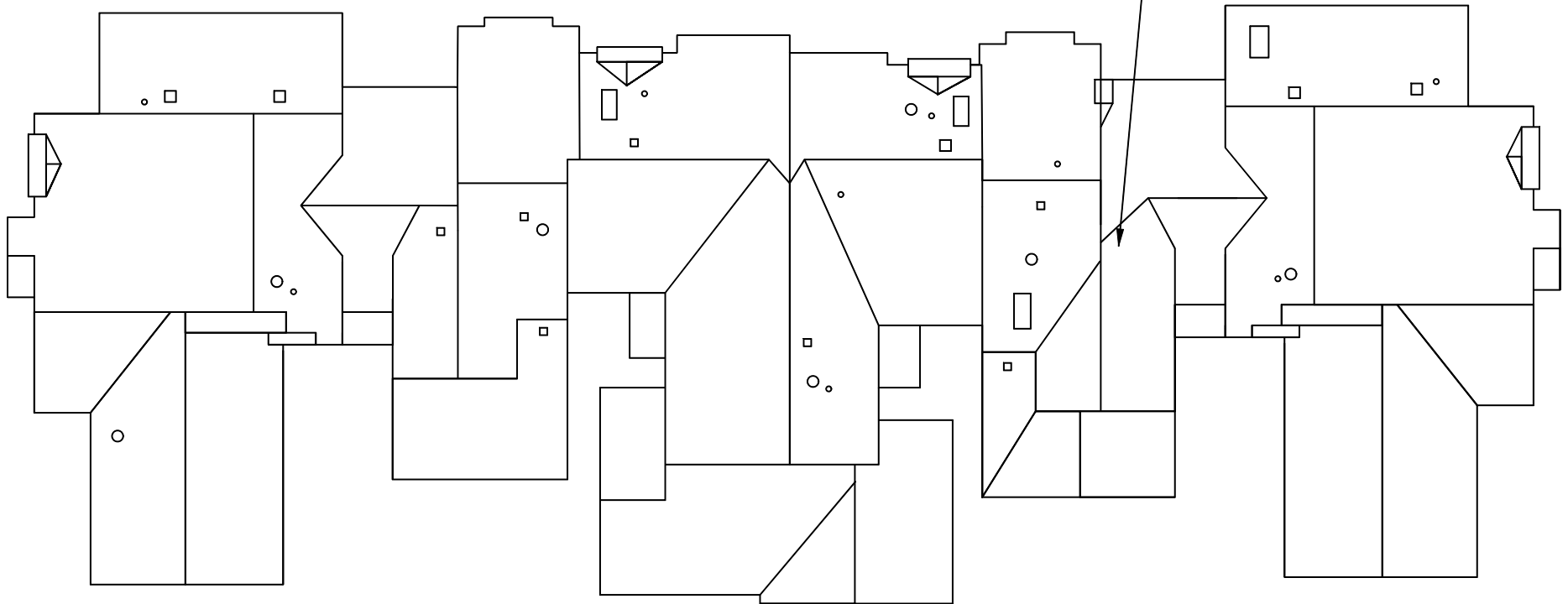


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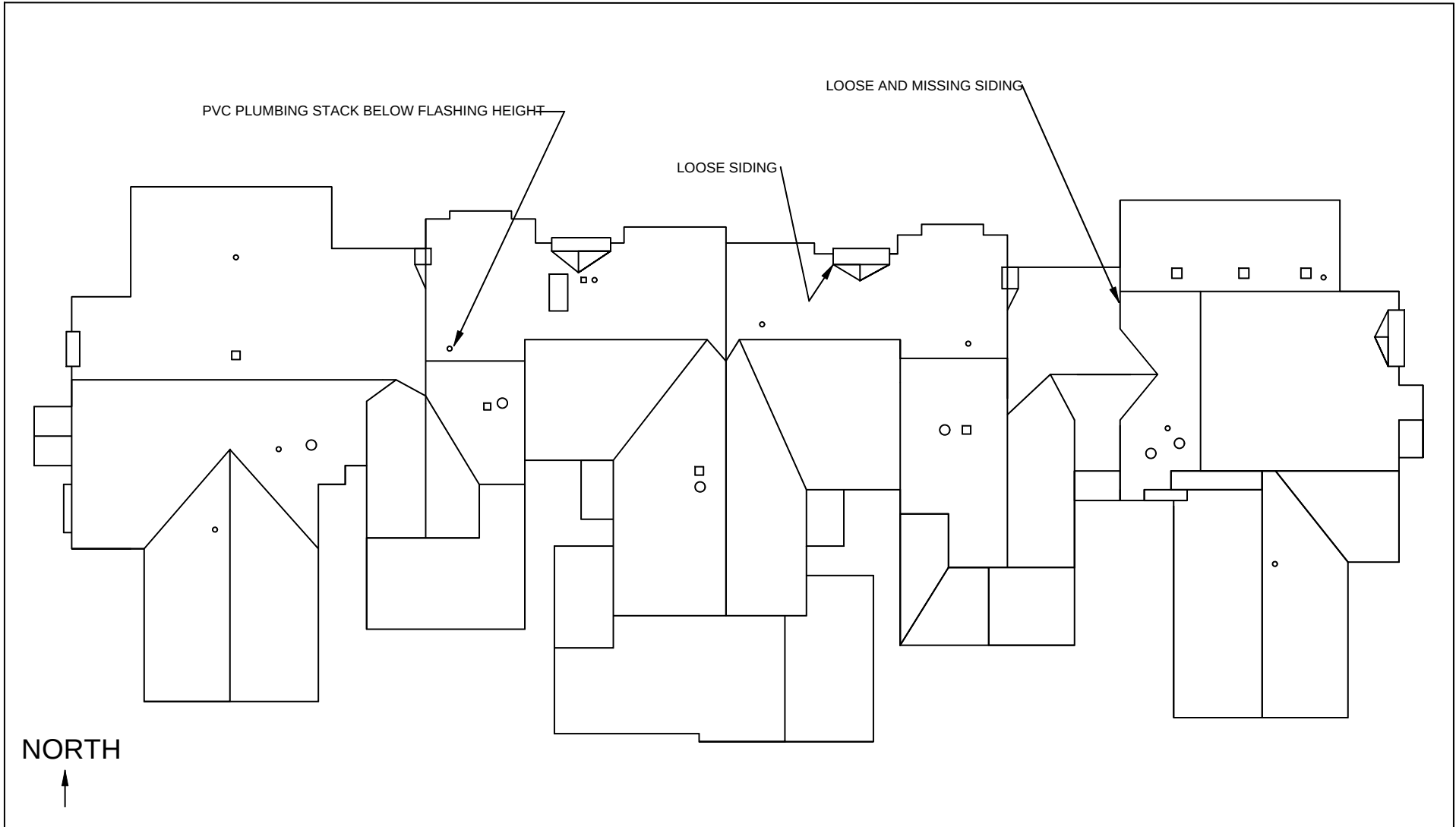


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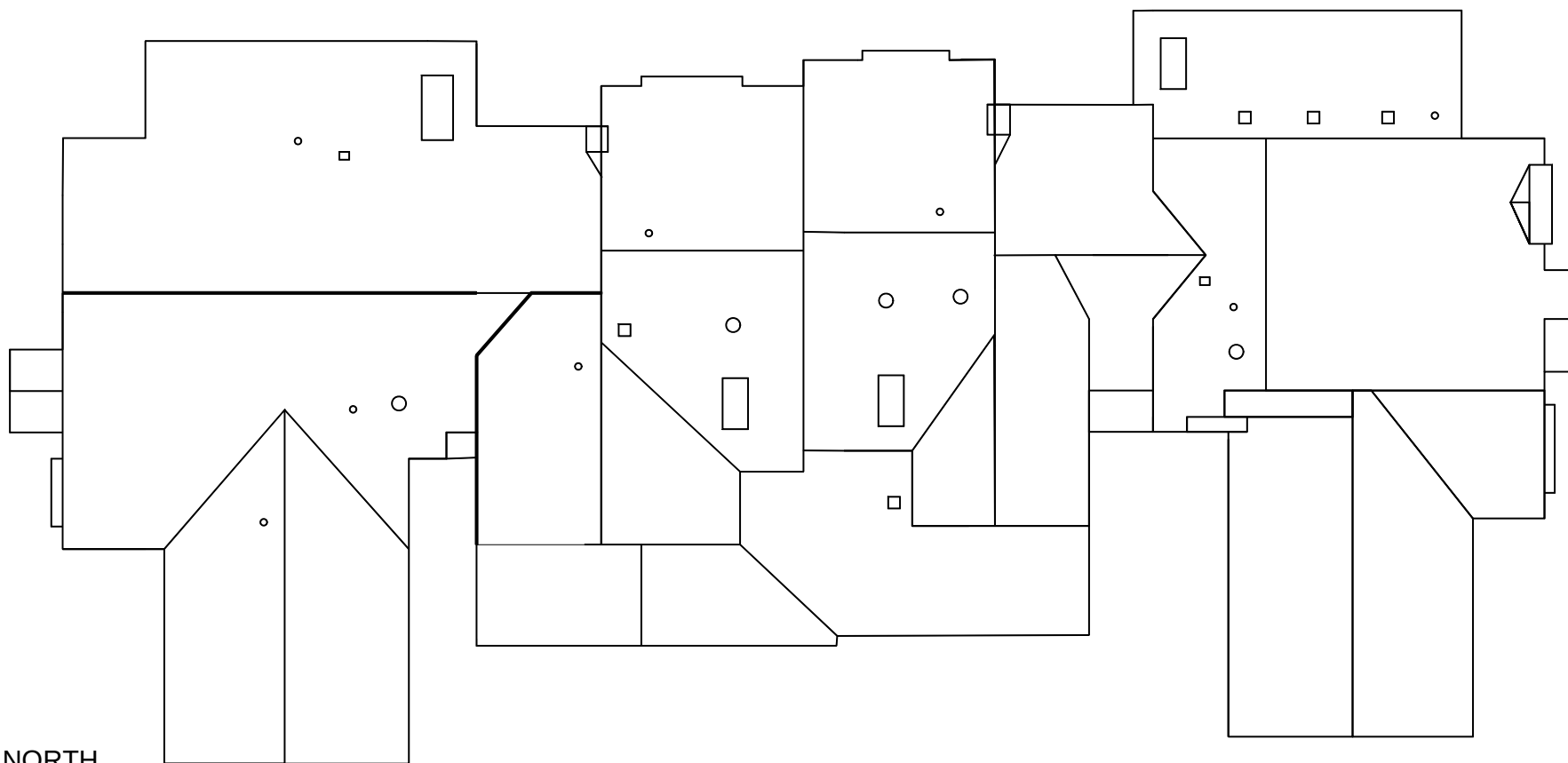
IMPROPER REPAIR WITH OVERLAPPED SHINGLES



SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 5909- 5919 Creekside Dr., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-7-2017	



SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 5904- 5914 Creekside Dr., TROY, MI		DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN		DRIS JOB NO.: 10539S-17	
			DRAWING DATE : 8-7-2017	



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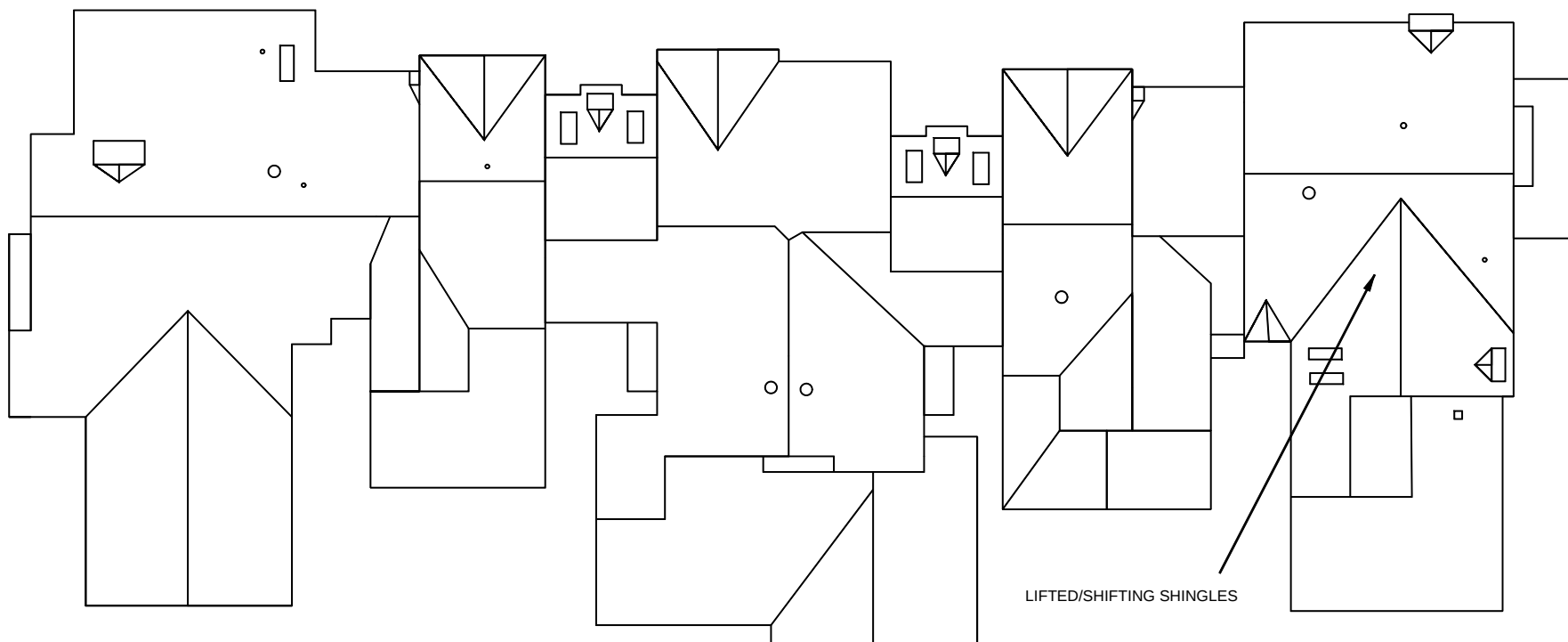
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DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-7-2017	

MISSING OR IMPROPER INSTALLATION OF STEP FLASHING

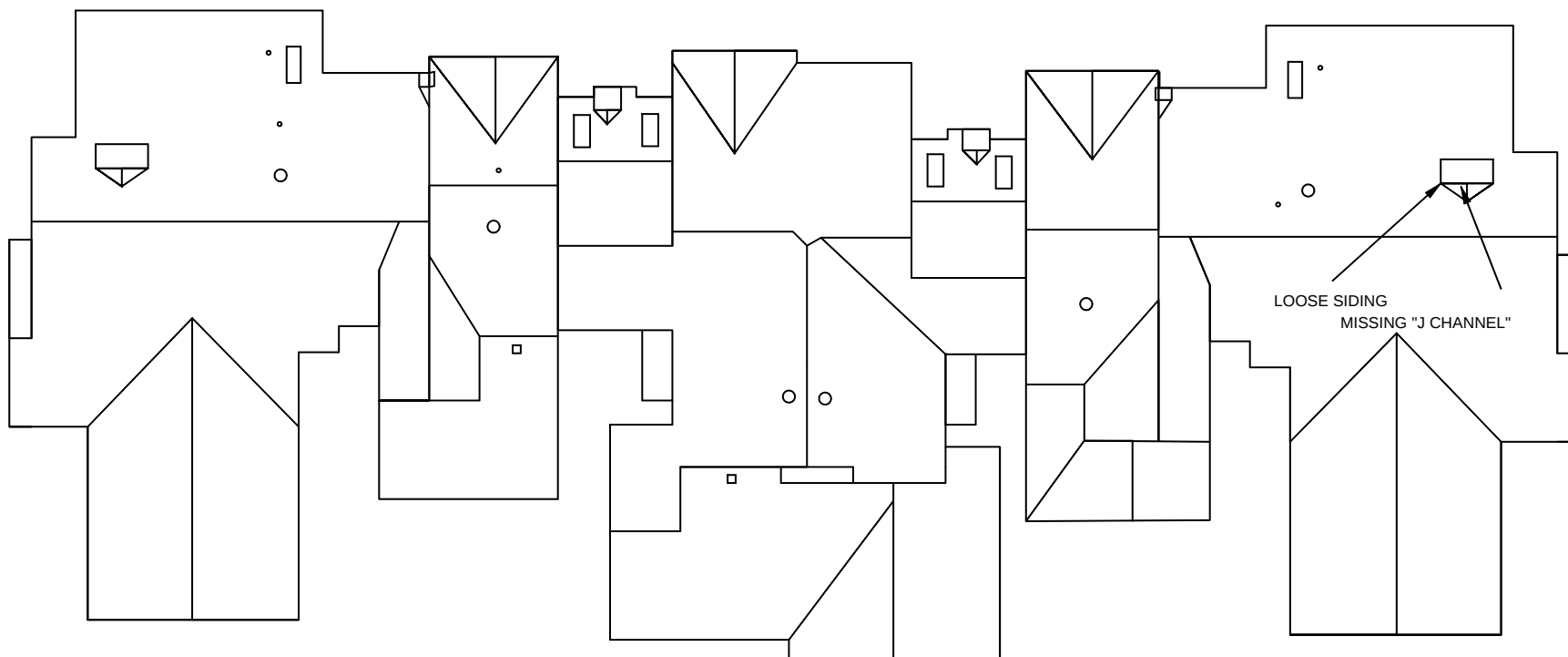
LOOSE "J CHANNEL"

LOOSE SIDING

SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 1166- 1176 FAIRWAYS BLVD., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-4-2017	



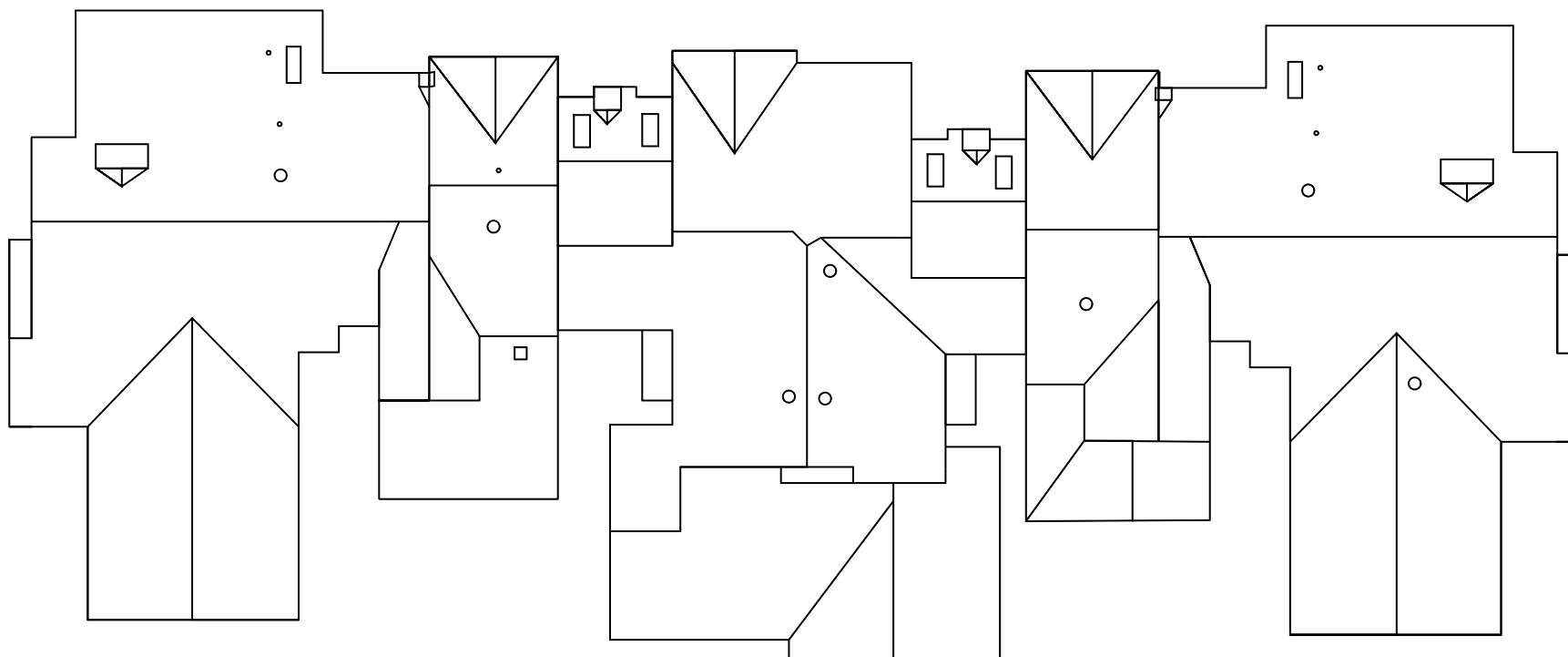
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DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-4-2017	



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SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 1154- 1164 FAIRWAYS BLVD., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-4-2017	



SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 1142- 1152 FAIRWAYS BLVD., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-2-2017	

MISSING "J CHANNEL"

IMPROPER FLASHING

NORTH

SHEET NUMBER :

TYP.

THE FAIRWAYS CONDOMINIUMS
1130- 1140 FAIRWAYS BLVD., TROY, MI

DETROIT ROOFING INSPECTION SERVICE, INC.

P.O. BOX 99700, TROY MI 48099 (586) 759-2143

DRAWN BY :

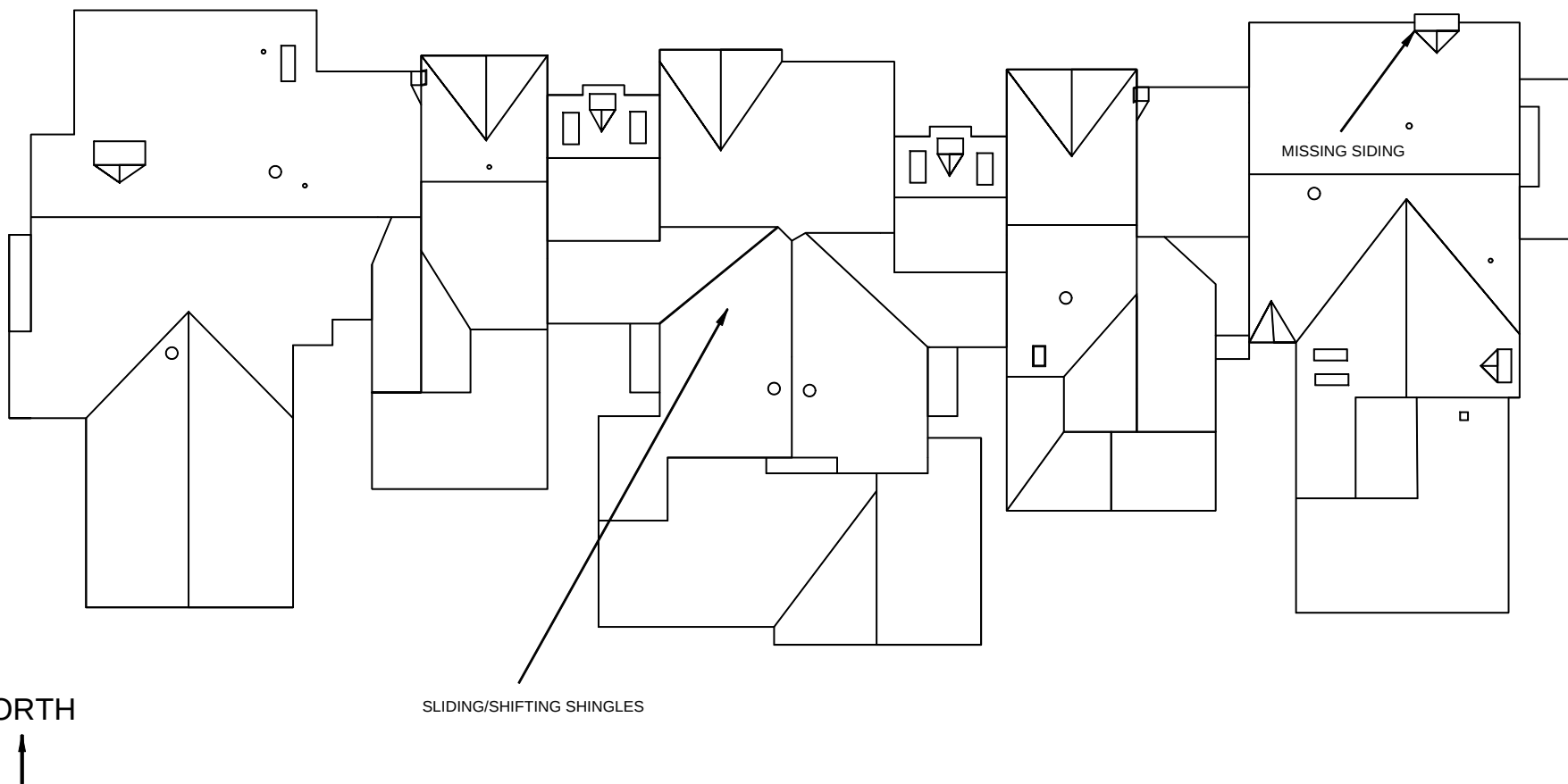
JMF

ROOF PLAN

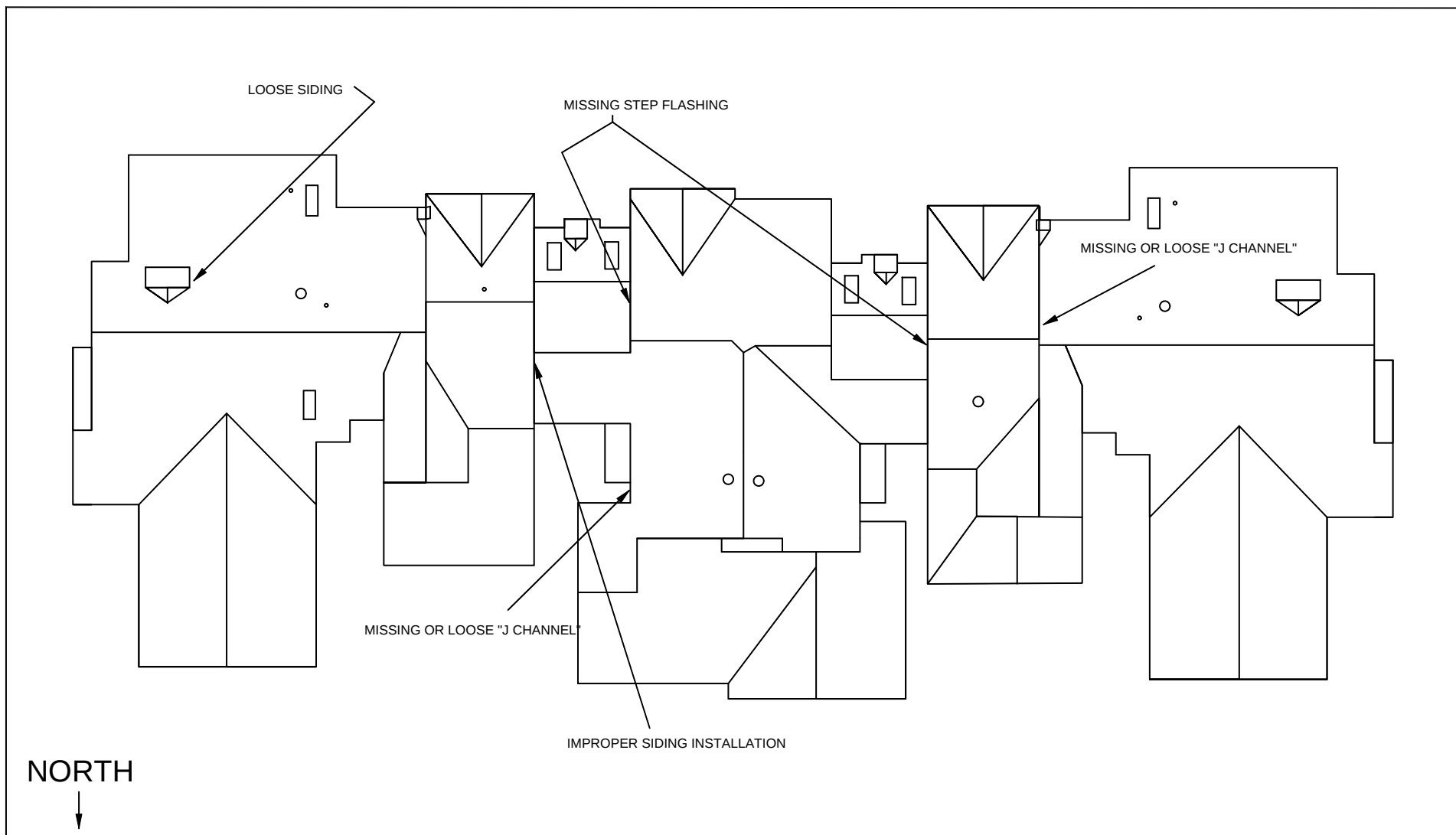
DRIS JOB NO.: 10539S-17

DRAWING DATE : 8-2-2017

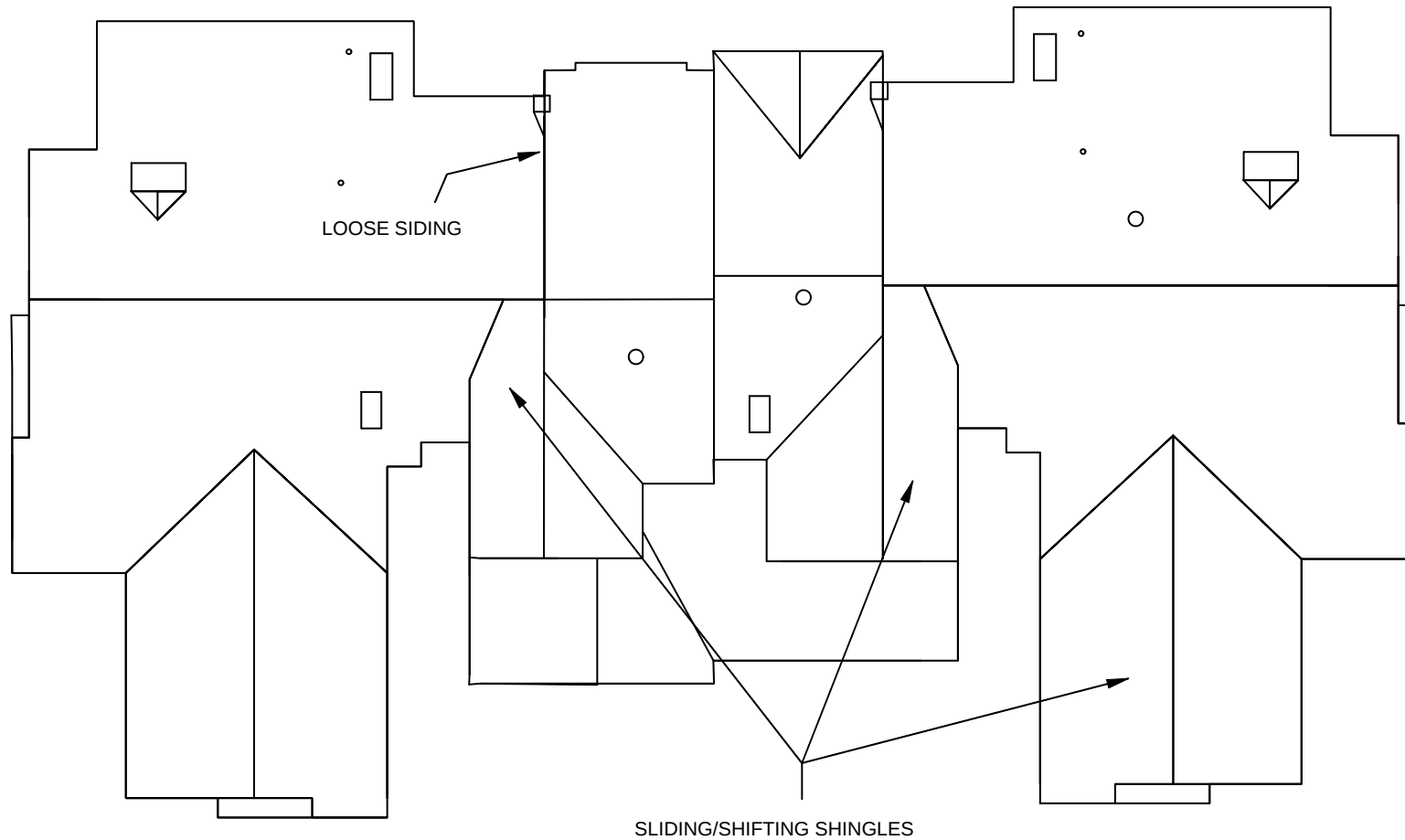




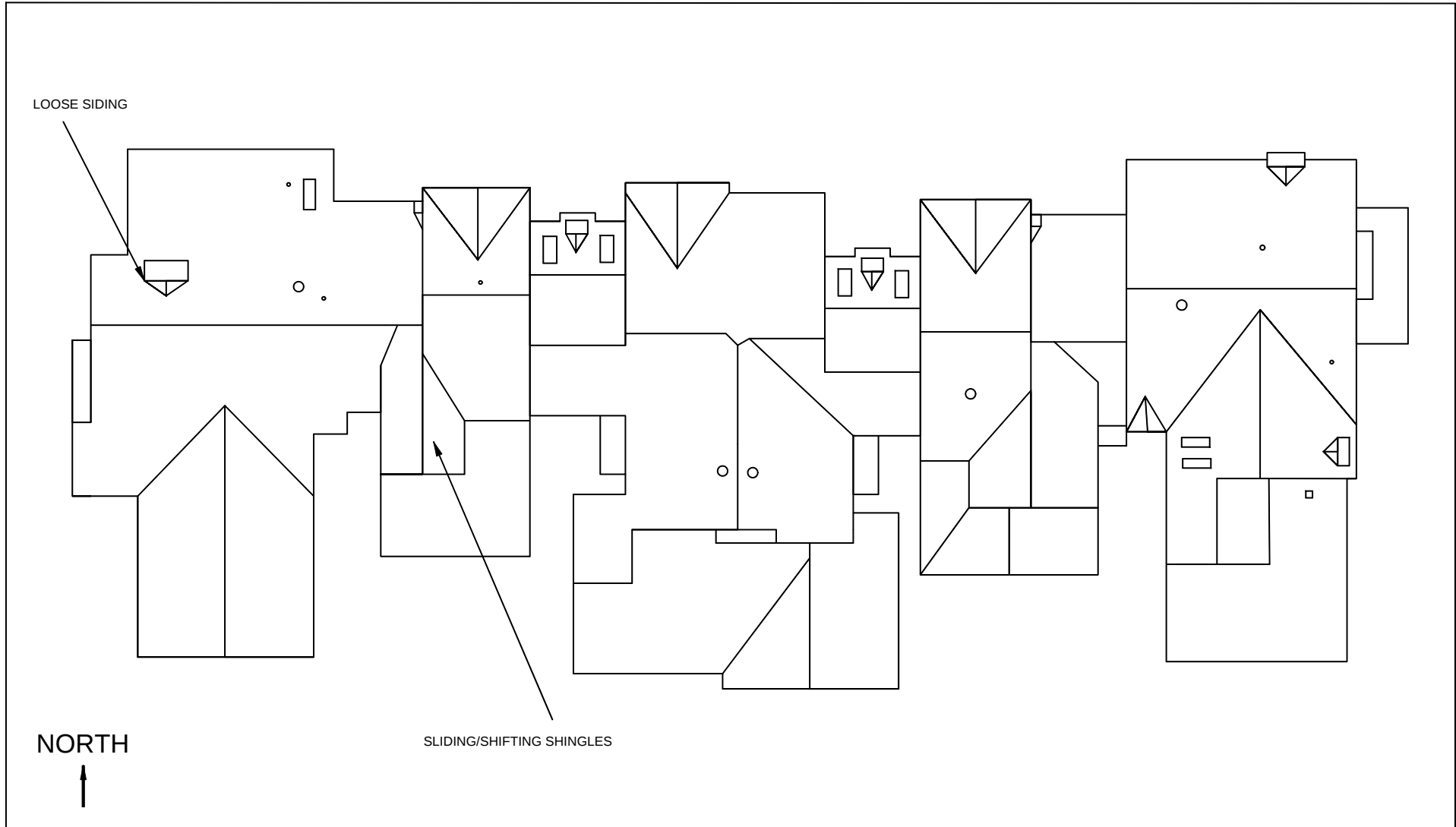
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DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-1-2017	



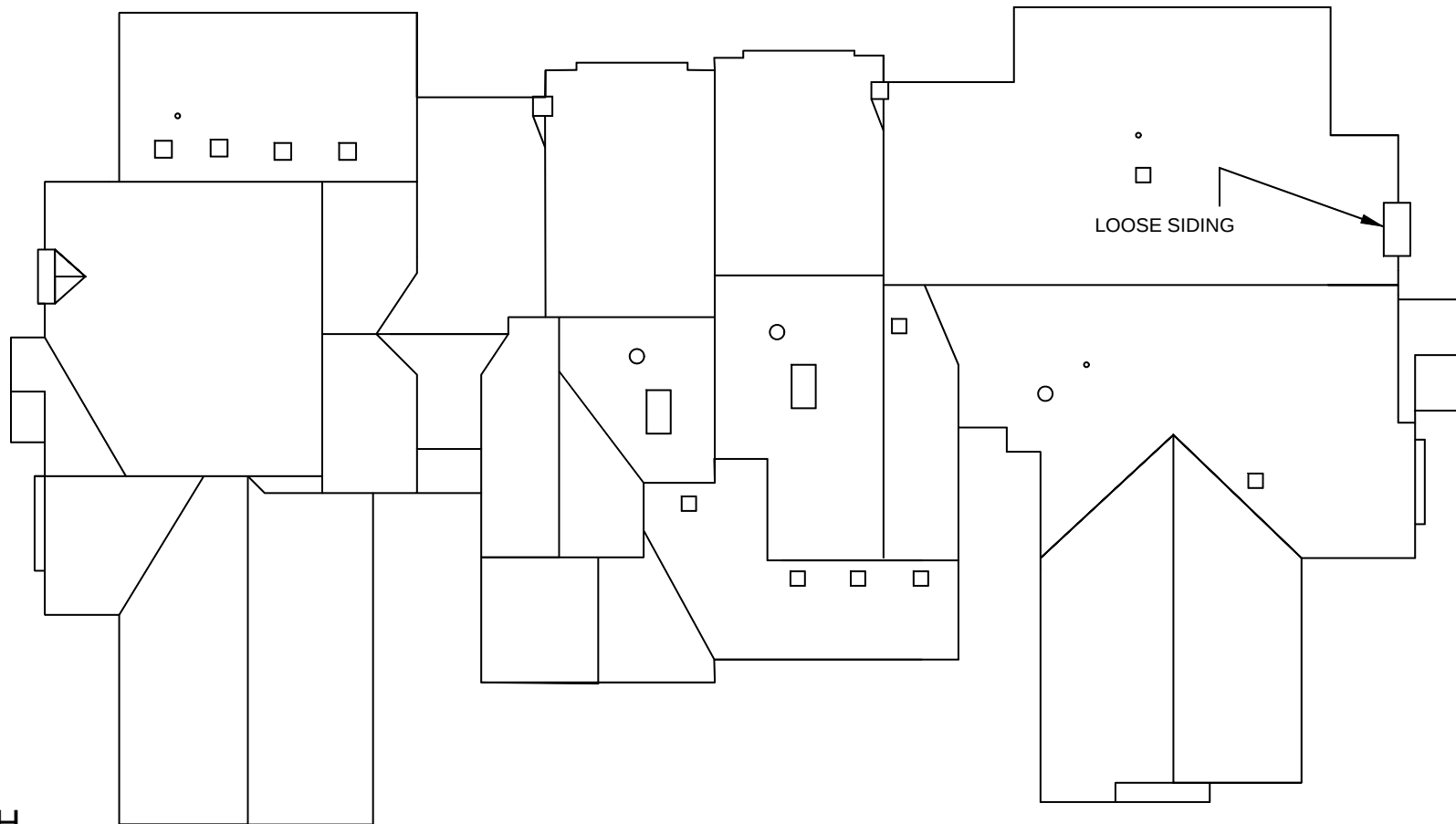
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DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-2-2017	



SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 1110- 1116 FAIRWAYS BLVD., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 8-2-2017	



SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 1005- 1117 FAIRWAYS BLVD., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17 DRAWING DATE : 8-1-2017	DRIS



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TREES

LOOSE SIDING

SHEET NUMBER :

TYP.

THE FAIRWAYS CONDOMINIUMS
1102- 1108 FAIRWAYS BLVD., TROY, MI

DETROIT ROOFING INSPECTION SERVICE, INC.

P.O. BOX 99700, TROY MI 48099 (586) 759-2143

DRAWN BY :

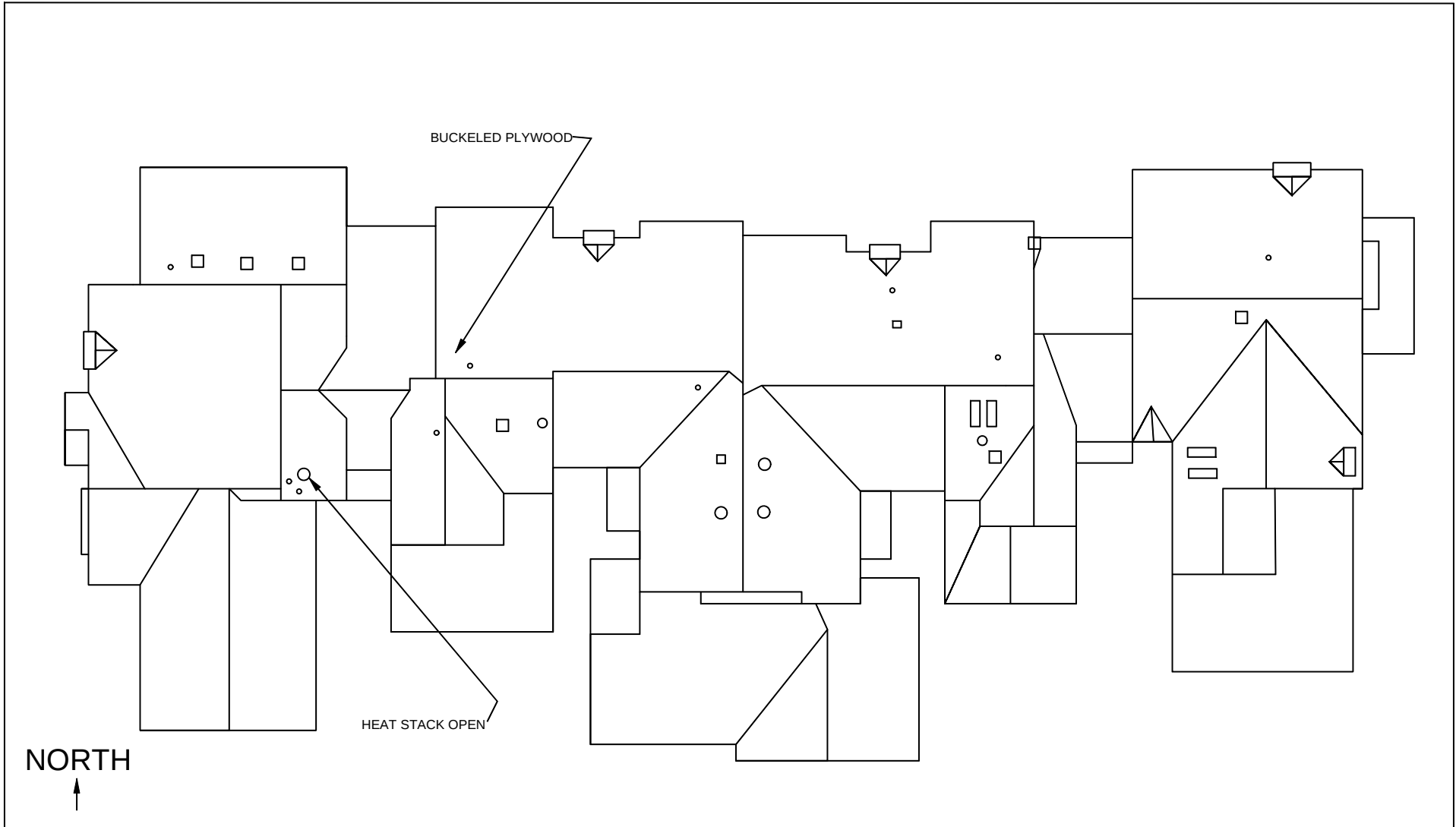
JMF

ROOF PLAN

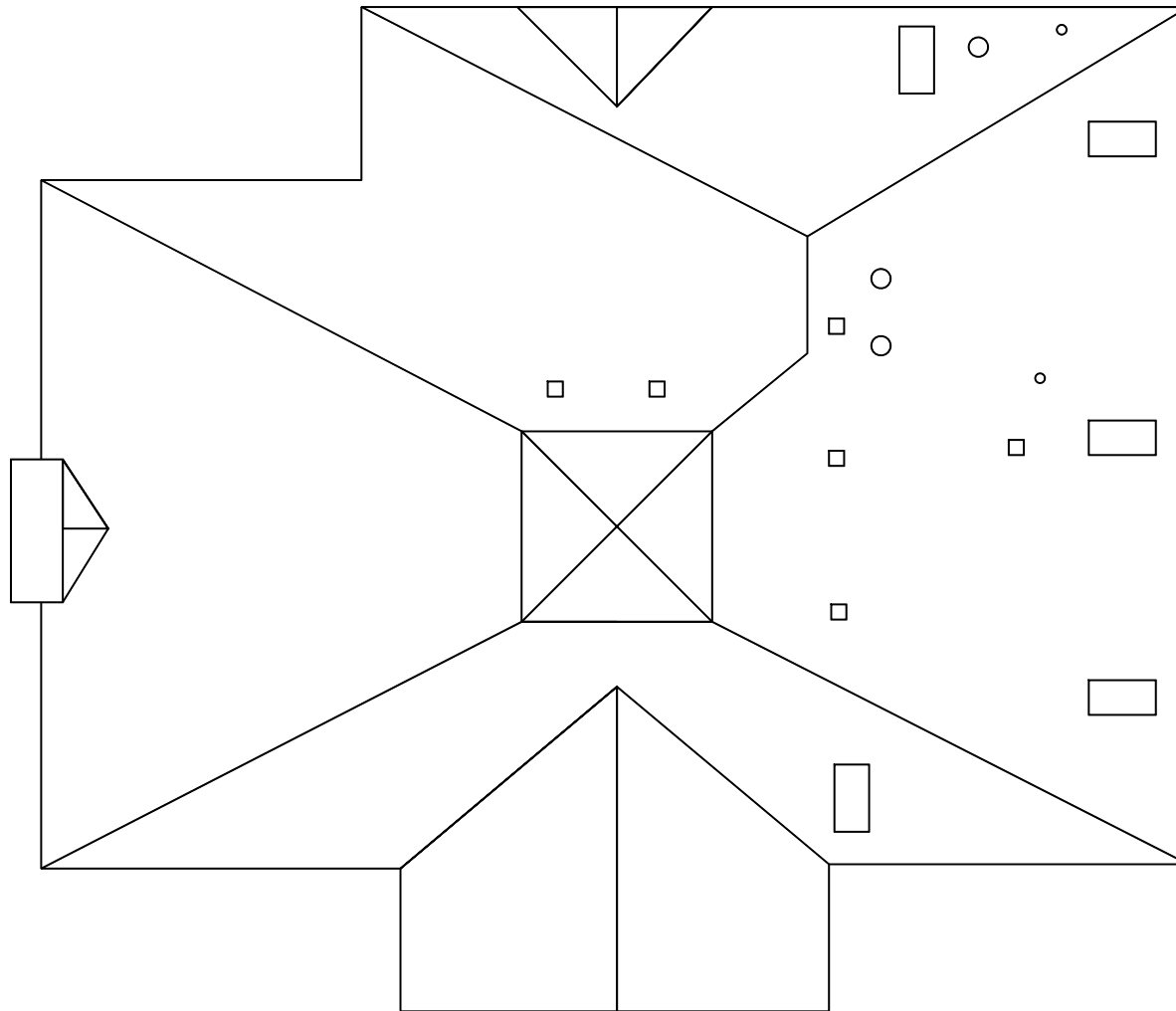
DRIS JOB NO.: 10539S-17

DRAWING DATE : 8-2-2017





SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 1091- 1103 FAIRWAYS BLVD., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	ROOF PLAN	DRIS JOB NO.: 10539S-17	
		DRAWING DATE : 7-37-2017	



NORTH
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SHEET NUMBER : TYP.	THE FAIRWAYS CONDOMINIUMS 1085 FAIRWAYS BLVD., TROY, MI	DETROIT ROOFING INSPECTION SERVICE, INC. P.O. BOX 99700, TROY MI 48099 (586) 759-2143	
DRAWN BY : JMF	CLUB HOUSE	DRIS JOB NO.: 10539S-17 DRAWING DATE : 8-3-2017	



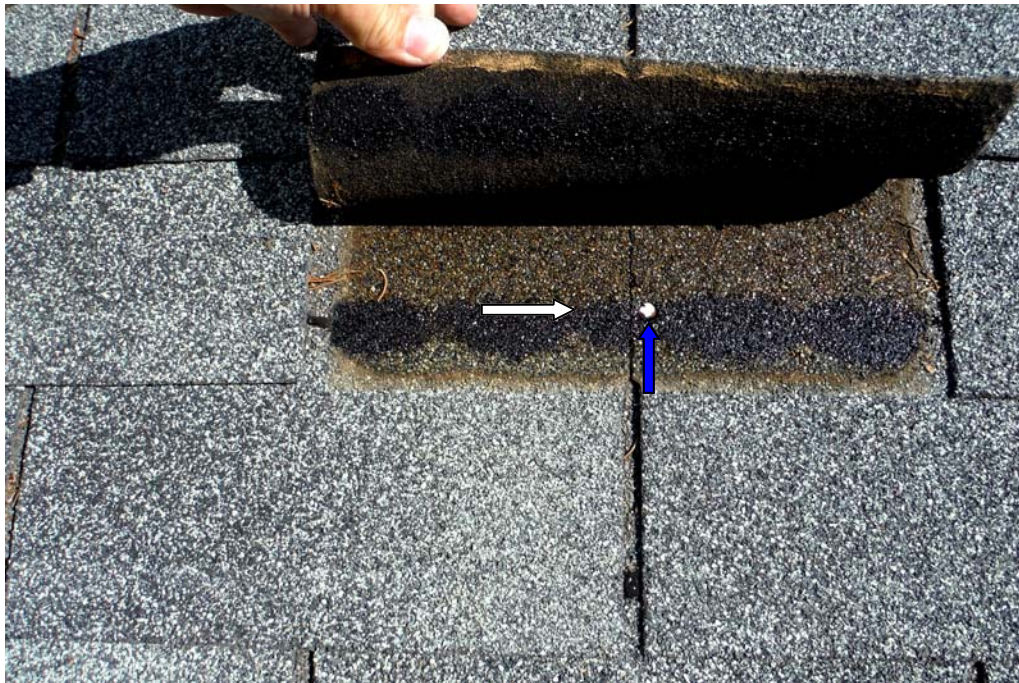
Overview of the East end of the club house roof



1091-1103 Minor buckled plywood causing the shingles to be raised



1102-1108 Shifting and sliding shingles



1102-1108 Missing fastener (white arrow) improper placement of fastener (blue arrow)



1105-1117 exposed counter flashing fasteners



1105-1117 Loose and missing siding along the bottom of the chimney



1110-1116 missing step flashing between shingle courses and vertical wall transition



1110-1117 multiple sliding/shifting shingles



1118-1128 Missing step flashing between shingle courses and vertical wall transition



1118-1128 improperly installed siding



1129-1141 mineral surface loose over the field shingles exposing the asphalt mat



1129-1141 exposed framing and step flashing due to missing siding over the high side of the chimney



1130-1140 Missing "J Channel"



1130-1140 Improper flashing along chimney and roof transition



1142-1152 Mineral surface loose over field shingles and within the valley



1154-1164 over view of the roof slopes



1154-1164 Missing siding and “J Channel” on the high side of the chimney



1165-1177 possible win lifted shingles exposing the underlayment



1165-1177 overdriven and improper positioned fasteners at each butt end of the shingle



1166-1176 missing step flashing between shingle courses



1166-1176 Damaged shingle tab exposing the step flashing



5880-5886 under formed step flashing between shingle courses partially raising the shingles



5904-5914 PVC plumbing stack not extended through flashing



5904-5914 Loose siding



5909-5919 exposed fiberglass reinforcement



5909-5919 scuffed mineral surface over field shingles



5932-5942 missing fasteners along each butt end of the shingles



5932-5942 Shifting and sliding shingles



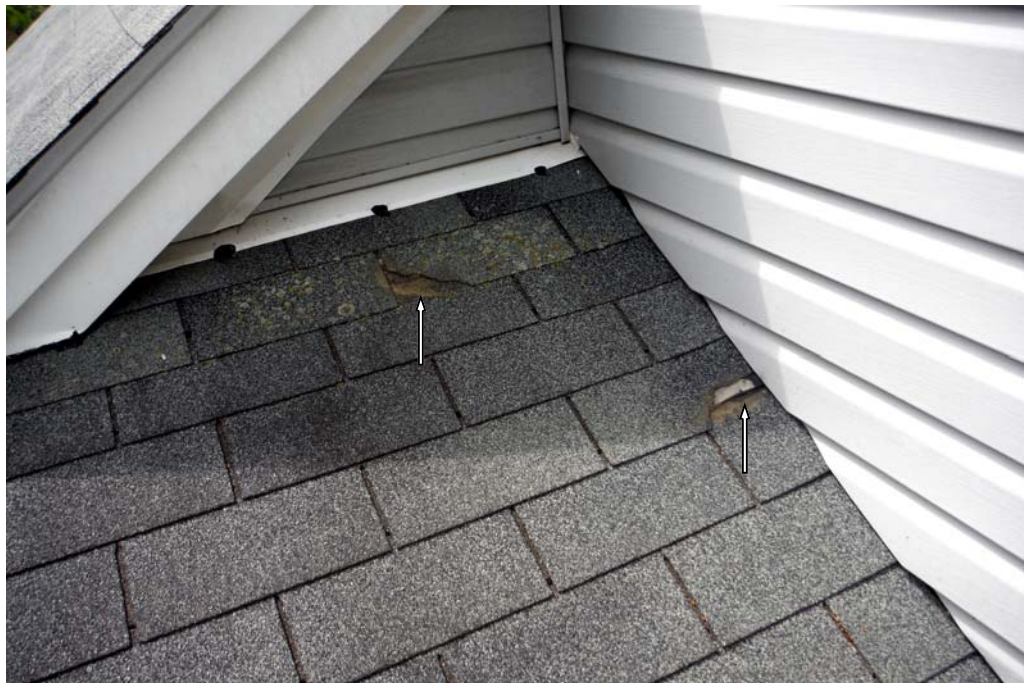
5937-5947 missing siding



5937-5947 Overview of the roof



5960-5970 missing shingles exposing underlayment and drip edge



5960-5970 Damaged shingles