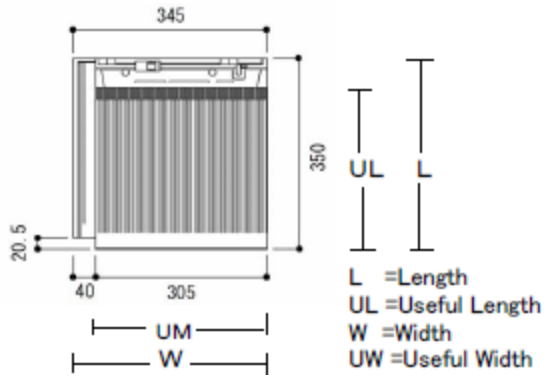
1－1. Dimensional Standard

Table 1

Type	Length		Width		Weight
	Length	Useful Length	Width	Useful Width	(g)
U40-1	350	280	345	305	3600
U40-5	330	300	225	190	3100

Fig.1

Rrequirement of rooftile is 11,7pieces (41Kg) / ㎡.
The number of rooftile is calculated on the basis of useful length and useful width of rooftile.



L =Length
UL =Useful Length
W =Width
UW =Useful Width

1- 2. How to decide the size of roof

1). Pitch of Standard Roof and Maximum Length of Stream Table 2

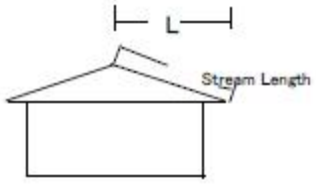
Roof Pitch	Abt. 21°	24°	26°	28°	30°
Max. Length of Stream	8M	10M	12M	15M	17M

TABLE OF PITCH AND ELONGATION RATIO

Pitch			Ratio of slope to horizontal length	Ratio of square hip length	
Fraction	Rise in m/m to 1000 m/m run	Degree		To slope	To horizontal line
12/10	1200 m/m	50° 11' 40"	1.562	1.188	1.855
11/10	1100	47 43 35	1.487	1.206	1.792
10/10	1000	45 0 0	1.414	1.225	1.732
9.5/10	950	43 31 52	1.379	1.235	1.704
9/10	900	41 59 14	1.345	1.246	1.676
8.5/10	850	40 21 52	1.313	1.257	1.650
8/10	800	38 39 35	1.281	1.269	1.625
7.5/10	750	36 52 12	1.250	1.281	1.601
7/10	700	34 59 31	1.221	1.292	1.578
6.5/10	650	33 01 28	1.192	1.305	1.556
6/10	600	30 57 49	1.166	1.317	1.536
5.5/10	550	28 48 39	1.141	1.330	1.517
5/10	500	26 33 54	1.118	1.342	1.500
4.5/10	450	24 13 40	1.097	1.353	1.484
4/10	400	21 48 05	1.077	1.365	1.470
● For the lower pitched roof listed hereunder, the further information is given on request.					
3.5/10	350 m/m	19° 17' 24"	1.060	1.375	1.457
3/10	300	16 41 57	1.044	1.385	1.446
2.5/10	250	14 02 41	1.031	1.393	1.436
2/10	200	11 18 36	1.020	1.400	1.428
1.5/10	150	8 31 51	1.011	1.408	1.423
1/10	100	5 42 38	1.005	1.411	1.418
0.5/10	50	2 51 45	1.0005	1.414	1.415

2). Relation With Pitch and Streem

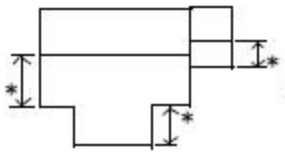
Fig.2



Pitch	Stream
21°	Lx 1. 077
24°	Lx 1. 097
26°	Lx 1. 118
28°	Lx 1. 141

3). How to decide stream dimension

Fig.3

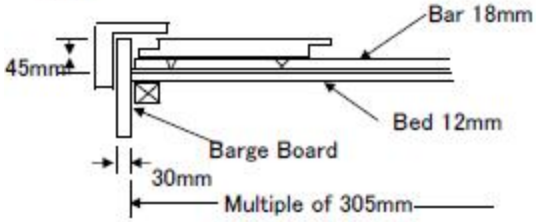


Length of stream is calculeted by multiple of useful length of rooftile as shown Fig.3

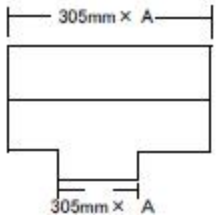
*Multipule of 280 mm

4). How to decide dimension of ridge direction

Fig.4



As shown in Fig.4,theheight of barge board is 45mm from bed and thickness of barge board is approx.30mm



the dimension of ridge direction is sought by multipling number of tile by useful width 305mm, to which barge board thickness (30mm × 2) is added.

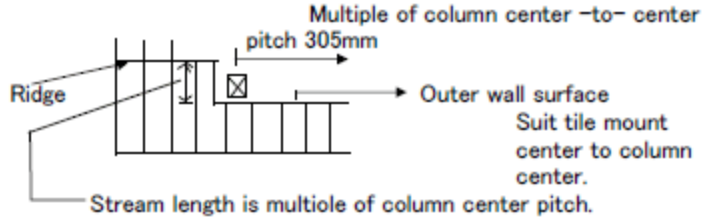
A = Number of Tiles

5). In case wall lies in roof

Stream dimesion is multiple of useful length 280mm ofroof tile from ridge center till the outer wall face.

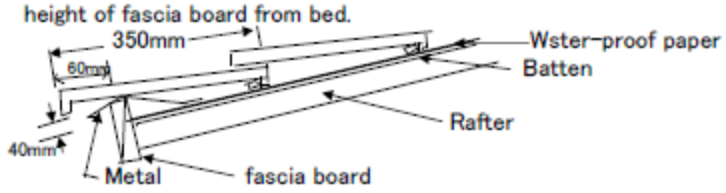
The dimension of ridge direction ought to be accorded to pillar center and rooftile mount center.

Fig.6



1– 3 Eaves

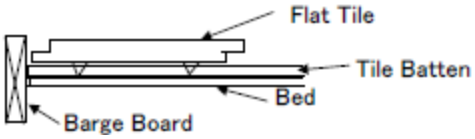
The projection of rooftile from eaves is kept approx. 67mm from the upper end of fascia board, Keep 45mm in the height of fascia board from bed.



1 – 4 Gable

Longitudinal eage of flat tile has to be arranged so as to come to the inside of bargeboard.

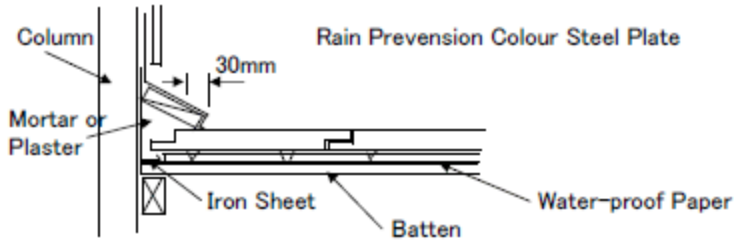
Fig.8



1 – 5 Installation in the portion contacting with wall

1). Installation at the end of eaves
After installation of flat tile , put capping plate with thickness over 30mm , and then fit flashing iron sheet thereon.

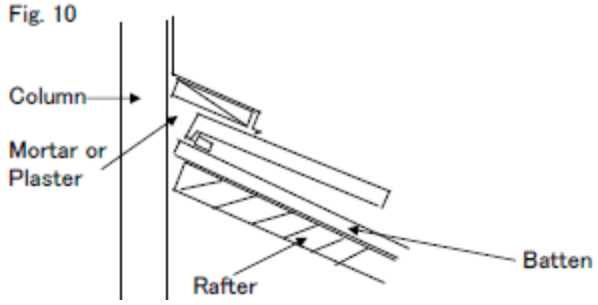
Fig.9



2). After mortaring or plastering , install the plate of wigth 120mm and thickness 30mm . The projection of the plate ought to be kept approx. 30mm from the exterior edge of mortar or plaster.

3). Installation in the portion with wall and ridge direction:
After installation of flat tile , apple mortar or plaster and then put capping plate and flashing iron sheet as shown in Fig.10

Fig. 10



2 – 1. Material

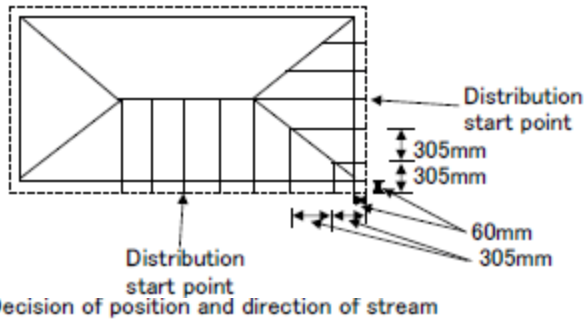
Nail	: Copper , stainless st
Copper Wire	: Above 18# in diameter
Water drip	: Flashing sheet (Color iron sheet above 29# in diameter) , capping sheet , valley rain-water gutter (Copper plate of above 29# in thickness)
Wood	: Above 18mm × 30mm for special purpose tile Above 18mm × 40mm for special purpose tile
Others	: Water-proof paper if necessary

Sweep roof clean lest wooden chip or projecting material like nail should remain on roof bed.

2 – 2 . Distribution of rooftile

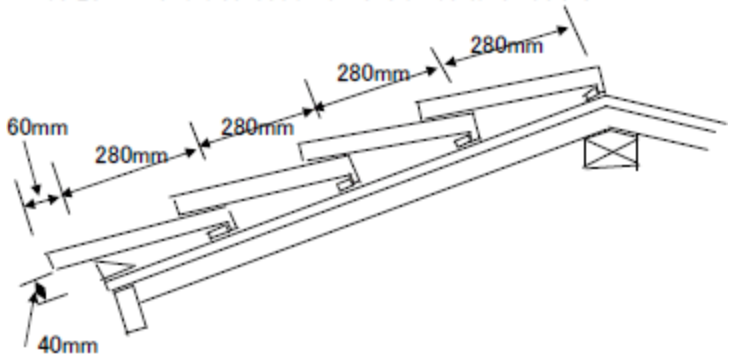
a) Distribution of rooftile on roof shall be made from distribution start line to right and left so as to be symmetrical at corner portion .

Fig.11



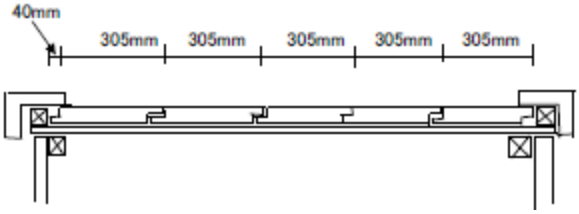
b) Decision of position and direction of stream

The distance from fascia board end to eaves` end shall be 280mm and distribution dimension be taken at the



C) Eave`s direction

Fig.13



d) How to fix bar :

Use nail 65mm to fix bar for every rafter. The joint of fascia board shall be at the central portion of rafter.

e) How to roof flat tile :

Strike nail to the direction of center of bar for each one (1) sheet in eaves and gable and every third sheet for flat rooftile.
In the place of steep slope and strong wind blowing, Strike nail for every sheet.

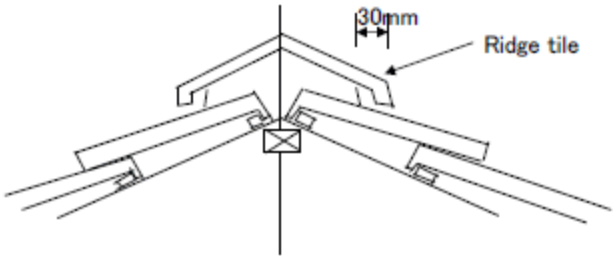
f) How to roof gable :

Install gable tile from gable corner tile to ridge direction in gradual and fix each tile by each two (2) nails. The length of nail shall be 75mm. Use nail made by copper or stainless steel-made.

g) How to roof ridge tile :

Ridge tile shall be fixed by cooper wire (18#) with height of more than 30mm from ridge piece. Care should be paid especially for centering and horizon in stailation of ridge tile.

Fig.14

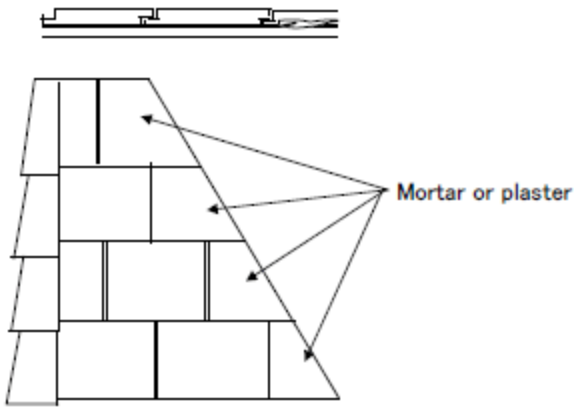


Draw in mortar or plaster for ridge tile by 30mm from outer edge of each ridge tile.

h) How to roof tiles at the place of hip :

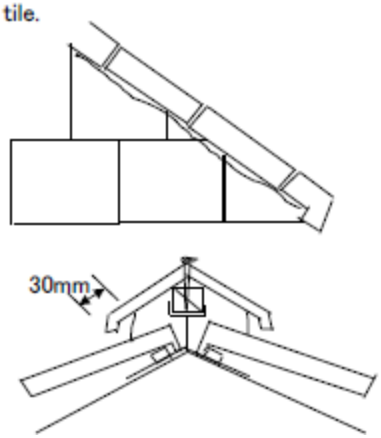
Flat tile in the left side of hip needs bed levelling.

Fig.15



Mortar or plaster shall be drawn in 30mm from outer edge of ridge tile.

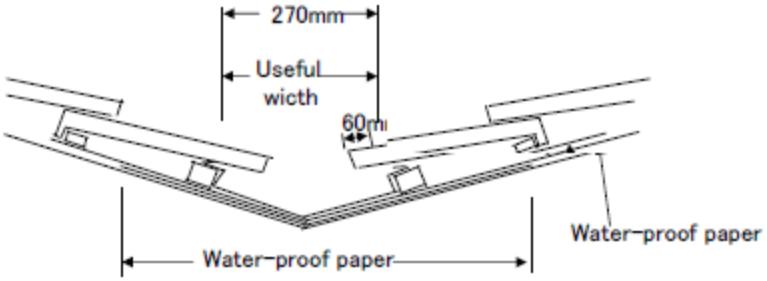
Fig.16

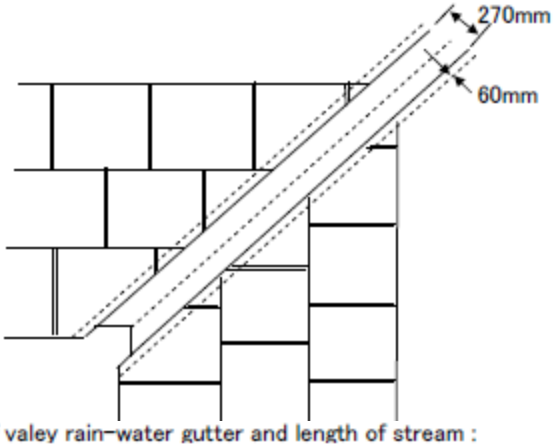


1) How to install valley portion :

Use copper plate or stainless stemade rain-water gutter for valley

Fig.17





2) Width of valey rain-water gutter and length of stream :

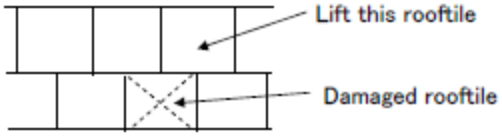
Width of Valley Rain-water Gutter			Length of Valley Rain-water gutter for Every Pitch	
Plate Width (Abt.)	Overall Width	Effective Width	Pitch 20°	Pitch 25°
360mm	290mm	140mm	4.7 M	6.4 M
390mm	320mm	170mm	8.1 M	10.2 M
450mm	280mm	230mm		16.2 M

3. The Other

3 - 1. Replacement of Damaged Rooftiles

a) Lift the rooftile over-and-right neighbouring t tile and support it with hammer and the like.

Fig.18



b) Remove damaged rooftile after drawing out nail.

c) Install new rooftile to fix it with nail.

d) Restore rooftile lited.

3 – 2. Ageing of Roof.

a) In installing scaffold on roof , it must be always conducted only after completion of ageing for tile roofing place .

b) Whenever leadder is placed to eaves tile , put there between wooden plate of more than 20mm in thickness so as not to damage roofing tiles .

c) When scaffold is set on roof for outside wall of the second floor , put wooden plate of more then 30mm in thickness removed from the roof ,

3 – 3, Safety Work

a) Strictly keep putting on helmet for safety work and use safety scaffold and metalic tool in making work .

b) Once rooftile gets wet in the rain , it is apt to be easily slip .

c) Care should be also paid for slip of powder produced at the time of cutting operation of cutter .

d) Handling of wheel cutter should be carefully conducted since it is dangerous . Be careful lest wire should be cut .

e) Always take reserve for ladder .

f) Always take reserve for ladder .

g) Build up a habit of putting on helmet for safety work .

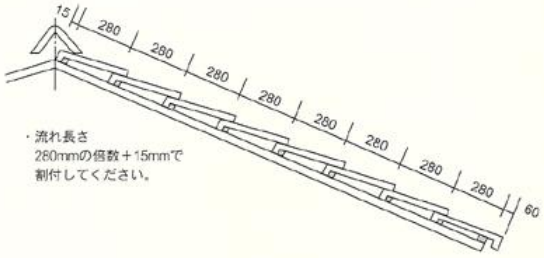
■仕様（寸法許容差±4mm）

全　長	350mm
全　幅	350mm
働き長	280mm
働き幅	305mm
重　量	約3.6kg
m²当りの必要枚数	11.7枚/m²
m²当りの重量	42.1kg/m²

■標準屋根勾配とその流れ長さ

標準屋根勾配	4.0/10	4.5/10	5.0/10	5.5/10	6.0/10
その流れ長さ	8m	10m	12m	15m	17m

■地割

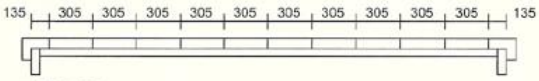


・流れ長さ
260mmの倍数＋15mmで
割付してください。

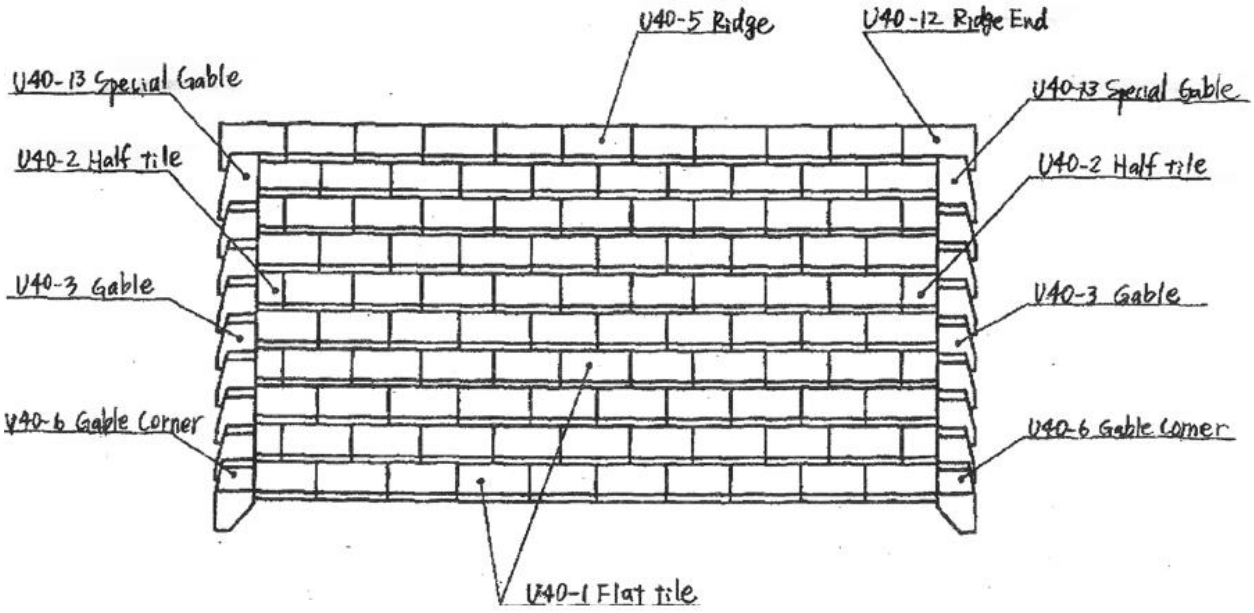
破風瓦使用の時

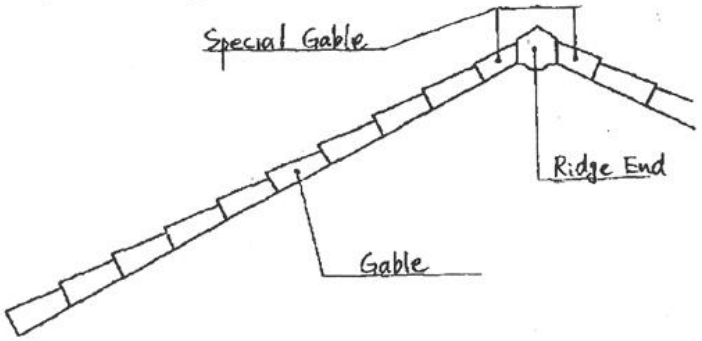
・桁行の長さ
305mmの倍数で割付してください。（破風板内々寸法）
※アンダーラップ（45mm）はカットしてください。（左破風部桟瓦）

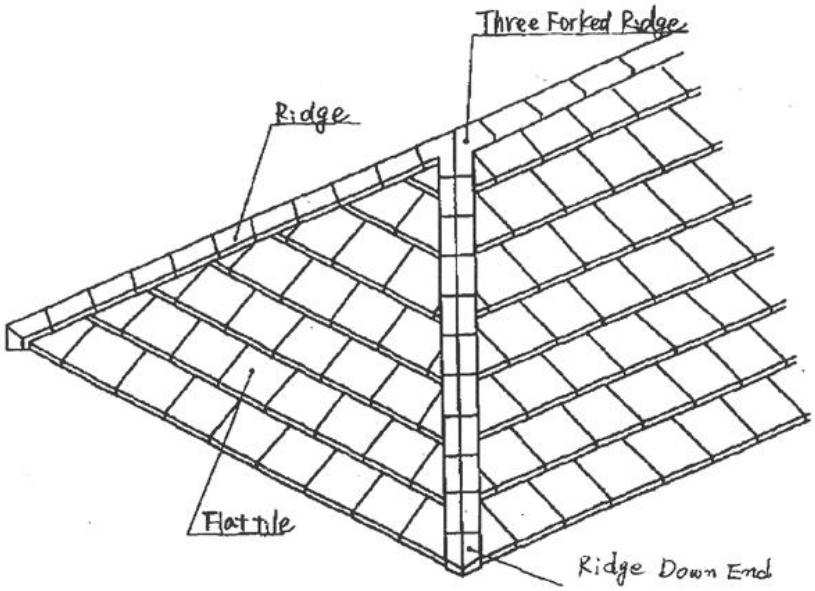
袖瓦使用の時



・桁行の長さ
305mmの倍数＋270mmで割付してください。（破風板外々寸法）

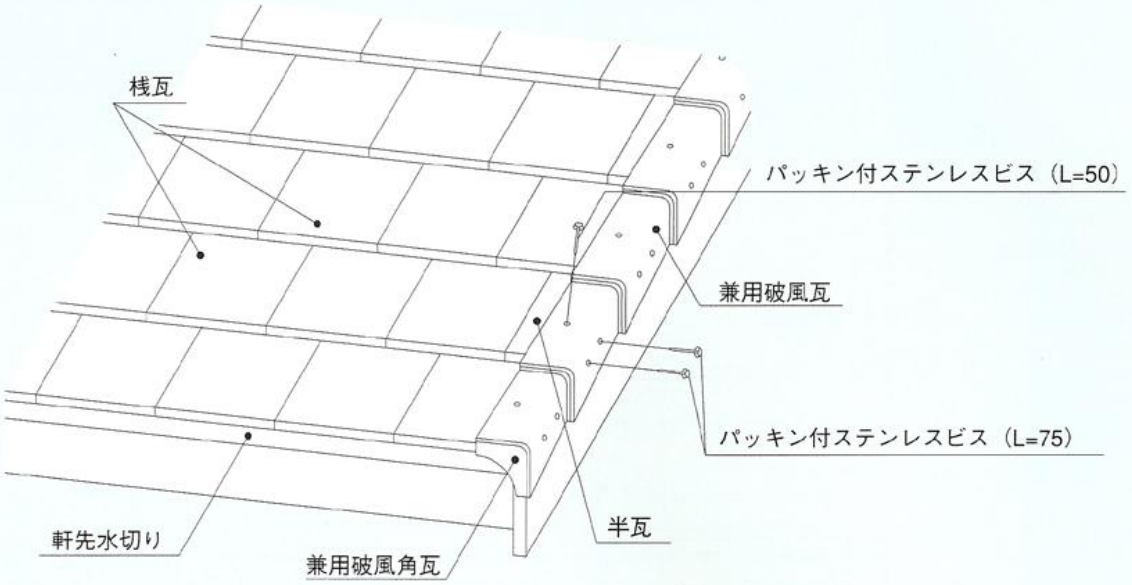

U40-5 Ridge
U40-12 Ridge End
U40-13 Special Gable
U40-13 Special Gable
U40-2 Half tile
U40-2 Half tile
U40-3 Gable
U40-3 Gable
U40-6 Gable Corner
U40-6 Gable Corner
U40-1 Flat tile


Special Gable
Ridge End
Gable

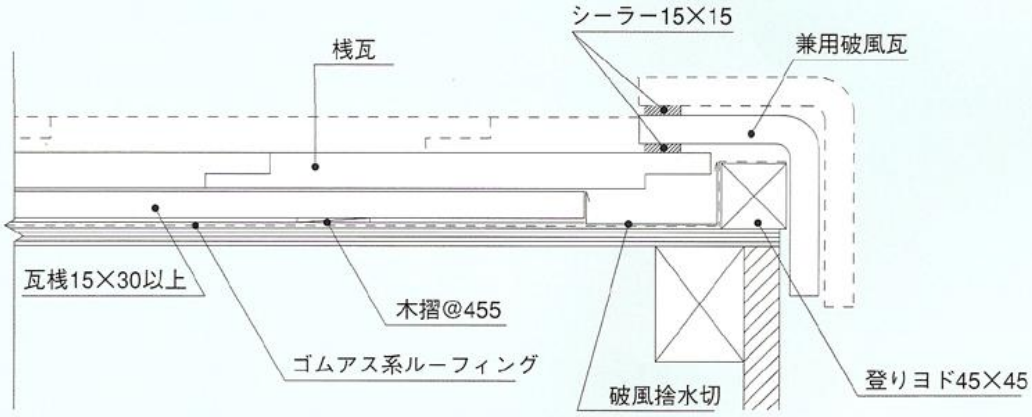

Three Forked Ridge
Ridge
Flat tile
Ridge Down End

4 破風瓦

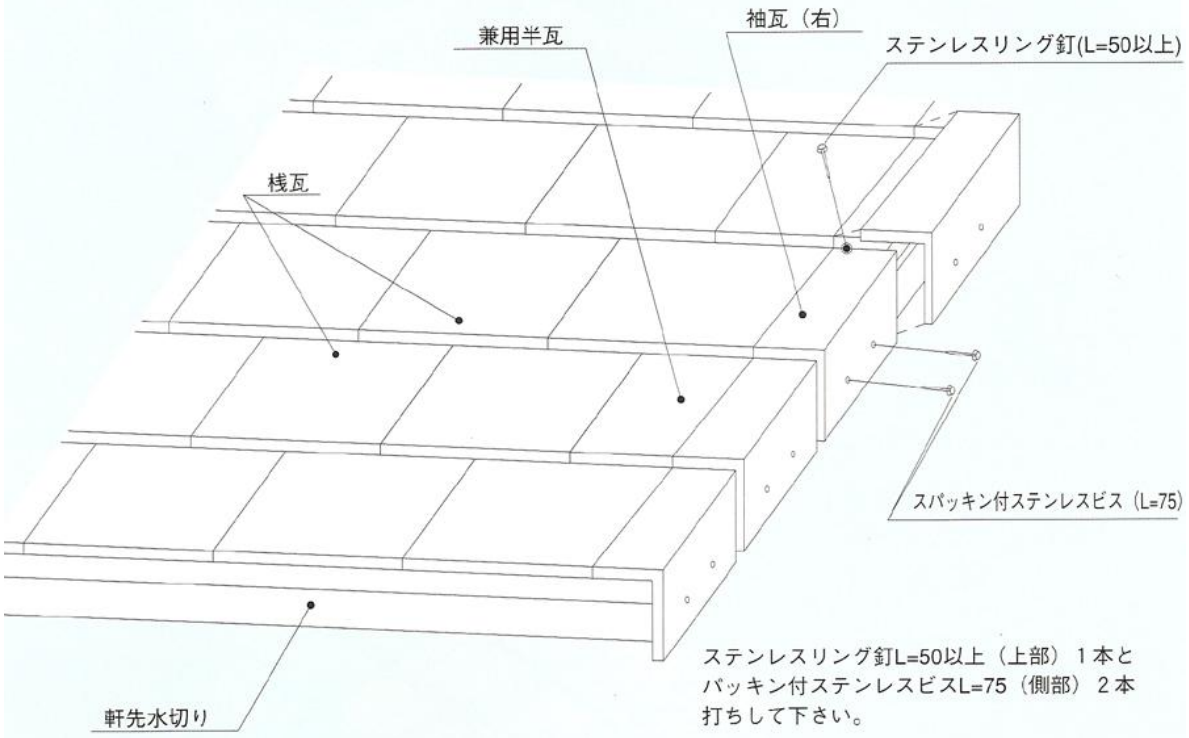
（アーバン40・フレンチ40・ウェーブ40の兼用破風瓦納め）

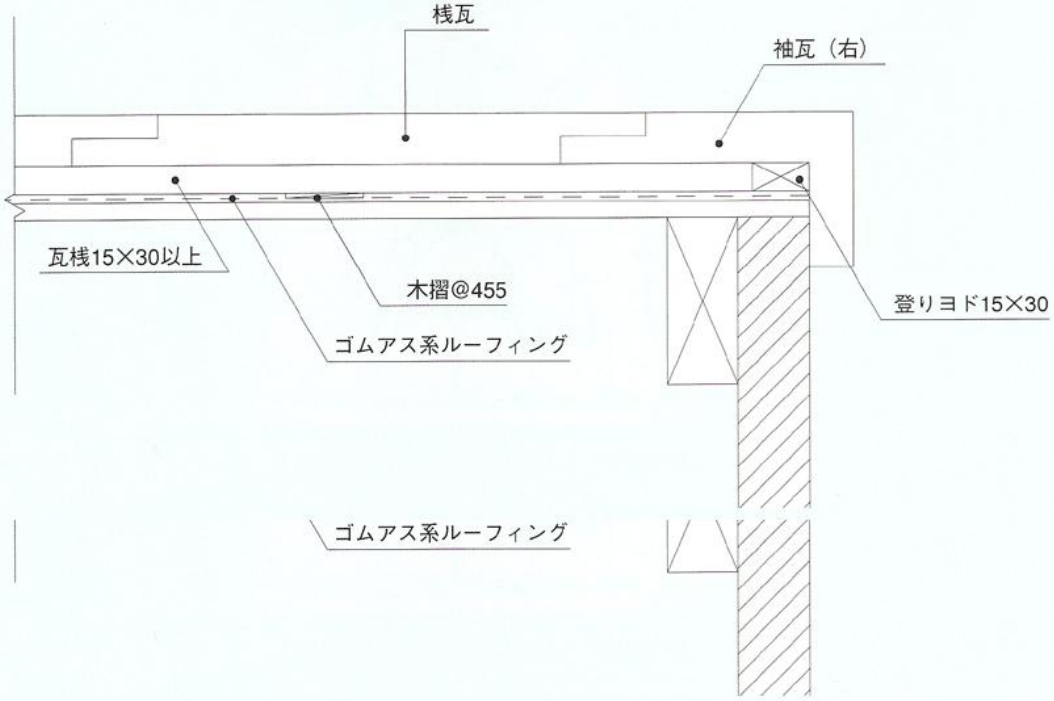


・破風瓦、破風角瓦の緊結はパッキン付ステンレスビスで３ヶ所を留め付けて下さい。
・桟瓦、半瓦と破風瓦、破風角瓦の間にシーラー１５×１５を貼り付けて下さい。
・破風捨水切は標準施工として取付けて下さい。

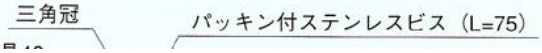


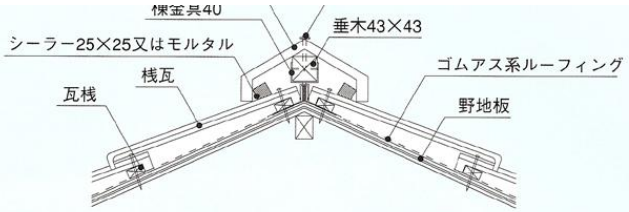
5 袖瓦
（アーバン40の袖瓦納め）※オプション





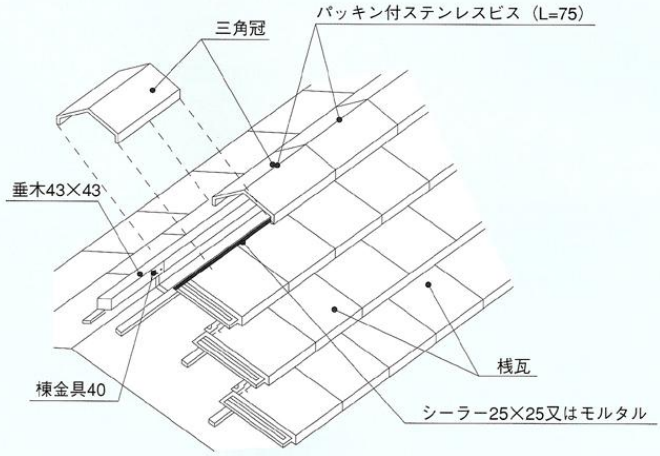
6 棟　瓦（アーバン40…三角冠）



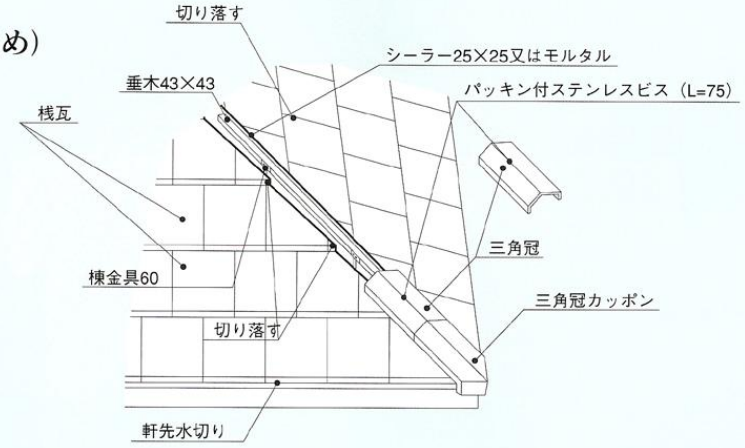


・棟金具を600mm内外の間隔で野地に固定し、垂木を留め付けて棟瓦をパッキン付ステンレスビスで固定してください。
・シーラーを桟瓦に貼り付け止水して下さい。
・半割瓦は釘を2本打ちし、モルタルとコーキングでしっかり固定して下さい。
・棟際に、面戸のし、又は厚のしを使用する場合もあります。

（大棟の納め）

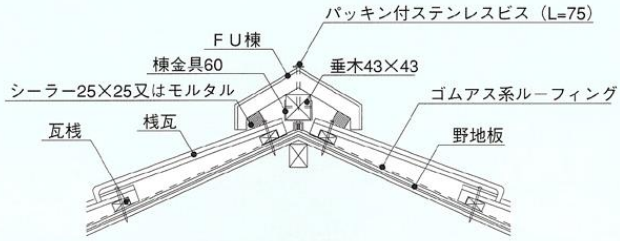


（隅棟の納め）



・瓦桟に釘打ちできない本体小片は、釘又は銅線にて緊結し、モルタルとコーキングでしっかり固定して下さい。

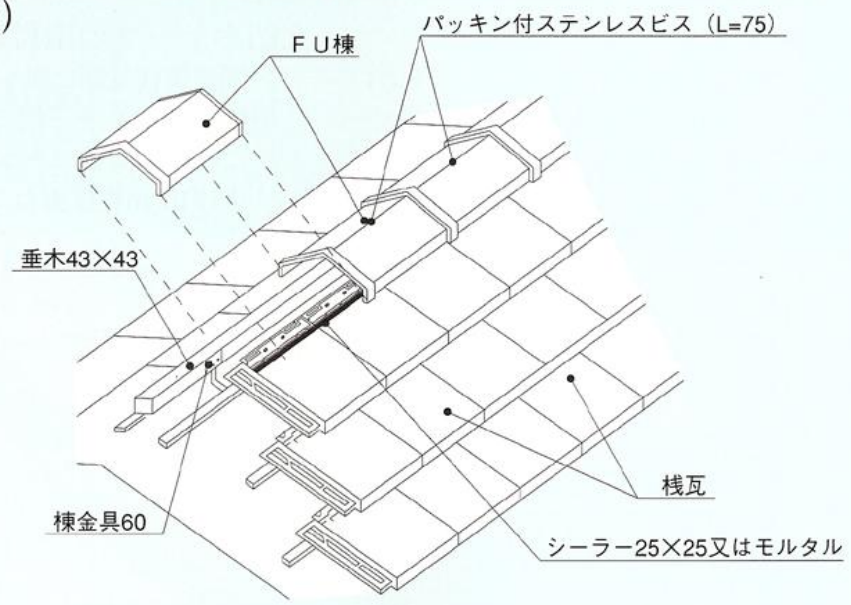
7 棟　瓦（フレンチ40・ウェーブ40…ＦＵ棟）



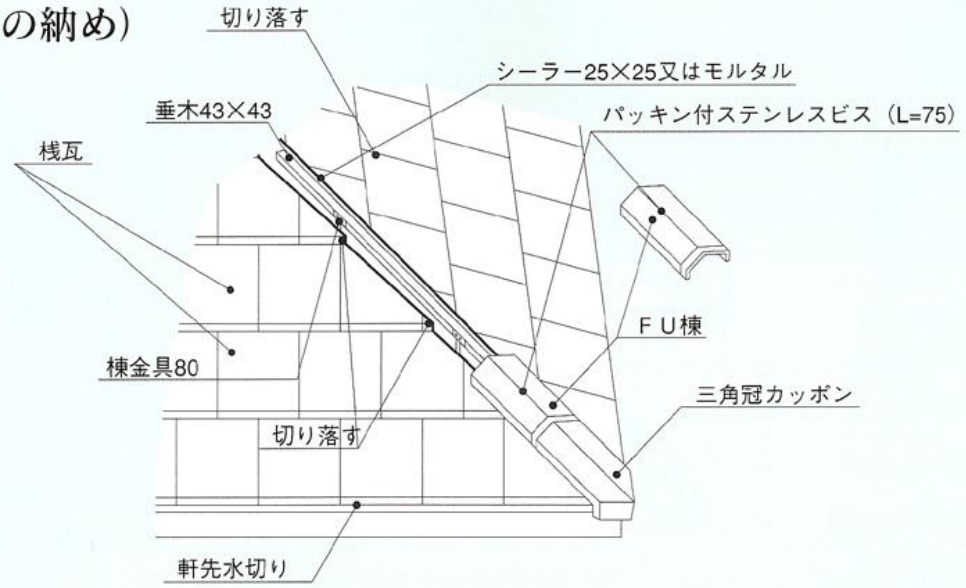
・棟金具を600mm内外の間隔で野地に固定し、垂木を留め付けて棟瓦をパッキン

付ステンレスビスで固定してください。
・シーラーを桟瓦に貼り付け止水して下さい。
・半割瓦は釘を2本打ちし、モルタルとコーキングでしっかり固定して下さい。
・棟際に、面戸のし、又は厚のしを使用する場合もあります。
・FU棟はツバ付き・無がありませんので現場にてカットしてお使い下さい。

(大棟の納め)



(隅棟の納め)



桟瓦に釘打ちできない本体小片は、釘又は銅線にて緊結し、
モルタルとコーキングでしっかり固定して下さい。