

BAB 7

PENUTUP

7.1. Kesimpulan

Kesimpulan yang diperoleh setelah menyelesaikan rangkaian penelitian ini, antara lain:

- a. Berdasarkan hasil penilaian dengan *checklist* 6S sebelum implementasi terdapat 28 dari 40 kegiatan yang ada memerlukan usulan perbaikan.
- b. Setelah implementasi, hasil penilaian *checklist* 6S mengalami kenaikan rata-rata skor menjadi di atas 3 pada setiap pilarnya. Pilar Sort memperoleh rata-rata skor 3,0, pilar Set in Order memperoleh rata-rata skor 3,3, pilar Shine memperoleh rata-rata skor 3,2, pilar Standardize memperoleh rata-rata skor 3,2, pilar Sustain memperoleh rata-rata skor 3,0 dan pilar Safety memperoleh rata-rata skor 3,2.
- c. Setelah implementasi, rata-rata waktu aktivitas tidak efektif mengalami penurunan di atas 50% pada setiap klasifikasi aktivitasnya. Hasil tersebut sudah memenuhi *critical succes factor* yang ada pada tujuan dari penelitian ini yaitu dapat mengurangi waktu aktivitas tidak efektif setidaknya 50%.
- d. Setelah implementasi juga terdapat pengurangan total jarak pencarian sebanyak 770 cm yang awalnya mencapai 1350 cm menjadi hanya 570 cm.

7.2. Saran

Berikut merupakan saran untuk penelitian selanjutnya berdasarkan keterbatasan dan kekurangan penelitian ini, yaitu:

- a. Identifikasi *hazard* perlu dilakukan lebih detail terkait kecelakaan kerja yang pernah terjadi di area kerja Bengkel dengan menggunakan metode tertentu agar mengetahui tingkat resiko dan cara penanggulangan resiko yang lebih tepat.
- b. Pada pengukuran data aktivitas tidak efektif belum mempertimbangkan detail tambahan terkait aktivitas servis yang dilakukan, tipe motor yang diservis atau dari segi jumlah motornya dalam pengambilan datanya, sehingga penelitian selanjutnya sebaiknya dapat mempertimbangkan hal tersebut agar mendapat hasil pengukuran yang lebih akurat.

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LAMPIRAN

Lampiran 1. Template Checklist 6S MacAdam (2010) dalam Bahasa Inggris

6S AUDIT CHECKLIST

AREA:							DATE:
	SORT	SET IN ORDER	SHINE	STANDARDIZE	SUSTAIN	SAFETY	TOTAL
Total Score	0	0	0	0	0	0	0
# of Questions	0	0	0	0	0	0	0
Average Score	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

SCORING GUIDELINES

0 ZERO EFFORT	1 SLIGHT EFFORT	2 MODERATE EFFORT	3 MINIMUM ACCEPTABLE LEVEL	3.5 (4) ABOVE AVERAGE RESULTS (3 AUDITS)	4.5 (5) OUTSTANDING RESULTS (6 AUDITS)
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SORT ACTIVITY DESCRIPTIONS	SCORE
1) Only the required spare parts, materials, WIP, etc. are present at the workstation. Items not required to make the current product are removed from the workplace.	
2) Only the required tools are present at the workstation. Items not required to make the current product are removed from the workplace.	
3) Only the required paperwork is present at the workstation. Out-dated or otherwise unnecessary posters, memos, announcements, reports, etc. are removed from the workplace.	
4) Only the required equipment is present at the workstation. All obsolete, broken or unnecessary equipment, shelves, lockers, workbenches, etc. not required to make the current product is removed from the workplace.	
5) Only the required furniture is present at the workstation. All broken or unnecessary chairs, shelves, lockers, workbenches, etc. not required to make the current product is removed from the workplace.	

SET IN ORDER ACTIVITY DESCRIPTIONS	SCORE
6) Locations for containers, boxes, bins, WIP, materials, etc. is clearly defined by painted lines and properly labeled (part number, quantity, etc.).	
7) Tools have a designated storage location that is within reach of the operator. The location is properly labeled and tools can easily be identified if absent.	
8) Paperwork is properly labeled and has a clearly defined and labeled location that is visible to the operators and away from work surfaces.	
9) Equipment is clearly identified (numbered, named, color coded, etc.) and placed in a properly identified location. Critical maintenance points are clearly marked.	
10) Furniture is clearly identified (numbered, named, color coded, etc.) and placed in a properly identified location.	

SHINE ACTIVITY DESCRIPTIONS	SCORE
11) Containers, boxes, bins, etc. are clean and not cracked, torn, or otherwise damaged. They are neatly stacked.	
12) Tools are kept clean and in good working order. Where possible, tools are stored in a manner to keep them clean and free from risk of damage.	
13) Paperwork is not torn, kept clean and protected from dirt.	
14) Work surfaces (machines, workbenches, dies, and other equipment including electrical boxes) are clean and painted.	
15) Floors are free from dirt, debris, oil, parts, hardware, empty boxes, packaging material, etc. Drains (if required) are properly located and unclogged.	
16) Walls, partitions, railings, etc. are painted and kept clean.	
17) There is a schedule showing times, frequency and responsibilities to clean areas of the workplace such as windows, corners, walls, doors, top of cabinets, etc.	
18) All cleaning equipment is neatly stored and is readily available when needed.	

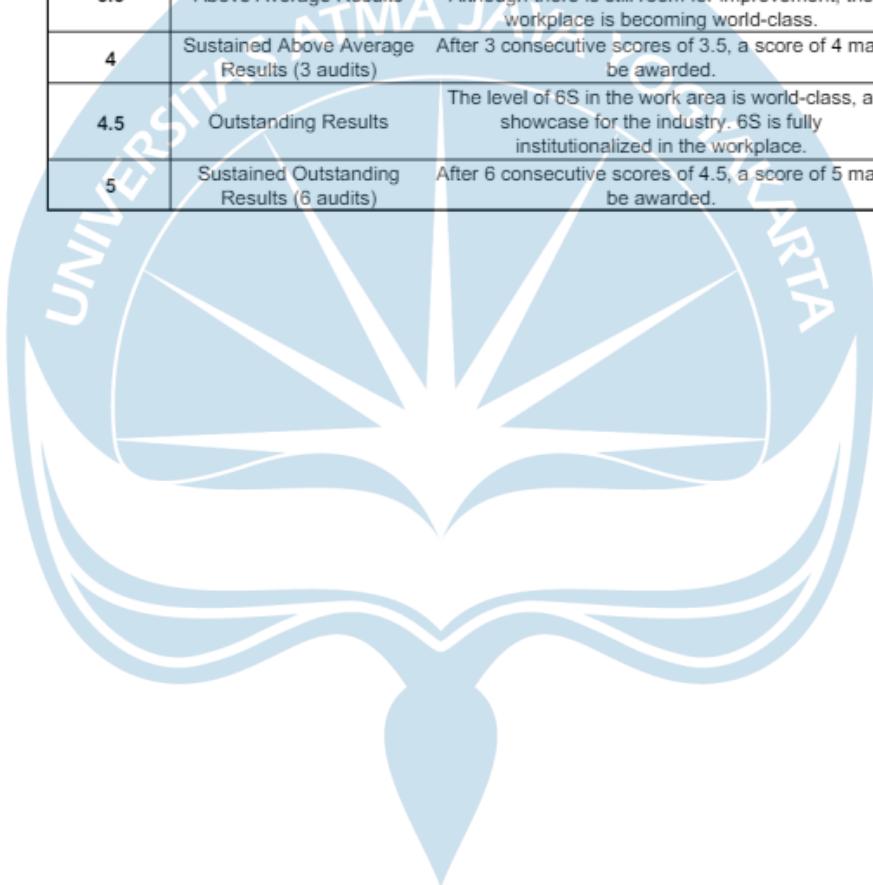
6S AUDIT CHECKLIST

SCORING GUIDELINES					
0 ZERO EFFORT	1 SLIGHT EFFORT	2 MODERATE EFFORT	3 MINIMUM ACCEPTABLE LEVEL	3.5 (4) ABOVE AVERAGE RESULTS (3 AUDITS)	4.5 (5) OUTSTANDING RESULTS (6 AUDITS)
STANDARDIZE ACTIVITY DESCRIPTIONS					SCORE
19) Tools, equipment, paperwork, furniture, etc. are stored neatly in designated areas and are returned immediately after each use.					
20) Documents are labeled clearly as to contents and responsibility for control and revision. The date and revision number are clearly visible.					
21) Equipment maintenance records are visible and clearly state when maintenance last occurred and when next maintenance is scheduled.					
22) Product waste (e.g. shavings, containers, liquids, wrappers, etc.) is consistently and often cleaned up and removed from the workplace.					
23) Preventive measures have been implemented to ensure the workplace meets 6S guidelines (e.g. systems that do not allow waste to accumulate such as containers to collect product debris from machines).					
24) The results of the previous audit are posted and clearly visible to the entire team.					
25) Areas for improvement identified during the previous audit have been completed.					
SUSTAIN ACTIVITY DESCRIPTIONS					SCORE
26) A member of Management has participated in a 6S activity such as an audit or other activity within the past 3 audit periods.					
27) Recognition is given to teams who get involved in 6S activities.					
28) Time and resources are allocated to 6S activities (e.g. designated daily/weekly clean-up time, 6S team leader, etc.).					
29) All operators, team leaders, supervisors, etc. are assigned 6S activities to be completed at least once/week.					
30) The team took the initiative to make improvements to the workplace that were not identified during the last 6S audit.					
SAFETY ACTIVITY DESCRIPTIONS					SCORE
31) Work areas requiring personal protective equipment are clearly labeled.					
32) All personal protective equipment is maintained in sanitary and reliable condition and is properly stored in an easily accessible and labeled location when not in use.					
33) Fire hoses, fire extinguishers, and other emergency equipment are prominently displayed and are unobstructed.					
34) Equipment safety concerns are clearly identified. Safety guards are painted, in good working condition and provide adequate protection.					
35) Stop switches and breakers are highly visible and located for easy access in case of emergency.					
36) Tripping dangers such as electrical cables, etc. are removed from standing/walking areas.					
37) Working conditions are ergonomically friendly. Tools are stored at appropriate heights, lift assist devices are provided where necessary, etc.					
38) The work environment satisfies the requirements of the work being performed. Lighting (brightness and color), air quality, temperature, etc.					
39) The workplace layout accommodates easy exit in case of emergency.					
40) Walkways and vehicle paths are clearly identified and unobstructed. Exits are clearly labeled and unobstructed.					

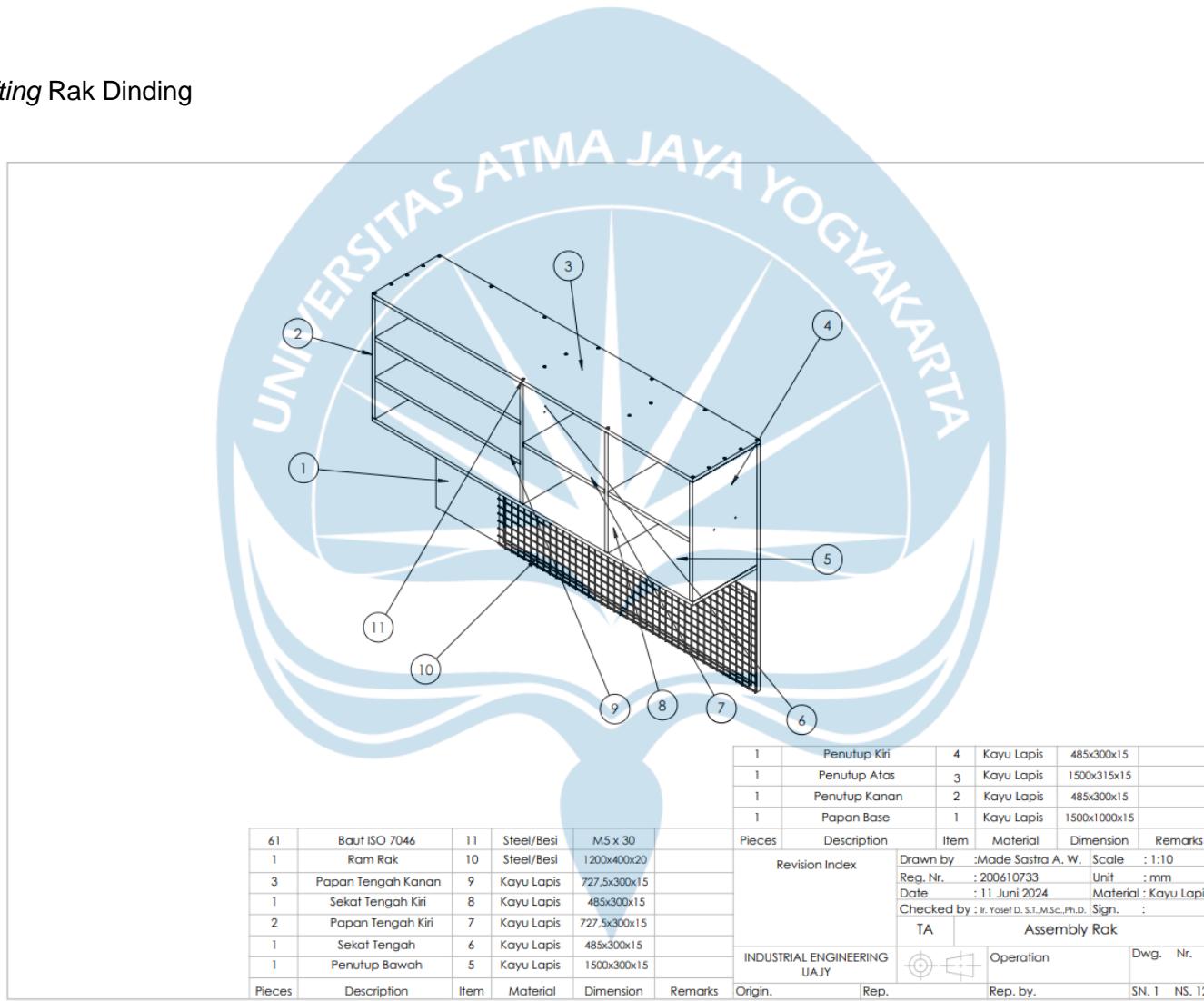
Lampiran 2. Pedoman Penilaian *Checklist 6S* Todd Adam dalam Bahasa Inggris

6S Scoring Guidelines

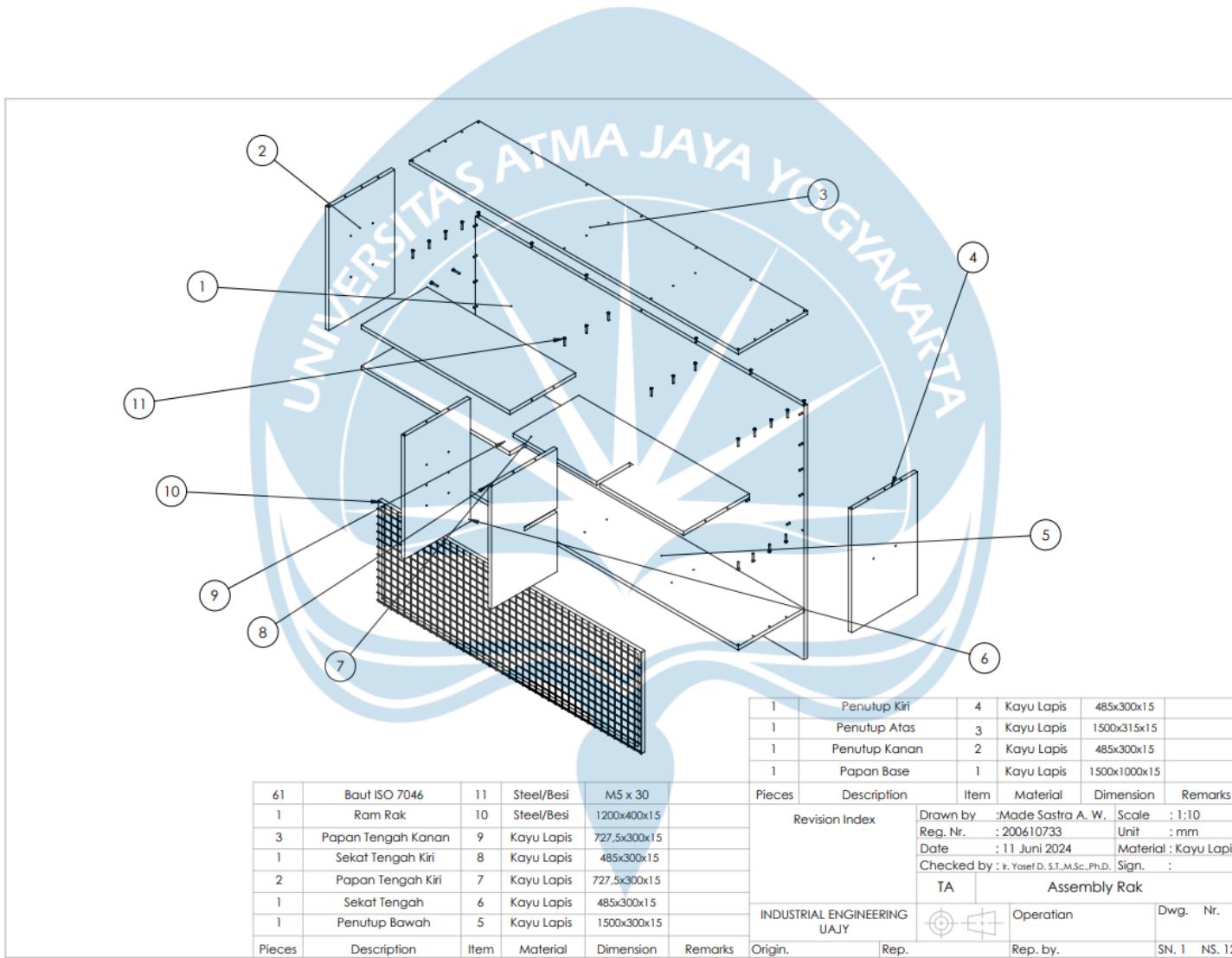
SCORE	CATEGORY	DESCRIPTION
0	Zero Effort	There has been no 6S activity in this work area related to this criteria.
1	Slight Effort	Any 6S effort is probably the work of 1-2 people. There is no organized effort and plenty of opportunity for improvement.
2	Moderate Effort	Some attempts have been made to implement 6S, but efforts are temporary and/or superficial.
3	Minimum Acceptable Level	The entire team is working on improving their 6S implementation. Previous improvements are becoming standardized.
3.5	Above Average Results	The level of 6S in the work area is excellent. Although there is still room for improvement, the workplace is becoming world-class.
4	Sustained Above Average Results (3 audits)	After 3 consecutive scores of 3.5, a score of 4 may be awarded.
4.5	Outstanding Results	The level of 6S in the work area is world-class, a showcase for the industry. 6S is fully institutionalized in the workplace.
5	Sustained Outstanding Results (6 audits)	After 6 consecutive scores of 4.5, a score of 5 may be awarded.



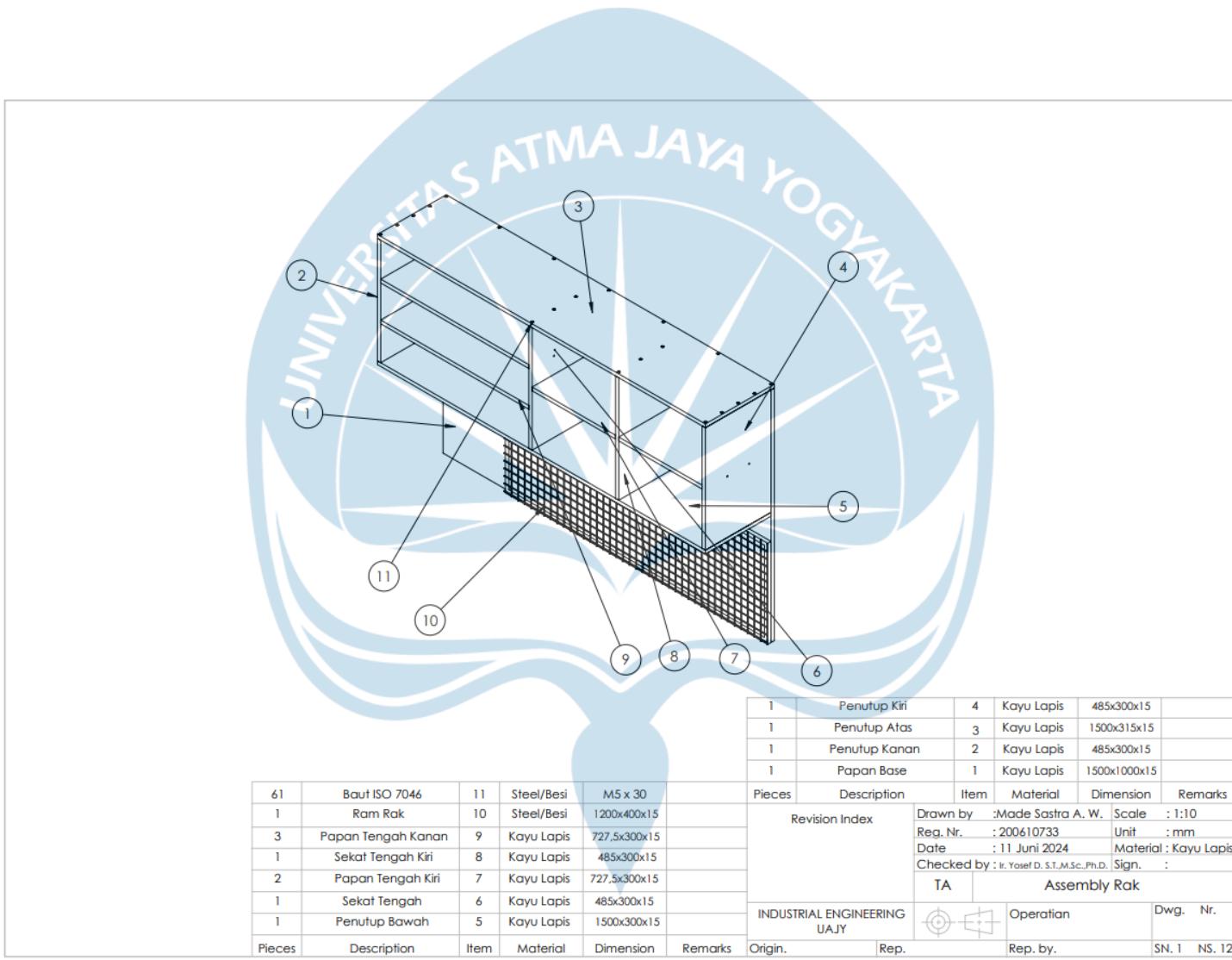
Lampiran 3. *Drafting Rak Dinding*



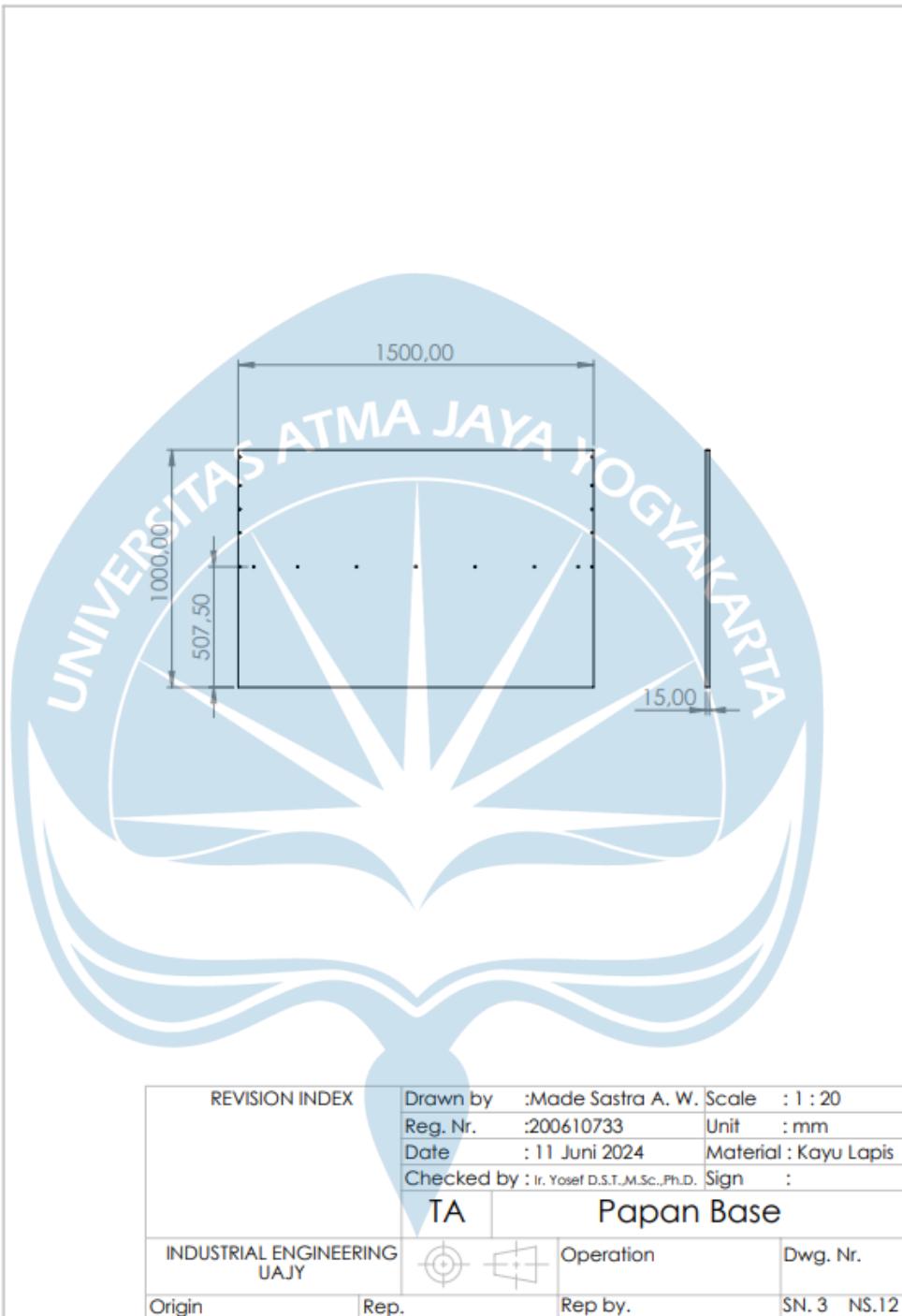
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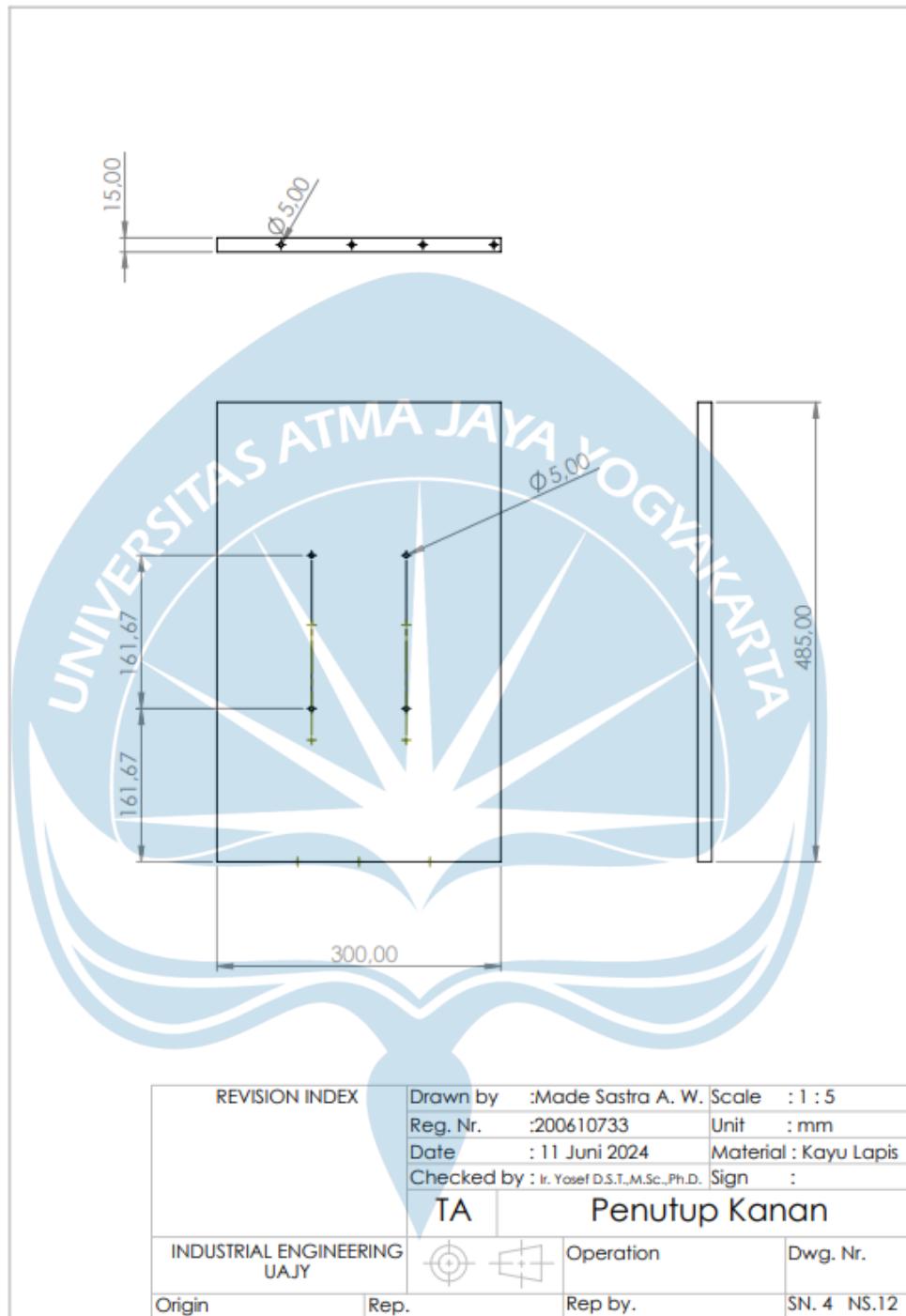
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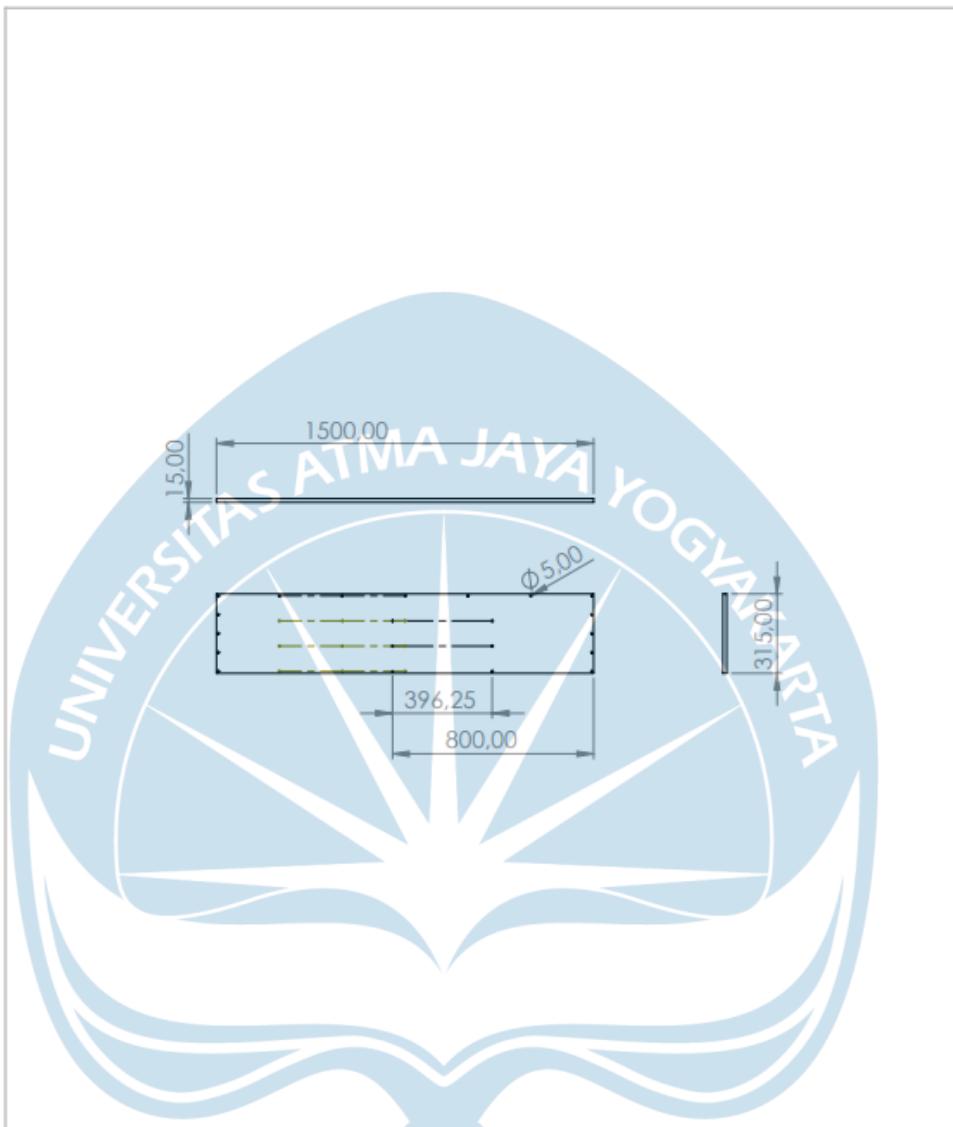
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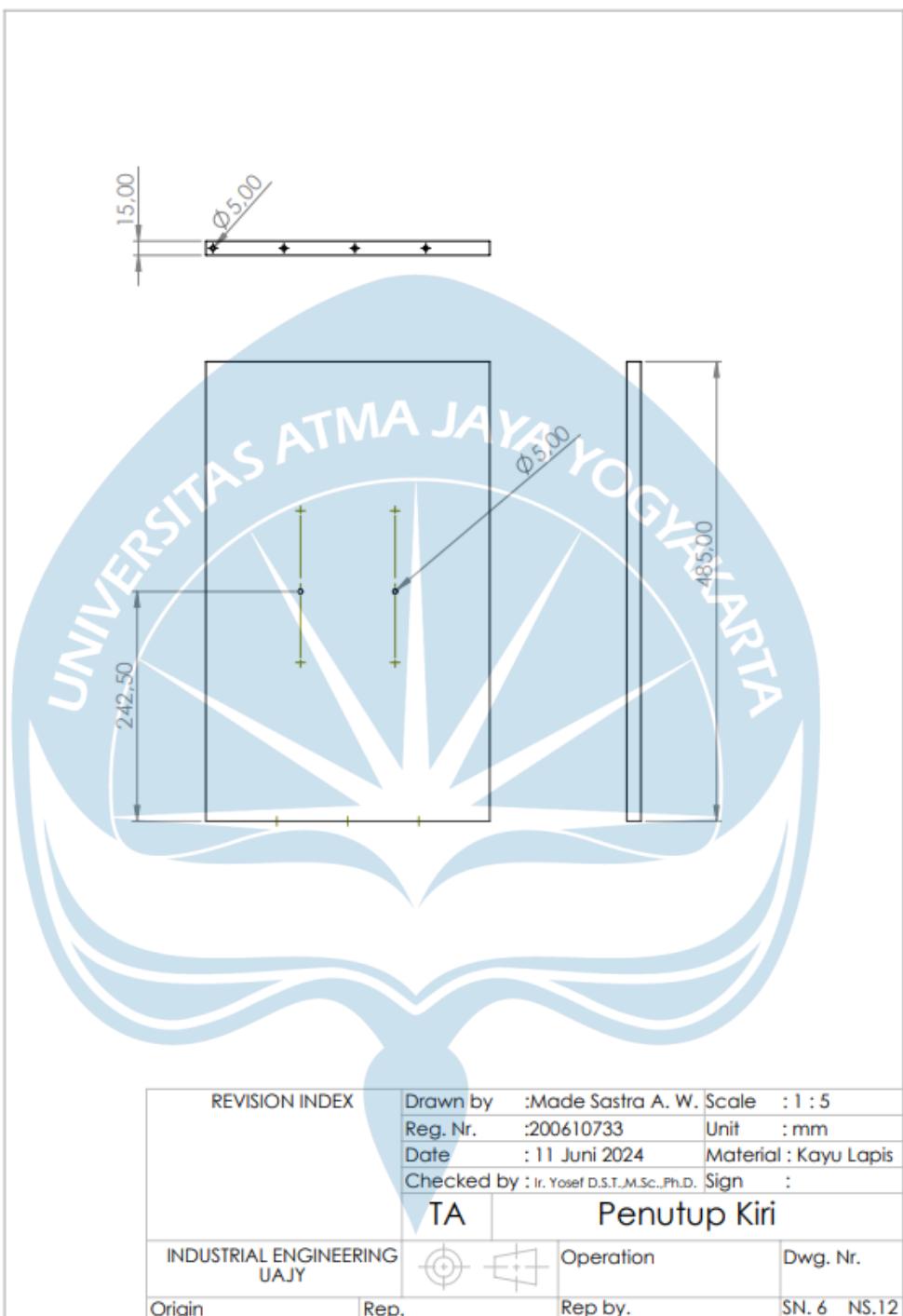


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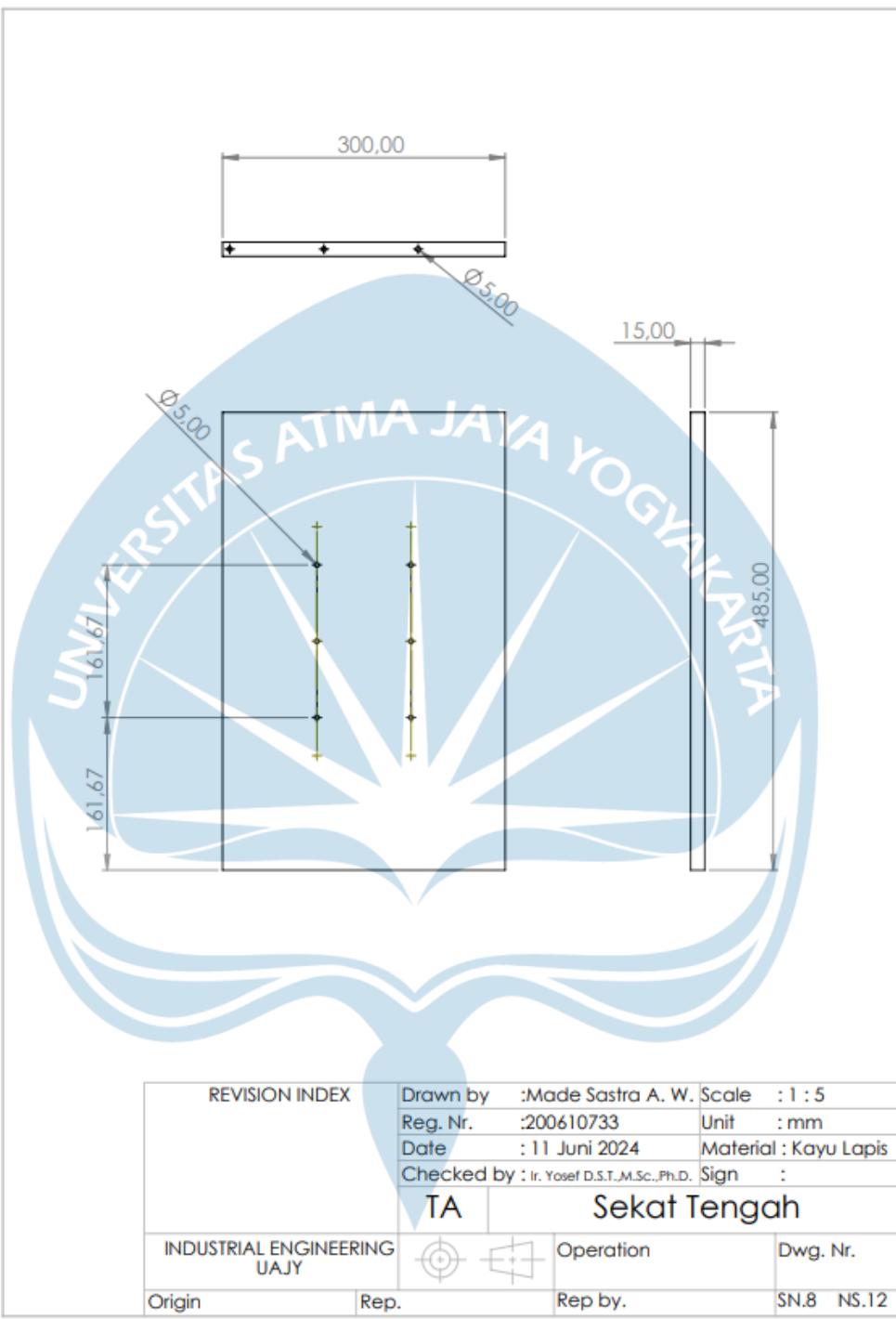


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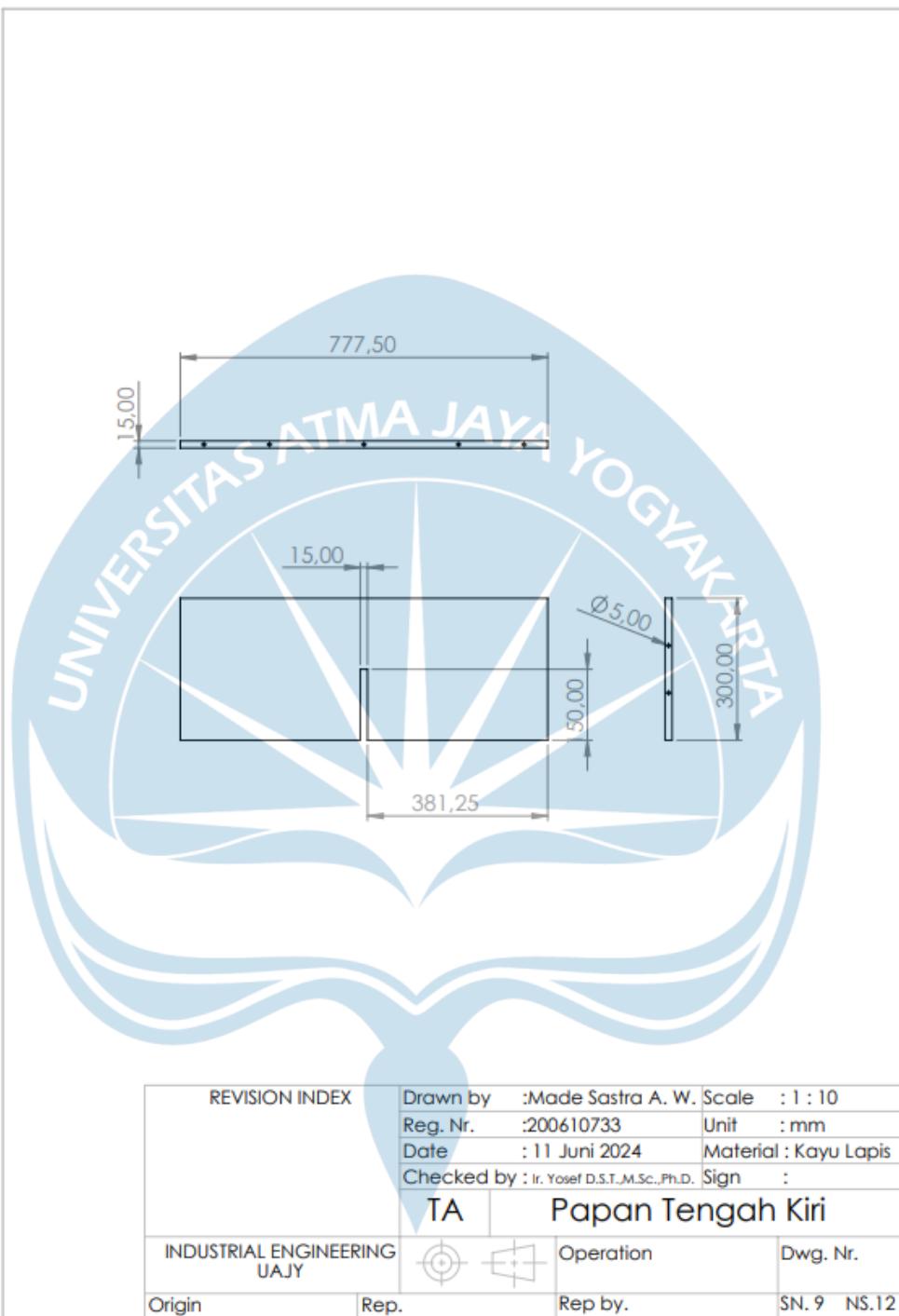


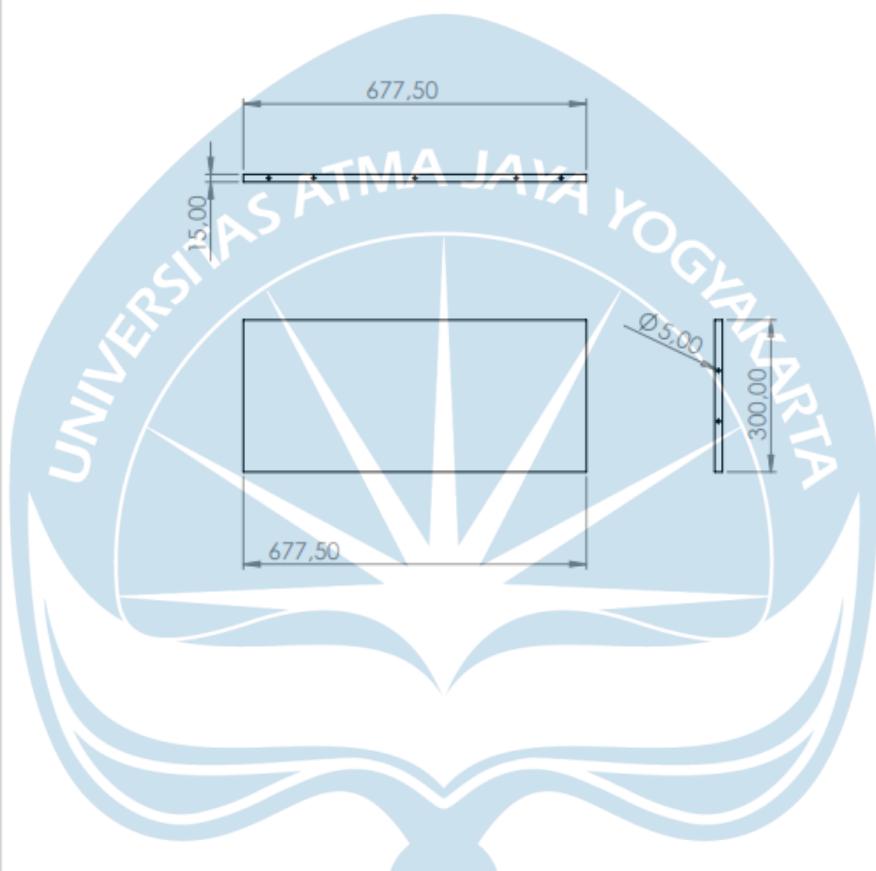
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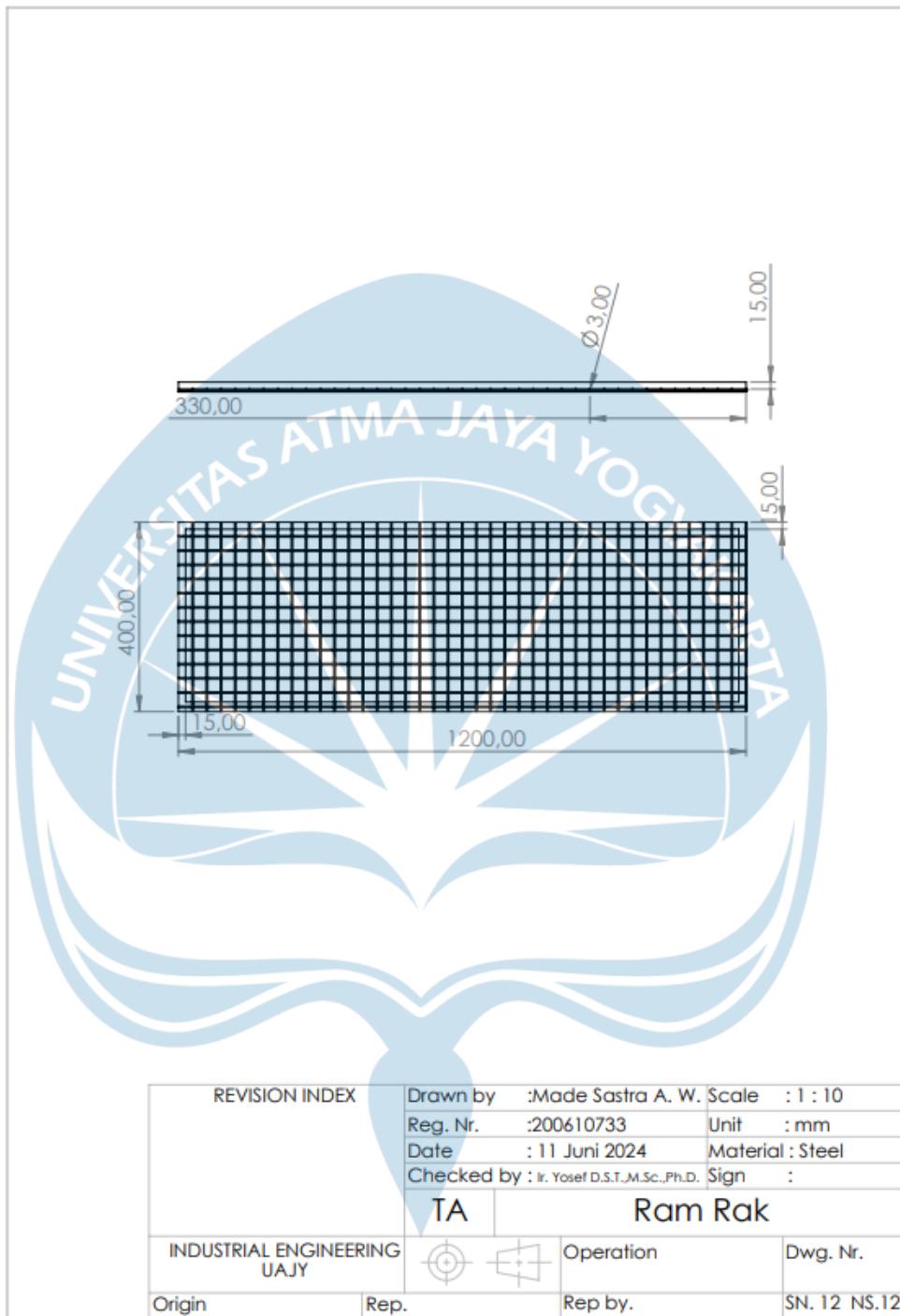
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Lampiran 4. Hasil Turnitin

